ATTACHMENTS

ORDINARY COUNCIL

Wednesday 19 June 2019

PORT MACQUARIE HASTINGS COUNCIL

Ordinary Council Meeting
Wednesday, 19 June 2019

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1 Leadership and Governance

19/06/2019

What we are trying to achieve

A community that works together in decision making that is defined as ethically, socially and environmentally responsible.

What the result will be

We will have:

- A community that has the opportunity to be involved in decision making
- Open, easy, meaningful, regular and diverse communication between the community and decision makers
- Partnerships and collaborative projects, that meet the community's expectations, needs and challenges
- Knowledgeable, skilled and connected community leaders
- Strong corporate management that is transparent

How we will get there

1.1 Inform and engage with the community about what Council does using varied communication channels
1.2 Maintain strong partnerships between all stakeholders - local, state and federal — so that they are affective advocates for the community
1.3 Demonstrate leadership
1.4 Use innovative, efficient and sustainable practices
1.5 Ensure strong corporate and financial management that is transparent and accountable

CODE OF MEETING PRACTICE

PORT MACQUARIE-HASTINGS COUNCIL

June 2019

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1 INTRODUCTION

This Code of Meeting Practice is made under section 360 of the *Local Government Act 1993* (the Act) and the *Local Government (General) Regulation 2005* (the Regulation).

This Code incorporates:

- the mandatory provisions of the Model Code of Meeting Practice prescribed by the Regulation on 14 December 2018 (Model Code),
- some non-mandatory provisions of the Model Code, and
- supplementary provisions prepared by the council, which must not be inconsistent with the mandatory provisions of the Model Code.

In this Code:

- the mandatory provisions are written in black font,
- the non-mandatory provisions are written in red font,
- the Council's supplementary provisions are written in green font.

This code and all its provisions applies to all meetings of Port Macquarie-Hastings Council (Council) and committees of the council of which all the members are councillors.

The Council and such committees must conduct meetings in accordance with this Code.

Council committees whose members include persons other than councillors may adopt their own rules for meetings unless the council determines otherwise.

2 MEETING PRINCIPLES

2.1 Council and committee meetings should be:

Transparent: Decisions are made in a way that is open and accountable.

Informed: Decisions are made based on relevant, quality information.

Inclusive: Decisions respect the diverse needs and interests of the local community.

Principled: Decisions are informed by the principles prescribed under Chapter 3 of the Act.

Trusted: The community has confidence that councillors and staff act ethically and make decisions in the interests of the whole community.

Respectful: Councillors, staff and meeting attendees treat each other with respect.

Effective: Meetings are well organised, effectively run and skilfully chaired.

Orderly: Councillors, staff and meeting attendees behave in a way that contributes to the orderly conduct of the meeting.

Note: A point of order cannot be made by a councillor with respect to adherence to the meeting principles: see clause 15.2.

3 BEFORE THE MEETING

Timing of ordinary council meetings

3.1 [Not used]

3.2 The council shall, by resolution, set the frequency, time, date and place of its ordinary meetings.

Note: Under section 365 of the Act, councils are required to meet at least ten (10) times each year, each time in a different month unless the Minister for Local Government has approved a reduction in the number of times that a council is required to meet each year under section 365A.

Extraordinary meetings

3.3 If the mayor receives a request in writing, signed by at least two (2) councillors, the mayor must call an extraordinary meeting of the council to be held as soon as practicable, but in any event, no more than fourteen (14) days after receipt of the request. The mayor can be one of the two councillors requesting the meeting.

Note: Clause 3.3 reflects section 366 of the Act.

Notice to the public of council meetings

3.4 The council must give notice to the public of the time, date and place of each of its meetings, including extraordinary meetings and of each meeting of committees of the council.

Note: Clause 3.4 reflects section 9(1) of the Act.

3.5 For the purposes of clause 3.4, notice of a meeting of the council and of a committee of council is to be published before the meeting takes place. The notice must be published on the council's website, and in such other manner that the council is satisfied is likely to bring notice of the meeting to the attention of as many people as possible.

3.6 For the purposes of clause 3.4, notice of more than one (1) meeting may be given in the same notice.

Notice to councillors of ordinary council meetings

3.7 The general manager must send to each councillor, at least three (3) days before each meeting of the council, a notice specifying the time, date and place at which the meeting is to be held, and the business proposed to be considered at the meeting.

Note: Clause 3.7 reflects section 367(1) of the Act.

3.8 The notice and the agenda for, and the business papers relating to, the meeting may be given to councillors in electronic form, but only if all councillors have facilities to access the notice, agenda and business papers in that form.

Note: Clause 3.8 reflects section 367(3) of the Act.

Notice to councillors of extraordinary meetings

3.9 Notice of less than three (3) days may be given to councillors of an extraordinary meeting of the council in cases of emergency.

Note: Clause 3.9 reflects section 367(2) of the Act.

Note: Notices of motion will only be dealt with at an ordinary meeting of council unless they are the subject on which an extra-ordinary meeting of council is called, or ruled by the general manager as a matter of great urgency

Giving notice of business to be considered at council meetings

3.10 A councillor may give notice of any business they wish to be considered by the council at its next ordinary meeting by way of a notice of motion. To be included on the agenda of the meeting, the notice of motion must be in writing and must be submitted by 5:00pm on the Monday that is not less than seven (7) business days before the meeting is to be held.

3.11 A councillor may, in writing to the general manager, request the withdrawal of a notice of motion submitted by them prior to its inclusion in the agenda and business paper for the meeting at which it is to be considered.

Note: A councillor who submitted a notice of motion may request the withdrawal of the motion when it is before the Council: see clause 10.3.

3.12 If the general manager considers that a notice of motion submitted by a councillor for consideration at an ordinary meeting of the council has legal, strategic, financial or policy implications which should be taken into consideration by the meeting, the general manager may prepare a report in relation to the notice of motion for inclusion with the business papers for the meeting at which the notice of motion is to be considered by the council.

3.13 A notice of motion for the expenditure of funds on works and/or services other than those already provided for in the council's current adopted operational plan must identify the source of funding for the expenditure that is the subject of the notice of motion. If the notice of motion does not identify a funding source, the general manager must either:

(a) prepare a report on the availability of funds for implementing the motion if adopted for inclusion in the business papers for the meeting at which the notice of motion is to be considered by the council, or

(b) by written notice sent to all councillors with the business papers for the meeting for which the notice of motion has been submitted, defer consideration of the matter by the council to such a date specified in the notice, pending the preparation of such a report.

Questions with notice

3.14 A councillor may, by way of a notice submitted under clause 3.10, ask a question for response by the general manager about the performance or operations of the council.

3.15 A councillor is not permitted to ask a question with notice under clause 3.14 that comprises a complaint against the general manager or a member of staff of the council, or a question that implies wrongdoing by the general manager or a member of staff of the council.

3.16 The general manager or their nominee may respond to a question with notice submitted under clause 3.14 by way of a report included in the business papers for the relevant meeting of the council or orally at the meeting.

Note: Nothing here prevents an initial answer being provided orally at the meeting and formally by way of a later report in writing.

Agenda and business papers for ordinary meetings

3.17 The general manager must cause the agenda for a meeting of the council or a committee of the council to be prepared as soon as practicable before the meeting.

3.18 The general manager must ensure that the agenda for an ordinary meeting of the council states:

(a) all matters to be dealt with arising out of the proceedings of previous meetings of the council, and

(b) if the mayor is the chairperson – any matter or topic that the chairperson proposes, at the time when the agenda is prepared, to put to the meeting, and
(c) all matters, including matters that are the subject of staff reports and reports of committees, to be considered at the meeting, and
(d) any business of which due notice has been given under clause 3.10.

3.19 Nothing in clause 3.18 limits the powers of the mayor to put a mayoral minute to a meeting under clause 9.6.

3.20 The general manager must not include in the agenda for a meeting of the council any business of which due notice has been given if, in the opinion of the general manager, the business is, or the implementation of the business would be, unlawful. The general manager must report, without giving details of the item of business, any such exclusion to the next meeting of the council.

3.21 Where the agenda includes the receipt of information or discussion of other matters that, in the opinion of the general manager, is likely to take place when the meeting is closed to the public, the general manager must ensure that the agenda of the meeting:

(a) identifies the relevant item of business and indicates that it is of such a nature (without disclosing details of the information to be considered when the meeting is closed to the public), and
(b) states the grounds under section 10A(2) of the Act relevant to the item of business.

Note: Clause 3.21 reflects section 9(2A)(a) of the Act.

3.22 The general manager must ensure that the details of any item of business which, in the opinion of the general manager, is likely to be considered when the meeting is closed to the public, are included in a business paper provided to councillors for the meeting concerned. Such details must not be included in the business papers made available to the public, and must not be disclosed by a councillor or by any other person to another person who is not authorised to have that information.

Availability of the agenda and business papers to the public

3.23 Copies of the agenda and the associated business papers, such as correspondence and reports for meetings of the council and committees of council, are to be published on the council's website, and must be made available to the public for inspection, or for taking away by any person free of charge at the offices of the council, at the relevant meeting and at such other venues determined by the council.

Note: Clause 3.23 reflects section 9(2) and (4) of the Act.

3.24 Clause 3.23 does not apply to the business papers for items of business that the general manager has identified under clause 3.21 as being likely to be considered when the meeting is closed to the public.

Note: Clause 3.24 reflects section 9(2A)(b) of the Act.

3.25 For the purposes of clause 3.23, copies of agendas and business papers must be published on the council's website and made available to the public at a time that is as close as possible to the time they are available to councillors.

Note: Clause 3.25 reflects section 9(3) of the Act.

3.26 A copy of an agenda, or of an associated business paper made available under clause 3.23, may in addition be given or made available in electronic form.

Note: Clause 3.26 reflects section 9(5) of the Act.

Agenda and business papers for extraordinary meetings

3.27 The general manager must ensure that the agenda for an extraordinary meeting of the council deals only with the matters stated in the notice of the meeting.

3.28 Despite clause 3.27, business may be considered at an extraordinary meeting of the council, even though due notice of the business has not been given, if:

(a) a motion is passed to have the business considered at the meeting, and
(b) the business to be considered is ruled by the chairperson to be of great urgency on the grounds that it requires a decision by the council before the next scheduled ordinary meeting of the council.

Note: The procedure in relation to 3.28 includes:
1. Councillor moves a motion to be dealt with as it isurgent.
2. Chair calls for a seconder.
3. If there is a seconder, then the mover of the motion can speak as to why they believe it should be considered and the urgent nature.
4. Council votes on considering it as an item of business.
5. The chairperson makes a decision as to whether it should be considered due to its urgent nature.

3.29 A motion moved under clause 3.28(a) can be moved without notice but only after the business notified in the agenda for the extraordinary meeting has been dealt with.

3.30 Despite clauses 10.20–10.30, only the mover of a motion moved under clause 3.28(b) can speak to the motion before it is put.

3.31 A motion of dissent cannot be moved against a ruling of the chairperson under clause 3.28(a) on whether a matter is of great urgency.

Pre-meeting briefing sessions

3.32 Prior to each ordinary meeting of the council, the general manager may arrange a pre-meeting briefing session to brief councillors on business to be considered at the meeting. Pre-meeting briefing sessions may also be held for extraordinary meetings of the council and meetings of committees of the council.

3.33 Pre-meeting briefing sessions are to be held in the absence of the public.

3.34 The general manager or a member of staff nominated by the general manager is to preside at pre-meeting briefing sessions.

3.36 Councillors must not use pre-meeting briefing sessions to debate or make preliminary decisions on items of business they are being briefed on, and any debate and decision-making must be left to the formal council or committee meeting at which the item of business is to be considered.

3.37 Councillors (including the mayor) must declare and manage any conflicts of interest they may have in relation to any item of business that is the subject of a briefing at a pre-meeting briefing session, in the same way that they are required to do so at a council or committee meeting. The council is to maintain a written record of all conflict of interest declarations made at pre-meeting briefing sessions and how the conflict of interest was managed by the councillor who made the declaration.

4 PUBLIC FORUMS

Note in Model Code of Meeting Practice: *Where a public forum is held as part of a council or committee meeting, it must be conducted in accordance with the other requirements of this code relating to the conduct of council and committee meetings.*

Public Forum: Part A - matters on the agenda

4.1 The council may hold a public forum during each ordinary meeting of the council for the purpose of hearing oral submissions from members of the public on items of business to be considered at the meeting.

4.2 Not used

Applying to speak

4.3 To speak at a public forum, a person must first make an application to the council in the approved form. Applications to speak at the public forum must be received by 4:30pm on the last business day before the public forum is to be held, and must identify the item of business on the agenda of the council meeting the person wishes to speak on, and whether they wish to speak 'for' or 'against' the item.

4.4 Legal representatives, consultants and persons acting on behalf of others are not to be permitted to speak at a public forum unless they identify their status when applying to speak at the public forum.

4.5 Approved speakers at the public forum are to register with the council any written, visual or audio material to be presented in support of their address to the council at the public forum, and to identify any equipment needs, by 4:30pm on the last business day before the public forum. The general manager or their delegate may refuse to allow such material to be presented.

4.6 The general manager or their delegate may refuse an application to speak at a public forum. The general manager or their delegate must give reasons in writing for a decision to refuse an application.

Number and order of speakers

4.7 A person may apply to speak on no more than two (2) items of business on the agenda of the council meeting.

4.8 No more than two (2) speakers are to be permitted to speak 'for' and no more than two (2) speakers are to be permitted to speak 'against' each item of business on the agenda for the council meeting.

4.9 The general manager or their delegate is to determine the order of speakers at the public forum.

4.10 If more than the permitted number of speakers apply to speak on 'for' or 'against' any item of business, the general manager or their delegate may either:

(a) request the speakers to nominate from among themselves the persons who are to address the council on the item of business. If the speakers are not able to agree on whom to nominate to address the council, the general manager or their delegate is to determine who will address the council at the public forum, or

(b) Council may resolve to increase the number of speakers permitted to speak on an item of business, where they are satisfied that it is necessary to do so to allow the council to hear a fuller range of views on the relevant item of business.

Speaking at the public forum

4.11 Public forums are to be chaired by the mayor or their nominee.

4.12 Each speaker will be allowed five (5) minutes to address the council. This time is to be strictly enforced by the chairperson.

4.13 Speakers at public forums must not digress from the item on the agenda of the council meeting they have applied to address the council on. If a speaker digresses to irrelevant matters, the chairperson is to direct the speaker not to do so. If a speaker fails to observe a direction from the chairperson, the speaker will not be further heard.

4.14 A councillor (including the chairperson) may, through the chairperson, ask questions of a speaker following their address at a public forum. Questions put to a speaker must be direct, succinct and without argument and must be limited to thirty (30) seconds in length.

4.15 Speakers are under no obligation to answer a question put under clause 4.14. Answers by the speaker, to each question are to be limited to two (2) minutes in length.

4.16 Speakers at public forums cannot ask questions of the council, councillors or council staff.

4.17 The general manager or their nominee may, with the concurrence of the chairperson, address the council for up to two (2) minutes in response to an address to the council at a public forum after the address and any subsequent questions and answers have been finalised.

4.18 Where an address made at a public forum raises matters that require further consideration by council staff, the general manager may recommend that the council defer consideration of the matter pending the preparation of a further report on the matters.

Order and Disorder

4.19 Where a speaker at a public forum engages in disorderly conduct or alleges a breach of council's code of conduct or makes defamatory statements or otherwise acts contrary to law, the general manager or their delegate may refuse further applications from that person to speak at public forums for such a period as the general manager or their delegate considers appropriate.

Conflicts of interest

4.20 Councillors (including the mayor) must declare and manage any conflicts of interest they may have in relation to any item of business that is the subject of an address at a public forum, in the same way that they are required to do so at a council or committee meeting. The council is to maintain a written record of all conflict of interest declarations made at public forums and how the conflict of interest was managed by the councillor who made the declaration.

Public Forum: Part B –matters not on the agenda (open forum)

4.21 The council may hold an open forum, either prior to or as part of the order of each ordinary meeting of the council for the purpose of hearing oral submissions from members of the public on items not to be considered at the meeting.

4.22 Open forums are to be chaired by the mayor or their nominee.

4.23 To speak at an open forum, a person must first make an application to the council in writing. Applications to speak at the open forum must be received by 4:30pm on the last business day before the date on which the open forum is to be held, must identify the topic the person wishes to speak.

4.24 Approved speakers at the public forum are to register with the council any written, visual or audio material to be presented in support of their address to the council at the open forum, and to identify any equipment needs, by 4:30pm on the last business day before the open forum. The general manager or their delegate may refuse to allow such material to be presented.

4.25 The general manager or their delegate may refuse an application to speak at an open forum. The general manager or their delegate must give reasons in writing for a decision to refuse an application (this may include reasons as per 4.25 of this code).

4.26 The following submissions may not be made at an open forum:

(a) a submission on a proposed or pending planning proposal, development application, application to modify a development consent, application to review a determination or any related matter,

(b) a submission by an applicant or objector in respect of development who made an oral submission at an on-site inspection,

(c) a submission by a person on a matter on which they have made submissions at two (2) previous open forums in the same calendar year, unless otherwise approved in writing by the general manager,

(d) a submission relating to a current or pending procurement, contract negotiation or dispute resolution involving the council,

(e) a submission on any matter which the general manager or their delegate considers is inappropriate to be made at an open forum.

4.27 There will be only up to five (5) speakers permitted in the open forum.

4.28 The general manager or their delegate is to determine the order of speakers at the open forum.

4.29 Each speaker will be allowed five (5) minutes to address the council. This time is to be strictly enforced by the chairperson.

4.30 A councillor (including the chairperson) may ask questions of a speaker following their address at an open forum.

4.31 Speakers at open forums cannot ask questions of councillors or council staff.

4.32 Speakers at open forums must comply with this code and all other relevant council codes, policies and procedures.

5 COMING TOGETHER

Attendance by councillors at meetings

5.1 All councillors must make reasonable efforts to attend meetings of the council and of committees of the council of which they are members.

Note: A councillor may not attend a meeting as a councillor (other than the first meeting of the council after the councillor is elected or a meeting at which the councillor takes an oath or makes an affirmation of office) until they have taken an oath or made an affirmation of office in the form prescribed under section 233A of the Act.

5.2 A councillor cannot participate in a meeting of the council or of a committee of the council unless personally present at the meeting.

5.3 Seating order for Councillors at Council meetings shall be determined by resolution of the Council.

5.4 Where a councillor is unable to attend one or more ordinary meetings of the council, the councillor should request that the council grant them a leave of absence from those meetings. This clause does not prevent a councillor from making an apology if they are unable to attend a meeting. However the acceptance of such an apology does not constitute the granting of a leave of absence for the purposes of this code and the Act.

5.5 A councillor's request for leave of absence from council meetings should, if practicable, identify (by date) the meetings from which the councillor intends to be absent and the grounds upon which the leave of absence is being sought.

5.6 The council must act reasonably when considering whether to grant a councillor's request for a leave of absence.

5.7 A councillor's civic office will become vacant if the councillor is absent from three (3) consecutive ordinary meetings of the council without prior leave of the council, or leave granted by the council at any of the meetings concerned, unless the holder is absent because they have been suspended from office under the Act, or because the council has been suspended under the Act, or as a consequence of a compliance order under section 438HA.

Note: Clause 5.7 reflects section 234(1)(d) of the Act.

5.8 A councillor who intends to attend a meeting of the council despite having been granted a leave of absence should, if practicable, give the general manager at least two (2) days' notice of their intention to attend.

The quorum for a meeting

5.9 The quorum for a meeting of the council is a majority of the councillors of the council who hold office at that time and are not suspended from office.

Note: Clause 5.9 reflects section 368(1) of the Act.

Note: If an even number of councillors holds office at the time, a majority is half that number plus one.

5.10 Clause 5.9 does not apply if the quorum is required to be determined in accordance with directions of the Minister in a performance improvement order issued in respect of the council.

Note: Clause 5.10 reflects section 368(2) of the Act.

5.11 A meeting of the council must be adjourned if a quorum is not present:

(a) at the commencement of the meeting where the number of apologies received for the meeting indicates that there will not be a quorum for the meeting, or
(b) within half an hour after the time designated for the holding of the meeting, or
(c) at any time during the meeting.

Note 1: A Councillor who has been granted leave of absence for a meeting by the Council is an apology for the meeting for the purposes of clause 5.11(a). A councillor can be an apology

for a meeting without having been granted a leave of absence by the Council.

Note 2: A councillor who leaves the meeting room during a meeting is absent from the meeting for the purpose of determining whether a quorum is present.

Note 3: Refer to the Code of Conduct in the event that a majority of councillors are precluded from consideration of a matter, by reason of having disclosed a pecuniary or non-pecuniary significant interest.

5.12 In either case, the meeting must be adjourned to a time, date and place fixed:

(a) by the chairperson, or
(b) in the chairperson's absence, by the majority of the councillors present, or
(c) failing that, by the general manager.

5.13 The general manager must record in the council's minutes the circumstances relating to the absence of a quorum (including the reasons for the absence of a quorum) at or arising during a meeting of the council, together with the names of the councillors present.

5.14 Where, prior to the commencement of a meeting, it becomes apparent that a quorum may not be present at the meeting, or that the safety and welfare of councillors, council staff and members of the public may be put at risk by attending the meeting because of a natural disaster (such as, but not limited to flood or bushfire), the mayor may, in consultation with the general manager and, as far as is practicable with each councillor, cancel the meeting. Where a meeting is cancelled, notice of the cancellation must be published on the council's website and in such other manner that the council is satisfied is likely to bring notice of the cancellation to the attention of as many people as possible.

5.15 Where a meeting is cancelled under clause 5.14, the business to be considered at the meeting may instead be considered, where practicable, at the next ordinary meeting of the council or at an extraordinary meeting called under clause 3.3.

Entitlement of the public to attend council meetings

5.16 Everyone is entitled to attend a meeting of the council and committees of the council. The council must ensure that all meetings of the council and committees of the council are open to the public.

Note: Clause 5.16 reflects section 10(1) of the Act.

5.17 Clause 5.16 does not apply to parts of meetings that have been closed to the public under section 10A of the Act.

5.18 A person (whether a councillor or another person) is not entitled to be present at a meeting of the council or a committee of the council if expelled from the meeting:

(a) by a resolution of the meeting, or

(b) by the person presiding at the meeting if the council has, by resolution, authorised the person presiding to exercise the power of expulsion.

Note: Clause 5.18 reflects section 10(2) of the Act.

Note: Part 15 specifies powers to expel persons from a meeting.

Webcasting of meetings

5.19 All meetings of the council and committees of the council are to be webcast on the council's website.

Note: Council will make an audio-visual recording of the meeting and will make this recording available through the Council website as soon as practicable after the completion of the meeting.

5.20 Clause 5.19 does not apply to parts of a meeting that have been closed to the public under section 10A of the Act.

5.21 At the start of each meeting the chairperson is to make a statement informing those in attendance that the meeting is being webcast and that those in attendance should refrain from making any defamatory statements.

5.22 A recording of each meeting of the council and committee of the council is to be retained on the council's website for **no less than twelve (12) months**. Recordings of meetings may be disposed of in accordance with the *State Records Act 1998*.

Attendance of the general manager and other staff at meetings

5.23 The general manager is entitled to attend, but not to vote at, a meeting of the council or a meeting of a committee of the council of which all of the members are councillors.

Note: Clause 5.23 reflects section 376(1) of the Act.

5.24 The general manager is entitled to attend a meeting of any other committee of the council and may, if a member of the committee, exercise a vote.

Note: Clause 5.24 reflects section 376(2) of the Act.

5.25 The general manager may be excluded from a meeting of the council or a committee while the council or committee deals with a matter relating to the standard of performance of the general manager or the terms of employment of the general manager.

Note: Clause 5.25 reflects section 376(3) of the Act.

5.26 The attendance of other council staff at a meeting, (other than as members of the public) shall be with the approval of the general manager.

6 THE CHAIRPERSON

The chairperson at meetings

6.1 The mayor, or at the request of or in the absence of the mayor, the deputy mayor (if any) presides at meetings of the council.

Note: Clause 6.1 reflects section 369(1) of the Act.

6.2 If the mayor and the deputy mayor (if any) are absent, a councillor elected to chair the meeting by the councillors present presides at a meeting of the council.

Note: Clause 6.2 reflects section 369(2) of the Act.

Election of the chairperson in the absence of the mayor and deputy mayor

6.3 If no chairperson is present at a meeting of the council at the time designated for the holding of the meeting, the first business of the meeting must be the election of a chairperson to preside at the meeting.

6.4 The election of a chairperson must be conducted:

(a) by the general manager or, in their absence, an employee of the council designated by the general manager to conduct the election, or
(b) by the person who called the meeting or a person acting on their behalf if neither the general manager nor a designated employee is present at the meeting, or if there is no general manager or designated employee.

6.5 If, at an election of a chairperson, two (2) or more candidates receive the same number of votes and no other candidate receives a greater number of votes, the chairperson is to be the candidate whose name is chosen by lot.

6.6 For the purposes of clause 6.5, the person conducting the election must:

(a) arrange for the names of the candidates who have equal numbers of votes to be written on similar slips, and
(b) then fold the slips so as to prevent the names from being seen, mix the slips and draw one of the slips at random.

6.7 The candidate whose name is on the drawn slip is the candidate who is to be the chairperson.

6.8 Any election conducted under clause 6.3, and the outcome of the vote, are to be recorded in the minutes of the meeting.

Chairperson to have precedence

6.9 When the chairperson rises or speaks during a meeting of the council:

(a) any councillor then speaking or seeking to speak must cease speaking and, if standing, immediately resume their seat, and
(b) every councillor present must be silent to enable the chairperson to be heard without interruption.

7 MODES OF ADDRESS

7.1 If the chairperson is the mayor, they are to be addressed as 'Mr Mayor' or 'Madam Mayor'.

7.2 Where the chairperson is not the mayor, they are to be addressed as either 'Mr Chairperson' or 'Mr Chair' or 'Madam Chairperson' or 'Madam Chair'.

7.3 A councillor is to be addressed as 'Councillor [surname]'.

7.4 A council officer is to be addressed by their official designation or as Mr/Ms [surname].

8 ORDER OF BUSINESS FOR ORDINARY COUNCIL MEETINGS

8.1 [Not used]

8.2 The general order of business for an ordinary meeting of the council shall be:

Open meeting
01 Acknowledgement of country
02 Local Government Prayer
03 Apologies
04 Confirmation of minutes
05 Disclosures of interests
06 Mayoral minute(s)
07 Confidential attachments to ordinary council meeting
08 Public forum- matters not on the agenda
09 Public forum- matters on the agenda
10 Leadership and Governance
11 Your Community Life
12 Your Business and Industry
13 Your Natural and Built Environment
14 Items to be dealt with by exception
15 Confidential matters
Close of meeting

Note: Notices of motion/ Questions with notice will be included in the focus areas of the agenda.

8.3 The order of business as fixed under clause 8.2 may be altered for a particular meeting of the council if a motion to that effect is passed at that meeting. Such a motion can be moved without notice.

8.4 Despite clauses 10.20–10.30, only the mover of a motion referred to in clause 8.3 may speak to the motion before it is put.

9 CONSIDERATION OF BUSINESS AT COUNCIL MEETINGS

Business that can be dealt with at a council meeting

9.1 The council must not consider business at a meeting of the council:

(a) unless a councillor has given notice of the business, as required by clause 3.10, and
(b) unless notice of the business has been sent to the councillors in accordance with clause 3.7 in the case of an ordinary meeting or clause 3.9 in the case of an extraordinary meeting called in an emergency.

9.2 Clause 9.1 does not apply to the consideration of business at a meeting, if the business:

(a) is already before, or directly relates to, a matter that is already before the council, or
(b) is the election of a chairperson to preside at the meeting, or
(c) subject to clause 9.9, is a matter or topic put to the meeting by way of a mayoral minute, or
(d) is a motion for the adoption of recommendations of a committee, including, but not limited to, a committee of the council.

9.3 Despite clause 9.1, business may be considered at a meeting of the council even though due notice of the business has not been given to the councillors if:

(a) a motion is passed to have the business considered at the meeting, and
(b) the business to be considered is ruled by the chairperson to be of great urgency on the grounds that it requires a decision by the council before the next scheduled ordinary meeting of the council.

Note: The procedure in relation to 9.3 includes:
1. Councillor moves a motion to be dealt with as it is urgent.
2. Chair calls for a seconder.
3. If there is a seconder, then the mover of the motion can speak as to why they believe it should be considered and the urgent nature.
4. Council votes on considering it as an item of business.
5. The chairperson makes a decision as to whether it should be considered due to its urgent nature.

9.4 A motion moved under clause 9.3(a) can be moved without notice. Despite clauses 10.20–10.30, only the mover of a motion referred to in clause 9.3(a) can speak to the motion before it is put.

9.5 A motion of dissent cannot be moved against a ruling by the chairperson under clause 9.3(b).

Mayoral minutes

9.6 Subject to clause 9.9, if the mayor is the chairperson at a meeting of the council, the mayor may, by minute signed by the mayor, put to the meeting without notice any matter or topic that is within the jurisdiction of the council, or of which the council has official knowledge.

9.7 A mayoral minute, when put to a meeting, takes precedence over all business on the council's agenda for the meeting. The chairperson (but only if the chairperson is the mayor) may move the adoption of a mayoral minute without the motion being seconded.

Note: A motion to adopt a Mayoral Minute can be debated and amended as with any other substantive motion.

9.8 A recommendation made in a mayoral minute put by the mayor is, so far as it is adopted by the council, a resolution of the council.

9.9 A mayoral minute must not be used to put without notice matters that are routine and not urgent, or matters for which proper notice should be given because of their complexity. For the purpose of this clause, a matter will be urgent where it requires a decision by the council before the next scheduled ordinary meeting of the council.

9.10 Where a mayoral minute makes a recommendation which, if adopted, would require the expenditure of funds on works and/or services other than those already provided for in the council's current adopted operational plan, it must identify the source of funding for the expenditure that is the subject of the recommendation. If the mayoral minute does not identify a funding source, the council must defer consideration of the matter, pending a report from the general manager on the availability of funds for implementing the recommendation if adopted.

Staff reports

9.11 A recommendation made in a staff report is, so far as it is adopted by the council, a resolution of the council.

Reports of committees of council

9.12 The recommendations of a committee of the council are, so far as they are adopted by the council, resolutions of the council.

9.13 If in a report of a committee of the council distinct recommendations are made, the council may make separate decisions on each recommendation.

Adopting recommendations in reports

9.13A If in any report (other than the report of a committee) distinct recommendations are made, the council may make separate decisions on each recommendation (splitting recommendations).

Questions

9.14 A question must not be asked at a meeting of the council unless it concerns a matter on the agenda of the meeting or notice has been given of the question in accordance with clauses 3.10 and 3.14.

9.15 A councillor may, through the chairperson, put a question to another councillor about a matter on the agenda.

9.16 A councillor may, through the general manager, put a question to a council employee about a matter on the agenda. Council employees are only obliged to answer a question put to them through the general manager at the direction of the general manager.

Note:

- It is considered that all Councillors have the opportunity to, through the general manager, put a question to a council employee.
- The effect of clause 9.16 also applies to questions to staff arising in the open forum.

9.17 A councillor or council employee to whom a question is put is entitled to be given reasonable notice of the question and, in particular, sufficient notice to enable reference to be made to other persons or to documents. Where a councillor or council employee to whom a question is put is unable to respond to the question at the meeting at which it is put, they may take it on notice and report the response to the next meeting of the council.

Note: Councillors are encouraged to provide the general manager with advance notice of significant questions intended to be asked by a councillor during the meeting regarding any item on the agenda.

9.18 Councillors must put questions directly, succinctly, respectfully and without argument.

9.19 The chairperson must not permit discussion on any reply to, or refusal to reply to, a question put to a councillor or council employee.

10 RULES OF DEBATE

Motions to be seconded

10.1 Unless otherwise specified in this code, a motion or an amendment cannot be debated unless or until it has been seconded.

10.1A The mover of a substantive motion that has been seconded will be given the opportunity to speak for the motion before any amendment to the motion will be accepted.

Notices of motion

10.2 A councillor who has submitted a notice of motion under clause 3.10 is to move the motion the subject of the notice of motion at the meeting at which it is to be considered.

10.3 If a councillor who has submitted a notice of motion under clause 3.10 wishes to withdraw it after the agenda and business paper for the meeting at which it is to be considered have been sent to councillors, the councillor may request the withdrawal of the motion when it is before the council.

10.4 In the absence of a councillor who has placed a notice of motion on the agenda for a meeting of the council:
(a) any other councillor may, with the leave of the chairperson, move the motion at the meeting, or
(b) the chairperson may defer consideration of the motion until the next meeting of the council.

Chairperson's duties with respect to motions

10.5 It is the duty of the chairperson at a meeting of the council to receive and put to the meeting any lawful motion that is brought before the meeting.

10.6 The chairperson must rule out of order any motion or amendment to a motion that is unlawful or the implementation of which would be unlawful.

10.6A Before ruling out of order a motion or an amendment to a motion under clause 10.6, the chairperson must explain to the mover of the motion the reason or reasons why the chairperson proposes to do so.

10.7 Before ruling out of order a motion or an amendment to a motion under clause 10.6, the chairperson is to give the mover an opportunity to clarify or amend the motion or amendment.

10.8 Any motion, amendment or other matter that the chairperson has ruled out of order is taken to have been lost.

Motions requiring the expenditure of funds

10.9 A motion or an amendment to a motion which if passed would require the expenditure of funds on works and/or services other than those already provided for in the council's current adopted operational plan must identify the source of funding for the expenditure that is the subject of the motion. If the motion does not identify a funding source, the council must defer consideration of the matter, pending a report from the general manager on the availability of funds for implementing the motion if adopted.

Amendments to motions

10.10 An amendment to a motion must be moved and seconded before it can be debated.

10.11 An amendment to a motion must relate to the matter being dealt with in the original motion before the council and must not be a direct negative of the original motion. An amendment to a motion which does not relate to the matter being dealt with in the original motion, or which is a direct negative of the original motion, must be ruled out of order by the chairperson.

10.12 The mover of an amendment is to be given the opportunity to explain any uncertainties in the proposed amendment before a seconder is called for.

10.13 If an amendment has been lost, a further amendment can be moved to the motion to which the lost amendment was moved, and so on, but no more than one (1) motion and one (1) proposed amendment can be before council at any one time.

10.14 While an amendment is being considered, debate must only occur in relation to the amendment and not the original motion. Debate on the original motion is to be suspended while the amendment to the original motion is being debated.

10.15 If an amendment is carried, it becomes the motion and is to be debated. If the amendment is lost, debate is to resume on the original motion.

10.16 An amendment may become the motion without debate or a vote where it is accepted by the councillor who moved the original motion.

Note: If an amendment is accepted by the mover of the original motion, the amended motion becomes the motion with the same original mover, and debate is continued until a vote.

Note: Where a motion or amendment is developed by councillors as a consequence of debate during the meeting, the general manager will cause the draft motion or amendment to be displayed on screens to provide councillors with the opportunity to review the motion or amendment prior to voting, to ensure the intent of the motion or amendment is accurately reflected.

Note: Councillors are encouraged to provide the general manager and Councillors with advance notice of significant variations to the staff recommendations.

Foreshadowed motions

10.17 A councillor may propose a foreshadowed motion in relation to the matter the subject of an original motion before the council, without a seconder during debate on the original motion. The foreshadowed motion is only to be considered if the original motion is lost or withdrawn and the moved foreshadowed motion is then seconded. If an original motion is carried, the foreshadowed motion lapses.

10.18 Where an amendment has been moved and seconded, a councillor may, without a seconder, foreshadow a further amendment that they propose to move after the first amendment has been dealt with. There is no limit to the number of foreshadowed amendments that may be put before the council at any time. However, no discussion can take place on foreshadowed amendments until the previous amendment has been dealt with and the foreshadowed amendment has been moved and seconded.

10.19 Foreshadowed motions and foreshadowed amendments are to be considered in the order in which they are proposed. However, foreshadowed motions cannot be considered until all foreshadowed amendments have been dealt with.

Limitations on the number and duration of speeches

10.20 A councillor who, during a debate at a meeting of the council, moves an original motion, has the right to speak on each amendment to the motion and a right of general reply to all observations that are made during the debate in relation to the motion, and any amendment to it at the conclusion of the debate before the motion (whether amended or not) is finally put.

Note: If an amendment is carried then it becomes an original motion, and can be debated before a vote. If it is debated, then its mover shall be given the right of reply which will then close the debate.

10.21 A councillor, other than the mover of an original motion, has the right to speak once on the motion and once on each amendment to it.

10.22 A councillor must not, without the consent of the council, speak more than once on a motion or an amendment, or for longer than five (5) minutes at any one time.

10.23 Despite clause 10.22, the chairperson may permit a councillor who claims to have been misrepresented or misunderstood to speak more than once on a motion or an amendment, and for longer than five (5) minutes on that motion or amendment to enable the councillor to make a statement limited to explaining the misrepresentation or misunderstanding.

10.24 Despite clause 10.22, the council may resolve to shorten the duration of speeches to expedite the consideration of business at a meeting.

10.25 Despite clauses 10.20 and 10.21, a councillor may move that a motion or an amendment be now put:

(a) if the mover of the motion or amendment has spoken in favour of it and no councillor expresses an intention to speak against it, or
(b) if at least two (2) councillors have spoken in favour of the motion or amendment and at least two (2) councillors have spoken against it.

10.26 The chairperson must immediately put to the vote, without debate, a motion moved under clause 10.25. A seconder is not required for such a motion.

10.27 If a motion that the original motion or an amendment be now put is passed, the chairperson must, without further debate, put the original motion or amendment to the vote immediately after the mover of the original motion has exercised their right of reply under clause 10.20.

10.28 If a motion that the original motion or an amendment be now put is lost, the chairperson must allow the debate on the original motion or the amendment to be resumed.

10.29 All councillors must be heard without interruption and all other councillors must, unless otherwise permitted under this code, remain silent while another councillor is speaking.

Note- As a general rule Councillors (but not the chairperson) will if practicable stand when speaking.

10.30 Once the debate on a matter has concluded and a matter has been dealt with, the chairperson must not allow further debate on the matter.

10.31 Joint Organisation matter [Not applicable]

11 VOTING

Voting entitlements of councillors

11.1 Each councillor is entitled to one (1) vote.

Note: Clause 11.1 reflects section 370(1) of the Act.

11.2 The person presiding at a meeting of the council has, in the event of an equality of votes, a second or casting vote.

Note: Clause 11.2 reflects section 370(2) of the Act.

11.3 Where the chairperson declines to exercise, or fails to exercise, their second or casting vote, in the event of an equality of votes, the motion being voted upon is lost.

11.4 Joint Organisation matter [Not applicable]

Voting at council meetings

11.5 A councillor who is present at a meeting of the council but who fails to vote on a motion put to the meeting is taken to have voted against the motion.

11.6 [Not used]

11.7 [Not used]

11.8 [Not used]

11.9 [Not used]

11.10 Voting at a meeting, including voting in an election at a meeting, is to be by open means (such as on the voices, by show of hands or by a visible electronic voting system). However, the council may resolve that the voting in any election by councillors for mayor or deputy mayor is to be by secret ballot.

11.11 All voting at council meetings, (including meetings that are closed to the public), must be recorded in the minutes of meetings with the names of councillors who voted for and against each motion or amendment, (including the use of the casting vote), being recorded.

Voting on planning decisions

11.12 The general manager must keep a register containing, for each planning decision made at a meeting of the council or a council committee (including, but not limited to a committee of the council), the names of the councillors who supported the decision and the names of any councillors who opposed (or are taken to have opposed) the decision.

11.13 [Not used]

11.14 Each decision recorded in the register is to be described in the register or identified in a manner that enables the description to be obtained from another publicly available document.

11.15 Clauses 11.12 and 11.14 apply also to meetings that are closed to the public.

Note: Clauses 11.12–11.15 reflect section 375A of the Act.

Note: The requirements of clause 11.12 may be satisfied by maintaining a register of the minutes of each planning decision.

12 COMMITTEE OF THE WHOLE

12.1 The council may resolve itself into a committee to consider any matter before the council.

Note: Clause 12.1 reflects section 373 of the Act.

12.2 All the provisions of this code relating to meetings of the council, so far as they are applicable, extend to and govern the proceedings of the council when in committee of the whole, except the provisions limiting the number and duration of speeches.

Note: Clauses 10.20–10.30 limit the number and duration of speeches.

12.3 The general manager or, in the absence of the general manager, an employee of the council designated by the general manager, is responsible for reporting to the council the proceedings of the committee of the whole. It is not necessary to report the proceedings in full but any recommendations of the committee must be reported.

12.4 The council must ensure that a report of the proceedings (including any recommendations of the committee) is recorded in the council's minutes. However, the council is not taken to have adopted the report until a motion for adoption has been made and passed.

13 DEALING WITH ITEMS BY EXCEPTION

13.1 The council or a committee of council may, at any time, resolve to adopt multiple items of business on the agenda together by way of a single resolution.

13.2 Before the council or committee resolves to adopt multiple items of business on the agenda together under clause 13.1, the chairperson must list the items of business to be adopted and ask councillors to identify any individual items of business listed by the chairperson that they intend to vote against the recommendation made in the business paper or that they wish to speak on.

13.3 The council or committee must not resolve to adopt any item of business under clause 13.1 that a councillor has identified as being one they intend to vote against the recommendation made in the business paper or to speak on or in respect of which a councillor has declared a pecuniary interest or a significant conflict of interest under the council's adopted code of conduct.

13.4 Where the consideration of multiple items of business together under clause 13.1 involves a variation to the order of business for the meeting, the council or committee must resolve to alter the order of business in accordance with clause 8.3.

13.5 A motion to adopt multiple items of business together under clause 13.1 must identify each of the items of business to be adopted and state that they are to

be adopted as recommended in the business paper.

13.6 Items of business adopted under clause 13.1 are to be taken to have been adopted unanimously.

13.7 Councillors must ensure that they declare and manage any conflicts of interest they may have in relation to items of business considered together under clause 13.1 in accordance with the requirements of the council's code of conduct.

14 CLOSURE OF COUNCIL MEETINGS TO THE PUBLIC

Grounds on which meetings can be closed to the public

14.1 The council or a committee of the council may close to the public so much of its meeting as comprises the discussion or the receipt of any of the following types of matters:

(a) personnel matters concerning particular individuals (other than councillors),
(b) the personal hardship of any resident or ratepayer,
(c) information that would, if disclosed, confer a commercial advantage on a person with whom the council is conducting (or proposes to conduct) business,
(d) commercial information of a confidential nature that would, if disclosed:
  (i) prejudice the commercial position of the person who supplied it, or
  (ii) confer a commercial advantage on a competitor of the council, or
  (iii) reveal a trade secret,
(e) information that would, if disclosed, prejudice the maintenance of law,
(f) matters affecting the security of the council, councillors, council staff or council property,
(g) advice concerning litigation, or advice that would otherwise be privileged from production in legal proceedings on the ground of legal professional privilege,
(h) information concerning the nature and location of a place or an item of Aboriginal significance on community land,
(i) alleged contraventions of the council's code of conduct.

Note: Clause 14.1 reflects section 10A(1) and (2) of the Act.

14.2 The council or a committee of the council may also close to the public so much of its meeting as comprises a motion to close another part of the meeting to the public.

Note: Clause 14.2 reflects section 10A(3) of the Act.

Matters to be considered when closing meetings to the public

14.3 A meeting is not to remain closed during the discussion of anything referred to in clause 14.1:

(a) except for so much of the discussion as is necessary to preserve the relevant confidentiality, privilege or security, and

(b) if the matter concerned is a matter other than a personnel matter concerning particular individuals, the personal hardship of a resident or ratepayer or a trade secret – unless the council or committee concerned is satisfied that discussion of the matter in an open meeting would, on balance, be contrary to the public interest.

Note: Clause 14.3 reflects section 10B(1) of the Act.

14.4 A meeting is not to be closed during the receipt and consideration of information or advice referred to in clause 14.1(g) unless the advice concerns legal matters that:

(a) are substantial issues relating to a matter in which the council or committee is involved, and
(b) are clearly identified in the advice, and
(c) are fully discussed in that advice.

Note: Clause 14.4 reflects section 10B(2) of the Act.

14.5 If a meeting is closed during the discussion of a motion to close another part of the meeting to the public (as referred to in clause 14.2), the consideration of the motion must not include any consideration of the matter or information to be discussed in that other part of the meeting other than consideration of whether the matter concerned is a matter referred to in clause 14.1.

Note: Clause 14.5 reflects section 10B(3) of the Act.

14.6 For the purpose of determining whether the discussion of a matter in an open meeting would be contrary to the public interest, it is irrelevant that:

(a) a person may misinterpret or misunderstand the discussion, or
(b) the discussion of the matter may:
  (i) cause embarrassment to the council or committee concerned, or to councillors or to employees of the council, or
  (ii) cause a loss of confidence in the council or committee.

Note: Clause 14.6 reflects section 10B(4) of the Act.

14.7 In deciding whether part of a meeting is to be closed to the public, the council or committee concerned must consider any relevant guidelines issued by the Chief Executive of the Office of Local Government.

Note: Clause 14.7 reflects section 10B(5) of the Act.

<u>Notice of likelihood of closure not required in urgent cases</u>

14.8 Part of a meeting of the council, or of a committee of the council, may be closed to the public while the council or committee considers a matter that has not been identified in the agenda for the meeting under clause 3.21 as a matter that is likely to be considered when the meeting is closed, but only if:

(a) it becomes apparent during the discussion of a particular matter that the matter is a matter referred to in clause 14.1, and
(b) the council or committee, after considering any representations made

under clause 14.9, resolves that further discussion of the matter:
(i) should not be deferred (because of the urgency of the matter), and
(ii) should take place in a part of the meeting that is closed to the public.

Note: Clause 14.8 reflects section 10C of the Act.

Representations by members of the public

14.9 The council, or a committee of the council, may allow members of the public to make representations to or at a meeting, before any part of the meeting is closed to the public, as to whether that part of the meeting should be closed.

Note: Clause 14.9 reflects section 10A(4) of the Act.

14.10 A representation under clause 14.9 is to be made after the motion to close the part of the meeting is moved and seconded.

14.11 Where the matter has been identified in the agenda of the meeting under clause 3.21 as a matter that is likely to be considered when the meeting is closed to the public, in order to make representations under clause 14.9, members of the public must first make an application to the council in the approved form. Applications must be received by **4:30 PM the last day** before the meeting at which the matter is to be considered.

14.12 The general manager (or their delegate) may refuse an application made under clause 14.11. The general manager or their delegate must give reasons in writing for a decision to refuse an application.

14.13 No more than two (2) speakers are to be permitted to make representations under clause 14.9.

14.14 If more than the permitted number of speakers apply to make representations under clause 14.9, the general manager or their delegate may request the speakers to nominate from among themselves the persons who are to make representations to the council. If the speakers are not able to agree on whom to nominate to make representations under clause 14.9, the general manager or their delegate is to determine who will make representations to the council.

14.15 The general manager (or their delegate) is to determine the order of speakers.

14.16 Where the council or a committee of the council proposes to close a meeting or part of a meeting to the public in circumstances where the matter has not been identified in the agenda for the meeting under clause 3.21 as a matter that is likely to be considered when the meeting is closed to the public, the chairperson is to invite representations from the public under clause 14.9 after the motion to close the part of the meeting is moved and seconded. The chairperson is to permit no more than two (2) speakers to make representations in such order as determined by the chairperson.

14.17 Each speaker will be allowed five (5) minutes to make representations, and this time limit is to be strictly enforced by the chairperson. Speakers must confine their representations to whether the meeting should be closed to the

public. If a speaker digresses to irrelevant matters, the chairperson is to direct the speaker not to do so. If a speaker fails to observe a direction from the chairperson, the speaker will not be further heard.

Expulsion of non-councillors from meetings closed to the public

14.18 If a meeting or part of a meeting of the council or a committee of the council is closed to the public in accordance with section 10A of the Act and this code, any person who is not a councillor and who fails to leave the meeting when requested, may be expelled from the meeting as provided by section 10(2)(a) or (b) of the Act.

14.19 If any such person, after being notified of a resolution or direction expelling them from the meeting, fails to leave the place where the meeting is being held, a police officer, or any person authorised for the purpose by the council or person presiding, may, by using only such force as is necessary, remove the first-mentioned person from that place and, if necessary restrain that person from re-entering that place for the remainder of the meeting.

Information to be disclosed in resolutions closing meetings to the public

14.20 The grounds on which part of a meeting is closed must be stated in the decision to close that part of the meeting and must be recorded in the minutes of the meeting. The grounds must specify the following:

(a) the relevant provision of section 10A(2) of the Act,
(b) the matter that is to be discussed during the closed part of the meeting,
(c) the reasons why the part of the meeting is being closed, including (if the matter concerned is a matter other than a personnel matter concerning particular individuals, the personal hardship of a resident or ratepayer or a trade secret) an explanation of the way in which discussion of the matter in an open meeting would be, on balance, contrary to the public interest.

Note: Clause 14.20 reflects section 10D of the Act.

Resolutions passed at closed meetings to be made public

14.21 If the council passes a resolution during a meeting, or a part of a meeting, that is closed to the public, the chairperson must make the resolution public as soon as practicable after the meeting, or the relevant part of the meeting, has ended, and the resolution must be recorded in the publicly available minutes of the meeting.

14.22 Resolutions passed during a meeting, or a part of a meeting, that is closed to the public must be made public by the chairperson under clause 14.21 during a part of the meeting that is webcast.

14.23 Resolutions passed during a meeting, or a part of a meeting that is closed to the public, will have the names of the councillors who voted for and against the resolutions (including any casting votes), made public by the chairperson under clause 20.20 during a part of the meeting that is open to the public and shall be recorded in the minutes.

15 KEEPING ORDER AT MEETINGS

Points of order

15.1 A councillor may draw the attention of the chairperson to an alleged breach of this code by raising a point of order. A point of order does not require a seconder.

15.2 A point of order cannot be made with respect to adherence to the principles contained in clause 2.1.

15.3 A point of order must be taken immediately it is raised. The chairperson must suspend the business before the meeting and permit the councillor raising the point of order to state the provision of this code they believe has been breached. The chairperson must then rule on the point of order – either by upholding it or by overruling it.

Questions of order

15.4 The chairperson, without the intervention of any other councillor, may call any councillor to order whenever, in the opinion of the chairperson, it is necessary to do so.

15.5 A councillor who claims that another councillor has committed an act of disorder, or is out of order, may call the attention of the chairperson to the matter.

15.6 The chairperson must rule on a question of order immediately after it is raised but, before doing so, may invite the opinion of the council.

15.7 The chairperson's ruling must be obeyed unless a motion dissenting from the ruling is passed.

Motions of dissent

15.8 A councillor can, without notice, move to dissent from a ruling of the chairperson on a point of order or a question of order. If that happens, the chairperson must suspend the business before the meeting until a decision is made on the motion of dissent.

15.10 Despite any other provision of this code, only the mover of a motion of dissent and the chairperson can speak to the motion before it is put. The mover of the motion does not have a right of general reply.

15.9 If a motion of dissent is passed, the chairperson must proceed with the suspended business as though the ruling dissented from had not been given. If, as a result of the ruling, any motion or business has been rejected as out of order, the chairperson must restore the motion or business to the agenda and proceed with it in due course.

Acts of disorder

15.11 A councillor commits an act of disorder if the councillor, at a meeting of the council or a committee of the council:

(a) contravenes the Act or any regulation in force under the Act or this code, or
(b) assaults or threatens to assault another councillor or person present at the meeting, or
(c) moves or attempts to move a motion or an amendment that has an unlawful purpose or that deals with a matter that is outside the jurisdiction of the council or the committee, or addresses or attempts to address the council or the committee on such a motion, amendment or matter, or
(d) insults or makes personal reflections on or imputes improper motives to any other council official, or alleges a breach of the council's code of conduct, or
(e) says or does anything that is inconsistent with maintaining order at the meeting or is likely to bring the council or the committee into disrepute.

15.12 The chairperson may require a councillor:

(a) to apologise without reservation for an act of disorder referred to in clauses 15.11(a) or (b), or
(b) to withdraw a motion or an amendment referred to in clause 15.11(c) and, where appropriate, to apologise without reservation, or
(c) to retract and apologise without reservation for an act of disorder referred to in clauses 15.11(d) and (e).

Note: Acts of disorder committed by councillors during council or committee meetings may constitute a breach of clause 3.22 of the council's code of conduct and is councillor misconduct for the purposes of s440F of the *Local Government Act 1993*.

How disorder at a meeting may be dealt with

15.13 If disorder occurs at a meeting of the council, the chairperson may adjourn the meeting for a period of not more than fifteen (15) minutes and leave the chair. The council, on reassembling, must, on a question put from the chairperson, decide without debate whether the business is to be proceeded with or not. This clause applies to disorder arising from the conduct of members of the public as well as disorder arising from the conduct of councillors.

15.14 [Not applicable]

Expulsion from meetings

15.15 All chairpersons of meetings of the council and committees of the council are authorised under this code to expel any person other than a councillor, from a council or committee meeting, for the purposes of section 10(2)(b) of the Act. Councillors may only be expelled by resolution of the council or the committee of the council.

15.16 Clause 15.15 does not limit the ability of the council or a committee of the council to resolve to expel a person, including a councillor, from a council or committee meeting, under section 10(2)(a) of the Act.

15.17 A councillor may, as provided by section 10(2)(a) or (b) of the Act, be expelled from a meeting of the council for having failed to comply with a requirement under clause 15.12. The expulsion of a councillor from the meeting for that reason does not prevent any other action from being taken against the councillor for the act of disorder concerned.

15.18 A member of the public may, as provided by section 10(2)(a) or (b) of the Act, be expelled from a meeting of the council for engaging in or having engaged in disorderly conduct at the meeting.

15.19 Where a councillor or a member of the public is expelled from a meeting, the expulsion and the name of the person expelled, if known, are to be recorded in the minutes of the meeting.

15.20 If a councillor or a member of the public fails to leave the place where a meeting of the council is being held immediately after they have been expelled, a police officer, or any person authorised for the purpose by the council or person presiding, may, by using only such force as is necessary, remove the councillor or member of the public from that place and, if necessary, restrain the councillor or member of the public from re-entering that place for the remainder of the meeting.

Use of mobile phones and the unauthorised recording of meetings

15.21 Councillors, council staff and members of the public must ensure that mobile phones are turned to silent during meetings of the council and committees of the council.

15.22 A person must not live stream or use an audio recorder, video camera, mobile phone or any other device to make a recording of the proceedings of a meeting of the council or a committee of the council without the prior authorisation of the council or the committee.

15.22A The proceedings of a meeting that is open to the public may be recorded and broadcast by television broadcasters licensed by the Australian Communications and Media Authority (ACMA) provided that the broadcaster has made application to the general manager or their delegate to do so before the meeting and the application has been approved by the general manager.

15.23 Any person who contravenes or attempts to contravene clause 15.22, may be expelled from the meeting as provided for under section 10(2) of the Act.

15.24 If any such person, after being notified of a resolution or direction expelling them from the meeting, fails to leave the place where the meeting is being held, a police officer, or any person authorised for the purpose by the council or person presiding, may, by using only such force as is necessary, remove the first-mentioned person from that place and, if necessary, restrain that person from re-entering that place for the remainder of the meeting.

16 CONFLICTS OF INTEREST

16.1 All councillors and, where applicable, all other persons, must declare and manage any conflicts of interest they may have in matters being considered at meetings of the council and committees of the council in accordance with the council's code of conduct. All declarations of conflicts of interest and how the conflict of interest was managed by the person who made the declaration must be recorded in the minutes of the meeting at which the declaration was made.

17 DECISIONS OF THE COUNCIL

Council decisions

17.1 A decision supported by a majority of the votes at a meeting of the council at which a quorum is present is a decision of the council.

Note: Clause 17.1 reflects section 371 of the Act.

17.2 Decisions made by the council must be accurately recorded in the minutes of the meeting at which the decision is made.

Rescinding or altering council decisions

17.3 A resolution passed by the council may not be altered or rescinded except by a motion to that effect of which notice has been given under clause 3.10.

Note: Clause 17.3 reflects section 372(1) of the Act.

17.4 If a notice of motion to rescind a resolution is given at the meeting at which the resolution is carried, the resolution must not be carried into effect until the motion of rescission has been dealt with.

Note: Clause 17.4 reflects section 372(2) of the Act.

17.5 If a motion has been lost, a motion having the same effect must not be considered unless notice of it has been duly given in accordance with clause 3.10.

Note: Clause 17.5 reflects section 372(3) of the Act.

17.6 A notice of motion to alter or rescind a resolution, and a notice of motion which has the same effect as a motion which has been lost, must be signed by three (3) councillors if less than three (3) months has elapsed since the resolution was passed, or the motion was lost.

Note: Clause 17.6 reflects section 372(4) of the Act.

17.7 If a motion to alter or rescind a resolution has been lost, or if a motion which has the same effect as a previously lost motion is lost, no similar motion may be brought forward within three (3) months of the meeting at which it was lost. This clause may not be evaded by substituting a motion differently worded, but in principle the same.

Note: Clause 17.7 reflects section 372(5) of the Act.

17.8 The provisions of clauses 17.5–17.7 concerning lost motions do not apply to motions of adjournment.

Note: Clause 17.8 reflects section 372(7) of the Act.

17.9 A notice of motion submitted in accordance with clause 17.6 may only be withdrawn under clause 3.11 with the consent of all signatories to the notice of motion.

17.10 A notice of motion to alter or rescind a resolution relating to a development application must be submitted to the general manager no later than 12:00 PM on the next business day after the meeting at which the resolution was adopted.

17.11 A motion to alter or rescind a resolution of the council may be moved on the report of a committee of the council and any such report must be recorded in the minutes of the meeting of the council.

Note: Clause 17.11 reflects section 372(6) of the Act.

17.12 Subject to clause 17.7, in cases of urgency, a motion to alter or rescind a resolution of the council may be moved at the same meeting at which the resolution was adopted, where:

(a) a notice of motion signed by three councillors is submitted to the chairperson, and
(b) a motion to have the motion considered at the meeting is passed, and
(c) the chairperson rules the business that is the subject of the motion is of great urgency on the grounds that it requires a decision by the council before the next scheduled ordinary meeting of the council.

17.13 A motion moved under clause 17.12(b) can be moved without notice. Despite clauses 10.20–10.30, only the mover of a motion referred to in clause 17.12(b) can speak to the motion before it is put.

17.14 A motion of dissent cannot be moved against a ruling by the chairperson under clause 17.12(c).

Recommitting resolutions to correct an error

17.15 Despite the provisions of this Part, a councillor may, with the leave of the chairperson, move to recommit a resolution adopted at the same meeting to correct any error, ambiguity or imprecision in the council's resolution.

17.16 In seeking the leave of the chairperson to move to recommit a resolution for the purposes of clause 17.15, the councillor is to propose alternative wording for the resolution.

17.17 The chairperson must not grant leave to recommit a resolution for the purposes of clause 17.15, unless they are satisfied that the proposed alternative wording of the resolution would not alter the substance of the resolution previously

adopted at the meeting.

17.18 A motion moved under clause 17.15 can be moved without notice. Despite clauses 10.20–10.30, only the mover of a motion referred to in clause 17.15 can speak to the motion before it is put.

17.19 A motion of dissent cannot be moved against a ruling by the chairperson under clause 17.15.

17.20 A motion moved under clause 17.15 with the leave of the chairperson cannot be voted on unless or until it has been seconded.

18 TIME LIMITS ON COUNCIL MEETINGS

18.1 Meetings of the council and committees of the council are to conclude no later than **10:00PM.**

18.2 If the business of the meeting is unfinished at **10:00PM**, the council or the committee may, by resolution, extend the time of the meeting.

18.3 If the business of the meeting is unfinished at **10:00PM**, and the council does not resolve to extend the meeting, the chairperson must either:

(a) defer consideration of the remaining items of business on the agenda to the next ordinary meeting of the council, or
(b) adjourn the meeting to a time, date and place fixed by the chairperson.

18.4 Clause 18.3 does not limit the ability of the council or a committee of the council to resolve to adjourn a meeting at any time. The resolution adjourning the meeting must fix the time, date and place that the meeting is to be adjourned to.

18.5 Where a meeting is adjourned under clause 18.3 or 18.4, the general manager must:

(a) individually notify each councillor of the time, date and place at which the meeting will reconvene, and
(b) publish the time, date and place at which the meeting will reconvene on the council's website and in such other manner that the general manager is satisfied is likely to bring notice of the time, date and place of the reconvened meeting to the attention of as many people as possible.

19 AFTER THE MEETING

Minutes of meetings

19.1 The council is to keep full and accurate minutes of the proceedings of meetings of the council.

Note: Clause 19.1 reflects section 375(1) of the Act.

19.2 At a minimum, the general manager must ensure that the following matters are recorded in the council's minutes:

(a) details of each motion moved at a council meeting and of any amendments moved to it,
(b) the names of the mover and seconder of the motion or amendment,
(c) whether the motion or amendment was passed or lost, and
(d) such other matters specifically required under this code.

19.3 The minutes of a council meeting must be confirmed at a subsequent meeting of the council.

Note: Clause 19.3 reflects section 375(2) of the Act.

19.4 Any debate on the confirmation of the minutes is to be confined to whether the minutes are a full and accurate record of the meeting they relate to.

19.5 When the minutes have been confirmed, they are to be signed by the person presiding at the subsequent meeting.

Note: Clause 19.5 reflects section 375(2) of the Act.

19.6 The confirmed minutes of a meeting may be amended to correct typographical or administrative errors after they have been confirmed. Any amendment made under this clause must not alter the substance of any decision made at the meeting.

19.7 The confirmed minutes of a council meeting must be published on the council's website. This clause does not prevent the council from also publishing unconfirmed minutes of its meetings on its website prior to their confirmation.

Access to correspondence and reports laid on the table at, or submitted to, a meeting

19.8 The council and committees of the council must, during or at the close of a meeting, or during the business day following the meeting, give reasonable access to any person to inspect correspondence and reports laid on the table at, or submitted to, the meeting.

Note: Clause 19.8 reflects section 11(1) of the Act.

19.9 Clause 19.8 does not apply if the correspondence or reports relate to a matter that was received or discussed or laid on the table at, or submitted to, the meeting when the meeting was closed to the public.

Note: Clause 19.9 reflects section 11(2) of the Act.

19.10 Clause 19.8 does not apply if the council or the committee resolves at the meeting, when open to the public, that the correspondence or reports are to be treated as confidential because they relate to a matter specified in section 10A(2) of the Act.

Note: Clause 19.10 reflects section 11(3) of the Act.

19.11 Correspondence or reports to which clauses 19.9 and 19.10 apply are to be marked with the relevant provision of section 10A(2) of the Act that applies to the correspondence or report.

Implementation of decisions of the council

19.12 The general manager is to implement, without undue delay, lawful decisions of the council.

Note: Clause 19.12 reflects section 335(b) of the Act.

20 COUNCIL COMMITTEES

Application of this Part

20.1 This Part only applies to committees of the council whose members are all councillors.

Council committees whose members are all councillors

20.2 The council may, by resolution, establish such committees as it considers necessary.

20.3 A committee of the council is to consist of the mayor and such other councillors as are elected by the councillors or appointed by the council.

20.4 The quorum for a meeting of a committee of the council is to be:

(a) such number of members as the council decides, or
(b) if the council has not decided a number – a majority of the members of the committee.

Functions of committees

20.5 The council must specify the functions of each of its committees when the committee is established, but may from time to time amend those functions.

Notice of committee meetings

20.6 The general manager must send to each councillor, regardless of whether they are a committee member, at least three (3) days before each meeting of the committee, a notice specifying:

(a) the time, date and place of the meeting, and
(b) the business proposed to be considered at the meeting.

20.7 Notice of less than three (3) days may be given of a committee meeting called in an emergency.

Attendance at committee meetings

20.8 A committee member (other than the mayor) ceases to be a member of a committee if the committee member:

(a) has been absent from three (3) consecutive meetings of the committee without having given reasons acceptable to the committee for the

member's absences, or

(b) has been absent from at least half of the meetings of the committee held during the immediately preceding year without having given to the committee acceptable reasons for the member's absences.

20.9 Clause 20.8 does not apply if all of the members of the council are members of the committee.

Non-members entitled to attend committee meetings

20.10 A councillor who is not a member of a committee of the council is entitled to attend, and to speak at a meeting of the committee. However, the councillor is not entitled:

(a) to give notice of business for inclusion in the agenda for the meeting, or
(b) to move or second a motion at the meeting, or
(c) to vote at the meeting.

Chairperson and deputy chairperson of council committees

20.11 The chairperson of each committee of the council must be:

(a) the mayor, or
(b) if the mayor does not wish to be the chairperson of a committee, a member of the committee elected by the council, or
(c) if the council does not elect such a member, a member of the committee elected by the committee.

20.12 The council may elect a member of a committee of the council as deputy chairperson of the committee. If the council does not elect a deputy chairperson of such a committee, the committee may elect a deputy chairperson.

20.13 If neither the chairperson nor the deputy chairperson of a committee of the council is able or willing to preside at a meeting of the committee, the committee must elect a member of the committee to be acting chairperson of the committee.

20.14 The chairperson is to preside at a meeting of a committee of the council. If the chairperson is unable or unwilling to preside, the deputy chairperson (if any) is to preside at the meeting, but if neither the chairperson nor the deputy chairperson is able or willing to preside, the acting chairperson is to preside at the meeting.

Procedure in committee meetings

20.15 Subject to any specific requirements of this code, each committee of the council may regulate its own procedure. The provisions of this code are to be taken to apply to all committees of the council unless the council or the committee determines otherwise in accordance with this clause.

20.16 Whenever the voting on a motion put to a meeting of the committee is equal, the chairperson of the committee is to have a casting vote as well as an original

vote unless the council or the committee determines otherwise in accordance with clause 20.15.

20.17 Joint Organisation [Not applicable]

20.18 Voting at a council committee meeting is to be by open means (such as on the voices, by show of hands or by a visible electronic voting system).

Closure of committee meetings to the public

20.19 The provisions of the Act and Part 14 of this code apply to the closure of meetings of committees of the council to the public in the same way they apply to the closure of meetings of the council to the public.

20.20 If a committee of the council passes a resolution, or makes a recommendation, during a meeting, or a part of a meeting that is closed to the public, the chairperson must make the resolution or recommendation public as soon as practicable after the meeting or part of the meeting has ended, and report the resolution or recommendation to the next meeting of the council. The resolution or recommendation must also be recorded in the publicly available minutes of the meeting.

20.21 Resolutions passed during a meeting, or a part of a meeting that is closed to the public must be made public by the chairperson under clause 20.20 during a part of the meeting that is webcast.

Disorder in committee meetings

20.22 The provisions of the Act and this code relating to the maintenance of order in council meetings apply to meetings of committees of the council in the same way as they apply to meetings of the council.

Minutes of council committee meetings

20.23 Each committee of the council is to keep full and accurate minutes of the proceedings of its meetings. At a minimum, a committee must ensure that the following matters are recorded in the committee's minutes:

(a) details of each motion moved at a meeting and of any amendments moved to it,
(b) the names of the mover and seconder of the motion or amendment,
(c) whether the motion or amendment was passed or lost, and
(d) such other matters specifically required under this code.

20.24 All voting at meetings of committees of the council (including meetings that are closed to the public), must be recorded in the minutes of meetings with the names of councillors who voted for and against each motion or amendment, (including the use of the casting vote), being recorded.

20.25 The minutes of meetings of each committee of the council must be confirmed at a subsequent meeting of the committee.

20.26 Any debate on the confirmation of the minutes is to be confined to whether the

minutes are a full and accurate record of the meeting they relate to.

20.27 When the minutes have been confirmed, they are to be signed by the person presiding at that subsequent meeting.

20.28 The confirmed minutes of a meeting may be amended to correct typographical or administrative errors after they have been confirmed. Any amendment made under this clause must not alter the substance of any decision made at the meeting.

20.29 The confirmed minutes of a meeting of a committee of the council must be published on the council's website. This clause does not prevent the council from also publishing unconfirmed minutes of meetings of committees of the council on its website prior to their confirmation.

21 IRREGULARITES

21.1 Proceedings at a meeting of a council or a council committee are not invalidated because of:

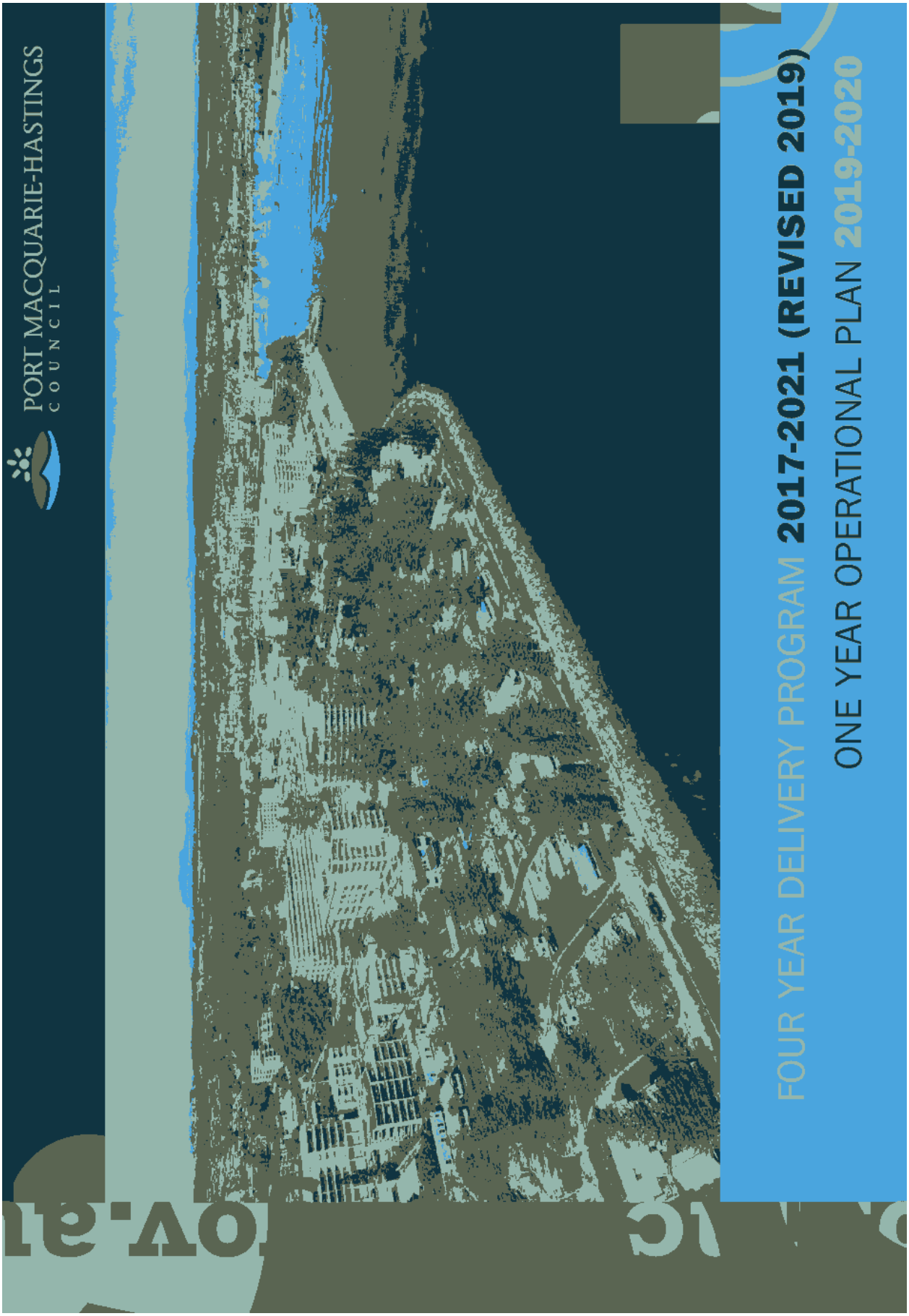
(a) a vacancy in a civic office, or
(b) a failure to give notice of the meeting to any councillor or committee member, or
(c) any defect in the election or appointment of a councillor or committee member, or
(d) a failure of a councillor or a committee member to declare a conflict of interest, or to refrain from the consideration or discussion of, or vote on, the relevant matter, at a council or committee meeting in accordance with the council's code of conduct, or
(e) a failure to comply with this code.

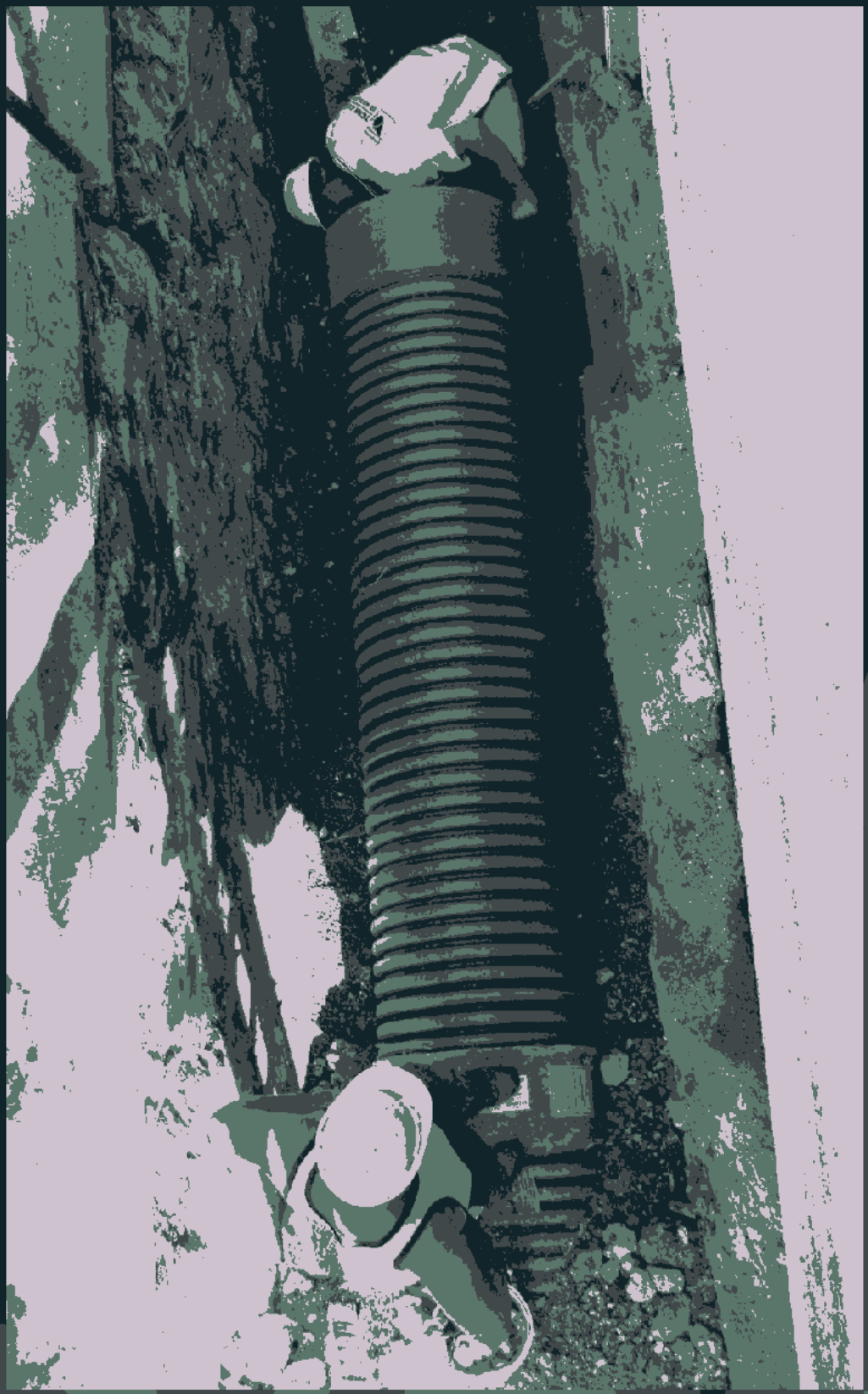
Note: Clause 21.1 reflects section 374 of the Act.

22 DEFINITIONS

the Act	means the *Local Government Act 1993*
act of disorder	means an act of disorder as defined in clause 15.11 of this code
amendment	in relation to an original motion, means a motion moving an amendment to that motion
audio recorder	any device capable of recording speech
business day	means any day except Saturday or Sunday or any other day the whole or part of which is observed as a public holiday throughout New South Wales
chairperson	in relation to a meeting of the council – means the person presiding at the meeting as provided by section 369 of the Act and clauses 6.1 and 6.2 of this code, and in relation to a meeting of a committee – means the person presiding at the meeting as provided by clause 20.11 of this code
this code	means the council's adopted code of meeting practice
committee of the council	means a committee established by the council in accordance with clause 20.2 of this code (being a committee consisting only of councillors) or the council when it has resolved itself into committee of the whole under clause 12.1
council official	has the same meaning it has in the Model Code of Conduct for Local Councils in NSW
day	means calendar day
division	means a request by two councillors under clause 11.7 of this code requiring the recording of the names of the councillors who voted both for and against a motion
foreshadowed amendment	means a proposed amendment foreshadowed by a councillor under clause 10.18 of this code during debate on the first amendment
foreshadowed motion	means a motion foreshadowed by a councillor under clause 10.17 of this code during debate on an original motion
open voting	means voting on the voices or by a show of hands or by a visible electronic voting system or similar means
planning decision	means a decision made in the exercise of a function of a council under the *Environmental Planning and Assessment Act 1979* including any decision relating to a development application, an environmental planning instrument, a development control plan or a development contribution plan under that Act, but not including the making of an order under Division 9.3 of Part 9 of that Act
performance improvement order	means an order issued under section 438A of the Act

quorum	means the minimum number of councillors or committee members necessary to conduct a meeting
the Regulation	means the *Local Government (General) Regulation 2005*
webcast	a video or audio broadcast of a meeting transmitted across the internet either concurrently with the meeting or at a later time
year	means the period beginning 1 July and ending the following 30 June


PORT MACQUARIE-HASTINGS
COUNCIL
FOUR YEAR DELIVERY PROGRAM 2017-2021 (REVISED 2019)
ONE YEAR OPERATIONAL PLAN 2019-2020



Cover: Port Macquarie
Above: Gravity main during construction

PORT MACQUARIE-HASTINGS
COUNCIL

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Message

FROM THE MAYOR AND GENERAL MANAGER

Peta Pinso

Mayor

Craig Swift-

General Manager

We are pleased to be able to present the combined 2017-2021 Delivery Program and the 2019-2020 Operational Plan. This is the third annual Operational Plan within this four year Delivery Program, following the Council elections that were held in September 2016.

Once again we have kept the format of this plan the same as previous years, where we have combined the four year Delivery Program with the one year Operational Plan to allow for better integration of Council's planning documents. Importantly, the four community themes outlined in the Towards 2030 Community Strategic Plan are once again featured in this plan, with those themes being Leadership and Governance, Your Community Life, Your Business and Industry, Your Natural and Built Environment.

This document is part of Council's integrated suite of planning documents and demonstrates how Council is achieving the objectives and vision of the Community Strategic Plan. The integration of this suite of documents has been done with the community in mind, to make it clear how the plans fit together and to make it easy to understand how we are planning for and delivering on community priorities.

It goes without saying that the continued growth of the Port Macquarie-Hastings local government area is one of the key ongoing challenges facing Council and the community and continuing to plan for and deliver the infrastructure to accommodate that growth is a major focus for Council. Whether this be the provision of increased water and sewer services, road rehabilitation and maintenance, stormwater maintenance, vegetation management, ongoing development and maintenance of our parks, reserves and sporting grounds, construction and maintenance of footpaths or providing waste services to name a few, Council is working hard to ensure our area can cope with the current and anticipated future growth.

Traffic congestion is one particular issue that Council will continue to work with the community on during 2019-2020 – we need to be able to plan and implement improvements across our transport network for our growing community. Our focus here will

PORT MACQUARIE-HASTINGS
COUNCIL

be on-going improvements to our existing road network and, subject to Council resolutions on this, may include ongoing conversations around the proposed Orbital Road. Like any major infrastructure project, the planning and approval process can take many years for something like the proposed Orbital Road and during 2019-2020 if Council resolves to proceed to the next stage of planning, work will commence on the strategic business case for the proposed road. The strategic business case will use information and findings from the Needs Confirmation Summary and feedback from community engagement and will also include a cost benefit analysis of options to improve the Port Macquarie road network, focusing on economic, social and environmental considerations. The intent being that at the conclusion of the Strategic Business Case, we would have an improved understanding of the most feasible option (s) (potentially short and long term) to alleviate traffic congestion via better dispersal of traffic across our network. The community can be assured of our ongoing transparency as we continue to manage the issue of traffic congestion across our local area. The 2019-2020 Operational Plan includes expenditure of

> Over $36 million on the maintenance and upgrade of sealed and unsealed roads, bridges and roadside vegetation
> Over $39 million on sewerage services
> Over $17 million on water supply and related services
> Over $17 million in waste services
> Over $23 million on the maintenance and upgrade of playgrounds, sporting fields and open recreation spaces
> Over $4 million on stormwater maintenance and monitoring
> Over $1 million on shared footpaths and cycleways

This list is by no means exhaustive, but simply highlights some of the broad areas of focus during 2019-2020.

In 2017-2018, Council met the Operating Performance ratio benchmark as set by the New South Wales Government for the fourth year in a row, noting that the result for 2018-2019 will not be known until after this document is published. This benchmark indicates whether revenue is covering expenses and whether the Council is funding depreciation on its assets. The years of 2014-2018 have seen some of our best financial results for many years and we hope to continue that trend in 2018-2019 year and into 2019-2020. Having said that, with the growth being experienced in our area, Councils budgets, as with everyone's budgets, are under constant pressure and there will be ongoing vigilance required to ensure that Council continues to maintain its financial sustainability, whilst still delivering the services and works required by the community.

On the subject of benchmarks, Council continues to meet benchmark across several other key financial ratios, which indicates that Council has good cash liquidity and is able to pay debts as they fall due. The longer-term ratios that relate to Council's infrastructure are showing slight improvements, but they are still challenging as we continue to manage and maintain over $2.1billion worth of assets. It is expected that any continued improvements in these ratios will generally be incremental.

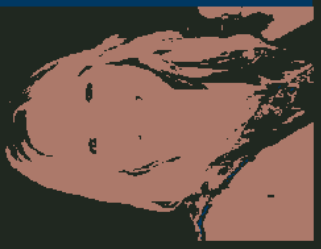
Throughout 2019-2020 we will also continue to take as many opportunities as possible to engage with our community, as it is these interactions that bring Council closer to the community. If we are to continue to create a vibrant future for our area, then we need to ensure we connect often with the people who help make our area such a vibrant place to live, learn, work, play and invest.

This combined 2017-2021 Delivery Program and the 2019-2020 Operational Plan is very much the result of engagement with our community over a long period of time and we look forward to continuing to listen to and deliver for the Port Macquarie-Hastings community in 2019-2020 and beyond.

PORT MACQUARIE-HASTINGS COUNCIL

Councillor PORTFOLIOS

At the November 2016 Council Meeting, new Councillor Portfolios were established. The portfolios are set up by the Council to champion the advancement of Council's key priorities by providing a means of gathering, receiving and discussing information in an efficient and timely manner. Good communication and respectful relationships between staff and Councillors has been a key to our success over the last few years and the portfolios have played an important role in this regard.



Mayor
Peta Pinson

Deputy Mayor
Lisa Internann

Water, Stormwater, Sewer and Waste
Alt Chair: Councillor Justin Levido

Communication, Governance and Community Relations
Alt Chair: Councillor Rob Turner

Councillor
Rob Turner

Economic and Cultural Development
Alt Chair: Councillor Geoff Hawkins

Councillor
Mike Cusato

External Grants and Revenues
Alt Chair: Councillor Peter Alley

Councillor
Sharon Griffiths

Roads and Transport Infrastructure
Alt Chair: Councillor Lee Dixon

Councillor
Peter Alley

Planning, Environment and Sustainability
Alt Chair: Councillor Rob Turner

Councillor
Justin Levido

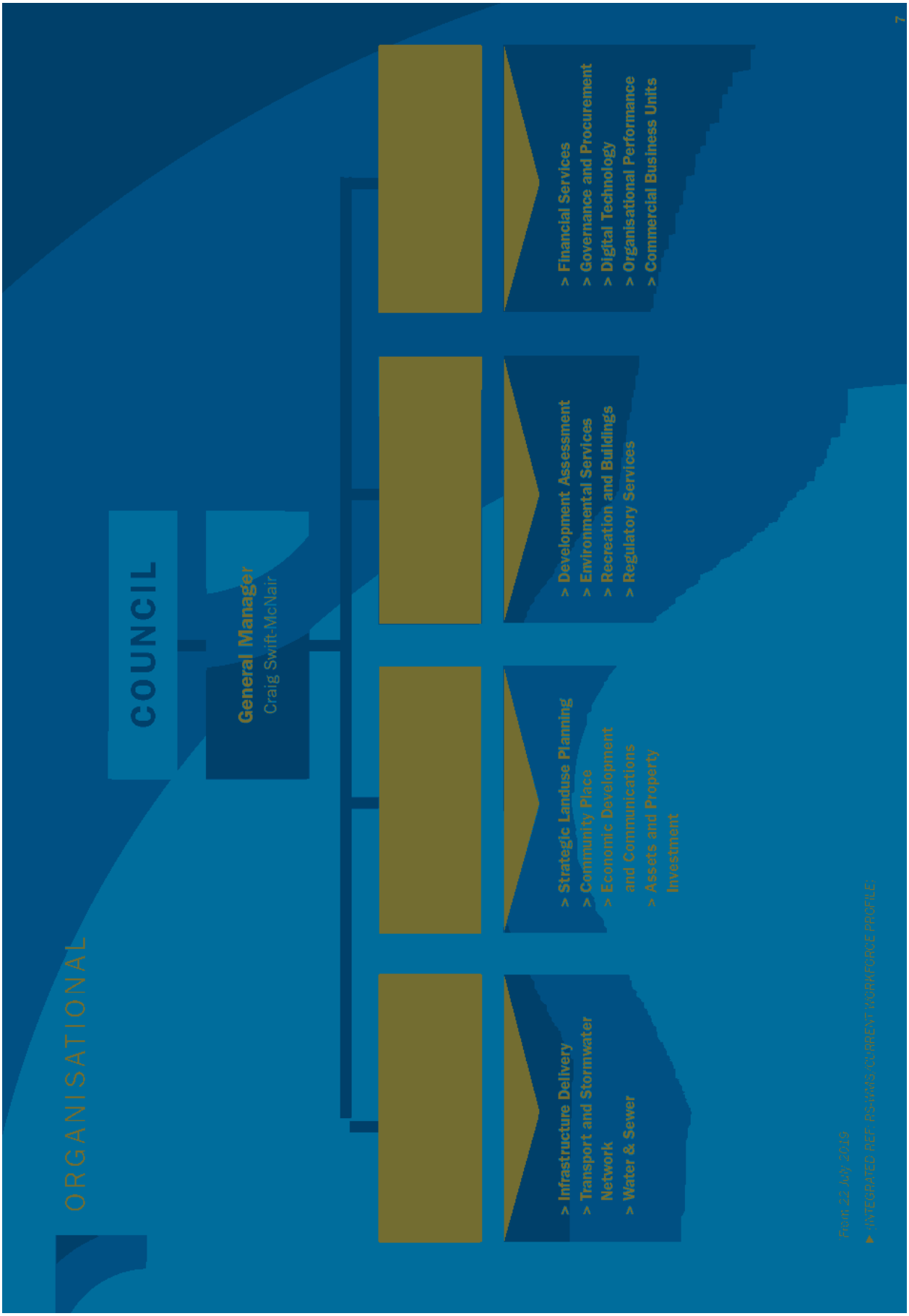
Major Projects
Alt Chair: Councillor Mike Cusato

Councillor
Geoff Hawkins

Finance, Corporate Services and Information Technology
Alt Chair: Councillor Lisa Internann

Councillor
Lee Dixon

Towns, Villages and Public Spaces
Alt Chair: Councillor Sharon Griffiths


ORGANISATIONAL
COUNCIL
General Manager
Craig Swift-McNair
> Infrastructure Delivery
> Transport and Stormwater Network
> Water & Sewer
> Strategic Landuse Planning
> Community Place
> Economic Development and Communications
> Assets and Property Investment
> Development Assessment
> Environmental Services
> Recreation and Buildings
> Regulatory Services
> Financial Services
> Governance and Procurement
> Digital Technology
> Organisational Performance
> Commercial Business Units
From 22 July 2019
INTEGRATED REF: RS-WMS/CURRENT WORKFORCE PROFILE

PORT MACQUARIE-HASTINGS
COUNCIL

Our Vision

A sustainable high quality of life for all

Our Mission

Building the future together – people, place, health, education and technology

Our Community Themes

> *Leadership and Governance*

> *Your Community Life*

> *Your Business and Industry*

> *Your Natural and Built Environment*

Liberty Wheelchair Swing, Town Beach Playground, Port Macquarie

PORT MACQUARIE-HASTINGS
COUNCIL

WHAT IS INTEGRATED PLANNING AND REPORTING (IPR)?

The Integrated Planning and Reporting (IPR) framework was legislated by the New South Wales Office of Local Government in 2009. It provides councils with a planning framework that is guided by the vision of the community. The framework is made up of four major elements, which are linked and continually assessed through regulatory reporting channels.

These are the:

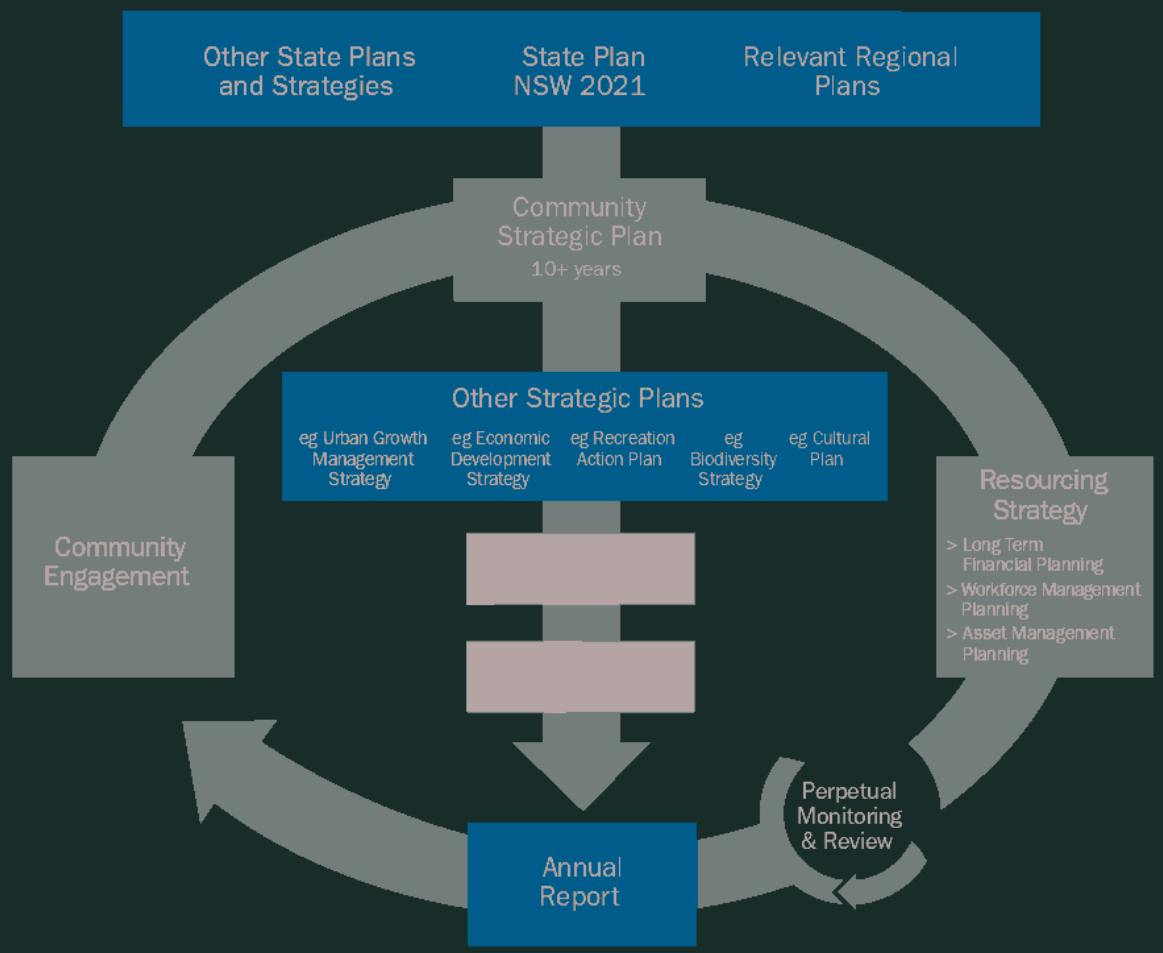
> Towards 2030 Community Strategic Plan (CSP)

> 2017-2021 Delivery Program (DP) (Revised 2018)

> 2019-2020 Operational Plan (OP)

> Resourcing Strategy (RS)

These are briefly explained over the next few pages.



Under the framework, councils are required to give due regard to State Plan NSW 2021 and other Relevant Regional Plans to inform Council in identifying relevant issues for its Community Strategic Plan. Likewise, Council also have a wide range of plans for consideration, which highlight key local community issues. A number of examples include Land Use Strategy, Tourism Strategy, Cultural Plan, Economic Development Strategy and Heritage Plan.

WHAT IS THE TOWARDS 2030 COMMUNITY STRATEGIC PLAN (CSP)?

This document is owned by the people of Port Macquarie-Hastings. It details the long-term vision and aspirations of the community, taking into consideration the issues and challenges of the local area. Council, which has a custodial role in the creation and collation of the CSP, undertook community engagement in 2009, resulting in the creation and adoption of the CSP in 2010. This CSP was reviewed and adopted by Council in June 2017 and is used as the overarching reference document in the development and updating of the Delivery Program and Operational Plan for subsequent years including 2019-20.

The CSP is structured around the following Community Themes that are also reflected in the Delivery Program and Operational Plan.

- Community Theme 1 – Leadership and Governance
- Community Theme 2 – Your Community Life
- Community Theme 3 – Your Business and Industry
- Community Theme 4 – Your Natural and Built Environment

WHAT IS THE RESOURCING STRATEGY?

The Resourcing Strategy has three elements. These are the Long Term Financial Plan, the Workforce Management Strategy, and the Asset Management Strategy & Plan. These provide the detail on the resources, time, money and people required to enable the objectives detailed in the 2017-2021 Delivery Program.

WHAT IS THE DELIVERY PROGRAM?

The 2017-2021 Delivery Program (DP) was developed by the newly elected Council after the September 2016 local election. It covers a four year period starting 1 July 2017. It outlines Council's commitments to the Port Macquarie-Hastings community during their four-year term of office. These commitments focus on achieving the aspirations of the community as detailed in the Community Strategic Plan. The DP includes financial estimates. The Financial Plan section of this document details the Operational budgets and Works Program for 2018-2022. It takes into account community priorities and expected levels of service, as indicated through council's community engagement and consultation activities.

Whilst the adopted DP is for four years (i.e. 2017-21), the financial information up to 2022-23 has been included this year for effective forward planning. The 2018-19 financial year on pages 33 to 36 has been shaded to keep visibility of the original 'adopted' four year period of the DP.

WHAT IS THE OPERATIONAL PLAN?

The one year Operational Plan is a sub-plan of the Delivery Program. It lists individual actions that will be undertaken during the financial year to achieve outcomes stated in the 2017-2021 Delivery Program. The Operational Plan includes the Revenue Policy, Rating Maps, and proposed Fees and Charges. It includes a detailed budget to support the activities to be undertaken during the year.

HOW DO THE PLANS INTEGRATE?

Beginning 2017-2018, Council has demonstrated transparent 'integration' of plans across the Integrated Planning and Reporting (IPR) suite of documents, as shown in the IPR Integration Framework diagram.

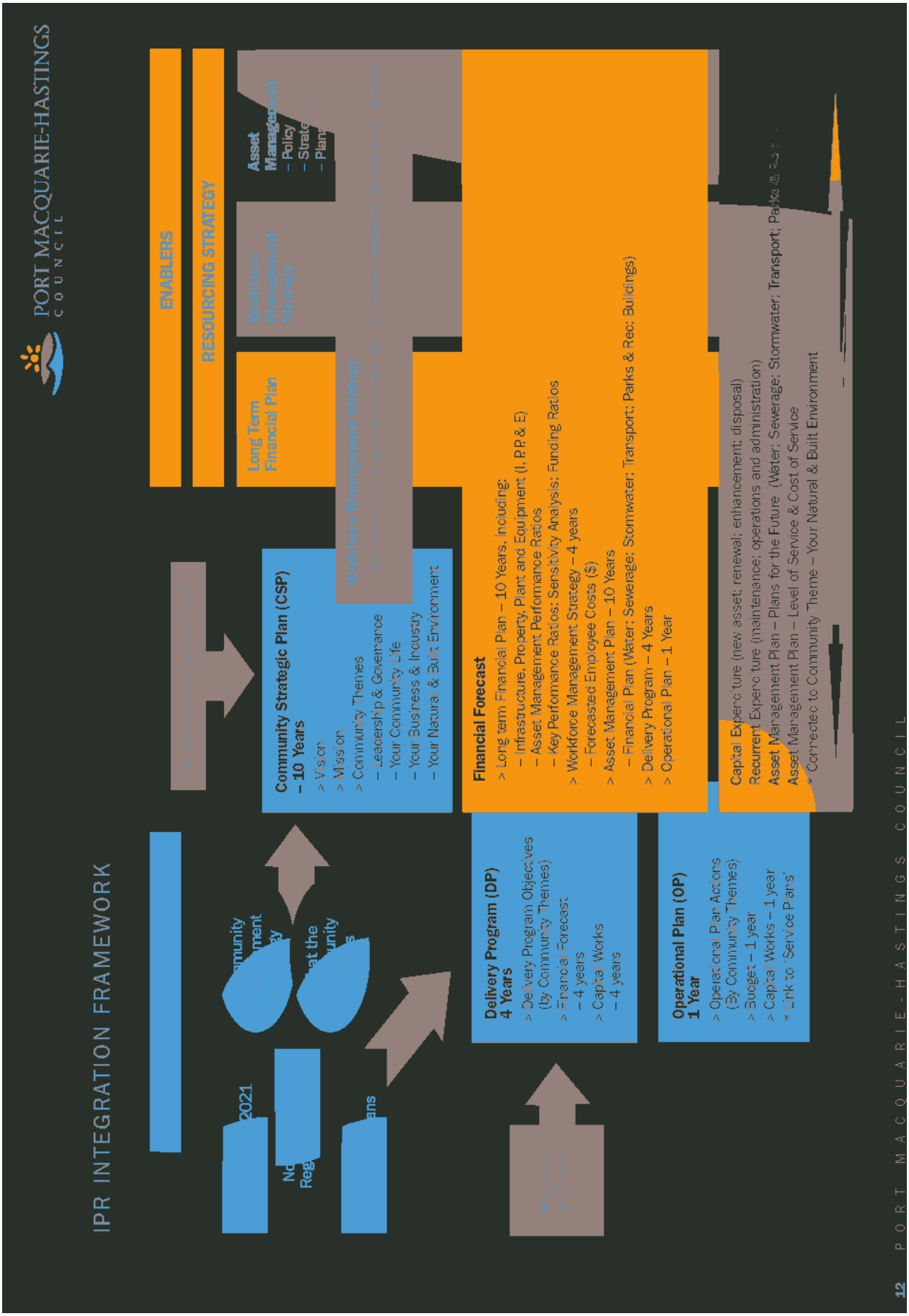
Council has done this by:

> using colour and alpha/numeric coding to connect the goals in the Community Strategic Plan, through the Delivery Program, to the actions in the Operational Plan
> applying the same coding to Resourcing Strategy documents to make it clear how specific programs or activities are to be resourced
> demonstrating the relationship between the CSP, the State Plan NSW 2021 and the North Coast Regional Plan 2036
> ensuring the CSP addresses quadruple bottom line (social, environmental, economic and civic leadership) issues in an integrated manner
> demonstrating a clear link between goals in the CSP and the activities in the Development Plan and Operational Plan
> identifying strategies and plans in the Workforce Management Strategy and Asset Management Strategy and Plan which will impact on the Council's finances as shown in Long Term Financial Plan
> reflecting specific assets, financial and workforce activities in the Resourcing Strategy that are connected in both the Delivery Program and Operational Plan
> demonstrating the way in which goals, actions and timelines in the CSP, Resourcing Strategy, the Delivery Program and Operational Plan fit together.

Integrated referencing appears across the suite of documents with an example provided below on how to use the referencing system:

Example: (Integrated Ref: RS-LTFP/Improvement Plan)
RS = More information can be found in the Resourcing Strategy 2017-2021
LTFP = Go to the Long Term Financial Plan section, which is a component of the Resourcing Strategy
Improvement Plan = Go to Improvement Plan section which is located in the Long Term Financial Plan

Council will continue to develop its integration of the IPR suite of documents through annual review and update.


PORT MACQUARIE-HASTINGS
COUNCIL
IPR INTEGRATION FRAMEWORK
ENABLERS
RESOURCING STRATEGY
Long Term Financial Plan
Workforce Management Strategy
Asset Management
– Policy
Workforce Management Strategy
Community Strategic Plan (CSP)
– 10 Years
> Vision
> Mission
> Community Themes
– Leadership & Governance
– Your Community Life
– Your Business & Industry
– Your Natural & Built Environment
Financial Forecast
> Long term Financial Plan – 10 Years, including:
– Infrastructure, Property, Plant and Equipment (I, P,P & E)
– Asset Management Performance Ratios
– Key Performance Ratios: Sensitivity Analysis; Funding Ratios
> Workforce Management Strategy – 4 years
– Forecasted Employee Costs ($)
> Asset Management Plan – 10 Years
– Financial Plan (Water; Sewerage; Stormwater; Transport; Parks & Rec; Buildings)
> Delivery Program – 4 Years
> Operational Plan – 1 Year
Capital Expenditure (new asset; renewal; enhancement; disposal)
Recurrent Expenditure (maintenance; operations and administration)
Asset Management Plan – Plans for the Future (Water; Sewerage; Stormwater; Transport; Parks & Rec
Asset Management Plan – Level of Service & Cost of Service
* Connected to Community Theme – Your Natural & Built Environment
Delivery Program (DP)
4 Years
> Delivery Program Objectives
(By Community Themes)
> Financial Forecast
– 4 years
> Capital Works
– 4 years
Operational Plan (OP)
1 Year
> Operational Plan Actions
(By Community Themes)
> Budget – 1 year
> Capital Works – 1 year
* Link to 'Service Plans'
2021
12
PORT MACQUARIE-HASTINGS COUNCIL

WHAT HAS THE COMMUNITY TOLD US?

Under the revised *Local Government Act (1993)*, Council must prepare and implement a Community Engagement Strategy, based on social justice principles, for engagement with the local community. Council has developed a Community Engagement Strategy. It is designed to form the foundation for the way in which Council's community engagement is undertaken and to bring Council closer to the community. Community engagement activities that have informed the Integrated Planning and Reporting suite of documents include:

> the Your Voice our Community (YVOC) campaign to discuss service level expectations
> the community forum to discuss Council's priority services and how we fund them into the future
> the community telephone survey of 800 participants to investigate community attitudes, values and perceptions for services, facilities and infrastructure provided by Council
> the Micromex Community Satisfaction Research

Every two years Council conducts a community satisfaction survey with Micromex to ask questions about what is important to the community and how satisfied they are with what Council does. In November 2017, Micromex community satisfaction research has provided us the following results in *Figure 1* at right.

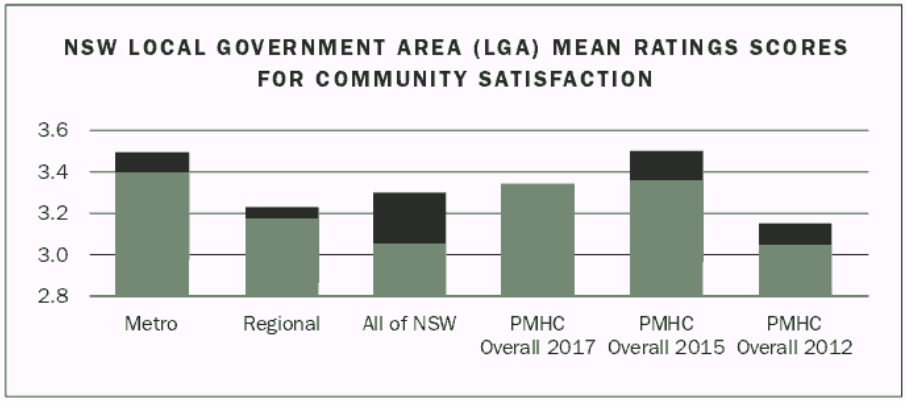


Figure 1

In relation to the mean ratings in *Figure 1*, while the result is down on the 2015 score, the overall result is slightly above the NSW benchmark and still well above the 2012 result.

The survey highlighted the following:

> Overall, the community has given us positive feedback in these surveys with 87% of residents indicating they were at least somewhat satisfied with the performance of Council.
> 84% of residents were at least 'somewhat satisfied' with the current level of communication from Council
> Climate/weather and central location/proximity to beaches, nature, services and facilities are most valued by residents
> 21% of residents were most concerned with the deteriorating condition of local roads and supporting infrastructure
> At a holistic level, residents were moderately satisfied (rating of 3 or above) with 40 of the 48 services and facilities provided by Council.
> Top 3 drivers of satisfaction falling within 'leadership and governance' include: 'providing value for ratepayers' dollars', 'providing strong leadership' and 'informing our community about council activities'.
> 85% of residents indicated roads, bridges and transport require more investment

Council use the results of these surveys to plan, investigate, and action matters that are important to the community. It provides support in assessing and establishing community's priorities and satisfaction in relation to Council activities, services, and facilities. The survey likewise identifies community's overall level of satisfaction with Council's performance.

CONTINUING OUR WAY FORWARD WITH COMMUNITY ENGAGEMENT

The Port Macquarie-Hastings Local Government Area is home to a number of vibrant towns, villages and communities, each with its own unique history, character, urban amenity, community and vision for their future. These communities also have common threads in their past, present and the opportunities and challenges that each will face in their future.

To ensure that we continue to engage with our communities and understand what their vision for the future is Council developed a new program of engagement and in 2018, Council embarked on a new approach to working with our communities across the region – Community Planning.

Community Planning is a dynamic, participatory process that allows communities to have their voice heard. Eighteen (18) communities have been identified across the Local Government Area.

The community planning process begins with community surveys and forums and then continues with the formation of Community Council Action Teams. Feedback derived from these community consultations forms the basis for constructing each area's 'Community Plan'. These Plans are a community-led blueprint which reflect the aspirations, strengths and what is special or unique about a community; the character, lifestyle, urban amenity, social image, economy and environment, and the vision that the community has for its future.

Each Community Plan is accompanied by an ongoing Action Plan which identifies key priorities and actions to achieve their vision – the responsibility for which will be shared between the community and Council. Ongoing community planning is a key process in developing a strong partnership between Council and the community and will enable Council to:

> Understand the issues and priorities for each community;
> Understand what our communities value;
> Assess these priorities in relationship to Council's operational plan development; and
> Encourage community-led place development.

Community planning commenced in late 2018, after a pilot program in Bonny Hills. We are currently working with five communities including:

> North Shore,
> Comboyne/Byabarra
> Thrumster/Sovereign Hills/ Ascot Park/Lake Innes and Innes Lake
> Camden Haven (North Haven, West Haven, Laurieton, Dunbogan, Camden Head, Lakeshore)
> Kew/Kendall

Engagement in these community includes a variety of method to ensure that we can reach as many members of the community as possible. This includes a postcard campaign, community think tanks, family fun days and the establishment of a Community Council Action Team (CCAT) to help determine and drive the plans. We will continue to systematically work with communities until August 2020 to develop community plans, that identify a vision of place, local character setting, mission and key actions to be delivered by both Council and the Community.

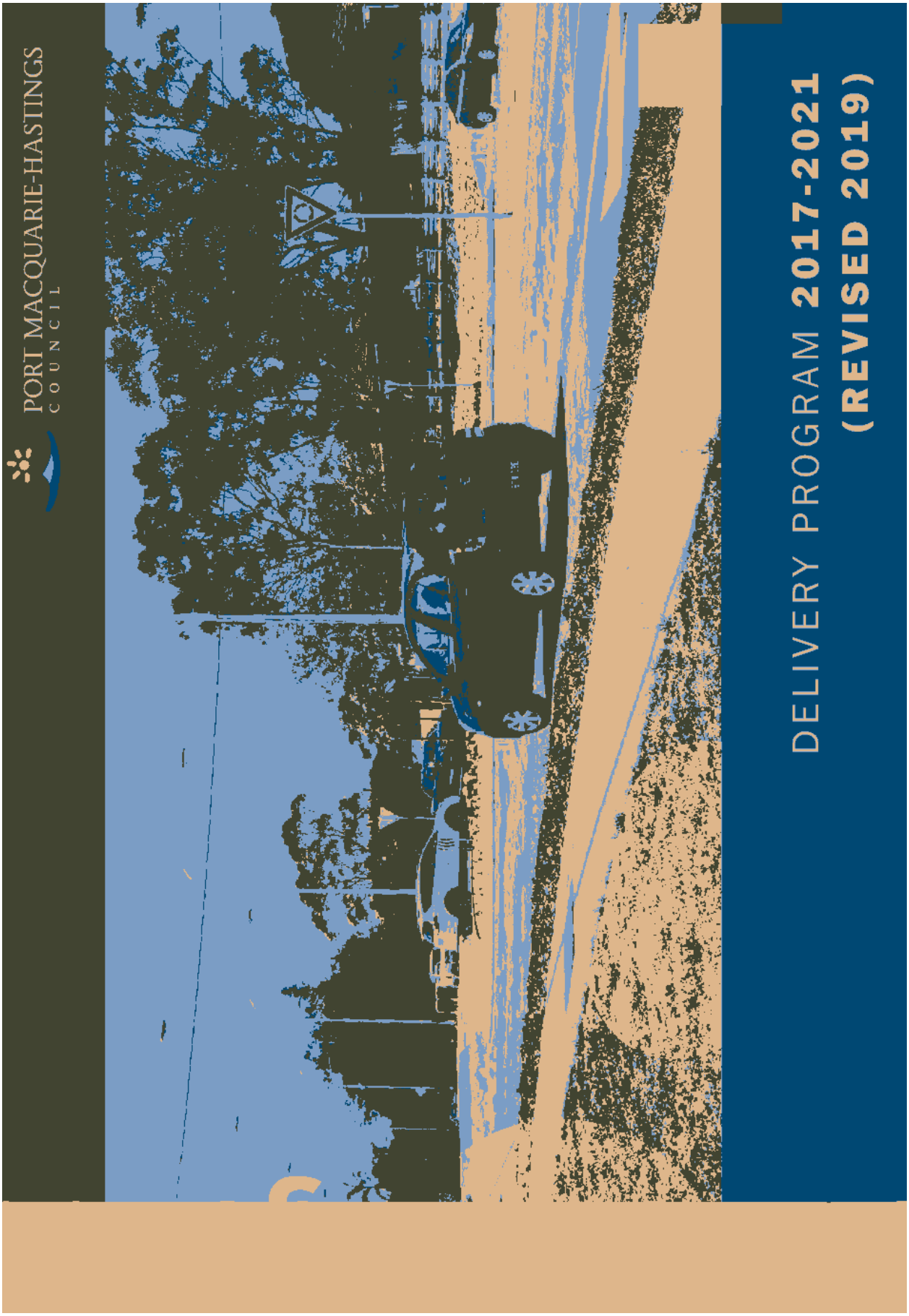
IMPROVEMENT PLAN

Council is committed to sound financial management and ongoing financial sustainability. In order to ensure that appropriate asset maintenance and service levels can be delivered to our community, and to secure long-term financial sustainability, Council has an ongoing commitment to continuous improvement. Relevant actions and measures from Council's improvement plan are incorporated into the Delivery Program and Resourcing Strategy. Council measures its financial sustainability and progress of these actions in part against a suite of financial key performance ratios. Developed by the Office of Local Government, these ratios cover a range of important financial measures, including liquidity, performance, affordability of debt and asset management. The Office of Local Government has developed benchmark levels for each ratio and Council measures and reports its performance against these benchmarks. Financial key performance indicators and associated benchmarks include the following:

Benchmark Category	Ratio	Benchmark
Sustainability	Operating Performance Ratio Own Source Operating Revenue infrastructure Backlog Ratio	> 0% > 60% < 2%
Infrastructure and service management	Asset Maintenance Ratio Debt Service Cover Ratio	> 100% > 2x
Efficiency	Real Operating Expenditure per Capita	A decrease over time

Council has an ongoing commitment to continuous improvement. Improvements to performance are throughout the Resourcing Strategy.

► *(INTEGRATED REF: RS-LTFP/KEY PERFORMANCE RATIOS)*


PORT MACQUARIE-HASTINGS
COUNCIL
DELIVERY PROGRAM 2017-2021
(REVISED 2019)

Delivery Program

DELIVERY PROGRAM 2017-2021 (REVISED 2019)

QUICK REFERENCE GUIDE

Finding information on services of interest.

The Delivery Program, like the other documents in the Integrated Planning and Reporting suite, is organised according to key themes detailed below:

- **Community Theme 1: Leadership and Governance**
- **Community Theme 2: Your Community Life**
- **Community Theme 3: Your Business and Industry**
- **Community Theme 4: Your Natural and Built Environment**

Feedback from the community has identified the need to be able to easily find services that are of individual interest. Accordingly, Council has identified topics of particular interest.

The table on the following page is designed to assist in locating the theme and unique reference number in the Delivery Program relating to the particular service/topic of interest. These reference numbers apply across the suite of planning documents, including the *Towards 2030 Community Strategic Plan* and the *One Year Operational Plan*. This is part of our initiative to make our planning transparent and easy to use as possible.

Airport	Leadership and Governance Your Business and Industry Your Natural and Built Environment	1.5.3, 3.3.1, 4.2.1
Business Improvement	Leadership and Governance	1.4.2
Council and Decision Making	Leadership and Governance	1.1.3, 1.1.6
Council Businesses	Leadership and Governance	1.5.3, 1.5.4, 3.3.1
Economic Development	Your Business and Industry	3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.2.1, 3.3.2, 3.4.1, 3.4.2, 3.4.3
Engagement and Communications	Leadership and Governance	1.1.1, 1.1.2, 1.1.3, 1.1.5
Environmental Management	Your Natural and Built Environment	4.2.1, 4.2.2, 4.6.1, 4.8.2, 4.8.3
Financial and Risk Management	Leadership and Governance	1.3.3, 1.5.1
Glasshouse	Leadership and Governance	1.5.3, 2.5.1
Culture	Your Community Life	2.5.1
Digital Technology	Leadership and Governance	1.4.1
Land Development	Your Business and Industry Your Natural and Built Environment	3.1.2, 4.5.1, 4.6.1
Library Services	Your Community Life	2.3.5
Roads and Transport	Your Natural and Built Environment	4.4.1, 4.4.2, 4.4.3
Safety and Health	Your Community Life	2.1.1, 2.1.2, 2.1.3
Sewerage Management	Your Natural and Built Environment	4.1.3, 4.1.4, 4.8.1
Sports and Recreation	Your Community Life	2.3.2, 2.3.3, 2.3.4, 2.4.1
Stormwater Management	Your Natural and Built Environment	4.1.5, 4.1.6
Waste Management	Your Natural and Built Environment	4.1.7
Water Management	Your Community Life Your Natural and Built Environment	2.1.3, 4.1.1, 4.1.2, 4.8.1
Workforce	Leadership and Governance	1.3.4, 1.3.5

Delivery Program Objectives 2017-2021 (Revised 2019)

COMMUNITY THEME 1

Leadership and Governance

COMMUNITY STRATEGIC PLAN

What we are trying to achieve

A collaborative community that works together and uses opportunities for community participation in decision making that is defined as ethically, socially and environmentally responsible.

How we will get there

1.1 Inform and engage with the community about what Council does using varied communication channels.

1.2 Maintain strong partnerships between all stakeholders – local, state and federal – so that they are affective advocates for the community.

1.3 Demonstrate leadership

1.4 Use innovative, efficient and sustainable practices.

1.5 Ensure strong corporate and financial management that is transparent and accountable.

Ref	Delivery Program Objectives	Lead Responsibility
1.1.1	Use a variety of tools to engage with the community in a manner that is transparent, effective, relevant and inclusive.	Community Place, Economic Development and Communications
1.1.2	Support community involvement in decision making through education around Council matters and services.	Community Place
1.1.3	Engage with the community on impacts and changes to services.	Community Place
1.1.4	Provide easy to understand and accessible community reporting.	Organisational Performance
1.1.5	Develop an effective and coordinated community focused Communications Strategy.	Economic Development and Communications
1.1.6	Continue to promote access by the community to Councillors.	Governance and Procurement
1.2.1	Promote Council participation and build linkages in local, state and federal initiatives, forums and opportunities to support Council's continued planning for the growth of the region.	General Manager's Office
1.3.1	Provide effective leadership and equity.	General Manager's Office
1.3.2	Build trust and improve Councils reputation through transparency, good decision making and living Council's Values.	Governance and Procurement, Water and Sewer
1.3.3	Ensure there is appropriate management of risk to mitigate the impact for Council and the community.	Governance and Procurement
1.3.4	Manage our workforce to deliver community outcomes.	Organisational Performance, Assets and Property Investment
1.3.5	Build an engaged workforce.	Organisational Performance
1.4.1	Provide efficient technology and inclusive digital systems that are easy to use and easy to access.	Digital Technology
1.4.2	Deliver agreed services at the agreed service level at best value.	Organisational Performance
1.4.3	Deliver a customer focused service that provides the community with a consistent experience of Council.	Community Place
1.5.1	Manage Council's financial assets and provide accurate, timely and reliable information.	Financial Services, Assets and Property Investment
1.5.2	Use procurement, tendering, purchasing and contract management approaches that are transparent and equitable.	Governance and Procurement, Transport and Stormwater Network
1.5.3	Develop, manage and maintain Council business units through effective commercial management.	Commercial Business Units, Assets and Property Investment
1.5.4	Identify new commercially viable revenue sources.	Commercial Business Units

What the result will be

> A community that has the opportunity to be involved in decision-making

> Open, easy, meaningful, regular and diverse communication between the community and decision-makers

> Partnerships and collaborative projects, that meet the community's expectations, needs and challenges

> Knowledgeable, skilled and connected community leaders

> Strong corporate management that is transparent

How we know we are progressing

> Improving levels of community participation at community engagement activities

> Ongoing Council participation in regional Local Government initiatives

> Council financial management that is communicated to the community

COMMUNITY THEME 2

Your Community Life

Delivery Program Objectives 2017-2021 (Revised 2019)

TEGIC PLAN

How we will get there

2.1 Create a community that feels safe

2.2 Advocate for social inclusion and fairness

2.3 Provide quality programs, community facilities and public spaces, for example, community halls, parks and vibrant town centres

2.4 Empower the community through active involvement in projects, volunteering and events

2.5 Promote a creative and culturally rich community

Ref	Delivery Program Objectives	Lead Responsibility
2.1.1	Support community safety initiatives.	Recreation and Buildings, Community Place
2.1.2	Advocate for, support and coordinate emergency services.	Infrastructure
2.1.3	Conduct regulatory and educational activities that safeguard public and environmental health, and ensures compliance with planning and building standards.	Regulatory Services, Commercial Business Units, Water and Sewer
2.2.1	Support and advocate for all community sectors.	Community Place
2.3.1	Ensure access to community facilities and activities: including access to natural environment.	Community Place
2.3.2	Provide a range of inclusive sporting and recreational opportunities and facilities to encourage a healthy and active lifestyle.	Recreation and Buildings, Community Place
2.3.3	Develop and implement management of operational and maintenance programs for open space, recreational and community facilities.	Commercial Business Units, Recreation and Buildings, Transport and Stormwater Network
2.3.4	Plan, investigate, design and construct open spaces, recreational and community facilities.	Recreation and Buildings
2.3.5	Plan and deliver innovative library services that cater for new technology and growing population.	Community Place
2.3.6	Support a range of inclusive community activities and programs.	Community Place
2.4.1	Work with the community to identify and address community needs, in order to inform Council processes, services and projects.	Community Place
2.5.1	Support cultural activities within the community.	Community Place, Commercial Business Units

What the result will be

> Community hubs that provide access to services and social connections

> A safe, caring and connected community

> A healthy and active community that is supported by recreational infrastructure

> A strong community that is able to identify and address social issues

> Community participation in events, programs, festivals and activities

How we know we are progressing

> Community facilities are established that encourage social activities and interactions

> Community safety initiatives are recognised and supported

> Open spaces, recreational and community facilities are provided for a range of social, health and wellbeing activities.

> The community is supported through a range of programs based on social issues

> A range of community activities, programs and events are supported and implemented

Delivery Program Objectives 2017-2021 (Revised 2019)

COMMUNITY THEME 3

Your Business and Industry

Live Work Invest Here

COMMUNITY STRATEGIC PLAN

What we are trying to achieve

The Port Macquarie-Hastings region is a successful place that has vibrant, diversified and resilient regional economy for people to live, learn, work, play and invest.

How we will get there

3.1 Embrace business and a stronger economy

3.2 Create vibrant and desirable places

3.3 Embrace opportunity and attract investment to support the wealth and growth of the community

3.4 Partner for success with key stakeholders in business, industry, government, education and the community

Ref	Delivery Program Objectives	Lead Responsibility
3.1.1	Assist the growth of local business and industry, ensuring this is a central consideration of Council activities.	Economic Development and Communications
3.1.2	Optimise the use of appropriately zoned land for business uses.	Strategic Land Use Planning, Economic Development and Communications
3.1.3	Implement the Major Events Strategy.	Economic Development and Communications
3.1.4	Implement the Destination Management Plan.	Economic Development and Communications
3.2.1	Support vibrant commercial, tourism, recreational and/or community hubs across the region.	Community Place, Economic Development and Communications
3.3.1	Develop, manage and maintain Port Macquarie Airport as a key component of the regional transport network and continue to grow the airport's contribution to the regional economy.	Commercial Business Units, Assets and Property Investments
3.3.2	Promote investment, education and lifestyle opportunities.	Economic Development and Communications
3.4.1	Foster partnerships with higher education institutions through research and development, innovation and local skills development.	Economic Development and Communications
3.4.2	Support local business networks.	Economic Development and Communications
3.4.3	Encourage innovation that will support our growth as a regional city including smart community technology.	Economic Development and Communications

What the result will be

> A strong economy that fosters a culture supportive of business and ensures economic development of the region

> Townships, villages and business precincts that are vibrant commercial, tourism, recreational and/or community hubs

> A region that attracts investment

> Partnerships that maximise economic return and create an efficient and effective business environment

How we know we are progressing

> There is growth and development of new industries and business

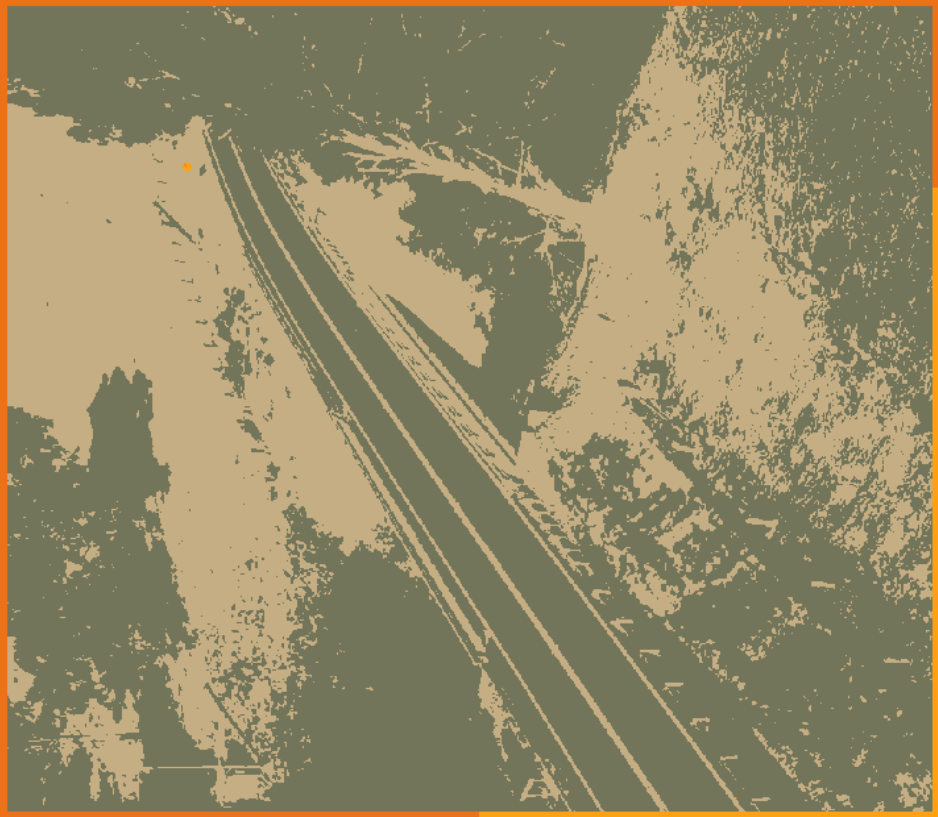
> Tourism and major events contribute to increased economic activity

> There are greater opportunities for investment across the region

> Council is recognised for its role in fostering partnerships that contribute to business and industry growth

COMMUNITY THEME 4

Your Natural and Built Environment



COMMUNITY STRATEGIC PLAN

What we are trying to achieve

A connected, sustainable, accessible community and environment that is protected now and into the future.

How we will we get there

4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

4.2 Aim to minimise the impact of natural events and climate, for example, floods, bushfires and coastal erosion

4.3 Facilitate development that is compatible with the natural and built environment

4.4 Plan for integrated transport systems that helps people get around and link our communities

4.5 Plan for integrated and connected communities across the Port Macquarie-Hastings area

4.6 Restore and protect natural areas

4.7 Provide leadership in the development of renewable energy opportunities

4.8 Increase awareness of issues affecting our environment, including the preservation of flora and fauna

Delivery Program Objectives 2017-2021 (Revised 2019)

Ref	Delivery Program Objectives	Lead Responsibility
4.1.1	Plan, investigate, design and construct water supply assets ensuring health, safety, environmental protection and security of supply for the future growth of the region.	Water and Sewer
4.1.2	Develop and implement annual maintenance and preventative works program for water supply assets.	Water and Sewer
4.1.3	Plan, investigate, design and construct sewerage assets ensuring health, safety, environmental protection and the future growth of the region.	Water and Sewer
4.1.4	Develop and implement annual maintenance and preventative works program for sewerage assets.	Water and Sewer
4.1.5	Work towards planning, investigation, design, and construction of stormwater assets.	Transport and Stormwater Network
4.1.6	Develop and implement annual maintenance and renewal programs for stormwater assets.	Transport and Stormwater Network, Assets and Property Investment
4.1.7	Develop and implement effective waste management strategies.	Environmental Services
4.2.1	Develop and implement Coastal, Estuary, Floodplain, and Bushfire management plans.	Environmental Services
4.2.2	Promote strategies to mitigate climate change.	Environmental Services
4.3.1	Undertake transparent and efficient development assessment in accordance with relevant legislation.	Development Assessment

Ref	Delivery Program Objectives	Lead Responsibility
4.4.1	Plan, investigate, design and construct transport assets which address pedestrians, cyclist and vehicular needs to cater for the future growth of the region.	Transport and Stormwater Network, Recreation and Buildings
4.4.2	Develop and implement annual maintenance and renewal programs for transport assets.	Transport and Stormwater Network
4.4.3	Develop and implement traffic and road safety programs.	Transport and Stormwater Network
4.5.1	Carry out strategic planning to manage population growth and provide for co-ordinated urban development.	Strategic Land Use Planning
4.5.2	Plan for infrastructure that supports population growth.	Strategic Land Use Planning
4.6.1	Develop and implement a range of programs for the environmental management of lands within the local government area.	Environmental Services, Strategic Land Use Planning
4.7.1	Promote renewable energy outcomes within Council.	Recreation and Buildings Assets and Property Investment
4.8.1	Ensure all operations comply with environmental standards and regulations.	Water and Sewer
4.8.2	Increase community awareness and enable access to the natural environment.	Environmental Services
4.8.3	Promote Biodiversity Programs.	Environmental Services

What the result will be

> Effective management and maintenance of essential water, waste and sewer infrast

> A community that is prepared for natural events and climate change

> Sustainable and environmentally sensitive development outcomes that consider the im the natural environment

> Accessible transport network for our communities

> Infrastructure provision and maintenance that meets community expectations and needs

> Well-planned communities that are linked to encourage and manage growth

> Accessible and protected waterways, foreshores, beaches and bushlands

> An environment that is protected and conserved for future generations

> Renewable energy options that are understood and accessible by the community

How we know we are progressing

> We have water, waste, and sewer systems that are efficient, maintained and environmentall compliant

> Consideration is given to climate change impacts and potential mitigation

> Programs are implemented to support the condition of the natural environment

> The road and transport network is well-planned and maintained

> The transport network, recreational facilities, and open spaces, reflect community priorities

> Coordinated urban development is well planned to meet projected population growth

> We successfully preserve local flora and fauna

> Renewable energy options are promoted

Funding

THE DELIVERY PROGRAM

The Financial Plan

Under the Integrated Planning and Reporting (IPR) Framework, Council is required to prepare financial estimates for the four year period of the Delivery Program. The four-year forecast has been developed within an overall planning framework that identifies which parts of the 2030 Community Strategic Plan will be delivered by Council over the period of the Delivery Program.

Like many councils in NSW, Port Macquarie-Hastings is facing issues in terms of funding. In simple terms, the cost of delivering works and services is rising at a faster rate than our revenue base. Over time, this has created an income gap that must be addressed in both the short and long term. Council relies on a variety of funding sources, including grants. These sources are described in the Operational Plan.

The most recent asset management data indicates that Council is facing an infrastructure backlog (the cost to get our infrastructure up to a satisfactory standard), which places additional pressure on the annual capital and maintenance budget. This backlog will continue to increase in future years if not addressed.

Port Macquarie-Hastings is a high growth centre of the North Coast region, and is expected to grow a lot more over the next two decades. It is estimated the population will grow from 81,000 in 2018 to 104,000 in 2036. Council must plan for future capital expenditure on the infrastructure that will be needed to support the community, businesses and visitors to the area.

The following pages show Port Macquarie-Hastings Council's estimated budget statement for the four years (2019-2023)

BUDGET STATEMENT

	2018-19 Adopted Budget	2019-20 Original Budget	2020-21 Projection	2021-22 Projection	2022-23 Projection
Operating Activities Movements **Income from continuing operations**					
Rates and Annual Charges	97,247,715	100,315,591	104,298,481	108,142,831	112,102,377
User Charges and Fees	36,824,822	39,803,585	40,014,633	41,235,902	42,486,487
Interest Received	7,643,385	8,701,024	7,985,220	7,981,367	6,863,867
Grants and Contributions	43,226,115	47,362,872	39,866,976	37,752,163	42,236,323
Other Operating Receipts	5,700,556	5,440,303	5,578,739	5,690,313	5,804,120
Expenses from continuing operations					
Employee Costs	(55,960,387)	(54,003,921)	(55,709,518)	(57,637,975)	(59,633,500)
Materials and Contracts	(37,252,202)	(43,411,020)	(40,554,779)	(40,568,874)	(41,166,029)
Depreciation	(44,395,001)	(49,134,601)	(50,747,771)	(52,012,230)	(53,677,988)
Interest Paid	(2,994,057)	(2,464,723)	(1,946,431)	(1,498,950)	(1,031,185)
Other Operating Payments	(14,029,911)	(14,229,228)	(14,532,996)	(14,914,082)	(15,388,775)
Loss on Disposal of Assets	(3,000,000)	(3,000,000)	(3,000,000)	(3,000,000)	(3,000,000)
Operating result from continuing operations	33,011,035	35,379,882	31,252,555	31,170,465	35,595,697
Restricted Asset Movements **Restricted asset movements receipts**					
Transfer from Restricted Assets	43,583,786	70,148,070	33,328,481	101,608,787	114,009,615

	2018-19 Adopted Budget	2019-20 Original Budget	2020-21 Projection	2021-22 Projection	2022-23 Projection
Restricted asset movements payments					
Transfer to Restricted Assets	(51,157,149)	(57,969,967)	(59,760,776)	(59,191,165)	(59,858,365)
Net Revenues (Used in)/Provided by in Restricted Assets	(7,573,363)	12,178,103	(26,432,295)	42,417,622	54,151,250
Property, plant and equipment movements **Property, plant and equipment movements receipts**					
Sale of Fixed Assets	-	-	-	-	-
Sale of Real Estate Development Assets					
Property, plant and equipment movements payments					
Purchase of Assets	(57,197,414)	(85,570,344)	(41,610,844)	(111,256,490)	(128,917,550)
Developer Provided Assets	(6,533,000)	(6,500,000)	(6,500,000)	(6,500,000)	(6,500,000)
Net Revenues (Used in)/Provided by property plant & Equipment activity	(63,730,414)	(92,070,344)	(48,110,844)	(117,756,490)	(135,417,550)
Financing activities movements **Financing activities receipts**					
Proceeds from Borrowings and Advances	1,500,000	1,500,000	-	-	-
Financing activities payments					
Repayments of Borrowings and Advances	(11,114,132)	(10,097,440)	(10,379,458)	(10,697,071)	(11,159,881)
Net Revenues (Used in)/Provided by in Financing Activity	(9,614,132)	(8,597,440)	(10,379,458)	(10,697,071)	(11,159,881)
Net Result (Including Depreciation)	(47,906,874)	(53,109,799)	(53,670,042)	(54,865,474)	(56,830,484)
Add Back: Non Cash Items	47,395,001	52,134,601	53,747,771	55,012,230	56,677,988
Budget Surplus/(Shortfall)	**(511,873)**	**(975,198)**	**77,729**	**146,756**	**(152,496)**

► *(INTEGRATED REF: RS-LTFP/FINANCIAL STATEMENTS)*

Capital Works PROGRAM

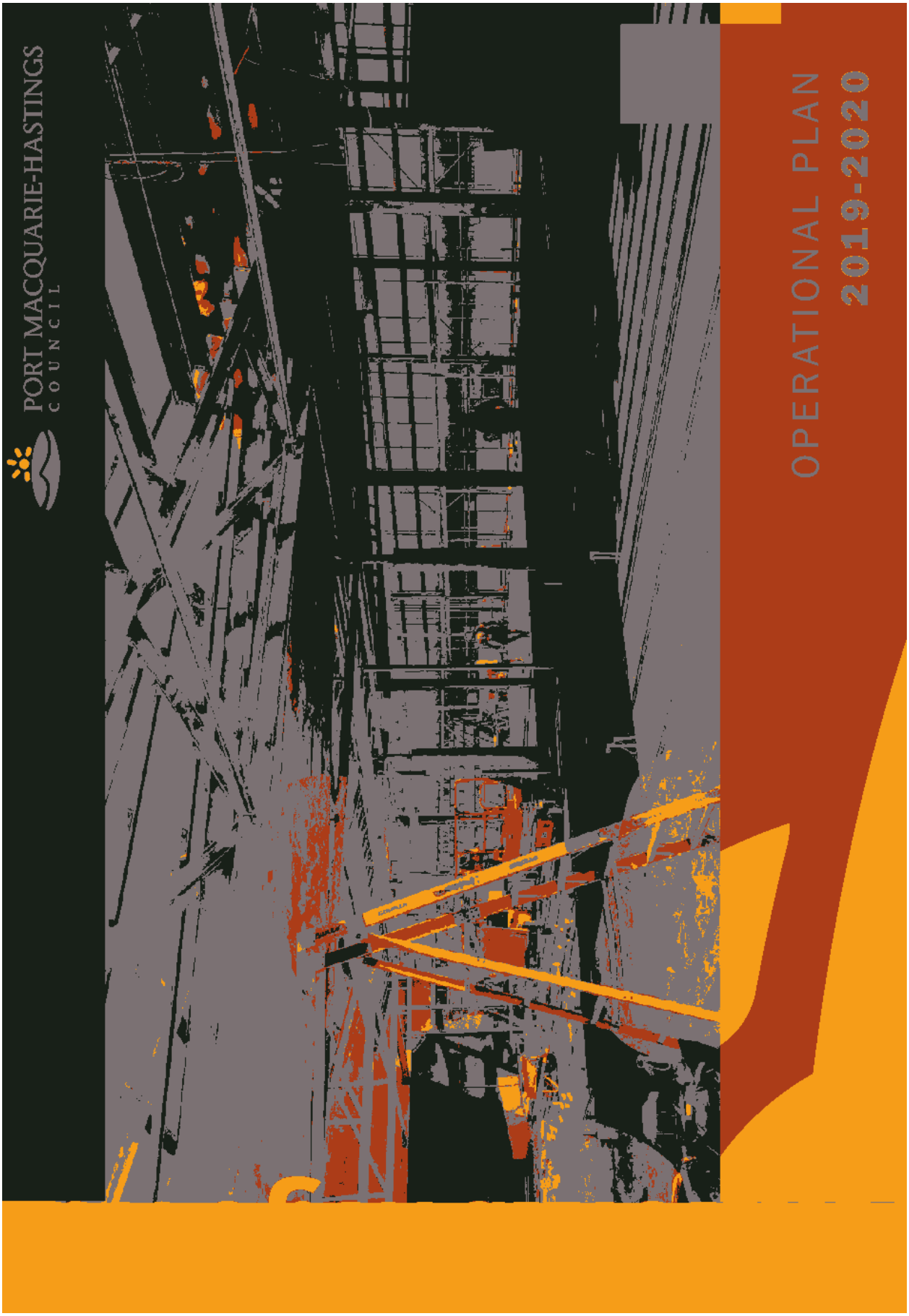
The Capital Works Program details budget allocations for the proposed capital works for the four years 2019-2023.

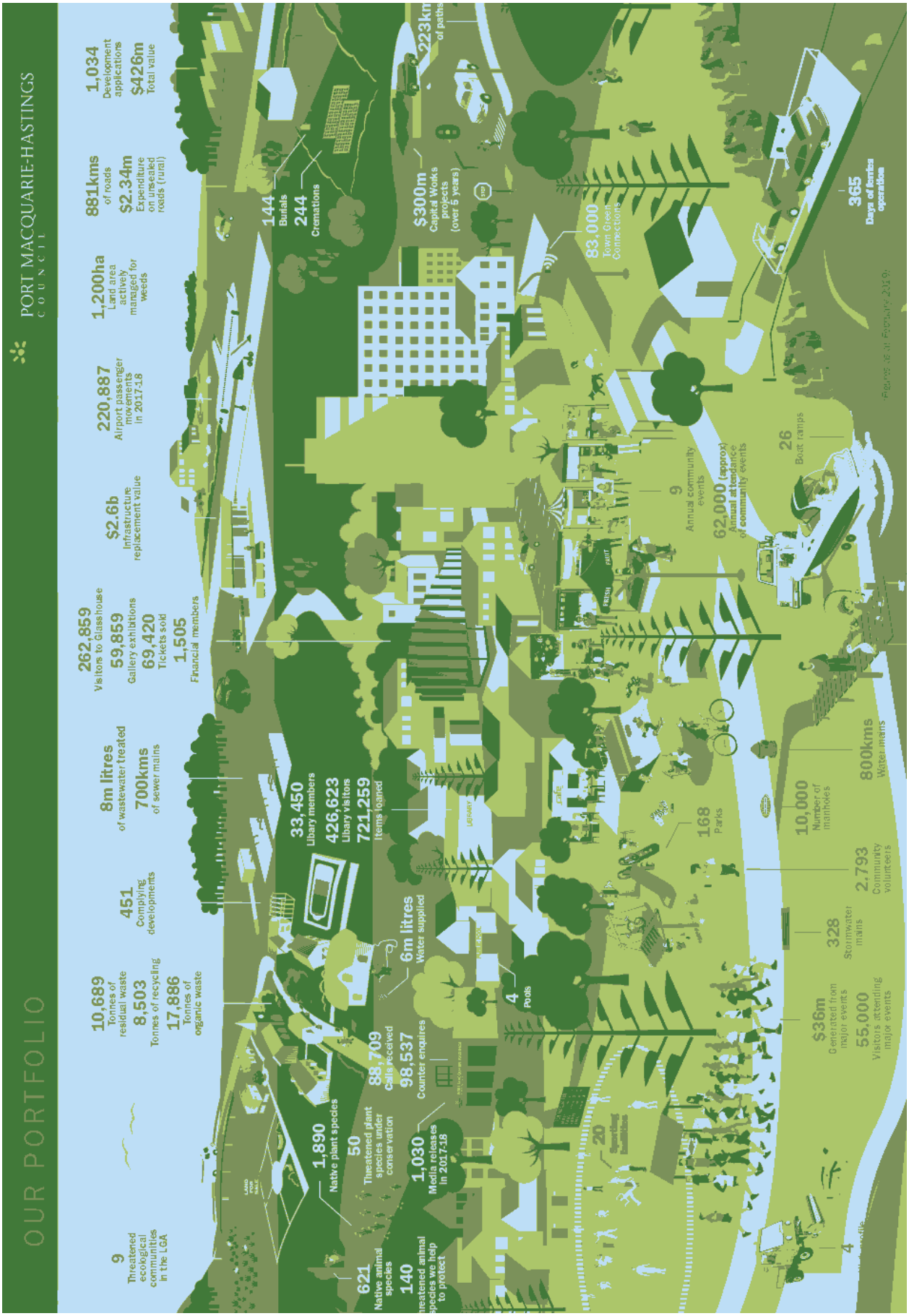
Council Section	2018-19 Adopted Budget	2019-20	%	2020-21	2021-22	2022-23
Airport	3,500,000	2,555,000	2.99%	6,000,000	-	-
Aquatic Facilities	500,000	500,000	0.58%	-	-	-
Bushfire control	350,000	350,000	0.41%	350,000	350,000	350,000
Community Participation	106,100	307,700	0.36%	109,300	110,900	112,600
Crematorium & cemetery services	15,000	-	0.00%	68,000	20,000	28,000
Digital Technology	1,800,000	1,285,000	1.50%	1,200,000	1,200,000	1,200,000
Environmental Testing	-	-	0.00%	19,000	19,300	19,600
Facilities	739,930	502,600	0.59%	464,800	767,300	333,500
Glasshouse back of house operations	66,000	66,000	0.08%	66,000	66,000	66,000
Library	390,900	647,270	0.76%	332,900	337,000	341,100
Natural Resource Management	-	2,145,000	2.51%	-	-	-
Parks & Recreation	4,706,233	17,584,058	20.55%	2,464,593	2,894,488	12,647,648
Plant & depots	2,500,000	3,300,000	3.86%	2,500,000	3,100,000	3,200,000
PM Town Centre Masterplan	1,080,000	985,000	1.15%	-	-	-
Property & Leasing	30,000	30,000	0.04%	30,000	30,000	30,000
Sewerage services	16,524,600	27,900,000	32.60%	4,047,680	30,084,149	28,004,233
Stormwater drainage	2,361,930	1,723,000	2.01%	196,000	199,000	1,202,300
Transport & traffic	11,441,347	17,810,716	20.81%	8,287,646	7,508,006	14,019,057
Waste disposal	1,050,000	415,000	0.48%	130,000	300,000	-
Water supply	10,035,374	7,464,000	8.72%	15,344,925	64,270,347	67,363,512
Total	**57,197,414**	**85,570,344**	**100.00%**	**41,610,844**	**111,256,490**	**128,917,550**

These figures do not include developer provided assets.

Funding sources	2018-19	2019-20	%	2020-21	2021-22	2022-23
Grants	7,774,523	9,230,991	10.79%	1,597,707	1,597,707	5,597,707
Loans	1,500,000	1,500,000	1.75%	-	-	-
Environmental levy	359,605	492,900	0.58%	452,152	462,551	473,190
Section 7.11 & Section 64 developer contributions	7,540,428	18,499,337	21.62%	8,982,753	28,204,206	46,836,355
Transfer from reserves	33,528,398	48,053,192	56.16%	22,247,415	72,515,027	66,383,736
Special Rate Variation funds	1,340,602	1,376,799	1.61%	1,411,219	1,446,499	1,482,662
General rating revenue	5,153,858	6,417,125	7.50%	6,919,598	7,030,500	8,143,900
	57,197,414	**85,570,344**	**100.00%**	**41,610,844**	**111,256,490**	**128,917,550**

▶ *(INTEGRATED REF: RS-LTFP/CAPITAL WORKS PROGRAM)*


PORT MACQUARIE-HASTINGS
COUNCIL
OPERATIONAL PLAN
2019-2020


OUR PORTFOLIO
PORT MACQUARIE-HASTINGS
COUNCIL
9
Threatened ecological communities in the LGA
10,689
Tonnes of residual waste
8,503
Tonnes of recycling
17,886
Tonnes of organic waste
451
Complying developments
8m litres
of wastewater treated
700kms
of sewer mains
262,859
Visitors to Glasshouse
59,859
Gallery exhibitions
69,420
Tickets sold
1,505
Financial members
$2.6b
Infrastructure replacement value
220,887
Airport passenger movements in 2017-18
1,200ha
Land area actively managed for weeds
881kms
of roads
$2.34m
Expenditure on unsealed roads (rural)
1,034
Development applications
$426m
Total value
1,890
Native plant species
50
Threatened plant species under conservation
621
Native animal species
140
Threatened animal species we help to protect
88,709
Calls received
98,537
Counter enquiries
1,030
Media releases in 2017-18
6m litres
Water supplied
33,450
Libary members
426,623
Libary visitors
721,259
Items loaned
4
Pools
20
144
Burials
244
Cremations
$300m
Capital Works projects (over 5 years)
223km
of paths
83,000
Town Green Connections
9
Annual community events
62,000 (approx)
Annual attendance of community events
168
Parks
$36m
Generated from major events
55,000
Visitors attending major events
328
Stormwater mains
2,793
Community volunteers
10,000
Number of manholes
800kms
Water mains
26
Boat ramps
365
Days of lifeguard operation
Figures as at February 2019.

PORT MACQUARIE-HASTINGS COUNCIL

OUR SERVICES FOR THE

Community

Each of Council's services has been represented by its primary alignment to community theme.

Community Theme 1:
Leadership and Governance

SERVICES

> Asset Management
> Business Improvement
> Corporate Governance
> Customer Interactions
> Community Place*
> Financial Management
> Fleet Management
> Human Resource Management
> Work, Health and Safety
> Integrated Planning and Reporting
> Procurement and Stores
> Property and Leasing Services
> Property Investment Portfolio
> Digital Technology
> Communications
> Airport

Community Theme 2:
Your Community Life

SERVICES

> Library
> Community Place*
> Sports and Recreation
> Building Maintenance
> Compliance
> Emergency Management
> Environmental Testing
> Water Supply
> Glasshouse
> Crematorium

Community Theme 3:
Your Business and Industry

SERVICES

> Airport
> Economic Development
> Property Investment Portfolio
> Community Place
> Strategic Land Use Planning

Community Theme 4:
Your Natural and Built Environment

SERVICES

> Asset Management
> Development Assessment
> Building Maintenance
> Natural Resource Management
> Property Investment Portfolio
> Roads, Bridges and Transport
> Water Supply
> Sewer Management
> Stormwater and Drainage
> Strategic Land Use Planning
> Waste Management
> Airport

*Community Place focuses on community portfolios including seniors, youth, disability, Aboriginal Torres Strait Islanders, arts, heritage and culture, Volunteers and Community Grants.

HOW TO READ THIS DOCUMENT

The four year Delivery Program and annual Operational Plan is structured around the four themes that are the foundations of the Community Strategic Plan. The actions, activities, projects and programs described in this Operational Plan are categorised under the four key Community Strategic Plan themes:

- **Community Theme 1: Leadership and Governance**
- **Community Theme 2: Your Community Life**
- **Community Theme 3: Your Business and Industry**
- **Community Theme 4: Your Natural and Built Environment**

Each theme outlines the Community Strategic Plan strategy, Delivery Program objective and Operational Plan action/activity/project. It also highlights the Council's total income and expenditure relevant to the theme. The specific Delivery Program objectives are linked to the Operational Plan actions, activities and projects that Council will undertake in the next financial year. Each Operational Plan action shows which section/s of the Council has/have lead responsibility for delivering this action. This highlights the integrated nature of so many of the actions for which Council is responsible.

Linking to the Delivery program

Each theme in the document has a cover page that summarises the area's objectives from the Towards 2030 Community Strategic Plan – *What we are trying to achieve* and the Delivery Program objectives – *How we will get there*. These summaries help to put the specific activities and programs of this one year Operational Plan in the context of broader community goals, and the Delivery Program.

Numbering system

Council has developed a numbering system to assist with matching activities from the annual Operational Plan to the objectives of the four-year Delivery Program. Every action, activity, project and program has its own number. Each item has an individual reference number linking it back to the relevant Theme. Number reference that are omitted from sequential order refers to actions/activities/projects completed prior to 2019-20.

Funding

THE OPERATIONAL PLAN

Budget Overview

Total expenditure in 2019–2020 will be $216.3M. This includes:

> $111.64m on the ongoing operational costs (excluding depreciation and loss on disposal of assets)

> $85.57m on capital works projects

> $12.56m on the cost of servicing debts (including loan repayments and interest)

> $6.50m on developer provided assets

Where does the money come from?

Council's projected income for 2019–2020 is expected to be $201.62m, which will come from:

> rates and annual charges ($100.3m or about 50% of the income)

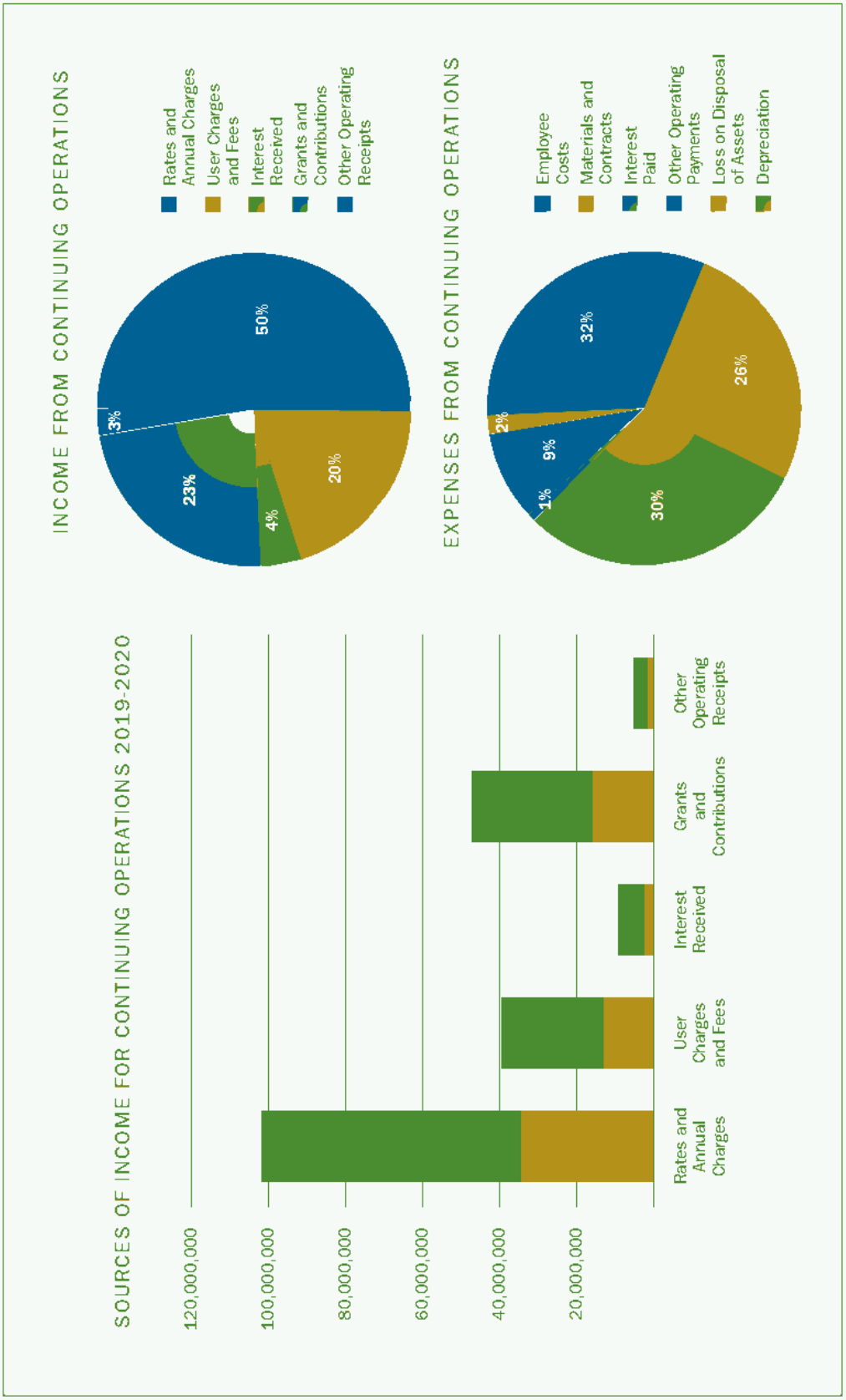
> user charges and fees ($39.8m or about 20% of the income) for services such as water, waste management, building and planning, animal registration, crematorium, airport and library

> Interest income ($8.7m or about 4% of the income)

> grants and contributions ($47.4m or about 23% of the income) made up of state and federal government grants and developer contributions

> other revenue ($5.4m or about 3% of the income) such as waste management income, fines and rental of council facilities

Total income is $201.6m compared to total expenditure of $216.3m.


INCOME FROM CONTINUING OPERATIONS
50%
20%
4%
23%
3%
Rates and Annual Charges
User Charges and Fees
Interest Received
Grants and Contributions
Other Operating Receipts
EXPENSES FROM CONTINUING OPERATIONS
32%
26%
30%
1%
9%
2%
Employee Costs
Materials and Contracts
Interest Paid
Other Operating Payments
Loss on Disposal of Assets
Depreciation
SOURCES OF INCOME FOR CONTINUING OPERATIONS 2019-2020
120,000,000
100,000,000
80,000,000
60,000,000
40,000,000
20,000,000
Rates and Annual Charges
User Charges and Fees
Interest Received
Grants and Contributions
Other Operating Receipts

Budget

SNAPSHOT 2019-2020

PORT MACQUARIE-HASTINGS COUNCIL

The overview shows what Council will spend in 2019-2020 to deliver priorities the community has identified. It includes operating costs and capital works investment. In a number of areas such as the airport, expenditure is offset by income generation.

ROADS & TRANSPORT
$36.1M
Maintenance and upgrade of sealed and unsealed roads, rural roads, bridges and roadside vegetation

SEWERAGE SERVICES
$39.9M
Maintenance and design and construction of system improvements including small village sewerage scheme

WATER SUPPLY
$17.2M
Catchment and management of captured resources, reclaimed water, system construction and maintenance

WASTE MANAGEMENT
$17.9M
Operation of domestic waste collection and transfer stations, construction of new facilities, delivery of education programs to reduce waste

ORTS & RECREATION
23.6M
ce and upgrade of playgrounds, maintenance of sports fields, maintenance and upgrades of open recreation space

GLASSHOUSE
$3.8M*
Facility management and maintenance, cultural programs, community hire subsidy and back of house operations

AIRPORT
$5.1M
Operations and facility maintenance of Port Macquarie Airport

ATIC RECREATION
1.3M
Three swimming pools and lifeguard services across six sites

NATURAL RESOURCES
$3.7M
Management of weeds and noxious plants, control of feral animals, bush and environmental restoration

RARY
2.6M
nd resources for three library locations, mobile lending services and digital collection

MMUNITY PLACE
2.3M
advocacy, sponsorship of events and new infrastructure to create vibrant and connected places

FERRY
$1.9M
Operations and maintenance of two ferry services

STORMWATER
$4.8M
Monitoring maintenance of the network

ECONOMIC DEVELOPMENT
$2.2M
Tourism marketing, visitor centre operations, industry development programs, major events support

STREET LIGHTING
$1.2M
Payment to provider for service and maintenance

CREMATORIUM & CEMETERIES
$0.9M*
Maintenance and operations of the Innes Gardens Memorial Park facility and 11 outlying cemeteries

Expenditure includes interest on loans but excludes loan principal overheads, transfers to reserves and depreciation. Shading is colour-coded to represent the primary theme with which this activity is located within the Operational Plan. Community Theme 1: Leadership and Governance Community Theme 2: Your Community Life Community Theme 3: Your Business and Industry Community Theme 4: Your Natural and Built Environment

*Denotes business unit of Council, expenditure is offset by income generation

PORT MACQUARIE-HASTINGS COUNCIL

2019-2020 BUDGET

Statement

INCOME

Rates and Annual Charges *– Local taxes levied by Local Government based on the value of property*
User Charges and Fees *– A charge or fee made in relation to a specified service provided by Council*
Interest Received *– Interest received from financial institutions on Council investments*
Grants *– Grants received from other levels of government to assist in the provision of Council services*
Contributions *– Contributions received from developers etc. towards the provision of Council services*
Other Operating Receipts *– Other income not included above including Glasshouse receipts and Library charges etc.*

Transfer from Restricted Assets *– Council puts funds into a restricted asset for future use. This transfer from the restricted asset is the spending of those funds*

Transfer to Restricted Assets *– This is the transfer of funds into the restricted asset for future use*

Proceeds from Borrowings and Advances *– This is the amount that Council intends to borrow from financial institutions*

Repayment of Borrowings and Advances *– This is the repayment of principal on Council loans*

Operating Activities Movements	
Income from continuing operations	
Rates & Annual Charges	100,315,591
User Charges & Fees	39,803,585
Interest Received	8,701,024
Grants & Contributions	47,362,872
Other Operating Receipts	5,440,303
Expenses from continuing operations	
Employee Costs	(54,003,921)
Materials & Contracts	(43,411,020)
Depreciation	(49,134,601)
Interest Paid	(2,464,723)
Other Operating Payments	(14,229,228)
Loss on Disposal of Assets	(3,000,000)
Operating result from continuing operations	35,379,882
Restricted Asset Movements	
Restricted asset movements receipts	
Transfer from Restricted Assets	70,148,070
Restricted asset movements payments	
Transfer to Restricted Assets	(57,969,967)
Net Revenues Used/(Provided) in Restricted Assets	12,178,103
Property, plant and equipment movements	
Property, plant & equipment movements receipts	
Sale of Fixed Assets	-
Sale of Real Estate Development Assets	-
Property, plant & equipment movements payments	
Purchase of Assets	(85,570,344)
Developer Provided Assets	(6,500,000)
Net Revenues (Used in)/Provided by property plant & Equipment activity	(92,070,344)
Financing activities movements	
Financing activities receipts	
Proceeds from Borrowings & Advances	1,500,000
Financing activities payments	
Repayments of Borrowings & Advances	(10,097,440)
Net Revenues Used/(Provided) in Financing Activity	(8,597,440)
Net Result (Including Depreciation)	(53,109,799)
Add Back: Non Cash Items	52,134,601
Budget Surplus/(Shortfall)	**(975,198)**

EXPENSES

Employee Costs *– All costs related to employees including wages and salaries, workers compensation, employee leave entitlements, superannuation, fringe benefits taxation, payroll taxation and travelling etc. but not including employee costs associated with asset construction*
Materials and Contracts *– Includes all materials and contracts used in delivering operational activities*
Depreciation *– This is the estimated amount by which Council's assets will deteriorate by in the 2019–2020 financial year*
Interest Paid *– The amount that is paid to financial institutions for interest on loans made to Council*
Other Operating Payments *– Includes all payments not included in the above categories including telephone costs, bank charges, electricity, insurance, street lighting and mayoral and councillor fees etc.*

Purchase of Assets *– This item includes the purchase of assets (such as heavy machinery) along with the construction by Council of assets (such as roads and footpaths)*

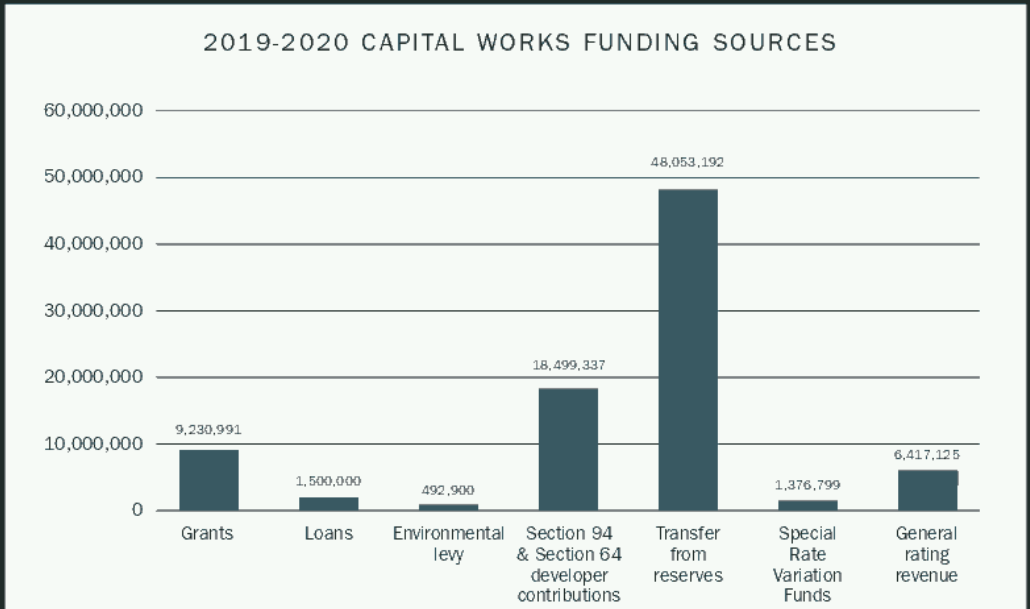
Budget Surplus/(Deficit) *– The balance of income vs expenditure. When this figure is nil, council has a balanced budget which means that its sources of income for the year equals its expenditure for the year*

Funding

THE CAPITAL WORKS PROGRAM

The Capital Works program for 2019-2020 has been developed to meet future infrastructure needs and reflect the objectives of the Community Strategic Plan. Investment in new/renewal works will total $85.57million. The individual projects are listed in greater detail at the end of each theme throughout the Operational Plan.

The following graph shows where the funding comes from to carry out these works. It should be noted that reserve funds are rating revenue from previous years that have been put away for future expenditure. Included in the transfers from reserves are loans that were borrowed in previous years. Unspent loan funding is transferred to reserves so that it can be used when required.



Note: Reserve funds include rating revenues from previous years that have been put away to fund future expenditure

The Port Macquarie-Hastings area is a high growth centre of the North Coast region and it is expected to grow a lot more over the next two decades. It is estimated that the population will grow from 81,000 in 2018 to 104,000 in 2036. As a consequence of this growth, Council must not only provide services to the existing community and maintain existing assets, but also plan for future maintenance and capital expenditure on the infrastructure that will be needed to support the community, business and visitors to the area into the future.

Council holds cash reserves as an alternative to (or to supplement) borrowing. As at June 2018, Council held $276.9 million in cash and reserves. Predominantly, these reserves are all allocated for specific purposes, with approximately 74.4% legally required to be used for the purpose for which they were collected (for example for water and sewer). The remaining reserves are also predominantly held for specific purposes (for example, for the development of the airport or to fund projects that have already commenced). The reserves are audited annually and published in Council's financial statements.

The level of reserves held by Port Macquarie-Hastings Council is not disproportionate to other similar councils, noting that different councils provide different services. (For example not all councils provide water and sewer services which require significant capital investment).

▶ *(INTEGRATED REF: RS-LTFP CAPITAL WORKS PROGRAM)*

2019-2020 CAPITAL WORKS PROGRAM – INFRASTRUCTURE RENEWALS SUMMARY

A proportion of Council's capital works program refers to Infrastructure assets. The table below shows the renewal amount related to these assets.

Section	Allocated Amount	Renewal Amount	Estimated Renewal %
Airport	2,555,000	1,010,000	39.53%
Facilities	502,600	452,600	90.05%
Aquatic Facilities	500,000	50,000	10.00%
Parks & Recreation	17,584,058	4,868,993	27.69%
Natural Resource Management	2,145,000	1,112,000	51.84%
Drainage	1,723,000	1,937,500	112.45%
Waste Disposal	415,000	170,000	40.96%
Water Supply	7,464,000	3,253,500	43.59%
Sewerage Services	27,900,000	8,550,000	30.65%
Transport & Traffic	17,810,716	13,705,416	76.95%
PM Town Centre Masterplan	985,000	492,500	50.00%
Total Infrastructure Assets	**79,584,374**	**35,602,509**	**44.74%**

2019-2020 CAPITAL WORKS PROGRAM – BY COMMUNITY THEME / SERVICE

▶ *(INTEGRATED REF: RS - LTFP CAPITAL WORKS PROGRAM)*

The tables over the following pages show all the projects and the allocated budget that make up the Works Program for the 2019-2020 financial year. These projects are listed in the body of the Operational Plan. They are aligned with the relevant Delivery Program objective and show the performance measure and section of Council responsible for delivery. Additional works are shown in the Operational Plan that are continued from previous years. In Summary, the sum of 2019-2020 Works Program per Theme is $85,570,344 broken down as follows:

Theme 1	Leadership and Governance	$4,615,000
Theme 2	Your Community Life	$20,942,628
Theme 3	Your Business and Industry	$2,555,000
	Your Natural and Built Environment	$57,457,716
Total		**$85,570,344**

2019-20 CAPITAL WORKS PROGRAM

To support *Community Theme 1 – Leadership and Governance*, Council will undertake the Capital Works projects listed below.

Theme 1 – *Leadership and Governance* – 2019-20 Allocated Amount $4,615,000

Location	Project Description	Detailed Description	Multi-Year Project	Capital Works (CW) Reference Number	2019-20 Allocated Amount
Council Service: Digital Technology – 2019-20 Allocated Amount $1,285,000					
Various	Information & Comunications Technology – Projects	Undertake Information and Communications Technology Projects	✔	1.4.1.1 CW	1,000,000
Port Macquarie	Council Chambers AV Replacement	In preparation for mandatory live streaming of Council Meetings		1.4.1.1 CW	85,000
Various	Information & Comunications Technology – Renewals	Annual replacement of Printers, Servers, PCs, Routers, Software & Photocopiers	✔	1.4.1.2 CW	200,000
					1,285,000
Council Service: Fleet Management – 2019-20 Allocated Amount $3,300,000					
Various	Plant Purchases and Disposals	Plant purchases in line with the plant replacement report	✔	1.5.2.2 CW	3,300,000
					3,300,000
Council Service: Property and Leasing – 2019-20 Allocated Amount $30,000					
Various	Land Acquisitions for Council Roads	Survey, Valuation and Land Transactions	✔	1.5.3.8 CW	30,000
					30,000

2019-20 CAPITAL WORKS PROGRAM

To support *Community Theme 2 – Your Community Life*, Council will undertake the Capital Works projects listed below.

Theme 2 – *Your Community Life* – 2019-20 Allocated Amount $20,942,628					
Council Service: Community Place – Allocated Amount $307,700					
Location	**Project Description**	**Detailed Description**	**Multi-Year Project**	**Capital Works (CW) Reference Number**	**2019-20 Allocated Amount**
Various	Disabled Accesses – Buildings/Recreation Facilities	Undertake Design/Construction/Delivery – Works in line with DDA action plan and buildings access strategy	✔	2.3.1.1 CW	107,700
Various	Port Macquarie Town Signage	Installation of Signage in the Port Macquarie area		2.3.4.23 CW	150,000
Various	Town Village Signage	Installation of Village entry signage		2.3.4.16 CW	50,000
					307,700
Council Service: Library – Allocated Amount $647,270					
Various	Library Furnishings, Fittings & Equipment	Update Computer Equipment, Technology, Photocopiers, Additional Shelving etc.	✔	2.3.5.1 CW	40,000
Various	Library Van	Purchase and fitout new mobile library, engagement and event support across the LGA.		2.3.5.6 CW	136,470
Various	Purchase of Library Books	To provide bookstock at NSW State average per capita as a minimum level	✔	2.3.5.2 CW	450,800
Various	Special Library Projects	Purchase of resources such as books, DVDs, toys		2.3.5.7 CW	20,000
					647,270
Council Service: Facilities – Allocated Amount $502,600					
Various	Building Rectification Works	Works in line with Asset Management Plans		2.3.3.3 CW	316,000
Port Macquarie	Council Offices and Public Buildings	Install solar energy systems at selected Council facilities		4.7.1.6 CW	50,000
Port Macquarie	Council Offices and Public Buildings	Undertake LED Lighting Upgrade		4.7.1.4 CW	25,000
Various	Furniture Replacement Programme	Replacement of furniture at Council offices		2.3.3.2 CW	11,600
Various	Pilot Beach Reserve	Replacement of public amenities at end of useful life	✔	2.3.3.14 CW	100,000
					502,600

Theme 2 – *Your Community Life* – 2019-20 Allocated Amount $20,942,628

Council Service: Parks and Recreation – Allocated Amount $17,584,058

Location	Project Description	Detailed Description	Multi-Year Project	Capital Works (CW) Reference Number	2019-20 Allocated Amount
Wauchope	Beechwood Tennis Courts	Upgrade Tennis Facility		2.3.4.24 CW	60,000
Port Macquarie	Blair Reserve	Playground Upgrade		2.3.3.6 CW	85,750
Port Macquarie	Flynns Beach	Seawall Replacement – Stage 1		2.3.4.6 CW	1,622,200
Lake Cathie/ Bonny Hills	Lake Cathie Foreshore Reserve	Master plan implementation – Construction of Skate Facility		2.3.4.17 CW	312,000
Camden Haven	Kendall Sports Ground	Sports facility upgrade – Reserve Upgrade		2.3.2.2. CW	155,000
North Haven	North Haven Beach Reserve	Pedestrian Facility (Upgrade of North Haven to Bonny Hills walkway)		2.3.3.8 CW	104,000
Various	Parks and Gardens Future Designs	Preparation of engineering designs in advance of construction programmes for Parks and Gardens		2.3.4.22CW	32,200
Port Macquarie	Port Macquarie Coastal Walk	Upgrade of Walkway		2.3.4.2 CW	780,000
Lake Cathie/ Bonny Hills	Rainbow Beach Sports Fields	Acquisition of Land		2.3.4.18 CW	1,707,572
Lake Cathie/ Bonny Hills	Rainbow Beach Sports Fields	Preconstruction Works		2.3.4.18 CW	290,000
Lake Cathie/ Bonny Hills	Rainbow Beach Sports Fields	District Facilities		2.3.4.18 CW	4,165,000
Innes Peninsula	Red Ochre Park	Develop new park facilities – Local Facilities		2.3.4.19 CW	446,000
Wauchope	Reservoir Park, High Street	Playground Replacement at end of useful life		2.3.3.6 CW	21,000
Camden Haven	Riverview Reserve	Playground Upgrade		2.3.3.6 CW	85,750
Wauchope	Rocks Ferry Reserve	Playground Upgrade		2.3.3.6 CW	102,500

Theme 2 – *Your Community Life* – 2019-20 Allocated Amount $20,942,628

Council Service: Parks and Recreation – Allocated Amount $17,584,058

Location	Project Description	Detailed Description	Multi-Year Project	Capital Works (CW) Reference Number	2019-20 Allocated Amount
Innes Peninsula	Ruins Way Park	Develop new park facilities – Local Facilities		2.3.4.20 CW	312,000
Port Macquarie	Sancrox/Thrumster Sports Fields	Detailed design and approvals		2.3.3.12 CW	267,000
Lakewood	Scribbly Bark Reserve, Scribbly Bark Place	Playground Replacement at end of useful life		2.3.3.6 CW	85,750
Port Macquarie	Settlement Point Reserve, Settlement Point Road	Playground Replacement at end of useful life		2.3.3.6 CW	85,750
Port Macquarie	Stuart Park	Amenities Upgrade		2.3.4.21 CW	260,000
Port Macquarie	Stuart Park	Sports facility Upgrade		2.3.4.21 CW	195,000
Port Macquarie	Stuart Park and Wood Street Sports Fields	Lighting Upgrade		2.3.4.21 CW	312,000
Port Macquarie	Stuart Park	Regional Sporting Precinct		2.3.4.21CW	1,772,586
Port Macquarie	Town Beach Park, Stewart Street	Playground Replacement at end of useful life.		2.3.3.6 CW	415,000
Camden Haven	Vince Inmon Sporting Fields	Sports Facility Upgrade		2.3.3.2 CW	560,000
Port Macquarie	Walkways – Various	Replacement of walkways at end of useful life (Sandhurst Reserve; Blair Reserve; Harry's Lookout)		2.3.3.8 CW	150,000
Port Macquarie	Wayne Richards Park	Stages 3 & 4		2.3.4.03 CW	250,000
Port Macquarie	Wood Street Road	Upgrade		2.3.4.21CW	950,000
Wauchope	Hastings Regional Sporting Complex	Construction		2.3.4.8 CW	2,000,000
					17,584,058

Theme 2 – *Your Community Life* – 2019-20 Allocated Amount $20,942,628					
Council Service: Port Macquarie Town Centre Masterplan – Allocated Amount $985,000					
Location	**Project Description**	**Detailed Description**	**Multi-Year Project**	**Capital Works (CW) Reference Number**	**2019-20 Allocated Amount**
Port Macquarie	Port Macquarie Foreshore Walkway Project			2.3.4.12 CW	985,000
					985,000
Council Service: Bushfire Control – Allocated Amount $350,000					
Various	Bushfire Tanker/Vehicle Purchases	Provision of a new bushfire tankers/vehicles		2.1.2.1 CW	350,000
					350,000
Council Service: Glasshouse Back of House Operations – Allocated Amount $66,000					
Port Macquarie	The Glasshouse – Technical Equipment Purchases	Undertake delivery		2.5.1.2 CW	56,000
Port Macquarie	The Glasshouse – Plant & Equipment Purchases	Undertake delivery		2.5.1.2 CW	10,000
					66,000
Council Service: Aquatic Facilities – Allocated Amount $500,000					
Laurieton	Laurieton Pool	Filtration System		2.3.3.4 CW	50,000
Port Macquarie	Port Macquarie Aquatic Facility	Design Finalisation		2.3.4.14 CW	450,000
					500,000

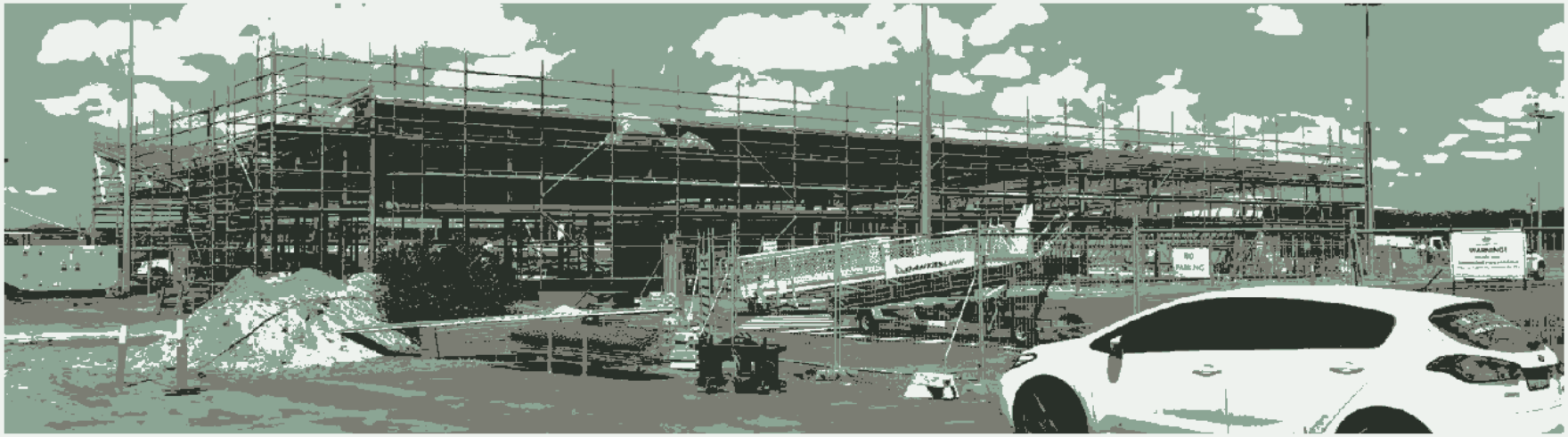
2019-20 CAPITAL WORKS PROGRAM

To support *Community Theme 3 – Your Business and Industry,* Council will undertake Capital Works projects listed below.

Theme 3 – *Your Business and Industry* – Allocated Amount $2,555,000

Council Service: Airport – Allocated Amount $2,555,000

Location	Project Description	Detailed Description	Multi-Year Project	Capital Works (CW) Reference Number	2019-20 Allocated Amount
Port Macquarie	PMQ Airport – Parallel Taxiway Stage 1 and GA Pavement Renewal	Finalise detailed design		3.3.1.4 CW	150,000
Port Macquarie	PMQ Airport Hangar Maintenance/ Refurbishment	Maintenance and Refurbishment of Council owned airport hangars		3.3.1.6 CW	30,000
Port Macquarie	PMQ Airport Terminal Upgrade	Construction Finalisation	✔	3.3.1.3 CW	2,375,000
					2,555,000



2019-20 CAPITAL WORKS PROGRAM

To support *Community Theme 4 – Your Natural and Built Environment*, Council will undertake the Capital Works projects listed below.

Theme 4 – *Your Natural and Built Environment* – 2019-20 Allocated Amount $57,457,716

Location	Project Description	Detailed Description	Multi-Year Project	Capital Works (CW) Reference Number	2019-20 Allocated Amount
Council Service: Waste Disposal – Allocated Amount $415,000					
Port Macquarie	Cairncross Landfill Covers	Transportable light weight covers to temporarily cover landfill on a daily basis		4.1.7.22 CW	165,000
Port Macquarie	Cairncross Recycling Industrial Zone Improvements	Concrete Processing Facility Establishment Stage 1 – EIS, Design, Planning & Approvals		4.1.7.23 CW	80,000
Port Macquarie	Cairncross Recycling Industrial Zone Improvements	Electricity distribution, metering and DA amendments		4.1.7.24 CW	100,000
Port Macquarie	Cairncross WMF Improvements	Stage 1 – Lunchroom Facilities & Amenities		4.1.7.21 CW	70,000
					415,000
Council Service: Natural Resources – Allocated Amount $2,145,000					
Various	Biodiversity Offsets	Land Acquisitions		4.8.3.1 CW	25,000
Laurieton	Diamond Head Road/The Boulevarde	Flood Access Stage 1A		4.4.1.29 CW	1,390,000
Laurieton	Illaroo Rd – Stormwater Remediation	Construction		4.2.1.11 CW	700,000
Various	Hastings River Flood Management	Stage 4 – Floodplain Risk Management Plan Implementation – Additional streamflow & rainfall gauges		4.6.1.11 CW	30,000
					2,145,000

Theme 4 – *Your Natural and Built Environment* – 2019-20 Allocated Amount $57,457,716

Location	Project Description	Detailed Description	Multi-Year Project	Capital Works (CW) Reference Number	2019-20 Allocated Amount
Council Service: Drainage – Allocated Amount $1,723,000					
Laurieton	Rodley Street Bonny Hills	Flooding mitigation measures – Pipes & Pits		4.1.6.9 CW	400,000
Port Macquarie	Stormwater Remediation – 31 Calwalla Cr	Overflow swale plus system augmentation		4.1.5.13 CW	200,000
Port Macquarie	Westport Stormwater Management Plan	Design		4.1.5.11 CW	270,000
Port Macquarie	Stormwater Remediation – 35 Hart Street	Model Required – likely pit/pipe system upgrade (no safe overflow path present)		4.1.5.12 CW	90,000
Port Macquarie	Stormwater Remediation Options – Panorama Drive Catchment	Detailed Designs		4.1.5.8 CW	95,000
Various	Stormwater Remediation Designs	Design of drainage improvement works		4.1.5.10 CW	18,000
Various	Stormwater Renewal Program	Renewal program of Stormwater assets in line with asset management plans	✔	4.1.6.7 CW	650,000
					1,723,000
Council Service: Water Supply – Allocated Amount $7,464,000					
Various	Annual Chemical Dosing Systems Upgrades allocation	Replacement of the sodium hypochlorite dosing systems at Water Treatment Plants with Chlorine Gas Dosing Systems	✔	4.1.2.2. CW	200,000
Various	Annual Installation Of New Services allocation	Expansion of existing water supply network	✔	4.1.1.4 CW	400,000
Various	Annual Live Water Mains Relocations allocation	Relocation of live water mains based on age, condition, risk or in response to development	✔	4.1.2.1 CW	750,000
Various	Annual Renewals – Live Watermains allocation	Renewal of live water mains based on age, condition, risk or in response to development	✔	4.1.2.1 CW	750,000
Various	Annual Renewals – Water Meters allocation	Renewal of water meters based on their age, condition, and readability	✔	4.1.2.1 CW	360,000

Theme 4 – *Your Natural and Built Environment* – 2019-20 Allocated Amount $57,457,716

Council Service: Water Supply – Allocated Amount $7,464,000

Location	Project Description	Detailed Description	Multi-Year Project	Capital Works (CW) Reference Number	2019-20 Allocated Amount
Various	Annual Renewals And Minor Works allocation	Carry out various minor works across the water supply scheme at Pump Stations, Reservoirs, Dams, Dosing Facilities and other sites including renewal or upgrade of infrastructure	✔	4.1.2.1 CW	900,000
Various	Annual Switchboard Replacement Program Water allocation	Replacement of electrical switchboards at water supply sites to ensure continued reliable operation of the Water Supply Network	✔	4.1.2.1 CW	150,000
Bonny Hills	Construction of the Southern Arm Trunk Main(DN750) – Pacific Hwy to Bonny Hills	Pre-construction of trunk main from Pacific Hwy to Bonny Hills		4.1.1.26 CW	200,000
Cowarra	Pre Construction of a Water treatment/ Filtration Plant at Cowarra Dam	Pre-construction of water treatment/filtration plant at Cowarra Dam		4.1.1.27CW	250,000
Port Macquarie	Marbuk Motorised Valve	Relocation		4.1.1.29 CW	350,000
Bonny Hills/ Camden Haven	Pre Construction Works – Trunk Main from Bonny Hills to Kew (Area 12) Reservoir – Stage 1	Commencement of Electrical Upgrade Works		4.1.1.28 CW	350,000
Bonny Hills	Reclaimed Water – Area 14 Trunk Main	Outlet		4.1.1.13 CW	650,000
Port Macquarie	Sancrox Reservoir to Area 13	Trunkmain		4.1.1.1 CW	991,000
Various	Water SCADA	Replacement		4.1.1.31 CW	30,000
Wauchope	Water Trunkmain Augmentation	Between Sancrox Reservoir and Wauchope		4.1.1.18 CW	1,133,000
					7,464,000

Theme 4 – *Your Natural and Built Environment* – 2019-20 Allocated Amount $57,457,716

Council Service: Sewerage Services – Allocated Amount $27,900,000

Location	Project Description	Detailed Description	Multi-Year Project	Capital Works (CW) Reference Number	2019-20 Allocated Amount
Various	Annual Electrical STP Asset Replacement Allocation	Programmed replacement of electrical switchboards at Sewerage Treatment Plants	✔	4.1.4.4 CW	100,000
Various	Annual Mechanical STP Asset Replacement Allocation	Programmed replacement of mechanical assets including instruments at Sewerage Treatment Plants	✔	4.1.4.4 CW	100,000
Various	Annual Sewer Pump Replacement Program Allocation	Programmed replacement of pumps through the Sewerage Service Network	✔	4.1.4.1 CW	150,000
Various	Annual Sewer Rehabilitation Allocation	Replacement of sewer mains, connection of new sewer mains, relocation of lines and asset inspections	✔	4.1.4.5 CW	940,000
Various	Annual Sewer Relining Works Allocation	Sewer Relining is utilised to extend the service life of sewerage mains and manholes through a no-dig solution	✔	4.1.4.5 CW	210,000
Various	Annual Switchboard Replacement Allocation	Programmed replacement of electrical switchboards at Sewerage Pump Stations	✔	4.1.4.1 CW	150,000
Kew	Continuation of Construction of Kew STP Upgrade	Upgrade existing Kew STP to serve Kew & Area 15 development incl redirection of existing SPS31 at West Haven		4.1.3.22 CW	5,000,000
Thrumster	Thrumster Sewerage Treatment Plant (Area 13) – Phase 1 200000EP	Continuation of pre-construction of Thrumster STP (Area 13)		4.1.3.18 CW	400,000
Various	Energy Efficiency Initiatives	Upgrade of motor systems (ie STP, SPS mechanical equipment)		4.1.3.23 CW	150,000
Port Macquarie	Inlet Works Replacement for Port Macquarie STP	Inlet works replacement for Port Macquarie STP		4.1.3.24 CW	1,000,000
Various	Lid Replacement Program	Program of replacement of lids		4.1.4.1 CW	200,000
Various	Long Term Asset Management Systems	Stage 1 – Strategic Asset Data & System Review including Options Assessment and develop Implementation Plan		4.1.3.25 CW	250,000
Lake Innes	Upgrade of Lake Innes Sewerage Pump Station #71 (PMSPS71)	Pre-construction work for upgrade of Lake Innes Sewerage Pump Station #71		4.1.3.26 CW	150,000

Theme 4 – *Your Natural and Built Environment* – 2019-20 Allocated Amount $57,457,716

Council Service: Sewerage Services – Allocated Amount $27,900,000

Location	Project Description	Detailed Description	Multi-Year Project	Capital Works (CW) Reference Number	2019-20 Allocated Amount
Bonny Hills	Reclaimed Water – Area 14 Trunk Main	Inlet		4.1.3.15 CW	650,000
Port Macquarie	Sewer DNP3 Port Macquarie	Roll Out		4.1.4.1 CW	250,000
Port Macquarie	Sewer Telemetry Radios in Port Macquarie	Replacement		4.1.4.1 CW	200,000
Various	Small Towns Sewerage Scheme Construction	Finalisation of the Small Village Sewerage Scheme at Long Flat, Comboyne, and Telegraph Point		4.1.3.3 CW	18,000,000
					27,900,000
Council Service: Transport and Traffic – Allocated Amount $17,810,716					
Wauchope	Bago Road Rehabilitation	Milligan's Road to Bluewater Crescent		4.4.1.61 CW	2,563,587
Laurieton	Bold Street, Laurieton	Crossing between Seymour and Tunis Streets – Detailed investigation and Design		4.4.1.31 CW	255,000
Various	Continuation of High Traffic Road Resurfacing	Undertake pavement resurfacing works across the LGA utilising the 17/18 approved SRV of 3.89%		4.4.2.1 CW	933,423
Various	Continuation of Pavement Rejuvenation Treatments	Undertake pavement rejuvenation works across the LGA utilising the 17/18 approved SRV of 3.89%		4.4.2.1 CW	233,356
Laurieton	Dunbogan Bridge	Reid Street – Structure Rehabilitation		4.4.1.21 CW	3,276,000
Various	Footpath, Cycleway and Pedestrian Management	Footpath, cycleway and pedestrian works across the LGA		4.4.1.03 CW	1,000,000
Port Macquarie	Hastings River Drive & Boundary Streets	Upgrade		4.4.1.13 CW	654,000
Port Macquarie	John Oxley Drive	Detailed Design		4.4.1.42 CW	484,000
Kew	Kew Main Street	Upgrade		4.4.1.34 CW	340,000
Kindee	Kindee Bridge	Detailed designs		4.4.1.66 CW	300,000
Port Macquarie	Koala Street Upgrade Concept Designs	Concept Designs for the upgrade of Koala Street only		4.4.1.64 CW	150,000

Theme 4 – *Your Natural and Built Environment* – 2019-20 Allocated Amount $57,457,716

Council Service: Transport and Traffic – Allocated Amount $17,810,716

Location	Project Description	Detailed Description	Multi-Year Project	Capital Works (CW) Reference Number	2019-20 Allocated Amount
Port Macquarie	Lighthouse Road Upgrade	Project Management		4.4.1.57 CW	430,000
Port Macquarie	Lighthouse Road Upgrade	Tourism Connectivity Project		4.4.1.57 CW	1,040,000
Various	Local Roads Proactive Transport Program	Funds provided for the proactive maintenance of lower trafficked roads throughout the LGA		4.4.1.37 CW	331,273
Laurieton	Ocean Drive, Lake Cathie	Design Miala to Orana		4.4.1.33 CW	145,000
Various	Road Resealing Works	Undertake Resealing works throughout the Local Government Area		4.4.2.1 CW	2,080,077
Various	Scrubby Creek Bridge	Upgrade		4.4.1.65 CW	455,000
Various	Scrubby Creek Bridge	Replace Bridge – Detailed Design		4.4.1.65 CW	50,000
Innes Peninsula	The Ruins Way Reconstruction	Major Innes Road to Sitella Street		4.4.1.62 CW	950,000
Various	Transport & Traffic various design works	Additional Transport & Stormwater Designs		4.4.1.49 CW	200,000
Wauchope	Pembrooke Road – Stoney Creek Road Bridge Upgrade	Detailed Design		4.4.1.63 CW	500,000
Wauchope	Rawdon Island	Safety Improvements		4.4.1.76 CW	150,000
Laurieton	Bold Street Pedestrian Crossing	Construction Finalisation		4.4.1.31 CW	200,000
Port Macquarie	Pedestrian Refuge – Hayward Street	West of Horton Street – Construction		4.4.1.68 CW	60,000
Port Macquarie	Pedestrian Refuge – Gordon Street & Hollingworth Street	Construction		4.4.1.69 CW	180,000
Port Macquarie	Pedestrian Refuge – Horton Street	Clarence Street and William Street – Detailed Design and Construction		4.4.1.70 CW	160,000
Wauchope	Pembrooke Road	Safety Improvements		4.4.1.75 CW	130,000
Laurieton	Telegraph Point	Pedestrian Safety Upgrades		4.4.1.73 CW	560,000
					17,810,716

PORT MACQUARIE HASTINGS COUNCIL

A SNAPSHOT OF

Key Projects

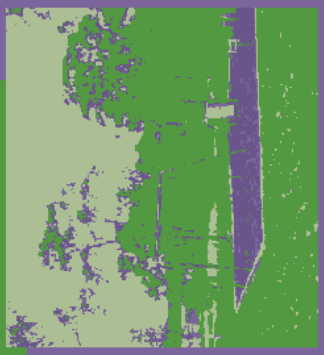
FOR 2019-2020

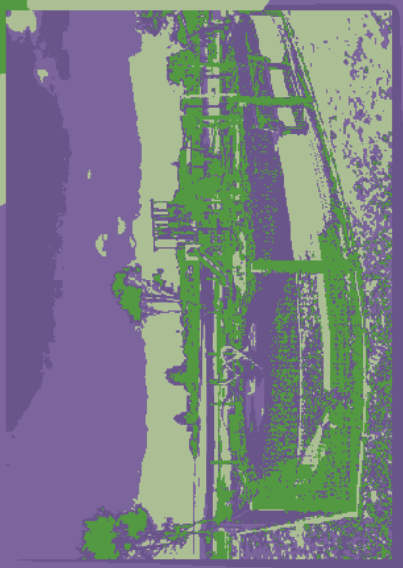
ACROSS THE REGION

> Road resealing works throughout the local government area: $2,080,077
> Construction of footpaths in the Local Government Area: $1,000,000
> Stormwater Renewal Program: $650,000
> Small Towns Sewerage Scheme Construction – finalisation of the Small Village Sewerage Scheme at Long Flat, Comboyne, and Telegraph Point: $18,000,000

LAURIETON, CAMDEN HAVEN AND SURROUNDS

> Lake Cathie Foreshore Reserve – Master plan implementation – Construction of Skate Facility – $312,000
> Kendall Sports Ground – Sports facility upgrade – $155,000
> North Haven Beach Reserve – Pedestrian Facility – Upgrade of North Haven to Bonny Hills walkway – $104,000
> Rainbow Beach Sports Fields – Acquisition of Land – $1,707,572
> Rainbow Beach Sports Fields – Preconstruction works – $290,000
> Rainbow Beach Sports Fields – District Facilities – $4,165,000
> Riverview Reserve – Playground Upgrade – $85,750
> Scribbly Bark Reserve, Scribbly Bark Place – Playground Replacement – $85,750
> Construction of the Southern Arm Trunk Main (DN750) – Pacific Hwy to Bonny Hills – $200,000
> Continuation of construction of Kew Sewerage Treatment Plant (STP) – $5,000,000
> Bold Street Pedestrian Crossing – Detailed Investigation and Design – $255,000
> Bold Street Pedestrian Crossing – Construction Finalisation – $200,000





A SNAPSHOT OF

Key Projects

FOR 2019-2020

ACROSS THE REGION

> Road resealing works throughout the local government area: $2,080,077
> Construction of footpaths in the Local Government Area: $1,000,000
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PORT MACQUARIE

> Blair Reserve – Playground Upgrade – $85,750
> Flynns Beach – Seawall Replacement – Stage 1 – $1,622,200
> Red Ochre Park – Develop new park facilities – Local Facilities – $446,000
> Ruins Way Park – Develop new park facilities – Local Facilities – $312,000
> Settlement Point Reserve, Settlement Point Road – Playground Replacement – $85,750
> Stuart Park – Regional Sporting Precinct – $2,539,586
> Town Beach Park, Stewart Street – Playground Replacement – $415,000
> Walkways – Various – Replacement of walkways (Sandhurst Reserve; Blair Reserve; Harry's Lookout) – $150,000
> Port Macquarie Aquatic Facility – Design finalisation – $450,000
> Port Macquarie Airport – Parallel Taxiway Stage 1 and General Aviation Pavement Renewal – Finalise Detailed Design – $150,000
> Port Macquarie Airport Terminal Upgrade – Construction finalisation – $2,375,000
> Thrumster Sewerage Treatment Plant (Area 13) – Phase 1 – $400,000
> Inlet works replacement for Port Macquarie Sewerage Treatment Plan – $1,000,000
> Koala Street Upgrade Concept Designs – $150,000
> The Ruins Way reconstruction – Major Innes Road to Sitella Street – $950,000
> Port Macquarie Foreshore Walkway Project – $985,000

PORT MACQUARIE HASTINGS COUNCIL

A SNAPSHOT OF

Key Projects

FOR 2019-2020

ACROSS THE REGION

> Road resealing works throughout the local government area: $2,080,077
> Construction of footpaths in the Local Government Area: $1,000,000
> Stormwater Renewal Program: $650,000
> Small Towns Sewerage Scheme Construction – finalisation of the Small Village Sewerage Scheme at Long Flat, Comboyne, and Telegraph Point: $18,000,000

WAUCHOPE, RURAL AND SURROUNDS

> Reservoir Park, High Street – Playground Replacement – $21,000
> Rocks Ferry Reserve – Playground Upgrade – $102,500
> Hastings Regional Sporting Complex – Construction – $2,000,000
> Bago Road Rehabilitation – Milligan's Road to Bluewater Crescent – $2,563,587
> Kindee Bridge – Detailed designs – $300,000
> Pembrooke Road – Stoney Creek Road Bridge upgrade – $500,000

ONE YEAR OPERATIONAL PLAN 2019-2020 61

UNDERSTANDING THE TABLES

All tables are colour-coded according to the Theme and contain reference numbers. This diagram explains how to read and understand the tables throughout the document. Number reference that are omitted from sequential order refers to actions/activities/project undertaken prior to 2019-20.

Community Strategic Plan Strategy detailed in the "Towards 2030 Community Strategic Plan" adopted by Council in June 2017

Four year Delivery Program Objectives, that guide the actions, activities and projects in the annual Operational Plan

Outlines what action, activity or project that will be undertaken during the financial year in the Operational Plan and contributes to achieving outcomes against the four Delivery Program Objective

Community Strategic Plan Strategy
3.3 Embrace opportunity and attract investment to support the wealth and growth of the community

Delivery Program 2017-2021 Objective
3.3.1 Develop, manage and maintain Port Macquarie Airport as a key component of the regional transport network and continue to grow the airport's contribution to the regional economy.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	3.3.1.3 CW	Port Macquarie Airport Terminal Upgrade – finalise construction – (multi-year project) Allocated Amount 2019-20 – $2,375,000	Airport	Commercial Business Units (Infrastructure Delivery)	Finalise construction of Airport Terminal Upgrade
	3.3.1.4 CW	Port Macquarie Airport Parallel Taxiway Stage 1 and GA pavement renewal – finalise detailed design Allocated Amount 2019-20 – $150,000	Airport	Commercial Business Units (Infrastructure Delivery)	Finalise detailed design of Airport Parallel Taxiway Stage 1 and General Avation pavement renewal

These two columns denote these are either an Operational or Capital item and provide a reference number for each

Indicates the allocated budget amount in Capital Works Program

Details the Council Service associated to the Operational Plan action

Council section responsible for delivering and reporting on the item

Outlines how the item will be reported against

PORT MACQUARIE-HASTINGS COUNCIL

COMMUNITY THEME 1

Leadership and Governance

COMMUNITY STRATEGIC PLAN

What we are trying to achieve

A collaborative community that works together and uses opportunities for community participation in decision making that is defined as ethically, socially and environmentally responsible.

How we will get there

1.1 Inform and engage with the community about what Council does using varied communication channels.

1.2 Maintain strong partnerships between all stakeholders – local, state and federal – so that they are affective advocates for the community.

1.3 Demonstrate leadership

1.4 Use innovative, efficient and sustainable practices.

1.5 Ensure strong corporate and financial management that is transparent and accountable.

Who will assist us

> NSW Government

> Local businesses

> NSW Government (Land and Property Information)

> State Government

> Northern Joint Regional Planning Panel

> Department of Planning

> Other state government agencies

> Community interest groups

Community Strategic Plan Strategy
1.1 Inform and engage with the community about what Council does using varied communication channels.

Delivery Program 2017-2021 Objective
1.1.1 Use a variety of tools to engage with the community in a manner that is transparent, effective, relevant and inclusive.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
1.1.1.1		Engage with the community using a range of methods to facilitate community involvement in decision making	Community Place	Community Place	1. Capture the number of engagement activities undertaken and number of participant including online 2. Increased community participation on Council's Have your Say online portal
1.1.1.4		Implement strategic communications priorities in accordance with Council's Working Together Framework	Communications	Economic Development and Communications	1. Deliver regular, positive and engaging media messaging 2. Increase community engagement with Council's digital channels
1.1.1.5		Implement strategic education priorities in accordance with Council's Working Together Framework	Communications	Economic Development and Communications	Education messaging program implemented in accordance with identified priorities
Delivery Program 2017-2021 Objective 1.1.2 Support community involvement in decision making through education around Council matters and services.					
1.1.2.1		Engage the community on developing the 2021 Community Strategic plan to drive council projects and programs into the future	Community Place	Community Place	Engagement commenced for the Community Strategic Plan by 1 February 2020
1.1.2.3		Undertake the Community Planning Program	Community Place	Community Place	1. Community plans developed by 30 June 2020 2. Facilitate Community Council Action teams 3. Implement Community Plans
1.1.2.4		Develop Local Strategic Planning Statement	Strategic Land Use Planning	Strategic Land Use Planning	Complete Local Strategic Planning Statement for presentation to the NSW Department of Planning and Environment by 30 June 2020
Delivery Program 2017-2021 Objective 1.1.3 Engage with the community on impacts and changes to services.					
1.1.3.2		Develop a Community Engagement program to enable community involvement in decision making in line with the Working Together Framework	Community Place	Community Place	The Community Engagement program is developed and implementation of actions commenced by 30 June 2020
1.1.3.3		Undertake the Community Satisfaction Survey	Community Place	Community Place	Undertaken a community satisfaction survey by 31 December 2019

Community Strategic Plan Strategy
1.1 Inform and engage with the community about what Council does using varied communication channels.

Delivery Program 2017-2021 Objective
1.1.4 Provide easy to understand and accessible community reporting.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
1.1.4.1		Produce and submit the annual report in accordance with Local Government Act requirements	Integrated Planning & Reporting	Organisational Performance	1. Have annual report adopted by Council and submitted to the Office of Local Government (OLG) by 30 November 2. Publish community report card (Part A); statutory report (Part B); and financial statements (Part C) for distribution
1.1.4.2		Provide progress reports on implementation of the Delivery Program in accordance with Local Government Act requirements	Integrated Planning & Reporting	Organisational Performance	Provide Delivery Program progress report to Council on a six monthly basis
1.1.4.3		Undertake development of the one year Operational Plan in accordance with Local Government Act requirements	Integrated Planning & Reporting	Organisational Performance	Have an annual operational plan adopted by 30 June
1.1.4.4		Review the current corporate reporting tool to ensure continuous improvement of functionality to meet the needs of the business.	Integrated Planning & Reporting	Organisational Performance	Performance reporting tool reviewed to identify continuous improvement opportunities
1.1.4.5		Undertake review of Resourcing Strategy in accordance with Local Government Act requirements	Integrated Planning & Reporting	Organisational Performance	Organised resourcing strategy working group to deliver reviewed resourcing strategy
Delivery Program 2017-2021 Objective 1.1.5 Develop an effective and coordinated community focused Communications Strategy.					
1.1.5.3		Use a variety of communication channels to ensure the community are well-informed, involved in Council decision making and understanding of Council priorities	Communications	Economic Development and Communications	1. Increase community engagement with Council's digital channels 2. Deliver regular and engaging communications utilising a range of communication channels
1.1.5.4		Ensure communication and education channel use is informed by research and understanding of preferred community communication methods	Communications	Economic Development and Communications	Communications priorities and methods are informed by insights from the 2019 communications research

Community Strategic Plan Strategy
1.1 Inform and engage with the community about what Council does using varied communication channels.

Delivery Program 2017-2021 Objective
1.1.6 Continue to promote access by the community to Councillors.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
1.1.6.1		Manage Councillor development program	Governance & Executive Services	Governance and Procurement	Manage Councillor development
1.1.6.2		Deliver the *Take the Council to the Community* program	Governance & Executive Services	Governance and Procurement	Hold two off-site Council meetings during the year (March Wauchope, October Laurieton)

Community Strategic Plan Strategy
1.2 Maintain strong partnerships between all stakeholders – local, state and federal – so that they are affective advocates for the community

Delivery Program 2017-2021 Objective
1.2.1 Promote Council participation and build linkages in local, state and federal initiatives, forums and opportunities to support Council's continued planning for the growth of the region.

1.2.1.1		Convene meetings with local business chambers for the Mayor and Senior Staff	Corporate Governance	Strategy and Growth	Schedule meetings throughout the year
1.2.1.2		Convene meetings with State and Federal Members for the Mayor and Senior Staff	Corporate Governance	General Manager's Office	Schedule meetings throughout the year

Community Strategic Plan Strategy
1.3 Demonstrate leadership

Delivery Program 2017-2021 Objective
1.3.1 Provide effective leadership and equity.

1.3.1.1		Participate in the Mid North Coast Joint Organisation (MNCJO)	Corporate Governance	General Manager's Office	Attendance at the Regional Joint Organisation meetings by the Mayor and General Manager

Community Strategic Plan Strategy
1.3 Demonstrate leadership

Delivery Program 2017-2021 Objective
1.3.2 Build trust and improve Council's reputation through transparency, good decision making and living Council's Values.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
1.3.2.1		Manage the Legislative Compliance Register	Governance & Executive Services	Governance and Procurement	Undertake annual review of the Legislative Compliance Register and report on it and consider improvements to the Legislative Compliance process
1.3.2.2		Produce and submit the annual Code of Conduct complaints report in accordance with Office of Local Government requirements	Governance & Executive Services	Governance and Procurement	Report prepared annually and presented to Council no later than 31 December
1.3.2.3		Produce and submit the annual Government Information Public Access (GIPA) Report in accordance with the GIPA Act requirements	Governance & Executive Services	Governance and Procurement	Submit GIPA annual report to Information and Privacy Commission no later than 31 October
1.3.2.4		Coordinate lodgement of annual Disclosure of Interest Returns	Governance & Executive Services	Governance and Procurement	Annually update Disclosure Register by 30 September
1.3.2.6		Report on Public Interest Disclosures (PID)	Governance & Executive Services	Governance and Procurement	1. Report biannually in July and February on any Public Interest Disclosures 2. Submit PID annual report to NSW Ombudsman by 31 October
1.3.2.7		Submit annual performance reporting for the water and sewer business to NSW Office of Water for benchmarking comparisons	Water Supply	Water and Sewer	Collate and forward performance reporting data to NSW Office of Water annually

Community Strategic Plan Strategy
1.3 Demonstrate leadership

Delivery Program 2017-2021 Objective
1.3.3 Ensure there is appropriate management of risk to mitigate impact for Council and the community.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
1.3.3.2		Manage the Risk Management Action Plan, as part of the state wide continuous improvement program	Governance & Executive Services	Governance and Procurement	Review and implement the Risk Management Action Plan on a quarterly basis and report to Executive
1.3.3.5		Improve the Risk Management Framework	Governance & Executive Services	Governance and Procurement	Improve the Risk Management Framework in line with project milestones
1.3.3.6		Capture high risk electrical assets in Council's asset management system	Asset Management	Assets and Property Investment	Complete electrical asset data survey for Council owned assets by 30 June 2020
1.3.3.7		Manage the Delegation Framework	Governance & Executive Services	Governance and Procurement	Manage and consider improvements to the Delegation framework.
1.3.3.8		Respond to formal information requests within required timeframes	Governance & Executive Services	Governance and Procurement	Respond to formal GIPA requests within the required timeframes
Delivery Program 2017-2021 Objective 1.3.4 Manage our workforce to deliver community outcomes.					
1.3.4.1		Implement workplace strategies and processes to continue to improve Human Resources	HR and WHS Management	Organisational Performance	Implementation of Workforce Management Strategy actions
1.3.4.2		Implement workplace strategies and processes to continue to improve Work, Health and Safety	HR and WHS Management	Organisational Performance	Implementation of Work, Health Safety Strategy actions
1.3.4.3		Implement workplace strategies and processes to continue to improve Learning and Development	HR and WHS Management	Organisational Performance	Implementation of Learning and Development Strategy actions.
	1.3.4.4 CW	Construct new works depot in Port Macquarie (multi-year project linked to 1.3.4.5 CW) Adopted and continuing from previous years	Asset Management	Assets and Property Investment	Deliver project according to approved project plan
	1.3.4.5 CW	Works Depot relocation – preconstruction/design (multi-year project linked to 1.3.4.4 CW)	Asset Management	Assets and Property Investment	Deliver project according to approved project plan

Community Strategic Plan Strategy
1.3 Demonstrate leadership

Delivery Program 2017-2021 Objective
1.3.5 Build an engaged workforce.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
1.3.5.1		Continue the development of a highly engaged workforce who are solutions-focused	HR and WHS Management	Organisational Performance	1. Embed, streamline and measure Employee Engagement Process (EEP) and implement identified areas of improvement. 2. Implement actions from the 2019 and 2020 Employee Engagement Surveys 3. Deliver annual Employee Engagement Days 4. Identify and implement new employee engagement opportunities
1.3.5.3		Develop project plan for implementation of the Human Resource Information System (HRIS)	HR and WHS Management	Organisational Performance	1. Project plan developed 2. Implementation of project plan commenced

Community Strategic Plan Strategy
1.4 Use innovative, efficient and sustainable practices

Delivery Program 2017-2021 Objective
1.4.1 Provide efficient technology and inclusive digital systems that are easy to use and easy to access.

	1.4.1.1 CW	Undertake delivery of Digital Technology projects (DT – Roadmap Program – multi-year projects) including continued implementation of Authority Asset Management System Allocated Amount 2019-20 $85,000 Council Chambers AV Replacement Allocated Amount 2019-20 $1,000,000 Information & Communications Technology – Projects	Digital Technology	Digital Technology	Delivery of projects according to approved project plan
	1.4.1.2 CW	Undertake delivery of ICT projects (ICT – Renewals – multi-year project) Allocated Amount 2019-20 $200,000	Digital Technology	Digital Technology	Deliver project according to approved project plan
1.4.1.5		Develop asset design and as-constructed templates as part of the Asset Data Standards Review	Asset Management	Assets and Property Investment	Develop an Auto CAD file template for asset design and as-constructed plans that meets Asset Design As Constructed (ADAC) standards by 30 June 2020

Community Strategic Plan Strategy
1.4 Use innovative, efficient and sustainable practices

Delivery Program 2017-2021 Objective
1.4.2 Deliver agreed services at the agreed service level at best value.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
1.4.2.1		Work across the organisation to facilitate the implementation of the Business Improvement Strategy	Business improvement	Organisational Performance	1. Facilitate service reviews 2. Facilitate process improvements
Delivery Program 2017-2021 Objective 1.4.3 Deliver a customer-focused service that provides the community a consistent experience of Council.					
1.4.3.1		Deliver high quality and valued customer experiences that place the customer at the Centre of what Council does	Customer Interactions	Community Place	1. Develop a Community Satisfaction survey tool to measure customer satisfaction 2. Community sentiment data is used to inform how we design and provide services to our customers. 3. Improved percentage of first contact resolution of customer enquiries (less calls transferred)
1.4.3.2		Provide up to date information for our community through a single source of truth	Customer Interactions	Community Place	Develop Council Knowledge Base by 30 June 2020

Community Strategic Plan Strategy
1.5 Ensure strong corporate and financial management that is transparent and accountable

Delivery Program 2017-2021 Objective
1.5.1 Manage Council's financial assets and provide accurate, timely and reliable information.

1.5.1.1		Monitor and accurately report on Council's financial position in accordance with Local Government Act requirements	Financial Management	Financial Services	1. Submit three quarterly budget review statements and an annual report submitted to Council 2. Lodge audited financial statements with Office of Local Government by 31 October
1.5.1.2		Manage Council's investment portfolio to optimise investment returns within the constraints of the policy, the Local Government Act and Regulations	Financial Management	Financial Services	1. Exceed benchmark for investment return 2. Table report to Council monthly
1.5.1.3		Develop annual Operational Plan budget and review the Long Term Financial Plan	Financial Management	Financial Services	1. Develop the draft annual budget in line with Integrated Planning and Reporting timeframes 2. Review the Long Term Financial Plan in line with the budget 3. Have final budget adopted by Council by 30 June each year
1.5.1.4		Prepare monthly financial reports for Council	Financial Management	Financial Services	Present financial reports to Council as required

Community Strategic Plan Strategy
1.5 Ensure strong corporate and financial management that is transparent and accountable

Delivery Program 2017-2021 Objective
1.5.1 Manage Council's financial assets and provide accurate, timely and reliable information.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
1.5.1.6		Progress Partridge Creek residential development planning	Property Investment portfolio	Assets and Property Investment	Provide a report to Council outlining Partridge Creek residential development options upon receipt of updated land valuation
1.5.1.7		Progress Greenmeadows Dr Development Planning and Feasibilities	Property Investment Portfolio	Assets and Property Investment	1. Develop concept plan for Greenmeadows Drive development 2. Lodge Development Approval application for Greenmeadows Drive development
1.5.1.8		Conduct Asset Revaluation for Transport assets (Roads, Bridges, Footpaths, Airport Runway)	Asset Management	Assets and Property Investment	Complete Transport asset revaluation by 30 June 2020
1.5.1.9		Progress Emily Avenue residential development planning	Property Investment Portfolio	Assets and Property Investment	1. Develop concept plan for Emily Avenue development 2. Lodge Development Approval application for Emily Avenue development
1.5.1.10		Implement Asset Designed As Constructed (ADAS) computerised automated process system	Asset Management	Assets and Property Investment	Complete implementation of ADAC within Council operations by 30 June 2020
Delivery Program 2017-2021 Objective 1.5.2 Use procurement, tendering, purchasing and contract management approaches that are transparent and equitable.					
1.5.2.1		Continue to implement and monitor the procurement strategy action items	Procurement and Stores	Governance and Procurement	Completion of Procurement Strategy Implementation Plan actions within agreed timeframes
	1.5.2.2 CW	Ensure plant purchases are in line with the plant replacement program (Plant Purchases and Disposals – multi-year project) Allocated Amount 2019-20 $3,300,000	Fleet and Depot Management	Transport and Stormwater Network	Plant replacement program delivered according to approved schedule
1.5.2.3		Manage and maintain Council's Plant and Fleet to support the operational activities of Council	Fleet and Depot Management	Transport and Stormwater Network	Plant and Fleet managed and maintained in accordance with adopted program and budget
1.5.2.5		Undertake procurement activities in accordance with legislative requirements and that are transparent	Procurement and Stores	Governance and Procurement	Capture contracts awarded with a value of $150,000 (excluding GST) or more

Community Strategic Plan Strategy
1.5 Ensure strong corporate and financial management that is transparent and accountable

Delivery Program 2017-2021 Objective
1.5.3 Develop, manage and maintain Council Business Units through effective commercial management.

Operational Plan 2019-2020 – Action/Activity/Project

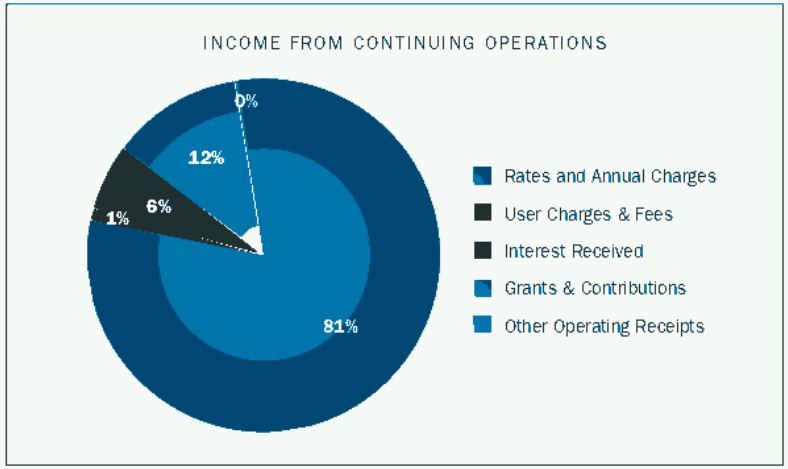
Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
1.5.3.1		Increase operating revenue at the Airport, the Glasshouse, the Crematorium and Cemetery, and the Environmental Laboratory	Airport, Glasshouse, Environmental Testing	Commercial Business Units	Increase operating revenue by 3% per annum per business unit including: Airport, Glasshouse, Crematorium and Cemetery, and Environmental Laboratory
1.5.3.2		Implement the Glasshouse Strategic Plan 2019-2022 in consideration of Council's Cultural Plan	Glasshouse	Commercial Business Units	1. Present biannual reports to Council 2. Deliver actions according to adopted Strategic Plan
1.5.3.6		Manage Council's property management, leasing and licencing, and statutory property functions for the most appropriate return to Council and the community	Property and Leasing	Commercial Business Units	1. Manage Council's lease and licence portfolio to ensure the most appropriate return to Council and the community 2. Deliver statutory property projects according to approved project plan
1.5.3.7		Continue to implement and monitor the property investment strategy	Property Investment Portfolio	Assets and Property Investment	Provide six monthly update reports to Council on the status of the Property Investment Portfolio
	1.5.3.8 CW	Land Acquisitions for Council Roads – Survey, Valuation and Land Transactions Allocated Amount 2019-20 – $30,000	Property and Leasing	Commercial Business Units	Deliver projects according to approved project plan
Delivery Program 2017-2021 Objective 1.5.4 Identify new commercially viable revenue sources					
1.5.4.1		Review current revenue sources and investigate the commercial viability of identified new revenue sources	Airport, Crematorium & Cemeteries, Environmental Testing, Glasshouse, Property and Leasing	Commercial Business Units	Identify new revenue sources

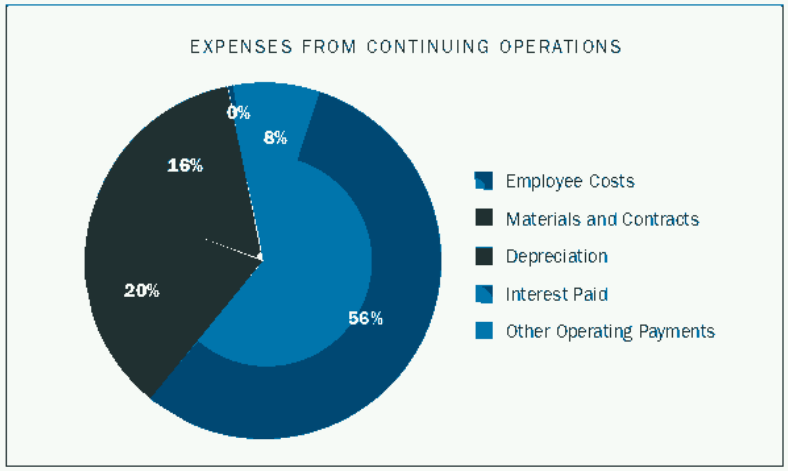
BUDGET STATEMENT
LEADERSHIP AND GOVERNANCE – 1 JULY 2019 TO 30 JUNE 2020

	2019-20 Original Budget
Operating Activities Movements	
Income from continuing operations	
Rates & Annual Charges	48,751,005
User Charges & Fees	527,700
Interest Received	3,687,924
Grants & Contributions	7,304,300
Other Operating Receipts	156,470
Expenses from continuing operations	
Employee Costs	(12,559,159)
Materials & Contracts	(4,521,855)
Depreciation	(3,523,963)
Interest Paid	(1,000)
Other Operating Payments	(1,928,494)
Overheads	15,219,745
Loss on Disposal of Assets	-
Operating result from continuing operations	53,112,673
Restricted Asset Movements	
Restricted asset movements receipts	
Transfer from Restricted Assets	4,635,000
Restricted asset movements payments	
Transfer to Restricted Assets	(2,441,910)
Net Revenues (Used in)/Provided by in Restricted Assets	2,193,090
Property, plant and equipment movements	
Property, plant & equipment movements receipts	
Sale of Fixed Assets	-
Sale of Real Estate Development Assets	-
Property, plant & equipment movements payments	
Purchase of Assets	(4,615,000)
Developer Provided Assets	
Net Revenues (Used in)/Provided by in Investing Activity	(4,615,000)
Financing activities movements	
Financing activities receipts	
Proceeds from Borrowings & Advances	-
Financing activities payments	
Repayments of Borrowings & Advances	-
Net Revenues (Used in)/Provided by in Financing Activity	-
Net Result (Including Depreciation)	50,690,763
Add Back: Non Cash Items	3,523,963
Budget Surplus/(Shortfall)	**54,214,726**

► *(INTEGRATED REF: DP - BUDGET STATEMENT 4 YEARS /RS-LTFP/FINANCIAL STATEMENTS)*

INCOME AND EXPENSES





PORT MACQUARIE-HASTINGS COUNCIL

COMMUNITY THEME 2

Your Community Life

COMMUNITY STRATEGIC PLAN

What we are trying to achieve

A healthy, inclusive and vibrant community.

How we will get there

2.1 Create a community that feels safe

2.2 Advocate for social inclusion and fairness

2.3 Provide quality programs, community facilities and public spaces, for example, community halls, parks and vibrant town centres

2.4 Empower the community through active involvement in projects, volunteering and events

2.5 Promote a creative and culturally rich community

Who will assist us

> NSW Surf Lifesaving Association
> Rural Fire Service
> Landcare
> NSW Fire and Rescue
> Local Aboriginal Land Co
> Crown Lands
> National Parks
> Department of Pl
> NSW Fire Briga
> Office of Loca
> Environment (EPA)
> NSW Pub
> Departm
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> Bea
> CMP commun
> 355 committees
> operty Services
> Cultural

Community Strategic Plan Strategy
2.1 Create a community that feels safe

Delivery Program 2017-2021 Objective
2.1.1 Support Community Safety initiatives

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
2.1.1.1		Manage the contract for approved lifeguard services	Sports & Recreation	Recreation and Buildings	1. Deliver approved lifeguard services 2. Deliver lifeguard education programs to schools and community groups (target 2,500 students)
Delivery Program 2017-2021 Objective 2.1.2 Advocate for, support and coordinate emergency services.					
	2.1.2.1 CW	Council supports Emergency Management Operations and Agencies Allocated Amount 2019-20 – $350,000 Bushfire Tank/Vehicle purchases	Emergency Management	Infrastructure	Provide coordination and support to emergency service units as required
Delivery Program 2017-2021 Objective 2.1.3 Conduct regulatory and educational activities which safeguard public and environmental health, and ensures compliance with planning and building standards					
2.1.3.1		Monitor and take action as appropriate to ensure compliance with development approvals and building, environmental, public health and on-site sewage standards	Compliance	Regulatory Services	1. Respond to 80% of Regulatory Services customer requests within set customer service standards 2. Undertake 90% of fire safety inspections within set customer service standards 3. Undertake 90% of swimming pool inspections within set customer service standards 4. Undertake 90% of on-site sewerage management systems inspections within set customer service standards 5. Undertake 90% of public health inspections within set customer service standards
2.1.3.3		Provide ranger and local law enforcement services to ensure compliance with legislation, regulations and Council policies relating to parking, regular beach patrols, illegal signage, sale of goods on roads, building site sediment control and companion animal management	Compliance	Regulatory Services	1. Respond to 80% of Regulatory Services customer requests regarding compliance with parking, beach patrols, illegal signage, sale of goods on roads, building site sediment control and companion animal management within set customer service standard 2. Monitor the number of offences detected during proactive patrols 3. Monitor the number of companion animal incidents

Community Strategic Plan Strategy
2.1 Create a community that feels safe

Delivery Program 2017-2021 Objective
2.1.3 Conduct regulatory and educational activities which safeguard public and environmental health, and ensures compliance with planning and building standards

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
2.1.3.4		Manage Council's Environmental Laboratory and provide sampling, analysis, reporting and professional advice of water quality analysis in accordance with operational and regulatory requirements to internal and external customers on an approved fee for service basis	Environmental Testing	Commercial Business Units	1. Undertake all sampling, analysis and reporting of operational and regulatory requests in accordance with approved budgets 2. Complete all sampling, analysis and reporting of operational and regulatory requests in accordance with agreed service standards 3. Maintain National Association of Testing Authorities (NATA) corporate accreditation
2.1.3.5		Provide a safe water supply in accordance with Australian Drinking Water Quality Guidelines	Water Supply	Water and Sewer	Have nil reportable incidents in accordance with NSW Health agreed protocols

Community Strategic Plan Strategy
2.2 Advocate for social inclusion and fairness

Delivery Program 2017-2021 Objective
2.2.1 Support and advocate for all community sectors.

2.2.1.1		Involve youth for a better Council	Community Place	Community Place	1. Re-establish and manage a Youth Advisory Council 2. Deliver Youth focused activities
2.2.1.3		Coordinate the Community Grants program to assist the community to deliver projects that contribute to a sense of place	Community Place	Community Place	1. Deliver Community Grants Program through two rounds per year 2. Implement the new Community Grants program to meet the needs of a changing community
2.2.1.7		Adopt and implement the Community Inclusion Plan	Community Place	Community Place	1. Adopt the Community Inclusion Plan by 30 October 2019 2. Implement the Community Inclusion Plan actions

Community Strategic Plan Strategy
2.3 Provide quality programs, community facilities and public spaces, e.g. for example, Community community halls, parks and vibrant town centres

Delivery Program 2017-2021 Objective
2.3.1 Ensure access to community facilities and activities: including access to natural environment

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	2.3.1.1 CW	Deliver the Disability Inclusion Action Plan in accordance with State Legislation Allocated Amount 2019-20 – $107,700 Disabled Accesses – Buildings/Recreation Facilities	Community Place	Community Place	Implement the actions as per the Disability Inclusion Action Plan
2.3.1.2		Manage Community Halls	Community Place	Community Place	Manage Community Halls to current service standard
Delivery Program 2017-2021 Objective 2.3.2 Provide a range of inclusive sporting and recreational opportunities and facilities to encourage a healthy and active lifestyle					
2.3.2.1		Continue implementation of the Recreation Action Plan 2015-2025	Sports & Recreation	Recreation and Buildings	Implement the identified actions from the Recreation Action Plan
	2.3.2.2 CW	Deliver sporting facility renewal and upgrades program across the LGA Adopted and continuing from previous years – Oxley Oval – Sporting Infrastructure upgrade – Port Macquarie Hastings Hockey Facility – install lighting to Field 2 – Port Macquarie Regional Sports Stadium – construction of new training field including lighting Allocated amount 2019-20 – $155,000 Kendall Sports Ground – Sporting Field – Reserve Upgrade Allocated amount 2019-20 – $560,000 Vince Inmon Sporting Fields – Sports Facility Upgrade	Sports & Recreation	Recreation and Buildings	Deliver renewal and upgrades as per schedules and report according to seasonal sports
2.3.2.3		Manage the Mayor's Sporting Fund	Community Place	Community Place	Distribute funds as required and Coordinate fundraising events

Community Strategic Plan Strategy
2.3 Provide quality programs, community facilities and public spaces, e.g. for example, Community community halls, parks and vibrant town centres

Delivery Program 2017-2021 Objective
2.3.2 Provide a range of inclusive sporting and recreational opportunities and facilities to encourage a healthy and active lifestyle

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
2.3.2.4		Undertake regional master planning for recreational facilities	Sports & Recreation	Recreation and Buildings	1. Complete Master Planning for Bain Park, Wauchope 2. Commence review of Bonny Hills Reserves Master Plan
	2.3.2.6 CW	Hastings River recreational boating improvements – Undertake design/pre-construction for provision of new facility as per Boating Needs Investigation Adopted and continuing from previous years	Sports & Recreation	Recreation and Buildings	Continue to deliver according to approved project plan
Delivery Program 2017-2021 Objective 2.3.3 Develop and implement management of operational and maintenance programs for open space, recreational and community facilities					
	2.3.3.1 CW	Undertake the maintenance program for parks, reserves, sporting fields and beaches including parks signage Adopted and continuing from previous years – Bunny's Corner – Riverbank erosion management – Settlement Point Reserve – Riverbank erosion management	Sports & Recreation	Recreation and Buildings	Deliver program, including beach cleaning and playground inspections according to approved maintenance schedules
	2.3.3.2 CW	Undertake scheduled and reactive maintenance programs of all Council-owned buildings including office furniture replacement Allocated Amount 2019-20 – $11,600	Building Maintenance	Recreation and Buildings	Deliver projects according to facilities works program
	2.3.3.3 CW	Undertake building rectification works in line with Council Asset Management – (multi-year project) Allocated Amount 2019-20 – $316,000	Building Maintenance	Recreation and Buildings	Deliver project according to approved project plan

Community Strategic Plan Strategy
2.3 Provide quality programs, community facilities and public spaces, e.g. for example, Community community halls, parks and vibrant town centres

Delivery Program 2017-2021 Objective
2.3.3 Develop and implement management of operational and maintenance programs for open space, recreational and community facilities

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	2.3.3.4 CW	Provide, maintain and manage public aquatic facilities Allocated Amount 2019-20 $50,000 Laurieton Pool – Filtration system	Sports & Recreation	Recreation and Buildings	1. Undertake annual off-season facility maintenance in accordance with approved program 2. Oversee the management of Council's public aquatic facilities in accordance with lease obligation checklist
2.3.3.5		Deliver park furniture renewals across the local government area, including donated seats program	Sports & Recreation	Recreation and Buildings	Deliver replacement program according to approved schedule
	2.3.3.6 CW	Carry out playground equipment replacement program Allocated Amount 2019-20 – $85,750 Blair Reserve PMQ – Playground Upgrade Allocated Amount 2019-20 – $21,000 Reservoir Park, High Street Wauchope – Playground Replacement Allocated Amount 2019-20 – $85,750 Scribbly Bark Reserve, Scribbly Bark Place – Playground Replacement Allocated Amount 2019-20 – $$85,750 Riverview Reserve - Playground Upgrade Allocated Amount 2019-20 – $102,500 Rocks Ferry Reserve Wauchope – Playground Upgrade Allocated Amount 2019-20 – $85,750 Settlement Point Reserve, Settlement Point Road – Playground Replacement Allocated Amount 2019-20 – $415,000 Town Beach Park, Stewart Street – Playground Replacement	Sports & Recreation	Recreation and Buildings	Deliver replacement program according to approved schedule

Community Strategic Plan Strategy
2.3 Provide quality programs, community facilities and public spaces, e.g. for example, Community community halls, parks and vibrant town centres

Delivery Program 2017-2021 Objective
2.3.3 Develop and implement management of operational and maintenance programs for open space, recreational and community facilities

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	2.3.3.8 CW	Deliver recreational walkway replacement program across the local government area Allocated Amount 2019-20 – $104,000 North Haven Beach Reserve – Pedestrian Facility (Upgrade of North Haven to Bonny Hills walkway) Allocated Amount 2019-20 – $150,000 Replacement of walkways – Sandhurst Reserve; Blair Reserve; Harry's Lookout	Sports & Recreation	Recreation and Buildings	Deliver the recreational walkway replacement program to schedule
2.3.3.9		Implement maintenance programs for boat ramps, wharves and jetties	Sports & Recreation	Transport and Stormwater Network, (Recreation and Buildings)	Deliver programs according to approved maintenance and schedule (for boat ramps, wharves and jetties)
2.3.3.10		Undertake the maintenance program for beaches	Sports & Recreation	Recreation and Buildings	1. Undertake beach and beach access maintenance as per program 2. Undertake inspections of beach access signs
	2.3.3.11 CW	Rocks Ferry Reserve – Riverbank revetment extension Adopted and continuing from previous years	Sports & Recreation	Recreation and Buildings, (Infrastructure Delivery)	Deliver project according to approved project plan
	2.3.3.12 CW	Sancrox/Thrumster Sports Fields – Detailed design and approvals – (multi-year project) Allocated Amount 2019-20 – $267,000	Sports & Recreation	Recreation and Buildings, (Infrastructure Delivery)	Deliver project according to approved project plan
	2.3.3.14 CW	Undertake the Public Amenities Renewals program Adopted and continuing from previous years – Short Street Car Park Reserve Allocated Amount 2019-20 $100,000 – Pilot Beach Reserve – Replacement of public amenities	Building Maintenance	Recreation and Buildings	Deliver project according to approved project plan

Community Strategic Plan Strategy
2.3 Provide quality programs, community facilities and public spaces, e.g. for example, Community community halls, parks and vibrant town centres

Delivery Program 2017-2021 Objective
2.3.3 Develop and implement management of operational and maintenance programs for open space, recreational and community facilities

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	2.3.3.15 CW	Kendall Skatepark – renewal of facility at end of useful life – Design and construct Adopted and continuing from previous years	Sports & Recreation	Recreation and Buildings	Deliver project according to approved project plan
2.3.3.16		Manage burial, cremation and memorialisation services at Innes Garden Memorial Park, Wauchope, Laurieton and other outlying cemeteries	Crematorium & Cemeteries	Commercial Business Units	Carry out services in accordance with legislative and customer requirements
	2.3.3.17 CW	Carry out improvement and expansion works at Innes Garden Memorial Park, Wauchope, Laurieton and other outlying cemeteries Adopted and continuing from previous years	Crematorium & Cemeteries	Commercial Business Units	Deliver projects according to approved project plan
2.3.3.18		Administration of public roads, public spaces, events and customer engagement: – Section 138 Road Applications – Road Encroachments – Customer Enquiries and Responses – Other Statutory Road Functions – Road Policies	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver works in accordance with Council's Policies and Procedures
2.3.3.20		Develop Plans of Management for Council Crown Reserve Sites – Undertake plans of management as required under the *Crown Lands Management Act*	Recreation and Buildings	Sports & Recreation	Plans of Management for Council Crown Reserve Sites undertaken as required

Community Strategic Plan Strategy
2.3 Provide quality programs, community facilities and public spaces, e.g. for example, Community community halls, parks and vibrant town centres

Delivery Program 2017-2021 Objective
2.3.4 Plan, investigate, design and construct open spaces, recreational and community facilities

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	2.3.4.2 CW	Port Macquarie Coastal Walk – upgrade as per adopted master plan Allocated Amount 2019-20 – $780,000 Upgrade of walkway	Sports & Recreation	Recreation and Buildings	Deliver project according to approved project plan
	2.3.4.3.CW	Wayne Richards Park – Stages 3 and 4 detailed design and approvals Allocated Amount 2019-20 – $250,000	Sports & Recreation	Recreation and Buildings, (Infrastructure Delivery)	Deliver project according to approved project plan
	2.3.4.6 CW	Flynn's Beach – upgrade seawall – seawall replacement – Stage 1 (multi-year project) Allocated Amount 2019-20 – $1,622,200	Sports & Recreation	Recreation and Buildings, (Infrastructure Delivery)	Deliver project according to approved project plan
	2.3.4.7 CW	Googik Track – construct shared walkway/cycleway, Stage 2 (multi-year project) Adopted and continuing from previous years	Sports & Recreation	Recreation and Buildings, (Infrastructure Delivery)	Deliver project according to approved project plan
	2.3.4.8 CW	Hastings Regional Sporting Complex – Construction (multi-year project) Allocated Amount 2019-20 – $2,000,000 Construction	Sports & Recreation	Recreation and Buildings, (Infrastructure Delivery)	Deliver project according to approved project plan

Community Strategic Plan Strategy
2.3 Provide quality programs, community facilities and public spaces, e.g. for example, Community community halls, parks and vibrant town centres

Delivery Program 2017-2021 Objective
2.3.4 Plan, investigate, design and construct open spaces, recreational and community facilities

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	2.3.4.12 CW	Port Macquarie Town Centre Master Plan (TCMP) improvements Gordon Street Bridge – Pedestrian Underpass – Adopted and continuing from previous years Allocated Amount 2019-20 – $985,000 – Port Macquarie Foreshore Walkway Project	Sports & Recreation	Recreation and Buildings	Deliver project according to approved project plan
	2.3.4.14 CW	Port Macquarie Pool – Design Finalisation Allocated Amount 2019-20 — $450,000	Sports & Recreation	Recreation and Buildings	Deliver project according to approved project plan
	2.3.4.16 CW	Continue installation of Town Village Entry Signage Allocated Amount 2019-20 – $50,000	Community Place	Community Place	Deliver project according to approved project plan
	2.3.4.17 CW	Lake Cathie Foreshore Reserve - Master plan implementation – Construction of Skate Facility Allocated Amount 2019-20 — $312,000	Sports & Recreation	Recreation and Buildings	Undertake construction of the skate park facility at Lake Cathie Reserve

Community Strategic Plan Strategy
2.3 Provide quality programs, community facilities and public spaces, e.g. for example, Community community halls, parks and vibrant town centres

Delivery Program 2017-2021 Objective
2.3.4 Plan, investigate, design and construct open spaces, recreational and community facilities

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	2.3.4.18 CW	Rainbow Beach Sports Fields Allocated Amount 2019-20 – $1,707,572 Acquisition of Land Allocated Amount 2019-20 - $290,000 - Preconstruction Works Allocated Amount 2019-20 - $4,165,000 District Facilities	Sports & Recreation	Recreation and Buildings	Deliver project according to approved project plan
	2.3.4.19 CW	Red Ochre Park – Develop new park facilities – Local Facilities Allocated Amount 2019-20 – $446,000	Sports & Recreation	Recreation and Buildings	Deliver project according to approved project plan
	2.3.4.20 CW	Ruins Way Park – Develop new park facilities – Local Facilities Allocated Amount 2019-20 – $312,000	Sports & Recreation	Recreation and Buildings	Deliver project according to approved project plan
	2.3.4.21 CW	Stuart Park – Regional Sporting Precinct – Stuart Park and Wood Street Upgrades Adopted and continuing from previous years – Develop off leash dog exercise park in Port Macquarie Allocated Amount 2019-20 – $2,539,586 Regional Sporting Precinct upgrades including Amenities Upgrade Sports Facility Upgrade and Lighting Upgrade Allocated Amount 2019-20 – $950,000 Wood Street Road upgrade	Sports & Recreation	Recreation and Buildings (Transport and Stormwater Network)	1. Deliver project according to approved project plan 2. Deliver project according to approved project plan – Wood Street Road upgrade

Community Strategic Plan Strategy
2.3 Provide quality programs, community facilities and public spaces, e.g. for example, Community community halls, parks and vibrant town centres

Delivery Program 2017-2021 Objective
2.3.4 Plan, investigate, design and construct open spaces, recreational and community facilities

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	2.3.4.22 CW	Parks and Gardens Future Designs – Preparation of engineering designs in advance of construction programmes for Parks and Gardens Allocated Amount 2019-20 – $32,200	Sports & Recreation	Recreation and Buildings	Parks and Gardens Future Designs preparation undertaken as required
	2.3.4.23 CW	Port Macquarie Town Signage - Installation of Signage in the Port Macquarie area Allocated Amount 2019-20 – $150,000	Community Place	Community Place	Deliver project according to approved project plan
	2.3.4.24 CW	Beechwood Tennis Courts – Upgrade Tennis Facility Allocated Amount 2019-20 – $60,000	Sports & Recreation	Recreation and Buildings	Deliver project according to approved project plan
Delivery Program 2017-2021 Objective 2.3.5 Plan and deliver innovative Library Services which cater for new technology and growing population.					
	2.3.5.1 CW	Provide a range of library programs and lending services across the local government area (including Library Furnishings, Fittings and Equipment; Library Local Priority Grant) – (multi-year project) Allocated Amount 2019-20 – $40,000 For Library Furnishings, Fittings & Equipment Update Computer Equipment, Technology, Photocopiers, Additional Shelving etc.	Library	Community Place	1. Annual library program delivered 2. Increase Library membership by 5% annually
	2.3.5.2 CW	Purchase of Library Books – (multi-year project) Allocated Amount 2019-20 – $450,800 To provide bookstock at NSW State average per capita as a minimum level	Library	Community Place	Complete book purchases

Community Strategic Plan Strategy
2.3 Provide quality programs, community facilities and public spaces, e.g. for example, Community community halls, parks and vibrant town centres

Delivery Program 2017-2021 Objective
2.3.5 Plan and deliver innovative Library Services which cater for new technology and growing population.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
2.3.5.4		Adopt and implement the Library Strategic Plan	Library	Community Place	1. Adopt the Library Strategic Plan by 31 October 2019 2. Implement actions as per the Library Strategic Plan
	2.3.5.5 CW	Implement the Library Website Upgrade Adopted and continuing from previous years	Library	Community Place	Library website upgrades complete by December 2019
	2.3.5.6 CW	Purchase and fit out new Community Van to provide services such as Library outreach, arts and cultural program and community engagement Allocated Amount 2019-20 – $136,470	Library	Community Place	1. Van purchased and fit out complete by 1 March 2020 2. Service delivery program developed and implementation commenced by 30 June 2020
	2.3.5.7 CW	Deliver Special Library Projects to enhance library delivery program Allocated Amount 2019-20 – $20,000 For the purchase of resources such as books, DVDs, toys	Library	Community Place	Special Library Projects planned, approved and implemented by 30 June 2020
Delivery Program 2017-2021 Objective 2.3.6 Support a range of inclusive community activities and programs					
2.3.6.3		Finalise and implement the Port Macquarie Hastings Events Plan	Community Place	Community Place	Implement actions relating to Community Events

Community Strategic Plan Strategy
2.4 Empower the community through encouraging active involvement in projects, volunteering and events

Delivery Program 2017-2021 Objective
2.4.1 Work with the community to identify and address community needs, to inform Council processes, services and projects

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
2.4.1.1		Support and promote the Volunteer Program including the Graffiti Blaster Program	Community Place	Community Place	Plan and coordinate a volunteer program across the LGA
2.4.1.2		Prioritise and commence implementation of agreed actions from the Customer Experience project	Community Place	Community Place	Implement the agreed Customer Experience priorities for 2019-2020

Community Strategic Plan Strategy
2.5 Promote a creative and culturally rich community

Delivery Program 2017-2021 Objective
2.5.1 Support cultural activities within the community

2.5.1.1		Implement the Cultural Plan	Community Place	Community Place	Implement agreed Cultural Plan actions
	2.5.1.2 CW	Undertake Glasshouse back of house maintenance Allocated Amount 2019-20 – $10,000 Plant & Equipment Purchases Allocated Amount 2019-20 – $56,000 Technical Equipment Purchases	Glasshouse	Commercial Business Units	Undertake maintenance as required
2.5.1.3		Manage the delivery of a range of high quality performing and visual arts events at the Glasshouse in consideration of Council's Cultural Plan	Glasshouse	Commercial Business Units	1. Deliver the performing arts program as per the annual season launch – 15 events 2. Deliver the exhibition program as per the annual gallery program – 20 exhibitions

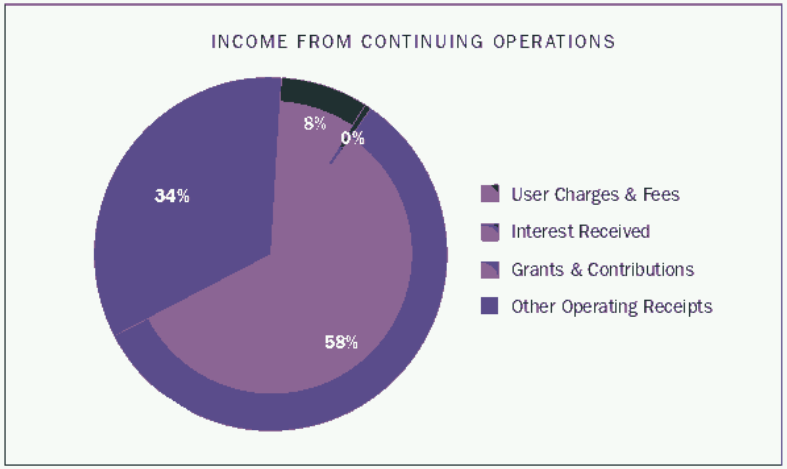
BUDGET STATEMENT

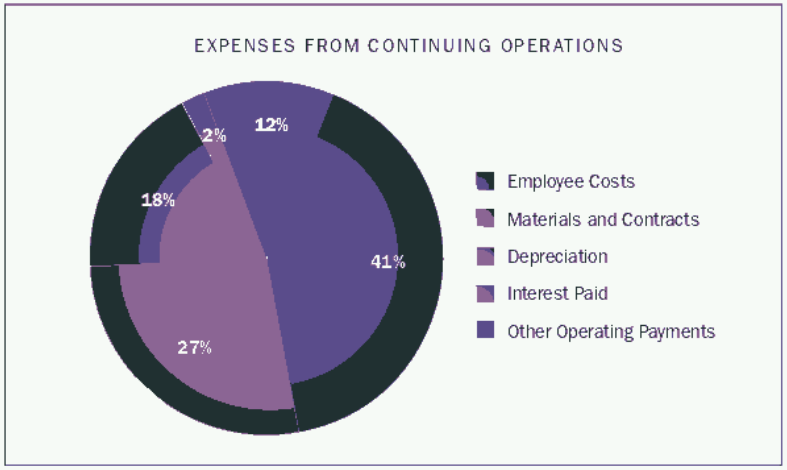
YOUR COMMUNITY LIFE – 1 JULY 2019 TO 30 JUNE 2020

	2019-20 Original Budget
Operating Activities Movements	
Income from continuing operations	
Rates & Annual Charges	(218,113)
User Charges & Fees	694,914
Interest Received	1,050
Grants & Contributions	4,849,374
Other Operating Receipts	2,785,209
Expenses from continuing operations	
Employee Costs	(9,035,740
Materials & Contracts	(6,110,497)
Depreciation	(3,934,378)
Interest Paid	(554,196)
Other Operating Payments	(2,580,309)
Overheads	(1,800,653)
Loss on Disposal of Assets-	
Operating result from continuing operations	(15,903,339)
Restricted Asset Movements	
Restricted asset movements receipts	
Transfer from Restricted Assets	12,882,006
Restricted asset movements payments	
Transfer to Restricted Assets	(454,594)
Net Revenues (Used in)/Provided by in Restricted Assets	12,427,412
Property, plant and equipment movements	
Property, plant & equipment movements receipts	
Sale of Fixed Assets	-
Sale of Real Estate Development Assets	-
Property, plant & equipment movements payments	
Purchase of Assets	(20,942,628)
Developer Provided Assets	
Net Revenues (Used in)/Provided by in Investing Activity	(20,942,628)
Financing activities movements	
Financing activities receipts	
Proceeds from Borrowings & Advances	1,500,000
Financing activities payments	
Repayments of Borrowings & Advances	(1,911,413)
Net Revenues (Used in)/Provided by in Financing Activity	411,413
Net Result (Including Depreciation)	(24,829,968)
Add Back: Non Cash Items	3,934,378
Budget Surplus/(Shortfall)	**(20,895,590)**

► *(INTEGRATED REF: DP - BUDGET STATEMENT 4 YEARS /RS-LTFP/FINANCIAL STATEMENTS)*

INCOME AND EXPENSES





PORT MACQUARIE-HASTINGS
COUNCIL

COMMUNITY THEME 3

Your Business and Industry

COMMUNITY STRATEGIC PLAN

What we are trying to achieve

The Port Macquarie-Hastings region is a successful place that has vibrant, diversified and resilient regional economy for people to live, learn, work, play and invest.

How we will get there

3.1 Embrace business and a stronger economy

3.2 Create vibrant and desirable places

3.3 Embrace opportunity and attract investment to support the wealth growth of the community

3.4 Partner for success with key stakeholders in business, government, education and community

Who will

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Community Strategic Plan Strategy
3.1 Embrace business and a stronger economy

Delivery Program 2017-2021 Objective
3.1.1 Assist the growth of local business and industry, ensuring this is a central consideration of Council activities

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
3.1.1.1		Implement actions from the 2017-2021 Economic Development Strategy to lead, create and proactively support an environment that stimulates sustainable industry, business and investment growth.	Economic Development	Economic Development and Communications	1. Implement actions from the Economic Development Strategy 2. Undertake and report on an annual business confidence survey
Delivery Program 2017-2021 Objective 3.1.2 Optimise the use of appropriately zoned land for business uses					
3.1.2.1		Finalise Local Environmental Plan (LEP) and Development Control Plan (DCP) amendments in relation to a business park near Port Macquarie Airport (UGMS Action 15)	Strategic Land Use Planning	Strategic Land Use Planning	Final report to Council re Local Environmental Plan (LEP) and Development Control Plan (DCP) amendments by 30 December 2019
3.1.2.2		Review and prepare planning proposals for specific sites within the Port Macquarie-Hastings Local Government Area based on priorities as determined by Council	Strategic Land Use Planning	Strategic Land Use Planning	Report to Council bi-annually on progress of the progress and status of site specific amendments
Delivery Program 2017-2021 Objective 3.1.3 Implement Major Events Strategy.					
3.1.3.2		Finalise and implement the Port Macquarie-Hastings Events Plan	Economic Development	Economic Development and Communications	1. Successful distribution of Events Grants and Sponsorships 2. Implementation of Events Plan actions relating to 'Major Events'

Community Strategic Plan Strategy
3.1 Embrace business and a stronger economy

Delivery Program 2017-2021 Objective
3.1.4 Implement the Destination Management Plan

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
3.1.4.1		Work with stakeholders to implement actions from the Destination Management Plan in accordance with the identified strategic outcomes	Economic Development	Economic Development and Communications	1. Implement actions within the Destination Management Plan 2. Increase new monthly visits to the website by more than 15% in 12 months

Community Strategic Plan Strategy
3.2 Create vibrant and desirable places

Delivery Program 2017-2021 Objective
3.2.1 Support vibrant commercial, tourism, recreational and or community hubs across the region

3.2.1.2		Support towns and villages initiatives that will provide activation and economic return	Economic Development	Economic Development and Communications	Identify initiatives and implement (or support implementation) with stakeholder support

Community Strategic Plan Strategy
3.3 Embrace opportunity and attract investment to support the wealth and growth of the community

Delivery Program 2017-2021 Objective
3.3.1 Develop, manage and maintain Port Macquarie Airport as a key component of the regional transport network and continue to grow the airport's contribution to the regional economy.

3.3.1.1		Continue to monitor, plan and implement the Port Macquarie Airport Master Plan to meet demand and regulatory requirements (multi-year project)	Airport	Commercial Business Units	Deliver identified actions from the Airport Master Plan according to approved project plan
3.3.1.2		Support, facilitate and advocate for regular public transport (RPT) airline services at Port Macquarie Airport	Airport	Commercial Business Units	Increase in passenger numbers compared to previous year

Community Strategic Plan Strategy
3.3 Embrace opportunity and attract investment to support the wealth and growth of the community

Delivery Program 2017-2021 Objective
3.3.1 Develop, manage and maintain Port Macquarie Airport as a key component of the regional transport network and continue to grow the airport's contribution to the regional economy.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	3.3.1.3 CW	Port Macquarie Airport Terminal Upgrade – finalise construction – (multi-year project) Allocated Amount 2019-20 – $2,375,000	Airport	Commercial Business Units (Infrastructure Delivery)	Finalise construction of Airport Terminal Upgrade
	3.3.1.4 CW	Port Macquarie Airport Parallel Taxiway Stage 1 and GA pavement renewal – finalise detailed design Allocated Amount 2019-20 – $150,000	Airport	Commercial Business Units (Infrastructure Delivery)	Finalise detailed design of Airport Parallel Taxiway Stage 1 and General Aviation pavement renewal
3.3.1.5		Continue to monitor, plan and implement the Port Macquarie Airport Biodiversity Certification Strategy and related environmental approvals – (multi-year project)	Airport	Commercial Business Units, Environmental Services	Deliver identified actions from the Biodiversity Certification Strategy and related environmental approvals according to approved project plan
	3.3.1.6 CW	Operate and maintain Port Macquarie Airport in accordance with regulatory, safety and security requirements Allocated Amount 2019-20 – $30,000 Maintenance and refurbishment of Council-owned Hangars	Airport	Commercial Business Units	1. Carry out daily aerodrome inspections according to regulatory requirements 2. Ensure airport operational manuals are reviewed by 30 June 3. Carry out maintenance/refurbishment of Council-owned hangars according to approved project plan
3.3.1.7		Finalise development planning for the Airport Business Park	Property Investment Portfolio	Assets and Property Investment	Finalise development planning by 31 December 2019 according to approved project plan

Community Strategic Plan Strategy
3.3 Embrace opportunity and attract investment to support the wealth and growth of the community

Delivery Program 2017-2021 Objective
3.3.2 Promote investment, education and lifestyle opportunities.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
3.3.2.1		Promote local growth and opportunities within and outside the region	Economic Development	Economic Development and Communications	1. Deliver investment attraction messaging and collateral 2. Include broader place opportunity messaging through marketing channels

Community Strategic Plan Strategy
3.4 Partner for success with key stakeholders in business, industry, government, education and the community

Delivery Program 2017-2021 Objective
3.4.1 Foster partnerships with higher education institutions through research and development, innovation and local skills development.

3.4.1.1		Partner with local education institutions on initiatives that will support local economic and skills growth	Economic Development	Economic Development and Communications	Identify initiatives and implement (or support implementation) with stakeholder support

Delivery Program 2017-2021 Objective
3.4.2 Support local business networks

3.4.2.1		Work closely with local business networks and organisations to build their capacity and facilitate the growth of existing enterprises	Economic Development	Economic Development and Communications	Ongoing engagement with, and support for local business networks individually and collectively

Delivery Program 2017-2021 Objective
3.4.3 Encourage innovation that will support our growth as a regional city including smart community technology

3.4.3.2		Advocate and implement projects that support innovation and enhance the local digital environment	Economic Development	Economic Development and Communications	1. Engagement with local business, entrepreneurs and co-workers via The Hub pop-up co-working space. 2. Support the delivery of projects which enhance local digital engagement, smart work hubs and 'smart' technology roll out 3. Smart City Strategy developed by 30 June 2020

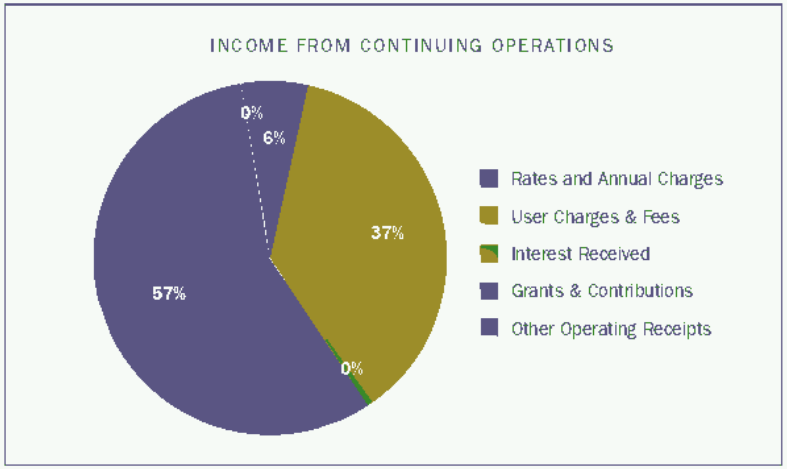
BUDGET STATEMENT

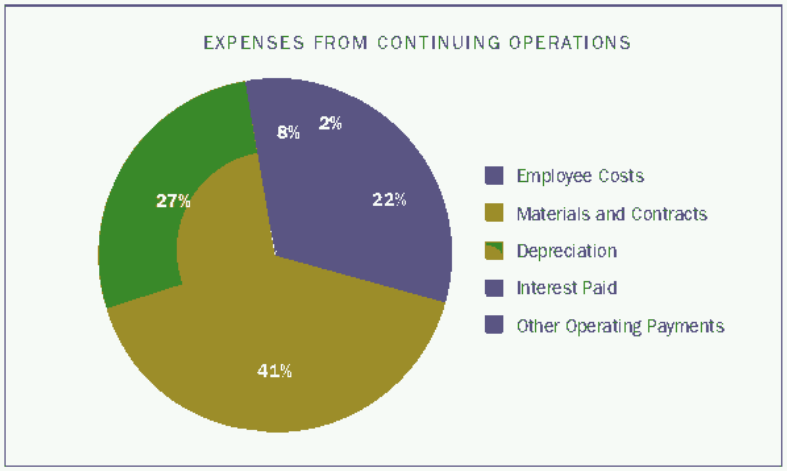
YOUR BUSINESS AND INDUSTRY – 1 JULY 2019 TO 30 JUNE 2020

	2019-20 Original Budget
Operating Activities Movements	
Income from continuing operations	
Rates & Annual Charges	827,629
User Charges & Fees	5,394,563
Interest Received	-
Grants & Contributions	8,203,482
Other Operating Receipts	67,000
Expenses from continuing operations	
Employee Costs	(1,988,372)
Materials & Contracts	(3,703,235)
Depreciation	(2,392,556)
Interest Paid	(675,490)
Other Operating Payments	(147,036)
Overheads	(12,789)
Loss on Disposal of Assets	-
Operating result from continuing operations	5,573,196
Restricted Asset Movements	
Restricted asset movements receipts	
Transfer from Restricted Assets	3,300,000
Restricted asset movements payments	
Transfer to Restricted Assets	(8,694,446)
Net Revenues (Used in)/Provided by in Restricted Assets	(5,394,446)
Property, plant and equipment movements	
Property, plant & equipment movements receipts	
Sale of Fixed Assets	-
Sale of Real Estate Development Assets	-
Property, plant & equipment movements payments	
Purchase of Assets	(2,555,000)
Developer Provided Assets	
Net Revenues (Used in)/Provided by in Investing Activity	(2,555,000)
Financing activities movements	
Financing activities receipts	
Proceeds from Borrowings & Advances	-
Financing activities payments	
Repayments of Borrowings & Advances	(2,100,917)
Net Revenues (Used in)/Provided by in Financing Activity	(2,100,917)
Net Result (Including Depreciation)	(4,477,167)
Add Back: Non Cash Items	2,392,556
Budget Surplus/(Shortfall)	**(2,084,611)**

▶ *{INTEGRATED REF: DP - BUDGET STATEMENT 4 YEARS /RS – LTFP/FINANCIAL STATEMENTS}*

INCOME AND EXPENSES





PORT MACQUARIE-HASTINGS
COUNCIL

COMMUNITY THEME 4

Your Natural and Built Environment

What we are trying to achieve

A connected, sustainable, accessible community and environment that is protected now and into the future.

How we will get there

4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

4.2 Aim to minimise impact of natural events and climate change, for example, floods, bushfires and coastal erosion

4.3 Facilitate development that is compatible with the natural and built environment

4.4 Plan for Integrated transport systems that helps people get around and links our communities

4.5 Plan for integrated and connected communities across the Port Macquarie-Hastings area

4.6 Restore and protect natural areas

4.7 Provide leadership in the development of renewable energy opportunities

4.8 Increase awareness of issues affecting our environment, including the preservation of flora and fauna

Who will assist us

> State Government
> Koala Preservation Society
> Landowners
> NSW Government
> Community interest groups
> General public
> State Government
> Federal Government
> Business and Industry groups
> Community groups
> External contractors

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.1 Plan, investigate, design and construct water supply assets ensuring health, safety, environmental protection and security of supply for the future growth of the region

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.1.1.1 CW	Commencement of the construction of the Sancrox Reservoir to Area 13 (Thrumster) trunk main (DN750) Allocated Amount 2019-20 – $991,000	Water Supply	Water and Sewer, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.1.1.4 CW	Installation of new water supply services to residential and business premises – to cater for new development Allocated Amount 2019-20 – $400,000 Expansion of existing water supply network	Water Supply	Water and Sewer	Deliver project according to approved project plan
	4.1.1.13 CW	Commence construction of Area 14 reclaimed outlet trunk main (DN250), Bonny Hills Allocated Amount 2019-20 – $650,000	Water Supply	Water and Sewer, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.1.1.16 CW	Thrumster Reclaimed Water Interim Supply – Rising Main to Thrumster Reservoir – undertake construction Adopted and continuing from previous years	Water Supply	Water and Sewer, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.1.1.17 CW	Beechwood Rosewood Reservoir – Beechwood connection - Undertake Construction/Delivery VPA Council Funded Works Adopted and continuing from previous years	Water Supply	Water and Sewer, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.1.1.18 CW	Water Trunkmain Augmentation – Between Sancrox Reservoir and Wauchope Allocated Amount 2019-20 – $1,133,000	Water Supply	Water and Sewer	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.1 Plan, investigate, design and construct water supply assets ensuring health, safety, environmental protection and security of supply for the future growth of the region

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.1.1.26 CW	Construction of the Southern Arm Trunk Main (DN750) – Pacific Hwy to Bonny Hills Allocated Amount 2019-20 – $ 200,000 Pre-construction of trunk main from Bonny Hills to Kew Reservoir	Water Supply	Water and Sewer	Deliver project according to approved project plan
	4.1.1.27 CW	Preconstruction of a Water treatment/Filtration Plant at Cowarra dam Allocated Amount 2019-20 – $ 250,000	Water Supply	Water and Sewer	Deliver project according to approved project plan
	4.1.1.28 CW	Pre-Construction Works – Trunk Main from Bonny Hills to Kew (Area 12) Reservoir – Stage 1 Allocated Amount 2019-20 – $350,000	Water Supply	Water and Sewer	Deliver project according to approved project plan
	4.1.1.29 CW	Marbuk Motorised Valve – Relocation Allocated Amount 2019-20 – $350,000	Water Supply	Water and Sewer	Deliver project according to approved project plan
	4.1.1.31 CW	Water SCADA – Replacement Allocated Amount 2019-20 – $30,000	Water Supply	Water and Sewer	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.2 Develop and implement annual maintenance and preventative works program for water supply assets

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.1.2.1 CW	Conduct water asset replacement and renewal programs for live water mains, water meters, renewals and minor works, pumps and switchboards Allocated Amount 2019-20 – $750,000 Annual Live Water Mains Relocations Allocated Amount 2019-20 – $ 750,000 Annual Renewals - Live Watermains Allocated Amount 2019-20 – $360,000 Annual Renewals - Water Meters Allocated Amount 2019-20 – $900,000 Annual Renewals And Minor Works Allocated Amount 2019-20 – $ 150,000 Annual Switchboard Replacement Program	Water Supply	Water and Sewer	Deliver project according to approved project plan
	4.1.2.2. CW	Annual Chemical Dosing Systems Upgrades Allocated Amount 2019-20 – $200,000 Replacement of the sodium hypochlorite dosing systems at Water Treatment Plants with Chlorine Gas Dosing Systems	Water Supply	Water and Sewer	Deliver project according to approved project plan
Delivery Program 2017-2021 Objective 4.1.3 Plan, investigate, design and construct sewerage assets ensuring health, safety, environmental protection and the future growth of the region					
	4.1.3.1 CW	Commence construction of the Port Macquarie Sewer rising main (PMSP71), Port Macquarie Adopted and continuing from previous years	Sewerage	Water and Sewer, (Infrastructure Delivery)	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.3 Plan, investigate, design and construct sewerage assets ensuring health, safety, environmental protection and the future growth of the region

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.1.3.3 CW	Small Towns Sewerage Scheme Construction – Long Flat, Comboyne, Telegraph Point (multi-year project) Allocated Amount 2019-20 $18,000,000 Finalisation of the Small Village Sewerage Scheme at Long Flat, Comboyne, and Telegraph Point	Sewerage	Water and Sewer, (Infrastructure Delivery)	1. Deliver project for Long Flat Sewerage Scheme according to approved project plan 2. Deliver project for Comboyne Sewerage Scheme according to approved project plan 3. Deliver project for Telegraph Point Sewerage Scheme according to approved project plan
	4.1.3.6 CW	Area 15 (Lakewood/Kew) – sewerage upgrade to provide for future development (multi-year project) Adopted and continuing from previous years	Sewerage	Water and Sewer, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.1.3.15 CW	Commencement of the construction of the Area 14 reclaimed inlet trunk main (DN250), Bonny Hills Allocated Amount 2019-20 – $650,000	Sewerage	Water and Sewer, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.1.3.17 CW	Construction of Sewer Rising Main from Camden Haven Sewer Pump Station #1 to Dunbogan Bridge and Sewer Rising Main Extension to Dunbogan Sewer Treatment Plant inlet Adopted and continuing from previous years	Sewerage	Water and Sewer	Deliver project to approved project plan
	4.1.3.18 CW	Continuation of Preconstruction of Thrumster Sewerage treatment Plant (Area 13) – Phase 1 – 20000EP Allocated Amount 2019-20 – $400,000	Sewerage	Water and Sewer	Deliver project to approved project plan
	4.1.3.21 CW	Commence Port Macquarie Sewerage Pumping Station (SPS) #64 Electrical upgrade works Adopted and continuing from previous years	Sewerage	Water and Sewer	Deliver project to approved project plan

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.3 Plan, investigate, design and construct sewerage assets ensuring health, safety, environmental protection and the future growth of the region

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.1.3.22 CW	Construction of Kew Sewer Treatment Plant (STP) Upgrade Allocated Amount 2019-20 – $5,000,000	Sewerage	Water and Sewer	Deliver project to approved project plan
	4.1.3.23 CW	Annual Energy Efficiency Initiatives Allocation Allocated Amount 2019-20 – $150,000	Sewerage	Water and Sewer	Deliver project to approved project plan
	4.1.3.24 CW	Inlet Works Replacement for Port Macquarie Sewer Treament Plans (STP) Allocated Amount 2019-20 – $1,000,000	Sewerage	Water and Sewer	Deliver project to approved project plan
	4.1.3.25 CW	Long Term Asset Management Systems – Stage 1 – Strategic Asset Data and System Review Allocated Amount 2019-20 – $250,000	Sewerage	Water and Sewer	Deliver project to approved project plan
	4.1.3.26 CW	Preconstruction works for upgrade of Lake Innes Sewerage Pump Station #71 (PMSPS71) Allocated Amount 2019-20 – $150,000	Sewerage	Water and Sewer	Deliver project to approved project plan

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.4 Develop and implement annual maintenance and preventative works program for sewerage assets

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.1.4.1 CW	Programmed replacement of Sewer Pumps and Electrical switchboards at Sewage Pump Stations Allocated Amount 2019-20 – $150,000 – Sewer Pump Replacement Program Allocated Amount 2019-20 – $150,000 Annual Switchboard Replacement Allocated Amount 2019-20 – $200,000 – Sewer Telemetry Radios in Port Macquarie – Replacement Allocated Amount 2019-20 – $250,000 – Sewer Distributed Network Protocol 3 (DPN) Port Macquarie – Roll Out Allocated Amount 2019-20 – $200,000 Lid Replacement Program	Sewerage	Water and Sewer	Deliver project according to approved project plan
	4.1.4.4 CW	Carry out programmed replacement of Sewer Treatment Plant (STP) electrical and mechanical assets Allocated Amount 2019-20 – $100,000 Annual Electrical STP Asset Replacement Allocated Amount 2019-20 – $100,000 Annual Mechanical STP Asset Replacement	Sewerage	Water and Sewer	Deliver project according to approved project plan
	4.1.4.5 CW	Conduct sewer assets replacement and maintenance programs for Sewer Rehabilitation and Relining Works Allocated Amount 2019-20 – $940,000 – Annual Sewer Rehabilitation Allocated Amount 2019-20 – $210,000 – Annual Sewer Relining Works	Sewerage	Water and Sewer	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.5 Work towards planning, investigation, design, construction of stormwater assets

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.1.5.8 CW	Stormwater Remediation Panorama Drive Bonny Hills – Detailed Designs of remedial options Adopted and continuing from previous years Allocated Amount 2019-20 – $95,000	Stormwater and Drainage	Transport and Stormwater Network	Deliver project according to approved project plan
	4.1.5.09 CW	Investigation of Stormwater Remediation Options – Bellbowrie/Bay Street Catchment Adopted and continuing from previous years	Stormwater and Drainage	Transport and Stormwater Network	Deliver project according to approved project plan
	4.1.5.10 CW	Stormwater Remediation Designs – Design of drainage improvement works Allocated Amount 2019-20 – $18,000	Stormwater and Drainage	Transport and Stormwater Network	Deliver project according to approved project plan
	4.1.5.11 CW	Detailed Designs of Stormwater Remediation measures identified in the Westport Stormwater Management Plan including Gordon Street to Buller Street Port Macquarie works Allocated Amount 2019-20 $270,000 Westport Stormwater Management Plan – Design	Stormwater and Drainage	Transport and Stormwater Network	Deliver project according to approved project plan
	4.1.5.12 CW	Stormwater Remediation – 35 Hart Street – Investigation of stormwater remediation – Planning and Designs Allocated Amount 2019-20 – $90,000	Stormwater and Drainage	Transport and Stormwater Network	Deliver project according to approved project plan
	4.1.5.13 CW	Stormwater Remediation – 31 Calwalla Crescent – Overflow swale plus system augmentation Allocated Amount 2019-20 – $200,000	Stormwater and Drainage	Transport and Stormwater Network	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.6 Develop and implement annual maintenance and renewal programs for stormwater assets

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
4.1.6.2		Undertake annual canal maintenance for Settlement Shores and Broadwater canals as required	Stormwater and Drainage	Transport and Stormwater Network	Undertake canal maintenance works in accordance with the rolling priority program and risk management processes
4.1.6.5		Settlement Shores Canals Major Maintenance and Dredging	Stormwater and Drainage	Transport and Stormwater Network	Deliver project to approved project plan
	4.1.6.7 CW	Carry out the Stormwater Renewal Program Allocated Amount 2019-20 – $650,000	Stormwater and Drainage	Transport and Stormwater Network	Deliver program according to approved schedule
	4.1.6.9 CW	Rodley Street Bonny Hills – Flooding mitigation measures Allocated Amount 2019-20 – $400,000	Stormwater and Drainage	Transport and Stormwater Network	Deliver project to approved project plan
4.1.6.18		Carry-out stormwater maintenance program including inspections, monitoring and repair works.	Stormwater and Drainage	Transport and Stormwater Network	In accordance with adopted programs and reactive maintenance requirements based on risk
4.1.6.19		Carry-out stormwater engineering investigations in response to identified issues from both reactive and proactive inspections	Stormwater and Drainage	Transport and Stormwater Network	Engineering Investigations completed for all complex issues raised.
4.1.6.20		Stormwater Asset Management Condition Rating of stormwater assets via CCTV inspections, including of newly constructed works	Stormwater and Drainage	Transport and Stormwater Network	In accordance with adopted programs and proactive maintenance requirements based on risk
4.1.6.21		Develop Urban Stormwater Catchment Management Plans for each of the 62 sub-catchments	Stormwater and Drainage	Transport and Stormwater Network	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.7 Develop and implement effective waste management strategies

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.1.7.1 CW	Kingfisher Waste Depot – Upgrade and Expansion (CW) Adopted and continuing from previous years	Waste Management	Environmental Services, (Infrastructure Delivery)	Deliver project according to approved project plan
4.1.7.2		Deliver Primary school education program	Waste Management	Environmental Services	Primary School education Program delivered by 30 June 2020
4.1.7.3		Develop Pre-school waste education program	Waste Management	Environmental Services	Pre-school waste education program delivered by 30 June 2020
4.1.7.4		Develop Event Waste Management Guidelines	Waste Management	Environmental Services	Event Waste Management Guidelines developed by 30 June 2020
4.1.7.5		Deliver efficient domestic waste collection services	Waste Management	Environmental Services	Domestic waste collection services delivered as required
4.1.7.6		Ensure effective recycling & recovery of domestic waste through Material Recovery Facility (MRF)	Waste Management	Environmental Services	Recovery of domestic waste through Material Recovery Facility complete by 30 June 2020
4.1.7.7		Ensure effective recycling & recovery of organic waste through Organic Recovery Facility (ORF)	Waste Management	Environmental Services	Recovery of domestic waste through Organic Recovery Facility complete by 30 June 2020
4.1.7.8		Deliver efficient commercial waste collection services	Waste Management	Environmental Services	Delivery commercial waste collection services as required
4.1.7.9		Ensure effective operation of all Waste Transfer Stations	Waste Management	Environmental Services	Operation of all Waste Transfer Stations undertaken as required
4.1.7.10		Ensure effective disposal of waste to landfill			Capture the tonnage of waste to landfill for environmental reporting
4.1.7.11		Ensure effective operation of Cairncross waste management facility			Operation of Cairncross waste management facility undertaken as required
4.1.7.12		Deliver efficient public place waste collection services	Waste Management	Environmental Services	Public place waste collection services undertaken as required
4.1.7.13		Address illegal dumping and provide clean up programs	Waste Management	Environmental Services	Illegal dumping and clean up programs delivered by 30 June 2020

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.7 Develop and implement effective waste management strategies

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
4.1.7.14		Commence Multi Unit Dwelling Organics Recovery Project	Waste Management	Environmental Services	Deliver project according to approved project plan
4.1.7.15		Kingfisher Waste Transfer Station – Gas Investigation Risk Analysis (CSU Rezoning)	Waste Management	Environmental Services	Deliver projects according to approved Office of Environment and Heritage (OEH) project plans
4.1.7.16		Dunbogan Landfill Site – Gas Investigation Risk Analysis (Subdivision)	Waste Management	Environmental Services	Deliver projects according to approved Office of Environment and Heritage (OEH) project plans
4.1.7.17		Caimcross Trial Gas Extraction System – Finalisation of Trial	Waste Management	Environmental Services	Deliver projects according to approved Office of Environment and Heritage (OEH) project plans
4.1.7.18		Undertake Waste Education and Marketing campaigns	Waste Management	Environmental Services	Waste Education and Marketing campaigns delivered according to approved programs
4.1.7.19		Kingfisher Community Recycling Centre – Stage 1 – Scoping Study	Waste Management	Environmental Services	Deliver projects according to approved Office of Environment and Heritage (OEH) project plans
4.1.7.20		Deliver 'Better Waste and Recycling' Initiatives (Office of Environment and Heritage)	Waste Management	Environmental Services	Deliver projects according to approved Office of Environment and Heritage (OEH) project plans
	4.1.7.21 CW	Caimcross Waste Management Facility (WMF) Improvements – Stage 1 – Lunchroom Facilities & Amenities Allocated Amount 2019-20 – $70,000	Waste Management	Environmental Services	Deliver project according to approved project plan
	4.1.7.22 CW	Caimcross Landfill Covers – Transportable light weight covers to temporarily cover landfill on a daily basis Allocated Amount 2019-20 – $165,000	Waste Management	Environmental Services	Deliver project according to approved project plan
	4.1.7.23 CW	Caimcross Recycling Industrial Zone Improvements – Concrete Processing Facility Establishment Stage 1 – EIS, Design, Planning & Approvals Allocated Amount 2019-20 – $80,000	Waste Management	Environmental Services	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management

Delivery Program 2017-2021 Objective
4.1.7 Develop and implement effective waste management strategies

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.1.7.24 CW	Cairncross Recycling Industrial Zone Improvements – Electricity distribution, metering and DA amendments Allocated Amount 2019-20 – $100,000	Waste Management	Environmental Services	Deliver project according to approved project plan
4.1.7.25		Obtain carbon credits for Waste Diversion to Organic Recycling Facility	Waste Management	Environmental Services	Capture carbon credit data for reporting purposes

Community Strategic Plan Strategy
4.2 Aim to minimise the impact of natural events and climate change, for example, floods, bushfires and coastal erosion

Delivery Program 2017-2021 Objective
4.2.1 Develop and implement Coastal, Estuary, Floodplain, and bushfire management plans.

4.2.1.01		Deliver annual bushfire risk mitigation works on Council land in accordance with the Bush Fire Risk Management Plan (adopted by NSW Rural Fire Service)	Natural Resource Management	Environmental Services	1. Grant applications lodged and acquitted annually 2. 100% of on-ground works completed 3. 12 APZ's inspected per month 4. 100% of fire trails on Council land inspected as per legislation (annually) 5. Two strategic fire advantage zone (SFAZ) burns planned and implemented
4.2.1.02		Complete Flying Fox Camp Management Plan for Kooloonbung Creek in consultation with community & commence implementation of actions within the management plan	Natural Resource Management	Environmental Services	Flying Fox Management Plan complete
4.2.1.03		Implement mitigation actions from Hastings River Flood Plain Risk Management Plan: Stage 1: Hibbard Floodway Investigation Area – develop a specific Flood Study	Natural Resource Management	Environmental Services	Hibbard Flood Study developed
4.2.1.04		Implementation of flood mapping updates associated with Hastings River Flood Study	Natural Resource Management	Environmental Services	GIS flood mapping completed & available to community

Community Strategic Plan Strategy
4.2 Aim to minimise the impact of natural events and climate change, for example, floods, bushfires and coastal erosion

Delivery Program 2017-2021 Objective
4.2.1 Develop and implement Coastal, Estuary, Floodplain, and bushfire management plans.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
4.2.1.05		Continue to ensure development compliance to achieve sound environmental outcomes – Vegetation Management Plans, Koala Plans of Management developed, registered, implemented and monitored	Natural Resource Management	Environmental Services	Establish a centralised compliance register for environmental outcomes associated with development
4.2.1.06		Development of environmental program of works (registration, implementation, monitoring) to ensure compliance to Airport biocertification	Natural Resource Management	Environmental Services	implementation of Airport biocertification works
4.2.1.07		Continue to provide environmental impact or conditions advice on proposed development or proposed construction works	Natural Resource Management	Environmental Services	Number of REFs and DAs environmental advice has been provided
4.2.1.08		Continue to implement the Floodplain Risk Management Process for the Wrights and Yarranabee Creeks – develop a Floodplain Risk Management Study	Natural Resource Management	Environmental Services	Floodplain Risk Management Study is developed
4.2.1.09		Continue to develop a Flood Study for the North Brother Local Catchments – facilitation of stormwater remediation	Natural Resource Management	Environmental Services	Development of a North Brother Flood Study underway to facilitate future stormwater remediation
4.2.1.10		Undertake development of Coastal Management Program for the LGA – STAGE 1 Develop a Scoping Study to enable state funding for coastal & estuarine management	Natural Resource Management	Environmental Services	Development of a Scoping Study for Coastal Management Program
	4.2.1.11 CW	Continue to implement Strategies of Lake Cathie Coastal Zone Management Plan (CZMP) – Stormwater Redirection (Illaroo Rd to Lake Cathie) Allocated Amount 2019-20 – $700,000 Illaroo Rd Stromwater remediation – Construction			Completion of redirection of stormwater infrastructure from Illaroo to Lake Cathie as per Lake Cathie Coastal Zone Management Plan
4.2.1.12		Undertake a review of the existing Lake Cathie Opening Strategy in consultation with the National Parks and Wildlife Services (NPWS); the Office of Environment and Heritage (OEH); NSW Fisheries and Department of Industry (DPI – Lands); and the community including the Revive Lake Cathie community group.	Natural Resource Management	Environmental Services	Consultation undertaken with stakeholders and report provided to Council by 30 June 2020

Community Strategic Plan Strategy
4.2 Aim to minimise the impact of natural events and climate change, for example, floods, bushfires and coastal erosion

Delivery Program 2017-2021 Objective
4.2.2 Promote strategies to mitigate Climate Change.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
This section is blank as the action/project was completed prior to 2019-20					

Community Strategic Plan Strategy
4.3 Facilitate development that is compatible with the natural and built environment

Delivery Program 2017-2021 Objective
4.3.1 Undertake transparent and efficient development assessment in accordance with relevant legislation.

4.3.1.1		Ensure development assessment, building certification and subdivision certification activities are completed efficiently and in accordance with legislation	Development Assessment	Development Assessment	Capture the number of applications and processing times, together with a commentary on development trends and report to Council quarterly
4.3.1.2		Ensure the Development Assessment Panel operates in accordance with their charter and all applications are accurately determined	Development Assessment	Development Assessment	Have no successful legal appeals relating to process errors

Community Strategic Plan Strategy
4.4 Plan for integrated transport systems that helps people get around and link our communities

Delivery Program 2017-2021 Objective
4.4.1 Plan, investigate, design and construct transport assets which address pedestrians, cyclist and vehicular needs to cater for the future growth of the region.

4.4.1.02		Develop a Regional Integrated Transport Strategy (multi-year project)	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved action plan
	4.4.1.03 CW	Footpath, Cycleway and Pedestrian works Allocated Amount 2019-20 – $1,000,000	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan and in line with program
	4.4.1.05 CW	Wauchope Main Street – Continue the improvements to pedestrian amenity – Stage 1 Construction Adopted and continuing from previous years	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.4 Plan for integrated transport systems that helps people get around and link our communities

Delivery Program 2017-2021 Objective
4.4.1 Plan, investigate, design and construct transport assets which address pedestrians, cyclist and vehicular needs to cater for the future growth of the region

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
4.4.1.10		Lake Road – continuation of design work for dual lanes – Jindalee to Fernhill intersections and Chestnut Road to Ocean Drive (multi-year project) Lake Road – Design of Dual Lanes Oxley Highway to Ocean Drive	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.4.1.12 CW	Beechwood Road – continue the design for Stages 5 and 6 of Beechwood Road reconstruction (Riverbreeze to Waugh Street) – (multi-year project) Adopted and continuing from previous years	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.4.1.13 CW	Hastings River Drive Upgrade – Hughes Place to Boundary Street – (multi-year project) Allocated Amount 2019-20 – $654,000	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.4.1.21 CW	Dunbogan Bridge – Reid Street – substructure rehabilitation (multi-year project)	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.4.1.22 CW	Kindee Bridge – structural repairs and bridge replacement optioneering to ensure bridge remains serviceable (multi-year project) Adopted and continuing from previous years	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.4 Plan for integrated transport systems that helps people get around and link our communities

Delivery Program 2017-2021 Objective
4.4.1 Plan, investigate, design and construct transport assets which address pedestrians, cyclist and vehicular needs to cater for the future growth of the region.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.4.1.29 CW	Diamond Head Rd / The Boulevard Flood Access Stage 1A Allocated Amount 2019-20 – $1,390,000	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.4.1.31 CW	Deliver Bold Street pedestrian crossing, Bold Street Laurieton Allocated Amount 2019-20 – $200,000 – Construction Allocated Amount 2019-20 – $255,000 Detailed Investigation and Design	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan
4.4.1.32		Continue corridor planning – Kendall Road – Ocean Drive – Hastings River Drive regional road corridor (MR538/MR600) – (multi-year project)	Roads, Bridges and Transport	Transport and Stormwater Network	Corridor planning – Kendall Road – Ocean Drive – Hastings River Drive regional road corridor commenced
	4.4.1.33 CW	Continue detailed designs of Ocean Drive – north of Miala Street to Orana Drive Lake Cathie Allocated Amount – 2019-20 – $145,000	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.4.1.34 CW	Kew Main Street Upgrade Allocated Amount 2019-20 – $340,000	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan
	4.4.1.37 CW	Local Roads Proactive Renewal Program Allocated Amount 2019-20 – $331,273	Roads, Bridges and Transport	Transport and Stormwater Network	In accordance with adopted programs and preventative maintenance requirements
	4.4.1.42 CW	John Oxley Drive Upgrade – Detailed Design – The Ruins Way to Wrights Road (Oxley Highway) Allocated Amount 2019-20 – $484,000	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan
4.4.1.44		Conduct sealed road network condition survey	Asset Management	Assets and Property Investment	Undertake condition rating of Council's transport assets by 30 June 2020

Community Strategic Plan Strategy
4.4 Plan for integrated transport systems that helps people get around and link our communities

Delivery Program 2017-2021 Objective
4.4.1 Plan, investigate, design and construct transport assets which address pedestrians, cyclist and vehicular needs to cater for the future growth of the region.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.4.1.45 CW	Ocean Drive duplication – Matthew Flinders Drive to Greenmeadows (multi-year project) Adopted and continuing from previous years	Roads, Bridges and Transport	Transport and Stormwater Network, (Infrastructure Delivery)	Deliver project according to approved project plan
4.4.1.48		Development Contribution Plan (Roads) Review and Update	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.49 CW	Transport and Traffic various design works – Additional Transport and Stormwater Designs Allocated Amount 2019-20 – $200,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.51 CW	Installation of new bus shelters as per the Community Passenger Transport Infrastructure Grant Scheme (CPTIGS) Program Adopted and continuing from previous years	Roads, Bridges and Transport	Transport and Stormwater Network	Bus shelter installations completed as per the program
4.4.1.52		AUS-SPEC Review – Undertake a comprehensive review of Councils full suite of design and construction specifications (multi-year project)	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
4.4.1.53		Settlement Point Ferry and Hibbard Ferry – upgrade to ferry access and the installation of extra signage	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.55 CW	Beach to Beach – shared path project at Camden Haven Adopted and continuing from previous years	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.4 Plan for integrated transport systems that helps people get around and link our communities

Delivery Program 2017-2021 Objective
4.4.1 Plan, investigate, design and construct transport assets which address pedestrians, cyclist and vehicular needs to cater for the future growth of the region.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.4.1.57 CW	Lighthouse Road - Tourism Connectivity Project – Commence Lighthouse road east upgrades – Matthew Flinders Drive to The Lighthouse Allocated Amount 2019-20 – $1,040,000 Tourism Connectivity Project Allocated Amount 2019-20 – $430,000 Project Management	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.59 CW	Gordon/Horton Street – intersection upgrade – details designs Adopted and continuing from previous years	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
4.4.1.60		Ferry Management – Slipping Settlement Point Ferry (21 Vehicle)	Ferry Services	Transport and Stormwater Network	Undertake slipping of Settlement Point Ferry
	4.4.1.61 CW	Continuation of Bago Road Rehabilitation (Milligan's Rd to Bluewater Cres) Allocated Amount 2019-20 – $2,563,587	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.62 CW	Reconstruction of The Ruins Way (Major Innes Road to Sitella St) Allocated Amount 2019-20 – $950,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.63 CW	Pembrooke Road – Stoney Creek Bridge Upgrade – Detailed Design Allocated Amount 2019-20 – $500,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.64 CW	Koala Street Upgrade Concept Design Allocated Amount 2019-20 – $150,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan

Community Strategic Plan Strategy
4.4 Plan for integrated transport systems that helps people get around and link our communities

Delivery Program 2017-2021 Objective
4.4.1 Plan, investigate, design and construct transport assets which address pedestrians, cyclist and vehicular needs to cater for the future growth of the region.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.4.1.65 CW	Scrubby Creek Bridge Detailed Design Allocated Amount 2019-20 – $50,000 Detailed Design Allocated Amount 2019-20 – $455,000 Upgrade	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.66 CW	Kindee Bridge Upgrade Detailed Design Allocated Amount 2019-20 – $300,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
4.4.1.67		Orbital Strategic Business Case	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.68 CW	Pedestrian Refuge – Hayward Street – West of Horton Street – Construction Allocated Amount 2019-20 – $60,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.69 CW	Pedestrian Refuge – Gordon Street & Hollingworth Street – West of Horton Street – Construction Allocated Amount 2019-20 – $ 180,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.70 CW	Pedestrian Refuge – Horton Street – Clarence Street and William Street – Detailed Design and Construction Allocated Amount 2019-20 – $160,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
4.4.1.71		Work with National Parks and Wildlife Services to adjust road boundaries	Roads, Bridges and Transport	Transport and Stormwater Network	Boundary adjustments commenced
4.4.1.72		Revise and update the Transport Asset Management Plan	Roads, Bridges and Transport	Transport and Stormwater Network	Updated Transport Asset Management Plan

Community Strategic Plan Strategy
4.4 Plan for integrated transport systems that helps people get around and link our communities

Delivery Program 2017-2021 Objective
4.4.1 Plan, investigate, design and construct transport assets which address pedestrians, cyclist and vehicular needs to cater for the future growth of the region.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.4.1.73 CW	Telegraph Point – Pedestrian Safety Upgrades Allocated Amount 2019-20 – $560,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.75 CW	Pembrooke Road – Safety Improvements Allocated Amount – 2019-20 – $130,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
	4.4.1.76 CW	Rawdon Island – Safety Improvements Allocated Amount – 2019-20 – $150,000	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
Delivery Program 2017-2021 Objective 4.4.2 Develop and implement annual maintenance and renewal programs for transport assets.					
	4.4.2.1 CW	Undertake road resurfacing and rehabilitation works throughout the local government area in accordance with the rolling priority program and Pavement Management System (Continuation of High Traffic Road resurfacing and Pavement Rejuvenation Treatments, Road resealing works) (multi-year project) Allocated Amount 2019-20 – $933,423 Continuation of High Traffic Road Resurfacing Allocated Amount 2019-20 – $233,356 Continuation of Pavement Rejuvenation Treatments Allocated Amount 2019-20 – $2,080,077 Road Resealing Works	Roads, Bridges and Transport	Transport and Stormwater Network	In accordance with adopted programs and preventative maintenance requirements

Community Strategic Plan Strategy
4.4 Plan for integrated transport systems that helps people get around and link our communities

Delivery Program 2017-2021 Objective
4.4.2 Develop and implement annual maintenance and renewal programs for transport assets.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
4.4.2.2		Carry out annual unsealed road maintenance program including gravel resheeting, grading, and rural roadside vegetation clearing	Roads, Bridges and Transport	Transport and Stormwater Network	In accordance with adopted programs and reactive maintenance requirements based on risk
4.4.2.3		Carry out annual sealed road maintenance program including resurfacing, jetpatching, heavy patching and installation of roadside furnishings	Roads, Bridges and Transport	Transport and Stormwater Network, (Recreation and Buildings)	In accordance with adopted programs and reactive maintenance requirements based on risk
4.4.2.4		Undertake bridges, stormwater and culvert maintenance program including inspections, monitoring and repair works	Roads, Bridges and Transport	Transport and Stormwater Network	In accordance with adopted programs and reactive maintenance requirements based on risk
4.4.2.5		Carry out reactive maintenance to Koala Food Trees and Koala Fencing on Link Rd (Ocean Dr)	Roads, Bridges and Transport	Transport and Stormwater Network (Environmental Services)	In accordance with adopted programs and reactive maintenance requirements based on risk
4.4.2.6		Bridgeworks and Road Rehabilitation Program – Undertake regular bridge and geotechnical road pavement tests to inform and develop programme	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver project according to approved project plan
Delivery Program 2017-2021 Objective 4.4.3 Develop and implement traffic and road safety programs					
4.4.3.1		Develop a Road Safety Action Plan and undertake associated safety education and awareness programs identified in the plan	Roads, Bridges and Transport	Transport and Stormwater Network	Undertake road safety educational programs
4.4.3.2		Install and maintain street lights in accordance with identified priorities	Roads, Bridges and Transport	Transport and Stormwater Network	Deliver street lighting program according to approved schedule and prioritisation

Community Strategic Plan Strategy
4.5 Plan for integrated and connected communities across the Port Macquarie-Hastings area

Delivery Program 2017-2021 Objective
4.5.1 Carry out strategic planning to manage population growth and provide for co-ordinated urban development.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
4.5.1.7		Review Local Environmental Plan (LEP) and Development Control Plan (DCP) provisions to promote development of the Yippin Creek Urban Release Area (UGMS Action 4)	Strategic Land Use Planning	Strategic Land Use Planning	Report to Council regarding draft planning outcomes to Council by 30 June 2020
4.5.1.8		Progress Council led precinct planning for the proposed Health and Education Precinct (UGMS Action 13)	Strategic Land Use Planning	Strategic Land Use Planning	Undertake support studies for a planning proposal in consultation with stakeholders by 30 June 2020
4.5.1.9		Complete a review of the Port Macquarie-Hastings Development Control Plan (UGMS Action 32)	Strategic Land Use Planning	Strategic Land Use Planning	Adoption of DCP amendments by 30 June 2020
4.5.1.10		Review LEP and DCP provisions to promote appropriate housing choice options (UGMS Action 1)	Strategic Land Use Planning	Strategic Land Use Planning	Completion of support studies for a planning proposal by 30 June 2020
4.5.1.11		Investigate the capacity of land at the intersection of Ocean Drive with Houston Mitchell Drive for light industrial use and at the intersection of Ocean Drive with Bonny View Drive for light industrial development or for use as a school (UGMS Action 17)	Strategic Land Use Planning	Strategic Land Use Planning	Final report to Council re Local Environmental Plan (LEP) and Development Control Plan (DCP) amendments by 30 June 2020
4.5.1 14		Review the Port Macquarie-Hastings Heritage Inventory (UGMS Action 31)	Strategic Land Use Planning	Strategic Land Use Planning	Complete Stage 2 of the Heritage Inventory review and report to Council by 30 June 2020
4.5.1.15		Preparation of an Outline Plan (Stage 1 investigations) for the Fembank Creek and Sancrox potential future growth areas (UGMS Action 6)	Strategic Land Use Planning	Strategic Land Use Planning	Report to Council regarding progress of the Outline Plan and key support studies in consultation with landowners by 30 June 2020
4.5.1.16		Undertake a review of the current Development Contributions Deferral Scheme	Strategic Land Use Planning	Strategic Land Use Planning	Review of the current Development Contributions Deferral Scheme commenced and reported to Council by 30 June 2020

Community Strategic Plan Strategy
4.5 Plan for Integrated and connected communities across the Port Macquarie-Hastings area

Delivery Program 2017-2021 Objective
4.5.2 Plan for infrastructure that supports population growth.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
4.5.2.2		Continue review of the Major Roads Contributions Plan for completion in 2020-2021 (UGMS Action 23)	Strategic Land Use Planning	Strategic Land Use Planning	Complete review of draft works program for review of the Major Roads Contributions Plan by 30 June 2020

Community Strategic Plan Strategy
4.6 Restore and protect natural areas

Delivery Program 2017-2021 Objective
4.6.1 Develop and implement a range of programs for the environmental management of lands within the local government area.

4.6.1.1		Undertake strategic biosecurity (weed management) program to restore and conserve the natural environment of the Mid North Coast	Natural Resource Management	Environmental Services	1. 680ha of Council assets managed for invasive weeds 2. 2,300km of Council roads managed for roadside weeds 3. 75 properties > 1ha inspected for invasive weeds 4. 28km of 70km network of priority riparian zones managed for invasive weeds 5. 46 sites managed tenure blind for invasive weeds 6. 65ha of 363ha area of coastal dune system managed for Bitou Bush 7. 70 days per annum undertaking management of high priority weeds on high risk sites within drainage network
4.6.1.2		Undertake aquatic weed control program to restore and conserve the natural environment of the Mid North Coast	Natural Resource Management	Environmental Services	% riparian land managed for aquatic weed invasion
4.6.1.5		Implement the Bushland Regeneration Management Program and collaborate with various community groups (e.g. Landcare)	Natural Resource Management	Environmental Services	1. 40% of sites to a Tier 1 level (Tier 1 – Strategic weed removal to ensure that weeds do not out compete, supress or prevent the growth of native vegetation) 2. 50% of sites to a Tier 2 level (Tier 2 – Bushland sites are managed in a way as to encourage natural regrowth via minimal weed removal) 3. 10% of sites to a Tier 3 level (Tier 3 Sites are self-sustaining with little to no management intervention required)

Community Strategic Plan Strategy
4.6 Restore and protect natural areas

Delivery Program 2017-2021 Objective
4.6.1 Develop and implement a range of programs for the environmental management of lands within the local government area.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
4.6.1.6		Inform and educate residents, industry and community groups about Council's tree management requirements within the Port Macquarie-Hastings 2013 Development Control Plan (DCP)	Natural Resource Management	Environmental Services (Recreation and Buildings)	1. Provide advice in accordance with service standards and industry best practice 2. Develop and implement educational material and delivery program 3. Undertake Investigations in relation to all reported illegal tree works
4.6.1.7		Improve mapping of Bushland Regeneration sites for community access	Natural Resource Management	Environmental Services	Bushland Mapping and site surveying undertaken
4.6.1.8		Commence implementation of identified actions from the adopted Koala Population Recovery Strategy	Natural Resource Management	Environmental Services	% Implementation of management actions outlined in the Koala Population Recovery Strategy
4.6.1.9		Complete preparation of a Comprehensive Koala Plan of Management (CKPoM) for coastal areas in the Port Macquarie-Hastings (UGMS Action 29)	Strategic Land Use Planning	Strategic Land Use Planning	Report CKPoM to Council for adoption by 31 December 2019
	4.6.1.11 CW	Implement mitigation actions from Hastings River Flood Plain Risk Management Plan – Stage 4: Install river stream flow gauges & rainfall gauges to inform floodplain modelling Allocated Amount 2019-20 – $30,000	Natural Resource Management	Environmental Services	Installation of stream gauges

Community Strategic Plan Strategy
4.7 Provide leadership in the development of renewable energy opportunities

Delivery Program 2017-2021 Objective
4.7.1 Promote renewable energy outcomes within Council.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
	4.7.1.2 CW	Install solar energy systems at the Kew Waste Transfer Station Adopted and continuing from previous years	Building Maintenance	Waste Services	Deliver project according to approved project plan
	4.7.1.4 CW	Undertake LED lighting upgrade to Council Office and other public buildings Allocated Amount 2019-20 – $25,000	Building Maintenance	Recreation and Buildings	Complete LED lighting upgrade to offices and other buildings
	4.7.1.6 CW	Install solar energy systems at selected existing Council facilities Allocated Amount 2019-20 – $50,000	Building Maintenance	Recreation and Buildings	Install systems at identified sites
4.7.1.8		Continue to implement and monitor the Long Term Energy Strategy	Property Investment Portfolio	Assets and Property Investment	Provide 6 monthly update reports to Council on the status of the Long Term Energy Strategy

Community Strategic Plan Strategy
4.8 Increase awareness of issues affecting our environment, including the preservation of flora and fauna

Delivery Program 2017-2021 Objective
4.8.1 Ensure all Council operations comply with environmental standards and regulations.

Operational Plan 2019-2020 – Action/Activity/Project

Operational Action	Capital Works Project	Description	Council Service	Lead Responsibility	Performance Measures
4.8.1.1		Operate and maintain water treatment plants in accordance with adopted maintenance programs and scheme requirements	Water Supply	Water and Sewer	Monitor plants continuously with plant breakdowns attended to within 24 hours
4.8.1.2		Operate the water supply network to ensure public health and safety	Water Supply	Water and Sewer	Ensure any public health and safety issues in relation to water supply are responded to in line with service standards
4.8.1.3		Maintain and operate storage dams in accordance with Australian National Committee On Large Dams (ANCOLD) guidelines	Water Supply	Water and Sewer	Ensure any issues in relation to the operation and maintenance of storage dams are handled in line with ANCOLD guidelines
4.8.1.4		Operate and maintain sewerage treatment plants in accordance with environmental licences, adopted maintenance programs and scheme requirements	Sewerage	Water and Sewer	Monitor plants continuously with plant breakdowns attended to within 24 hours
4.8.1.5		Operate the sewerage network to ensure service delivery meets public health and safety requirements	Sewerage	Water and Sewer	Ensure any public health and safety issues in relation to sewerage network are responded to in line with service standards
Delivery Program 2017-2021 Objective 4.8.2 Increase community awareness and enable access to the natural environment.					
4.8.2.1		Deliver bushfire preparedness and planning programs to the community	Natural Resource Management	Environmental Services	1. Bushfire preparedness and planning program delivered 2. All community enquires relating to bushfire requests are responded to within the 7 day service standard
Delivery Program 2017-2021 Objective 4.8.3 Promote Biodiversity Programs.					
	4.8.3.1 CW	Commence implementation of identified actions from the adopted Biodiversity Strategy including: – Control and management of feral and pest species on Council lands – Management of Biodiversity Offsets – Allocated Amount – $25,000	Natural Resource Management	Environmental Services	% Implementation of management actions of Biodiversity Strategy

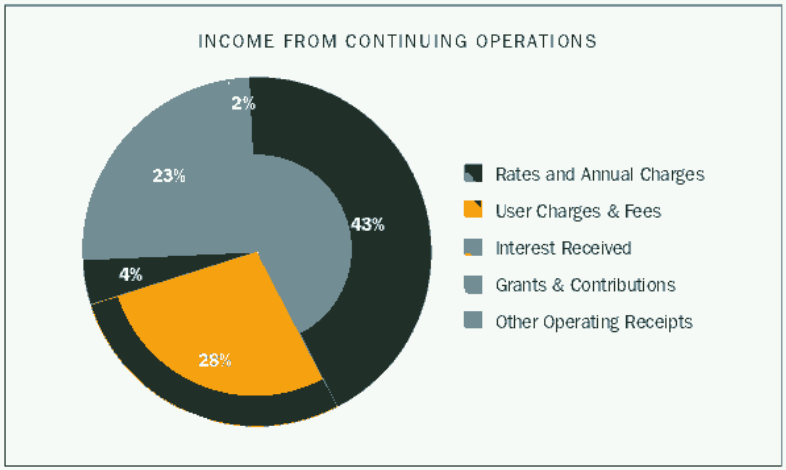
BUDGET STATEMENT

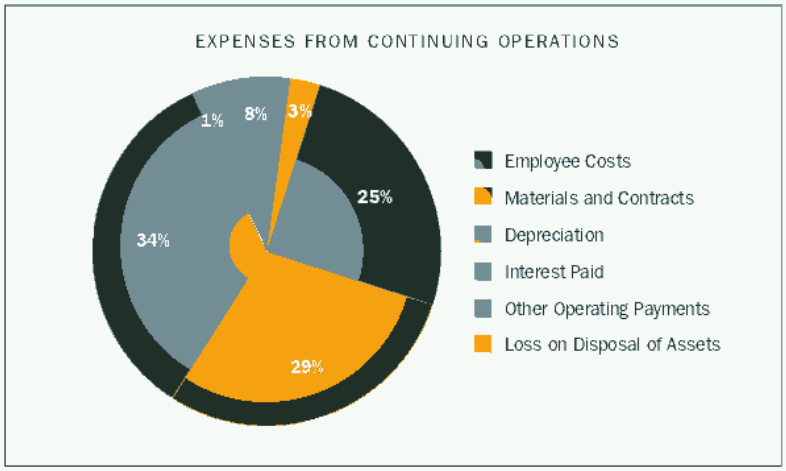
YOUR NATURAL & BUILT ENVIRONMENT – 1 JULY 2019 TO 30 JUNE 2020

	2019-20 Original Budget
Operating Activities Movements	
Income from continuing operations	
Rates & Annual Charges	50,972,670
User Charges & Fees	33,190,525
Interest Received	5,012,050
Grants & Contributions	27,005,716
Other Operating Receipts	2,424,123
Expenses from continuing operations	
Employee Costs	(29,451,267)
Materials & Contracts	(33,320,257)
Depreciation	(39,283,704)
Interest Paid	(1,234,037)
Other Operating Payments	(9,468,863)
Loss on Disposal of Assets	(3,000,000)
Overheads	(13,038,648)
Operating result from continuing operations	(10,191,692
Restricted Asset Movements	
Restricted asset movements receipts	
Transfer from Restricted Assets	49,331,064
Restricted asset movements payments	
Transfer to Restricted Assets	(43,589,973)
Net Revenues (Used in)/Provided by in Restricted Assets	5,741,091
Property, plant and equipment movements	
Property, plant & equipment movements receipts	
Sale of Fixed Assets	-
Sale of Real Estate Development Assets	-
Property, plant & equipment movements payments	
Purchase of Assets	(57,457,716)
Developer Provided Assets	(6,500,000)
Net Revenues (Used in)/Provided by in Investing Activity	(63,957,716)
Financing activities movements	
Financing activities receipts	
Proceeds from Borrowings & Advances	-
Financing activities payments	
Repayments of Borrowings & Advances	(6,085,110)
Net Revenues (Used in)/Provided by in Financing Activity	(6,085,110)
Net Result (Including Depreciation)	(74,493,427)
Add Back: Non Cash Items	42,283,704
Budget Surplus/(Shortfall)	**(32,209,723)**

▶ *{INTEGRATED REF: DP - BUDGET STATEMENT 4 YEARS /RS – LTFP/FINANCIAL STATEMENTS}*

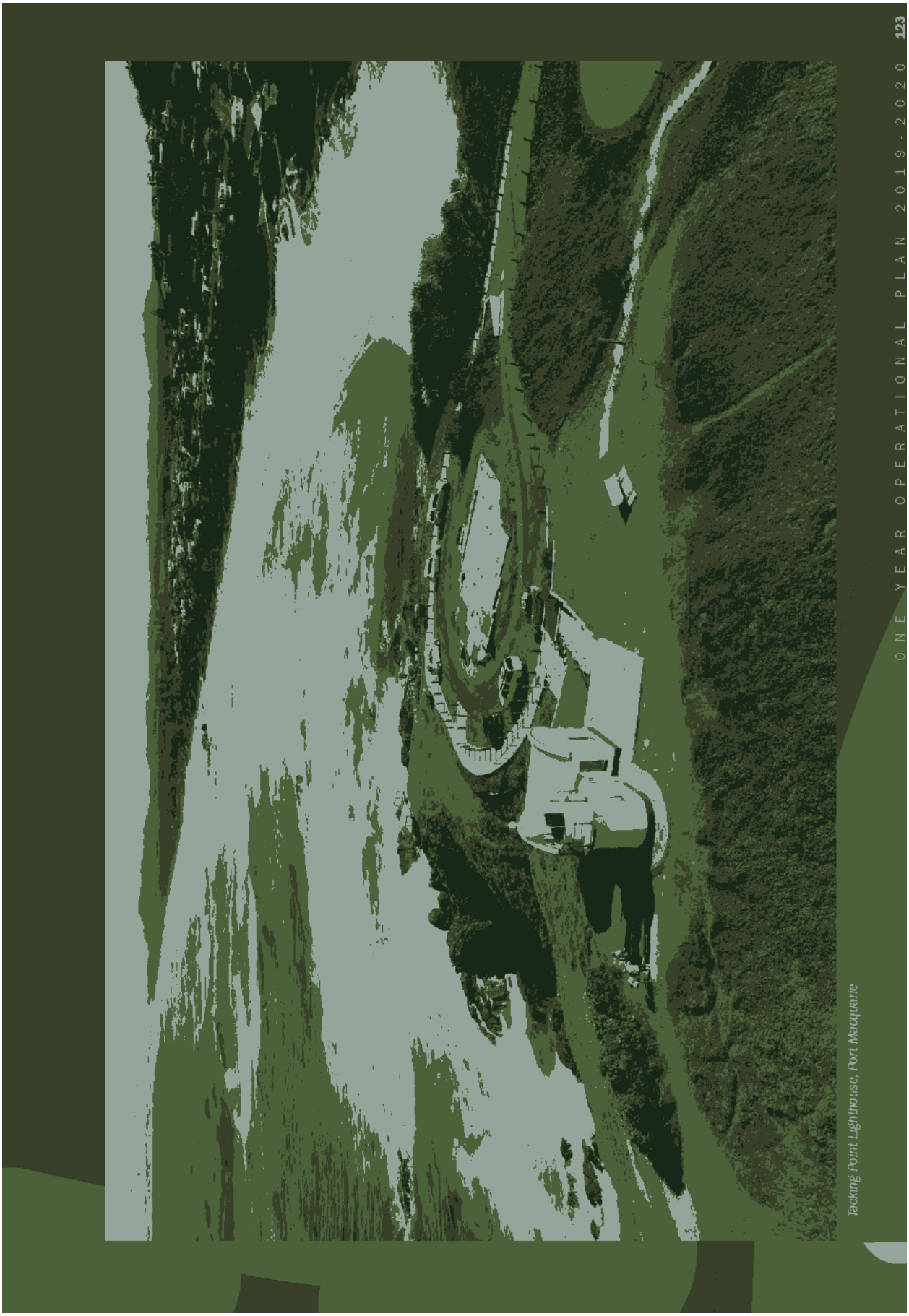
INCOME AND EXPENSES



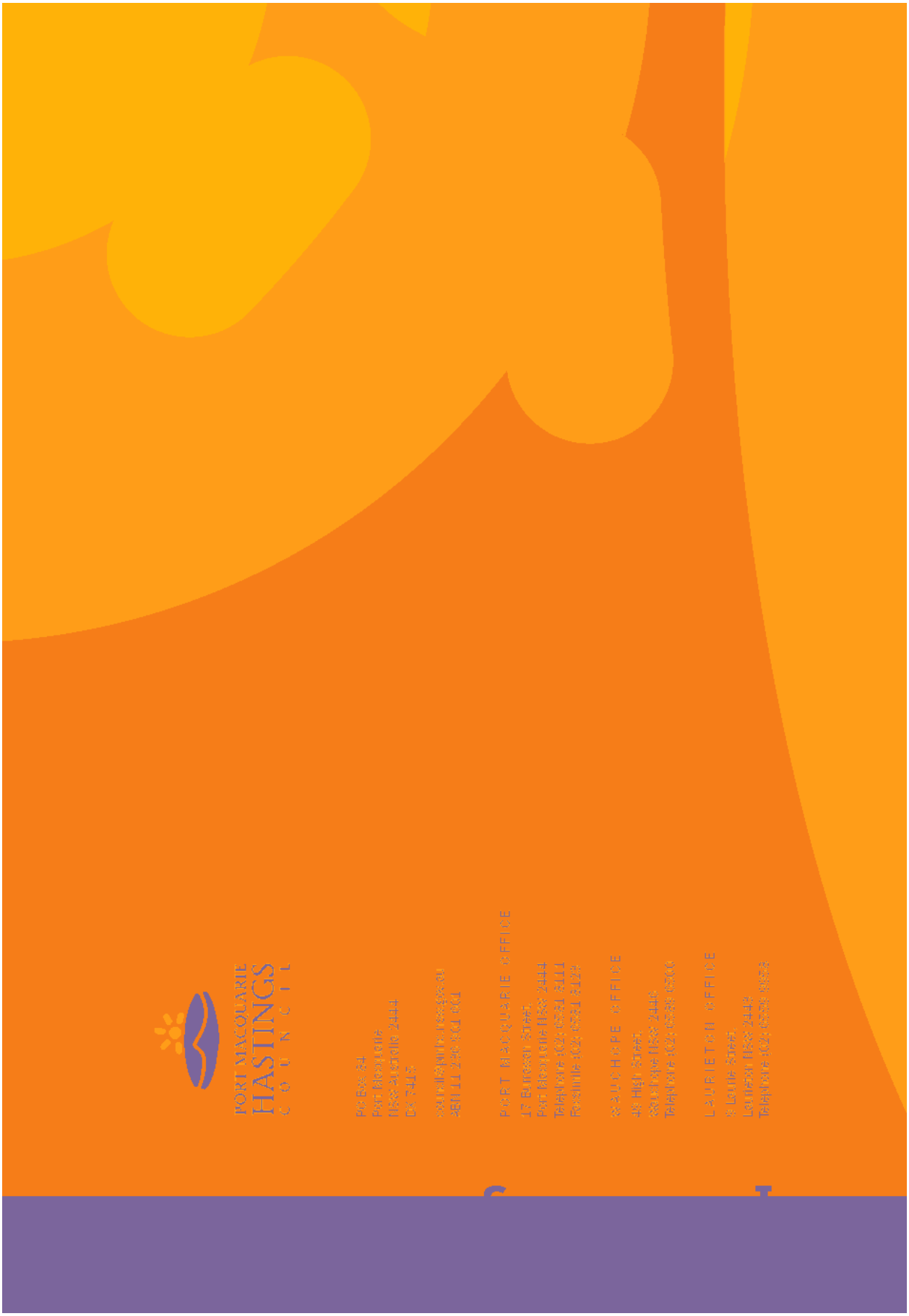


GLOSSARY

ABS	Australian Bureau of Statistics
ADWG	Australian Drinking Water Guidelines
AMP	Asset Management Plan
AMS	Asset Management Strategy
AUSLAN	Australian Sign Language
BAS	Business Activity Statement
Build and Dev	Building and Development
CC	Construction Certificate
CDC	Complying Development Certificate
CSP	Community Strategic Plan
D and E	Development and Environment
DA	Development Application
DCP	Development Control Plan
DECC	Department of Environment and Climate Change
DP	Delivery Program
Dept	Department
DISPLAN	Disaster Plan
DLG	Department of Local Government
EPA	Environment Planning Assessment
EPL	Environmental Protection Licences
FBT	Fringe Benefits Tax
GIPA	Government Information (Public Access)
GIS	Geographic Information Systems
Govt	Government
GPM	Greater Port Macquarie
IDPwD	International Day for People with a Disability
IP and R	Integrated Planning and Reporting
IPART	Independent Pricing and Regulatory Tribunal
LED	Light-emitting diode
LEP	Local Environmental Plan
LGA	Local Government Area
LTFP	Long Term Financial Plan
MIDGOC	Mid North Coast Group of Councils
MOU	Memorandum of Understanding
MP	Member of Parliament
NATA	National Association of Testing Authorities
OP	Operational Plan
OIC	Officer in charge
PID	Public Information Disclosures
PMHC	Port Macquarie-Hastings Council
RFS	Rural Fire Service
RMS	Roads and Maritime Services
RS	Resourcing Strategy
RTO	Registered Training Organisation
SES	State Emergency Service
SLF	Senior Leadership Forum
TCMP	Port Macquarie Town Centre Master Plan
TAFE	Training and Further Education
TPO	Tree Preservation Order
TVET	TAFE delivered Vocational Education and Training
UGMS	Urban Growth Management Strategy
WSUD	Water Sensitive Urban Design
YAC	Youth Advisory Committee



Tacking Point Lighthouse, Port Macquarie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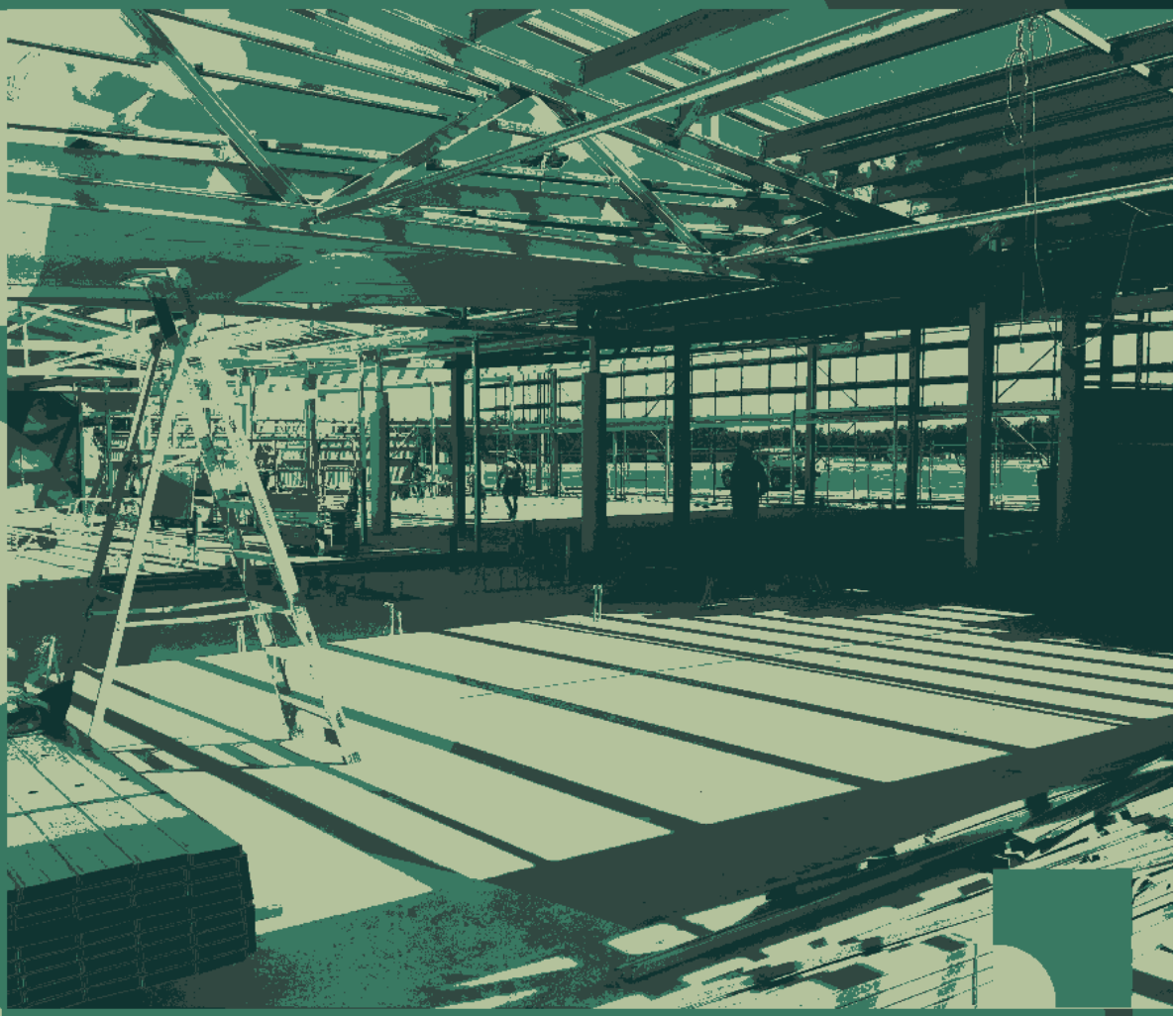
PORT MACQUARIE-HASTINGS
COUNCIL

Attachment 3

RATINGS MAPS
2019-2020



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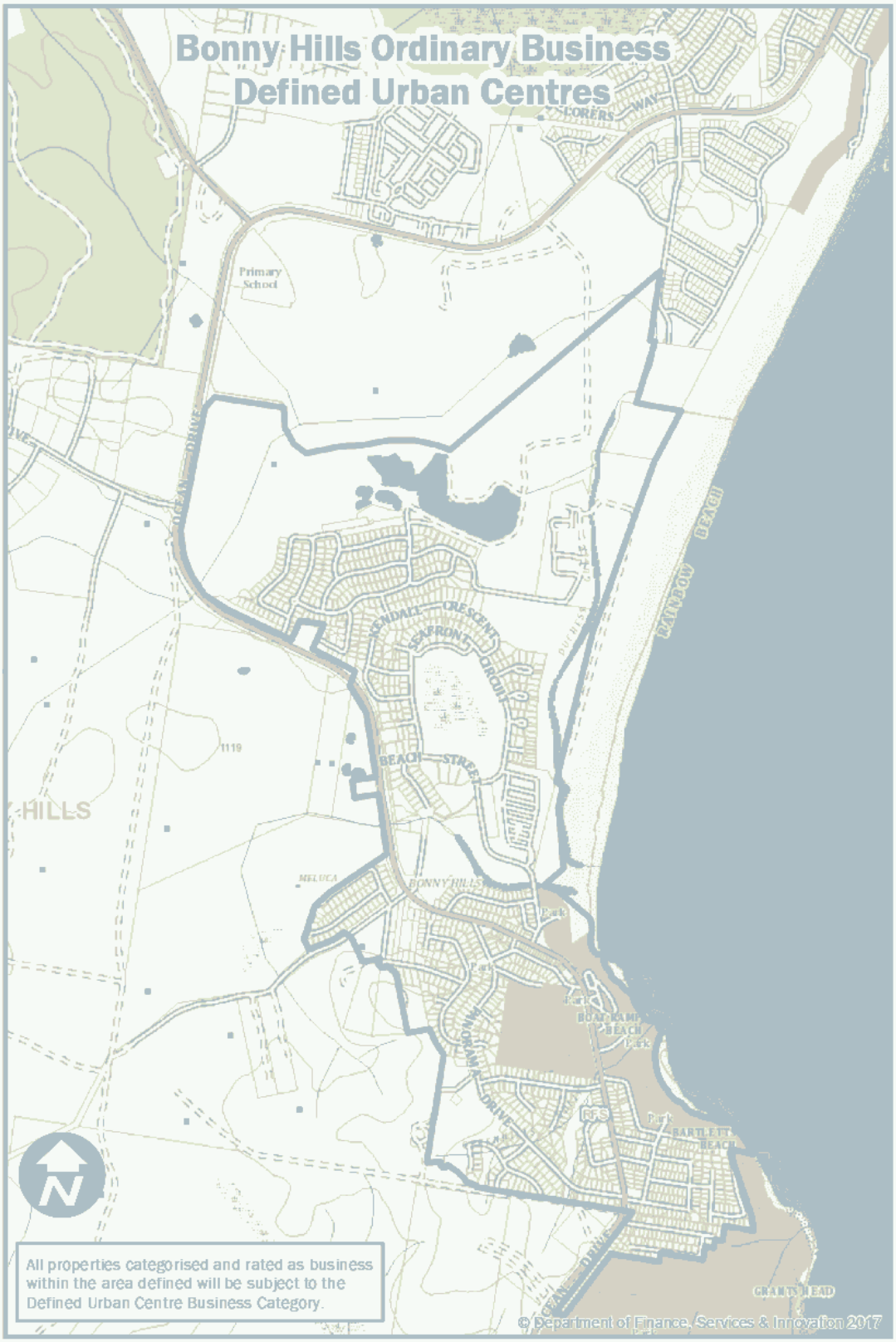
PORT MACQUARIE
WAUCHOPE
LAURIETON
KENDALL
BAGO BLUFF National Park
KUMBATIN National Park
WILLI WILLI National Park
COMBOYNE
KINDEE CREEK State Conservation Area
JASPER Nature Reserve
MOUNT SEAVIEW Nature Reserve
THE CELLS State Conservation Area
COTTAN-SIMBANG National Park
BOORGANNA Nature Reserve
GOORABAKH National Park
MIDDLE BROTHER National Park
QUEENS LAKE Nature Reserve
DOORAGAN National Park
Legend
LGA
Kilometres


Bonny Hills Ordinary Business
Defined Urban Centres
Primary School
OCEAN DRIVE
KENDALL CRESCENT
SEAFRONT CIRCUIT
BEACH STREET
RAINBOW BEACH
HILLS
MELUCA
BONNY HILLS
Park
BOAT RAMP BEACH
PANORAMA DRIVE
RFS
BARTLETT BEACH
GRANTS HEAD
All properties categorised and rated as business within the area defined will be subject to the Defined Urban Centre Business Category.
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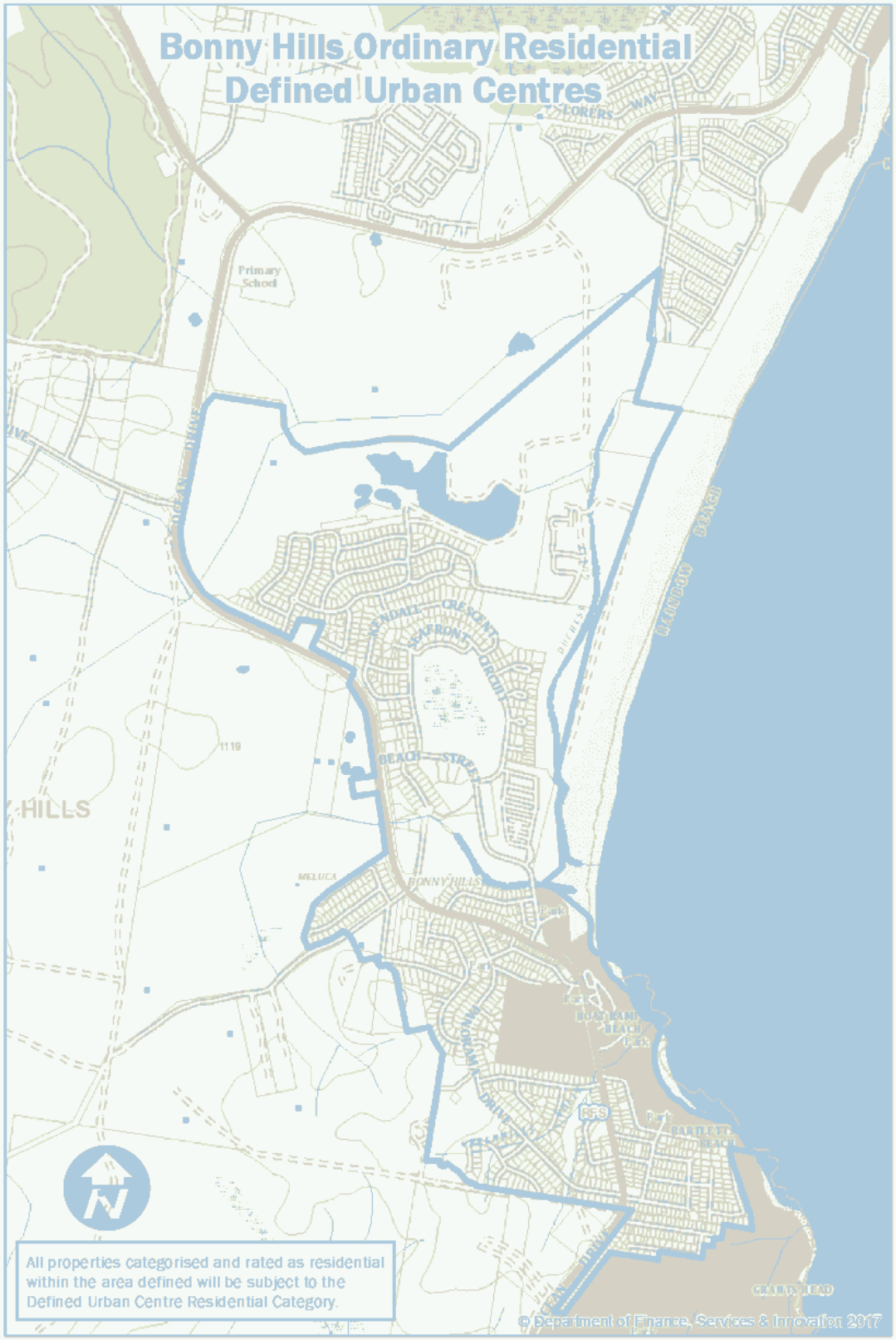
Bonny Hills Ordinary Residential
Defined Urban Centres
Primary School
HILLS
BONNY HILLS
All properties categorised and rated as residential within the area defined will be subject to the Defined Urban Centre Residential Category.
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Broadwater Special Rate
N
MARINA HOLIDAY PARK
BROADWATER GARDENS PORT MACQUARIE
CRESCENT
ANCHORAGE
PORTSIDE
THE
ORDANS BOATING CENTRE AND HOLIDAY PARK
CLOSE
MCINHERNEY
RIVER
PARK
ROAD
PROMENADE
LANE
HARBOUR
COMMODORE
CRESCENT
THE GOVERNOR'S RETIREMENT RESORT
All properties within the area defined will be subject to the Broadwater Special Rate.
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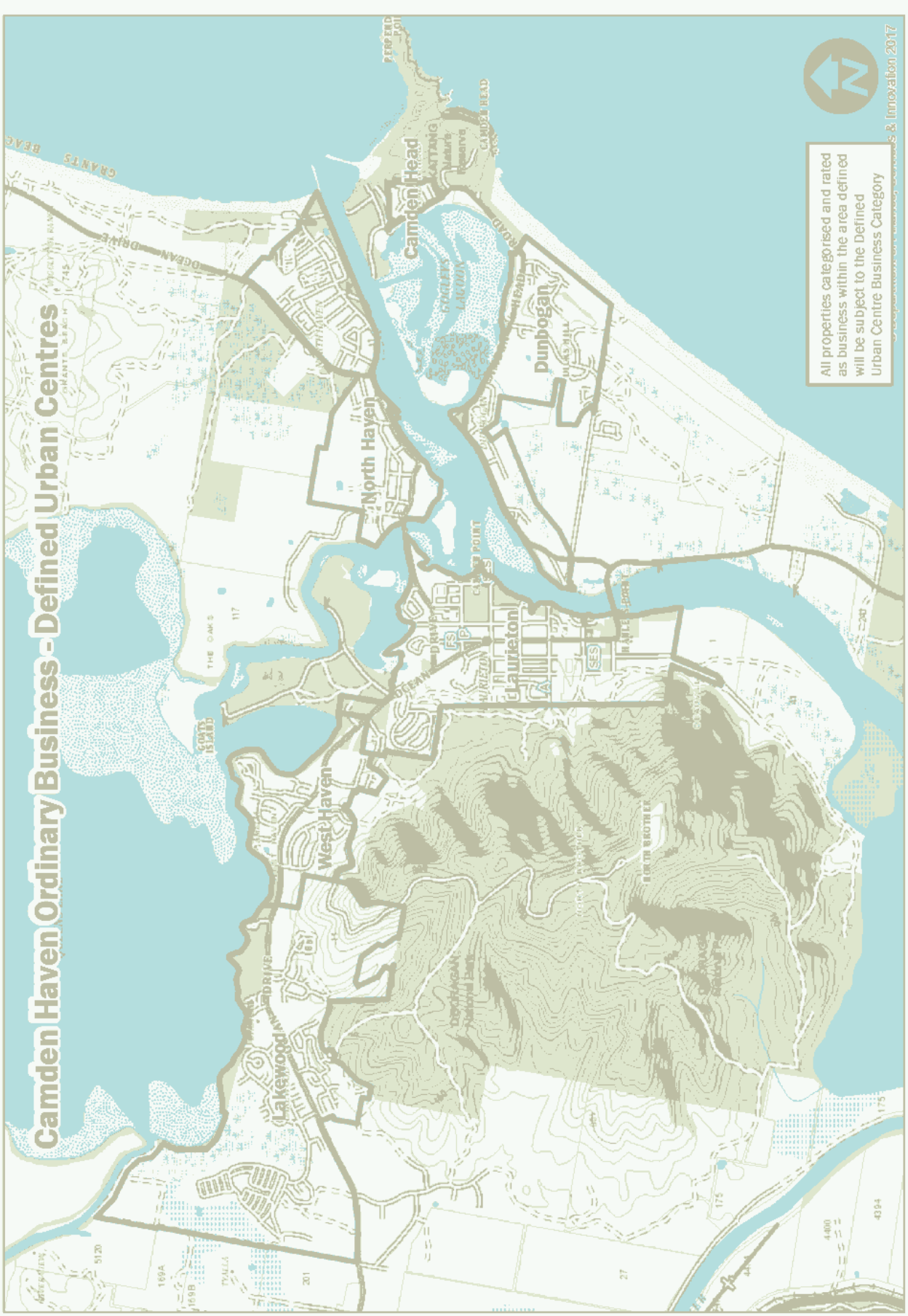
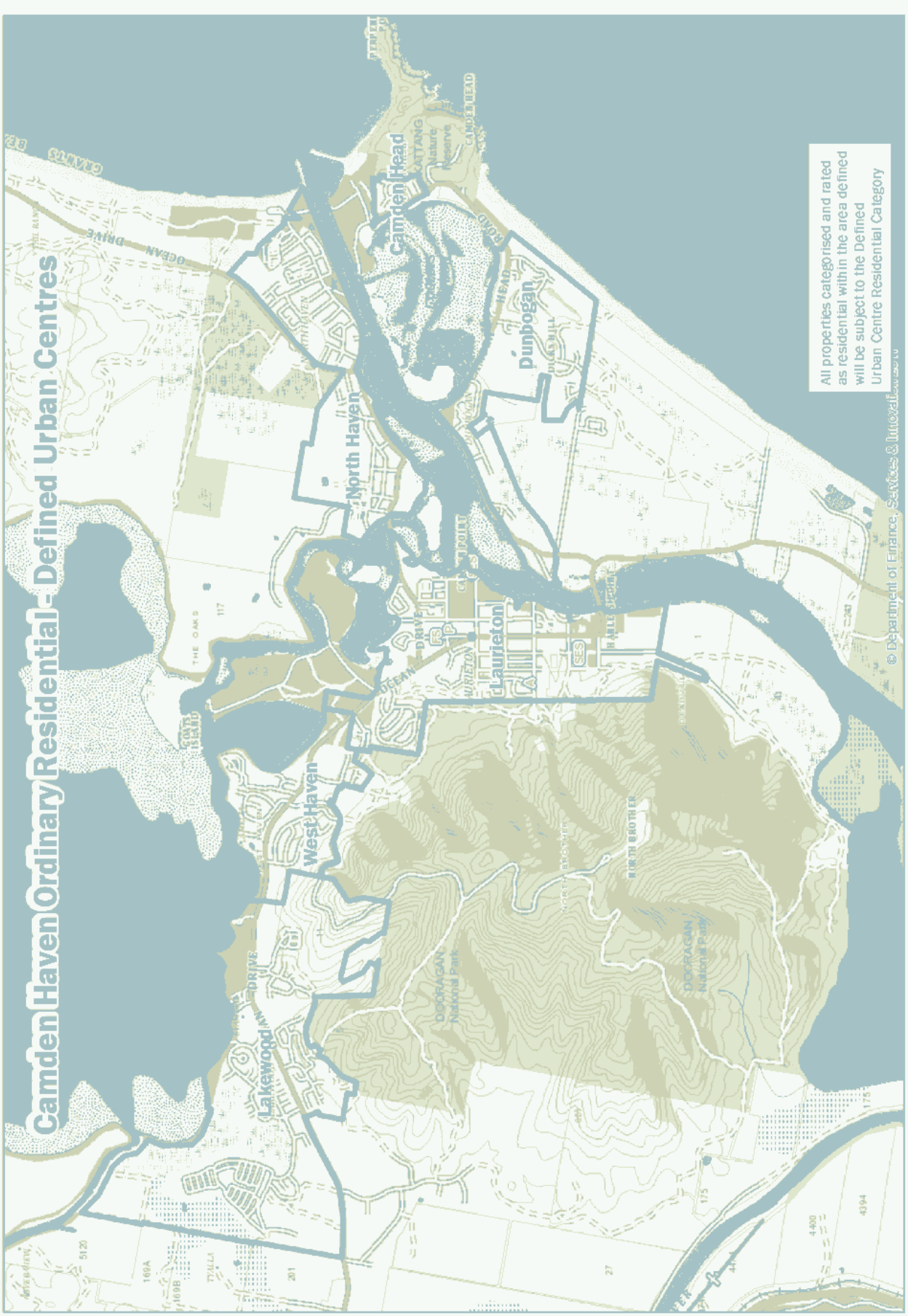

Camden Haven Ordinary Business - Defined Urban Centres
All properties categorised and rated as business within the area defined will be subject to the Defined Urban Centre Business Category
Camden Head
Dunbogan
North Haven
Laurieton
West Haven
Lakewood
GRANTS BEACH
OCEAN DRIVE
CAMDEN HEAD
NORTH BROTHER
THE OAKS
GOATS ISLAND


Camden Haven Ordinary Residential - Defined Urban Centres
Lakewood
West Haven
North Haven
Laurieton
Dunbogan
Camden Head
DOORAGAN National Park
NORTH BROTHER
All properties categorised and rated as residential within the area defined will be subject to the Defined Urban Centre Residential Category
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Business Category
All properties categorised and rated as business within the area defined (which have not been sub-categorised elsewhere) will be subject to the Port Macquarie-Hastings Ordinary Business Rate.
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THE CASTLES Nature Reserve
WILLIAM National Park
Nature Reserve
MOUNT MOTHERABAH
FREDERICKTON
KEMPSEY
GLADSTONE
SMITHTOWN
HAT HEAD
KEMPS PINNACLE
SPOKES MOUNTAIN
MOUNT KIPPARA
KUMBATINE National Park
MARIA National Park
CRESCENT HEAD
WERRIKIMBE National Park
MOUNT BOSS
TELEGRAPH POINT
MOUNT CAIRNCROSS
PARPINBARRA ROAD
JASPER Nature Reserve
RALFE'S PEAK
PORT MACQUARIE
WAUCHOPE
LAKE INNES Nature Reserve
BIRIWAL BULGA National Park
BAGO BLUEF National Park
MOUNT COMBOYNE
COMBOYNE
HERONS CREEK
KENDALL
LAURIETON
TAPIN TOPS National Park
LORNE ROAD
LANSDOWNE
CROWDY BAY National Park
HARRINGTON

Residential Category
All properties categorised and rated as residential within the area defined (which have not been sub-categorised elsewhere) will be subject to the Port Macquarie-Hastings Ordinary Residential Rate.
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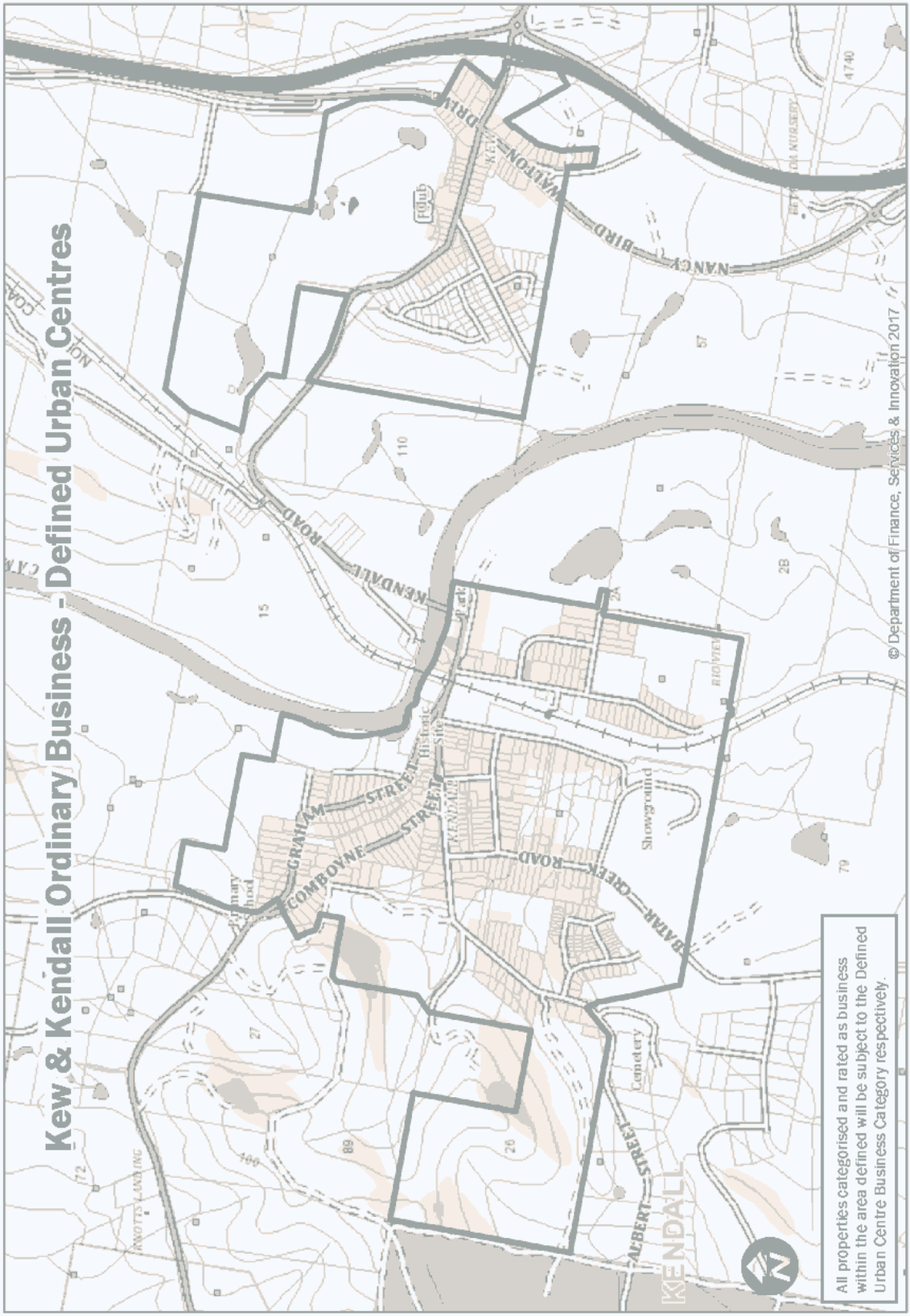
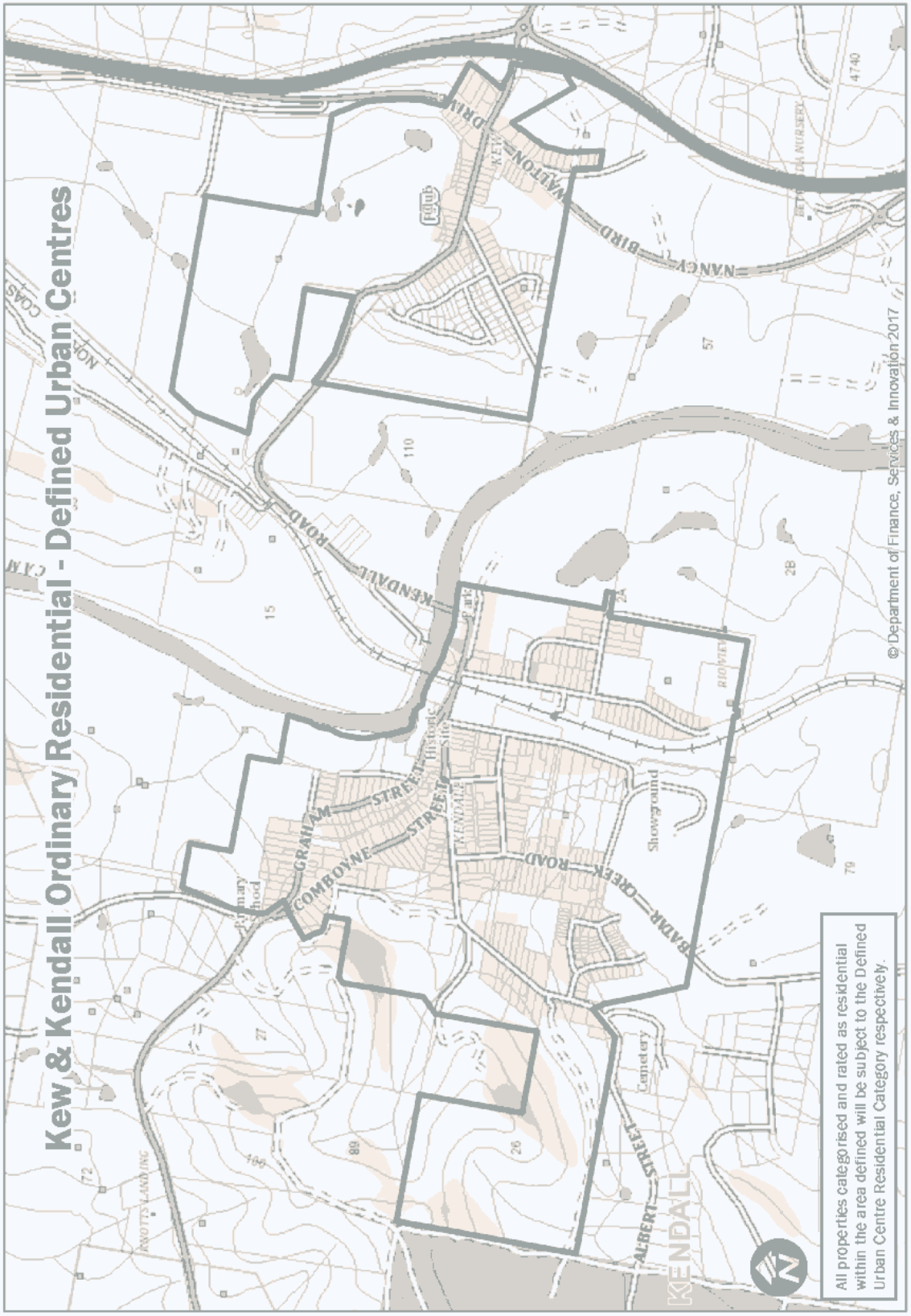
THE CASTLES Nature Reserve
WILLIS National Park
KEMPSEY
FREDERICKTON
GLADSTONE
SMITHTOWN
HAT HEAD
KUMBATINE National Park
WERRIKIMBE National Park
MARIA National Park
CRESCENT HEAD
TELEGRAPH POINT
PORT MACQUARIE
WAUCHOPE
LAKE INNES Nature Reserve
BAGO BLUEF National Park
COMBOYNE
HERONS CREEK
KENDALL
LAURIETON
TAPIN TOPS National Park
LANSDOWNE
COOPERNOOK
HARRINGTON
PAPPINBARRA ROAD
LORNE ROAD
COMBOYNE ROAD
MARIA RIVER
HASTINGS RIVER


Kew & Kendall Ordinary Business - Defined Urban Centres
All properties categorised and rated as business within the area defined will be subject to the Defined Urban Centre Business Category respectively.
© Department of Finance, Services & Innovation 2017
KENDALL
KENDALL ROAD
NANCY BIRD WALTON DRIVE
GRAHAM STREET
COMBOYNE STREET
BATAR CREEK ROAD
ALBERT STREET
Showground
Cemetery
Park
Historic Site
Primary School
Fulub
KNOTTS LANDING
RIO VIEW
4740
110
15
57
2B
2A
79
27
26
89
72
100


Kew & Kendall Ordinary Residential - Defined Urban Centres
All properties categorised and rated as residential within the area defined will be subject to the Defined Urban Centre Residential Category respectively.
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KENDALL
KENDALL ROAD
NANCY BIRD WALTON DRIVE
GRAHAM STREET
COMBOYNE STREET
BATAR CREEK ROAD
ALBERT STREET
Showground
Cemetery
Park
Historic Site
Primary School
RIO VIEW
KEW
Fulu
4740
57
110
15
2B
79
27
26
89
72
100

Lake Cathie Ordinary Business
Defined Urban Centres
LAKE CATHIE
KENWOOD DRIVE
All properties categorised and rated as business within the area defined will be subject to the Defined Urban Centre Business Category.
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Lake Cathie Ordinary Residential
Defined Urban Centres
LAKE CATHIE
KENWOOD DRIVE
All properties categorised and rated as residential within the area defined will be subject to the Defined Urban Centre Residential Category.
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Port Macquarie Ordinary Business
Defined Urban Centre
Excludes CBD Sub-Category
All properties categorised and rated as business within the area defined will be subject to the Defined Urban Centres Business Category.
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Business Sub-Category Port Macquarie CBD
All properties categorised and rated as business within the area defined will be subject to the Port Macquarie Business CBD Sub-Category.
N
PORT MACQUARIE POLICE STATION
PORT MACQUARIE HISTORIC COURTHOUSE
CLARENCE
GREATER PORT MACQUARIE VISITOR INFORMATION CENTRE
PORT CENTRAL SHOPPING CENTRE
PORT MACQUARIE COURT HOUSE
PORT MACQUARIE POST OFFICE
PRESBYTERIAN CHURCH
WILLIAM
CATHOLIC CHURCH
ANGLICAN CHURCH
ST JOSEPHS VOCATIONAL COLLEGE
PORT MACQUARIE BUS INTERCHANGE
PORT MACQUARIE
PORT MACQUARIE HISTORIC CEMETERY
GLEBE PARK
GRAY
STREET
CHAPMAN
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Port Macquarie Ordinary Residential
Defined Urban Centre
All properties categorised and rated as residential within the area defined will be subject to the Defined Urban Centres Residential Category.
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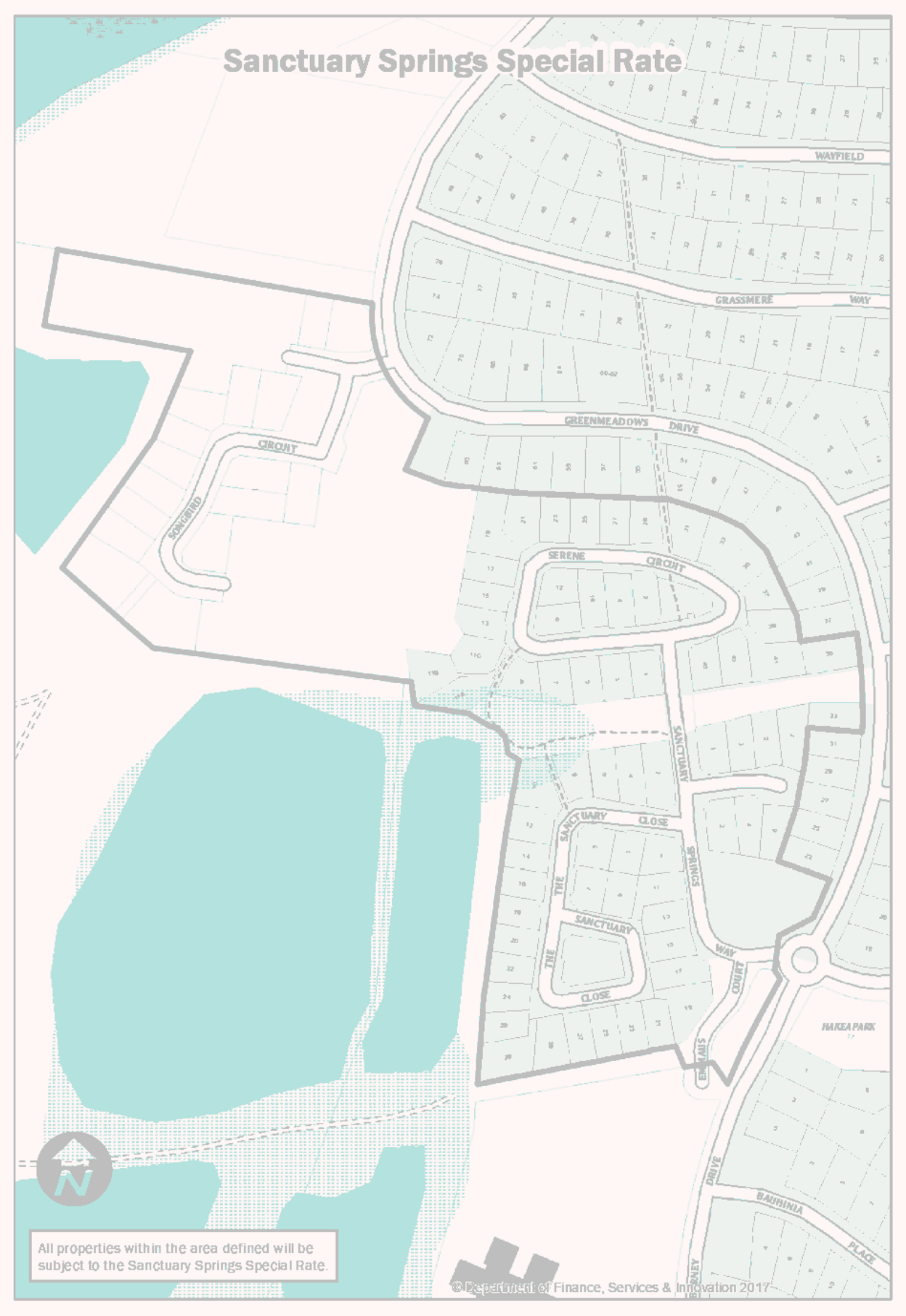
Sanctuary Springs Special Rate
WAYFIELD
GRASSMERE
WAY
GREENMEADOWS
DRIVE
CIRCUIT
SONGBIRD
SERENE
CIRCUIT
SANCTUARY
SANCTUARY
CLOSE
SPRINGS
THE
SANCTUARY
CLOSE
THE
WAY
COURT
HAKEA PARK
BENJAMIN
DRIVE
BAUHINIA
PLACE
BERNEY
All properties within the area defined will be subject to the Sanctuary Springs Special Rate.
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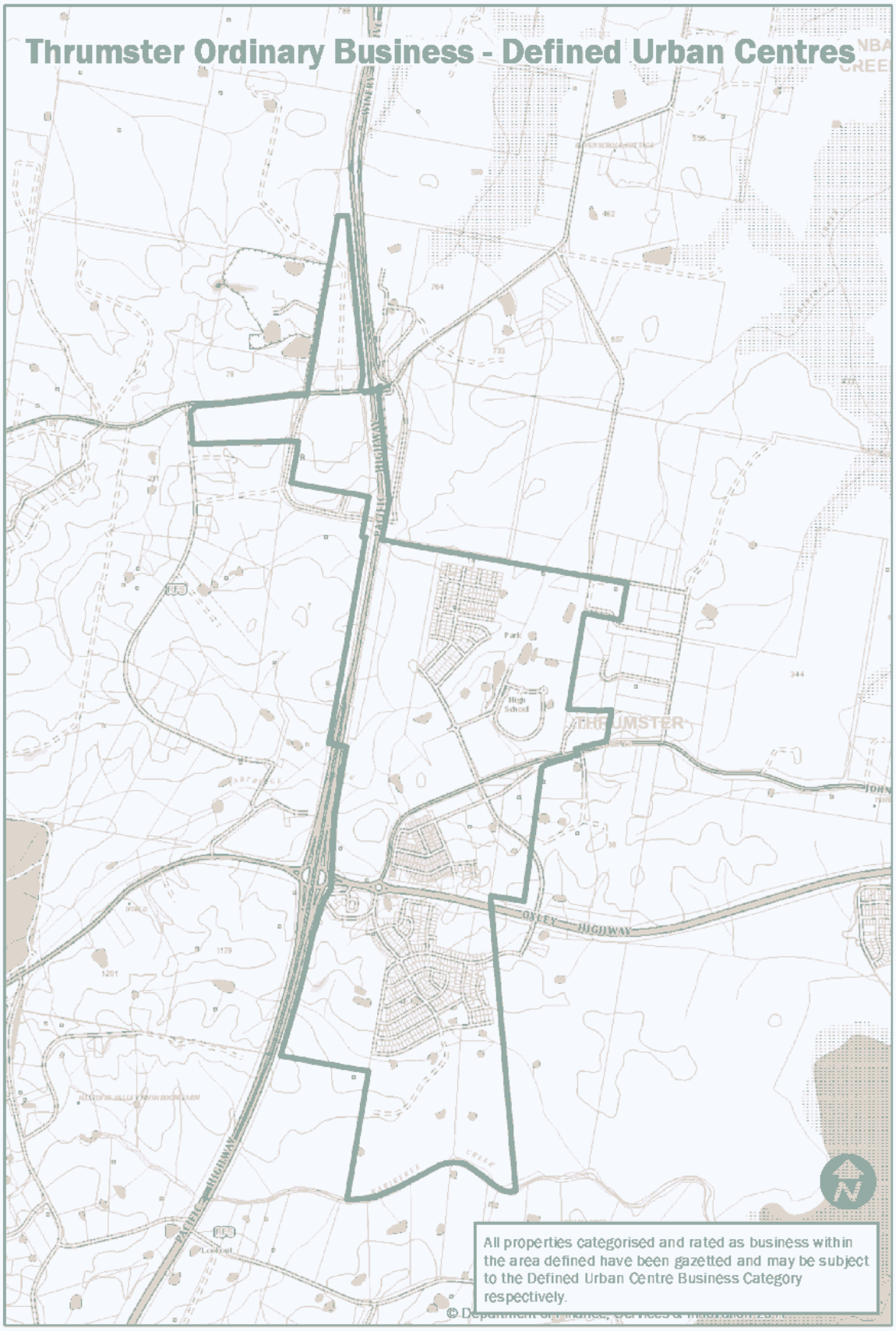
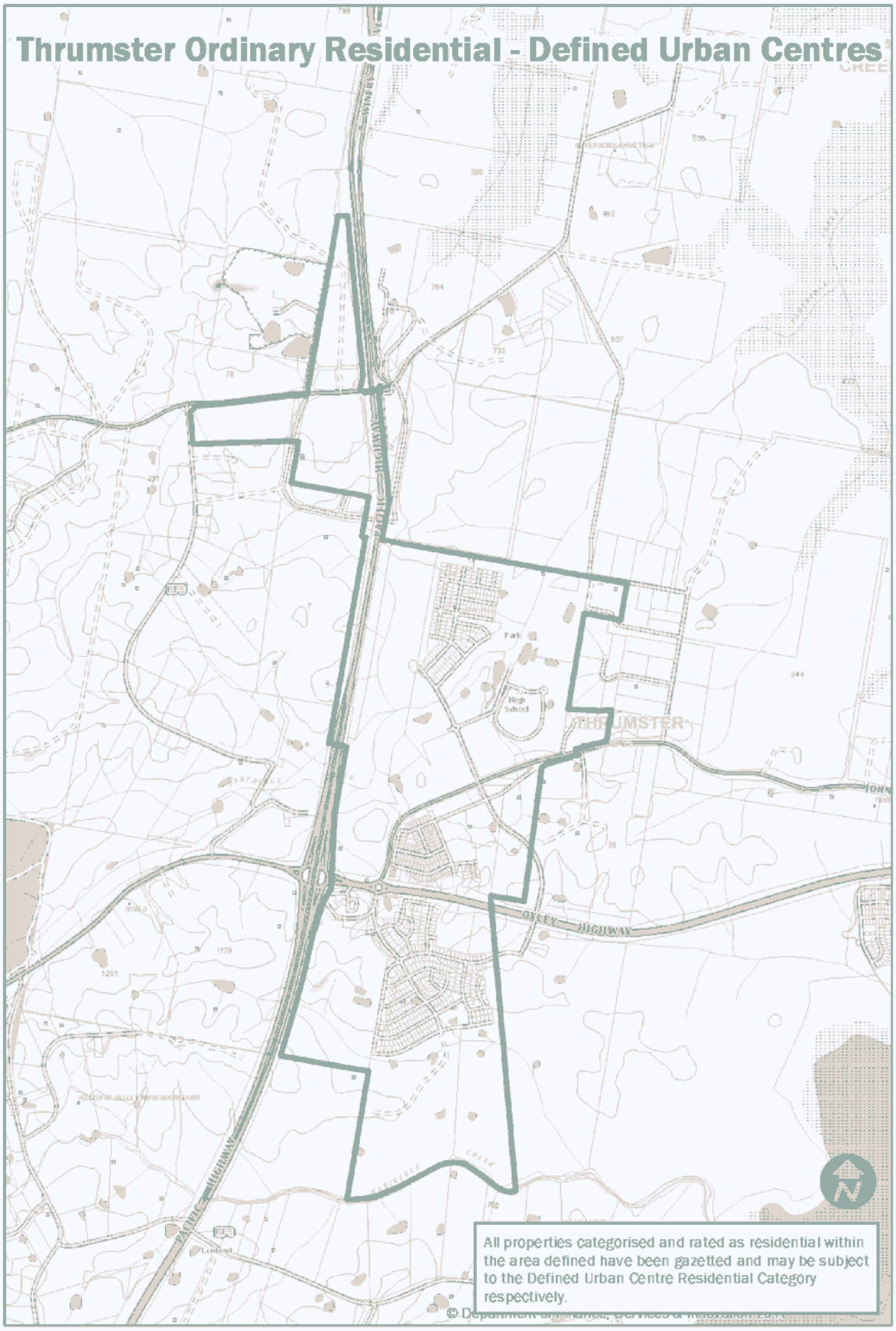
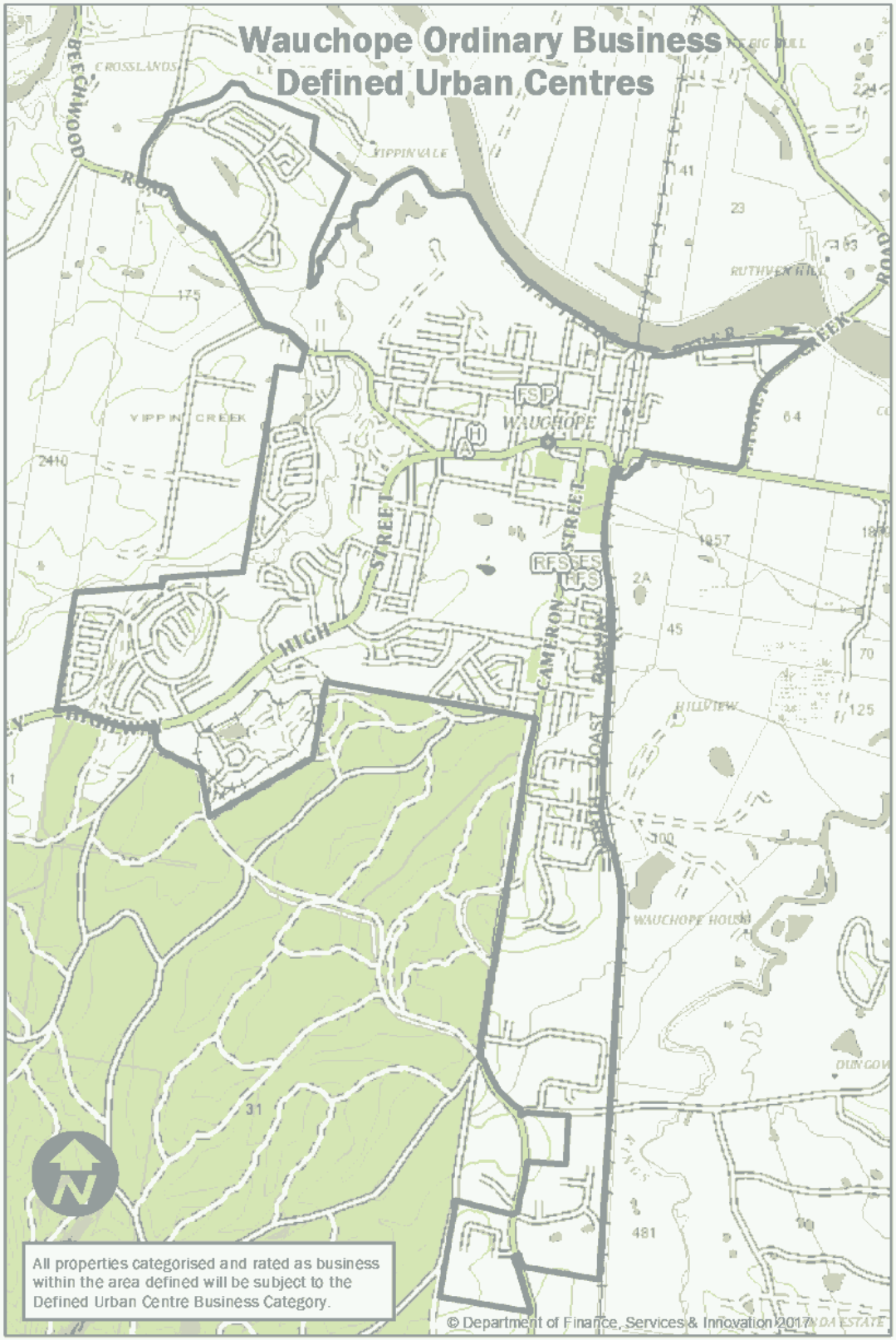

Thrumster Ordinary Business - Defined Urban Centres
THRUMSTER
OXLEY HIGHWAY
PACIFIC HIGHWAY
All properties categorised and rated as business within the area defined have been gazetted and may be subject to the Defined Urban Centre Business Category respectively.


Thrumster Ordinary Residential - Defined Urban Centres
THRUMSTER
OXLEY HIGHWAY
PACIFIC HIGHWAY
All properties categorised and rated as residential within the area defined have been gazetted and may be subject to the Defined Urban Centre Residential Category respectively.


Wauchope Ordinary Business
Defined Urban Centres
WAUCHOPE
HIGH STREET
CAMERON STREET
VIPPIN CREEK
All properties categorised and rated as business within the area defined will be subject to the Defined Urban Centre Business Category.
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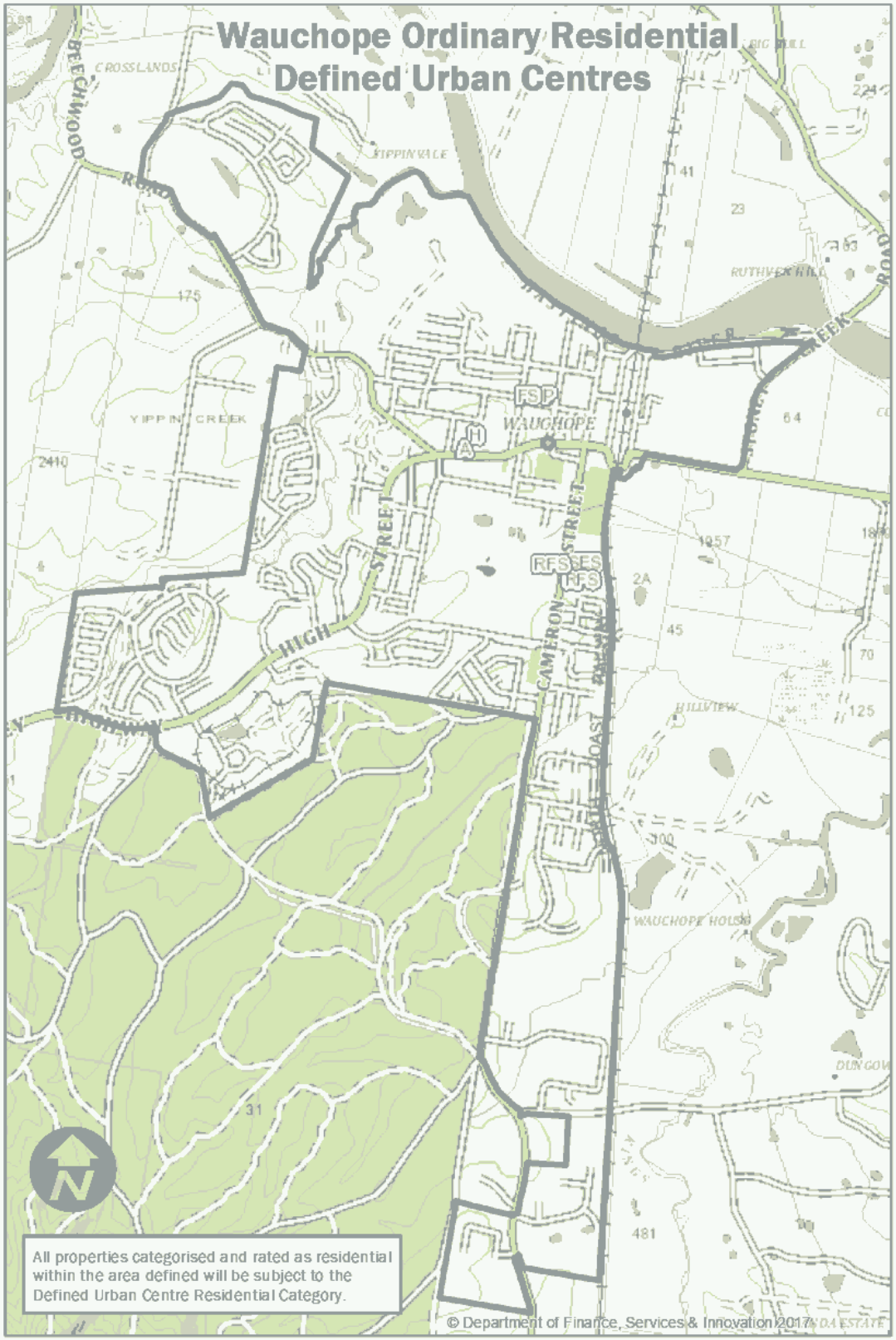
Wauchope Ordinary Residential
Defined Urban Centres
BEECHWOOD ROAD
CROSSLANDS
YIPPIN VALE
YIPPIN CREEK
WAUCHOPE
HIGH STREET
CAMERON STREET
COAST
RUTHVEN HILL
HILLVIEW
WAUCHOPE HOUSE
DUNGOW
All properties categorised and rated as residential within the area defined will be subject to the Defined Urban Centre Residential Category.
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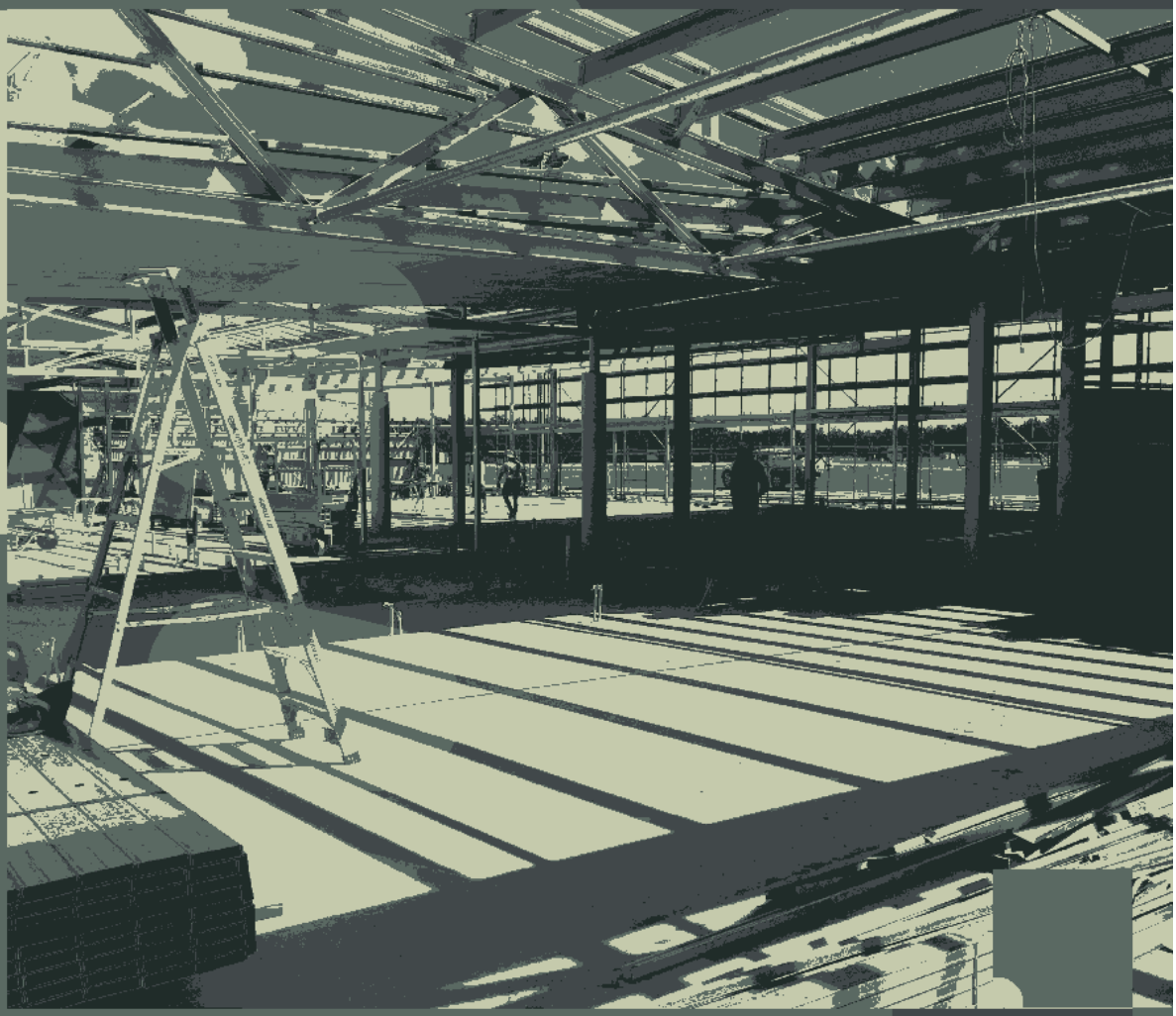
PORT MACQUARIE-HASTINGS
COUNCIL

Attachment 1

SCHEDULE OF FEES AND CHARGES
2019-2020



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Schedule of Fees and Charges 2019 – 2020

Pricing Policy

In determining the appropriate fees to be charged for Council services and facilities in 2019-2020, the basic principle applied was that charges should be considered fair and equitable to the general community. Individual members of the community should not be precluded from essential services because of economic circumstances.

The range of services provided by Council to the community is diverse and require different considerations when determining the associated fee or charge. The level of the fee or charge was determined having regard to the following categories (which have been included in this document next to the relevant fee or charge):

Code	Description
A	**Economic Cost** Total cost of providing services for private good.
B	**Community Service** Services considered to have a level of benefit to the community. Generally benefits are not solely confined to users. Partially funded by rates.
C	**Regulated Charges** Federal or State Government set charges.
D	**User Pays Principal** Services under this category are such that individual costs can be determined and met by the user of the service.
E	**Market Forces** Services that Council operates in a competitive market and needs to fix charges similar to other providers.
F	**Cost Plus** Services provided on a commercial basis with an amount of risk profit included.
G	**Section 7.11 (Developer Contributions)** Items are priced at the level determined by the adoption of Council's Contributions Plans. The Contribution Plans provides for quarterly increases in these fees based on Consumer Price Index (CPI) increases.

Schedule of Fees and Charges 2019 – 2020

Goods and Services Tax

Introduction

The Goods and Services Tax (GST) passed through legislation on 30 June 1999 and received Royal Ascent on the 8 July 1999. The introduction of the Goods and Services Tax meant that certain fees and charges levied by Port Macquarie - Hastings Council attract GST.

Transparency

Council has gone to great lengths to ensure it has been totally transparent in reporting the applicability of the GST to its fees and charges. This document has been set out in such a way so that you, as the user, will know exactly where the GST applies to fees and charges. Three columns in particular within this document relate to GST:

- **Charge (excl. GST):** This is the actual fee or charge without GST applied to it.
- **GST:** If GST is applicable, this column will show the value of the GST to be applied **(for one unit)** and is rounded to the nearest cent. If we are unable to determine the cost of a good or service at the time of printing (eg the cost may vary during the year), "calculate" will appear in the fee line and GST will be calculated once the fee is known. If the column is blank yet the Fee Amount field contains a fee, it indicates GST is not applicable.
- **Charge (incl. GST):** This column should only be used for indicative purposes only (refer to "GST Calculations" below). The column displays the Total Charge **for one unit** with GST included.

GST Calculations

In most cases Council has been able to calculate the GST charge and report it as a dollar figure. This amount is based on one unit. For example, the charge for a copy of a Deposited Plan is $20.00, with GST of $2.00, bringing the Charge incl GST to $22.00.

If Council was unable to calculate the unit charge at the time of printing, the word “calculate” will be shown in the fee line. In this case, GST will be calculated once the Fee Amount is known.

GST Amendments

While the fee amount in this document will not alter without a resolution of Council, followed by a subsequent period on public exhibition, the applicability of the GST to the fees and charges may, depending on the interpretations and rulings as the GST legislation evolves.

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Port Macquarie-Hastings Council

Leadership & Governance

Financial Management

Certificates

Section 603 Certificate	$80.00	$85.00	$0.00	$85.00	6.25%	Each
This is a statutory charge determined yearly by the Office of Local Government						
Urgency fee Section 603 Certificate	$80.00	$85.00	$0.00	$85.00	6.25%	Each
Fee to issue Section 603 Certificate on the spot - in addition to the normal Section 603 certificate fee						

Rate Information

Rate Information – Per hour	$60.00	$62.00	$0.00	$62.00	3.33%	Per 1 Hour
Minimum Charge 1 hour						
Copies of Rates Notices – current notice and previous financial year					No Charge	
Copies of Rates Notices – all notices earlier than current notice or previous financial year	$5.50	$10.00	$0.00	$10.00	81.82%	Each

Interest Rate on Overdue Rates & Charges

As per the rate determined by the NSW Office of Local Government

Broadwater Special Rate					7.50%	
General Rates					7.50%	
Sanctuary Springs Special Rate					7.50%	

Ordinary Rates

Base amount by Category

Business – Defined Urban Centres	$583.00	$598.80	$0.00	$598.80	2.71%	Per Annum
Business – Other	$483.00	$498.80	$0.00	$498.80	3.27%	Per Annum
Business – Port Macquarie CBD	$583.00	$598.80	$0.00	$598.80	2.71%	Per Annum
Farmland	$583.30	$601.00	$0.00	$601.00	3.03%	Per Annum
Residential – Defined Urban Centres	$583.00	$598.80	$0.00	$598.80	2.71%	Per Annum
Residential – Other	$483.00	$498.80	$0.00	$498.80	3.27%	Per Annum

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Rate in $ by Category						
Business – Defined Urban Centres					0.60371c	Per $ Valuation
Business – Other					0.52490c	Per $ Valuation
Business – Port Macquarie CBD					2.35042c	Per $ Valuation
Farmland					0.30327c	Per $ Valuation
Residential – Defined Urban Centres					0.28605c	Per $ Valuation
Residential – Other					0.30300c	Per $ Valuation
Sanctuary Springs Special Rate					0.15850c	Per $ Valuation
Broadwater Special Rate					0.07114c	Per $ Valuation

Lease Fees – Council Land

Lease Application						
Administration Fee – Not elsewhere indicated – No Report to Council	$200.00	$190.91	$19.09	$210.00	5.00%	Each
Non-refundable Can be used for investigations / requests to lease new locations involves research / site visits / meetings. Could be deducted from lease application fee if lease proceeds.						
Administration Fee – Not elsewhere indicated – Report to Council	$300.00	$281.82	$28.18	$310.00	3.33%	Each
Non-Refundable Can be used for investigations/requests to lease new locations involves research/site visits/meetings. Could be deducted from Lease application fee if lease proceeds						
Commercial Leases up to 5 Years	$800.00	$745.45	$74.55	$820.00	2.50%	Each
Application and Administration Fee						
Commercial Leases over 5 Years	$1,100.00	$1,027.27	$102.73	$1,130.00	2.73%	Each
Application and Administration Fee						
Commercial – Renewal or Assignment of Lease Not Requiring Amendment	$340.00	$318.18	$31.82	$350.00	2.94%	Each
Application and Administration Fee						
Community – Application and Administration Fee	$712.00	$663.64	$66.36	$730.00	2.53%	Each
Application and Administration Fee						
Community – Renewal or Assignment of Lease Not Requiring Amendment	$292.00	$272.73	$27.27	$300.00	2.74%	Each
Application and Administration Fee						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Lease Application [continued]						
Survey Fee					At Cost	Each
Valuation Fees					At Cost	Each
Legal Fees					At Cost	Each
Advertising					At Cost	Each
Lease Rental						
Commercial					Set by market valuation	Each
Community	$550.00	$518.18	$51.82	$570.00	3.64%	Per Annum
Agistment					Set by market valuation	Each
Outdoor Dining and Outdoor Trading on Council Roads and Footpaths						
Application and Administration Fee	$385.00	$385.00	$0.00	$385.00	0.00%	Each
Non-refundable						
Supply, Installation, Removal or Relocation of Markers to Identify the Footway Dining Area.					At Cost	Each
Rental for Outdoor Dining – Port Macquarie CBD	$142.80	$143.00	$0.00	$143.00	0.14%	Per m2/Annum
Rental for Outdoor Dining – Non Port Macquarie CBD	$61.20	$62.00	$0.00	$62.00	1.31%	Per m2/Annum
Wauchope, Lake Cathie, Lighthouse Beach, Laurieton, Bonny Hills, etc						
Rental for Outdoor Dining – Villages	$40.80	$41.00	$0.00	$41.00	0.49%	Per m2/Annum
Telegraph Point, Beechwood, etc						
Footpath Bond	$500 Bond or one (1) month's rental whichever is the greater					Each

Statutory Property Fees

Property Management						
Administration Fee – Sales of land with a value of between $0 and $20,000	$510.00	$481.82	$48.18	$530.00	3.92%	Each
Administration Fee – Sales of land with a value of between $20,001 and $100,000	$1,000.00	$936.36	$93.64	$1,030.00	3.00%	Each
Non-refundable						
Administration Fee – Sale of land with a value of over $100,000	$1,500.00	$1,400.00	$140.00	$1,540.00	2.67%	Each
Non-refundable Based on administration time to co-ordinate, report etc						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Property Management [continued]						
Administration Fee – Not elsewhere indicated	$200.00	$190.91	$19.09	$210.00	5.00%	Each
No report to Council, Non-refundable						
Administration Fee – Not elsewhere indicated	$300.00	$281.82	$28.18	$310.00	3.33%	Each
Report to Council, Non-refundable						
Investigation Fee, Search Fee	$350.00	$327.27	$32.73	$360.00	2.86%	Each
Sale of Council Owned Land					At Cost	Each
Should the sale be undertaken following a reclassification of the land which was funded by the applicant, no additional investigation and administration fees will be charged. Should Council instigate the sale of the lot, no investigation, administration, valuation, survey or legal fees will be charged. Should the purchaser engage any external parties this will be at the purchaser's cost.						
Survey, Valuation, Legal					At Cost	Each
Statutory Property Transactions						
Hourly Rate for Statutory Property Transactions and Advice	$100.00	$100.00	$10.00	$110.00	10.00%	Per Hour
Non-refundable For transactions including road closures, easements, land transfers, boundary adjustments etc where not covered by an existing fee						
Naming & Renaming of Roads and Reserves						
Naming / Renaming Council Public Road / Reserve	$700.00	$720.00	$0.00	$720.00	2.86%	Each
Application Fee - Non-refundable						
Naming / Renaming of a Crown Reserve	$700.00	$800.00	$0.00	$800.00	14.29%	Each
Application Fee - non-refundable						
Road Closing Application Fees						
Council Road Closure – Investigation Fee	$600.00	$620.00	$0.00	$620.00	3.33%	Each
Non-refundable This fee will be deducted from the Administration Fee if road closure proceeds.						
Crown Road Closure Application	$600.00	$1,100.00	$0.00	$1,100.00	83.33%	Each
Non-refundable						
Council Road Closure Stage 1 – Administration Fee	$1,000.00	$1,100.00	$0.00	$1,100.00	10.00%	Each
Non-refundable						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Road Closing Application Fees [continued]						
Council Road Closure Stage 2 – Administration Fee	$1,500.00	$1,600.00	$0.00	$1,600.00	6.67%	Each
Non-refundable						
Survey, Valuation, Legal					At Cost	Each
Fees to Other Authorities, Government Departments					At Cost	Each
Non-refundable						
Covenants and Easements						
Extinguishment / Variation to Restrictive Covenant					At Cost	Each
Non-refundable						
Requests for New / Variation to Easements					At Cost	Each
Non-refundable						
Survey, Valuation, Legal					At Cost	Each
Fees to Other Authorities, Government Departments					At Cost	Each
Non-refundable						
Land Register						
Land Register Extract – Multiple Properties	$100.00	$103.00	$0.00	$103.00	3.00%	Each
Administrative Fees						
Credit Card Surcharge					0.5%	Per Transaction
Cheque Dishonour Administration Fee	$35.00	$35.00	$0.00	$35.00	0.00%	Each
Direct Debit Dishonour Administration Fee	$25.00	$25.00	$0.00	$25.00	0.00%	Each
New Owners Administration Fee	$0.00	$50.00	$0.00	$50.00	∞	Each
Document Sales						
Other Documents						
Refer Appendix 1						
Council's Drainage Code	$45.00	$46.00	$0.00	$46.00	2.22%	Each

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Reports & Studies						
Refer Appendix 1						
Various Reports & Studies	Calculated according to printing and / or photocopying costs					Each
Government Information (Public Access) Act 2009 (GIPA)						
Subpoena to produce documents						
Access to Records						
Personal Records						
Application Fee	$30.00	$30.00	$0.00	$30.00	0.00%	Each
Processing Charge – hourly rate	$30.00	$30.00	$0.00	$30.00	0.00%	Per Hour
after first 20 hours						
Internal Review Fee	$40.00	$40.00	$0.00	$40.00	0.00%	Each
Formal Applications – Non Personal Records						
Application Fee	$30.00	$30.00	$0.00	$30.00	0.00%	Each
Processing Charge – hourly rate	$30.00	$30.00	$0.00	$30.00	0.00%	Per Hour
First hour free						
A 50% reduction in fees may apply to the processing charge for customers suffering financial hardship or of special benefit to the public generally						
Internal Review Fee	$40.00	$40.00	$0.00	$40.00	0.00%	Each
Informal and all other Applications						
Application Fee					No Charge	
Processing Charge – hourly rate	$30.00	$30.00	$0.00	$30.00	0.00%	Per Hour
Adjoining Owners						
Application for Adjoining Owners Details	$15.50	$16.00	$0.00	$16.00	3.23%	Each
Subpoenas – Conduct Money						
Where Council is not a party to the proceedings						
Subpoena to produce documents						
Conduct Money	$65.25	$66.60	$0.00	$66.60	2.07%	Each
Conduct Money for subpoenas served under seven (7) days	$130.00	$133.00	$0.00	$133.00	2.31%	Each

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Subpoena to produce documents [continued]						
Searching and compiling documents – per 15 mins	$21.00	$21.50	$0.00	$21.50	2.38%	1/4 hour
Per 1/4 hour of part thereof. Plus copying, printing, postage or courier charges						
Subpoena to attend court						
Conduct money where production required at a Court of tribunal	$65.25	$67.00	$0.00	$67.00	2.68%	Each
Staff attendance and travel time – Hourly rate					At Cost	Per Hour
Travel, accommodation and meal expenses					At Cost	

Digital Technology

Certified Copy

Refer Appendix 1

Certified Copy (for evidence)

Certified Copy of Document, Map or Plan	$54.00	$55.00	$0.00	$55.00	1.85%	Each
EP&A Act S.150(2) & EP&A Reg 2000 cl.262						

Printing & Laminating

Refer Appendix 1

Printing

Prints 1-50	$1.00	$0.95	$0.10	$1.05	5.00%	Per Print
Prints 51+	$0.30	$0.28	$0.03	$0.31	3.33%	Each
This refers to each print in excess of 50. First 50 prints are at $1.00 any additional prints over 50 are at 0.30c						

Collating

A4	$0.17	$0.15	$0.02	$0.17	0.00%	Per Sheet
Foolscap & A3	$0.24	$0.22	$0.02	$0.24	0.00%	Per Sheet
Stapling	$0.24	$0.22	$0.02	$0.24	0.00%	Per Sheet

Comb Binding

1 – 50 pages	$4.03	$3.73	$0.37	$4.10	1.74%	Each
51 – 100 pages	$4.65	$4.32	$0.43	$4.75	2.15%	Each
101 – 150 pages	$5.35	$5.00	$0.50	$5.50	2.80%	Each

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Laminating						
A4 sheet	$2.90	$2.73	$0.27	$3.00	3.45%	Per Sheet
A3 sheet	$5.80	$5.41	$0.54	$5.95	2.59%	Per Sheet
A2 sheet	$17.40	$16.14	$1.61	$17.75	2.01%	Per Sheet
A1 sheet	$23.15	$21.50	$2.15	$23.65	2.16%	Per Sheet
A0 sheet	$28.90	$26.82	$2.68	$29.50	2.08%	Per Sheet

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Your Business and Industry

Economic Development

The Hub Pop-Up Business and Co-Working Space

Co-Working – Half Day	$22.00	$20.00	$2.00	$22.00	0.00%	Per Half Day
Co-Working – Full Day (up to 8 hours)	$33.00	$30.00	$3.00	$33.00	0.00%	Per Day
Co-Working – Full Time (up to 40 hours)	$99.00	$90.00	$9.00	$99.00	0.00%	Per Week
Co-Working Monthly Subscription – Part Time (up to 2 days per week)	$0.00	$90.00	$9.00	$99.00	∞	per month
Co-Working Monthly Subscription – Full Time (Up to 5 days per week)	$0.00	$180.91	$18.09	$199.00	∞	per month
Meeting Room Hire	$11.00	$10.00	$1.00	$11.00	0.00%	Per Hour
Venue Hire – After Hours Week Days	$33.00	$30.00	$3.00	$33.00	0.00%	Per Hour
Venue Hire – After Hours Weekends	$55.00	$50.00	$5.00	$55.00	0.00%	Per Hour

Tourism Marketing

Co-operative Marketing					Price on application	POA

Advertising

Other Organisations

Electronic Direct Mail Advertising	$76.50	$71.36	$7.14	$78.50	2.61%	
Visitor Guide Advertisement	$510.00	$481.82	$48.18	$530.00	3.92%	
Destination Website Promotion Panel	$765.00	$713.64	$71.36	$785.00	2.61%	Per Month

Not for Profit

Electronic Direct Mail Advertising	$38.25	$35.47	$3.55	$39.02	2.01%	
Visitor Guide Advertisement	$255.00	$237.27	$23.73	$261.00	2.35%	
Destination Website Promotion Panel	$382.50	$354.55	$35.45	$390.00	1.96%	Per Month

Image Library

Photographic Digital Images	$35.65	$33.09	$3.31	$36.40	2.10%	Each
Cost per digital photographic image (for commercial purposes) No Charge if not for profit						

continued on next page

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Image Library [continued]						
Video	$117.00	$108.64	$10.86	$119.50	2.14%	Per Module
Module						
Tastings on Hastings						
Entry Fee						
Main Event	$5.00	$4.55	$0.45	$5.00	0.00%	Each
Children under 10 years are free						
Exhibitors Costs						
Hastings Farmers Market & Makers Market Exhibitors						
No pegs allowed, weights only. NB: Makers Market has no power available						
Site Fees – 3x3 site BYO marquee and without power	$170.00	$154.55	$15.45	$170.00	0.00%	Each
Site Fees – 3x3 site with marquee without power	$250.00	$227.27	$22.73	$250.00	0.00%	Each
Site Fees – 3x3 site with marquee – 1 x single phase power included	$295.00	$268.18	$26.82	$295.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x3 site with marquee – 2 x single phase power included	$335.00	$304.55	$30.45	$335.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x3 site with marquee – 1 x three phase power included	$325.00	$295.45	$29.55	$325.00	0.00%	Each
$70.00 per three phase outlet						
Site Fees – 3x6 site BYO marquee and without power	$335.00	$304.55	$30.45	$335.00	0.00%	Each
Site Fees – 3x6 site with marquee without power	$500.00	$454.55	$45.45	$500.00	0.00%	Each
Site Fees – 3x6 site with marquee – 1 x single phase power included	$545.00	$495.45	$49.55	$545.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x6 site with marquee – 2 x single phase power included	$585.00	$531.82	$53.18	$585.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x6 site with marquee – 1 x three phase power included	$575.00	$522.73	$52.27	$575.00	0.00%	Each
$70.00 per three phase outlet						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Tastings Ignites Food Vendors						
No pegs allowed, weights only						
Site Fees – 3x3 site – 1 x single phase power included	$215.00	$195.45	$19.55	$215.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x3 site – 2 x single phase power included	$255.00	$231.82	$23.18	$255.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x3 site – 3 x single phase power included	$295.00	$268.18	$26.82	$295.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x3 site – 4 x single phase power included	$335.00	$304.55	$30.45	$335.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x3 site – 1 x three phase power included	$285.00	$259.09	$25.91	$285.00	0.00%	Each
$70.00 per three phase outlet						
Site Fees – 3x6 site – 1 x single phase power included	$430.00	$390.91	$39.09	$430.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x6 site – 2 x single phase power included	$470.00	$427.27	$42.73	$470.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x6 site – 3 x single phase power included	$510.00	$463.64	$46.36	$510.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x6 site – 4 x single phase power included	$550.00	$500.00	$50.00	$550.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x6 site – 1 x three phase power included	$500.00	$454.55	$45.45	$500.00	0.00%	Each
$70.00 per three phase outlet						
General Exhibitors						
Includes hire of marquee and provision of one table per stall						
Site Fees – 3x3 site – without power	$400.00	$363.64	$36.36	$400.00	0.00%	Each
Site Fees – 3x3 site – 1 x single phase power included	$440.00	$400.00	$40.00	$440.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x3 site – 2 x single phase power included	$480.00	$436.36	$43.64	$480.00	0.00%	Each
$40.00 per single phase outlet						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
General Exhibitors [continued]						
Site Fees – 3x3 site – 3 x single phase power included	$520.00	$472.73	$47.27	$520.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x3 site – 4 x single phase power included	$565.00	$513.64	$51.36	$565.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x3 site – 1 x three phase power included	$475.00	$431.82	$43.18	$475.00	0.00%	Each
$70.00 per three phase outlet						
Site Fees – 3x6 site – without power	$795.00	$722.73	$72.27	$795.00	0.00%	Each
Site Fees – 3x6 site – 1 x single phase power included	$840.00	$763.64	$76.36	$840.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x6 site – 2 x single phase power included	$880.00	$800.00	$80.00	$880.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x6 site – 3 x single phase power included	$910.00	$827.27	$82.73	$910.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x6 site – 4 x single phase power included	$960.00	$872.73	$87.27	$960.00	0.00%	Each
$40.00 per single phase outlet						
Site Fees – 3x6 site – 1 x three phase power included	$870.00	$790.91	$79.09	$870.00	0.00%	Each
$70.00 per three phase outlet						

Airport

Port Macquarie Airport

Refer Appendix 2

Regular Public Transport (RPT) Services

Passenger Landing Fee	$21.45	$20.00	$2.00	$22.00	2.56%	Per Passenger
Applies to RPT and Charter aircraft (including helicopters) using RPT apron						
Passenger Departure Fee	$21.45	$20.00	$2.00	$22.00	2.56%	Per Passenger
Applies to RPT and Charter aircraft (including helicopters) using RPT apron						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Regular Public Transport (RPT) Services [continued]						
Security Screening Fee				POA - per departing passenger		POA – per departing passenger
Applies to RPT and Charter aircraft (including helicopters) using RPT apron during the operational period Operational period defined as per Govt Reg's for Aviation Security						
General Aviation (GA) Services						
Airport Usage Charge – Practice Approaches					No Charge	Per practice approach
Applies to all aircraft per practice approach Exempt from landing charges						
Airport Usage Charge (Annual) – For Commercial Purposes	$1,285.10	$1,190.91	$119.09	$1,310.00	1.94%	Per Annum per Aircraft
Applies to airport based commercial operators with less than five (5) aircraft Excludes RPT and freight aircraft operators						
Airport Usage Charge (Annual) – For Commercial Purposes	$1,285.10	$1,190.91	$119.09	$1,310.00	1.94%	Per Annum per Aircraft
Applies to Helicopter / Microlight / Ultralight aircraft operators with less than five (5) aircraft Hangar lessee will be charged the annual fee for a commercial ultralight, microlight or similar, per aircraft						
Airport Usage Charge (Annual) – For Private Purposes	$642.50	$595.45	$59.55	$655.00	1.95%	Per Annum per Aircraft
Applies to airport based private operators.						
Airport Usage Charge (Annual) – For Private Purposes	$642.50	$595.45	$59.55	$655.00	1.95%	Per Annum per Aircraft
Applies to Helicopter / Microlight / Ultralight aircraft Hangar lessee will be charged the annual fee for a private ultralight, microlight or similar, per aircraft						
Airport Usage Charge – Weight Based Movement Charge	$11.75	$10.91	$1.09	$12.00	2.13%	Per Tonne pro rata
Applies to all aircraft per landing. Not covered by the annual usage charges listed above. Minimum charge $12.00 per landing. RPT aircraft exempt.						
Airport Usage Charge – Training Circuits	$11.75	$10.91	$1.09	$12.00	2.13%	Per 20 minute interval (i.e. 3 charged per hour)
Applies to all aircraft per landing. Not covered by the annual usage charges listed above. Minimum charge $12.00 per landing. RPT aircraft exempt.						
Aircraft Parking – RPT Apron	$64.50	$60.00	$6.00	$66.00	2.33%	Per hour
Applies to aircraft parked on RPT apron RPT aircraft exempt						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
General Aviation (GA) Services [continued]						
Aircraft Parking – GA Apron	$9.75	$9.09	$0.91	$10.00	2.56%	Per hour after first 2 hours, per aircraft
Applies to aircraft parked on GA sealed surfaces in defined areas in accordance with conditions set out on adjacent signage and excludes the width of hangar door openings						
Non-Operational and Abandoned Aircraft	$13.00	$12.27	$1.23	$13.50	3.85%	Per Day
Applies to aircraft without a current Certificate of Airworthiness or current Maintenance Release parked on any part of the airport - fee applies after first 30 days Exemption: aircraft that are accommodated within a leased boundary / premises						
Charitable not for profit organisations providing aeromedical services only					Based on application	Per Aircraft
Applies to charitable not for profit aeromedical services only on a case-by-case basis Exempt from landing charges based on application						
Other Miscellaneous Fees						
Hire Car Operators (Desk & Car Parking)					Market value	POA – Per Annum
Adjusted in June each year in line with CPI						
Hangar and Ground Lease Rental					Market value	POA – Per M2 per Annum
Determined by valuation.						
Airside Activities Charges	$62.50	$58.18	$5.82	$64.00	2.40%	Per Hour, Each
For Airport Safety / Security Officer supervision Cost recovery for airside activities						
Lost Gate Key	$288.00	$267.27	$26.73	$294.00	2.08%	Each
Airport Parking Fees						
Car Parking Charges: 0-30 minutes					FREE	per stay
Car Parking Charges: 30-60 minutes	$2.50	$2.73	$0.27	$3.00	20.00%	Per Hour
Terminal Public Car Park First 30 mins free						
Car Parking Charges: 1-2 hours	$0.00	$5.45	$0.55	$6.00	∞	per hour
Car Parking Charges: 2-3 hours	$0.00	$8.18	$0.82	$9.00	∞	per hour
Car Parking Charges: 3-4 hours	$0.00	$10.91	$1.09	$12.00	∞	per hour
Car Parking Charges: 4-5 hours	$0.00	$13.64	$1.36	$15.00	∞	per hour

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Airport Parking Fees [continued]						
Car Parking Charges: Full Day (5 to 24 hours from time of entry)	$15.00	$13.64	$1.36	$15.00	0.00%	Per Day
Terminal Public Car Park Discounted fees apply for longer term parking						
Car Parking Charges: 2 days	$0.00	$27.27	$2.73	$30.00	∞	per stay
Car Parking Charges: 3 days	$0.00	$40.91	$4.09	$45.00	∞	per stay
Car Parking Charges: 4 days	$0.00	$50.00	$5.00	$55.00	∞	per stay
Car Parking Charges: 5 days	$0.00	$59.09	$5.91	$65.00	∞	per stay
Car Parking Charges: 6 days	$0.00	$68.18	$6.82	$75.00	∞	per stay
Car Parking Charges: 7 days	$0.00	$77.27	$7.73	$85.00	∞	per stay
Car Parking Charges: Greater than 7 days				$85.00 plus $5.00 per day thereafter		per stay
Lost Parking Ticket	$0.00	$54.55	$5.45	$60.00	∞	per ticket
Car Parking Charges – Credit Card Service Fee		2.5% Charge applies to payments made by credit card				Each

Environmental Testing

Water Analysis

Minimum Invoice/report fee will be $50 (incl GST). Price may vary in accordance with various programs undertaken.

Activated Sludge Analysis	$122.00	$113.73	$11.37	$125.10	2.54%	each
UV Absorbance/UV Transmission	$14.00	$13.09	$1.31	$14.40	2.86%	each
Administration Fee	$39.00	$36.36	$3.64	$40.00	2.56%	per sample batch
Extensive Report Fee	$77.00	$71.82	$7.18	$79.00	2.60%	per sample batch
Re-issue of Reports	$39.00	$36.36	$3.64	$40.00	2.56%	per sample batch
Sample Preparation Fee For Complex Matrix	$29.00	$27.09	$2.71	$29.80	2.76%	each
Urgent Analysis (if possible) Incurs a Surcharge				Price on Application		POA
Weekend Analysis Incurs a Surcharge				Price on Application		POA
Alkalinity	$24.00	$22.45	$2.25	$24.70	2.92%	each
Ammonia (includes filtration charge)	$24.00	$22.45	$2.25	$24.70	2.92%	each
Total BOD5	$68.00	$63.45	$6.35	$69.80	2.65%	each
Biovolume (literature and or historical values only)	$29.00	$27.09	$2.71	$29.80	2.76%	each
Biovolume (literature and or historical + measurement)	$58.00	$54.09	$5.41	$59.50	2.59%	each
Chlorophyll – a	$62.00	$57.82	$5.78	$63.60	2.58%	each
Colour (apparent)	$15.00	$14.00	$1.40	$15.40	2.67%	each
Colour (true)	$17.00	$15.91	$1.59	$17.50	2.94%	each

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Water Analysis [continued]						
Dissolved Oxygen	$14.00	$13.09	$1.31	$14.40	2.86%	each
Electrical Conductivity	$14.00	$13.09	$1.31	$14.40	2.86%	each
Enterococci (confirmed)	$48.00	$44.73	$4.47	$49.20	2.50%	each
Thermotolerant Coliforms (presumptive)	$48.00	$44.73	$4.47	$49.20	2.50%	each
Thermotolerant Coliforms (confirmed)	$62.00	$57.82	$5.78	$63.60	2.58%	each
Fluoride	$29.00	$27.09	$2.71	$29.80	2.76%	each
Microscopic Identification	$55.00	$51.27	$5.13	$56.40	2.55%	each
Nitrite – N (includes filtration charge)	$24.00	$22.45	$2.25	$24.70	2.92%	each
Nitrate – N (calculated from NOx and Nitrite)	$36.00	$33.64	$3.36	$37.00	2.78%	each
NOx – N (includes filtration charge)	$36.00	$33.64	$3.36	$37.00	2.78%	each
Nitrate (if NOx and Nitrite also reported)	$6.00	$5.64	$0.56	$6.20	3.33%	each
Total Suspended Solids	$24.00	$22.45	$2.25	$24.70	2.92%	each
Filterable Reactive Phosphorus (includes filtration charge)	$24.00	$22.45	$2.25	$24.70	2.92%	each
Other Services					By quotation	each
pH	$14.00	$13.09	$1.31	$14.40	2.86%	each
Redox	$18.00	$16.82	$1.68	$18.50	2.78%	each
Salinity	$14.00	$13.09	$1.31	$14.40	2.86%	each
Sample Collection (water)	$144.00	$134.18	$13.42	$147.60	2.50%	per hour
1 person on run						
Sample Collection (gas)	$116.00	$108.09	$10.81	$118.90	2.50%	per hour
1 person on run						
Sample Containers					Included in testing fees	
Total Chlorine	$21.00	$19.64	$1.96	$21.60	2.86%	each
Free Chlorine	$21.00	$19.64	$1.96	$21.60	2.86%	each
Total Dissolved Solids (Calculation)	$14.00	$13.09	$1.31	$14.40	2.86%	each
Total Kjeldahl Nitrogen – N	$78.00	$72.73	$7.27	$80.00	2.56%	each
Total Kjeldahl Nitrogen – N (Calculated if TN and NOx also reported)	$6.00	$5.64	$0.56	$6.20	3.33%	each
Total Organic Nitrogen – N (Calculated TKN – NH3)	$29.00	$27.09	$2.71	$29.80	2.76%	each
Total Phosphorous (persulphate digestion)	$36.00	$33.64	$3.36	$37.00	2.78%	each
Total Nitrogen (persulphate digestion)	$42.00	$39.18	$3.92	$43.10	2.62%	each
Turbidity	$14.00	$13.09	$1.31	$14.40	2.86%	each
Cyanobacteria Identification & Enumeration	$122.00	$113.73	$11.37	$125.10	2.54%	each
Potentially Toxic Cyanobacteria Identification & Enumeration	$82.00	$76.45	$7.65	$84.10	2.56%	each

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Water Analysis [continued]

Total Phytoplankton Identification & Enumeration	$177.00	$165.00	$16.50	$181.50	2.54%	each
Total Coliforms & E. coli (MPN)	$68.00	$63.45	$6.35	$69.80	2.65%	each
Chemical Oxygen Demand	$47.00	$43.82	$4.38	$48.20	2.55%	each
Heterotrophic Plate Count (HPC)	$37.00	$34.55	$3.45	$38.00	2.70%	each

The Glasshouse

Glasshouse Port Macquarie

Refer also to Conditions of Hire (available on website www.glasshouse.org.au)

Refer to Appendix 10

Performance Spaces

Full Theatre Hire (hire per performance or event)	$390.00	$354.55	$35.45	$390.00	0.00%	per hour
As per standard rates as costed or 10% of Gross Box Office taking (whichever is the greater). Includes A/C, cleaning, access to standard in-house lighting, 1 x Venue Supervisor / 1 x Theatre Technician 4 hour minimum hire						
Theatre Hire Stalls Only	$340.00	$309.09	$30.91	$340.00	0.00%	per hour
Includes A/C, cleaning, access to standard in-house lighting, 1 x Venue Supervisor / 1 x Theatre Technician 4 hour minimum hire						
Theatre Hire Rehearsal Rate (per hour)	$300.00	$272.73	$27.27	$300.00	0.00%	per hour
Includes 1 x Venue Supervisor and 1 x Technician. Excludes access to auditorium seating and theatre is under work lights only. 4 hour minimum hire						
Ross Family Studio Hire – Performance/Seminar	$90.00	$81.82	$8.18	$90.00	0.00%	per hour
Includes A/C, cleaning, access to standard in-house lighting and sound rig, 1 x Venue Supervisor 4 hour minimum hire						
Ross Family Studio 3 day hire – Performance Hire on 3 consecutive days for up to 7 hours* per day. Includes A/C, cleaning, access to standard in-house lighting and sound rig,and Venue Supervisor.	$0.00	$1,363.64	$136.36	$1,500.00	∞	Per Hire
Additional hours required on any day charged at $90/hour						
Ross Family Studio 5 day hire – Performance Hire on 5 consecutive days for up to 7 hours* per day. Includes A/C, cleaning, access to standard in-house lighting and sound rig,and Venue Supervisor.	$0.00	$2,045.45	$204.55	$2,250.00	∞	Per Hire
Additional hours required on any day charged at $90/hour						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Performance Spaces [continued]						
Ross Family Studio Hire Bare Walls (This mode is only available when combined with Theatre hire. Not available after hours. Flat rate of $180, then $30/hr thereafter)	$180.00	$163.64	$16.36	$180.00	0.00%	$180 Flat Rate + $30 Per Hour
Includes electricity, A/C, cleaning 4 hour minimum hire						
Ross Family Studio Hire (1/2 Day) – Meeting Only During Business Hours, Monday to Friday 9am – 5.30pm	$250.00	$227.27	$22.73	$250.00	0.00%	1/2 Day
Includes electricity, A/C, cleaning, table, chairs, 1/2 hr tech support on arrival only. AV Operator pre rig, set OR operation at additional cost. 10% surcharge on Sundays. 1/2 Day (max 4 hours)						
Ross Family Studio Hire (Full Day) – Meeting Only During Business Hours, Monday to Friday 9am – 5.30pm	$350.00	$318.18	$31.82	$350.00	0.00%	Full Day
Includes electricity, A/C, cleaning, table, chairs, 1/2 hr tech support on arrival only. AV Operator pre rig, set OR operation at additional cost. 10% surcharge on Sundays. Full Day (8 hours)						
Glasshouse Podium	$55.00	$50.00	$5.00	$55.00	0.00%	Per Hour
Includes 1 x Venue Supervisor for the duration of the booking. Power at additional charge. 10% surcharge for Sundays and Public Holidays. 3 hour minimum hire						
Mezzanine Theatre Presentation Package	$205.00	$186.36	$18.64	$205.00	0.00%	Per Hour
Only available in conjunction with hire of the mezzanine foyer. Includes data projector and screen and access to seating for a maximum 100 pax in the theatre dress circle. Please Note: additional staff charges may apply depending on scope of the event. 3 hour minimum hire						
Conference Spaces						
Meeting Room 1 OR 2 Hire (1/2 Day)	$150.00	$136.36	$13.64	$150.00	0.00%	1/2 Day
Includes electricity, A/C, cleaning, tables, chairs Max 4 hours						
Meeting Room 1 OR 2 Hire (Full Day)	$200.00	$181.82	$18.18	$200.00	0.00%	Full Day
Includes electricity, A/C, cleaning, tables, chairs 8 hours						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Conference Spaces [continued]						
Meeting Room 1 OR 2 Hire – After Hours (0 – 70 people, after business hours access inclusive of 1 staff). After Hours = 5.30pm – 11pm weekdays or 9am – 11pm Saturdays. Staff surcharges apply on Sundays, Public Holidays and after 11pm	$75.00	$68.18	$6.82	$75.00	0.00%	Per Hour
Includes electricity, A/C, cleaning, tables, chairs minimum 3 hours / price per hour						
Meeting Room 1 and 2 Combined Hire (1/2 Day)	$250.00	$227.27	$22.73	$250.00	0.00%	1/2 Day
Includes electricity, A/C, cleaning, tables, chairs Max 4 hours						
Meeting Room 1 and 2 Combined Hire (Full Day)	$350.00	$318.18	$31.82	$350.00	0.00%	Full Day
Includes electricity, A/C, cleaning, tables, chairs 8 hours						
Meeting Room 1 and 2 Combined Hire – After Hours (71 – 140 people, after business hours access inclusive of 1 staff). After Hours = 5.30pm – 11pm weekdays or 9am – 11pm Saturdays. Staff surcharges apply on Sundays, Public Holidays and after 11pm	$100.00	$90.91	$9.09	$100.00	0.00%	Per Hour
Includes electricity, A/C, cleaning, tables, chairs minimum 3 hours / price per hour						
Art Lab Room Hire 1/2 Day (Not available after hours)	$125.00	$113.64	$11.36	$125.00	0.00%	1/2 Day
Includes electricity, A/C, cleaning, tables, chairs Max 4 hours						
Art Lab Room Hire Full Day (Not available after hours)	$175.00	$159.09	$15.91	$175.00	0.00%	Full Day
Includes electricity, A/C, cleaning, tables, chairs 8 hours						
Small Function Room Hire (level 2) – 1/2 Day	$110.00	$100.00	$10.00	$110.00	0.00%	1/2 Day
16 people maximum. Includes electricity, A/C, cleaning, tables, chairs Max 4 hours						
Small Function Room Hire (level 2) – Full Day	$160.00	$145.45	$14.55	$160.00	0.00%	Full Day
16 people maximum. Includes electricity, A/C, cleaning, tables, chairs 8 hours						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Conference Spaces [continued]						
Board Room 2 (level 2) – 1/2 Day	$100.00	$90.91	$9.09	$100.00	0.00%	1/2 Day
8 people maximum. Includes electricity, A/C, cleaning, tables, chairs Max 4 hours						
Board Room 2 (level 2) – Full Day	$150.00	$136.36	$13.64	$150.00	0.00%	Full Day
8 people maximum. Includes electricity, A/C, cleaning, tables, chairs 8 hours						
Speakers Room (Level 2) – Full Day	$60.00	$54.55	$5.45	$60.00	0.00%	Full Day
4 people maximum, Includes electricity, A/C, cleaning, tables, chairs, WI-FI 8 hours						
Speakers Room (level 2) – Weekly Hire	$220.00	$200.00	$20.00	$220.00	0.00%	Per Week
4 people maximum, Includes electricity, A/C, cleaning, tables, chairs, WI-FI Monday to Friday, max 8 hours per day						
Regional Gallery Hire (Top Floor OR Ground Floor)	$100.00	$90.91	$9.09	$100.00	0.00%	Per Hour
Access to floor space subject to availability and exhibition restrictions - any set up required will be charged at applicable staff and equipment rates 3 hour minimum hire						
Foyer Hire (for event)	$100.00	$90.91	$9.09	$100.00	0.00%	Per Hour
Access to floor space - any set up required will be charged at applicable staff and equipment rates 3 hour minimum hire						
Foyer Hire (for set up by Hirer)	$50.00	$45.45	$4.55	$50.00	0.00%	Per Hour
Access to floor space by Hirer - any equipment set up required will be charged at applicable staff and equipment rates 1 hour minimum hire						
AV Package (Mezzanine Foyer)	$340.00	$309.09	$30.91	$340.00	0.00%	Per Day
Includes hire of a data projector, lectern and microphone OR radio mic, laptop, staging, PA system, LED lights, tabs and screen. (Operator is extra and charged at the published hourly rate IF required)						
Whole of Venue: Includes access to Theatre, Studio, Meeting Room 1 & 2, Small Function Room, Mezzanine Foyer, 3 x staff					By quotation	Per Day
Subject to availability						
Additional dressing room activation	$200.00	$181.82	$18.18	$200.00	0.00%	Per Hire/Event
Only available when combined with theatre hire Includes electricity, A/C, cleaning						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Staff Rates

Staff working conditions include the following - Minimum 3 hr call, plus staff must be allowed a meal break no later than 5 hours after commencement, all missed meal breaks will incur A/H charges until meal break is taken.

Rates are per hour.

Venue Supervisor / Technician / Duty Manager / Gallery Technician (Monday – Saturday)	$55.00	$50.00	$5.00	$55.00	0.00%	Per Hour
Usher / Tour Guide / Merchandise Seller (Monday – Saturday)	$50.00	$45.45	$4.55	$50.00	0.00%	Per Hour
Venue Supervisor / Technician / Duty Manager / Gallery Technician (Sunday)	$60.00	$54.55	$5.45	$60.00	0.00%	Per Hour
Usher / Tour Guide / Merchandise Seller (Sunday)	$55.00	$50.00	$5.00	$55.00	0.00%	Per Hour
Venue Supervisor / Technician / Duty Manager / Gallery Technician (Public Holiday)	$70.00	$63.64	$6.36	$70.00	0.00%	Per Hour
Usher / Tour Guide / Merchandise Seller (Public Holiday)	$60.00	$54.55	$5.45	$60.00	0.00%	Per Hour

Miscellaneous Fees

Function Package					By quotation	
Customised Package						
Marketing Packages					By quotation	
Photography Packages (access to non-public venues)					By quotation	
Wedding Ceremony Packages					By quotation	
Merchandising					15% of total sales. Fixed Percentage	
Commission on any goods sold within the premises						
Technical Specifications Late Fee	$50.00	$45.45	$4.55	$50.00	0.00%	Per Day

Business Sense Packages

Only available during business hours: 8.30 am to 5.30 pm, catering as per set menu, minimum numbers apply, contact Glasshouse for further information.

1/2 Day

Includes Meeting Room 1 & 2 combined, technical assistance on arrival, morning OR afternoon tea, Glasshouse working lunch, free wi-fi, whiteboard, data projector, lectern & microphone, water & mints, room set to clients requirements.

Business Sense Package (minimum 20 delegates)	$42.00	$40.00	$4.00	$44.00	4.76%	Per Person
Includes: conference from hire set to clients requirements, technical assistance on arrival, data projector, laptop, Wi-Fi, lectern and microphone, whiteboard, water and mints on tables. Catering included: arrival tea and coffee, morning tea, working lunch with fruit platter, afternoon tea						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Full Day						
Includes Meeting Room 1 & 2 combined, technical assistance on arrival, morning tea, afternoon tea, Glasshouse working lunch, free wi-fi, whiteboard, data projector, lectern & microphone, water & mints, room set to clients requirements.						
Business Sense Package (minimum 20 delegates)	$46.00	$43.64	$4.36	$48.00	4.35%	Per Person
Includes: conference from hire set to clients requirements, technical assistance on arrival, data projector, laptop, Wi-Fi, lectern and microphone, whiteboard, water and mints on tables. Catering included: arrival tea and coffee, morning tea OR afternoon tea, working lunch with fruit platter						
Audio Visual Conference Packages						
Specialised Web Streaming & Recording Technology for Online/Live Video Conferencing. Supported by GoTo Meetings.						
Package A	$550.00	$500.00	$50.00	$550.00	0.00%	Per Day
Includes equipment, set-up, testing, data allowance and operator for duration						
Package B	$1,150.00	$1,045.45	$104.55	$1,150.00	0.00%	Per Day
Includes Package A plus live screen shots from other venues, plus additional staff, cameras and leads						
Package C	$375.00	$340.91	$34.09	$375.00	0.00%	Per Event
Includes recording of live event and web feeds, 3 hours of editing, media and equipment. (Staff/operator not included)						
Venue Set Up Items						
Theatre PA	$100.00	$100.00	$10.00	$110.00	10.00%	Per Hire
Dance Floor (Tarkett)	$180.00	$181.82	$18.18	$200.00	11.11%	Per Hire
Theatre Forestage / Pit	$385.00	$350.00	$35.00	$385.00	0.00%	Per Hire
Radio Microphone – Hand held OR lapel	$55.00	$50.00	$5.00	$55.00	0.00%	Per Day
Radio Microphone – Headset (Radio Mic + DPA Microphone)	$100.00	$90.91	$9.09	$100.00	0.00%	Per Day
Data Projector – Meeting Rooms & Studio	$150.00	$136.36	$13.64	$150.00	0.00%	Per Day
Data Projector + Screen – Theatre	$310.00	$281.82	$28.18	$310.00	0.00%	Per Day
Small PA	$50.00	$72.73	$7.27	$80.00	60.00%	Per Day
Corded Microphone & Speaker						
Medium PA	$100.00	$118.18	$11.82	$130.00	30.00%	Per Day
Includes corded microphone (and lectern where required), CD player, mixing desk, left & right speakers and small stage						
Large PA	$165.00	$181.82	$18.18	$200.00	21.21%	Per Day
Includes 1 x radio microphone, 1 x corded microphone (and lectern where required), 2 CD players, mixing desk, left & right speakers, 2 foldback sends. Requires operator at relevant hourly staff charges						
Colour Filters for Lighting	$22.00	$20.00	$2.00	$22.00	0.00%	Per 1/2 Sheet
Non standard lighting rig						
Lectern with Microphone (Wired)	$55.00	$50.00	$5.00	$55.00	0.00%	Per Day

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Venue Set Up Items [continued]						
Screen (8ft x 12ft)	$100.00	$90.91	$9.09	$100.00	0.00%	Per Day
Other Miscellaneous Technical or Event Items					By negotiation	
Subject to equipment & availability						
Arcus Picture Hanging System	$200.00	$181.82	$18.18	$200.00	0.00%	Per Hire
Preview Monitor	$20.00	$18.18	$1.82	$20.00	0.00%	Per Day
White Board					No charge	
Laser Pointer	$11.00	$10.00	$1.00	$11.00	0.00%	Per Hire
Presentation Mouse	$16.50	$15.00	$1.50	$16.50	0.00%	Per Hire
Orchestral Chairs					No charge	
40 available						
Music Stands					No charge	
50 available (short & tall)						
Grand Piano – Yamaha C7	$300.00	$272.73	$27.27	$300.00	0.00%	Per Hire
Does not include Tuning						
Digital Piano – Clarinova Baby Grand	$150.00	$136.36	$13.64	$150.00	0.00%	Per Hire
Piano Tuning	$210.00	$190.91	$19.09	$210.00	0.00%	Per Request
Rostrum / Risers	$10.00	$9.09	$0.91	$10.00	0.00%	Per Unit Per Hire
10 units available for hire						
Mirror Ball	$55.00	$50.00	$5.00	$55.00	0.00%	Per Hire
Smoke / Haze Machine	$75.00	$68.18	$6.82	$75.00	0.00%	Per Hire
Round Table Cloths (White)	$4.00	$3.64	$0.36	$4.00	0.00%	Each
Rectangle Table Cloths (Charcoal, fitted)	$6.50	$5.91	$0.59	$6.50	0.00%	Each
Laptop	$100.00	$90.91	$9.09	$100.00	0.00%	Per Unit Per Day
2 units available for hire (running Windows 7)						
Apple MAC	$100.00	$90.91	$9.09	$100.00	0.00%	Per Unit Per Day
2 units available for hire						
Modem	$50.00	$45.45	$4.55	$50.00	0.00%	Per Modem Per Day
240v Power (Podium)	$37.00	$36.36	$3.64	$40.00	8.11%	Per Day
Requires Technician to provide access. All leads must be tested and tagged.						
3-Phase Power (Loading Dock)	$74.00	$72.73	$7.27	$80.00	8.11%	Per Day
Requires Technician to provide access. All leads must be tested and tagged.						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Video Recording Packages						
Event/Show Recording for Archival Purposes	$250.00	$227.27	$22.73	$250.00	0.00%	Per Event/Show
1 x camera and audio feed, no editing						
Event/Show Recording for Full Show Quality	$300.00	$272.73	$27.27	$300.00	0.00%	Per Event/Show
2 x cameras, audio feed, no editing. This service requires an operator for the show call which will be an additional charge at the published hourly rate. Staff charges would be per day for the duration of the event if recording required on multiple days.						
Recording for a Conference or Symposium	$350.00	$318.18	$31.82	$350.00	0.00%	Per Day/Session
3 x cameras, including Go Pro on lectern, audio feed, no editing. This service requires an operator for the event duration which will be an additional charge at the published hourly rate. Staff charges would be per day for the duration of the event if recording required on multiple days.						
Editing Services (for Recordings Produced by Glasshouse)	$55.00	$50.00	$5.00	$55.00	0.00%	Per Hour
DVD Production (for recordings produced by the Glasshouse)					Price on Application	Per DVD
Transaction Fees						
Glasshouse Membership Program Fee – Adult	$49.00	$44.55	$4.45	$49.00	0.00%	Each
Glasshouse Membership Program Fee – Adult Couple	$0.00	$71.82	$7.18	$79.00	∞	Per Couple
Glasshouse Membership Program Fee – Concession/Under 21/Student	$44.00	$40.00	$4.00	$44.00	0.00%	Each
Proof of age/concession required						
Glasshouse Membership Program Fee – Concession/Under 21/Student – Couple	$0.00	$67.27	$6.73	$74.00	∞	Each
Proof of age/concession required						
Internet Transaction Fee	$3.00	$3.18	$0.32	$3.50	16.67%	Per Transaction
Inclusive of postage fee when tickets are purchased more than 14 days prior to the event.						
Counter Transaction Fee	$3.00	$2.73	$0.27	$3.00	0.00%	Per Transaction
Telephone Transaction Fee	$5.00	$5.00	$0.50	$5.50	10.00%	Per Transaction
Inclusive of postage fees when tickets are purchased more than 14 days prior to the event.						
Member Transaction Fee	No Charge - Available to current Glasshouse members (excludes online fees)					Per Transaction
Ticket Re-issue Fee (non-members)	$1.00	$0.91	$0.09	$1.00	0.00%	Per Ticket
Ticket Re-issue Fee (members)					No Charge	Per Ticket
Exchange Fee (non-members)	$1.00	$0.91	$0.09	$1.00	0.00%	Per Ticket
Exchange Fee (members)					No Charge	Per Ticket

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Transaction Fees [continued]						
Administration Fee	$5.00	$4.55	$0.45	$5.00	0.00%	Per Transaction
Postage Fee	$2.00	$1.82	$0.18	$2.00	0.00%	Per Transaction
Membership Processing Fee					No charge	Per Transaction
Applicable for counter and telephone membership sales. Online membership sales incur standard internet transaction fees						
Donations Processing Fee					No charge	Per Transaction
Booking Fees						
Ticket Price $0.01 – $20.00	$2.00	$1.82	$0.18	$2.00	0.00%	Per Ticket Printed
Ticket Price $20.01 – $50.00	$3.50	$3.18	$0.32	$3.50	0.00%	Per Ticket Printed
Ticket Price $50.01 – $75.00	$4.50	$4.09	$0.41	$4.50	0.00%	Per Ticket Printed
Ticket Price $75.01 – $100.00	$5.50	$5.00	$0.50	$5.50	0.00%	Per Ticket Printed
Ticket Price $100.01 +				Price on application - From $6.00		POA
Cancellation Fee Ticket Price $0.01 – $20.00	$2.00	$1.82	$0.18	$2.00	0.00%	Per Ticket
Cancellation Fee Ticket Price $20.01 – $50.00	$3.50	$3.18	$0.32	$3.50	0.00%	Per Ticket
Cancellation Fee Ticket Price $50.01 – $75.00	$4.50	$4.09	$0.41	$4.50	0.00%	Per Ticket
Cancellation Fee Ticket Price $75.01 – $100.00	$5.50	$5.00	$0.50	$5.50	0.00%	Per Ticket
Cancellation Fee Ticket Price $100.01 +				Price on application - From $6.00		POA
Complimentary Tickets	$1.00	$0.91	$0.09	$1.00	0.00%	Per Ticket
Bulk Ticket Print	$1.50	$1.36	$0.14	$1.50	0.00%	Per Ticket
Returned Bulk Tickets	$0.50	$0.45	$0.05	$0.50	0.00%	Per Returned Ticket
External Ticketing Event Set-up Fee	$55.00	$50.00	$5.00	$55.00	0.00%	Per Booking
This will be redeemable to the promoter after the sale of 25 tickets.						
Ticketing Event Amendment Fee	$55.00	$50.00	$5.00	$55.00	0.00%	Per Hour
Relates to changes in event ticketing requirements post on sale date						
Transport Tickets	$10.00	$9.09	$0.91	$10.00	0.00%	Per Booking
Maximum of 6 tickets						
Miscellaneous Ticket / Merchandise Packages					Price on Application	Per Ticket
Event and Conference Registration					Price on Application	Per Delegate

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Visitor Information Centre						
Miscellaneous						
Glasshouse Brochure Display Program	$250.00	$227.27	$22.73	$250.00	0.00%	Each
Accommodation						
Booking Commission					10% of booking	Per Booking
Cancellation – Within 7 days prior to arrival					Non refundable	Per Booking
Tour Bookings						
Booking Commission					10% of booking	Each
Cancellation – Within 7 days prior to departure – unless tour is cancelled by the operator					Non refundable	Per Booking

Strategic Landuse

Development Control Plans

Where Council has to prepare or assess

Preparation and / or review of a DCP	Fee determined by quotation based on full recovery	Estimate
Full cost recovery of external consultant fees and / or Council co-ordination / review costs		

Local Environment Plans

Where Council has to prepare or assess. Note: LEP amendments will be prioritised in accordance with Council policy and adopted strategy. There is no guarantee of the outcomes from the LEP process and fees are non-refundable.

Administrative LEP Amendments

E.g. Mapping anomalies and corrections

No Fee	No Charge	

Minor LEP Amendments and Reclassifications

No significant support studies for Council review

Minor LEP amendments and reclassifications	$12,230.00	$12,480.00	$0.00	$12,480.00	2.04%	Each
50% refundable if proposal is not supported by Council or the Gateway Review Panel						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Other LEP Amendments						
E.g. where a significant support study is required						
Stage 1: Lodgement and review	$15,290.00	$15,600.00	$0.00	$15,600.00	2.03%	Each
1) To be paid at the time of lodgement, 2) Charged for each party or group of parties represented separately in the planning proposal, 3) $1,000 discount on fee if pre-lodgement has been held in relation to the proposal						
Stage 2: Exhibition and finalisation	$10,190.00	$10,400.00	$0.00	$10,400.00	2.06%	Each
$10,400 up to 5Ha estimated developable area + $1,040/Ha up to 10Ha developable area + $520/Ha up to 20Ha developable area + $208/Ha over 20Ha developable area						
Council co-ordination of specialist study preparation or peer review						
External consultant fees and Council co-ordination costs	Fee determined by quotation based on full recovery					Estimate
Public Hearing						
Where required or requested						
Full cost recovery	Fee determined by quotation based on full recovery					Each

Deferred Developer Contributions

Development contributions are levied under various Contribution Plans in accordance with s7.11 of the *Environmental Planning & Assessment Act 1979*. Details of current development servicing plans and charges are available from Council's website or by contacting Council's Development Contributions Section on 6581 8686.

Development Contributions are indexed quarterly in line with movements in the CPI.

Preparation of Contributions Deferral Deed	$0.00	$500.00	$50.00	$550.00	∞	per Deed
Variation of a Contributions Deferral Deed or associated dealings including a review of Caveator's Consent or a request to vary the deferral deed template.	Fee determined by quotation based on full Recovery. Minimum charge $250< Min. Fee: $250.00					per Deed
Withdrawal of caveat associated with Contributions Deferral Deeds per lot created in the subdivision (Excluding lots to be dedicated to Council). Paid at the time of preparation of the Contributions Deferral Deed.	$0.00	$90.91	$9.09	$100.00	∞	per lot

Development Servicing Plans

Water Supply & Sewerage Headworks charges are levied under Development Servicing Plans prepared under the provisions of the *Water Management Act (NSW) 2000* pursuant to s64 of the *Local Government Act (NSW) 1993*.

Details of current development servicing plans and charges are available from Council's website or by contacting Council's Development Contributions Section on 6581 8686.	Charges are indexed quarterly in line with movements in the CPI.	

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Your Community Life

Community Participation

Halls/Community Centres

Alderman CC "Mac" Adams Music Centre

Miscellaneous

Hastings Municipal Band	$890.00	$825.45	$82.55	$908.00	2.02%	Per Annum
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	

Main Hall

Commercial & Other	$21.00	$20.00	$2.00	$22.00	4.76%	Per Hour
Private Functions					Not Available	
Not for Profit	$9.00	$13.64	$1.36	$15.00	66.67%	Per Hour

Practice Rooms

Commercial & Other	$13.00	$12.73	$1.27	$14.00	7.69%	Per Hour
Private Functions					Not Available	
Not for Profit	$7.50	$7.27	$0.73	$8.00	6.67%	Per Hour

Beechwood School of Arts

Commercial & Other	$21.00	$20.00	$2.00	$22.00	4.76%	Per Hour
Private Functions	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Not for Profit	$8.50	$8.18	$0.82	$9.00	5.88%	Per Hour
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	

Bonny Hills Community Hall

Commercial & Other	$21.00	$20.00	$2.00	$22.00	4.76%	Per Hour
Private Functions	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Not for Profit	$9.50	$9.09	$0.91	$10.00	5.26%	Per Hour
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Dunbogan Jubilee Hall						
Commercial & Other	$21.50	$20.00	$2.00	$22.00	2.33%	Per Hour
Private Functions	$16.50	$15.45	$1.55	$17.00	3.03%	Per Hour
Not for Profit	$9.50	$9.09	$0.91	$10.00	5.26%	Per Hour
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	
Emerald Downs Community Centre						
Hall						
Commercial & Other	$21.00	$20.00	$2.00	$22.00	4.76%	Per Hour
Private Functions	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Not for Profit	$10.50	$10.00	$1.00	$11.00	4.76%	Per Hour
Meeting Room						
Alcohol Not Permitted						
Commercial & Other	$13.80	$13.64	$1.36	$15.00	8.70%	Per Hour
Private Functions	$10.50	$10.00	$1.00	$11.00	4.76%	Per Hour
Not for Profit	$7.50	$7.27	$0.73	$8.00	6.67%	Per Hour
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Lake Cathie Community Hall						
Hall						
Commercial & Other	$22.00	$20.91	$2.09	$23.00	4.55%	Per Hour
Private Functions	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Not for Profit	$9.50	$9.09	$0.91	$10.00	5.26%	Per Hour
Meeting Room						
Commercial & Other	$17.00	$16.36	$1.64	$18.00	5.88%	Per Hour
Private Functions	$12.50	$11.82	$1.18	$13.00	4.00%	Per Hour
Not for Profit	$7.50	$7.27	$0.73	$8.00	6.67%	Per Hour
Other Fees						
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Laurieton School of Arts Hall						
Hall						
Commercial & Other	$21.00	$20.00	$2.00	$22.00	4.76%	Per Hour
Private Functions	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Not for Profit	$9.50	$9.09	$0.91	$10.00	5.26%	Per Hour
Other Fees						
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	
Lorne Recreation Centre						
Hall						
Commercial & Other	$21.00	$20.00	$2.00	$22.00	4.76%	Per Hour
Private Functions	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Not for Profit	$8.50	$8.18	$0.82	$9.00	5.88%	Per Hour
Other Fees						
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	
North Haven Community Hall						
Hall						
Commercial & Other	$21.50	$20.00	$2.00	$22.00	2.33%	Per Hour
Private Functions	$16.50	$15.45	$1.55	$17.00	3.03%	Per Hour
Not for Profit	$9.50	$9.09	$0.91	$10.00	5.26%	Per Hour
Other Fees						
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Pappinbarra Recreation Reserve						
Tennis Court & Facilities						
Commercial & Other	$10.50	$10.00	$1.00	$11.00	4.76%	Per Hour
Private Functions	$5.00	$5.45	$0.55	$6.00	20.00%	Per Hour
Not for Profit	$5.00	$5.45	$0.55	$6.00	20.00%	Per Hour
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
Pembrooke Hall						
Hall						
Commercial & Other	$21.00	$20.00	$2.00	$22.00	4.76%	Per Hour
Private Functions	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Not for Profit	$8.50	$8.18	$0.82	$9.00	5.88%	Per Hour
Other Fees						
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	
Port Macquarie Seniors' Facility						
Les Crisp Auditorium						
Commercial & Other	$33.00	$30.91	$3.09	$34.00	3.03%	Per Hour
Private Functions	$24.50	$22.73	$2.27	$25.00	2.04%	Per Hour
Not for Profit	$17.00	$16.36	$1.64	$18.00	5.88%	Per Hour
The Pioneer Room						
Commercial & Other	$21.00	$20.00	$2.00	$22.00	4.76%	Per Hour
Private Functions	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Not for Profit	$10.50	$10.00	$1.00	$11.00	4.76%	Per Hour
Marjorie "Nikki" Adams Lounge						
Commercial & Other	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Private Functions					Not Available	Per Hour
Not for Profit	$8.50	$8.18	$0.82	$9.00	5.88%	Per Hour
Other Fees						
Use of Tea Making Facilities	$7.50	$7.27	$0.73	$8.00	6.67%	Per Function

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Other Fees [continued]						
Kitchen (use of facilities)	$16.00	$15.45	$1.55	$17.00	6.25%	Per Function
Stove, fridge, bain-marie						
PMQ Senior's Club	$1,124.00	$1,042.73	$104.27	$1,147.00	2.05%	Per Month
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	
Wauchope Community Centre						
Hall						
Commercial & Other	$21.00	$20.00	$2.00	$22.00	4.76%	Per Hour
Private Functions	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Not for Profit	$9.50	$9.09	$0.91	$10.00	5.26%	Per Hour
Other Fees						
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	
Wauchope Rotary Youth Centre						
Hall						
Commercial & Other	$21.00	$20.00	$2.00	$22.00	4.76%	Per Hour
Private Functions	$16.00	$15.45	$1.55	$17.00	6.25%	Per Hour
Not for Profit	$8.50	$8.18	$0.82	$9.00	5.88%	Per Hour
Other Fees						
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	
Historic Court House						
Courtroom						
Other	$31.50	$30.00	$3.00	$33.00	4.76%	Per Hour
Commercial not permitted						
Private Functions	$24.00	$22.73	$2.27	$25.00	4.17%	Per Hour
Not for Profit	$10.50	$10.00	$1.00	$11.00	4.76%	Per Hour

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Courtroom [continued]						
General Admission – Adult	$2.00	$2.73	$0.27	$3.00	50.00%	Each
General Admission – Pensioner	$1.00	$1.82	$0.18	$2.00	100.00%	Each
General Admission – Children 0-11 years Accompanied by a paying Adult					No Charge	Each
General Admission – Children over 12 years	$0.50	$0.91	$0.09	$1.00	100.00%	Each
General Admission – Per Child (School Excursion)	$1.00	$1.82	$0.18	$2.00	100.00%	Each
Hire of Grounds						
Other	$316.00	$293.64	$29.36	$323.00	2.22%	Per Day
Commercial not permitted						
Private Functions	$209.00	$194.55	$19.45	$214.00	2.39%	Per Day
Not for Profit	$115.00	$107.27	$10.73	$118.00	2.61%	Per Day
General Bond	$204.00	$209.00	$0.00	$209.00	2.45%	Each
State & Federal Elections	$330.00	$306.36	$30.64	$337.00	2.12%	Per Election
Council Activities & Elections					No Charge	
Library						
Hire of Rooms						
Access Fee – Outside Library Hours						
Applies to Both Rooms				Cost recovery - set by security company		Each
Meeting Room						
Commercial Organisations	$15.00	$18.18	$1.82	$20.00	33.33%	Per Hour
Hastings Schools & Community Organisations	$10.00	$9.09	$0.91	$10.00	0.00%	Per Hour
Library / Council					No Charge	Each
Technology Training Room						
Commercial Organisations	$36.00	$36.36	$3.64	$40.00	11.11%	Per Hour
Hastings Schools & Community Organisations	$15.00	$13.64	$1.36	$15.00	0.00%	Per Hour
Library / Council					No Charge	
Hire of Both Rooms						
Commercial Organisations	$50.00	$54.55	$5.45	$60.00	20.00%	Per Hour

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Hire of Both Rooms [continued]						
Hastings Schools & Community Organisations	$20.00	$18.18	$1.82	$20.00	0.00%	Per Hour
Library / Council					No Charge	
Other Library Charges						
Computer Bookings						
Library Members					No Charge	Per Hour
Visitors	$2.00	$1.82	$0.18	$2.00	0.00%	Per 2 Hours
Photocopying						
Coin Slot Operation						
A4 & B4 page	$0.20	$0.18	$0.02	$0.20	0.00%	Per Page
A3 page	$0.50	$0.45	$0.05	$0.50	0.00%	Per Page
Other						
3D Printer – Prints	$0.00	$0.91	$0.09	$1.00	∞	per hour
Canvas Library Bags	$0.00	$1.82	$0.18	$2.00	∞	each
Inter-Library Loans – Application	$10.00	$9.09	$0.91	$10.00	0.00%	Each
Payable on application						
Inter-Library Loans – Urgent					Cost Recovery + $12.00	Each
Sent within 24 hours						
Fine at Account Stage	$5.00	$0.00	$0.00	$0.00	-100.00%	Per Item
After 2nd notice						
Reservations	$0.50	$0.50	$0.00	$0.50	0.00%	Per Item
Visitors Charges – Joining Fee – Adults/Children	$3.00	$3.00	$0.00	$3.00	0.00%	Each
Visitors Charges – Temporary Membership (20 items)	$10.00	$10.00	$0.00	$10.00	0.00%	Each
Lost or Damaged Books Beyond Repair					Cost of the Item	Each
Replacement of Lost Cards	$2.60	$2.60	$0.00	$2.60	0.00%	Each
Fax – Sending and Receiving (Australia Only)	$1.00	$0.91	$0.09	$1.00	0.00%	Per Page
Sale of Flash Drives	$10.00	$9.09	$0.91	$10.00	0.00%	Each
Headphones	$4.00	$3.64	$0.36	$4.00	0.00%	Each
Commercial Reference Service	$72.00	$72.73	$7.27	$80.00	11.11%	Per Hour or Part Thereof

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Sports & Recreation

Beach & Boating

Beach Driving Permit – 4WD Vehicles – Visitor	$31.00	$32.00	$0.00	$32.00	3.23%	Each
Beach Driving Permit Yearly – 4WD Vehicles	$62.00	$64.00	$0.00	$64.00	3.23%	Per Annum
Beach Driving Permit – 4WD Vehicles – Pensioner	$31.00	$32.00	$0.00	$32.00	3.23%	Per Annum
Use of Wharves by Commercial Operators	$16.00	$15.45	$1.55	$17.00	6.25%	Per Day
Private Works on Canals – Maintenance Permit	$150.00	$153.00	$0.00	$153.00	2.00%	Each
Boating Structure Licence Fee	$129.00	$132.00	$0.00	$132.00	2.33%	Per Annum

Commercial Activities on Council Managed Land

Parks, Reserves, Sports Fields and Beaches

New Application Fee	$145.00	$150.00	$0.00	$150.00	3.45%	Per Annum
Application Renewal Fee	$70.00	$75.00	$0.00	$75.00	7.14%	Per Annum
Temporary Licence (up to 2 nominated locations)	$470.00	$480.00	$0.00	$480.00	2.13%	Per Annum
Temporary Licence (per additional location)	$100.00	$100.00	$0.00	$100.00	0.00%	Per Additional Location
Applies if the applicant does not pay a business rate directly related to the Temporary Licence activity						
Temporary Licence (per additional location)	$50.00	$50.00	$0.00	$50.00	0.00%	Per Additional Location
Applies if the applicant pays a business rate directly related to the Temporary Licence activity						

Sporting Complexes

Camden Haven District Sport & Recreation Management Committee

Ground Levy

Little Athletics	$115.00	$107.27	$10.73	$118.00	2.61%	Each
Bonny Hills Cricket Club	$220.00	$204.55	$20.45	$225.00	2.27%	Each
Camden Haven Cricket	$220.00	$204.55	$20.45	$225.00	2.27%	Each
Camden Haven Bombers Junior AFL Club	$220.00	$204.55	$20.45	$225.00	2.27%	Each
Netball	$145.00	$136.36	$13.64	$150.00	3.45%	Each
Junior Rugby League	$220.00	$204.55	$20.45	$225.00	2.27%	Each
Soccer	$220.00	$204.55	$20.45	$225.00	2.27%	Each
Tennis	$145.00	$136.36	$13.64	$150.00	3.45%	Each
Touch Football	$220.00	$204.55	$20.45	$225.00	2.27%	Each

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Lights						
Soccer Field (each pole)	$5.50	$5.18	$0.52	$5.70	3.64%	Per Hour
Support Field (each pole)	$5.50	$5.18	$0.52	$5.70	3.64%	Per Hour
Oval	$23.00	$21.82	$2.18	$24.00	4.35%	Per Hour
Canteen Fee						
Outside groups	$25.00	$23.64	$2.36	$26.00	4.00%	Per Day
Plus Bond						
Outside groups – Bond	$50.00	$55.00	$0.00	$55.00	10.00%	Each
Refundable if left clean and undamaged						
Casual users – Per Day	$5.00	$5.45	$0.55	$6.00	20.00%	Per Day
Casual users – Per Season	$50.00	$50.00	$5.00	$55.00	10.00%	Per Season
Lank Bain Sporting Complex						
Group 2 Competition Matches	$1,120.00	$1,045.45	$104.55	$1,150.00	2.68%	Per Year
Hastings League Club Use – Field 1	$670.00	$627.27	$62.73	$690.00	2.99%	Per Year
Hastings League Club Use – Field 2	$390.00	$363.64	$36.36	$400.00	2.56%	Per Year
High School Use	$280.00	$263.64	$26.36	$290.00	3.57%	Per Year
Primary School Use	$280.00	$263.64	$26.36	$290.00	3.57%	Per Year
Cricket Club Use	$280.00	$263.64	$26.36	$290.00	3.57%	Per Year
Hastings League Controlled Fixtures	$112.00	$104.55	$10.45	$115.00	2.68%	Per Day
Junior Cricket	$280.00	$263.64	$26.36	$290.00	3.57%	Per Year
Lighting	$6.20	$5.82	$0.58	$6.40	3.23%	Per Pole Per Hour
Other Sporting Fields						
Lighting	$6.30	$5.91	$0.59	$6.50	3.17%	Per Pole Per Hour
Amenity Use – 1 canteen + 2 changerooms	$44.00	$40.91	$4.09	$45.00	2.27%	Per Day
Amenity Use – 1 canteen + 2 changerooms – 4 hours	$22.00	$20.91	$2.09	$23.00	4.55%	Half Day
Lighting reprogramming fee	$62.00	$58.18	$5.82	$64.00	3.23%	Each
Ground Fee – Commercial	$430.00	$400.00	$40.00	$440.00	2.33%	Per Day
Ground Fee – Commercial	$80.00	$77.27	$7.73	$85.00	6.25%	Per Hour
Unlock/Lock facilities fee	$62.00	$58.18	$5.82	$64.00	3.23%	Each
Wauchope Sporting Fields						
Blackbutt Reserve – Lighting – 8 lights on pole	$8.90	$8.27	$0.83	$9.10	2.25%	Per Pole Per Hour

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Wauchope Sporting Fields [continued]						
Blackbutt Reserve – Lighting – 4 lights on pole	$6.30	$5.82	$0.58	$6.40	1.59%	Per Pole Per Hour
Landrigan Park – Lighting	$6.30	$5.91	$0.59	$6.50	3.17%	Per Pole Per Hour
Fairmont Gardens – Lighting	$6.30	$5.91	$0.59	$6.50	3.17%	Per Pole Per Hour
Parks & Reserves						
Circuses, Carnivals & Major Events						
Ground Fee – Non Holidays						
Performance Days	$430.00	$400.00	$40.00	$440.00	2.33%	Per Day
Bump in/Bump out	$375.00	$350.00	$35.00	$385.00	2.67%	Per Day
Ground Hire Fees – School & Public Holidays						
Performance Days	$590.00	$550.00	$55.00	$605.00	2.54%	Per Day
Bump in/Bump out	$480.00	$445.45	$44.55	$490.00	2.08%	Per Day
Bonds						
Performance Bond	$6,000.00	$6,000.00	$0.00	$6,000.00	0.00%	Each
Power						
Power Use						
At Cost					At Cost	Per Day
Power – Access Fee						
Single Phase	$40.00	$37.27	$3.73	$41.00	2.50%	Per Day/Per Outlet
Three Phase	$80.00	$74.55	$7.45	$82.00	2.50%	Per Day/Per Outlet
General Use						
Application for Private Ceremony	$120.00	$111.82	$11.18	$123.00	2.50%	Per Application
2 hours maximum						
Ground Fee – General Use	$165.00	$154.55	$15.45	$170.00	3.03%	Per Day
Ground Fee – Commercial Use	$430.00	$400.00	$40.00	$440.00	2.33%	Per Day
Ground Fee – Charitable					No Charge	Per Day

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
General Use [continued]						
Performance Bond				$2,000 - $6,000 Determined according to event		Per Event
Application to Stage an Event – All Applicants	$120.00	$123.00	$0.00	$123.00	2.50%	Per Application
Application for Filming on Public Lands	$60.00	$60.00	$0.00	$60.00	0.00%	Per Application
Access of Reserve for Private Works – Performance Bond	$2,000.00	$2,000.00	$0.00	$2,000.00	0.00%	Per Application
Electrical Call Out Fee					At Cost	Per Hour
Stadiums						
Port Macquarie Indoor Stadium						
Stadium Hire Costs						
Monthly Ticket						
Badminton N/A	$25.50	$24.09	$2.41	$26.50	3.92%	Each
Casual Play						
Basketball, Volleyball, Futsal, Netball, Other	$3.05	$3.18	$0.32	$3.50	14.75%	Each / Per Hour
Badminton	$8.15	$7.73	$0.77	$8.50	4.29%	Each / Per Hour
Badminton – Seniors	$8.15	$7.73	$0.77	$8.50	4.29%	Each / Per Hour
Equipment Hire						
Balls & Racquets	$2.05	$2.27	$0.23	$2.50	21.95%	Each
Shuttles	$1.50	$1.82	$0.18	$2.00	33.33%	Each
Court Hire						
Local Clubs and Associations Peak Time						
Badminton	$20.40	$19.55	$1.95	$21.50	5.39%	Per Hour
Basketball, Volleyball, Soccer (Indoor), Netball	$45.85	$43.64	$4.36	$48.00	4.69%	Per Hour
Local Clubs and Associations Off Peak Times						
Badminton	$20.40	$19.55	$1.95	$21.50	5.39%	Per Hour
Basketball, Volleyball, Soccer (Indoor), Netball	$35.65	$33.64	$3.36	$37.00	3.79%	Per Hour

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Other Groups						
Badminton	$25.50	$24.09	$2.41	$26.50	3.92%	Per Hour
Basketball, Volleyball, Soccer (Indoor), Netball	$50.95	$48.18	$4.82	$53.00	4.02%	Per Hour
Hire of Stadium						
Cleaning						
Extra Cleaning	$30.55	$29.09	$2.91	$32.00	4.75%	Per Hour
Inclusive						
6 Courts	$3,300.00	$3,118.18	$311.82	$3,430.00	3.94%	Per Day
3 Courts	$1,830.00	$1,736.36	$173.64	$1,910.00	4.37%	Per Day
Restricted						
6 Courts	$305.00	$290.91	$29.09	$320.00	4.92%	Per Hour
3 Courts	$160.00	$154.55	$15.45	$170.00	6.25%	Per Hour
Schools						
Supervision Required	$5.10	$5.00	$0.50	$5.50	7.84%	Each
Supervision NOT Required	$4.10	$4.09	$0.41	$4.50	9.76%	Each
School Holiday Program						
8.30am to 12.30pm	$20.40	$19.09	$1.91	$21.00	2.94%	Per Half Day
8.30am to 5pm – Including morning tea	$30.55	$29.09	$2.91	$32.00	4.75%	Per Session
After School Care						
Per 12 children						
On Site	$61.15	$57.73	$5.77	$63.50	3.84%	Per Hour
Multi Sport Competition						
Nomination	$152.85	$145.45	$14.55	$160.00	4.68%	Per Team
18 Weeks						
Plus Weekly Game Fee	$56.05	$52.73	$5.27	$58.00	3.48%	Per Team
18 Weeks						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Volleyball Competition						
Nomination	$101.90	$96.36	$9.64	$106.00	4.02%	Per Team
Plus Weekly Game Fee	$45.85	$43.18	$4.32	$47.50	3.60%	Per Team
Ultimate Disc Competition						
Nomination	$101.90	$96.36	$9.64	$106.00	4.02%	Per Team
plus Weekly Game Fee	$45.85	$43.18	$4.32	$47.50	3.60%	Per Team
Mixed Netball/Fast 5 Competition						
Nomination	$40.75	$38.64	$3.86	$42.50	4.29%	Per Team
18 Weeks						
plus Weekly Game Fee	$40.75	$38.64	$3.86	$42.50	4.29%	Per Team
18 Weeks						
Birthday Parties						
Supervised 2 hour booking	$152.85	$145.45	$14.55	$160.00	4.68%	Per 2 hour booking
Up to 20 children						
Unsupervised (private) 2 hours	$101.90	$96.36	$9.64	$106.00	4.02%	Per 2 hour booking
Up to 20 children						
Meeting Rooms						
Room 1	$25.50	$24.09	$2.41	$26.50	3.92%	Per Hour
Room 2	$15.30	$14.55	$1.45	$16.00	4.58%	Per Hour
Port Macquarie Regional Sports Stadium						
Special Event / Social					10% gate takings	
Charity (on application)	$80.00	$77.27	$7.73	$85.00	6.25%	Per Day
Junior Sporting Groups	$120.00	$113.64	$11.36	$125.00	4.17%	Per Use
Hastings League	$120.00	$113.64	$11.36	$125.00	4.17%	Per Use
Group 2 / 3 Rugby League	$240.00	$222.73	$22.27	$245.00	2.08%	Per Use
Casual Users	$450.00	$418.18	$41.82	$460.00	2.22%	Per Day
Lighting	$39.00	$36.36	$3.64	$40.00	2.56%	Per Hour
Refundable Bonds and Deposits						
Cleaning					$500-$5,000	Each
Ground damage					$2,000 - $6,000 Determined according to event	Each

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Refundable Bonds and Deposits [continued]						
Property Loss					$500-$5,000	Each
Removal of rubbish					$500-$5,000	Each
Structural damage					$500-$5,000	Each
Regular users – Annual Bond	$650.00	$650.00	$0.00	$650.00	0.00%	Each
Regular users – Key Deposits	$64.00	$65.50	$0.00	$65.50	2.34%	Each
Regular users – Schools/Charity	$26.50	$27.00	$0.00	$27.00	1.89%	Each
Refund Subject to Application						
Council reserves the right to deduct all cleaning costs						
Wauchope Indoor Stadium						
Main Stadium (all courts)						
Commercial, private or other	$47.00	$43.64	$4.36	$48.00	2.13%	Per Hour
Not for profit, sporting groups, community groups	$23.50	$21.82	$2.18	$24.00	2.13%	Per Hour
Downstairs Studio						
Commercial, private or other	$15.70	$14.64	$1.46	$16.10	2.55%	Per Hour
Not for profit, sporting groups, community groups	$7.90	$7.36	$0.74	$8.10	2.53%	Per Hour
Upstairs Studio						
Commercial, private or other	$32.00	$0.00	$0.00	$0.00	-100.00%	Per Hour
Not for profit, sporting groups, community groups	$16.00	$0.00	$0.00	$0.00	-100.00%	Per Hour
Whole Stadium						
Non sporting						
Per Hour	$105.00	$100.00	$10.00	$110.00	4.76%	Per Hour
Per Day	$850.00	$790.91	$79.09	$870.00	2.35%	Per Day
Refundable Bonds and Deposits						
Performance Bond		$2,000 minimum determined according to event				Per Event
Cleaning					$500-$5,000	Each
Regular users – Key Deposits	$66.00	$67.50	$0.00	$67.50	2.27%	Each

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Swimming Pools

Kendall, Laurieton and Wauchope

Spectator admission	$1.50	$1.45	$0.15	$1.60	6.67%	Each
General Admission	$4.30	$4.00	$0.40	$4.40	2.33%	Each
Book of 20 tickets	$74.00	$68.64	$6.86	$75.50	2.03%	Each
Book of 50 tickets	$160.00	$148.18	$14.82	$163.00	1.88%	Each
School Groups	$3.90	$3.64	$0.36	$4.00	2.56%	Per Person
Teachers and carers free. No lane hire						
School Carnivals	$4.30	$4.00	$0.40	$4.40	2.33%	Per Person
Teachers and carers free. No lane hire						
Daycare and Disability Groups	$4.30	$4.00	$0.40	$4.40	2.33%	Per Person
Carers free. No lane hire						
Swim Club	$4.30	$4.00	$0.40	$4.40	2.33%	Per Person
No Lane Hire Fees						
Lane Hire	$30.00	$28.18	$2.82	$31.00	3.33%	Per Hour/per 50 metres of lane space
Per 50 Metres of Lane Space - Per Hour						

Port Macquarie

Spectator admission	$1.50	$1.45	$0.15	$1.60	6.67%	Each
General Admission	$4.80	$4.45	$0.45	$4.90	2.08%	Each
Book of 20 tickets	$80.00	$74.55	$7.45	$82.00	2.50%	Each
Book of 50 tickets	$185.00	$172.73	$17.27	$190.00	2.70%	Each
School Groups	$4.40	$4.09	$0.41	$4.50	2.27%	Per Person
Teachers and carer free. No lane hire						
School Carnivals	$4.80	$4.45	$0.45	$4.90	2.08%	Per Person
Teachers and carers free. No lane hire						
Daycare and Disability Groups	$4.80	$4.45	$0.45	$4.90	2.08%	Per Person
Carers Free. No lane hire						
Swim Club	$4.80	$4.45	$0.45	$4.90	2.08%	Per Person
No lane hire fees						
Masters Swim Club	$5.90	$5.55	$0.55	$6.10	3.39%	Per Person
Out of hours. No lane hire fees.						
Lane Hire – 1x lane of 50m pool	$30.00	$28.18	$2.82	$31.00	3.33%	Per Hour/per 50 metres of lane space
Per hour, per 50 metres of lane space						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Crematorium & Cemeteries

Port Macquarie Hastings Cemeteries & Innes Gardens Crematorium

Refer to Appendix 11

Cremation

Cremation	$831.00	$831.82	$83.18	$915.00	10.11%	Each
Child (4 weeks to 12 years)	$481.00	$481.82	$48.18	$530.00	10.19%	Each
Child (under 4 weeks)	$180.00	$180.00	$18.00	$198.00	10.00%	Each

Chapel

Chapel Hire	$256.00	$256.36	$25.64	$282.00	10.16%	Per Hour
Per hour or part thereof - minimum hire charge is 1.25 hours						

Inurnment of Ashes

Rose Garden Inurnment	$1,740.00	$1,740.00	$174.00	$1,914.00	10.00%	Each
Rose Garden Reservation	$1,245.00	$1,245.45	$124.55	$1,370.00	10.04%	Each
Tree Garden Inurnment	$1,740.00	$1,740.00	$174.00	$1,914.00	10.00%	Each
Tree Garden Reservation	$1,245.00	$1,245.45	$124.55	$1,370.00	10.04%	Each
Baby Garden (up to 12 yrs)	$875.00	$875.45	$87.55	$963.00	10.06%	Each
Conifer Garden (inurnment for 2)	$3,700.00	$3,700.00	$370.00	$4,070.00	10.00%	Each
Conifer Garden (inurnment for 3)	$4,600.00	$4,600.00	$460.00	$5,060.00	10.00%	Each
Additional placements in Conifer Gardens	$1,740.00	$1,740.00	$174.00	$1,914.00	10.00%	Each
Family Memorial Garden (provision for 4)	$15,165.00	$15,165.45	$1,516.55	$16,682.00	10.00%	Each
Additional placements in Family Gardens	$1,740.00	$1,740.00	$174.00	$1,914.00	10.00%	Each
Wall Niche Inurnment	$1,161.00	$1,161.82	$116.18	$1,278.00	10.08%	Each
Wall Niche Reservation	$675.00	$675.45	$67.55	$743.00	10.07%	Each
Plaques for above	$485.00	$485.45	$48.55	$534.00	10.10%	Each
Loving Memories Wall of Remembrance Plaque	$550.00	$550.00	$55.00	$605.00	10.00%	Each
Loving Memories Base Position	$470.00	$470.00	$47.00	$517.00	10.00%	Each
Reserve Site Loving Memories Memorial Wall Admin Fee	$55.00	$54.55	$5.45	$60.00	9.09%	Each
Garden of Eternity Scatter Garden					Price on Application	Each
Includes scatter of ash						
Postage					Price on Application	Each
Scatter of Ash					Price on Application	Each

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Extras						
Family Ash Placement by Appointment					Price on Application	Each
Family Memorial Garden Refurbishments					Price on Application	Each
Photos on Plaques					Price on Application	Each
Replacement Plants					Price on Application	Each
Surcharge for Grave Digging					Price on Application	Each
Applies to requests outside of normal working hours for religious reasons						
Stands					Price on Application	Each
Plaque Refurbishment / Upgrades					Price on Application	Each
Vases & Urns					Price on Application	Each
Additional Emblems / Lines / Artwork / Colour / Borders on Plaques					Price on Application	Each
Foundry Plaque Proofs (2 included in original plaque fee) Additional Proofs	$40.00	$40.00	$4.00	$44.00	10.00%	Each
Administration Fee – Transferring Rights of Burial or Cremation	$111.00	$122.00	$0.00	$122.00	9.91%	Each
Request for Cremation Certificate After Service Day	$25.00	$25.45	$2.55	$28.00	12.00%	Each
Ash Removal and Packaging	$170.00	$170.00	$17.00	$187.00	10.00%	Each
Late Fee	$136.00	$136.36	$13.64	$150.00	10.29%	Each
Applies to services which cannot be completed within normal business hours (9am to 3pm Monday to Friday)						
Application for Exhumation	$2,695.00	$2,695.45	$269.55	$2,965.00	10.02%	Each
Saturday Surcharge	$405.00	$405.45	$40.55	$446.00	10.12%	Each
Burial						
Lawn Cemetery – Innes Garden						
Lawn Cemetery – New Site Fee & Reservation Fee (Site Only)	$3,425.00	$3,177.27	$317.73	$3,495.00	2.04%	Each
Lawn Cemetery – New Site Fee (Site Only) (Child up to 12 years)	$836.00	$775.45	$77.55	$853.00	2.03%	Each
Second Right of Burial Fee (Double Depth Site)	$1,716.00	$1,591.82	$159.18	$1,751.00	2.04%	Each
Lawn Plaque (Standard)	$745.00	$691.82	$69.18	$761.00	2.15%	Each
Lawn Plaque (Double Depth Site)					Price on Application	Each
Application to Refurbish Lawn Plaque onsite – IGMP	$25.00	$26.00	$0.00	$26.00	4.00%	Each
Grave Digging Fee	$1,453.00	$1,348.18	$134.82	$1,483.00	2.06%	Each
Grave Digging Fee – Double Depth Beams – 1st Interment	$1,915.00	$1,776.36	$177.64	$1,954.00	2.04%	Each
Grave Digging Fee – Child up to 12 years	$958.00	$889.09	$88.91	$978.00	2.09%	Each

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
All General Cemeteries						
Port Macquarie General Digging Fee	$1,915.00	$1,776.36	$177.64	$1,954.00	2.04%	Each
Grave Digging Fee	$1,453.00	$1,348.18	$134.82	$1,483.00	2.06%	Each
Grave Digging Fee – Child up to 12 years	$958.00	$889.09	$88.91	$978.00	2.09%	Each
Open General Cemeteries – Site only or Reservation Fee	$2,345.00	$2,175.45	$217.55	$2,393.00	2.05%	Each
Open General Cemeteries – Site only (Child up to 12 years)	$836.00	$775.45	$77.55	$853.00	2.03%	Each
Single Headstone Application	$116.00	$119.00	$0.00	$119.00	2.59%	Each
Double Headstone Application	$0.00	$175.00	$0.00	$175.00	∞	per application
Ash Replacement						
Lawn Cemetery – Innes Gardens						
Single Plate	$276.00	$256.36	$25.64	$282.00	2.17%	Each
Double Plaque with 1st plate	$940.00	$871.82	$87.18	$959.00	2.02%	Each
Lawn Book Plaque with 1st page	$1,300.00	$1,205.45	$120.55	$1,326.00	2.00%	Each
Book Plaque – 2nd Page	$550.00	$510.09	$51.01	$561.10	2.02%	Each
Placement fee per lot of ash in an occupied gravesite (1 per site)	$625.00	$580.00	$58.00	$638.00	2.08%	Each
Placement of ash in a gravesite						
New Site – Right of Burial Site Fee	$3,425.00	$3,177.27	$317.73	$3,495.00	2.04%	Each
All General Cemeteries						
Placement fee per lot of ash in an occupied gravesite (up to 4) – Open cemeteries	$625.00	$580.00	$58.00	$638.00	2.08%	Each
Placement of ash in a gravesite (up to 4)						
Placement fee per lot of ash in an occupied gravesite (up to 4) – Closed cemeteries	$625.00	$580.00	$58.00	$638.00	2.08%	Each
New Site – Right of Burial Site Fee	$2,345.00	$2,175.45	$217.55	$2,393.00	2.05%	Each

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Your Natural & Built Environment

Development Assessment

Approvals under Environmental Planning and Assessment Act (EP&A Act)

Subdivision Works Certificate

Subdivision and Infrastructure Works

Works Certificate (Infrastructure) Application – Dual Occupancy (Torrens or Strata)	$292.00	$270.91	$27.09	$298.00	2.05%	Each
Base Administration Fee - applicable to ALL applications with construction of public infrastructure works and/or subdivision works (includes AUSPEC admin & maintenance) Includes Roads Act (s138) application when works application works are on existing public roads						
Works Certificate (Infrastructure) Application, Building Related or Subdivision Works With No New Public Roads	$292.00	$270.91	$27.09	$298.00	2.05%	Each
Base Administration Fee - applicable to ALL applications with construction of public infrastructure works and/or subdivision works without the creation of new public roads (includes AUSPEC admin & maintenance)						
Works Certificate (Infrastructure) Application, Subdivision Works with New Public Roads	$292.00	$270.91	$27.09	$298.00	2.05%	Each
Base Administration Fee - applicable to ALL applications with construction of public infrastructure works and / or subdivision works with the creation of new public roads (includes AUSPEC admin & maintenance) Includes Roads Act (s138) application when works in application are on existing public roads						
Works Certificate (Infrastructure) Application Amendments	$122.00	$113.64	$11.36	$125.00	2.46%	Each
Base administration fee for additional amendment First amendment included in initial application						
Engineering Review Fees – Dual Occupancy (Torrens)	$780.00	$723.64	$72.36	$796.00	2.05%	Each
Engineering review fees for dual occupancy Works Certificate (Infrastructure) applications						
Engineering Review Fees – Dual Occupancy (Strata)	$520.00	$482.73	$48.27	$531.00	2.12%	Each
Engineering review fees for dual occupancy Works Certificate (Infrastructure) applications						
Engineering Review Fees – Minor Works	$260.00	$241.82	$24.18	$266.00	2.31%	Review Area
Engineering review fees for Works Certificate (Infrastructure) applications with minor works and no new public roads Minimum fee $405						
Engineering Review Fees – Major Works	$372.00	$345.45	$34.55	$380.00	2.15%	Review Area
Engineering review fees for Works Certificate (Infrastructure) applications with major works and no new public roads Minimum fee $623						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Subdivision Works Certificate [continued]						
Engineering Review Fees – Subdivision Development (with new public roads)	$276.00	$256.36	$25.64	$282.00	2.17%	Per Lot
Engineering review fees for Works Certificate (Infrastructure) applications, Subdivision Works with New Public Roads Minimum Fee $668						
Engineering Review Fees – Amendments	$55.00	$51.82	$5.18	$57.00	3.64%	Review Area
Engineering review fees for additional amendments, excludes first amendment Minimum fee $94						
Development Inspection Fees – Dual Occupancy (Torrens)	$378.00	$350.91	$35.09	$386.00	2.12%	Each
Development inspection fees for dual occupancy Works Certificate (Infrastructure) applications						
Development Inspection Fees – Dual Occupancy (Strata)	$252.00	$234.55	$23.45	$258.00	2.38%	Each
Development inspection fees for dual occupancy certificate Works Certificate (Infrastructure) applications						
Development Inspection Fees – Minor Works	$127.00	$118.18	$11.82	$130.00	2.36%	Review Area
Development inspection fees for Works Certificate (Infrastructure) applications with minor public infrastructure and subdivision works associated with building or subdivision development Minimum fee $176						
Development Inspection Fees – Major Works	$243.00	$225.45	$22.55	$248.00	2.06%	Review Area
Development inspection fees for Works Certificate (Infrastructure) applications with major public infrastructure and subdivision works associated with building or subdivision development Minimum fee $353						
Subdivision Inspection Fee – Residential Roads	$23.20	$22.00	$0.00	$22.00	-5.17%	Per Metre
New roads (residential) Minimum fee $399						
Subdivision Inspection Fee – Rural Roads	$12.10	$10.91	$1.09	$12.00	-0.83%	Per Metre
New roads (rural) Minimum fee $399						
Subdivision Inspection Fee – Industrial Roads	$25.80	$23.64	$2.36	$26.00	0.78%	Per Metre
New roads (industrial) Minimum fee $399						
Subdivision Inspection Fee – Rural Residential Roads	$19.40	$18.18	$1.82	$20.00	3.09%	Per Metre
New roads (rural residential) Minimum fee $399						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Subdivision Works Certificate [continued]						
Additional Inspection Fee	$127.00	$118.18	$11.82	$130.00	2.36%	Per Hour
For infrastructure works associated with building developments (non refundable) Minimum 1 hour						
Works Certificate (Infrastructure) Modification – Minor Works	$127.40	$118.18	$11.82	$130.00	2.04%	Review Area
Applicable to modify existing Works Certificate (Infrastructure) after approval. Base application fees also apply. Fees for engineering reviews associated with proposed changes						
Works Certificate (Infrastructure) Modification – Major Works	$201.00	$186.45	$18.65	$205.10	2.04%	Review Area
Applicable to modify existing Works Certificate (Infrastructure) after approval. Base application fees also apply. Fees for engineering reviews associated with proposed changes						
Outstanding Works Bond Fees & Charges	See "Security Bond" section (below)					

Approvals under Roads Act 1993

Section 138 Application

Works, activities, events in, on and above a public road

Single Residential Dwelling Driveway and Utility Connection Application (All Works on Public Road Reserve)	$347.00	$355.00	$0.00	$355.00	2.31%	Each
Note: Upon Roads Act approval - vehicle crossings must be constructed by owners under their own arrangements. A licensed contractor listed with Council must be used with public liability insurance of $20 million. Application must be submitted to/approved by Council (s138) Includes base administration fee and inspection						
Dual Occupancy without Subdivision (All works on Public Road Reserve)	$292.00	$298.00	$0.00	$298.00	2.05%	Each
Note: Upon Roads Act approval - vehicle crossings must be constructed by owners under their own arrangements. A licensed contractor listed with Council must be used with public liability insurance of $20 million. Application must be submitted to/approved by Council (s138) Does not include inspection and review fees						
Industrial Driveway Application (All works on Public Road Reserve)	$292.00	$298.00	$0.00	$298.00	2.05%	Each
Note: Upon Roads Act approval - vehicle crossings must be constructed by owners under their own arrangements. A licensed contractor listed with Council must be used with public liability insurance of $20 million. Application must be submitted to/approved by Council (s138) Does not include inspection and review fees						
Roads Act Application for Construction Works on Road Reserve (Section 138 Application)	$292.00	$298.00	$0.00	$298.00	2.05%	Each
Base administration fee (applies to all Section 138 applications other than residential driveway applications)						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Section 138 Application [continued]						
Roads Act Application Amendments	$121.00	$124.00	$0.00	$124.00	2.48%	Each
Base administration fee for additional amendments after the first amendment First amendment included in initial application						
Engineering Review Fees – Dual Occupancy without Subdivision (All works on Public Road Reserve)	$520.00	$530.00	$0.00	$530.00	1.92%	Each
Engineering review fees for Dual Occupancy without Subdivision applications						
Engineering Review Fees – Industrial Driveway (All works on Public Road Reserve)	$520.00	$531.00	$0.00	$531.00	2.12%	Each
Engineering review fees for Industrial Driveway applications						
Engineering Review Fees – Minor Works	$260.00	$266.00	$0.00	$266.00	2.31%	Review Area
Engineering review fees for Roads Act applications with minor infrastructure works on public roads Minimum fee $405						
Engineering Review Fees – Major Works	$372.00	$380.00	$0.00	$380.00	2.15%	Review Area
Engineering review fees for Roads Act applications with major infrastructure works on public roads Minimum fee $623						
Engineering Review Fees – Amendments	$55.00	$57.00	$0.00	$57.00	3.64%	Review Area
Engineering review fees for additional amendments, excludes first amendment Minimum fee $94						
Development Inspection Fees – Dual Occupancy without Subdivision (All works on Public Road Reserve)	$253.00	$259.00	$0.00	$259.00	2.37%	Each
Development Inspection fees for Dual Occupancy without Subdivision applications						
Development Inspection Fees – Industrial Driveway (All works on Public Road Reserve)	$253.00	$259.00	$0.00	$259.00	2.37%	Each
Development Inspection fees for Industrial Driveway						
Development Inspection Fees – Minor Works	$127.00	$130.00	$0.00	$130.00	2.36%	Review Area
Development inspection fees for Roads Act applications with minor infrastructure and road works on public roads Minimum fee $176						
Development Inspection Fees – Major Works	$243.00	$248.00	$0.00	$248.00	2.06%	Review Area
Development inspection fees for Roads Act applications with major infrastructure and road works on public roads Minimum fee $353						
Additional Inspection Fee	$127.00	$130.00	$0.00	$130.00	2.36%	Per Hour

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Section 138 Application [continued]						
For infrastructure works associated with building developments (non refundable) Minimum 1 hour						
Roads Act Approval Modification – Minor Works	$128.00	$131.00	$0.00	$131.00	2.34%	Review Area
Applicable to modify existing Roads Act after approval. Base administration fees also apply. Fees for engineering reviews associated with proposed changes						
Roads Act Approval Modification – Major Works	$183.00	$187.00	$0.00	$187.00	2.19%	Review Area
Applicable to modify existing Roads Act after approval. Base administration fees also apply. Fees for engineering reviews associated with proposed changes						
Outstanding Works Bond Fees & Charges	See "Security Bond" section (below)					
Security Bonds						
Application for Temporary Occupation of Footways and Road Reserve for Hoardings and/or Work Zones – CBD or Shopping Precinct	$100,000.00	$100,000.00	$0.00	$100,000.00	0.00%	
Security bond for infrastructure damage associated with building developments. Refundable upon leased area being left to Council satisfaction upon completion of development. This bond not required if applicant has submitted security for damage to infrastructure. Maximum $100,000 bond for minor developments to be determined on merit by Council.						
Application for Temporary Occupation of Footways and Road Reserve for Hoardings and/or Work Zones – Other (Not CBD or Shopping Precinct)	$50,000.00	$50,000.00	$0.00	$50,000.00	0.00%	
Security bond for infrastructure damage associated with building developments. Refundable upon leased area being left to Council satisfaction upon completion of development. This bond not required if applicant has submitted security for damage to infrastructure. Maximum $50,000 bond for minor developments to be determined on merit by Council.						

Development Application Fees

Application Fees

Application Fees (All)	As per statutory scale of fees	Estimate
EP&A Regulation 2000 refer cl 246B		

Advertising

Where advertising under ss.79 or 79A is compulsory

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Advertising [continued]						
Designated Development	$2,220.00	$2,220.00	$0.00	$2,220.00	0.00%	Each
EP&A Regulation 2000 Cl 252 (maximum charge) This fee is in addition to the application fee mentioned above and unexpended fees will be refunded after determination of application						
Where Notification is Required by Council Policy	$157.00	$161.00	$0.00	$161.00	2.55%	Each
Letters to adjoining & adjacent owners. EP&A Regulation cl 252 maximum fee $1,105						
Where Notification and Advertising is Required by Council Policy – Advertising in Local Paper	$451.00	$461.00	$0.00	$461.00	2.22%	Each
EP&A Regulation cl 252 maximum fee $1,105						
Lodgement Fees						
Electronic Lodgement	$15.00	$15.00	$0.00	$15.00	0.00%	Each
Form and supporting documents provided in PDF as un-protected files						
Paper Lodgement	$165.00	$165.00	$0.00	$165.00	0.00%	Each
Scanning and archive costs for applications lodged in paper only						
Archive Fee						
Electronic Application	$40.00	$41.00	$0.00	$41.00	2.50%	Each
All documents submitted in PDF as un-protected files						
Paper Application	$190.00	$190.00	$0.00	$190.00	0.00%	Each
Scanning and archive costs for paper based applications						
Review of Determination of DA						
Review of Determination of DA	As per statutory scale of fees					Estimate
EP&A Regulation 2000 cl 257						
Modification of DA or Consent						
Correction to Minor Error, Misdescription or Miscalculation	As per statutory scale of fees in EP&A Regulation					Each
Modification Involving Minimal Environmental Impact	As per statutory scale of fees in EP&A Regulation					Estimate
Other Modifications	As per statutory scale of fees in EP&A Regulation					Estimate
Integrated Development						
Processing Fee for Council	As per statutory scale of fees in EP&A Regulation					Each

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Integrated Development [continued]						
For Each Relevant Authority (Separate Cheque Forwarded by Council)	As per statutory scale of fees in EP&A Regulation					Each Authority
When Concurrence is Required						
Processing Fee for Council	As per statutory scale of fees in EP&A Regulation					Each
For Each Relevant Authority (Separate Cheque Forwarded by Council)	As per statutory scale of fees in EP&A Regulation					Each Authority
Approvals under Environmental Planning Assessment Act (EP&A Act)						
Subdivision Works Certificate – Earthworks & Clearing ONLY – Application Fee						
Base administration fee (applicable to ALL applications)	$202.00	$280.00	$28.00	$308.00	52.48%	Each
Add engineering plan checking fees for Value of Work (VOW)						
Subdivision Works Certificate – Earthworks & Clearing ONLY – Engineering Plan Checking						
VOW up to $10,000	$352.00	$327.27	$32.73	$360.00	2.27%	Each
VOW $10,001 – $20,000	$497.00	$461.82	$46.18	$508.00	2.21%	Each
VOW $20,001 – $50,000	$682.00	$632.73	$63.27	$696.00	2.05%	Each
VOW $50,001 – $100,000	$1,356.00	$1,258.18	$125.82	$1,384.00	2.06%	Each
VOW $100,001 – $150,000	$1,627.00	$1,509.09	$150.91	$1,660.00	2.03%	Each
VOW $150,001 – $300,000	$2,188.00	$2,030.00	$203.00	$2,233.00	2.06%	Each
VOW $300,001 – $800,000 PLUS per $1,000 above $800,000 fee (as below)	$3,035.00	$2,815.45	$281.55	$3,097.00	2.04%	Each
Per $1,000 above $800,000 fee	$4.00	$4.55	$0.45	$5.00	25.00%	Each
Compliance Certificates for Subdivision Works						
Compliance Certificate Application – Subdivision Development	$292.00	$298.00	$0.00	$298.00	2.05%	Each
Application to provide concurrence from relevant authorities or Council sections for construction of new assets. This application does not permit construction of infrastructure. A separate Construction Certificate for subdivision works or Construction Certificate (Infrastructure) required to permit construction. Note: all subdivision inspection fees still apply.						
General Review – Subdivision Development	$55.00	$57.00	$0.00	$57.00	3.64%	Per Lot
Compliance Certificate review fees for one Council review area (i.e landscaping) Minimum Fee $134						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Compliance Certificates for Subdivision Works [continued]						
Water Authority Review – Subdivision Development	$110.00	$113.00	$0.00	$113.00	2.73%	Per Lot
Water Authority Compliance Certificate Review Fees Minimum Fee $269						
Refunds						
Development Applications & Construction Certificates						
Cancelled / Withdrawn After 7 days With No Assessment by Council Officer (Minimum)	$64.00	$58.18	$5.82	$64.00	0.00%	Each
Administration fee and PCA component deducted						
All Other Cases Where No Work Has Commenced					No Charge	Each
DA's						
Cancelled / Withdrawn within 48 Hours – CC's (Infrastructure), S138, Subdivision Certificate Fees and Bonds				Administration fee deducted		Each
Security Bonds						
Bond Administration						
Bond Administration Fee	$267.00	$273.00	$0.00	$273.00	2.25%	Each
Base Administration Fee (applicable to ALL bonds) Non Refundable						
Outstanding Works Bonds						
Bond is security for completion of engineering works on public roads or infrastructure to be paid prior to approval						
Outstanding Works Bond (Single Dwelling) – Complex Applications	$2,000.00	$2,000.00	$0.00	$2,000.00	0.00%	Each
Applies to complex residential dwelling applications based upon Council discretion. Bond refundable.						
Outstanding Works Bond (Dual Occupancy)	$5,000.00	$5,000.00	$0.00	$5,000.00	0.00%	Each
Applies to 2 dwellings or units ONLY. Bond refundable.						
Outstanding Works Bond (Industrial Driveway)	$8,000.00	$8,000.00	$0.00	$8,000.00	0.00%	Each
Bond is security for completion of engineering works on public roads or infrastructure to be paid prior to approval Applies to industrial driveway applications.						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Outstanding Works Bonds [continued]						
Outstanding Works Bond (General)	Calculation can be used for any case based upon 130% contract cost inclusive of GST. Bond refundable. Min. Fee: $5,000.00					Contract Cost
Defects Liability Bonds						
Bond is security for new Council assets prior acceptance into a defects liability period						
Defects Liability Bond (Dual Occupancy)	$2,000.00	$2,000.00	$0.00	$2,000.00	0.00%	Each
Bond applies to dual-occupancy Torrens Title subdivisions						
Defects Liability Bond (General)	Calculation can be used for any case based upon 10% assets to be dedicated to Council. Bond refundable. Min. Fee: $2,000.00					Asset Value
Protection of Public Infrastructure Bonds						
Security deposit for damage to public infrastructure. Minimum $10,000 (minor building works) minimum $100,000 (major building works and CBD development). Refundable upon completion of development to Council satisfaction.						
Security Bond for Infrastructure Works and Infrastructure Damage Associated with Building Developments	Calculate Min. Fee: $10,000.00					Each
Tree Preservation Bonds						
Council can require lodgement at subdivision (or construction) certificate stage of a deposit to secure retention of trees on public land subject to application						
Refundable where Council satisfied of no loss						
Tree Preservation Bond – Specific Species (Any Development)	$11,956.00	$11,956.00	$0.00	$11,956.00	0.00%	Per Tree
Council Accreditation Charges						
Authorised Contractors Annual Registration Fee	$158.00	$162.00	$0.00	$162.00	2.53%	Each
Subdivisions						
Subdivision Certificates (Torrens)						
Application for Subdivision Certificate (Torrens)	$222.00	$227.00	$0.00	$227.00	2.25%	Per Lot
Base Administration Fee Minimum fee $444 (includes consolidation)						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Subdivision Certificates (Torrens) [continued]						
Resubmitted Linen Plan	25% of original fee or $255 whichever is lesser					Estimate
Application Fee for Council to Release, Vary or Modify Real Property Documents	$198.00	$202.00	$0.00	$202.00	2.02%	Each
Under General Manager delegation (s377 Local Govt Act) Modification of real property instruments						
Application Fee for Council to Release, Vary or Modify Real Property Documents	$395.00	$403.00	$0.00	$403.00	2.03%	Each
Under Council seal following report to Council Modification of real property instruments						
Re-signing of Subdivision Plans/Post Cadastral Correction	$198.00	$202.00	$0.00	$202.00	2.02%	Each
Endorsement of Plans (For Example: S88B Instruments, Transfers, etc) – Council's Legal Costs are in Addition to This Fee	$198.00	$202.00	$0.00	$202.00	2.02%	Each
Lighting – Non Standard – "Prestige"	Levy - see Policy R5					Each
Subdivision Certificates (Torrens) and Occupation Certificates (Strata)						
Work as Executed – Strata and Torrens Title	$620.00	$633.00	$0.00	$633.00	2.10%	Each
Submission of wax detail NOT in CAD format - minor subdivision works only - up to 3 lots and any building development works						
Search Fee – Miscellaneous						
Minimum 1 hour	$57.00	$60.00	$0.00	$60.00	5.26%	Per Hour
Aus-spec #1						
Refer Appendix 1						
Construction Specification						
Design specifications one off hard copy	$274.00	$280.00	$0.00	$280.00	2.19%	Per Set
Construction specifications one off hard copy	$339.00	$346.00	$0.00	$346.00	2.06%	Per Set
Hard copy individual specifications	$29.00	$30.00	$0.00	$30.00	3.45%	Each

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Certificates						
Environmental Planning & Assessment Act 1979						
Section 10.7(2) Planning Certificate	$53.00	$53.00	$0.00	$53.00	0.00%	Each
Fixed by EPA Reg 2000 cl 259						
Section 10.7(5) Planning Certificate	$80.00	$80.00	$0.00	$80.00	0.00%	Each
Maximum under EPA Reg 2000 cl 259						
Expedition Charge (24 Hr Response)	$110.00	$110.00	$0.00	$110.00	0.00%	Each
Section 6.26 Building Certificate				As per statutory scale of fees		Each
Refer EPA Reg 2000 cl 260-261						
Strata Certificate						
Strata Certificate	$161.00	$150.00	$15.00	$165.00	2.48%	Per Lot
Bushfire Attack Level						
Bushfire Attack Level (BAL) Certificate	$365.00	$339.09	$33.91	$373.00	2.19%	Each
Bushfire Attack Level (BAL) Certificate Associated With Complying Development Certificate Lodged With PMHC	$208.00	$193.64	$19.36	$213.00	2.40%	Each
Conveyancing Act 1919 No. 6						
Section 88G Certificate				As per statutory scale of fees		Per Lot
Inspection of Land Required				As per statutory scale of fees		Per Lot
Plan Copy Charges						
Refer Appendix 1						
A3 & A4 Plans	$3.90	$4.00	$0.00	$4.00	2.56%	Per Sheet
A2 Sheet	$11.60	$12.00	$0.00	$12.00	3.45%	Per Sheet
A1 Sheet	$13.50	$14.00	$0.00	$14.00	3.70%	Per Sheet
A0 Sheet	$17.50	$18.00	$0.00	$18.00	2.86%	Per Sheet
Over Size (Sewer Plans)	$18.70	$20.00	$0.00	$20.00	6.95%	Per Sheet
Or per Lineal Metre	$14.80	$16.00	$0.00	$16.00	8.11%	Per L/Mtr
Global Positioning Systems						
Electronic Data File Access – Annual Subscription	$2,654.00	$2,708.00	$0.00	$2,708.00	2.03%	Each
Electronic Data File Access – One Off Access	$68.00	$70.00	$0.00	$70.00	2.94%	Per Access

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Development Records						
Copy of Building Certificate				As per statutory scale of fees		Each
EPA Regulation 261						
Written Report on Dwelling Entitlement or Zoning Matter	$165.00	$169.00	$0.00	$169.00	2.42%	Each
Plus $80.00 inspection fee if required						
Urgent (Response in 5 Days) – Written Report on Dwelling Entitlement or Zoning Matter	$276.00	$282.00	$0.00	$282.00	2.17%	Each
Copy of Application Documents (i.e. Consent, Plan, Submission or Supporting Report)	$41.25	$42.00	$0.00	$42.00	1.82%	Each
Before making a request check www.pmhc.nsw.gov.au/applicationtracker - what you need may already be available free. Any documents requested will be emailed. Searches for some historic records are more involved and additional fees may apply; we will discuss this with you.						

Waste Management

Under section 88 of the *Protection of the Environment Operations Act 1997* (POEO Act), Council is required to pay the Waste & Environment Levy. This levy is considered when setting the fees and charges for waste management services.

Interest Rate

Interest Rate on overdue rates & charges

As per the rate determined by the NSW Office of Local Government

Domestic Waste Management Services					7.50%	
Other Waste Management Services					7.50%	

Domestic Waste Management Services

Annual Charge

Minimiser service – 140 Litre fortnightly general waste	$382.00	$392.00	$0.00	$392.00	2.62%	Per Annum
Standard service – 240 Litre fortnightly general waste	$435.00	$447.00	$0.00	$447.00	2.76%	Per Annum
Excess service – 240 Litre weekly general waste	$644.00	$661.00	$0.00	$661.00	2.64%	Per Annum
Half minimiser service – 140 Litre fortnightly general waste	$213.00	$219.00	$0.00	$219.00	2.82%	Per Annum
Multi-unit dwellings only						
Half standard service – 240 Litre fortnightly general waste (Shared)	$240.00	$246.00	$0.00	$246.00	2.50%	Per Annum
Multi-unit dwellings only						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Annual Charge [continued]						
Half excess service – 240 Litre weekly general waste (Shared)	$345.00	$354.00	$0.00	$354.00	2.61%	Per Annum
Multi-unit dwellings only						
On application only special weekly service – 140 Litre weekly general waste	$538.00	$553.00	$0.00	$553.00	2.79%	Per Annum
Half special weekly service (shared)	$292.00	$300.00	$0.00	$300.00	2.74%	Per Annum
Multi-unit dwellings only						
Additional weekly garbage service – 240 Litre general waste	$338.00	$347.00	$0.00	$347.00	2.66%	Per Annum
Additional weekly garbage service – 140 Litre general waste	$257.00	$264.00	$0.00	$264.00	2.72%	Per Annum
Multi-unit dwellings only						
Additional organics service – 240 Litre weekly	$93.00	$96.00	$0.00	$96.00	3.23%	Per Annum
Additional recycling service – 240 Litre fortnightly	$63.00	$65.00	$0.00	$65.00	3.17%	Per Annum
Minimum Waste Charge – Single Dwelling	$382.00	$392.00	$0.00	$392.00	2.62%	Per Annum
Availability charge on vacant land	$75.00	$77.00	$0.00	$77.00	2.67%	Per Annum
Availability charge on land not receiving full charge	$135.00	$139.00	$0.00	$139.00	2.96%	Per Annum
Multi-unit dwellings only						

Other Waste Management Services

Annual Charge

Waste Management Access Charge	$29.00	$30.00	$0.00	$30.00	3.45%	Per Annum
Commercial weekly service – 140 Litre general waste	$538.00	$553.00	$0.00	$553.00	2.79%	Per Annum
Commercial excess service – 240 Litre weekly general waste	$644.00	$661.00	$0.00	$661.00	2.64%	Per Annum
Commercial half weekly service – 140 Litre general waste (Shared)	$292.00	$300.00	$0.00	$300.00	2.74%	Per Annum
Commercial half excess service – 240 Litre weekly general waste (Shared)	$345.00	$354.00	$0.00	$354.00	2.61%	Per Annum
Commercial additional weekly garbage service – 240 Litre general waste	$338.00	$347.00	$0.00	$347.00	2.66%	Per Annum
Commercial additional weekly garbage service – 140 Litre general waste	$257.00	$264.00	$0.00	$264.00	2.72%	Per Annum
Commercial additional organics service – 240 Litre weekly	$93.00	$96.00	$0.00	$96.00	3.23%	Per Annum
Commercial additional recycling service – 240 Litre fortnightly	$63.00	$65.00	$0.00	$65.00	3.17%	Per Annum

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Annual Charge [continued]						
Commercial availability charge on land not receiving full charge	$75.00	$77.00	$0.00	$77.00	2.67%	Per Annum
Business Properties						
Availability charge on vacant land	$75.00	$77.00	$0.00	$77.00	2.67%	Per Annum
Business Properties						
Other Services						
On Request Kerbside Collection	$35.00	$36.00	$0.00	$36.00	2.86%	Per Service
Replacement Bin	$56.00	$57.00	$0.00	$57.00	1.79%	Per Unit
Supply of Bins – New Service	$140.00	$143.00	$0.00	$143.00	2.14%	Per Service
Stolen Bin – First Replacement Only					No Charge	Per Unit
Stolen Bin – Subsequent Replacements	$56.00	$57.00	$0.00	$57.00	1.79%	Per Unit
Bin Size Adjustment Fee	$56.00	$57.00	$0.00	$57.00	1.79%	Per Unit
Red or yellow bin						
Bin Reinstatement Fee	$56.00	$57.00	$0.00	$57.00	1.79%	Per Unit
Charge for replacement of organic/recycle bin, due to suspended service						
Collection of Missed Service	$15.00	$15.00	$0.00	$15.00	0.00%	Per Unit
Weighbridge Ticket	$52.00	$49.09	$4.91	$54.00	3.85%	Each
Waste Depot Charges						
Cairncross Waste Depot						
General Waste						
Calculated by Nett Weight						
Transfer Bin Waste	$230.00	$213.64	$21.36	$235.00	2.17%	Per Tonne
Minimum Charge - $10						
All Mattresses or Mattress Bases	$23.00	$25.45	$2.55	$28.00	21.74%	Each
Building Waste (Land Fill)	$230.00	$213.64	$21.36	$235.00	2.17%	Per Tonne
Includes contaminated soil classified as general solid waste						
Asbestos	$356.00	$330.91	$33.09	$364.00	2.25%	Per Tonne
Mixed Solid Waste	$230.00	$213.64	$21.36	$235.00	2.17%	Per Tonne
Clean fill / VENM	$150.00	$100.00	$10.00	$110.00	-26.67%	Per Tonne
Bricks / Concrete	$21.00	$27.27	$2.73	$30.00	42.86%	Per Tonne
Green / Wood Waste	$63.00	$58.18	$5.82	$64.00	1.59%	Per Tonne
Includes lawn clippings, garden waste, branches & leaves, trees & tree loppings, crates, pallets, dressed or sawn timber						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

General Waste [continued]

Special Wastes					By Negotiation	
Subject to the nature of the material & ability to receive						
Recyclable materials					No Charge	
Clean glass, paper cardboard, oil in drop-off area						
Metal & White goods					No Charge	
Clean and Separated						

Tyres

Motorcycle	$3.00	$2.73	$0.27	$3.00	0.00%	Each
Car	$4.00	$3.64	$0.36	$4.00	0.00%	Each
Car on rim	$8.00	$8.18	$0.82	$9.00	12.50%	Each
4x4	$8.00	$7.27	$0.73	$8.00	0.00%	Each
Light Truck	$8.00	$7.27	$0.73	$8.00	0.00%	Each
Light Truck/4x4 on rim	$15.00	$13.64	$1.36	$15.00	0.00%	Each
Heavy Truck	$18.00	$16.36	$1.64	$18.00	0.00%	Each
Heavy Truck on rim	$28.00	$26.36	$2.64	$29.00	3.57%	Each
Super Singles	$39.00	$35.45	$3.55	$39.00	0.00%	Each
Tractor – Small/Medium	$44.00	$40.00	$4.00	$44.00	0.00%	Each
Tractor – Large	$65.00	$59.09	$5.91	$65.00	0.00%	Each
Other (Tractor Earthmoving)					By Assessment	Each

Animals

Small Domestic	$6.00	$9.09	$0.91	$10.00	66.67%	Each
Small Livestock (sheep, goat, calf, etc)	$39.00	$36.36	$3.64	$40.00	2.56%	Each
Large Livestock (cattle, horses, etc)	$63.00	$59.09	$5.91	$65.00	3.17%	Each

Port Macquarie, Wauchope, Kew & Comboyne Waste Depots

Household Loads Only - Council's Waste Depot Attendants calculate charges per size of load at entry.

General Waste

Domestic

Cars/Station Wagons	$10.00	$9.09	$0.91	$10.00	0.00%	Per Load
Passenger Vans, Utilities, Small Trailers up to 8' x 5' size with no side extensions	$18.00	$16.36	$1.64	$18.00	0.00%	Per Load
Large trailers and all trailers with side extensions, Vans & 1 Ton Utilities	$28.00	$26.36	$2.64	$29.00	3.57%	Per Load

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Commercial						
Cars/Station Wagons	$75.00	$70.00	$7.00	$77.00	2.67%	Each
Passenger Vans, Utilities, Small Trailers up to 8' x 5' size with no side extensions	$75.00	$70.00	$7.00	$77.00	2.67%	Per Load
Greenwaste						
Domestic						
Cars/Station Wagons	$10.00	$9.09	$0.91	$10.00	0.00%	Per Load
Passenger Vans, Utilities, Small Trailers up to 8' x 5' size with no side extensions	$16.00	$14.55	$1.45	$16.00	0.00%	Per Load
Large trailers and all trailers with side extensions, Vans & 1 Ton Utilities	$26.00	$24.55	$2.45	$27.00	3.85%	Per Load
Commercial						
Cars/Station Wagons	$24.00	$21.82	$2.18	$24.00	0.00%	Each
Passenger Vans, Utilities, Small Trailers up to 8' x 5' with no side extensions	$24.00	$21.82	$2.18	$24.00	0.00%	Per Load
Tyres						
Motorcycle	$3.00	$2.73	$0.27	$3.00	0.00%	Each
Car	$4.00	$3.64	$0.36	$4.00	0.00%	Each
Car on rim	$8.00	$8.18	$0.82	$9.00	12.50%	Each
4x4	$8.00	$7.27	$0.73	$8.00	0.00%	Each
Light Truck	$8.00	$7.27	$0.73	$8.00	0.00%	Each
Light Truck/4x4 on rim	$15.00	$13.64	$1.36	$15.00	0.00%	Each
Heavy Truck	$18.00	$16.36	$1.64	$18.00	0.00%	Each
Heavy Truck on rim	$26.00	$26.36	$2.64	$29.00	11.54%	Each
Super Singles	$39.00	$35.45	$3.55	$39.00	0.00%	Each
Tractor – Small/Medium	$44.00	$40.00	$4.00	$44.00	0.00%	Each
Tractor – Large	$65.00	$59.09	$5.91	$65.00	0.00%	Each
Other (Tractor Earthmoving)					By Assessment	Each
Other Waste						
All Mattresses	$23.00	$25.45	$2.55	$28.00	21.74%	Each
Recyclable Materials					No Charge	Each
Clean glass, paper cardboard, oil in drop-off area						
Metals & White Goods					No Charge	Each
Clean and Separated						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Waste Collection Service						
Available 7 days per week Port Macquarie area; 6 days per week Wauchope/Camden Haven area						
Commercial Premises – 240 Litre Mobile Bin – per bin	$9.00	$8.18	$0.82	$9.00	0.00%	Each Service
Commercial Premises – 660 Litre Mobile Bin – per bin	$31.00	$29.09	$2.91	$32.00	3.23%	Each Service
Asset Management						
Geographical Information Systems						
Refer Appendix 1						
Sale of Maps						
Cost estimates provided based on 15 minute intervals						
A0					Price on Application	Each
A1					Price on Application	Each
A2					Price on Application	Each
A3					Price on Application	Each
A4					Price on Application	Each
Map Customizing (Charged in 15 Minute Modules)	$100.00	$100.00	$0.00	$100.00	0.00%	Per Hour
Applies to all map sizes Charged in 15 minute modules Minimum charge of $25 applied to all maps						
Priority Charge	$200.00	$200.00	$0.00	$200.00	0.00%	Per Hour
By quotation and based on an hourly rate - Request required within 2 working days of acceptance of quote by both parties						
ALS 2005 Height Data						
ALS 2005 Height Data Extraction Costs	$100.00	$100.00	$0.00	$100.00	0.00%	Per Hour
Minimum 1/2 hour						
ALS 2005 Data / Contours	$130.00	$130.00	$0.00	$130.00	0.00%	Per 10 Ha
Minimum Area 10Ha up to 100Ha $110/10Ha						
ALS 2005 Data / Contours					By quotation	Each
Areas > 100Ha or 1km2						
All other Digital GIS Data						
Digital Data	$100.00	$100.00	$0.00	$100.00	0.00%	Per Hour
Extraction costs						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
All other Digital GIS Data [continued]						
Digital Data				Price on Application		Per Layer
Cost estimates provided based on 15 minute intervals Some data has restrictions on access						
Postage and Handling				Price on Application		Each
Media Sundries - Including postage materials and media eg. USB, CD, HD, etc						
Aerial Photography						
Imagery extraction process	$100.00	$100.00	$0.00	$100.00	0.00%	Per Hour
Minimum 1/2 hour						
Consultancy						
Provision of specialised GIS services	$270.00	$270.00	$0.00	$270.00	0.00%	Per Hour
Minimum 1 hour						

Compliance

Companion Animals Act

Registration Fees

Under Companion Animals Regulation 2008 Cl.17

Desexed animal	As per statutory scale of fees from the Companion Animals Act					Each
Desexed animal – Eligible pensioner	As per statutory scale of fees from the Companion Animals Act					Each
Non – Desexed animal	As per statutory scale of fees from the Companion Animals Act					Each
Non – Desexed animal – Recognised Breeder	As per statutory scale of fees from the Companion Animals Act					Each
Release of dog/cat from Pound	$59.00	$60.00	$0.00	$60.00	1.69%	Each
Plus maintenance						
Contact of dog/cat owner from registration service of notice	$41.00	$45.00	$0.00	$45.00	9.76%	Each
Disposal of dog/cat surrendered to the pound by owner	$84.00	$85.00	$0.00	$85.00	1.19%	Each
Hire of feral animal trap	$12.00	$13.64	$1.36	$15.00	25.00%	Per Week
Hire of vermin traps	$12.00	$11.82	$1.18	$13.00	8.33%	Per Week
Maintenance fee for dogs/cats	$46.00	$47.00	$0.00	$47.00	2.17%	Per Day
Sale of doggy leash bags	$0.00	$4.55	$0.45	$5.00	∞	
Sale of refill bags for doggy leash bags	$0.00	$0.91	$0.09	$1.00	∞	

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Impounding						
Animals						
Sustenance Fee	$46.00	$47.00	$0.00	$47.00	2.17%	Refer Comments
Per head, per day or part thereof						
Conveyance Fee	$46.00	$47.00	$0.00	$47.00	2.17%	Each
Administration Fee (Plus Actual Cost)						
Conveyance Fee					At Cost	Estimate
Lost or Damaged Fee	$46.00	$47.00	$0.00	$47.00	2.17%	Each
Administration Fee (Plus Actual Cost)						
Lost or Damaged Fee					At Cost	Estimate
Notice of Impounding – Administration Fee	$41.00	$42.00	$0.00	$42.00	2.44%	Each
Impounding Fee	$59.00	$61.00	$0.00	$61.00	3.39%	Each
Administration Fee (Plus Actual Cost)						
Impounding Fee					At Cost	Estimate
Actual Cost of Impounding Item						
Other Articles						
Storage Fee	$46.00	$47.00	$0.00	$47.00	2.17%	Refer Comments
Per article, per week or part thereof						
Conveyance Fee	$46.00	$47.00	$0.00	$47.00	2.17%	Each
Administration Fee (Plus Actual Cost)						
Conveyance Fee					At Cost	Estimate
Lost or Damaged Fee	$46.00	$47.00	$0.00	$47.00	2.17%	Each
Administration Fee (Plus Actual Cost)						
Lost or Damaged Fee					At Cost	Estimate
Notice of Impounding – Administration Fee	$41.00	$42.00	$0.00	$42.00	2.44%	Each
Impounding Fee	$59.00	$61.00	$0.00	$61.00	3.39%	Each
Administration Fee (Plus Actual Cost)						
Impounding and Recovery Fee					At Cost	Estimate
Actual Cost of Impounding and Recovering Item						

Approvals Under Section 68 Local Government Act

Refer also to Local Government (Approvals) Regulation 1999.

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Section 68						
Approval for septic to sewer conversions for small town sewerage schemes	$252.00	$252.00	$0.00	$252.00	0.00%	Each
Part A – Structures or places of public entertainment						
Notice of completion of a manufactured home, removable dwelling or associated structure on land – inspection fee.	$179.30	$180.00	$0.00	$180.00	0.39%	Each
Notice of completion of a manufactured home, removable dwelling or associated structure on land – re-inspection fee.	$110.00	$110.00	$0.00	$110.00	0.00%	Each
Application to install a manufactured home, removable dwelling on land or associated structure	$102.00	$102.00	$0.00	$102.00	0.00%	Each
Part B – 2. Section 68 Application						
Approval to undertake water supply, storm water and/or sewerage works associated with building construction works (Includes Completion Certificate) (i) Application not accompanied by verification certification.						
Estimated cost of project						
Up to $15,000	$226.00	$231.00	$0.00	$231.00	2.21%	Each
$15,001 – $50,000	$451.00	$461.00	$0.00	$461.00	2.22%	Each
$50,001 – $200,000	$594.00	$606.00	$0.00	$606.00	2.02%	Each
$200,001 – $500,000	$1,065.00	$1,087.00	$0.00	$1,087.00	2.07%	Each
$500,001 – $1,000,000	$1,571.00	$1,603.00	$0.00	$1,603.00	2.04%	Each
$1,000,001 – $5,000,000	$4,066.00	$4,149.00	$0.00	$4,149.00	2.04%	Each
$5,000,001 – $10,000,000	$6,482.00	$6,613.00	$0.00	$6,613.00	2.02%	Each
> $10,000,001	$8,459.00	$8,630.00	$0.00	$8,630.00	2.02%	Each
Other						
Maximum water and stormwater fee for dwellings not on reticulated sewerage – on on-site sewage management fee still applicable where relevant	$451.00	$461.00	$0.00	$461.00	2.22%	Each
Part B – 2. Section 68 Application						
Approval to undertake private storm water works only						
Estimated cost of building work						
Up to $50,000	$170.00	$174.00	$0.00	$174.00	2.35%	Each

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Estimated cost of building work [continued]						
$50,000 – $200,000	$226.00	$231.00	$0.00	$231.00	2.21%	Each
> $200,000	$336.00	$343.00	$0.00	$343.00	2.08%	Each

Part B – 3. Section 68 Application

Approval to undertake water supply, storm water and/or sewerage works associated with subdivision developments (Includes Completion Certificate) (i) Application not accompanied by verification certification.

Estimated cost of project						
Up to $50,000	$661.00	$675.00	$0.00	$675.00	2.12%	Each
$50,001 – $100,000	$845.00	$863.00	$0.00	$863.00	2.13%	Each
$100,001 – $150,000	$1,100.00	$1,123.00	$0.00	$1,123.00	2.09%	Each
$150,001 – $200,000	$1,353.00	$1,381.00	$0.00	$1,381.00	2.07%	Each
$200,001 – $500,000	$2,364.00	$2,412.00	$0.00	$2,412.00	2.03%	Each
$500,001 – $1,000,000	$3,186.00	$3,251.00	$0.00	$3,251.00	2.04%	Each
$1,000,001 – $5,000,000	$4,066.00	$4,149.00	$0.00	$4,149.00	2.04%	Each
$5,000,001 – $10,000,000	$6,482.00	$6,613.00	$0.00	$6,613.00	2.02%	Each
> $10,000,000	$8,459.00	$8,630.00	$0.00	$8,630.00	2.02%	Each

Part B – 8. Section 68 Application

Approval of the installation of a water meter

Meter size						
Multiple services – sizes larger than 20mm					Actual cost plus $150.00	Each
New single 20mm service	$478.00	$488.00	$0.00	$488.00	2.09%	Each

Part B – 10. Other Services Fees and Charges

Pre-Purchase Inspection – Onsite Sewage Management Facility: Domestic – Standard Service	$280.00	$280.00	$0.00	$280.00	0.00%	Each
Includes approval to operate if sale proceeds						
Pre-Purchase Inspection – Onsite Sewage Management Facility: Domestic – Urgent Service	$420.00	$420.00	$0.00	$420.00	0.00%	Each
Includes approval to operate if sale proceeds						
Pre-Purchase Inspection – Onsite Sewage Management Facility: Commercial / Industrial – Standard Service	$428.00	$428.00	$0.00	$428.00	0.00%	Each
Includes approval to operate if sale proceeds						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Part B – 10. Other Services Fees and Charges [continued]						
Pre-Purchase Inspection – Onsite Sewage Management Facility: Commercial / Industrial – Urgent Service	$628.00	$628.00	$0.00	$628.00	0.00%	Each
Includes approval to operate if sale proceeds						
Follow-Up Inspection – Onsite Sewage Management Facility: Domestic	$121.00	$150.00	$0.00	$150.00	23.97%	Each
Follow-Up Inspection – Onsite Sewage Management Facility: Commercial / Industrial	$143.00	$175.00	$0.00	$175.00	22.38%	Each
Written Report – Septic System Registration	$42.00	$50.00	$0.00	$50.00	19.05%	Each
Septic to Sewer Conversion	$276.00	$276.00	$0.00	$276.00	0.00%	Each
Consultancy / Advisory Services	$119.00	$119.00	$0.00	$119.00	0.00%	Per Hour
Part B – Section 68 Application – Manhole Adjustment						
Engineering Review & Inspection Fees (Manhole Adjustment)	$260.00	$266.00	$0.00	$266.00	2.31%	Each
Fee to be included with Section 68 (Local Government Act) applications if single residential dwelling requires manhole surface level adjustment Fees in addition to application fee and includes inspections						
Part C – Section 68 Approval						
Approval to Install, Construct, Alter Sewage Management Facility						
Install, construct and operate a new sewage management facility (Domestic premises)	$556.00	$556.00	$0.00	$556.00	0.00%	Each
Includes assessment, 3 x inspections, 1st approval to operate						
Alter an existing sewage management facility (Domestic premises)	$166.00	$270.00	$0.00	$270.00	62.65%	Each
Amend or upgrade an existing approval for sewage management facility Includes reassessment and 1 extra inspection						
Operate sewage management facility (Domestic premises)	$166.00	$166.00	$0.00	$166.00	0.00%	Each
Approval to operate a sewage management system including change of ownership and system upgrade or modification Includes assessment and 1 inspection						
Install, construct and operate a new sewage management facility (Commercial / Industrial premises)	$779.00	$779.00	$0.00	$779.00	0.00%	Each
Includes assessment, 3 x inspections, 1st approval to operate						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Part C – Section 68 Approval [continued]						
Alter an existing sewage management facility (Commercial / Industrial premises)	$206.00	$390.00	$0.00	$390.00	89.32%	Each
Amend or upgrade an existing approval for sewage management facility Includes reassessment and 1 extra inspection						
Operate sewage management facility (Commercial / industrial premises)	$206.00	$206.00	$0.00	$206.00	0.00%	Each
Approval to operate a sewage management system including change of ownership and system upgrade or modification Includes assessment and 1 inspection						
Part D – Community Land						
Application for an activity on public / community land	$116.00	$119.00	$0.00	$119.00	2.59%	Each
Application for A-Frame Sign – 1 Year Licence	$111.00	$114.00	$0.00	$114.00	2.70%	Each
Application for A-Frame Sign – 3 Year Licence	$221.00	$226.00	$0.00	$226.00	2.26%	Each
Part E – Public Roads						
Applications for approval	Refer to the following section of this document - Roads, Bridges and Transport - Section 138 Certificate (Works on Public Road)					
Part F – Other Activities						
Register a caravan park or manufactured home estate – Minimum Fee PLUS per site	$114.00	$114.00	$0.00	$114.00	0.00%	Each
Register a caravan park or manufactured home estate – Per site	$7.00	$7.00	$0.00	$7.00	0.00%	Each
Amended application to register a Caravan Park or manufactured home estate – Minimum fee plus per amended/altered site fee	$124.00	$124.00	$0.00	$124.00	0.00%	Each
Amended application to register a Caravan Park or manufactured home estate– Per amended/altered site – PLUS:	$5.10	$5.00	$0.00	$5.00	-1.96%	Each
Caravan Park – Annual Inspection	$177.00	$177.00	$0.00	$177.00	0.00%	Each
Inspection of amusement devices	$51.00	$51.00	$0.00	$51.00	0.00%	Each
Charitable/Non-Profit Organisations excluded						
Application to burn under POEO	$62.00	$150.00	$0.00	$150.00	141.94%	Each
Application – other miscellaneous Section 68 activities	$124.00	$124.00	$0.00	$124.00	0.00%	Each

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Certification						
PCA (where CC/CDC issued by private certifier) – All values				Quotation as per fee calculator		Each
PCA (where CC/CDC issued by private certifier) – Re-inspection fee / minimum inspection fee				Quotation as per fee calculator		Each
PCA Site Signage				Quotation as per fee calculator		Each
Certificate of Compliance – associated structure	$166.00	$154.55	$15.45	$170.00	2.41%	Each
Certificate of Compliance – sewer connection per site	$167.00	$171.00	$0.00	$171.00	2.40%	Each
Complying Development Certificate						
Occupation Certificate				Quotation as per fee calculator		Each
All values	Quotation as per fee calculator - discounts available for online lodgement					Each
Amended applications				Quotation as per fee calculator		Each
Construction Certificate (Building)						
Class 1 and 10						
All Values				Quotation as per fee calculator		Each
Class 2 – 9						
All Values				Quotation as per fee calculator		Each
Applying to all Part 4A or complying development certificate						
Lodgement Fee						Each
This is a statutory fee under S7.44 of the EP&A Regulation 2000 s263						
Amended Construction Certificate						
Minor Change				Quotation as per fee calculator		Each
Major Change – Original application fee < $1,000				25% of applied fee		Each
Major Change – Original application fee > $1,000				50% of applied fee		Each
Alternative solutions				See comments		Each
Fees as per Class 2 - 9 building plus cost for assessment of alternative solution						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Information Services						
Advice to building professionals	$164.00	$152.73	$15.27	$168.00	2.44%	Each
Advice regarding compliance with development conditions or construction requirements.						
BCA Advisory service / reports					As per fee schedule	Each
Refunds						
Development Applications & Construction Certificates						
All other cases where no work has commenced	CC's (Building work) Compliance PCA & occupation certificate fees & any non engineering bonds					Each
Building Certificates						
Cancelled / withdrawn with no inspection	$39.00	$40.00	$0.00	$40.00	2.56%	Each
Minimum administration fee deducted						
Cancelled / withdrawn prior to determination after inspection					No refund	Each
All other Environment Applications (Including S68)						
Cancelled / withdrawn within 48 hours	$64.00	$66.00	$0.00	$66.00	3.13%	Each
Administration fee deducted 50% or $62 - whichever is greater						
Cancelled / withdrawn prior to inspection					See comments	Each
Inspection fees to be refunded						
All other cases					No refund	Each
Information Services (Minimum)	$12.00	$13.00	$0.00	$13.00	8.33%	Each
Food Businesses						
Low Risk Premises	$129.00	$132.00	$0.00	$132.00	2.33%	Each
Proprietor will be notified of risk assessment and methodology (determined by Council's adopted risk assessment methodology)						
Medium Risk Premises	$193.00	$197.00	$0.00	$197.00	2.07%	Each
Proprietor will be notified of risk assessment and methodology (determined by Council's adopted risk assessment methodology)						
High Risk Premises	$256.00	$262.00	$0.00	$262.00	2.34%	Each
Proprietor will be notified of risk assessment and methodology (determined by Council's adopted risk assessment methodology)						
Large Commercial Premises	$374.00	$382.00	$0.00	$382.00	2.14%	Each
Reinspection	Charge is 50% of original inspection fee based upon the property risk rating (low, medium or high)					Each

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Food Businesses [continued]						
Pre-Registration Fee	$204.00	$209.00	$0.00	$209.00	2.45%	Each
Professional advice and progress inspections of new businesses Includes assessment and site inspections						
Pre-Purchase Inspection Report for Food Handling Business	$310.00	$317.00	$0.00	$317.00	2.26%	Each
Written application and current owner consent						
Temporary Event Involving Food (1-3 days p.a maximum)	$62.00	$64.00	$0.00	$64.00	3.23%	Per Event
Charities and non-profit organisations exempt unless certificate is required						
Temporary Event Food Premises (4-50 events p.a)	$152.00	$156.00	$0.00	$156.00	2.63%	Per Calendar Year
Mobile Food Vending Vehicle – Annual Approval	$221.00	$226.00	$0.00	$226.00	2.26%	Per Calendar Year
Registration of Food Handling Premises	$62.00	$64.00	$0.00	$64.00	3.23%	Each
Notification cost per single food premise Refer Food Act 2003						
Food Improvement Notice Fee – Regulated	$330.00	$330.00	$0.00	$330.00	0.00%	Each
Public Health						
Businesses that have a public health impact e.g. skin penetration services, public and semi-public pools, regulated heating and cooling systems, brothels, barbers, beauty salons, etc.						
Legionella Annual Administration Fee	$0.00	$100.00	$0.00	$100.00	∞	each
Notification of Cooling Tower/Warm Water System	$0.00	$115.00	$0.00	$115.00	∞	per notification
Pre-Purchase Public Health Inspection	$324.00	$331.00	$0.00	$331.00	2.16%	Each
Written application and current owners consent						
Notification / Registration of Public Health Business	$100.00	$100.00	$0.00	$100.00	0.00%	Each
A one-off fee for notification/registration of a business that has a public health impact						
Public Health Inspection: Reinspection					Calculate	Each
Charge is 50% of the original inspection fee plus the cost of relevant laboratory testing						
Improvement Notice: Regulated System	$560.00	$560.00	$0.00	$560.00	0.00%	Each
Improvement Notice: Other	$270.00	$270.00	$0.00	$270.00	0.00%	Each
Prohibition Order: Regulated System	$560.00	$560.00	$0.00	$560.00	0.00%	Each
Prohibition Order: Other	$270.00	$270.00	$0.00	$270.00	0.00%	Each

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Public Health [continued]

Prohibition Order: Reinspection	Statutory fee. Minimum charge is 1/2 hour. Maximum charge is 2 hours at $250 per hour					Per Hour

Public Health Inspection

Proprietor will be notified of risk assessment and methodology.

Low Risk Premises	$180.00	$184.00	$0.00	$184.00	2.22%	Each
Plus relevant laboratory testing costs						
Medium Risk Premises	$240.00	$245.00	$0.00	$245.00	2.08%	Each
Plus relevant laboratory testing costs						
High Risk Premises	$290.00	$296.00	$0.00	$296.00	2.07%	Each
Plus relevant laboratory testing costs						

Swimming Pools

Initial Inspection of Swimming Pool Barrier	$250.00	$227.27	$22.73	$250.00	0.00%	per inspection
$100 refunded if pool passes first inspection						
Subsequent Inspection of Swimming Pool Barrier	$0.00	$90.91	$9.09	$100.00	∞	per inspection
Fee to Register a Swimming Pool	$10.00	$9.09	$0.91	$10.00	0.00%	Each
Application for Exemption	$70.00	$250.00	$0.00	$250.00	257.14%	Each

Fire Safety

Fire Safety Inspection – request by owner	$248.00	$225.45	$22.55	$248.00	0.00%	Each
Minimum						
Annual Fire Safety Inspection	$155.00	$140.91	$14.09	$155.00	0.00%	Per Hour
Preparation of fire safety report					Calculate	Each
Assessment of fire safety report – Minimum	$100.00	$90.91	$9.09	$100.00	0.00%	Each
Assessment of fire safety report	$100.00	$90.91	$9.09	$100.00	0.00%	Per Hour
Fire Safety Statement	$44.00	$72.73	$7.27	$80.00	81.82%	Each
Refer EPA Reg 2000 - REG 177						

Environment

Environmental Inspection Fee	$0.00	$250.00	$0.00	$250.00	∞	per inspection
Local Government Act Order (OSM) Administration Fee	$0.00	$200.00	$0.00	$200.00	∞	per order

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Environment [continued]						
Overgrown Land – according to LGA (Clause 124)	$129.00	$132.00	$0.00	$132.00	2.33%	Each
Administration fee PLUS Clearing of land by contractor (where applicable)						
Overgrown Land					Actual cost	Each
Clearing of land by contractor (where applicable)						
Issue of environmental protection notices	$550.00	$550.00	$0.00	$550.00	0.00%	Each
Protection of the Environment Operations (General) Regulation 2009 As per statutory scale of fees						
Certificates						
Outstanding notices	$136.00	$139.00	$0.00	$139.00	2.21%	Each
Section 735A Certificate (Local Govt Act) and Section 121ZP Certificate (EPA Act)						
Application for Building Certificate (including 1st inspection)	$250.00	$255.00	$0.00	$255.00	2.00%	Each
In accordance with Clause 260 of the Environmental Planning & Assessment Regulation (2000)						
Re-inspection Fee – Building Certificate Application	$90.00	$92.00	$0.00	$92.00	2.22%	Each
In accordance with Clause 260 of the Environmental Planning & Assessment Regulation (2000)						
Copy of Building Certificate	$13.00	$14.00	$0.00	$14.00	7.69%	Each
Refer EPA Reg 2000 cl 261						
Development Records						
House Drainage Plan	$35.00	$36.00	$0.00	$36.00	2.86%	Each
A diagram of the pipes within the house and yard to the service connection point. If you want a sewer junction plan showing the location of the connection point to the Council sewer main, please refer to the Water Section.						
Natural Resource Management						
Tree Management (Private Land)						
Application for permit to remove or prune trees	$85.00	$87.00	$0.00	$87.00	2.35%	Per Application
1 - 5 trees						
Application for permit to remove or prune trees – accompanied by qualified Arborist's report	$34.00	$35.00	$0.00	$35.00	2.94%	Per Application
Application for permit to remove or prune trees in conjunction with erection of a building	$102.00	$105.00	$0.00	$105.00	2.94%	Per Application
Combination Tree Pruning / Removal						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Tree Management (Private Land) [continued]						
Compensatory Tree Offset Planting – Residential Zones	$26.50	$27.50	$0.00	$27.50	3.77%	Per Tree
Tree replacement on public lands						
Compensatory Tree Offset Planting – Other Zones		Based on cost evaluation for trees identified for removal				Per Tree
Tree replacement on public lands						
Certificates						
Biosecurity Certificate	$38.00	$200.00	$0.00	$200.00	426.32%	Each
Under S64 of the Noxious Plant Act						
Roads, Bridges & Transport						
Approvals under Roads Act 1993						
Events within the Glasshouse Forecourt and Town Green						
Application Under Section 138 must be made						
Glasshouse Forecourt Bollard Key Deposit	$50.00	$50.00	$0.00	$50.00	0.00%	Per Application
Deposit for the use of the Bollard Key held by Transport & Stormwater Networks. The deposit will be refunded on return of the key.						
Special Event Glasshouse Hay Street Reserve Usage Fee	$2.55	$2.73	$0.27	$3.00	17.65%	Per Square Metre Per Day
Hire cost per square metre of space used for events in the Glasshouse Forecourt (Hay Street Road Reserve).						
REF for Works within Council Public Road						
Section 138 REF in Relation to Works within Council Public Road(s)	$412.00	$421.00	$0.00	$421.00	2.18%	Per REF
Where works are to be undertaken by a party other than Council that require an Environmental Assessment prior to commencement - for example vegetation clearing of road reserve along boundaries on rural roads for installing or repairing stock fences.						
Section 138 – Cattle Grid/Gates within a Public Road						
Application Fee, Pre-Approval Inspection Fee and Post-Approval Inspection Fee	$473.00	$483.00	$0.00	$483.00	2.11%	Per Application
Traffic Management						
Refer Appendix 9						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Application Fees						
Base application fee (plus calculated additional occupancy fees)	$181.00	$185.00	$0.00	$185.00	2.21%	Each
All Occupancies Minimum						
Road occupancy / opening < 1 week	$181.00	$185.00	$0.00	$185.00	2.21%	Each
Road occupancy / opening > 1 week	$404.00	$413.00	$0.00	$413.00	2.23%	Each
Standing plant < 1 week	$181.00	$185.00	$0.00	$185.00	2.21%	Each
Standing plant > 1 week	$404.00	$413.00	$0.00	$413.00	2.23%	Each
Work zone	$404.00	$413.00	$0.00	$413.00	2.23%	Each
Occupancy of Car Park	$181.00	$185.00	$0.00	$185.00	2.21%	Each
Occupancy Fees						
Minimum 1 Day						
Footpath / Nature Strip (Other Than for Vehicle Crossing)	$2.50	$2.50	$0.00	$2.50	0.00%	Per Metre Per Day
Non residential zone (more than 3 days) Minimum 6 metres						
Parking Lane – Residential Zone (Other Than Vehicle Crossing)	$2.50	$2.50	$0.00	$2.50	0.00%	Per Metre Per Day
With no parking restriction (more than 1 week) Minimum 6 metres						
Parking Lane – Residential Zone (Other Than Vehicle Crossing)	$2.50	$2.50	$0.00	$2.50	0.00%	Per Metre Per Day
With parking restrictions Minimum 6 metres						
Parking Lane – Industrial and CBD Areas	$2.50	$2.50	$0.00	$2.50	0.00%	Per Metre Per Day
No parking restrictions (less than 3 days) Minimum 6 metres						
Parking Lane – Industrial and CBD Areas	$4.70	$4.70	$0.00	$4.70	0.00%	Per Metre Per Day
No parking restrictions (more than 3 days) Minimum 6 metres						
Parking Lane – Industrial and CBD Areas	$4.70	$4.70	$0.00	$4.70	0.00%	Per Metre Per Day
With parking restriction Minimum 6 metres						
Trafficable Lane Occupancy	$10.00	$10.00	$0.00	$10.00	0.00%	Per Metre Per Day
Minimum 6 metres						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Occupancy Fees [continued]						
Standing Plant (Skips, Concrete Pumps, Cranes, etc)	$2.50	$2.50	$0.00	$2.50	0.00%	Per Metre Length of Plant Per Day
Minimum 5 metres						
Work Zone (CBD and Shopping Precincts)	$26.20	$26.20	$0.00	$26.20	0.00%	Per Metre Per Day
Standing plant fees additional						
Work Zone (Others Area)	$13.50	$13.50	$0.00	$13.50	0.00%	Per Metre Per Day
Standing plant fees additional						
Security Bonds						
Traffic Management Bond Administration Fee	$262.00	$268.00	$0.00	$268.00	2.29%	Per Bond
Applicable to all bonds						
Security Bond – For Damage to Public Infrastructure	For occupation <1 week, minimum $2,000. For occupation >1 week, calculate Min. Fee: $2,000.00					Each
Works on Road Reserve – Located within CBD – General Bond	$10,000.00	$10,000.00	$0.00	$10,000.00	0.00%	Per Application
This bond is applied where works require the use of heavy plant, equipment and or scaffolding within the road reserve within the CBD						
Works within Road Reserve – Location other than CBD – General Bond	$2,000.00	$2,000.00	$0.00	$2,000.00	0.00%	Per Application
This bond may be applied where works require the use of heavy plant, equipment and or scaffolding within the road reserve outside of the CBD						
Large events, and large events within Glasshouse Forecourt and Town Green Parking Areas – General Bond Area	$2,000.00	$2,000.00	$0.00	$2,000.00	0.00%	Per Application
This bond may be applied where a bump in and out requires the use of large vehicles/fork lifts etc. and/or where there is a possibility of Council assets being damaged						
Street Banner Poles						
Street Banner Poles – Banner Change Over Fee	$0.00	$66.00	$0.00	$66.00	∞	per banner

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Directions Signage

Community, Service & Tourism Signage

Application and Sign Fee for New Community, Service and Tourism Signage

One sign	$217.00	$201.82	$20.18	$222.00	2.30%	Per Application
Includes application fee and supply & installation of one sign						
Two or three signs	$368.00	$341.82	$34.18	$376.00	2.17%	Per Application
Includes application fee and supply & installation of two or three signs						

Private Works – Restoration of Road Openings in Public Roads Maintained by Council

Refer to Appendix 5

Restoration of Road Openings up to 10m2

Application Administration Fee – Restoration of Damaged Assets	$473.00	$483.00	$0.00	$483.00	2.11%	Per Application
Fees relating to internal costs incurred by Council including inspection of works and organisation of Council staff to repair damage to Council's Traffic & Stormwater Network Assets.						

Type of Road Pavement

Asphaltic concrete with cement concrete base	$402.20	$410.40	$0.00	$410.40	2.04%	Per m2
Tar and bitumous surfaces on all classes of base other than cement concrete	$148.90	$152.00	$0.00	$152.00	2.08%	Per m2
Earth and gravel, waterbound macadam and all other classes of unsealed pavement or shoulders	$62.40	$63.70	$0.00	$63.70	2.08%	Per m2

Kerbing, Guttering Construction

Contribution from land owners for Kerb & Guttering

Frontage	$78.00	$80.00	$0.00	$80.00	2.56%	Per Lineal Metre
Side and/or Rear	$38.00	$40.00	$0.00	$40.00	5.26%	Per Lineal Metre

Street Stalls

Street Stalls					No Charge	Per Day

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Ferries

Ferry Services

Refer Appendix 3

Standard Full Fee

Cars/Utilities Annual Ticket	$1,000.00	$909.09	$90.91	$1,000.00	0.00%	Annually
Unlimited use Fee will be quarterly pro-rated - pass issued for financial year						
Cars/Utilities Monthly Ticket	$100.00	$90.91	$9.09	$100.00	0.00%	Monthly
Unlimited use Ticket is issued for the calendar month						
Cars/Utilities Weekly Ticket	$40.00	$36.36	$3.64	$40.00	0.00%	Weekly
Unlimited use Ticket is issued for the week, Monday to Sunday						
Car/Utilities	$5.00	$4.55	$0.45	$5.00	0.00%	Per Trip
Single Trip						
Caravans/Trailers	$5.00	$4.55	$0.45	$5.00	0.00%	Per Trip
Extra Charge per Trip						
Trucks > 4t GVM Approx. 2t Payload	$10.00	$9.09	$0.91	$10.00	0.00%	Per Trip
Single Trip						
Semi-Trailers	$15.00	$13.64	$1.36	$15.00	0.00%	Per Trip
Single Trip						
Motorcycles	$2.00	$1.82	$0.18	$2.00	0.00%	Per Trip
Single Trip						

Resident/Ratepayer Concession Holders

Annual Concession Stickers	$55.00	$50.00	$5.00	$55.00	0.00%	Each
Based on a financial year Fee will be quarterly pro-rated						
Concession Annual Pass – Motorcycle	$175.00	$159.09	$15.91	$175.00	0.00%	Annually
Unlimited use Includes cost for annual concession sticker						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Resident/Ratepayer Concession Holders [continued]						
Concession Annual Pass – Cars/Utilities	$350.00	$318.18	$31.82	$350.00	0.00%	Annually
Unlimited use Includes cost for annual concession sticker						
Concession Annual Pass – Trucks > 4t GVM Approx. 2t Payload	$1,050.00	$954.55	$95.45	$1,050.00	0.00%	Annually
Unlimited use Includes cost for annual concession sticker						
Concession Annual Pass – Semi-Trailer, Dog-Trailer, Articulated Vehicle	$1,400.00	$1,272.73	$127.27	$1,400.00	0.00%	Annually
Unlimited use Includes cost for annual concession sticker						
Concession Monthly Ticket – Cars/Utilities	$30.00	$27.27	$2.73	$30.00	0.00%	Monthly
Unlimited use Ticket is issued for the calendar month						
Concession Monthly Ticket – Trucks > 4t GVM Approx. 2t Payload	$90.00	$81.82	$8.18	$90.00	0.00%	Monthly
Unlimited use Ticket is issued for the calendar month						
Concession Monthly Ticket – Semi-Trailer, Dog-Trailer, Articulated Vehicle	$120.00	$109.09	$10.91	$120.00	0.00%	Monthly
Unlimited use Ticket is issued for the calendar month						
Concession Monthly Ticket – Motorcycles	$15.00	$13.64	$1.36	$15.00	0.00%	Monthly
Unlimited use Ticket is issued for the calendar month						
Concession Weekly Ticket – Cars/Utilities	$10.00	$9.09	$0.91	$10.00	0.00%	Weekly
Unlimited use Ticket is issued for the week, Monday to Sunday						
Concession Weekly Ticket – Trucks > 4t GVM Approx. 2t Payload	$30.00	$27.27	$2.73	$30.00	0.00%	Weekly
Unlimited use Ticket is issued for the week, Monday to Sunday						

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Resident/Ratepayer Concession Holders [continued]						
Concession Weekly Ticket – Semi-Trailer, Dog-Trailer, Articulated Vehicle	$40.00	$36.36	$3.64	$40.00	0.00%	Weekly
Unlimited use Ticket is issued for the week, Monday to Sunday						
Concession Weekly Ticket – Motorcycles	$5.00	$4.55	$0.45	$5.00	0.00%	Weekly
Unlimited use Ticket is issued for the week, Monday to Sunday						
Concession Pre-Paid Booklets – 25 Tickets per booklet	$20.00	$18.18	$1.82	$20.00	0.00%	Per Booklet
Per Booklet Pre-paid tickets must be used for single concession trips						
Concession Car/utilities	$0.80	$0.73	$0.07	$0.80	0.00%	1 pre-paid ticket, per trip
Single Trip 1 pre-paid ticket, handed to ferry operator						
Concession Caravans/trailers	$0.80	$0.73	$0.07	$0.80	0.00%	1 pre-paid ticket, per trip
Extra Charge per Trip 1 pre-paid ticket, handed to ferry operator						
Concession Trucks > 4t GVM approx. 2t payload	$2.40	$2.18	$0.22	$2.40	0.00%	3 pre-paid tickets, per trip
Single Trip 3 pre-paid tickets, handed to ferry operator						
Concession Semi-Trailer, Dog-Trailer, Articulated Vehicle	$3.20	$2.91	$0.29	$3.20	0.00%	4 pre-paid tickets, per trip
Single Trip 4 pre-paid tickets, handed to ferry operator						
Concession Motorcycles	$0.40	$0.36	$0.04	$0.40	0.00%	1/2 pre-paid ticket, per trip
Single Trip 1/2 pre-paid ticket, handed to ferry operator						

Private Works

Refer to Appendix 4

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

General Fund

Emergency Works

Emergency Works					Actual Costs + 25%	

Private Works (pre-paid)

Up to $20,000					Quotation + 18%	
$20,000 – $50,000					Quotation + 12%	
$50,000 & above					Quotation + 6%	

Government Department & Other Local Government Instrumentalities

Up to $20,000					Quotation + 18%	
$20,000 – $50,000					Quotation + 12%	
$50,000 & above					Quotation + 6%	

Sewerage Services

Interest Rate

Interest Rate on overdue rates & charges

Sewer Annual Charges					7.50%	
As per the rate determined by the Division of Local Government						

Wastewater Annual Charges & Usage Fees

Section 501 & 502 Local Government Act, 1993

Annual Charges

Connected or available other than churches and halls	$859.50	$883.00	$0.00	$883.00	2.73%	Per Annum
Non Rateable – Section 555 churches & halls	$551.60	$567.00	$0.00	$567.00	2.79%	Per Annum
Non Rateable – Section 555 Other than churches and halls	$684.20	$703.00	$0.00	$703.00	2.75%	Per Annum
Non Rateable – Section 556	$859.50	$883.00	$0.00	$883.00	2.73%	Per Annum
Unconnected – Section 548A	$551.60	$567.00	$0.00	$567.00	2.79%	Per Annum
Pressure Sewer	$829.50	$852.00	$0.00	$852.00	2.71%	Per Annum

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Usage Fees						
Caravan Parks, Retirement Homes, Motels, Clubs, Hotels, Schools & Backpackers Hostels, Flats, Granny Flats, Secondary Dwellings, Multi Dwelling Housing, Dual Occupancy (where not on separate sewer connections), Major Regional Shopping Centres	$1.29	$1.32	$0.00	$1.32	2.33%	C per kl

On-site Sewerage Management System

Annual Charges

Operate on-site sewage management system

Residential

Low Risk System	$37.00	$38.00	$0.00	$38.00	2.70%	Each
Medium Risk System	$73.00	$75.00	$0.00	$75.00	2.74%	Each
High Risk System	$104.00	$107.00	$0.00	$107.00	2.88%	Each

Commercial

Small	$208.00	$214.00	$0.00	$214.00	2.88%	Each
Large	$260.00	$267.00	$0.00	$267.00	2.69%	Each

Reclaimed Water

Port Macquarie Urban Area Business/Commercial/Council Facilities Only (Usage Charge - Refer to Appendix 8 for Usage Allowance)

Annual Availability Charge

Charge Per Meter

50% of Potable Water Charge

Usage Fees

50% of Potable Water Charge

Residential Properties to be Serviced by Reclaimed Water (i.e. Dual Scheme with Two Meters per Property)

Section 501, 502 & 556 of the Local Government Act, 1993

Usage Charges

Total of Both Meters

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Approvals Under Section 68 Local Government Act, 1993

Refer also to Local Government (Approvals) Regulation 1999.

Part B – 7. Approval to Discharge Waste to a Council Sewer

Treatment Facility Type/Development Type

Application requiring State Government concurrence	$554.70	$566.00	$0.00	$566.00	2.04%	Each
Application not requiring State Government concurrence	$302.00	$309.00	$0.00	$309.00	2.32%	Each

Septic Sewage Fees

Pans & Effluent	$2.40	$2.45	$0.00	$2.45	2.08%	Per kl
Sludge (septic)	$24.00	$25.00	$0.00	$25.00	4.17%	Per kl

Trade Waste Charges

Refer also Policy T2

Annual Inspection Charge Category 1 & 2	$195.25	$200.00	$0.00	$200.00	2.43%	Each
Annual Inspection Charge Category 3	$601.90	$615.00	$0.00	$615.00	2.18%	Each
Biochemical Oxygen Demand (BOD)	$0.75	$0.80	$0.00	$0.80	6.67%	Per kg
Total Dissolved Solids (TDS)	$1.06	$1.08	$0.00	$1.08	1.89%	Per kg
Total Suspended Solids (TSS)	$0.91	$0.93	$0.00	$0.93	2.20%	Per kg
Oil & Grease	$1.32	$1.35	$0.00	$1.35	2.27%	Per kg
Re-inspection Fee	$102.95	$106.00	$0.00	$106.00	2.96%	Each
Non-compliance operating Trade Waste Charge – Volume with Pre-Treatment	$1.64	$1.77	$0.00	$1.77	7.93%	Per kl
Non-compliance operating Trade Waste Charge – Volume with No treatment	$14.95	$16.23	$0.00	$16.23	8.56%	Per kl
pH Coefficient	$0.44	$0.45	$0.00	$0.45	2.27%	Constant

refer to PMHC Trade Waste Policy

Private Works – Sewer Fund

Emergency Works

Emergency Works	Actual Costs + 25%	

Private Works (pre-paid)

Up to $20,000	Quotation + 18%	

continued on next page

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Private Works (pre-paid) [continued]						
$20,000 – $50,000					Quotation + 12%	
$50,000 & above					Quotation + 6%	
Government Department & Other Local Government Instrumentalities						
Up to $20,000					Quotation + 18%	
$20,000 – $50,000					Quotation + 12%	
$50,000 & above					Quotation + 6%	

Miscellaneous Sewerage Fees and Charges

Sewerage Pumping Station Commissioning	$350.00	$358.00	$0.00	$358.00	2.29%	Per pump station
Effluent Reuse	$0.15	$0.15	$0.00	$0.15	0.00%	Per kl
Not reclaimed quality						
Camera investigation – of sewer drainage	$181.25	$185.00	$0.00	$185.00	2.07%	Per Hour
Minimum 2 Hours						
Sewer Main Pressure Testing	$136.90	$140.00	$0.00	$140.00	2.26%	Per Hour
Hourly rate for all time spent setting up and pressure testing main.						
Sewer Junction Location – Mailed	$34.70	$36.00	$0.00	$36.00	3.75%	Each
Sewer Junction Location – Letter to Customer Advising not Available	$34.70	$36.00	$0.00	$36.00	3.75%	Each
Sewer Junction Location – Expedition Charge – Response Required for 24 Hour Pick Up	$47.30	$49.00	$0.00	$49.00	3.59%	Each

Stormwater & Drainage

Interest Rate

Interest Rate on overdue rates & charges

Stormwater Management Annual Charge					7.50%	
As per the rate determined by the Division of Local Government						

Annual Stormwater Charge

Section 496A of Local Government Act, 1993

Business

Between 0 & 350m2	$25.00	$25.00	$0.00	$25.00	0.00%	Per Annum
Between 351m2 & 700m2	$50.00	$50.00	$0.00	$50.00	0.00%	Per Annum

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Business [continued]						
Between 701m2 & 1,000m2	$75.00	$75.00	$0.00	$75.00	0.00%	Per Annum
Between 1,001m2 & 1,400m2	$100.00	$100.00	$0.00	$100.00	0.00%	Per Annum
Between 1,401m2 & 1,750m2	$125.00	$125.00	$0.00	$125.00	0.00%	Per Annum
Between 1,751m2 & 2,100m2	$150.00	$150.00	$0.00	$150.00	0.00%	Per Annum
Between 2,101m2 & 2,450m2	$175.00	$175.00	$0.00	$175.00	0.00%	Per Annum
Between 2,451m2 & 2,800m2	$200.00	$200.00	$0.00	$200.00	0.00%	Per Annum
Between 2,801m2 & 3,200m2	$225.00	$225.00	$0.00	$225.00	0.00%	Per Annum
Between 3,201m2 & 3,500m2	$250.00	$250.00	$0.00	$250.00	0.00%	Per Annum
Between 3,501m2 & 3,850m2	$275.00	$275.00	$0.00	$275.00	0.00%	Per Annum
Between 3,851m2 & 4,200m2	$300.00	$300.00	$0.00	$300.00	0.00%	Per Annum
Between 4,201m2 & 4,600m2	$325.00	$325.00	$0.00	$325.00	0.00%	Per Annum
Between 4,601m2 & 4,900m2	$350.00	$350.00	$0.00	$350.00	0.00%	Per Annum
Between 4,901m2 & 5,200m2	$375.00	$375.00	$0.00	$375.00	0.00%	Per Annum
Between 5,201m2 & 5,600m2	$400.00	$400.00	$0.00	$400.00	0.00%	Per Annum
Between 5,601m2 & 5,950m2	$425.00	$425.00	$0.00	$425.00	0.00%	Per Annum
Between 5,951m2 & 6,300m2	$450.00	$450.00	$0.00	$450.00	0.00%	Per Annum
Between 6,301m2 & 6,600m2	$475.00	$475.00	$0.00	$475.00	0.00%	Per Annum
Greater than 6,600m2	$500.00	$500.00	$0.00	$500.00	0.00%	Per Annum
Business Strata						
Business Strata	$12.50	$12.50	$0.00	$12.50	0.00%	Per Annum
Residential						
Residential	$25.00	$25.00	$0.00	$25.00	0.00%	Per Annum
Residential Strata						
Residential Strata	$12.50	$12.50	$0.00	$12.50	0.00%	Per Annum
Stormwater Asset Investigations						
Camera Investigation of Stormwater Drainage Assets	$16.50	$15.45	$1.55	$17.00	3.03%	Per Metre
Water Supply						
Interest Rate						
Interest Rate on overdue rates & charges						
Water Annual Charges					7.50%	
As per the rate determined by the Division of Local Government						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Water Charges & Fees

Annual Availability Charge

Section 501, 502 & 556 of Local Government Act, 1993

Community Service Organisations					No Charge	Per Annum
Section 555						
Equivalent Tenements	$205.00	$198.00	$0.00	$198.00	-3.41%	Per Annum
Strata Units	$205.00	$198.00	$0.00	$198.00	-3.41%	Per Annum
Not individually metered						
Vacant Land	$205.00	$198.00	$0.00	$198.00	-3.41%	Per Annum
Other than land that complies with Section 548A						
20 mm Meter	$205.00	$198.00	$0.00	$198.00	-3.41%	Per Annum
25 mm Meter	$319.00	$315.00	$0.00	$315.00	-1.25%	Per Annum
32 mm Meter	$526.00	$527.00	$0.00	$527.00	0.19%	Per Annum
40 mm Meter	$820.00	$829.00	$0.00	$829.00	1.10%	Per Annum
50 mm Meter	$1,284.00	$1,306.00	$0.00	$1,306.00	1.71%	Per Annum
80 mm Meter	$3,280.00	$3,356.00	$0.00	$3,356.00	2.32%	Per Annum
100 mm Meter	$5,123.00	$5,248.00	$0.00	$5,248.00	2.44%	Per Annum
150 mm Meter	$11,534.00	$11,832.00	$0.00	$11,832.00	2.58%	Per Annum
200 mm Meter	$20,499.00	$21,039.00	$0.00	$21,039.00	2.63%	Per Annum

Usage Fees

Refer Appendix 6 for Usage Allowance

Consumption below usage allowance

Water Consumption – Tier 1	$2.86	$3.06	$0.00	$3.06	6.99%	Per kl
Water Consumption – Tier 2	$5.72	$6.12	$0.00	$6.12	6.99%	Per kl

Fire Service Levy

Annual Charges

Charge per Meter Size

50% of the potable water charge

50 mm Meter	$642.00	$653.00	$0.00	$653.00	1.71%	Per Annum
80 mm Meter	$1,640.00	$1,678.00	$0.00	$1,678.00	2.32%	Per Annum
100 mm Meter	$2,561.50	$2,624.00	$0.00	$2,624.00	2.44%	Per Annum
150 mm Meter	$5,767.00	$5,916.00	$0.00	$5,916.00	2.58%	Per Annum
200mm Meter	$10,249.50	$10,519.50	$0.00	$10,519.50	2.63%	Per Annum

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit

Reclaimed Water Charges

Port Macquarie Urban Area Business/Commercial/Council Facilities Only

Annual Availability Charge

20 mm Meter	$102.50	$99.00	$0.00	$99.00	-3.41%	Per Annum
25 mm Meter	$159.50	$157.50	$0.00	$157.50	-1.25%	Per Annum
32 mm Meter	$263.00	$263.50	$0.00	$263.50	0.19%	Per Annum
40 mm Meter	$410.00	$414.50	$0.00	$414.50	1.10%	Per Annum
50 mm Meter	$642.00	$653.00	$0.00	$653.00	1.71%	Per Annum
80 mm Meter	$1,640.00	$1,678.00	$0.00	$1,678.00	2.32%	Per Annum
100 mm Meter	$2,561.50	$2,624.00	$0.00	$2,624.00	2.44%	Per Annum
150 mm Meter	$5,767.00	$5,916.00	$0.00	$5,916.00	2.58%	Per Annum
200 mm Meter	$10,249.50	$10,519.50	$0.00	$10,519.50	2.63%	Per Annum

Usage Fees

Refer to Appendix 7

Reclaimed Water Consumption – Tier 1	$1.43	$1.53	$0.00	$1.53	6.99%	Per kl

Residential Properties to be Serviced by Reclaimed Water

i.e. Dual Scheme with Two Meters per Property

Included in Annual Water Charge	No Additional Charge	

Private Works – Water Fund

Emergency Works

Emergency Works	Actual Costs + 25%	

Private Works (pre-paid)

Up to $20,000	Quotation + 18%	
$20,000 – $50,000	Quotation + 12%	
$50,000 & above	Quotation + 6%	

Government Department & Other Local Government Instrumentalities

Up to $20,000	Quotation + 18%	
$20,000 – $50,000	Quotation + 12%	
$50,000 & above	Quotation + 6%	

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Miscellaneous Water Fees and Charges						
Service Fee to be charged upon the issue of a Final Notice of Intention to Disconnect Water	$59.50	$61.00	$0.00	$61.00	2.52%	Each
Disconnection/Reconnection of Water Supply	$118.90	$122.00	$0.00	$122.00	2.61%	Each
Supervision of Interconnection to existing main or Supervision of Pressure Testing	$118.90	$122.00	$0.00	$122.00	2.61%	Per Hour
For each connection, includes notification and supervision of interconnection or pressure testing by contractor. NOTE: This fee is to be reapplied if site is not available within 1/2 hour of agreed time Recovering actual cost						
Water Main Pressure Testing	$136.90	$140.00	$0.00	$140.00	2.26%	Per Hour
Hourly rate for all time spent setting up and pressure testing main.						
Sale of in-house water meters	$103.00	$96.36	$9.64	$106.00	2.91%	Each
Remote water meter transmitter hire	$112.00	$115.00	$0.00	$115.00	2.68%	Each
Available areas only						
Consultancy – Investigation and Design	$184.70	$171.82	$17.18	$189.00	2.33%	Per Hour
Vacuum Excavation Truck	$233.50	$217.27	$21.73	$239.00	2.36%	Per Hour
Includes Plant & Operator cost						
Tanker Truck	$107.15	$100.00	$10.00	$110.00	2.66%	Per Hour
Includes Plant and Operator cost						
Water Usage Printout – Standard Delivery	$37.20	$38.00	$0.00	$38.00	2.15%	Each
Water Usage Printout – Urgent Delivery	$37.20	$38.00	$0.00	$38.00	2.15%	Each
Disinfection of Water Mains						
Minimum Fee	$881.90	$900.00	$0.00	$900.00	2.05%	Each
Lineal Metre rate	$5.57	$6.00	$0.00	$6.00	7.72%	Lineal Metre
Re-establishment fee	$441.45	$451.00	$0.00	$451.00	2.16%	Each
Fee to be applied if site not available within 1/2 hour of agreed time						
Tanker Hire for Disinfection of Water Mains	$107.15	$110.00	$0.00	$110.00	2.66%	Per Hour
Leakages						
Water Leakage Investigations	$130.50	$121.82	$12.18	$134.00	2.68%	Per Hour
Hire of equipment plus operator Minimum 1 hour						

Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Swimming Pools						
Water directly from main to fill Residential Swimming Pool	$619.80	$633.00	$0.00	$633.00	2.13%	
Testing of Water Meters						
20 mm	$249.20	$382.00	$0.00	$382.00	53.29%	Each
Deposit, if the meter is found to be faulty and over-registering, this deposit will be refunded						
Greater than 25 mm					Actual Cost	Each
Registration of Backflow Prevention Devices	$67.95	$70.00	$0.00	$70.00	3.02%	Each
Testing of Backflow Prevention Devices	$125.25	$128.00	$0.00	$128.00	2.20%	Each
Water Meter Readings						
Additional Water Meter Reading Requests – Standard Delivery	$67.95	$70.00	$0.00	$70.00	3.02%	Each
Additional Water Meter Reading Requests – Urgent Delivery	$67.95	$70.00	$0.00	$70.00	3.02%	Each
Private water meter readings	$1.64	$1.67	$0.00	$1.67	1.83%	Per Meter
Water from Mains						
Water Carter's Licence Fee – Reclaimed	$984.15	$1,005.00	$0.00	$1,005.00	2.12%	Per Annum
Water Carter's Licence Fee – Potable	$984.15	$985.00	$0.00	$985.00	0.09%	Per Annum
Water Meter Installation						
Lowering existing 20mm Water Meter into a Non-Trafficable Pit	$0.00	$499.00	$0.00	$499.00	∞	per service
New 20mm Reclaimed & Potable Water Meter – Long Service	$0.00	$5,413.00	$0.00	$5,413.00	∞	per service
New 20mm Reclaimed & Potable Water Meter – Short Service	$0.00	$2,012.00	$0.00	$2,012.00	∞	Per Service
Replacement of a Stolen 20mm Water Meter	$0.00	$141.00	$0.00	$141.00	∞	per meter
New single 20 mm Potable Water Meter	$525.00	$536.00	$0.00	$536.00	2.10%	Each
New single 20mm Reclaimed Water Meter	$892.10	$911.00	$0.00	$911.00	2.12%	Each
New 20mm Reclaimed and Potable Combo Water Meter	$1,122.60	$1,146.00	$0.00	$1,146.00	2.08%	Each
New single 20mm Potable Water Meter – Long Service	$3,292.15	$3,359.00	$0.00	$3,359.00	2.03%	Each
New single 20mm Potable Water Meter – Short Service	$1,108.40	$1,131.00	$0.00	$1,131.00	2.04%	Each

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Name	Year 18/19 Last YR Fee (incl. GST)	Year 19/20 Fee (excl. GST)	GST	Fee (incl. GST)	Increase %	Unit
Water Meter Installation [continued]						
New single 20mm Reclaimed Water Meter – Long Service	$4,019.15	$4,101.00	$0.00	$4,101.00	2.04%	Each
New single 20mm Reclaimed Water Meter – Short Service	$1,518.05	$1,549.00	$0.00	$1,549.00	2.04%	Each
Water Pressure Certificates						
Hose reel installation	$92.35	$95.00	$0.00	$95.00	2.87%	Each
Fire hydrant installation	$184.65	$189.00	$0.00	$189.00	2.36%	Each
Fire sprinkler and / or wall drencher installation	$268.50	$274.00	$0.00	$274.00	2.05%	Each

DRAFT Schedule of Fees and Charges 2019 – 2020

Appendices

Appendix 1 – Documents & Publications

Single Copies

The public should be encouraged to use coin-operated machines in the Library except where it is a Council document that is to be copied (e.g. Minutes). In this case, the office copiers are to be used for single jobs.

50 Copies or Greater per Original

This service will be provided on the basis that it is not an "on demand" service. If the copy cannot be done immediately a time will be mutually allocated.

A concession of 50% off the normal charge will apply to the following type of organisations:

(a) Government and/or Council sponsored non-profit organisations concerned primarily with the welfare and or safety of the community and whole complement of workers consist mainly of volunteers, e.g. SES, Neighbourhood Centre, and Volunteer Fire Brigade.

(b) Organisations directly sponsored by Council, consisting wholly of volunteers concerned with special projects, the promotion of which being subject to the declared support of Council, i.e. Friends of Kooloonbung, and that in all other cases the adopted scale of charges apply.

GST Exemption

Income from the sale of the following documents is GST Exempt: the production of, copying of, certifying of, including documents or data produced as a result of the searching or extracting of information from a data file. Examples include Policy documents, DCP's, LEP's, Council Minutes, mapping information, valuations, statistical data etc. The exemption does not extend to documents produced for commercial sale, such as tourist guides.

Publicly Available Information

Many items are available, at least in one form, free of charge as required by section 6 of the *Government Information (Public Access) Act 2009*. Access provided in alternative ways may be charged for.

DRAFT Schedule of Fees and Charges 2019 – 2020

Appendices *(continued)*

Appendix 2 – Port Macquarie Airport

- RPT – Regular Public Transport
- GA – General Aviation
- Definition of private aircraft – used solely for private purposes where no income is generated from the aircraft use by the operator.
- Definition of commercial aircraft – used primarily for pilot training, charter or other operations where income is received by the operator, excluding regular passenger / commercial services
- Council may choose to waive or reduce a fee for an aircraft operator pursuant to s610E(1) of the Local Government Act 1993 by written agreement entered into between the General Manager, under delegated authority granted by the Council, and the aircraft operator by reference to the categories of hardship or other categories appearing below:
  - Regular Public Transport (RPT) Services
  - General Aviation (GA) Services.

Operators wishing to pay the annual fee are required to apply in writing outlining their aircraft registration number, confirming that it is parked and operated out of Port Macquarie Airport and describing the purposes for which the aircraft is used (i.e. commercial or private use).

An additional fee applies where any flying machine not registered on the "VH" register is provided with storage/hangar in a leased area. The hangar lessee will be charged the annual fee for a commercial ultra-light, micro-light or similar, for each such aircraft, or the 'private fee' where the lessee declares such machine as a private aircraft (describing any external markings for identification).

Charges to increase by the annual CPI figure as at December plus provision for maintenance project costs and items identified in the Business Plan. In the event of negative CPI, the fees remain constant from the previous year. Charges are to be rounded up to the nearest five (5) cents.

A movement charge will be levied based on broadcasts over the CTAF(R) (radio) Frequency as mandated by Civil Aviation Safety Regulations and the Aeronautical Information Publication if:

(a) An on ground aircraft broadcasts the intention to taxi and enter runway 03/21
(b) An airborne aircraft broadcasts the intention to join the circuit or broadcasts the intention to undertake a straight approach to runway 03/21

The Port Macquarie Airport Car Park is a pay parking area. Conditions of Parking and the parking fees applicable are displayed at the entry to the car park. A 'lost ticket' fee shall apply for any lost ticket. The 'lost ticket' fee shall be determined by the General Manager or delegate as appropriate to suit operational circumstances.

Port Macquarie is a Security Controlled Airport.

DRAFT Schedule of Fees and Charges 2019 – 2020

Appendices *(continued)*

Appendix 3 – Ferry Services

All residents and rate payers of the Port Macquarie-Hastings Council Local Government Area are entitled to purchase a concession sticker. The concession annual pass prices are inclusive of the concession sticker fee and the annual pass only will be issued.

When concession stickers or annual passes are purchased, they are to be affixed to the driver's side of the windscreen of the vehicle to be valid for traveling or making a concession ticket purchase. Concession stickers and annual passes are not transferrable. A concession sticker or annual pass is required to purchase all concession booklets, concession weekly tickets and concession monthly tickets.

Weekly Tickets are issued for the week from Monday to Sunday, monthly tickets are issued for the calendar month and pre-paid concession booklets have no expiry date (they will only become invalid should the ticketing system be altered).

A concession sticker must be affixed to the vehicle using a pre-paid single trip concession ticket. A concession sticker is not required on a vehicle when using a weekly or monthly ticket. Weekly and monthly tickets are transferrable. Concession single trips can only be made using pre-paid tickets from the booklet - single trip tickets will only be available for purchase at the standard full fare rate.

Annual passes and concession stickers will only be available for purchase from Council.

All other tickets including pre-paid concession ticket booklets are to be purchased from the ferry operator. Weekly and monthly tickets do not cover the cost of a caravan or trailer (including dog-trailer). An additional cost is payable for the caravan or trailer - for concession holders this will be the use of 1 pre-paid ticket.

Concession travelers will hand the ferry operator the required number of pre-paid tickets when boarding the ferry for each single trip. The number of tickets required for each class of vehicle for a single trip is as follows:

- Car single trip = 1 ticket
- Motorcycle single trip = ½ ticket
- Trucks > 4t GVM (approx. 2 ton payload) = 3 tickets
- Semi-trailers, Dog-trailers, articulated vehicles and the like = 4 tickets
- Caravan / Trailer is an additional cost = 1 ticket

Charitable not for profit organisations who undertake charitable work on the North Shore are eligible to apply for 1 annual pass to be affixed to a nominated vehicle. Application is to be made in writing to the Group Manager Transport & Stormwater Network for consideration - specific information relating to the charity, its registration as a not for profit organisation and the type of work undertaken will be required.

DRAFT Schedule of Fees and Charges 2019 – 2020

Appendices *(continued)*

Appendix 4 – Private Works

The *Local Government Act 1993* enables Council to carry out the following works for residents and organisations on private property.

- Paving and road marking (GST applies)
- Kerbing and guttering (GST exempt)
- Demolition and excavation (GST applies)
- Water, sewerage and drainage connections (GST applies)
- Land clearing and tree felling (GST applies)
- Tree planting and tree maintenance (GST applies)
- Fencing and ditching (GST applies)

Appendix 5 – Restoration of Road Openings in Public Roads Maintained by Council

(a) The rate per m² is to be interpreted as meaning a minimum charge / deposit on final cost.

(b) The rate per m² is a minimum charge for restoration of road openings up to 10m².

(c) Where actual restoration costs exceed, by more than $200, the charge calculated by applying the appropriate rate per m², actual may be charged and any amount received in accordance with the above scale rates would be regarded as a deposit on final cost.

(d) Actual costs are to be charged for restoration or road openings over 10m².

(e) Several openings made at the one time less than 50m apart may be grouped as one, unless otherwise determined by the Council's Director of Infrastructure.

(f) Where earth and gravel shoulders exist adjacent to pavements and restoration by the Council is necessary to the shoulders, the charge shown for "earth and gravel, waterbound macadam and all other classes of unsealed pavement or shoulders" is to be made additional to the charge for pavement. Applicants will be required to complete an "Applicants Information Check Sheet" in all road-closing matters prior to initiation or road closing action.

DRAFT Schedule of Fees and Charges 2019 – 2020

Appendices *(continued)*

Appendix 6 – Annual Water Charge – Usage Allowance

Usage allowance – the per annum consumption level where consumption (usage) charges increase from Tier 1 to Tier 2

- 20mm Meter 270kL/pa
- 25mm Meter 422kL/pa
- 32mm Meter 691kL/pa
- 40mm Meter 1080kL/pa
- 50mm Meter 1688kL/pa
- 80mm Meter 4320kL/pa
- 100mm Meter 6750kL/pa
- 150mm Meter 15188kL/pa
- 200mm Meter 27000kL/pa

Refer to body of document for relevant water consumption charges.

Appendix 7 – Reclaimed Water Charge – Usage Allowance

Usage allowance – the per annum consumption level where consumption (usage) charges increase from Tier 1 to Tier 2. Port Macquarie Reclaimed Water Scheme users currently exempt from Tier 2 charges.

- 20mm Meter 270kL/pa
- 25mm Meter 422kL/pa
- 32mm Meter 691kL/pa
- 40mm Meter 1080kL/pa
- 50mm Meter 1688kL/pa
- 80mm Meter 4320kL/pa
- 100mm Meter 6750kL/pa

Refer to body of document for relevant water consumption charges.

Appendix 8 – Traffic Management

The Traffic Management Section replaces the "Temporary Occupation of Footways & Road Reserve" fees from previous years. The fees have now been divided into separate application & occupation sections. Users should find that they are more equitable and short term occupancies are not penalised. This fee is only applicable to development building sites during construction / reconstruction / renovating.

This fee **does not** include the leasing costs imposed by Council for renting public roadway area.

DRAFT Schedule of Fees and Charges 2019 – 2020

Appendices *(continued)*

Appendix 9 – Council Facilities / Halls

Explanation of Fee Categories:

- **Commercial & Other –** includes activities staged by individuals, groups, organisations that *are not* incorporated under the *Associated Incorporations Act NSW (2009)* were revenue generated by use of the building goes back to these individuals, groups, organisations. This rate enables Council to take a full cost recovery approach to this use. Example – Local dance school.
- **Private Functions –** includes activities that have admission restricted to an identifiable group. Example – Birthday Party, Wedding Reception. This rate recognises that no financial gain will be gained from activity and that significant discount is applied.
- **Not for Profit Rate –** includes activities provided by community groups, clubs and organisations for the physical, social, cultural, intellectual development or welfare of the local community. Organisations eligible for this rate should be incorporated under the *Associated Incorporations Act NSW (2009)*. This rate recognises the benefit these activities provide to the community and therefore a major discount applies, while allowing users to make a contribution to the cost facility. E.g. Local Quilting Group.
- **General Bonds – Refundable –** Please note that refunds will only be granted if the hall, room, key or equipment is returned in good and clean condition. Council or the Management Committee / Booking Officer has the rights to deduct appropriate recovery costs.
- **Alcohol Bond – Refundable –** Please note that refunds will only be granted if the hall, room, key or equipment is returned in good and clean condition. Council or the Management Committee / Booking Officer has the rights to deduct appropriate recovery costs. It is the responsibility of the hirer to obtain the necessary approvals from Police to undertake an event involving alcohol. Refer to hire conditions for each of the facilities.

DRAFT Schedule of Fees and Charges 2019 – 2020

Appendices *(continued)*

Appendix 10 – Glasshouse

- After Hours = 5.30pm - 11pm weekdays or 9am - 11pm Saturdays.
- Staff surcharges apply on Sundays, Public Holidays and after 11pm.
- Full Theatre = Stalls seating + Balcony seating.
- Studio Bare Walls = This mode only available when combined with Theatre Hire. No seating, fluoro LX, no audio, no staff. Includes access, cleaning & electricity.
- Whole of Venue = Price on Application. Includes access to the Theatre, Studio, Meeting Rooms 1 & 2, Small Function Room, Mezzanine Foyer and minimum 3 staff, does not include Art Lab or Regional Gallery spaces. Staff charges to set-up and pack down at additional charge and based on event requirements in consultation with Glasshouse staff. Does not include Sunday, Public Holidays, after 11pm or Audio Visual services & equipment.

Glasshouse Discounted Rates

- 40% discount is available to incorporated not-for-profit groups, incorporated community groups, registered charities and schools. Eligibility is limited to organisations that are based in the Port Macquarie-Hastings local government area and that are not already receiving support via Port Macquarie - Hastings Council's Community Grants or similar funding programs. Proof of Incorporation, ABN and registrations must be provided. Please note the 40% discount only applies to venue hire between Monday and Thursday inclusive (i.e. not including Friday, Saturday or Sunday).
- *In addition, not-for-profit groups and community groups must have a form of organisational permanence, be non-government; and not be operating for the profit or gain of its individual members. The Venue Manager, Glasshouse will have responsibility for determining the eligibility status of groups.*
- Port Macquarie & District Eisteddfod to be negotiated annually at a special rate.
- *Discounted rates only to apply to the following fees and charges categories (with all other fees and charges to be charged as per commercial rates such as Staff Rates):-*
  - *Theatre Hire*
  - *Ross Family Studio Hire – discount available 7 days per week, subject to availability*
  - *Meeting Room Hire*
  - *Art Lab Hire*
  - *Small Function Room Hire*
  - *Podium – discount available 7 days per week, subject to availability*
  - *Other Venue Hire*
  - *Venue Set Up and audio visual Items (equipment only)*

- Please contact the Glasshouse Event Services Team for a comprehensive quote tailor made to suit your function requirements.

DRAFT Schedule of Fees and Charges 2019 – 2020

Appendices *(continued)*

Appendix 11 – Crematorium & Cemeteries

- Services which cannot be completed within normal business hours (9am to 3pm Monday to Friday) will incur a Late Fee.
- Burial services booked outside of normal business hours for religious reasons will be subject to an additional surcharge.
- Reservations without payment for burial sites and ash inurnment will be held for one (1) calendar month only after which full payment will be required.
- Council cannot accept part payments / deposits for burial and cremation services.
- Requests for refunds on unused reserved sites will be issued at the rate of the original amount paid less the current Administration Fee. Exclusive rights must be relinquished. No refunds on used sites.
- Family Ash Placements by appointment can be made at the Innes Garden Memorial Park office and subject to fees depending on location of the cemetery.
- Ash removal on request by the original applicant or Executor may be approved and subject to the relevant fee. A Statutory Declaration signed by all next of kin is required for ash removal requests in situations where the original Applicant or Executor are not contactable.

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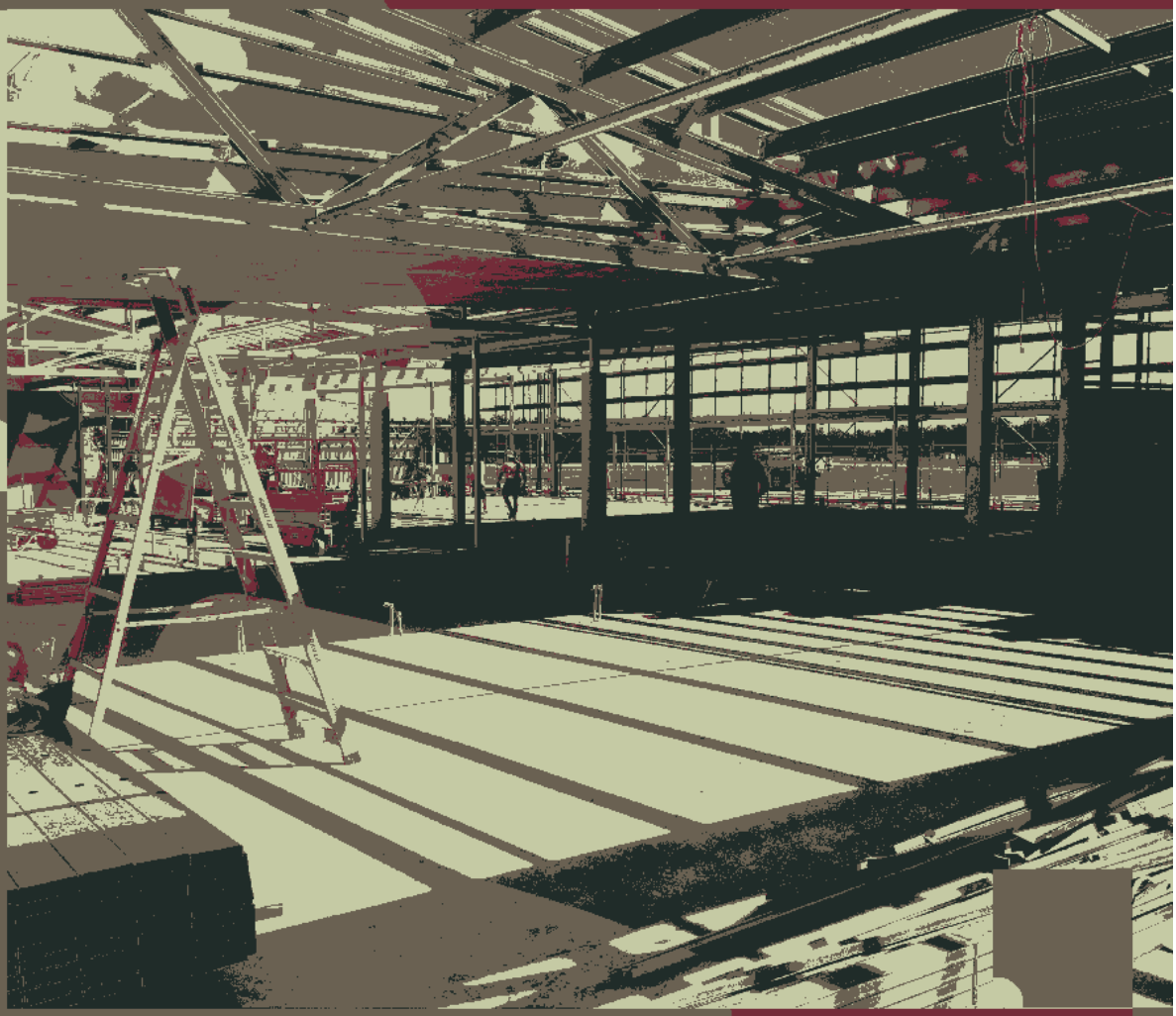
PORT MACQUARIE-HASTINGS
COUNCIL

Attachment 2

REVENUE POLICY
2019-2020



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Statutory Requirements

In accordance with the *Local Government Act 1993* the following statutory requirements are included in this document:

- Statement containing a detailed estimate of the council's income and expenditure;
- Statement of ordinary and special rates;
- Rating structure;
- Statement of charges to apply to rateable and non-rateable properties;
- Statement of fees to be charged and pricing policy of goods and services;
- Statement of borrowings;
- Statement of private works; and
- Statement of business and commercial activities.

Estimate of Council's income and expenditure

	2019-20 Draft Budget
Continuing operations movements	
Income	
Rates and annual charges	100,315,591
User charges and fees	39,803,585
Interest received	8,701,024
Grants and contributions	47,362,872
Other operating receipts	5,440,303
Expenses	
Employee costs	(54,003,921)
Materials and contracts	(43,411,020)
Depreciation	(49,134,601)
Interest paid	(2,464,723)
Other operating payments	(14,229,228)
Loss on disposal of assets	(3,000,000)
Operating result from continuing operations	**35,379,882**
Restricted Asset Movements	
Receipts	
Transfer from restricted assets	70,148,070
Payments	
Transfer to restricted assets	(57,969,967)
Net revenue (used in)/provided by restricted assets	**12,178,103**
Property, plant and equipment movements	
Receipts	
Sale of fixed assets/real estate development	-
Payments	
Purchase of Assets	(85,570,344)
Developer provided assets	(6,500,000)
Net revenues (used in)/provided by property, plant & equipment	**(92,070,344)**
Financing movements	
Receipts	
Proceeds from borrowings	1,500,000
Repayment of borrowings and advances	(10,097,440)

Payments	
Net revenues (used in) provided by financing activity	(8,597,440)
Net result (including depreciation)	(53,109,799)
Add Back: Non Cash Items	52,134,601
Budget Surplus/(Shortfall)	(975,198)

Statement of ordinary and special rates

Strategy – ordinary rates

Council will continue to levy ordinary rates using a structure comprising a base amount to which an ad valorem (rate in the dollar) component is added. The Base Amount will vary, depending on rating category/sub-category combination, up to the maximum allowed (50%) for defined urban areas. All ratable properties within each category / sub-category, regardless of their land value, are levied the base amount. The balance of income for ordinary rates is derived by multiplying the land value of a property by a rate in dollar for the relevant category / sub-category, which is determined by Council. The amount payable by ratepayers under this component is dependent on the land value of the property. In addition, the total amount collected for ordinary rates each year will take account of any approved increase advised by the Minister.

The following is the structure of Council's rates:

Type	Category	Sub-Category	Comments
Ordinary	Residential	Defined Urban Centres	All properties categorised as residential within the localities of Bonny Hills, Camden Head, Dunbogan, Kendall, Kew, Lake Cathie, Lakewood, Laurieton, North Haven, Port Macquarie, Wauchope and West Haven as defined by the "Designated Urban Centre" maps following.
Ordinary	Residential	Other Hastings	All other properties classified as residential within the Council area and are not located within the areas defined as "Designated Urban Centres" above.
Ordinary	Farming		Eligibility determined in accordance with *Local Government Act 1993*.
Ordinary	Mining		Eligibility determined in accordance with *Local Government Act 1993*.
Ordinary	Business	Port Macquarie CBD	All business properties within the Port Macquarie CBD which are identified on the map following, and as adopted by Council for the purpose of identifying the Port Macquarie CBD for Business Sub-Category rating.
Ordinary	Business	Defined Urban Centres	All business properties within the "Designated Urban Centres" are identified on the maps following, and as adopted by Council for the purpose of identifying the "Designated Urban Centre" for Business Sub-Category rating. The locality of Port Macquarie does not include the area defined as "Port Macquarie CBD".
Ordinary	Business	Other Hastings	All business properties within the Council area other than those in the CBD of Port Macquarie area and "Designated Urban Centres" as identified on the maps following and as adopted by Council.

Rating structure

Ordinary rates under section 494 of the *Local Government Act 1993* and special rates under section 495 of the *Local Government Act 1993*. The Minister's allowable increase for the 2019-20 financial year has been set at 2.7% and has been applied in full. Council is using land valuations as at 1 July 2016 for the rating calculations.

The table below includes the 2.7% rate pegging limit for 2019-20.

Category	Sub-Category	General Base Amount	Environ-mental Base	Base Amount % of total levy	Plus	Ad Valorem Rate: Cents in $	Estimated Gross Yield	% of Total	Average Rates
Residential	Defined Urban Centre	$574.80	$24.00	49.47%		0.28605	$35,541,181	68.27	$1,210
Residential	Other Hastings	$474.80	$24.00	39.49%		0.30300	$5,692,412	10.93	$1,263
Farmland		$577.00	$24.00	29.75%		0.30327	$2,387,817	4.59	$2,020
Business	Port Macquarie CBD	$574.80	$24.00	5.20%		2.35042	$3,179,055	6.11	$11,518
Business	Defined Urban Centre	$574.80	$24.00	20.28%		0.60371	$4,772,180	9.17	$2,953
Business	Hastings Other	$474.80	$24.00	30.51%		0.52490	$354,797	0.68	$1,635
The Broadwater Special Rate						0.07114	$106,634	0.20	$318
Sanctuary Springs Special Rate						0.15850	$24,167	0.05	$331
Allowance for Growth							$643,642		
Sub-Total							**$52,701,885**	**100.00**	
Pensioner Rebates							($1,538,500)		
Postponed Rates							($50,000)		
Abandoned Other/Appeals							($138,500)		
Economic Development							($314,729)		
Tourism							($547,400)		
The Broadwater Special Rate							($106,634)		
Sanctuary Springs Special Rate							($24,167)		
Environmental Base							($872,060)		
Port Macquarie CBD Town Improvement							($1,185,400)		
General net income							**$47,924,495**		

Rates and Charges Hardship Assistance Policy

Council has a current Rates and Charges Hardship Assistance Policy. This policy was adopted by Council on the 16 August 2017. If you would like to get more information on this policy please contact Council's customer services section on 6581 8111.

Environmental and community infrastructure levy expenditure: 2019-20

Project	Amount
Koala Recovery Strategy – Implementation of Management Actions	$25,000
Koala Recovery Partnership – Koala Hospital/Joint Organisation/OEH	$90,000
Noxious and Environmental Weed Control – Mid North Coast Invasive Plant Strategy	$122,900
Hastings River Flood Management – Stage 4 Flood Plan Risk Management Plan Implementation	$30,000
Flying Fox Management – Stage 2 Implement Camp Management Plan	$35,000
Coastal Management Plan – Scoping Study	$60,000
Biodiversity Strategy – Develop Vertebrate Pest Species Management Strategy	$25,000
Biodiversity Offsets – Land Acquisitions	$25,000
Bushland Management – Landcare Sponsorship for local programs	$10,000
Environmental Assess Requirements – OEH Undertakings	$5,000
Bushland Mapping & Site Surveying – Creation of Geographic Information Data	$10,000
Reservoir Park – Playground Replacement	$18,439
Town Beach Park – Playground Replacement	$132,732
Vince Inmon Sporting Fields – Facility Upgrade	$136,729
Walkway Replacement – Sandhurst Reserve, Blair Reserve, Harry's Lookout	$150,000
Total	**$875,800**

Statement of fees and charges

Water charges under Sections 501 & 502 of the Local Government Act 1993

With water becoming an increasingly scarce resource both locally and globally, it is appropriate that councils focus on influencing water demand through increasing emphasis on usage based pricing. Best practice water supply pricing requires councils to provide strong pricing signals to encourage efficient water use. With this in mind the water usage charge will be increased and the water access charge will be reduced over the next three years with the goal that 75% of water income will be derived from usage charges by 2021-22, in line with best practice recommendations.

The total yield from water charges in 2019-20 has been increased in line with the IPART approved general fund rate peg of 2.7%, however a change in the pricing structure as detailed above has been included. The water usage charge has been increased by 20c per kl and the access charge for a 20mm meter has reduced from $205.00 in 2018-19 to $198.00 in 2019-20.

If you require specific information on these charges please contact Council on 6581 8111.

The following total revenue is to be derived from the 2019-20 Water Pricing Tariff.

Description	Annual Charge	Services Charged	Total Annual Income	Total Usage Charge	Total Usage Income	Total Income
20mm Water Meter (Including Vacant Land)	$198.00	32,873	$6,508,854.00			
25mm Water Meter	$315.00	925	$291,375.00			
32mm Water Meter	$527.00	250	$131,750.00			
40mm Water Meter	$829.00	173	$143,417.00			
50mm Water Meter	$1,306.00	150	$195,900.00			
80mm Water Meter	$3,356.00	27	$90,612.00			
100mm Water Meter	$5,248.00	46	$241,408.00			
150mm Water Meter	$11,832.00	5	$59,160.00			
200mm Water Meter	$21,039.00	0	$0.00			
Equivalent Tenants	$198.00	2,535.71	$502,071.00			
Fire Service: 50mm Water Meter	$653.00	5	$3,265.00			
Fire Service: 80mm Water Meter	$1,678.00	0	$0.00			
Fire Service: 100mm Water Meter	$2,624.00	112	$293,888.00			
Fire Service: 150mm Water Meter	$5,916.00	14	$82,824.00			
Fire Service: 200mm Water Meter	$10,519.50	0	$0.00			
Gross Income from Annual Charges			**$8,544,524.00**			**$8,544,524.00**
Charges for consumption:						

Description	Annual Charge	Services Charged	Total Annual Income	Total Usage Charge	Total Usage Income	Total Income
Tier 1 Tier 2				$3.06 $6.12	$16,065,000.00 $3,672,000.00	
Gross Income from consumption charges					**$19,737,000.00**	**$19,737,000.00**
Total Gross Income						**$28,281,524.00**
Less: Pension rebates						($670,100.00)
Less: Other rebates						($368,000.00)

Net Income $27,243,424.00

Sewer charges under Sections 501 & 502 of the Local Government Act 1993

All properties connected or capable of connection to the sewerage system will be charged an annual charge. In addition, properties such as major regional shopping centres, caravan parks, flats, retirement homes, motels, clubs, hotels, schools and backpacker hostels will be required to pay an additional charge based on the amount of water consumed. Council intends to increase the sewer annual and usage charges by 2.7% for the 2019-20 financial year which is in line with the general fund rate pegging allowance that has been determined by IPART.

The projected income for sewerage for 2019-20 is as follows:

Description	Annual Charge	Assessments Charged	Total Annual Income	Usage Charge	Expected Water Usage (kls)	Total Usage Income
Available	$882.70	31,688	$27,970,997.60			
Available Pump Out	$852.70	326	$277,980.20			
Unconnected (Section 548a)	$566.50	0	$0.00			
Non-ratable (other than Churches & Halls S555)	$702.70	80	$56,216.00			
Non-ratable (Churches & Halls S555)	$566.50	22	$12,463.00			
Non-ratable (Other S556)	$882.70	145	$127,991.50			
Additional Charge				$1.32	**1,022,728**	$1,350,000.00
Gross Income			**$28,445,648.30**			**$1,350,000.00**
Less: Pension Rebates			($630,000.00)			
Less: Other						($28,000.00)
Net Income from Sewerage Annual and Usage Charges			**$27,815,648.30**			**$1,322,000.00**

On-site sewerage management system annual charges

Properties with an on-site sewerage management system will be charged an annual charge based on the risk of the system. Council intends to increase the on-site sewerage management annual charge by 2.7% for the 2019-20 financial year which is in line with the general fund rate pegging allowance that has been determined by IPART.

The 2019-20 projected income for onsite effluent is as follows:

Description	Annual Charge	Assessments Charged	Total Annual Income
Low Risk System	$38.00	1,519	$57,722.00
Medium Risk System	$75.00	2,188	$164,100.00
High Risk System	$107.00	525	$56,175.00
Small Commercial	$214.00	89	$19,046.00
Large Commercial	$267.00	17	$4,539.00
Gross Income		**4,338**	**$301,582.00**

Reclaimed water charges

Reclaimed water will continue to be charged at 50% of the water charge.

The 2019-20 projected income for reclaimed water in is as follows:

Description	Annual Charge	Assessments Charged	Total Annual Income	Usage Charge	Expected Water Usage (kls)	Total Usage Income
20mm Meter	$99.00	4	$396.00			
25mm Meter	$157.50	15	$2,362.50			
32mm Meter	$263.50	3	$790.50			
40mm Meter	$414.50	3	$1,243.50			
50mm Meter	$653.00	3	$1,959.00			
80mm Meter	$1,678.00	1	$1,678.00			
100mm Meter	$2,624.00	0	$0.00			
150mm Meter	$5,916.00	0	$0.00			
200mm Meter	$10,519.50	0	$0.00			
Charges for consumption						
Tier 1				$1.53	274,510	$420,000.00
Gross Income			**$8,429.50**			**$420,000.00**

Stormwater charges - annual charge under Local Government Amendment (Stormwater) Act 2005 and the Local Government General) Amendment (Stormwater) Regulation 2006

All urban properties except vacant land that are in the residential and business categories for rating purposes, for which Council provides a stormwater management service will be charged a stormwater levy. The base stormwater levy has remained unchanged since it was introduced in 2006-07.

The projected income for stormwater in 2019-20 is as follows:

Description	Charge	No of Assessments	Total Annual Income
Business – 0 to 350m2	$25.00	60	$1,500.00
Business – 351m2 to 700m2	$50.00	184	$9,200.00
Business – 701m2 to 1,000m2	$75.00	190	$14,250.00
Business – 1,001m2 to 1,400m2	$100.00	137	$13,700.00
Business – 1,401m2 to 1,750m2	$125.00	73	$9,125.00
Business – 1,751m2 to 2,100m2	$150.00	57	$8,550.00
Business – 2,101m2 to 2,450m2	$175.00	47	$8,225.00
Business – 2,451m2 to 2,800m2	$200.00	30	$6,000.00
Business – 2,801m2 to 3,200m2	$225.00	22	$4,950.00
Business – 3,201m2 to 3,500m2	$250.00	17	$4,250.00
Business – 3,501m2 to 3,850m2	$275.00	20	$5,500.00
Business – 3,851m2 to 4,200m2	$300.00	29	$8,700.00
Business – 4,201m2 to 4,600m2	$325.00	15	$4,875.00
Business – 4,601m2 to 4,900m2	$350.00	8	$2,800.00
Business – 4,901m2 to 5,200m2	$375.00	12	$4,500.00
Business – 5,201m2 to 5,600m2	$400.00	6	$2,400.00
Business – 5,601m2 to 5,950m2	$425.00	8	$3,400.00
Business – 5,951m2 to 6,300m2	$450.00	10	$4,500.00
Business – 6,301m2 to 6,600m2	$475.00	6	$2,850.00
Business – Greater than 6,600m2	$500.00	133	$66,500.00
Business Strata	$12.50	646	$8,075.00
Residential	$25.00	21,677	$541,925.00
Residential Strata	$12.50	6,256	$78,200.00
Gross Income			**$813,975.00**

Stormwater levy expenditure: Council has allocated the full amount of the Stormwater Levy to maintenance and running of the current stormwater system. This allocation is over and above previous allocations for stormwater maintenance. Urban land (not vacant) that is categorised for rating purposes as residential or business with a stormwater service will be charged the levy as allowed for in the legislation.

Pursuant to Section 403(1) of the *Local Government Act 1993* the following statement relates to stormwater management services to be funded by the Stormwater Levy.

Council resolved to allocate Best Practice Dividends received from the water and sewerage funds in 2015-16 and 2016-17 towards stormwater works. The Stormwater levy and these dividends have been transferred to the stormwater reserve for funding of the stormwater works program.

The Stormwater Reserve will be used to fund operational stormwater infrastructure maintenance and remedial works across all urban areas of the LGA. Stormwater Levy and General Fund resources for 2019-20 will be allocated as follows:

Purpose	Funding Source	Amount
Operational Maintenance and Remedial Works	General Fund	$1,122,140
Operational Maintenance and Remedial Works	Stormwater Dividend	$600,000
Loan Repayments	Stormwater Levy	$205,964
Loan Repayments	General Fund	$198,105
Develop Urban Stormwater Catchment Management Plans	Stormwater Reserve	$113,000
Stormwater Remediation – 35 Hart Street	Stormwater Reserve	$90,000
Stormwater Remediation – Panorama Drive	Stormwater Reserve	$95,000
Stormwater Remediation Designs	Stormwater Reserve	$18,000
Stormwater Renewal Program	Stormwater Reserve	$650,000
Total		**$3,092,209**

Waste management charges

The charges to apply to domestic waste management are determined in accordance with the Reasonable Cost guidelines issued by the NSW Office of Local Government and are subject to independent audit. The charges determined using these guidelines will apply to domestic as well as non-domestic properties.

Domestic waste management services

All properties with a domestic waste management service available to their property will be charged an annual charge under Section 496 of the *Local Government Act 1993*.

The charge for multiple services is calculated by the "type of service" multiplied by the "number of services" provided.

The applicable charges are outlined in the schedule below.

Description	Cost per Service	Services Provided	Estimated Income
DOMESTIC WASTE MANAGEMENT ANNUAL CHARGES			
Standard Service (240 Litre Fortnightly General Waste)	$447.00	17,575	$7,856,025.00
Minimiser Service (140 Litre Fortnightly General Waste)	$392.00	10,214	$4,003,888.00
Excess Service (240 Litre Weekly General Waste)	$661.00	1,514	$1,000,754.00
On Application Only Special Weekly Service (140 Litre Weekly General Waste)	$553.00	7	$3,871.00
Special Half Weekly Service (140 Litre Weekly General Waste) - (Shared) Multi-unit dwellings only	$300.00	12	$3,600.00
Half Minimiser Service (140 Litre Fortnightly General Waste) - (Shared) Multi-unit dwellings only	$219.00	36	$7,884.00
Half Excess Service (240 Litre Weekly General Waste) - (Shared) Multi-unit dwellings only	$354.00	172	$60,888.00
Half Standard Service (240 Litre Fortnightly General Waste) - (Shared) Multi-unit dwellings only	$246.00	665	$163,590.00
Availability charge on land not receiving full charge - Multi-unit dwellings only	$139.00	2,218	$308,302.00
Availability charge on vacant land	$77.00	1,557	$119,889.00
Additional recycling service (240 Litre Fortnightly)	$65.00	122	$7,930.00
Additional organics service (240 Litre Weekly)	$96.00	238	$22,848.00

Description	Cost per Service	Services Provided	Estimated Income
DOMESTIC WASTE MANAGEMENT ANNUAL CHARGES			
Additional weekly garbage service (240 Litre General Waste)	$347.00	45	$15,615.00
Additional weekly garbage service (140 Litre General Waste) Multi-unit dwellings only	$264.00	1	$264.00
Minimum Waste Charge - Single Dwelling	$392.00	57	$22,344.00
Less: Pensioner/Other Rebates			($510,000.00)
Net Income for Domestic Waste Management Services			**$13,087,692.00**

Other waste management service

All properties with a non-domestic waste management service will be charged an annual charge under Section 501 of the *Local Government Act 1993*
The charge for multiple services is calculated by the "type of service" multiplied by the "number of services" provided.

The applicable charges are outlined in the schedule below.

Description	Cost per Service	Services Provided	Estimated Income
OTHER WASTE MANAGEMENT ANNUAL CHARGES			
Commercial Weekly Service (140 Litre Weekly General Waste)	$553.00	439	$242,767.00
Commercial Excess Service (240 Litre Weekly General Waste)	$661.00	344	$227,384.00
Commercial Half Weekly Service (140 Litre Weekly General Waste) - (Shared)	$300.00	6	$1,800.00
Commercial Half Excess Service (240 Litre Weekly General Waste) -(Shared)	$354.00	10	$3,540.00
Commercial availability charge on land not receiving full charge	$77.00	1,036	$79,772.00
Commercial availability charge on vacant land	$77.00	179	$13,783.00
Commercial additional recycling service (240 Litre Fortnightly)	$65.00	143	$9,295.00

Description	Cost per Service	Services Provided	Estimated Income
OTHER WASTE MANAGEMENT ANNUAL CHARGES			
Commercial additional organics service (240 Litre Weekly)	$96.00	25	$2,400.00
Commercial additional weekly garbage service (240 Litre Weekly General Waste)	$347.00	136	$47,192.00
Commercial additional weekly garbage service (140 Litre Weekly General Waste)	$264.00	1	$264.00
Waste Management Access Charge – Rural Properties	$30.00	1,668	$50,040.00
Less: Pension/Other Rebates			($1,300.00)
Net Income for Other Waste Management Services			**$676,937.00**

Interest charge under Section 566

Charged on all outstanding rates and charges – 7.5%.

Statement of fees to be charged and pricing policy of goods and services

Council fees for the 2019-20 financial year are listed in the Schedule of Fees and Charges.

In determining the appropriate fees to be charged for Council services and facilities in 2019-20, the basic principle applied is that charges should be considered fair and equitable to the general community. Individual members of the community should not be precluded from essential services because of economic circumstances. In accordance with Council's adopted practice Fees & Charges for the following price categories have generally increased by 2.0%:

(d) User pays (e) Market Forces (f) Cost Plus

This reflects the CPI movement over the 12-month period to June 2018.

The range of services provided by Council to the community is diverse and requires different considerations when determining the associated fee or charge. The level of the fee or charge was determined having regard to the following categories:

Code	Description
A	**Economic Cost** Total cost of providing services for private good.
B	**Community Service** Services considered to have a level of benefit to the community. Generally benefits are not solely confined to users. Partially funded by rates.
C	**Regulated Charges** Federal or State Government set charges.
D	**User Pays Principal** Services under this category are such that individual costs can be determined and met by the user of the service.
E	**Market Forces** Services that Council operates in a competitive market and needs to fix charges similar to other providers.
F	**Cost Plus** Services provided on a commercial basis with an amount of risk profit included.
G	**Section 7.11 (Developer Contributions)** Items are priced at the level determined by the adopted Council's Developer Contributions Plan. The plans provide for quarterly increases in these fees based on Consumer Price Index (CPI) increases.

For information, one of the above codes has been included next to each fee or charge listed in Part C.

Statement of borrowings

To provide for the future needs of our community, Council borrows funds to provide infrastructure and community assets which are not able to be funded out of normal revenue sources. The loans are based on periods that represent the economic life of the facility or asset or a reasonable fixed term, whichever is the lesser. Loans are raised by Council from banks or other recognised financial institutions and secured by a mortgage deed over the revenue of the Council. Proposed new borrowings for the next four years are:

Purposed new borrowings	2019-20	2020-21	2021-22	2022-23
Hastings Regional Sporting Facility	$1,500,000	Nil	Nil	Nil
Total	**$1,500,000**	Nil	Nil	Nil

For information on Council's debt cover ratio refer to the Annual Financial Statements available on Council's website.

Statement of private works

The *Local Government Act 1993* enables Council to carry out the following works for residents and organisations on private land:

- Paving and road making (GST exempt);
- Kerbing and guttering (GST exempt);
- Demolition and excavation (GST applies);
- Water, sewerage and drainage connections (GST applies);
- Land clearing and tree felling (GST exempt);
- Tree planting and maintenance (GST exempt);
- Fencing and ditching (GST applies) and;
- Canal maintenance (GST exempt)

Council has adopted the following charging policy in relation to private works:

Actual cost plus adjustments to cover Council overheads:

Overhead Charges:

- To cover Workers' Compensation, leave entitlements, superannuation, etc, and
- To cover administration.

Overhead charges to cover administration, engineering, store running costs:

- Emergency works - 25%;
- Prepaid works up to $20,000 - 18%;
- Prepaid works $20,000 to $50,000 - 12%; and
- Prepaid works $50,000 & above - 6%.

Labour costs are increased to cover Workers' Compensation, leave entitlements, award provisions and superannuation.

Statement of Business and Commercial Activities

Council has conducted commercial activities for a number of years and currently undertakes the following:

- Port Macquarie Airport
- Crematorium & cemeteries including Innes Gardens Memorial Park Crematorium and Lawn Cemetery; and general cemeteries
- The Glasshouse Arts, Conference and Entertainment Centre

Whilst the majority of business undertakings have a primary requirement to make a profit on the funds invested, there is also a social and community component in their undertakings. Each of the commercial units contributes in some way to community wellbeing, as well as to the economic infrastructure of the Port Macquarie-Hastings area.

Council conducts regular reviews of the operations and of the commercial activities of each of these business units. The review ensures that their charges are commercially based and are not at variance with market requirements. Funds that are in excess of the operating and development requirements of the commercial activity are used as part of Council's revenue stream to enable Council to provide the Port Macquarie-Hastings community with a broad range of services and facilities.

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BUDGET VARIATIONS - MAY 2019											
Section	Project	Project Description	Capital/ Operating	Division	Full Year Original Budget	Full Year Current Budget	Actuals to 31 May 2019	New Yearly Proposed Budget - May 2019	Movement	Funding Source	EFFECT ON FUNDING POSITION
Grant Funding											
Council has received a grant from NSW Dept Premier & Cabinet for the Lake Cathie Master Plan Implementation											
Parks & Gardens	41891	Lake Cathie Master Plan Implementation	Capital	D&E	0	0	55,105	120,000	-120,000	Grant	0
Parks & Gardens	19282	Grants W/P Capital - Parks & Gardens	Capital	D&E	-1,189,613	-3,928,063	-657,690	-4,048,063	120,000	Grant	0
Council has received a grant from Restart NSW, Infrastructure NSW for the North of Hastings River Level 3 Timber Bridge Assessments											
Transport & Traffic	41923	Nth of Hastings River - Level 3 Timber Bridges Assessments	Operating	Infrastructure	0	0	586	100,000	-100,000	Grant	0
Transport & Traffic	11280	Grants Operating - Civil Infrastructure	Operating	Infrastructure	-2,802,683	-2,955,759	-1,472,140	-3,055,759	100,000	Grant	0
Total grant funding received									**220,000**		**0**
Contributions and Other Revenues											
As part of the Glasshouse 10th birthday celebrations they are running a Glasshouse Dinner and Community Day. The Glasshouse is currently collecting income towards this day.											
The Glasshouse	41948	Glasshouse Dinner & Community Day	Operating	Corporate Performance	0	0		27,000	-27,000	Revenue	-27,000
The Glasshouse	19080	Contributions Operating - Glasshouse	Operating	Corporate Performance	0	0		-27,000	27,000	Revenue	27,000
Total contributions and other revenues received									**27,000**		**0**
Budget Variation Reports - Approved by Executive											
Budget Variation Approved by Exec in May 2019: Current budget insufficient to complete power pole relocation this financial year. Additional funds are required to relocate power pole on Hill Street as discussed with sponsor's representative.											
Infrastructure Delivery	41464	Footpath, Cycleway & Pedestrian Mgmnt	Capital	Infrastructure	500,000	500,000	489,930	512,000	-12,000	Reserve	0
Infrastructure Delivery	11609	Transfer from Reserve	Capital	Infrastructure	0	0	0	-12,000	12,000	Reserve	0
New Project Bid Approved by Exec in May 2019: Strategic business advisory and valuation services (Part A) in relation to potential sale/lease of Innes Gardens Memorial Park & Lawn Cemetery.											
Crematorium & Cemeteries	41926	IGMP - Strat Business & Valuation Services	Operating	Corporate Performance	0	0	27,769	40,000	-40,000	Reserve	0
Crematorium & Cemeteries	19039	Transfer from Reserve	Operating	Corporate Performance	-18,000	-43,500	0	-83,500	40,000	Reserve	0

BUDGET VARIATIONS - MAY 2019

Section	Project	Project Description	Capital/ Operating	Division	Full Year Original Budget	Full Year Current Budget	Actuals to 31 May 2019	New Yearly Proposed Budget - May 2019	Movement	Funding Source	EFFECT ON FUNDING POSITION
Budget Variation Approved by Exec in May 2019: Council's Strategic Land Use Planning team has issued a brief for the project. Four responses have been received, with the recommended consultant bid at approx. $134,000 ex. GST. Allowing for some contingencies, including a post exhibition review, the total budget needed is now estimated at $150,000. It is proposed to make up part of the budget shortfall of $70,000 for the Housing Choice Planning Review by transferring $26,101, which is unexpended and uncommitted in the Strategic Land Use Planning UGMS Investigations budget (Job No. 260.3895). It is also proposed to transfer $43,899 from the proposed Planning Studies Reserve, which contains rezoning fees over that budgeted in 2018/19, for implementation of major strategic planning projects, such as the Housing Review.											
Strategic Landuse Planning	41888	Housing Choice Planning Review	Operating	Strategy & Growth	0	80,000	0	150,000	-70,000	Revenue/ Reserve	-26,101
Strategic Landuse Planning	19199	Transfer from Reserve	Operating	Strategy & Growth	-120,000	-242,060	0	-285,959	43,899	Reserve	0
Strategic Landuse Planning	00260	Strategic Planning	Operating	Strategy & Growth	980,403	980,403	850,809	954,302	26,101	Revenue	26,101
Budget Variation Approved by Exec in May 2019: This budget adjustment is required to allow for additional traffic modelling to be undertaken in order to optimise the proposed design. The estimated costs to complete the project are projecting a shortfall. The GL for the recently completed upgrades to the Batar Creek Rd and Laurel Street Drainage (stage 2) contains a budget surplus of $34,071. To allow for the forecast variations and for some additional contingency it is proposed to transfer all $34,071 from the Batar Creek Road and Laurel Street stormwater upgrade (GL41669) to the Lake Road Stage 2 GL (41595)"											
Infrastructure Delivery	41595	Lake Road - Design of Dual Lanes - Oxley to Ocean	Capital	Infrastructure	0	145,214	37,312	179,285	-34,071	Reserve	0
Drainage	41669	Kendall Drainage Works - Stage 2	Capital	Infrastructure	320,000	320,000	285,764	285,929	34,071	Reserve	0
Budget Variation Approved by Exec in May 2019: During the project preconstruction planning, it was identified that a shortfall of funding existed between the estimated project construction cost and the allocated GL 41701 budget. It was acknowledged in the signed project plan that this shortfall would need to be addressed and was confirmed prior to construction with the project sponsor. There is sufficient S7.11 contributions available to enable this adjustment to be completed.											
Transport & Traffic	41701	Beechwood Rd Reconstruction - Rbreeze to Rosewood	Capital	Infrastructure	0	0	176,734	190,034	-190,034	S7.11	0
Transport & Traffic	19346	S7.11 Funding - Transport & Traffic	Capital	Infrastructure	-1,447,298	-1,574,391	0	-1,764,425	190,034	S7.11	0
Budget Variation Approved by Exec in May 2019: Budget adjustment required to reflect the addition of an emerging and reactive stormwater remedial works project to the TSN works programme.											
Drainage	41947	741 Beechwood Rd - Stormwater Remedial Works	Capital	Infrastructure	0	0	0	44,300	-44,300	Revenue	-44,300
Drainage	00569	Stormwater Management (General Fund)	Operating	Infrastructure	361,415	361,415	260,476	317,115	44,300	Revenue	44,300

BUDGET VARIATIONS - MAY 2019											
Section	**Project**	**Project Description**	**Capital/ Operating**	**Division**	**Full Year Original Budget**	**Full Year Current Budget**	**Actuals to 31 May 2019**	**New Yearly Proposed Budget - May 2019**	**Movement**	**Funding Source**	**EFFECT ON FUNDING POSITION**
Budget Variation Approved by Exec in May 2019: The 14 road rehabilitation projects, 18 asphalt rejuvenations, 2 Micro surfacing and 34 reseals were funded from 10 separate GLs. The values of the GLs rarely matched the exact value of the final works. The expenditure was managed on a global scale with funding supplemented from Operational codes to maximise the extent of works.											
Transport & Traffic	41921	Bay St - Newport Island Rd to Ballina Crs East	Capital	Infrastructure	0	0	2,806	1,975,000	-1,975,000	Grant Revenue Reserve S7.11	-892,143
Transport & Traffic	41259	High Traffic Road Resurfacing	Capital	Infrastructure	708,883	250,000	697,335	700,317	-450,317	Revenue	-450,317
Transport & Traffic	00668	Regional Roads Block Grant Funding	Operating	Infrastructure	1,384,000	1,417,429	1,013,745	1,013,745	403,684	Grant	0
Transport & Traffic	00662	Sealed Road Repairs	Operating	Infrastructure	2,964,500	2,945,765	1,788,448	2,312,151	633,614	Revenue	633,614
Transport & Traffic	41465	Road Reseals - Capital	Capital	Infrastructure	2,000,000	1,900,000	974,431	1,191,154	708,846	Revenue	708,846
Transport & Traffic	41494	Local Roads Proactive Transport Program	Capital	Infrastructure	1,000,000	1,000,000	681,692	931,530	68,470	Reserve	0
Transport & Traffic	19346	S7.11 Funding - Transport & Traffic	Capital	Infrastructure	-1,447,298	-1,764,425	0	-2,375,128	610,703	S7.11	0
Total Budget Variations approved by Executive									**2,815,722**		**0**
Transfers between projects											
Revenue funds have been transferred from 00323 Consultancies - Council wide to 41887 Yippen Creek Planning Investigations and 41888 Housing Choice Planning Review so that these projects can be better tracked in the Operational Plan.											
Corporate Performance Management	00323	Consultancies - Council Wide	Operating	Corporate Performance	250,000	250,000	90,774	100,310	149,690	Revenue	149,690
Strategic Landuse Planning	41887	Yippen Creek Planning Investigations	Operating	Strategy & Growth	0	0	0	69,690	-69,690	Revenue	-69,690
Strategic Landuse Planning	41888	Housing Choice Planning Review	Operating	Strategy & Growth	0	0	0	80,000	-80,000	Revenue	-80,000
This is to allow design works to commence for the Kew Main Street Upgrade - Stage 3 that is included in the 2019/20 Operational Plan.											
Transport & Traffic	41481	Additional Design Works Funding	Capital	Infrastructure	200,000	94,000	29,733	64,000	30,000	Revenue	30,000
Network & Project Planning	41925	Kew Main Street Upgrade - Stage 3	Capital	Infrastructure	0	0	1,064	30,000	-30,000	Revenue	-30,000
Total adjustments due to transfer between projects									**179,690**		**0**

BUDGET VARIATIONS - MAY 2019											
Section	**Project**	**Project Description**	**Capital/ Operating**	**Division**	**Full Year Original Budget**	**Full Year Current Budget**	**Actuals to 31 May 2019**	**New Yearly Proposed Budget - May 2019**	**Movement**	**Funding Source**	**EFFECT ON FUNDING POSITION**
Council Resolutions											
As per Council Resolution 17/4/19 14.06 Land Acquisition - 210 Hastings River Drive, Port Macquarie - $450,000 required for property purchase (as per the Council report) plus an additional $5,000 required to cover legal fees.											
Property & Leasing	41924	Purchase 210 Hastings River Drive	Operating	Corporate Performance	0	0	0	455,000	-455,000	S7.11	0
Property & Leasing	19366	S7.11 Funding - Property & Leasing	Operating	Corporate Performance	0	0	0	-455,000	455,000	S7.11	0
Total adjustments due to Council Resolutions									**455,000**		**0**
Projects Deferred to 2019-2020 and included in the 2019-20 Operational Plan											
These projects will not be completed in this financial year and as such expected remaining funds have been transferred to 2019/20. Any revenue funding has been transferred to the committed works reserve for use in 19/20. Other funding has been put back into the appropriate restriction to allow usage in 2019/20											
		Diamond Head Road/The Boulevarde Flood Access Stage 1A									
Natural Resource Management	41770	Diamond Head Road/The Boulevarde Flood Access Stage 1A	Capital	D&E		1,500,000	10,058	110,000	1,390,000	Grant Reserves Revenue	426,793
Natural Resource Management	19239	Transfer from Reserve - Environmental Levy	Capital	D&E	-41,280	-595,714		-532,507	-63,207	Env Levy	0
Natural Resource Management	19232	Grant Funding - Natural Resources	Capital	D&E		-1,439,883	-51,757	-539,883	-900,000	Grant	0
Natural Resource Management	09005	Transfer to Reserve - Committed Works	Capital	D&E				426,793	-426,793	Revenue	-426,793
		Illaroo Road - Stormwater Remediation Construction									
Natural Resource Management	41889	Illaroo Road - Stormwater Remediation Construction	Capital	D&E		720,000	5,289	20,000	700,000	Grant Env Levy	0
Natural Resource Management	19239	Transfer from Reserve - Environmental Levy	Capital	D&E	-41,280	-532,507		-182,507	-350,000	Env Levy	0
Natural Resource Management	19232	Grant Funding - Natural Resources	Capital	D&E		-539,883	-51,757	-189,883	-350,000	Grant	0
		Wood Street Road Upgrade									
Parks & Gardens	41922	Wood Street Road Upgrade	Capital	D&E		960,000		10,000	950,000	Grant	0
Parks & Gardens	19282	Grants Capital - Parks & Recreation	Capital	D&E	-1,189,613	-5,703,352	-657,690	-4,753,352	-950,000	Grant	0

BUDGET VARIATIONS - MAY 2019

Section	Project	Project Description	Capital/ Operating	Division	Full Year Original Budget	Full Year Current Budget	Actuals to 31 May 2019	New Yearly Proposed Budget - May 2019	Movement	Funding Source	EFFECT ON FUNDING POSITION
		Wayne Richards Park - Stage 3 & 4									
Parks & Gardens	41666	Wayne Richards Park - Stage 3 & 4	Capital	D&E		289,977	7,866	39,977	250,000	Env Levy	0
Parks & Gardens	19280	Transfer from Reserve - Environmental Levy	Capital	D&E		-944,400		-694,400	-250,000	Env Levy	0
		Port Macquarie Coastal Walk									
Parks & Gardens	41702	Port Macquarie Coastal Walk	Capital	D&E	1,265,000	909,000	127,372	129,000	780,000	S7.11 Revenue Reserve Grant	107,743
Parks & Gardens	19282	Grants Capital - Parks & Recreation	Capital	D&E	-1,189,613	-4,753,352	-657,690	-4,378,063	-375,289	Grant	0
Parks & Gardens	19280	Transfer from Reserve - Environmental Levy and Crown Reserves	Capital	D&E	-423,393	-2,949,835		-2,688,987	-260,848	Reserve	0
Parks & Gardens	09005	Transfer to Reserve - Committed Works	Capital	D&E		426,793		534,536	-107,743	Revenue	-107,743
Parks & Gardens	19286	S7.11 Funding - Parks & Recreation	Capital	D&E	-537,130	-1,041,055		-1,004,935	-36,120	S7.11	0
		Sancrox/Thrumster Sports Fields									
Parks & Gardens	41758	Sancrox/Thrumster Sports Fields	Capital	D&E		295,059	5,577	28,059	267,000	S7.11	0
Parks & Gardens	19286	S7.11 Funding - Parks & Recreation	Capital	D&E	-537,130	-1,004,935		-737,935	-267,000	S7.11	0
		Flynns Beach Seawall - Design and Construction									
Parks & Gardens	41037	Flynns Beach Seawall - Design and Construction	Capital	D&E		1,574,563	319,669	674,563	900,000	Grant Env Levy Revenue	195,009
Parks & Gardens	19282	Grants Capital - Parks & Recreation	Capital	D&E	-1,189,613	-4,378,063	-657,690	-3,928,063	-450,000	Grant	0
Parks & Gardens	19280	Transfer from Reserve - Environmental Levy	Capital	D&E		-694,400		-439,409	-254,991	Env Levy	0
Parks & Gardens	09005	Transfer to Reserve - Committed Works	Capital	D&E		534,536		729,545	-195,009	Revenue	-195,009

BUDGET VARIATIONS - MAY 2019

Section	Project	Project Description	Capital/ Operating	Division	Full Year Original Budget	Full Year Current Budget	Actuals to 31 May 2019	New Yearly Proposed Budget - May 2019	Movement	Funding Source	EFFECT ON FUNDING POSITION
		Westport Stormwater Management Plan Design									
Drainage	41671	Westport Stormwater Management Plan Design	Capital	Infrastructure	300,000	300,000	20,989	30,000	270,000	Revenue Reserves	50,000
Drainage	19399	Transfer from Reserve - Stormwater Reserve	Capital	Infrastructure	-2,021,930	-2,075,171		-1,855,171	-220,000	Reserve	0
Drainage	09005	Transfer to Reserve - Committed Works	Capital	Infrastructure		729,545		779,545	-50,000	Revenue	-50,000
		Calwalla Crescent PM - Stormwater Remediation									
Drainage	41573	Calwalla Crescent PM - Stormwater Remediation	Capital	Infrastructure	275,000	310,056	47,865	110,056	200,000	Reserve	0
Drainage	19399	Transfer from Reserve - Stormwater Reserve	Capital	Infrastructure	-2,021,930	-1,855,171		-1,655,171	-200,000	Reserve	0
		Rodley Street Bonny Hills - Flooding Mitigation Measures									
Drainage	41860	Rodley Street Bonny Hills - Flooding Mitigation Measures	Capital	Infrastructure	700,000	700,000	15,918	300,000	400,000	Reserve	0
Drainage	19399	Transfer from Reserve - Stormwater Reserve	Capital	Infrastructure	-2,021,930	-1,655,171		-1,255,171	-400,000	Reserve	0
		Hastings River Drive & Boundary Street Upgrade									
Transport & Traffic	41773	Hastings River Drive & Boundary Street Upgrade	Capital	Infrastructure		784,392	29,774	130,392	654,000	S7.11	
Transport & Traffic	19346	S7.11 Funding - Transport & Traffic	Capital	Infrastructure	-1,447,298	-2,914,424		-2,260,424	-654,000	S7.11	0
		Telegraph Point Pedestrian Safety Upgrades									
Transport & Traffic	41904	Telegraph Point Pedestrian Safety Upgrades	Capital	Infrastructure		698,000	14,838	138,000	560,000	Grant	0
Transport & Traffic	19322	Capital Grants - Transport & Traffic	Capital	Infrastructure		-698,000	-230,340	-138,000	-560,000	Grant	0
		Dunbogan Bridge - Reid Street - Structural Rehabilitation									
Transport & Traffic	41771	Dunbogan Bridge - Reid Street - Structural Rehabilitation	Capital	Infrastructure	1,500,000	3,561,163	413,316	1,561,163	2,000,000	Loan	0
Transport & Traffic	19349	Transfer from Reserve - Unexpended Loans	Capital	Infrastructure		-2,775,791		-775,791	-2,000,000	Loan	0

BUDGET VARIATIONS - MAY 2019											
Section	Project	Project Description	Capital/ Operating	Division	Full Year Original Budget	Full Year Current Budget	Actuals to 31 May 2019	New Yearly Proposed Budget - May 2019	Movement	Funding Source	EFFECT ON FUNDING POSITION
		Ocean Drive Lake Cathie - Design Miala to Orana									
Transport & Traffic	41780	Ocean Drive Lake Cathie - Design Miala to Orana	Capital	Infrastructure		169,764	19,607	24,764	145,000	Reserve	0
Transport & Traffic	19349	Transfer from Reserve - Working Capital	Capital	Infrastructure	-1,423,823	-1,858,587		-1,713,587	-145,000	Reserve	0
		Bold Street, Laurieton - Crossing between Seymour and Tunis Streets - Preconstruction									
Transport & Traffic	41769	Bold Street, Laurieton - Crossing between Seymour and Tunis Streets - Preconstruction	Capital	Infrastructure	347,000	353,265	48,292	98,265	255,000	Grant	0
Transport & Traffic	19342	Grants Capital - Transport & Traffic	Capital	Infrastructure	-2,125,851	-3,462,235	-797,822	-3,207,235	-255,000	Grant	0
		John Oxley Drive - Upgrade Preconstruction									
Transport & Traffic	41486	John Oxley Drive - Upgrade Preconstruction	Capital	Infrastructure	500,000	500,000	14,202	16,000	484,000	S7.11	0
Transport & Traffic	19346	S7.11 Funding - Transport & Traffic	Capital	Infrastructure	-1,447,298	-2,260,424		-1,776,424	-484,000	S7.11	0
		Lighthouse Road Upgrade									
Transport & Traffic	41882	Lighthouse Road - Project Management	Capital	Infrastructure		500,000	57,119	70,000	430,000	Revenue Reserve Contrib	130,000
Transport & Traffic	41880	Lighthouse Road East Upgrade - Tourism Connectivity Project	Capital	Infrastructure		1,080,000	36,575	40,000	1,040,000	Grant S7.11 Reserve	0
Transport & Traffic	19342	Grants Capital - Transport & Traffic	Capital	Infrastructure	-2,125,851	-3,207,235	-797,822	-2,667,235	-540,000	Grant	0
Transport & Traffic	19346	S7.11 Funding - Transport & Traffic	Capital	Infrastructure	-1,447,298	-1,776,424		-1,574,391	-202,033	S7.11	0
Transport & Traffic	19349	Transfer from Reserves - Regional Road Infrastructure/Priority Works	Capital	Infrastructure	-360,000	-1,137,967		-540,000	-597,967	Reserve	0
Transport & Traffic	09005	Transfer to Reserve - Committed Works	Capital	Infrastructure		779,545		909,545	-130,000	Revenue	-130,000

BUDGET VARIATIONS - MAY 2019

Section	Project	Project Description	Capital/ Operating	Division	Full Year Original Budget	Full Year Current Budget	Actuals to 31 May 2019	New Yearly Proposed Budget - May 2019	Movement	Funding Source	EFFECT ON FUNDING POSITION
		Trunkmain - Sancrox Reservoir to Area 13 & Reclaimed Water - Area 14 Trunk Main Outlet									
Water Supply	20137	Trunkmain - Sancrox Reservoir to Area 13	Capital	Infrastructure		1,037,973	5,058	46,973	991,000	S64	0
Water Supply	20150	Reclaimed Water - Area 14 Trunk Main - Outlet	Capital	Infrastructure		1,200,000	477,055	550,000	650,000	S64	0
Water Supply	19227	S64 Funding - Water Supply	Capital	Infrastructure	-4,599,000	-9,177,785		-7,536,785	-1,641,000	S64	0
		Trunk Main Augmentation - Sancrox Reservoir to Wauchope									
Water Supply	20147	Trunk Main Augmentation - Sancrox Reservoir to Wauchope	Capital	Infrastructure	1,285,574	1,370,946	208,885	237,946	1,133,000	Reserve	0
Water Supply	19229	Transfer from Water Reserves	Capital	Infrastructure	-5,348,024	-5,780,335		-4,647,335	-1,133,000	Reserve	0
		Reclaimed Water - Area 14 Trunk Main - Inlet									
Sewerage Services	30159	Reclaimed Water - Area 14 Trunk Main - Inlet	Capital	Infrastructure	1,100,000	1,200,000	502,181	550,000	650,000	Reserve	0
Sewerage Services	19219	Transfer from Sewer Reserves	Capital	Infrastructure	-15,320,250	-17,283,040		-16,633,040	-650,000	Reserve	0
Total amount of projects deferred to 2019/20									**15,099,000**		**0**
		ORGANISATIONAL TOTAL - THIS REVIEW							**18,796,412**		**0**

BUDGET VARIATIONS - MAY 2019

Section	Project	Project Description	Capital/ Operating	Division	Full Year Original Budget	Full Year Current Budget	Actuals to 31 May 2019	New Yearly Proposed Budget - May 2019	Movement	Funding Source	EFFECT ON FUNDING POSITION
	FORECAST FOR FINANCIAL YEAR ENDED 30 JUNE 2019										
		Original Budget as at 1 July 2018			Shortfall	**-511,873**					
		Plus: Adjustments									
		July Review			Balanced	**0**					
		August Review			Balanced	**0**					
		September Review			Balanced	**0**					
		October Review			Surplus	**147,265**					
		November Review			Balanced	**0**					
		December Review			-	**-**					
		January Review			Balanced	**0**					
		February Review			Balanced	**0**					
		March Review			Balanced	**0**					
		April Review			Surplus	**388,685**					
		May Review			Balanced	**0**					
FORECAST FOR 30 JUNE 2019					**Surplus**	**24,077**					

Notes:	1	The result shown above is the general fund result. All surpluses/deficits in the water, sewerage and waste funds are transferred to/from reserves.
	2	Reserve are internal restrictions that hold funds for a specific purpose, e.g. The airport has its own reserve and all income and expenditure relating to the airport is credited/debited to that reserve.
	3	Council projects are funded from a variety of funding sources. Below is a definition of the various types of funding that are used to fund projects.
		Revenue - All funds that are generated through rates, annual charges, fees and charges, interest etc. These funds are untied and can be expended on any project that Council considers appropriate.
		Grants - Government grants can either be monetary or otherwise and may be tied or untied. Tied grants are required to be used for a specific purpose such as the construction of a road. Untied grants may be applied for any purpose council considers appropriate.
		Contributions - Contributions are non-reciprocal transfers to Council in the sense that Council is not required to give value in exchange for the contributions directly to the contributor. Examples are contributions given by ratepayers towards capital works in their vicinity.
		Reserves - Reserves are internal restrictions held for a specific purpose, e.g. The airport has its own reserve and all income and expenditure relating to the airport is credited/debited to that reserve.
		S7.11 and S64 Contributions - Section 7.11 of the NSW Environmental and Planning Act (1979) and section 64 of the Local Government Act (1993) provides NSW local government with a formal legal framework for levying developers for the provision of infrastructure, services and amenities - known as developer contributions.
	4	Some projects are funded by multiple funding sources, e.g. a capital project may be funded by s7.11 funds, grants and revenue. The effect on capital column will only show the revenue funding adjustment as the other types of funding will have an income line budget adjustment shown in the report.

PORT MACQUARIE-HASTINGS
COUNCIL

Monthly Investment Report

May 2019

IMPERIUM MARKETS

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Executive Summary

Compliance

Compliance Measure	Within Policy Limits (Y/N)	Reason if Not Compliant
Term to Maturity	Yes – Compliant	n/a
Counterparty	Yes – Compliant	n/a
Credit Quality	Yes – Compliant	n/a

Performance

As at 31/05/2019	1m (actual)	1m (% p.a.)	FYTD (actual)	FYTD (% p.a.)
AusBond Bank Bill Index	0.15%	1.79%	1.84%	2.01%
Council's Portfolio^	**0.25%**	**2.98%**	**2.76%**	**3.01%**
Outperformance	0.10%	1.19%	0.92%	1.00%

^Total portfolio performance excludes Council's cash account holdings. Overall returns would be lower if cash was included.

Council's Portfolio

Asset Allocation

The entire portfolio is directed to fixed term deposits (96.99%) and the cash account with Westpac (3.01%). Should credit securities become more attractive relative to deposits, we would consider introducing liquid senior floating rate notes (FRNs) into the portfolio. This will not only offer additional upside with regards to the portfolio's investment returns, but also provide additional liquidity (FRNs are saleable – generally accessible within 2 business days). FRNs are also dominated by the higher rated ADIs which allows Council to maintain a bias towards to the higher rated banks.

Term to Maturity

All maturity limits (minimum and maximum) comply with the Investment Policy. Medium-Term (3-5 years) assets account for around 8% of the total investment portfolio, with capacity of around $94m at month-end.

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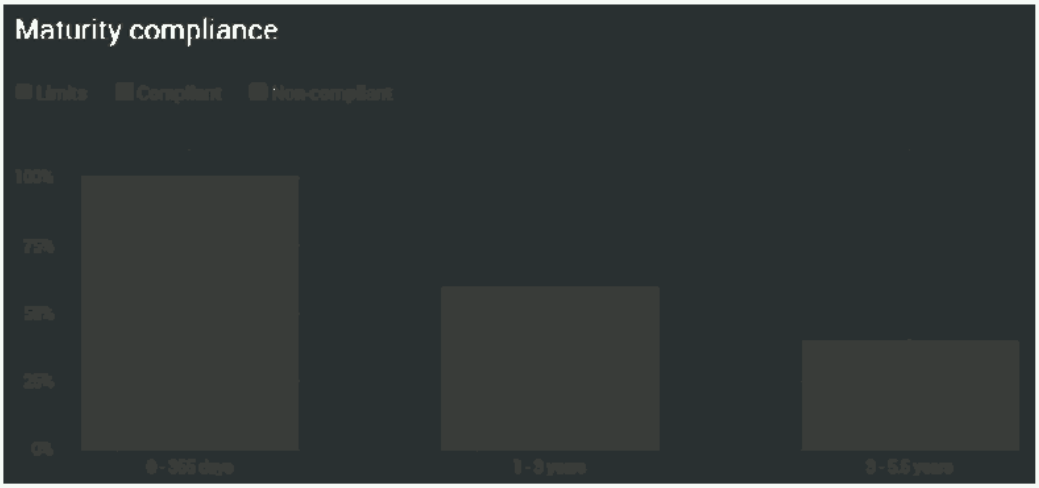

Where there is (counterparty) capacity to invest in attractive 3-5½ year investments, we recommend this be allocated to new senior FRN issues and fixed or floating rate term deposits (refer to respective sections below).

Compliant	Horizon	Invested ($)	Invested (%)	Min. Limit (%)	Max. Limit (%)	Available ($)
✓	0 – 365 days	$116,779,651	40.02%	0%	100%	$175,000,000
✓	1 – 3 years	$152,000,000	52.09%	0%	60%	$23,067,791
✓	3 – 5.5 years	$23,000,000	7.88%	0%	40%	$93,711,861
✓	5.5 – 10 years	$0	0.00%	0%	20%	$58,355,930
		291,779,651	**100.00%**			

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Counterparty

As at the end of May, Council did not have an overweight position to any single ADI. Overall, the portfolio is diversified across the investment grade credit spectrum (rated BBB- or higher), with no exposure to unrated ADIs.

Compliant	Issuer	Rating	Invested ($)	Invested (%)	Max. Limit (%)	Available ($)
✓	CBA	AA-	$3,000,000	1.03%	30.00%	$84,533,895
✓	NAB	AA-	$51,000,000	17.48%	30.00%	$36,533,895
✓	WBC (St George)	AA-	$86,779,651	29.74%	30.00%	$754,244
✓	Rabobank	A+	$13,000,000	4.46%	20.00%	$45,355,930
✓	AMP	A	$5,000,000	1.71%	20.00%	$53,355,930
✓	ICBC Sydney	A	$42,000,000	14.39%	20.00%	$16,355,930
✓	ING Bank	A	$38,000,000	13.02%	20.00%	$20,355,930
✓	BOQ	BBB+	$21,000,000	7.20%	10.00%	$8,177,965
✓	Bendigo	BBB+	$4,000,000	1.37%	10.00%	$25,177,965
✓	Auswide	BBB	$5,000,000	1.71%	10.00%	$24,177,965
✓	ME Bank	BBB	$2,000,000	0.69%	10.00%	$27,177,965
✓	Newcastle PBS	BBB	$21,000,000	7.20%	10.00%	$8,177,965
			$291,779,651	**100.00%**		

We remain supportive of the regional and unrated ADI sector (and have been even throughout the GFC period). They continue to remain solid, incorporate strong balance sheets, while exhibiting high levels of capital – typically, much higher compared to the higher rated ADIs. Some unrated ADIs have up to 25-40% more capital than the domestic major banks, and well above the Basel III requirements.

APRA's Chairman affirmed that the banks had satisfactorily moved towards an '*unquestionably strong*' capital position and that bank's stress testing contingency plans were now far better positioned that was previously the case years ago. APRA's stress test which hypothetically increased the unemployment rate to 11% (more than double the current rate) and for house prices to fall 35% showed the banks remained above the minimum capital levels. We note that APRA's latest discussion paper also highlighted that the domestic major banks were required to raise more capital while the lower rated ADIs were already deemed to be at a satisfactory level.

Overall, the lower rated ADIs (BBB and unrated) are generally now in a better financial position then they have been historically (see the Capital Ratio figure below). We believe that deposit investments with the lower rated ADIs should be continued going forward, particularly when they offer 'above market' specials. Not only would it diversify the investment portfolio and reduce credit risk, it would also improve the portfolio's overall returns.

In the current environment of high regulation and scrutiny, all domestic ADIs continue to carry high levels of capital, particularly amongst the lower ("BBB") and unrated ADIs. There is minimal (if any) probability of any ADI defaulting on their deposits going forward – this was stress tested during the GFC.

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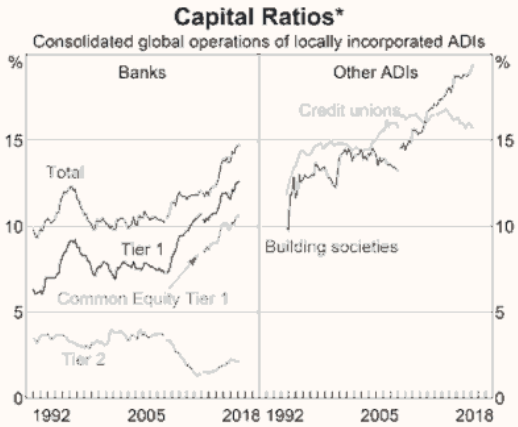
The biggest single risk that depositors face in the current low interest rate environment is not credit risk, but reinvestment risk.



Credit Quality

The portfolio remains lightly diversified from a credit ratings perspective. The portfolio is entirely directed to the investment grade ADIs (BBB- or higher), with zero allocation to unrated ADIs. There is high capacity to invest in the higher rated ADIs (A or higher), particularly after the downgrades of BoQ and Bendigo-Adelaide Bank in May 2017, which now fall back into the "BBB" rated category.

There is also considerable capacity to invest with the "BBB" rated ADIs following the adoption of a new policy.

Given the large number of "BBB" rated ADIs currently in the market (and conversely, the low number of "A" or higher rated ADIs), we suggest Council direct new funds into this sector. We note that it is within this category where the most value is currently experienced. The difference in pricing can amount up to 10-20bp on any day.

All ratings categories are within the Policy limits:

Compliant	Credit Rating	Invested ($)	Invested (%)	Max. Limit (%)	Available ($)
✓	AA Category	$140,779,651	48.25%	100%	$151,000,000
✓	A Category	$98,000,000	33.59%	60%	$77,067,791
✓	BBB Category	$53,000,000	18.16%	30%	$34,533,895
✓	Unrated ADIs	$0	0.00%	10%	$29,177,965
		$291,779,651	**100.00%**		

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Performance

Council's performance for the month ending 31 May 2019 is summarised as follows:

Performance	1 month	3 months	6 months	FYTD	1 year
Official Cash Rate	0.13%	0.38%	0.75%	1.38%	1.50%
AusBond Bank Bill Index	0.15%	0.48%	0.99%	1.84%	1.99%
Council's Portfolio^	**0.25%**	**0.75%**	**1.49%**	**2.76%**	**3.01%**
Outperformance	**0.10%**	**0.26%**	**0.50%**	**0.92%**	**1.02%**

^Total portfolio performance excludes Council's cash account holdings. Overall returns would be lower if cash was included.

For the month of May, the deposit portfolio provided a solid return of +0.25% (actual), outperforming the benchmark AusBond Bank Bill Index return by +0.10% (actual). The strong performance continues to be driven by the handful of deposits still yielding above 3½% p.a. However, most of these individual deposits have now matured and will be reinvested at lower prevailing rates.

Over the past year, the deposit portfolio returned +3.01% p.a., outperforming bank bills by 1.02% p.a. and more than double the official cash rate of 1½%. This has been relatively strong given deposit rates reached their all-time lows and margins have generally contracted over the past 3 years.

Investors using the Imperium Markets platform have reduced the invisible costs associated with brokerage, and thereby lift client portfolio returns as investors are able to deal in deposits directly with the ADIs and execute at the best price possible. Council has experienced this over the past 12-18 months, receiving on average, 2-4bp higher for every deposit dealt on the platform.

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Council's Term Deposit Portfolio & Recommendation

As at the end of May 2019, Council's deposit portfolio was yielding 2.95% p.a. (down 3bp from the previous month), with an average duration of ~1½ years. Where possible, we recommend Council extends or at least maintains this average duration. In the low interest rate environment, the biggest collective risk that the local government sector has faced over the post-GFC era has been the dramatic fall in interest rates - from 7¼% to the current historical low levels of 1½% (potentially lower over coming months).

As the past decade has highlighted (post-GFC era), we have seen too many portfolios' roll a high proportion of their deposits between 3-6 months, resulting in their deposits being reinvested at lower prevailing rates. That is, depositors have generally not insured themselves against the low interest rate environment by diversify their funding across various tenors (out to 5 years) but rather placed all their 'eggs in one basket' and kept all their deposits short. **Reinvestment risk has collectively been and continues to be the biggest detriment to depositors' interest income over the post-GFC period**. **Another interest rate cut is highly anticipated over coming months**.

At the time of writing (early June), we see value in:

ADI	LT Credit Rating	Term	T/D Rate
Judo Bank	Unrated ADI	3 years	~2.65% p.a.
BoQ	BBB+	5 years	~2.55% p.a.
BoQ	BBB+	4 years	~2.40% p.a.
BoQ	BBB+	3 years	~2.25% p.a.
BoQ	BBB+	2 years	~2.20% p.a.

For those investors that have capacity issues with the "BBB" and unrated ADI sector, we see value in:

ADI	LT Credit Rating	Term	T/D Rate
AMP	A-	2 years	^2.40% p.a.

^ AMP T/Ds – these are grossed up rates which includes a 0.20% p.a. rebated commission from Imperium Markets. Temporarily lift to around $7m cap (requires approval), applies per individual investor.

The above deposits are suitable for investors looking to provide some income protection and mitigate reinvestment/rollover risk in the low interest rate environment, and particularly with further interest rate cuts imminent on the horizon.

For terms under 12 months, we believe the strongest value is currently being offered by a number of lower and unrated ADIs offering above-market specials (dependent on daily funding requirements):

ADI	LT Credit Rating	Term	T/D Rate
Judo Bank	Unrated ADI	12 months	2.65% p.a.
Judo Bank	Unrated ADI	9 months	2.55% p.a.
Judo Bank	Unrated ADI	6 months	2.45% p.a.
Auswide	BBB	9-12 months	2.30% p.a.
ME Bank	BBB	3-6 months	2.29% p.a.
Auswide	BBB	6 months	2.25% p.a.

Excluding AMP (A-), we note the spread between the higher rated ADIs and the lower rated regional and unrated ADIs is becoming wider. Amongst the higher rated ADIs ("A" rated or higher), the following deposits remain attractive for terms under 12 months:

ADI	LT Credit Rating	Term	T/D Rate
AMP	A-	6 months	^2.65% p.a.
AMP	A-	7 months	^2.55% p.a.
AMP	A-	8-9 months	^2.50% p.a.
AMP	A-	10-12 months	~2.45% p.a.
Suncorp	A+	3 months	2.22% p.a.
Suncorp	A+	4-6 months	2.20% p.a.
NAB	AA-	3-7 months	2.20% p.a.

^ AMP T/Ds – these are grossed up rates which includes a 0.20% p.a. rebated commission from Imperium Markets. Temporarily lift to around $7m cap (requires approval), applies per individual investor.

IMPERIUM MARKETS

Senior FRNs & Recommendations

Over May, amongst the senior major bank FRNs, physical credit securities were marked marginally wider. The 3 and 5 year part of the curve widened by around +1bp and +2bp respectively. During the month, Westpac (AA-) issued a new dual 3 and 5¼ year 'benchmark' FRN issue at +62bp and +88bp respectively.

We continue to see good value for a new 5 year senior major bank FRN (offered at around +87bp), given the slight premium offered in the primary market, and particularly once factoring in the potential capital gains which could be realised from as early as two years after being launched. **The grossed up return would be closer to around +120-125bp over a 2 year holding period in a relatively stable credit environment**, over and above where the highest margins are paying compared to the medium to longer-dated deposits.

We continue to see better value in longer tenors (i.e. favour 5 year terms over 3 year terms) amongst the "AA" rated ADIs due to their high liquidity and ability to 'roll down the curve' over a 2-2½ year holding period.

Collectively over the month, the "A" rated cohort remained relatively flat at the 5 year part of the curve. Meanwhile, the "BBB" rated ADIs tightened -5p to +105bp over the 3 year part of the curve, after RACQ (BBB+) launched a small $60m issue at +105bp, which we thought was fair value. There remains very little turnover (traditionally) in the secondary market amongst the lower regional ADIs.

Overall, credit remains tight on a historical basis but much more attractive after the earlier correction experienced in credit markets over December 2018 / early January 2019. While rate cuts are now expected in the immediate future, FRNs continue to play a role once factoring in their liquidity and the ability to roll down the curve and gross up returns in a relatively stable credit environment.

Senior FRNs (ADIs)	31/05/2019	30/04/2019
"AA" rated – 5yrs	+87bp	+86bp
"AA" rated – 3yrs	+63bp	+61bp
"A" rated – 5yrs	+120bp	+120bp
"A" rated – 3yrs	+95bp	+92bp
"BBB" rated – 3yrs	+105bp	+110bp

Source: IBS Capital

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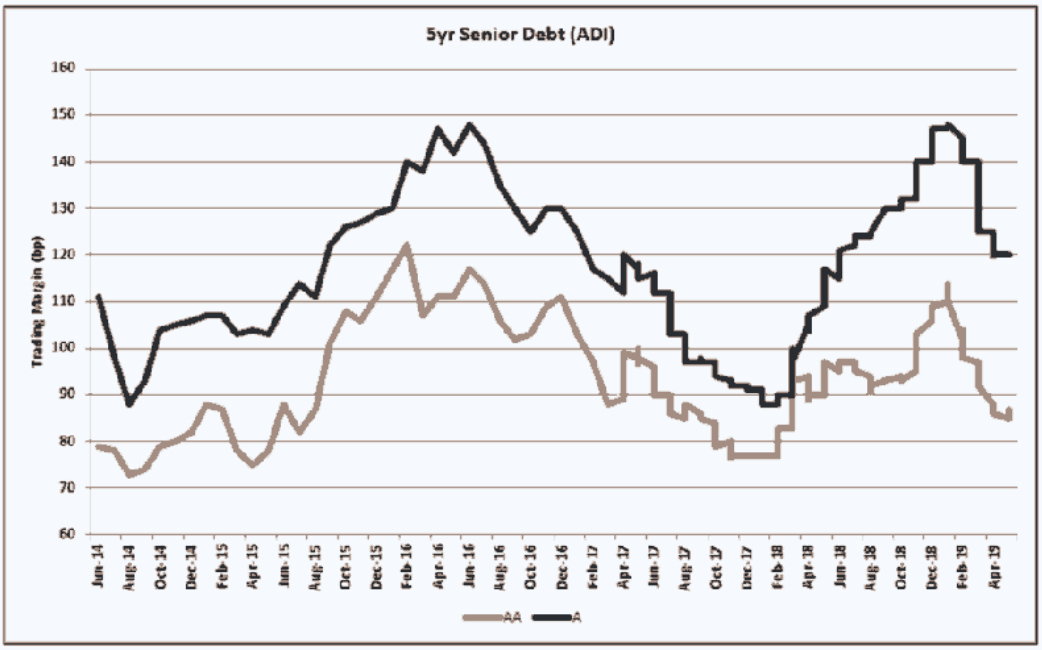

Source: IBS Capital

We now generally **recommend switches** ('benchmark' issues only) into new primary issues, out of the following senior FRNs that are maturing:

- **On or before mid-2022 for the "AA" rated ADIs (domestic major banks)**;
- On or before 2020 for the "A" rated ADIs; and
- Within 12 months for the "BBB" rated ADIs (consider case by case).

Investors holding onto the above senior FRNs ('benchmark' issues only) in their last 1-2 years are now generally holding sub-optimal investments and are not maximising returns by foregoing realised capital gains. In the current low interest rate environment, any boost in overall returns should be locked in when it is advantageous to do so.

We recommend Council starts introducing liquid senior FRNs into the portfolio, potentially starting with the domestic major banks when a new attractive issue is launched. We will inform Council when there is an opportunity to do so.

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Economic Commentary Review

International Market

International equity markets suffered a rout in May amid signs of a slowdown in global growth and heightened US-China trade tensions. In the US, **the S&P 500 Index fell -6.58% for the month**, **while the NASDAQ plunged -7.93%**. Across Europe, the main economies also suffered significant losses, led by France's CAC (-6.78%), Germany's DAX (-5.00%) and UK's FTSE (-3.46%). Italy's share index came close to within an official correction territory (-9.50%).

US CPI for April came in on the softer side. Both headline and core inflation were a tenth below consensus. **Core CPI was +2.1% in year-terms**. After the **US Fed kept their target range unchanged at 2.25%-2.50%**, Fed Chair Powell described the factors that have recently held down core inflation as "*transitory*".

President Trump used a Florida rally to ramp up the rhetoric against China insisting their leaders had "*broke the deal*". After the US lifted tariffs on $200bn worth of China imports, China retaliated by increasing tariffs on $60bn of US imports by up to 25%.

President Trump announced that the US would be lifting steel and aluminium tariffs on Mexico and Canada. Canada responded in kind, opening the door for Congress to ratify the US-Mexico-Canada Agreement.

The US unemployment rate came in at a 49 year low of 3.6% in April, partially due to falling participation (-490k for the month). Wage growth came in at +0.2% m/m or +3.2% y/y.

Eurozone GDP and unemployment both beat market expectations. Q1 GDP came in at +0.4% q/q against +0.3% expected, taking the annual rate to +1.2% y/y. Italy appeared to be stabilising after having been in technical recession (Italy Q1 GDP +0.2% q/q and +0.1% y/y). The unemployment rate beat expectations by a tenth, coming in at 7.7%, with notable falls for Italy (10.2% from 10.5%) and Spain (14.0% from 14.2%).

Theresa May announced she will stand down as prime minister on June 7, after insurmountable pressure for her to quit reached a critical point following her Brexit failures.

China's industrial production growth – the output of industrial sectors in **China's economy**, including manufacturing – fell to 5.4% in April from 8.5% in March. **Retail sales grew by +7.2% in April, well below +8.7% rate in March and the lowest in 13 years**.

The MSCI World ex-AUS fell -6.22% for the month of May.

Index	1m	3m	1yr	3yr	5yr	10yr
S&P 500 Index	-6.58%	-1.16%	+1.73%	+9.49%	+7.43%	+11.59%
MSCI World ex-AUS	-6.22%	-1.97%	-2.22%	+6.97%	+3.79%	+7.88%
S&P ASX 200 Accum. Index	+1.71%	+4.88%	+11.08%	+10.60%	+7.74%	+10.05%

Source: S&P, MSCI

IMPERIUM MARKETS

Domestic Market

The RBA kept interest rates unchanged in its meeting in May, after markets and economists were roughly split on whether rates would be cut. While the RBA cut its near-term growth and inflation forecasts, and delayed the return of inflation to the lower part of the band until 2020 (from 2019) – the Bank continues to forecast a central scenario of trend or above-trend GDP growth of 2.75% over 2019 and 2020 and some further improvement in the unemployment rate, though not until 2021 (effectively an unchanged unemployment rate at 5% over 2019 and the first half of 2020).

A few weeks later in mid-May, RBA Governor Lowe said in a speech that, "*at our meeting in two weeks' time, we will consider the case for lower interest rates*". Lowe conceded that increasing evidence of a weaker economy underpinned their shift to an easing bias, suggesting that lower unemployment was needed for the Board to stay on hold.

The unemployment rate has steadily jumped from its 8-year low of 4.9% in February, to 5.1% in March and 5.2% in April. Employment rose +28k in April, driven by higher part-time employment. The rise in the unemployment rate was also driven by rising participation from 65.7% to 65.8%. The underemployment rate rose from 8.2% to 8.5%, the highest level since July 2008.

The RBA admitted that NAIRU is likely to be much lower than earlier expected (now 4.5% from 5.0%), like many other advanced economies. Governor Lowe also called for additional fiscal support, including infrastructure investment, and structural policies that support investment and hiring.

Retail sales volumes recorded a weak quarter, falling -0.1% in Q1 2019, which was the first fall since 2012 and followed an unchanged outcome in Q4 2018 (revised down from a +0.1% gain).

Wages rose by +0.5% in Q1, keeping annual growth unchanged at +2.3% for the third quarter in a row. Private sector wages recorded an increase of +0.5% in Q1, following an increase of +0.6% in Q4 2018, signalling signs that wage growth remains low.

The Coalition pulled off a remarkable victory in the Federal election, defying predictions from the polls and betting markets, while forming a majority government.

The Australian Prudential Regulation Authority (APRA) removed its guidance in which Australian mortgage lenders needed to assess whether borrowers can afford their repayment obligations using a minimum interest rate of at least 7% or 2% above the prevailing borrowing rate – whichever is the highest – to be replaced by a rule that **serviceability should be assessed against a rate 2.5% above the prevailing rate**.

Residential building approvals fell by -4.7% in April, as both house and apartment approvals continued to fall.

In equity markets, Australia beat the global trend with the S&P ASX 200 Accumulation Index gaining +1.71% on the back of the surprise Federal election outcome as well as growing expectations of stimulus from the RBA (interest rate cuts).

The Australian dollar fell another -1¾% this month, finishing at US69.16 cents (from US70.39 cents the previous month).

IMPERIUM MARKETS

Credit Market

The main global credit indices significantly widened over May, marked around 20% wider across the board. Credit spreads are now back to where they were earlier in the year:

Index	May 2019	April 2019
CDX North American 5yr CDS	70bp	58bp
iTraxx Europe 5yr CDS	71bp	58bp
iTraxx Australia 5yr CDS	78bp	66bp

Source: Markit

Fixed Interest Review

Benchmark Index Returns

Index	May 2019	April 2019
Bloomberg AusBond Bank Bill Index (0+YR)	+0.15%	+0.16%
Bloomberg AusBond Composite Bond Index (0+YR)	+1.70%	+0.28%
Bloomberg AusBond Credit FRN Index (0+YR)	+0.17%	+0.35%
Bloomberg AusBond Credit Index (0+YR)	+1.19%	+0.57%
Bloomberg AusBond Treasury Index (0+YR)	+2.09%	+0.19%
Bloomberg AusBond Inflation Gov't Index (0+YR)	+3.09%	+0.82%

Source: Bloomberg

Other Key Rates

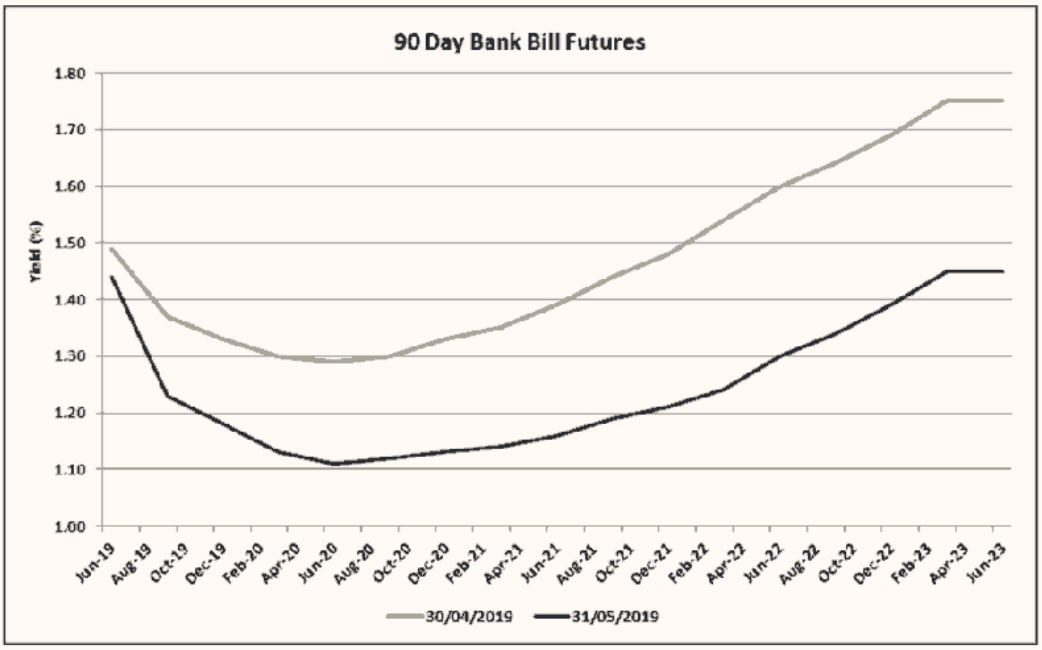
Index	May 2019	April 2019
RBA Official Cash Rate	1.50%	1.50%
90 Day (3 month) BBSW Rate	1.42%	1.56%
3yr Australian Government Bonds	1.10%	1.28%
10yr Australian Government Bonds	1.46%	1.79%
US Fed Funds Rate	2.25%-2.50%	2.25%-2.50%
10yr US Treasury Bonds	2.12%	2.51%

Source: RBA, AFMA, US Department of Treasury

IMPERIUM MARKETS

90 Day Bill Futures

Over May, bill futures fell across the curve on pricing expectations of multiple RBA rate cuts for the remainder of 2019. **At month-end, the futures market was factoring a 100% chance of a 25bp rate cut on 4th June 2019, while fully pricing in another 25bp rate cut by October 2019.**



Source: ASX

IMPERIUM MARKETS

Fixed Interest Outlook

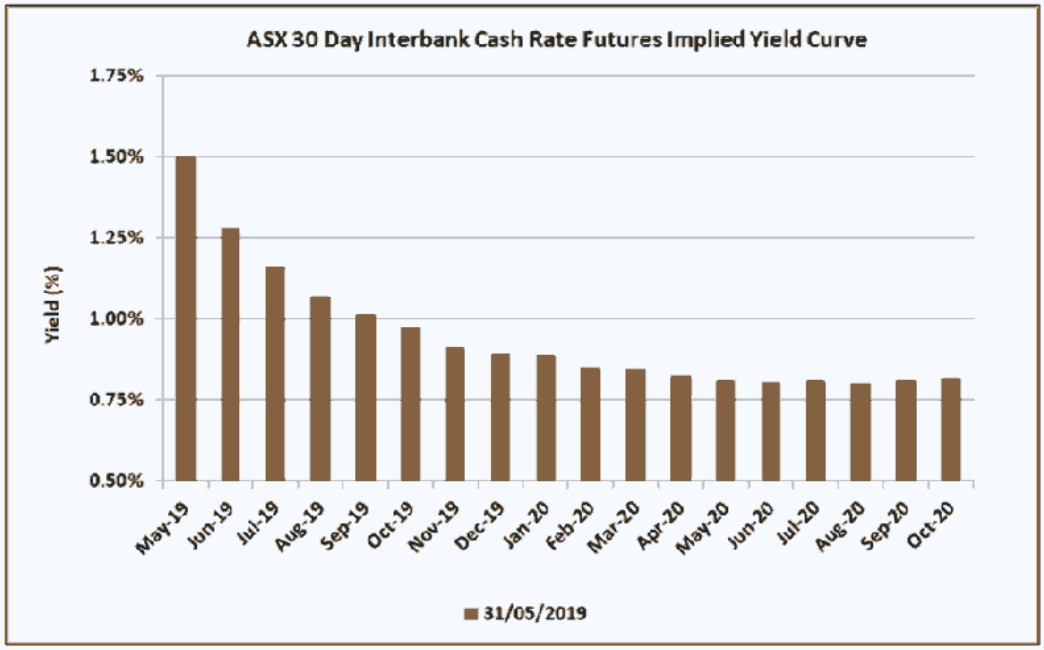
With the global economy and US inflation showing signs of softening, along with the ongoing trade wars, this could see the Fed cutting interest rates before the end of 2019. The market is currently factoring around an 80% chance that the Fed will cut rates by September.

Domestically, the RBA has openly shifted towards an easing bias, signalling a rate cut in early June. For inflation, wage growth and employment to pick-up, the RBA has conceded that a rate cut is likely to be required (they also encouraged fiscal stimulus from the government).

Housing concerns are closely being monitored with the fall in house prices (mainly in Sydney and Melbourne) being acknowledged as having an impact on the 'wealth effect' towards consumers.

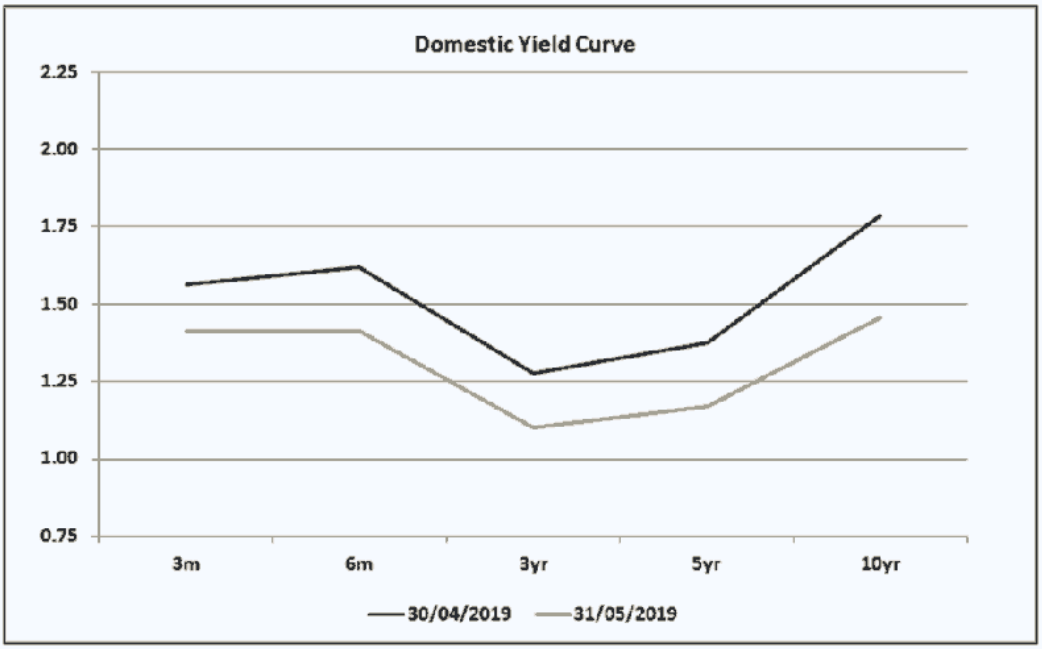
The global key risks for the RBA stem from the impact of international trade wars and a slowdown in the Chinese economy, US inflation and a broader slowdown in the global economy. Domestically, they are focused on employment, inflation, wage growth, housing and consumption. As a result of these uncertainties, the Bank remains cautious and is now seemingly ready to adjust interest rates as early as June.

The futures market is now clearly focused on a rate cut **with the prospect of a 25bp move on 4th June seen as a 100% scenario**. Economists are now predicting the RBA will be forced to cut multiple times this year on expectations of a slowdown in the domestic and global economy, household finances impacting consumer confidence and a further downturn in residential property.



Source: ASX

Over the longer-term, the domestic bond market continues to suggest a 'lower-for-longer' period of interest rates. Over the month, yields fell up to -33bp at the longer end of the curve:



Source: AFMA, ASX, RBA

Disclaimer

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PORT MACQUARIE-HASTINGS
COUNCIL

Monthly Investment Report

01/05/2019 to 31/05/2019

IMPERIUM MARKETS

Portfolio valuation

PORT MACQUARIE-HASTINGS COUNCIL

As at 31/05/2019

Issuer	Rating	Type	Interest	Purchase	Maturity	Rate	Value	Accrued	AccrMTD	Ref
Westpac	AA-	TD	Qtly	29/05/2018	11/06/2019	2.7100	3,000,000.00	668.22	668.22	6775257
Bendigo and Adelaide	BBB+	TD	Annual	07/07/2016	08/07/2019	3.1500	2,000,000.00	56,441.10	5,350.68	1986640
NAB	AA-	TD	Maturity	17/07/2018	16/07/2019	2.7800	2,000,000.00	48,592.88	4,722.19	GMI-DEAL-10549241
Westpac	AA-	TD	Annual	24/07/2017	24/07/2019	2.9400	4,000,000.00	100,523.84	9,987.95	032-697 114230
Westpac	AA-	TD	Annual	15/08/2016	15/08/2019	3.1000	3,000,000.00	73,890.41	7,898.63	032-586 511-284
Newcastle Permanent	BBB	TD	Annual	15/08/2016	15/08/2019	3.0000	2,000,000.00	47,671.23	5,095.89	31125
Westpac	AA-	TD	Annual	22/08/2017	22/08/2019	2.9000	3,000,000.00	67,454.79	7,389.04	032-697 115436
ING Direct	A	TD	Annual	22/08/2017	22/08/2019	2.7500	5,000,000.00	106,609.59	11,678.08	26932
Commonwealth Bank	AA-	TD	Annual	04/09/2017	29/08/2019	2.7300	3,000,000.00	60,583.56	6,955.89	B37942904.6
Westpac	AA-	TD	Annual	04/09/2017	04/09/2019	2.9600	3,000,000.00	65,687.67	7,541.92	032-697 115 794
St George Bank	AA-	TD	Annual	08/09/2016	08/09/2019	3.2000	5,000,000.00	115,726.03	13,589.04	355290684
St George Bank	AA-	TD	Annual	27/09/2016	27/09/2019	3.2000	4,000,000.00	86,619.18	10,871.23	355333138
NAB	AA-	TD	Annual	11/07/2018	15/10/2019	2.8500	3,000,000.00	76,130.14	7,261.64	GMI-DEAL-10547992
ICBC Sydney Branch	A	TD	Annual	31/10/2018	29/10/2019	2.8300	4,000,000.00	66,059.18	9,614.25	00001
ICBC Sydney Branch	A	TD	Maturity	20/11/2018	12/11/2019	2.8600	5,000,000.00	75,613.70	12,145.21	0125001100000186702
ICBC Sydney Branch	A	TD	Annual	13/11/2018	19/11/2019	2.8600	4,000,000.00	62,684.93	9,716.16	00003
AMP Bank	A-	TD	Maturity	29/05/2019	25/11/2019	2.4500	5,000,000.00	1,006.85	1,006.85	
ICBC Sydney Branch	A	TD	Annual	28/11/2018	26/11/2019	2.8200	5,000,000.00	71,465.75	11,975.34	00006
Westpac	AA-	TD	Qtly	14/12/2018	10/12/2019	2.7300	3,000,000.00	17,726.30	6,955.89	7389786
Westpac	AA-	TD	Qtly	14/12/2018	17/12/2019	2.7300	4,000,000.00	23,635.07	9,274.52	7389774
Westpac	AA-	TD	Qtly	14/01/2019	14/01/2020	2.7200	5,000,000.00	17,512.33	11,550.68	7448784
Members Equity Bank	BBB	TD	Annual	24/01/2017	24/01/2020	3.2600	2,000,000.00	22,864.66	5,537.53	22835
ICBC Sydney Branch	A	TD	Maturity	20/02/2019	04/02/2020	2.7200	1,000,000.00	7,526.58	2,310.14	00010
ING Direct	A	TD	Annual	15/02/2018	17/02/2020	2.8700	4,000,000.00	33,339.18	9,750.14	30810
ING Direct	A	TD	Annual	28/02/2018	03/03/2020	2.8900	4,000,000.00	29,454.25	9,818.08	378133
Newcastle Permanent	BBB	TD	Annual	10/03/2016	10/03/2020	3.7000	2,000,000.00	16,624.66	6,284.93	29843
ING Direct	A	TD	Annual	02/03/2018	17/03/2020	2.8800	4,000,000.00	28,089.86	9,784.11	378677
Rural (Bendigo Group)	BBB+	TD	Maturity	18/04/2019	14/04/2020	2.5500	2,000,000.00	6,147.95	4,331.51	2952006
Auswide Bank	BBB	TD	Maturity	30/04/2019	29/04/2020	2.4500	5,000,000.00	10,739.73	10,404.11	

IMPERIUM MARKETS

Issuer	Rating	Type	Interest	Purchase	Maturity	Rate	Value	Accrued	AccrMTD	Ref
BOQ	BBB+	TD	Annual	19/05/2017	19/05/2020	3.0000	3,000,000.00	2,958.90	2,958.90	453470
ING Direct	A	TD	Annual	22/05/2018	26/05/2020	2.9400	4,000,000.00	3,221.92	3,221.92	403498
ING Direct	A	TD	Annual	29/05/2018	09/06/2020	2.8800	3,000,000.00	710.14	710.14	6775257
Westpac	AA-	TD	Qtly	06/06/2018	16/06/2020	2.9100	5,000,000.00	34,680.82	12,357.53	6795148
NAB	AA-	TD	Annual	03/07/2018	07/07/2020	2.9000	5,000,000.00	132,287.67	12,315.07	10545823
NAB	AA-	TD	Annual	11/07/2018	14/07/2020	2.9200	3,000,000.00	78,000.00	7,440.00	GMI-DEAL-10547993
ING Direct	A	TD	Annual	21/08/2018	25/08/2020	2.8500	4,000,000.00	88,701.37	9,682.19	424329
ING Direct	A	TD	Annual	13/09/2018	08/09/2020	2.8700	4,000,000.00	82,089.86	9,750.14	429068
Westpac	AA-	TD	Annual	13/09/2017	14/09/2020	3.1700	3,000,000.00	68,003.01	8,076.99	032-697 116017
ING Direct	A	TD	Annual	13/09/2018	22/09/2020	2.8700	4,000,000.00	82,089.86	9,750.14	429067
NAB	AA-	TD	Annual	17/10/2018	13/10/2020	2.7800	4,000,000.00	69,157.26	9,444.38	GMI-DEAL-10573417
ICBC Sydney Branch	A	TD	Annual	31/10/2018	27/10/2020	2.9300	6,000,000.00	102,590.14	14,930.96	00002
ICBC Sydney Branch	A	TD	Annual	13/11/2018	10/11/2020	2.9300	5,000,000.00	80,273.97	12,442.47	00004
ICBC Sydney Branch	A	TD	Annual	05/12/2018	08/12/2020	2.8600	2,000,000.00	27,894.79	4,858.08	0125001100000186702
ICBC Sydney Branch	A	TD	Annual	14/12/2018	15/12/2020	2.8900	6,000,000.00	80,286.58	14,727.12	00009
BOQ	BBB+	TD	Annual	24/01/2017	25/01/2021	3.6500	2,000,000.00	25,600.00	6,200.00	438425
Westpac	AA-	TD	Annual	21/02/2017	22/02/2021	3.3900	2,000,000.00	18,575.34	5,758.36	032-586 519825
BOQ	BBB+	TD	Annual	10/03/2016	10/03/2021	3.8000	3,000,000.00	25,610.96	9,682.19	391843
ING Direct	A	TD	Annual	20/02/2019	16/03/2021	2.8200	2,000,000.00	15,606.58	4,790.14	475707
Westpac	AA-	TD	Qtly	22/03/2018	23/03/2021	3.0200	4,000,000.00	23,498.08	10,259.73	6791206
Westpac	AA-	TD	Qtly	22/05/2018	25/05/2021	3.1000	4,000,000.00	3,397.26	3,397.26	6927394
BOQ	BBB+	TD	Annual	29/05/2019	31/05/2021	2.3000	3,000,000.00	567.12	567.12	167170
Rabobank Australia	A+	TD	Annual	08/06/2017	07/06/2021	3.0200	5,000,000.00	148,104.11	12,824.66	25359
Westpac	AA-	TD	Qtly	06/06/2018	15/06/2021	3.1000	3,000,000.00	22,167.12	7,898.63	6795153
NAB	AA-	TD	Annual	03/07/2018	22/06/2021	3.0000	4,000,000.00	109,479.45	10,191.78	10545826
NAB	AA-	TD	Annual	03/07/2018	06/07/2021	3.0000	3,000,000.00	82,109.59	7,643.84	083-375 99-999-9947
Westpac	AA-	TD	Qtly	17/07/2018	13/07/2021	3.0400	5,000,000.00	18,739.73	12,909.59	7052868
NAB	AA-	TD	Annual	26/07/2018	20/07/2021	3.0400	4,000,000.00	103,276.71	10,327.67	GMI-DEAL-10552065
NAB	AA-	TD	Annual	02/08/2018	03/08/2021	3.0700	5,000,000.00	127,426.03	13,036.99	GMI-DEAL-10554251
Westpac	AA-	TD	Qtly	13/09/2018	14/09/2021	2.8800	5,000,000.00	31,561.64	12,230.14	7180013
NAB	AA-	TD	Annual	27/09/2018	28/09/2021	3.0500	5,000,000.00	103,198.63	12,952.05	GMI-DEAL-10568550
Westpac	AA-	TD	Qtly	13/09/2018	12/10/2021	2.8900	5,000,000.00	31,671.23	12,272.60	7179943
ICBC Sydney Branch	A	TD	Annual	05/12/2018	07/12/2021	3.0100	4,000,000.00	58,715.62	10,225.75	0125001100000186702
Newcastle Permanent	BBB	TD	Qtly	07/02/2019	08/02/2022	3.0500	4,000,000.00	8,356.16	8,356.16	1381/37459

Issuer	Rating	Type	Interest	Purchase	Maturity	Rate	Value	Accrued	AccrMTD	Ref
Westpac	AA-	TD	Annual	21/02/2017	21/02/2022	3.6100	2,000,000.00	19,780.82	6,132.05	23294
NAB	AA-	TD	Annual	21/02/2017	21/02/2022	3.4600	5,000,000.00	47,397.26	14,693.15	10420935
BOQ	BBB+	TD	Annual	15/03/2017	15/03/2022	3.8000	2,000,000.00	16,241.10	6,454.79	445483
Newcastle Permanent	BBB	TD	Qtly	12/03/2019	22/03/2022	2.9000	4,000,000.00	25,742.47	9,852.05	1684
Newcastle Permanent	BBB	TD	Annual	27/03/2019	29/03/2022	2.8000	5,000,000.00	25,315.07	11,890.41	
Newcastle Permanent	BBB	TD	Qtly	18/04/2019	19/04/2022	2.7000	4,000,000.00	13,019.18	9,172.60	1978
BOQ	BBB+	TD	Annual	28/05/2019	30/05/2022	2.4000	4,000,000.00	1,052.05	1,052.05	167130
Rabobank Australia	A+	TD	Annual	08/06/2017	07/06/2022	3.2200	5,000,000.00	157,912.33	13,673.97	25360
NAB	AA-	TD	Annual	02/08/2018	02/08/2022	3.2200	4,000,000.00	106,921.64	10,939.18	GMI-DEAL-10554252
NAB	AA-	TD	Annual	16/08/2018	16/08/2022	3.0500	4,000,000.00	96,597.26	10,361.64	GMI-DEAL-10557367
Westpac	AA-	TD	Annual	13/09/2017	13/09/2022	3.4100	3,000,000.00	73,151.51	8,688.49	032-697 116 009
Rabobank Australia	A+	TD	Annual	13/09/2017	13/09/2022	3.3800	3,000,000.00	72,507.95	8,612.05	27388
BOQ	BBB+	TD	Annual	28/05/2019	29/05/2023	2.5500	4,000,000.00	1,117.81	1,117.81	167127
Westpac	AA-	CASH	Month	31/05/2017	31/12/2150	2.2000	8,779,651.40	16,404.72	16,404.72	WESTPAC COMMERCIAL BANK 31 DAY NOTICE SAVER ACCOUNT
TOTALS							$291,779,651.40	$3,960,858.42	$662,705.54	

IMPERIUM MARKETS

2 Your Community Life

19/06/2019

What we are trying to achieve

A healthy, inclusive and vibrant community.

What the result will be

We will have:

- Community hubs that provide access to services and social connections
- A safe, caring and connected community
- A healthy and active community that is supported by recreational infrastructure
- A strong community that is able to identify and address social issues
- Community participation in events, programs, festivals and activities

How we will get there

2.1 Create a community that feels safe
2.2 Advocate for social inclusion and fairness
2.3 Provide quality programs, community facilities and public spaces, for example, community halls, parks and vibrant town centres
2.4 Empower the community through encouraging active involvement in projects, volunteering and events
2.5 Promote a creative and culturally rich community

PORT MACQUARIE HASTINGS COUNCIL

AGENDA **LOCAL TRAFFIC COMMITTEE**
24/04/2019

Item: 07

Subject: 2019 SEAVIEW CYCLING CLASSIC

Presented by: Infrastructure, Jeffery Sharp

RECOMMENDATION

That it be a recommendation to Council:

That Council approve the transport management arrangements associated with the Seaview Cycling Classic on Sunday 28 September 2019, subject to a review of the updated Traffic Management Plan in June 2019.

Discussion

The Seaview Classic 2019 is a one-day cycling race between the towns of Port Macquarie and Walcha to be held on Sunday 28 September 2019. The 187 km course starts at Town Square in Port Macquarie and predominantly follows the Oxley Highway to the finish in Walcha. The event will comprise of two divisions of races conducted as individual mass starts departing at 10-minute intervals. The start time in Port Macquarie is 7.00am with an expected finish time in Walcha of 3.00pm.

The event is a Class 1 Special Event and follows the requirements outlined in the *RMS Guide to Traffic and Transport Management for Special Events*.

The Seaview Classic 2019 will be the inaugural staging of the event. The event organiser is K P Cycling Enterprises Pty Ltd. Members of the organising committee have extensive experience working on major road cycling events in Australia, including the 2018 Commonwealth Games on the Gold Coast, the Grafton to Inverell Cycle Classic and Cycling Australia National Under 19 Junior and Masters Road Championships.

The course map is shown in Attachment 1. It covers two council areas - Port Macquarie-Hastings and Walcha. It involves both State roads (Oxley Highway) and local council roads.

The event commences at Town Square in Port Macquarie. The first 20 km of the race is on Council roads - Horton Street, Clarence Street, Short Street, William Street, Buller Street, Park Street, Hastings River Drive, Winery Drive, Wambuyn Drive, Frogs Road, Sancrox Road and Rawdon Island Road. The race then turns onto the Oxley Highway, which is under the care and control of Roads and Maritime Services (RMS), for 167 km until the finish in Walcha.

The Traffic Management Plan (TMP) and associated Traffic Guidance Scheme plans for the duration of the event are included in the attached Event Management Plan. The only formal road closures are at the start in Port Macquarie and at the finish in Walcha. The remainder of the race will be conducted under police escort. Rolling road closures will be implemented as the caravan proceeds along the route. Roads

PORT MACQUARIE HASTINGS COUNCIL

will be reopened on a rolling basis once the final vehicle in the caravan has passed. The main police vehicles will be:

- Police Car 1 will be located at the front of the race and is positioned approximately 200m ahead of the following Lead Vehicle to put into effect a rolling road closure.
- Police Motorbikes 1 and 2 will commence at the front of the race behind the Lead Vehicle. Motorbike 1 will remain at the front of the race and control intersections. It will move between the Lead Vehicle & Police Car 2 to coordinate traffic movements and control cross intersections.
- Police Car 2 will be the second police car located at the very rear of the main peloton to put into effect a rolling road closure.

There will also be a number of other support vehicles in the race caravan.

A Road Occupancy Licence will be required for the running of this event on the Oxley Highway prior to final consent from RMS.

Consent from the Police or RMS for the Event Management Plan has not been received at this time. Council approval is conditional on approvals from both NSW Police and RMS.

It is expected there will be modifications to the Event Management Plan as further consultation with relevant stakeholders is undertaken.

Attachments

1View. Event Management Plan - Seaview Cycling Classic 2019

Event Management Plan - Seaview Classic 2019

Prepared By:

Version	Date	Description	Author
0.1	04.02.19	First Draft	Chris Thompson
0.2	05.02.19	Amendments to first draft	
0.3	25.03.19	Include TCP's and update contact list	

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1 Introduction

1.1 Event Information

Event Name	Seaview Classic
Date/s	28 September 2019
Organiser	K P Cycling Enterprises Pty Ltd
Contact Details	Kurt Polock (Event Director) P: 0458 666 221 E: kpolock@hotmail.com

1.2 Purpose of the Event Management Plan

This Event Management Plan (EMP) provides the event management procedures to be followed by the event organisers for the Seaview Classic conducted from Town Green, Port Macquarie on 28 September 2019. The objectives of the EMP are to:

- Provide a safe environment for all road users
- Provide protection to event participants, organisers and the general public from traffic hazards that may arise as a result of the event activity
- Minimise the delays to all road users
- Ensure access to adjacent private/commercial premises is maintained at all times.

To achieve the above objectives, the EMP will:

- Ensure that traffic delays are kept to a minimum
- Ensure that the roads are free of hazards and that all road users are adequately protected from activities of event participants and organisers
- Ensure that all needs of road users, motorists, pedestrians, cyclists and people with disabilities are accommodated at and through the site of the event

2 Event Details

2.1 Event Description

The Seaview Classic is a one-day cycling race between the towns of Port Macquarie and Walcha. It will be a State Open level event on the Cycling NSW calendar. The testing nature of the 187km course combined with the unique format of the event is expected to attract competitors from throughout NSW, southern QLD and Victoria. The 2019 event will comprise of two divisions of races conducted as individual mass starts departing at 10-minute intervals. The course starts in Port Macquarie and predominantly follows the Oxley Highway to the finish in Walcha.

This event is a Class 1 Special Event and follows the requirements outlined in the 'Guide to Traffic and Transport Management for Special Events'

2.2 History

This will be the inaugural staging of the event. The members of the organising committee have extensive experience working on major road cycling events in Australia. These include the 2018 Commonwealth Games on the Gold Coast, the Grafton to Inverell Cycle Classic and Cycling Australia National Under 19 Junior and Masters Road Championships.

2.3 Location of Start and Finish Points

Starting Point: Town Green, Port Macquarie

Figure 1: Port Macquarie Start

Finish Point: Fitzroy Street (Oxley Highway) – 50m past the Middle Street Intersection.

Figure 2: Walcha Finish Route

2.4 Course Details

The course proceeds along Clarence Street and turns left into Short Street. It continues on Short Street before turning right at the roundabout into William Street continuing on to become Buller Street after the bridge. It then turns left into Park Street and then right into Hastings River Drive. **(Please note that this section of the course is neutral until the 5.3km point on Hastings River Drive).**

The course continues along Hastings River Drive for 3.7km after the end of the neutral section before turning left into Winery Drive. It follows Winery Drive for 3km before travelling straight through a roundabout to become Wambuyam Road. It then turns right at a roundabout to become Frogs Road and then travels for 1.1km before turning left at a roundabout to become Sancrox Road. It follows Sancrox Road for 3.4km before turning left into Rawdon Island Road and continues for 2.3km before turning left onto the Oxley Highway.

The course continues to follow the Oxley Highway all the way to Walcha to finish 50m past the Middle Street intersection.

A map of the overall race route is displayed in Figure 3. Further detail of the Race Start and Finish are displayed in Figures 4-5.

The Map My Ride link is https://www.mapmyride.com/routes/view/2357207215

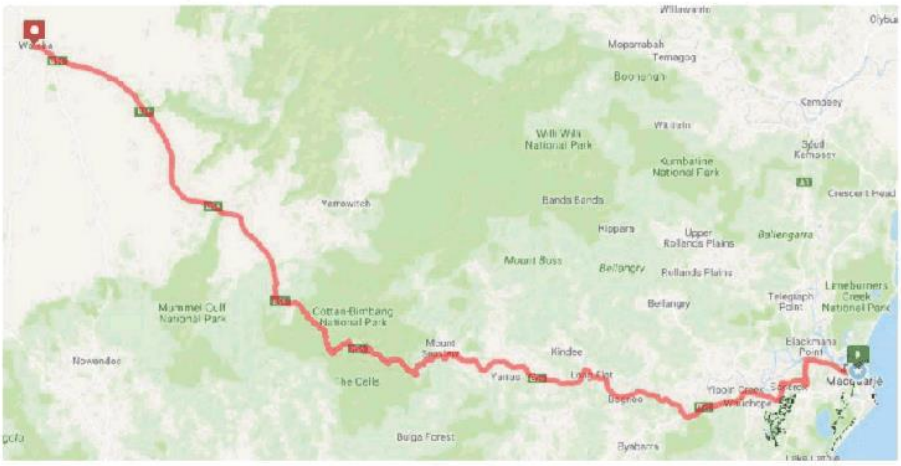

Figure 3: Course map

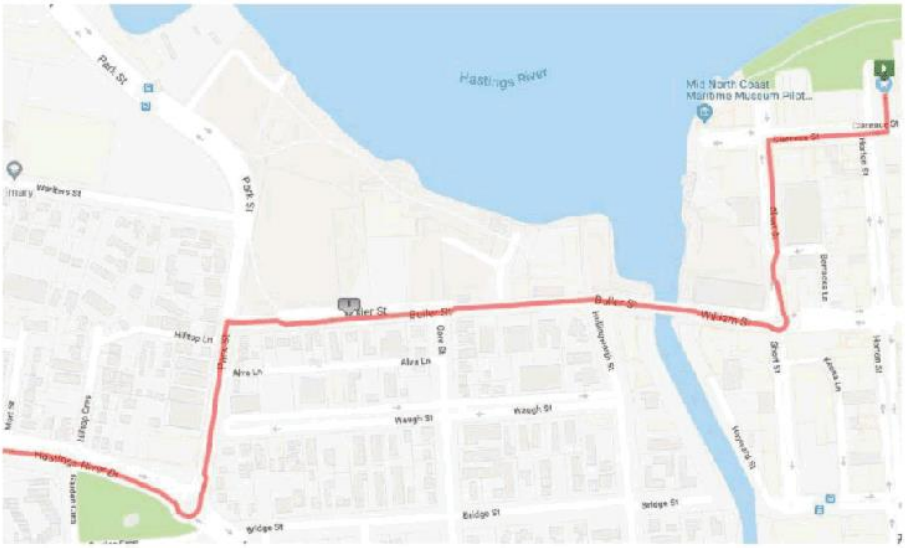

Figure 4: Port Macquarie Start

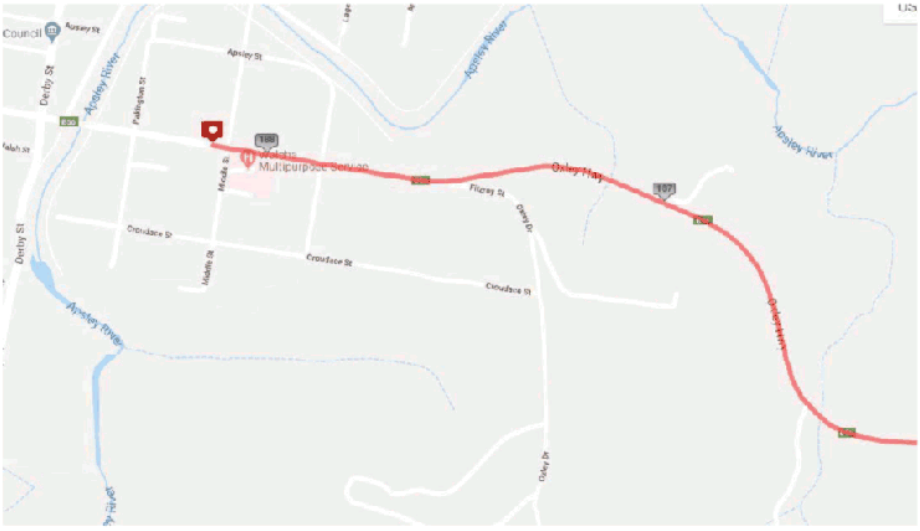

Figure 6: Walcha Finish

2.4.1 Feed Stations

1) Neutral Water Station on the Mount Seaview climb at Coombes Gap (88km)
2) Supported Feeding Station at Yarrowitch (132km)

2.4.2 Intermediate Sprint and KOM Points

The intermediate sprint points are as follows:

1) Cassegrain Winery on Winery Road (11.4km)
2) Timbertown (27.9km)
3) Longflat (51.3km)
4) Aspley Falls (169.2km)

The King of the Mountain points are as follows:

1) KOM 1 Mount Seaview (94.4km)
2) KOM 2 (146.4km)
3) KOM 3 (155.6km)
4) KOM 4 (182.6km)

2.5 Event Start and Finish Times

Start time is 7.00am and the finish time 'cut off' is 3.00pm. The time schedules for each category are detailed below.

TIME DIV 1	TIME DIV 2	BROOM WAGON	LOCATION	DISTANCE KMS
07:00	07:10	07:10	Start Horton Street, Port Macquarie and proceed into Clarence Street	0.0
			Left turn into Short Street	0.1
			Right turn at roundabout into William Street	0.3
			Left turn into Park Street	1.0
			Right turn at roundabout into Hastings River Road	1.2
07:10	07:20	07:25	Fernbank Creek– end of neutral zone	5.3
0715-0720	0725-0730	07:35	**Left** turn into Winery Drive	9.0
0718-0724	0729-0735	07:40	Cassegrain Winery Sprint	11.4
07:19-07:25	0730-0737	07:42	**Through** roundabout into Wambuyam Road	12.0
07:20-07:26	07:32-07:40	07:45	**Right** turn at roundabout into Frogs Road	12.8
07:21-07:28	07.33-07:42	07:48	**Left** turn at roundabout into Sancrox Road	13.9
07:26-07:35	07:39-07:51	08:00	**Left** turn into Rawdon Island Road	17.3
07:30-07:40	07:44-07:57	08.10	**Right** turn onto the Oxley Highway	19.6
07:38-07:50	07:54-08:08	08:20	**Railway Crossing** - Wauchope	24.8
			Through roundabout at High Street/Cameron Street, Wauchope	25.0
			Continue along High Street through Wauchope	
07:42-07:55	07:59-08:10	08:25	Timbertown Sprint	27.9
08:20-08:35	08:40-08:55	09:15	Longflat Sprint	54.3
08:30-08:45	08:52-09:10	09:25	Ellenborough	59.5
09:00-09:20	09:26-09:50	10:10	**Commence** Mount Seaview Climb	80.0
09:18-09:38	09:46-10:12	10:50	Neutral Water Station Coombes Gap	88.0
09:37-10:03	10:05-10:45	11:10	Summit of Mount Seaview Climb – KOM Point	94.4
09:53-10:22	10:25-11:07	11:35	Stockyard Creek (Toilets)	105.4
09:55-10.25	10:28-11.10	11:38	Gingers Creek Roadhouse/Cafe	106.6
10:45-11.20	11:30-12.15	12:50	**Feed Zone - Yarrowitch**	132.0
11:07-11.45	11:55-12.45	13:35	KOM 2 Summit	146.4
11.20-12:00	12.10-13:00	13.55	KOM 3 Summit	155.6
11.40-12.23	12.35-13.25	14.20	Aspley Falls Sprint t	169.2
12.02-	13.00-	14.50	KOM 4 Summit	182.6

12:48	13:55			
12:09-12:54	13:09-14:04	14:58	Walcha 50km Speed Sign	186.3
12:10-12:55	13:10-14:05	15:00	Walcha FINISH	187.1

Port Macquarie Town Limits
Wauchope Town Limits

Please note: The Broom Wagon will be travelling at a pre-determined pace with an average of 24.0kph for the course. Any rider who falls behind the Broom Wagon must remove their number and transponder and exit the race

2.6 Participant Details

The event is open to male and female Race licenced members of Cycling Australia born before 2000. The Event Organiser hopes to attract 200 participants. Fields will be limited to 150 competitors in each division.

2.7 Entry Process

All participants must enter the event through the online registration or manual entry process of Cycling NSW. Entry will be restricted to Cycling Australia 'Race' licence holders.

2.8 Format of Activities

Participants will compete in the following divisions: Division 1 and Division 2. The Division 1 race will be open to Cycling Australia Race licenced male riders with a Cycling NSW grading of A or B, or the equivalent grading in other states. Division 2 will be open to all Cycling Australia Race licenced female riders and male riders with a Cycling NSW grading of C or D, or the equivalent grading in other states.

Registration will be conducted on Friday 27th September from 4pm to 6pm at the Town Green in Port Macquarie. A briefing with Police, RMS and officials will be conducted at the Port Macquarie Police Station at 4.30pm. A meeting for event Commissaires will be held at 5.30pm, a team managers and riders meeting will be held at 6.00pm, and a briefing for all event convoy drivers will be conducted at 6.30pm. These meetings will be conducted at the Port Macquarie Hotel.

Sign On will be open from 6.00am on Saturday 28th at the Town Green, Port Macquarie with riders required to sign on prior to assembly on Horton Street for the start of the race. A meeting for Police, Race Directors and Commissaires for all divisions will be conducted at 6.30am. A competitor briefing by the chief official will be conducted 10 minutes prior to the start of each division followed by a briefing from police 5 minutes before the start of each division.

The Division 1 race will commence at 7.00am and the Division 2 race at 7.10am Riders will roll out from Horton Street under police escort for the start of the race.

Presentations will be conducted on the stage adjacent to the finish line in Walcha within 15 minutes of the winners in each division crossing the finish line. They will be conducted separately for each division.

2.9 Event Timing

All competitors will be electronically timed using Race Results, an event results management system that will be operated by Cycling NSW staff. Each rider will be allocated a transponder which is attached to the fork of their bike. A timing lead will be taped to the race finish line and a timing aerial will be located beside the road at the finish line.

2.10 Support Vehicles

Vehicles in the event convoy will be distinguished by event signage.

2.10.1 Starting Configuration

The organiser shall provide escort vehicles for the event in a predetermined configuration that creates a positive awareness of the presence of participants on the carriageway to other road users.

The race caravan for all divisions of races comprises of the following vehicles, positioned in this order when the field is together as one main pack or peloton (cycling term):

1) **Police Car 1:** the first police car will be located at the front of the race and is positioned approximately 200m ahead of the following Lead Vehicle to put into effect a rolling road closure.
2) **Lead Vehicle**: the lead vehicle is located behind Police Car 1. The vehicle will display a sign with the words 'CAUTION CYCLISTS FOLLOWING' directed to the front of the vehicle warning oncoming traffic and road users.
3) **Police Motorbikes 1 and 2:** these will commence at the front of the race behind the Lead Vehicle. Motorbike 1 will remain at the front of the race and control intersections. It will move between the Lead Vehicle & Police Car 2 to coordinate traffic movements and control cross intersections
4) **Commissaire Motorbikes 1 and 2:** these will commence at the front of the race behind Police Car 1 and the Lead Vehicle and will move under the direction of the Chief Commissaire
5) **Commissaire 2**: this will seat an event official and will initially be positioned in front of the main peloton behind the race director. It will have the responsibility of following breakaway riders or as directed by Commissaire 1. It may act as a neutral service vehicle if required by the nature of the race breakaway. It may also work with the information motor bike to give time gaps to breakaway riders.
6) **Cyclists:** the cyclists will commence in this position in relation to the convoy vehicles.
7) **Commissaire 1**: this will seat the official in charge (Chief Commissaire) of the event and will follow the main peloton throughout the race. The Chief Commissaire may also give direction to any vehicle within the race convoy (with Police confirmation) to alter position as the race situation requires.
8) **First Aid**: the First Aid vehicle will follow directly behind Commissaire 1 at the rear of the main peloton or as directed by Commissaire 1 or Police and will always be given rite of passage.
9) **Neutral Spares**: the neutral spares vehicle will be positioned behind Commissaire 1 and will be designated to service the main field or act as directed by Commissaire 1 as the race situation requires. The vehicle will be clearly identified and display a 'CAUTION CYCLISTS' sign facing the rear of the vehicle.
10) **Police Car 2:** the second police car will be located at the very rear of the main peloton to put into effect a rolling road closure
11) **Broom Wagon:** this will remain behind the last group of riders during the course of the race. The vehicle will be clearly identified and display a 'CAUTION CYCLISTS' sign facing the rear of the vehicle.

2.10.2 Changing Race Conditions

The altering of position of vehicles in the event convoy will be under the direction of the Commissaire in charge of the event category located in Commissaire 1 in consultation with the police escort as required. The movement of vehicles will be in response to common race scenarios dictated by the emergence, establishment and positioning of breakaways.

2.10.3 Vehicle Specifications

Each escort vehicle will. -

- be fitted with a flashing amber light on the highest point of the roof
- have a flashing amber light operating at all times
- have headlights switched on at all times

- have no advertising material whatsoever affixed to the portion of the vehicle displaying a 'CAUTION CYCLISTS' sign.

Any motor cycle carrying a pillion passenger facing rearwards for filming the event shall:

- Be fitted with special sitting apparatus to accommodate the camera operator
- Have the motor cycle and apparatus inspected and approved by Road and Maritime Services (RMS) with a permit issued
- Carry a copy of the permit to be produced to any member of the Police Service on request.
- Use a permit that has been granted for this event only.

2.10.4 Support Vehicles (non-Convoy)

Support vehicles providing rider assistance will be distinguished by a PINK colour code. Each rider in the race will be allowed one support vehicle to travel to the designated feed station. The maximum number of support vehicles travelling to the Yarrowitch Feed Station for the event will be 300 (the race will be limited to 300 participants in Division 1 and 2).

All support vehicles will be instructed to leave Port Macquarie at least 15 minutes PRIOR to Division 1 commencing and to wait for their riders at the feeding station (132km). They will not be allowed to stop to view the race and leapfrog the race caravans continually. The support vehicles will have rider's number/s displayed on the vehicle. If a breach of these conditions occurs, the police will fine accordingly, and penalisation of the rider may also be implemented.

2.11 Event Permits and Approvals

The Event Management Plan will be submitted with Port Macquarie-Hastings Council and Walcha Shire Council for approval. The Event Management Plan will be submitted to the Department of Roads and Maritime Services (RMS) – Special Events and Operations Planning, Traffic Operations for approval; and a Road Occupancy Licence (ROL) application submitted through the RMS website. The Event Management Plan will be submitted to the NSW Police Service – Port Macquarie LAC for approval along with a 'Notice and request for services.'

2.12 Event Traffic Management

Accredited Traffic Controllers (provided by ?? and Walcha Shire Council) will control traffic with a "Stop / Slow" baton. They will be stationed in accordance with the Traffic Control Plans (TCP's) presented later within this document.

Event Marshals (non-accredited personnel) with large yellow flags shall be located at those locations where cyclists will be turning from one street into another, or at any point so requested by police to provide guidance/advice to event participants, motorists and pedestrians.

2.13 Conditions of Racing

All racing is conducted in accordance with Cycling Australia Technical Regulations. A Commissaire is appointed to each race division to ensure compliance and to take appropriate action regarding any infringements.

Rider feeding will not be permitted from moving vehicles for all competitors.

2.14 Insurance

K P Cycling Enterprises has a $20 million Public Liability and Products Liability, and $5 million Professional Indemnity Insurance Policy through Cycling Australia Inc with SLE Worldwide Australia Pty Limited.

A copy of the certificate of currency is attached as Appendix A.

3 Event Requirements

3.1 Responsibilities

3.1.1 Event Organiser

The event organiser shall:

- Ensure all traffic control measures for the Event Management Plan (EMP) are placed and maintained in accordance with this plan and the relevant Acts, Codes, Standards and Guidelines
- Ensure suitable communication and consultation with the affected stakeholders is maintained always
- Provide a list of the following to the Police Commander at least 24 hours prior to the commencement of the event:
  - Each competitors name, race number and State cycling association
  - Officials names, contact number and list of duties
  - The registration numbers of official, escort and support vehicles
  - The radio communication call signs for each convoy vehicle
- Ensure that all event signage and personnel are in place in accordance with the EMP
- Provide identifying race numbers to participants of not less than 100mm in height (black on a white background unless other colour configurations are given to the Police Commander)
- Arrange and/or undertake any necessary incident investigations.
- Ensure that event personnel engaged as marshals are provided with training to ensure such personnel are aware of the limits of their responsibilities and can undertake their activities safely
- Ensure event personnel installing warning signage have read and been briefed on the 'Safe Work Method Statement'
- Render assistance to road users and stakeholders when incidents arising out of the event activities affect the network performance or the safety of road users and event participants.
- Take appropriate action to correct unsafe conditions, including any necessary modifications to the EMP

3.1.2 Event Officials

Event Officials shall:

- Ensure that the event and its participants adhere to the Cycling Australia By Laws and Technical Regulations
- Ensure that a pre-race course inspection has been conducted
- Ensure that all race permits, approvals and authorisations are in place prior to the event.
- Check that traffic controllers and traffic management devices and marshals are in place and provide for a safe event environment.
- Ensure that appropriate first aid assistance is in place.
- Warn competitors of the hazards specific to the area of the activity.
- Conduct pre-event announcements to all Grades reminding participants of the conditions of racing that take into account permit requirements and any other specific conditions particular to this event (for example requirements imposed on the event by Police etc.).
- Assess the technical aspects of the event and make changes as deemed necessary based on, but not restricted to the following:
  - Age of the participants
  - Skill level of participants
  - Number of participants per division
  - Time gap between divisions commencing
  - Number of categories on the course at any one time etc.
  - Course / venue layout, and condition
  - Weather conditions (which may change during the event)

- Traffic conditions (which may vary during the event)
- Inform participants that they are under the direction of the Race Director, Police, Commissaries and event marshals and will be penalised for any non-compliance
- Provide direction to Police on the movement of motor vehicles within the race convoy. The race convoy is designated as the section of road between Police Car 1 at the front of the convoy and the vehicle designated by Police at the rear of the convoy

3.1.3 Competitors

Participants shall:

- Obey the Road Rules as applicable to the course relating to approval permits.
- Obey instructions from the Event Organisers, Police, Commissaires and event marshals
- Display a race number on their left lower torso at the rear
- Be courteous to other road users, pedestrians etc.
- Employ correct etiquette and ride safely in all situations
- Be required to wear minimum safety gear including ANSI approved helmet.
- Ensure that their bicycle is in good working order, including lights when required.
- Ensure they have adequate supply of water, sports drink and nutrition as required for the activity they are to participate in.
- Be responsible for ensuring they are fit enough for the activity

3.1.4 Traffic Management Personnel

?? and Walcha Shire Council being the traffic management representatives for the event shall have the responsibility of ensuring the Traffic Management devices are set out in accordance with the RMS Traffic Control at Worksites Manual and AS 1742.3.

3.1.5 Traffic Controllers

Event Traffic Controllers shall be used to control road users to avoid conflict with event participants, traffic and pedestrians, and to stop and direct traffic in emergency situations where necessary. Traffic Controllers shall:

- Operate in accordance with the RMS Traffic Control at Worksites Manual
- Hold current Event Traffic Controller accreditation in New South Wales
- Take appropriate breaks as required by AS 1742.3 and/or OH&S Regulations
- Correctly wear high visibility vests at all times while at the event site
- Comply with the directions of the EMP and ensure that no activity is undertaken that will endanger the safety of other event personnel, event participants and the general public
- Enter and leave the event site by approved routes and in accordance with safe practices

3.1.6 Event Marshalls

The event organiser shall ensure that event personnel engaged as marshals are provided with training to ensure such personnel are aware of the limits of their responsibilities and can undertake their activities safely. Event Marshalls shall:

- Complete Volunteers Emergency Information Form before commencing duties
- Undertake an WH&S induction session provided by the Event Organiser and conducted by an instructor with a minimum of a certificate IV in WH&S
- Correctly wear high visibility vests always while at the event site
- Comply with the directions of the EMP and ensure that no activity is undertaken that will endanger the safety of other event personnel, event participants and the public

- Enter and leave the event site by approved routes and in accordance with safe practices

3.1.7 NSW Police Force Officers

NSW Police will provide an escort service for the event and shall:

- Maintain the rolling road closure for the event convoy
- Provide direction to vehicles within the event convoy as requested by the Commissaire in Charge
- Control and/or direct the movement of motor vehicles, competitors and the public outside the event convoy to ensure the safety of the event

3.1.8 Site Supervisors

The Event Organiser will appoint a Site Supervisor for each of the sites detailed below to supervise and coordinate their set up, operation and pack up.

- Starting Area – Town Green, Port Macquarie
- Neutral Water Station on Mount Seaview Climb (88km)
- Feeding Station at Yarrowitch - Kangaroo Flat Road (132km)
- Finish Area – Fitzroy Street (Oxley Highway), Walcha

The event organiser shall ensure that event personnel engaged as site supervisors are provided with training to ensure such personnel are aware of their responsibilities. The Site Supervisor shall:

- Complete Volunteers Emergency Information Form before commencing duties
- Undertake a WH&S induction session provided by the Event Organiser
- Correctly wear high visibility vests always while at the event site
- Comply with the directions of the event management plan and ensure that no activity is undertaken that will endanger the safety of other event personnel, event participants and the public
- Enter and leave the event site by approved routes and in accordance with safe practices
- Ensure that all signage and marshals are in place for the site as detailed in the event management plan
- Ensure that adequate water, nutrition and sunscreen are available for site volunteer staff
- Ensure that all site marshals involved in roadside activities are wearing fluorescent vests and appropriate footwear
- Ensure a copy of the Incident/Accident Plan is available at the event site
- Maintain communication with the Race Director always
- Provide a briefing for all site volunteers outlining their tasks, emergency procedures and WH&S requirements

3.2 Communication Procedures

UHF Radio communication is to be provided to each escort vehicle permitted by the Race Commissaire to be within the sterile zone created by Police for such vehicles and competitors.

UHF radio communication will be provided for the Race Starter, Traffic Controllers and Commissaires. **Commissaires will only use radios when necessary**.

Satellite phone communication is to be provided to

- Police Car 1
- Race Director
- Chief Commissaire
- First Aid Officer Division 1

- First Aid Officer Division 2
- Broom Wagon

Radio call signs and satellite phone frequencies and numbers to be nominated for all escort and official vehicles and provided to the Police Commander of this operation at least 24 hours prior to the commencement of the event.

3.3 Incident/Accident Procedures

- First Aid Officers will be appointed to the event by the Event Organiser
- A minimum of one First Aid Paramedic and one First Aid Officer (First Responder) will be in an Event Vehicle following the Division 1 race
- A minimum of one First Aid Officer will be in Event Vehicles following the Division 2 event
- A minimum of one First Aid Officer will be in the Broom Wagon
- A minimum of one First Aid Officer and First Aid Kit will be located at the Finish area
- In the event of an incident or accident the Race Director and/or Chief Commissaire will be contacted by mobile or satellite phone
- An Emergency Response Plan is in place to manage emergency situations (refer to Appendix E)

3.3.1 Minor Injury

- First Aid Officer in race convoy contacted by UHF radio
- First Aid Officer to assess and treat injury at clearing beside the road or in the First Aid Area located at the finish precinct
- Event Organiser to ensure CA Accident Report Form (refer to CA website) is completed within two (2) working days from the time of the accident

3.3.2 Medical Emergency

- Assist persons involved and remove them from exposure to further injury or danger, if necessary.
- Warn personnel in adjacent areas of potential hazards to their safety
- Contact ambulance by phone and First Aid Officer in race convoy by UHF radio
- Contact police car by mobile or satellite phone
- Keep public and riders clear of area/affected person/s including route for emergency services
- Do not move an injured person unless they are in further danger
- Contact Race Director and/or Chief Commissaire
- Administer appropriate First Aid
- Keep the injured person warm. If feasible, designate one person to remain with the injured person
- Persons responding to a medical emergency should be protected from exposure to blood and other potentially infectious materials. Protection can be achieved through adherence to work practices designed to minimize or eliminate exposure and using PPE (i.e., gloves, masks and protective clothing), which provide a barrier between the worker and the exposure source.
- Maintain communication with emergency vehicles
- Ensure access for emergency vehicles
- Event Organiser to ensure CA Accident Report Form (refer to CA website) is completed within two (2) working days from the time of the accident

Note: Following any administration of first aid the injured person should seek medical advice for further examination and treatment if required.

3.3.3 General Emergency

- Assist persons involved and remove them from exposure to further injury or danger, if necessary
- Warn personnel in adjacent areas of potential hazards to their safety
- Call 000 or 112 (mobile phone) and alert emergency services immediately

- Keep public and riders clear of area including route for emergency services
- Secure the site from any further potential danger (e.g. extinguish fire if safe to do so)
- Contact Chief Commissaire and/or Race Director by race radio or mobile phone
- Maintain communication with emergency services
- Ensure access for emergency vehicles
- Where necessary implement traffic control
- Any traffic crash resulting in non-threatening injury shall immediately be reported to the Police on 131444
- Event Organiser to ensure CA Accident Report Form (refer to CA website) is completed within two (2) working days from the time of the accident

3.3.4 Incident Management Contact Details

First Aid Supervisor: TBC

Incident Officer: Kurt Polock: 0458 666 221

Port Macquarie Police Station: 02 6583 0199

Port Macquarie Ambulance Station: 131233

Port Macquarie Fire Station: 02 6581 0520

Walcha Fire Station: 02 6777 2138

Port Macquarie Base Hospital: 02 5524 2000

Walcha Multipurpose Service: 02 6774 2366

4 Planning

4.1 Risk Identification and Assessment

A Risk Assessment of the proposed activities has identified risks that will be managed by effective event management planning and the implementation of this EMP. The assessment process has been undertaken in accordance with Australian Standards AS/NZS ISO 31000:2009 'Risk Management – Principles and Guidelines'. Please refer to the risk analysis table located below.

All identified risks have been treated with the development of this EMP. Unforeseen risks arising during the event activities will be treated in accordance with standard event practices and procedures where possible.

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
	Level of risk	Consequences	Rating			Level of risk	Consequences	Rating
Environment and Climate								
Wet weather conditions prior to the event day pose a safety risk to participants	Possible	Minor – Moderate	Medium	- Conduct course inspection prior to event and identify potential hazards (minimising if possible) - Provide instruction to event participants on potential hazards and safe riding techniques - If conditions warrant it, delay, postpone or cancel the event.	Event Organiser Chief Commissaire	Possible	Minor	Low
Wet weather on the event day creating a safety hazard and causing a disruption to the event	Possible	Major	High	- Monitor Bureau of Meteorology (BOM) website - Provide shelter for competitors and officials - Provide instruction to event participants about safe riding techniques in adverse weather conditions. - All electrical equipment securely covered - Cancellation contingency for wet weather - Communication strategy to notify the competitors and public of any impacts on event programme	Event Organiser Chief Commissaire	Possible	Moderate	Medium
High or gusting winds causing damage to equipment/structures, injury or disrupting event	Possible	Major	High	- Monitor Bureau of Meteorology (BOM) website - All infrastructure correctly weighted - Develop contingency plan for dismantling infrastructure that may be unsafe Provide instruction to event participants about safe riding techniques in adverse weather conditions - Communication strategy to notify the public of any impacts on event programme - If conditions warrant it, delay, postpone or cancel the event	Event Organiser Chief Commissaire	Possible	Moderate	Medium

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
Excessive heat leads to heat stress and heat illness	Possible	Major	High	- Monitor Bureau of Meteorology (BOM) website - CA Heat Policy in place	Event Organiser Chief Commissaire	Unlikely	Minor	Low
Bush fire creating a safety hazard and impacting on event	Possible	Major	High	- Bush fire contingency plan developed for event in consultation with the relevant fire service and Police - Consultation with the relevant fire service and Police in case of potential impacting fire - First Aid officers on site at the event will have asthma inhalers - Fire extinguisher available and compliant to AS 1851 -If conditions warrant it, modify the course distance (subject to modifications meeting the approval from relevant authorities), or delay, postpone, or cancel the event	Event Organiser Chief Commissaire	Unlikely	Moderate	Medium
Damage to land or property resulting in damage to reputation, legal implications, financial impact or injury	Possible	Moderate	Medium	- Conduct thorough site inspection and identify any potential hazards in risk assessment - Appoint a site manager for start and finish areas and feed stations - Supervise contractors during bump in and out - Brief Contractors as they come on site - Fence off areas where possible	Event Organiser	Rare	Minor	Low
Inadequate waste management resulting in damage to reputation and/or injury	Possible	Minor	Low	- Develop a waste management plan for start, finish areas and feed stations consistent with event scale and participant behaviour in liaison with waste contractor - Position bins for easy access during the event	Event Organiser	Unlikely	Insignificant	Low
Excessive noise resulting in public complaint and/or damage to reputation	Possible	Minor	Low	- Notification of event provided to local traders and residents	Event Organiser	Unlikely	Insignificant	Low
Health and Safety								
Event Personnel being hit by vehicles during setting up and dismantling of event infrastructure and signage	Possible	Moderate-Major	High	- Safe Work Method Statement developed and provided to event personnel - Briefing given to event personnel - Shadow vehicle with flashing amber light used to protect personnel - Event Personnel to wear fluorescent vests	Event Organiser	Unlikely	Moderate	Medium
Vehicles and event participants conflicting in car parking areas or at start and finish locations	Possible	Moderate	High	- Ensure Traffic Management Plan is implemented - Develop site plan for start and finish areas to minimize potential conflict between event vehicles and riders before and after the event - Competitor Handbook requests event participants do not ride in areas of vehicular movement	Event Organiser	Unlikely	Moderate	Medium

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
Cyclist has a serious health problem (e.g. heart attack, stroke, asthma attack)	Unlikely	Major	Medium	- CA members must declare they are medically and physically fit to participate in cycling events and disclose any pre-existing medical or other condition as a condition of membership - First Aid Officers on site and contactable and accessible throughout the event - Emergency Response Plan in place	Event Organiser	Rare	Moderate	Low
Vehicles and event participants conflict on course resulting in injury to participants	Possible	Major	High	- Consultation with event stakeholders including Police, RMS, local council and the Chief Commissaire during event planning process - Rolling road closure implemented by Police - Traffic controlled on the event course by accredited traffic controllers in accordance with the TMP - Ensure approved TMP is implemented - Event warning signs displayed during the event - Signed lead and follow vehicles provide a warning to approaching traffic and protection for riders - Event warning signage erected in advance of event - Event notification provided to residents on course - Advance notification of event dates related by VMS units - Provide briefing and instruction to event participants on permit conditions and safe racing requirements - Road closures and changed traffic conditions advertised in local newspapers, radio and through the relevant tourism offices	Event Organiser Commissaire	Possible	Moderate	Medium
Event participants injuring themselves by falling off their bicycles or crashing into each other	Possible	Moderate	Medium	- Provide briefing and instruction to event participants about safe riding techniques.	Commissaire	Possible	Minor	Low
Event Participants crashing as a result of hazards or obstacles on the course	Possible	Moderate	Medium	- Regular communication maintained with RMS and local councils regarding roadworks - LHPA contacted at least 1 month prior to the event and requested not to issue roadside feeding permits for the race date - Course inspection conducted on the Friday prior to the race to identify all hazards and obstacles and minimize where possible (e.g. sweep debris, indicate potholes etc.) - Provide briefing to riders on potential hazards and obstacles - Lead scout vehicle to leave before the race to check for animal debris, cattle on the road and additional hazards. - To contact Race Director if unidentified hazard or obstacle cannot be eliminated.	Event Organiser Race Director Commissaire	Unlikely	Minor	Low

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
Participants crashing as a result of equipment failure e.g. puncture, breakages to spokes, chain, stem, handlebars etc	Possible	Moderate	Medium	- Competitor Handbook advises participants that it is their responsibility to ensure that their bike is kept in good working order	Event Organiser	Unlikely	Minor	Low
Grade or group of participants is too large for the course / venue increasing the risk of crashes	Possible	Moderate	Medium	- Reduce or limit participant numbers per division as appropriate for the event course (fields currently limited to 150 riders)	Chief Commissaire, Race Director NSW State Handicapper	Unlikely	Minor	Low
Skill, age or fitness level of participants too low for conditions causing participant to be a risk to themselves or others	Possible	Moderate	Medium	- Division 1 and 2 entries restricted to current Cycling Australia Racing members above the U19 age category - Event Registration is taken through the CNSW event entry process and riders are graded by the State Handicapper - Race has a cut-off time of 8 hours	Cycling NSW NSW State Handicapper	Unlikely	Minor	Low
Skill, age or fitness level of experienced participant not comparable with their nominated Grade or Group causing participant to be a risk to themselves or others	Possible	Moderate	Medium	- Each race division has a clear grading criterion (published on the CNSW registration page) - Event Registration is taken through the CNSW event entry process and riders are graded by the State Handicapper - Contact the relevant State or Territory body for details on interstate riders	NSW State Handicapper	Unlikely	Minor	Low
Participants not complying with race rules or marshal instructions resulting in accident, injury, damage to reputation, financial and/or legal implications	Possible	Major	High	- Race rules detailed in Competitor Handbook - Pre race briefing details race rules and conditions - Non-compliant competitors face warning, disqualification and/or fine issued by race officials	Event Organiser Commissaire	Unlikely	Moderate	Medium
Unexpected adverse traffic conditions (which may vary during the event) pose a safety risk to participants	Possible	Minor	Medium	- Maintain communication with police, officials and traffic control supervisors throughout event - Monitor end of queue vehicle numbers at road closure points throughout event and release vehicles, if necessary - Modify the course distance (subject to modifications still meeting with approvals from relevant authorities) or neutralize the relevant section of the event - If conditions warrant it, delay, postpone or cancel the event.	Commissaire Race Director	Unlikely	Minor	Low
Time gap between commencement times for divisions creates a risk that multiple groups merge, overlap or overtake causing riders to crash or conflict with vehicles	Possible	Moderate	Medium	- Commence the faster Div 1 first followed by Div 2 - Modify the time gap between divisions to minimise risk of groups overlapping - Should the situation of merging grades or categories occur, plan to neutralize the slower moving group until the faster group has passed.	Event Organiser Commissaire	Unlikely	Minor	Low

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
Participant going the wrong way on the course or venue causing risk to others or risk of getting lost	Possible	Minor	Medium	- Event course made available to all participants pre-race. - Provide concise pre-race briefing and directional signage and/or marshals to be appointed to areas of potential ambiguity	Event Organiser Commissaire	Unlikely	Minor	Low
Feed stations positioned inappropriately causing participants to crash	Possible	Moderate	Medium	- Ensure that feed station location is situated on a flat or uphill section with high visibility, and sufficient width and length for participants to manoeuvre - Ensure all rider feeding is conducted on the left-hand side of the road - Traffic control implemented for Feed station	Event Organiser	Unlikely	Minor	Low
Feed station staff or rider feeders' conflict with event participants causing injury	Possible	Moderate	Medium	- Ensure that feeders remain on the left-hand side of the road behind the white line - Feed station staff briefed on rider feeding procedures - Feeding instructions detailed in the Competitor Handbook	Event Organiser	Unlikely	Minor	Low
Follow vehicles following too close behind participants causing risk of crashed or halted participant being run over	Possible	Moderate	Medium	- Ensure that all follow vehicle drivers have completed the 'Lead and Follow Vehicle Procedures Checklist' - Ensure that drivers are briefed on their role and asked to remain a sufficient distance (4-10 car lengths) behind riders	Race Director Commissaire	Unlikely	Minor	Low
Participants are left stranded on the course	Possible	Minor	Medium	- All riders are briefed on handing their numbers and transponder in to the Commissaire if they abandon the event. - Ensure that the driver of the Broom Wagon is briefed on remaining behind the last rider in the race and they pick up any participants who are unable to complete the event. - All riders have electronic transponders on their bike for location, timing and recording purposes	Race Director Commissaire	Unlikely	Minor	Low
Participants crashing when attending spares vehicles are blocking the road	Possible	Moderate	Medium	- All riders are briefed on the procedure (hand in the air, dropping to the rear of the field and stopping on the left-hand side of the road) if they suffer a puncture and require a spare wheel from the Spares Vehicle. - Ensure that the Spares Vehicle drivers and support have read the 'Lead and Follow Vehicle Procedures Checklist' and have attended the pre-race briefing on their role.	Commissaire Race Director	Unlikely	Minor	Low

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
Vehicles crashing into riders, oncoming vehicles or being forced off the road in the process of attempting to pass riders and official follow vehicles on open roads.	Possible	Moderate	Medium	- 'Competitor Handbook' contains details on rider support vehicle procedures (approved by police) - Support vehicles must follow road rules - Pre-event briefing provided to support and convoy vehicle drivers - Commissaire vehicle to warn riders of vehicles overtaking from behind. - Provide deviations for support vehicles - Support vehicles proceed ahead of race to first feed station (132km)	Event Organiser Commissaire	Unlikely	Minor	Low
Riders crashing as a result of outrider motorbikes converging into race when they have insufficient room to pass when manoeuvring up and down the peloton	Possible	Minor	Medium	- Motor bike riders are briefed on their role and asked to select safe stretches of road and alert riders of their presence when intending to ride beside the peloton - Riders are briefed on remaining to the left when they are alerted by the motorbikes	Commissaire Race Director	Unlikely	Minor	Low
Follow vehicles crashing into other vehicles or riders as a result of impeded view within the race convoy	Possible	Moderate	Medium	- All Follow vehicles must be less than 1.6m in height or travel at the rear of the convoy	Commissaire	Unlikely	Minor	Low
Riders crashing into support vehicles when sprinting for the finish line.	Possible	Moderate	Medium	- All vehicles (except Police, Race Director and Commissaire in Charge) are diverted away from the finishing straight in accordance with the Traffic Management Plan - Lead Police vehicle briefed on increasing distance to riders when approaching the finish.	Event Organiser	Unlikely	Minor	Low
Riders crashing into spectators or members of the public when sprinting for the finish line	Possible	Moderate	Medium	- Barrier fencing provided at least 50m before and 50m after the finish line - Event commentator advises spectators of approaching riders - Marshalls are appointed to any designated crossing points	Event Organiser	Unlikely	Minor	Low
Riders crashing into event signage or barriers causing injury	Possible	Moderate	Medium	- Ensure event signage and barriers are positioned in accordance with site and signage plans - Ensure signage on course is located off the side of the road - Ensure signage and barriers do not have sharp protrusions	Event Organiser	Unlikely	Moderate	Medium

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
Participants are physically distressed as a result of the demands of the course	Likely	Moderate	High	- Course map and details are provided prior to the event for participants. Riders advised to have support crew for the event. (Competitor Handbook) - Broom Wagon vehicle is available to pick up participants who are unable to complete the event. - First Aid Officers available in each race convoy and ambulance on course	Event Organiser	Possible	Minor	Low
Participants become dehydrated or do not have enough nutrition during the event	Likely	Moderate	High	- Competitors advised to carry adequate fluid and nutrition (event website, Competitor Handbook and pre-race briefing) - Feed and drink stations (manned by rider's supporters) provided at 132km. - Neutral water stations provided at 88km - Mobile motorbikes will provide nutrition and water between the summit of the Mount Seaview and the Feed Station	Event Organiser	Possible	Minor	Low
Broken glass or dangerous containers provide a hazard to riders, vehicles, spectators and supporters	Possible	Moderate	Medium	- Glass or any other dangerous containers are prohibited for rider feeding (Competitor Handbook)	Event Organiser	Unlikely	Minor	Low
Exposure to the sun results in sunburn to competitors, spectators or staff	Likely	Minor	Medium	- Provide UV protection and shaded areas - Provide adequate supply of drinking water - All event staff to undergo OH&S induction briefing	Event Organiser	Possible	Insignificant	Low
Lifting excessive or awkward loads resulting in musculo-skeletal injury	Possible	Moderate	Medium	- Set Up Crew briefed on manual handling techniques - Use appropriate number of crew to lift object - Use trolleys or wheeled cases to transport heavy equipment	Event Organiser Event Staff	Unlikely	Minor	Low
Exposure to live electrical leads or switches resulting in electrocution	Possible	Major	High	- All outlets to be considered live unless disproved - Live points to be isolated and lockout tagged, and standard checks undertaken before making equipment live - No equipment to be used that appears badly maintained or damaged - All leads laid on the ground to be protected with matting - All portable electrical equipment already tested and tagged and current in accordance with AS 3/60 - Power cords to be removed from the live supply prior to location, relocation or extraction	Event Organiser Event Staff	Unlikely	Minor	Low

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
Inadequate amenities and/or maintenance resulting in damage to reputation or injury	Possible	Moderate	Medium	- Establish participant numbers and expected attendance numbers - Ensure appropriate number of accessible toilets - Monitor, clean and re-stock toilets on the day	Event Organiser	Unlikely	Minor	Low
Emergency evacuation causing disruption or cancellation of event, damage to reputation, financial impact or legal impact	Unlikely	Major	Medium	- Emergency Response Plan in place - Establish evacuation plan for each site with Police	Event Organiser	Unlikely	Moderate	Medium
Production and Infrastructure								
Podium stage collapsing resulting in injury or damage of equipment	Unlikely	Moderate	Medium	-Set up crew check stage to ensure that it can support people and equipment	Contractor	Rare	Minor	Low
Barriers, signs or gantry falling over resulting in injury, damage of equipment or damage of property	Possible	Moderate	Medium	- Ensure that barriers, signage and gantry are secured - Use sand bags as an alternative rigging method - Ensure that electrical cord to gantry is away from pedestrian traffic or covered with matting	Event Organiser Contractors Event Staff	Unlikely	Minor	Low
Inadequate bump in time results in risks and hazards not being addressed	Possible	Moderate	Medium	- Prepare 'run sheet' for event detailing the tasks, timeline and person responsible - Organise enough time for bump in and briefing of crew - Racing will not commence until bump in of all infrastructure and personnel completed as confirmed by the Chief Commissaire and Race Director	Event Organiser	Unlikely	Minor	Low
Communications breakdown due to phone or radio network failure	Possible	Moderate	Medium	- Establish responsibilities and chain of command - Satellite phones provided for key event personnel - Test the strength of radio and phone networks prior to event - Ensure that radios and mobile phones are charged - Signal relays in place to ensure signal coverage - Spare batteries and headsets ordered - Correct radio communication protocols explained to all radio users at briefing - Develop contingency plan	Event Organiser	Unlikely	Minor	Low
Timing equipment malfunction	Possible	Moderate	Medium	- Results management outsourced to professional provider - Ensure power supply in place for timing equipment and laptop computer demands - Ensure that back up stopwatches are in place	Event Organiser	Unlikely	Minor	Low

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
Complaints by the general public are damaging to the reputation of the event	Possible	Moderate	Medium	- Notification of event to be provided to residents along the course prior to event - Event notification signage to be erected at least 10 days prior to event - Details of event given to local media prior to event - Advance notification of road closures and special event dates related by VMS units placed in advance of event - Monitor end of queue vehicle numbers at rolling road closure points throughout event and release vehicles, if necessary - Tourism offices, bus services and heavy transport advised of event - Dump zones provided for discarding empty water bottles - Riders are prohibited from urinating in public areas, littering and using foul language - Competitor Handbook details the penalties for offenders - Ensure adequate amenities and waste bins are in place	Event Organiser	Unlikely	Minor	Low
Security								
Security issue resulting in disruption of event, damage to equipment/infrastructure or injury	Possible	Moderate	Medium	- Develop security plan in consultation with Police - Establish secure area for valuable equipment	Event Organiser	Unlikely	Minor	Low
Loss of property resulting in damage to reputation, legal implications or financial implications	Possible	Moderate	Medium	- Establish secure area for valuable equipment including wheels in spares vehicles - Appoint site manager for start and finish areas and feed stations - Receipt ticket provided for spare wheels (used to reclaim wheels) - Note made of riders receiving spare wheels during race	Event Organiser	Rare	Minor	Low
Financial								
Budget blow out damaging to reputation and resulting in need to downscale event	Unlikely	Minor	Low	- Regular budget review at planning meetings - Agreed budget established in advance - Contingency confirmed in budget - Confirmed costing's in writing	Event Organiser	Rare	Minor	Low
Sponsor fails to meet sponsor obligations resulting in damage to reputation and financial impact	Unlikely	Moderate	Medium	- Develop sponsor agreement letter signed by both parties - Maintain regular contact with sponsors in planning stages	Event Organiser	Unlikely	Minor	Low

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
Event Organiser fails to meet obligations for sponsors resulting in damage to reputation, legal and financial impact	Unlikely	Moderate	Medium	- Develop sponsor agreement letter signed by both parties - Maintain regular contact with sponsors in planning stages- - Contractual obligation reflected in site plans and run sheets - Ensure all event personnel and volunteers are briefed on sponsor rights at the event	Event Organiser	Rare	Minor	Low
Event does not have appropriate insurance cover in case of accident/incident leading to legal/financial implications and damage to reputation	Possible	Major	High	- Event Approvals attained from Police, RMS and local Shires - Event sanctioned by Cycling NSW - Certificate of currency obtained from Cycling Australia - All competitors are Race licenced members of CA and licences are collected and held for the duration of the event - Officials, convoy drivers, and event organising committee are all current members of CA	Event Organiser	Rare	Moderate	Low
Human Resources								
Inadequate volunteers or event staff disrupts event resulting in legal impact, financial impact or injury	Possible	Moderate	Medium	- Establish roles and responsibilities for event staff and volunteer positions - Assign personnel to each position - Distribute event documentation (e.g. event management plan, run sheets, site maps etc.) to relevant staff	Event Organiser	Unlikely	Minor	Low
Event signage and devices being lost or stolen as a result of being left on course resulting in financial implications and/or affecting future operations	Possible	Moderate	Medium	- Event personnel assigned to collect signage - Audit of event signage conducted at the conclusion of the event	Event Organiser	Unlikely	Low	Low
New or emerging risks remain untreated resulting in injury, damage to reputation or financial/legal implications	Possible	Moderate	Medium	- New hazards that arise during the event will be subject to risk assessment and incorporated into the risk management plan - Meeting between Chief Commissaire and Event Manager immediately after the event - Event Report completed by Event Manager within 14 days of event - Commissaires Report completed by Chief Commissaire within 14 days of event - Event de-brief held with Organising Committee - Event de-brief held with authorities (Police, Main Roads, local Shires) - Authorities and Chief Commissaire engaged in the planning process for the event	Event Organiser Chief Commissaire	Rare	Low	Low

Risk	Pre-Treatment Risk Rating			Risk Response	Action By	Residual Risk Rating		
Traffic and Transport								
Traffic impacting on event causing disruption or cancellation of event, legal impact, financial impact or injury	Likely	Moderate	High	- Local residents/businesses notified of road closures - Traffic Management Plan developed according to RMS requirements in liaison with stakeholders - Traffic controllers provided at critical points and times - Police escort to provide rolling road closure - Liaison with public transport and heavy transport industry in planning stages - Maintain communication with police, RMS, officials and traffic control supervisors throughout event - Monitor end of queue vehicle numbers at road closure points throughout event and release vehicles, if necessary	Event Organiser	Possible	Minor	Low

Risk Classification - Reference Tables

Measures of Likelihood

Descriptor	Description
Rare	The event or hazard: • may occur only in exceptional circumstances • will probably occur less than once in 15 years
Unlikely	The event or hazard: • could occur at some time • will probably occur with a frequency of at least once in 10 years.
Possible	The event or hazard: • should occur at some time • will probably occur with a frequency of once in three years
Likely	The event or hazard: • will probably occur in most circumstances • will probably occur with a frequency of at least once a year
Almost certain	The event or hazard: • is expected to occur in most circumstances • will probably occur with a frequency of more than once a year.

Measures of Consequence or Impact

Level	Description	Financial Impact	Interruption to Service	People	Reputation	Property	Natural Environment
1	**Insignificant** (no measurable operational impact)	< $1000	<1 hour	No injuries	Unsubstantiated, low profile, no news item	Inconsequential or no damage	No damage
2	**Minor** (Minor degradation of service, impact to single service)	$1000 - $10 000	1hr – 1 day	First aid treatment	Substantiated, low news profile	Minor damage	Minimal damage
3	**Moderate** (Substantial degradation of service, multiple service impact, managed by substantial management/intervention/outside assistance)	$10 000 – $50 000	1 day – 1 week	Medical treatment	Substantiated, public embarrassment, moderate news profile	Localised damage rectified by routine arrangements	Some damage. Rectification within existing budget

4	**Major** (Significant degradation of service, multiple-service impact, significant mobilisation of resources, significant management intervention including external assistance)	$50 000 – $150 000	1 week – 1 month	Extensive injuries	Substantiated, public embarrassment, high widespread multiple news profile, third party action	Significant damage requiring external resources	Extensive damage, significant resources to rectify
5	**Catastrophic** (Threatens immediate and long-term viability of organisation, immediate action required to minimise or mitigate effect on most services)	More than $150 000	> 1 month	Death, multiple deaths or permanent disablements	Substantiated, public embarrassment, high widespread multiple news profile, third party action	Extensive damage	Extreme damage. Fines and penalties. Extensive resources to rectify

Definitions:
People = staff and the public
Property = Plant, equipment, buildings, intellectual property

Risk Rating - 'Level of Risk'

Consideration of both the **likelihood** and **consequence**

Consequence/Likelihood	Insignificant	Minor	Moderate	Major	Catastrophic
Rare	Low	Low	Low	Medium	Medium
Unlikely	Low	Low	Medium	Medium	High
Possible	Low	Low	Medium	High	High
Likely	Low	Medium	High	High	Extreme
Almost certain	Medium	Medium	High	Extreme	Extreme

Management Approach for Residual Risk Rating (i.e. after treatment of risk)

Residual Risk Rating	Required Treatment
Extreme risk	Unacceptable risk. HOLD POINT. Event cannot proceed until risk has been reduced.
High risk	High priority, Event Organiser and Commissaire must review the risk assessment and approve the treatment and endorse the Risk Management Plan prior to its implementation.
Moderate risk	Medium Risk, standard event practices endorsed subject to review by Event Organiser and Commissaire prior to implementation.
Low risk	Managed in accordance with Cycling Australia By-Laws and Technical Regulations ad normal event management practices.

4.2 Traffic Assessment (Vehicular Traffic)

4.2.1 Volume and Composition

The existing traffic environment comprises a normal traffic composition with estimation of ?? vehicles per day passing through Walcha on the Oxley Highway and ?? vehicles per day travelling between Port Macquarie and Walcha on a Saturday. The composition is predominantly light vehicles on the weekend.

4.2.2 Existing & Proposed Speed Zones

The speed limit is 50kph within the Port Macquarie City limits and becomes 60kph when turning right onto Hastings River Road. It then becomes 80kph on Winery Drive reducing back to 60kph when reaching Cassegrain Winery. It continues as 60kph until Rawden Island Road where it becomes 80kph to the turn onto the Oxley Highway where the speed limit is 100kph. Approaching Wauchope, the speed is reduced to 50kph as the route passes through the town of Wauchope before increasing to 80kph past Timbertown and resuming at 100kph after the Comboyne Road intersection at the 36.6km mark. It continues at 100kph until the foot of the Seaview Range (80km) where it is reduced to 80kph. It then continues at 80kph until the 127km mark. It then becomes 100kph until the 131km mark where it becomes 110kph. It then continues at 110kph on the Oxley Highway towards Walcha and becomes 100kph at the overtaking lane at the 182km mark. It is reduced to 50kph as the Oxley Highway enters the town of Walcha.

4.2.3 Intersection Capacity

Due to the low traffic volumes, there are no issues relating to intersection capacity to be addressed.

4.2.4 Existing Parking Facilities

Spectator vehicles not involved in the race may park in clear areas along the route only where the highway is not closed. Movement within the closed road area will not be permitted. Event support vehicles will not be permitted to park along the route outside of designated feed station parking. Parking facilities for vehicles at the Start and Finish precincts, and designated Feed Stations are displayed in Section 5.2.

4.2.5 Heavy and Oversized Vehicles and Loads

Rolling road closures may have an impact. Freight companies will be contacted at least one (1) month prior to the event. The event will provide positive communication regarding the expected travel schedule of the event.

4.2.6 Public Transport

There is no public transport between Port Macquarie and Walcha.

4.2.7 Special Events and Other Works

Contact will need to be made with Port Macquarie-Hastings Council, Walcha Shire Council and RMS – Northern Region to ensure there are no further works expected in vicinity to the event site.

4.3 Non-Motorised Road Users

4.3.1 Cyclists and Pedestrians

There are no special requirements to be addressed.

4.3.2 People with Disabilities and Other Vulnerable Road Users

There are no special requirements to be addressed.

4.3.3 School Crossings

There are no special requirements to be addressed.

4.4 Site Assessment

4.4.1 Access to Adjoining Properties

There are no access restrictions expected due to the nature of the event.

4.4.2 Environmental Conditions

Weather:

(Rain, Floods, Heat, Sun Glare, Fog)

There are no special requirements to be addressed.

Road Geometry / Terrain:
(Horizontal and Vertical approach geometry, Safe stopping distances, Visibility, Vegetation)

The course ascends from sea-level to over 1000m in altitude at the end of the 187km journey. The route is undulating to the foot of Mount Seaview where it then ascends for 15km at an average of 6%. The route then continues to climb until the highest point at 125km and then undulates until the finish into Walcha. There is 3799m of climbing throughout the course. The roads are two ways with overtaking lanes located on longer uphill sections. There are two narrow bridges (two lanes with no verge) located at the 47.2km and 78.0km points. Sight distances are adequate throughout.

Existing Signage:
(Obstruction, Visibility of temporary signage)

There are no traffic or advertising signs in the vicinity which could cause distractions or confusion, or which restrict sight lines.

Other:
(Structures, Dust, Noise, Fumes)

There are no special requirements to be addressed.

4.4.3 Impact on Adjoining Road Network

There are no special requirements to be addressed.

4.5 Public Health

4.5.1 Temporary Food Stalls

Yarrowitch Feed Station will have a food stall and coffee van. The coffee van will require to be registered with the Walcha Shire Council and have public liability insurance.

4.5.2 Alcohol

There will be no alcohol on any sites.

4.5.3 Toilets

4.5.3.1 Start Area

Toilet facilities are available in the Town Green. A urinal and one cubicle are available for men and two cubicles are available for women. Additional facilities will be available ??.

4.5.3.2 Yarrowitch Feed Station

Two portable toilets will be located as indicated in the site plan.

4.5.3.3 Finish Area

Toilets are available ??.

4.5.4 Water

A neutral water station will be located on the Mount Seaview Climb at the 88km point to provide water in bidons for race participants. A roving motorbike will accompany each division from the summit of Mount Seaview to the Yarrowitch Feed Station. A 400-litre water truck will be located at the summit to supply the bikes and Spares vehicles with water. Water and cool drinks will be available for sale to supporters and spectators at the Start Area and the Yarrowitch Feed Station.

4.5.5 Shelter

Shelter will be provided for officials and event staff at feed stations.

4.5.6 Waste Management

Five bins will be available at the Start area in the Town Green. Four bins will be located at the Yarrowitch Feed Station. Walcha Shire will be responsible for waste management requirements at the Finish area.

4.5.7 Noise

Noise will be created by the public-address system. Music will not be played through the system before 7.00am and efforts will be made to limit the use of the PA to necessary communication before 7.00am. Speakers will be directed away from residential areas.

4.6 Public Safety

4.6.1 Rider Feeding Procedures

The following procedures will be followed in relation to riders receiving fluid and nutritional supplies from supporters during the event:

- Feeding of Division 1 and Division 2 riders by rider support staff can only take place at the designated feed stations
- Feeding personnel must proceed to the Yarrowitch Feed Station (Feeding Station 1), leaving Port Macquarie prior to 7.00am to avoid rolling road closures
- Once their cyclists have passed, feeding personnel are then to proceed to the Walcha finish
- Feeding personnel are not permitted to join the event convoy
- Roving motorbikes will be on course to service riders with water and electrolyte gels between the summit of Mount Seaview and the Yarrowitch Feed Station

4.6.2 Security and Crowd Control

Spares vehicles carrying rider's wheels will be manned always. Riders will receive a ticket of receipt when handing over wheels for placement in the Spare Vehicles. All wheels must be labelled with their name and race number on a piece of cardboard or plastic with a little hole to push over the end of the quick release lever. Riders are only entitled to a wheel from the Spares Vehicle, during the race, if they have placed their own wheels in the vehicle and received a ticket of receipt. Although the spares attendant will endeavour to provide the rider with their own wheel (according to the race number), this may not always be possible due to the number of wheels and multiple spares vehicles. In this case, they are entitled to use another wheel (that is compatible to their bikes componentry e.g. Shimano or Campagnolo). A note will be made of the rider's race number and the wheel they have received. On completion of the race, they must return to the Spares Vehicle and the ticket of receipt is used to retrieve their wheel/s.

Spectator barrier fencing restricts public access to the finishing straight.

4.6.3 Spectator Viewing

Spectator viewing will be available at the start area in the Town Green and along the Horton Street footpath. Spectator vehicles not involved in the race may park in clear areas along the route only where the highway is not closed. Spectators will be able to view the event finish in Fitzroy Street from behind the barrier fencing.

4.6.4 Pedestrian Access

Access to the event registration will be via the pedestrian path along Horton Street. Access to the Yarrowitch feeding area from the car parking area will require pedestrians to travel along the verge of the Oxley Highway. An event marshal will be positioned to assist pedestrian movement. Pedestrian access to the Finish Area will be via Middle Street.

4.6.5 Lighting and Power

The PA system and inflatable gantry at the Start Area will utilise power from the Town Green.

The PA system at the Yarrowitch Feed Station and coffee van will utilise power from a portable generator.

The PA system at the Finish Area will utilise power from a portable generator.

4.6.6 Temporary Structures

4.6.6.1 Start Area

- Inflatable Gantry: 6m wide x 4.6m high (clearance)
- Two 4m x 4m Marquees

4.6.6.2 Yarrowitch Feed Station

- 4m x 4m marquee

4.6.6.3 Finish Area

- Podium stage
- Finish line inflatable gantry: 6m wide x 3.1m clearance
- Spectator barrier fencing: 100m
- Three 3m x 3m marquees

4.7 Consultation and Communication

4.7.1 Approvals

Port Macquarie Hastings Council
Kelly Mapleston
Ph. 0408 818 604
E: kelly.mapleston@pmhc.nsw.gov.au

Walcha Council
Dylan Reeves
Ph: 02 6774 2500
E: des@walcha.nsw.gov.au

NSW Police
Daniel Finch
Ph:
E: finc1dan@police.nsw.gov.au

Roads and Maritime Services Department
Daniel Wills
Ph: 02 6604 9332
E: daniel.j.wills@rms.nsw.gov.au

4.7.2 Public Notification

In the interest of promoting road safety and public awareness of the event, advertisements are to be placed in the local newspapers (Port Macquarie Express and Port Macquarie News) covering the course route to advise members of the public of traffic management arrangements for the event. Notification of the event by mail drop will be provided to all land holders between Port Macquarie and Walcha two (2) weeks prior to the event, to ensure their awareness of the increased use of the highway on this day including the changed traffic conditions and the rolling road closures. A copy of the 2019 letter to residents is attached as Appendix D.

Event organisers will arrange 4 x temporary **Variable Message Signs** (TVMS) to be situated on the Oxley Highway. These will be located as follows:

Location	Date Installed	Pre-Event Message	Event Day Message 7am to 2pm	Event Day Message 2pm to 6pm
Western side of Port Macquarie (outbound) approximately 250m before the Rawden Island Rd intersection	23 Sept 2019	'Cycle Event, Sat 28th Sept, Changed Traffic Conditions'	'Special Event Today, Cyclists on Road. Changed Traffic Conditions'	'Drive with Care'
Western side of Wauchope (outbound) approximately 1.5km west of Timbertown	23 Sept 2019	'Cycle Event, Sat 28th Sept, Changed Traffic Conditions'	'Special Event Today, Cyclists on Road. Changed Traffic Conditions'	'Drive with Care'
Eastern side of Yarrowitch (outbound) approximately 1km before Kangaroo Flat Rd	23 Sept 2019	'Cycle Event, Sat 28th Sept, Changed Traffic Conditions'	'Special Event Today, Cyclists on Road. Changed Traffic Conditions'	'Drive with Care'
Eastern side of Walcha (outbound) approximately 100m past Oxley Dr	23 Sept 2019	'Cycle Event, Sat 28th Sept, Changed Traffic Conditions'	'Special Event Today, Cyclists on Road. Changed Traffic Conditions'	'Special Event Today. Cyclists on Road. Drive with Care'

Road closures and disruptions to traffic will be advertised at www.livetraffic.com.au

Pre-Event Signage will be in place at the following locations:

Date	Location	Wording
18/09/19	Hastings River Road, Winery Road, Sancrox Road, Rawden Island Road	Cycle Event, Changed Traffic Conditions, Saturday September 28, 7.00am to 8.00am
18/09/19	Oxley Highway, Wauchope	Cycle Event, Changed Traffic Conditions, Saturday September 28, 7.30am to 9.00am

Changed traffic conditions will also be advertised on tourism websites for Port Macquarie, Wauchope and Walcha.

Further need for notifications, including media advertising, will be at the discretion of the Port Macquarie Hastings Council, Walcha Shire Council, NSW Police and/or Road and Maritime Services (RMS) Dept.

4.7.1 Notification of Other Agencies

The following agencies will be notified of the event details:

NSW Rural Fire Service

P:
E:

NSW State Emergency Service

P:
E:

Fire and Rescue NSW

P:
E:

NSW Ambulance

P:
E:

Over Size Over Mass (OSOM) Heavy vehicle notification
RMS Road Access Management Team
Scott Brown - OSOM Access Manager
E: special_permits_unit@rms.nsw.gov.au

4.8 Contingency Plan

Wet weather: Monitor the Bureau of Meteorology (BOM) for likely weather pattern on the day. If light rain is forecast ensure that shelter is provided for officials and equipment and wet weather gear is available for event staff. If heavy rain or storms are forecast, the following steps will be followed:

- Event Manager to prepare a statement detailing response in the likelihood of wet weather (e.g. 'extreme wet weather has been forecast on Saturday 28 September for the staging of the Seaview Classic. Information on the status of the event will be available at www.facebook.com/seaviewclassic.com.au or www.nsw.cycling.org.au or by calling the Cycling NSW office on 02 9738 5850. If the event is forced to be cancelled, it will be rescheduled for a later date.')

- The Event Manager will advise contractors and event staff of the possibility of cancellation by 4pm Friday 27th September.
- The Chief Commissaire for the event (in consultation with Police) will make the final decision on the status of the event by 6.00am Saturday 28 September.
- If cancelled, management will be set up in the Port Macquarie Hotel, Port Macquarie
- In the event of cancellation, normal approval process will apply

Lightning: In the case of an electrical storm during the event, monitor the weather conditions and determine the point at which electrical systems should be disconnected, and, if necessary, the Chief Commissaire (in consultation with Police) to cancel or postpone the event.

Poor Lighting: The Chief Commissaire will assess the situation and determine whether the event is safe to proceed.

Flood Hazard on the Route: The Police and Chief Commissaire will assess the situation and determine whether the event is safe to proceed. If roads are flooded the event will be cancelled or postponed.

Bush Fire Hazard: The Rural Fire Service will be contacted for updates. The Police and race officials will determine whether the race is safe to proceed. If the RFS close the road, the event will be cancelled.

Accident on the route: The Police and Chief Commissaire will assess the situation and determine whether the event is safe to proceed. If required, accredited traffic controllers will be placed at the accident scene to control traffic and the area declared a 'neutral racing zone' where no racing through the area is permitted.

Absence of marshals and volunteers: The event will not proceed until all Traffic controllers and event marshals are positioned in accordance with the Event Management Plan.

Adverse traffic conditions: The Police and Chief Commissaire will determine whether the event is safe to continue or whether modifications to the event format need to be made within the conditions of the permit.

Delayed start: If the event start is delayed due to any of the above or other unforeseen circumstances, the Chief Commissaire and Event Manager will confer with Police and RMS to determine whether the event is safe to proceed and whether modifications to the event format will need to be made to comply with the permit conditions. Modifications may include (and not be limited to):

- Decreasing the starting time gap between the divisions
- Merging divisions
- Moving the start point further along the course to shorten the race

If not safe to proceed or comply with permit conditions, then the event will be cancelled.

Security of Participants: A Broom wagon will be provided for struggling or stranded riders. All participants have timing transponders on their bike to indicate riders yet to finish.

Cancellation of the event: Event Organisers to inform competitors, event staff, contractors and local authorities. Cancellation details to be posted on the event Facebook page, CNSW website and at Town Green. In the event of cancellation, normal approval process will apply.

5 Implementation

5.1 Hazard Identification, Risk Assessment and Control

In establishing adequate controls for the hazards identified in Section 4.1, K P Cycling Enterprises has used a structured approach via the use of the hierarchy of control as outlined below:

- Elimination
- Substitution
- Engineering
- Administration
- Personal Protection Equipment
- Behaviour Management

The event organiser will evaluate all event management arrangements prior to the commencement of the event. New hazards that arise throughout the event will be subject to risk assessment and incorporated onto the Risk Register.

5.2 Parking Plan

The parking plan for the following locations is indicated in the table below:

Location	Parking Plan
Start Area: Town Green, Port Macquarie	Refer to Figure 1 for convoy vehicles. Adequate event parking for participants is available in the adjacent streets
Feed Station 1: Yarrowitch	Refer to Figure 6
Finish Area: Fitzroy Street, Walcha	Refer to Figure 2

Figure 6: Yarrowitch Feed Station

5.3 Traffic Management Details

5.3.1 Road Closure

Horton Street, Port Macquarie will be closed to traffic from 5.30am to 8.30am.

A protected road closure implemented by police will be in place from the event start to the finish in Walcha. A protected road closure is a form of traffic control used for point-to-point road races in which the full width of the road is closed to other traffic as the race passes any given point. The section of closure is between the lead police vehicle and the follow police vehicle. Competitors outside this enclosure will ride under normal road conditions.

Fitzroy Street, Walcha will be closed to traffic between Lagoon Street and Pakington Street between 11.00am and 4.00pm.

5.3.2 Traffic Control Plans

The following Traffic Control Plans are attached as Appendix B:

Location	ECD No	Implementation Time
Race Start – Horton Street Closure	**5432001**	0530 to 0800
Short Street-William Street Roundabout	**5432002**	0650 to 0720
Butler Street-Park Street Intersection	**5432003**	0650 to 0720

Park Street Hastings River Road Roundabout	**5432004**	0700 to 0720
Hastings River Road-Winery Drive Intersection	**5432005**	0710 to 0740
Sancrox Road-Rawden Island Road Intersection	**5432006**	0720 to 0810
Rawden Island Road Oxley Highway Intersection	**5432007**	0725 to 0820
Oxley Highway-Cameron Street Roundabout, Wauchope	**5432008**	0730 to 0830
Yarrowitch Food Station	**5432010**	1000 to 1300
Fitzroy Street (Oxley Highway) Finish, Walcha	**5432009**	1100 to 1600

The signage and devices indicated in the TCP's will be erected by ?? and Walcha Shire Council. Accredited Traffic Controllers will control traffic with a "Stop / Slow" baton. They will be stationed in accordance with the TCP's.

5.3.3 Additional Event Warning Signage

The Lead Vehicle for each division will display a 'Caution Cycle Race Following' sign directed to the front of the vehicle and the Broom Wagon will display a sign 'Caution Cycle Race Ahead' directed to the rear of the vehicle.

Signage (WS – Cyclists Race in Progress) will be displayed at the following locations:

- Fernbank Creek Road (50m before the Hastings River Drive intersection)
- Bushland Drive (50m before the Sancrox Road intersection)
- Verdun Drive (50m before the Sancrox Road intersection)
- Muscle Road (50m before the Rawden Island Road intersection)
- Warrigal Ridge (50m before the Rawden Island Road intersection)

Signage (WS – Cyclists Race in Progress) will be displayed at the following intersections with the Oxley Highway:

- King Creek Road, Sancrox
- Sloney Creek Road, Wauchope
- Randall Street, Wauchope
- Wallace Street, Wauchope
- Bransdon Street, Wauchope
- Hastings Street, Wauchope
- Range Street, Wauchope
- Campbell Street, Wauchope
- Graham Street, Wauchope
- Beechwood Road, Wauchope
- Allan Road, Wauchope
- Gowrie Road, Wauchope
- Wade Street, Wauchope
- Short Street, Wauchope
- Christy Street, Wauchope
- Duncan Street, Wauchope
- Sutherland Street, Wauchope
- Blackbutt Drive, Wauchope
- Rodlee Street, Wauchope
- Pead Street, Wauchope
- Forest Way, Wauchope
- Rosewood Road, Rosewood
- Huntingdon Road, Huntingdon
- Comboyne Road, Hyndmans Creek

- Kindee Road, Long Flat
- River Street, Ellenborough
- Kangaroo Flat Road, Yarrowitch
- Hartford Road, Walcha
- Brackendale Road, Walcha
- Oxley Drive, Walcha
- Lagoon Street Walcha

The signs will be located approximately 50-100m from the intersection with the Gwydir Highway on the approach side. They will be installed by event personnel in accordance with the 'Safe Work Method Statement' (refer to Appendix C).

5.4 Competitor Management Details

5.4.1 Event Signage and Devices

All signs and devices will be installed by event personnel in accordance with the 'Safe Work Method Statement' (refer to Appendix C).

5.4.1.1 Race Directional Signage

Signs depicting GREEN arrows will be used to indicate the direction of travel for the race. They will be displayed at the following intersections:

- Hastings River Drive and Winery Drive
- Winery Drive and Wambuyn Drive
- Wambuyn Drive and Frogs Road
- Frogs Road and Sancrox Road
- Sancrox Road and Rawden Island Road
- Rawden Island Road and Oxley Highway

5.4.1.2 Feed Station Signage

All Feed Stations will display yellow and black Cyclist Feed Zone Ahead signage 500m from the start of the feeding zone. The zone will be indicated by a blue flag at the start and finish with End Feed Zone signage just beyond the blue flag at the finish of the zone.

5.4.1.3 Sprint and KOM Signage

A sign will be used to indicate 1km to go and 200m to go to each of the Sprint and King of the Mountain points. Teardrop banners will be erected on the road verge to indicate the finish line for each Sprint and King of the Mountain point. The finish line will be marked by professional marking tape.

5.4.1.4 Distance To Go Signage

Signage indicating the distance remaining to the finish of the race will be displayed at 50km, 20km, 10km, 5km, 3km, 1km, 500m, 200 m and 100m to go.

5.4.2 Event Marshals

Event marshals will be located at the following intersections:

- Lagoon Street, Walcha (south)
- Fitzroy Street, Walcha (turning finishing riders)

These event marshals shall have the role of providing guidance to riders and pedestrians and will NOT direct traffic.

5.5 Vehicle Movement Plan

Event support vehicle descriptions and movements are outlined in Section 2.10.

5.5.1 Event Signs and Devices

Race convoy vehicles will follow the signs depicting GREEN ARROWS used to indicate the direction of travel for the race. All Race convoy vehicles will be deviated into Lagoon Street from the Oxley Highway just prior to the event finish. 'Convoy Vehicle' signage will be used in conjunction with an arrow 50-100m from the intersection to indicate the direction of travel.

Signs depicting PINK directional arrows will be used to indicate the direction of travel for rider support vehicles that do not form part of the race convoys. These will be placed on each guidepost within 200m from the event parking for the Yarrowitch Feed Station on the Oxley Highway.

The PINK directional arrows will be again used to direct vehicles into Lagoon Street and Middle Street in Walga. They are displayed 200m (at 50m intervals) before the Lagoon Street-Oxley Highway intersection in Walga to direct vehicles into Lagoon Street. They are then located in Aspley Street and Middle Street to direct vehicles to the support vehicle parking section. 'Support Vehicles' signage will be used in conjunction with the first arrow 200m from the Lagoon Street-Oxley Highway intersection.

Signage indicating the parking areas will be displayed at the Yarrowitch Feed Station.

All signs and devices will be installed by event personnel in accordance with the 'Safe Work Method Statement' (refer to Appendix C).

5.5.2 Event Marshals

Two event marshals will be located at the Yarrowitch Feed Station to provide direction to rider support vehicles when entering and exiting designated parking areas.

5.6 Pedestrian Management Plan

The major areas of pedestrian movement during the event will occur at the Yarrowitch Feed Station (refer to Figure 6) and the Finish Area in Fitzroy Street, Walcha. The majority of pedestrian movement at the Finish Area will be along Middle Street. Minor pedestrian movement across Fitzroy Street adjacent to the event finish line will be controlled by event marshals.

5.6.1 Event Signage and Devices

Barrier fencing will be erected for 50m each side of the finish line on Fitzroy Street to restrict pedestrian movement. A sign will indicate the marshalled crossing point. A sign will be erected at the event presentation area to restrict pedestrian access.

All signs and devices will be installed by event personnel in accordance with the 'Safe Work Method Statement' (refer to Appendix C).

5.6.2 Event Marshals

Event Marshals will be located at the following points to assist with pedestrian movement.

- Yarrowitch Feed Station: entrance road to event parking

- Walcha Finish: pedestrian crossing point on Fitzroy Street

5.7 Installation Plan

The Road Occupancy Licence (ROL) issued by RMS will cover event road closure, part road closure and the installation of signs and devices for the event.

5.7.1 Sequence

Before racing commences, signs and devices at the approaches to the event site shall be erected in accordance with the installation plan in the following sequence.

a) Advance warning signs. (Erect approach and departure signs on approach to the event site)

b) All intermediate advance and symbolic signs and devices

c) All other required warning and regulatory signs

A safely positioned shadow vehicle shall be used in advance of the signs and traffic control devices to protect event personnel putting out and removing the signs or traffic control devices.

Racing will not commence or continue until all signs, devices and barricades are in place and operational in accordance with the requirements of the TCP's.

5.7.2 Signs

Prior to installation all signs shall be checked for damage and cleanliness and repaired, replaced or cleaned as necessary.

Signs and devices shall be erected in accordance with the locations and spacing shown indicated in the EMP such that:

- They are properly displayed and securely mounted
- They are within the driver's or event participants line of sight
- They cannot be obscured from view
- They do not obscure other devices from the driver's line of sight
- They do not become a possible hazard to event participants or vehicles
- They do not deflect traffic into an undesirable path.

5.7.3 Barriers and Delineation

Barriers and traffic cones will be erected in accordance with the TCD's. All barriers will be secured and appropriately weighted.

5.8 Emergency Arrangements

Police and/or Event Traffic Controllers shall assist emergency vehicles travelling through the event site where such assistance is required.

In situations involving vehicle crashes and breakdowns, the event organiser will render assistance where possible to ensure the impact of crashes and breakdown on the network is minimised.

The Port Macquarie and Walcha Fire Brigades and Ambulance Stations will be given advance notification of the event.

5.9 Site Access

There are no special requirements to be addressed.

6 Site Inspections

The Event Organiser will ensure that the Event Management Plan is implemented and evaluated for effectiveness.

Inspections shall be undertaken as required and at a minimum on the following occasions:

- Before the event activities commence
- During the event activities
- Closing at the end of the event activities.

7 Key Event Contacts

Name: **Kurt Polock**

Title: Race Director

Phone: 0458 666 221

Email: kpolock@hotmail.com

Name: **Chris Thompson**

Title: Event Planning Consultant

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Email. chris@cyclesense.com.au

Name: **Daniel Finch**

Title. NSW Police – Mid North Coast Command

Phone:

Email. finc1dan@police.nsw.gov.au

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Name: **Dylan Reeves**

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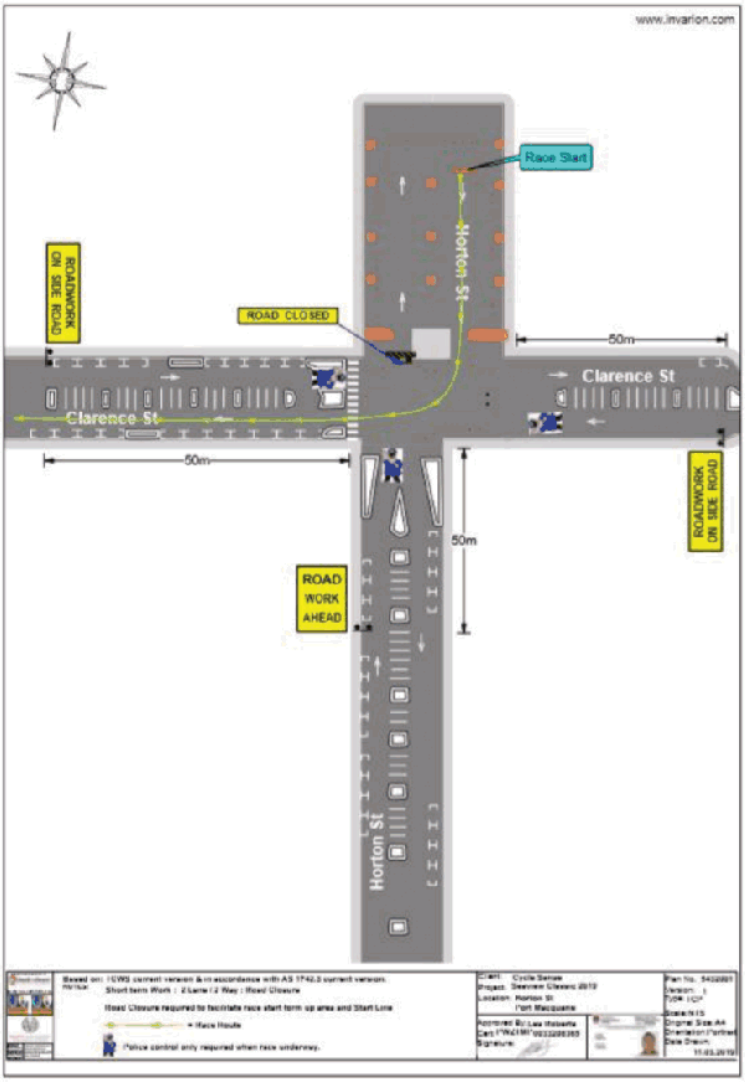
Phone: 02 6774 2500

Email: dcs@walcha.nsw.gov.au

Appendix A - Certificate of Insurance Currency

PENDING

Appendix B – Traffic Control Diagrams



www.invarion.com
Short St
Horton St
Buller St
William St
50m
50m
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PREPARE TO STOP
PREPARE TO STOP
PREPARE TO STOP
Short St
Horton St

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www.invarion.com
Hilltop Cres
Park St
Hastings River Dr
Garden Cres
50m
50m
50m
50m
50m
50m
PREPARE TO STOP

www.invarion.com
ROAD WORK AHEAD
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160m
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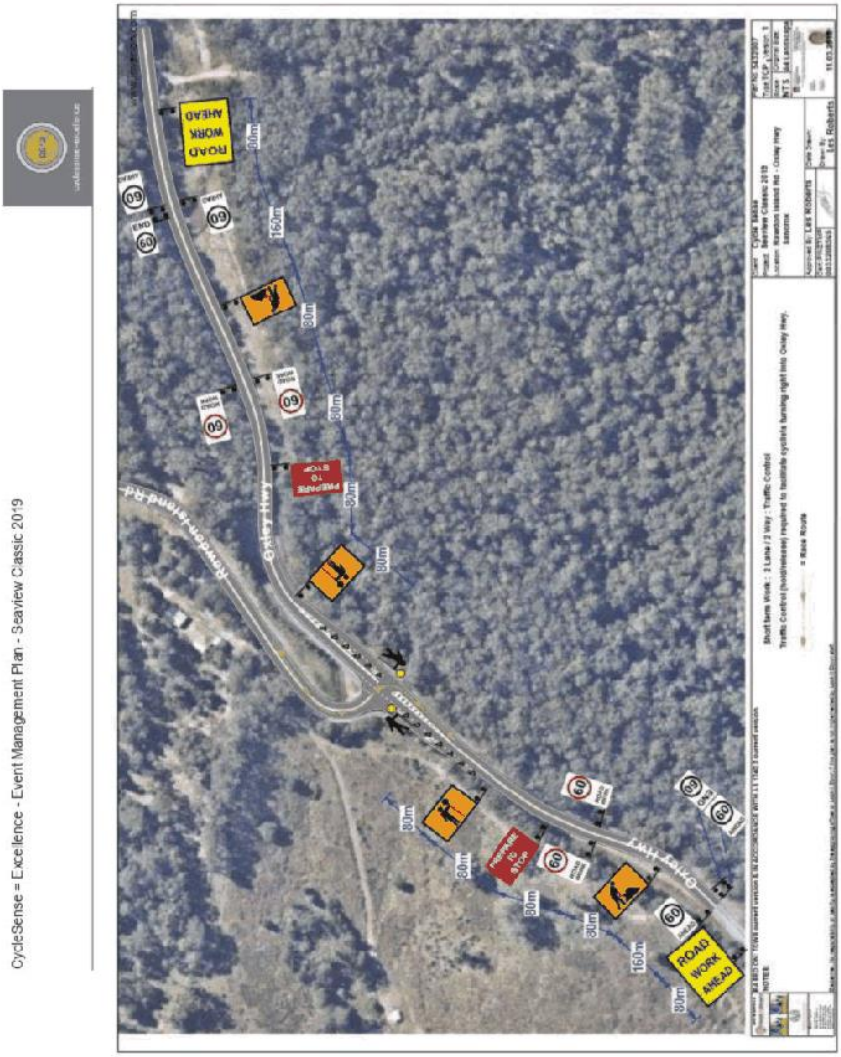
Hastings River Dr
Winery Dr



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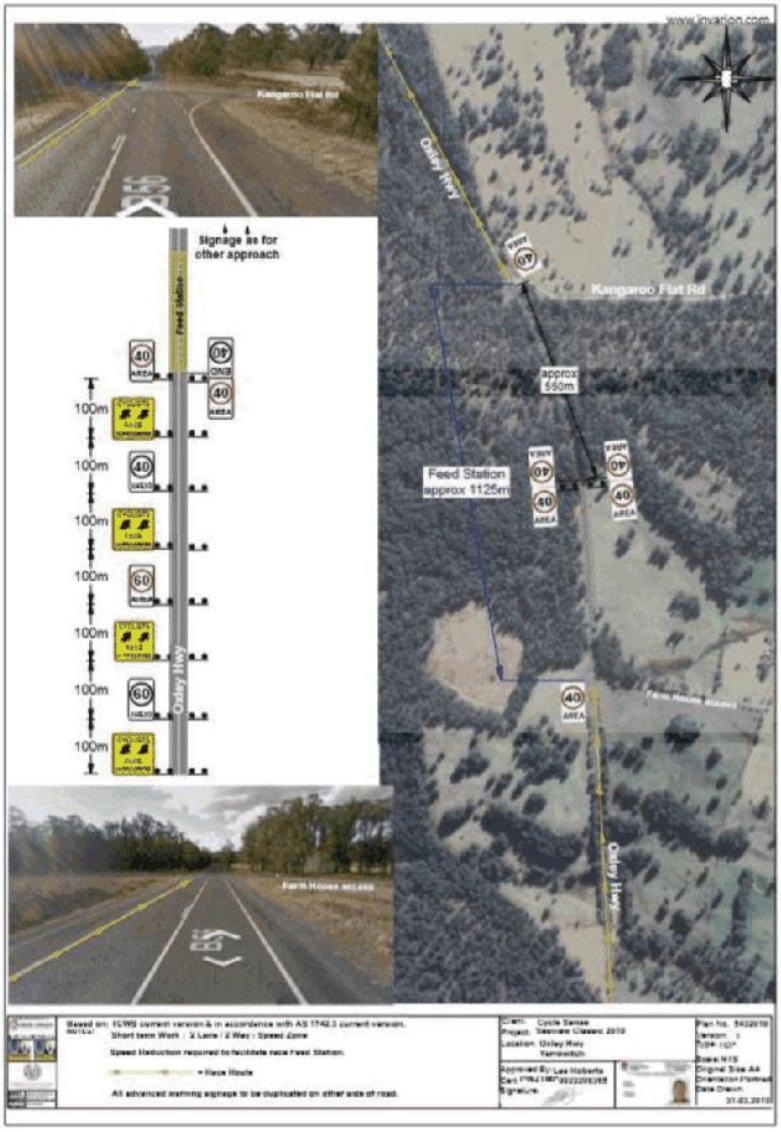
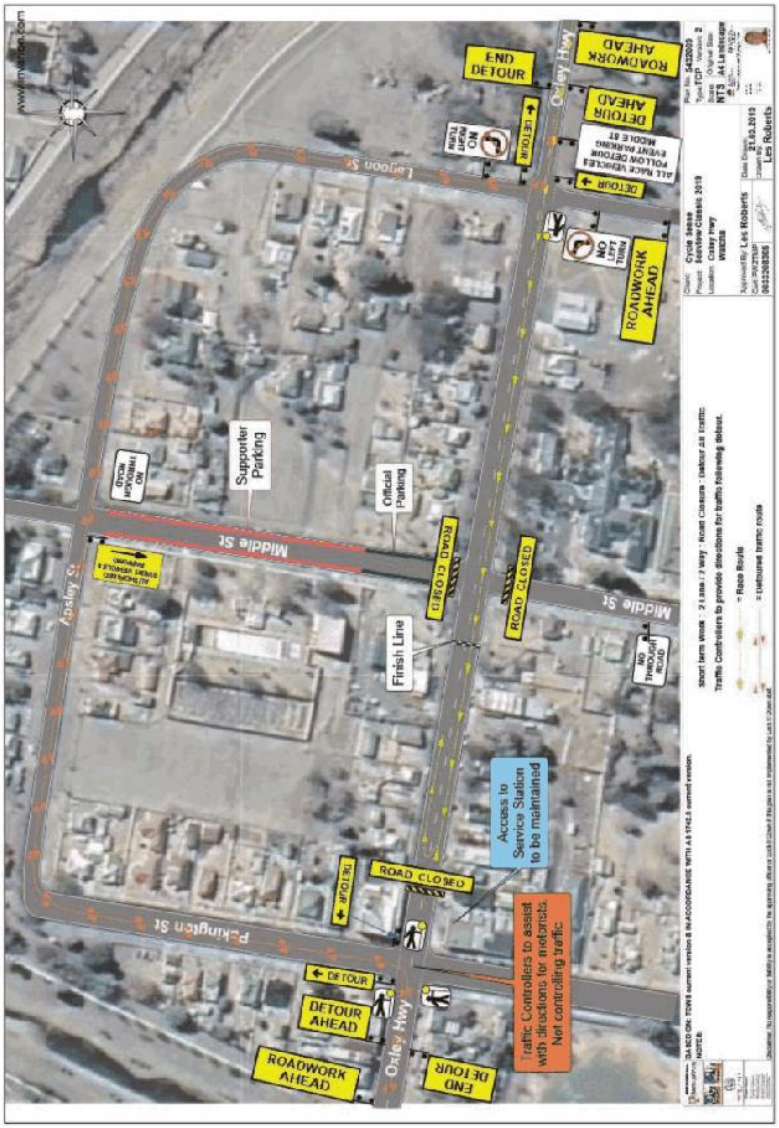
Oxley Hwy
Oxley Hwy
Cameron St
Cameron St
50m
50m
50m
50m
50m
50m
50m
50m
PREPARE TO STOP
PREPARE TO STOP
PREPARE TO STOP
Intermittent control required to facilitate cyclists passing through roundabout.
= Race Route


Signage as for other approach
Feed station
100m
100m
100m
100m
100m
100m
100m
Oxley Hwy
Kangaroo Flat Rd
approx 550m
Feed Station approx 1125m
Farm House access
Oxley Hwy

CycleSense = Excellence - Event Management Plan - Seaview Classic 2019



Appendix C: Safe Work Method Statement

Event Name	Seaview Classic
Date/s	28 September 2019
Location	Oxley Highway, Port Macquarie to Walcha
Organiser	K P Cycling Enterprises
Contact Details	Kurt Polock P: 0458 666 221 E: kpolock@hotmail.com
Activity	**Installation of event infrastructure on roads**

Task	Hazards and Risks	Risk Control Measures	Who is Responsible?
Erect event warning signs	• Vehicle Accidents • Vehicle/personnel impact	• Develop a signage plan for the event • Shadow vehicle with flashing amber light used to protect personnel • Vehicle parked off the road • Personnel to wear high visibility vests	Event Manager

Task	Hazards and Risks	Risk Control Measures	Who is Responsible?
Erect event signage (directional, KOM/QOM, feed station, distance to go etc.)	• Vehicle Accidents • Vehicle/personnel impact	• Develop a signage plan for the event • Shadow vehicle with flashing amber light used to protect personnel • Vehicle parked off the road • Personnel to wear high visibility vests	Event Manager
Erect barrier fencing	• Vehicle/personnel impact • Manual handling injuries	• Road closure implemented or temporary traffic management in place prior to installation commencing • Personnel to wear high visibility vests and appropriate footwear • Personnel with pre-existing back injuries should avoid this task • Prior to any lifting, stretching exercise for 5-10 minutes will minimise the risk of muscular injury • Ensure that the path for carrying each barrier is clear of obstructions • Use correct lifting techniques as demonstrated by a competent person • Use appropriate number of crew to lift barriers	Event Manager Site Manager – Event Finish
Erect gantry	• Vehicle/personnel impact • Manual handling injuries	• Road closure implemented or temporary traffic management in place prior to installation commencing • Personnel to wear high visibility vests and appropriate footwear • Prior to any lifting, stretching exercise for 5-10 minutes will minimise the risk of muscular injury • Use correct lifting techniques as demonstrated by a competent person • Use appropriate number of crew to lift gantry	Event Manager Site Manager – Event Finish

Task	Hazards and Risks	Risk Control Measures	Who is Responsible?
Install timing equipment	• Vehicle/personnel impact	• Road closure implemented prior to installation commencing • Personnel to wear high visibility vests	Site Manager – Event Finish
Erect event banners, flags and sponsor signage	• Vehicle/personnel impact	• Develop a signage plan for the event • Road closure implemented prior to road side installation commencing, or shadow vehicle with flashing amber light used to protect personnel • Personnel to wear high visibility vests	Site Manager – Event Start Event Manager Site Manager – Event Finish

Appendix D: Resident Letter

PENDING

Appendix E: Emergency Response Plan

Event Name:	Seaview Classic		
Event Date and Time:	28 September 2019 – 7.00am to 4.00pm		
Emergency Services Contact:	Kurt Polock		
Organisation:	K P Cycling Enterprises	**Contact Mobile:**	0458 666 221
Event Description:	Cycle Race between Port Macquarie and Walcha		

Event / Incident Control Centre

The Event Control Centre will be located at the registration area at the Town Green from 5am till 8am. It will be the contact point for Event Organisers and will house all event management timetables, contact numbers, volunteer information and emergency plans. It will be clearly signed and constantly manned between these hours. The Event Control Centre will then be mobile with the Race Director from 8am to 11am before being established in Walcha at 11am for the remainder of the event. It will be located in a marquee adjacent to the event finish off Fitzroy Street and be clearly signed and constantly manned until 5.00pm.

The Seaview Classic will utilize hand held radios to aid in the delivery of essential communications on the day. They will be provided to each escort vehicle permitted by the Race Commissaire to be within the sterile zone created by Police for such vehicles and competitors. Additional radios will be issued to Traffic Controllers and Event Marshals (on course). Satellite phones will be provided to Police Car 1, Race Director, Chief Commissaire, First Aid Officer Division 1, First Aid Officer Division 2, and Broom Wagon. The Event Organisers will also have priority access to event public address systems.

Preparation

Action	Who	When
Establish weather proof Event Control Centre to be equipped with: UHF radios Mobile Phone Traffic cones Fluorescent vests Event start list Communications list (this) Emergency Response Plan Event management timetable	Emergency Services Contact	On event day prior to the commencement of event
Notify emergency services (police, ambulance, fire, hospital)	Emergency Services Contact	Before the event
Review weather forecast via the BOM	Emergency Services Contact	Before event/on day
Secure temporary structures	Emergency Services Contact	On event day
Maintain clear access for emergency services	Emergency Services Contact	Ongoing
For severe weather situations, decide trigger point for postponing or cancelling event	Chief Commissaire	Before and during event
Event staff and volunteers briefed on potential emergency action required	Emergency Services Contact	Before event
Ensure First Aid Officers on site and briefed on potential emergency action required	Emergency Services Contact	Before event/on event day prior to the

Action	Who	When
		commencement of event

Response

The Emergency Services Contact will be responsible for the implementation of the following actions:

Medical Emergency

- Assist persons involved and remove them from exposure to further injury or danger, if necessary.
- Warn personnel in adjacent areas of potential hazards to their safety
- Contact ambulance by satellite/mobile phone and First Aid Officer in race convoy by UHF radio
- Contact police car by satellite/mobile phone
- Keep public and riders clear of area/affected person/s including route for emergency services
- Do not move an injured person unless they are in further danger
- Contact Event Organiser and/or Chief Commissaire
- Administer appropriate First Aid
- Keep the injured person warm. If feasible, designate one person to remain with the injured person
- Persons responding to a medical emergency should be protected from exposure to blood and other potentially infectious materials. Protection can be achieved through adherence to work practices designed to minimize or eliminate exposure and through the use of PPE (i.e., gloves, masks and protective clothing), which provide a barrier between the worker and the exposure source.
- Maintain communication with emergency vehicles
- Ensure access for emergency vehicles
- Event Organiser to ensure CA Accident Report Form (refer to CA website) is completed within two (2) working days from the time of the accident

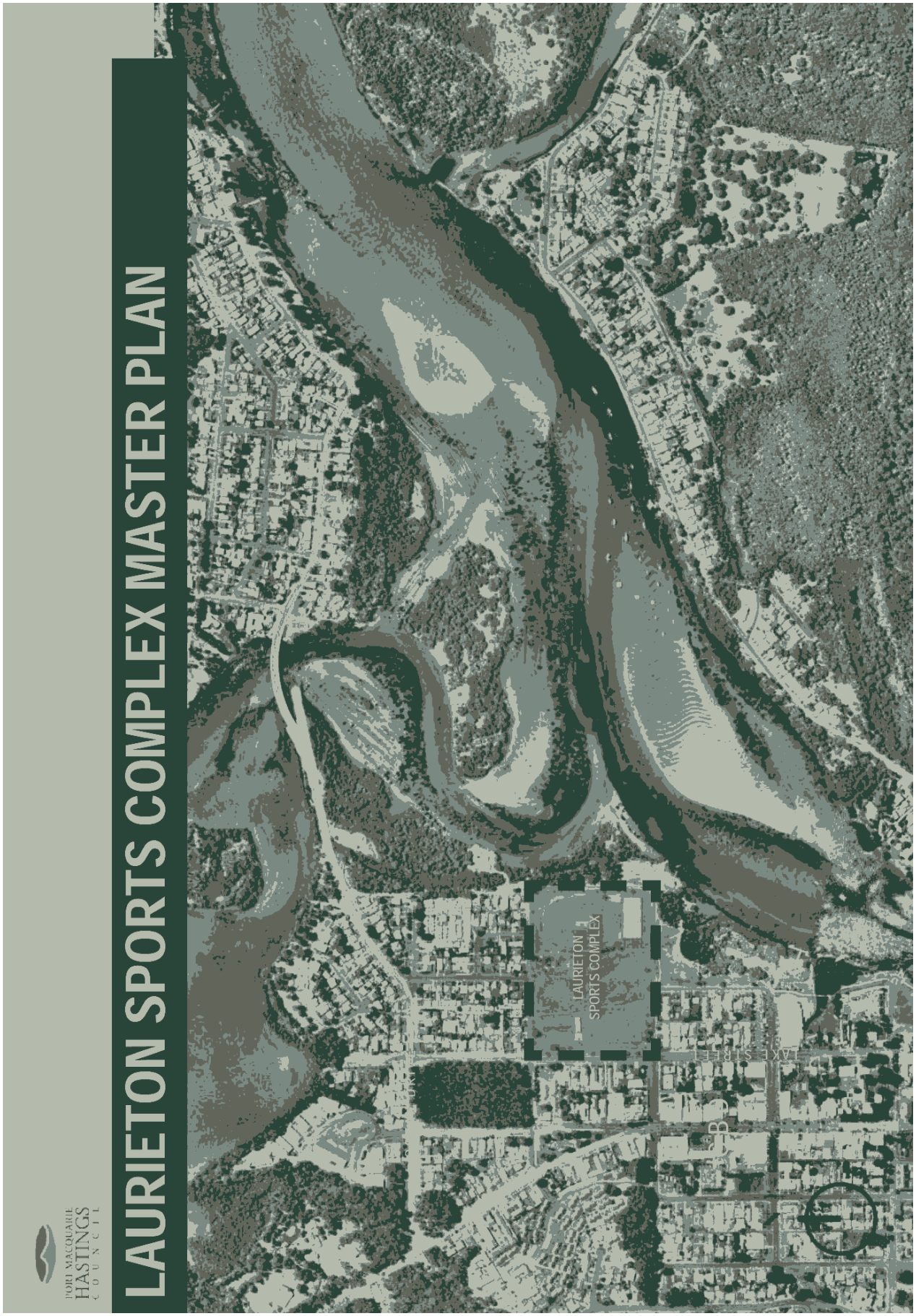
Note: Following any administration of first aid the injured person should seek medical advice for further examination and treatment if required.

General Emergency (Fire, Explosion)

- Assist persons involved and remove them from exposure to further injury or danger, if necessary
- Warn personnel in adjacent areas of potential hazards to their safety
- Call 000 or 112 (mobile phone) and alert emergency services immediately
- Keep public and riders clear of area including route for emergency services
- Secure the site from any further potential danger (e.g. extinguish fire if safe to do so)
- Contact Chief Commissaire and/or Event Organiser by race radio or mobile phone
- Maintain communication with emergency services
- Ensure access for emergency vehicles
- Where necessary implement traffic control
- Any traffic crash resulting in non-threatening injury shall immediately be reported to the Police on 131444
- Event Organiser to ensure CA Accident Report Form (refer to CA website) is completed within two (2) working days from the time of the accident

Severe Weather

- Cancel or suspend racing at pre-determined trigger point i.e. lightning imminent, high winds greater than 49kph imminent, heavy rain resulting in less than 200m visibility
- Monitor site, secure loose items, cover electrical equipment
- Ensure riders and public do not enter event precinct until it is safe to do so


PORT MACQUARIE
HASTINGS
COUNCIL
LAURIETON SPORTS COMPLEX MASTER PLAN
LAURIETON
SPORTS COMPLEX

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04 Issues Plan

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11 Sports Facility 2 - Layout Plan & Perspective

12 General - Perspective

13 General - Perspectives

PORT MACQUARIE HASTINGS COUNCIL

PROJECT
LAURIETON SPORTS COMPLEX
MASTER PLAN

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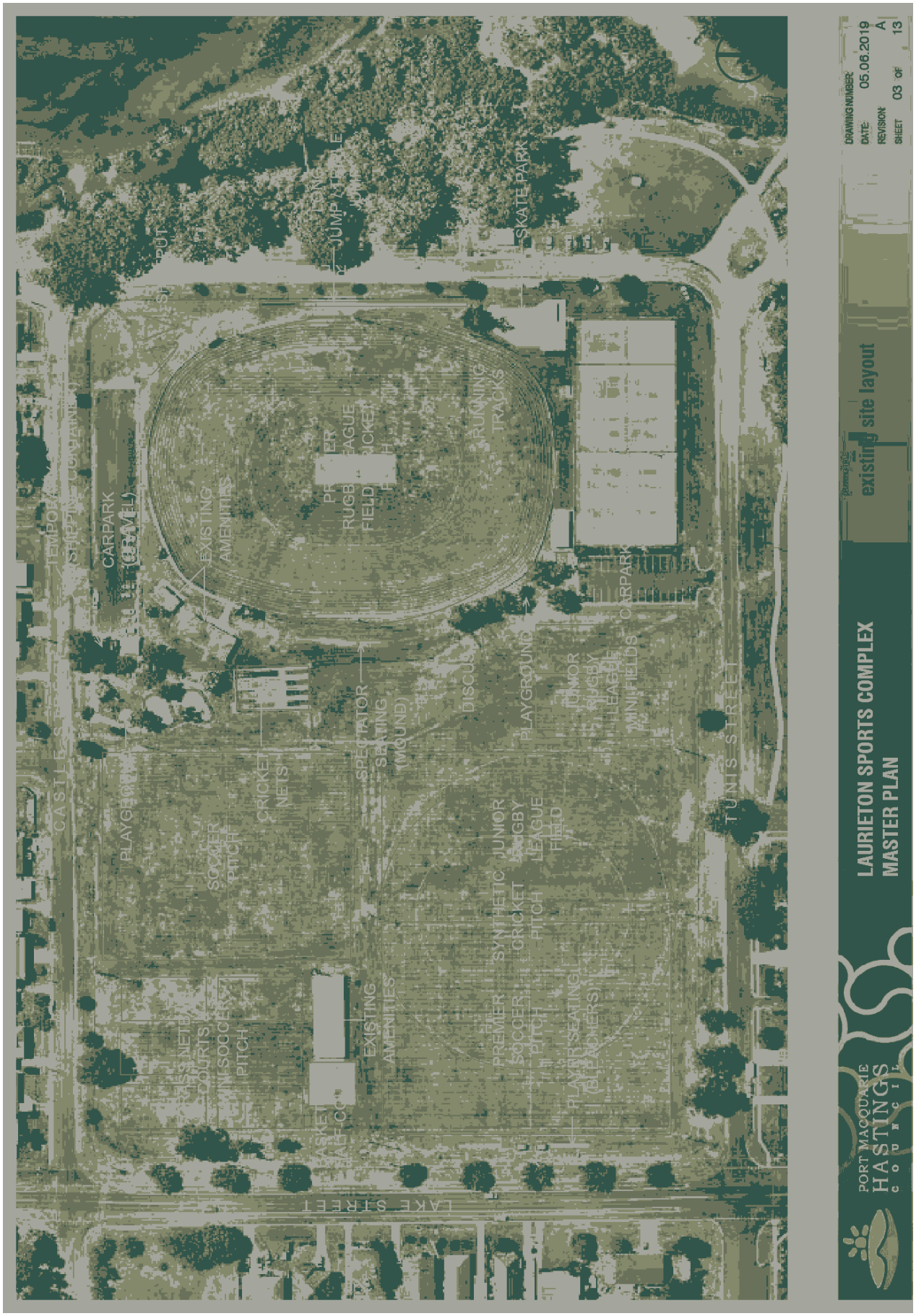
LAURIETON SPORTS COMPLEX
MASTER PLAN
existing site layout
PORT MACQUARIE HASTINGS COUNCIL
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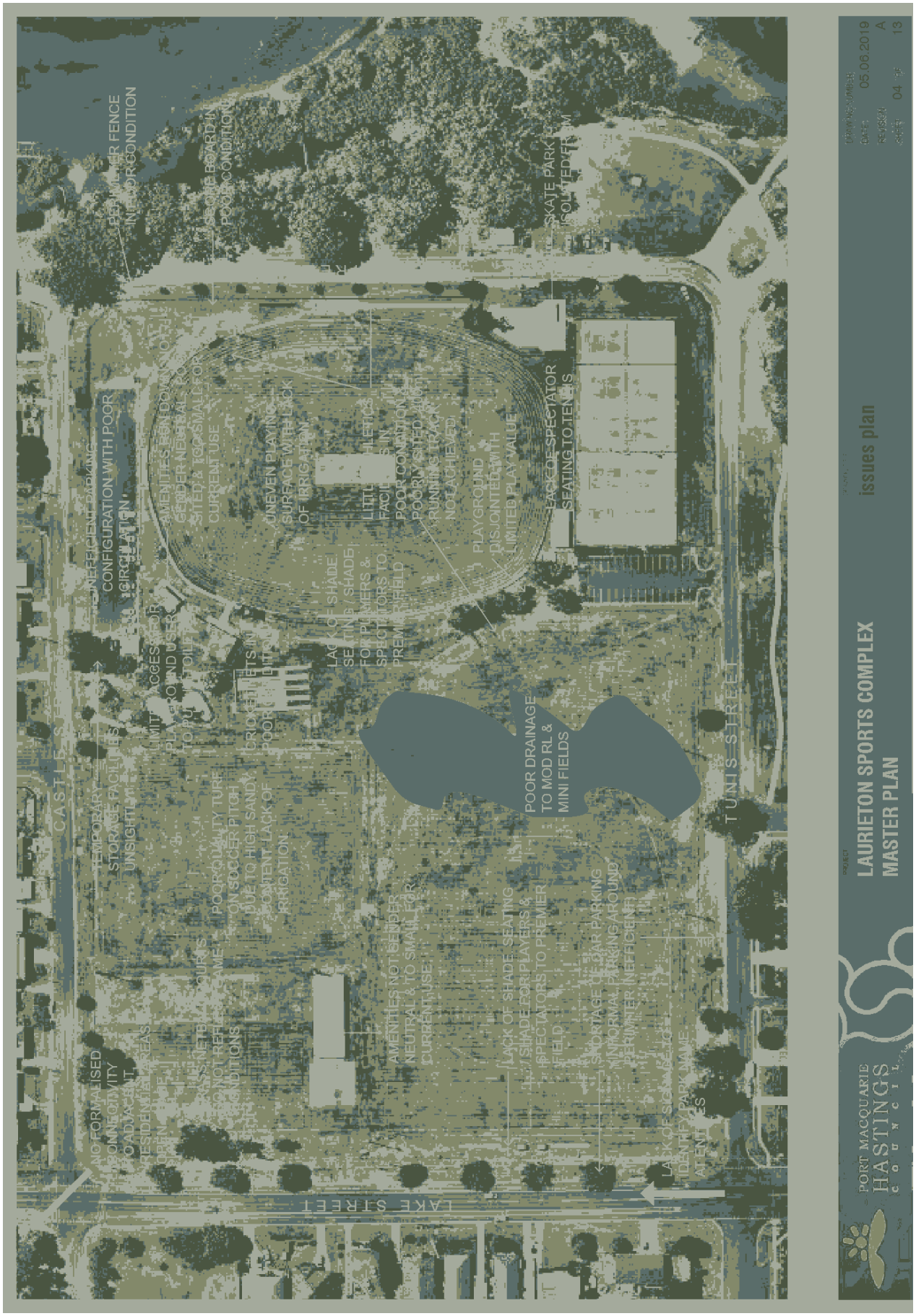
DATE: 05.06.2019
REVISION: A
SHEET 03 OF 13
SKATE PARK
RUNNING TRACKS
CARPARK
EXISTING AMENITIES
CRICKET NETS
SPECTATOR SEATING (MOUND)
DISCUS
PLAYGROUND
JUNIOR RUGBY LEAGUE FIELD
SYNTHETIC CRICKET PITCH
PREMIER SOCCER PITCH
PLAYER SEATING (BLEACHERS)
SOCCER PITCH
TUNIS STREET
LAKE STREET


PERIMETER FENCE INTERIOR CONDITION
SCORE BOARD IN POOR CONDITION
SKATE PARK ISOLATED FROM
INEFFICIENT PARKING CONFIGURATION WITH POOR CIRCULATION
AMENITIES BEHIND NO GENDER NEUTRAL & TOO SMALL FOR SITED & TOO SMALL FOR CURRENT USE
UNEVEN PLAYING SURFACE WITH LACK OF IRRIGATION
LACK OF SHADE SEATING / SHADE FOR PLAYERS & SPECTATORS TO PREMIER FIELD
LITTLE ATHLETICS FACILITIES IN POOR CONDITION & POORLY SITED 400m RUNNING TRACK NOT ACHIEVED
PLAYGROUND DISJOINTED WITH LIMITED PLAY VALUE
LACK OF SPECTATOR SEATING TO TENNIS
POOR DRAINAGE TO MOD RL & MINI FIELDS
CASTLE ST
TEMPORARY STORAGE FACILITIES UNSIGHTLY
LIMIT ACCESS FOR PLAYGROUND USER TO PUT TOILET
POOR QUALITY TURF ON SOCCER PITCH DUE TO HIGH SANDY CONTENT LACK OF IRRIGATION
CRICKET NETS IN POOR CONDITION
TUNIS STREET
AMENITIES NOT GENDER NEUTRAL & TO SMALL FOR CURRENT USE
LACK OF SHADE SEATING / SHADE FOR PLAYERS & SPECTATORS TO PREMIER FIELD
SHORTAGE OF CAR PARKING MINIMAL PARKING AROUND PERIMETER INEFFICIENT
LAKE STREET
PORT MACQUARIE HASTINGS COUNCIL
LAURIETON SPORTS COMPLEX
MASTER PLAN
issues plan
05.06.2019
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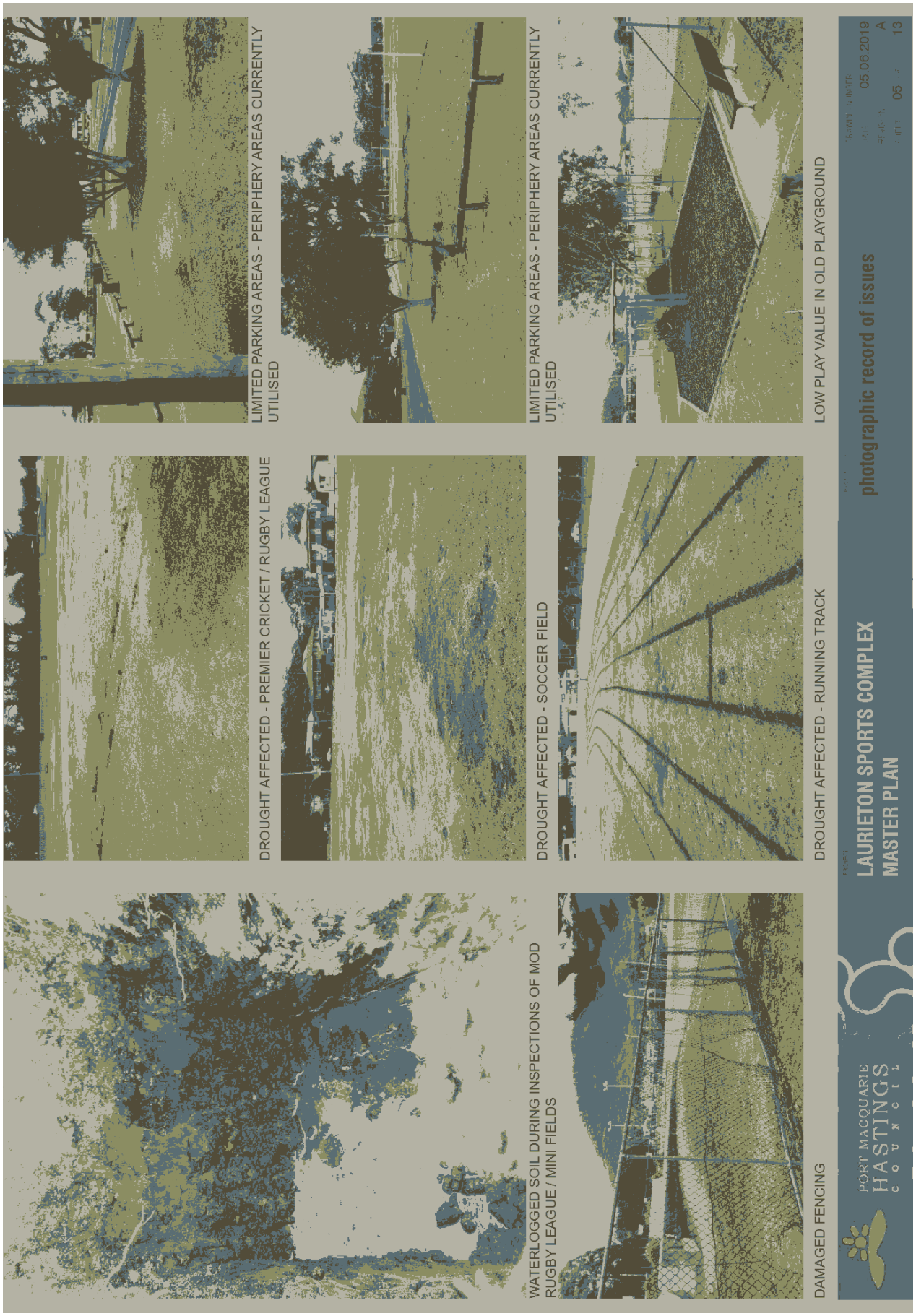
13


LIMITED PARKING AREAS - PERIPHERY AREAS CURRENTLY UTILISED
LIMITED PARKING AREAS - PERIPHERY AREAS CURRENTLY UTILISED
LOW PLAY VALUE IN OLD PLAYGROUND
DROUGHT AFFECTED - PREMIER CRICKET / RUGBY LEAGUE
DROUGHT AFFECTED - SOCCER FIELD
DROUGHT AFFECTED - RUNNING TRACK
WATERLOGGED SOIL DURING INSPECTIONS OF MOD RUGBY LEAGUE / MINI FIELDS
DAMAGED FENCING
PORT MACQUARIE HASTINGS COUNCIL
LAURIETON SPORTS COMPLEX MASTER PLAN
photographic record of issues
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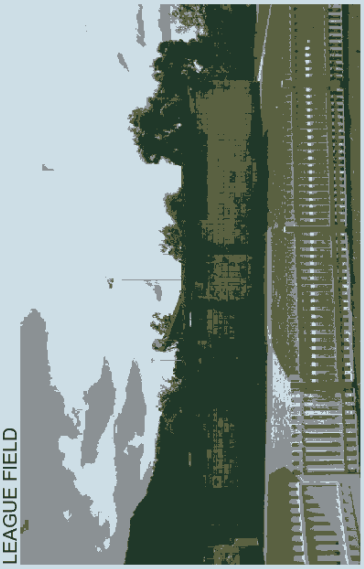
SHIPPING CONTAINERS AS STORAGE.

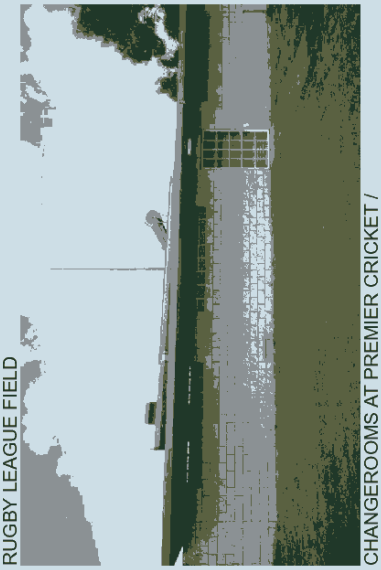
TOILETS AT PREMIER CRICKET / RUGBY LEAGUE FIELD

TOILETS AT PREMIER CRICKET / RUGBY LEAGUE FIELD

KIOSK AT PREMIER CRICKET / RUGBY LEAGUE FIELD



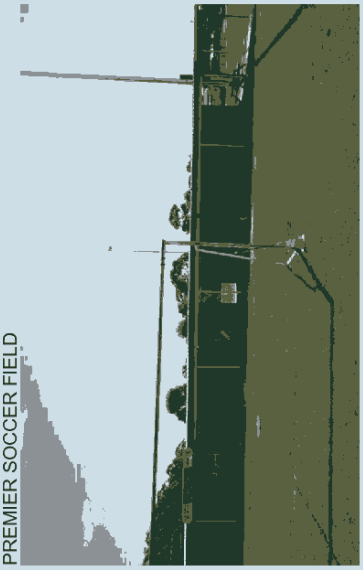
CHANGEROOMS AT PREMIER CRICKET / RUGBY LEAGUE FIELD



CHANGEROOMS AT PREMIER CRICKET / RUGBY LEAGUE FIELD

CHANGEROOMS / KIOSK & TOILETS AT PREMIER SOCCER FIELD

CHANGEROOMS / KIOSK & TOILETS AT PREMIER SOCCER FIELD



CHANGEROOMS / KIOSK & TOILETS AT PREMIER SOCCER FIELD

PORT MACQUARIE HASTINGS COUNCIL

PROJECT:
LAURIETON SPORTS COMPLEX MASTER PLAN

DRAWING TITLE
photographic record of issues

DRAWING NUMBER
DATE 05.06.2019
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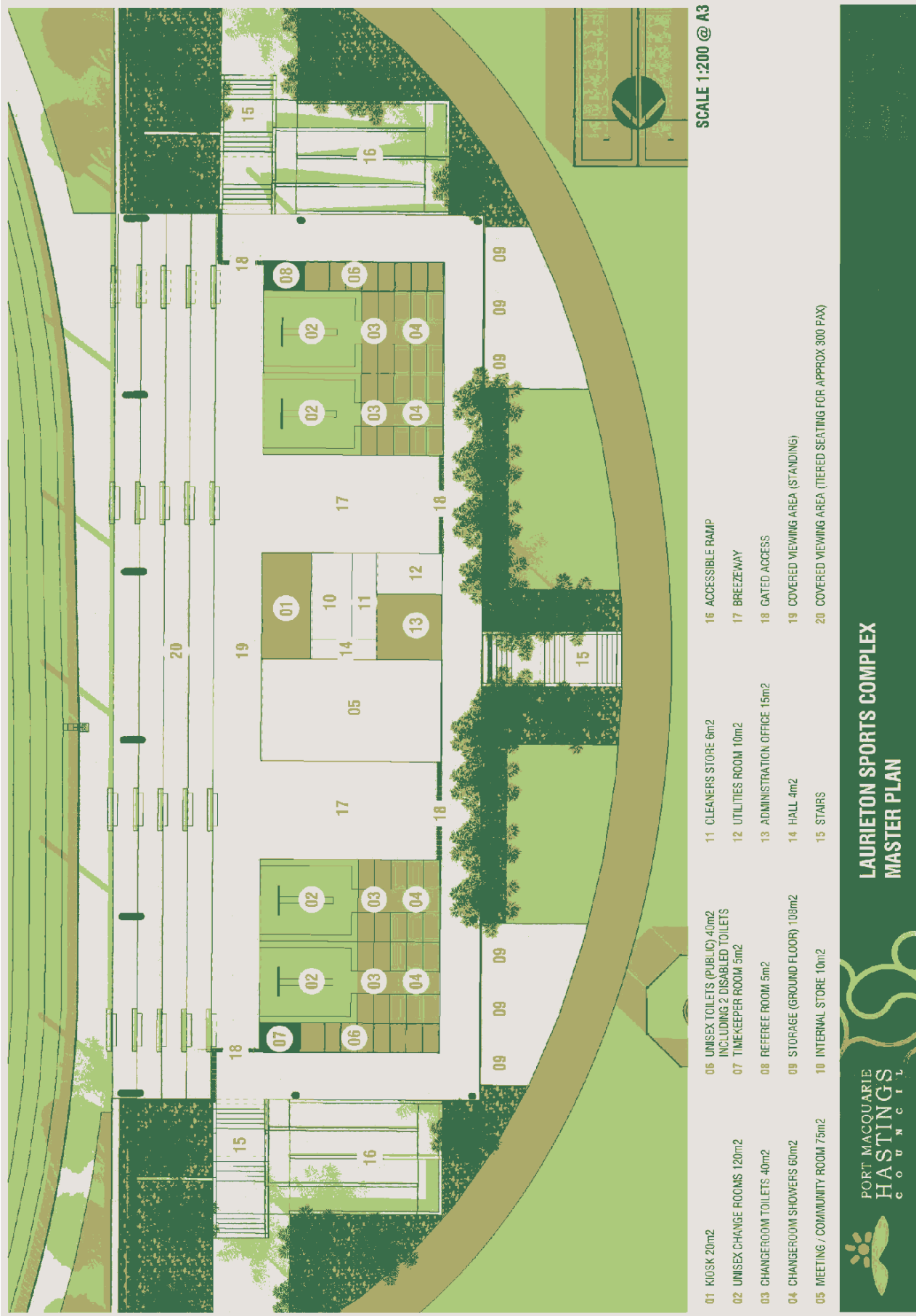
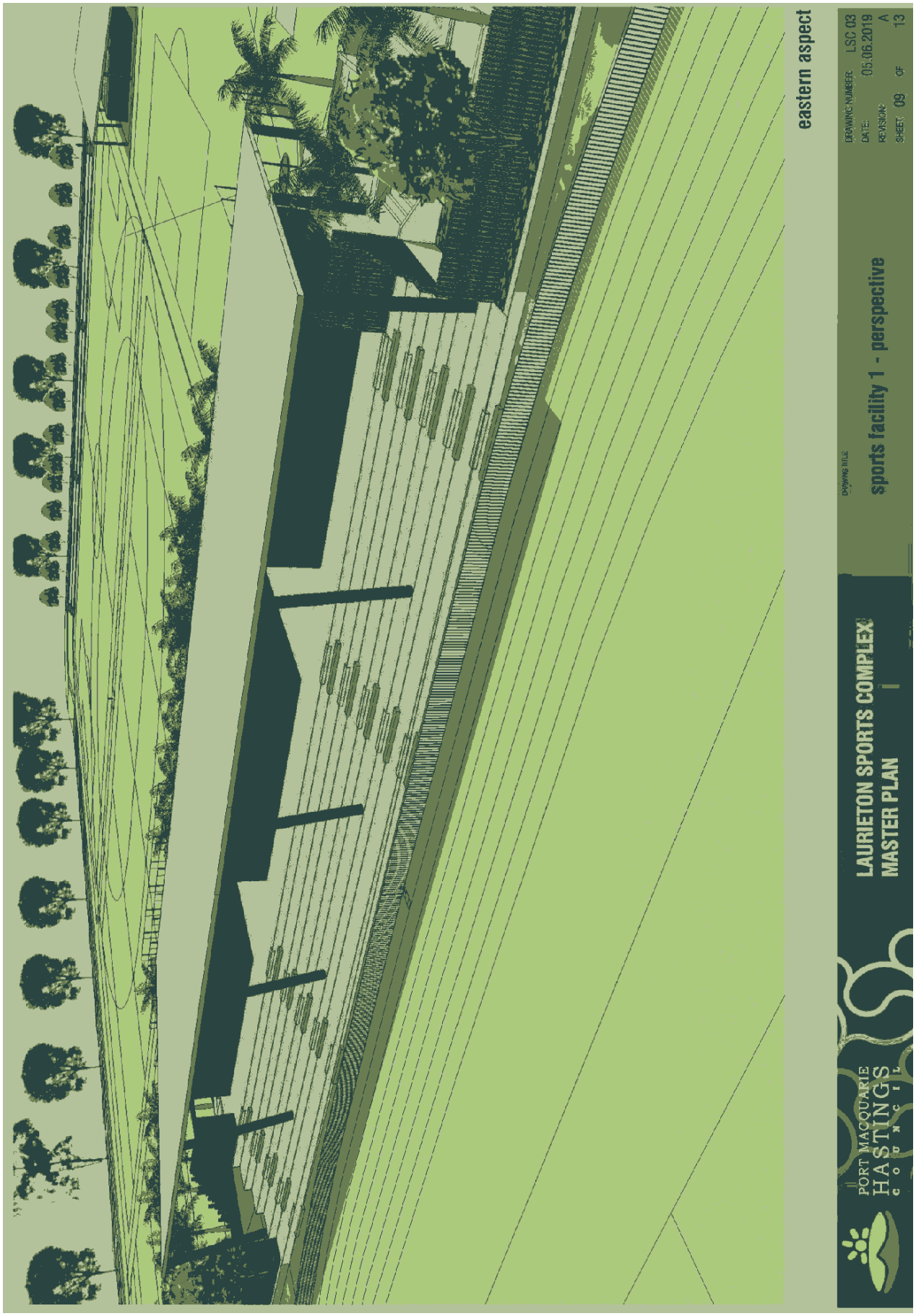
B1 SPORTS FACILITY 1 (NEW BUILD)
B2 SPORTS FACILITY 2
B3 STORAGE FACILITY
TS TIERED SEATING
CP CAR PARK
PA FOOTPATH
01 CRICKET OVAL, RUGBY LEAGUE FIELD
02 CRICKET OVAL
03 CRICKET NETS
04 SOCCER FIELD
05 JUNIOR RUGBY LEAGUE FIELD
06 MINI RUGBY LEAGUE FIELD
07 NETBALL COURTS (GRASS)
08 NETBALL COURT & MULTI USE COURT (HARDCOURTS)
09 TENNIS COURTS (LIGHTING UPGRADE)
10 LONG JUMP / TRIPLE JUMP
11 PLAYGROUND (INTEGRATE EXISTING)
12 SKATE PARK
13 SUBSURFACE DRAINAGE
14 IRRIGATION
15 MULTI-CODE SCOREBOARD
16 EMERGENCY VEHICLE ACCESS
17 DISCUS / HAMMER THROW
18 SHOTPUT
19 GRADING & SOIL IMPROVEMENTS
SCALE 1:1000 @ A3
SHORT STREET
CASTLE STREET
TUNIS STREET
LAKE STREET
LAURIETON SPORTS COMPLEX
MASTER PLAN
PORT MACQUARIE HASTINGS COUNCIL


SCALE 1:200 @ A3
01 KIOSK 20m2
02 UNISEX CHANGE ROOMS 120m2
03 CHANGEROOM TOILETS 40m2
04 CHANGEROOM SHOWERS 60m2
05 MEETING / COMMUNITY ROOM 75m2
06 UNISEX TOILETS (PUBLIC) 40m2 INCLUDING 2 DISABLED TOILETS
07 TIMEKEEPER ROOM 5m2
08 REFEREE ROOM 5m2
09 STORAGE (GROUND FLOOR) 108m2
10 INTERNAL STORE 10m2
11 CLEANERS STORE 6m2
12 UTILITIES ROOM 10m2
13 ADMINISTRATION OFFICE 15m2
14 HALL 4m2
15 STAIRS
16 ACCESSIBLE RAMP
17 BREEZEWAY
18 GATED ACCESS
19 COVERED VIEWING AREA (STANDING)
20 COVERED VIEWING AREA (TIERED SEATING FOR APPROX 300 PAX)
PORT MACQUARIE HASTINGS COUNCIL
LAURIETON SPORTS COMPLEX
MASTER PLAN


eastern aspect
DRAWING TITLE
sports facility 1 - perspective
DRAWING NUMBER: LSC 03
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MASTER PLAN
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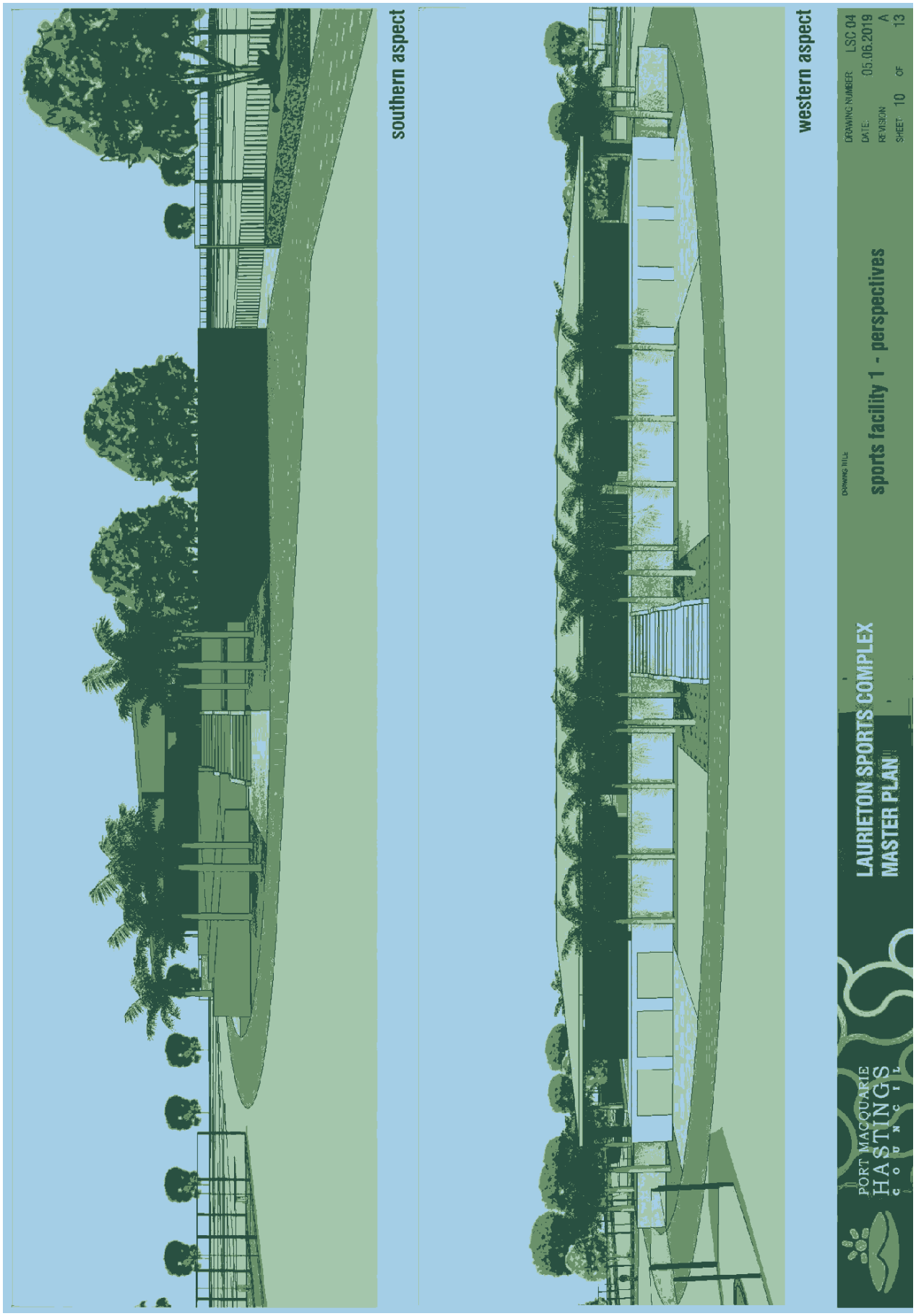
southern aspect
western aspect
DRAWING TITLE
sports facility 1 - perspectives
DRAWING NUMBER LSC 04
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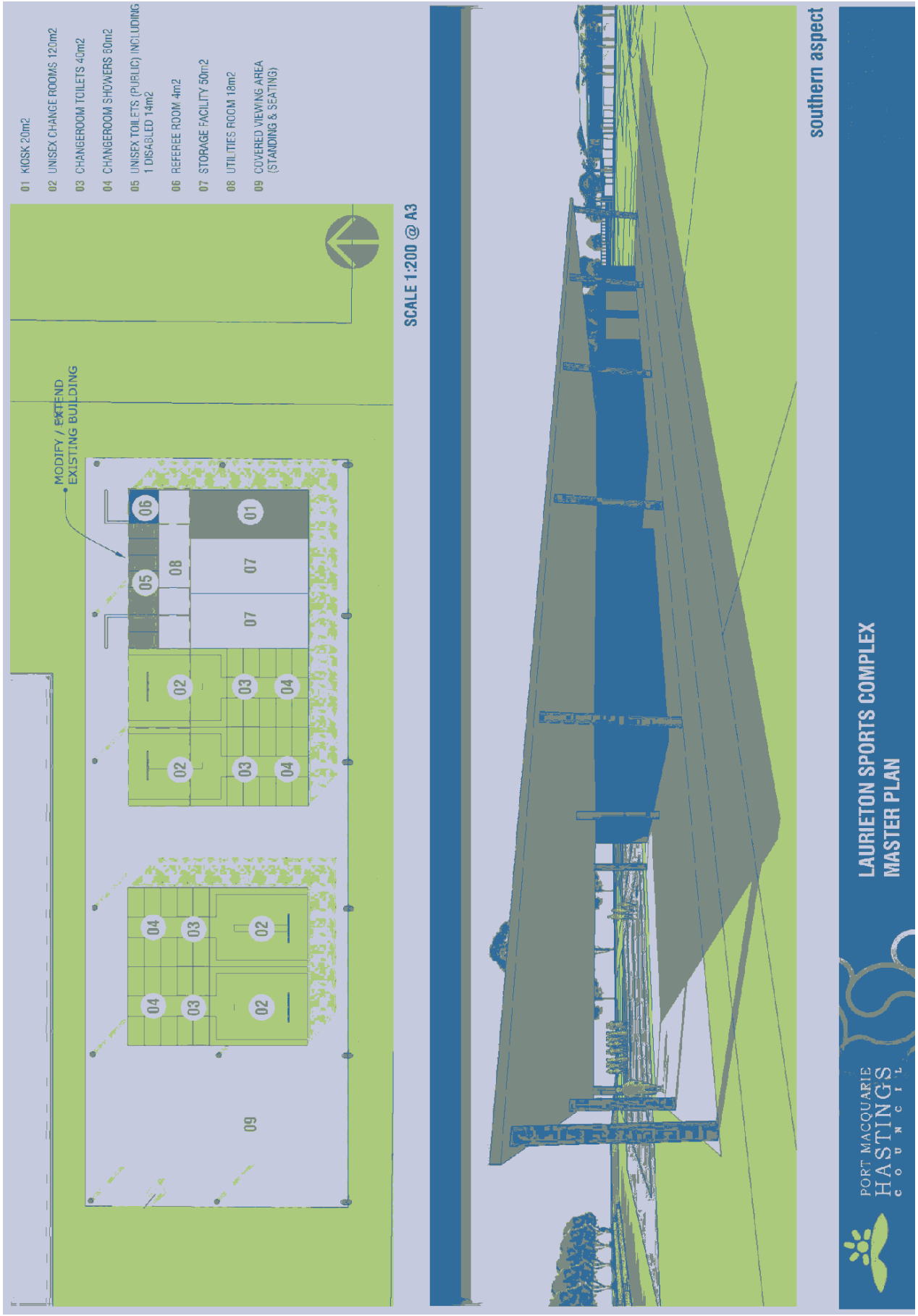
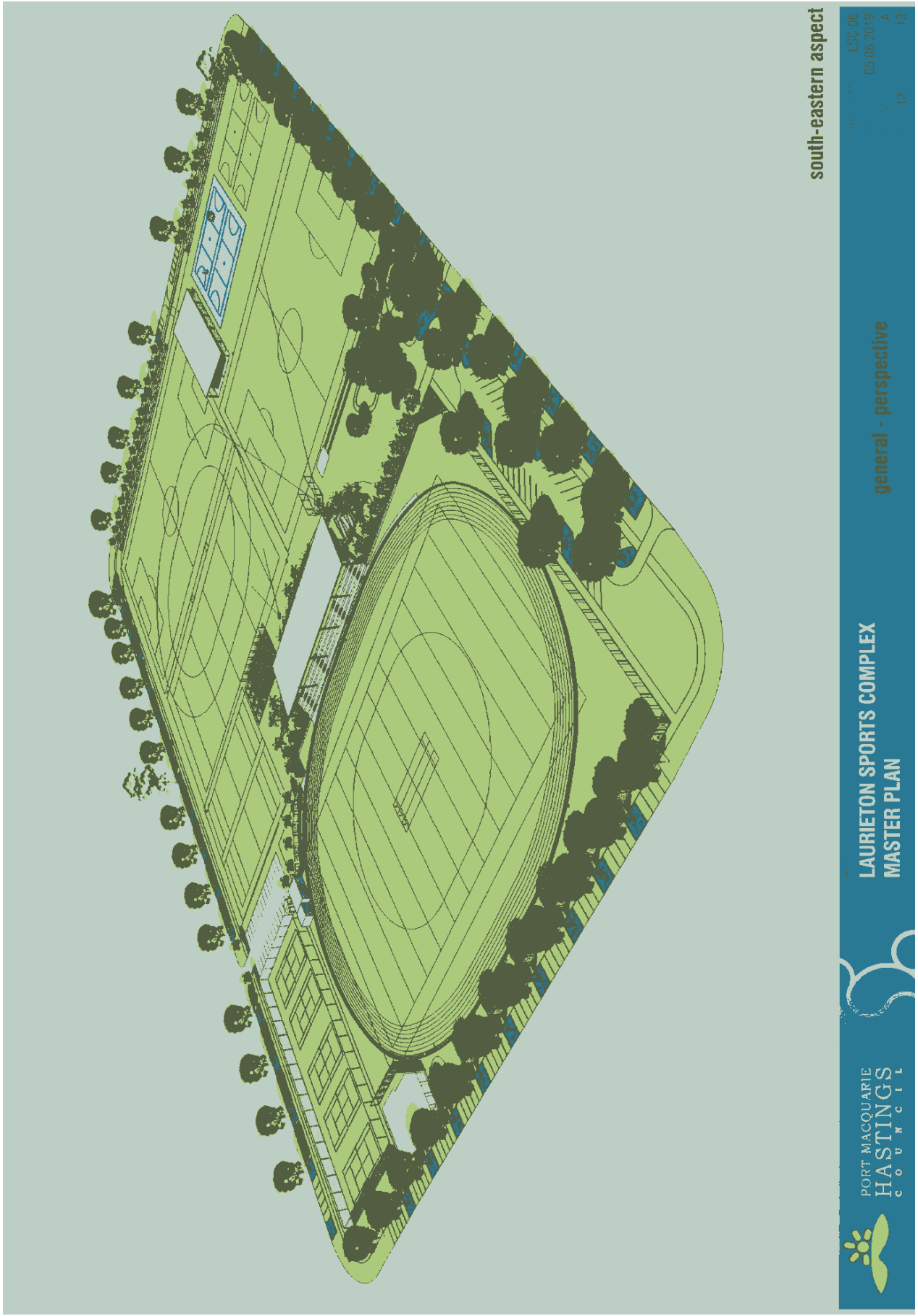

01 KIOSK 20m2
02 UNISEX CHANGE ROOMS 120m2
03 CHANGEROOM TOILETS 40m2
04 CHANGEROOM SHOWERS 60m2
05 UNISEX TOILETS (PUBLIC) INCLUDING 1 DISABLED 14m2
06 REFEREE ROOM 4m2
07 STORAGE FACILITY 50m2
08 UTILITIES ROOM 18m2
09 COVERED VIEWING AREA (STANDING & SEATING)
MODIFY / EXTEND EXISTING BUILDING
SCALE 1:200 @ A3
southern aspect
LAURIETON SPORTS COMPLEX
MASTER PLAN
PORT MACQUARIE HASTINGS COUNCIL


south-eastern aspect
general - perspective
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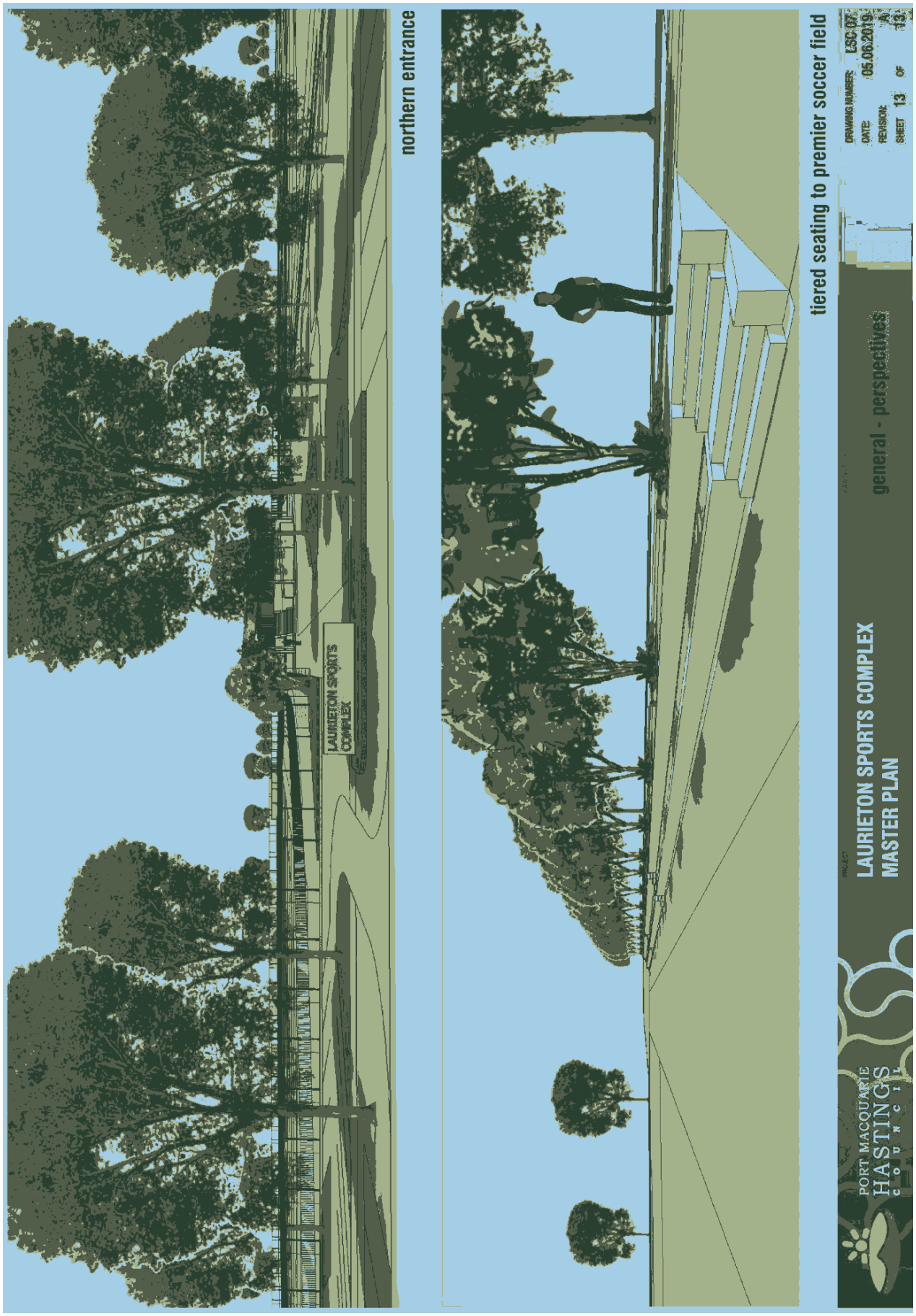
LAURIETON SPORTS COMPLEX
northern entrance
tiered seating to premier soccer field
PORT MACQUARIE
HASTINGS
COUNCIL
PROJECT
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MASTER PLAN
general - perspectives
DRAWING NUMBER: LSC 07
DATE: 05.06.2019
REVISION: A
SHEET 13 OF 13

	List of Actions	Priority
1	Sports Facility - Main (including tiered seating)	●●●●●●●
2	Sports Facility - Central	●●●●
3	Storage facilities	●●●●
4	Formalised car parking (perimeter)	
5	Formalised car parking (adjacent to main oval)	
6	Footpaths - perimeter & linkages	
7	Footpaths - internal (including EVA)	
8	Signage / wayfinding	
9	Netball courts / multi use court - hardcourts	●
10	Netball courts / multi use court - tiered seating	
11	Soccer pitch (main) - tiered seating	
12	Soccer pitch (main) - irrigation	
13	Soccer pitch (main) drainage, reprofile and soil improvements	●●
14	Soccer pitch (secondary) - irrigation	
15	Soccer pitch (secondary) - drainage, reprofile and soil improvements	
16	JRL field - irrigation	
17	JRL field - drainage, reprofile and soil improvements	
18	Mini RL field - irrigation	
19	Mini RL field - drainage, reprofile and soil improvements	●●
20	Mini RL field - lighting	
21	Cricket nets - relocate	
22	Main oval - drainage, reprofile and soil improvements	
23	Main oval - multi code electronic scoreboard	●
24	Main oval - mounded seating with trees	
25	Tennis courts - lighting upgrade	●
26	*Little Athlethics facilities improved and relocated	●●
27	*Fencing to playground	
28	*400m track	

LAURIETON SPORTS COMPLEX MASTERPLAN

COST ESTIMATE (Rev 0 - 05 June 2019)

PORT MACQUARIE HASTINGS

No.	ITEM DESCRIPTION	QTY.	UNIT	RATE	TOTAL
1.0	**Landscaping**				
1.01	Concrete footpath (1.5m width)	337.5	m2	$126.00	$42,525.00
1.02	Concrete footpath (2.5m width)	2750	m2	$126.00	$346,500.00
1.03	Concrete footpath (4m width)	440	m2	$126.00	$55,440.00
1.04	Bollards	560	item	$64.00	$35,840.00
1.05	Planting beds with mulch	2300	m2	$60.00	$138,000.00
1.06	Advanced trees & palms 200L	110	item	$800.00	$88,000.00
1.07	Turf	3000	m2	$18.00	$54,000.00
1.08	Entry signage wall 1.5m height	1	item	$9,000.00	$9,000.00
1.09	Chainmesh fence 1.5m height	485	lm	$280.00	$135,800.00
1.10	Feature timber screen 1.5m height	65	lm	$600.00	$39,000.00
1.11	Concrete tiered seating wall	318	lm	$1,000.00	$318,000.00
2.0	**Furniture**				
2.01	Picnic settings with wheelchair access to one end	4	item	$2,000.00	$8,000.00
2.02	Bench seat with armrest and back	3	item	$1,700.00	$5,100.00
2.03	Water Bubbler (Unisite Reviva)	3	m2	$4,500.00	$13,500.00
2.04	Bin	4	item	$800.00	$3,200.00
2.05	Bike rack (Bennetts Steel). 4 no. in total	2	item	$1,000.00	$2,000.00
2.06	Electric BBQ (double)	3	item	$8,000.00	$24,000.00
2.07	Electronic multi-code scoreboard	1	item	$25,000.00	$25,000.00
3.0	**Field improvements**				
3.01	Mod / mini RL - subsurface drainage	1	item	$50,000.00	$50,000.00
3.02	Soccer field - irrigation	7566	m2	$10.00	$75,660.00
3.03	Soccer field - grading and soil improvements	1	item	$50,000.00	$50,000.00
3.04	Premier field cricket/RL - grading and soil improvements	1	item	$50,000.00	$50,000.00
3.05	Premier field cricket/RL - irrigation	15750	m2	$10.00	$157,500.00
3.06	Netball / multi-sport courts surfacing	1	item	$200,000.00	$200,000.00
3.07	Cricket nets	1	item	$80,000.00	$80,000.00
3.08	Shotput circle	1	item	$1,000.00	$1,000.00
3.09	Discus / hammer	1	item	$5,000.00	$5,000.00
3.10	Long jump / triple jump	1	item	$20,000.00	$20,000.00
3.11	Tennis court lighting upgrade (replace existing lighting to 6 x 10m poles with LED to achieve 350 lux)	1	item	$45,000.00	$45,000.00
4.0	**Buildings**				
4.01	Sports facility 1 with tiered seating, access and storage	1	item	$960,000.00	$960,000.00
4.02	Sports facility 2	1	item	$460,000.00	$460,000.00
4.03	Tennis shed (3x3m)	1	item	$8,000.00	$8,000.00
5.0	**Car Parking**				
5.01	Carpark including kerb and drainage	280	item	$2,500.00	$700,000.00
6.0	**General**				
6.01	Site establishment	10	%		$420,506.50
6.02	Contingency	20	%		$841,013.00
6.03	Project management	2.5	%		$105,126.63
	TOTAL				$5,571,711.13

3 Your Business and Industry

19/06/2019

What we are trying to achieve

A region that is a successful place that has vibrant, diversified and resilient regional economy that provides opportunities for people to live, learn, work, play and invest.

What the result will be

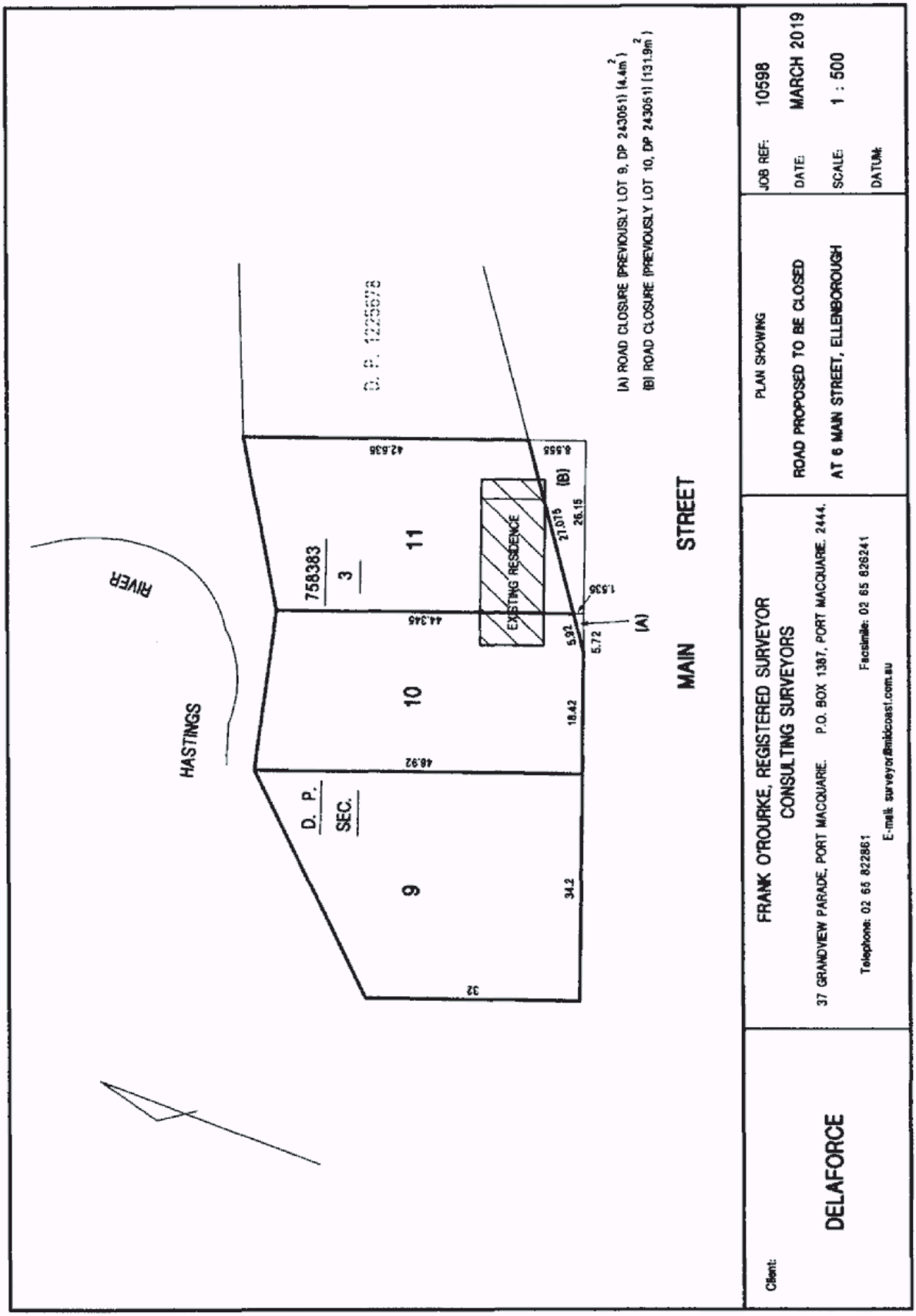
We will have:

- A strong economy that fosters a culture supportive of business and ensures economic development of the region
- Townships, villages and business precincts that are vibrant commercial, cultural, tourism, recreational and/or community hubs
- A region that attracts investment to create jobs
- Partnerships that maximise economic return and create an efficient and effective business environment

How we will get there

3.1 Embrace business and a stronger economy
3.2 Create vibrant and desirable places
3.3 Embrace opportunity and attract investment to support the wealth and growth of the community
3.4 Partner for success with key stakeholders in business, industry, government, education and the community

PORT MACQUARIE HASTINGS COUNCIL


RIVER
HASTINGS
758383
3
11
10
9
D. P.
SEC.
EXISTING RESIDENCE
42.636
44.345
46.92
34.2
32
8.555
21.075
26.15
1.536
5.92
5.72
18.42
(A)
(B)
MAIN STREET
(A) ROAD CLOSURE (PREVIOUSLY LOT 9, DP 243061) (4.4m²)
(B) ROAD CLOSURE (PREVIOUSLY LOT 10, DP 243061) (131.9m²)
PLAN SHOWING
ROAD PROPOSED TO BE CLOSED
AT 6 MAIN STREET, ELLENBOROUGH
JOB REF: 10598
DATE: MARCH 2019
SCALE: 1 : 500
DATUM:
FRANK O'ROURKE, REGISTERED SURVEYOR
CONSULTING SURVEYORS
37 GRANDVIEW PARADE, PORT MACQUARIE. P.O. BOX 1387, PORT MACQUARIE. 2444.
Telephone: 02 65 822861
Facsimile: 02 65 826241
E-mail: surveyor@midcoast.com.au
Client:
DELAFORCE

4 Your Natural and Built Environment

19/06/2019

What we are trying to achieve

A connected, sustainable, accessible community and environment that is protected now and into the future.

What the result will be

We will have:

- Effective management and maintenance of essential water, waste and sewer infrastructure
- A community that is prepared for natural events and climate change
- Sustainable and environmentally sensitive development outcomes that consider the impact on the natural environment
- Accessible transport network for our communities
- Infrastructure provision and maintenance that meets community expectations and needs
- Well planned communities that are linked to encourage and manage growth
- Accessible and protected waterways, foreshores, beaches and bushlands
- An environment that is protected and conserved for future generations
- Renewable energy options that are understood and accessible by the community

How we will get there

4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management
4.2 Aim to minimise the impact of natural events and climate change, for example, floods, bushfires and coastal erosion
4.3 Facilitate development that is compatible with the natural and built environment
4.4 Plan for integrated transport systems that help people get around and link our communities
4.5 Plan for integrated and connected communities across the Port Macquarie-Hastings area
4.6 Restore and protect natural areas
4.7 Provide leadership in the development of renewable energy opportunities
4.8 Increase awareness of issues affecting our environment, including the preservation of flora and fauna

PORT MACQUARIE HASTINGS COUNCIL

REPORT

THE PROPOSED ORBITAL ROAD

Community Engagement Report

This report has been prepared for Port Macquarie-Hastings Council

18256
Proposed Orbital Road
Community Engagement
Report
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28 May 2019

REPORT

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EXECUTIVE SUMMARY

Context

This report seeks to accurately and fairly capture the feedback provided by members of the community, local business owners and other stakeholders on the proposed Orbital Road in Port Macquarie.

Community and stakeholder engagement overview

Port Macquarie-Hastings Council, with the support of RPS, delivered an extensive community and stakeholder engagement program for the proposed Orbital Road. In the initial stages of this engagement, RPS, in partnership with Jetty Research was commissioned to undertake a Computer Assisted Telephone Interview (CATI) survey with residents to identify general attitudes toward traffic across Port Macquarie, explore travel habits and behaviours and understand levels of awareness of the concept for an Outer Orbital Link Road. The survey was undertaken between 1 – 9 November 2018.

The subsequent consultation and engagement period ran from 22 November 2018 and concluded on 30 March 2019. Several submissions were received after the conclusion of the program and have been included in this report.

The engagement program was designed to:

- raise awareness about the proposed Orbital Road, including communicating the history of the project
- invite and encourage submissions from the community and other stakeholders to inform Council's decision on whether to further the progress the project
- provide accurate and timely information about the proposed Orbital Road and the planning process
- understand and assess valuable local knowledge from the community and stakeholders in relation to the proposed route
- promote a comprehensive and transparent approach
- establish communication channels so stakeholders are kept informed throughout the corridor planning process

A range of opportunities to provide feedback and seek information were available. This included:

- project information page hosted on Council's Have Your Say website including an online submission form
- posts on the Port Macquarie-Hastings Council Facebook and Twitter pages
- video messages from the Mayor and Deputy Mayor
- project information brochure, frequently asked question sheets and maps were distributed to properties within the investigation area, and emails and letters to stakeholders and directly and indirectly affected landowners.
- key stakeholder and landowner meetings, including meetings with local action groups
- six community drop-in information sessions and five community pop-up sessions, held in a range of locations
- doorknocking of 414 potentially affected properties
- randomly selected phone survey
- paper-based and online surveys about the proposed orbital road and broader issues about traffic and transport in the local area.

Engagement summary

Face-to-face, telephone and online engagement tools were used to inform community and stakeholders about the project and to facilitate the expression of their opinions, concerns and ideas. Throughout the engagement period, 495 submissions were received and in excess of 1,700 face to face conversation were had with community members and stakeholders. An overview of the engagement is provided in Figure 1.

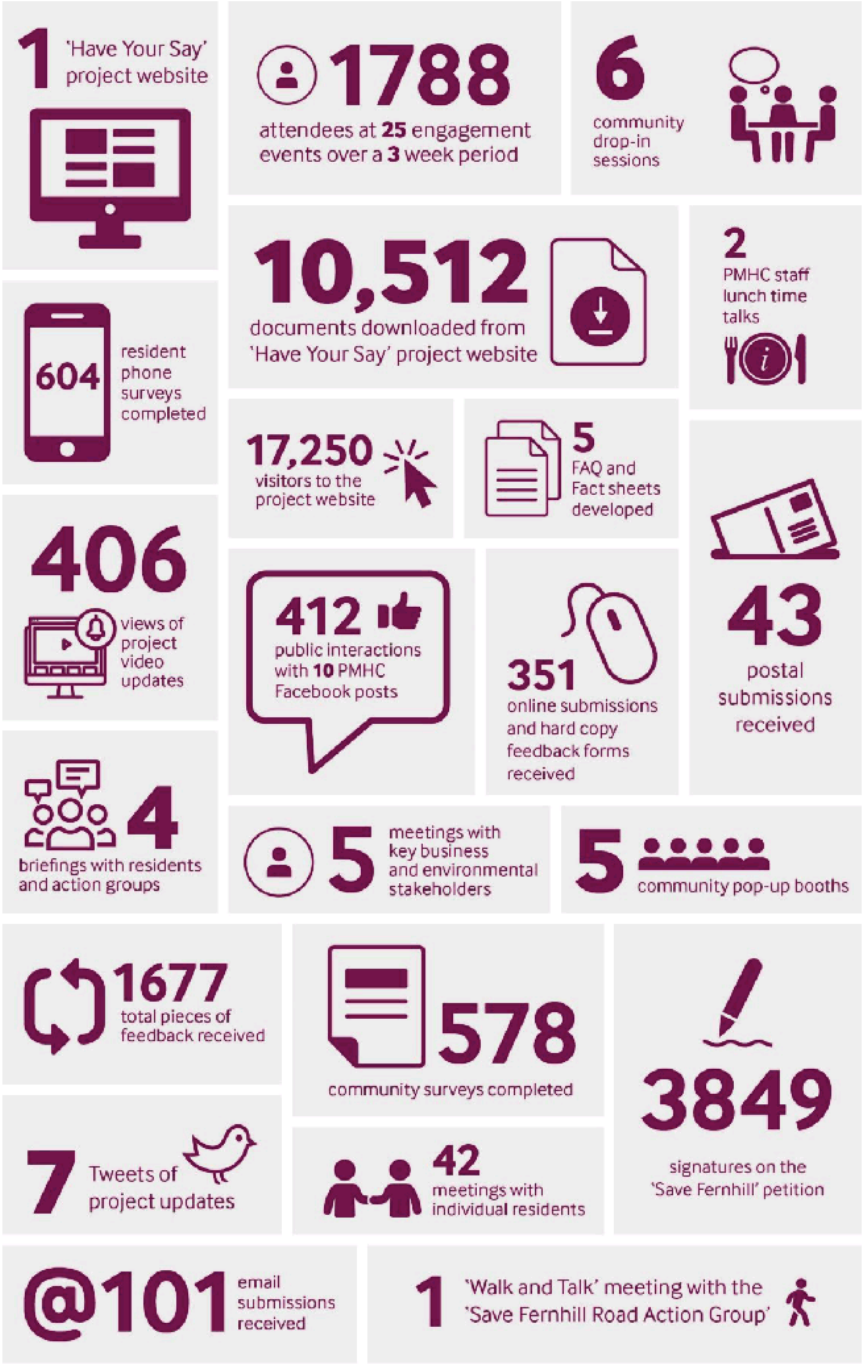

Figure 1 Summary of engagement activities

Key themes

Clear themes emerged from the feedback received from community feedback forms, emails, postal and online submissions and during community and stakeholder meetings.

The top five key themes identified in community engagement feedback were:

1. Project planning and decision making
2. Collective impacts
3. Social impacts
4. Environmental impacts
5. Infrastructure

A breakdown of all key themes, sub-themes and the number of times it was raised in the written feedback is presented in Table 1. Section 4 presents the detailed findings positioned under each of the sub-themes.

Table 1: Key themes and findings

Key theme	Sub-themes	Number of times theme raised
Project planning and decision-making	• Benefits of the proposed Orbital Road • Trust in Council and the decision-making process • Project planning and decision making • Project need • Funding for the proposed Orbital Road • Project name • Timelines for the proposed Orbital Road	359
Collective impacts	• Infrastructure and growth • Traffic congestion • The Health and Education Precinct • Local infrastructure assets	232
Social impacts	• Connections to place, lifestyle and amenity • Health and wellbeing • Community impacts	193
Environmental impacts	• Flora and vegetation • Fauna and habitats • Flooding and evacuation • Noise and vibration • Wetlands and waterways • Acid sulfate soils and contamination • Lake Innes Nature Reserve and Kooloonbung Creek • Air quality and pollution	183
Infrastructure	• Impacts on existing infrastructure • Infrastructure upgrades	151
Community engagement	• 2007 - 2008 community engagement • 2018 - 2019 community engagement	148
Property and acquisition	• Process and timing • Impacts to property values • Compensation for directly affected properties • Compensation for properties adjacent to the proposed Orbital Road corridor	128
Project alternatives	• Alternative alignments and recommendations	119

Key theme	Sub-themes	Number of times theme raised
Investigations and evidence	• Engineering Feasibility Report • Area Wide Traffic Study • Calls for evidence to support the need and location of the proposed Orbital Road	77
Design	• Road design • Crossing Lake Innes Nature Reserve	57
Planning policy	• Local and State planning documents • Alignment with recent planning decisions	30
Economic considerations	• Local businesses and organisations • Tourism	29
Heritage	• Local heritage buildings	18

Recommendations

The findings from the community engagement program have given rise to several key recommendations, designed to encourage Council to consider the key issues raised by the community and potential ways to mitigate the impacts of a project of this scale. Consideration of these recommendations may assist in re-establishing the community's confidence in Council's decision-making process and ultimately, increase transparency for the community it serves.

It is recommended that Port Macquarie-Hastings Council deliver the following with the purpose of furthering engagement and creating deeper connections with the community and key stakeholders. This will allow for the development and implementation of a thorough, considered and community informed approach to the delivery of future key infrastructure across the region.

Extend the corridor investigation area

The current corridor investigation area is of great concern to many members of the community. Primary concerns include the amount of development that has occurred within the area since 2008, Council prescribing a preferred investigation corridor for the Engineering Feasibility Study and the scale of impact the proposed road would cause on established communities.

- **Recommendation #1:** Council to consider extending the corridor investigation area to include the area to the south of the golf course, and alternatives to crossing Lake Innes Nature Reserve.

Share findings from the engagement program with the community

It was evident in the findings that the proposed Orbital Road is of great interest to the local community.

- **Recommendation #2:** This document and its findings are publicly released and easily accessible for the Port Macquarie community.

Share findings internally at Council and with State agencies

The local knowledge that the community have regarding their local environments cannot be underestimated. Feedback received from the community as part of this engagement program is relevant to other projects that Council is currently working on.

- **Recommendation #3:** The findings are shared internally with Council staff, specifically, those working on the Regional Integrated Transport Strategy (RITS). Much of the feedback received from the community is relevant to the RITS, especially Section 4.1.4, where comments and suggestions relate to alternate modes of transport including better public transport connections, improved pedestrian and cycleway infrastructure and mass transit options.

- **Recommendation #4:** The findings are shared with State Agencies including:
  - Roads and Maritime Service (RMS): Information relevant to RMS includes community feedback on the Primary Airport Access Road link into Fernhill Road and suggested upgrade of the Oxley Highway.
  - The Office of Environment and Heritage (OEH): Information relevant to OEH includes Section 4.4 – Environmental impacts and 4.13 – Heritage.
  - National Parks and Wildlife Service (NPWS): Information relevant to OEH includes Section 4.4 – Environmental impacts.

Establish a Community Consultative Group for the project

Many community members are concerned that decisions that affect their livelihood are made without their knowledge or input.

- **Recommendation #5:** Port Macquarie-Hastings Council investigate establishing a formally recognised Community Consultative Group for the project. The purpose of this group would be for community members (through a formal nomination process) to be involved in the reviewing project information. Members would assist Council in making informed decisions that draw on local knowledge and expertise. Council could use the group to assist with communication and information sharing as well as testing approaches.

Increase transparency and openness

Findings indicate that the community is concerned about the openness and transparency that Council proclaims.

- **Recommendation #6:** It is recommended that the Port Macquarie-Hastings Council Community Engagement Strategy and Policy are reviewed. Working with the community through a range of engagement means, Council should update the key principles of engagement to address transparency in the decision-making process.
- **Recommendation #7:** Council consider developing a positioning statement that addresses transparency in the decision-making process.

Evaluate the way Council decisions are shared with the community

From the findings, it appears that many community members were unaware of Council's unanimous decision during the May 2015 Council meeting to reinvestigate options for an orbital road.

- **Recommendation #8:** Council evaluate the way that information is shared with the community, particularly outcomes from Council meetings. The information should be easily accessible to the community, with consideration that not all community members are regular users of the internet. It is recommended that Council remind the community that decisions are published on the website on the Friday following meetings. Additionally, Council could consider providing hard copy versions of Council decisions at the Council Administration Office and the local library, so those members of the community that do not use the internet can have access and visibility of decisions made by Council.

Prioritise the upgrades to Ocean Drive and Lake Road

The upgrade of Lake Road and Ocean Drive were consistently mentioned across submissions. Considering previous Council decisions to undertake this work and funding having been secured for Ocean Drive in 2012, Council need to prioritise the upgrade of these roads. Many community members who oppose the current proposal believe that if these projects were completed, the proposed Orbital Road would no longer be necessary.

- **Recommendation #9:** That Council uses the Area Wide Traffic Study (AWTS) and conducts future traffic modelling scenarios that include the upgrade of Ocean Drive and Lake Road. This would enable the community to understand whether the proposed Orbital Road would still be needed if these works were undertaken.

Investigate the removal of roundabouts and the installation of traffic signals

Many community members suggested that roundabouts are not designed to handle the volume of traffic on Port Macquarie roads, particularly during peak periods. It was suggested that traffic lights would improve traffic flow.

- **Recommendation #10:** The Area Wide Traffic Study examined the road network at an LGA level. It is recommended that Council build on the AWTS to a comprehensive analysis of the Port Macquarie road network, with the aim of identifying solutions for future traffic congestion. This should include the examination of intersection upgrades.

Produce a succinct report on the outcomes of the Area Wide Traffic Study

The outcomes from the Area Wide Traffic Study present challenges to those who are unfamiliar with traffic modelling. Many questions were asked about where traffic is going to and coming from across the entire Port Macquarie road network.

- **Recommendation #11:** Council develop a succinct report written in plain English that explains the outcomes of the Area Wide Traffic Study. It is recommended that questions raised in submissions are addressed in the report, specifically those outlined in Section 4.9.2 – traffic modelling and movements.

Council share the program of works for road maintenance

Reference was made to Council's road maintenance backlog.

- **Recommendation #12:** Council inform the community about the program of works for road maintenance across the Local Government Area, specifically, what projects are priorities for Council. This should also include information regarding planning for growth and continuing to maintain current assets.

Next steps

This report is set to be tabled at the June meeting of Port Macquarie-Hastings Council. Councillors will review the report and make a decision regarding the way forward for this project.

It is important to note that Council has made an application to the NSW State Government to apply for funding to complete the Strategic Business Case. This does not indicate that Council has made a decision.

The community will be kept up to date with the latest information on the project via Council's Have Your Say website, as well as through additional media releases, letters to those who made submissions and people in the investigation zone. Information session attendees were invited to provide their email address to be kept informed. Council will also use traditional mail to contact potentially affected land holders and key stakeholders.

ACKNOWLEDGEMENTS

On behalf of Port Macquarie-Hastings Council, RPS would like to thank all participants in the community engagement program.

We also wish to thank:

- representatives of local environmental groups and organisations, the business community, real estate industry professionals and members of local action groups who volunteered their time to attend and actively contribute to discussions
- visitors to the Have Your Say website who engaged with project information, made a submission and/or completed the community survey
- property owners within the investigation area and the wider community who attended the project briefings and community drop in sessions
- representatives from local businesses, organisations and Chambers' of Commerce for their input
- Jetty Research for their assistance in the delivery of the computer assisted telephone interview (CATI) community survey.

1 INTRODUCTION

1.1 Background

The Port Macquarie-Hastings Local Government Area (LGA) population expected to rise from 80,000 to 100,000 within the next 20 years.

The need for an Orbital Road corridor was first investigated by Council in the 1980s as part of the planning for urban growth at Lighthouse Beach and the Innes Peninsula. The concept of an outer link was formally recognised in 2002, as part of the Hastings Roads and Traffic Study. Since then, the Orbital Road was examined in 2008, and re-introduced at the May 2015 Council meeting.

At the May 2015 Council meeting, Council unanimously (8/0) resolved the following:

1. *Endorse the investigation and planning for new road links and upgrades within the Local Government Area including:*
    a. *new North-South and East-West links*
    b. *additional links to Port Macquarie Regional Airport*
    c. *new link between Central Road and Acacia Avenue*
    d. *options for additional access to the southern section of the Lake Road Industrial area through to Kingfisher Drive/Wrights Road area*
    e. *upgrade of Lake Road to two lanes in each direction between the Oxley Highway and Ocean Drive.*
2. *Consider the proposed link road investigations in the preparation of the Urban Growth Management Strategy (UGMS) review and prior to commencing any investigations for the future rezoning of land that may be affected by future link roads.*
3. *Actively seek external funding for the preconstruction and construction activities required for the upgrade of Lake Road.*

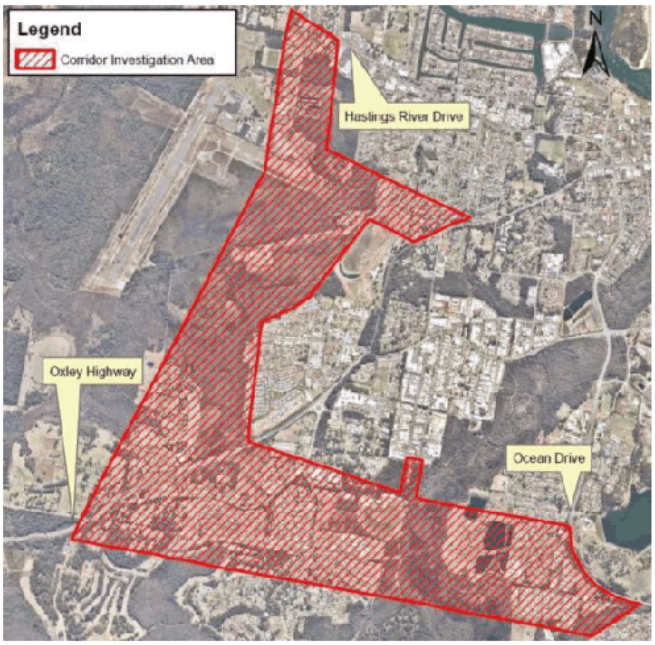

Figure 2 Corridor Investigation Area - 2015

4. *Consider funding the preconstruction activities in 2016 - 2017 budget if other funding is not forthcoming.*

Following the Council's unanimous decision in May 2015 to proceed with investigation and planning, an engineering feasibility study was conducted by Opus International Consultants in 2016.

The Engineering Feasibility Investigation involved optioneering of new alignments within the specific route corridor set by Council as shown in Figure 2.

The feasibility study included a preliminary desktop environmental review, strategic concept designs and multi-criteria constraints analysis to analyse various route options for an Orbital Road, cost analysis of the route options, local infrastructure that has been built in the last 10 years and engagement with Roads and Maritime Service (RMS).

Following the completion of the joint Council and RMS Port Macquarie - Hastings Area Wide Traffic Study project undertaken by GHD, which analysed predicted traffic patterns over the next 20 years, a Preliminary Economic Appraisal was also undertaken on the viable Orbital route as the final element of the feasibility study.

Council adopted the Urban Growth Management Strategy (UGMS) in 2018. The UGMS is Council's key strategic framework for managing integrated land use for our growing region. The UGMS places an emphasis on future transport planning to ensure a safe and functional road network now and into the future. The UGMS identifies that Council is "investigating options to improve connectivity between existing areas of development and planned growth areas in the long term in Port Macquarie, connecting Ocean Drive, the Oxley Highway and Hastings River Drive" (UGMS Volume 1, 2018, p.29) in addition to examining the potential for new link roads from the Airport to the road network to the south as part of orbital road investigations.

Additionally, Council, in conjunction with the State Government is also developing a Regional Integrated Transport Strategy (RITS). The RITS will link together future transport planning for the proposed Orbital Road, the Area Wide Traffic Study (AWTS), investigations by Roads & Maritime Services (RMS) for state roads within the Local Government Area (LGA), as well as public and active transport opportunities.

The concept of an Orbital Road is also considered in State Government strategic planning documents including the NSW Government's North Coast Regional Plan (2017) and the Draft Regional City Action Plan (expected mid-2019).

Community and stakeholder feedback has played and will continue to play a key role in the early planning process for any proposed Orbital Road to be considered by Council. Community consultation and engagement was carried out between 01 November 2018 and 30 March 2019. The feedback received will inform the Council decision-making process as to whether to progress the project to the development of a Strategic Business Case.

The community will continue to have the opportunity to provide feedback throughout the life of the project.

1.2 Purpose of this report

This report will:

- provide an unbiased and factual overview of the range of engagement activities undertaken on the proposed Orbital Road and general attitudes toward traffic across Port Macquarie between 1 November 2018 and 30 March 2019
- present the key issues raised by the community and stakeholders across all feedback channels
- present the findings from:
  - Computer assisted telephone interview (CATI) Community Survey (undertaken between 1 – 9 November 2018)
  - Proposed Orbital Road Community Survey
- outline the next steps for the proposed Orbital Road project.

1.3 Proposed Orbital Road project overview

The proposed Orbital Road would provide an east-west link from Ocean Drive to the Oxley Highway and a north-south link from the Oxley Highway to Hastings River Drive.

The purpose of the new links is to redistribute traffic and alleviate congestion across the city, particularly on Lake Road, Ocean Drive and the Oxley Highway and improve connectivity to key destinations including the Health and Education Precinct and the Port Macquarie Regional Sports Stadium. The third element of the project, being the Airport Access Road, provides a flood-free connection to the Port Macquarie Airport and

proposed Airport Business Park The investigation area for the viable route, as determined by the Engineering Feasibility Study is shown in Figure 3.

Figure 3 Proposed Orbital Road Investigation Corridor

1.4 Community engagement overview

RPS was engaged to develop and deliver a staged community engagement program to support Port Macquarie-Hastings Council. The program was designed to inform the community of the proposed Orbital Road project and to conduct various community engagement activities where information could be disseminated, and direct feedback could be received.

Between 01 November 2018 and 30 March 2019, submissions, feedback and surveys were received from the community and key stakeholders on the proposed Orbital Road, as well as general attitudes toward traffic across Port Macquarie.

The engagement was delivered in two stages.

1.4.1 Stage one

November 2018

Between 1 – 9 November 2018, a CATI survey with 604 residents was conducted to gauge the community's attitudes toward traffic across Port Macquarie, explore travel habits and behaviours and understand levels of awareness of the concept for an Outer Orbital Link Road. The results from the survey can be found in section 4 of this report (See Appendix A for the full CATI survey report).

On 21 November 2018, Council resolved to progress investigations for the proposed Orbital Road. The key activity of this stage was to notify property owners, residents and business owners within the investigation corridor about Council's decision.

On 22 November 2018, Council staff visited approximately 414 properties within the investigation corridor to provide initial project information relating to the proposed Orbital Road. Communication material delivered included:

- Addressed letter to the resident/landowner/business owner
- Frequently Asked Questions (FAQ) document
- Map of the investigation corridor

November 2018 – December 2018

To coincide with Council's decision to progress investigations for the proposed Orbital Road, a project information webpage was launched on Council's Have Your Say website. Community members were encouraged to provide feedback to Council on the proposed Orbital Road through the project webpage.

During this time period, property owners, residents and business owners within the investigation corridor were able to request a one-on-one meeting with Council's project team. Between 22 November and 10 December 2018, 30 requests for one-on-one meetings were lodged through the Have Your Say website.

A second letter box drop to property owners, residents and business owners within the investigation corridor was conducted prior to Christmas. Material delivered included a project update letter from the Mayor, a project information brochure and fact sheet. The material was also made available to the community via the Have Your Say website.

February 2019

On 27 February, in response to community feedback, Council developed a series of fact sheets which were made available on the Have Your Say webpage. The fact sheets included:

- Identifying a corridor for the Orbital Road
- Corridor Protection for Future Road Infrastructure
- Environmental Considerations for the Proposed Orbital Road

1.4.2 Stage two

Stage two of the engagement program commenced on 26 February 2019 and ran until 30 March 2019.

During this period, several community and stakeholder engagement activities were implemented:

- six community information sessions
- eight stakeholder workshops
- five community pop-up sessions
- four meetings with residents and local action groups
- 495 submissions and feedback received
- 578 online and hard copy community surveys completed

Across both Stage one and Stage two, 42 meeting were held with individuals, businesses and residents outside the formal community engagement sessions. In addition, there were 17,500 unique visits to the Have Your Say project webpage, with over 46,350 page views, which is the total times a project page was loaded.

Following the November 2018 Council meeting to progress investigations for the proposed Orbital Road, the project was addressed in subsequent Council meetings, with community members lodging applications to speak in the public forum.

In the Council meeting held on the 12th December 2018, two community members spoke in the public forum. Topics discussed included objection to East-West Link and the impact the road would have on Innes Lake residents.

In the Council meeting held on 20th February 2019, three community members spoke in the public forum. Topics discussed included general objection to the road proposal, concerns regarding the impact the Airport Access Road would have on Oxley Highway and Fernhill Road residents and wildlife. A new alignment for the road was also proposed to Council for consideration.

In the Council meeting held on 20th March 2019, one community member spoke in the public forum. The 'Save Fernhill' petition was presented to Councillors. In the Council meeting held on 17 April 2019, one community member addressed Council in the public forum regarding the proposed Orbital Road.

In the Council meeting held on 15th May 2019, two community members spoke in the public forum about the engagement process and the Airport Access Road.

Community attendance at the above-mentioned Council meetings was high. Many community members attended in support of speakers in the public forums.

1.5 Engagement objectives

The objectives for the community and stakeholder engagement program were to:

- encourage community awareness and understanding of the project
- engage and inform individuals, key community groups and stakeholder about the proposed Orbital Road project
- provide the community with various feedback channels to enable their views toward the project to be shared with Council
- document all feedback from the community regarding the proposed Orbital Road
- ensure information is open and transparent and all stakeholders are treated with respect.

1.6 Limitations of the community engagement program

There were limitations associated with the stakeholder and community consultation and engagement that should be acknowledged when reading this report.

1.6.1 Attendance at meetings and drop in sessions

- The six drop-in community information sessions were held on different days of the week and at different times of the day in various locations to provide the most opportunities for attendance
- The sessions were attended mostly by those directly impacted by the road, despite Council seeking views of the wider community
- Letters were sent to key spokespersons of local action groups that had been established following project announcement, inviting them to attend briefing sessions with Council staff. Council anticipated that the information would be shared with members, supporters and the community, however, it was found that the spokespeople did not disseminate the information as anticipated. Following community feedback on this approach, additional invites were then sent to property owners, residents and business owners within the investigation corridor. The revised approach and tight timeframe for invite distribution may have impacted the overall attendance at these events.
- There was limited attendance by the 18-35 age group. This group was captured by the survey tools which targeted residents of all age groups (7.3% of respondents of the online survey and 12% of respondents of the CATI survey were under 29 years of age). The proposed Orbital Road is a long-term project aimed at addressing future population growth and the associated increase in vehicles on the road. Receiving feedback from the younger generation, who are the future users of the Port Macquarie road network would have provided insights on their needs and desires when it comes to road infrastructure planning.

1.6.2 Participant feedback and reporting

The information included in this report is based on quantitative and qualitative data collected from non-incentivised participants. Qualitative data refers to data that is obtained in the form of words and language, rather than numbers. Qualitative data received during the engagement period includes written submission, feedback forms, letters and emails. Quantitative data is in numerical form and can be measured and reported on through statistical analysis. The telephone, online and hard copy surveys collected quantitative data during the engagement.

Comments and feedback should not be regarded as facts, or a representation of the views of a statistically validated sample of the community.

2 COMMUNITY AND STAKEHOLDER ENGAGEMENT PROCESS

2.1 Engagement program overview

Face-to-face, telephone and online engagement tools were used to inform community and stakeholders about the project and to facilitate the expression of their opinions, concerns and ideas. Throughout the engagement period, 495 submissions were received. This included online submissions, hard copy feedback forms, emails and letters to Council, Councillors and the Mayor. An overview of the engagement is provided in Figure 4.

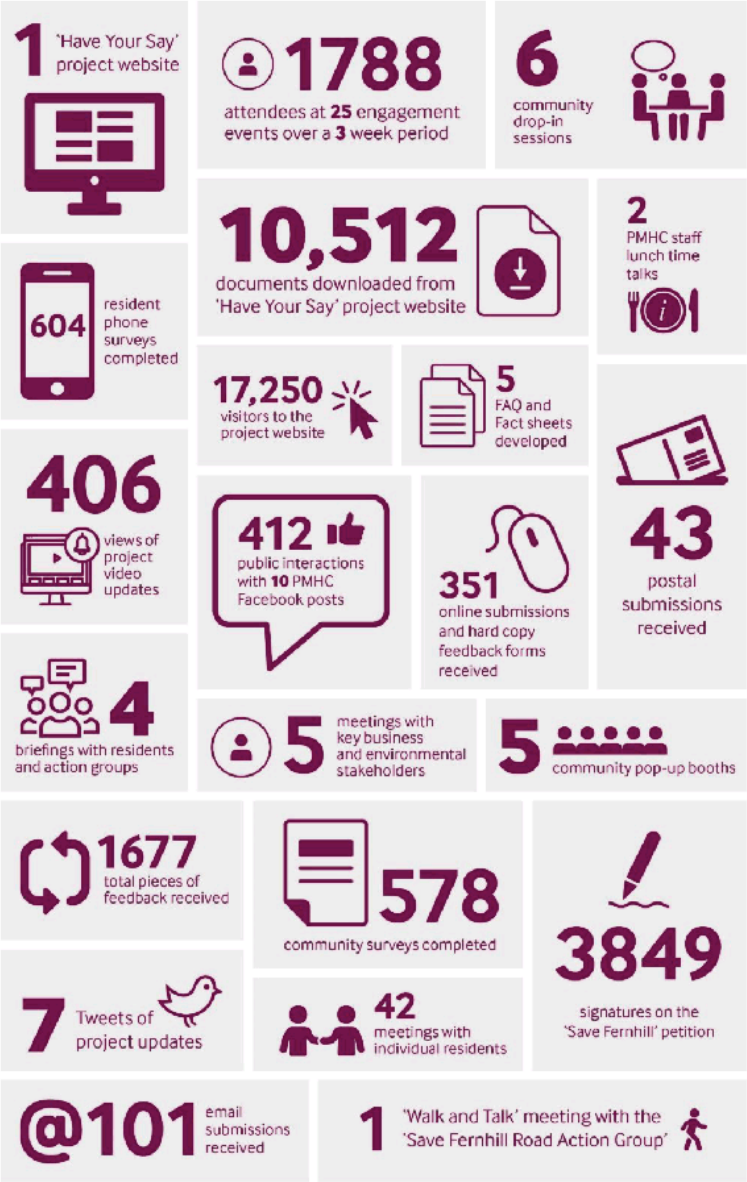

Figure 4 Summary of engagement activities

2.2 Program timeline

The engagement program was conducted in two stages. This report covers both stages in detail, with more information on engagement activities provided in Figure 5 below.

Figure 5 Engagement timeframe

2.3 Key consultation and engagement activities

2.3.1 Doorknock to potentially impacted property owners

On 22 November 2018, Council staff conducted a doorknock of approximately 414 properties within the proposed Orbital Road investigation corridor.

During the doorknock, landowners were provided with an information pack containing a personalised letter, FAQ document and a map of the investigation corridor and details of the ways they could provide feedback to Council.

In situations where no one was available to receive the information, a calling card and information pack was left at the doorstep or in the mailbox. Requests could then be made for a face to face meeting with Council staff. Following the initial doorknock, 37 face to face meetings were requested. Between December 2018 and January 2019 an additional six meetings were held with key business and community stakeholders including St Columba Anglican School, the Shooting Complex, Lake Innes Shopping Complex, Hibbard Sports Club, Newman Senior Technical College and Charles Sturt University.

2.3.2 Targeted stakeholder and community meetings

Environmental organisations

Table 2: Summary of environmental stakeholder meeting

Date / Time	Location	Organisations represented	Number of attendees
26/02/2019, 1:00pm – 3:00pm	Westport Club, Hastings Room	• North Coast Environment Council Inc • Koala Hospital • Koala Preservation Society of NSW Inc • Hastings Bird Watchers • Hastings District Flying Club (HDFC)	15 (including Council representatives and RPS)

Real estate agents and conveyancers

Table 3: Summary of real estate and conveyancer meeting

Date / Time	Location	Organisations represented	Number of attendees
1 March 2019, 8:00am – 9:00am	Function Room, Council Administration Office	• IPN Valuers • Page Conveyances • Laing and Simmonds • Hawkes Conveyancing • LJ Hooker • OP Team • Elders • MS Deeds • McGraths • HEM Property	17

Local action groups and residents within the investigation area

Table 4: Summary of local action group and resident meetings

Session	Date / Time	Location	Number of attendees
1	26/02/2019, 6:00pm – 7:30pm	Westport Club, Hastings Room	46
2	27/02/2019, 10:30am – 12:00pm	The Basement, Port Panthers	31
3	27/02/2019, 2:00pm – 3:30pm	Emerald Downs Community Centre	17
4	27/02/2019, 6:00pm – 7:30pm	The Basement, Port Panthers	16
Total attendees			**110**

Chambers' of Commerce and business groups

Table 5: Summary of business stakeholder meetings

Date / Time	Location	Organisations represented	Number of attendees
07/03/2019, 8:00am – 9:00am	Function Room, Council Administration Office	• Camden Haven Chamber of Commerce • Port Macquarie Chamber of Commerce • NSW Department of Premier and Cabinet • NSW Business Chamber • King and Campbell • Economic Development Steering Group (EDSG) • Town Centre Master Plan Committee (TCMP)	16

Key stakeholders within the investigation area

Table 6: Summary of key stakeholder meetings

Date / Time	Location	Organisations represented	Number of attendees
11/03/2019, 4:00pm – 5:00pm	Function Room, Council Administration Office	• St Columba Anglican School (including C2Hills Consultancy) • Port Macquarie Rifle Range • Catholic Diocese – Catholic Schools and Aged Care	7 (including 2 Council representatives)
18/03/2019	22 Blackbutt Road, Port Macquarie	• National Parks and Wildlife Service (NPSW)	4 (including Council representatives)

Resident groups and individuals

Table 7: Summary of resident group and individual meetings

Date / Time	Location	Resident groups / individuals	Number of attendees
22/01/2019 12:00pm – 1:00pm	Sanctuary Springs	Sanctuary Springs	3 (plus 2 Council representatives)
14/03/019 2.30-4.30pm	Fernhill Road	Save Fernhill Action Group	20 (3 Council staff plus the Mayor)
19/03/2019 2:00pm – 3:00pm	Green Room, Council Administration Offices	Jim Munro	1 (plus 2 Council representatives)
27/03/2019 2:00pm – 2:30pm	Council Committee Room, Council Administration Offices	Jim Newton and Tony Thorne	2 (plus 2 Council representatives)
Total attendees			36 – excluding Council staff

Councillors and senior staff have conducted many meetings with residents and landowners that may not be captured in Table 7. It is understood that many meetings have been held following the conclusion of the engagement program and are continuing to occur.

2.3.3 PMHC Internal engagement: Lunch and learn session

Table 8: Summary of PMHC Lunch and learn session

Date / Time	Location	Number of attendees
26/02/2019 12:00pm – 1:00pm	Council Administration Offices, Lunchroom	30 - 40 staff members
14/03/2019 12:00pm – 1:00pm	Council Administration Offices, Function Room	40 - 50 staff members

2.3.4 CATI community survey

Jetty Research was commissioned to conduct a computer assisted telephone interview (CATI) survey with 600 residents living within the Port Macquarie-Hastings Council LGA (Residents were able to indicate a suitable time for interviewees to call back, and as result, a total of 604 residents participated in the survey).

The surveys were conducted from dates inclusive 1 to 9 November 2018, prior to the November Council meeting. The survey results identified general attitudes toward traffic across Port Macquarie, explored travel habits and behaviours of respondents and provided Council with a baseline understanding of the levels of awareness participants had on the concept for an Outer Orbital Link Road.

The full CATI survey report is provided in Appendix A.

Objective of the survey

The aim of the survey was to:

- identify respondents' general attitudes toward traffic across Port Macquarie
- explore travel habits and behaviours
- understand levels of awareness of the concept for an Outer Orbital Link Road
- identify desired communication channels
- gather demographic information of respondents.

Design

A random fixed-line plus mobile telephone survey is an approach for gathering representative community information and ensuring that an objective and balanced viewpoint is attained. There was a 10-minute time limit capped to the survey to ensure it was suitable for phone format. The survey asked some screener questions to ensure participants were suitable – confirming that participants live in the local government area, that they were not a Councillor or permanent Council employee.

In line with Australian Social and Market Research Society Standards, the sample included adult residents (aged 18 years and over). The survey questions followed a logical flow of both on and closed response questions. The majority of questions utilised a 1 to 5-point Likert scale to provide clear delineation on resident preferences on the strongly disagree-strongly agree scale.

Sample size

The sample size chosen impacts the degree of sampling error present in the results. The higher the number of the sample, lower the margin of error. Jetty Research recommended a sample size of 600 residents for the research.

The sampling error of various sample sizes is presented in Table 9. Figure 6 show that the margin of error falls as sample size rises. The graph shows that the larger the sample size then the smaller the margin of error, however, the relationship is not linear, meaning that if the sample size was doubled, the margin of error is halved.

According to the 2016 ABS Census 'Usual Resident profile', the total population of the Port Macquarie Hastings Council Local Government Area was 78,540 of which 62,553 (79%) were aged 18 years or older. A sample size of 600 was selected as it exhibits a margin of error of +/- 4.0% (again at the 95% confidence level). This means that if a similar survey was conducted twenty times, results should reflect the views and behaviour of the overall survey population to within a +/- 4.0% margin in 19 of those 20 surveys.

Surveying was conducted on a purely random basis, however, all post codes within the LGA were appropriately sampled, and a robust mix of ages and genders obtained.

Table 9: Sample size and sampling error

Sample Size	Random sampling error (at 95% confidence)
n=200	+/- 6.9%
n=300	+/- 5.6%
n=400	+/- 4.9%
n=500	+/- 4.3%
n=600	**+/- 4.0%**
n=700	+/- 3.7%
n=800	+/- 3.4%
n=900	+/- 3.2%
n=1,000	+/- 3.1%

A sample size of 600 shows a margin of error of +/- 4.0% (at the 95% confidence level).

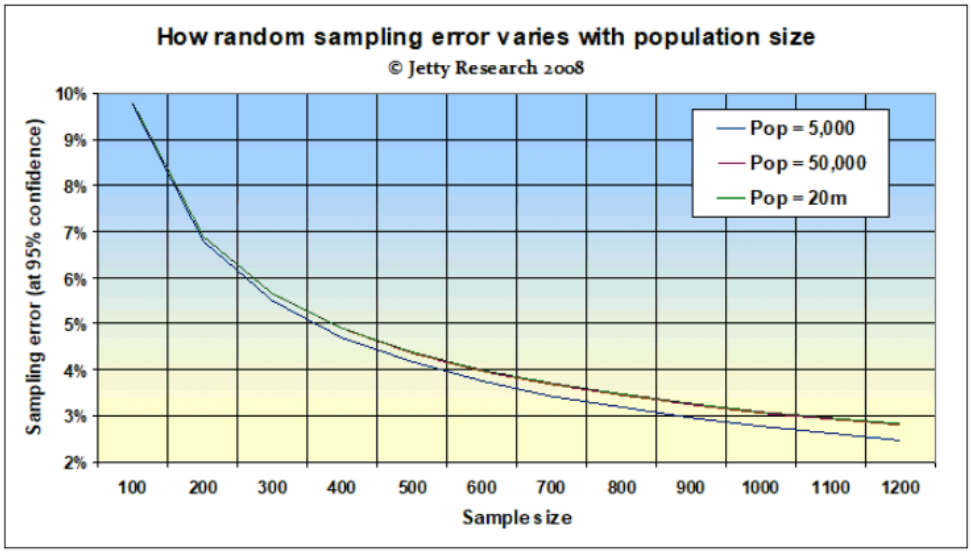

Figure 6 How random sampling error varies with population size (Source: Jetty Research, 2008)

Participants

A total of n=604 telephone interviews were conducted with four in 10 participants living more than 10km from the CBD. Four residents requested a call back to complete the survey which occurred subsequent to the sample size of 600 being reached.

- Respondents were typically longer-term residents with seven in 10 respondents living in the area for over 11 years
- Over one-quarter of participants were aged 70 and over
- 96% of participants drive locally
- Just over half (56%) live in the postcode area 2444.

2.3.5 Community drop-in sessions

The community information sessions were set up with 13 A1 sized posters set up on easels around the room. Examples of the posters are available in Appendix J. In addition to the posters, full copies of the feasibility report and area wide traffic study, large scale maps and A3 take home maps were available to attendees. A3 copies of all information posters were also available.

The sessions were designed so that attendees could arrive at the session at any time and seek information in their own time. Council technical and engagement staff as well as RPS staff were present at the sessions to answer questions and assist members of the community.

There was no formal structure or scheduled talk at these events to ensure flexibility and approachability.

Table 10: Summary of community drop-in sessions

Session	Date / Time	Location	Number of attendees
1	02 /03/2019, 11:00am – 2:00pm	Westport Club – Hastings Room	100
2	05/03/2019, 11:00am – 2:00pm	Emerald Downs Community Centre	53
3	05/03/2019, 5:30pm – 8:30pm	Westport Club – Hastings Room	54
4	09/03/2019, 11:00am – 2:00pm	Emerald Downs Community Centre	63
5	12/03/2019, 11:00am – 2:00pm	Westport Club – Hastings Room	59
6	12/03/2019, 5:30pm – 8:30pm	Westport Club – Hastings Room	33
Total attendees			**362**

2.3.6 Community pop-up booths

The smaller and less formal information booths were designed to raise awareness about the proposed Orbital Road and provide an opportunity for residents to ask questions and provide feedback. Project information material (FAQs, Fact sheets, information brochures, surveys, feedback forms and maps) were provided at these events and interested participants were encouraged to visit the Council Have Your Say Website to provide feedback. The pop-up booths were facilitated by Council engagement staff only.

Table 11: Summary of community pop-up booths

Session	Date / Time	Location	Number of visitors
1	13/03/2019, 11:00am – 2:00pm	Port Central, Port Macquarie	494
2	14/03/2019, 3:30pm – 5:00pm	Settlement City, Port Macquarie	200
3	17/03/2019, 8:00am – 1:00pm	Laurieton Riverwalk Market	184
4	19/03/2019, 3:30pm – 6:00pm	Lake Cathie Shopping Centre	80
5	19/03/2019, 8:00am – 1:00pm	Port Macquarie Foreshore Markets	200
Total visitors			**1,158**

2.4 Communication and feedback channels

Community members and stakeholders were encouraged to have their say on the proposed Orbital Road through a variety of feedback channels. The communication materials and feedback channels are described below.

2.4.1 Project hotline, email and postal address

The project hotline and email address were established and monitored by Council staff during the engagement period.

During the engagement period, Council received and responded to:

Project hotline – 02 6581 8787	91 phone calls
Council general enquiries - 02 6581 8111	54 phone calls
Email - orbital@pmhc.nsw.gov.au	95 emails. 6 additional email submissions were received post 30 March 2019.
Post - PO Box 84, Port Macquarie, NSW 2444	43 letters were received. This includes letters to the Mayor, Councillors, the General Manager and Council staff. Petitions were also received in hard copy format via Council's postal address.

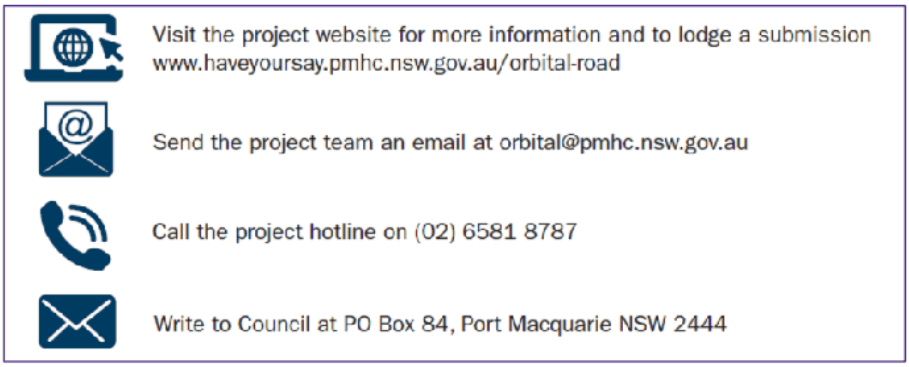

Figure 7 Communication channels for the proposed Orbital Road

2.4.2 Online promotion and engagement

Have Your Say website

The proposed Orbital Road Have Your Say webpage was launched on 22 November 2018. The objective of the webpage was to:

- provide the community with project updates
- provide an avenue for online feedback to be captured
- host the community survey
- share project information with the community including fact sheets, project brochure and FAQs
- advertise community engagement activities
- provide contact details for Council's project team.

During the course of engagement, a total of 17,500 unique visits to the proposed Orbital Road Have Your Say webpage were recorded.

Table 12: Overview of visitation to the Have Your Say project webpage

Visitor summary	Description	Total
Page view	The total amount of times a page is loaded.	46,352
Visits	The number of unique visits by individuals.	17,500
Visitor	With every visit that occurred to the project webpage, the website platform EngagementHQ tracked that particular visitor by creating what is called a 'session'. Each session has a unique ID and lasts until 30 minutes of inactivity are observed.	15,419

Note: A page view is a visit to a page on a website. If the visitor reloads a page, this counts as an additional page view. If the user navigates to a different page and then returns to the original page, this will count as another page view. A visit is defined as a sequence of consecutive page views without a 30-minute break. A visit always contains one or more-page views (Source: Bang the Table – EngagementHQ, 2019).

Of the 17,500 unique visits to the project webpage, 4,907 visits were from an individual directly going to www.pmhc.nsw.gov.au/orbital-road. 3,803 visits were via an internet search engine (e.g. Google); 662 visits were referred by Port Macquarie News website (www.portnews.com.au) and 3,594 visits were referred from Facebook. The remaining visits were referred from various web-based email providers and other websites including:

- www.visitwauchope.com.au
- www.wauchopegazette.com.au
- www.sovereignhills.com.au

Website statistics overview

Table 13: Overview of Have Your Say project webpage participation

Participants	Description	Total participants
Aware participant	An aware visitor, or a visitor considered to be 'aware', has made one single visit to the project webpage. An aware participant is someone who has not taken any further action, for example, not clicked on anything, however, is aware that the project webpage exists.	11,836
Informed participant	An informed visitor has taken the 'next step' from being aware and clicked on something within the project page. An informed participant has: • viewed a Mayor /Deputy Mayor video message • downloaded a document • visited multiple project pages • completed a community survey • lodged an online submission	6,454
Engaged participant	Every visitor that contributed to a 'tool' is considered to be 'engaged'. An engaged participant has: • completed a community survey • lodged an online submission	707

Note: Engaged and informed are subsets of aware. That means that every engaged visitor is also always informed and aware. In other words, a visitor cannot be engaged without also being informed and aware. At the same time, an informed visitor is also always engaged (Source: Bang the Table - EngagementHQ, 2019).

Project information

Throughout the engagement program, several information documents were developed to provide the community with up to date information on the project. Table 14 outlines total visitors and downloads of key project documents.

Table 14: Download statistics of project information documents

Document name	Visitors	Downloads / Views
Investigation Corridor Map	3,730	4,634
Proposed Orbital Road Investigation: FAQ #1	1,255	1,412
Proposed Orbital Road Investigation: FAQ #2	953	1,097
Project Information Brochure	929	1,097
Orbital Road - Final Feasibility Report	594	724
Investigation Corridor Maps - Zoomed in locations	447	507
Proposed Orbital Road PowerPoint Presentation	215	241
Revised Project Information Brochure - February 2019	140	150
Proposed Orbital Road Community session information posters	108	119
Fact Sheet: Environmental Considerations for the Proposed Orbital Road	60	77
Fact Sheet: Identifying a corridor for the Orbital Road	284	321
Fact Sheet: Corridor Protection for Future Road Infrastructure	52	62
Area Wide Traffic Study Volume 1	21	26
Area Wide Traffic Study Volume 2	13	14
Area Wide Traffic Study Volume 3	14	15
Area Wide Traffic Study Volume 4	14	16
Total visitors and downloads	**8,829**	**10,512**

Mayor' and Deputy Mayor's video message

Mayor Councillor Peta Pinson and Deputy Mayor Councillor Lisa Intemann provided project updates and encouraged the community to provide feedback on the proposed Orbital Road at regular intervals throughout the engagement period.

Table 15: Summary of Have Your Say video updates

Date	Description	Link	Number of views
11/12/2018	Mayor's Message on the Orbital Road, responding to initial concerns expressed by the community.	https://haveyoursay.pmhc.nsw.gov.au/orbital-road/videos/5683	176
12/02/2019	Mayor Councillor Peta Pinson invites the community to attend the community drop-in sessions and to have their say on the proposed Orbital Road project.	https://haveyoursay.pmhc.nsw.gov.au/orbital-road/videos/5803	171
07/03/2019	Deputy Mayor Councillor Lisa Intemann encourages the community to attend the drop-in sessions and complete the survey on the proposed Orbital Road project.	https://haveyoursay.pmhc.nsw.gov.au/orbital-road/videos/5862	44
25/03/2019	Mayor Councillor Peta Pinson encourages the community to make a submission and complete the survey before the completion of engagement on 30 March 2019.	https://haveyoursay.pmhc.nsw.gov.au/orbital-road/videos/5914	15
Total views			**406**

Social media posts – PMHC Facebook page

Throughout the engagement period, 10 Facebook posts encouraging the community to provide feedback on the proposed Orbital Road were published. These posts provided project updates, information on community engagement activities and contained links to the project Have Your Say website were feedback could be submitted. Table 16 provides a summary of the posts and the community's reaction to the posts.

The monitoring of social media comments was outside the scope of this report, therefore comments by the community are not considered in the feedback analysis. In sum, across all of Council's Facebook posts the following reaction emoticons were selected by community members.

Table 16: Facebook reaction emoticon symbols and tally

Type	Symbol	Total across all Facebook posts
Like		353
Love		8
Angry		32
Wow		8

Type	Symbol	Total across all Facebook posts
Ha-Ha		8
Sad		3

Table 17: PMHC Facebook posts on the proposed Orbital Road

Date	Description/text	Community response
25/03/2019	This is your last week to share your views and provide feedback on the proposed Orbital Road for Port Macquarie. The current community engagement period is coming to an end on 30 March, so visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road and fill in the online survey and provide your feedback on this important part of our road network planning.	15 Shares – 7 Comments - 4
13/03/2019	If you haven't had a chance to 'have your say' on the proposed Orbital Road for Port Macquarie, there's still time to learn more about the project and share your thoughts. Complete our online survey and have your say until March 30 at haveyoursay.pmhc.nsw.gov.au/orbital-road	All 14 12 1 1 Shares – 3 Comments - 12
07/03/2019	Acting Mayor Lisa Intemann provides an update on the proposed Orbital Road project and encourages our community to 'have your say' during the initial community engagement. For project information, updates and to complete our survey visit haveyoursay.pmhc.nsw.gov.au/orbital-road	All 23 18 4 1 Shares – 3 Comments - 20
04/03/2019	The first of our community information drop-in sessions for the proposed Port Macquarie Orbital Road took place on Saturday, and if you couldn't make it there are more opportunities coming up. Tomorrow (Tuesday) two drop-in sessions will be held at Emerald Downs Community Centre between 11am and 2pm; and at the Westport Club between 5.30pm and 8.30pm. Drop in at any time to learn more about how this long-term project is looking to redistribute traffic to ease congestion on our increasingly busy roads. Chat to our staff, ask questions and hear directly from the project team. There are additional drop-in sessions coming this Saturday and next Tuesday. For more details, to share your views and complete our online project survey, visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road	All 24 23 1 Shares – 10 Comments – 8
26/02/2019	We're seeking community input on a proposed Orbital Road for Port Macquarie. This proposed road is an important long-term solution to reducing traffic congestion and addressing our region's future transport needs. The proposed Orbital Road consists of the collective East-West Link (Ocean Drive to Oxley Highway), the North-South Link (Oxley Highway to Boundary Street) and the flood-free Primary Airport Access Road. It is a new approach to improving the road network in and around Port Macquarie and will improve connectivity to key destinations including the Health and Education Precinct, the Airport and the Regional Sports Stadium. Come along to our community information sessions to share your views, learn more about the project and ask questions of Council staff. The first information session is this Saturday 2 March at the Westport Club. Drop in at any time between 11am - 2pm. For more information on the session dates, times and locations, visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road	All 23 22 1 Shares – 9 Comments - 10

REPORT

Date	Description/text	Community response
18/02/2019	The first Council Meeting for the year will kick off this Wednesday at 5.30pm in the Port Macquarie Council Chambers. Agenda topics include the Proposed Orbital Road Feasibility Study and the 2018-2019 Operational Plan Quarterly Report. We'd love to see you there.	All 6 5 1 Shares – 14 Comments - 2
12/02/2019	Mayor Peta Pinson provides an update on the proposed Orbital Road and encourages our community to attend an upcoming drop-in information session and to complete our online survey at www.haveyoursay.pmhc.nsw.gov.au/orbital-road	All 58 49 5 2 1 1 Shares – 21 Comments – 42
19/12/2018	In response to feedback and questions from our community on the proposed Orbital Road in Port Macquarie, we have developed a Project Information Brochure and an updated Fact Sheet. These are now available on our website at haveyoursay.pmhc.nsw.gov.au/orbital-road and we encourage you to have a look, and learn about this important project.	All 31 28 1 1 1 Shares – 10 Comments – 36
11/12/2018	Mayor Peta Pinson provides an update on the proposed Orbital Road. https://haveyoursay.pmhc.nsw.gov.au/orbital-road	All 60 47 7 3 1 1 1 Shares – 27 Comments – 85
22/11/2018	Council staff are out door knocking today, providing information to residents and businesses who are within the Port Macquarie Orbital Road investigation area. The Orbital Road is proposed as an east-west link (Ocean Drive to Oxley Highway), a north-south link (Oxley Highway to Boundary Street), and a flood-free route to the Port Macquarie Airport. At last night's meeting, Council decided to investigate whether and where such a road would go and tell property owners who might be affected. The proposed road would potentially reduce travel times and distances for more than 20,000 residents per day, removing through traffic from the inner Port Macquarie area including the Lake Road industrial area. It is important to note, that Council is at the investigation stage– the route is not finalised, and the project is not funded or approved for construction. This is the first stage of community engagement with those that may be impacted as they are within the proposed route investigation area. Broader community engagement will occur in early 2019, and if you'd like more information please visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road	All 172 146 15 6 3 2 Shares – 44 Comments – 259
Total emoticon interactions with Facebook posts		**412**
Total number of shared posts		**148**
Total number of comments on posts		**474**

Social media posts – PMHC Twitter page

Throughout the engagement period, seven tweets were published on Council's Twitter account. Tweets encouraged the community to provide feedback on the proposed Orbital Road and provided links to Facebook posts and the Have Your Say project webpage.

Table 18: PMHC Twitter posts on the proposed Orbital Road

Date	Description	Link
25 March 2019	This is your last week to share your views and provide feedback on the proposed Orbital Road for Port Macquarie. The current community engagement period is coming to an end on 30 March, so visit…	https://twitter.com/pmhcouncil/status/1110099026500739072
12 March 2019	If you haven't had a chance to 'have your say' on the proposed Orbital Road for Port Macquarie, there's still time to learn more about the project and share your thoughts. We'll have pop-up stands on: Wednesday 13... https://www.facebook.com/pmhc2444/videos/158769145028609/	https://twitter.com/pmhcouncil/status/1105362852183969792
6 March 2019	Acting Mayor Lisa Intemann provides an update on the proposed Orbital Road project and encourages our community to 'have your say' during the initial community engagement. For project information, updates and to complete our survey visit... haveyoursay.pmhc.nsw.gov.au/orbital-road	https://twitter.com/pmhcouncil/status/1103550899396456448
3 March 2019	The first of our community information drop-in sessions for the proposed Port Macquarie Orbital Road took place on Saturday, and if you couldn't make it, there are more opportunities coming up. Tomorrow (Tuesday) two drop-in...	https://twitter.com/pmhcouncil/status/1102466523195674624
25 February 2019	We're seeking community input on a proposed Orbital Road for Port Macquarie. This proposed road is an important long-term solution to reducing traffic congestion and addressing our region's future transport needs.	https://twitter.com/pmhcouncil/status/1100296977521274880
18 February 2019	The first Council Meeting for the year will kick off this Wednesday at 5.30pm in the Port Macquarie Council Chambers. Agenda topics include the Proposed Orbital Road Feasibility Study and the 2018-2019 Operational Plan Quarterly Report. We'd love to...	https://twitter.com/pmhcouncil/status/1097420477956530176
10 December 2018	Mayor Peta Pinson provides an update on the proposed Orbital Road. https://haveyoursay.pmhc.nsw.gov.au/orbital-road https://www.facebook.com/pmhc2444/videos/305279270089438/	https://twitter.com/pmhcouncil/status/1072385525435285506

Media coverage

The proposed Orbital Road has been a predominant news feature across various local media channels, following announcement of Council's decision to progress investigations for the proposed Orbital Road on 21 November 2018. Tables 19 – 26 present the many news stories that have been broadcast or published since project announcement. The best effort to identify all local media stories has been applied, however, it is worth noting that there may be additional media coverage on the project that has not been captured in the following tables.

New stories covered subject areas including:

- Impacts to local residents and communities
- The need for strong leadership to progress road planning across the region
- Past decision making on an Outer Orbital Road

- Views and opinions of local and State politicians
- General community frustrations to congestion pinch points across Port Macquarie
- Coverage of silent protests at Council meetings
- The Engineering Feasibility Study and objections to the Fernhill Road Link.

The proposed Orbital Road has been frequently covered in local media since project announcement, which clearly indicates that the project is of great interest to the local community. The project was covered at least 46 times by Port Macquarie News between 21 November 2018 and 2 April 2019. Many media stories that have been published on online platforms such as the Port Macquarie News Facebook page have gained many comments from the community, with many sharing the articles with their personal online networks.

Media stories also covered the community engagement activities, which assisted in raising community awareness of the project and the ways in which feedback could be provided to Council.

In addition to local media outlets distributing information on the project and providing an online platform for the community to discuss their views; two local community action groups on Facebook have proven to be very popular with the local community. The Lake Innes Action Group and Save Fernhill Port Macquarie Group pages on Facebook have been very proactive during the engagement period, with lively discussion on news stories and project updates. The pages host comprehensive discussions relating primarily to community concerns for the proposed road, in addition to project information, engagement events and links to community petitions.

Prime 7 News North Coast

Table 19: Prime 7 stories on the proposed Orbital Road

Date/time	Title	Author	Link
3 April 2019	Road protest – Dahlsford Lifestyle Village	Prime 7 News North Coast	https://www.youtube.com/watch?v=jVj7NHDOcek&app=desktop
22 February 2019, 9:46AM	Residents protest orbital road	Prime 7 News North Coast	https://www.prime7.com.au/news/6678-residents-protest-orbital-road?fbclid=IwAR1s3Np_JOTqBPpfLv0qin9GRBPNQND4rXplx8dPbwtwY7TRdc5I-3VKNV8
7 December 2018 5:01PM	Ring Road plans outrage local residents	Prime 7 News North Coast	https://www.prime7.com.au/news/5365-ring-road-plans-outrage-local-residents

Triple M Radio

Table 20: Triple M stories on the proposed Orbital Road

Date/time	Title	Author	Link
22 November 2018	Port Macquarie Ring Road Back on the Table - It could cost up to $1 billion	Triple M	https://www.triplem.com.au/story/port-macquarie-ring-road-back-on-the-table-119300

NBN News – Mid North News

Table 21: NBN News stories on the proposed Orbital Road

Date/time	Title	Author	Link
13 December 2018	Residents voice concerns about proposed Orbital Road	NBN News	https://www.nbnnews.com.au/2018/12/13/residents-voice-concerns-about-proposed-orbital-road/

Date/time	Title	Author	Link
22 November 2018	Proposed Orbital Road back on the table to reduce congestion	NBN News	https://www.nbnnews.com.au/2018/11/22/proposed-orbital-road-back-on-the-table-to-reduce-congestion/

Nambucca Guardian News

Table 22: Nambucca Guardian articles on the proposed Orbital Road

Date/time	Article title	Author	Link
22 December 2018 4:21PM	Rob Oakeshott to make New Year decision on Cowper election plans	Peter Daniels	https://www.nambuccaguardian.com.au/story/5825490/oakeshott-eyes-new-year-tilt-at-cowper/

Camden Haven Courier

Table 23: Camden Haven Courier articles on the proposed Orbital Road

Date/time	Article title	Author	Link
5 December 2018 4:00PM	Council committed to best decision on Orbital Road based on community interests	Mayor Peta Pinson	https://www.camdencourier.com.au/story/5790054/column-proposed-orbital-road-council-update/

Port Macquarie News

Table 24: Port Macquarie News articles on the proposed Orbital Road

Date/time	Article title	Author	Link
2 April 2019 5:00PM	Proposed orbital road inspires Matilda Lindeman's school assessment project	Lisa Tisdell	https://www.portnews.com.au/story/5986963/orbital-road-concerns-inspire-student-project/
24 March 2019 5:00PM	2019 NSW Votes: Key projects to be delivered in next four years, Leslie Williams says	Lisa Tisdell	https://www.portnews.com.au/story/5969375/leslie-williams-looks-ahead-to-the-next-four-years/
22 March 2019 4:00AM	Save Fernhill petition tabled at Port Macquarie-Hastings Council meeting	Lisa Tisdell	https://www.portnews.com.au/story/5967088/thousands-sign-community-petition-to-save-fernhill/
19 March 2019 5:00PM	Election 2019: orbital road under the microscope by candidates	Carla Mascarenhas	https://www.portnews.com.au/story/5962025/election-2019-orbital-road-under-the-microscope/
16 March 2019 10:00AM	Election 2019: Frustrated by local roads? How your local candidates plan to fix them	Carla Mascarenhas	https://www.portnews.com.au/story/5955425/election-2019-if-you-are-frustrated-by-local-roads-read-this/
15 March 2019 4:00PM	John Sprague calls for solution at Oxley Highway/Sherwood Road/Lake Road roundabout	Lisa Tisdell	https://www.portnews.com.au/story/5953377/roundabout-woes-prompt-residents-call-for-action/
15 March 2019 12:00PM	Election 2019: Fiery meet the candidates in Port Macquarie	Carla Mascarenhas	https://www.portnews.com.au/story/5956156/election-2019-voters-clash-with-state-political-candidates/
13 March 2019 4:00PM	We must work together for best outcome regarding the proposed orbital road	Deputy mayor Lisa Intemann	https://www.portnews.com.au/story/5947105/column-have-your-say-on-orbital-road-project/

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Date/time	Article title	Author	Link
12 March 2018 4:00AM	Wrights Road roundabout traffic congestion to continue	Peter Daniels	https://www.portnews.com.au/story/5273627/no-end-in-sight-for-wrights-road-roundabout-traffic-issues/
11 March 2019 4:00AM	Historic Alban House falls within Port Macquarie's orbital road plan	Peter Daniels	https://www.portnews.com.au/story/5942284/is-alban-house-port-macquaries-version-of-the-castle/
11 March 2019 6:00AM	Historic Alban House in orbital road firing line	Peter Daniels	https://www.portnews.com.au/story/5945861/historic-alban-house-in-orbital-road-firing-line/
11 March 2019 9:33PM	Time to put people into the orbital road proposal	John Jeayes	https://www.portnews.com.au/story/5948823/time-to-put-people-into-the-orbital-road-proposal/?fbclid=IwAR19lEDnqJXfpK0tFMVzUc6GeWpiO-mPbMcUoHOuKi-FZFPYuXS00BTvypE
7 March 2019 5:00PM	Port Macquarie-Hastings Council has called on Leslie Williams MP to commit funding to orbital road strategic plan	Tracey Fairhurst	https://www.portnews.com.au/story/5942230/council-calls-on-government-to-part-fund-orbital-road-business-plan/
5 March 2019 5:00PM	2018 NSW Election: Port Macquarie candidates share their thoughts on reducing unemployment and stimulating the local economy	Carla Mascarenhas	https://www.portnews.com.au/story/5932524/jobs-for-the-future-an-election-priority/
4 March 2019 11:39AM	Council and MP must work together on road solution	Carla Mascarenhas	https://www.portnews.com.au/story/5934768/council-and-mp-must-work-together-on-road-solution/
2 March 2019 5:00PM	Port Macquarie-Hastings Council hosts community information sessions on orbital road proposal	Tracey Fairhurst	https://www.portnews.com.au/story/5933106/impacts-on-people-homes-lead-orbital-road-proposal-talks/
26 February 2019 10:00AM	Port Macquarie-Hastings Council urged to take control of orbital road planning	Peter Daniels	https://www.portnews.com.au/story/5922620/former-mayor-urges-council-to-take-control-of-orbital-road-process/?fbclid=IwAR2Tk22W_4A3NbicVZeo-keOOf3jnQBc8HraNLWNmDrkdtwXp8NS8D3Td4M
26 February 2019 3:30PM	Port Macquarie MP Leslie Williams requests RMS to work with Port Macquarie-Hastings Council on identifying new orbital road route	Peter Daniels	https://www.portnews.com.au/story/5925858/mp-wants-rms-council-to-work-on-alternative-orbital-road-route/?fbclid=IwAR3A_Y6855TXw6FCC3ehkKCXkR-p-K5fUIBf506s7pJFRepIUlnyy0AYBmI
25 February 2019 5:00PM	Fernhill Road resident Jim Munro promotes alternative orbital road route	Peter Daniels	https://www.portnews.com.au/story/5922181/jim-floats-his-plan-for-a-true-orbital-road/
25 February 2019 1:00PM	Cr Justin Levido defends Port Macquarie-Hastings Council's handling of orbital road investigation corridor	Peter Daniels	https://www.portnews.com.au/story/5921972/levido-defends-councils-handling-of-orbital-road/?fbclid=IwAR0Jz64YcbCCYNb_A6EI6xLRfE0qA4I8jWEpS09oQGL6STUw2Y1XhOphkwE

REPORT

Date/time	Article title	Author	Link
22 February 2019 4:00AM	Port Macquarie MP Leslie Williams calls on Port Macquarie-Hastings Council to seek another orbital road option	Peter Daniels	https://www.portnews.com.au/story/5917315/port-mp-supports-an-orbital-road-but-not-councils-proposal/?fbclid=IwAR0cKhzHz6zBhOkc4T0set5zt7qD8G1_tVRxSt_Vsj5b6pZAhPhGxBpkTbo
21 February 2019 5:00PM	Port Macquarie-Hastings Council feasibility study excluded Fernhill Road, Clifton Drive from orbital road feasibility study	Peter Daniels	https://www.portnews.com.au/story/5916637/fernhill-road-resident-channels-yes-minister-in-council-spray/
20 February 2019 10:00AM	Port Macquarie-Hastings Council revisits orbital road, market policy at February 20 meeting	Peter Daniels	https://www.portnews.com.au/story/5911858/council-revisits-orbital-road-market-policy-at-meeting/
13 February 2019 4:00AM	Port Macquarie-Hastings Council hosts orbital road drop-in sessions starting March 2	Peter Daniels	https://www.portnews.com.au/story/5900374/council-to-host-six-orbital-road-information-sessions/
13 February 2019 4:00PM	Mayor Pinson urges community to attend Orbital Road information drop-in sessions	Mayor Peta Pinson	https://www.portnews.com.au/story/5897817/column-council-continues-orbital-road-update/
12 February 2019 4:07PM	No time for silence on orbital road plan	Don West	https://www.portnews.com.au/story/5901347/no-time-for-silence-on-orbital-road-plan/
9 February 2019 4:30PM	Public petitions circulating in Port Macquarie against Airport Access Road	Robert Dougherty	https://www.portnews.com.au/story/5895869/airport-access-road-creates-concerns-for-koalas/
5 February 2019 4:00AM	Mayor identifies proposed Port Macquarie orbital road as biggest discussion point for community in 2019	Lisa Tisdell	https://www.portnews.com.au/story/5879716/orbital-road-proposal-set-to-be-hot-topic-in-2019/?fbclid=IwAR0qUATYGUuYAuI2aIemWStqmPRDvm-NSkxT3ZSRouLg5oGvbV3qRGEyuSY
28 December 2018 11:50AM	Better solutions needed for traffic congestion	Don West	https://www.portnews.com.au/story/5829305/better-solutions-needed-for-traffic-congestion/?cs=3674
27 December 2018 4:00AM	Port Macquarie-Hastings Council seeking Ocean Drive duplication funding from state government	Peter Daniels	https://www.portnews.com.au/story/5827386/council-working-on-business-case-for-ocean-drive-duplication-funding/
21 December 2018 2:00PM	Rob Oakeshott to make New Year decision on Cowper election plans	Peter Daniels	https://www.portnews.com.au/story/5823915/oakeshott-eyes-new-year-announcement-for-tilt-at-cowper/
20 December 2018 4:00AM	Port Macquarie MP Leslie Williams hits back at Cr Rob Turner over traffic crisis "blame game"	Tracey Fairhurst	https://www.portnews.com.au/story/5820789/mp-hits-out-at-traffic-crisis-blame-game/
20 December 2018 5:00PM	Port Macquarie-Hastings Council confirms John Oxley Drive land purchase is within orbital road investigation corridor	Peter Daniels	https://www.portnews.com.au/story/5821328/council-buys-land-on-orbital-road-route/?fbclid=IwAR39ilmuh7m-BM3giZjOzt_TvTwH0lk826Rs_erWCaAf4BffEx7OfwySQDY
19 December 2018 4:00AM	Sanctuary Springs couple living in the centre of the Orbital Road investigation corridor	Peter Daniels	https://www.portnews.com.au/story/5818513/morgans-living-in-the-middle-of-a-corridor-of-uncertainty/

REPORT

Date/time	Article title	Author	Link
19 December 2018 4:00PM	Mayor says it's important to remember the proposed Orbital Road route not finalised	Mayor Peta Pinson	https://www.portnews.com.au/story/5815171/column-council-continues-talks-on-orbital-road/
17 December 2018 10:00AM	Port Macquarie-Hastings Council moves to resolve traffic "chaos" on Oxley Highway	Peter Daniels	https://www.portnews.com.au/story/5810521/council-moves-to-resolve-traffic-crisis-on-oxley-highway/
13 December 2018 5:00PM	Port Macquarie-Hastings Council's orbital road debate heats up meeting	Peter Daniels	https://www.portnews.com.au/story/5809644/public-gallery-and-council-clash-over-orbital-road-planning/
12 December 2018 4:00AM	Port Macquarie orbital road action groups to host silent protest at council meeting	Peter Daniels	https://www.portnews.com.au/story/5805841/residents-plan-silent-protest-over-orbital-road-proposal/
6 December 2018 4:15PM	Orbital Road Action Group wants Port Macquarie-Hastings Council to release feasibility study	Peter Daniels	https://www.portnews.com.au/story/5797697/action-group-wants-council-to-release-orbital-road-feasibility-study/
5 December 2018 4:00PM	Council committed to best decision on Orbital Road based on community interests	Mayor Peta Pinson	https://www.portnews.com.au/story/5789909/column-proposed-orbital-road-council-update/
30 November 2018 4:00AM	Hastings Regional Shooting Complex on Port Macquarie orbital road investigation corridor	Lisa Tisdell	https://www.portnews.com.au/story/5783756/orbital-road-plan-off-target-tingle-believes/?fbclid=IwAR2I9F5plAhaaWTEpf35-eNlMuGdXUW-QI8EFmSVfE7ck5Falai2p254LUA
27 November 2018 4:00AM	Residents respond to orbital road proposal in Port Macquarie	Lisa Tisdell	https://www.portnews.com.au/story/5778555/major-road-link-proposal-is-way-too-late-resident-says/
22 November 2018 5:00PM	Port Macquarie-Hastings Council consults with residents on proposed orbital road	Lisa Tisdell	https://www.portnews.com.au/story/5771782/hundreds-of-properties-on-proposed-road-link-corridor/
22 November 2018 9:30AM	Port Macquarie-Hastings Council opens community consultation on proposed orbital road	No author identified	https://www.portnews.com.au/story/5771633/council-to-progress-investigations-into-proposed-orbital-road/?fbclid=IwAR3XPLcSFPicQwUGzclWYvLAybhJZI1qCGnJBsvk7Mh-ioUfJK3WS_k6xus
21 November 2018 4:00AM	Council to discuss orbital road communications strategy and community engagement	Lisa Tisdell	https://www.portnews.com.au/story/5767572/port-macquarie-orbital-road-talks-on-the-table/?fbclid=IwAR0sZH1K8sBbV9hnKVTuXpJe4wCx4rT-Nowb8AE8XkDgcqMMX38Lwy-YsJ0
9 November 2018 4:00AM	Port Macquarie Chamber of Commerce advocacy includes proposed orbital road	Lisa Tisdell	https://www.portnews.com.au/story/5782719/proposed-orbital-road-remains-on-business-groups-radar/

Port Macquarie News - letters and comments relating to the proposed Orbital Road

Table 25: Port Macquarie News

Date/time	Article title	Author	Link
26 March 2019 2:14PM	Orbital road plans are 30 years too late	Bob Donaldson	https://www.portnews.com.au/story/5975416/orbital-road-plans-are-30-years-too-late/
26 March 2019 1:35PM	Orbital road issue needs real leadership	Mark Bullivant	https://www.portnews.com.au/story/5975255/orbital-road-issue-needs-real-leadership/
19 December 2018 10:54AM	We have a right to be angry	Bob Donaldson	https://www.portnews.com.au/story/5819921/we-have-a-right-to-be-angry/
31 December 2018 10:09AM	Simple changes can improve traffic flow on our roads	Mike Dibbs	https://www.portnews.com.au/story/5830883/simple-changes-can-improve-traffic-flow-on-our-roads/
12 December 2018 3:13PM	Ease road congestion by following road rules	Mike Dibbs	https://www.portnews.com.au/story/5808291/ease-road-congestion-by-following-the-road-rules/

Wauchope Gazette

Table 26: Wauchope Gazette articles on the proposed Orbital Road

Date/time	Article title	Author	Link
28 March 2019 1:08PM	Column: vexed issue of roads in Rollands Plains	Deputy Mayor Lisa Intemann	https://www.wauchopegazette.com.au/story/5979766/column-vexed-issue-of-roads-in-rollands-plains/
12 March 2019 3:30pm	Council calls on Leslie Williams MP to fund orbital road plan	Tracey Fairhurst	https://www.wauchopegazette.com.au/story/5950937/council-calls-on-mp-to-fund-orbital-road-plan/
23 November 2018 2:00PM	Port Macquarie-Hastings Council opens community consultation on proposed orbital road	No author identified	https://www.wauchopegazette.com.au/story/5774037/have-your-say-on-orbital-road-around-port-macquarie/?fbclid=IwAR1I9IjiKfmgaXwvupx8aQiIrggaVg_Vz4VAgFeW-8BFsKhSkxj659fcaMA
21 November 2018 2:00PM	Council to discuss orbital road communications strategy and community engagement	Lisa Tisdell	https://www.wauchopegazette.com.au/story/5769657/port-macquarie-orbital-road-talks-on-the-table/

2.4.3 Community drop-in session feedback form

In recognition that not all community members have access to the internet, a hard copy feedback form was made available at the community drop-in sessions and community pop-up sessions. The feedback form is shown in Appendix Q.

A total of 30 hard copy feedback forms were returned to Council for consideration in this report.

3 COMMUNITY FEEDBACK OVERVIEW

During the engagement period, Council received submissions from the residents and property owners within the investigation corridor, local businesses, key stakeholders and the wider community.

A total of 489 submissions and pieces of feedback relating to the proposed Orbital Road were received between 22 November 2018 and 30 March 2019. An estimated 237 submissions were received from community members living within or adjacent to the corridor investigation, and 186 submissions from the wider community. For the remainder of submissions, the address provided was a Post Office Box, not identified or difficult to interpret.

An addition six submissions were received following the closure of the engagement period. The late submissions have been included in this report. 1,182 surveys were completed on attitudes toward traffic across Port Macquarie and specifically on the proposed Orbital Road.

3.1.1 Submission and feedback types

Council received submissions and feedback from the community and stakeholders through various feedback channels presented in Table 27.

Table 27 – Submissions and feedback by type

Feedback type	Total
Written feedback	
Online submissions	321
Hard copy feedback form	30
Email	95
Email (received following conclusion of engagement program)	6
Postal	43
Total	**495 written feedback**
Surveys	
CATI survey	604
Community survey (online and hard copy)	578
Total	**1,182 surveys**
Petition signatures (created by Save Fernhill Community Action Group)	
Online	1,436
Hardcopy	2,413
Total	**3,849 signatures**

Online submissions and hard copy feedback forms

A total of 321 submissions were received via the Have Your Say webpage. Visitors to the site were not required to register, therefore a visitor was able to lodge multiple submissions. Of the 321 submissions received, 306 were from unique contributors. This indicated that 45 submissions were lodged by repeat contributors. For the purpose of this report, each of the 321 submissions received have been considered as individual submissions.

During the engagement period, a total of 30 hard copy feedback forms were returned to Council. These were collected, primarily at community drop-in sessions.

Email

Between 22 November 2018 and 30 March, a total of 95 emails were received by Council relating to the proposed Orbital Road. This includes emails sent to the Mayor, Deputy Mayor, Councillors, Council staff and

the project email address – orbital@pmhc.nsw.gov.au. Each email is considered in this report as a submission.

Following the conclusion of the community engagement program, six email submissions were received by Council. These submissions have been included and addressed in this report.

Postal

Between 7 December 2018 and 30 March 2019, a total of 43 letters were received by Council relating to the proposed Orbital Road. This includes letters sent to the Mayor, Deputy Mayor, Councillors and Council's project team. Each letter is considered in this report as an individual submission.

Between 5 March to 28 March 2019, 30 hard copy versions of the feedback form and 3 copies of the proposed Orbital Road survey were received via post.

Petition

The Save Fernhill Community Action Group submitted a petition – *'Save the Port Macquarie Fernhill Koala Habitat and our Heritage'*. The petition contained a total of 3,849 signatures across two formats.

1. An online petition via www.change.org comprising 1,436 signatures
   - https://www.change.org/p/save-the-port-macquarie-fernhill-koala-habitat-and-our-heritage-there-are-other-more-viable-and-less-destructive-airport-access-road-options
2. A hard-copy petition with 2,413 signatures

The premise of the petition was the opposition to the proposed route for the Airport Primary Access Road due to the impact it would have on sensitive koala habitat and Port Macquarie's heritage.

Community survey (online and hard copy)

The proposed Orbital Road community survey was hosted on the Have Your Say webpage, in addition to being available at community drop-in sessions and pop-up booths. A total of 578 community surveys were completed between 12 February and 30 March 2019. It is worth noting that the Have Your Say webpage did not require registration in order to partake in the survey, therefore it could be completed multiple times by the one individual. In total, 578 surveys were completed by 451 members of the community. The total number of surveys includes online and hard copy versions.

For the purpose of this report, each of the 578 surveys completed have been treated as individual responses.

CATI survey

As described earlier in this report, a computer assisted telephone interview (CATI) was carried out by Jetty Research on behalf of Council. A total of 604 participants from within the Port Macquarie-Hastings LGA provided feedback in the survey. The survey was completed between 1 and 9 November 2018 and was designed to understand general attitudes toward traffic across Port Macquarie prior to the November Council meeting. The results of the survey are found in Appendix A.

3.1.2 How submissions and feedback have been addressed

This report captures and reports on key recurring themes present in all feedback received during Stage One and Stage Two of the proposed Orbital Road engagement program.

Although all feedback has been considered, this report does not present each individual comment received. Rather, given the qualitative nature of the feedback received, the focus of this report is on the feedback where there have been significant amounts of repetition across comparable comments, issues and concerns raised by the Port Macquarie-Hastings community. Themes in the feedback have been structured under specific content headings that reflect the subject matter discussed in the feedback as shown in Section 4 of this report.

To create a consistent platform to analyse and sort the data, a coding framework was developed. The coding framework allowed for the qualitative data to be categorised, summarised, and reconstructed in a way that captured the important concepts and themes within the feedback. The framework was developed based on the initial review of 200 pieces of feedback. Following the review, high level codes were identified, for example, environmental impacts, infrastructure upgrades, decision making processes, koala habitats etc.) however, where new themes emerged during analysis, new codes were applied that best reflected the submission comments (for example, transparency in the decision making process, evidence to support the corridor alignment, acid sulfate soils etc) to ensure the majority of issues and concerns identified by the community and stakeholders were captured. Table 28 presents the codes that were identified and applied to the analysis of submissions.

Following the coding of all data, a tally of the amount of times a key theme was discussed was recorded. This allowed for a broad insight into the trends in the submission data to be identified. Where contextual comments were present, each comment was reviewed to further understand the key issues identified by the community and key stakeholders.

Survey findings are in the form of quantitative data (numbers); therefore, this data has not been analysed against the coding framework. Where the survey findings relate to a key issue discussed in Section 4 (for example, opinions on the proposed road, perceptions toward traffic congestion and most important transport-related issue in Port Macquarie), survey findings have been included in the discussion to either indicate support or deviation from a key theme.

3.1.3 Key themes raised

Clear themes emerged from the feedback received from community feedback forms, emails, postal and online submissions and during community and stakeholder meetings.

The top five key themes identified in community engagement feedback, based on the number of times it was raised were:

1. Project planning and decision making
2. Collective impacts
3. Social
4. Environment
5. Infrastructure

A breakdown of all key themes, sub-themes and the number of times it was raised in the written feedback is presented in Table 28. Section 4 presents the detailed findings positioned under each of the sub-themes.

Table 28: Key themes and findings

Key theme	Sub-themes	Number of times theme raised
Project planning and decision making	• Benefits of the proposed Orbital Road • Trust in Council and the decision-making process • Project planning and decision making • Project need • Funding for the proposed Orbital Road • Project name • Timelines for the proposed Orbital Road	359
Collective impacts	• Infrastructure and growth • Traffic congestion • The Health and Education Precinct • Local infrastructure assets	232
Social	• Connections to place, lifestyle and amenity	193

Key theme	Sub-themes	Number of times theme raised
	• Health and wellbeing • Community impacts	
Environment	• Flora and vegetation • Fauna and habitats • Flooding and evacuation • Noise and vibration • Wetlands and waterways • Acid sulfate soils and contamination • Lake Innes Nature Reserve and Kooloonbung Creek • Air quality and pollution	183
Infrastructure	• Impacts on existing infrastructure • Infrastructure upgrades	151
Community engagement	• 2007 - 2008 community engagement • 2018 - 2019 community engagement	148
Property and acquisition	• Process and timing • Impacts to property values • Compensation for directly affected properties • Compensation for properties adjacent to the proposed Orbital Road corridor	128
Project alternatives	• Alternative alignments and recommendations	119
Investigations and evidence	• Engineering Feasibility Report • Area Wide Traffic Study • Calls for evidence to support the need and location of the proposed Orbital Road	77
Design	• Road design • Crossing Lake Innes Nature Reserve	57
Planning policy	• Local and State planning documents • Alignment with recent planning decisions	30
Economic considerations	• Local businesses and organisations • Tourism	29
Heritage	• Local heritage buildings	18

4 COMMUNITY AND STAKEHOLDER ENGAGEMENT FINDINGS

The following section details the key findings from all feedback received during the proposed Orbital Road engagement program. The findings have been combined and grouped under key themes, rather than per engagement activity, in order to provide a more comprehensive analysis. Each finding has been presented to provide an overview of the key discussion points from the engagement feedback. It is acknowledged that some themes will overlap.

Given the qualitative nature of the written feedback received, it is difficult to quantify the importance of an issue raised by the community. For the purpose of this report, a key issue is defined as a recurring discussion point across all the feedback reviewed.

It must be noted that where reference is made to survey data, the telephone survey refers to the survey conducted between 1 – 9 November 2018. This survey preceded the November Council meeting. One aspect of the survey was to explore community awareness regarding an Outer Orbital Link Road. Where respondents express support for an Outer Orbital Link Road, this is based on the concept rather than a map indicating a proposed route. The survey conducted following the project announcement and display of the corridor investigation area route alignments is referred to here as the Orbital Community Survey.

4.1 Issue: Project planning and decision-making

This section addresses comments relating to benefits of the project, where support has been expressed and what it could achieve for the community, addressing future transport needs, improving connectivity, and safety.

4.1.1 Benefits of the proposed Orbital Road

Comments were received outlining the potential benefits of the proposed Orbital Road, including improved connectivity, increased growth and employment, reduced traffic congestion and other benefits.

General support for an Orbital Road

Community / key stakeholder issue:

Comments were received that expressed support for the proposed Orbital Road. Those that were supportive of the project believe that the road is necessary, and that the benefits would outweigh the cost in the long term. Many, however, indicated that a route that would be less destructive to residential homes within the corridor should be investigated further and full details of the proposal need to be provided to the public so informed decisions can be made.

Comments received included:

- Council needs to make the decision quickly to proceed with the proposal and not make the mistakes of past administrations in failing to protect the corridor.
- The project would be a great legacy for future Port Macquarie residents.
- The benefit the road would provide to vehicle users would outweigh the environmental impacts in the longer term.
- Placing the road to the north of St Columba Anglican School would lessen the impact on school children and the residential area to the south.
- The road would meet the needs of the growing community and service growth areas in the western and southern areas of Port Macquarie.
- Extend Boundary Street to join the new highway.
- Make the North-South Link a priority.

- Make the East-West Link a priority.
- Alternative roads linking Hastings River Drive to Ocean Drive are necessary.

Findings from the telephone survey indicated that 71% of respondents are supportive of the concept of an Outer Orbital Link Road. The results from the Orbital Community survey showed that there is clear division between those who support and those who oppose the project, with 48% of respondents in support and 48% in opposition to the project.

Support for the East-West Link

Community / key stakeholder issue:

Comments were received that expressed support for the East-West Link only. It was suggested that an alternate east west link to Lake Road is required and that it would improve connectivity and address growing traffic concerns to the south of Greenmeadows Drive and Crestwood.

The provision of a link road that would enable residents to the south (ie: Lighthouse Beach) to bypass the Central Business District was welcomed. The suggestion was made to reallocate funds announced for the Ocean Drive upgrade, whereas others believe the road should be upgraded regardless, as prior funding had been received by Council.

Addressing future transport needs

Community / key stakeholder issue:

Council was commended for future transport network planning and the consideration of projected future growth across the region. The project was recognised as a long-term infrastructure solution to the growing population and congestion that is experienced at key roundabouts, intersections and bottlenecks across the Port Macquarie-Hastings region. Some consider the project to be a progressive and visionary approach for future transport network and will benefit future residents.

Suggestions were made including:

- The need for the proposed Orbital Road to be part of a larger plan that considers extending the road further south of the Port Macquarie Golf Course to accommodate growth areas.
- The proposed Orbital Road is a better solution that installing traffic lights the intersection of John Oxley Drive and Lake Road.

sImproved connectivity

Community / key stakeholder issue:

There was support for the proposed Orbital Road to improve connectivity across Port Macquarie.

Comments received included:

- The improved access for many of Port Macquarie's population cannot be overstated.
- Some welcomed the improved access that the Primary Airport Access Road would provide, in addition to better connectivity to Newman Technical College.
- Better access to the Health and Education Precinct (HEP) is needed.
- Residents in the west, south and south-east growth areas will benefit greatly from the proposed road as connectivity would be improved as traffic issues on Ocean Drive would be minimised.
- It would better connect Lighthouse Beach and the Lake Innes areas to the rest of Port Macquarie.

Local and regional growth and employment

Community / key stakeholder issue:

Comments were received that addressed the positive impact the proposed Orbital Road would have on growth and employment in the region. Additionally, it was seen that the road is necessary to accommodate the growth and development in Port Macquarie that is occurring now and will continue.

Comments received included:

- The road is a key piece of infrastructure which will be critical to cater for current traffic congestion and for the future growth of Port Macquarie as a Regional City.
- The road is necessary from a population growth and economic viewpoint. Given the projected population growth for the region, the road cannot be delayed any longer. It was considered that without the road, Port Macquarie would become a less attractive destination for new business and tourists.
- The project would bring greater benefits to the town and region via better transport and traffic distribution in the longer term, as well as increasing local employment benefits in the shorter term.
- The link between Ocean Drive and the Oxley Highway is highly needed due to the large scale of development occurring in the area between towns across the region and the significant population increases as a result.

Reductions in traffic congestion and improved traffic flow

Community / key stakeholder issue:

There was support for the proposed Orbital Road with regard to reducing traffic congestion, distributing traffic across the transport network and improving the traffic flow across the region. Comments received expressed frustrations with current traffic conditions, specifically, Lake Road and Ocean Drive, and welcomed the project as a way to mitigate this issue. Many noted that the congestion experienced is during peak hour periods in the morning and afternoon, and that the proposed Orbital would improve traffic flow during these periods.

Comments received included:

- The proposed Orbital Road is a great idea and will help ease congestion that is experienced every morning and afternoon, going to and coming from work. It was suggested that a journey that once took 10 minutes can now take up to 40 minutes.
- Acknowledgement that over the last five years, traffic congestion has increased considerably. The proposed road would enable those entering Port Macquarie to have alternate options when coming from the west.
- Regular visitors to Port Macquarie agree that the proposed road is necessary to improve traffic flow around the area.
- The road would distribute traffic and improve traffic flow.
- The project would significantly reduce travel times around Port Macquarie which would mean less fuel consumption, lower fuel bills and a lower, collective carbon footprint for our region.

Findings from the telephone survey indicated that 79% of respondents believe that an Outer Orbital Road would reduce congestion in the Lake Innes and Lake Road areas.

Safety

Community / key stakeholder issue:

Comments were received that supported the project and the increased safety on roads that would result from the new road. It was suggested that the road would save lives through the provision of more direct and faster routes to Port Macquarie Base Hospital, particularly from the south and south eastern areas of the region.

4.1.2 Trust in Council and the decision-making process

The following paragraphs outline comments and concerns relating to Council's previous performance, the community's lack of trust in the decision-making process including questions over the use of public funds.

Trust in Council and the decision-making process

Community / key stakeholder issue:

Concerns were raised that Council has a poor track record for infrastructure upgrade and improvements and that, according to NRMA, it has one of the greatest maintenance backlogs in the State. The question was raised about how the community is expected to have faith in council to deliver a project of this magnitude when there are currently no funds to upgrade roads that have previously been committed to, for example, Lake Road and Ocean Drive duplications.

It was suggested that there is little trust in Council as a result of residents not being advised that the proposed Orbital Road was 'back on the table'. Many residents expressed anger and frustration that the project was announced when there is no funding. Many felt it was deceitful that Council was reinvestigating the proposed road when it had previously been rejected in 2008.

Reference was made to road-related businesses that Mayor Pinson has a vested interest in, with community members questioning whether this presents a conflict of interest. Some feared there would be a financial gain for Mayor Pinson if the road was approved to proceed.

Additional comments received included:

- The timing of the doorknock following Council's decision to undertake community engagement on the proposed Orbital Road as decided on 21 November 2018. Concerns were raised regarding the timing of the doorknock, which occurred the following morning. It was suggested that the decision had been made prior to the Council meeting since letters and project collateral ready for distribution the following morning. Many residents expressed their concerns that they were not advised prior to the Council meeting that the project was being reconsidered.
- Why the investigation is so far advanced when the community was unaware the project was being reconsidered
- Council needs to be more open and transparent and advise the community exactly which properties would need to be acquired for the road
- Views that Council were obstructing progress of previous Council decisions to duplicate Lake Road as recommended in 2008.

Access to key documents

Community / key stakeholder issue:

There are concerns about the availability and timing of the release of key documents identifying the 'most viable route'. Questions were asked about why the Engineering Feasibility Study and Area Wide Traffic Study were not released to the public from the beginning of community engagement and why some residents had to complete a Government Information Public Access (GIPA) form to request access to the documents.

It was seen that the Council was withholding information on the various routes identified in the Engineering Feasibility Report, and that this contradicted the principle of the community engagement being 'open and transparent'. It was noted that the release of the reports five days prior to the February Council meeting did not give the community adequate time to assess the document and make informed comment.

Fernhill Road Link

Community / key stakeholder issue:

The inclusion of the Fernhill Road link with the Primary Airport Access Road was of concern to many. It was suggested that the link into the Fernhill Road area is not logical and that there is no mention of this section of the proposed road in the Engineering Feasibility Report. This raised many questions in the community including:

- Why does the 'blue line' cross over the Oxley Highway and not join the roundabout?
- What is the reason for linking the airport route into Fernhill Road?
- How was this route identified as the 'most viable'?
- Has Council considered the potential impact to the koala breeding habitat in the area?

Transparency over the investigation corridor area

Community / key stakeholder issue:

There are concerns that Council provided Opus Consultants, charged with carrying out the Engineering Feasibility Study, a limited investigation area that would not allow additional route options to be explored. Reference was made to the Report's Executive Summary, that Opus were directed to focus investigations on "Council's preferred corridor'. Many suggested that this has resulted in a biased report that identified the route Council was seeking, without investigation of alternative options outside the investigation area.

Other comments and questions included:

- The need for Council to present all options to the community to comment on, not just the 'most viable route'.
- Complete transparency would be showing the community all options investigated.
- Questions relating to why only one route alignment was being shown to the community.
- Questions why the community engagement process for the proposed Orbital Road was not similar to the process for Stingray Creek Bridge, which presented five plans to the community for comment.
- Questions relating to the initial 'most viable route' being shown to the community, then subsequently the release of Option 1B where the East-West Link runs to the south of St Columba Anglican School.
- There are concerns that Council only presented the proposed benefits of the project rather than presenting to the community the full extent of the project and impacts to residents and the environment.

Confidence in the decision-making process to approve the proposed road

Community / key stakeholder issue:

There are concerns that a decision has already been made to progress the project, and that community engagement and feedback will not influence the outcome at the mid-year Council meeting. Several comments suggested that Council favours Option 1 and that no consideration is being given to the other routes identified in the Engineering Feasibility Report.

Comments suggested that given the amount of money already spent on the project (commissioning of independent studies and consultants), it is likely the road will proceed. Residents expressed their frustration that Council continues to say that the road is only a proposal, however funds have already been requested to progress the project to the next stage of developing a Strategic Business Case.

Reference was made to a Prime 7 News story where Councillor Alley stated that there is "no better option", insisting the exhibited route is the most viable. It was suggested that the Councillor had clearly decided the road should proceed, prior to viewing community feedback.

Use of public funds

Community / key stakeholder issue:

Questions were asked about the use of ratepayer's money to fund investigations for the proposed Orbital Road when the community were not informed. Further questions were raised about the amount of money that had been spend so far on the project (engineering study, engagement consultants, traffic study), and whether the money allocated for the duplication of Ocean Drive had been spent on the proposed Orbital Road.

The tender process for the Engineering Feasibility Study was questioned, including why there was no public media about the tender and whether it was made confidential in Council papers.

Council purchase of land in the corridor investigation area

Community / key stakeholder issue:

It was suggested that the recent property purchased made by Council along the proposed road alignment indicate that the project will go ahead. The purchase of a parcel of land (ie: at John Oxley Drive / land at the Lake Innes roundabout / an industrial property opposite Lake Innes Shopping Centre) is of concern to residents. Comments suggested that Council had been deceitful in not disclosing this information upfront to the public. The question was raised about how Council has the funds to expand property investments when considering the backlog of road repairs required across the LGA.

Prioritisation of development over community concerns

Community / key stakeholder issue:

Concerns were raised that Council is prioritising road infrastructure over the needs and concerns of the community, specifically, those who live within or adjacent to the corridor investigation area. It was suggested that Council is continuing to approve and encourage sprawling development across Port Macquarie, with little regard to the residents who would be impacted by the proposed Orbital Road. Anger was expressed regarding the approval of subdivisions for housing estates, while the proposed Orbital Road was being reconsidered.

Councillor presence at engagement events

Community / key stakeholder issue:

Comments were made that insufficient representation of Councillors at community engagement events for the proposed Orbital Road was noticed. It was suggested that Councillors are not representing their constituents, which has resulted in many community members feeling let down and disappointed.

It was suggested that more Councillors should have engaged with the questions and concerns raised by the community at the December 2018 Council meeting.

4.1.3 Project planning and decision-making

The following paragraphs outline comments and concerns around project planning and decision-making and whether the proposed road is needed. This includes comments about the selection of the most viable route, reasons for reinvestigating the road following previous Council decisions, and failure to protect the corridor in the past.

Lack of support from the local member of Parliament

Community / key stakeholder issue:

Comments were received that drew attention to the lack of support that Leslie Williams, the State Member for Port Macquarie, has shown for the current proposed road alignment. Questions were asked about whether she had suggested alternative routes and why Council is pushing ahead with the proposal when the State

Government does not appear to be in support. Comments commended Leslie Williams for being sympathetic to those community members affected by the proposal.

Selecting the most viable route

Community / key stakeholder issue:

Prior to the release of the Engineering Feasibility Report and updated project information in February 2019, many questions were asked about alternative options for the corridor. In addition, questions and comments were received about the process for identifying the most viable route.

The following questions and concerns were raised:

- Why has the community been shown only one route for the proposed Orbital Road?
- What does 'most viable' mean?
- How was the road selected? Is this route Council's preferred option?
- Why were additional options shown to the community in February and not earlier?
- What other alternative routes has Council considered? Why have they not been tabled?

Following the release of the alternative routes identified in the Engineering Feasibility Report, questions received included:

- How were Option 1B and Option 4B identified?
- Why are not all alignment options open for community feedback?
- Why does the Primary Airport Access Road cross the Oxley Highway and join Fernhill Road? What is the logic behind this connection?
- Can Council advise how they made the decision to select the current route and what information was it based on?

Comments were received that suggested the 'preferred route' is the same alignment that was proposed in 2002 and again in 2008. It was suggested the alignment is outdated given the amount of development that has since occurred within this area. Furthermore, it was claimed that Council proposed a road linking Lady Nelson Drive to the airport in 1995 to 1998, however it was rejected. It was recommended that Council revisit the reasons why it was rejected.

Residential versus Council and private land

Community / key stakeholder issue:

Comments received suggested that Council favours route option 1B as smaller stakeholders such as the residents to the south of St Columba Anglican School (SCAS) would be easier to manage than the school or university stakeholders. Using SCAS, Council or undeveloped University land to the north would be easier, cheaper and less destructive to the community than demolishing all the homes to the south of the school.

Reinvestigating the concept of an Outer Orbital Road

Community / key stakeholder issue:

The reason why the proposed Orbital Road is back on Council's agenda was questioned in much of the feedback. The 2008 decision by the Council Administrator to reject the proposal and focus on Lake Road as the primary East-West Link was mentioned by many. Specifically, concerns were raised that many people had made decisions based on the 2008 Council outcome; decisions involving the purchase of land and properties within or next to the corridor investigation area. Many expressed their anger and frustration that Council did not disclose details of the proposal being 'back on the table' and the procurement of consultants to further investigate the road's feasibility.

Many people asked why the community was not made aware of the investigations before November 2018. Attention was drawn to the studies completed decades ago where the strategic need for an additional East-West Link was identified, and why, based on this information Council continued to allow and approve development in the area.

Some community members questioned what has changed since 2008 to make the project worth reinvestigating.

Council's preferred investigation area

Community / key stakeholder issue:

Reference was made to the Engineering Feasibility Report and Council's preferred corridor. It was suggested that the limited investigation area supplied to Opus did not allow for all potential road options to be explored. Questions were raised about why all options in the report crossed Lake Innes Nature Reserve along the existing easement. It was suggested that real alternatives for the road require a much larger investigation area that examines alternatives to crossing the Nature Reserve, for example, aligning the road to the south of the Golf Course.

Decision making by previous Council administrations and failure to protect the corridor

Community / key stakeholder issue:

Many expressed their opinions on Council allowing development to occur in the investigation corridor and questioned why the corridor had not been protected in the past. Comments received included:

- Given the history and strategic need of the project stemming back to 2002, why did previous Council officials fail to protect the corridor, and instead allow many subdivisions for housing developments to take place?
- The failure of previous Council administrations to protect the corridor for future road infrastructure demonstrates a lack of foresight and future planning. It appears that the current Council is set on fixing the mistakes of previous administrations at the cost of many homeowners.
- If Council had previously rezoned the land, the community would not be placed in the stressful situation they now face, where they could lose their homes.
- Concern was expressed regarding the suggestion that Council had no way of protecting the corridor and inhibiting development that has since occurred. Council are responsible for land use zoning and the subsequent changes to zoning across the LGA. It was suggested that Council had every opportunity to rezone the land for future road infrastructure and protect the corridor in the LEP, however, it appears the priority was generating funds from development applications and contributions.

Project need

Community / key stakeholder issue:

There were diverging views regarding the need for the project. Many expressed their opposition to the project and suggested that it was not needed. Reducing travel times and alleviating congestion is welcomed by those who are supportive of the proposal. There were calls for evidence to show how the proposed Orbital Road would resolve traffic congestion in the Port Macquarie region.

Comments received included:

- The road will increase congestion in the Health and Education Precinct as high volumes of traffic will be funnelled into the area.
- How would the road assist the growth areas around Thrumster? What proportion of traffic from this area is expected to travel into the centre of Port Macquarie?

- What does Council propose to do in the immediate future to address traffic issues?
- The proposed North-South Link and the Fernhill Road link is premature. It was suggested that these stages are for future Councils and generations.
- Who will be the users of the East-West Link?
- The road will only benefit those who wish to bypass the Central Business District.

4.1.4 Future transport need

The following paragraphs outline comments and concerns around future transport needs and whether the current project addresses them including alternate modes of transport, public transport, dependencies on cars, and the inclusion of pedestrian and cycling infrastructure.

Alternate modes of transportation

Community / key stakeholder issue:

It was suggested that alternate modes of transport need to be integrated into future transport planning including electric buses, light rail and infrastructure to support walking, cycling and ride share services.

Comments were made that the funds required to construct the proposed Orbital Road could be used to implement mass transit options such as free bus services, electric buses and self-driving buses.

Suggestions were made to support park-and-ride initiatives by developing car parking infrastructure on the southern edge of Port Macquarie and providing buses to transfer commuters to the centre of town.

The benefits of mass transit options were emphasised including a reduction in vehicle emissions, increased liveability and a healthier community.

It was suggested that there are opportunities to connect with the University to explore alternative technologies for transportation.

Provision of public transport

Community / key stakeholder issue:

The prioritisation of public transport services was encouraged. Many suggested that if public transport was more readily available and accessible, they would be more inclined to use it.

Comments were received that addressed the lack of patronage on school buses. It was suggested that school drop-off and pick-up is a major contributor to local congestion during these hours and that encouraging maximum use of school buses needs to be encouraged.

Findings from both surveys indicate that the lack of public transport is considered as one of the most important transport related issues facing the Port Macquarie region. In the telephone survey, 24% of respondents identified lack of public transport as the most important concern, whereas 9% of respondents in the proposed Orbital Road survey.

Additionally, 17% of telephone survey respondents believe that investment in public transport should be Council's priority.

Addressing car dependency

Community / key stakeholder issue:

Comments were made about the need to consider alternatives to the construction of more roads across the LGA. It was suggested that the provision of additional road infrastructure results in an increase in vehicle use. Suggestions were made for Council to investigate sustainable transport options and strategies to discourage private vehicle use.

Examples provided included:

- The decentralisation of services.
- Incentives to minimise single occupant vehicles.
- Harnessing emerging technologies to allow people to work from home.
- Encouraging flexible working hours – to minimise the number of people travelling to and from work during peak morning and afternoon periods.

Results from the surveys indicate that car use is relatively high across the region, with 94% of survey respondents in both the telephone survey and the proposed Orbital Road survey indicating that the car is their primary mode of transport.

Future transport needs in new development areas

Community / key stakeholder issue:

Questions were asked about the provision of transport options to cater for new subdivision developments (ie: Sovereign Hills and Wauchope). Questions and comments included:

- What mass transit options is Council considering for the mitigation of high traffic volumes that will be generated from new residential areas?
- Suggestions to provide free bus services for residents in new subdivisions to reduce the cost and risk of commuting and increasing sustainable transport options.
- Regulating car parking in the centre of Port Macquarie to encourage those living in new outlying residential areas to consider alternate modes of transport such as car sharing. This would result in a decrease in the number of cars on the road and improve traffic flow at congestion hotspots during peak periods.

Pedestrian and cyclist infrastructure

Community / key stakeholder issue:

Requests for continuous, safe and accessible cycle lanes and footpaths were made. Some suggested that if the infrastructure was in place, they would be more likely to commute on alternate modes of transport (bicycles, scooters, walking).

Comments received included:

- Bicycle parking in shopping precincts should be implemented.
- The incorporation of bike lanes parallel to the Oxley Highway, running from the Fernhill Road roundabout to Lake Innes Shopping Centre. It was suggested this would improve connectivity to the Health and Education Precinct, particularly for students and health workers.
- Expansion of the footpath and bicycle network around Port Macquarie to encourage safe cycling and pedestrian access. It was suggested that encouraging more people to walk and cycle may result in a reduction in vehicle traffic and contribute to a healthier community.

4.1.5 Funding for the proposed Orbital Road

The following paragraphs outline concerns around sources of funding, spending of funds allocated for existing road upgrades and the cost of the project.

Funding for the project

Community / key stakeholder issue:

Comments were received about funding arrangements for the proposed Orbital Road. For those in support of the proposal, securing funds as soon as possible was encouraged. Others commented on the lack of funds for the road and expressed anger and frustration that the project was announced when funding had not been secured.

It was believed that announcing a project of this magnitude that presents significant challenges to community members within and adjacent to the investigation corridor was premature and ill-conceived. Additional comments received included:

- Council will never have the funds to undertake a project of this cost.
- Concerns that no State or Federal funding has been secured with reference made to the current State Government indicating that project funding is unlikely.
- The concern that the project will be gazetted, and Council will fail to secure funding. It was suggested that this would severely impact on the residents who would have their land rezoned.

Upgrade of Ocean Drive and Lake Road

Community / key stakeholder issue:

Questions and concerns were raised about the upgrade of Ocean Drive and Lake Road including:

- Allocate the money required for the proposed Orbital Road to upgrading existing roads including Ocean Drive and Lake Road.
- The failure to spend the $10 million granted to Council by the NSW Government in 2011 to the upgrade of Ocean Drive. Concerns were raised that the upgrade has since been estimated to be in excess of $40 million.
- Whether Council would upgrade Ocean Drive and Lake Road before the proposed Orbital Road. It was suggested that if this was done, the proposed Orbital Road would not be needed.
- How $1 billion would be provided to Council if they are currently unable to secure additional funds for Ocean Drive.
- Concern that Councillor Cusato indicated in the Port Macquarie News that the duplication of Ocean Drive was no longer a priority for Council.

Cost of investigations for the proposed Orbital Road

Community / key stakeholder issue:

There are concerns about the amount of money spent so far on investigating the proposed Orbital Road, specifically, the commissioning of the Engineering Feasibility Report. It was suggested that this money would have been better spend on the upgrade of other roads across Port Macquarie.

Estimated cost of the project

Community / key stakeholder issue:

The estimated cost of the project ($1 billion) is of concern to the community. It is believed by some that the exhibited route is not economically viable, particularly given the number of properties that would need to be acquired and that the road would need to be raised for large distances over the wetlands and flood plain. It

was suggested that the cost associated with the project was too expensive, with many believing that the road would not solve traffic congestion issues during peak periods. Instead, it would encourage greater vehicle use.

It was suggested that the funds required for the project would be better spent on addressing the road maintenance backlog.

Questions were raised whether the estimated cost of $1 billion is in current dollar value, or for 2030 when construction of the road would potentially commence.

The use of funds generated from residential rates

Community / key stakeholder issue:

Concerns were raised that local Council rates have been used to investigate the proposed Orbital Road, and that if the road proceeds, the cost will be reflected in residential rates. Some suggested that it would result in a rate increase regardless of their opposition to the project.

Sanctuary Springs Estate residents drew attention to the higher rate (special levy) they pay for the upkeep of the estate, however, if the proposed road went ahead, it would destroy the area.

4.1.6 Project name

The following paragraph presents concerns from the community around whether the project is accurately reflected in the project name.

Concept of an Orbital Road

Community / key stakeholder issue:

Comments were received that questioned the naming of the project as the proposed Orbital Road. It was suggested that the proposed road is not an orbital, as this would suggest the road would go around Port Macquarie, rather than through the middle resulting in the division of established residential communities. Suggestions were made to rename the road to a Link Road.

4.1.7 Timelines for the proposed Orbital Road

The following paragraphs are around concerns and comments around the timing of how the project will be executed especially in regard to property acquisition, support to ensure the project is executed as quickly as possible and interfaces with the timings of other projects.

Support to progress the project

Community / key stakeholder issue:

Comment were made that expressed support for the project commencing as soon as possible. It was acknowledged that careful consideration of the route and the impacts are needed, and that the road should be swiftly implemented following the required investigations. The following comments and questions were received:

- Council needs to make the decision to progress the proposal before costs escalate and more development is approved in the investigation corridor.
- The longer the decision to proceed takes, the greater the traffic conditions across Port Macquarie will become.
- Questions were asked about what decisions are within the control of Council (ie: corridor protection, environmental considerations).
- Whether the project would be completed in stages and what the timeframes for this would be.

- Progress studies for the Primary Airport Access Link. It was believed that Council may have the funds to undertake this section of the proposal in the near future.
- Council needs to make the hard decision to progress a project that will have negative impacts on several Port Macquarie residents and their properties. It was suggested that the long-term benefits of the project for the entire Port Macquarie community should not be jeopardised by the residents that would be impacted by the road.

Uncertainty for the timing for corridor protection

Community / key stakeholder issue:

There are concerns about the impact the indefinite timelines for the project are having on residents within and adjacent to the investigation corridor. Comments received included:

- The community need to know as soon as possible whether their properties will be acquired or indirectly whether they will be impacted as a result of proximity to the road.
- The timeframe of 7 – 12 years until the corridor would possibly be protected in planning legislation is too long and places many community members in limbo in the meantime.
- The road is needed now, not in 7 – 12 years as noted in the project information brochure.
- Investigations need to be completed as soon as possible to provide the community with a level of certainty around the project progressing or being taken off Council's agenda.
- Many elderly community members live within the investigation corridor and the uncertainty is impacting on their health and ability to sell their properties to generate funds to relocate to nursing homes.

Timing for additional investigations

Community / key stakeholder issue:

Questions were raised about the timing of additional investigations that will be required for the road proposal. Requests were made for solid timeframes for the completion of environmental impact and social impact assessments. Concerns were raised about the lack of a solid timeframe for additional investigations and that this is causing an indefinite period of uncertainty for those who are impacted by the proposal.

Failure to previously protect the corridor

Community / key stakeholder issue:

Concerns were raised about previous Council administrations failing to protect the corridor and rezone it to SP 2 – Infrastructure Reserved Infrastructure Corridor. Comments received stated that the corridor should have been protected 30 years ago when the need for a future strategic route through Port Macquarie was first identified. Many expressed their anger and frustration that housing development has been approved by the Council in areas previously investigated for a link road. It was suggested that the proposal has come too late and that the impacts to residents within and adjacent to the corridor would be too great.

A staged approach for project delivery

Community / key stakeholder issue:

Suggestions were made for the project to be undertaken in stages to allow much needed sections of the road to be delivered as a priority. The following staging scenario for the project was suggested:

- Stage 1: The Northern Link – The Oxley Highway (new interchange East of Lindfield Park Road) to Hastings River Drive.
- Stage 1A: Boundary Street upgrade from Port Macquarie Airport to Hastings River Drive.
- Stage 1B: Northern Link – The Oxley Highway to Newman College.

- Stage 2: Southern Link - Ocean Drive to the Oxley Highway interchange.
- Stage 3: Primary Airport Access Road.
- Stage 4: Jindalee Road Link.

Timing of other infrastructure projects

Community / key stakeholder issue:

Questions were raised relating to the timeline for undertaking upgrades of Lake Road and Ocean Drive. It was suggested that these projects should be completed prior to progressing investigations for the proposed Orbital Road.

4.2 Issue: Collective impacts

This section addresses comments and questions on the collective impacts the proposed road would have on growth areas across the region, other infrastructure and planning projects including the Health and Education Precinct, local infrastructure assets and traffic congestion across Port Macquarie.

4.2.1 Issue: Infrastructure and growth

Comments on the collective impacts the proposed road would have on growth areas and existing establishments. This includes comments on how the project may catalyse further development across the region.

Future growth considerations

Community / key stakeholder issue:

Diverging views were received from the community about whether the proposed Orbital Road is the solution to meeting the needs to a growing community. Comments received from those in the community who support the project included:

- The proposed Orbital Road is a key piece of infrastructure that is critical and will cater for current traffic congestion and the future growth of Port Macquarie as a regional city.
- Long term planning is necessary if Port Macquarie is going to sustain population projections.
- Port Macquarie cannot continue to grow and prosper economically without infrastructure such as the proposed Orbital Road.
- Infrastructure is needed for the growing community. It is recognised that not all community members will be supportive of the project, however, Council needs to make the hard decisions for future generations.
- Councils along the Mid North Coast need to be proactive in working towards the future. Council was commended for the proactive approach being taken for the proposed Orbital Road.
- The infrastructure is needed; however, this should not come at the expense of the current community and their homes.

Comments received from those in the community who oppose the project included:

- The question was raised as to what traffic modelling studies have been completed based on current traffic conditions, infrastructure and development, and whether any studies examined future growth projections for the next 20 years.
- It was suggested that in the future, the Port Macquarie Central Business District many not be a major destination for the community. With the rapid expansion of areas including Bonny Hills, Wauchope and Lake Cathie, it is too difficult to predict where people will travel in the future. An increase in satellite cities may decrease the need for the proposed Orbital Road.

- The proposed Orbital Road will result in more cars on the road and will not service the population projections.
- It was suggested that the North-South and East-West Links need to be reconsidered given the growth in the southern and western areas. To service future growth, it was suggested that these links need to be moved further away from the centre of Port Macquarie.

Property developments in the corridor investigation area

Community / key stakeholder issue:

The approval of subdivisions and development in the corridor investigation area in the last decade is of concern to many. It was suggested that Council showed no foresight in purchasing parcels of land over the last decade that would be needed for the proposed road such as land around Sanctuary Springs, St Columba Anglican School and Oxley Park.

Residents expressed their anger that development has been allowed to occur, and that Council did not disclose any information that the proposed Orbital Road was being reconsidered until November 2018. Several residents were assured that the road was not going to proceed back in 2008, and many have made decisions to purchase land and construct homes based on this knowledge.

It was noted that the recent approval for the Palms Aged Care development at the corner of Highfields Circuit and Wrights Road was a poor decision, as this is one of the most congested intersections in Port Macquarie where access is already a challenge. Additionally, the new Bunnings centre was mentioned as another significant contributor to increased congestion at the Wrights Road roundabout.

Growth areas to the south of Port Macquarie

Community / key stakeholder issue:

Comments and questions relating to growth in the southern area of Port Macquarie were raised and included:

- Has Council developed a traffic masterplan to account for the population, residential and commercial growth in the Lake Innes and Laurieton region?
- It was suggested that the cause of traffic congestion is the traffic travelling to town from Lake Cathie and Laurieton.
- Will Council provide a dual carriage way for Ocean Drive from Lake Cathie to Gordon Street?
- Suggestions to encourage development in areas like Emerald Downs, Lighthouse Beach and other southern suburbs.

Growth areas to the west of Port Macquarie

Community / key stakeholder issue:

Supporting the growth in the western areas of Port Macquarie was encouraged. It was suggested that most of the projected population will be in the Sovereign Hills and Wauchope area, and that the road needs to service this future population. Suggestions were made to push the North-South link further west.

Comments received included:

- Increase the provision of shops and services in the Wauchope areas to discourage people having to travel to the CBD.
- A second CBD needs to be planned for the western area of Port Macquarie to service the future population.
- It was suggested that while the proposed Orbital Road is deliberated, the number of vehicles travelling into town from the west increases. The new town of Sovereign Hills is contributing to increased vehicle

movements. It was recommended that Council halt development in the new town, until appropriate infrastructure catches up with it; and the finalised road network is in place.

4.2.2 Traffic congestion

Comments and questions on the collective impacts of the proposed Orbital Road on congestion hotspots across Port Macquarie. This includes comments on causes of congestion and whether the project would alleviate congestion experienced during peak periods.

Alternative options to address traffic congestion

Community / key stakeholder issue:

Questions and comments were received on the measures Council has considered to alleviate congestion on main roads across Port Macquarie.

Comments received included:

- It is suggested that the proposed Orbital Road, if approved, will not be constructed for seven to 12 years. Questions were raised on what Council proposes to do in the meantime to deal with growing traffic congestion across Port Macquarie.
- Council should consider staggering school hours to decrease pressure on the roads during school drop-off and pick-up hours.

Perceived causes of traffic congestion

Community / key stakeholder issue:

Community members identified various causes for traffic congestion in Port Macquarie. This included:

- Too many intersections.
- Many main roads are only single lane.
- Roads are not designed for the volume of traffic travelling on them.
- Congestion occurs where dual carriageways become single lane roads.
- Many residents believe that schools have the greatest impact on the local traffic flow.
- Roundabouts are not designed to work efficiently during peak periods.

Many suggested that Port Macquarie does not have traffic congestion issues, and that it is the volume of traffic during the morning and afternoon peak periods that are the cause of concern. It was suggested that the focus should be on managing traffic volumes during peak periods, for example, mass transit options, greater use of public transport and school transport options, the installation of traffic light at key roundabouts and investigation into other incentives to reduce car dependency.

For telephone survey respondents, 49% believe that population growth is main contributor to traffic congestion, whereas 42% of respondents believe the cause is the lack of road infrastructure.

Findings from the proposed Orbital Road community survey show that 28% of respondents believe population growth is the main contributor to congestion, whereas 20% believe it is traffic volumes during peak periods.

Traffic lights to address congestion

Community / key stakeholder issue:

It is believed that the installation of traffic lights at key intersections will alleviate congestion hotspots across Port Macquarie. Questions were about Council's reluctance to install traffic lights. Requests for the installation of traffic lights at the following intersections were made:

- Wrights Road and Lake Road
- Lake Road and the Oxley Highway
- Major Innes Road and John Oxley Drive
- Major Innes Road and the Ruins Way

The proposed Orbital Road as a means to solve congestion issues

Community / key stakeholder issue:

Comments were received that suggest the proposed Orbital Road will not result in less traffic congestion, and instead, will increase the number of vehicles on the road network. It was suggested that the road would significantly increase congestion around the Health and Education Precinct, the Lake Road roundabout and along Ocean Drive. Additional comments were made on the impracticality of having a four-lane dual carriageway through a school area where traffic would be required to travel at 40kmph in peak periods.

On the contrary, many community members believe the proposed Orbital Road will alleviate traffic congestions across the breadth of Port Macquarie. Support for the East-West Link was high from residents in the southern areas of Port Macquarie including Lighthouse Beach and Lake Innes. Comments from those who support of the road included:

- Requests to build the road promptly, in particular the East-West link between Lighthouse and Lake Innes. It was suggested that traffic congestion at the Oxley Highway and John Oxley Drive roundabout would be greatly eased by the proposed road. Further, it was suggested that travel times around Port Macquarie would be significantly reduced.
- The road is absolutely needed as traffic at times is horrendous.
- It is a good investment for the future of Port Macquarie and would be a solution to congestion issues in Lake Innes and would create a faster route to the airport.

Congestion hotspots

Community / key stakeholder issue:

There are concerns about the congestion experienced at various locations across Port Macquarie. The following congestion hotspots were identified in written feedback.

- Ocean Drive
  - 56% of proposed Orbital Road survey respondents indicated that they have experienced congestion on Ocean Drive in the previous month, and 37% of telephone survey respondents strongly agreeing that it is a major issue.
- Lake Road
  - 73% of proposed Orbital Road survey respondents indicated that they have experienced congestion on Lake Road in the previous month, and 58% of telephone survey respondents strongly agreeing that it is a major issue.
- Oxley Highway

  - 58% of proposed Orbital Road survey respondents indicated that they have experienced congestion on the Oxley Highway in the previous month, and 44% of telephone survey respondents strongly agreeing that it is a major issue.
- John Oxley Drive
  - 55% of proposed Orbital Road survey respondents indicated that they have experienced congestion on John Oxley Drive in the previous month, however only 20% of telephone survey respondents strongly agreeing that it is a major issue. 51% of respondents believe it was neither a major nor minor issue.
- Wrights Road roundabout
- Sherwood Road (access challenges need to be addressed)
- Jonas Absalom Drive and Matthew Flinders roundabout
- Ocean Drive at the roundabouts including Emerald Drive, Crestwood Drive, Greenmeadows Drive and Lake Road intersection
- Koala Street
- The Ruins Way

33% of respondents in the proposed Orbital Road survey and 24% of telephone survey respondents indicated that traffic congestion is the most important issue facing the Port Macquarie region. 57% believe it is a major issue, and 9 in 10 respondents believe it has gotten worse in the last 5 years.

Findings from the telephone survey indicate that 60% of respondents believe congestion is a major issue, with 91% of participants believing it has gotten worse in the past 5 years.

4.2.3 The Health and Education Precinct (HEP)

Comments on the collective impacts the proposed Orbital Road would have on the Health and Education Precinct. This includes comments on how the project would impact on education facilities and traffic issues in the area.

Impacts to St Columba Anglican School (SCAS) and Charles Sturt University (CSU)

Community / key stakeholder issue:

Comments and questions received addressed the potential impact the proposed Orbital Road would have on the school and university. It was suggested that the area already experiences traffic issues as a result of the school drop-off and pick-up times, with the majority of children being driven in private vehicles rather than using school buses.

Comments received included:

- The need to encourage school children to use school transport. This would drastically improve the traffic conditions during peak periods.
- Concerns that the proposed road would funnel significant volumes of traffic into the areas surrounding the Health and Education Precinct, resulting in increased noise and air pollution.
- The need to incentivise mass transit for students in the Health and Education Precinct.
- Some suggested placing the road alignment between SCAS and CSU to lessen the impact on residents on the southern side of SCAS, whereas others saw this as unfavourable to the education facilities as it would cause a physical divide.
- The university is unsupportive of a road alignment that would impact on the Health and Education Precinct, however, there was recognition that access to the precinct is necessary.

- It was suggested that if the road alignment went between SCAS and CSU, the bisection could be addressed by constructing a pedestrian walkway overpass or an underpass to link the two institutions.
- The suggestion was made that any land that would need to be acquired from CSU could be swapped for Kingfisher Waste Station land owned by Council.
- The road would impact on school infrastructure including playing fields and parking facilities.

Route alignment Option 1A and Option 1B

Community / key stakeholder issue:

Community members expressed their concern for the placement of the proposed Orbital Road to the south of St Columba Anglican School. It was suggested that Council is prioritising the alignment to the south of the school (Option 1B), which would severely impact on the residential homes in the area, whereas placement to the north (Option 1A) would avoid such impacts.

Comments received included:

- Moving the school would be a cheaper option than acquiring surrounding properties.
- The school does not need to be a part of the Health and Education Precinct as it is a private facility.
- Protection of the homes to the south of the school should be a priority.
- Suggestion to acquire Charles Sturt University land rather than established residential homes, as it is yet to be developed.
- Support for Option 1A and the acquisition of University land was noted. It was suggested that the University could build vertical classrooms to account for the loss of land.
- Neither route would relieve traffic pressure on the Health and Education Precinct. Rather, it would funnel more vehicles into an already constrained area.

Improved connectivity to the Health and Education Precinct

Community / key stakeholder issue:

Support was expressed for the improved connectivity the proposed Orbital Road would provide to the Health and Education Precinct. Comments included support for linking the Health and Education Precinct to the airport, and that greater and faster access to the precinct is welcomed. It was noted that this would improve connectivity for residents of the south and south eastern suburbs.

It was suggested that the proposed Orbital Road would result in lives saved, as the road provide a faster and more efficient route for Ambulances to reach the Port Macquarie Base Hospital.

4.2.4 Local infrastructure assets

Comments on the impacts to other local infrastructure assets projects in the area including Port Macquarie Airport, the Shooting Complex and Racecourse.

Port Macquarie Airport, Shooting Complex and Racecourse

Community / key stakeholder issue:

Questions and comments were received on the impact the proposed road would have on local assets including the Port Macquarie Airport, the Shooting Complex and the racecourse. Further comments expressed support for improving connectivity to the airport to meet the needs of the growing regional community.

Comments received included:

- Support was expressed for the provision of a faster route to Port Macquarie Airport, specifically, for communities in the southern region.

- Placing a road through the centre of the Shooting Complex means that thousands of dollars of Government grants used to improve facilities has been a waste of money.
- The impacts to the Shooting Complex would be significant, especially to the NSW Police Force who train at the facility.
- It was suggested that Port Macquarie Airport should be relocated as it is encroaching on urban areas. Moving the airport to land between Kempsey and Port Macquarie was suggested, where major roads and the growing population would not be impacted.
- It was noted that the provision of two roads to the airport is important from a safety perspective.

4.3 Issue: Social

This section addresses questions and comments about the impact the project is, and will continue to have on people's health, wellbeing, safety, community connections, lifestyle and amenity. Additional comments on the impact the proposed Orbital Road will have on vulnerable community members is included.

4.3.1 Connections to place, lifestyle and amenity

The following paragraphs detail comments and questions regarding the proximity of the proposed Orbital Road to the lifestyle of residents, what they value about their area, and the safety of residents, as well as impacts to other environmental and recreational features of the area.

Impacts to lifestyle and connection to place

Community / key stakeholder issue:

Concerns were raised that the proposed Orbital Road will significantly impact residential communities, lifestyle and amenity. There are concerns about:

- The loss of lifestyle for residents of the Sanctuary Springs Estate.
- The destruction of Dahlsford Lifestyle Village.
- Impacts to the semi-rural, peaceful and unique environment of Fernhill Road.
- Tranquil and serene residential areas will be destroyed.
- Safety in residential areas will be compromised, specifically, it was raised that the safety of children and pets would be jeopardised.
- The road would result in physical disconnection and the division of established communities.
- Visual amenity would be impacted as a result of changed outlooks.
- The removal of the bus stop at Greenmeadows drive would result in decreased accessibility for elderly residents to attend social engagements.

Impacts to natural and recreational assets

Community / key stakeholder issue:

There are concerns about the impact to recreational and natural assets including:

- Googik Heritage Walking Track and Cycleway.
- Playing fields.
- Sporting and recreation facilities at St Columba Anglican School.

4.3.2 Health and wellbeing

The following comments and questions were made regarding the impact the proposed Orbital Road has had on community members' health and wellbeing, for example, impacts to mental health caused by uncertainty around the project timing.

Impacts to health and wellbeing following project announcement

Community / key stakeholder issue:

Many residents and property owners expressed concern that the announcement of the proposed Orbital Road has severely impacted on their health and wellbeing.

Concerns were raised that:

- Community members impacted by the announcement are experiencing increased stress, anxiety, depression and a sense of helplessness.
- Many impacted community members indicated that they have experienced sleepless nights as a result of the shock of the announcement and the uncertainty they are faced with until a decision is made.
- There are many elderly residents that have been affected by the announcement. Concern was expressed that their physical and mental health will deteriorate as they face the possibility of having to relocate. Impacts to financial security as a result of decreased property values is causing high levels of stress for many.

Adverse effects on health as a result of proximity to the proposed Orbital Road

Community / key stakeholder issue:

There are concerns that the health of residents who would potentially live in close proximity to the road would be adversely affected. Specifically, the health of the elderly and children are of concern.

Comments received included:

- There is increasing evidence that living near a busy road can lead to health issue including dementia, asthma and stress.
- Concerns were raised that exposure to carcinogenic pollution and noise from vehicles using the road would severely impact residents in close proximity.
- Future psychological impacts if residents are forced to move from their homes.

4.3.3 Community impacts

The following paragraphs detail comments and questions regarding the proximity of the proposed Orbital Road to established residential areas, communities and vulnerable community members.

Proximity to residents and vulnerable community members

Community / key stakeholder issue:

The proximity of the proposed Orbital Road to established residential areas, nursing homes and lifestyle villages is of concern. Concerns were raised including:

- The health of elderly residents following the announcement and the uncertainty they are facing with regard to the potentially having to relocate.
- Impacts to health and wellbeing of many older residents and self-retirees who are faced with financial uncertainty.
- The potential impact to residents with a disability, who live in homes that have been tailored to support their needs. Concern was noted about the stress and financial burden of potentially having to relocate.
- The impact to tranquil residential and care environments including:
  - Emmaus Aged Care Centre

- Sanctuary Springs Estate
- Greenmeadows area
- Dahlsford Grove Retirement Village
- Established communities in Kyla Crescent, Braeroy Drive and in the residential areas surround Major Innes Drive
- Fernhill Road and Oxley Highway community
- Residents along Lady Nelson Drive.

Impacts to education facilities and social services

Community / key stakeholder issue:

Concerns were raised that the proposed Orbital Road will impact patrons of local education facilities and social services. Comments received included:

- The adverse impact on students' health and wellbeing in their learning environments.
- Safety concerns for childcare facilities including two childcare centres on Fernhill Road, Eco Kids Village Pre-school and St Columba Anglican school. It was suggested that the impacts to St Columba Anglican School extend to the wider community as access to sporting and recreation facilities that are a part of the social fabric would be compromised.
- Concerns were raised for the impact the proposed road will have on ACES Disability Services on Fernhill Road. Specifically, it was raised that safety, noise and sensory overload are of concern.

Divided communities

Community / key stakeholder issue:

Residents highlighted concern that the road would separate or divide communities. Comments received included:

- The East-West Link will divide communities in the Greenmeadows area.
- The Primary Airport Access Road would cut through peaceful environments.
- The project is dividing the wider community as a result of the diverging opinions held toward the road either being approved or rejected.
- The disruption to communities will be enormous.

Insufficient consideration of social impact

Community / key stakeholder issue:

The lack of attention paid to the social impacts that would be incurred as a result of the proposed road is of concern. Comments included:

- The Engineering Feasibility report did not mention the impact to people and their environments.
- Community interest and concern appears to be a low priority for Council.
- The social impact of the proposal cannot be underestimated.
- The belief that the environment is valued more highly than the needs of the community.
- Social impact assessments will prove that the route is no longer the viable option.

4.4 Issue: Environment

This section addresses comments and questions about the environmental impacts of the proposed Orbital Road, including air quality and pollution, flora and vegetation, fauna and habitats, flooding, noise and vibration, wetlands and waterways, acid sulfate soils, contamination and Lake Innes Nature Reserve.

4.4.1 Flora and vegetation

The following paragraphs contain comments and questions about the impact the proposed Orbital Road would have on significant trees, wildlife habitats and key biodiversity areas across the investigation corridor.

Significant trees

Community / key stakeholder issue:

Comments were made regarding individual properties containing significant trees. Concerns for over 70 significant trees at Alban House on Fernhill Road were raised. It was noted that the trees on this property which include tallowwood, swamp mahogany and grey gum are habitats for koalas, sugar gliders, frogs, feather tail gliders and tawny frogmouths.

Concern that the road would require the removal of Swamp Mahoganies and Forest Red Gums that line Major Innes Road and those around the Charles Sturt University Campus and Lake Innes Shopping Centre was noted. It was recognised that these trees are a key food source for the critically endangered Swift Parrots and Regent Honeyeaters and provide habitat for koalas.

The removal of trees that have high biodiversity value due to the presence of hollows and large amounts of nectar they produce would be devastating. It was suggested that such trees cannot be replaced by young trees as they can take many years to get to this stage of high biodiversity value.

Concerns were raised that offset planting for the bio-certification of airport land has occurred in the investigation area of the Primary Airport Access Road.

Koala and wildlife habitats

Community / key stakeholder issue:

Considerable feedback was received on the impact the proposed Orbital Road would have on Port Macquarie's koala habitats and the habitats of other wildlife valued by the community.

Concerns included:

- The potential disturbance of wetland habitats.
- The crossing of Lake Innes Nature Reserve and the disturbance to wildlife habitats.
- The impact the Primary Airport Access Road would have on koala habitat in the Oxley Highway and Fernhill Road areas.
- The proximity of the road to significant gum trees across the corridor investigation area that are inhabited by koalas.
- Potential impact to the habitats of at least 54 threatened species.
- The clearing of land would lead to a loss of biodiversity and the fragmentation of habitat.

Removal of trees

Community / key stakeholder issue:

There are concerns about the significant removal of trees that would need to occur to make way for the road. Several residents drew attention to requests previously made to Council to remove dangerous trees on

individual properties. Their frustrations were expressed regarding the contradiction that trees on their properties were not allowed to be removed, however, would be removed if the road is approved.

Kooloonbung Creek riparian corridor

Community / key stakeholder issue:

The hydrological, wildlife and ecological importance of the riparian corridor through Kooloonbung Creek Nature Park to Lake Innes Nature Reserve was noted. Concerns were raised that the clearing of native vegetation through this area is a key threatening process to native animals and their habitat.

Key Biodiversity Areas

Community / key stakeholder issue:

Comments and concerns were received relating to the adverse impacts the proposed road would have on Endangered Ecological Communities (EECs) and Key Biodiversity Areas (KBA) across the investigation area. The following concerns were raised:

- If a road was built through Lake Innes Nature reserve it would fragment wildlife connections and disturb significant habitats, specifically mentioned was the habitat of bird life in the surrounding lakes and wetlands.
- The protection of native and endangered flora (and fauna) should be a priority when assessing the environmental impacts of the road.
- The local area encompasses two of the 45 Key Biodiversity Areas (KBA) in New South Wales, one being the Hastings Macleay KBA. It was noted that KBAs sites contribute to the global persistence of biodiversity, including vital habitat for threatened plant and animal species in terrestrial, freshwater and marine ecosystems and that they are considered as 'nature's hot-spots'. Important habitats represented in the KBA include ephemeral lower floodplain wetlands, swamp mahogany forests and forest red gums. It was stated that conservation of these habitat types is critical to the ongoing existence of these trees other threatened species.
- Endangered Ecological Communities within the corridor investigation area include littoral rainforests and coastal vine thickets of eastern Australia, lowland subtropical rainforests of Australia and subtropical and temperate coastal saltmarsh. The protection of these EECs is crucial.

Googik Track

Community / key stakeholder issue:

Requests were made that consideration is given to the potential impacts on the Googik Heritage Walking Track. It was noted that Council has invested funds on the maintenance of the track, and if this natural asset was impacted it would be a great loss to the Port Macquarie community.

4.4.2 Fauna and habitats

The following paragraphs contain comments and questions about the impact the proposed Orbital Road would have on the area's wildlife and key biodiversity areas.

Koala populations and habitats

Community / key stakeholder issue:

Many comments and questions were received regarding the local koala populations and their habitat. Comments received included:

- The Fernhill area is a recognised koala habitat and breeding ground. Fernhill residents commissioned an independent report by Bio- diversity Australia which confirmed that the Fernhill koalas are a breeding

population. The report found that any major road type development would be devastating the koala population.

- Koalas are territorial and would not cope with having to be relocated to new habitat.
- The proposal contradicts Council's Koala Recovery Strategy and recommendations from the Koala Roundtable. The outcome form the Koala Roundtable was that no bad decisions be made that would worsen he prediction of local koala extinction within 50 years.
- Disbelief from community members that a road would be proposed to cut through koala habitats, especially when considering that koalas are the basis of various tourism attractions in Port Macquarie, including koala statues, the Koala Hospital and koala signage).

Findings from the proposed Orbital Road community survey indicate that damage to koala habitats was the second highest ranking concern that respondents have, following impacts to existing properties.

Limitations with the investigation buffer zone

Community / key stakeholder issue:

Comments drew attention to the limitations of the 5-kilometre buffer zone that was used to assess the environmental impacts of the road in the Engineering Feasibility Report. It was suggested that the adverse impacts of the road would be much wider than the buffer zone, for example, 66 Listed Migratory species and cetaceans would be affected.

Bird species and habitats

Community / key stakeholder issue:

There are concerns about the environmental impact the road would have on the habitat of migratory birds. Specifically, it was raised that bird habitats such as the lake system on the Newton property, the wetlands and Lake Innes Nature Reserve would be severely impacted.

Comments were received that identified the various bird species located within the corridor investigation area including:

- Over 30 common species of bird live and nest in the area, and the removal of trees would result in displacement.
- The Hastings Macleay Key Biodiversity Area (KBA) was proclaimed by Birdlife International to help protect the critically endangered Regent Honeyeater, the Swift Parrot and the Australasian Bittern.
- Sanctuary Springs Estate provides habitat for various bird life. Specifically, it was raised that the lagoons provide breeding grounds for many birds.

Feedback from the Hastings Birdwatchers indicated that there are over 275 bird species in the Hastings region. Representatives expressed their desire to do whatever they can to protect bird species that may be impacted by the proposed road and have indicated they are happy to share geo-location data of bird species with Council. It was also noted that the protection of bird habitat is crucial for birdwatching tourism.

Endangered Ecological Communities and threatened species

Community / key stakeholder issue:

Concerns were raised about the impact the road proposal would have on the habitat of at least 54 threatened species. It was noted that Port Macquarie-Hastings Council encompasses two of the 45 Key Biodiversity Areas in NSW. Pockets within the corridor investigation area provide vital habitat for threatened terrestrial, freshwater and marine ecosystems. Concern for three Endangered Ecological Communities as identified in the Engineering Feasibility Report was noted.

Objection to the North-South Link was noted, as it would have significant impact on at least two threatened ecological communities.

Wildlife and habitats across the investigation area

Community / key stakeholder issue:

Many comments were received about the impact to wildlife within the corridor investigation area. Questions and concerns received included:

- Opposition to the Primary Airport Access Road due to the impact it would have on critical wildlife habitat, specifically, around Fernhill Road. It was noted that over 100 species of bird and animal life exist in the Fernhill Road – Oxley Highway area.
- The lagoons near Serene Circuit provide habitat for much wildlife. It was suggested that if a road was constructed in close proximity to the lagoons, it would drive away the wildlife.
- The removal of significant trees would impact the habitat of various wildlife including:
  - Koalas, birds, sugar gliders, feather tail gliders, tawny frogmouths and eastern chestnut mice.
- The road would impact on the habitat of various species:
  - Giant dragonfly, wallum froglets, green and golden bell frogs, deer, kangaroos, lizards, waterfowl and turtles.

4.4.3 Flooding and evacuation

The following section contains information on the comments and concerns around flooding and impacts from construction would have on the flood plain.

Flood-prone land

Community / key stakeholder issue:

Questions and comments were made regarding the extensive flood plain where the North-South Link is proposed. Questions were raised on how the road would be built over the flood plain what impact the road would have on flooding in the Sanctuary Springs and Greenmeadows area.

Increase in surface water

Community / key stakeholder issue:

Questions and concerns regarding the increase of water from the road surface were noted including:

- Impact to property from extra runoff water.
- Where increased levels of water between Boundary Road and the (new) Oxley Highway would go.
- Increase in water to the north of the Racecourse and Shooting Complex and the cumulative impact this would have on existing excess surface water following heavy storms.

Natural disasters and evacuation routes

Community / key stakeholder issue:

Questions were raised on whether the proposed Orbital Road would improve connectivity for fire services to access the area between Crestwood and the Ruins Way in the event of a bushfire. Reference was made to a recent bushfire near Lake Cathie.

4.4.4 Noise and vibration

The following paragraphs contain comments and questions about the potential impacts noise and vibration would cause both during construction and operation to the surrounding environment.

Vibration impacts to buildings

Community / key stakeholder issue:

Concern was noted for the potential impact that vibration from the road would cause to buildings within close proximity. Questions were raised about whether Council would be responsible for cracks in buildings resulting from vibrations associated with the road. Reference was made to the Engineering Feasibility Report and the indication that vibration and noise would likely have impacts post-construction of the road.

Loss of amenity due to an increase in noise levels

Community / key stakeholder issue:

There are concerns about the impact noise will have on residents adjacent to the corridor. Residents drew attention to the significant traffic noise that would be generated from a four-lane road. Comments received included:

- The impact traffic noise would have on quiet neighbourhoods.
- Loss of amenity caused by the closeness of the new road and associated traffic noise.
- Disruption to sleep patterns and quality of life.
- Health impacts from continuous exposure to traffic noise (during construction and operation of the road).

The question was asked whether Council would compensate residents for the increase in noise they would experience if the road was built.

Noise mitigation measures

Community / key stakeholder issue:

Questions and concerns were raised about noise mitigation measures that would be implemented to decrease the impact to adjacent properties and residents. Questions were asked about how residents would be protected from the increase in noise generated from the road. It was suggested that the installation of sound barriers, while attenuating noise, would impact on the visual amenity from adjacent properties.

Noise impacts on education facilities and learning

Community / key stakeholder issue:

Concern was expressed for the proximity of the proposed road to educational facilities and the negative impact noise would have on the health and wellbeing of school children as well as their learning.

Noise impacts on horses and Racecourse activity

Community / key stakeholder issue:

The impact that traffic noise would have on horses at the Racecourse and on individual properties is of concern. It was indicated that noises scare horses which can result in accidents and injury of the animal and/or jockey. There are concerns about the impact traffic noise would have on horses during race day, and who would be responsible if there was an injury.

4.4.5 Wetlands and waterways

The following paragraphs contain comments and concerns around waterway management, including preservation of ecological and environmental values.

Coastal floodplain hydrology and ecology

Community / key stakeholder issue:

Concern was raised for the impact the North-South Link would have on the hydrology and ecology in this area, given its classification as a complex Coastal Floodplain and that it contains various species and habitats including WF froglets, the giant dragonfly and A. defungens.

Wetlands

Community / key stakeholder issue:

There are concerns about the impact the road would have on the wetlands throughout the investigation area. Community members are angered that the road proposes to traverse significant wetlands in the region, particularly the extensive wetlands in Lake Innes Nature Reserve. Comments received included:

- The detrimental impact that acid sulfate soils would have on the wetlands.
- Concern that the East-West link would pass through pristine wetland environment (including Lake Innes Nature Reserve) and devastate the delicate ecosystems.
- Suggestions were made to elevate the roadway to minimise the impact to the wetlands below.
- The wetland provides habitat for many threatened species including the Australian Bittern (a species listed under the federal Environmental Protection Biodiversity Act [EPBC Act] as endangered).

It was suggested that Environmental Impact Plans and Construction Feasibility studies will prove that the proposed route is unsuitable and that construction over the wetlands will severely impact flora and fauna.

Location specific lakes and lagoons

Community / key stakeholder issue:

Residents from Sanctuary Springs Estate and Serene Circuit expressed concern for the local lakes and lagoons. It was noted that these water bodies provide habitat for considerable bird species and wildlife and that the proximity to the proposed Orbital Road and the associated noise would displace the wildlife. Comments included the negative impact the road would have on the lake system on the Newton property and subsequent interference to migratory birds.

Kooloonbung Creek

Community / key stakeholder issue:

Requests were made for an alternate route to be found that does not pose a threat to Kooloonbung Creek, the Nature Park and Lake Innes Nature Reserve. The significance and rarity of the riparian configuration along the creek in an urban area was discussed, in addition to the potential impact acid sulfate soils pose to Kooloonbung Creek.

4.4.6 Acid sulfate soils and contaminated land

The following paragraphs contain comments and questions about acid sulfate soils in the investigation area and the potential impact on local wetlands and waterways. Contaminated lands and the potential spread of toxic soils during the construction phase of the road are of concern.

Acid sulfate soils and waterways

Community / key stakeholder issue:

Acid sulfate soils within the investigation corridor are of concern. Comments received included:

- The impact that soils disturbed during construction would have on lakes, wetlands and waterways including Kooloonbung Creek due to the increase in PH levels.
- The detrimental impact metals released from the soils would have on aquatic life such as oysters.
- Acid sulfate soils along the East-West Link with specific reference made to Sanctuary Springs Estate.
  - Reference was made to the presence of acid sulfate soils in the Estate including Class 2 soils: likely to be found below the natural ground surface; Class 3 soils: likely to be found beyond 1 metre below the natural ground surface and Class 5 soils: located within 500 metres on adjacent class.

Contaminated land

Community / key stakeholder issue:

Concerns were raised that large areas within the investigation corridor contain contaminated land and that this was not communicated to the community with regard to the proposed Orbital Road. Comments received included:

- The spread of contaminated soils during the construction of the road and the impact on wetland environments.
- Flooding and the potential spread of contaminated soils in the corridor investigation area.

4.4.7 Lake Innes Nature Reserve and Kooloonbung Creek

The following paragraphs contain comments and questions around the orbital road crossing Lake Innes Nature Reserve and the impacts on biodiversity, ecological and social value.

General concern for the crossing of Lake Innes Nature Reserve

Community / key stakeholder issue:

Many comments were received about the potential crossing of Lake Innes Nature Reserve through the existing transmission line easement. Concerns and questions received included:

- The high natural, cultural and environmental value the community has for Lake Innes Nature Reserve, including the forested wetlands, threatened and endangered species.
- Noise generated by traffic travelling through the Nature Reserve will have significant impacts on local birds and wildlife.
- Concerns that the proposed road would further fragment wildlife connections and disrupt the movement of species. It is believed that the disruption would potentially increase pressure on threatened and endangered species in the Nature Reserve.
- Protection of Lake Innes Nature Reserve should be a high priority given the high number of native and endangered flora and fauna, migratory and marine species.
- Belief that Council has downplayed the process of obtaining approval to traverse the Nature Reserve, which would require an Act of Parliament.

- Concerns that there would be issues relating to an increase of weeds, pest species, negative impacts from stormwater run-off and illegal dumping of waste.
- Community members requested that an alternative route is found that would not impact on Lake Innes Nature Reserve and Kooloonbung Creek.
- The question was raised about whether Council wish to be responsible for the destruction of habitat and the extinction of several species of animals in Lake Innes Nature Reserve when there could be alternative routes
- Nature Reserves are protected, primarily for conservation of native plants and animals and therefore have stronger protection than national parks. Even if the road is elevated, there will be disturbance to the wetlands below, both during construction and operation due to noise and light disturbances.
- The current easement is only 5 metres wide, whereas the proposed road would be approximately 40 metres wide. The existing easement does not provide for a road through the Nature Reserve and any clearing of land to widen the easement would have significant impacts on the surrounding environment.
- Some suggested that following the existing easement is the best option, as an elevated road would allow for the movement of wildlife below.

Respondents of the proposed Orbital Road community survey were asked to rank what they were most concerned about with regard to the potential impacts from the project. The crossing of Lakes Innes Nature Reserve ranked third, marginally behind impacts to koala habitat and existing homes.

4.4.8 Air quality and pollution

The following paragraphs details comments and concerns around impacts to public health, and pollution contributing to climate change and the environment in general.

Adverse impacts on human health

Community / key stakeholder issue:

There are concerns about the adverse effect that increased levels of air pollution will have on local residents living near the proposed road. Comments were made on the carcinogenic pollution released from vehicles and the impact this has to human health including breathing, respiratory issues and asthma. Reference was made to the many elderly residents that currently reside within or near to the proposed route and that increased airborne pollutants would exacerbate their already fragile health conditions.

Reference was made to the mists of toxic smog that currently form over the wetlands, along Kooloonbung Creek, to the west of Emmaus and Sanctuary Springs Estate and that this would worsen with the increase in vehicles through the area if the road was built.

Comments received included the impact to children along the proposed route who would be exposed to greater levels of pollution. With reference to several schools and childcare centres along the proposed route, concern was expressed for the significant detrimental effect air pollution would have on their health, wellbeing and would potentially increase the risk of asthma and other respiratory illnesses.

Climate change and carbon emissions

Community / key stakeholder issue:

Comments were made on the relationship between vehicle exhaust emissions and climate change. It was suggested that the provision of more roads results in higher vehicle usage. The clearing of land for the proposed Orbital Road and the subsequent increase in vehicle emissions during operation would contribute to climate change. Requests were made for greater consideration to be given to electric vehicles and alternate modes of transport.

Other forms of pollution

Community / key stakeholder issue:

The potential impact that fuel and oil spills could have on the surrounding environment, in particular, on Endangered Ecological Communities (EECs) is of concern.

Comments were made on the impact light pollution (lights along the roadway and from vehicles) would have on surrounding properties. The question was raised as to how residents would be protected from light pollution.

4.5 Issue: Infrastructure

The following section addresses comments and questions received about the potential impact the proposed road would have on other infrastructure in the region. This includes impacts to existing roads and infrastructure, the Health and Education Precinct, community facilities and suggestions for infrastructure upgrades as a means to mitigate the need for the road.

4.5.1 Impacts on existing infrastructure

Comments and questions about the impact the proposed Orbital Road would have on existing infrastructure.

Increased pressure on existing roads

Community / key stakeholder issue:

There are concerns about the impact the proposed Orbital Road would have on the existing road network, specifically, it was raised that the proposed road would funnel traffic into roads and intersections that struggle to cope with the current traffic volumes.

Comments received included:

- It is believed that most of the traffic using the proposed Orbital Road would be heading to and from the southern areas. The extra traffic would place pressure on Ocean Drive, particularly the 'pinch points' at the Crestwood and Pacific Drive intersections.
- Bringing more traffic across Port Macquarie to end up at Ocean Drive will increase congestion.
- As the Health and Education Precinct grows, more traffic will travel to this area, which already has significant congestion issues during peak hours.
- Traffic travelling from the south, along Ocean Drive and the proposed Orbital Road would be funnelled toward the Wrights Road roundabout, which is a major cause of congestion. Further, it was suggested that traffic travelling from Wauchope, Thrumster, Sovereign Hills, Brierley Hills and the Innes Peninsula use the Wrights Road Roundabout. The construction of the new Bunnings store on that corner will increase traffic significantly on the roundabout, not just in peak hours but all day, seven days a week.
- The Primary Airport Access Road link into Fernhill Road would funnel traffic into the already congested Lake Road industrial precinct. It was suggested that Fernhill Road is too narrow and would not be able to accommodate the increased traffic.
- Cumulative impacts to the access to Sherwood Estate.
- Increased traffic problems between Greenmeadows Drive and Crestwood roundabout.
- Potential safety concerns for traffic entering Greenmeadows Drive from the Ocean Drive.
- Concerns relating to the impacts to access onto Greenmeadows Drive for Dahlsford residents.

The Health and Education Precinct

Community / key stakeholder issue:

Alignment of the proposed Orbital Road to the south of St Columba Anglican School is of concern, specifically, as it would impact on the operations of the school and the residential areas to the south. Others suggested that aligning the road to the north of the school would separate two key education facilities (Charles Sturt University and St Columba Anglican School) and divide the precinct.

Concern was expressed for both the northern and southern alignment of the East-West Link, as both options would significantly impact on essential inalienable school infrastructure. It was noted that there has been $47 million in capital investment in the school over the past 15 years. Additional concerns included:

- Both alignment options would result in the destruction of playing fields, access and parking facilities.
- Either alignment would be catastrophic to the school's operation.
- A 40km speed limit through school areas is impractical for a four-lane road.

Water infrastructure

Community / key stakeholder issue:

Concerns were raised about the potential impact the road would have on the main water pipes that link Rosenthal Reservoir to the lake system behind Sanctuary Springs Estate.

Attention was drawn to the location of a sewer substation located in close proximity to the proposed road. In addition, concern was expressed regarding the proposed road being built on top of a water main. It was suggested that experts have previously indicated this would be catastrophic.

Bus stops

Community / key stakeholder issue:

The potential relocation of the bus stop at the entrance of Greenmeadows Drive is of concern to many. It was suggested that this bus stop is convenient for local residents, as it is accessible, provides connectivity to shops, social institutions, medical facilities and social groups. Concerns include the difficulty that would be experienced in having to cross a four-lane road, safety and that moving the bus stop would jeopardise the accessibility and connectivity it provides the local residents.

Regional Stadium

Community / key stakeholder issue:

The potential impact that increased traffic and associated noise would have on sporting teams and spectators at Regional Sports Stadium events.

Emmaus

Community / key stakeholder issue:

Concerns that Emmaus would not be able to expand their operations due to the road alignment. It was suggested that the reduction of future beds within nursing homes inhibits the ability to provide for the growing, ageing population.

Lake Innes Shopping Village

Community / key stakeholder issue:

It was suggested that access to the Lake Innes Shopping Centre would be jeopardised for residents as a result of traffic turning right at the intersection. Additional concern was that traffic in the area would be increased as a result of the proposed road.

Hibbard Ferry

Community / key stakeholder issue:

There are concerns about the impact the North-South Link will have on the Hibbard Ferry. It was suggested that if Boundary Road was to become a major road heading to the north, the Hibbard Ferry would be impacted due to increased use and queues. Replacing the ferry with a larger vessel was recommended.

Port Macquarie Shooting Complex

Community / key stakeholder issue:

Concerns were raised that the proposed road would significantly impact the operations of the Shooting Complex, however, the Sporting Shooters Association of Australia Port Macquarie Branch indicated they are happy to consult with Council on the potential relocation of the complex, however, this is dependent on finding land with the appropriate land use zone. Concern was expressed about the money that has been spent (millions of dollars) on upgrading the complex.

4.5.2 Infrastructure upgrades

Several comments and suggestions were received for the upgrade of existing infrastructure. It was suggested that prioritising the upgrades of existing infrastructure may remove the need for the proposal Orbital Road.

The duplication of Ocean Drive

Community / key stakeholder issue:

Several comments were received that requested the duplication of Ocean Drive. Questions and concerns raised included:

- What has happened to the funding that was allocated by the State Government for the road duplication.
- Was the money for the upgrade reallocated to fund the Engineering Feasibility Report?
- Concerns regarding Councillor Cusato's comment in the Port Macquarie News that Ocean Drive was no longer a priority for Council.
- The recent estimated cost of the road increasing from $10 million to in excess of $60 million.
- The duplication of Ocean Drive should occur as a priority and may decrease the need for the proposed Orbital Road.
- Suggestions to make Ocean Drive a dual carriageway between Lake Cathie and Gordon Street.
- Suggestions to include a shared path and cycleway along Ocean Drive

Lake Road upgrades

Community / key stakeholder issue:

The upgrade of Lake Road was mentioned considerably in feedback, specifically, it was raised that the 2008 resolution by Council was the Lake Road was the preferred option to cater to east west movement of traffic between Ocean Drive and the Oxley Highway. Lake Road was identified as the alternative to an Outer Link Road. Community members noted their frustration that this upgrade has not been done, and questions raised relating to why the proposed Orbital Road is being considered before this important infrastructure upgrade. Comments received included:

- Lake Road requires complete duplication with two clear lanes with cut-ins for right and left turns at Central Road and Blackbutt Road.
- Lake Road needs to be a dual carriage or even six lanes to address the growing vehicle traffic in the region.

- The upgrade of Lake Road needs to be prioritised by Council.

Upgrading the Oxley Highway

Community / key stakeholder issue:

Comments received related to the upgrade of the Oxley Highway. Suggestions were made that Council needs to lobby the State Government for these important upgrades as they made reduce the need for the North-South Link. Suggestions received included:

- An overpass for westbound traffic for the Wright Road roundabout.
- Overpasses at Lake Road and Fernhill Road.
- Construction of an additional lane on the Oxley Highway, where it approaches a major traffic bottleneck near the Port Macquarie Base Hospital.
- Upgrades at the Wrights Road and Lake Road intersections.

Wrights Road upgrade

Community / key stakeholder issue:

The Wrights Road roundabout was mentioned as a significant congestion hot-spot, with calls to install traffic lights or an overpass. It was suggested that traffic lights are in operation during peak morning and afternoon periods to assist with traffic flow.

Boundary Street upgrade

Community / key stakeholder issue:

It was suggested that flooding on the airport road could be addressed by raising the road level and installing more storm water drains to deal with excess water during storms. A query was raised relating to Council advising that Boundary Street would be upgraded and made flood-free by the end of the year. Requests for the program of works were made.

Replacing roundabouts with traffic lights

Community / key stakeholder issue:

The number of roundabouts across Port Macquarie is of concern, with many community members suggesting they impede traffic, and that they should be replaced with traffic lights.

Comments received included:

- Traffic lights would allow traffic to move more freely.
- Questions were asked why a roundabout was installed at the Lake Road, Oxley Highway intersection instead of traffic lights. Additional suggestion for this intersection is the removal of large trees and shrubs so visibility of traffic conditions ahead would be improved for motorists.
- The main roundabout at the intersection of Major Innes Drive needs to be removed, and traffic lights installed.

Widening existing roads

Community / key stakeholder issue:

It was suggested that traffic congestion issues are the result of main arterial roads being single lane roads. It was recommended that main roads are widened to dual lanes, including Lake Road, John Oxley Drive and Ocean Drive. It was suggested that this approach would have less environmental impact and it would be money well spent, instead of the $1 billion required for the proposed Orbital Road.

Findings from the telephone survey indicate that 40% of respondents believe that widening and improving existing roads should be the priority for future transport funding.

Suggestions for the upgrade of various roads across Port Macquarie

Community / key stakeholder issue:

Suggestions were received for the upgrade of various roads across Port Macquarie. Questions regarding the timeline for various road upgrades were also received. The following questions and suggestions were raised:

- Upgrading the road from the Oxley Highway to the Sherwood Road roundabout.
- Upgrading Lake Road between Ocean Drive and Chestnut Road (such as a through lane at Central Road and a left turn filter lane at the Water Treatment traffic lights for traffic coming from the south).
- Converting the small section across from the Barton Crescent turn-off from Lake Road to two lanes.
- When will the upgrades to Koala Street occur? There are safety concerns about Koala Street.
- Consider reusing roads that have been closed such as the road from Koala Street to Lake Road.
- Continue Koala Street across Ocean Drive.
- Duplication and upgrade of John Oxley Drive between Wrights Road and The Ruins Way.
- Construct an overpass at the Port Macquarie Base Hospital roundabout to allow traffic to move through the area more rapidly.
- Upgrading Hastings River Drive, including the widening of the road from John Oxley Motors to the end of the 50 km area.
- Provision of a road connection from Geebung Road to Kingfisher Road, on the existing Council land. This would provide an alternative route from the industrial area to the waste transfer station; however, it would require the upgrade of Kingfisher Road.
- A proposed bypass of Port Macquarie should be considered south of the retirement village near the Golf Course.
- Suggestion for an access road into the industrial area off Blackbutt Road or Jindalee Road.

4.6 Issue: Community engagement

This section addresses comments and questions on the effectiveness and transparency of the proposed Orbital Road community engagement program. Reference was also made to community engagement that was undertaken in 2007 and 2008 for an Outer Orbital Link Road.

4.6.1 2007 – 2008 engagement

The following section details the concerns specifically around the 2007 to 2008 community engagement.

Previous community engagement on an Outer Orbital Link Road

Community / key stakeholder issue:

Questions were raised about the outcomes of the 2007-2008 community engagement that Council undertook on the concept of an Outer Orbital Link Road. Questions included:

- What route was identified?
- What engagement activities took place?
- What outcomes were achieved from engagement activities and Council discussions?
- Were any environmental assessments conducted and were there any report produced?

4.6.2 The proposed Orbital Road community engagement 2018 - 2019

The following section details the concerns specifically around the engagement from November 2018 onwards.

Inconsistent delivery of communication materials to affected residents and property owners

Community / key stakeholder issue:

Concerns were raised that communication materials about the proposed Orbital Road were inconsistently delivered across the corridor investigation area. Several residents questioned why they received information packages from Council when their immediate neighbours did not (and vice versa). Several requests were made for clarification and assurance for which homes were expected to be directly or indirectly affected by the proposed road.

Lack of transparency and concerns for the authenticity of community engagement

Community / key stakeholder issue:

Comments were received that questioned the authenticity of the community engagement and whether the planned activities were a 'tick-a-box' exercise that Council was required to undertake. Concerns were raised that following the initial announcement of the proposed Orbital Road, Council did not release all the information that was available to support the identification of the 'most viable route'.

Comments received included:

- An open and transparent process would provide the community with completed studies, investigation and evidence to support the proposal.
- The lack of answers that Council was able to provide concerned community members was inadequate given the potential impact the proposal would have on residents.
- Council should have engaged with directly and indirectly affected residents and property owners prior to the November Council meeting and advised them the proposed Orbital Road was being reconsidered.
- The lack of alternative options being presented to the community was of great concern to many.

Meetings with action groups and residents

Community / key stakeholder issue:

Questions were raised about the meetings Council organised with local action groups in February 2019. There were concerns that the invitation being extended at the last minute to all community members affected by the proposal was an afterthought. Many questioned why the original invitation was only delivered to action groups. Comments received commended Council for meeting with affected community members and explaining aspects of the project.

Quality of engagement activities

Community / key stakeholder issue:

Comments received suggested that the community drop-in sessions should have included a presentation from Council to discuss all the issues. There were concerns that there was an insufficient number of project staff available to answer questions from the community, and that Council and independent engagement consultants lacked the project knowledge required to answer questions and concerns.

Some suggested the community drop-in sessions were ineffective and were considered as a public relations exercise to 'sell' the project to the community. Others commended Council on the quality of the information provided and that the sessions were organised and well run. Comments were received that noted the lack of attendance by Councillors and senior Council staff.

Further concerns were raised about the telephone community survey conducted in November 2018 and the proposed Orbital Road survey (online and hardcopy). It was stated that a survey with 600 residents is less than 1% of the Port Macquarie population and that the survey should have reached 10% of the total population following the release of all facts related to the proposed Orbital Road. Queries were raised as to how many residents within the corridor investigation area were contacted to complete the survey.

Concerns were expressed that the online / hard copy community survey was biased and was designed to lead respondents to answer in a controlled way. Further concern was noted for the focus of traffic congestion in the survey and the inability to select multiple responses in the question asking respondents to rank their concerns and issues relating to the proposed road.

Additional comments received included:

- The consultation period was too short and should have been extended due to the holiday period over December and January.
- Appreciated Council staff visiting individual properties and holding meetings with various community and stakeholder groups.
- The comprehensiveness of the website was commended.
- Requests were made that the community and key stakeholders are kept informed on any project progressions

The provision of information in project communication materials and feedback channels

Community / key stakeholder issue:

Comments and questions were received about the project information provided to the community.

Comments were made that insufficient information was made available to the public prior to and following the November Council meeting. This included the following comments and concerns:

- Community members were upset that they were made aware of the project through local news and social media platforms.
- Inadequate detail was provided on the corridor investigation area map.
- The provision of professional support and counselling services contact details was insincere and distressing.
- The project information brochure focused on the benefits of the project rather than outlining the impacts and full details on all route alignments identified in the Engineering Feasibility Report. Further comments suggested the document was a sales brochure and was an expensive document and a waste of rate payer's money. Others believed the brochure was well presented and provided detailed information.
- Residents in Fernhill Road and Oxley Highway were angered at the lack of attention and explanation for the Primary Airport Access Road linking to Fernhill Road. Fears where expressed that this area had been forgotten and that there appeared to be no logic in having the road cross through an environmentally sensitive area into Fernhill Road.

- Initial project communication materials did not present all route options identified in the Engineering Feasibility Report. Questions were raised about why only one route was being presented to the community.
- The staggered release of information, including the Engineering Feasibility Report, more detailed project details and the Area Wide Traffic Study was questioned. Many asked why all information was not released when the project was announced.
- Suggestions that the community engagement should have reflected that undertaken for Stingray Creek Bridge – where the community were presented with options rather than one route alignment.
- The frequently asked questions (FAQ) documents were light on detail. It was suggested that the engagement was prematurely initiated prior to all detailed information being developed for the public.

Timing of the announcement and doorknock of affected residents and property owners

Community / key stakeholder issue:

Concerns were raised about the timing of the doorknock, firstly, being the day after the Council decision, suggesting a decision had already been made, and secondly, suggestions that the doorknock was done during the day when most people would have been at work. It was suggested that this was a deceitful approach in order to avoid confrontations with affected community members. Those that were home to receive project information indicated that they were unimpressed that Council staff were able to provide them with additional information and answer their questions.

Some residents expressed anger at the materials being delivered to their homes with no forewarning the project was being discussed at the November 2018 Council meeting.

Many community members expressed their concerns at the timing of the project announcement. Concerns included:

- The announcement had ruined Christmas for many affected community members.
- The stress the announcement placed on many was noted, in addition to the period of no information being released over the holiday period.

Communication with Council

Community / key stakeholder issue:

Comments were received about communications with Council staff and Councillors regarding the proposed Orbital Road. For some, they considered automatic email responses from elected officials to be inconsiderate. Frustrations were expressed for the lack of or delayed response to questions and concerns about the road proposed. Others commended Council for the responses to emails and phone calls, acknowledging that Council would have been inundated with queries from the community following the announcement.

Corridor investigation area maps

Community / key stakeholder issue:

Comments on the corridor investigation area map were received and included:

- The map of the corridor did not clearly indicate which properties would be impacted.
- The map was too small and lacked detail including property boundaries and local streets.
- There was no scale on the map to show the width of the investigation corridor.
- The initial map did not show all route alignments identified in the Engineering Feasibility Report.

- Questions were raised as to why the map indicated the East-West Link running south of St Columba Anglican School when the Engineering Feasibility Report Option 1A showed the road running to the northern boundary.

4.7 Issue: Property and acquisition

This section addresses questions and comments on property acquisition within and adjacent to the corridor investigation area, the compensation timing and process, and impacts to property values following project announcement.

4.7.1 Process and timing

The following paragraphs contain comments received outlining the timing and process of certain activities and where it connects to a decision the community member has to make about their property.

More information on process and timing

Community / key stakeholder issue:

Requests were made for more information to be provided to the community on the property acquisition process and which properties would potentially be required for the road to be developed. Property owners requested more certainty about the timing and process of the acquisition of land within the corridor investigation area.

Questions included:

- What land would be acquired for the road?
- When would the property acquisition process commence?
- Would land be purchased at market value? How are prices determined?
- What happens in the interim until a corridor is protected?
- When would the property acquisition process commence?
- If land acquisition is required, where will the source of funds to acquire land come from?
- When would property owners be notified that their property would be acquired?
- Can Council acquire properties now at the request of the owner?
- Why is compensation not offered now, rather than in 7 – 12 years?

Results from the proposed Orbital Road community survey indicate that impacts to existing properties ranked the highest when asked what respondents were the most concerned about with regard to the Orbital Road.

Process for determining land required for acquisition

Community / key stakeholder issue:

Questions were raised by the community regarding which properties are located within the corridor investigation area. Requests were made for property owners to be advised if their property is within or adjacent to the corridor. It was suggested that in the event a property is not within the investigation area, Council should issue a letter indicating this so potential buyers can be assured the property is 'safe' from future acquisition.

Property upgrades in the interim

Community / key stakeholder issue:

Questions were asked about planning renovations and improvements to homes. Some expressed their frustrations that improvements to their homes had been made in the past decade as they believed the proposed road was not going to be reinvestigated following the decision of the Council Administrator in 2008.

Others currently have plans for home improvements and expressed their concerns that plans must be put on hold until a decision is made, which could be seven to 12 years away.

Early and timely acquisition of property

Community / key stakeholder issue:

Comments received requested that acquisition should occur in a timely manner. Comments were made that the project timeline indicate that, if the road is approved, acquisition would not occur for seven to 12 years. The delay in acquisition would restrict property owners' ability to sell, renovate and cause long-term uncertainty impacting on health wellbeing.

Some property owners requested that their property is acquired now, as the uncertainty around the project places future plans on hold and restricts their ability to sell. Many property owners stated that they do not wish to have their lives placed on hold until a decision to protect the corridor and certainty is provided regarding acquisition.

Protection of the corridor and uncertainty

Community / key stakeholder issue:

There are concerns that the timeframe until the corridor is protected (if the project is approved) is creating a great deal of uncertainty for property owners. It was noted that even though Council indicates the project is in the early planning phase, this does not alleviate the sense of helplessness felt by many in the community.

Questions were raised about what property owners are to do in the interim until a decision is made.

Some residents have had recent, costly development applications approved and following announcement are hesitant to undertake works, as their properties may be acquired in the future. Questions were asked about whether Council would refund the costs associated with the development applications.

4.7.2 Impacts to property values

The following paragraphs contain comments received outlining the impact to property values, including sales of homes, limbo between now and a decision being made, and impacts specifically to retirees and investors.

Decrease in property values following project announcement

Community / key stakeholder issue:

Residents and landowners within and adjacent to the corridor investigation area have expressed their concerns about the impact the project announcement has had on property values. Some residents indicated that they would investigate a legal class action against Council for the loss of property value.

Many residents expressed anger and frustration due to being placed in a position of uncertainty for an unknown length of time.

Comments received included:

- The immediate impact the announcement has had on local property prices within and adjacent to the corridor investigation area.
- An estimated $100,000 has been wiped off the value of homes along the road alignment.

- Several homes across the area have not sold since the announcement, with some noting that local real estate agents have suggested they are removed from the market until a decision is made about the road.
- The financial and emotional impact the announcement has caused to community members cannot be underestimated.
- Residents feel a sense of hopelessness that they are in a position where they are unable to sell their homes until a decision regarding corridor protection is made.
- The length of time residents are expected to wait until a decision is reached is not acceptable. Questions were asked about what they are expected to do with their properties in the meantime, given they are unable to sell and move elsewhere.
- Prior to the announcement, Sanctuary Springs and Greenmeadows areas where seen as highly desirable places to live and purchase within, however, it was suggested that residents are now unable to sell their properties in the current market.
- The difficulty in obtaining a property valuation for homes located within the investigation corridor.

Impacts to retirees and investors

Community / key stakeholder issue:

Comments were received about the residents, specifically, elderly residents and retirees who want to downsize or relocate to nursing homes and are now unable to do so as they cannot sell their properties until a decision about the proposed Orbital Road is made.

Comments received included:

- The inability to sell property to purchase a home in nursing home accommodation or retirement villages.
- The impact the proposed road is having on many retired and elderly residents within the investigation corridor.
- The impact to self-funded retirees whose homes are their financial asset and are now unable to sell.
- People who have invested in properties within or in close proximity to the investigation corridor are at a financial loss due to the project announcement.

Public exhibition of alternate routes for the proposed Orbital Road

Community / key stakeholder issue:

Concern was raised about the Engineering Feasibility Report identifying alternate routes and the subsequent impact this has on properties within these alignment corridors. Specifically, concerns for Option 3 were noted, and that the indication of a potential road along route Option 3 has the potential to impact landowners' ability to develop their land.

4.7.3 Compensation for directly affected properties

The following paragraphs contain comments and questions about the process and amount of compensation that would be given to affected property owners in the corridor investigation area.

General questions about compensation for directly affected properties

Community / key stakeholder issue:

Questions raised included:

- How residents would be compensated for:
  - Loss of land?

  - Impact to property prices?
- How compensation is calculated?
- When compensation would be available?

Fairness and amount of compensation

Community / key stakeholder issue:

Concerns were raised at the amount of compensation that is offered to affected property owners. Questions were raised about whether properties would be acquired at market value. It was suggested that a regional Council such as Port Macquarie-Hastings Council would unlikely be able to generate the funds required to purchase the number of properties in the investigation corridor, even with the assistance of State or Federal funding.

Some considered it unfair that compensation for affected property owners is not available until the corridor is protected and the project nears the construction stage. It was suggested that regardless of the amount of compensation offered, it would not be enough to address the emotional costs of losing a residential home.

There are concerns that once land within the corridor is rezoned to SP2 Special Infrastructure, the market value would be decreased and would be reflected in the compensation offered.

Compensation for home improvements and investment properties

Community / key stakeholder issue:

There are concerns that property owners have carried out renovations, which Council approved, and never mentioned that the proposed Orbital Road was being reinvestigated. Many expressed their frustrations that they were not informed and questioned whether they were able to seek compensation as if the road is approved, they will be at a financial loss.

Some community members stated that they have recently purchased investment properties with the corridor investigation area that they are now unable to sell due to the project announcement.

Compensation for full or partial acquisition

Community / key stakeholder issue:

Questions were raised about whether properties would be completed or partially acquired and how compensation is determined for partial acquisitions. Concerns raised by St Columba Anglican School related to the severe impact the East-West Link would have on school operations and that compulsory acquisition of either alignment option (north or south of the school) would be likely according to the *Land Acquisition (Just Terms Compensation) Act 1991*. It was suggested that Council would need to acquire the whole of the school property which would be in excess of $50 million.

4.7.4 Compensation for properties adjacent to the proposed Orbital Road corridor

The following paragraph is around comments received outlining the impact to housing prices and the possibility for compensation and acquisition.

Impact to properties adjacent to the proposed Orbital Road

Community / key stakeholder issue:

Concerns were raised about the lack of compensation that would be available to properties adjacent to the proposed Orbital Road. Comments raised included:

- The depreciated of land/house prices as a result of changed outlooks.
- What compensation would be offered for residents adjacent to the road during the construction phase

- Why people adjacent to the road corridor would not receive any compensation under the *Land Acquisition (Just Terms Compensation) Act 1991*.
- Why Council did not advise the community that properties with proximity to the road would not be compensated.
- Whether Council would acquire and compensate property owners that would be indirectly affected by the road.

4.8 Project alternative

This section includes comments and suggestions for alternative alignments that would minimise environmental and property impacts.

4.8.1 Alternative alignments

The next paragraphs detail comments and suggestions about alternative alignments for the proposed Orbital Road.

General comments on alternative road alignments

Community / key stakeholder issue:

Alternative alignments were suggested by community members. Comments received included:

- Investigating an alternative alignment that minimises impacts to:
  - Residential homes
  - Crossing Lake Innes Nature Reserve
  - The Rifle Range
  - The environment, particularly koala habitats
- The new road should follow the Googik Heritage Walking Track.
- Locate the route to the south of the RSL village between the fire trail and Lake Innes Track, follow the walking track toward SCAS then past the Crematorium, then between the subdivision at Ascot Park and Sovereign Hills, then onto the Airport.
- Create a corridor to connect to Industrial Precinct.
- Alternative to Ocean drive connection at Koala Street.
- Alternative route south of Lake Innes from crematorium.
- Alternative route to the south to connect with Ocean Drive near Pacific Drive roundabout.
- Reconsider the original plan from 1990.
- The question was asked whether Council has considered tunnelling sections of the road to minimise ground level impacts.

Suggestions for alternative road alignments for the Primary Airport Access Road

Community / key stakeholder issue:

Many suggestions for alternative alignments for the Primary Airport Access Road were received from community members. Comments received included:

- Finishing the Primary Airport Access Road at the Oxley Highway.
- Joining the Primary Airport Access Road to the Oxley Highway – Fernhill Road roundabout.
- Aligning the road to the south of Lady Nelson Drive in order to minimise the social impact.

- Remove the proposed Primary Airport Access Road and focus attention on raising the road level on Boundary Street.
- Airport entry to the Oxley Highway: the proposed alignment falls well to the West of the existing airport entry road adjacent Newman College. The most direct and sensible geometric alignment would be from a future roundabout at Newman College, fringing the wetlands and then north of the racecourse to the Oxley Highway.
- The road would be more beneficial to exit the Oxley Highway at Lindon Park Road and transverse the area through to Boundary Road and the airport. This would alleviate the congestion at Wrights Road and the Lake Road roundabout.
- Join the Primary Airport Access Road to the Clifton Drive roundabout or Lake Road roundabout.
- Connect the second airport access road to Area 13 – Thrumster by connecting the Frogs Road over pass and John Oxley Drive. This would result in the airport having access to the Pacific Highway, the Oxley Highway, John Oxley Drive and Hastings River Drive.
- Link Boundary Road to Tuffins Lane and around the Racecourse to the Oxley Highway.
- Use the Binnacle as the second access road.

Suggestions for alternative road alignments for the East-West Link

Community / key stakeholder issue:

Many alternative alignments for the East-West Link were suggested by community members. Comments received included:

- Consider placing the road to the south of Emerald Downs.
- Upgrade Lake Road to 4 – 6 lanes to become the primary East-West link.
- Place the road to the north of St Columba Anglican School, and use Council land at the waste facility.
- Locate the road through Lake Innes Nature Reserve to the south of Dahlsford Grove Retirement Village to avoid impacts to existing residential areas.
- The Orbital Road should join Ocean Drive just to the south of Marantha Place.
- Ocean Drive to Major Innes: consider alignment from off the bend in Ocean Drive across the southern boundary of Jim Newtons' land and north of St Columba Anglican School.
- Circumnavigate the golf course through the lesser populated area and emerge through on–off ramps on Lake Road, somewhere near Central Road.
- The road should run from Ocean Drive below Elkhorn Grove (behind Tacking Point, Emerald Downs, Crestwood and Greenmeadows) then across to the John Oxley Drive area.
- Build the road further south on Ocean Drive, opposite the Golf Club where the camels are the only ones inconvenienced. This would take a lot of the traffic off Ocean Drive coming from Bonny Hills.
- Duplicate Lake Road and extend Koala Street westward from Ocean Drive and skirt around Chestnut Road and Jindalee Road, with the exit being in the vicinity of Kingfisher Road.
- Revisit the previous alignment option of East West Link - Option 3E/3A.
- Investigate a link from Koala Street through the back of the industrial area to Kingfisher Road or Major Innes Road.
- Continue the road past Major Innes Drive and straight onto the roundabout where John Oxley Drive meets the Oxley Highway.
- Place the road through the old waste tip and Googik Track.
- Provide a road to the Health and Education Precinct through Toorak Court.

- An alternative route could be along Kingfisher Road to the north of the Lakes Innes Village.
- A possible route is from the Seven Day Adventist School through to the north side of St Columba Anglican school, connecting behind Lake Innes Shopping Centre.
- Follow the existing walking track behind St Columba Anglican School and connect with Crestwood Drive or Emerald Drive.
- Connect Camelia Circuit to the Orbital Road. Connect Crestwood Drive to Gardenia Circuit and Crestwood Drive to the Emerald Downs area. This would provide alternative access for those living in the southern areas of Port Macquarie.
- Start the road at the Point Drive then along the Brierley East side of Innes Lake and join up with Ocean Drive at the back of Greenmeadows.
- Continue the East-West Link from Ocean Drive to the Oxley Highway. Link the Ruins Way with the East-West Link and onto the North-South Link.

Suggestions for alternative road alignments for the North-South Link

Community / key stakeholder issue:

Alternative alignments for the North-South Link were suggested by community members. Comments received included:

- Flood proof the North-South Link so a second flood free route that impacts Fernhill Road is not needed.
- Provide a dual lane link road from the crematorium turn off on John Oxley Drive, through to the airport, linking onto Hastings River Drive at airport turn off.
- Connect the East-West Link into The Ruins Way or The Point Drive
- Locate the North-South Link further west to cater for population growth in the western areas of Port Macquarie.

4.9 Issue: Investigations and evidence

This section addresses comments and questions about the investigations and studies completed that identified the 'most viable route'. This includes requests made by the community for additional evidence to support the need for the project.

4.9.1 Engineering Feasibility Report

Comments and questions about the Engineering Feasibility Report.

Four route alignments identified in the Engineering Feasibility Report

Community / key stakeholder issue:

Many questions were raised about the four route options that were identified in the Engineering Feasibility Report. Specifically, questions were raised about the initial exhibition of only one alignment, Option 1B, running to the south of St Columba Anglican School, and why not all alignment options were exhibited to the public.

Concerns raised included:

- Showing the community one option, is not an option. All route alignments should have been presented to the community for feedback during community engagement. A lack of options suggests that a route has been predetermined.
- Why the route exhibited in November showed the road alignment running south of St Columba Anglican School and the road cross over into Fernhill Road.

- Why the report was not released earlier, with some residents having to lodge a Government Information Public Access form.
- The limitations of a desktop environmental assessment. Council planners were urged to walk the alignment route to further understand what the real impacts of the road would be, to homes and the environment.
- The omission of the previous Council decision in 2008 to upgrade Lake Road as the East-West connection. Lake Road as the preferred East-West option was identified following consideration of multiple route options during Value Management workshops in 2006. Questions were raised about whether this upgrade would replace the need for the proposed East-West Link.

Concerns were expressed relating to the identification of the 'most viable route'. Questions and comments included:

- What alternative alignments would become viable if genuine and appropriate weighting of social and community impact were considered in the cost benefit analysis.
- No traffic modelling has been conducted for the four route alignments. This is required to confirm which route is the most viable.
- Failure to consider the social and community impacts in the cost benefit analysis may alter the outcome of the Engineering Feasibility Study.
- The cost benefit analysis appears to have heavily weighted ecological and engineering impacts without appropriate balance for social and community impacts.

Additional concerns raised relating to the Engineering Feasibility Report included:

- Claims that the methodology was flawed. It was suggested that it is premature for Council to proceed to a Strategic Business Case given the flaws in the identification of the preferred route Option 1.
- Concern was raised relating to the conclusions drawn from the Multi Criteria Analysis (MCA). It was suggested the MCA is a flawed decision approach that is not preferred by NSW Treasury or the Transport for NSW. It was noted that the MCA did not focus on the positive and negative aspects of the options, and that focus was solely on constraints.
- The combining of rankings from the MCA and the Strategic Cost Estimate to identify a preferred route is questionable.
- Concerns the Benefit Cost Analysis (BCA) was only undertaken for route Option 1, with no comparative analysis of the previous alignment preferred by Council which avoids the constraint and cost of traversing Lake Innes Nature Reserve.

Investigation area as prescribed by Council

Community / key stakeholder issue:

Questions were raised about Council's preferred corridor that OPUS consultants were provided with. It was suggested that the narrow investigation area was designed to provide Council with the route alignment outcome they were seeking rather than the identification of the best and most viable route. Further suggestions include the report as biased given the limited investigation area. Some residents questioned whether they would need to commission their own feasibility study to examine alternative routes.

Minimal consideration of social impacts

Community / key stakeholder issue:

Community members drew attention to the lack of consideration in the report to the social impacts the road would cause. It was suggested that there is no mention of people and their environment in the report, and that 475 ratepayers, whose homes will be impacted should be considered as threatened species.

Many stressed the need for thorough social impact assessments to be conducted, with some suggesting the outcome will indicate that the road is not viable.

Primary Airport Access Road link into Fernhill Road

Community / key stakeholder issue:

Concern was expressed for the exclusion of the Primary Airport Access Road link into Fernhill Road in the Engineering Feasibility Report. Many questioned by this link is being considered when it was not assessed, and the feasibility was not examined.

4.9.2 Area Wide Traffic Study (AWTS)

Comments and questions about the findings of the Area Wide Traffic Study and traffic modelling for future growth.

Access to the Area Wide Traffic Study

Community / key stakeholder issue:

There are concerns about the delay in making the findings from the Area Wide Traffic Study available to the community. It was suggested this eroded the transparency that Council was proclaiming.

Claims the road count data is inaccurate

Community / key stakeholder issue:

It was suggested that the data used in the Area Wide Traffic Study was inaccurate. With roads such as Lake Road and Ocean Drive remaining unfinished to full capacity, it was claimed that the road counts are inaccurate and therefore cannot be used as facts to support the need for the proposed Orbital Road.

Traffic modelling and movements

Community / key stakeholder issue:

It was suggested that the data used in the Area Wide Traffic Study was inaccurate. With roads such as Lake Road and Ocean Drive not upgraded to full capacity, the road counts are therefore inaccurate and cannot be used as factual.

Additional concern was raised for the traffic counts along Ocean Drive and through the Greenmeadows area. It was suggested that the traffic count data will contradict Council's predicted traffic volumes, as for most of the day (outside peak periods), traffic flow is light.

Requests to see the data supporting travel demand to the Airport were made. Specifically, data identifying where people using the Airport are travelling to and from on the road network. was requested.

Questions raised included:

- How future traffic movements have been calculated.
- Did the traffic modelling in 2015 consider changes in the Health and Education Precinct, the new Bunnings store and recent housing development approvals.
- Has a traffic movement study that assesses the types of vehicles and timing of congestion periods been conducted, specifically, the number of heavy goods vehicles using main roads.

- Where is the traffic travelling in a north east direction on the Oxley High going to?
- How much of this traffic is expected to use the East-West Link?

4.9.3 Calls for evidence supporting the need and location of the proposed Orbital road

Questions and concerns relating to the evidence to support the proposed road alignment and strategic need for the project.

Proof that proposed Orbital Road will alleviate traffic congestion

Community / key stakeholder issue:

Requests were made for the community to be shown the evidence that the proposed road will alleviate congestion hot-spots across Port Macquarie. Community members suggested that there is no strong evidence to support the fact that the proposed road will achieve its objectives. Many residents stated that they failed to see how the road would solve traffic issues.

Requests were made to see the evidence that commuters coming from the south would be travelling to the west of Port Macquarie. It was suggested that they would continue to use Ocean Drive to travel into the CBD and would likely not use the proposed East-West Link.

Living on main roads

Community / key stakeholder issue:

Several community members expressed their anger at comments the Mayor made on ABC; suggesting that people enjoy living on main roads. Reference made to Sydney and Melbourne, where it is commonplace, however, the Port Macquarie environs are dissimilar to these cities, and living on a main road is not considered desirable. Evidence to support this suggestion was requested.

4.10 Issue: Design

This section addresses comments and questions about the design features of the proposed Orbital Road and the crossing of Lake Innes Nature Reserve.

4.10.1 Road design

Comments and questions about the design elements of the proposed Orbital Road including road width and height, shared pathways and accessibility.

Entrance and egress to local roads

Community / key stakeholder issues:

Questions were raised about how residents would be able to access the proposed road from smaller side streets. With reference to the road diagrams in the Engineering Feasibility Report it was noted that the drawings did not illustrate how adjacent residents would access the road or their local streets, particularly for residents in Sanctuary Springs Estate, Greenmeadows Drive and those to the south of St Columba Anglican School.

Concern was noted for entrance and egress challenges that a four-lane road poses for residents around the Greenmeadows Drive area. The following questions were raised:

- Will there be an off-road from the proposed road onto Greenmeadows Drive or will it be turned into a cul-de-sac?
- Will the intersection at Ocean Drive and Greenmeadows Drive have slip / seagull lanes?

It was recommended that links and intersections need to provide local access to the proposed Orbital Road.

Design features of the proposed Orbital Road

Community / key stakeholder issues:

- A project information brochure was released to the community that included a cross section of the road which addressed many questions raised by community and stakeholders. Prior to the release of this brochure, questions were asked about the design specifics of the road, including:
- What is the proposed width and height of the road?
- Would the road be single, double lane or dual carriageway?
- What would the configuration of left and right turning lanes be?
- How wide would the construction zone on either side of the road be?
- How many homes would need to be acquired to enable the road to be built?
- What speed limit would be enforced?

Recommendations were made, for example, that the road needs to be dual carriage way along the entire length and that where the East-West link crosses the Oxley Highway, it would need to be an overpass with entry and exit ramps. It was noted that an intersection at this location would be a poor decision and create a bottleneck of traffic.

Shared paths and cycleways

Community / key stakeholder issues:

Requests were made for the inclusion of shared cycleways and footpaths adjacent to the proposed road, with reference to Dutch cycleway design. Some requests were for a stand-alone path, separated from the main road for use by pedestrians, mobility scooters and cyclists. Calls for a clear delineation between the road and pathway to increase safety for pedestrians and cyclists were made.

4.10.2 Crossing Lake Innes Nature Reserve

This section includes detail on comments and questions from community and stakeholders about the crossing of Lake Innes Nature Reserve including potential challenges and impacts.

Crossing of Lake Innes Nature Reserve

Community / key stakeholder issues:

Questions were raised on whether the crossing of Lake Innes Nature Reserve would be elevated (bridged) or at road level. Many community members are angry at the concept of the proposed road crossing Lake Innes Nature Reserve, due to the impacts this would cause to wildlife and habitats. Reference to the classification of a Nature Reserve as the highest level of protection to a natural environment was made, in addition to the need to protect such environments for future generations and that an Act of Parliament would be required.

Some concerns were expressed that Council has downplayed to the community the difficulties in obtaining permission to cross the Nature Reserve. It was suggested that alternate crossing points should also be considered given that an Act of Parliament would be required for any crossing of Lake Innes Nature Reserve.

The Office of Environment and Heritage (OEH) noted that they support Council in undertaking community consultation and that they would continue to work with council on the possible impacts to Lake Innes Nature Reserve.

Other comments expressed support for the crossing of Lake Innes Nature Reserve with an elevated bridge (similar to that on the Pacific Highway, Kempsey). It was suggested that Council needs to clearly demonstrate to the community the environmental mitigation measures and construction techniques that would be used when crossing Lake Innes Nature Reserve.

Following the existing easement through Lake Innes Nature Reserve

Community / key stakeholder issue:

Using the existing easement through Lake Innes Nature Reserve for the proposed Orbital Road is of concern to many. Comments were made on the existing easement being approximately 5 metres wide, whereas the road clearing would be in excess of 40 metres. Concerns were made regarding the intrusiveness of a road as opposed to power lines and water pipes, and the extensive clearing that would be required to cross the reserve and the impacts to fauna movements.

4.11 Issue: Planning policy

This section addresses comments and questions regarding alignment with existing local, State or Commonwealth Government legislation, strategies and guidelines.

4.11.1 Local planning documents

The next paragraphs detail the comments and questions about the alignment of the proposed Orbital Road to existing local and State Government legislation, strategies and guidelines.

Urban Growth Management Strategy (UGMS)

Community / key stakeholder issue:

Comments were made that many community members were surprised that the concept of a proposed Orbital Road was included in the Urban Growth Management Strategy (UGMS).

Port Macquarie-Hastings Council Biodiversity Strategy

Community / key stakeholder issue:

Concerns were raised about the potential impact on species and their ecosystems within the investigation area. It was noted that the impacts from the road would extend well beyond the 5-kilometre buffer zone that was applied for the environmental desktop analysis. The Port Macquarie-Hastings Council Draft Biodiversity Strategy sets out the responsibility and obligation the community has for the protection and preservation of wildlife and habitat.

Regional Integrated Transport Strategy (RITS)

Community / key stakeholder issue:

There are concerns that the proposed Orbital Road does not align with the principles and key objectives of the Regional Integrated Transport Strategy (RITS). It was suggested that the proposed Orbital Road contradicts the purpose of the Strategy, which is to provide “safe, economical, and appropriate transport opportunities by improving access and reducing reliability on cars” (Proposed Orbital Road Information Brochure, 2018 p.3) as the road would result in more cars on the road.

NSW North Coast Regional Plan

Community / key stakeholder issue:

It was suggested that Council has used the NSW North Coast Regional Plan as evidence that the NSW Government are supportive of the proposal. Concern was expressed that the dotted line labelled “proposed road” in the Regional Plan is not sufficient evidence of support for the project.

NSW Koala Strategy and Port Macquarie-Hastings Council Koala Recovery Plan

Community / key stakeholder issue:

It was suggested that the proposed Orbital Road contradicts various documents aimed at the protection of land to support koala conservation including the NSW Koala Strategy and Council's Koala Recovery Plan. Concerns raised include:

- The impact that the Primary Airport Access Road would have on known and documented koala breeding habitats, specifically at Fernhill Road and the Oxley Highway. Local residents in this area commissioned an independent report by Bio-diversity Australia which confirmed the breeding koala habitat and that a major road development would have devastating impact to the koala population.
- The proposed road contradicts the recommendation that was reached at the Koala Roundtable, that no bad decisions are made that would worsen the prediction of local koala extinction within the next 50 years.
- There is concern that the proposed Orbital Road contradicts the approval of the South Lindfield Koala Plan of Management associated with the South Lindfield Urban Release Area Local Environmental Plan 2018. It was suggested that provisions have been put in place to protect koala habitats through the Plan of Management, whereas the proposed Orbital Road would destroy koala habitats.

NSW Government policies and guidelines for major infrastructure projects

Community / key stakeholder issue:

Attention was drawn to the process for the approval of major infrastructure projects and that the public information on the proposed Orbital Road does not meet the guidelines including those set out in the NSW Gateway Policy and Guidelines, the NSW Government Business Case Guidelines and Infrastructure NSW' Infrastructure Investor Insurance Framework.

4.11.2 Alignment with recent planning decisions

The next paragraphs detail the concerns and questions around how the proposed project aligns with the requirements of another planning document.

South Lindfield Urban Release Area LEP amendment

Community / key stakeholder issue:

Concerns were raised regarding Route Option 3 as identified in the Engineering Feasibility Report as contradicting recent planning decisions made by Council for the South Lindfield Urban Release Area Local Environmental Plan Amendment. It was noted that land had been rezoned in December 2018 from RU1 Primary Production zone to R1 General Residential and E2 Environmental Conservation.

Concerns included:

- Route option 3 would significantly impact on the ability to meet the management provision set out in the South Lindfield Koala Plan of Management.
- The ability to comply with the South Lindfield Urban Release Area Planning Agreement.
- The impact the display of route Option 3 has on landowner's ability to develop land within the urban release area.

4.12 Issue: Economic considerations

This section details comments and questions on the impact of the proposed Orbital Road corridor on local businesses, organisations and the tourism industry.

4.12.1 Local businesses and organisations

The following paragraphs contain comments and questions about the impact to local businesses and organisations within or adjacent to the exhibited investigation corridor.

Impact to the Hastings Rifle Range

Community / key stakeholder issue:

There are concerns about the impact that the North-South Link would cause to the shooting complex. It was noted that millions of dollars have been spent on upgrades to the complex.

Impact to businesses in the Lake Road business area

Community / key stakeholder issue:

There are concerns about the impact to businesses on Lake Road that have signed commercial leases at high rates due to the high traffic flow. It was suggested these businesses would be negatively impacted if the traffic flow was reduced as a result of the proposed Orbital Road funnelling traffic away from the area.

Impact on ACES Disability Services and Care Organisation

Community / key stakeholder issue:

Concerns were noted on the potential impact the Primary Airport Access Road would have on ACES Disability Services and Care Organisation - a valued community asset on Fernhill Road. Concerns included:

- The Fernhill Road link will impact on the vehicle and pedestrian access, resulting in the centre becoming a traffic island.
- Increased passing traffic would make the venue less desirable as a disability service location and impact on pedestrian safety.
- The current location is tranquil and desirable, however, if a four-lane road was constructed, this would result in the loss of business.
- Increased noise and sensory overload would impact on clients and staff.

Impact on childcare centres

Community / key stakeholder issue:

Concern was expressed for several childcare centres which would be impacted if the proposed Orbital Road was approved. Childcare centres on Fernhill Road and Ocean Drive were referenced.

Economic benefit

Community / key stakeholder issue:

It was suggested that upgrades and investment in infrastructure including the proposed Orbital Road is crucial to the economic prosperity and growth of Port Macquarie. The local employment opportunities that would be generated from a major infrastructure project such as the proposed Orbital Road are seen as a positive economic benefit to the region.

4.12.2 Tourism

The following paragraphs contain comments and questions about the tourism elements of the proposed Orbital Road including impact on local attractions, koalas as integral to tourism promotion and potential benefits the road would have on the local tourism industry.

Impact on local tourist attractions

Community / key stakeholder issue:

There are concerns about the impact the proposed Orbital Road would have on key tourist destinations including Lake Innes Nature Reserve and Kooloonbung Creek Nature Park. These environmental assets are highly valued, and the proposed road is viewed as a threat to these tourist attractions.

Koalas as a tourism promotion

Community / key stakeholder issue:

Port Macquarie's koalas, the Koala Hospital, the koala statues, koala signage and the Koala Conference are considered as economic and tourism drawcards. The possible destruction of koala breeding habitat for the proposed Orbital Road is considered to go against the value the Port Macquarie community places on the local koala populations and related tourist attractions.

Specific mention was made of the koala breeding habit that would be compromised by the Primary Airport Access Road.

Benefits to the local tourism industry

Community / key stakeholder issue:

Comments received included support for the road as it would be an economic catalyst that would benefit the local tourism industry. The provision of a flood-free route to the upgraded airport is seen as a contributor to local tourism as accessibility and connectivity would be improved.

4.13 Issue: Heritage

This section details the comments about the impact on European heritage, including comments about Alban House and the Rifle Range.

4.13.1 Local heritage buildings

Comments and questions about the impact the proposed Orbital Road would have on Alban House, located on Fernhill Road.

Alban House

Community / key stakeholder issue:

The historical importance and value of Alban House located at 7 Fernhill Road was mentioned in several pieces of feedback received. Concern was raised for the threat the Primary Airport Access road presents to the historical building. Local knowledge on the property was extensive including:

- The property was once the home to Port Macquarie's longest serving Mayor and notable local figure, Major Alban Charles Elliot MC.
- The property is 100 years old and possesses significant historical value to the Port Macquarie community.
- The built structure is one of a handful of significant red mahogany weather board houses that remain in the area.

- The property contains multiple significant trees that provide habitat to the local koala population.

Port Macquarie Rifle Club

Community / key stakeholder issue:

The heritage value of the Port Macquarie Rifle Club was mentioned, which has been there for 130 years. It was noted that this local institution needs to be preserved.

5 FINAL THOUGHTS AND RECOMMENDATIONS

5.1 Final thoughts on the findings from community feedback

The community engagement program provided avenues for both qualitative (written submissions) and quantitative (surveys) data to be received by Council. This presents both benefits and challenges to the outcomes of engagement. High level analysis of survey data indicates that for the initial telephone survey, 71% of respondents were supportive of the concept of an Outer Orbital Link Road, however, they were not provided with details of where such a road would be located.

Results from the proposed Orbital Road Community Survey indicated a clear division between those who support (48% of respondents) and those who oppose the project (48% of respondents). 3 % of respondents neither opposed or supported the project and 1% stated they did not know.

Written submissions and feedback delved deeper into why the project is either supported or opposed by the community, and as with many community engagement programs, it is often those who are likely to be impacted by a proposal, policy or plan that are most likely to take the time to provide feedback as they have a vested interest in the outcome. This presents a challenge in ensuring that broad community responses are received for such proposals.

The proposed Orbital Road engagement program reflects the nature of community engagement on projects that have the potential to impact on individuals, communities, and what they value about their local environment. There was heavy involvement during the engagement program from community members who would be directly or indirectly impacted by the current proposal. This was reflected in the number of submissions received from those within or adjacent to the corridor investigation area and verbal feedback received at the community drop-in sessions and Council briefings.

The majority of written submissions received either opposed the project outright or believed the road is needed, however, a new alignment needs to be identified that minimises impacts to homes, businesses and the environment. That said, there were several submissions that support the road. It was acknowledged that if the proposed Road had no other option but to cross Lake Innes Nature Reserve, Option 1B as identified in the Engineering Feasibility Report would be the more preferred option. Option 1B runs to the north of St Columba Anglican School which would significantly impact the Health and Education Precinct; however, community sentiment is that residential homes should be a priority over private institutions.

People who support the project believe it will create better connectivity across Port Macquarie, particularly for those living in the southern areas, and that the road would redistribute traffic across the network with the end result being the alleviation of congestion hotspots during peak periods.

Conversely, many community members do not believe the proposed Orbital Road will alleviate and redistribute traffic across the region, and call for Council to present the evidence that this would be the result. Numerous submissions request that another Area Wide Traffic Study is conducted that takes into consideration the upgrade of both Lake Road and Ocean Drive. It is believed that if these two key roadways were duplicated, it would lessen the need for the proposed Orbital Road.

Community members have recommended several alternative ideas for Council to consider before the decision to progress investigations for the road is made. Specifically, the upgrade of existing road infrastructure was one of the most frequently mentioned comments, with the duplication of Lake Road and Ocean Drive being the most dominant, followed by the replacement of roundabouts with traffic signals and the widening of existing roads.

The community engagement program drew out the underpinning issues and concerns surrounding the potential impact the proposed Orbital Road would have on the local community, the environment and existing infrastructure.

These findings provide Council with a deeper understanding of the social, cultural and environmental values tied to the local area and the potential impacts that the proposal will have on the community, specifically, residents, property owners and local businesses within and adjacent to the corridor investigation areas.

Specifically, the impact on property values, the potential loss of home and lifestyle and the ability for directly and indirectly affected members of the community to plan for the future until a definitive decision is made regarding the project.

The openness and transparency of Council was an overarching theme reflected in many of the submissions received. This was evident especially in community comments relating to the exhibition of the 'most viable route', the staggered roll out of project information, decision making and the proposal for an Outer Orbital Link Road being back on Council's agenda.

5.2 Recommendations

The findings from the community engagement program have given rise to several key recommendations, designed to encourage Council to consider the key issues raised by the community and potential ways to mitigate the impacts of a project of this scale. Consideration of these recommendations may assist in re-establishing the community's confidence in Council's decision-making process and ultimately, increase transparency for the community it serves.

It is recommended that Port Macquarie-Hastings Council deliver the following with the purpose of furthering engagement and creating deeper connections with the community and key stakeholders. This will allow for the development and implementation of a thorough, considered and community informed approach to the delivery of future key infrastructure across the region.

Extend the corridor investigation area

The current corridor investigation area is of great concern to many members of the community. Primary concerns include the amount of development that has occurred within the area since 2008, Council prescribing a preferred investigation corridor for the Engineering Feasibility Study and the scale of impact the proposed road would cause on established communities.

- **Recommendation #1:** Council to consider extending the corridor investigation area to consider alternative options that minimise impacts to existing properties and the environment.

Share findings from the engagement program with the community

It was evident in the findings that the proposed Orbital Road is of great interest to the local community.

- **Recommendation #2:** This document and its findings are publicly released and easily accessible for the Port Macquarie community.

Share findings internally at Council and with State agencies

The local knowledge that the community have regarding their local environments cannot be underestimated. Feedback received from the community as part of this engagement program is relevant to other projects that Council is currently working on.

- **Recommendation #3:** The findings are shared internally with Council staff, specifically, those working on the Regional Integrated Transport Strategy (RITS). Much of the feedback received from the community is relevant to the RITS, especially Section 4.1.4, where comments and suggestions relate to alternate modes of transport including better public transport connections, improved pedestrian and cycleway infrastructure and mass transit options.
- **Recommendation #4:** The findings are shared with State Agencies including:
  - Roads and Maritime Service (RMS): Information relevant to RMS includes community feedback on the Primary Airport Access Road link into Fernhill Road and suggested upgrade of the Oxley Highway.
  - The Office of Environment and Heritage (OEH): Information relevant to OEH includes Section 4.4 – Environmental impacts and 4.13 – Heritage.

– National Parks and Wildlife Service (NPWS): Information relevant to OEH includes Section 4.4 – Environmental impacts.

Establish a Community Consultative Group for the project

Many community members are concerned that decisions that affect their livelihood are made without their knowledge or input.

- **Recommendation #5:** Port Macquarie-Hastings Council investigate establishing a formally recognised Community Consultative Group for the project. The purpose of this group would be for community members (through a formal nomination process) to be involved in reviewing project information. Members would assist Council in making informed decisions that draw on local knowledge and expertise. Council could use the group to assist with communication and information sharing as well as testing approaches.

Increase transparency and openness

Findings indicate that the community is concerned about the openness and transparency that Council proclaims.

- **Recommendation #6:** It is recommended that the Port Macquarie-Hastings Council Community Engagement Strategy and Policy are reviewed. Working with the community through a range of engagement means, Council should update the key principles of engagement to address transparency in the decision-making process.
- **Recommendation #7:** Council consider developing a positioning statement that addresses transparency in the decision-making process.

Evaluate the way Council decisions are shared with the community

From the findings, it appears that many community members were unaware of Council's unanimous decision during the May 2015 Council meeting to reinvestigate options for an orbital road.

- **Recommendation #8:** Council evaluate the way that information is shared with the community, particularly outcomes from Council meetings. The information should be easily accessible to the community, with consideration that not all community members are regular users of the internet. It is recommended that Council remind the community that decisions are published on the website on the Friday following meetings. Additionally, Council could consider providing hard copy versions of Council decisions at the Council Administration Office and the local library, so those members of the community that do not use the internet can have access and visibility of decisions made by Council.

Prioritise the upgrades to Ocean Drive and Lake Road

The upgrade of Lake Road and Ocean Drive were consistently mentioned across submissions. Considering previous Council decisions to undertake this work and funding having been secured for Ocean Drive in 2012, Council need to prioritise the upgrade of these roads. Many community members who oppose the current proposal believe that if these projects were completed, the proposed Orbital Road would no longer be necessary.

- **Recommendation #9:** That Council uses the Area Wide Traffic Study (AWTS) and conducts future traffic modelling scenarios that include the upgrade of Ocean Drive and Lake Road. This would enable the community to understand whether the proposed Orbital Road would still be needed if these works were undertaken.

Investigate the removal of roundabouts and the installation of traffic signals

Many community members suggested that roundabouts are not designed to handle the volume of traffic on Port Macquarie roads, particularly during peak periods. It was suggested that traffic lights would improve traffic flow.

- **Recommendation #10:** The Area Wide Traffic Study examined the road network at an LGA level. It is recommended that Council build on the AWTS to a comprehensive analysis of the Port Macquarie road network, with the aim of identifying solutions for future traffic congestion. This should include the examination of intersection upgrades.

Produce a succinct report on the outcomes of the Area Wide Traffic Study

The outcomes from the Area Wide Traffic Study present challenges to those who are unfamiliar with traffic modelling. Many questions were asked about where traffic is going to and coming from across the entire Port Macquarie road network.

- **Recommendation #11:** Council develop a succinct report written in plain English that explains the outcomes of the Area Wide Traffic Study. It is recommended that questions raised in submissions are addressed in the report, specifically those outlined in Section 4.9.2 – traffic modelling and movements.

Council share the program of works for road maintenance

Reference was made to Council's road maintenance backlog.

- **Recommendation #12:** Council inform the community about the program of works for road maintenance across the Local Government Area, specifically, what projects are priorities for Council. This should also include information regarding planning for growth and continuing to maintain current assets.

6 NEXT STEPS

This report will be submitted to Council for tabling at the June 2019 meeting. At that meeting, Council will give consideration as to whether to progress the project to the strategic business case phase or some other course of action. As with all reports to Council, the Council report and related attachments will be made available on Council's website on the Friday prior to the Council meeting. Residents will be kept informed about any updates or decisions about the future of the project.

REPORT

Appendix A

CATI Community Survey Report

COMPUTER ASSISTED TELEPHONE SURVEY RESEARCH REPORT

PMHC Transport and Traffic Survey

18256

Telephone Survey Results
0.1

3 April 2019

rpsgroup.com

REPORT

Document status					
Version	**Purpose of document**	**Authored by**	**Reviewed by**	**Approved by**	**Review date**
0.1	Draft Report – CATI	M Spencer	R Cogger	R Cogger	14/04/2019

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1 INTRODUCTION

This report outlines the major findings from the computer assisted telephone survey that was conducted in the Port Macquarie-Hastings Local Government Area from 1 – 9 November 2018. During this time, 604 residents from across the LGA participated in the survey.

A key element of the design approach was a random and representative telephone survey with residents. This means a random sampling method was adopted for the total local government area population.

This study explored respondents' initial perceptions, ideas and concerns about an Orbital Road, and attitudes to traffic and congestion generally. The survey was conducted prior to the proposed Orbital Road announcement and commencement of community engagement. The aim of this survey was to gather data on transport-related issues and 'test' opinions within the broader community.

RPS worked together with Council and our partner research company Jetty Research on the telephone survey.

2 METHODOLOGY

2.1 Summary

From 1 – 9 November 2018, RPS commissioned Jetty Research, on behalf of Port Macquarie-Hastings Council, to undertake a CATI (computer assisted telephone interview) survey with residents across the Local Government Area (LGA) to garner resident's views on traffic and transport-related issues across the breadth of the city. All those interviewed were over 18 years of age.

A telephone survey was selected as it is a reliable and proven way of surveying the community in a representative sample of the community. A random fixed line plus mobile telephone survey remains the "gold standard" for gathering representative community information and ensuring that an objective and balanced view point is attained.

2.2 Sampling

Jetty Research uses state-of-the-art and Australian-developed Plenari software, which allows for sophisticated skip logic and automatically programmed call-back options.

Phone number selection is via a postcode-specific database of verified random digit telephone numbers. The company supplying this list, SamplePages (www.samplepages.com.au), is a well-known and highly respected suppliers of randomised land numbers to the market research industry.

Samplepages provides a directory of more than 6 million residential numbers, updated monthly and verified regularly for consistency. It is real numbers, from real addresses, on accurate boundaries. It is the most complete, representative and accurate sample directory available for the research industry.

The directory is a composite phone database sourced from data pooling arrangements involving a number of parties in a closed pooling system (including charities, telemarketing companies and other business entities). Samples are provided without name and street address to ensure privacy of individuals. SamplePages is very representative with 86% of total residential landlines included in the database. It also provides geographically-specific mobile telephone numbers, to improve the likelihood of reaching renters and younger residents.

2.3 About the sample size

According to the 2016 ABS Census 'Usual Resident profile', the total population of the Port Macquarie Hastings Council Local Government Area was 78,540 of which 62,553 (79%) were aged 18 years or older.

The sample size chosen impacts the degree of sampling error present in the results. The higher the number of the sample, lower the margin for error. Jetty Research recommended a sample size of 600 residents for the research. The sampling error of various sample sizes is presented below.

As the table below shows, margin for error falls as sample size rises. A sample size of 600 exhibits a margin for error of +/- 4.0% (again at the 95% confidence level). This means that if a similar survey was conducted twenty times, results should reflect the views and behaviour of the overall survey population to within a +/- 4.0% margin in 19 of those 20 surveys.

Surveying was conducted on a purely random basis, however, all post codes within the LGA were appropriately sampled, and a robust mix of ages and genders obtained.

Table 1: Sample size and sampling error

Sample Size	Random sampling error (at 95% confidence)
n=200	+/- 6.9%
n=300	+/- 5.6%
n=400	+/- 4.9%
n=500	+/- 4.3%
n=600	**+/- 4.0%**
n=700	+/- 3.7%
n=800	+/- 3.4%
n=900	+/- 3.2%
n=1,000	+/- 3.1%

2.4 Survey design

In terms of survey design, there was a 10-minute time limit capped to the survey to ensure it was suitable for telephone format. The survey asked screener questions to ensure participants were suitable, for example, confirming that participants lived in the Port Macquarie-Hastings LGA and whether they were a Councillor or permanent Council employee.

In line with Australian Social and Market Research Society Standards (AMSMS), participants were required to be over eighteen years of age.

The survey questions followed a logical flow of both open and closed response questions. Many of the questions utilised a 1 to 5-point Likert scale to provide clear delineation on resident preferences on the strongly disagree-strongly agree scale. Demographic information was also collected. A full list of survey questions is shown in Appendix A.

2.5 Fieldwork times

Surveys were conducted between 1 to 9 November 2018, from the Jetty Research Coffs Harbour Research Centre. Residents were phoned from 3.30 pm - 8.00 pm each weekday evening and on Saturday from 12 noon - 5.00 pm.

To maximise response rates, potential respondents were called up to five times at different times of the afternoon and evening. Within reason and when requested, call-backs were also programmed to suit resident schedules.

2.6 Data cleaning

Following the collection of the sample, the data was cleaned to ensure completeness and that all details were correct. During this step, partially completed surveys were eliminated. Statistical software package, SPSS was used for quantitative data entry and analysis and Microsoft Excel for the coding of qualitative data (open-ended questions).

Using SPSS, crosstabs were used to ensure the sub groups of age and gender were identified with key differences highlighted. The data was weighted to reflect the ABS profile for the Port Macquarie-Hastings Council LGA.

3 TOPLINE FINDINGS

There were several topline findings that we found as key takeaways from examining the survey results. These are detailed below.

Congestion and travel behaviour

- Survey respondents agree that congestion is a challenge for the area, with 6 in 10 saying it is a major issue. Many are changing their behaviour to avoid traffic, for example 5 in 10 reported changing the time of day they travel to avoid traffic, and 4 in 10 using alternative routes.

Support for an Orbital Road is more likely in younger people

- Nearly 8 in 10 people (79%) of survey respondents agree that an Outer Orbital Road would reduce congestion in the Lake Innes and Lake Road Areas.
- 7 in 10 describe themselves as somewhat supportive or strongly supportive of an Outer Orbital Link Road (71%). It was found that younger people are more supportive, and this level of support declined as the demographic age groups progressed, for example:
  - 60% of 18-39 age group are strongly supportive
  - 28% of 40-59 age group are strongly supportive
  - 45% of the 60+ age group that are strongly supportive

Transport links

- Residents are keen for more transport options, particularly in regard to investing in roads, linkages and public transport, with their top priorities being:
  - widening and improving of roads (40%)
  - new roads and linkages (30%)
  - better public transport (17%).

Communication

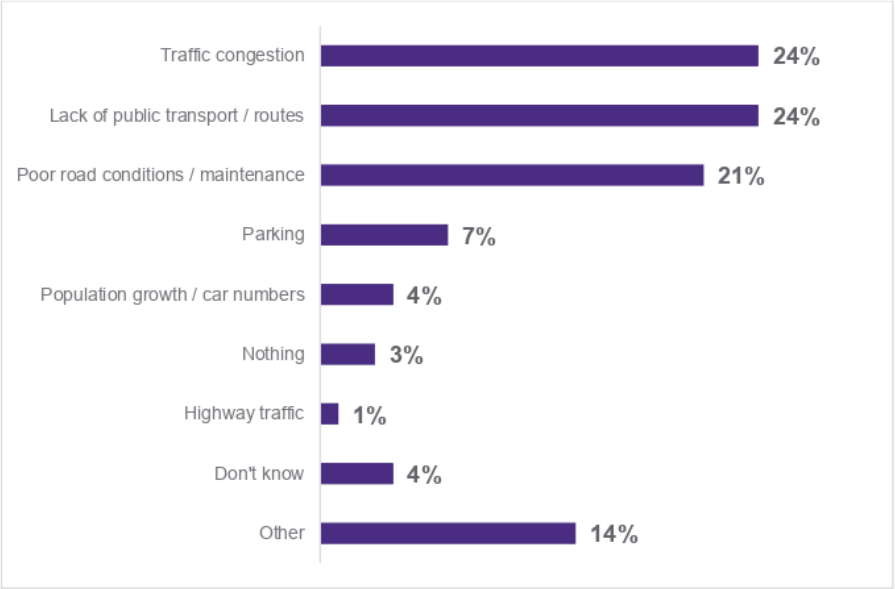
- In terms of communications, participants wanted to hear updates about the project through advertisements in local newspapers, the council newsletter, updates on website and social media. Interestingly, the 18-39 age group were most keen hear about the project through social media at 42%, with only 8% of the 60+ demographic wanting to receive Council communications through social media.

4 DETAILED FINDINGS

4.1 Traffic attitudes

This section deals with attitudes to traffic congestion and traffic in general.

One quarter of respondents (24%) equally considered traffic congestion and a lack of public transport/ routes as the most important issues in the Port Macquarie-Hastings region. This was closely followed by poor road conditions and maintenance, with 1 in 5 respondents (21%) identifying this as the most important issue.



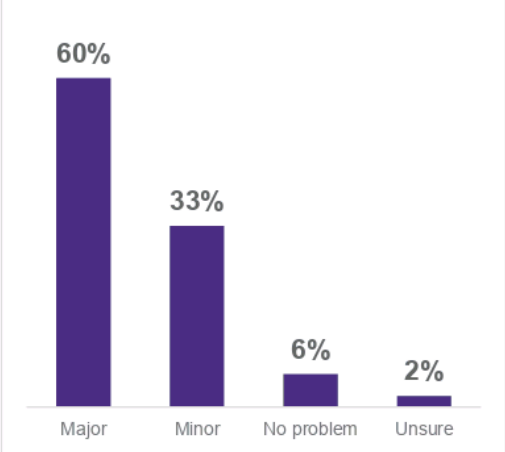
Graph 1 Q10 - Can you tell me what you think is the most important transport-related issue facing people in the Port-Macquarie Hastings region? (open response, coded) n = 604

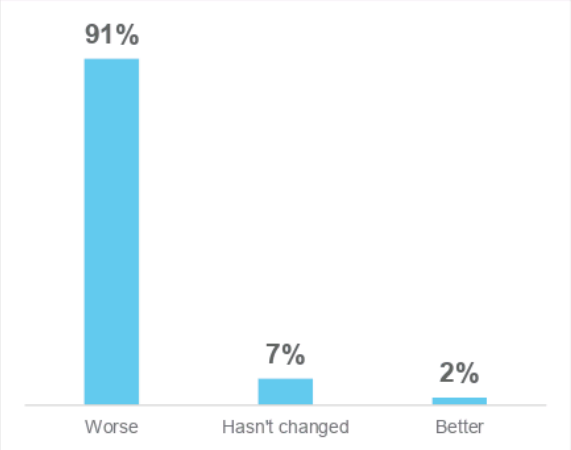
When prompted, under the 'other' category, participants detailed the following topics which were primarly focused on road design, future transport needs (across mixed modes of transport), pedestrian infrastructure, lifestyle and amenity. The Wordle analysis (Figure 1) and sentiment analysis (Graph 2) depict the key themes identified in the 'other' response category for Question 10.

Figure 1 Wordle based on open responses – Q10: Can you tell me what you think is the most important transport-related issue facing people in the Port-Macquarie Hastings region?

Graph 2 **Sentiment score based on open responses – 'other' – Q10: Can you tell me what you think is the most important transport-related issue facing people in the Port-Macquarie Hastings region?**

In terms of opinions toward traffic congestion, 6 in 10 respondents believe that traffic congestion is a major problem, and 9 in 10 agreed it is worse than five years ago.

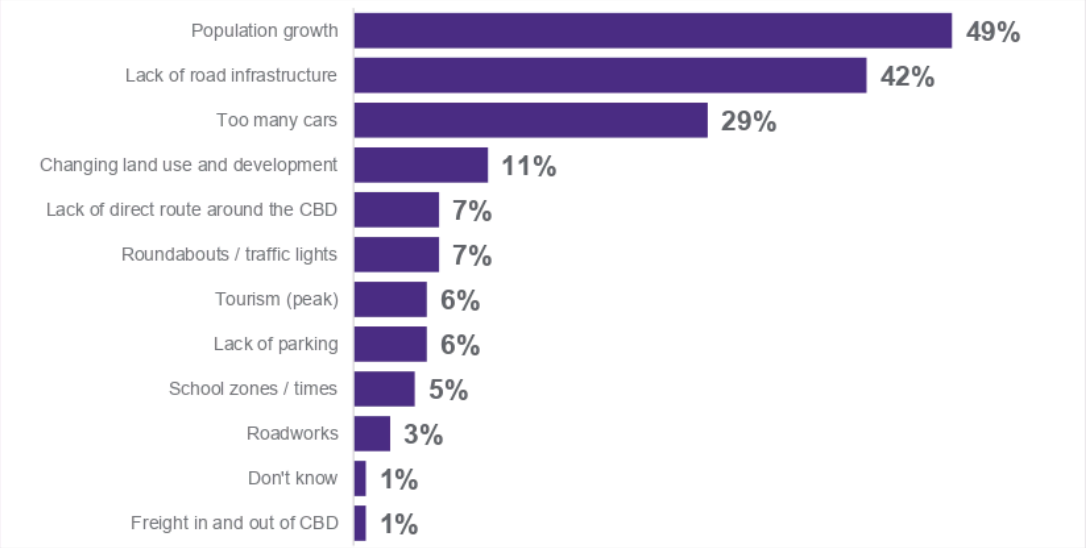




Graph 3 (L) **Q12: In your opinion, is traffic congestion in Port Macquarie a major problem, minor problem or no problem at all? n = 604**

Graph 4 (R) **Q15: Compared to five years ago, would you say that traffic congestion is better, worse, or hasn't changed? n = 604**

Participants believe the main causes of congestion are population growth (49%), lack of road infrastructure (42%) too many cars (29%) and changing land uses and development (11%).

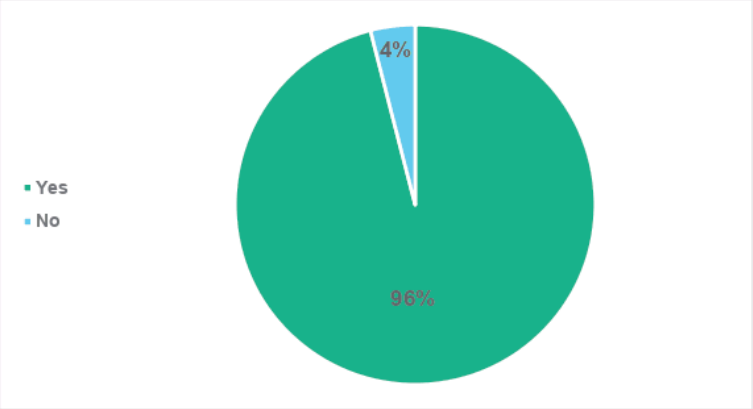


Graph 5 Q16: In your opinion, what are the major causes of traffic congestion in Port Macquarie? n=578 (excluded = 26)

4.2 Travel habits

This section addresses travel habits, modes of transport used by respondents and travel behaviours.

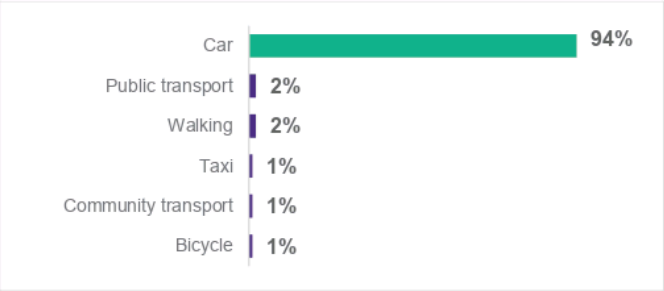
Of those who participated in the survey, 9 in 10 drive locally, as shown in Graph 6.

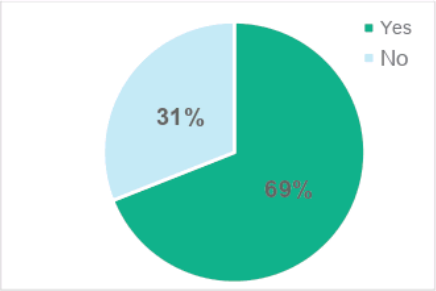


Graph 6 Q29: do you drive locally at least once a week? n = 604

4.2.1 Modes of transport

Most survey respondents (9 in 10) get around via car with a smaller percentage through other means. As regional residents can appreciate, public transport use and walking is low and community transport use is even lower. Taxi and bicycle use were also reported by respondents as quite low. This could represent an unrealised opportunity and potential for developing other modes of transport.





Graph 7 (L) **Q9 What is your primary form of transport? n = 604 (3 missing)**

Graph 8 (R) **Q13: Has traffic congestion caused you to change your travel behaviour at all? (Weight to match ABS PM 2016)**

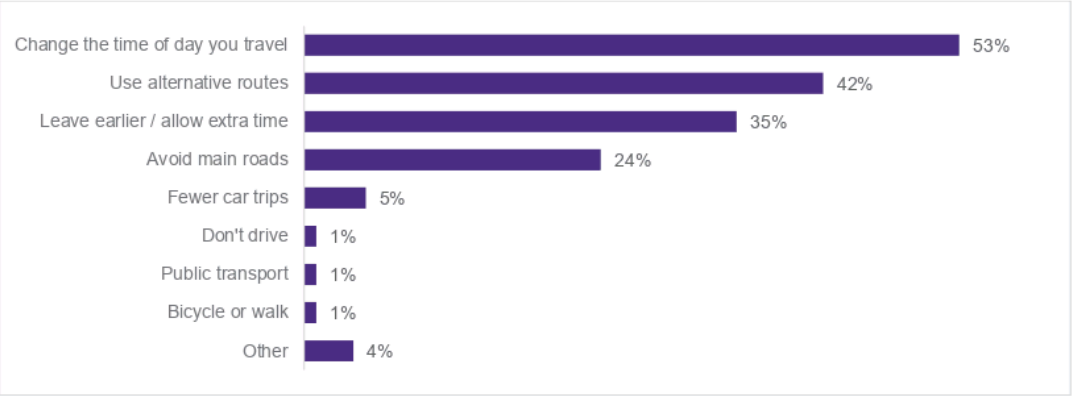
4.2.2 Behaviours

In terms of behavioural change, nearly 7 in 10 respondents indicated they change their travel behaviour because of traffic. In terms of age groups, 40-59 were significantly more likely to indicate this at 77% saying yes, with 60+ significantly less likely to indicate this at 59% saying yes.

When prompted about what exactly they do to avoid traffic, 5 in 10 respondents (53%) changed the time of day they travel, 4 in 10 use alternative routes, and 3 in 10 allow for extra travel time.

In terms of behaviours in segments, the 60+ age group were statistically more likely to change the time of day they travel (at 59%), the 40-59 age group is likely to leave earlier and allow extra travel time (42%), and males significantly more likely to use alternative routes (at 51%).

The 18-39 age group is significantly less likely to change the time of day they travel at 38%. This probably is an illustration of life stages, for example, 60+ having more time to travel at off-peak times of day, and those of working age or those who are likely to be on the roads at the same time of everyone else heading in to work, or ferrying family members around.



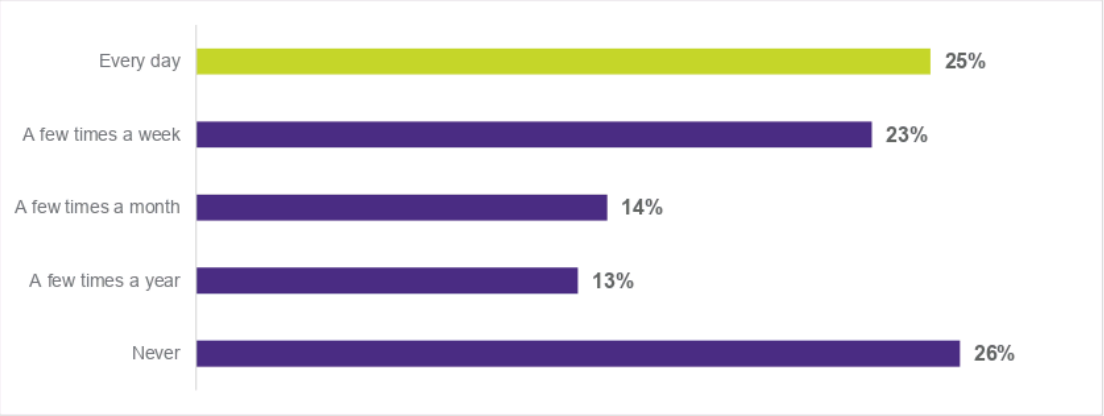
Graph 9 **Q14: How has your travel behaviour changed? n = 412. (Multiple responses allowed)**

4.3 Specific areas of congestion

4.3.1 Lake Innes area

Congestion is something top-of-mind for community members that travel in the **Innes Lake Area**, with 4 in 10 participants indicating that they experience traffic congestion every day, and 2 in 10 who indicating it is a few times per week.

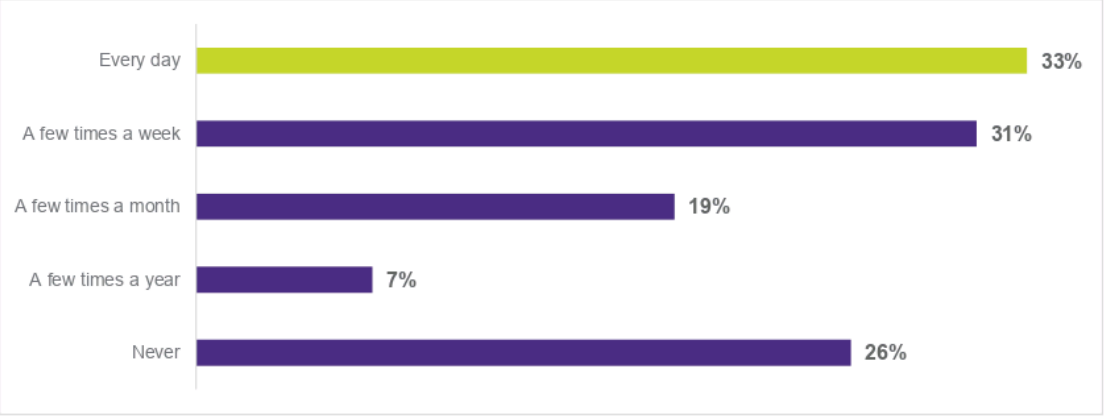
The 60+ age group are statistically less likely to experience traffic congestion every day at 21% with the other age groups more likely to travel every day, at 18-39 (48%) and 40-59 (39%) age group. This could be an indication of the demographic groups regularly travelling through the Lake Innes area.



Graph 10 Q17: How often do you experience traffic congestion in the Innes Lake Area? n = 604. (2 missing)

4.3.2 Lake Road industrial area

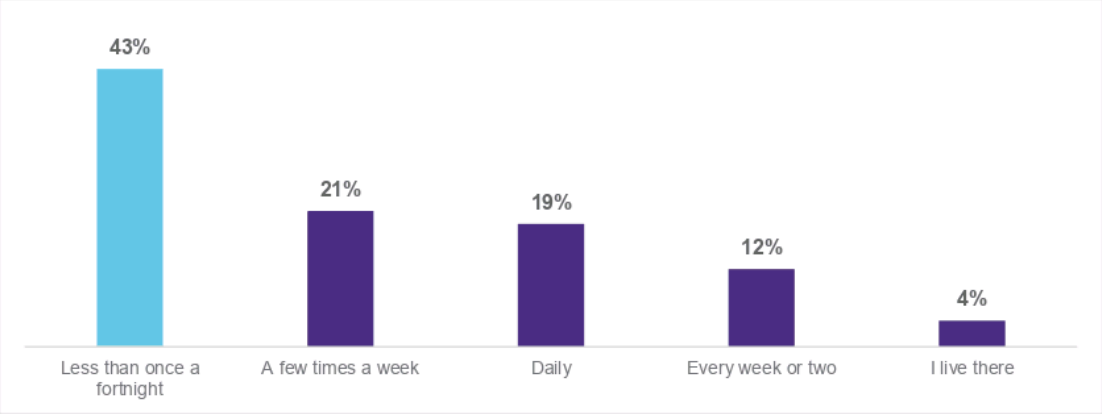
Congestion is even more top-of-mind for community in the Lake Road industrial area, with 3 in 10 respondents indicating they experience it every day and 3 in 10 a few times a week. The 40-59 age group are significantly more likely to experience congestion on this road every day at 39%, and the 18-39 age group at 48%. The 60+ age group are significantly less likely to experience it every day at 21%.



Graph 11 Q18: How often do you experience traffic congestion in the Lake Road Industrial Area? n = 604 (2 missing)

4.3.3 Visiting the Lake Innes Area

In terms of visitation to the Lake Innes area, 4 in 10 respondents visit less than once a fortnight, with 2 in 10 visiting daily or a few times per week.



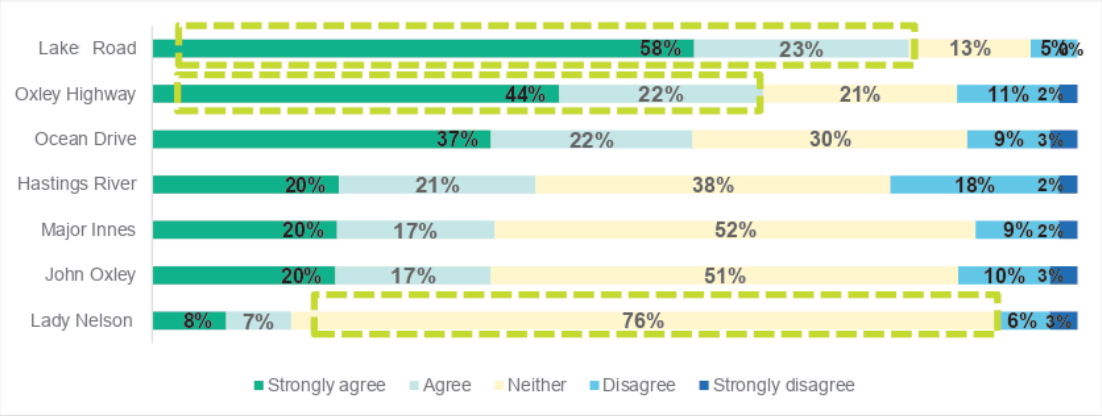
Graph 12 Q30: how often would you visit the Lake Innes Area? n = 604

4.3.4 Overall Satisfaction with Major Roads

Participants were asked to rate each major road location and identify to what extent they agree or disagree that traffic congestion is a major issue using a ranking scale of 1 - 5 (where 1 is strongly disagree and 5 is strongly agree).

As shown Graph 13, 81% of respondents agree or strongly agree that congestion is a major issue on Lake Road. This was followed by the Oxley Highway, with 66% of respondents agreeing or strongly agreeing that congestion is a major issue. Just under 6 in 10 respondents agreed or strongly agreed that traffic congestion is a major issue on Ocean Drive.

In terms of more neutral responses, participants were somewhat less concerned about Lady Nelson Drive, as 7 in 10 respondents indicated 'neither' in response to this question. Simiarly, 5 in 10 indicated 'neither' in response to this question for Major Innes Road and John Oxley Drive. Rankings for Hastings River Drive was slightly more polarised, with 4 in 10 respondents indicating they strongly agree or agree, and 2 in 10 indicating they agree or strongly disagree.

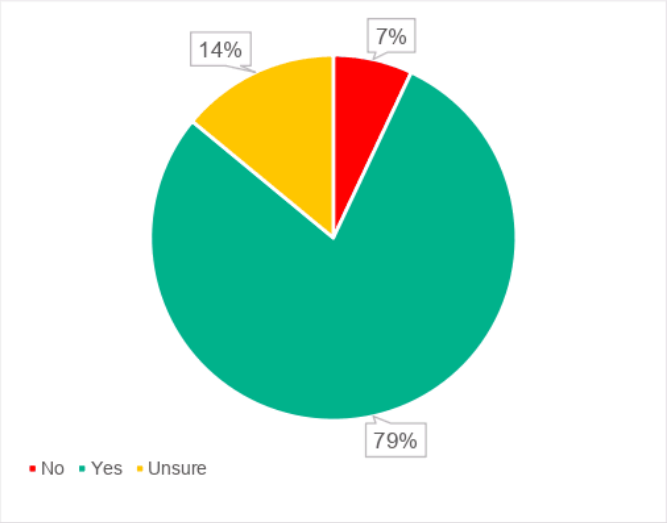


Graph 13 Q19: Now using a scale of 1 - 5, where 1 is strongly disagree and 5 is strongly agree, to what extent you agree or disagree that traffic congestion is a major issue on the following roads (...)

4.4 Orbital Road Communications, Attitudes and Awareness

4.4.1 Support

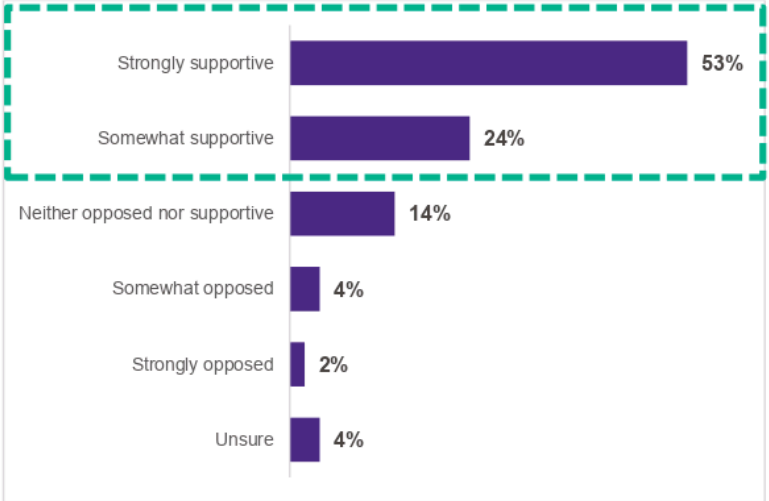
In terms of overall attitudes, as shown in Graph 14, 7 in 10 respondents believe an Outer Orbital Road would reduce congestion in the Lake Innes and Lake Road areas.



Graph 14 Q21: Do you think an Outer Orbital Road would reduce congestion in the Lake Innes and Lake Road areas? n = 604

Participants were asked to rate their level of support for an Outer Orbital Link Road on a scale of 1 to 5 (where 1 is strongly opposed and 5 is strongly supportive). Overall support for an Outer Orbital Link Road was high, with 71% of respondents indicating they are somewhat, or strongly supportive.

It is to be noted that respondents were not provided with details of an alignment for the road. They were informed that ten years ago, Council engaged with the community on the concept of an outer Orbital Road that would provide a link from Ocean Drive to the Oxley Highway and then onto Hastings River Drive.



Net support: +71%

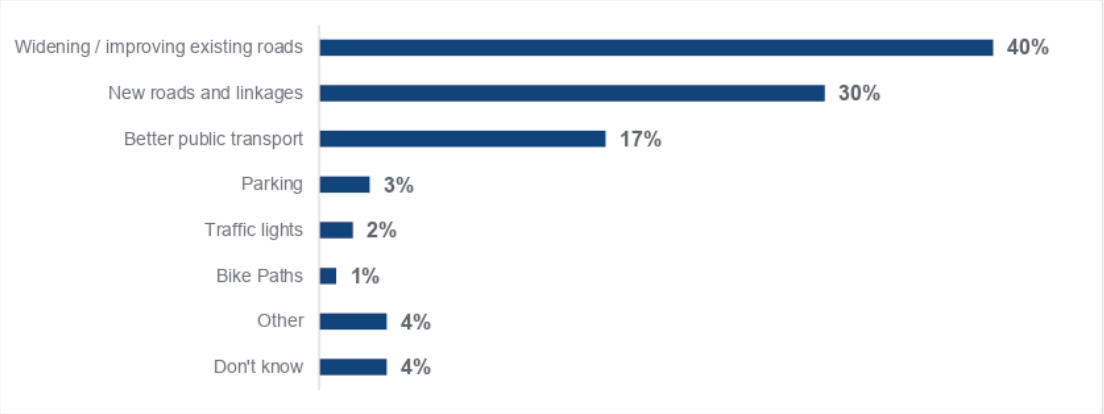
Graph 15 Q22: Which of the following best describes your opinion of an Outer Orbital Link Road? n = 604

4.4.2 Community priorities for future Investment

Funding priorities as identified by respondents include widening and improving existing roads with 4 in 10 participants agreeing this is a priority. This was followed by new roads and linkages (3 in 10 respondents) and better public transport (2 in 10 respondents).

In terms of the opinions across age ranges, 40-59 age group were statistically more likely to suggest bike paths (2%), and the 60+ age group more likely to suggest better public transport (20%).

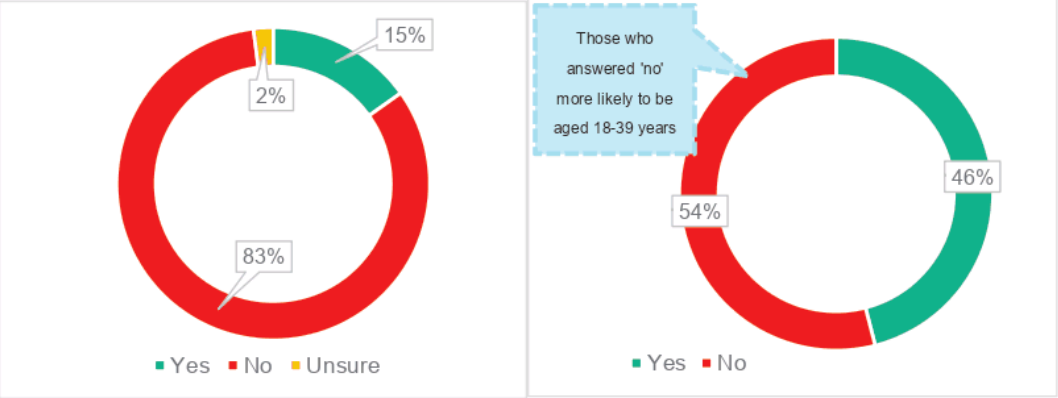
Female respondents were also more likely than males to suggest better public transport, and men statistically more likely than men to suggest new roads and linkages.



Graph 16 Q23: What would be your first priority for transport funding in this region? n = 604

4.4.3 Awareness of RITS and Orbital Road

Council is currently developing a Regional Integrated Transport Strategy (RITS) and respondents were asked whether they were aware of the Strategy. Broad awareness was relatively low with only 15% indicating that they were aware, compared with 83% who were not aware.

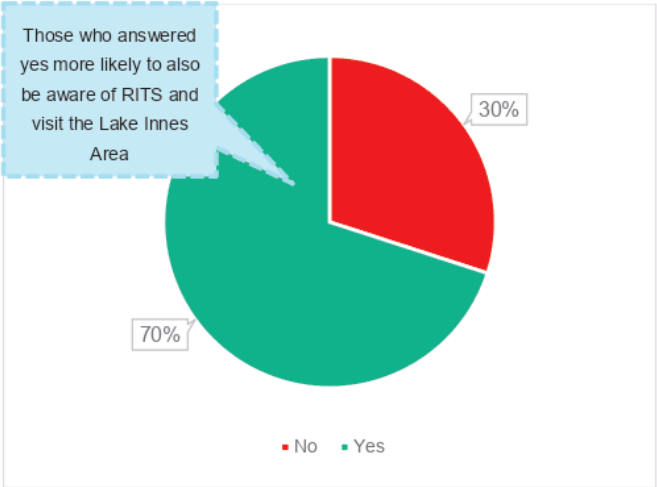


Graph 17 (L) Q11: Prior to this survey, were you aware that Council is currently developing a Regional Integrated Transport Strategy (RITS) to identify the key transport decisions and actions that will guide Council to ensure transport networks are safe, operate efficiently? n = 604

Graph 18 (R) Q20: 'Ten years ago, Council engaged with the community on the concept of an outer Orbital Road that would provide a link from Ocean Drive to the Oxley Highway and then onto Hastings River Drive. Have you heard of this project?

Respondents were asked whether they were aware of the concept of an outer Orbital Road. Results were relatively balanced with 46% of respondents having heard of the project, and 54% who have not. Those who indicated they were not aware were more likely to be aged 18-39 years.

Lack of awareness does not deter participants as 70% of them know where to look for more information should they require it, as demonstrated in Graph 19. Respondents who answered yes are more likely to be aware of the RITS and visit the Lake Innes Area regularly.

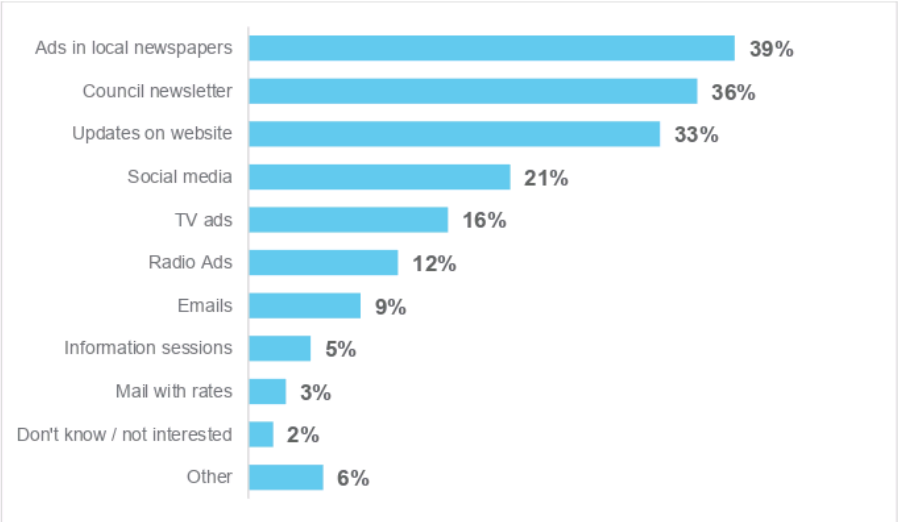


Graph 19 Q24: If you wanted information about this project would you know how to find it? n = 604

4.4.4 Communication channels

Participants indicated they would like to find out about the project (an Outer Orbital Link Road) via advertisements in local newspapers (39%), Council newsletter (36%) and updates via the website (33%).

There were some demographic differences that polarised the results on a more individual level. For example, the 19-39 age group were more likely to want updates via social media and email. The 60+ age group preferred their information via local newspapers and the Council newsletter.



Graph 20 Q25: And how would you like to see Port Macquarie Hastings Council provide information on transport-related issues. n = 604

Those who are aware of the RITS would prefer to receive their information via the website and through information sessions, an indication of preferred channels for this group. Those who visit the Lake Innes area (daily and few times a week) would prefer to receive their information via social media, television and radio advertisements. This could be really key for future engagement and communications around this project.

Table 1 below shows the breakdown across ages, awareness of the RITS and visitors to the Lake Innes area.

Table 2 Q25 How would you like to see Port Macquarie Hastings Council provide information on transport-related issues? x Q11 What is your awareness of RITS? (unsure option not shown) x Q30 How often would you visit the Lake Innes Area? n = 604 (missing: 2)

Method					Aware of RITS?		How often visit the Lake Innes Area?		
	Total	18-39	40-59	60+	Yes	No	Daily / few times week	Weekly / fortnightly	I live there
Ads in Local newspapers	**39%**	20% ↓	25%	52% ↑	37%	39%	28% ↓	47% ↑	33%
Council newsletter	**36%**	23% ↓	34%	45%	26%	38%	31%	40% ↑	33%
Updates on website	**33%**	39%	38%	25% ↓	52% ↑	29% ↓	38%	30%	19%
Social media	**21%**	43% ↑	23%	8% ↓	17%	21%	27% ↑	16% ↓	29%
TV ads	**16%**	16%	16%	15%	18%	15%	21% ↑	12% ↓	14%
Radio ads	**12%**	12%	13%	11%	16%	11%	16% ↑	9%	7%
Emails	**9%**	9% ↑	7%	6% ↓	6%	10%	12%	6% ↓	19%
Information sessions	**5%**	5%	4%	6%	10% ↑	4%	7%	5%	0%
Mail with rates	**3%**	3%	5%	4%	3%	3%	4%	3%	3%
Other	**6%**	6%	6%	7%	6%	6%	7%	6%	13%
Don't know	**2%**	2%	2%	3%	4%	2%	1%	3%	0%

Several participants also had suggestions around how Council could engage more on the project, for example through the local library, magazines, newspapers, an app, billboards and signage, more surveys, and booths at local shopping centres.

Figure 2 'Other' suggestions from respondents as a Wordle.

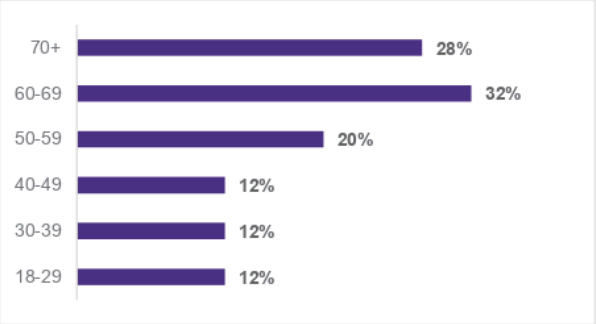
4.5 Demographics

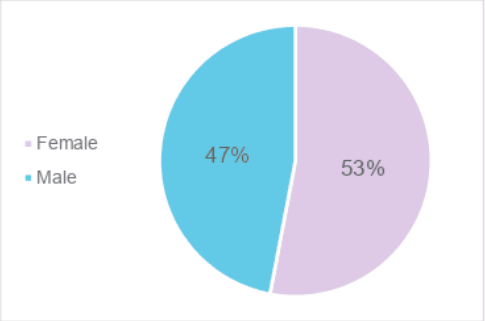
The demographics of respondents are included as a summary below. Some points of interest include:

- Respondents tend to be longer-term residents with 7 in 10 living in the area for over 11 years
- Over one-quarter of participants in this research were aged 70 and over
- 96% of participants drive locally
- Just over half (56%) live in the postcode area 2444.

4.5.1 Age groups and gender

Graph 21 and Graph 22 show the age demographics and gender breakdown of survey participants.



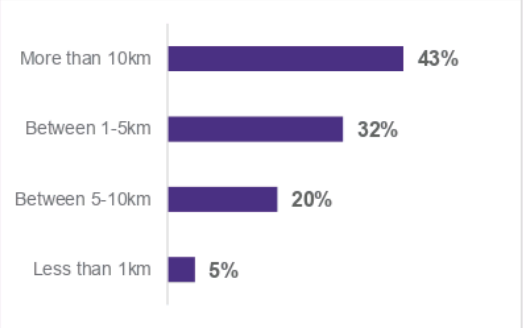


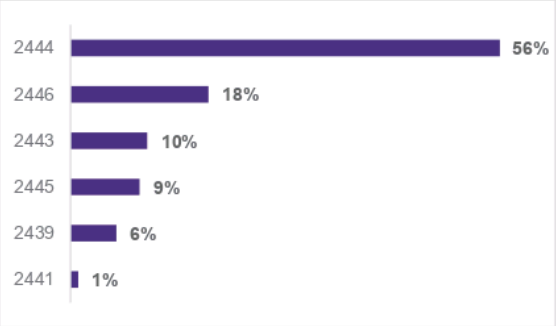
Graph 21 (L) Q27: what is your age?

Graph 22 (R) Q28: what is your gender? n = 604

4.5.2 Distance from the CBD and postcode

4 in 10 participants live more than 10km from the CBD, and 5 in 10 participants live in postcode 2444.



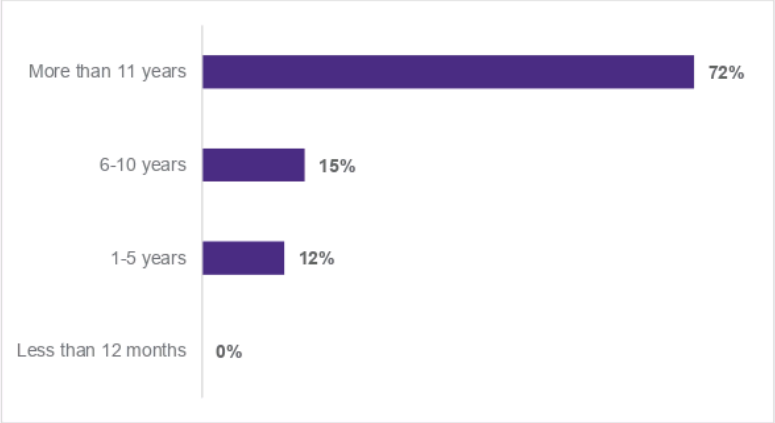


Graph 23 (L) Q26: How close do you live to Port Macquarie CBD? n = 604

Graph 24 (R) Q31: What's your postcode?

4.5.3 Length of time in the Port Macquarie-Hastings Local Government Area

A majority of respondents indicated that they have lived in the Port Macquarie-Hastings Council LGA for more than 11 years. This was closely followed those who have lived in the area for more than 6 years (15% of respondents).



Graph 25 Q8: How long have you lived in the Port Macquarie-Hastings Local Government Area?

4.6 Next Steps

Given the above findings, the following actions are recommended:

- Use the results of the research in future communications – for example, the 71% level of support for the concept of an Outer Orbital Link Road.
- Utilise targeted communications for the project to reflect age group preferences, for example including a focus on social media for 18-39-year-old residents.

Appendix A Survey Questions

Below is the survey script for reader reference.

Q1.

Hi, my name is (name), and I'm calling from Jetty Research on behalf of Port Macquarie-Hastings Council. Council is conducting a survey about local transport-related issues, and you have been randomly selected to participate in this. The survey only takes 7 or 8 minutes, we're not selling anything, and all answers will remain confidential. Would you be willing to assist us by taking part in a short research survey this afternoon/evening?

Offer a CALL BACK if busy. PMHC contact is XXXXXXXX on XXXXXXXXX. Must be 18 or over.

Yes 1

No 555

Answer If Attribute "No" from Q1 is SELECTED

Q2. Thank you for your time. Have a great afternoon/evening.

End

Q3. Just before we start, can you confirm that you live in the Port Macquarie-Hastings local government area?

Must live in Port Macquarie-Hastings Council area

Yes 1

No 555

Answer If Attribute "No" from Q3 is SELECTED

Q4. I'm sorry, to qualify for this survey you must live in the Port Macquarie-Hastings Council area. Thank you for your time.

End

Q5. And are you a Councillor or permanent Council employee?

Immediate family don't qualify

Yes 1

No 555

Answer If Attribute "Yes" from Q5 is SELECTED

Q6. I'm sorry in that case you don't qualify to participate in this survey. Thank you for your time.

End

Q7. May I have your first name for the survey?

Only so we can refer to by name

Q8. And how long have you lived in the Port Macquarie-Hastings Local Government Area?

UNPROMPTED

Less than 12 months 1

1-5 years 2

6-10 years 3

More than 11 years 4

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Q9. Thanks [Q7]. To get us underway, what is your primary form of transport?

UNPROMPTED. Primary form of transport is the one they use most often.

Car	1
Public transport	2
Bicycle	3
Walking	4

Q10. Can you tell me what you think is the most important transport-related issue facing people in the Port-Macquarie Hastings region?

UNPROMPTED - tick one option or list as OTHER

Traffic/congestion	1
Poor road conditions/maintenance	2
Highway traffic	3
Lack of public transport/routes Q10	4
Population growth/growth in car numbers	5
Nothing	6
Don't know	999
OTHER	

Q11. Prior to this survey, were you aware that Council is currently developing a Regional Integrated Transport Strategy (RITS) to identify the key transport decisions and actions that will guide Council to ensure transport networks are safe, operate efficiently and have adequate capacity now and into the future?

Yes	1
No	555
Unsure	666

Q12. In your opinion, is traffic congestion in Port Macquarie a major problem, minor problem or no problem at all?

PROMPTED except UNSURE

Major problem	1
Minor problem	2
No problem at all	3
Unsure	666

Q13. Has traffic congestion caused you to change your travel behaviour at all?

Yes	1
No	555
Unsure	666

Q14. How has your travel behaviour changed?

UNPROMPTED - Probe and tick any that apply

Change the time of day you travel 1

Avoid some main roads 2

Use alternate routes 3

Take fewer car trips 4

Use public transport more 5

Leave earlier and allow extra travel time 6
Q14_6

Do not drive 7

Bicycle/walk instead 8

OTHER

Q15. Compared to five years ago, would you say that traffic congestions is better, worse, or hasn't changed?

Do not answer If Attribute "Less than 12 months" from Q8 is SELECTED OR

Do not answer If Attribute "1-5 years" from Q8 is SELECTED

PROMPTED

Better 1

Worse 2

Hasn't changed 3

Q16. In your opinion, what are the major causes of traffic congestion in Port Macquarie?

UNPROMPTED

Too many cars 1

Population growth 2

Lack of road infrastructure 3

Inefficient road routes 4

Changing land use and development 5

Freight in and out of CBD 6

Lack of a direct route around the CBD 7

Tourism (peak periods) 8

Don't know

OTHER

Q17. How often do you experience traffic congestion in the Innes Lake area?

PROMPTED

Every day 1

A few times a week 2

A few times a month 3

A few times a year 4

Never 5

Q18. And how often do you experience traffic congestion in the Lake Road Industrial Area?

PROMPTED

Every day 1

A few times a week 2

A few times a month 3

A few times a year 4

Never 5

Q19. Now using a scale of 1-5, where 1 is strongly disagree and 5 is strongly agree, to what extent you agree or disagree that traffic congestion is a major issue on the following roads:

UNPROMPTED. If unsure, score as 3

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Lakes Road	1	2	3	4	5
Oxley Highway	1	2	3	4	5
Hastings River Drive	1	2	3	4	5
Ocean Drive near Greenmeadows	1	2	3	4	5
John Oxley Drive	1	2	3	4	5
Major Innes Drive	1	2	3	4	5
Lady Neilson Drive	1	2	3	4	5

Q20. Ten years ago, Council engaged with the community on the concept of an outer Orbital Road that would provide a link from Ocean Drive to the Oxley Highway and then onto Hastings River Drive. Have you heard of this project?

If unsure, register as NO

Yes 1

No 555

Q21. Do you think an Outer Orbital Road would reduce congestion in the Lake Innes and Lake Road areas?

UNPROMPTED

Yes 1

No 555

Unsure 666

Q22. Which of the following best describes your opinion of an Outer Orbital Link Road?

PROMPTED except UNSURE

Strongly opposed 1

Somewhat opposed 2

Neither opposed nor supportive 3

Somewhat supportive 4

Strongly supportive 5

Unsure 666

Q23. What would be your first priority for transport funding in this region?

UNPROMPTED. If they say better roads etc, ask which is more important - providing new roads and linkages, or improving existing roads

New roads and linkages 1

Widening/improving existing roads 2

Better public transport 3

OTHER

Q24. If you wanted information about this project would you know how to find it?

UNPROMPTED

Yes 1

No 555

Q25. And how would you like to see Port Macquarie-Hastings Council provide information on transport-related issues?

Unprompted - probe for up to three

Ads in Local newspaper 1

Emails 2

Information sessions 3

Council newsletter 4

Via social media (Facebook, Instagram, Twitter etc.) 5

TV ads 6

Radio ads 7

Updates on website 8

OTHER

Q26. I now have a few quick questions about you. Firstly, how close do you live to Port Macquarie CBD?

PROMPTED except Don't Know

Less than 1km1

Between 1km - 5km 2

Between 5km - 10km 3

More than 10km 4

Unsure 666

Q27. Would your age range be between?

PROMPTED

18-29	1
30-39	2
40-49	3
50-59	4
60-69	5
70+	6

Q28. Gender?

Don't ask

Male	1
Female	2

Q29. Do you drive locally at least once a week?

UNPROMPTED

Yes	1
No	555

Q30. On average how often would you visit the Lake Innes Area?

Prompted. Exact area is near Lake Innes Village/St Columba Anglican School

Daily	1
A few times a week	2
Every week or two	3
Less than once a fortnight	4
I live there	5

Q31. And finally, your postcode?

OR use details option

2439	1
2441	2
2443	3
2444	4
2445	5
2446	6

OTHER

Q32. Thanks so much, that's the end of the survey. Port Macquarie-Hastings Council greatly appreciates your time and feedback. Have a great afternoon/evening.

End

REPORT

Appendix B

Proposed Orbital Road Community Survey Report

PROPOSED ORBITAL ROAD

Community Survey

18256
Online Survey - Orbital Road
1.0
30 April 2019

rpsgroup.com

REPORT

Document status					
Version	**Purpose of document**	**Authored by**	**Reviewed by**	**Approved by**	**Review date**
0.1	Internal draft	Merryn Spencer	Rachel Cogger	Rachel Cogger	30/04/2019
1.0	First draft for PMHC review	Merryn Spencer	Rachel Cogger	Rachel Cogger	30/04/2019

Approval for issue		
Rachel Cogger		30 April 2019

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Figure 2 Example comments Q9: Can you briefly explain your reason for your answer selection in the above question? (open response) n = 578 13

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Graph 8 Q6: In the past month, have you experienced traffic congestion on Ocean Drive? n = 578. 7
Graph 9 Q6: In the past month, have you experienced traffic congestion on John Oxley Drive? n = 578 7
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Graph 11 Q8: Which of the following best describes your opinion regarding the proposed Port Macquarie Orbital Road? (single response) n = 578 9
Graph 12 Sentiment Analysis. Q9: Can you briefly explain your reason for your answer selection in the above question? (open response) n = 578 11
Graph 13 Q10: Do you have any concerns about the proposed Orbital Road Project? (single response) n = 578 14
Graph 14 Q11: Please consider the following options and rank them according to what you are most concerned about to least concerned about for the proposed Orbital Road. Place a 1

next to what you are most concerned about, a 2 next to the option that is next most concerning to you, and so on. Remember, no two options can have the same ranking. n = 578 15
Graph 15 Q13-18: Do you agree or disagree with the following statements? The proposed Orbital Road will: reduce overall travel times, Negatively impact the environment, Set Port Macquarie up for future growth as a regional city, Improve connectivity to key destinations across the city, create noise issues for residents adjoining the Orbital Road, Reduce congestion in the Port Macquarie CBD, Increase traffic noise in the region, Providing and efficient and flood-free connection to the airport, Have visual impacts on residents near the Orbital Road. n = 578 16
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Graph 23 Q26: What is your location? Not shown (low count) Shelley Beach: 1.4%, Bonny Hills: 1.4%, Thrumster: 1.4%, King Creek 1.4%, Laurieton: 1.4%, Riverside: 1%, Flynns Beach, Yippin Creek, Crosslands, Lakewood, North Haven, Sancrox, North Short, Redbank, Settlement City, Crestwood, Dunbogan, Ballengarra, Camden Head, Alstonville, Kempsey MSC, Mudgeeraba (QLD), Clifton, Acheron (Vic), Port Campbell (Vic), Beechwood (Vic), Pembroke, Failford (NSW), Lorne, Bronbin, Sherwood, Sydney, Hastings Point. 20
Graph 24 Q24: What is your age range? 21
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1 INTRODUCTION

This report outlines the findings from the Proposed Orbital Road Community Survey. The survey was designed enable Council to gain a better understanding of community views toward the proposed Orbital Road.

The survey questions reflected those that were asked in a wider resident survey addressing transport and traffic related issues across the Port Macquarie-Hastings Local Government Area (LGA) which was conducted in November 2018.

This survey explored local residents' perceptions, ideas and concerns relating to the proposed Orbital Road, and attitudes to traffic and congestion generally. The aim of this survey was to gather data on transport-related issues and 'test' opinions within the broader community.

The survey was in-field and online from 26 February to 30 March 2019. During this time, 578 residents from across the LGA participated in the survey.

1.1 Survey design and sampling

The survey was aimed at the general community and hosted on the Port Macquarie-Hastings Councils' Have Your Say proposed Orbital Road project page. Hard copy versions of the survey were available at all community engagement events including pop-up booths, community drop-in sessions and resident meetings.

Quota sampling was used, and data collection completed via 'river' methods including social media, Council's general communication channels, at community engagement events, online and distributed and entered as hard copies.

In total, 578 surveys were completed online and in hard copy format during the engagement period. Data was cleaned to ensure partial and nonsense responses were omitted for optimal presentation of results. The key findings are included in the next section, and the detailed findings in the body of the report.

1.2 Key findings

Travel habits and experience

- Similar to the telephone survey, most respondents travel by car (9 in 10 respondents). There was less reporting other modes of transport being used (public transport, walking and bicycle), however for this survey, respondents were asked to identify their *main* mode of transport.
- In terms of the top reported pinch-point traffic areas:
  - 7 in 10 respondents indicated they have experienced congestion on Lake Road
  - Half of survey respondents indicated they have experienced congestion on John Oxley Drive, the Oxley Highway and Ocean Drive.
- 3 in 10 respondents believe that the most transport important issues in the area are traffic congestion and population growth or car numbers.
  - It should be noted that the time in which congestion has been experienced by respondents was not asked. In reading these findings, consideration should be given to the time day congestion is experienced (ie: peak morning and afternoon periods).

Sentiment on the proposed Orbital Road

- Results are extremely polarised, demonstrating the broad sentiment within the community toward the proposed Orbital Road:
  - 4 in 10 participants indicated they are strongly supportive
  - 4 in 10 participants indicated they are strongly opposed.

REPORT

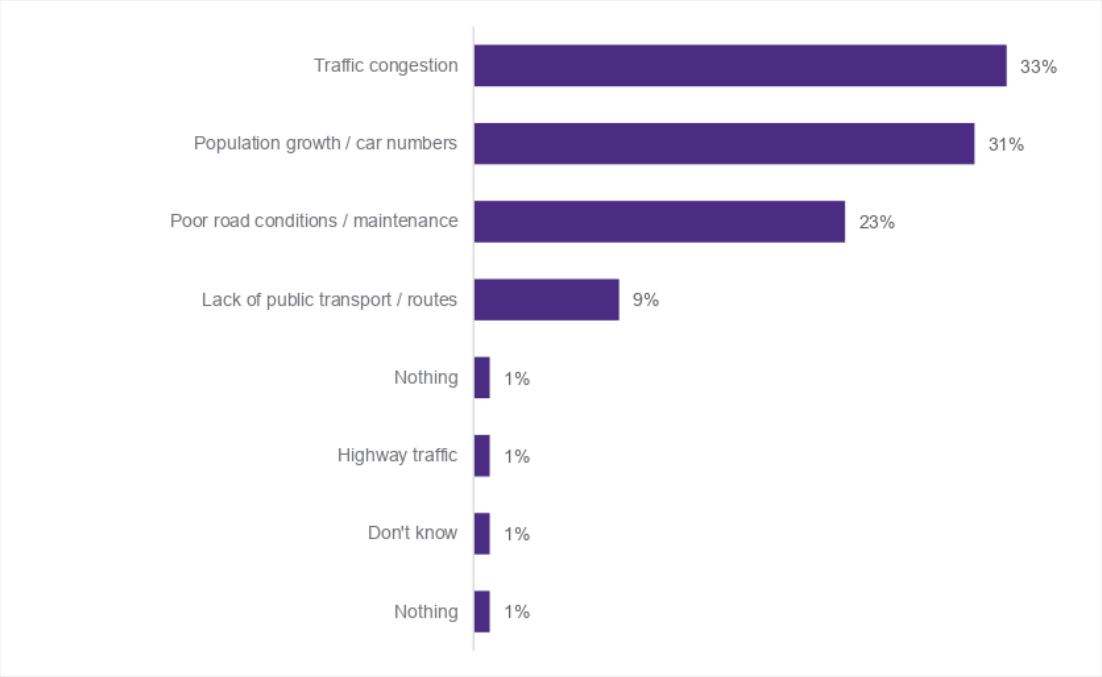
- In terms of segmentation, those who are strongly supportive are statistically more likely to be male and live in Lighthouse Beach.
- Those who are strongly opposed are also statistically more likely to be aged 70 and over, and female.
- Similar to the telephone survey, level of support for the proposed Orbital Road increases in the younger age group demographic.
  - The 18-29 and 30-39 age groups were statistically more likely to answer 'no' to the question 'do you have any specific concerns?'
- Top concerns from survey respondents relate to impacts to existing properties, damage to koala habitat and crossing of Lake Innes Nature Reserve.

2 DETAILED SURVEY RESULTS

2.1 Perceptions toward traffic related issues

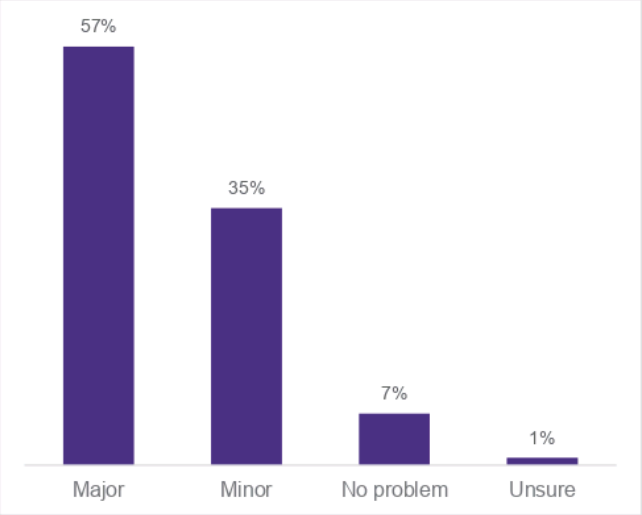
This section provides details of the findings from questions relating to participants views toward transport related issues and experiences of congestion.

As shown in Graph 1, traffic congestion (33%), population growth and the associated number of cars (31%) and poor road conditions / maintenance (23%) were identified as the most important transport related issues for the Port Macquarie Hastings community.



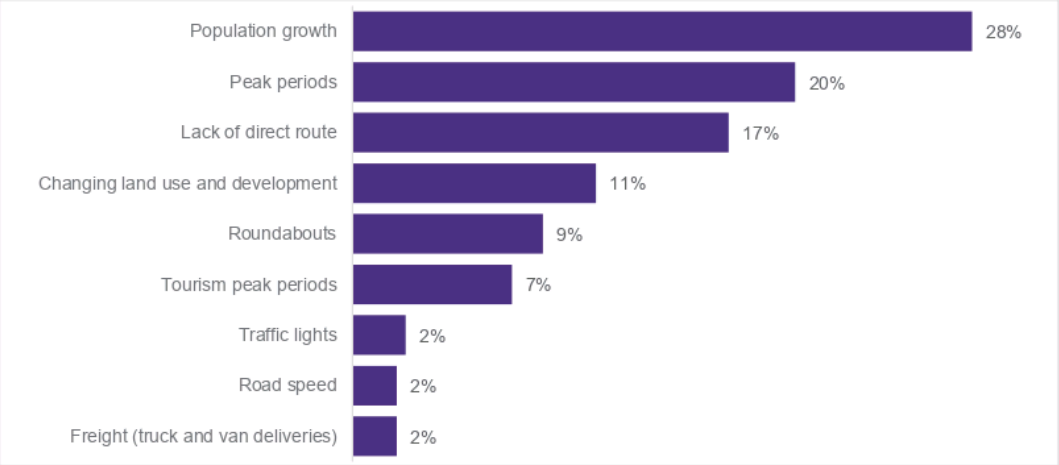
Graph 1 Q2: What do you think is the most important transport-related issue facing the Port Macquarie Hastings community? n = 578

In terms of sentiment toward traffic congestion, 6 in 10 respondents agreed that traffic congestion is a major problem, and 9 in 10 agreed it is worse than five years ago.



Graph 2 Q3: In your opinion, is traffic congestion in Port Macquarie a major problem, minor problem or no problem at all? n = 578

When asked what respondents believe are the major causes of congestion in Port Macquarie, the top responses were population growth (28%), peak periods (20%), lack of direct route (17%) and changing land uses and development (11%).

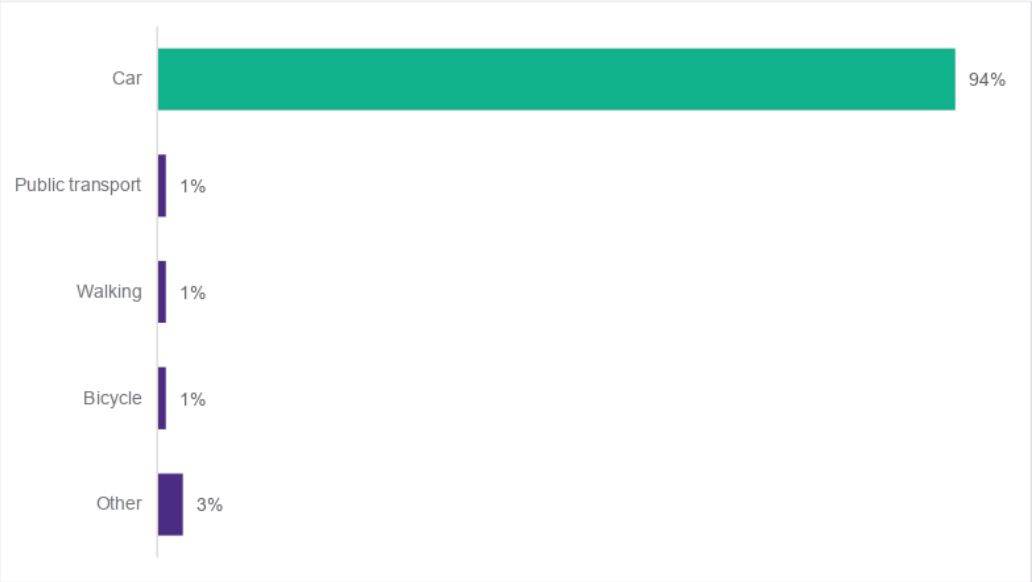


Graph 3 Q4: In your opinion, what are the major causes of traffic congestion in Port Macquarie? n = 771 (multiple response)

2.2 Travel habits

This section deals with the travel habits of respondents including the methods people use for transportation and experiences of traffic congestion by location.

Of the 578 participants in the survey, the majority (94%) indicated that their primary mode of transport is by car. This result is similar to the telephone survey. This is not to say that other modes of transport are not used, the question was focused on identifying the primary mode.



Graph 4 Q1: What is your primary form of transport?

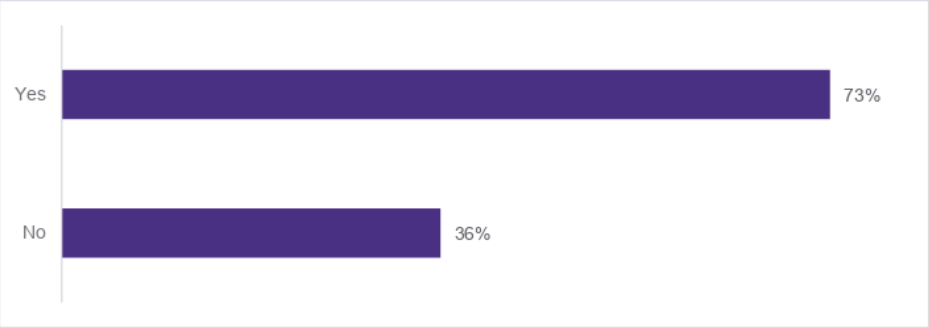
Local roads and perceived congestion

Survey respondents were asked whether they had experienced traffic congestion on various roads within Port Macquarie over the previous month. Lake Road rated the highest with 424 (73%) respondents indicating they had experienced congestion on this road. This was followed by the Oxley Highway, with slightly more than half (58%) of respondents indicated they had experienced congestion on this road in the previous month.

Responses for Ocean Drive and John Oxley Drive were similar. 324 respondents (56%) indicating they had experienced congestion on Ocean Drive in the previous month and 55% (319 respondents) experiencing congestion on John Oxley Drive in the previous month. Traffic congestion experienced by respondents on other key roads was significantly less, with 29% having experienced congestion on Hastings River Drive and Boundary Street respectively.

Lake Road

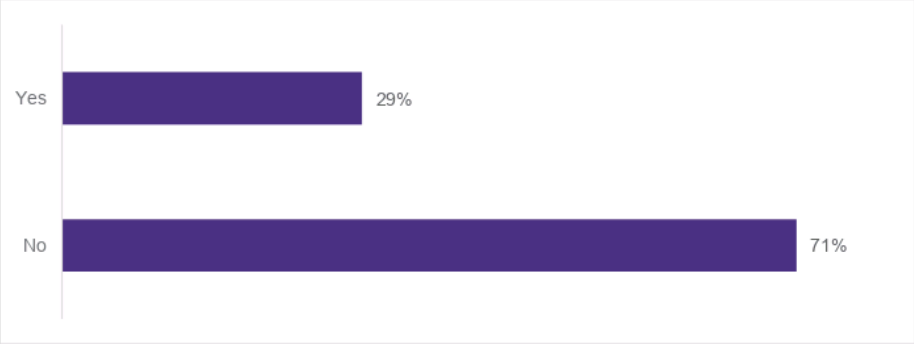
7 in 10 respondents indicated that they experienced congestion on Lake Road in the previous month to the survey being completed.



Graph 5 Q6: in the past month, have you experience traffic congestion on Lake Road? n = 578

Hastings River Drive

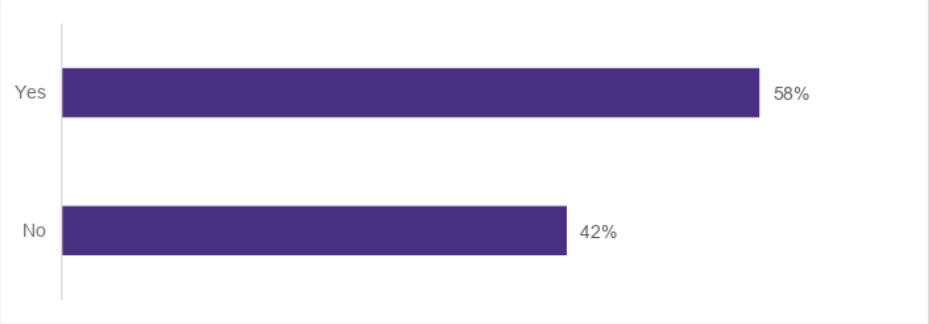
A relatively lower proportion of respondents (29%) indicated they had experienced congestion on Hastings River Drive in the previous month to the survey being completed.



Graph 6 Q6: in the past month, have you experience traffic congestion on Hastings River Drive? n = 578

Oxley Highway

56% of respondents indicated that they experienced congestion on the Oxley Highway in the previous month to the survey being completed.



Graph 7 Q6: in the past month, have you experience traffic congestion on the Oxley Highway? n = 578

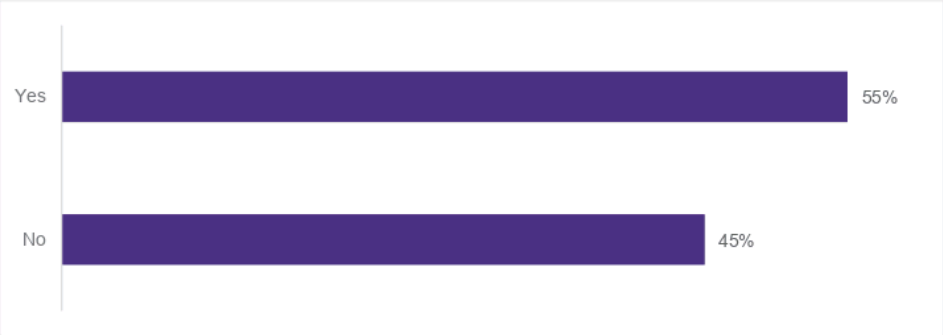
Ocean Drive

Similar to the results for the Oxley Highway, 56% of respondents indicated that they experienced congestion on Ocean Drive in the previous month to the survey being completed.

Graph 8 Q6: In the past month, have you experienced traffic congestion on Ocean Drive? n = 578.

John Oxley Drive

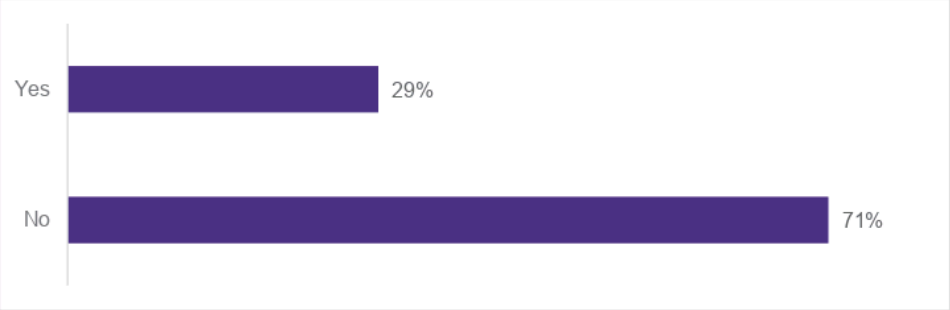
5 in 10 respondents have also experienced congestion on John Oxley Drive over the past month.



Graph 9 Q6: In the past month, have you experienced traffic congestion on John Oxley Drive? n = 578

Boundary Street

Congestion on Boundary Street was fo9und to not be a significant issue, with only 29% of survey respondents indicating they had experienced congestion on this street in the month prior to survey completion.



Graph 10 Q6: in the past month, have you experience traffic congestion on Boundary Street? n = 578

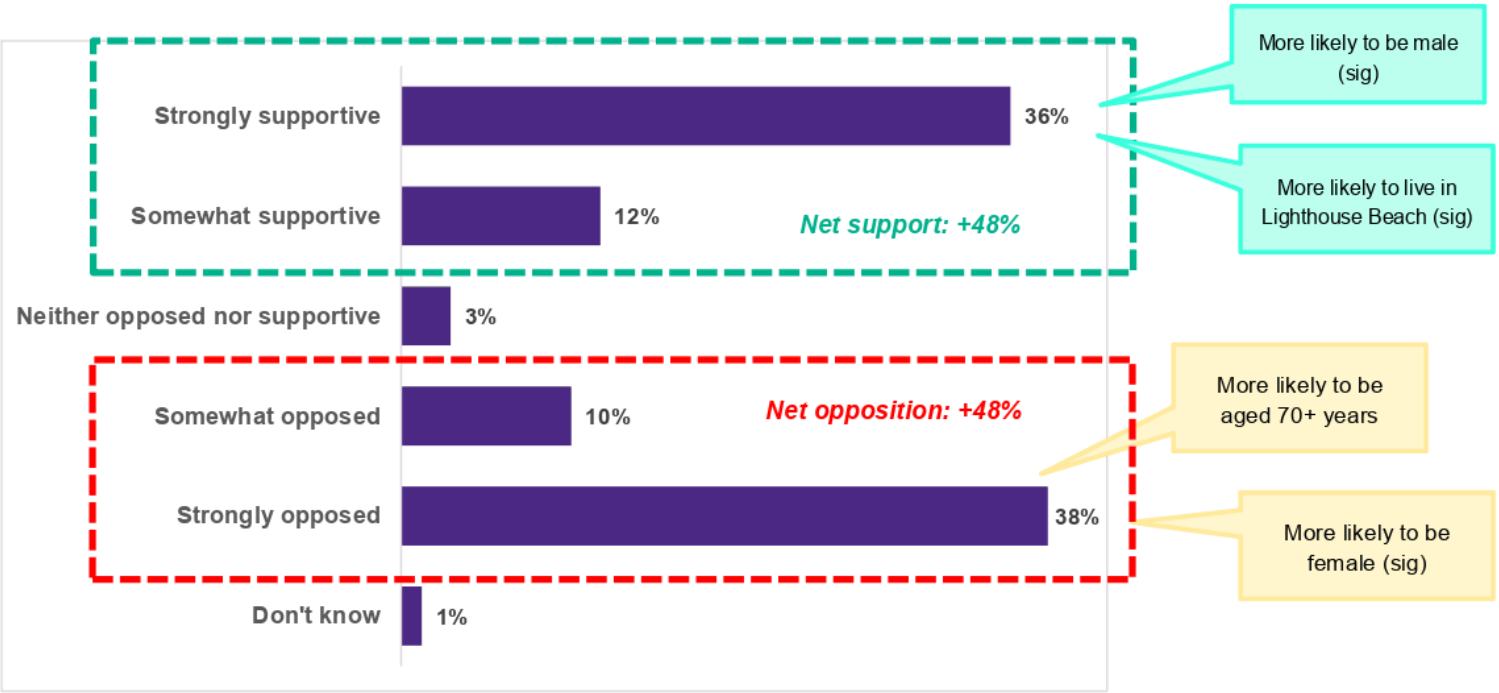
2.3 Proposed Orbital Road sentiment and awareness

2.3.1 Polarisation of support and opposition

The level of support from respondents in the community survey for the proposed Orbital Road is extremely polarised – with nearly 4 in 10 strongly supportive, and 4 in 10 strongly opposed. Segmentation by age and gender is illustrated in Graph 11.

- Those who support the proposed road are more likely to be male and live in Lighthouse Beach.
- Those who are strongly opposed are more likely to be aged over 70 years and are more likely to be female.

Respondents were asked to briefly explain the reason for their answer selection to level of support. Graph 12 addresses the various reasons why the response (support or oppose) was selected.



Graph 11 Q8: Which of the following best describes your opinion regarding the proposed Port Macquarie Orbital Road? (single response) n = 578

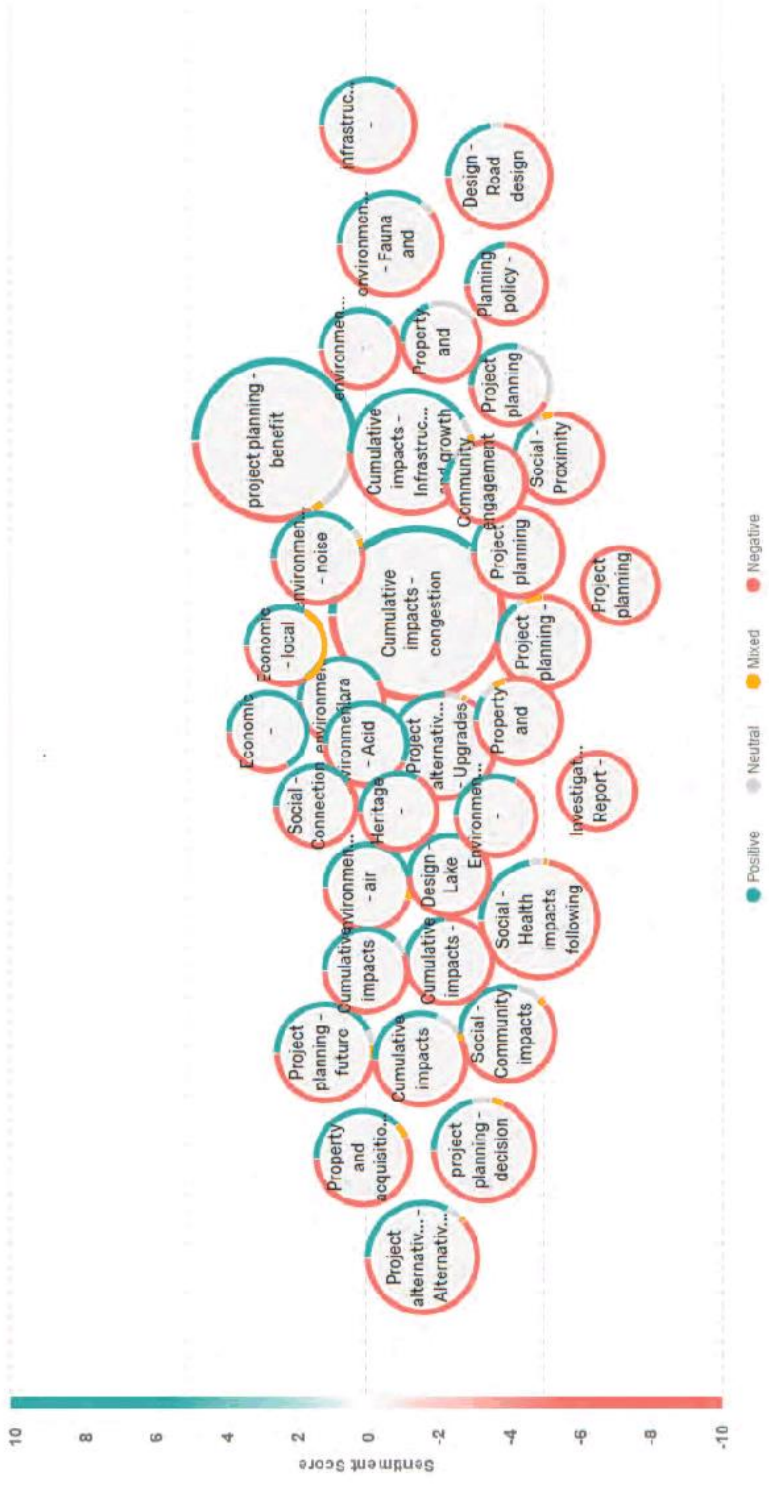
Participants were then asked why they had answered the previous question the way they had, as to whether they strongly support or strongly oppose. There was similar polarisation of answers and a breadth and scope of emotion across the reasons why. Top response categories included:

1. **Cumulative impacts: Congestion.** This category included comments and questions on congestion across the breadth of the city, where vehicles are travelling from/to and how the proposed Orbital Road would address bottlenecks/key congestion hotspots (for example Lake Rd, Wrights Rd).

2. **Project planning: benefit.** Comments outlining the potential intrinsic benefits of the project (for example improved connectivity, reduced congestion, better travel times, future planning, flood free route) and additional benefits (for example shared active transport routes), links to economic hotspots - Business park / HEP).
3. **Cumulative impacts: infrastructure and growth.** Comments on the cumulative impacts of other infrastructure projects in the area, for example road upgrades/duplication, property developments (Bunnings) within corridor etc. This also includes comments on how the project could catalyse further development, views on housing estates approved in last decade and general comments on population growth projections.

Some visual details, example quotes and the sentiment analysis from the answers from all 578 respondents are included on the following pages, including example comments for the top categories of sentiment around this complex topic area.

Total Responses: 578 Total Comments: 578 Viewing 578 comments (100% of all)



Graph 12 Sentiment Analysis. Q9: Can you briefly explain your reason for your answer selection in the above question? (open response) n = 578

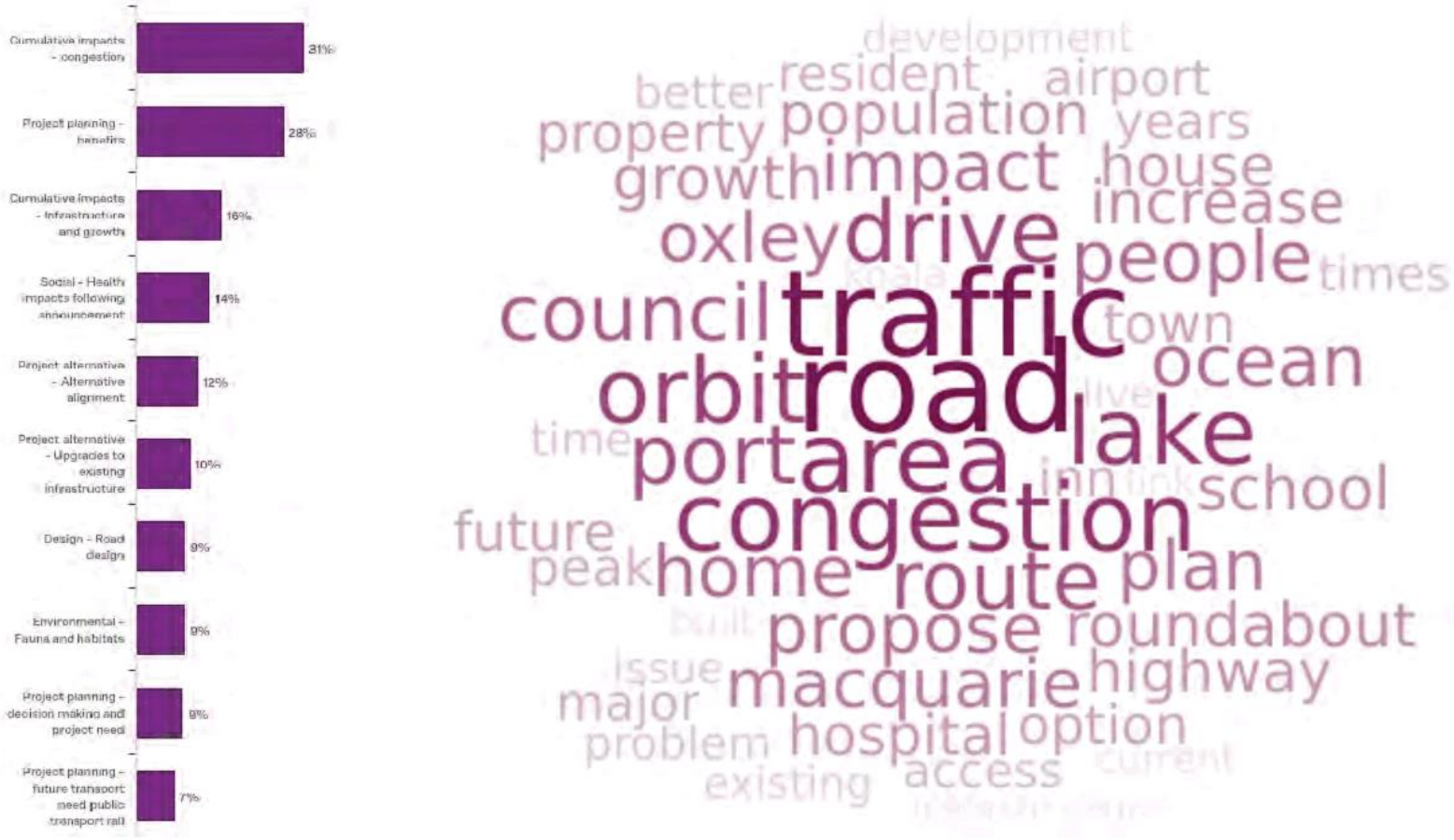
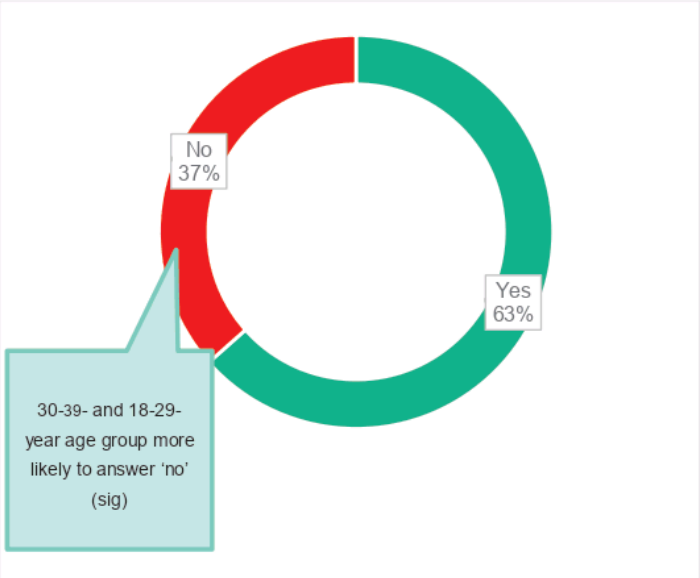


Figure 1 **Analysis by topic area of submission, and Wordle. Q9: Can you briefly explain your reason for your answer selection in the above question? (open response) n = 578**

Figure 2 Example comments Q9: Can you briefly explain your reason for your answer selection in the above question? (open response) n = 578

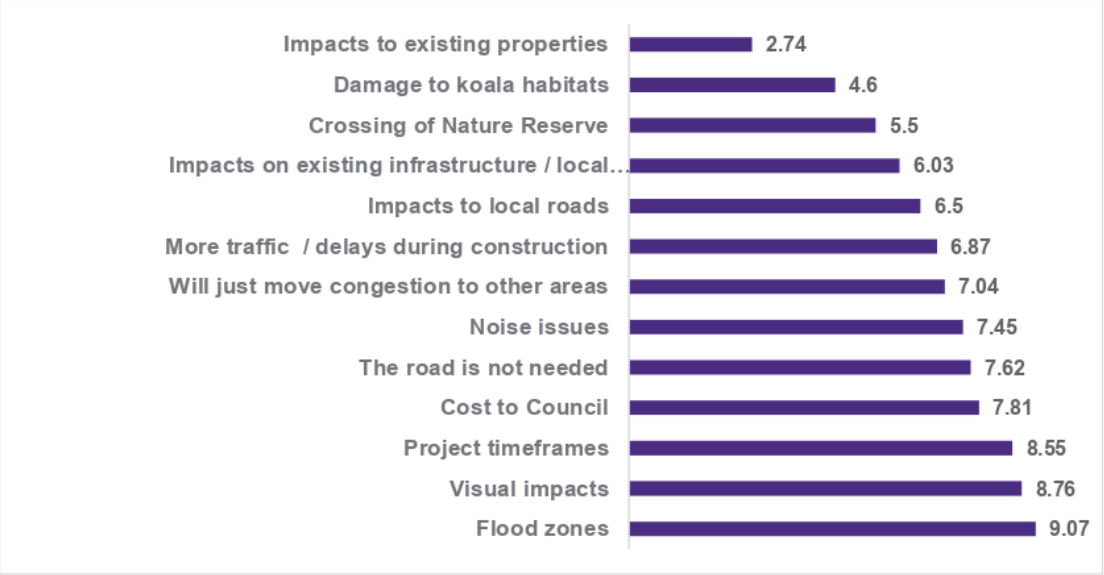
2.3.2 Specific concerns

In terms of specific concerns, participants held strong views toward potential impacts that the proposed Orbital Road could cause. They were less likely to have concerns in the age 18-29 and age 30-39 groups.



Graph 13 Q10: Do you have any concerns about the proposed Orbital Road Project? (single response) n = 578

Top concerns from survey participants in terms of ranking were impacts to existing properties, damage to koala habitats, and crossing of the nature reserve. This was followed by impacts on existing infrastructure and businesses, local roads and more delays and traffic during construction. Please note, in this part of the survey, participants were asked to rank their concerns from 1 as most important and so on, hence in the graph below, the smaller numbers are representatively more important than the higher numbers. The other concerns are shown below in Graph 14 in order of priority.



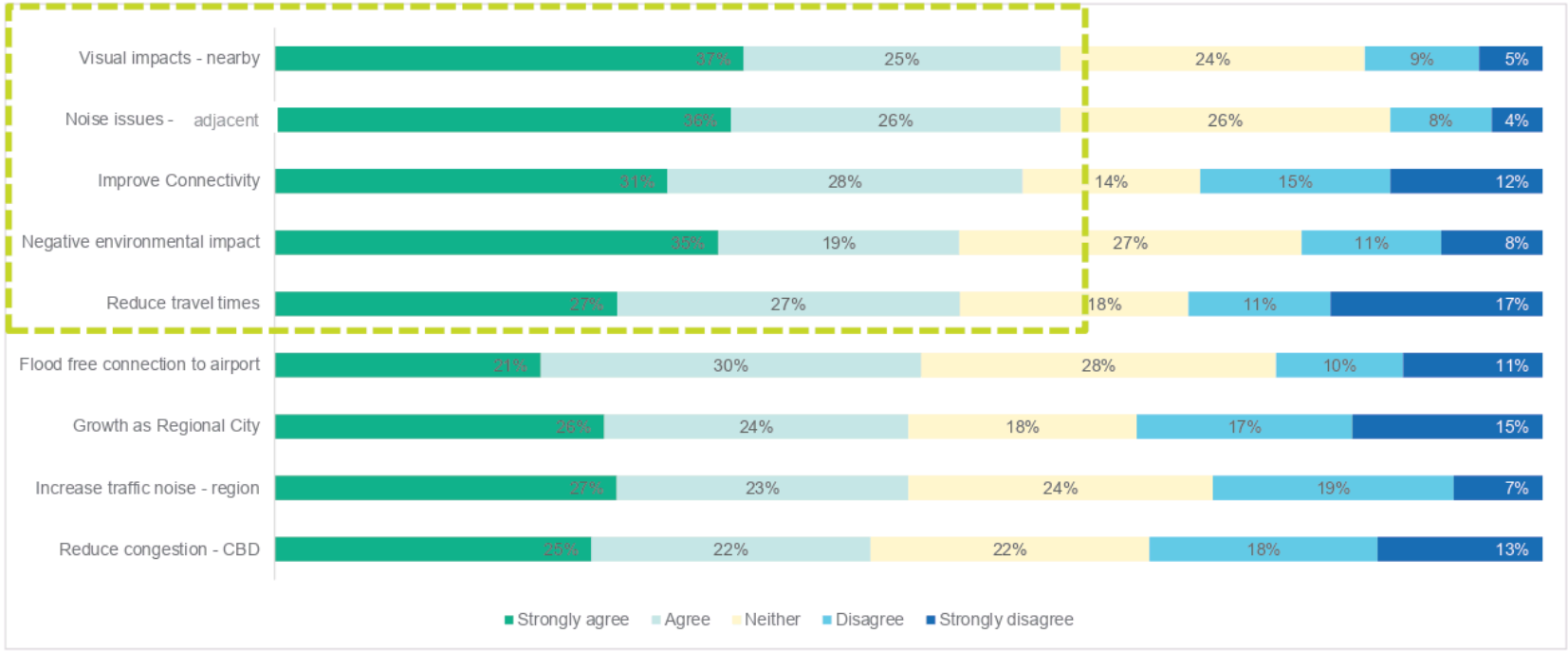
Graph 14 Q11: Please consider the following options and rank them according to what you are most concerned about to least concerned about for the proposed Orbital Road. Place a 1 next to what you are most concerned about, a 2 next to the option that is next most concerning to you, and so on. Remember, no two options can have the same ranking. n = 578

2.3.3 Impacts of the project

In terms of sentiment toward potential impacts of a project of this nature, participants indicated they are most concerned about:

- visual impacts on residents near the Orbital Road – 62% of respondents agree or strongly agree
- noise issues for residents adjoining the Orbital Road – 62% of respondents agree or strongly agree
- negative environmental impacts – 54% of respondents agree or strongly agree

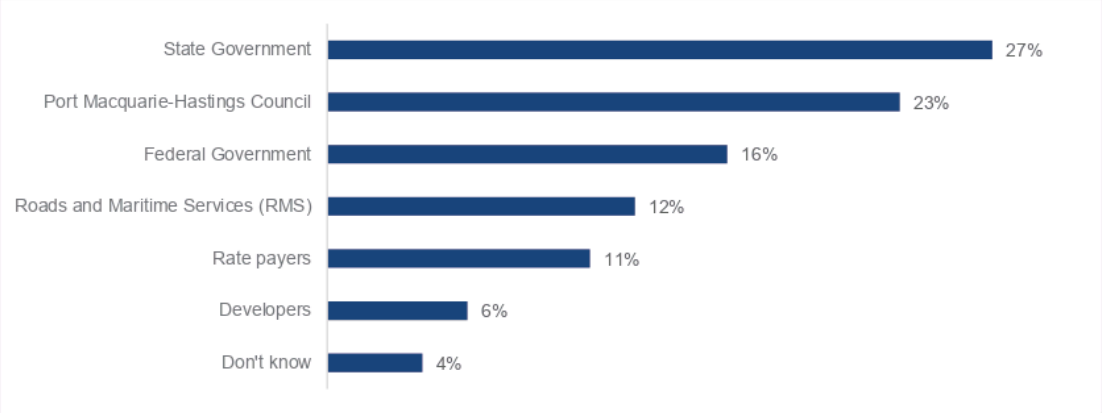
Participants identified their opinion toward the potential benefits that the proposed Orbital road would have for Port Macquarie community. 59% of respondents agree or strongly agree that the proposed road would improve connectivity to key destinations across the city and 54% of respondents agree or strongly agree that it would reduce travel times.



Graph 15 **Q13-18: Do you agree or disagree with the following statements? The proposed Orbital Road will: reduce overall travel times, Negatively impact the environment, Set Port Macquarie up for future growth as a regional city, Improve connectivity to key destinations across the city, create noise issues for residents adjoining the Orbital Road, Reduce congestion in the Port Macquarie CBD, Increase traffic noise in the region, Providing and efficient and flood-free connection to the airport, Have visual impacts on residents near the Orbital Road. n = 578**

2.3.4 Who pays?

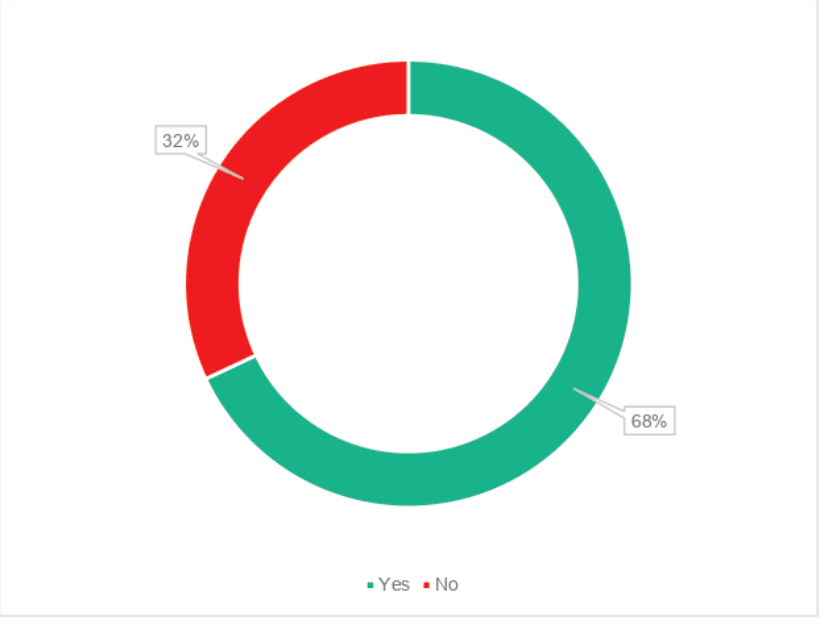
Nearly 3 in 10 participants in the survey believe the State Government would fund the project, followed by Port Macquarie-Hastings Council at 2 in 10 respondents (23%). This was followed by 16% of respondents believing the Federal Government would fund the project should it proceed.



Graph 16 If the proposed Orbital Road was to proceed, who do you believe would fund the project? n = 1569 (multiple response)

2.3.5 Awareness

Two thirds of survey respondents indicated that they were aware of the concept of an Orbital Road prior to Council's decision to engage the community on the proposal. This is unsurprising given that 60% of respondents have lived in the Port Macquarie area for more than 11 years.



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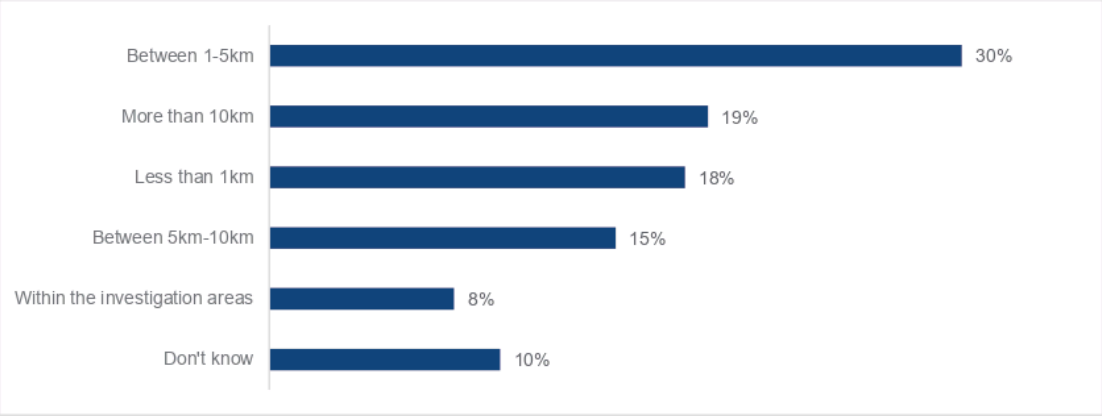
Graph 17 Q7: Had you heard about the concept of an Orbital Road in Port Macquarie prior to November's announcement to undertake community engagement on the project? n = 578

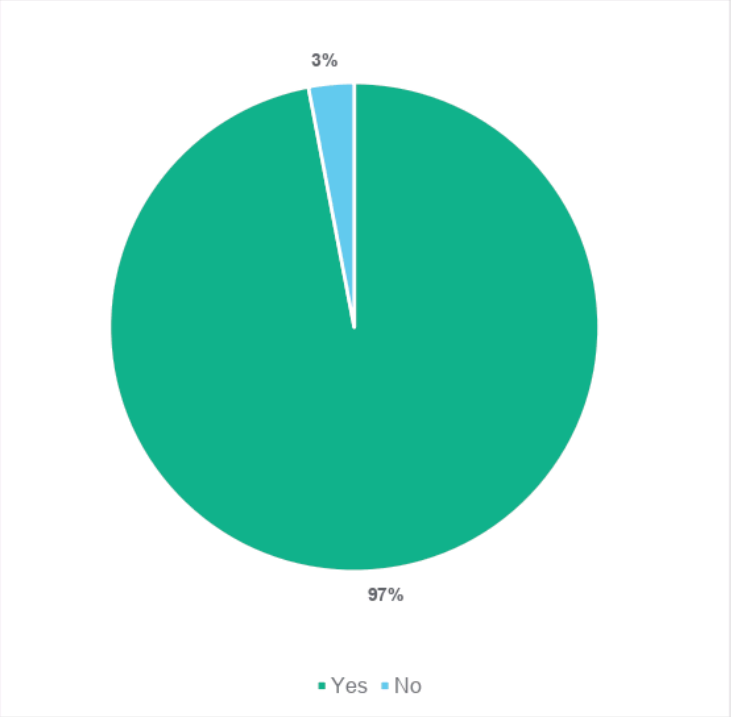
3 DEMOGRAPHICS

As shown in Graph 18, a large proportion (71%) of survey respondents indicated that they live within, or within 10km of the corridor investigation area. 2 in 10 respondents live more than 10km from the investigation corridor, and 1 in 10 respondents indicated that they did not know.



Graph 18 Q17: How close do you live to the proposed Orbital Road investigation area? n = 578

As shown in Graph 19 below, 3% of respondents indicated that they work for Council.

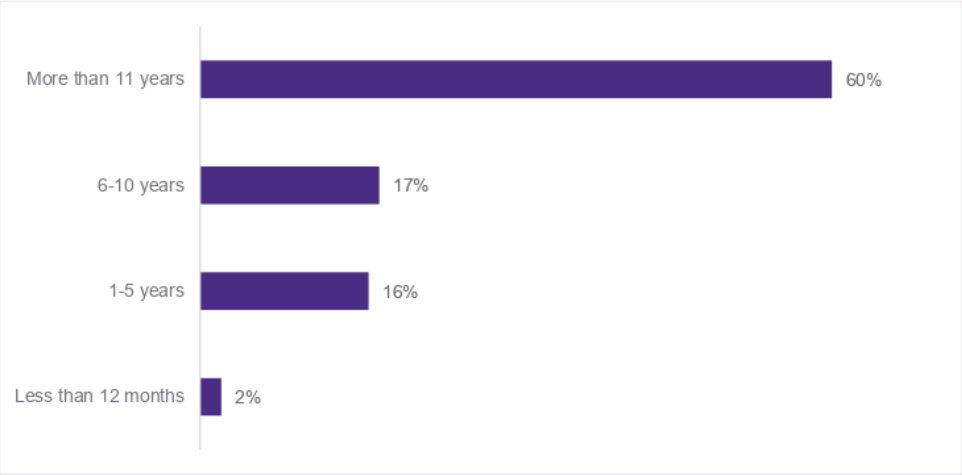


Graph 19 Q22: Are you a Councillor or a permanent Council employee? n = 578

REPORT

The majority of respondents live in the local government area (98%) (refer to Graph 20) and 6 in 10 respondents have lived in the area for more than 11 years, with only 2% less than 12 months (refer to Graph 21).

Graph 20 Q20: Do you live in the Port Macquarie-Hastings local government area? n = 578

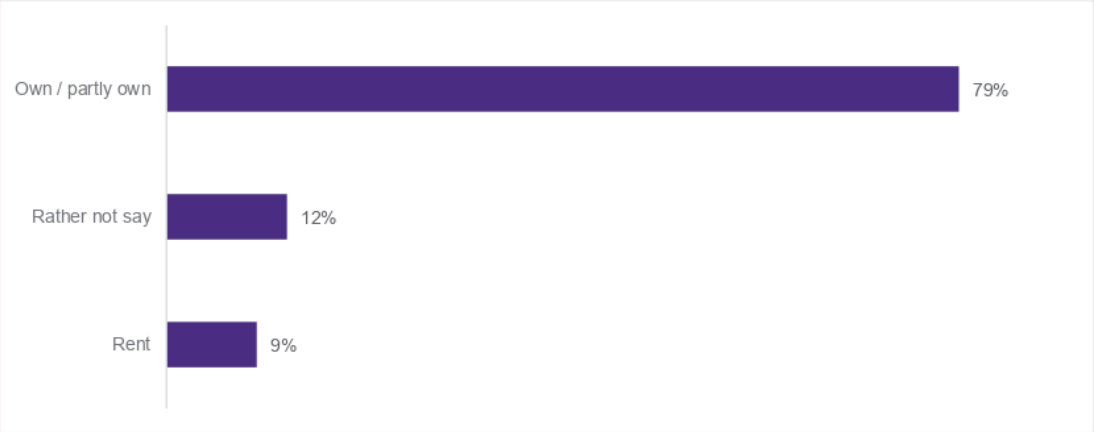


Graph 21 Q21: How long have you lived in the Port Macquarie-Hastings Local Government Area?

REPORT

Graph 22 shows the mix of owners / mortgagees and renters. 4 in 5 respondents (79%) either own or partly own (mortgage) their place of residence. This is relatively higher than the 2016 ABS Census for the Port Macquarie-Hastings LGA, where 68.6% of the population own/part own. According to the C2016 ABS Census, 26.4% of the population rent, whereas only 9% of respondents indicated they rent their home.

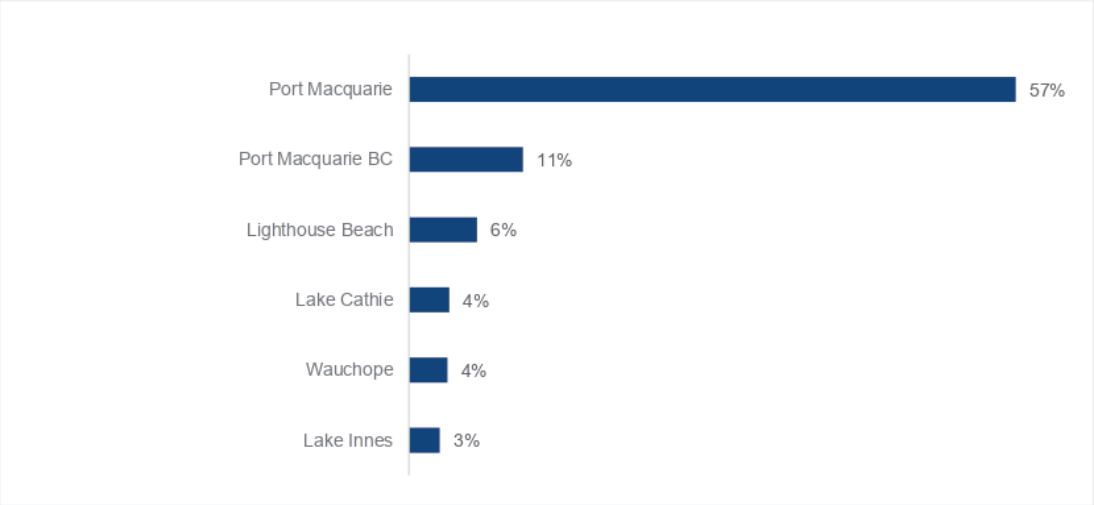
Given the potential direct and indirect impacts the proposed Orbital Road would have on property, it is unsurprising that a higher proportion of home owners have elected to 'have their say' in the survey.



Graph 22 Q25: Do you rent or own your own home?

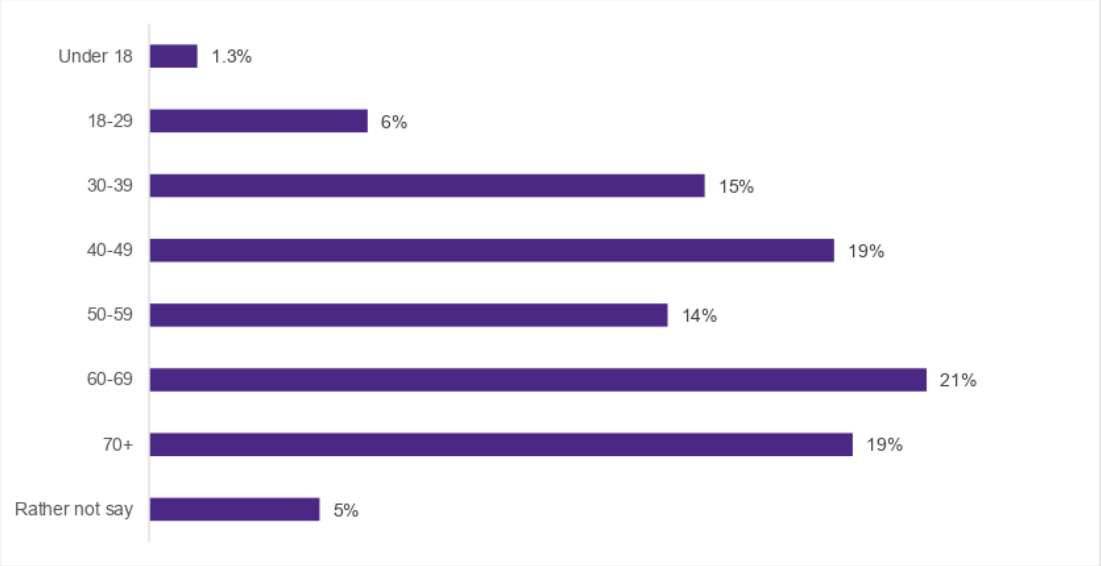
Survey respondents identified as being from various locations across the Port Macquarie-Hastings Council community. As shown in Graph 23, 68% of respondents are located in Port Macquarie/Port Macquarie BC.

This was followed by areas to the south - Lighthouse Beach (6%), Lake Cathie (4%) and Lake Innes (3%) and Wauchope (4%) to the west. Other areas where responded were below 2% are not shown on the chart, however, are listed in the text below.



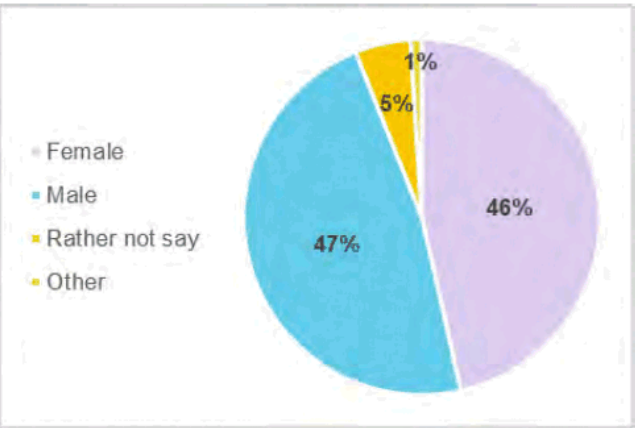
Graph 23 Q26: What is your location? Not shown (low count) Shelley Beach: 1.4%, Bonny Hills: 1.4%, Thrumster: 1.4%, King Creek 1.4%, Laurieton: 1.4%, Riverside: 1%, Flynns Beach, Yippin Creek, Crosslands, Lakewood, North Haven, Sancrox, North Short, Redbank, Settlement City, Crestwood, Dunbogan, Ballengarra, Camden Head, Alstonville, Kempsey MSC, Mudgeeraba (QLD), Clifton, Acheron (Vic), Port Campbell (Vic), Beechwood (Vic), Pembroke, Failford (NSW), Lorne, Bronbin, Sherwood, Sydney, Hastings Point.

in 10 respondents are aged 60 and over, with 2 in 10 aged between 18-39 years.



Graph 24 Q24: What is your age range?

The split between male (47%) and female (46%) respondents was similar. A minority of respondents indicated they would rather not identify their gender (5%) and 1% identifying as other.



Graph 25 Q23: What is your gender?

Appendix A

Online Survey Script

Q1: What is your primary form of transport? (please select one response only)

Car Public transport Bicycle Walking Other

Q2: What do you think is the most important transport-related issue facing the Port Macquarie-Hastings community? (please select one response only)

Traffic congestion

Highway traffic

Poor road conditions and/or maintenance

Population growth and the increase in vehicles on local roads

Lack of public transport / routes

Nothing

Don't know

Q3: In your opinion, do you think that traffic congestion in Port Macquarie is: (please select one response only)

A minor problem

A major problem

No problem at all

Unsure

Q4: What do you believe are the main factors contributing to traffic congestion leading into the centre of Port Macquarie?

Population growth

Changing land use and development

Tourism peak periods

Freight (Truck and van deliveries)

Peak periods

Traffic lights

Roundabouts

Lack of a direct route

Road speed

Q5: What do you believe are the main factors contributing to traffic congestion leading into the centre of Port Macquarie?

Population growth

Changing land use and development

Tourism peak periods

Freight (Truck and van deliveries)

Peak periods

Traffic lights

Roundabouts

Lack of a direct route

Road speed

Q6: In the past month, have you experienced traffic congestion on:

Lake Road	Yes / No
Ocean Drive	Yes / No
John Oxley Drive	Yes / No
Hastings River Drive	Yes / No
Oxley Highway	Yes / No
Boundary Street	Yes / No

Q7: Had you heard about the concept of an Orbital Road in Port Macquarie prior to November's announcement to undertake community engagement on the project?

Yes

No

Q8: Which of the following best describes your opinion regarding the proposed Port Macquarie Orbital Road? (please select one response only)

Strongly opposed

Somewhat opposed

Neither opposed nor supportive

Somewhat supportive

Strongly supportive

Don't know

Q9: Can you briefly explain your reason for your answer selection in the above question?

(open response)

Q10: Do you have any specific concerns about the proposed Orbital Road project?

Yes / No

Q11: Please consider the following options and rank them according to what you are most concerned about to least concerned about for the proposed Orbital Road.

Place a 1 next to what you are most concerned about, a 2 next to the option that is next most concerning to you, and so on. Remember, no two options can have the same ranking.

Impacts to existing properties

Damage to environment / koala habitats

Crossing of the Nature Reserve

Impacts on existing infrastructure / local businesses

Impacts to local roads

More traffic / delays during construction

Will just move congestion to other areas

Noise issues

The road is not needed

Cost to Council

Project timeframes

Visual impacts

Flood zones

Q12: If the proposed Orbital Road was to proceed, who do you believe would fund the project? (multiple responses can be selected)

State Government

Federal Government

Port Macquarie-Hastings Council

Roads and Maritime Services (RMS)

Developers

Rate payers

Don't know

Q13: Do you agree or disagree with the following statements? The proposed Orbital Road will:

Reduce overall travel times

1 – Strongly disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly agree

Q13 a: Negatively impact the environment

1 – Strongly disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly agree

Q13 b: Set Port Macquarie up for future growth as a regional city

1 – Strongly disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly agree

Q13 c: Improve connectivity to key destinations across the city

1 – Strongly disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly agree

Q14 d: Create noise issues for residents adjoining the Orbital Road

1 – Strongly disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly agree

Q15: Reduce congestion in the Port Macquarie CBD

1 – Strongly disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly agree

Q16: Increase traffic noise in the region

1 – Strongly disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly agree

Q17: Providing and efficient and flood-free connection to the airport

1 – Strongly disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly agree

Q18: Have visual impacts on residents near the Orbital Road

1 – Strongly disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly agree

Q19: How close do you live to the proposed Orbital Road investigation area?

Less than 1km

Between 1km - 5km

Between 5km - 10km

More than 10km

Within the investigation area

Don't know

Q20: Do you live in the Port Macquarie-Hastings local government area?

Yes

No

Q21: How long have you lived in the Port Macquarie-Hastings Local Government Area?

Less than 12 months

1-5 years

6-10 years

More than 11 years

Q22: Are you a Councillor or a permanent Council employee?

Yes

No

Q23: What is your gender?

Male

Female

Other

Rather not say

Q24: What is your age range?

Under 18

18-29 years old

30-39 years old

40-49 years old

50-59 years old

60-69 years old

70+ years old

Rather not say

Q25: Do you rent or own your home?

Rent

Own/part own

Rather not say

Q26: What is your location?

PORT MACQUARIE, NSW

PORT MACQUARIE BC, NSW

LIGHTHOUSE BEACH, NSW

REPORT

LAKE CATHIE, NSW
WAUCHOPE, NSW
LAKE INNES, NSW
SHELLY BEACH, NSW
BONNY HILLS, NSW
THRUMSTER, NSW
KING CREEK, NSW
LAURIETON, NSW
RIVERSIDE, NSW
FLYNNS BEACH, NSW
YIPPIN CREEK, NSW
CROSSLANDS, NSW
LAKEWOOD, NSW
NORTH HAVEN, NSW
SANCROX, NSW
NORTH SHORE, NSW
REDBANK, NSW
SETTLEMENT CITY, NSW
CRESTWOOD, NSW
DUNBOGAN, NSW
BALLENGARRA, NSW
CAMDEN HEAD, NSW
ALSTONVILLE, NSW
KEMPSEY MSC, NSW
MUDGEERABA, QLD
CLIFTON, NSW
ACHERON, VIC
PORT CAMPBELL, VIC
BEECHWOOD, NSW
PEMBROOKE, NSW
FAILFORD, NSW
LORNE, NSW
BROMBIN, NSW
SHERWOOD, NSW
SYDNEY, NSW
HASTINGS POINT, NSW

REPORT

Appendix C

Investigation Corridor Maps

PORT MACQUARIE HASTINGS COUNCIL

Proposed Orbital Road Investigation Corridor

Proposed Orbital Road investigation corridor Lake Innes Nature Reserve (National Park)

HASTINGS RIVER DRIVE
BOUNDARY STREET
TUFFINS LANE
ABBOTS CL

OCEAN DRIVE
CORREA CRES
GUMNUT LANE
GREENMEADOWS DRIVE
GREENMEADOWS DRIVE
COLONEL BARNEY DR
JABIRU DRIVE
TALLOWOOD LN
CAMELIA CIRCUIT

WHISTLER DR
CURRAWONG DRIVE
MAJOR INNES ROAD
MAJOR INNES ROAD
WILLANDRA AVE
BRAEROY DRIVE
KYLA CRES

KINGFISHER RD
MAJOR INNES ROAD
CURRAWAONG DRIVE
WHISTLER DR
JOHN OXLEY DRIVE
MONARCH CIRCUIT
JABIRU WAY
CURRAWAONG DRIVE
THE RUINS WAY
THE RUINS WAY
ELIZA CIRCUIT
ANNABELLA DRIVE

nearmap
THE JIB
THE JIB
ROSEHILL AVE
DONCASTER AVE
THE BOOM
THE TILLER
THE BEAM
REGATTA CRES
MERMAID CRES
CLIFTON DR
LADY NELSON DR
OXLEY HWY
OXLEY HWY
FERNHILL ROAD

REPORT

Appendix D

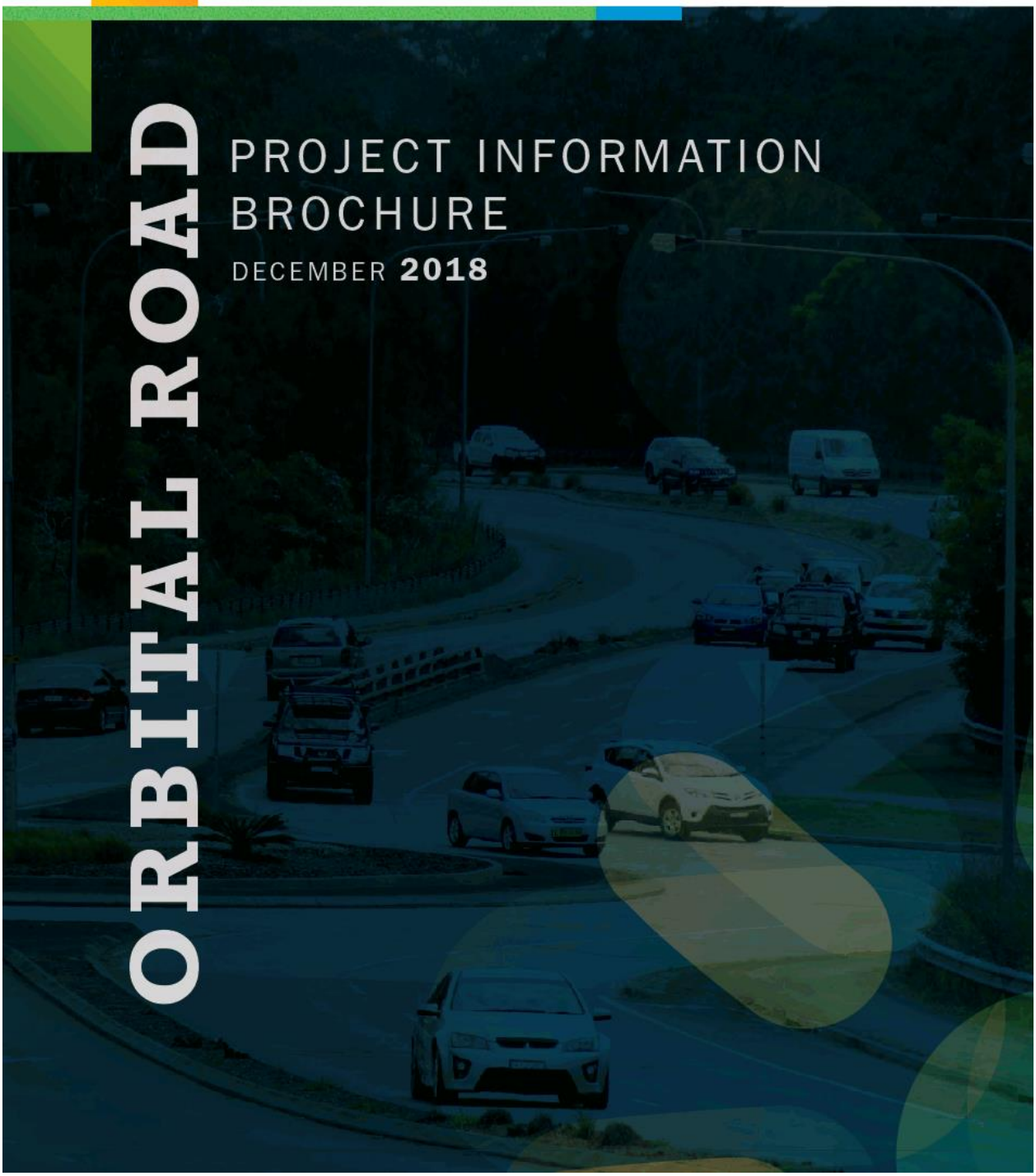
Project Information Brochure

PORT MACQUARIE HASTINGS COUNCIL

ORBITAL ROAD

PROJECT INFORMATION BROCHURE

DECEMBER **2018**



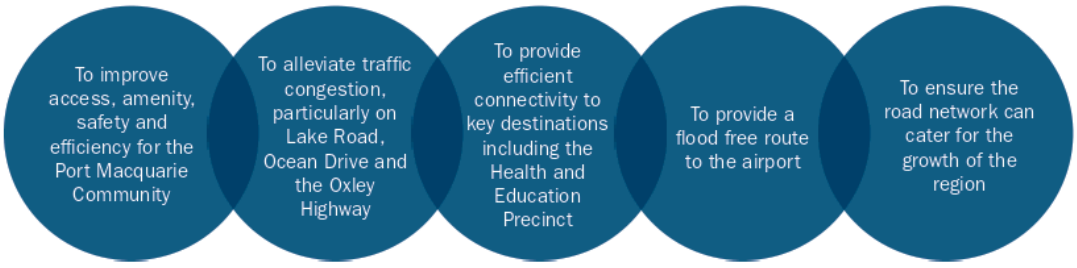
PROPOSED ORBITAL ROAD PROJECT OVERVIEW

The proposed Orbital Road consists of the collective east-west link (Ocean Drive to Oxley Highway), the north-south link (Oxley Highway to Boundary Street) and the flood-free Primary Airport Access Road. The most viable route (based on engineering standards and cost) has been identified, however as the project is in the early stages of investigations and the approval process is yet to begin, the preferred final route is yet to be determined. Comprehensive technical and environmental investigations will be required before the final route is confirmed and approved.

The proposed Orbital Road would connect with Port Macquarie's existing roads and maximise efficiency of the local transport network. If the proposed Orbital Road is constructed, then Port Macquarie would have a fully connected road network that would provide continuous traffic flow across the breadth of the City, with links to key destinations including Port Macquarie Base Hospital, Charles Sturt University, Port Macquarie Airport, St Columba Anglican School and the Regional Sports Stadium. It is predicted that the proposed Orbital Road would provide travel time savings of up to 12 minutes across Port Macquarie.

It is a long-term solution to addressing our current and future traffic growth and is essential for the economic and social vitality of our community.

PROJECT OBJECTIVES



REGIONAL INTEGRATED TRANSPORT GUIDING PRINCIPLES

Council, in conjunction with State Government agencies are currently developing the Regional Integrated Transport Strategy. As a part of this development the following guiding vision, purpose and principles have been drafted to help guide integrated transport and land use planning.

Vision

Create an innovative and integrated transport network for our growing community.

Purpose

To provide safe, economical, and appropriate transport opportunities by improving access and reducing reliability on cars.

Principles

Liveable places / Protect our environment / Support local economy / Transport options / Connected Community / Unleash potential through technology

Foundation Principle

Safety – Safety for all road users is at the core of all integrated transport solutions

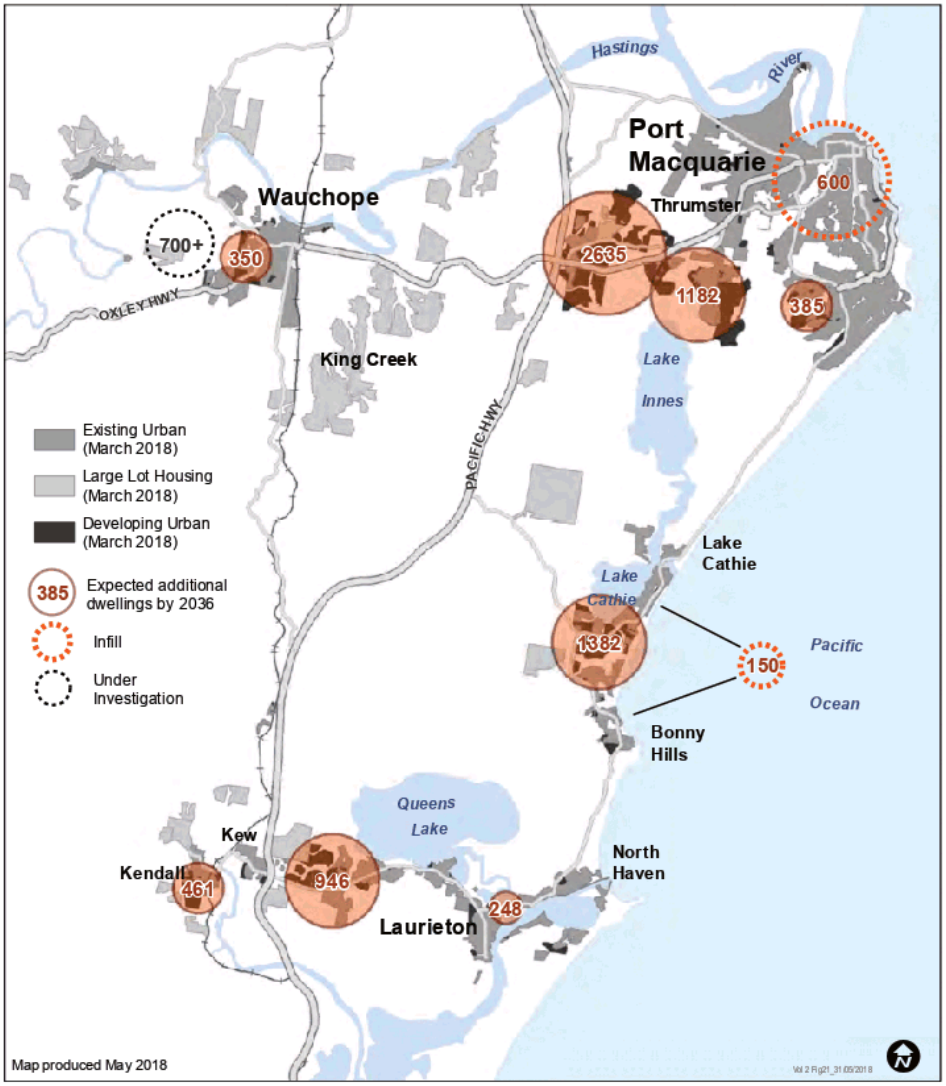
Hastings River
Settlement Point Shopping Centre
CBD
BOUNDARY STREET
TUFFINS LANE
Airport
HASTINGS RIVER DRIVE
Port MacquarieTAFE
Racecourse
NORTH - SOUTH LINK
LAKE ROAD
Port Macquarie Base Hospital
OXLEY HIGHWAY
OCEAN DRIVE
Charles Sturt University
JOHN OKLEY DRIVE
St Columba Anglican School
MAJOR INNES ROAD
THE RUINS WAY
EAST - WEST LINK
GREENMEADOWS DRIVE
Proposed Orbital Road investigation corridor
Lake Innes Nature Reserve (National Park)
Flood free – primary access road to airport investigation corridor

PROJECT CONTEXT

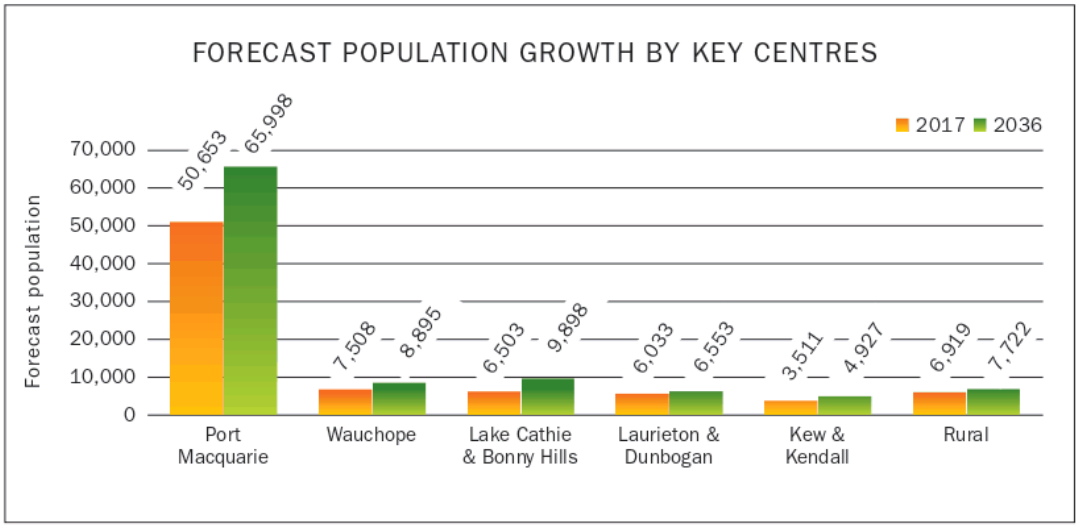
The Port Macquarie-Hastings Local Government Area is experiencing unprecedented population growth. The current population of approximately 80,000 is expected to grow to more than 100,000 within the next 20 years.

The community is already experiencing the impacts of our increasing population and the western expansion of Port Macquarie, through significant congestion across the extent of the city, particularly on Lake Road, Ocean Drive and the Oxley Highway.

Council is also exploring other initiatives to manage traffic demand, such as working with the State Government to review and improve public transport and increasing opportunities for active transport including the provision of walkways and cycleways, which are all an important part of the network approach.



Key growth areas and dwelling estimates – UGMS



Approximately 7 car trips per dwelling per day on main road network

70,000 vehicle movements per day

Of the 70,000 vehicle movements, around 40,000 to 50,000 vehicles are estimated to travel to Port Macquarie on an average weekday during the working week (outside school holiday period).

STRATEGIC CONTEXT

The concept of the proposed Orbital Road is featured in the NSW Government's North Coast Regional Plan, Council's recently adopted Urban Growth Management Strategy (UGMS) and the Draft Regional City Action Plan. A key action in the Urban Growth Management Strategy (UGMS) is Council's Regional Integrated Transport Strategy (RITS), which will investigate options to improve connectivity between existing areas of development and planned growth areas in the long term in Port Macquarie. The proposed Orbital Road is earmarked for consideration as part of the Urban Growth Management Strategy (UGMS).

North Coast Regional Plan (https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast)

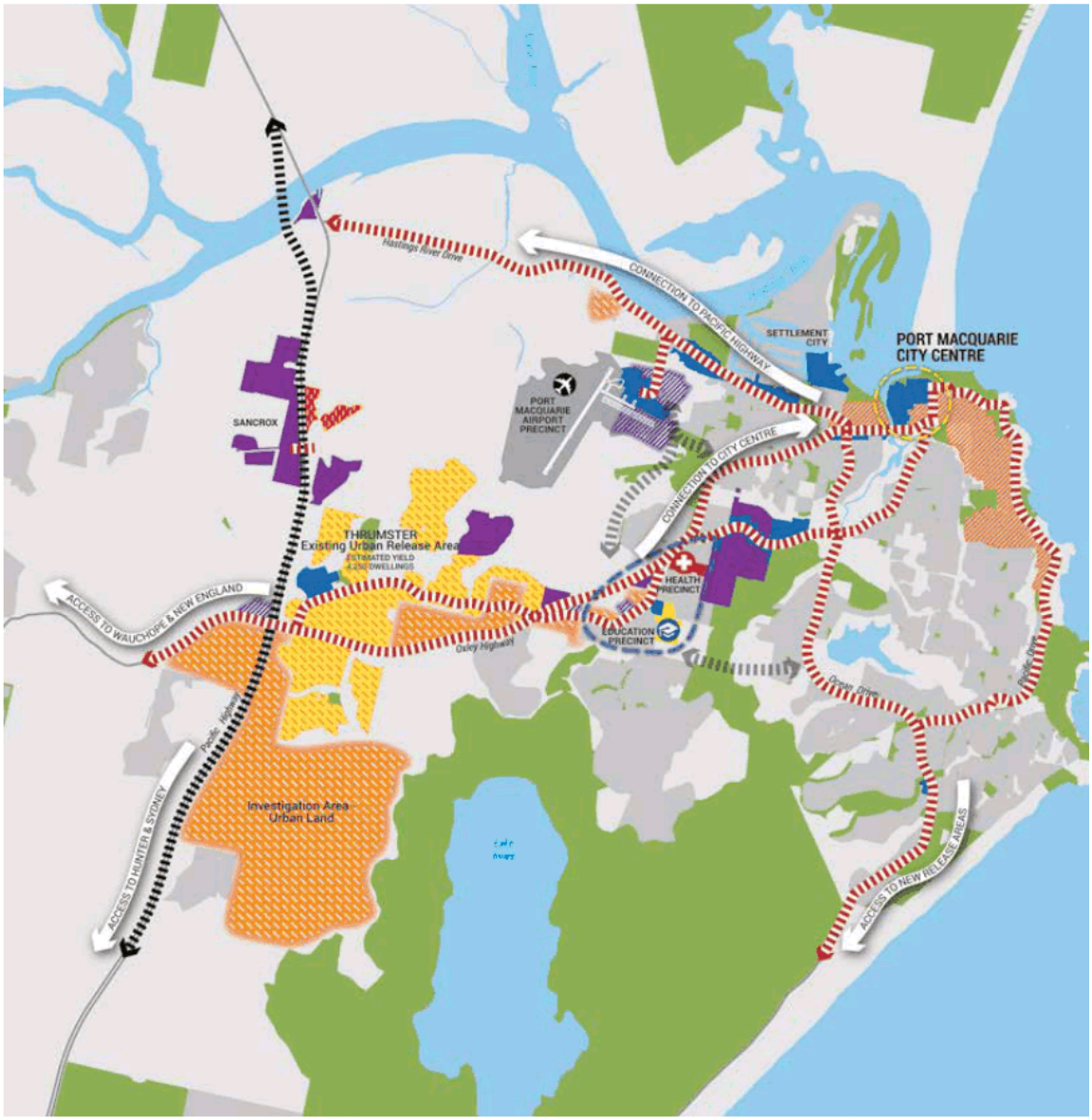


Figure 8: **Port Macquarie Regional City**

Investigation Area – Urban Land	Business Centre	Health Services Precinct	Local Transport Investigation Link
Existing Urban Release Area	Tourism	Airport Precinct	Parks and Reserves
Urban Renewal	City Centre	Regional Connection	Urban Area
Employment Land	Commercial and Residential	Proposed Pacific Highway Upgrade	Non-Urban Area
Investigation Area – Employment Land	Education Precinct	Local Connection	Watercourse

(Source: NSW Department of Planning and Environment North Coast Regional Plan, 2017)

The Urban Growth Management Strategy (UGMS) discusses the forecast economic development, housing and population growth expected within the Port Macquarie-Hastings Council Local Government Area in coming years.

If full development occurs as expected, in line with the Urban Growth Management Strategy (UGMS), in 2036 the East-West link section (Ocean Drive to Oxley Highway) is forecast to carry in the order of approximately 18,000 vehicles per day on a typical weekday, the North-South link (Oxley Highway to Boundary Street) 9,000 vehicles and the Airport link, 8,000 vehicles per day. Traffic modelling as part of the Area Wide Traffic Study (AWTS) identified these estimates.

INVESTIGATING CORRIDOR OPTIONS

The need for an east-west road corridor was first identified in the 1980s as part of the planning for urban growth at Lighthouse Beach and the Innes Peninsula. Findings from several studies conducted since then have confirmed that a connected orbital, or 'link' road is the most viable and effective response to the traffic problems facing a growing Port Macquarie, and potential corridor options were identified and assessed. A route, however, has never been approved or protected for future road development.

The concept of an outer link was formally recognised in 2002, as part of the Hastings Roads and Traffic Study. Since then, the proposed Orbital Road was examined in 2008, and re-introduced in May 2015.

Following the Council's unanimous decision in May 2015 to proceed with investigation and planning, an engineering feasibility study was conducted between 2016 and 2018. The feasibility study examined constraints, costs and local infrastructure that has been built in the last 10 years. The outcome of the feasibility study was the determination of the investigation corridor that we are currently talking about.

An Area Wide Traffic Study (AWTS) was prepared for Council in 2017. The AWTS evaluated the current road network performance and forecast future travel demands to 2036. The plan also tested a range of infrastructure improvements to accommodate existing and forecast future travel demands.

CORRIDOR PROTECTION FOR FUTURE ROAD INFRASTRUCTURE

The proposed Orbital Road is in the very early stages of investigation. If Council decides to proceed with the project, then work will commence on a Strategic Business Case. Comprehensive technical, environmental and feasibility investigations would verify the viability of the project, and stakeholder and community feedback would inform the selection of the preferred route. Once the route is identified and assessed, statutory protections would be enacted which would enable delivery of the infrastructure in the future.

CORRIDOR PROTECTION FOR FUTURE ROAD INFRASTRUCTURE (CONT.)

Statutory protection for the corridor would be created in an environmental planning instrument, such as a State Environmental Planning Policy (SEPP) or the Port Macquarie-Hastings Council Local Environmental Plan. The applicable planning instrument would apply statutory controls (a gazettal) to the land and outline the types of development that could be carried out on land within or adjacent to the corridor.

Following gazettal of the corridor for the proposed Orbital Road, the land within the corridor would most likely be rezoned to SP (Special Purpose) 2 Infrastructure – Reserved Infrastructure Corridor and new planning controls would apply. This would be to ensure that new development does not inhibit the future delivery of the roadway.

The environmental planning instrument would establish a land use planning framework that would:

- Protect the land for the proposed Orbital Road
- Maintain appropriate land uses within the reserved infrastructure corridor

- Manage development within the vicinity of the corridor so that future delivery of the road would not be compromised, and supportive land uses would be encouraged
- Establish measures to mitigate early the potential impacts of the road corridor on surrounding development
- Identify the land acquisition authority for land in the reserved corridor.

Property acquisition would generally occur closer to when the infrastructure is to be built. Land within the corridor would not be required immediately. In the meantime, existing land and property uses could continue, however, this may be impacted once the proposed Orbital Road alignment is protected by the new planning controls.

If the decision is to proceed with the proposed Orbital Road and the land is set aside for the protection for the future delivery of the road, it is at that point that the opportunity for property owners to consider owner-initiated early acquisition under the *Land Acquisition (Just Terms Compensation) Act 1991*. The land valuation is based on the assessment of the market value, unaffected by the road proposal. The acquisition process would be fair, consistent and transparent with the market value of the property assessed at the time of acquisition.

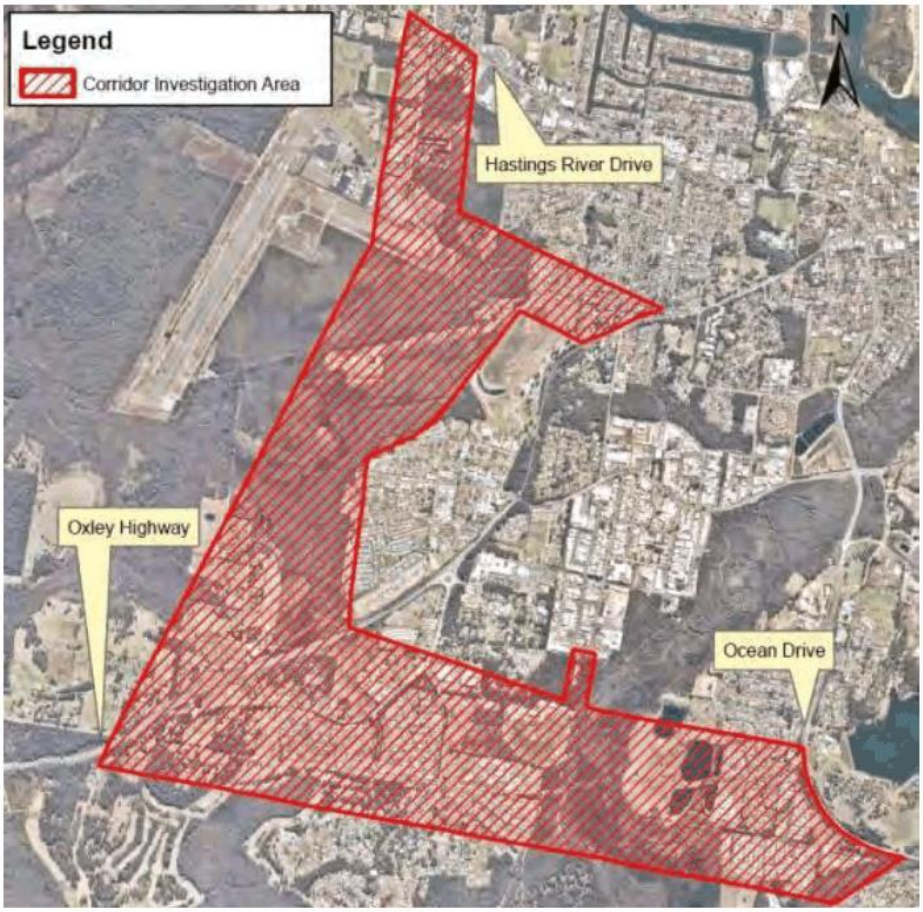
PREVIOUS INVESTIGATIONS INFORMING THE STRATEGIC NEED AND ROUTES FOR THE PROPOSED ORBITAL ROAD

- **1980s** – Planning investigations for urban growth at Lighthouse Beach and the Innes Pennisula
- **2001** – The Hastings Road and Traffic Study
- **2002** – Innes Peninsula Traffic Study
- **2005** – Port Macquarie Outer Link Roads route feasibility and selection study
- **2006** – Port Macquarie Outer Link Options – Traffic Assessment
- **2007** – Port Macquarie Outer Revised Route Options Report
- **2008** – Port Macquarie Outer Link Roads Final Route Options Report
- **2008** – Council Administrator decision to not proceed
- **2014** – Port Macquarie-Hastings Infrastructure Gap Analysis
- **2015** – Council decision to proceed with planning and investigate an orbital road
- **2015–18** – Engineering Feasibility Study undertaken
- **2017** – Area Wide Traffic Study (AWTS) prepared
- **2018** – Council decision to commence engagement with the community on the proposed Orbital Road

CURRENT PROPOSED ORBITAL ROAD INVESTIGATION AREA

The current investigation area has been identified based on the previous few decades of investigations and following a number of more recent technical investigations that have assessed the relative impacts on various types of constraints including:

- property
- the environment (protected habitats, vegetation)
- land quality
- existing infrastructure (electricity, water and fibre optic networks)
- flood zones
- current road networks.



As a result of the technical analysis within the investigation area, the most viable route is considered to have the least impact overall. The length of the proposed route has also been assessed to ensure the proposed Orbital Road will reduce overall travel distances and travel time, and alleviate traffic congestion across the breadth of the city. Through the technical analysis stage and in consultation with RMS, areas of the route were refined and the intersection around the Fernhill Rd link was included in the investigation area.

CROSSING THE LAKE INNES NATURE RESERVE

The alignment has been fixed to cross the Lake Innes Nature Reserve (National Park) along the already cleared power and water easement, shown below. This was chosen as the best location to have the least impact on the biodiversity within the National Park as the trees are already cleared for the power lines. Any future road would likely be bridged over this area with existing water and electricity services attached to the bridge. This would allow the area under the bridge to be environmentally rehabilitated to increase the biodiversity connectivity within the Lake Innes Nature Reserve. Reserving the corridor over the nature reserve requires State Government approval.

(Source: Nearmap reproduced under licence)

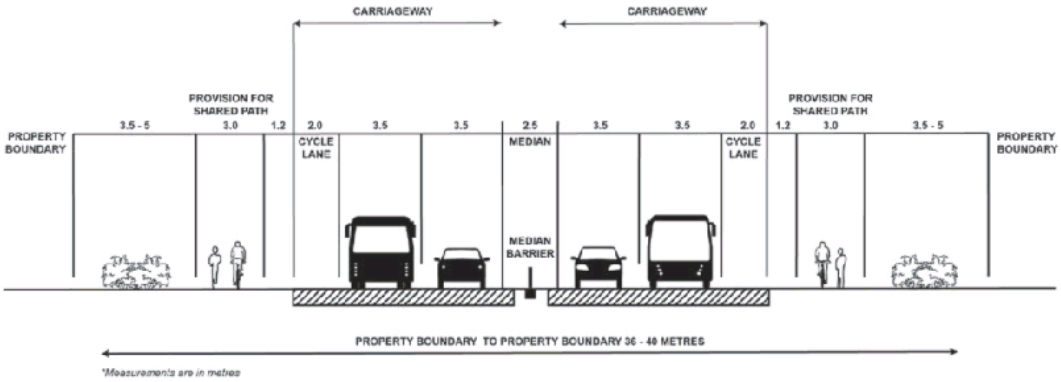
Hastings River Drive - Four lane road with shared path

ROAD DESIGN

The proposed Orbital Road is in the very early stages of investigation and planning. Comprehensive technical and environmental investigations would need to be conducted, which would inform the concept designs for the roadway. At this stage it is proposed that the Orbital Road would be a four (4) lane road with on road cycle lanes and concrete walkways on the road's edge, similar to Ocean Drive from Greenmeadows Drive (north) to Hindman Street.

The road reserve (fence boundary to fence boundary) is likely to be 36–40 metres wide. This would need to be increased at intersections and other specific locations, which would be determined by the terrain, to ensure that all required infrastructure and earthworks, for example, stormwater basins and sound barriers could be accommodated.

The physical road would include shared paths on the road edge (either one or both sides), and the width would be approximately 29 metres, as shown below. This would vary at intersections where additional turning lanes are required. The decision on whether there are paths on both sides of the road is yet to be made and would be investigated during the concept design stage of the project. The illustration below depicts the indicative road widths.



NEXT STEPS

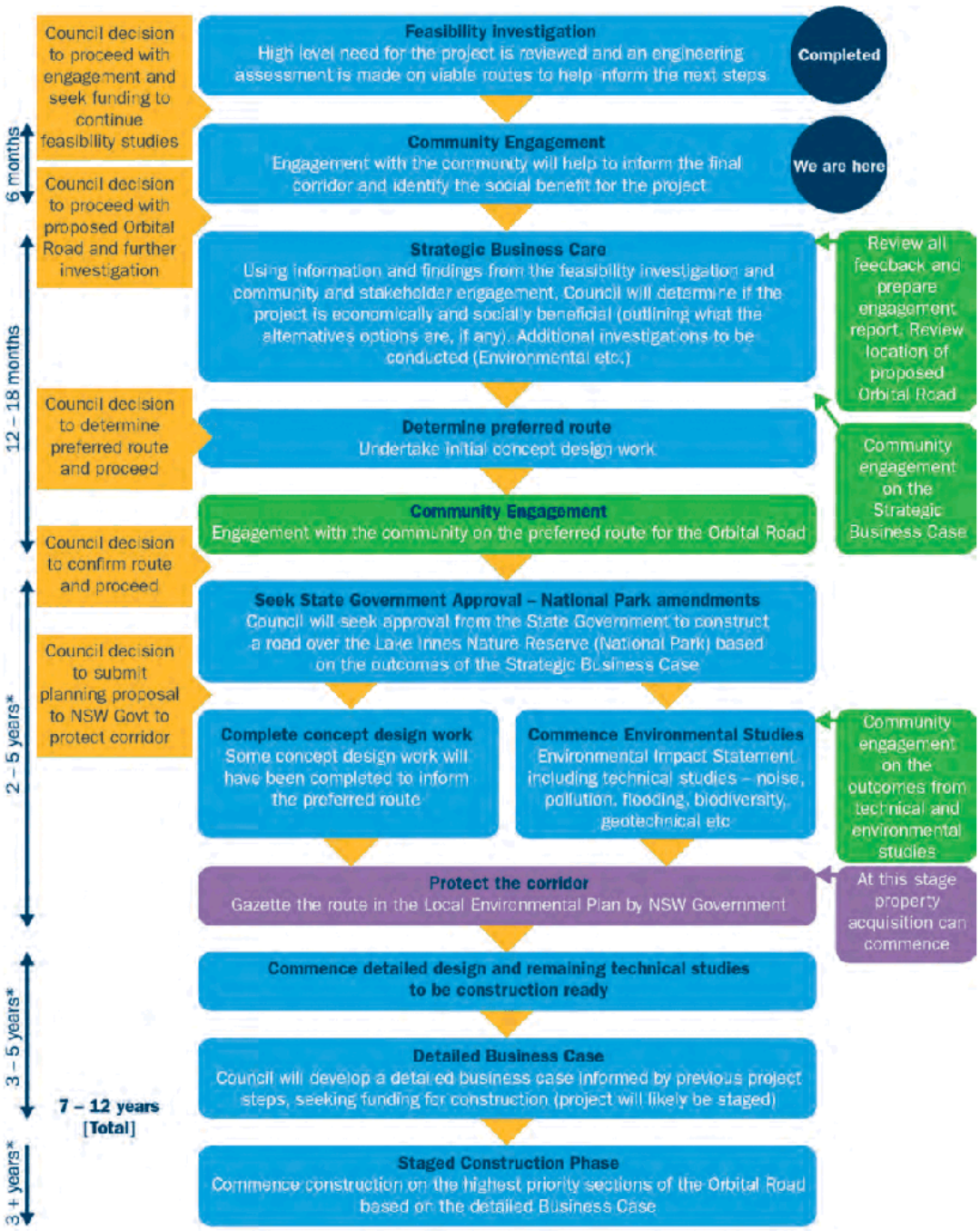
Like any major infrastructure project, the planning and approval takes many years.

Feedback from the engagement will help to inform Council's decision on whether the project will progress to the development of a Strategic Business Case. If the project is approved by Council to proceed and there is funding support for the project from the NSW State Government, the project could be construction ready in 7 to 12 years.

The process to progress the proposed Orbital Road is required to be in accordance with the NSW State Government's Infrastructure NSW Project Assurance Framework project planning and approval pathway. The figure on the following page shows the key steps that are required to progress the project and where we are currently in the process.

Congestion on the Oxley Highway

APPROXIMATE TIMEFRAMES



*The timeframes are indicative only and depend upon Council working closely with all levels of Government to secure support and funding.

PROJECT BENEFITS

Council is confident that the proposed Orbital Road would provide much needed connectivity to support our growing economy and relieve unnecessary and frustrating traffic delays across the extent of the city. Future transport planning is key to realising the objectives of the Port Macquarie-Hastings Urban Growth Management Strategy.

As Port Macquarie continues to grow as a regional city, the planning for the proposed Orbital Road and the need to protect a new road corridor is part of a traffic network approach and integrated land use planning to alleviate congestions in the long term.

The proposed Orbital Road would:

- Reduce traffic congestion across the extent of the city, particularly on Lake Road, Ocean Drive and the Oxley Highway, and allow easier access for local traffic
- Reduce travel time (projected to be up to 12 minutes across Port Macquarie)
- Reduce overall travel distances (Lighthouse to Base Hospital by 1.2km, West Port Macquarie, Thrumster to the Airport by approximately 5km)
- Provide an efficient and flood free connection to Port Macquarie Airport
- Provide efficient connections to the Health and Education Precinct, the Airport Business Park and the Regional Sports Stadium
- Contribute to an integrated transport network for our growing community (including cycling links)
- Connect people and place through the provision of a safe and efficient transport connection

THE ROUTE FOR THE PROPOSED ORBITAL ROAD IS NOT FINALISED

Council must carry out a detailed environmental assessment as well as engage with stakeholders, affected property owners and the wider community and consider the views and information gathered.

CONSULTATION IS AN IMPORTANT PART OF PLANNING FOR THE PROPOSED ORBITAL ROAD

Council is committed to community engagement as a way of making the best possible decisions based on the interests and concerns of the community.

Have your Say

COUNCIL IS INTERESTED IN HEARING YOUR FEEDBACK ON THE PROPOSED ORBITAL ROAD

Council is continuing to accept submissions on the proposed Orbital Road until the end of March 2019. To lodge a submission, please visit the Have Your Say website www.haveyoursay.pmhc.nsw.gov.au/orbital-road

Visit the project website for more information and to lodge a submission www.haveyoursay.pmhc.nsw.gov.au/orbital-road

Send the project team an email at orbital@pmhc.nsw.gov.au

Call the project hotline on (02) 6581 8787

Write to Council at PO Box 84, Port Macquarie NSW 2444

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REPORT

Appendix E

FAQ 1 – November 2018

Proposed Orbital Road Investigations

FREQUENTLY ASKED QUESTIONS

Fact sheet

The proposed Orbital Road is a new approach to improving the road network in and around Port Macquarie, providing a link from Ocean Drive to Hastings River Drive via the Oxley Highway.

Council continues to hear from members of the community about congestion in the city and the need to plan for the future. Results from a recent survey of 600 local residents showed that most believe traffic congestion is a problem in Port Macquarie and that it has become worse in the last five years.

Question: What is the proposed Orbital Road?

The proposed Orbital Road is designed to alleviate significant congestion across the extent of the city, particularly on Lake Road, Ocean Drive and the Oxley Highway. It will provide a flood-free connection to the airport and business park and improve connectivity to key destinations Port Macquarie Base Hospital, Charles Sturt University, St Columba Anglican School and the Regional Sports Stadium. It is a long-term solution to addressing our current and future traffic growth and is essential for the economic and social vitality of our community.

Question: Where will the proposed Orbital Road be located?

The proposed Orbital Road consists of the collective east-west link (Ocean Drive to Oxley Highway), the north-south link (Oxley Highway to Boundary Street) and the flood-free Primary Airport Access Road. The most viable route has been identified, however as the project is in the early stages of investigations and the approval process is yet to begin, the final route is yet to be determined. Comprehensive technical and environmental investigations will be required before the final route is confirmed.

haveyoursay.pmhc.nsw.gov.au/orbital-road

For enquiries please contact Council on (02) 6581 8787 or email council@pmhc.nsw.gov.au.

PORT MACQUARIE HASTINGS COUNCIL

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PORT MACQUARIE-HASTINGS COUNCIL

Question: What is the history of the project?

The need for an east-west road corridor was first identified in the 1980s as part of the planning for urban growth at Lighthouse Beach and the Innes Peninsula. The concept of an outer link was formally recognised in 2002, as part of the Hastings Roads and Traffic Study. Since then, the proposed Orbital Road was examined in 2008, and re-introduced in May 2015.

Following the Council's unanimous decision in May 2015 to proceed with investigation and planning, an engineering feasibility study was conducted by Opus International Consultants in 2016. The feasibility study examined constraints, costs and local infrastructure that has been built in the last 10 years. The outcome of the feasibility study was the determination of the investigation corridor that we are currently talking about.

Question: How has the investigation area and the most viable route been identified?

The investigation area has been identified following a number of technical investigations that have assessed the relative impacts on various types of constraints including:

> property
> the environment (protected habitats, vegetation, land quality)
> land quality
> existing infrastructure (electricity, water and fibre optic networks)
> flood zones
> current road networks.

As a result of the technical analysis within the investigation area, the most viable route is considered to have the least impact overall, being the least/worst approach for a new road to alleviate traffic congestion across the breadth of the city. The length of the proposed route has also been assessed to ensure the proposed Orbital Road will reduce overall travel distances and travel time. Council is now keen to hear from the community about how the route may impact them, prior to finalising the route for an Orbital Road.

Question: Why is the proposed Orbital Road necessary?

Port Macquarie-Hastings Council Local Government Area's population is expected to rise from 80,000 to 100,000 within the next 20 years. The community is already experiencing the impacts of our increasing population and the western expansion of Port Macquarie, through significant congestion across the extent of the city, particularly on Lake Road, Ocean Drive and the Oxley Highway.

Council recently conducted a telephone survey with a random selection of local community members to understand the views held toward traffic congestion across the city. Half of the 600 residents who took part in the survey believe that population growth is the major cause of congestion in Port Macquarie.

Council continues to hear from members of the community about congestion in the city and the need to plan for the future. Survey results show that 93% of participants believe that traffic congestion is a problem in Port Macquarie and 91% believe it has become worse in the last five years. Of the 600 community members surveyed, 469 (78%) believe that an Orbital Road would reduce traffic congestion in the Lake Innes and Lake Road areas.

Council is looking at an Orbital Road to reduce significant congestion across the city, particularly on Lake Road, Ocean Drive and the Oxley Highway. It would also improve connectivity with the airport, the future expanded airport business park and the growing Health

FactSheet

PORT MACQUARIE-HASTINGS COUNCIL

and Education Precinct around the Base Hospital and Charles Sturt University and St Columba Anglican School. Additionally, the main access road to and from Port Macquarie Airport experiences a 1-in-5-year flood, which significantly impacts on access to the city for residents, businesses and visitors.

Council is confident that the proposed Orbital Road will provide much needed connectivity to support our growing economy and relieve unnecessary and frustrating traffic delays across the extend of the city. Future transport planning is key to realising the objectives of the Port Macquarie-Hastings Urban Growth Management Strategy.

Council has done a great deal of work on roads across the region over the past five years, improving the general maintenance as well as providing new and improved roads. The focus is on improving transport for now but also planning for our future.

Question: Why are you progressing the community engagement coming into the holiday period?

Council is committed to community engagement as a way of making the best possible decisions based on the interests and concerns of our community. We recognise that any community engagement activities over a holiday period impacts on the community's availability to be involved and provide feedback on a project. The letter provided to property owners within the investigation area marks the start of the process to engage with the community about the proposed Orbital Road.

Council is committed to a transparent, timely and thorough process in determining the final route option for the proposed Orbital Road and progressing the project to approval stage. We want to hear the community's views on the proposed Orbital Road prior to determining the final route. Therefore, to account for the holiday period, we will commence a full engagement program in early 2019.

Question: Is the route finalised?

No, the route is not finalised. In order for the route to be finalised, Council must carry out a detailed environmental assessment as well as engage with stakeholders, affected property owners and the wider community and consider the views and information gathered. Members of the community will have the opportunity to share their views on the route identified in the technical investigations at future engagement sessions. Community feedback will help Council to make a final decision on the route for the proposed Orbital Road.

Question: When will Council decide whether or not to proceed with building the road?

Following community consultation, Council will need to carry out a comprehensive environmental impact assessment as well as a number of other technical investigations. This will inform Council's final decision on the route of the proposed Orbital Road.

Question: Is the Orbital Road funded?

The project is currently not funded, and likely timeframes are unknown at this stage. The proposed Orbital Road will require significant funding from either the State or Federal Government. Council is working closely with Roads and Maritime Services on the design and engineering solutions for the project.

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PORT MACQUARIE-HASTINGS COUNCIL

Question: What are the direct and indirect impacts of the proposed route?

There will need to be a lot of consultation on the design, location and overall viability of the road. There are many homes that are within or close to the investigation corridor. These property owners will likely be directly impacted by changes to local roads and construction, and some properties will need to be acquired in order to build the road. Council will work with directly and indirectly affected residents throughout the planning process.

Question: Will you acquire my house? And if so, when?

As with most large infrastructure solutions, there are particular challenges that need to be managed, and land will need to be acquired. This project will have very significant and immediate impacts on some property owners, residents and businesses, as well as requiring significant and effective environmental mitigation measures. Council is committed to addressing these impacts proactively and will work with affected property owners, residents and businesses and the wider community to achieve the best possible outcome.

As the route is not finalised, we don't yet know what properties will be directly affected. We will work with property owners, residents and businesses as soon as possible. We know that some properties are likely to be more affected than others and will be working with property owners, residents and businesses to explain the impacts and understand the effects they might have, as well as any benefits

Question: What compensation will be available to affected property owners?

There is no intention or need to immediately acquire land or property for the proposed Orbital Road. Property acquisition normally occurs much later in the process, closer to the time when construction is ready to begin. The route must be protected by an environmental planning instrument such as the Local Environmental Plan (LEP) before any acquisitions can occur.

If a property needs to be acquired, the process will be managed according to the *Land Acquisition (Just Terms Compensation) Act 1991*. Property owners facing acquisition will be assigned a dedicated property management expert to answer questions about the process.

Question: How much will the proposed Orbital Road cost to build?

The proposed Orbital Road will require significant funding from either the State or Federal Government. Following community consultation and the finalisation of the route, a comprehensive environmental impact assessment will need to be conducted, which could influence the cost of building the proposed Orbital Road.

Question: Why are you consulting with the community?

Consultation is an important part of planning for the proposed Orbital Road. We are committed to community engagement as a way of making the best possible decisions based on the interests and concerns of the community. We are inviting the community and stakeholders to provide feedback to help confirm the final route for an Orbital Road.

The community will be provided with information about how they can be involved and what role their input will have into the decision-making process. A full engagement program will commence following the summer holiday period.

haveyoursay.pmhc.nsw.gov.au/orbital-road

For enquiries please contact Council on (02) 6581 8787 or email council@pmhc.nsw.gov.au.

FactSheet

PORT MACQUARIE-HASTINGS COUNCIL

Question: What are the next steps for progressing the project?

Right now, the proposed Orbital Road is in the early stages of investigation and likely timeframes are unknown. While the land may not be needed for some years, we have to plan and protect the corridor to ensure the land is available to deliver the road in the future, once funding has been secured for the project.

Following the confirmation of the route and the decision to proceed, Council will rezone the corridor and then put together a business case to attract funding from the state or federal government. Once funding is achieved, Council will complete a detailed design for the road and commence the project approvals process. When the project is approved, Council will acquire properties required to build the project so that construction can commence.

Question: What is the construction timeframe for the proposed Orbital Road?

The Orbital Road project is currently not funded; therefore, Council doesn't have a time frame for the proposed works. We will be undertaking community consultation in early 2019 which will be incorporated into the final route selection. Once the route has been finalised, Council will make a decision whether or not to proceed. If the decision is to proceed, Council will then develop a strategic business case to seek funding for the project.

Question: How can I provide Council with feedback on the proposed Orbital Road?

Launching in February 2019, Council will be holding community pop-up sessions to provide you with detailed information on the proposed Orbital Road route, gather your feedback and answer your questions.

Council's Have Your Say website has a dedicated page for the Orbital Road project, where you will be able to keep up to date on the project, find information on future community engagement sessions, or request a face to face discussion.

Question: Does this mean that Council is not working on other road projects?

No, Council is committed to its works program to improve our roads and we have a raft of planning underway to ensure we have an integrated transport network that supports our growing community. The decision to progress the proposed Orbital Road investigation will not distract Council from the importance of a range of other road improvements and upgrades that we have planned.

For more information please visit Council's website at haveyoursay.pmhc.nsw.gov.au/orbital-road, contact Council on (02) 6581 8787 or email council@pmhc.nsw.gov.au.

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REPORT

Appendix F

FAQ 2 – December 2018

Proposed Orbital Road Investigations

FREQUENTLY ASKED QUESTIONS

Fact Sheet 2

Question 1 What has Council been doing to progress the proposed Orbital Road since the Council decision in 2015? What route options were assessed?

Council unanimously decided in May 2015 to proceed with investigating and planning for the Orbital Road. In 2016, Council commissioned Opus International Consultants to conduct an engineering feasibility study which examined constraints, costs and local infrastructure that had been built in the last 10 years. The outcome of the feasibility study was the determination of the investigation area that we are talking about in the current community engagement.

The feasibility study initially focused on a broader corridor and within that corridor four options were developed based on road engineering feasibility. All options used the already cleared (power and water) easement in the Lake Innes Nature Reserve as a fixed point to minimise impact on the nature reserve. From the four options the most viable route was determined. When Council talks about the most viable route, this does not mean the final route has been determined, it refers to the route that is considered to have the least impact overall for a new road as a result of the engineering feasibility. The feasibility study assessed the relative impacts of four route options on various types of constraints including:

> property
> the environment (protected habitats, vegetation etc.)
> land quality
> existing infrastructure (electricity, water, fibre optic networks etc.)
> flood zones
> current road networks.

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Whilst the investigation corridor contains what has been identified as the most viable route, comprehensive technical and environmental investigations as well as further Council and State Government approvals are needed before the final route is confirmed.

Community engagement is an important part of planning for the proposed Orbital Road. The work undertaken in the feasibility study will be explained and discussed in further detail at the engagement sessions in February 2019. This will provide the background to the study as well as the context and thinking behind the various options.

Question 2 What alternatives to an Orbital Road have been considered?

The widening of existing key roads such as Lake Road, Hastings River Drive and Ocean Drive, along with upgrading key intersections are an important part of addressing the current and predicted traffic congestion. However, projected increases in population and traffic volumes indicate there is also a need for an alternate route. Council acknowledges we also need a range of initiatives to manage traffic demand, such as increasing opportunities for active transport including the provision of walkways and cycleways. We will continue to work with the NSW Government on matters such as improvements to the Oxley Highway intersections and public transport.

Council is committed to a range of transport related projects, such as continuing to plan the duplication of Lake Road (between Oxley Highway and Ocean Drive) and John Oxley Drive (between Wrights Road and The Ruins Way). Even with these upgrades and taking into account the predicted traffic increases as Port Macquarie continues to grow as a regional city, a second east-west link and improved flood free access to the airport are still needed.

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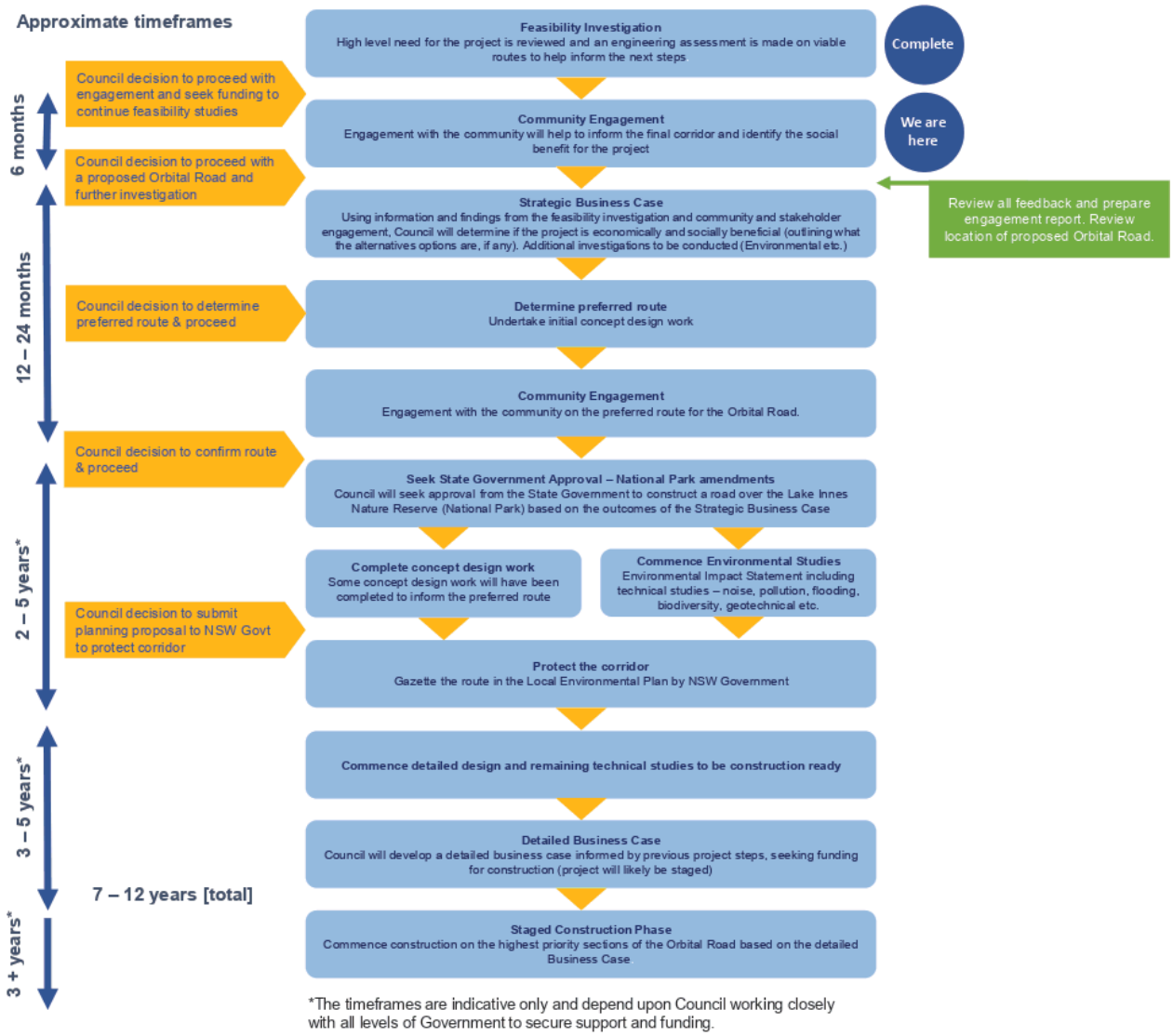
Question 3 What are the steps in progressing the project and what are the expected timeframes?

Like any major infrastructure project, the planning and approval takes many years. If the project is approved by Council to proceed, following community engagement and funding support for the project, the project will take many years to be construction ready.

The process to progress the Orbital Road needs to be in accordance with the NSW Government's Infrastructure NSW Project Assurance Framework project planning and approval pathway. The figure below shows the key steps that are required to progress the project and where we are currently in the process.



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Question 4 How long will it be until property owners know how they will be affected? What will Council be doing between now and that point?

At the strategic business case stage (which will take approximately 12 to 24 months to complete, once funding is available), more certainty around the impacts of the project can be provided.

Further community engagement would occur regarding the strategic business case, with the intent of confirming the most preferred route for the road. The work on the strategic business case, including all the necessary investigations, combined with extensive community engagement will help confirm the preferred route. Once a decision is made on the preferred route for the proposed Orbital Road, the formal approvals process would start. This would include completing concept design works and technical studies such as an Environmental Impact Statement. This work would inform the decision to gazette the route in an environmental planning instrument such as the Local Environmental Plan and a caveat would be placed on the properties within the preferred route. This gazettal provides ultimate certainty for the road corridor, for residents on how properties are affected, and ultimately protects the corridor from any further development. Property acquisitions under the *Land Acquisition (Just Terms Compensation) Act 1991* won't occur until the route is gazetted.

Certainty builds as the project progresses and there would be several decision points along the way. On-going progress (as outlined in the *Question 3* diagram) is dependent on funding being available to progress the project to the detailed concept design stage and enable technical and environmental investigations to be undertaken.

Question 5 If my house was to be acquired, what is the process?

In NSW, all levels of government can acquire privately-owned land for public purposes. They may acquire the whole property, part of a property or an interest in the property including easements for power lines, sewer or water.

The acquisition of land is undertaken in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*. The body acquiring the land is commonly called the acquiring authority. Most privately-owned land required by government for public purposes, is acquired by negotiation and agreement between the land owner and the acquiring authority. You can obtain more information at the following link, or please see the attached document titled Land Acquisition Information Guide:

www.valuergeneral.nsw.gov.au/compulsory_acquisitions/land_acquisition

https://www.propertyacquisition.nsw.gov.au/property-acquisition-process

Question 6 Is Council going to bulldoze 470 homes?

No. There are some 470 properties within the investigation area which could be affected in some way by the proposed Orbital Road following the protection of the corridor in an environmental planning instrument, such as the Local Environmental Plan mentioned in response to *Question 4* above. The investigation area is much larger than the land area required for the type of road proposed.

Properties could be impacted to varying degrees, ranging from relatively minor impacts i.e. changes to local roads and construction, to major impacts, where some properties would need to be acquired in order to build the proposed Orbital Road.

Detailed technical and environmental investigations that would need to be completed if the project progresses will provide more certainty around the exact number of properties that would be impacted and to what degree. This process will take a number of years. Council will work with directly and indirectly affected property owners throughout the process and provide more information as and when it becomes available.

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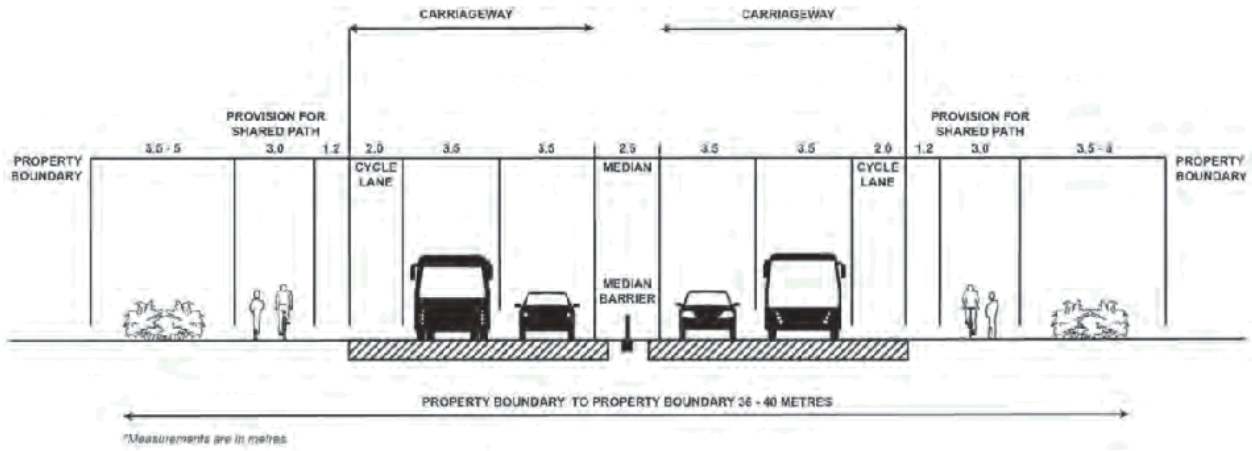
Question 7 How big is the proposed Orbital Road?

The proposed Orbital Road is a four (4) lane road with a shared path/paths on the road's edge, similar to Ocean Drive from Greenmeadows Drive (north) to Hindman Street.

The total road corridor (property boundary to property boundary) would be approximately 36 to 40 metres wide. This would need to be increased at intersections and other specific locations, which would be determined by the terrain, to ensure that all required infrastructure and earthworks (e.g. stormwater basins and sound barriers) could be accommodated.

If the physical road includes shared paths on each side, the width would be approximately 29 metres. This would vary at intersections where additional turning lanes are required. The decision on whether there are paths on both sides of the road is yet to be made and would be investigated during the concept design stage of the project. The illustration below depicts the indicative road and corridor widths.



Question 8 Why was development in this area allowed to continue if there was planning for this since the 1980s?

Development approvals are undertaken by Council in accordance with NSW Government planning legislation. This legislative process dictates that until the preferred road alignment is determined and gazetted through an environmental planning instrument, such as the Local Environmental Plan, the proposed corridor has no legal implications when assessing development applications within the investigation area. Until the land is gazetted and a caveat is placed on specific properties, development applications must be assessed under the current land use zones.

At this stage, the investigations for the proposed Orbital Road have a long way to go, and therefore Council has no legal basis upon which to cease or slow down development.

If the project proceeds and Council develops and exhibits a draft planning proposal for the proposed Orbital Road, it is at that point that the matter would have greater weighting in the development assessment process.

Through the above process the NSW Government would effectively have the role of authorising Council to proceed with any draft planning proposal to define and protect the land for the preferred route.

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Question 9 Why was the road not progressed in 2008?

A recommendation was put to the Ordinary Council Meeting on 7 May 2008 to proceed with an Orbital Road. The then Council Administrator made the decision not to proceed with an Orbital Road and instead adopted an upgrade of Lake Road as the preferred option to cater for the east-west movement of traffic between Ocean Drive and the Oxley Highway. The decision not to proceed with a proposed Orbital Road meant that there were no planning controls put in place following that time and so development was allowed to proceed.

Question 10 How much traffic do you predict will use the proposed Orbital Road?

If development occurs as expected, our Area Wide Traffic Study modelling indicates that in 2036 the East-West link section (Ocean Drive to Oxley Highway) is forecast to carry approximately 18,000 vehicles per day on a typical weekday, the North-South link (Oxley Highway to Boundary Street) 9,000 vehicles and the Airport link, 8,000 vehicles per day. This is predicted traffic that would normally use roads such as Lake Road, the Oxley Highway between Wrights Road and Ocean Drive and Ocean Drive between Greenmeadows Drive and Lake Road.

To provide a comparison, Lake Road currently carries approximately 26,000 vehicles per day and Ocean Drive currently carries approximately 21,000 vehicles per day.

Question 11 How will you protect the environment?

Engineering measures will be included to help protect the environment, including the provision of bridges over sensitive areas where appropriate, to ensure biodiversity links are not severed. The project will also look to rehabilitate surrounding areas to help mitigate the impact of the project.

As part of the process to progress the project, Council is required to undertake detailed environmental assessments which will examine environment impacts and mitigation measures. Environmental investigations would be conducted at key points in the process, for example, to inform a strategic business case and again, prior to protection of the corridor. Environmental studies would consider factors including:

> Land use
> Aboriginal and non-Aboriginal heritage
> Traffic and transport networks
> Socio-economic aspects
> Biodiversity
> Noise and vibration
> Soils and geology
> Landscape and visual impact
> Flooding and surface water
> Air quality.

Question 12 What is being done now to address the traffic issues on John Oxley Drive as a result of the new Bunnings store?

The site where the new Bunnings store is being built was rezoned to enable bulky goods development, by the NSW Minister for Planning and not Council. The rezoning application was taken away from Council by the NSW Department of Planning and Environment and handled by the State Government. The matter was taken away from Council because the proponent appealed to the Minister that the Council was taking too long to make a decision on the rezoning. Council decision was being delayed by deliberations over concerns such as traffic and

FactSheet 2

PORT MACQUARIE-HASTINGS COUNCIL

request for additional information. The subsequent development application for the building was approved by the Northern Joint Regional Planning Panel (JRPP) because the value of the development was over $20 million, which makes it regionally significant and a matter that does not get referred to the elected Council for a decision. The JRPP is made up of three state-appointed representatives and two independent experts appointed by Council.

Planning and design work is continuing for the duplication and upgrade of John Oxley Drive between Wrights Road and The Ruins Way with concept designs already completed. Recent works in front of the Bunnings development are in accordance with Council's designs for the upgrade of John Oxley Drive.

Roads and Maritime Service (RMS) have completed a draft Oxley Highway Corridor Strategy and are continuing to plan and implement improvements along the highway corridor. Council continues to work with RMS regarding improvements to the Oxley Highway at the Wrights Road and Lake Road intersections. Such improvements are subject to available funding in the future.

Question 13 What is being done now to address the traffic issues on Lake Road?

Planning continues for the final stages of work to complete the duplication of Lake Road, with detailed design work almost complete for the upgrade of the Lake Road and Jindalee Road intersection. Construction funding for this intersection works will be considered by Council as part of the development of the 2019-2020 budget.

Concept design work has been completed for duplicating Lake Road between Chestnut Drive and Ocean Drive and initial discussions are taking place with the National Parks and Wildlife Service to progress the required land acquisition and Nature Reserve boundary adjustments on this section of Lake Road, where the current road adjoins the Lake Innes Nature Reserve, to allow the future duplication of this section of roadway to occur.

Question 14 Why can't Lake Road just be widened?

Council is committed to the duplication of Lake Road (between Oxley Highway and Ocean Drive) and is continuing to plan this important project. Please refer to the response to Question 13 above. With the amount of traffic that is predicted to increase on our roads, and without another route for motorists to choose, the efficiency at key intersections, even with upgrades to traffic lights etc, will decrease, leading to further congestion. The key intent of the proposed Orbital Road project is to provide another route to distribute traffic.

The proposed Orbital Road will be key to alleviating congestion around the Port Macquarie Base Hospital, Charles Sturt University and St Columba Anglican School in the long term, as well as providing an efficient and flood free connection to the Port Macquarie Airport.

Question 15 What about the duplication of Ocean Drive between Greenmeadows Drive and Matthew Flinders Drive? Will that still go ahead?

The detailed design for the duplication of Ocean Drive from Matthew Flinders Drive to Greenmeadows Drive is complete. Council is progressing with the finalisation of the detailed business case for this project, so that a funding application can be made to the NSW Government. Progressing this project to the construction stage is dependent on sufficient funding being made available to Council.

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Question 16 What is being done now to address the condition of Boundary Street?

Planning for the upgrade of Boundary Street is underway with concept designs being finalised that will see improvement to the existing road. A key challenge being worked through currently is the issue of flooding and sensitive wetlands adjacent to the road. Boundary Street can only be upgraded to the 1 in 20 year average flood reoccurrence interval due to the fact Hastings River Drive is constructed at this particular level. What this means is that this road will continue to be susceptible to flooding even with the proposed upgrades. This is why a flood free access road to the airport is an important connection for the community.

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Appendix G

Fact Sheet - Identifying a corridor for the Orbital Road – February 2019

Identifying a corridor for the proposed Orbital Road

Fact sheet

When was the proposed Orbital Road first identified?

The need for an east-west road corridor was first identified in the 1980s as part of the planning for urban growth at Lighthouse Beach and the Innes Peninsula. The concept of an outer link was formally recognised in 2002, as part of the Hastings Roads and Traffic Study. Since then, various studies have been conducted (see image on the following page) that have confirmed a connected orbital, or 'link' road is the most viable and effective response to the increasing traffic problems facing Port Macquarie.

The proposed Orbital Road was examined in 2008 and re-introduced in May 2015, when Council's unanimous decision was to proceed with investigation of new links. This involved an Engineering Feasibility Study, conducted between 2016 and 2018 (the feasibility report is available on Council's website).

An Area Wide Traffic Study (AWTS) was prepared for Council in 2017 and evaluated the current road network performance and forecast future travel demands to 2036. The traffic study tested a range of infrastructure improvements, including the proposed Orbital Road that we are currently talking about.

Subsequently, the proposed Orbital Road has been identified in various state and local strategic planning documents including:

- North Coast Regional Plan (2017) – NSW Government
- Draft Regional City Action Plan (expected mid-2019) – NSW Government
- Urban Growth Management Strategy (2018) – Port Macquarie-Hastings Council

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FactSheet

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- Draft Regional Integrated Transport Strategy (expected mid-2019) – Port Macquarie-Hastings Council

Previous investigations informing the strategic needs and routes for the proposed Orbital Road

1980s	Planning investigations for urban growth at Lighthouse Beach and the Innes Peninsula
2001	The Hastings Road and Traffic Study
2002	Innes Peninsula Traffic Study
2005	Port Macquarie Outer Link Roads route feasibility and selection study
2006	Port Macquarie Outer Link Options – Traffic Assessment
2007	Port Macquarie Outer Revised Route Options Report
2008	Port Macquarie Outer Link Roads Final Route Options Report
2008	Council Administrator decision to not proceed
2014	Port Macquarie-Hastings Infrastructure Gap Analysis
2015	Council decision to proceed with planning and investigate an orbital road
2015–18	Engineering Feasibility Study undertaken
2017	Area Wide Traffic Study (AWTS) prepared
2018	Council decision to commence engagement with the community on the proposed Orbital Road

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How were the 4 routes identified?

An Engineering Feasibility Investigation was commissioned by Council to examine potential alignments for an orbital road, linking Hastings River Drive to the Oxley Highway and through to Ocean Drive, with the aim of alleviating congestion on the Oxley Highway and Lake Road.

The objectives of the investigation were to:

- Identify and assess potential alignment options for the proposed Orbital Road
- Examine road geometric constraints
- Conduct a Preliminary Environmental Assessment
- Assess environmental constraints through a Multicriteria Analysis
- Develop Strategic Cost Estimations
- Conduct a Preliminary Economic Appraisal (Benefit Cost Analysis).

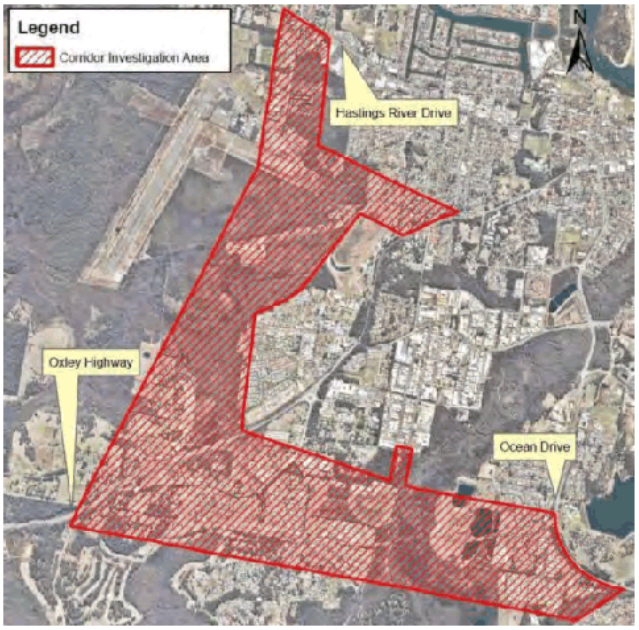
The feasibility study involved developing and workshopping several alignments within the investigation corridor (see image below). The investigation corridor was determined following Council's resolution in May 2015 to progress investigations for the proposed Orbital Road.

The Engineering Feasibility Study identified 4 route options, with two alignments to tie into Ocean Drive at the south eastern connection.

The 4 route alignments were ranked based on the outcomes of the various constraints, cost and impact assessments.

Option 1 ranked first overall, achieving the highest ranking in the Multicriteria Constraints Analysis and second highest ranking in the Strategic Cost Analysis. Therefore, Option 1 is considered to be the most viable route for the proposed Orbital Road and the route we are currently talking about.

Initial investigation corridor, 2015



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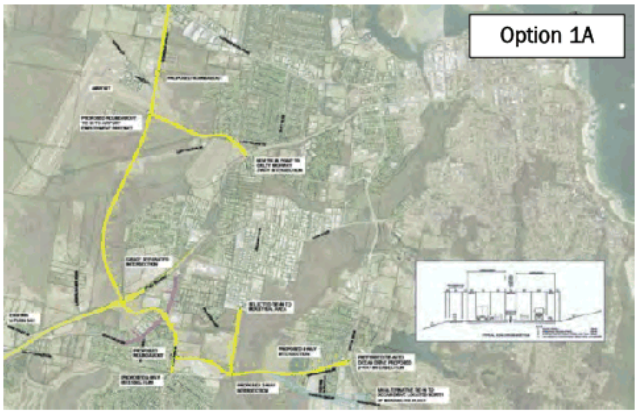
What were the 4 alignment options identified in the feasibility study?

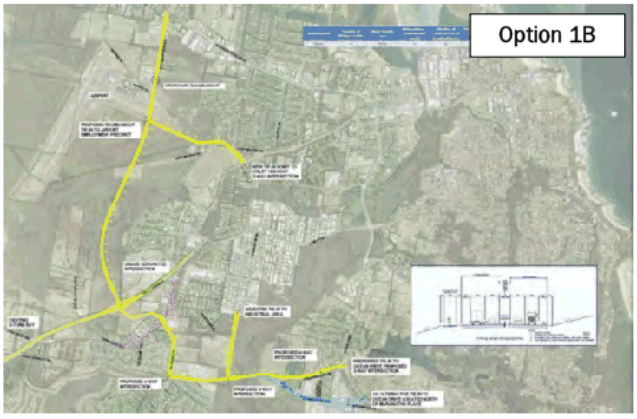
Each of the 4 alignment options identified in the Engineering Feasibility Investigation are described in detail on the following pages. Common across each alignment option and subsequently featured in all routes is:

- Crossing the Lake Innes Nature Reserve (National Park) along the existing easement
- North-south route ties in to Boundary Street, connecting to the Airport Precinct
- An Airport Access Link Road.

Option 1

- Option 1 includes an outer route from the Airport Precinct that ties into the Oxley Highway, west of the wetlands. It would link into Major Innes Road at the existing intersection with John Oxley Drive.
- This route would then involve the upgrade of Major Innes Road as a feeder to a link that would run west around the new university campus.
- The route then runs across Lake Innes Nature Reserve (National Park) along the existing cleared easement and connects to Ocean Drive through Greenmeadows Drive.





Option 1A facts

Road length	8.6 kilometres
Number of bridges required	12
Number of intersections/roundabouts required	9
Estimated cost to build the road (ex GST)	$875 million

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Variation between Option 1A and 1B

Option 1A was the route identified in the Engineering Feasibility Investigation and includes the east-west link being located to the north of St Columba Anglican School. Subsequent to the feasibility study, Option 1B was developed. This option includes the east-west link located to the south of St Columba Anglican School.

As part of the feasibility study, planning for Port Macquarie's Health and Education Precinct (HEP) was acknowledged, and that the southern east west link for the proposed Orbital Road may be in proximity to the Precinct.

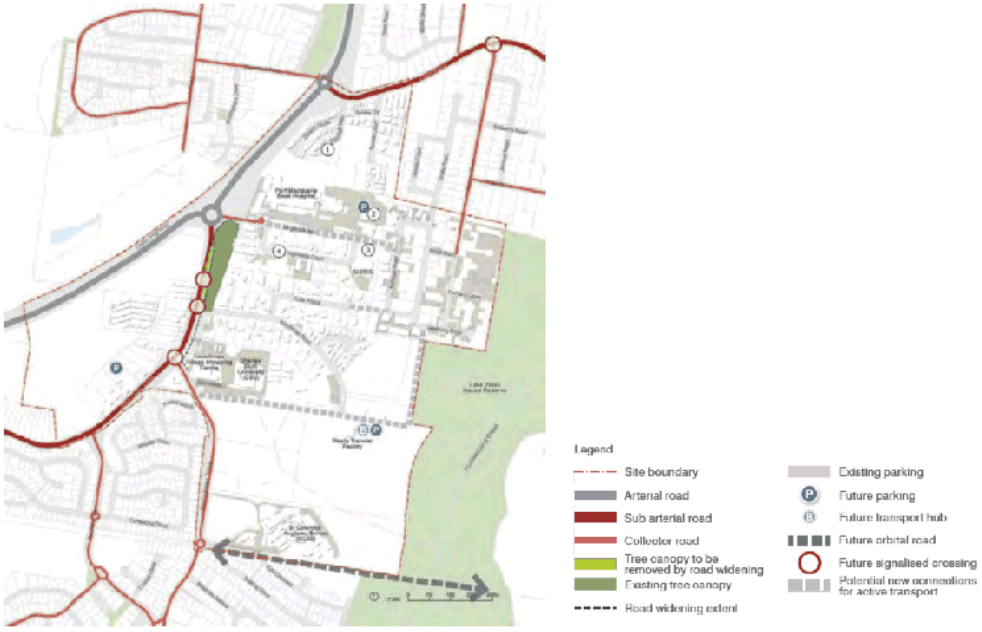
Planning for the Health and Education Precinct has progressed. The Health and Education Precinct is identified as a key growth area in the UGMS, and planning is underway. A detailed Master Plan has been developed (as shown in the image on the right and below).

Health and Education Precinct boundary

Option 1A was deemed less viable as having the proposed Orbital Road link between John Oxley Drive and Lake Innes Nature Reserve (National Park) located north of St Columba Anglican School would present challenges to the Precinct, as the road would divide the Precinct, impact on the school, residents and the environment.

As a result, Option 1B was developed, which is the route we are currently talking about. Option 1B locates the proposed Orbital Road south of St Columba Anglican School to keep the school within the Health and Education Precinct.

Health and Education Precinct movement network



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Option 2

Option 2 has two variations (A and B) where the north south route connects to the Primary Airport Access Road from the Oxley Highway.

Option 2A follows the same western route as Option 1. Option 2B takes an eastern alignment which adjoins the eastern side of town, and firstly connects to Lady Nelson Drive, instead of the Primary Airport Access Road.

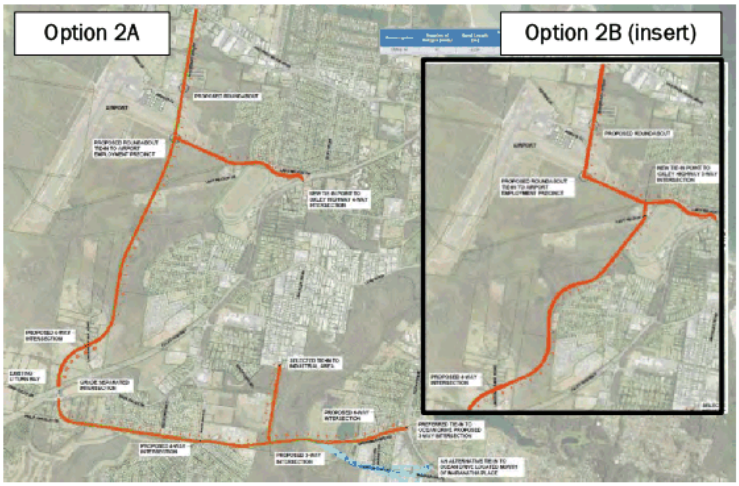
Both 2A and 2B feature the southern location for the Oxley Highway cross over, which would coincide with the existing John Oxley Drive intersection.

Option 2 explored ways to avoid using Major Innes Road and expending further west toward Philip Charley Drive. The route utilised the existing power and water main easement. A significant constraint with this option was the placement of a new interchange on the Oxley Highway and its proximity to the existing half interchange and underpass at John Oxley Drive.

Option 2 (A and B) facts:

	Variant 2A	Variant 2B
Road length	9.5 kilometres	9.8 kilometres
Number of bridges required	17	19
Number of intersections/roundabouts required	9	10
Estimated cost to build the road (ex GST)	$1,025 million ($1.025 billion)	$1,000 million ($1 billion)

Option 2A (2B insert)



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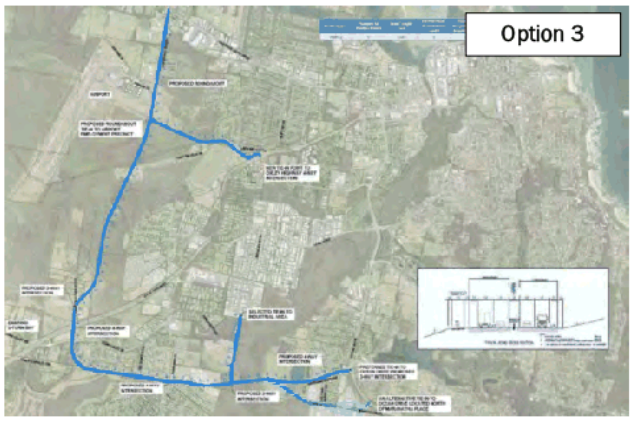
Option 3



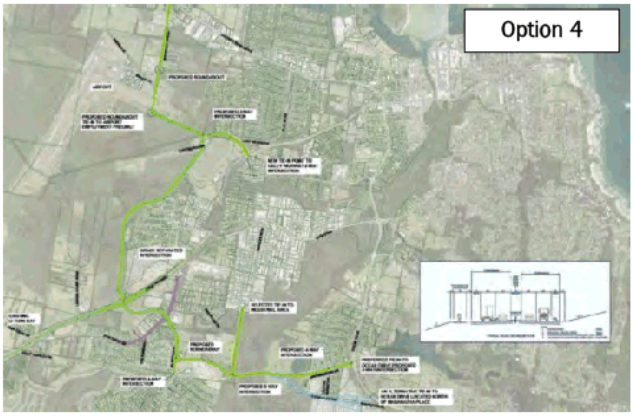
Option 3 is an adaptation of Option 2A, with the major difference being an alternate location for the interchange on the Oxley Highway (further east away from John Oxley Drive underpass) and an alternate Airport Access Road to connect to the Oxley Highway.

This option looked to separate the existing half interchange and underpass at John Oxley Drive and the proposed intersection at the Oxley Highway. This option wasn't preferred with the RMS due to the potential impacts on the Oxley Highway and proximity to the existing half interchange.

Option 3 facts:

Road length	9 kilometres
Number of bridges required	17
Number of intersections/roundabouts required	9
Estimated cost to build the road (ex GST)	$950 million

Option 4



Option 4 is a progression of Option 1, with the north-south link being located further east to avoid any impact on the rifle club.

Option 4 incorporates a connection to John Oxley Drive and Major Innes Road.

Option 4 facts:

Road length	8.6 kilometres
Number of bridges required	12
Number of intersections/roundabouts required	9
Estimated cost to build the road (ex GST)	$850 million

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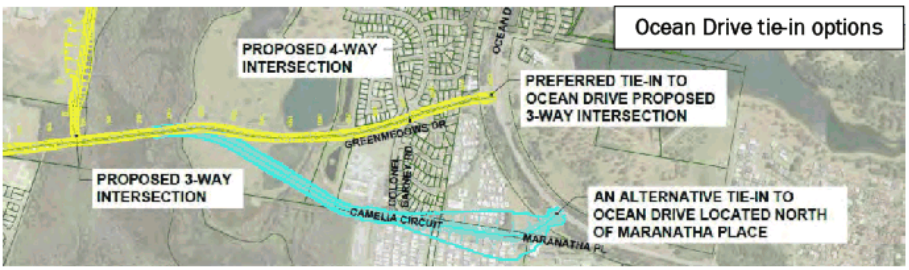
The Engineering Feasibility Investigation Report identified two options for connecting the proposed Orbital Road to Ocean Drive. Why is the Greenmeadows Drive tie-in the preferred option?

Due to the large level differences to Ocean Drive, significant earthworks or structural works would be required to facilitate an intersection further south of Greenmeadows Drive. This additional works and associated impacts on the Dahlsford Grove Lifestyle Village applied significant additional cost which meant the southern tie in was not as viable.

Moving the east-west investigation area further south below the Dahlsford Grove Lifestyle Village was discussed during the initial stages of project investigations in 2015. This area was found to be environmentally constrained and therefore wasn't included in the subsequent investigations.



Ocean Drive tie-in option facts:

Tie-in option	Road length	Estimated cost (ex GST)
Greenmeadows Drive	1.3 kilometres	$300 million
North of Maranatha Place	1.5 kilometres	$400 million

All 4 options in the feasibility report end where the Oxley Highway and Primary Airport Access Road intersect. Why does the investigation area map extend past the Oxley Highway to Fernhill Road?

In parallel to the Engineering Feasibility Study, further detailed investigations for a new link to the Regional Airport and future Airport Business Park have been undertaken. This has included workshop discussions with RMS, specific traffic investigations and preliminary concept design work for the Airport Access Road.

The outcome of investigations and discussions determined that the realignment of the Fernhill Road intersection with the Oxley Highway was the most viable to form a new, flood-free link to the airport.

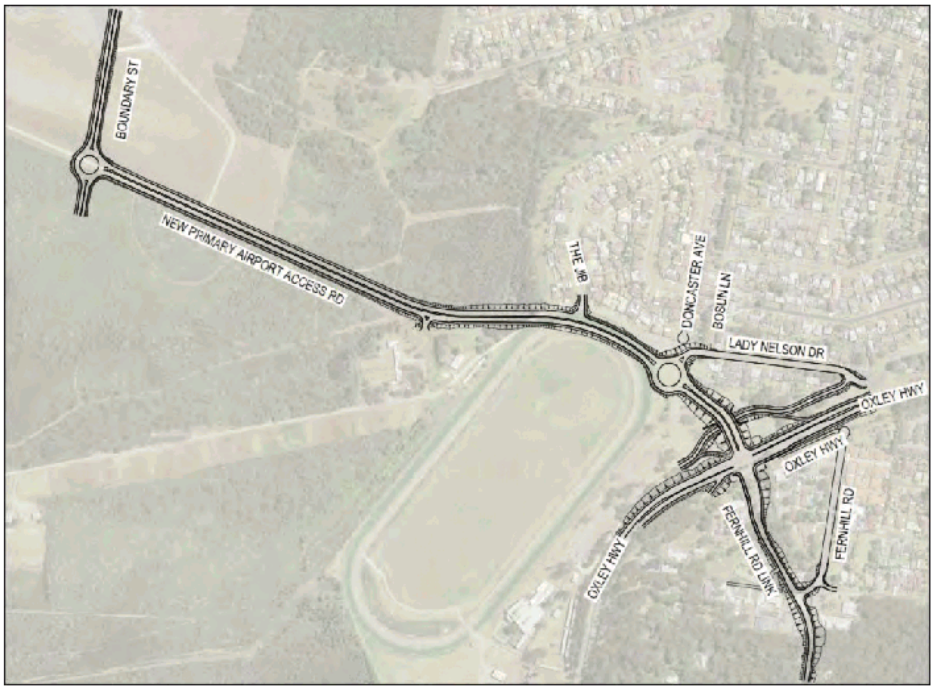
One of the main considerations was the location and configuration of the intersection on the Oxley Highway and the restriction from the RMS on the number of intersections and access points that are allowed on to the Highway.

FactSheet

PORT MACQUARIE-HASTINGS COUNCIL

This restriction along with the need to provide a safe and efficient intersection layout while trying to minimise impacts on properties has resulted in the current viable option as shown below. As this option does impact on the racecourse, Council is currently investigating what is involved with reconfiguring the racecourse as no two racecourses are the same.

Clifton Drive would be realigned to connect into Lady Nelson Drive and subsequently on to the Airport Access Road. The existing Fernhill Road would become a closed road, improving safety and pedestrian amenity for users of the child care centre and disability services centre.



For more information visit pmhc.nsw.gov.au contact Council on (02) 6581 8111.

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Appendix H

Fact Sheet – Corridor protection for future road infrastructure – February 2019

Corridor protection for future road infrastructure

Fact sheet

What is corridor protection?

Often land needs to be earmarked for infrastructure corridors long before an infrastructure project is required to be delivered. Corridor protection is the process of setting aside land in a corridor for future infrastructure, in this case, for the proposed Orbital Road.

The Department of Planning and Environment (DPE) prepares the legal framework to create statutory protections to reserve a corridor. Reservation is when land is rezoned to enable project delivery when the infrastructure is required.

How would the corridor for the proposed Orbital Road be protected?

Statutory protection for the corridor would be created in an environmental planning instrument such as a State Environmental Planning Policy (SEPP) or the Port Macquarie-Hastings Council Local Environmental Plan (LEP).

Once finalised, the planning instrument will gazette (apply official statutory controls to) the corridor. The gazettal outlines the types of development that is allowed to be carried out on the land within or adjacent to the corridor.

Following gazettal of the corridor, the land within would most likely be rezoned to SP (Special Purposes) 2 Infrastructure – Reserved Infrastructure Corridor and new planning controls would apply to ensure that future delivery of the roadway is not inhibited.

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At that point, a land use planning framework would be established to:

- Protect the land for the proposed Orbital Road
- Maintain appropriate land uses within the reserved corridor
- Manage development within the vicinity of the corridor to ensure future delivery of the road is not compromised
- Identify land uses that could occur adjacent to the corridor
- Establish measures to mitigate early the potential impacts of the road corridor on surrounding land uses
- Identify the land acquisition authority for land in the reserved corridor and liaise with specific property owners regarding the acquisition process.

Following gazettal of the corridor, the proposed Orbital Road would be identified in Section 149 Planning Certificates and any development applications (DAs) would be assessed against the new zoning and statutory requirements.

What are the benefits of protecting a corridor for the proposed Orbital Road?

It is only when a corridor is gazetted that landowners have certainty of exactly where future road infrastructure will be built. Protection of a corridor allows those affected to explore the options that are available to them.

Corridor protection provides the following benefits:

- Provides landowners and the community with certainty of where the future road infrastructure would be located
- Manages development within the vicinity of the corridor so that the future delivery of the infrastructure is not compromised. Supportive land uses may be identified and encouraged that would minimise land use conflicts
- Maintains appropriate land uses and associated activities that can occur within the corridor
- Minimises the social, economic and environmental impacts at the time the road would be delivered.

My property is located within the investigation corridor and is identified in the feasibility study. What does this mean?

By developing and investigating options for the proposed Orbital Road, the number and location of properties to be acquired will be identified in greater detail.

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The Engineering Feasibility Investigation identified the following potential number of property acquisitions that may be required for the proposed Orbital Road.

Route option	Potential number of properties to be acquired
Option 1	31
Option 2a	50
Option 2b	50
Option 3	44
Option 4	31

As discussed in the feasibility report, property acquisition areas were based on the land required to construct the road corridor for each alignment option. These areas were measured from aerial photos and plans.

It would not be until comprehensive technical and environmental studies are undertaken, that the extent of acquisition would be certain.

A property may be completely or partially acquired but full property acquisition would occur if the proposed Orbital Road design cuts a building, runs across a property (resulting with the property being cut into two), removes the primary access point to a property or building or has a significant change on a property's open space (for example, removes a backyard).

There are significant challenges with planning new road corridors, particularly in urban areas and areas of high environmental value. There will always be trade-offs and compromises with very difficult decisions to be made.

If the decision is to proceed with the proposed Orbital Road and planning progresses, Council will work closely with members of the community affected by the final route.

When would properties and/or land be acquired for the corridor?

Property acquisition discussions would not occur until the corridor is gazetted through an environmental planning instrument such as a State Environmental Planning Policy (SEPP) or a Local Environmental Plan (LEP). After gazettal, property owners can consider the opportunity for owner-initiated early acquisition under the *Land Acquisition (Just Terms Compensation)* Act 1991.

Land within the corridor for the proposed Orbital Road would not be required immediately. Generally, property acquisition occurs closer to when the infrastructure is to be built. As the proposed Orbital Road is in the early stages of planning and the corridor is not protected, existing land and property uses can continue based on the current planning controls.

Like any major infrastructure project, the planning and approval will take several years. **If the project is approved by Council to proceed and there is funding support for the project from the NSW State Government, the project could be construction ready in 7 to 12 years.**

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What is meant by a directly or indirectly affected property?

If the proposed Orbital Road is progressed and the corridor is gazetted, it may be necessary for the whole of a property or only part of a property to be acquired. The terms 'total' or 'partial' are often used to describe these situations.

A property is described as being 'directly affected' by a project when the government needs to acquire part or all of it in order to deliver the project. Directly affected landowners are entitled to compensation for their land being acquired and are paid market value for their property as per the entitlements set out on the *Land Acquisition (Just Terms Compensation) Act 1991*.

'Indirectly affected' property refers to land that is within close proximity to the proposed Orbital Road corridor. These property owners would likely be impacted by changes to local roads and construction related impacts including noise, vibration, air quality and visual impacts. Council would work with directly and indirectly affected residents throughout the planning process.

Why was a proposed Orbital Road corridor not protected in 2008 following community engagement?

A recommendation was put to the Ordinary Council Meeting on 7 May 2008 to proceed with an Orbital Road. The then Council Administrator made the decision not to proceed with an Orbital Road and instead adopted an upgrade of Lake Road as the preferred option to cater for the east-west movement of traffic between Ocean Drive and the Oxley Highway.

The decision not to proceed with a proposed Orbital Road meant that there was no gazettal, or any planning controls put in place following that time and so development was allowed to proceed.

The identification of a corridor in itself does not create statutory protection for the corridor under NSW planning legislation. There is nothing to prevent future urban development from encroaching on land required for the corridor.

Council acknowledges that development has continued to occur within the current investigation area, however, as the corridor is not protected by statutory controls, we are required to assess development applications against the current planning controls that apply to the land.

While various investigations have been undertaken in the past for the proposed Orbital Road, as well as being identified in various State and Local strategic planning documents, identification alone does not affect how a development application (DA) in or around a corridor is assessed or apply any limitations on the development that is allowed to occur.

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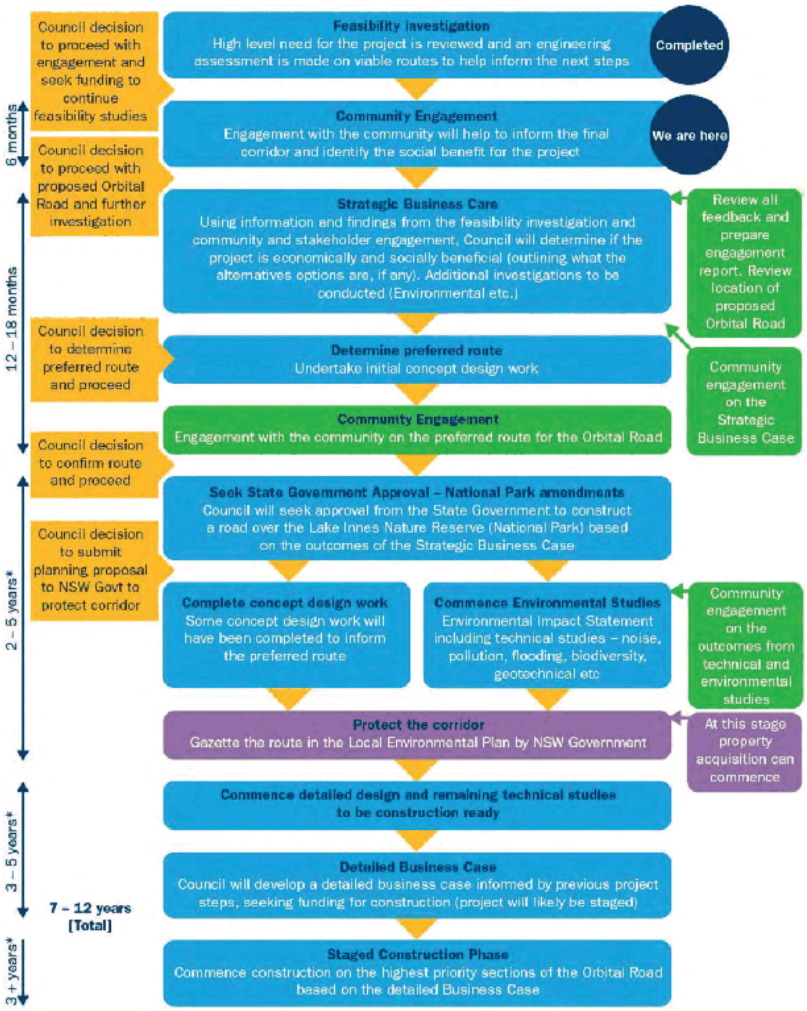
What are the next steps in progressing the proposed Orbital Road?

Feedback from the engagement will help inform Council's decision on whether to progress the project. If Council does decide to go ahead, we will develop a Strategic Business Case.

There are many decision points throughout the planning approval process, and the community and stakeholders will have many opportunities throughout the process to provide feedback to Council, particularly as more details about the project and the potential impacts become clear.

The figure below shows the key steps that are required to progress the project, opportunities for community feedback and at what stage in the process property acquisition would commence.



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contact Council on (02) 6581 8111

REPORT

Appendix I

Fact Sheet – Environmental considerations for the proposed Orbital Road – February 2019

Environmental considerations for the proposed Orbital Road

Fact sheet

What would be involved in the environmental planning approval process?

Council would be required to demonstrate how the proposed Orbital Road satisfies the requirements of the *Environmental Planning and Assessment Act 1979* (EPA Act). Council would need to clearly identify the project, the potential impact and how this impact would be managed.

At this time, the project is in the early stages of planning and the approvals process will not be confirmed until after a Strategic Business Case and further, more detailed investigations have been carried out. The actions required by Council to ensure that due consideration is given to environmental constraints would depend on the final planning approval process. The proposed Orbital Road may be assessed as regional development under Part 4 of the EP&A Act.

Initial consultation with government agencies has indicated that, due to the size of the project and the potential for the project to impact a range of environmental values, the regional development or state significant infrastructure approval pathways may apply.

The approval pathway will depend on the final design, scope and costs associated with the proposed Orbital Road.

The proposed Orbital Road would require an environmental impact assessment through regulatory tools under the EP&A Act. The NSW Environmental Protection Authority (EPA) would provide input to the Department of Planning and Environment (DPE) on the appropriate process and criteria for assessment.

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The environmental assessment would be placed on public exhibition and would be an opportunity for the community and stakeholders to review the assessment and provide feedback on the proposed road.

A number of State Environmental Planning Policies (SEPPs) provide the planning rules for specific environmental matters and contain particular development controls to protect or manage certain environmental values. SEPPs that may be applicable for the proposed Orbital Road include:

- State Environmental Planning Policy (State and Regional Development) 2011
- State Environmental Planning Policy (Infrastructure) 2007
- SEPP No. 44 – Koala Habitat Protection
- SEPP Coastal Management 2018

Consultation with State agencies including the Department of Planning and Environment, NSW Office of Environment and Heritage, NSW National Parks and Wildlife Service and Department of Primary Industries Fisheries would also be conducted. This would be a necessary step to confirm the State's statutory requirements for the development and whether the proposed Orbital Road would trigger an Environmental Impact Statement (EIS) under State or Commonwealth legislation.

What environmental factors did Council consider as part of the proposed route alignment and what issues were identified in the Preliminary Environmental Assessment (PEA)?

The Preliminary Environmental Assessment (PEA) was undertaken as part of the Engineering Feasibility Study to understand the environmental constraints associated with the land, and this was carried out for all 4 option alignments. The PEA is an Appendix in the Engineering Feasibility Assessment and is available on Council's website - https://haveyoursay.pmhc.nsw.gov.au/41604/documents/98379

The assessment considered many factors including:

- Soils and geology
- Hydrology, flooding and water quality
- Ecology, flora and fauna
- Noise and vibration
- Climate, air quality and energy
- Non-Aboriginal Heritage
- Aboriginal Heritage
- Visual Amenity
- Waste Generation and Contamination.

FactSheet

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The PEA identified the following environmental constraints that would need to be investigated in greater detail, and in line with the relevant planning and environmental legislation if the decision is to proceed with the proposed Orbital Road.

- The Lake Innes Nature Reserve and Environmental Conservation Zones
- Coastal Wetlands [State Environmental Planning Policy Coastal Management 2018]
- Potential presence of listed threatened species listed under the *Environmental Protection and Biodiversity Conservation Act 1999*
- Four threatened ecological communities and potential presence of species listed under the *Threatened Species Conservation Act 1995 (*now the *Biodiversity Conservation Act 2016)*
- Aboriginal Heritage
- Non-Aboriginal Heritage
- Contaminated sites
- Wetlands and Priority Oyster Areas.

Have any Protected Matters been identified within the Corridor investigation area?

As part of the Preliminary Environmental Assessment (PEA), a flora and fauna desktop assessment was conducted to evaluate the potential biodiversity impacts of the proposed Orbital Road. A five kilometre buffer zone around each Corridor Investigation Area was included in the assessment. Results of the assessment, which utilised the *Environmental Protection and Biodiversity Conservation Act 1999* Protected Matters Search Tool (PMST) are as follows:

Matters of National Environmental Significance	Number of items within search area
World Heritage properties	None
National Heritage places	None
Wetlands of International importance	None
Great Barrier Reef Marine Areas	None
Commonwealth Marine Areas	None
Listed Threatened Ecological Communities	3
Listed Threatened Species	54
Listed Migratory Species	66
Commonwealth Land	5
Commonwealth Heritage places	None
Listed Marine Species	82
Whales and other Cetaceans	14
Critical Habitats	None
Commonwealth Reserves Terrestrial	None
Commonwealth Reserves Marine	None

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Are there any threatened ecological communities within the Corridor Investigation Area?

The PEA identified the likelihood of threatened ecological communities (TECs) being located within the Corridor Investigation Area. Three TECs were identified and include:

- Littoral Rainforest and Coastal Vine Thickets of Eastern Australia
- Lowland Rainforest of Subtropical Australia
- Subtropical and Temperate Coastal Saltmarsh

A full description of the TECs can be found in the Engineering Feasibility Investigation Report, Appendix B, located on Council's website.

Are there any threatened species located within the Corridor Investigation Area?

The PEA identified several threatened species that are known to, likely to, or may occur or whose breeding or foraging habitat is likely to occur within five kilometres of the Corridor Investigation Area.

27 threatened bird species, one threatened fish species, one threatened frog species, eight threatened mammal species, nine threatened plant species, five threatened reptile species and three threatened shark species

A full list of threatened species can be found in the Engineering Feasibility Investigation Report, Appendix B, located on Council's website.

Are there other species located within the Corridor Investigation Area?

The PEA identified various migratory and marine species that are known to, likely to, or may occur or whose breeding or foraging habitat is likely to occur within the area. This includes:

- 19 migratory marine birds
- 19 migratory marine species
- 7 migratory terrestrial species
- 21 migratory wetland species
- 52 marine birds
- 20 marine fish
- 3 marine mammals
- 7 marine reptiles

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A full list of threatened species can be found in the Engineering Feasibility Investigation Report, Appendix B.

Is the land within the Corridor Investigation Area prone to flooding? If so, how would the proposed Orbital Road address this?

There are extensive areas within the Corridor Investigation Area that are located within 100-year flood zone (see map on the right).

The proposed Orbital Road would be designed to sit above the 100-year flood levels (for example with bridges and viaducts in flood prone areas) and extensive flood planning mitigation strategies would need to be developed that would benefit the community in terms of welfare during flood events and the environment.

Following the current engagement period, if Council decide to proceed with the proposed Orbital Road, extensive flood studies would need to be undertaken to inform the concept designs for the roadway, bridges and roundabouts.

Comprehensive investigations would need to be carried out including assessment of tidal movements and flood flows, drainage structures required to withstand flooding, and downstream impacts (for example, soil erosion and water quality impacts).

A key driver for the proposed Airport Access Road is the provision of a flood-free access route. The alignment shown in the image above is outside of the 100-year flood zone and therefore detailed flood studies would not be required. This alignment does not require costly bridge solutions and avoids the need to fill in areas of land to alter flood levels.

Why do all four alignment options cross Lake Innes Nature Reserve (National Park)?

All of the alignment options cross Lake Innes Nature Reserve (National Park), the alignment has been fixed to cross the Lake Innes Nature Reserve (National Park) along the already cleared power and water easement. This was chosen as the best location to have the least impact on the biodiversity within the National Park as the trees are already cleared for the power lines.

FactSheet

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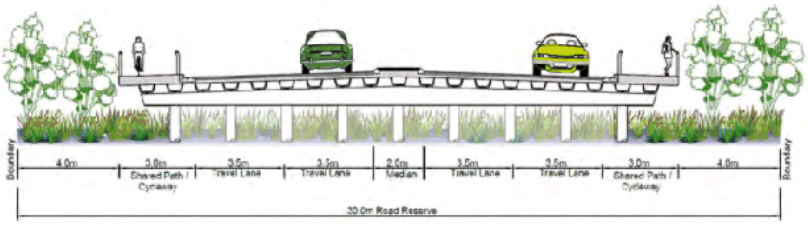
Any future road would likely be bridged over this area with existing water and electricity services attached to the bridge. This would allow the area under the bridge to be environmentally rehabilitated to increase the biodiversity connectivity within the Lake Innes Nature Reserve.

The image below shows a typical section of a low-level bridge, demonstrating a biodiversity corridor beneath.



What is the process for gaining approval to cross Lake Innes Nature Reserve (National Park)?

Specific approvals in accordance with the National Parks and Wildlife Act 1984 (NPW Act) and associated guidelines are required to revoke National Park land for a road corridor.

Only the Government (via Cabinet approval) and ultimately the NSW Parliament (via an Act of Parliament) can decide if the land reserved under the NPW Act can be revoked.

Comprehensive environmental assessment and extensive consultation with the NSW National Parks and Wildlife Service, the Office of Environment and Heritage and other key stakeholders would be required at various stages throughout the project approvals process.

Council would also be required to liaise closely with the existing utility providers to facilitate a joint use of the existing easement corridor crossing the nature reserve.

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REPORT

Appendix J

Community drop-in session information posters

WHAT WORK HAS BEEN DONE TO DATE TO ASSESS ROUTE OPTIONS?

Mapping the relative impact of where identified constraints intersect with the proposed route options provided a meaningful way of assessing the viability of each option.

The Multicriteria Constraints Analysis (MCA) investigated the follow constraint data:

- Ground surface
- Land ownership status (Council, State, Private, Crown)
- Fibre optic network (communications infrastructure)
- Road hierarchy (local, collector and arterial roads)
- Planning zones
- Water, wastewater and stormwater network assets
- Electricity network
- Protected Koala habitat
- Protected Fish habitat
- Heritage sites / areas
- Land quality (acid sulfate soils/contaminated land)
- Historic 100 year flood area
- Watercourses and wetlands
- Vegetation cover
- Drainage crossings and structures
- Protected Vegetation Areas
- Threatened Ecological Communities.

Relative weighted values were determined and allocated to each of the constraints.

The Engineering Feasibility Study used a Multicriteria Constraints Analysis process to produce a total weighted constraint value (or score) for each route option. There were 5 key constraint "hotspots".

Cluster A

Constraints along Boundary Street as the route passes through a number of different land use zones.

Cluster B

Constraints along Major Innes Road between residential and primary production zones.

Cluster C

Constraints where the route crosses waste resource management facility land and part of the neighbouring National Park.

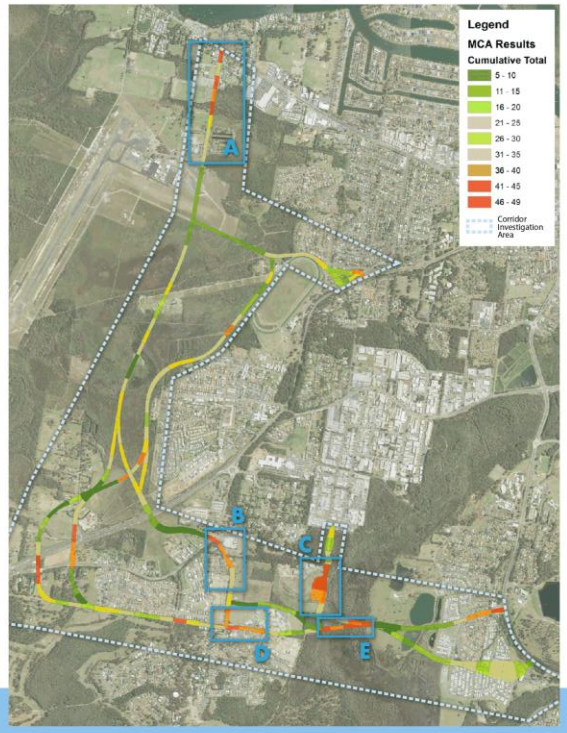
Cluster D

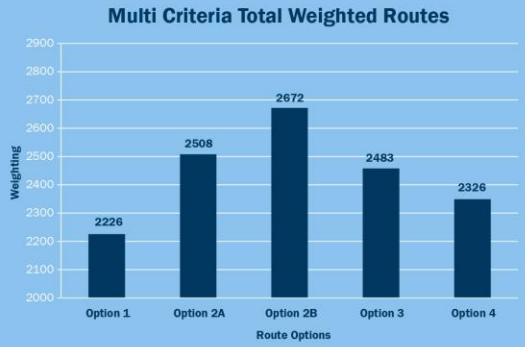
Constraints where the route crosses through an existing, mainly residential area.

Cluster E

Constraints include the Nature Reserve and high voltage powerlines.

Constraints Hotspots





ROUTE OPTION 1
produced a significantly lower weighted constraint value.

THE PROPOSED PRIMARY AIRPORT ACCESS ROAD

One major constraint to current traffic conditions is that the existing link to the Port Macquarie Airport Precinct is within the 100 year flood zone.

As Port Macquarie continues to grow as an important regional city, a new flood-free access route is needed to ensure accessibility and connectivity to the airport and business precinct. Currently, the Airport Precinct has only one access route, via Boundary Street which intersects with Hastings River Drive.

A key driver for the proposed Primary Airport Access Road is the provision of a flood-free access route between the Oxley Highway, Clifton Drive and the Fernhill intersection to the new Airport Precinct.

There are various environmental constraints that limit where a secondary access route could be located. These include the **100-year flood zone** and the **Coastal Management State Environmental Planning Policy (SEPP)**, which promotes an integrated and coordinated approach to land use planning in a coastal zone.

100 year flood zone

Coastal Wetlands SEPP Wetlands proximity

Route alignment options

Port Macquarie-Hastings Council in consultation with the Roads and Maritime Services (RMS) has undertaken detailed investigation on viable options for a secondary, flood free route. Traffic investigations have indicated that traffic control signals are the most appropriate intersection type for the Airport Access Road.

A key RMS constraint for the positioning of any new intersection on the Oxley Highway is that it doesn't affect safety or efficiency of the highway. To achieve this the RMS have indicated that there be no increase in the number of intersections and that they operate safely. Therefore the current roundabout would have to be closed and both Clifton Drive and Fernhill Road be realigned.

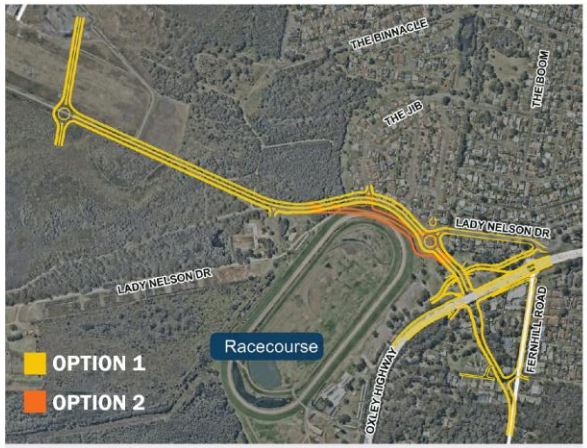
Current options incorporate a tie into Oxley Highway south of the existing Fernhill/Lady Nelson Drive roundabout.

Option 1

This alignment would avoid the existing racecourse but requires additional residential property acquisition.

Option 2

This alignment encroaches on the existing racecourse but with limited private property acquisition needed along Lady Nelson Drive.



Fernhill Road Link

- Common for all route alignment options is the Fernhill Road link.
- Alignment options being considered would have similar property impact on the Fernhill Road link.

Koala habitat

As part of the Preliminary Environmental Assessment, koala presence has been observed within the Primary Airport Access Road Corridor. Additional environmental studies and consultation with environmental stakeholders and groups will need to be undertaken to establish what environmental protection and mitigation measure will be required.

It is expected that Boundary Street and the surrounding road network will not be able to accommodate the additional traffic generated by the Airport Precinct.

WHAT WOULD BE THE BENEFITS OF THE PROPOSED ORBITAL ROAD?

Regional Integrated Transport Strategy

Council, in conjunction with State Government agencies is currently developing the Regional Integrated Transport Strategy (RITS).
The Strategy will aim to optimise efficiency within the transport network including sustainable modes of transport and infrastructure provision.

All modes of transport are being considered including road, rail, bus, ferries, light rail, cycling and walking.

Paralled to the development of the Strategy, Council is continuing to work closely with RMS on the following:

- Oxley Highway works at key intersections such as Lake Road and Wrights Road
- Planning for future stages of the Lakes Road duplication project including investigation and design work for the Fernhill Road to Jindalee Road section and design work on the duplication of the section of road from Ocean Drive to Central Road
- Upgrading around 3.4 kilometres of Ocean Drive between Matthew Flinders Drive to Greenmeadows Drive (South)
- Upgrades along Hastings River Drive including the Newport Island Road intersection
- Detailed design for the John Oxley Drive upgrade between the Ruins Way and Wrights Road/Oxley Highway.

The proposed Orbital Road would:

- Reduce traffic congestion across the extent of the city, particularly on Lake Road, Ocean Drive and the Oxley Highway, and allow easier access for local traffic.
- Reduce travel time (projected to be up to 12 minutes across Port Macquarie).
- Reduce overall travel distances (Lighthouse to Base Hospital by 1.2km, West Port Macquarie, Thrumster to the Airport by approximately 5km).
- Provide an efficient and flood free connection to Port Macquarie Airport.
- Provide efficient connections to the Health and Education Precinct, the Airport Business Park and the Regional Sports Stadium.
- Contribute to an integrated transport network for our growing community (including cycling links).
- Connect people and place through the provision of a safe and efficient transport. connection.

Future transport planning is key to realising the objectives of the Port-Macquarie Hastings Council Urban Growth Management Strategy

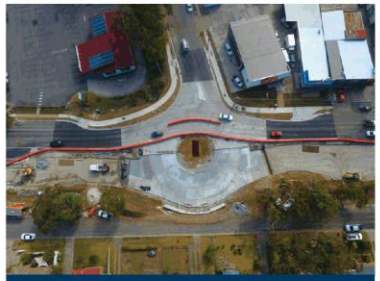
AREA WIDE TRAFFIC STUDY

The provision of appropriate transport infrastructure requires a strategic, long term approach, which involves managing and enhancing the road network to respond to changes in land use and travel patterns across our region.

Council, in partnership with Roads and Maritime Services of NSW (RMS), has undertaken a comprehensive Port Macquarie-Hastings Local Government Area (LGA) Traffic Study.

The traffic study considered the following key input areas:

- **Network** –physical characteristics of the road network such as number of lanes, link length, road hierarchy and intersection controls.
- **Demand** –traffic movement across the network between various land use generators and attractors.



Road network analysis was based on a range of data including journey to work, population, employment data, traffic, travel times, freight and parking.

In NSW, there are three categories of roads: State, Regional or Local. Depending on the road type, management responsibilites sit with RMS and/or local council.

Oxley Highway Corridor (State Road – RMS/PMHC)

Traffic volumes on the Oxley Highway vary considerably along its length. The busiest section of the Oxley Highway is south of Lake Road with volumes of 2,300 vehicles per hour in the 2016 morning peak period.

Hastings River Drive Corridor (Local Road – PMHC)

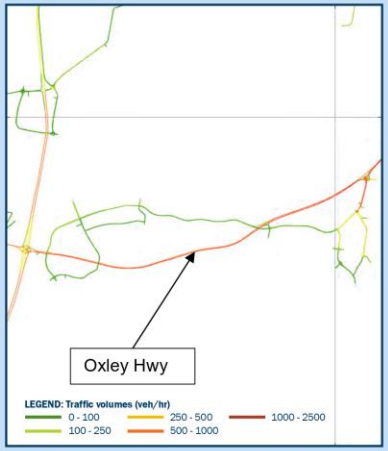
Peak traffic volumes on Hastings River Drive occur in the section between Clifton Drive and Findlay Avenue, with volumes close to 1,000 vehicles per hour in each direction during the morning peak period.

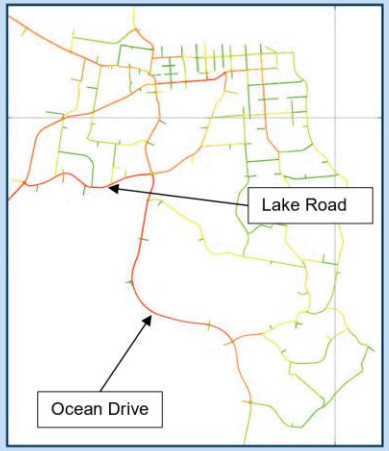
Ocean Drive Corridor (Local Road - PMHC)

Traffic volumes on Ocean Drive vary by location, with one of the busiest sections in the north, closer to Port Macquarie. Volumes peak in the section south of Lake Road, with 2,200 vehicles travelling northbound in the morning peak hour.

The Area Wide Traffic Study (AWTS) involved the development of a traffic model using Aimsum, an international modelling software. The model analysed the existing road network and estimates the performance of the network, including travel time, traffic flows and volumes.

2016 AM Peak hour modelled traffic volumes





2016 PM Peak hour modelled traffic volumes

WHAT ARE THE NEXT STEPS FOR THE PROPOSED ORBITAL ROAD?

Key steps in the process and approximate timeframes

Completed

Feasibility Investigation
High level need for the project is reviewed and an engineering assessment (including a preliminary environmental assessment) is made on viable routes to help inform the next steps

Council decision to proceed with engagement and seek funding to continue feasibility studies

6 months

We are here

Community Engagement
Engagement with the community will help to inform the final corridor and identify the social benefit for the project

Council decision to proceed with proposed Orbital Road and further investigation

12 – 18 months

Strategic Business Care
Using information and findings from the feasibility investigation and community and stakeholder engagement, Council will determine if the project is economically and socially beneficial (outlining what the alternatives options are, if any). Additional investigations to be conducted (Environmental etc.)

Review all feedback and prepare engagement report. Review location of proposed Orbital Road

Council decision to determine preferred route and proceed

Identify preferred route
Undertake initial concept design work

Community engagement on the Strategic Business Case

Council decision to confirm route and proceed

Community Engagement
Engagement with the community on the preferred route for the Orbital Road

2 – 5 years*

Seek State Government Approval – National Park amendments
Council will seek approval from the State Government to construct a road over the Lake Innes Nature Reserve (National Park) based on the outcomes of the Strategic Business Case

Council decision to submit planning proposal to NSW Govt to protect corridor

Complete concept design work
Some concept design work will have been completed to inform the preferred route

Commence Social and Environmental Studies
Social impact and environmental impact assessments including technical studies – noise, pollution, flooding, biodiversity, geotechnical, impacts to community, wellbeing, etc

Community engagement on the outcomes from technical and environmental studies

3 – 5 years*

Protect the corridor
Gazette the route in the Local Environmental Plan by NSW Government

At this stage property acquisition can commence

Commence detailed design and remaining technical studies to be construction ready

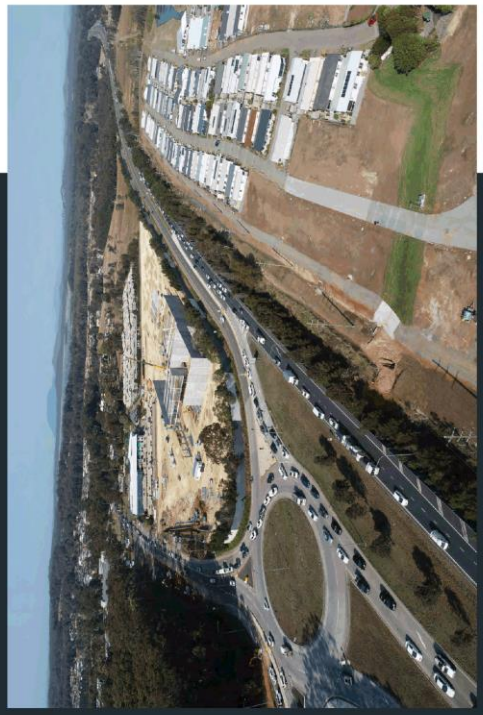
7 – 12 years [Total]

Detailed Business Case
Council will develop a detailed business case informed by previous project steps, seeking funding for construction (project will likely be staged)

3 + years*

Staged Construction Phase
Commence construction on the highest priority sections of the Orbital Road based on the detailed Business Case

*The timeframes are indicative only and depend upon Council working closely with all levels of Government to secure support and funding.



The route for the proposed Orbital Road is not finalised.

Council must carry out a detailed environmental assessment as well as engage with stakeholders, affected property owners and the wider community and consider the views and information gathered.

Like any major infrastructure project, the planning and approval takes many years.

The process to progress the proposed Orbital Road would entail following of the New South Wales State Government, Infrastructure Project Assurance Framework project planning and approval pathway.

Currently we are in the engagement phase, which will close on 30th March 2019. Community and stakeholder feedback will be captured in a report to Council, which is expected to be complete by mid-2019. Your feedback will help to inform Council's decision on whether the project will progress to the development of a Strategic Business Case.

If the project is approved by Council to proceed and there is funding support for the project from the NSW State Government, **the project could be construction ready in 7 to 12 years.**

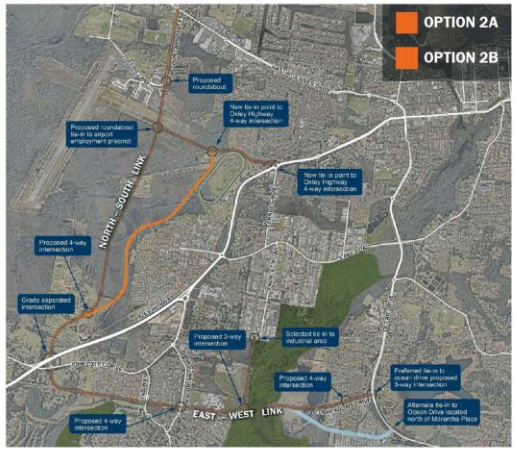
HOW WAS THE MOST VIABLE ROUTE IDENTIFIED?

Options 1A & 1B

Option 3

All four alignment options included the crossing of Lake Innes Nature Reserve (National Park).

Options 2A & 2B



Options 4A & 4B

The concept of an Orbital Link Road has long been recognised as an important component of future road network planning.

Key facts for each route alignment

Route alignment	Road length (kms)	Number of bridges	Intersection/ Roundabouts	Estimated cost (excl. GST) ($M)
Option 1A	8.6km	12	9	$875m
Option 2A	9.6km	17	9	$1,025m
Option 2B	9.8km	19	10	$1,000m
Option 3	9km	17	9	$950m
Option 4A	8.6km	12	10	$850m

The Engineering Feasibility Study considered various alignments for the proposed Orbital Road within an investigation corridor set by Council.

The Engineering Feasibility Study investigated the following:

- Topographical constraints
- Preliminary investigation of environmental constraints
- Multicriteria analysis of the alignments
- Strategic Cost Estimation
- Key design criteria
- Infrastructure requirements (bridges, intersections, earthworks)
- Built engineering requirements
- Compliance with AustRoad guidelines.

Outcomes from the study identified **Option 1A** as the most viable route for the proposed Orbital Road.

Subsequent to the feasibility study, **Option 1B** and **4B** were developed, where the east-west link is located south of St Columba Anglican School, keeping the school within the Health and Education Precinct. **Option 1B is the route we are currently talking about.**

WHAT ARE THE ENVIRONMENTAL CONSTRAINTS WITHIN THE INVESTIGATION AREA?

A Preliminary Environmental Assessment (PEA) was completed in 2016 and identified potential impacts associated with the construction of the proposed Orbital Road.

Environmental constraints that would need to be considered include:

- The Lake Innes Nature Reserve and Environmental Conservation Zones
- Coastal Wetlands (State Environmental Planning Policy (Coastal Management) 2018)
- Potential presence of listed threatened species listed under the *Environment Protection and Biodiversity Conservation Act 1999*
- Four Threatened Ecological Communities and potential presence of species listed under the *Threatened Species Conservation Act 1995* (now *Biodiversity Conservation Act 2016*)
- Vegetation formations and communities
- Wetlands and Priority Oyster Areas
- Koala habitat
- Aboriginal Heritage
- Visual amenity
- Non-Aboriginal Heritage
- Contaminated Sites
- Acid sulfate soils
- Noise and vibration.

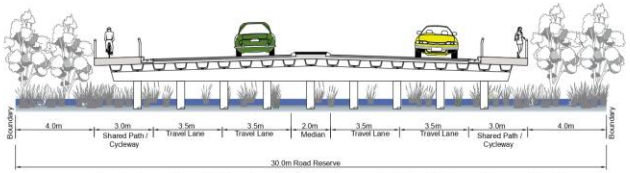
Extensive consultation with State agencies including the Department of Planning & Environment, New South Wales Office of Environment and Heritage, NSW National Parks and Wildlife Service, and Department of Primary Industry Fisheries would be undertaken as part of the environmental assessments for the proposed road.

Crossing the Lake Innes Nature Reserve (National Park)

The proposed alignment would cross the Lake Innes Nature Reserve (National Park) along the already cleared power and water easement. This location has the least impact on the biodiversity.

Any road would likely be bridged over this area to allow the area underneath to be environmentally rehabilitated to increase the biodiversity connection.

Comprehensive environmental investigations will be required before the final route is confirmed and approved.



A typical section of a low-level bridge demonstrating biodiversity corridor beneath.

Crossing Lake Innes Nature Reserve
(Source: Google Earth)

ORDINARY COUNCIL

WHAT IS THE PROPOSED ORBITAL ROAD?

A long-term solution to addressing our current and future traffic growth; the proposed Orbital Road is essential for the economic and social vitality of our community.

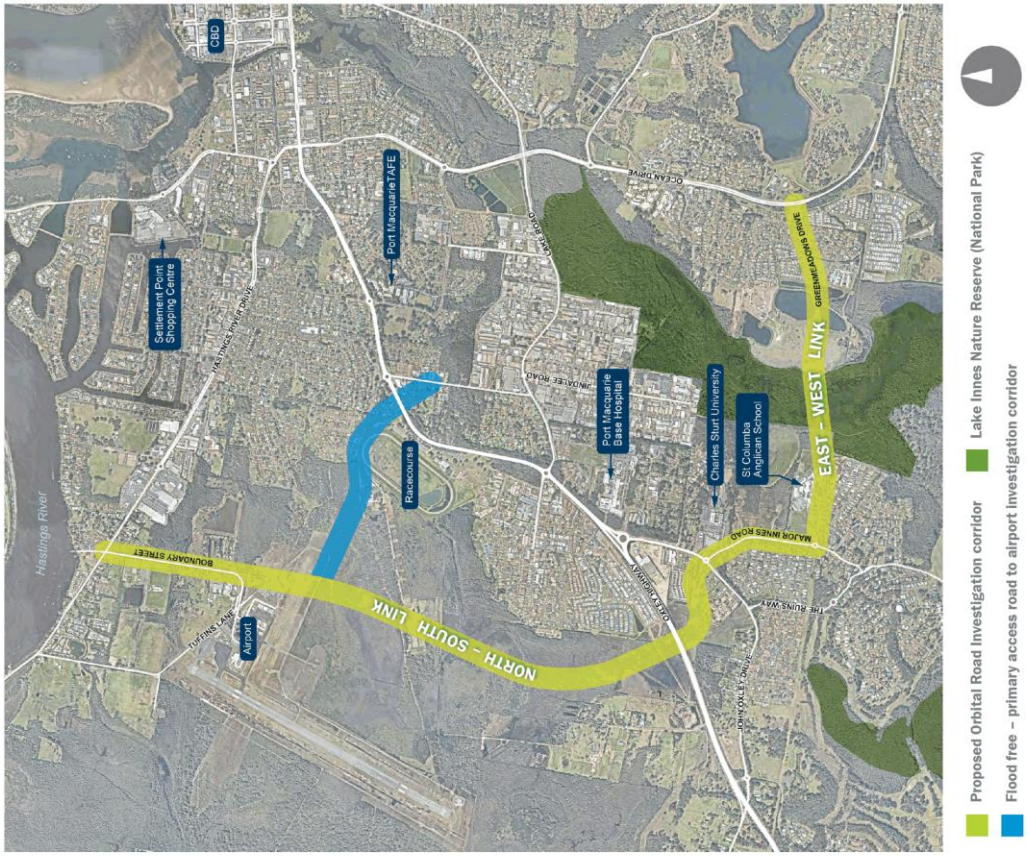
The proposed Orbital Road consists of the collective east-west link (Ocean Drive to Oxley Highway), the north-south link (Oxley Highway to Boundary Street) and the flood-free Primary Airport Access Road.

The road would provide continuous traffic flow across the breadth of the City, with links to key destinations including:

- Port Macquarie Base Hospital
- Charles Sturt University
- Port Macquarie Airport
- St Columba Anglican School
- The Regional Sports Stadium.

Project Objectives

- To improve access, amenity, safety and efficiency for the Port Macquarie Community
- To alleviate traffic congestion, particularly on Lake Road, Ocean Drive and the Oxley Highway
- To provide efficient connectivity to key destinations including the Health and Education Precinct
- To provide a flood free route to the airport
- To ensure the road network can cater for the growth of the region



WHAT CONCEPT DESIGNS HAVE BEEN CONSIDERED FOR THE ROADWAY?

The proposed Orbital Road is in the very early stages of investigation and planning and comprehensive technical and environmental investigations would be needed to inform the concept designs for the roadway.

Design Guidelines

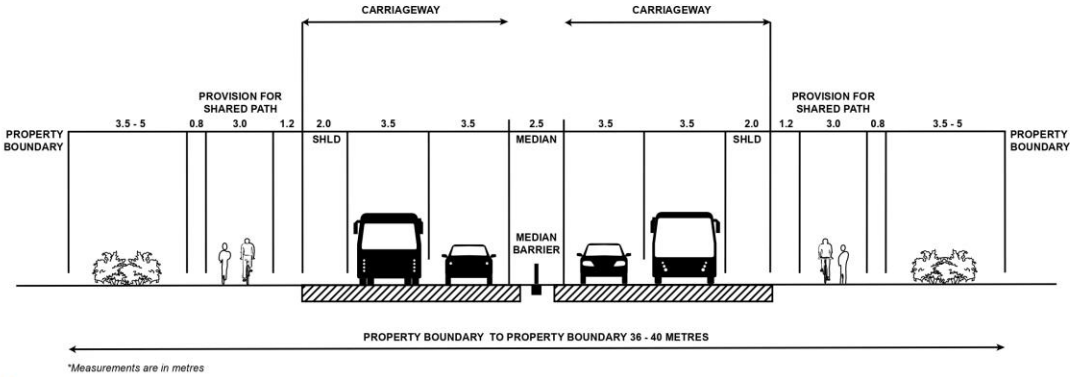
As documented in the Engineering Feasibility Study, the guidelines for the design of the proposed Orbital Road include:

- Austroads Guide to Road Design Series
- RMS Traffic Signal Design Guide
- Australian Standards
- Council Design Standards (Development Design Specification – Geometric Road Design [Urban and Rural]).

Design Features

The design of the proposed Orbital Road would be in accordance with the design guidelines and would most likely contain:

- A four-lane dual carriageway which contains 3.5 metre wide lanes and a 2.5 metre wide central median barrier.
- Potential design speed of 80km per hour
- 3-metre-wide shared paths on either one or both sides of the carriageway
- 2-metre-wide on road cycle lanes
- Concrete walkways on the road's edge.



The road reserve (fence boundary to fence boundary) would likely be 36–40 metres wide; increasing at intersections and other specific locations, which would be determined by the terrain.

ORDINARY COUNCIL

HOW WOULD THE PROPOSED ORBITAL ROAD CONTRIBUTE TO OUR SOCIAL AND CULTURAL ENVIRONMENT?

The Port Macquarie-Hastings region is a successful place that has a vibrant, diversified and resilient regional economy for people to live, learn, work, play and invest.

Council's Towards 2030: Community Strategic Plan identifies the vision and mission for the community:

Our Vision - A sustainable high quality of life for all

Our Mission - Building the future together – people, place, health, education and technology

The Plan also identifies our community as:

- Being safe and connected
- Having access to quality infrastructure including roads
- Benefiting from quality urban design that provides easy access between our towns and villages
- Enjoying economic prosperity and having access to quality education and training
- Being linked to encourage and manage growth.

Supporting our community

Port Macquarie remains a jewel on the mid North Coast, with our natural environment, beaches and climate being much loved by our community and visitors alike.

Council is confident that the proposed Orbital Road and flood-free route to the airport would provide much needed connectivity to support our growing economy and relieve unnecessary and frustrating traffic delays across the city, for our community.

The proposed Orbital Road aims to enable aspects of the 2030 vision by:

- Improving liveability, amenity and efficiency for the community
- Improving connectivity between people and place by reducing travel distances
- Supporting the local economy through the provision of an integrated road network that links key economic growth areas such as our Health and Education Precinct
- Alleviating significant congestion across the breadth of the City
- Proving efficient connections to key social and cultural infrastructure.

Council is committed to supporting the social vitality of our community, now and into the future, and the proposed Orbital Road is a huge opportunity for Port Macquarie as we continue to grow as a regional city.

Council recognises there are significant challenges with planning new road corridors particularly in urban areas and areas of social, cultural and environmental value.

Social impacts

NSW Planning legislation requires major infrastructure development proposals to conduct a social impact assessment (SIA). A social impact assessment is the process of identifying, predicting, evaluating and responding to the social impacts of a project.

A social impact is a consequence experienced by individuals, households, communities and organisations due to changes associated with a project. If Council decides to proceed with the proposed Orbital Road, a social impact assessment would investigate impacts including changes to way of life, community, access to and use of infrastructure, services and facilities, culture, health and wellbeing, surroundings, personal and property rights, decision-making systems, fears and aspirations.

ORDINARY COUNCIL

WHAT ARE THE KEY DRIVERS FOR THE PROPOSED ORBITAL ROAD?

Port Macquarie has been identified as a Regional City and will be a major focus for employment, housing growth and regional investment on the NSW North Coast to 2036.

Growth

With our population forecast to grow by more than 1,000 people per year to around 104,000 people by 2036, we will face new opportunities and challenges in coming years.

The growth is expected to be concentrated in our major towns and villages, particularly in Port Macquarie and will create demand for about 10,000 new dwellings by 2036.

Congestion

The community is already experiencing significant congestion across the extent of the city, particularly on Lake Road, Ocean Drive and the Oxley Highway.

Growth will only intensify congestion on our roads, which is one of the reasons the proposed Orbital Road is being reconsidered as a long-term solution to address current and future traffic growth.

FORECAST POPULATION GROWTH FOR PORT MACQUARIE-HASTINGS

Health and Education Precinct

The Health and Education Precinct (HEP) is a key part of Port Macquarie's future growth with the majority of local jobs growth forecast to be in these two industries to 2022. The growth of the health and education sectors presents an opportunity to:

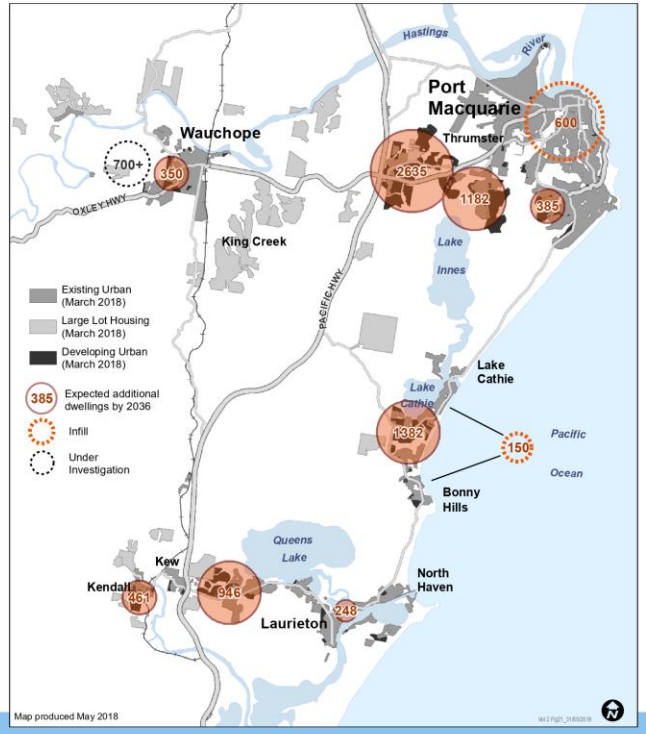
- increase the number of young people in the community
- provide economic diversification
- increase labour force participation
- build on Port Macquarie's growing status as a Regional City.

The proposed Orbital Road would provide efficient connectivity to this precinct.

Airport Business Park

With the development of the Airport Industrial Precinct, there will be significant demand on the existing infrastructure.

A New Primary Airport Access Road is expected to reduce the congestion in the area, in addition to providing a 100-year flood-free access route to the airport itself.



To maintain a prosperous economy and support the social vitality of our current and future community, we need to develop a long-term solution which involves managing and enhancing an integrated road network.

Various state and local strategic planning documents identify the need for the proposed Orbital Road, including:

- NSW Government's North Coast Regional Plan (2017)
- Urban Growth Management Strategy (2018)
- Draft Regional City Action Plan (expected mid-2019)
- Regional Integrated Transport Strategy (expected mid-2019)

These documents will continue to guide Council to ensure our transport solutions and networks are safe, efficient and have adequate capacity now and into the future.

WHAT ALIGNMENT OPTIONS DID THE ENGINEERING FEASIBILITY STUDY IDENTIFY?

All four alignment options included the crossing of Lake Innes Nature Reserve (National Park).

Options 1A & 1B

Options 2A & 2B

Option 3

Options 4A & 4B

REPORT

Appendix K

Media Coverage

MEDIA COVERAGE

1.1 Prime 7 News North Coast

Table 1: Prime 7 stories on the proposed Orbital Road

Date/time	Title	Author	Link
3 April 2019	Road protest – Dahlsford Lifestyle Village	Prime 7 News North Coast	https://www.youtube.com/watch?v=jVj7NHDOcek&app=desktop
22 February 2019, 9:46AM	Residents protest orbital road	Prime 7 News North Coast	https://www.prime7.com.au/news/6678-residents-protest-orbital-road?fbclid=IwAR1s3Np_JOTqBPpfLv0qin9GRBPNQND4rXplx8dPbwtwY7TRdc5I-3VKNV8
7 December 2018 5:01PM	Ring Road plans outrage local residents	Prime 7 News North Coast	https://www.prime7.com.au/news/5365-ring-road-plans-outrage-local-residents

1.2 Triple M Radio

Table 2: Triple M stories on the proposed Orbital Road

Date/time	Title	Author	Link
22 November 2018	Port Macquarie Ring Road Back on the Table - It could cost up to $1 billion	Triple M	https://www.triplem.com.au/story/port-macquarie-ring-road-back-on-the-table-119300

1.3 NBN News – Mid North News

Table 3: NBN News stories on the proposed Orbital Road

Date/time	Title	Author	Link
13 December 2018	Residents voice concerns about proposed Orbital Road	NBN News	https://www.nbnnews.com.au/2018/12/13/residents-voice-concerns-about-proposed-orbital-road/
22 November 2018	Proposed Orbital Road back on the table to reduce congestion	NBN News	https://www.nbnnews.com.au/2018/11/22/proposed-orbital-road-back-on-the-table-to-reduce-congestion/

1.4 Nambucca Guardian News

Table 4: Nambucca Guardian articles on the proposed Orbital Road

Date/time	Article title	Author	Link
22 December 2018 4:21PM	Rob Oakeshott to make New Year decision on Cowper election plans	Peter Daniels	https://www.nambuccaguardian.com.au/story/5825490/oakeshott-eyes-new-year-tilt-at-cowper/

1.5 Camden Haven Courier

Table 5: Camden Haven Courier articles on the proposed Orbital Road

Date/time	Article title	Author	Link
5 December 2018 4:00PM	Council committed to best decision on Orbital Road based on community interests	Mayor Peta Pinson	https://www.camdencourier.com.au/story/5790054/column-proposed-orbital-road-council-update/

1.6 Port Macquarie News

Table 6: Port Macquarie News articles on the proposed Orbital Road

Date/time	Article title	Author	Link
2 April 2019 5:00PM	Proposed orbital road inspires Matilda Lindeman's school assessment project	Lisa Tisdell	https://www.portnews.com.au/story/5986963/orbital-road-concerns-inspire-student-project/
24 March 2019 5:00PM	2019 NSW Votes: Key projects to be delivered in next four years, Leslie Williams says	Lisa Tisdell	https://www.portnews.com.au/story/5969375/leslie-williams-looks-ahead-to-the-next-four-years/
22 March 2019 4:00AM	Save Fernhill petition tabled at Port Macquarie-Hastings Council meeting	Lisa Tisdell	https://www.portnews.com.au/story/5967088/thousands-sign-community-petition-to-save-fernhill/
19 March 2019 5:00PM	Election 2019: orbital road under the microscope by candidates	Carla Mascarenhas	https://www.portnews.com.au/story/5962025/election-2019-orbital-road-under-the-microscope/
16 March 2019 10:00AM	Election 2019: Frustrated by local roads? How your local candidates plan to fix them	Carla Mascarenhas	https://www.portnews.com.au/story/5955425/election-2019-if-you-are-frustrated-by-local-roads-read-this/
15 March 2019 4:00PM	John Sprague calls for solution at Oxley Highway/Sherwood Road/Lake Road roundabout	Lisa Tisdell	https://www.portnews.com.au/story/5953377/roundabout-woes-prompt-residents-call-for-action/
15 March 2019 12:00PM	Election 2019: Fiery meet the candidates in Port Macquarie	Carla Mascarenhas	https://www.portnews.com.au/story/5956156/election-2019-voters-clash-with-state-political-candidates/
13 March 2019 4:00PM	We must work together for best outcome regarding the proposed orbital road	Deputy mayor Lisa Intemann	https://www.portnews.com.au/story/5947105/column-have-your-say-on-orbital-road-project/
12 March 2018 4:00AM	Wrights Road roundabout traffic congestion to continue	Peter Daniels	https://www.portnews.com.au/story/5273627/no-end-in-sight-for-wrights-road-roundabout-traffic-issues/
11 March 2019 4:00AM	Historic Alban House falls within Port Macquarie's orbital road plan	Peter Daniels	https://www.portnews.com.au/story/5942284/is-alban-house-port-macquaries-version-of-the-castle/
11 March 2019 6:00AM	Historic Alban House in orbital road firing line	Peter Daniels	https://www.portnews.com.au/story/5945861/historic-alban-house-in-orbital-road-firing-line/

Date/time	Article title	Author	Link
11 March 2019 9:33PM	Time to put people into the orbital road proposal	John Jeayes	https://www.portnews.com.au/story/5948823/time-to-put-people-into-the-orbital-road-proposal/?fbclid=IwAR19lEDnqJXfpK0tFMVzUc6GeWpiO-mPbMcUoHOuKi-FZFPYuXS00BTvypE
7 March 2019 5:00PM	Port Macquarie-Hastings Council has called on Leslie Williams MP to commit funding to orbital road strategic plan	Tracey Fairhurst	https://www.portnews.com.au/story/5942230/council-calls-on-government-to-part-fund-orbital-road-business-plan/
5 March 2019 5:00PM	2018 NSW Election: Port Macquarie candidates share their thoughts on reducing unemployment and stimulating the local economy	Carla Mascarenhas	https://www.portnews.com.au/story/5932524/jobs-for-the-future-an-election-priority/
4 March 2019 11:39AM	Council and MP must work together on road solution	Carla Mascarenhas	https://www.portnews.com.au/story/5934768/council-and-mp-must-work-together-on-road-solution/
2 March 2019 5:00PM	Port Macquarie-Hastings Council hosts community information sessions on orbital road proposal	Tracey Fairhurst	https://www.portnews.com.au/story/5933106/impacts-on-people-homes-lead-orbital-road-proposal-talks/
26 February 2019 10:00AM	Port Macquarie-Hastings Council urged to take control of orbital road planning	Peter Daniels	https://www.portnews.com.au/story/5922620/former-mayor-urges-council-to-take-control-of-orbital-road-process/?fbclid=IwAR2Tk22W_4A3NbicVZeo-keOOf3jnQBc8HraNLWNmDrkdtwXp8NS8D3Td4M
26 February 2019 3:30PM	Port Macquarie MP Leslie Williams requests RMS to work with Port Macquarie-Hastings Council on identifying new orbital road route	Peter Daniels	https://www.portnews.com.au/story/5925858/mp-wants-rms-council-to-work-on-alternative-orbital-road-route/?fbclid=IwAR3A_Y6855TXw6FCC3ehkKCXkR-p-K5fUlBf506s7pJFRepIUlnyy0AYBml
25 February 2019 5:00PM	Fernhill Road resident Jim Munro promotes alternative orbital road route	Peter Daniels	https://www.portnews.com.au/story/5922181/jim-floats-his-plan-for-a-true-orbital-road/
25 February 2019 1:00PM	Cr Justin Levido defends Port Macquarie-Hastings Council's handling of orbital road investigation corridor	Peter Daniels	https://www.portnews.com.au/story/5921972/levido-defends-councils-handling-of-orbital-road/?fbclid=IwAR0Jz64YcbCCYNb_A6El6xLRfE0qA4I8jWEpS09oQGL6STUw2Y1XhOphkwE
22 February 2019 4:00AM	Port Macquarie MP Leslie Williams calls on Port Macquarie-Hastings Council to seek another orbital road option	Peter Daniels	https://www.portnews.com.au/story/5917315/port-mp-supports-an-orbital-road-but-not-councils-proposal/?fbclid=IwAR0cKhzHz6zBhOkc4T0set5zt7qD8G1_tVRxSt_Vsj5b6pZAhPhGxBpkTbo
21 February 2019 5:00PM	Port Macquarie-Hastings Council feasibility study excluded Fernhill Road, Clifton Drive from orbital road feasibility study	Peter Daniels	https://www.portnews.com.au/story/5916637/fernhill-road-resident-channels-yes-minister-in-council-spray/

Date/time	Article title	Author	Link
20 February 2019 10:00AM	Port Macquarie-Hastings Council revisits orbital road, market policy at February 20 meeting	Peter Daniels	https://www.portnews.com.au/story/5911858/council-revisits-orbital-road-market-policy-at-meeting/
13 February 2019 4:00AM	Port Macquarie-Hastings Council hosts orbital road drop-in sessions starting March 2	Peter Daniels	https://www.portnews.com.au/story/5900374/council-to-host-six-orbital-road-information-sessions/
13 February 2019 4:00PM	Mayor Pinson urges community to attend Orbital Road information drop-in sessions	Mayor Peta Pinson	https://www.portnews.com.au/story/5897817/column-council-continues-orbital-road-update/
12 February 2019 4:07PM	No time for silence on orbital road plan	Don West	https://www.portnews.com.au/story/5901347/no-time-for-silence-on-orbital-road-plan/
9 February 2019 4:30PM	Public petitions circulating in Port Macquarie against Airport Access Road	Robert Dougherty	https://www.portnews.com.au/story/5895869/airport-access-road-creates-concerns-for-koalas/
5 February 2019 4:00AM	Mayor identifies proposed Port Macquarie orbital road as biggest discussion point for community in 2019	Lisa Tisdell	https://www.portnews.com.au/story/5879716/orbital-road-proposal-set-to-be-hot-topic-in-2019/?fbclid=IwAR0qUATYGUuYAul2alemWStqmPRDvm-NSkxT3ZSRouLg5oGvbV3qRGEyuSY
28 December 2018 11:50AM	Better solutions needed for traffic congestion	Don West	https://www.portnews.com.au/story/5829305/better-solutions-needed-for-traffic-congestion/?cs=3674
27 December 2018 4:00AM	Port Macquarie-Hastings Council seeking Ocean Drive duplication funding from state government	Peter Daniels	https://www.portnews.com.au/story/5827386/council-working-on-business-case-for-ocean-drive-duplication-funding/
21 December 2018 2:00PM	Rob Oakeshott to make New Year decision on Cowper election plans	Peter Daniels	https://www.portnews.com.au/story/5823915/oakeshott-eyes-new-year-announcement-for-tilt-at-cowper/
20 December 2018 4:00AM	Port Macquarie MP Leslie Williams hits back at Cr Rob Turner over traffic crisis "blame game"	Tracey Fairhurst	https://www.portnews.com.au/story/5820789/mp-hits-out-at-traffic-crisis-blame-game/
20 December 2018 5:00PM	Port Macquarie-Hastings Council confirms John Oxley Drive land purchase is within orbital road investigation corridor	Peter Daniels	https://www.portnews.com.au/story/5821328/council-buys-land-on-orbital-road-route/?fbclid=IwAR39ilmuh7m-BM3giZjOzt_TvTwH0Ik826Rs_erWCaAf4BffEx7OfwySQDY
19 December 2018 4:00AM	Sanctuary Springs couple living in the centre of the Orbital Road investigation corridor	Peter Daniels	https://www.portnews.com.au/story/5818513/morgans-living-in-the-middle-of-a-corridor-of-uncertainty/
19 December 2018 4:00PM	Mayor says it's important to remember the proposed Orbital Road route not finalised	Mayor Peta Pinson	https://www.portnews.com.au/story/5815171/column-council-continues-talks-on-orbital-road/
17 December 2018 10:00AM	Port Macquarie-Hastings Council moves to resolve traffic "chaos" on Oxley Highway	Peter Daniels	https://www.portnews.com.au/story/5810521/council-moves-to-resolve-traffic-crisis-on-oxley-highway/

Date/time	Article title	Author	Link
13 December 2018 5:00PM	Port Macquarie-Hastings Council's orbital road debate heats up meeting	Peter Daniels	https://www.portnews.com.au/story/5809644/public-gallery-and-council-clash-over-orbital-road-planning/
12 December 2018 4:00AM	Port Macquarie orbital road action groups to host silent protest at council meeting	Peter Daniels	https://www.portnews.com.au/story/5805841/residents-plan-silent-protest-over-orbital-road-proposal/
6 December 2018 4:15PM	Orbital Road Action Group wants Port Macquarie-Hastings Council to release feasibility study	Peter Daniels	https://www.portnews.com.au/story/5797697/action-group-wants-council-to-release-orbital-road-feasibility-study/
5 December 2018 4:00PM	Council committed to best decision on Orbital Road based on community interests	Mayor Peta Pinson	https://www.portnews.com.au/story/5789909/column-proposed-orbital-road-council-update/
30 November 2018 4:00AM	Hastings Regional Shooting Complex on Port Macquarie orbital road investigation corridor	Lisa Tisdell	https://www.portnews.com.au/story/5783756/orbital-road-plan-off-target-tingle-believes/?fbclid=IwAR2I9F5pIAhaaWTEpf35-eNlMuGdXUW-QI8EFmSVfE7ck5Falai2p254LUA
9 November 2018 4:00AM	Port Macquarie Chamber of Commerce advocacy includes proposed orbital road	Lisa Tisdell	https://www.portnews.com.au/story/5782719/proposed-orbital-road-remains-on-business-groups-radar/
27 November 2018 4:00AM	Residents respond to orbital road proposal in Port Macquarie	Lisa Tisdell	https://www.portnews.com.au/story/5778555/major-road-link-proposal-is-way-too-late-resident-says/
22 November 2018 5:00PM	Port Macquarie-Hastings Council consults with residents on proposed orbital road	Lisa Tisdell	https://www.portnews.com.au/story/5771782/hundreds-of-properties-on-proposed-road-link-corridor/
22 November 2018 9:30AM	Port Macquarie-Hastings Council opens community consultation on proposed orbital road	No author identified	https://www.portnews.com.au/story/5771633/council-to-progress-investigations-into-proposed-orbital-road/?fbclid=IwAR3XPLcSFPicQwUGzcIWYvLAybhJZI1qCGnJBsvk7Mh-ioUfJK3WS_k6xus
21 November 2018 4:00AM	Council to discuss orbital road communications strategy and community engagement	Lisa Tisdell	https://www.portnews.com.au/story/5767572/port-macquarie-orbital-road-talks-on-the-table/?fbclid=IwAR0sZH1K8sBbV9hnKVTuXpJe4wCx4rT-Nowb8AE8XkDgcqMMX38Lwy-YsJ0

Table 7: Port Macquarie News Letters/Comments relating to the proposed Orbital Road

Date/time	Article title	Author	Link
26 March 2019 2:14PM	Orbital road plans are 30 years too late	Bob Donaldson	https://www.portnews.com.au/story/5975416/orbital-road-plans-are-30-years-too-late/
26 March 2019 1:35PM	Orbital road issue needs real leadership	Mark Bullivant	https://www.portnews.com.au/story/5975255/orbital-road-issue-needs-real-leadership/
19 December 2018 10:54AM	We have a right to be angry	Bob Donaldson	https://www.portnews.com.au/story/5819921/we-have-a-right-to-be-angry/
31 December 2018 10:09AM	Simple changes can improve traffic flow on our roads	Mike Dibbs	https://www.portnews.com.au/story/5830883/simple-changes-can-improve-traffic-flow-on-our-roads/
12 December 2018 3:13PM	Ease road congestion by following road rules	Mike Dibbs	https://www.portnews.com.au/story/5808291/ease-road-congestion-by-following-the-road-rules/

1.7 Wauchope Gazette

Table 8: Wauchope Gazette articles on the proposed Orbital Road

Date/time	Article title	Author	Link
28 March 2019 1:08PM	Column: vexed issue of roads in Rollands Plains	Deputy Mayor Lisa Intemann	https://www.wauchopegazette.com.au/story/5979766/column-vexed-issue-of-roads-in-rollands-plains/
12 March 2019 3:30pm	Council calls on Leslie Williams MP to fund orbital road plan	Tracey Fairhurst	https://www.wauchopegazette.com.au/story/5950937/council-calls-on-mp-to-fund-orbital-road-plan/
23 November 2018 2:00PM	Port Macquarie-Hastings Council opens community consultation on proposed orbital road	No author identified	https://www.wauchopegazette.com.au/story/5774037/have-your-say-on-orbital-road-around-port-macquarie/?fbclid=IwAR1I9IjiKfmgaXwvupx8aQilrggaVg_Vz4VAgFeW-8BFsKhSkxj659fcaMA
21 November 2018 2:00PM	Council to discuss orbital road communications strategy and community engagement	Lisa Tisdell	https://www.wauchopegazette.com.au/story/5769657/port-macquarie-orbital-road-talks-on-the-table/

PORT MACQUARIE-HASTINGS COUNCIL FACEBOOK PAGE

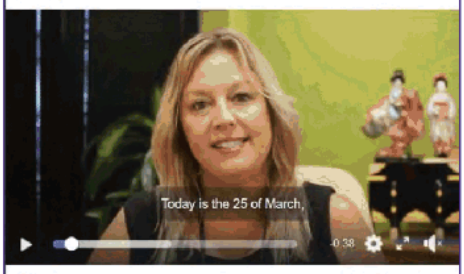
Table 9: Facebook posts on the Proposed Orbital Road

Date	Description/text	Community response
25 March 2019	This is your last week to share your views and provide feedback on the proposed Orbital Road for Port Macquarie. The current community engagement period is coming to an end on 30 March, so visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road and fill in the online survey and provide your feedback on this important part of our road network planning.	15
13 March 2019	If you haven't had a chance to 'have your say' on the proposed Orbital Road for Port Macquarie, there's still time to learn more about the project and share your thoughts. Complete our online survey and have your say until March 30 at haveyoursay.pmhc.nsw.gov.au/orbital-road	All 14 12 1 1
7 March 2019	Acting Mayor Lisa Intemann provides an update on the proposed Orbital Road project and encourages our community to 'have your say' during the initial community engagement. For project information, updates and to complete our survey visit haveyoursay.pmhc.nsw.gov.au/orbital-road	All 23 18 4 1
4 March 2019	The first of our community information drop-in sessions for the proposed Port Macquarie Orbital Road took place on Saturday, and if you couldn't make it there are more opportunities coming up. Tomorrow (Tuesday) two drop-in sessions will be held at Emerald Downs Community Centre between 11am and 2pm; and at the Westport Club between 5.30pm and 8.30pm. Drop in at any time to learn more about how this long-term project is looking to redistribute traffic to ease congestion on our increasingly busy roads. Chat to our staff, ask questions and hear directly from the project team. There are additional drop-in sessions coming this Saturday and next Tuesday. For more details, to share your views and complete our online project survey, visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road	All 24 23 1
26 February 2019	We're seeking community input on a proposed Orbital Road for Port Macquarie. This proposed road is an important long-term solution to reducing traffic congestion and addressing our region's future transport needs. The proposed Orbital Road consists of the collective East-West Link (Ocean Drive to Oxley Highway), the North-South Link (Oxley Highway to Boundary Street) and the flood-free Primary Airport Access Road. It is a new approach to improving the road network in and around Port Macquarie and will improve connectivity to key destinations including the Health and Education Precinct, the Airport and the Regional Sports Stadium. Come along to our community information sessions to share your views, learn more about the project and ask questions of Council staff. The first information session is this Saturday 2 March at the Westport Club. Drop in at any time between 11am - 2pm. For more information on the session dates, times and locations, visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road	All 23 22 1

Date	Description/text	Community response
18 February 2019	The first Council Meeting for the year will kick off this Wednesday at 5.30pm in the Port Macquarie Council Chambers. Agenda topics include the Proposed Orbital Road Feasibility Study and the 2018-2019 Operational Plan Quarterly Report. We'd love to see you there.	All 6 5 1
12 February 2019	Mayor Peta Pinson provides an update on the proposed Orbital Road and encourages our community to attend an upcoming drop-in information session and to complete our online survey at www.haveyoursay.pmhc.nsw.gov.au/orbital-road	All 58 49 5 2 1 1
19 December 2018	In response to feedback and questions from our community on the proposed Orbital Road in Port Macquarie, we have developed a Project Information Brochure and an updated Fact Sheet. These are now available on our website at haveyoursay.pmhc.nsw.gov.au/orbital-road and we encourage you to have a look, and learn about this important project.	All 31 28 1 1 1
11 December 2018	Mayor Peta Pinson provides an update on the proposed Orbital Road. https://haveyoursay.pmhc.nsw.gov.au/orbital-road	All 60 47 7 3 1 1 1
22 November 2018	Council staff are out door knocking today, providing information to residents and businesses who are within the Port Macquarie Orbital Road investigation area. The Orbital Road is proposed as an east-west link (Ocean Drive to Oxley Highway), a north-south link (Oxley Highway to Boundary Street), and a flood-free route to the Port Macquarie Airport. At last night's meeting, Council decided to investigate whether and where such a road would go and tell property owners who might be affected. The proposed road would potentially reduce travel times and distances for more than 20,000 residents per day, removing through traffic from the inner Port Macquarie area including the Lake Road industrial area. It is important to note, that Council is at the investigation stage– the route is not finalised and the project is not funded or approved for construction. This is the first stage of community engagement with those that may be impacted as they are within the proposed route investigation area. Broader community engagement will occur in early 2019, and if you'd like more information please visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road	All 172 146 15 6 3 2

Port Macquarie-Hastings Council
March 25 at 7:40 PM

This is your last week to share your views and provide feedback on the proposed Orbital Road for Port Macquarie. The current community engagement period is coming to an end on 30 March, so visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road and fill in the online survey and provide your feedback on this important part of our road network planning.

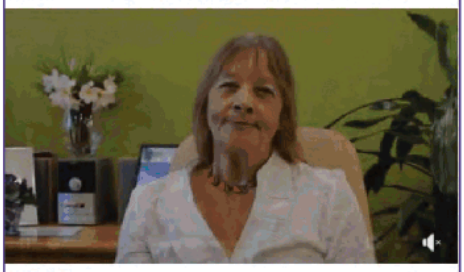


15 — 4 Comments 7 Shares

Like Comment Share

Port Macquarie-Hastings Council
March 7 at 6:00 PM

Acting Mayor Lisa Intemann provides an update on the proposed Orbital Road project, and encourages our community to 'have your say' during the initial community engagement. For project information, updates and to complete our survey visit haveyoursay.pmhc.nsw.gov.au/orbital-road



23 — 20 Comments 3 Shares

Like Comment Share

Port Macquarie-Hastings Council
February 26

We're seeking community input on a proposed Orbital Road for Port Macquarie. This proposed road is an important long term solution to reducing traffic congestion and addressing our region's future transport needs.

The proposed Orbital Road consists of the collective East-West Link (Ocean Drive to Oxley Highway), the North-South Link (Oxley Highway to Boundary Street) and the flood free Primary Airport Access Road. It is a new approach to improving the road network in and around Port Macquarie and will improve connectivity to key destinations including the Health and Education Precinct, the Airport and the Regional Sports Stadium.

Come along to our community information sessions to share your views, learn more about the project and ask questions of Council staff.
The first information session is this Saturday 2 March at the Westport Club. Drop in at any time between 11am - 2pm.

For more information on the session dates, times and locations, visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road

HAVEYOURSAY.PMHC.NSW.GOV.AU
Port Macquarie Orbital Road
Get latest news and updates When will Council be engaging with the...

23 — 10 Comments 9 Shares

Like Comment Share

Port Macquarie-Hastings Council
March 13 at 11:43 AM

If you haven't had a chance to 'have your say' on the proposed Orbital Road for Port Macquarie, there's still time to learn more about the project and share your thoughts.
Complete our online survey and have your say until March 30 at haveyoursay.pmhc.nsw.gov.au/orbital-road

14 — 12 Comments 3 Shares

Like Comment Share

Port Macquarie-Hastings Council
March 4 at 6:11 PM

The first of our community information drop-in sessions for the proposed Port Macquarie Orbital Road took place on Saturday, and if you couldn't make it there are more opportunities coming up.
Tomorrow (Tuesday) two drop-in sessions will be held at Emerald Downs Community Centre between 11am and 2pm; and at the Westport Club between 5.30pm and 8.30pm.
Drop in at any time to learn more about how this long term project is looking to redistribute traffic to ease congestion on our increasingly busy roads.
Chat to our staff, ask questions and hear directly from the project team.
There are additional drop-in sessions coming this Saturday and next Tuesday.
For more details, to share your views and complete our online project survey, visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road

HAVEYOURSAY.PMHC.NSW.GOV.AU
Port Macquarie Orbital Road
Get latest news and updates When will Council be engaging with the...

24 — 8 Comments 10 Shares

Like Comment Share

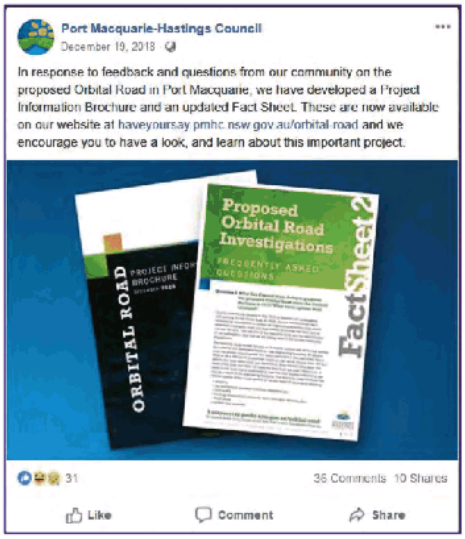
Port Macquarie-Hastings Council
February 18

The first Council Meeting for the year will kick off this Wednesday at 5.30pm in the Port Macquarie Council Chambers. Agenda topics include the Proposed Orbital Road Feasibility Study and the 2018-2019 Operational Plan Quarterly Report. We'd love to see you there.

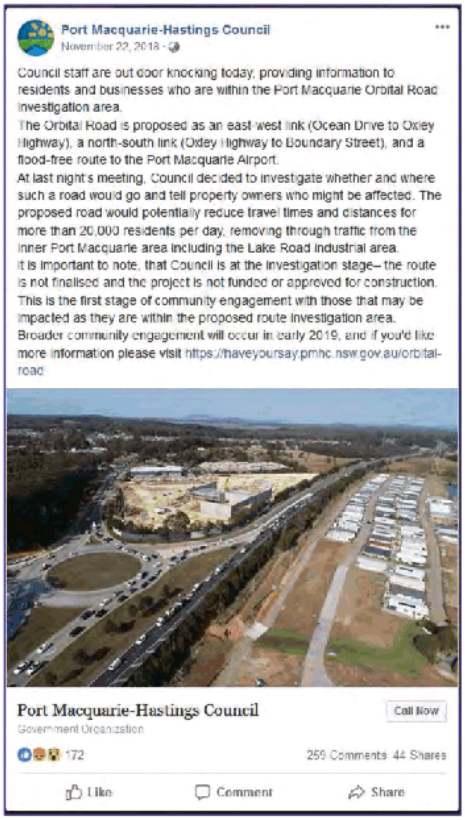
6 — 2 Comments 14 Shares

Like Comment Share

Port Macquarie-Hastings Council
February 12
Mayor Peta Pinson provides an update on the proposed Orbital Road and encourages our community to attend an upcoming drop-in information session and to complete our online survey at haveyoursay.pmhc.nsw.gov.au/orbital-road
Port Macquarie News Camden Haven Courier Wauchope Gazettee Triple M Mid North Coast Hit Mid North Coast FM 93.5/ Radio 531 2WAY FM 103.9 Port Macquarie Focus ABC Mid North Coast Prime7 News North Coast NBN Television WIN Television
58
42 Comments 21 Shares
Like
Comment
Share


Port Macquarie-Hastings Council
December 19, 2018
In response to feedback and questions from our community on the proposed Orbital Road in Port Macquarie, we have developed a Project Information Brochure and an updated Fact Sheet. These are now available on our website at haveyoursay.pmhc.nsw.gov.au/orbital-road and we encourage you to have a look, and learn about this important project.
ORBITAL ROAD
Proposed Orbital Road Investigations
FactSheet 2
31
36 Comments 10 Shares
Like
Comment
Share

Port Macquarie-Hastings Council
December 11, 2018
Mayor Peta Pinson provides an update on the proposed Orbital Road.
https://haveyoursay.pmhc.nsw.gov.au/orbital-road
1:49
You and 59 others
35 Comments 27 Shares
Like
Comment
Share


Port Macquarie-Hastings Council
November 22, 2018
Council staff are out door knocking today, providing information to residents and businesses who are within the Port Macquarie Orbital Road investigation area.
The Orbital Road is proposed as an east-west link (Ocean Drive to Oxley Highway), a north-south link (Oxley Highway to Boundary Street), and a flood-free route to the Port Macquarie Airport.
At last night's meeting, Council decided to investigate whether and where such a road would go and tell property owners who might be affected. The proposed road would potentially reduce travel times and distances for more than 20,000 residents per day, removing through traffic from the inner Port Macquarie area including the Lake Road industrial area.
It is important to note, that Council is at the investigation stage– the route is not finalised and the project is not funded or approved for construction.
This is the first stage of community engagement with those that may be impacted as they are within the proposed route investigation area.
Broader community engagement will occur in early 2019, and if you'd like more information please visit https://haveyoursay.pmhc.nsw.gov.au/orbital-road
Port Macquarie-Hastings Council
Government Organization
Call Now
172
259 Comments 44 Shares
Like
Comment
Share

PORT MACQUARIE-HASTINGS COUNCIL TWITTER PAGE

Table 10: PMHC Twitter posts relating to the proposed Orbital Road

Date	Description	Link
25 March 2019	This is your last week to share your views and provide feedback on the proposed Orbital Road for Port Macquarie. The current community engagement period is coming to an end on 30 March, so visit... c	https://twitter.com/pmhcouncil/status/1110099026500739072
12 March 2019	If you haven't had a chance to 'have your say' on the proposed Orbital Road for Port Macquarie, there's still time to learn more about the project and share your thoughts. We'll have pop-up stands on: Wednesday 13... https://www.facebook.com/pmhc2444/videos/158769145028609/ ...	https://twitter.com/pmhcouncil/status/1105362852183969792
6 March 2019	Acting Mayor Lisa Intemann provides an update on the proposed Orbital Road project and encourages our community to 'have your say' during the initial community engagement. For project information, updates and to complete our survey visit... haveyoursay.pmhc.nsw.gov.au/orbital-road	https://twitter.com/pmhcouncil/status/1103550899396456448
3 March 2019	The first of our community information drop-in sessions for the proposed Port Macquarie Orbital Road took place on Saturday, and if you couldn't make it, there are more opportunities coming up. Tomorrow (Tuesday) two drop-in...	https://twitter.com/pmhcouncil/status/1102466523195674624
25 February 2019	We're seeking community input on a proposed Orbital Road for Port Macquarie. This proposed road is an important long-term solution to reducing traffic congestion and addressing our region's future transport needs.	https://twitter.com/pmhcouncil/status/1100296977521274880
18 February 2019	The first Council Meeting for the year will kick off this Wednesday at 5.30pm in the Port Macquarie Council Chambers. Agenda topics include the Proposed Orbital Road Feasibility Study and the 2018-2019 Operational Plan Quarterly Report. We'd love to...	https://twitter.com/pmhcouncil/status/1097420477956530176
10 December 2018	Mayor Peta Pinson provides an update on the proposed Orbital Road. https://haveyoursay.pmhc.nsw.gov.au/orbital-road https://www.facebook.com/pmhc2444/videos/305279270089438/ ...	https://twitter.com/pmhcouncil/status/1072385525435285506

PMH Council @pmhcouncil · Mar 25

This is your last week to share your views and provide feedback on the proposed Orbital Road for Port Macquarie. The current community engagement period is coming to an end on 30 March, so visit...

Port Macquarie-Hastings Council

This is your last week to share your views and provide feedback on the proposed Orbital Road for Port Macquarie. The current community engagement period...

facebook.com

PMH Council @pmhcouncil · Mar 6

Acting Mayor Lisa Intemann provides an update on the proposed Orbital Road project, and encourages our community to 'have your say' during the initial community engagement. For project information, updates and to complete our survey visit...

Port Macquarie-Hastings Council

Acting Mayor Lisa Intemann provides an update on the proposed Orbital Road project, and encourages our community to 'have your say' during the initial community

facebook.com

PMH Council @pmhcouncil · Mar 12

If you haven't had a chance to 'have your say' on the proposed Orbital Road for Port Macquarie, there's still time to learn more about the project and share your thoughts. We'll have pop-up stands on:
Wednesday 13... facebook.com/pmhc2444/video...

PMH Council @pmhcouncil · Mar 3

The first of our community information drop-in sessions for the proposed Port Macquarie Orbital Road took place on Saturday, and if you couldn't make it, there are more opportunities coming up.
Tomorrow (Tuesday) two drop-in...

Port Macquarie Orbital Road

Get latest news and updates Council is engaging with the community on the proposed Orbital Road Council is committed to engaging with our community on this im...

haveyoursay.pmhc.nsw.gov.au

PMH Council @pmhcouncil · Feb 25

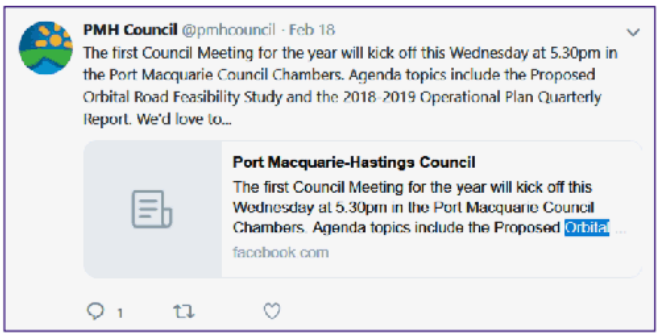
We're seeking community input on a proposed Orbital Road for Port Macquarie. This proposed road is an important long-term solution to reducing traffic congestion and addressing our region's future transport needs.

The proposed...

Port Macquarie Orbital Road

Get latest news and updates Council is engaging with the community on the proposed Orbital Road Council is committed to engaging with our community on this im...

haveyoursay.pmhc.nsw.gov.au


PMH Council @pmhcouncil · Feb 18
The first Council Meeting for the year will kick off this Wednesday at 5.30pm in the Port Macquarie Council Chambers. Agenda topics include the Proposed Orbital Road Feasibility Study and the 2018-2019 Operational Plan Quarterly Report. We'd love to...
Port Macquarie-Hastings Council
The first Council Meeting for the year will kick off this Wednesday at 5.30pm in the Port Macquarie Council Chambers. Agenda topics include the Proposed Orbital ...
facebook.com
1

PMH Council @pmhcouncil · 10 Dec 2018
Mayor Peta Pinson provides an update on the proposed Orbital Road.
haveyoursay.pmhc.nsw.gov.au/orbital-road facebook.com/pmhc2444/video...
Port Macquarie Orbital Road
Get latest news and updates Council is engaging with the community on the proposed Orbital Road Council is committed to engaging with our community on this im...
haveyoursay.pmhc.nsw.gov.au
1

REPORT

Appendix L

Submission feedback form

have your say

haveyoursay.pmhc.nsw.gov.au

PORT MACQUARIE-HASTINGS COUNCIL

Proposed Orbital Road Submission Form

Writing a submission is one way of sharing your views and opinions with Council. All submissions and feedback is considered before making a decision. Please note that submissions are public information and may be made public. If you wish to have information in your submission suppressed, you will need to indicate this on the form.

Contact details

Name:

Address:

Email:

Phone:

Comments

All feedback will be taken into consideration for the development of the Community Engagement Report.

I live within the investigation corridor: ☐ Yes ☐ No

My feedback relates to:

☐ Environment ☐ Heritage ☐ Social ☐ Property ☐ Planning process ☐ Other

Please hand the completed form to session staff or send to:

orbital@pmhc.nsw.gov.au

or mail to:

CREATING a vibrant future

have your say

PORT MACQUARIE-HASTINGS COUNCIL

Project mailing list

Would you like to be added to the project mailing list? Yes ☐ No ☐

The information you provide will be kept in accordance to Council's Privacy Policy.

Release of public information

Do you wish to have your submission suppressed? Yes ☐ No ☐

haveyoursay.pmhc.nsw.gov.au

CREATING a vibrant future

List of submitters for the proposed Orbital Road

Letters, Emails and Online Submissions

Submitters
Abie Wheatley
Adam Chaffey
Adam Van Zeeland
Aiveen M Bannan
Alan & Cheryl Cooper
Alan Bayliss
Alan Cooper
Alan Forrester
Alan Rosendahl
Alba Penninger
Alexei Watson
Alisha Bank
Alison Sherratt
Allister Laing
Amanda Pirie
Amanda Smith
Andreea Norman
Angela Bryant
Angela Van Zeeland
Ann Hall
Ann Quadroy
Anna Hazenveld
Anthony Lobban
Anthony Rook
Anthony Williams
Arthur & Frances Lingard
Austin McDonald
Barbara McAllister
Barend (Ben) Deegenaars
Barry Dobson
Barry George
Belinda Puntoriero
Ben Johnston
Ben Morton
Benjamin Lansdowne
Bernard Lindsay

Bob Brown
Bob Sharpham
Boris Bosnjak
Bree Moller
Brett R Bland
Brett Slight
Brian & Colleen Blomfield
Brian Crutcher
Brian J Cutler
Brin Clement
Brittany Rosewell
Bruce Gibbs
C2Hills Consultancy for St Columba Anglican School
Carol Blenkinsop
Caroline S Chantrill
Cass Tonkin
Catherine A Wagstaffe
Catherine Mardell
Celia M Kershaw
Charles and Margaret Harbon
Cherilyn Maric
Chris Gridley
Chris Mercer
Chris Mowle
Chris Rockstroh
Christine Guyler
Christopher A Brunsdon
Christopher A Faint
Christopher C Smith
Christopher W Varley
Colin A Crighton
Colin Bailey
Colleen Blomfield
David & Ruth King
David & Susan Hills
David Gumbleton
David J Wadwell
David Johnson
David King
David M Anderson
David Phillip Batterham

Dawn Lane
Debbie & Leon Purcell
Deborah Hale
Deborah S Marks
Denis Lane
Denise Watkinson
Dian Barnes
Diane Pead
Don Little
Donna Amber Kubel
Douglas J Emanuel
Dr Dennis M Knable
Ebony Lawson
Ed Coleman
Edward P Giblin
Elaine Kelly
Elizabeth (Liz) Davis
Elizabeth Macpherson
Elizabeth Patullo
Ellen Brown
Emma Ferrato
Emma Gaulton
Ernie Hillier
Evan Cunningham
Evelyn M Sandie
F.A.W.N.A. (NSW) Inc Meredith Ryan, President
Felicity Hill
Fiona De Carle
Frank Liddell
Fraser Lyne
Garry Krestensen
Gary Duncan
Gavin W Sharp
Gavin Wilcox
Geoff White
Geoffrey & Cheryl M Beard
Gordon Finlay
Graeme Roberts
Graeme V Branch
Graham & Anne Marks
Graham Bray

Graham J Bolton
Graham Keena
Grahame K Pellow
Grant Mitchell
Greg Skimmings
Greg Watson
Guy Hingston
Gwyn Power
Hans C von Chrismar
Hadyn G Oriti
Hastings Regional Shooting Complex
Heidi Flanagan Hunt
Helen Chandler
Helen F Small
Helen S Palmer
Hibbards Sports Club
Hopkins Consultants Pty Ltd - Michael Mowle
Ian Charles Thomson
Ian F Redfern
Ian & Maree Wall
Ida Taefu
Isabella Maizen
J Holloway
James Dakin
James Dunn
James Gordon
James May
James (Jim) Munro
James P Abood
Jan L Dennis
Jan Von Schoenberg
Jane Carlon
Jane Stevenson
Janene Rikmanis
Janet A Snow
Janet F Burke
Janice Gaul
Jason Berrigan
Jean Ballands
Jeff & Simone Arkinstall
Jeff Winnall

Jeffrey L Woodgate
Jennifer De Villiers
Jennifer Rowsell
Jenny E Webster
Jenny Hughes
Jeremiah S Redfern
Jesse Smith
Jo Taylor
Joan Wilson
Jodie Bland
Jodie Burns
Joel Power
John & Fay Cook
John & Florence Hurrell
John Attard
John G Mullaney
John N Houston
John H Hynson
John Jeayes
John McNeil
John Spencer
John Thogersen
John Urquhart
Juco Engineering Pty Ltd
Julian Lavarack
Julie A Ho
Julia A Hudd
Julie Chambers
K Fanning
Karen & Phil Burns
Karen Burns
Karen Munn
Karl G Scheuter
Karlie Krestensen
Kate Walsh
Katharine Bain
Katherine R Barber & Gail Knuckey & Helen Chandler & Patricia OHaway
Katherine Stanton Barber
Kathleen A Hayes
Kathy Wonderley on behalf of ACES Incorporated
Kay and Terry Browne

Kayla Finn
Kellie Johnson
Kelly Waters
Ken Barker
Kenneth J Monson
Kerry Adkins
Kevin A Piddick
Kevin Bramble & Jean Noon
Kevin Illig
Kevin L Hugo
Kim Reardon
King & Campbell Pty Ltd for R & J Ramm
King & Campbell On Behalf of J Newton Construction Pty Ltd, J & G Newton
King & Campbell for Baptist Community Services Pty Ltd
King & Campbell for Charles Sturt University
King & Campbell for N & P Mann, P & J Messrs, B & P Pye
Kyle Hornsey
Kyle Shepherd
Lake Innes Orbital Road Action Group
Land Dynamics Australia
Land Dynamics for Midwest Radio Network Pty Ltd
Laura Morton
Laurence & Helen Creaghe
Leanne Moon
Lee Mercer
Leslie H Mitchell
Liang Cheng
Lindsay Moller
Liza Howard
Lynette and Roy Caridi
Lynne & Russell May
Lynne May
Madison Kilgour
M & Y Chandler
Marc Stortenbeker
Marcia Hardy
Margaret (Meg) Teasdell
Margaret M Monk
Marie Burgess
Marilyn & Ian Joyce
Marita J Crighton

Mark G Lesmond
Mark Vandoros
Mark Vasziljevics
Martin Hazenveld
Matthew Cochrane
Max Heslehurst
Mel Stewart
Mereki White
Miah Redfern
Michael Bulmer
Michael Dietrich
Michael H De Groot
Michael Halpin
Michael Lyons
Mrs F.E. Hungerford
Ms Amanda Falle
Naomi Stephens, NSW Office Of Environment & Heritage
Narelle Bosnjak
Narelle Nicholls
Nathan Walsh
Neil and Dorothy Morgan
Nic Grobler
Nicholas Hirst
Nicole Fettell
Nicole L Redfern
Nicole Mitchell
Nikia Cox
Norman Reynolds
Nyomie Johnson
Nyree Kooloos
Patricia Butler
Patrick Mcentee
Paul B Taylor
Paul & Francoise Coffre
Paul Fuhrer
Paul G Dirago
Paul Mercer
Peter Bain
Peter Hudd
Peter Lamond
Peter Platt

Peter Stone
Peter Tompsett
Phil & Carla Batterham
Phil Lohan
Philip G Lloyd
Phillip Geary
Port Macquarie Landcare Group Inc
Port Macquarie Race Club
R G Holley
R.L. Kinny
Ray Evans
Ray Graham
Rebecca Van Loggerenberg
Renee Howison
Residents Action Network
Robert Donaldson
Robert English
Robert Gilligan
Robert J and P Potter
Robert Lyne
Robyn Fuller
Roslyn Mumford
Rowan Johnston
Russell & Susan Shelton
Russell May
Sam Shead
Samantha Buchanan
Samantha Gibbs
Sanctuary springs / Greenmeadows Action Group
Sandra & Robert Gibbons
Sandra Hindman
Sandra J Bigeni
Save Fernhill Road Community Action Group
Scott Taylor
Sharon Hartmann
Sharon McCudden
Sharon Salter
Shaun Grace
Sheila & Graham Bray
Sheila Mooney
Simon Thresher

Simone Jackson
St Columba Anglican School
Stacey Clayworth
Stephen J Kershaw
Stephen Power
Stephen Watt
Steve Lacey
Steven & Maree Wilson
Steven J Watkinson
Sue Proust For Hastings Birdwatchers Inc
Sue Rowan
Susan J Lockrey
Suzanne & Siegfried Stenzel
Suzanne Bellamy
Taylor Madigan
Tegan Byram
Telecia Williams
Thomas & Helen Elliott
Thomas Richard Gaines
Todd Beness
Tom Barnes
Tony & Kathy Mallia
Tony Jones
Tony Kundicevic
Tori Hollis
Total Environment Centre
Tracy Holmes
Travers Powell
Trevor C Tyas
Trevor W Ford
Tyson Rance
Vicki G Boulton
Vicki Wagg-Muir
Vince Hale
Wendy O'Brien
William & Evol Sharp
William Nankervis
Yvonne Fosse
Yvonne M Motbey
Yvonne Toomey

NOTE:

- Some names have been suppressed at the request of the submitters
- Some submitters have lodged multiple submissions

FactSheet

PORT MACQUARIE-HASTINGS COUNCIL

Proposed Orbital Road - Strategic Business Case

pmhc.nsw.gov.au

If Council agrees to proceed with a Strategic Business Case, does this mean the Orbital Road is going ahead?

No, there has been no Council decision to proceed with the design or construction of the proposed Orbital Road. A decision to complete a Strategic Business Case simply means further investigation and analysis will occur to help provide a better understanding of the costs and benefits associated with various options to address our traffic problem.

What is involved in the 'Strategic Business Case'?

The Strategic Business Case will include a review of route options and how these compare with, or add to possible improvements to the existing road network, such as planned upgrades to Lake Road, Ocean Drive, or other Council-managed roads, and the Oxley Highway, as a State-managed road. At the conclusion of the Strategic Business Case, the intent is that Council would have a more detailed appreciation of the preferred option(s) to alleviate traffic congestion via better dispersal of traffic across the network. This may include short, medium and long-term options to improve the existing Port Macquarie road network (both widening roads and intersection upgrades) and/or provide new links.

The work undertaken as part of a Strategic Business Case would aim to:

- Reconfirm the need for Council, to address traffic congestion and the need to improve our transport network to respond to and cater for growth;
- Consider the cost benefit analysis of a full range of options and based on that, reduce the number of options to a preferred option or shortlist; and
- Provide decision-makers (Councillors) with the information they need to determine whether or not to proceed to future stages of the project.

How does the Strategic Business Case consider 'options' to address the traffic congestion problem?

The Strategic Business Case would include further detailed analysis of the existing road network. This would build on the work completed as part of Council's Area Wide Traffic Study and would see the development of a Port Macquarie-specific traffic model.

This analysis will enable deficiencies in the existing road network to be further understood and various improvement options to be tested in terms of their cost and benefit. Key considerations and objectives when reviewing the options would include:

- Maximising traffic benefits by minimising travel times and delays;
- Minimising construction cost;
- Maximising road safety benefits;
- Minimising environmental impacts;
- Minimising social impacts;
- Maximising future regional economic development opportunities; and
- Maximising improvements to social connectivity.

FactSheet

PORT MACQUARIE-HASTINGS COUNCIL

pmhc.nsw.gov.au

What about assessing the environmental and social impact of each option?

As noted above, environmental and social impacts will be considered as part of the analysis undertaken during the Strategic Business Case development. It should be noted, however, that at this project stage, this work would not be exhaustive and more detailed environment and social impact investigations and assessments would need to be conducted when a preferred option(s) is confirmed.

Who would complete the Strategic Business Case?

Council would engage a specialist consultant to complete the Strategic Business Case in consultation with Councillors, Council staff and relevant stakeholders such as Transport for NSW and Department of Planning and Industry. This process can be a lengthy one and it is anticipated that it would take up to 24 months to complete. It is acknowledged that such a timeline will not give any certainty to residents within the current investigation area of a preferred route for some time. However, it is critical that Council undertake this detailed work in order to make the most appropriate decision for the future.

How long would it take?

The exact time taken will depend on the methodology agreed with the consultant selected to undertake this work, however we anticipate the work could take up to 24 months.

How would the Strategic Business Case be funded?

Council will consider funding for the Strategic Business Case as part of Council's 2019/2020 Operational Plan, with Council likely to seek grant funding from the NSW Government as a co-contribution to this work.

If Council proceeds to this stage, what would happen when the Strategic Business Case is complete?

On completion, the Strategic Business Case would be reported to a formal meeting of Council for consideration on whether to proceed to the next stage of the Project and/or to determine a preferred option(s) to address the traffic congestion problem.

How would the community know what is going on during the Strategic Business Case stage of the project?

It is proposed that Council develop a communications and engagement plan to detail how it will provide transparent and timely information to the community on progress on the Strategic Business Case.

For more information visit
www.haveyoursay.pmhc.nsw.gov.au/orbital-road
or contact Council on (02) 6581 8111

Land Acquisition

Lake & Blackbutt Roads, Port Macquarie

Printed on 29/05/2019

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PORT MACQUARIE HASTINGS

DISCLAIMER

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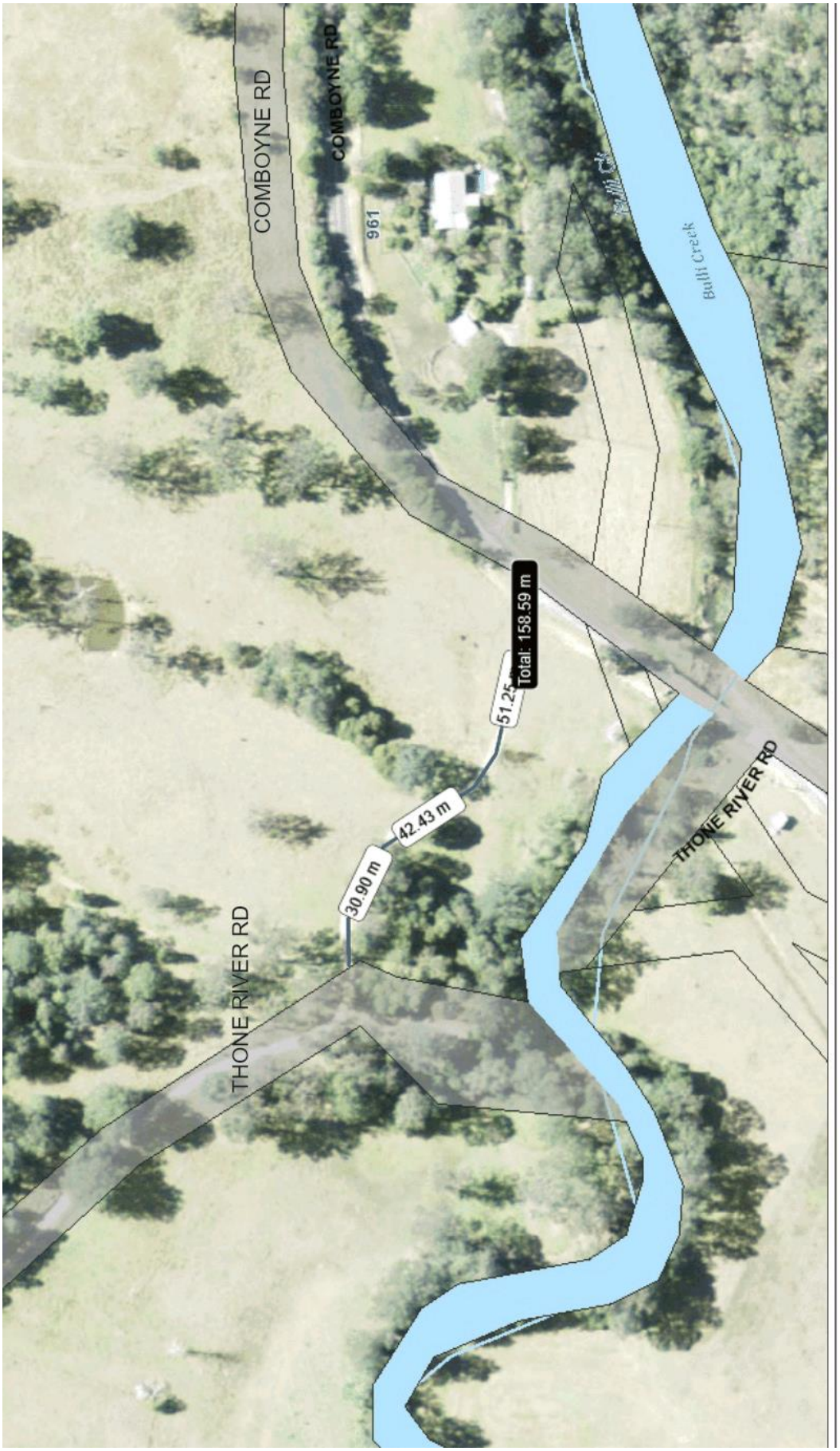

Extent of Public Road Network Shaded Grey

Thone River Road

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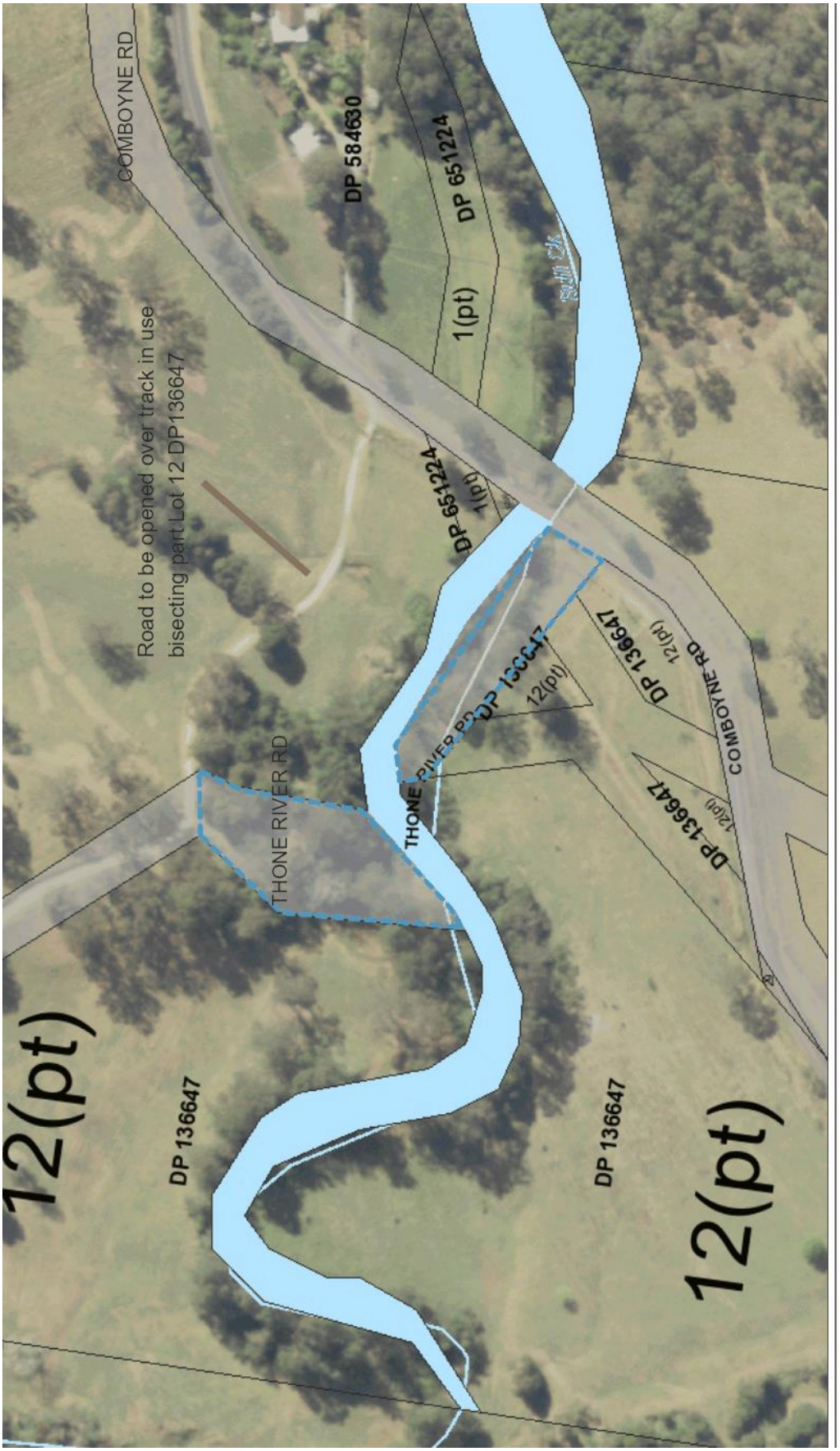

Road Proposed to be Closed Outlined Blue Dashes

Given as compensation for road to be opened

Printed on 09/01/2019

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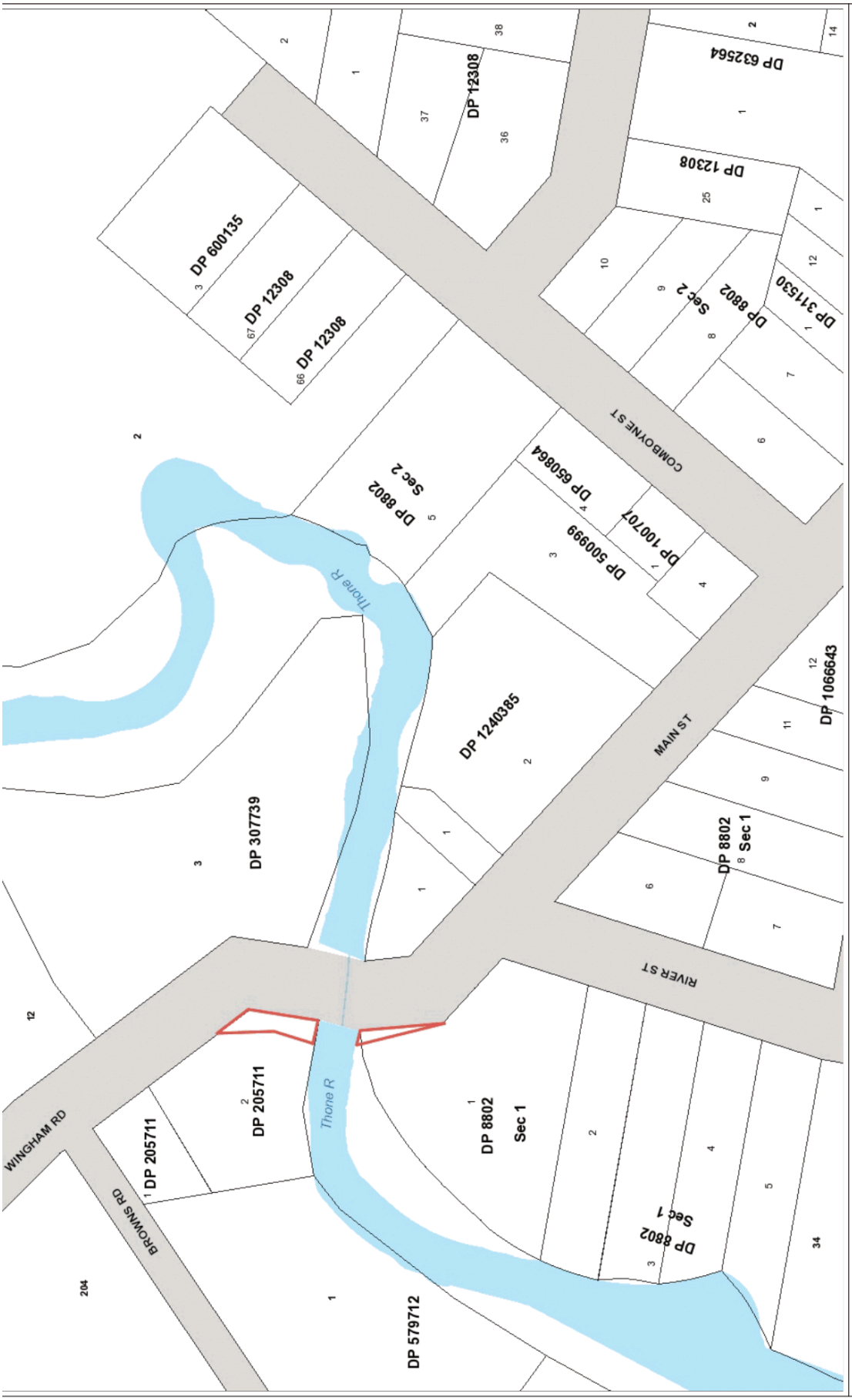

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Land Acquisitions

Main Street & Wingham Roads

1:1,000 @A3

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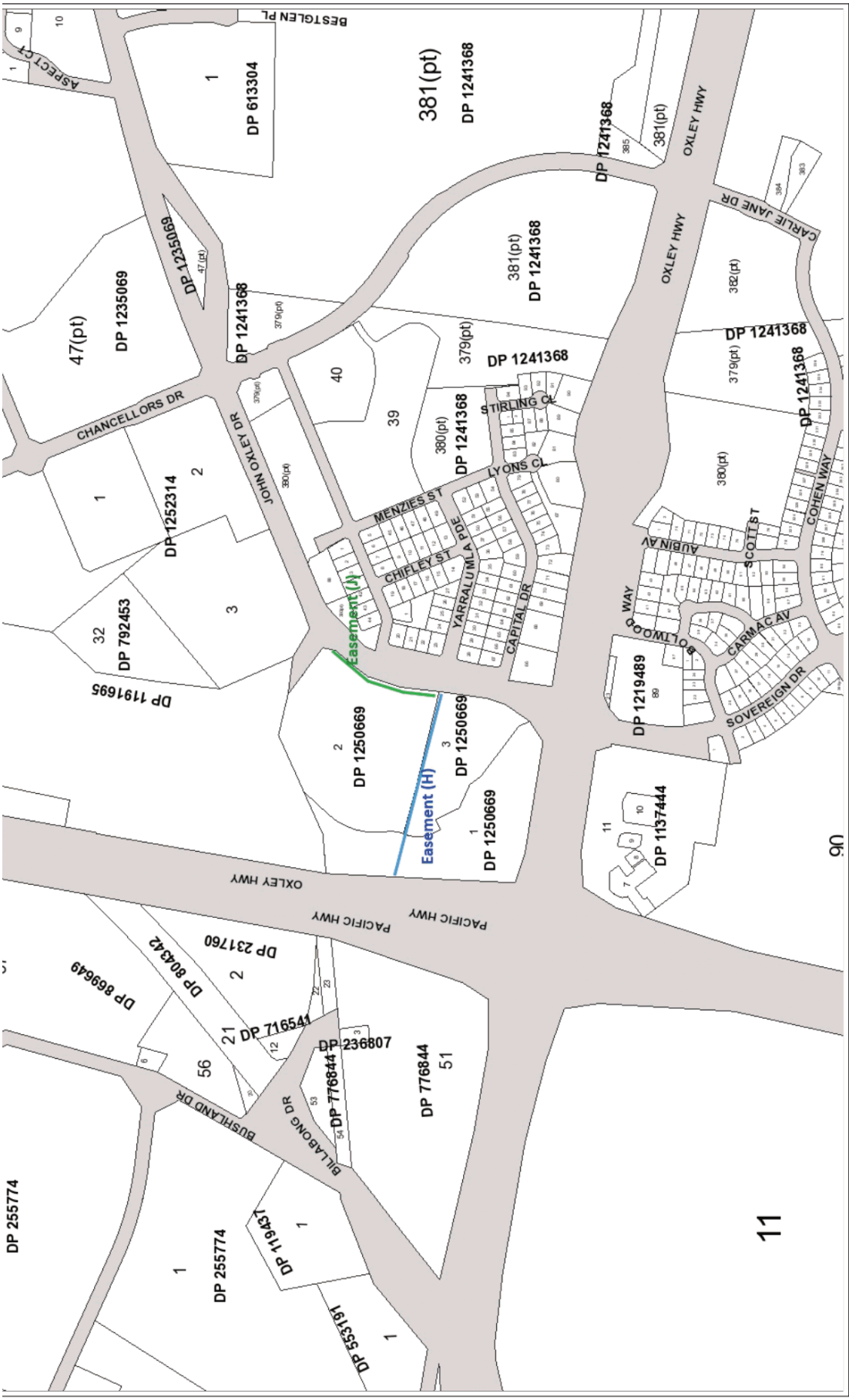
PORT MACQUARIE HASTINGS COUNCIL



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Location of Easements to be Acquired

DP1250669

1:5,000 @A3

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PORT MACQUARIE HASTINGS COUNCIL

Attachment 1: Planning Proposal Request (PP2011.9.3) Chronology

27 April 2011	Letter from Luke and Company requesting consideration of a rezoning proposal for Part Lot 341 DP1135094, The Ruins Way, Port Macquarie.
27 July 2011:	Council resolution to include the subject request in its annual Strategic Land Use Planning Program for 2011/12 subject to consistency with Regional and Local planning strategies, and conservation outcomes in The Ruins Way area having regard to what was originally planned, the need for a Koala Plan of Management, the relationship to the neighbouring National Park Nature Reserve and the potential loss of open space associated with the then Innes Peninsular residential subdivision.
4 August 2011	Council notification letter to Luke and Company advising outcome of Council meeting.
31 August 2011	Council letter to Luke and Company advising closing of agenda for pre-lodgement meetings scheduled for 13 September 2011, with no submission received from Luke and Company.
9 September 2011	Pre-lodgement submission from Luke and company.
29 September 2011:	Pre-lodgement discussions held which highlighted Council staff concerns, including the need for additional lots in light of current Development approvals for the area, the practicality of maintaining current and viable habitat connections and linkages across the areas, the need for a Koala Plan of Management for the whole of the Charley/Vilro holdings, and the Office of Environment and Heritage Offset requirements on a 'like for like' basis. Particular concern was expressed by Council ecology staff in relation to proposed development of the existing east to west habitat corridor resulting in significant vegetation loss, against requirements for offsets buffers, edge effects, and retention of a viable habitat corridor.
20 October 2011	Council response letter to Luke and Company detailing the requirements for progressing a LEP amendment for the Ruins Way area, including the need for certainty regarding strategic merit, local conservation outcomes, and providing advice that loss of function of the northern habitat corridor on the Innes Peninsular is unlikely to be supported by Council.
2 December 2011	Draft Ecological Assessment submitted by Luke and Company for Council staff comment prior to finalisation.
6 December 2011	Staff email to Luke and Company advising outcome of preliminary review of Draft Ecological Assessment (Above) and requesting further information in relation to the development footprint used by the ecologist to determine the ecological assessment; confirmation that the footprint encompasses all the requirements need to comply with Planning for Bushfire Protection 2006 Guidelines; Map of Core Koala Habitat; survey

	data; a comprehensive Koala Plan of Management for the subject development areas; and a revised submission package.
21 December 2011	Email response from proponent advising the Ecological Assessment assessed the ecological values of the land, did not assume an urban footprint, and confirming a further assessment once a development footprint has been determined; that the subject land meets the criteria for core koala habitat under the provisions of SEPP 44, survey data consistent with Deposited Plans for Blue Wren Close; and confirming further submission of a KPOM by 21 December 2011.
9 February 2012	Email from proponent advising that they continue to work on the proposal and seeking update on status. Council response indicating forthcoming response subject to Natural Resources review.
15 March 2012	Meeting with the proponent to discuss environmental concerns, including an optimal 100m wide viable northern east-west habitat corridor.
28 March 2012	Council considered a report on Site Specific Grouped Amendments and resolved to *"Defer considerations relating to…the Ruins Way* (rezoning request), *pending submission of further detailed environmental investigations."*
April 2012	Preliminary Council advice to proponent suggesting the need for 100m viable east-west habitat corridor and subsequent phone discussions with proponent suggesting discussions with Offie of Environment and Heritage (OEH).
11 May 2012	Council letter to Luke and Company advising outcome of review of Draft Assessment, and the need for additional information, including a Planning Report, Koala Plan of Management, revised concept layouts, and final Ecological, Cultural, hydrological and Bushfire Assessments taking into account all implementation and conditional requirements associated with existing approvals for the Charley/Vilro land. Note: Subsequent exchanges and meetings between staff and the proponent occurred throughout the remainder of 2011 and 2012 regarding staff concerns as raised in Council's letter of 11 May 2012.
8 August 2012	Luke and Company letter to the Office of Environment and Heritage requesting comment in relation to wildlife corridor values associated with a proposed rezoning of part Lot 341 DP1135094.
14 September 2012	OEH response letter to Luke and Company confirming "*that the value of the vegetation relating to the current proposal therefore rests mainly on its intrinsic value for threatened species, especially for the more sedentary Koala and Squirrel*

	Glider. OEH notes that Council studies and the Darkheart Constraints Assessment (2011) have identified potential Koala core habitat on site. OEH therefore recommends that the provisions of the Koala Plan of Management already prepared for the area apply in this instance. Consistent with any statutory bushfire requirements, OEH expects that existing habitat trees would be retained wherever possible in accordance with Part 3 (Objectives 10-13) of Councils Development Control Plan (DCP). *Should the Planning Proposal proceed, OEH suggests, consistent with the DCP objectives, that careful attention be given to the location of building envelopes on the nominated lots to avoid habitat trees and that the large lot proposed on the land east of Ruins Way be retained as public parkland and rehabilitated".*
26 September 2012	Meeting between the proponent (Luke and Company) and senior Development and Environment staff.
27 September 2012	Proponent email advice to senior Council staff confirming their concern that requested retention of existing habitat linkages will make the proposal unviable, and indicating other unresolved issues will be subject to resolution of corridor issue. Luke and Co investigating concept design.
June/July 2013	South Blackwood (Lindfield) area (Vilro) included around this time in the adjoining urban release project for South Linfield (PP2002 - 6.1). Confirmation from OEH regarding boundary alignment issues in the South Blackwood (Lindfield) area; confirming northern Golf Fairway now removed from National Park Estate - Lake Innes Nature Reserve.
13 February 2014	Meeting between Council staff and Love Project Management to discuss planning proposal request.
21 February 2014	Council letter to Love Project Management advising outcome of review of information submitted with proposal, and confirming that consistent with Council's resolution to consider the request, there may be some development potential within the areas in question subject to determining in greater detail how the proposed conservation measures associated with the proposal will be achieved. The letter also noted the significant level of vegetation removal proposed, including Core Koala Habitat and hollow bearing trees; absence of Koala Plan of Management, general nature of the submitted Bushfire Assessment which is incompatible with habitat conservation measures; inadequate detail around proposed compensatory measures, security of existing and longer term habitat linkages, the need for revised concept layouts taking into account required habitat connectivity, buffers and asset protection measures, including perimeter roads.

13 March 2014	South Linfield Meeting with landowners noted "The issue of including East and West Ruins Way rezoning areas within this KPOM (South Linfield) was briefly discussed. As there was concern about delaying any progression of the South Lindfield area, Council considered it may be appropriate to initially consider this land with an opt out provision which would allow the land to be removed from the grouping should there be delays in finalising the KPOM for these areas".
22 May 2014	Landowner letter to Council advising intention to proceed with preparation of a Koala Plan of Management for The Ruins Way and South Linfield parts of the Charley/Vilro properties at Innes Peninsular (South Linfield planning proposal and the subject request); *'we have decided to proceed with our original intention of preparing our own Koala Plan of Management for the East and West Ruins Way blocks and the South Lindfield area.'*
17 June 2014	Council letter of acknowledgement to landowner/s regarding above advice.
20 August 2014	Report to Council regarding Council's Strategic Land Use Planning Program and the status of Site Specific Planning Proposal Requests, noting in respect of the subject request that "investigation of environmental constraints by the Proponent was ongoing".
1 December 2016	Council letter to proponent seeking written advice by 23 December 2016 as to whether it is the client's intention to proceed with the Planning Proposal request together with a reasonable timeframe for submission of satisfactory information, and noting Council's intention to discontinue if.
23 December 2016	Proponent response confirming that they intend to proceed as follows: *"Please consider this written confirmation that we intend to proceed with the abovementioned rezoning matter. A consultant has been engaged to undertake the Koala Plan of Management as requested by Council. This work is to proceed in the New Year with much of the field work already completed. It is envisaged that the Koala Plan of Management will be completed by June 2017 and provided to Council."*
15 March 2017	Council update report on Site Specific LEP Amendments (Item 12.04), noting in relation to the subject request its long standing nature, the need for necessary information including a Koala Plan of Management, ongoing requests from staff for required information, and recommending to discontinue the matter if the necessary information has not been received by **end June 2017**. Council update report (Item 13.04) on South Linfield Urban Release Area Planning Proposal. Resolution to omit the Vilro land at South Blackwood (Lindfield).

30 June 2017.	**1st Extension End Date** for submission of necessary information. **Passed without receipt of information.**
5 July 2017	Council email to the proponent seeking urgent advice in relation to their planning proposal request and projected timeframe for submission of necessary information.
24 July 2017	Proponent response advising that they have been working to update the studies provided in 2013 and a Koala Plan of Management.
28 July 2017	Proponent advice estimating consultant reports to be finalised **within 7 Weeks**.
9 August 2017	Ordinary Council Agenda Notification to applicant advising item for consideration and Council Meeting to be held on 16 August 2017.
16 August 2017	Council update report on the status of site specific LEP amendment requests. Proponent opposition to the report and recommendation to discontinue. Council resolution to…" *continue to assess the Ruins Way Planning Proposal and notify the Proponent that the proposal will be discontinued if the necessary information has not been submitted for Council to support a planning proposal by **16 February 2018**".*
22 August 2017	Notification of Council Resolution.
2 February 2018	Council letter to proponent reminding of status of the request, Council's resolution of 16 August 2017, and impending deadline for submission of satisfactory information.
16 February 2018	**2nd Extension End Date** for submission of information.
16 February 2018	Emailed Information Package received from Love Project Management 16/2/2018. Included in the package were 2013 Bushfire Hazard Assessment, revised 2011 Ecological survey and constraints assessment, 2017 Koala Plan of Management, Planning Proposal Application, and Cover letter advising that the documentation is compliant with the most up-to-date environmental legislation. Missing from the package were several key requirements requested by Council including Aboriginal and Cultural Heritage Assessment, current Bushfire Hazard Assessment and proper analysis of Stormwater and Hydrology.
14 March 2018	Notification of items for Council Meeting to be held 21 March 2018 - Update on the status of Site Specific Planning Proposal requests.

21 March 2018	Council Meeting. Resolution to receive further update report, noting submission and assessment of February information package.
29 April 2018	Submission of Aboriginal Cultural Heritage Assessment.
2 August 2018	Council letter to proponent summarising staff concerns
31 August 2018	Council letter to proponent providing further detailed advice around ongoing staff concerns and providing additional time to **28 September 2018** for submission of satisfactory information.
12 September 2018	Proponent letter to Council requesting 'round table' meeting to discuss staff concerns.
13 September 2018	Notification of items for Council Meeting to be held 19 September 2018 - Update on the status of Site Specific Planning Proposal requests.
19 September 2018	Ordinary Council Meeting. Item 12.8 - Site Specific LEP Amendments. Status noted as requiring assessment report to Council for a decision on whether or not to support a Planning Proposal proceeding to Gateway.
26 September 2018	Notification of Council Resolution.
28 September 2018	**3rd Extension End Date** for submission of information, consistent with Council letter dated 31 August 2018.
17 October 2018	Meeting between proponent, environmental consultant and relevant Council staff to discuss unresolved environmental concerns. Council Environmental Staff emphasise that from an environmental perspective, development of The Ruins Way East and West is not possible without assuming near total vegetation loss. Agreement reached to meet on site and one-month extension of time from the day of the meeting to provide a satisfactory response to Council letter dated 31 August 2018.
24 October 2018	Site visit. Proponent, proponent ecologist and relevant Council staff in attendance.
16 November 2018	Proponent letter requesting extended timeframe for submission of information, noting the revisions will require not only changes to the development proposed, but subsequent reviews and updates to the environmental and bushfire hazard assessments based on the changes. Therefore, there is a significant amount of work to be undertaken to address Council's matters.
17 November 2018	**4th Extension End Date** for proponent for response to Council letter dated 31 August 2018.
26 November 2018	Council email emphasising Council's commitment to reporting an assessment and agreeing to **final end date of 31 January 2019.**

31 January 2019	**5th Extension End Date** for submission of necessary information.
31 January 2019	**Proponent emailed request for additional time**, citing ecologist leave commitments and holiday break**.**
1 February 2019	Correspondence from the proponent advising that their review of staff concerns detailed in July/august letters has not been completed, and requesting additional time to respond.
12 February 2019	Council letter to proponent noting their advice, and confirming that staff have not been able to complete a full and proper assessment as the proposal has been pending their client's response. The request for additional time for a response was declined and an assessment report anticipated for the Ordinary Meeting of Council to be held on 20 March 2019.
25 February 2019	**Meeting** - at request of the proponent and Point Church representatives, seeking discussion on way forward for The Ruins Way Est precinct. Points of discussion included: • Council Staff concerns regarding the appropriateness of The Ruins Way – East site for development, considering the impact of impending bushfire legislation and extent of vegetation modification necessary to achieve compliance. (Noting that a church is defined as a '*place of worship'* - which is a '*Special Fire Protection Purpose (SFPP) Development*' for the purpose of assessing compliance with relevant bushfire legislation. • Request for further time to respond.
1 March 2019	Proponent email to senior Council staff, attaching responses prepared by JB Enviro, amended concept plan for West Ruins Way and a letter from the proponent responding to Council's letter of 31 August 2018. Key points are: • Omission of The Ruins Way – East site. • Modified concept for The Ruins Way West to retain additional vegetation.
23 March 2019	**Meeting request** - The Point Church, seeking discussion with senior Council staff regarding a modified conceptual layout for The Ruins Way East site to minimise vegetation removal.
26 March 2019	**Meeting -** The Point Church meet independently with senior Council staff to discuss an adjusted concept layout and revised Bushfire advice for the East Ruins site, based on an inner fire protection area of 40m.
15 May 2019	**Meeting -** at request of the proponent, seeking discussion around Natural Resource Management staff comments, and Ordinary Council reporting timeframe. Key Points of discussion included:

	• Discussion regarding the status of the request, Council's position for reporting, and target date, • Confirmation of Natural Resources Management position - unacceptable impact, • Mitigation measures - impractical and inefficient, • Bushfire compliance means 100% habitat modification, • Coastal SEPP - not adequately addressed. • Management of Charley/Vilro un-subdivided residue land.
20 May 2019	**Meeting -** at request of the Point Church, to facilitate discussion between the proponent's Bushfire consultant and relevant Council Officer/s. Key points of discussion included: • Staff confirm the implications of achieving compliance with NSW RFS Bushfire Protection requirements, and the cumulative totality of ecological impact on and important, strategic habitat corridor. • Staff confirm the site constraints and legislative compliance. • Staff advice regarding permissibility of "*community facility*' under existing Zone RU1 Primary Production. • Staff explanation of rezoning processes.

DAVID PENSINI
Building Certification and
Environmental Services

BUSHFIRE HAZARD ASSESSMENT

PROPOSED REZONING

PART OF LOT 245 DP 1227796 &
PART OF LOT 299 DP 1234443,
THE RUINS WAY,
PORT MACQUARIE

CLIENT: CHARLEY BROTHERS

MAY 2018

3 Blair Street, Port Macquarie NSW 2444 – PO Box 5581, Port Macquarie NSW 2444 – Phone 0434 166 150 – Email kdpensini@bigpond.com
ABN 55 183 050 741

This report has been prepared by David Pensini – Building Certification and Environmental Services with all reasonable skill, care and diligence for Charley Brothers.

The information contained in this report has been gathered from discussions with representatives of Charley Brothers, a review of the plans provided on behalf of Charley Brothers and experience.

No inspection or assessment has been undertaken on other aspects of the proposed development outside the scope of this report.

This report does not imply, nor should it be implied, that the proposed development will comply fully with relevant legislation.

The report shall not be construed as relieving any other party of their responsibilities or obligations.

David Pensini – Building Certification and Environmental Services disclaims any responsibility Charley Brothers and others in respect of any matters outside the scope of this report.

The report is confidential, and the writer accepts no responsibility of whatsoever nature, to third parties who use this report, or part thereof is made known. Any such party relies on this report at their own risk.

For and on behalf of David Pensini – Building Certification and Environmental Services.

Prepared by: David Pensini

Signed:

Dated: 5th May 2018

Version	Date	Information relating to report			
		Reason for issue			
1.0	20th April 2018		Draft		
2.0	5th May 2018		Issued to Client		
			Prepared by	**Verified by**	**Approved by**
		Name	David Pensini		David Pensini
		Signature			

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1.0 INTRODUCTION

The land which comprises the subject site is currently known as Part of Lot 245 DP 1227796 and Part of Lot 299 DP 1234443, The Ruins Way, Port Macquarie.

It is proposed to rezone two (2) separate areas, referred to as The West Ruins Way and West Lindfield Areas, currently zoned RU1 (Primary Production) to R1 (General Residential). The East Ruins Way Area, (also currently zoned RU1 (Primary Production)), is also proposed to be rezoned so as to allow for a community centre/church related use.

This report is based on site assessments carried out on 10th October and 3rd November 2013 and 4th May 2018.

As the proposed rezoning of the subject land seeks to support their future use for residential and Special Fire Protection Purpose (SFPP) developments, any future development of the subject areas of land for these purposes would be integrated development and would be subject to the issuing of a Bushfire Safety Authority under Section 100B of the *Rural Fires Act 1997*.

The purpose of this report is therefore to identify the bushfire hazard management planning principles and requirements which will be applicable to the future development of the subject land for residential and SFPP development purposes.

This report therefore forms part of an overall planning process which will determine the suitability of the subject land for residential and SFPP development and identify the bushfire related development principles and planning controls which will be applicable to any future development of the land for residential and SFPP purposes.

NOTE

The report has been prepared with all reasonable skill, care and diligence.

The information contained in this report has been gathered from field survey, experience and has been completed in consideration of the following legislation.

1. Rural Fires Act 1997.
2. Environmental Planning and Assessment Act 1979.
3. Building Code of Australia.
4. Council Local Environment Plans and Development Control Plans where applicable.
5. NSW Rural Fire Services, Planning for Bushfire Protection, 2006.
6. AS 3959 - 2009 Construction of Buildings in Bushfire Prone Areas.

The report recognizes the fact that no property and lives can be guaranteed to survive a bushfire attack. The report examines ways the risk of bushfire attack can be reduced where the site falls within the scope of the legislation.

The report is confidential, and the writer accepts no responsibility of whatsoever nature, to third parties who use this report or part thereof is made known. Any such party relies on this report at their own risk.

This report has been based upon the vegetation characteristics observed at the time of site inspection. No responsibility is taken where the vegetation characteristics of the subject site or surrounding areas is changed or modified beyond that which is presented within this report.

1.1 Objectives

The objectives of this report are to:

- Ensure that the proposed rezoning of the land has measures sufficient to minimize the impact of bushfires; and

- Ensure that any development of the land has measures sufficient to minimize the impact of bushfires; and
- Reduce the risk to property and the community from bushfire.

1.2 Legislative Framework

On 1st August 2002 the Environmental Planning and Assessment Act 1979 and the Rural Fires Act 1997 were both amended to enhance bush fire protection through the development assessment process.

In broad terms, the planning considerations provide two main steps. These involve:

(a) Strategic Planning through;

• the mapping of bush fire prone;
• determining suitable bush fire requirements during the preparation of a Local Environmental Plan and/or Development Control Plan; and
• the identification of the extent to which land is bushfire prone.

(b) Development assessment through;

• obtaining a bush fire safety authority for residential or rural-residential subdivision and special fire protection purpose developments in bushfire prone areas from the Rural Fire Service (RFS);

• seeking advice from the RFS in relation to infill and other developments in bushfire prone areas that cannot comply with the requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006; and

• the application of additional requirements of the Building Code of Australia (BCA) in relation to construction standards for Class 1, 2, 3, 4 and some Class 9 buildings in bushfire prone areas.

It is noted that this report focuses upon the strategic planning processes associated with the proposed rezoning of the subject site.

1.2.1 Strategic Planning Considerations

Local Environmental Plans, (LEP's), and Development Control Plans, (DCP's), are the best way of strategically achieving bush fire protection objectives. Inclusion of bush fire planning provisions in an LEP:

• gives weight to bush fire management planning principles, ensuring they are considered at subdivision and construction stages;

• can allow for sufficient space to be incorporated into land use zones for setbacks and adequate access for fire fighting and evacuation; and

• controls inappropriate land uses in Bushfire Prone Areas.

LEP amendments that affect Bushfire Prone Areas are required to address the planning principles of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006. Where appropriate the proposed land uses must be considered with respect to bush fire protection, (including appropriate setbacks).

If a proposed amendment to land use zoning or land use affects a designated Bushfire Prone Area, then the Section 117(2) Direction No 19 must be applied, (Section 117 of the Environmental Planning and Assessment Act, 1979) provides for the Minister for Planning to

direct a council, in relation to the preparation of a draft LEP, to apply the planning principles specified in that direction. The Section 117 Direction No 19 requires councils to:

• *consult with the Commissioner of the Rural Fire Service (RFS) under section 62 of the Environmental Planning and Assessment Act, 1979, and to take into account any comments by the Commissioner; and*

• *have regard to the relevant planning principles of NSW Rural Fire Service,* ***Planning for Bushfire Protection****, 2006.*

If a council proceeds with a draft LEP that does not comply with the provisions in the Section 117 Direction, the council must obtain written advice from the Commissioner of the Rural Fire Service to the effect that the RFS does not object to that non-compliance.

The requirement to review LEP's in accordance with the Standard LEP is an opportunity to consider appropriate uses on Bush Fire Prone Land as well as exempt and complying development provisions.

1.2.2 Objectives for Residential Subdivision Developments

The specific objectives for residential subdivision developments as provided for by NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 are to;

- Minimise perimeters of the subdivision exposed to the bush fire hazard. Hourglass shapes, which maximise perimeters and create bottlenecks, should be avoided.
- Minimise bushland corridors that permit the passage of bush fire.
- Provide for the siting of future dwellings away from ridge-tops and steep slopes - particularly up-slopes, within saddles and narrow ridge crests.
- Ensure that separation distances (APZ) between a bush fire hazard and future dwellings enable conformity with the deemed- to-satisfy requirements of the BCA. In a staged development, the APZ may be absorbed by future stages.
- Provide and locate, where the scale of development permits, open space and public recreation areas as accessible public refuge areas or buffers (APZs).
- Ensure the ongoing maintenance of asset protection zones.
- Provide clear and ready access from all properties to the public road system for residents and emergency services.
- Ensure the provision of and adequate supply of water and other services to facilitate effective fire fighting.

Any future residential development of the areas of land which are the subject of this report must meet the above objectives together with the relevant acceptable solutions/standards which are applicable to any future residential subdivision development.

1.2.3 Objectives for Special Fire Protection Purpose Developments

In accordance with NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006, Special Fire Protection Purpose (SFPP) developments require an appropriate combination of bushfire protection measures and compliance with the intent and performance criteria of each measure within Section 4.2.7.

Proposals involving SFPP must therefore demonstrate that compliance with the relevant requirements of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 is

possible for the proposed development. Key aspects of compliance with NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 include;

- Suitable and appropriate APZ's can be provided to the subject development.
- Buildings can be constructed in accordance with the requirements of AS 3959-2009.
- An adequate supply of water is available for firefighting purposes and services such as electricity will be available.
- Adequate and suitable access and egress is available to and from the subject site.
- Emergency and evacuation planning.

This report therefore examines the relevant provisions of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 to determine the bushfire protection measures required to be implemented in conjunction with the proposed rezoning of land.

1.3 Location and Site Description

The subject site currently comprises two (2) separate allotments of land which are known as Part of Lot 245 DP 1227796 and Part of Lot 299 DP 1234443, The Ruins Way, Port Macquarie. The subject site is situated approximately 5.5km to the southwest of the Port Macquarie CBD.

Being located within the Lake Innes urban growth area, which is located on the south western fringes of the urbanized area of Port Macquarie, the land within this area has and will continue to experience significant urban expansion with a transitional land use setting and context.

The character of the locality is that of an urban fringe area with residential development expanding into the undeveloped but residentially zoned parcels of land that exist in the southern portion of the Lake Innes Residential Estate, refer to **Figure 1** below;

Figure 1 - Site Location

Whilst being under two separate land ownership titles, refer to **Appendix 1**, it is noted that the subject site comprises three (3) separate areas of land within the Lake Innes Residential Estate.

Therefore, for the purposes of this report the separate areas of land which comprise the subject site are known as;

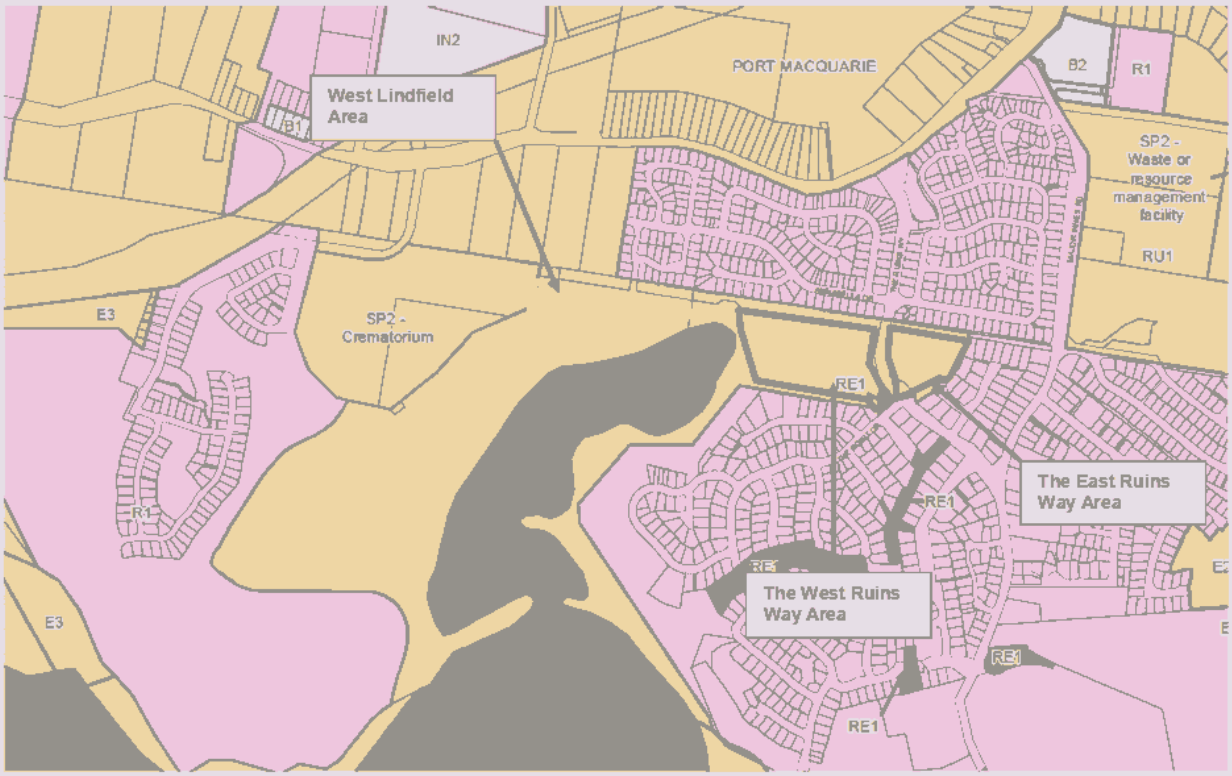
- The East Ruins Way Area;
- The West Ruins Way Area; and
- West Lindfield Area.

The above-mentioned areas of land are shown in **Figure 2** below.

Figure 2 – Subject Areas

All areas of land which comprise the subject sites are irregular in shape and have a current land use zoning of Rural (RU1), refer to **Figure 3** below.

Figure 3 – Landuse Zoning



Having regard to the above and for the for the purposes of this report the separate parcels of land which comprise the subject site are described as follows;

Table 1 – Description of Land Forming Subject Site

PARCEL REFERENCE	AREA	DESCRIPTION
The East Ruins Way Area	1.66 hectares	Located in the north-eastern corner of the Lake Innes Residential Estate, this area of land is accessed off The Ruins Way, (public road), which adjoins the subject site to the west. An electricity distribution line/easement adjoins this area to the north with developed residential lots extending beyond the electricity distribution line. Developed residential lots are present to the south and east whilst The Ruins Way road reserve and the undeveloped land of The West Ruins Way Area extend to the west. With gentle south to north down slopes in the order of 2° - 3° this parcel of land contains modified forest vegetation. The modification of floristic characteristics has resulted in the creation of a woodland setting with a grassland understorey. Vegetation on adjoining and adjacent land consists predominately of grasslands with scattered and small clusters of trees present in some areas.

		An artificial ephemeral creek, (essentially a stormwater drain), has been constructed inside the southern boundary, and runs from the southeast to the southwest boundary. This creek is about 1m deep and 2.5m wide. A linear mound about 1m high and 1:3 slope runs along the northern boundary. A small stormwater drain discharges in the eastern end on the northern foot of this mound. This area of land is zoned Rural (RU1).
The West Ruins Way Area	Approximately 4.28 hectares	This area of land fringes the northern aspect of the developed areas of the Lake Innes Residential Estate. This area of land is accessed off The Ruins Way, (public road), which adjoins the subject site to the east. It is noted that this area of land forms part of a golf course concept which has been previously approved but not developed. An electricity distribution line/easement adjoins this area to the north with developed residential lots extending beyond the electricity distribution line. Developed areas of the Lake Innes Residential Estate are present to the south. The Ruins Way road reserve and the undeveloped land of The East Ruins Way Area extend to the east. To the west of this area is the narrow vegetated peninsular of the Lake Innes Nature Reserve which separates The West Ruins Way area from the West Lindfield Area. The topography of this area is influenced by a small east to west ridgeline the crest of which is present in the northern part of this area. Northerly and southerly downslopes, (2˚ - 3˚), are present over this area with southerly downslopes predominating over the majority of the land. A westerly cross fall towards the Lake Innes Nature Reserve is also present. A number of drainage depressions and dams are present on and adjacent to the subject site with the location of these features reflecting site topography. Vegetation in this area consists of grasslands with scattered, small clusters and narrow bands (fringes of proposed golf course fairways), of trees present. Vegetation on adjoining and adjacent land consists of Forested Wetland and grasslands with scattered and small clusters of trees present in some areas. This area of land is zoned Rural (RU1).
The West Lindfield Area	4.84 hectares	The predominately cleared areas of the West Lindfield and The West Ruins Way Areas are largely separated by a vegetated peninsular of the Lake Innes Nature Reserve. The West Lindfield Area is accessed off existing road infrastructure within the developed urban areas to the north/northeast.

		An electricity distribution line/easement adjoins this area to the north with developed residential lots extending beyond the electricity distribution line easement to the northeast and undeveloped, (but residentially zoned land) to the northwest. Undeveloped areas of the proposed Lake Innes Residential Estate golf course within the estate area present to the southwest whilst the vegetated areas of the Lake Innes Nature Reserve peninsula are present to the southeast. The managed grounds of the Port Macquarie Crematorium and Lawn Cemetery are present to the northwest with undeveloped land present to the southwest. The topography of the West Lindfield Area is dominated by southerly downslopes, (2˚ - 3˚), with drainage south towards the Nature Reserve. A lower area lies in the western boundary where an open drainage depression occurs. A stormwater drain rises about midway west across this precinct, draining south. This drain is about 1.5m deep to 3m wide. Vegetation in this area consists of grasslands with scattered and small clusters of trees present. Vegetation on adjoining and adjacent land consists of Dry Sclerophyll Forest, Forested Wetland and grasslands with scattered and small clusters of trees present in some areas. This area of land is zoned Rural (RU1).

The closest Fire Service is located approximately 2.6km to the northeast of the subject site, (Port Macquarie Fire Brigade), with the closest Fire Control Centre being at Wauchope which is 20 kilometres west or 20 minutes by car from Port Macquarie.

1.4 Site History

The subject land has been in the ownership of the proponent's family for in excess of 100yrs. It forms part of a formerly much larger holding, of which a significant portion has been previously excised to join the Lake Innes Nature Reserve, including the peninsular of Forested Wetland vegetation which separates the West Lindfield and The West Ruins Way Areas. For most of its time, the property has been used for rural pursuits of cattle grazing and timber production.

In recent decades, cattle grazing has become the predominant land use with varying rotations. The Forested Wetland vegetation between the West Lindfield and The West Ruins Way Areas, (now falling into the Lake Innes Nature Reserve), only developed after drainage changes around the middle of the last century, (Dr Jim Charley, pers. comm.).

In the late 1980s, a Development Application, (DA 88/248), was approved for the development of a golf course and clubhouse on portion of the subject site. The golf course forming part of the residential development concept for the Lake Innes Residential Estate. Works on this development to date have consisted of clearing of the fairways and establishment of irrigation dams. Fairways run through the West Lindfield and The West Ruins Way sites, and around the perimeter of Lake Innes Nature Reserve. Around the same time, other areas in the general locality have also been periodically subdivided and developed into residential precincts, (e.g. Mill Hill, Oxley Park).

Despite the undeveloped nature of much of the subject site vegetation modification and management has and continues to occur over much of the land which forms the subject site.

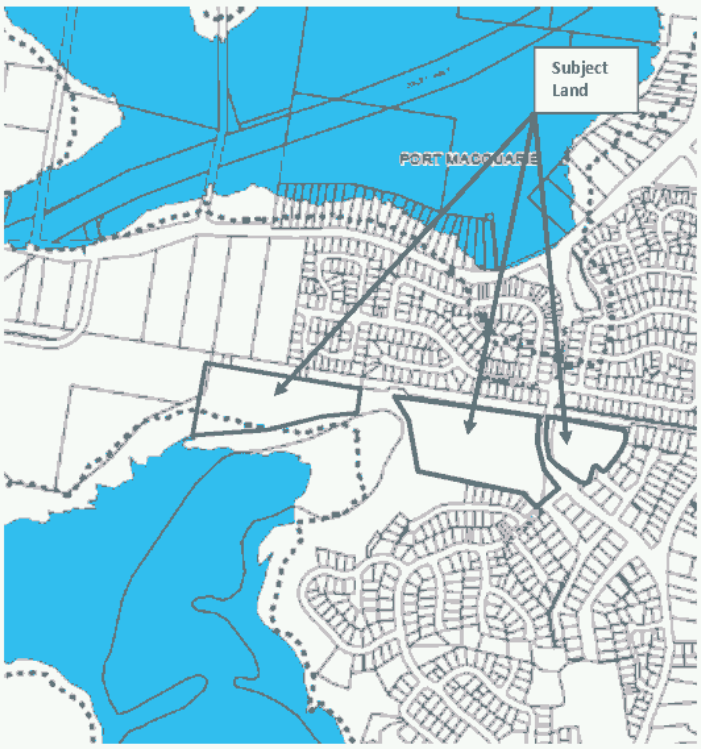
There are no improvements to the subject site other than some property fencing and a number of stormwater management drains, dams and water quality ponds.

Fire has not recently occurred on the site. In particular the East Ruins Way Area has been excluded from fire for >20yrs at least.

The environmental and heritage features of those areas of the subject site which form the basis of this report are summarized as follows;

Table 2 – Environmental and Heritage Features

ENVIRONMENTAL/HERITAGE FEATURE	COMMENT
Riparian Corridors	There are no riparian corridors on the subject site.
SEPP 14 – Coastal Wetland	The subject site is not identified as being subject to SEPP 14 – Coastal Wetlands.
SEPP 26 – Littoral Rainforest	The subject site is not identified as being subject to SEPP 26 – Littoral Rainforest.
SEPP 44 – Koala Habitat	Historic koala Habitat assessment indicates that the separate areas overall qualify as Potential Koala Habitat, although not uniformly across all areas e.g. the northern strip on The West Ruins Way Area and the southwest strip of swamp forest on West Lindfield did not qualify. The Forested Wetland in and adjacent to the Lake Innes Nature Reserve also did not qualify as Potential Koala Habitat. Hence a Koala Plan of Management is required to be submitted with any future Development Application.
Areas of geological interest	The subject site is not identified as potentially containing acid sulphate soils although it is noted that potential acid sulphate soils are indicated as being possible in the Lake Innes Nature Reserve, refer below. Based upon previous land use it is expected that no land contamination issues will be relevant to the subject site.
Environmental Protection	The subject site currently contains no Environmental Protection

Zones	Zones. The subject site is zoned, pursuant to Port Macquarie-Hastings Councils LEP, (2011), Primary Production (RU1), refer to **Figure 2** above. It is however noted that land which has an environmental protection land use zone separates The West Ruins Way and the West Lindfield Areas – (Lake Innes Nature Reserve). .
Land slip	Given the gently undulating nature of the topography of the subject site and surrounding areas land slip is not considered to be an issue for the subject site.
Flood prone land	The majority of the subject site is not identified as being flood prone land and as such is not subject to compliance with the flood planning area provisions of Port Macquarie-Hastings Councils LEP, 2011. It is however noted that the southwestern portion of the West Lindfield Area may be affected by the probable maximum flood level and as such the flood planning provisions of Port Macquarie-Hastings Councils LEP, 2011 maybe applicable, refer below; 
National Park Estate or other Reserves	The subject sites do not form part of the National Park Estate or other Reserves. It is however noted that land which is contained within the Lake Innes Nature Reserve separates The West Ruins Way and the West Lindfield Areas.
Threatened species, populations, endangered ecological communities and	Threatened species, populations, endangered ecological communities and critical habitat are unlikely to be present as the subject site has been the subject of significant modification over

critical habitat	time however this issue is to be the subject of separate assessment.
Ecologically Endangered Communities (EEC's)	Given the level of historic disturbance of the subject site in the areas of the proposed development it is unlikely to contain or support EEC's however this issue is to be the subject of separate assessment.
OEH Key Habitats and Corridors	The proposed development areas do not fall within a regional or sub-regional corridor. The section of the Lake Innes Nature Reserve which separates the West Lindfield and The West Ruins Way Areas appears to form a cul-de-sac in the mid-north of the regional corridor, the bulk of which is centred on Lake Innes Nature Reserve. Regional corridors with effective linkages are mapped extending north via the Kooloonbung Creek Nature Reserve connection, and coastally including Sea Acres Nature Reserve.
Aboriginal Heritage	Items of aboriginal heritage are unlikely to be present given the active vegetation modification and management which has occurred on the subject site and the level of site disturbance which is likely to have occurred over the years.

1.5 Development Proposal

It is proposed to rezone the West Lindfield and West Ruins Way Areas as part of the ongoing residential development of the general area. This reflects the existing residential development within the area and the significant urban expansion which has occurred in the general locality over the past 20 – 25 years.

Being on the western fringes of Port Macquarie the general area has and will continue to experience significant residential development with the character of the area being consistent with that which would be expected for urban fringe areas.

It is however proposed to rezone the East Ruins Way Area so as to support a Community Centre/Church development. This form of development is considered appropriate in the context of the significant residential development of the area and the associated demand for a variety of commercial and community services.

In support of the proposed rezoning of the land, preliminary development concepts have been prepared for each area, refer to **Appendices 2, 3** and **4**. In this regard it has been assumed for the purposes of this report that the development concepts provide for residential development in the West Lindfield and West Ruins Way Areas and Special Fire Protection Purpose development of the East Ruins Way Area.

Given that the nature and extent of any future development of the subject site is variable this report will focus upon detailing the bushfire threat management requirements which will be applicable to any future development so as to allow for an assessment of the subject sites suitability for rezoning.

1.6 Fauna and Flora Issues

A fauna and flora evaluation has not been undertaken in conjunction with this bushfire hazard assessment and as such issues pertaining to fauna and flora are outside the scope of this report.

2.0 BUSHFIRE HAZARD ASSESSMENT

2.1 Assessment Methodology

In order to meet the scope of activities that are the subject of this report the following method was utilized.

(i) Stage 1 - Desktop Survey.

The identification and assessment of existing and historic information pertaining to the subject site in relation to;

- Road infrastructure.
- Land use.
- Ecological characteristics.
- Topographic features.

(ii) Stage 2 - Field Survey.

A detailed inspection of the subject site was undertaken by David Pensini - Building Certification and Environmental Services on 10th October and 3rd November 2013 and 4th May 2018 in order to identify relevant bushfire hazard factors and characteristics such as;

- Slope conditions.
- Vegetation characteristics.
- Fire Danger Index

Each of the above factors need to be considered in determining the bushfire hazard for the subject site and proposed development. These factors must be reviewed in determining the bushfire protection measures which are applicable to the subject site and the proposed rezoning of the areas of land which are the subject of this report.

The assessment of slope and vegetation characteristics has been carried out in accordance with Appendix 2 and Appendix 3 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 and Section 2 of AS 3959 - 2009.

(iii) Stage 3 - Data Compilation and Project Reporting.

Based upon an assessment of the information obtained from Stages 1 and 2 above the following bushfire hazard management information was determined and documented as being appropriate for the proposed rezoning of the subject land;

- The required minimum Asset Protection Zones, (APZ's), which would be applicable to residential subdivision developments and for Special Fire Protection Purpose forms of development.

- Indicative Bushfire Attack Levels (BAL's) and associated construction standards which would be applicable to building infrastructure associated with any future development.

- Considerations for the provision of services, (water, electricity and gas).

- Road network considerations in providing for access and egress from future development.

- Emergency management including access for evacuation.

2.2 Hazard Vegetation

Bushfire hazard vegetation and associated buffer zones are identified as follows;

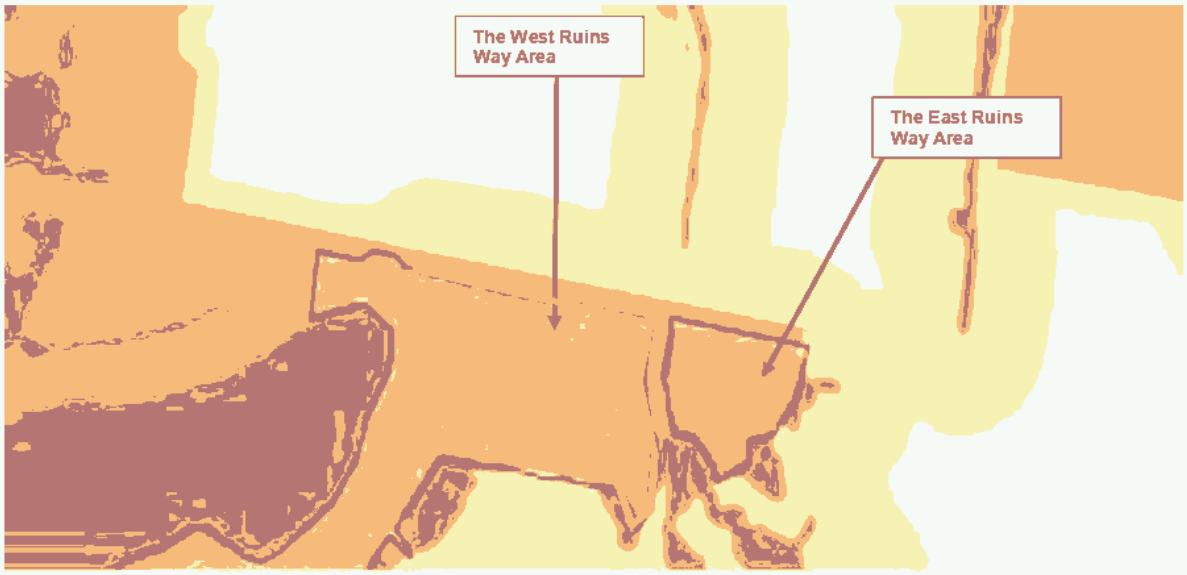
(i) **The East Ruins Way Area** – Category 1 bushfire hazard vegetation is shown over the Majority of the area; refer to **Figure 4** below. Small fragmented areas of Category 1 hazard vegetation are present on adjoining and adjacent land to the south and west with the subject site located within the buffer zone of these areas of hazard vegetation It is however noted that these areas of hazard vegetation are narrow and fragmented.

Areas of Category 3, (Grassland), hazard vegetation is present along the far northern portion of the subject area and to the north and within the West Ruins Way Area (to the west of the subject site).

(ii) **The West Ruins Way Area** – The area of land which is the subject of the rezoning proposal contains small fragmented areas of Category 1 hazard vegetation together with Category 3, (Grassland), hazard vegetation. The subject site is affected by the buffer zone surrounding the Category 1 bushfire hazard vegetation which is contained within the Lake Innes Nature Reserve which adjoins to the west as well as the Category 1 vegetation within the East Ruins Way Area, refer to **Figure 4** below.

Areas of Category 3, (Grassland), hazard vegetation is present to the north and northwest (West Lindfield Area) of the subject site.

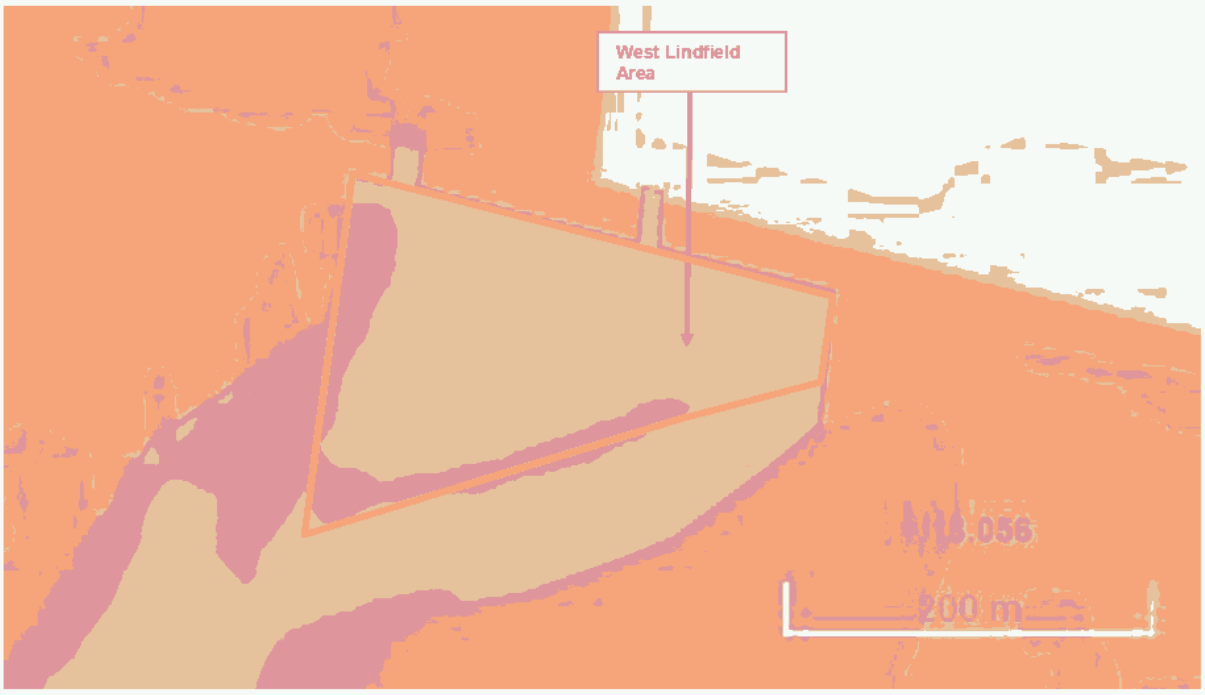
Figure 4 –Bushfire Risk Mapping (The East and West Ruins Way Areas)



(i) **The West Lindfield Area** – The area of land which is the subject of the rezoning proposal contains small fragmented areas of Category 1 hazard vegetation together with Category 3, (Grassland), hazard vegetation. The subject site is affected by the buffer zone surrounding the Category 1 bushfire hazard vegetation which is contained within the Lake Innes Nature Reserve which adjoins to the east as well as the Category 1 vegetation on adjoining and adjacent land to the northwest, west and southwest, refer to **Figure 5** below.

Areas of Category 3, (Grassland), hazard vegetation is present to the north and northeast (West Ruins Way Area) of the subject area.

Figure 5 –Bushfire Risk Mapping (West Lindfield Area)



2.3 Slope Assessment

Slope is a major factor to consider when assessing the bushfire risk of any development which is subject to compliance with the requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006. Therefore, the slope of the subject site and surrounding area, (to a distance of 100m), was measured using a Suunto PM-5/360 PC Clinometer.

The topography of the subject site and surrounding areas is gently undulating with northerly and southerly downslopes predominating with some easterly and westerly cross-falls present. Generally, slope conditions are in the order of 2° - 3° although some steeper slopes are present to the west and northwest of the West Lindfield Area. The vegetated areas of the Lake Innes Nature Reserve define a transition to generally flat land with the margins of the Nature Reserve reflecting the gentle south/south-westerly downslopes which dominate The West Ruins Way and West Lindfield Areas.

The topographical conditions on the subject site and on adjoining and adjacent land can be seen in **Figure 6** below;

Figure 6 –Topographic Conditions

The hazard vegetation on the subject site and on adjoining and adjacent land that was relevant to the proposed rezoning was identified in relation to the three (3) separate areas and the slopes within the vegetation measured. The following table shows the results. It is noted that the identification of hazard vegetation was based upon the preliminary development concepts which were provided, refer to **Appendix 2**.

Table 3 - Slope Assessment Results

DIRECTION OF HAZARD	SLOPE degrees)	UPSLOPE/DOWN SLOPE
The East Ruins Way Area		
North	2˚- 3˚	Down slope
South	N/A	N/A
East	N/A	N/A
West	2˚- 3˚	Down slope
The West Ruins Way Area		
North	2˚- 3˚	Down slope
Southwest	2˚- 3˚	Down slope
East	2˚- 3˚	Down slope
West	0˚	Flat
West Lindfield Area		
North	0˚	Upslope
South	2˚- 3˚	Down slope
East	0˚	Flat
West	2˚- 3˚	Down slope

The above slopes were considered when assessing the required defendable spaces and indicative Bushfire Attack Levels, (BAL's), for any future development/s.

2.4 Vegetation Assessment

The vegetation on and surrounding the subject site was assessed over a distance of 140m from the proposed development.

The vegetation formations were classified using the system adopted as per Keith (2004) and in accordance with Appendix 3 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 and Table 2.3 of AS 3959 - 2009.

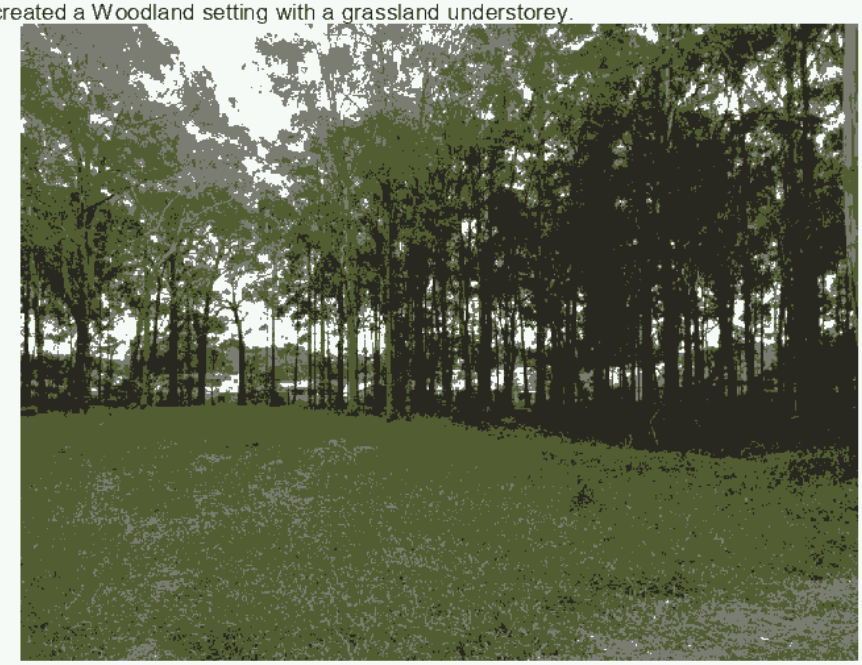
Given the size and fragmented nature of the various parcels of land which form the subject site bushfire hazard vegetation conditions are variable.

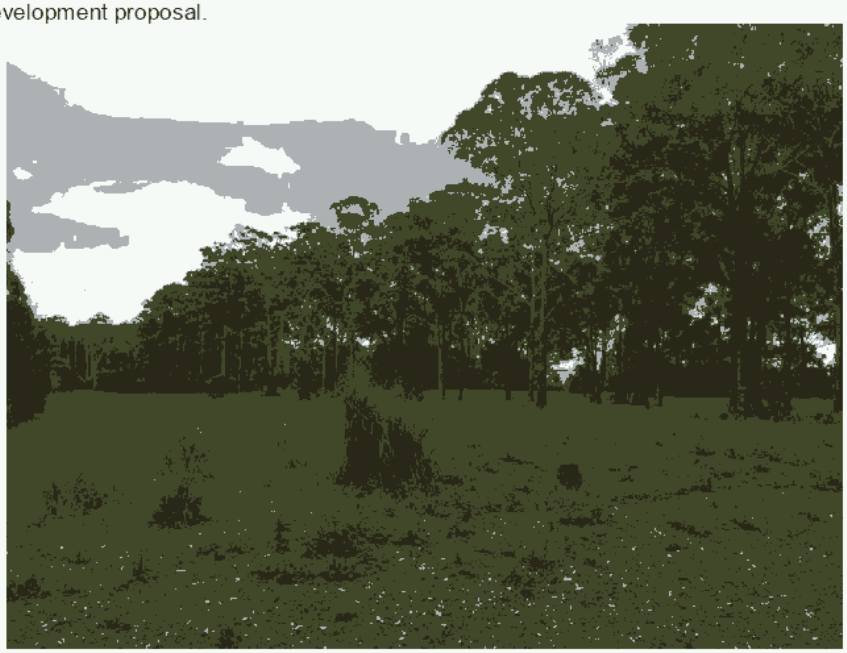
The following information is provided in relation to the floristic characteristics of the subject site and adjoining and adjacent land. In adopting a conservative approach to bushfire hazard assessment worst case vegetation characteristics have been identified.

2.4.1 Vegetation within Subject Site

The following vegetation characteristics were identified as being relevant to the proposed rezoning.

Table 4 – Hazard Vegetation within Subject Areas

REFERENCE	DESCRIPTION
The East Ruins Way Area	Vegetation on this area contains highly modified Dry Sclerophyll Forest with significant levels of understorey removal and some canopy reduction noted. This modification has created a Woodland setting with a grassland understorey.  **Woodland setting over The East Ruins Way Area** It has been assumed, for the purposes of this report, that the majority of vegetation of bushfire significance would be removed from this area of land as part of any future

	development proposal.
The West Ruins Way Area	Vegetation on this area consists of Grasslands with narrow bands and scattered and clusters of remnant Dry Sclerophyll Forest. It has been assumed, for the purposes of this report, that all vegetation of bushfire significance would be modified/removed from this area of land as part of any future development proposal.  **Grasslands with scattered, clusters and narrow bands of tress over The West Ruins Way Area**
The West Lindfield Area	Vegetation on this area consists of Grasslands with scattered and clusters of trees together with an area of Dry Sclerophyll Forest along the western aspect of the subject site.

Grasslands with scattered, clusters and narrow bands of tress over the West Lindfield Area

It has been assumed, for the purposes of this report, that vegetation of bushfire significance would be modified/removed from this area of land as part of any future development proposal.

2.4.2 Vegetation on Adjoining and Adjacent Land to Subject Site

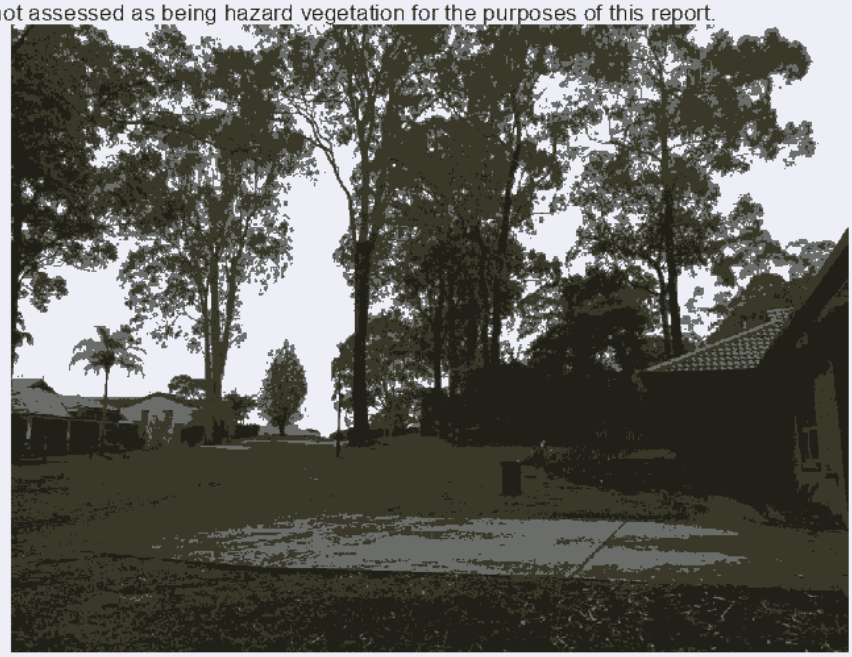
The following vegetation characteristics were identified as being relevant to the proposed rezoning of the subject site.

Table 5 – Hazard Vegetation on Land Adjoining/Adjacent the Subject Areas

REFERENCE	DESCRIPTION
The East Ruins Way Area	Vegetation of bushfire hazard significance on adjoining and adjacent land consists of Grasslands within the electricity distribution line easement which adjoins the area to the north.

Grasslands within the electricity supply easement to the north of The East Ruins Way area

Small/narrow areas of highly modified Dry Sclerophyll Forest vegetation is present within developed residential lots to the south and east of the subject site. Given the size of these areas of vegetation and there highly disturbed floristic characteristics together with the level of fragmentation which will result due to the modification of vegetation within the East Ruins Way area the remnant areas of forest vegetation to the south and east were not assessed as being hazard vegetation for the purposes of this report.



Scattered and clusters of trees to the south of The East Ruins Way area

Grasslands with scattered, small clusters and narrow bands of trees (remnants of Dry Sclerophyll Forest) are present on adjacent land to the west of The Ruins Way road

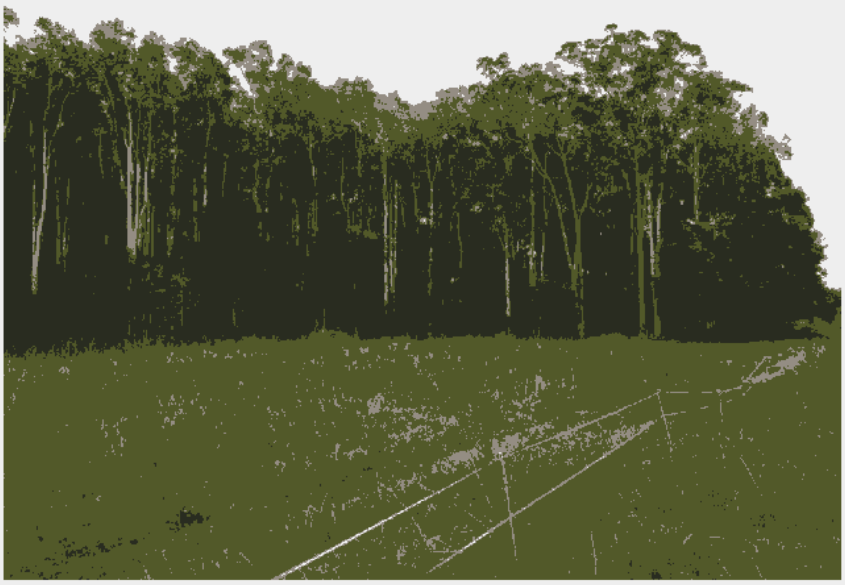
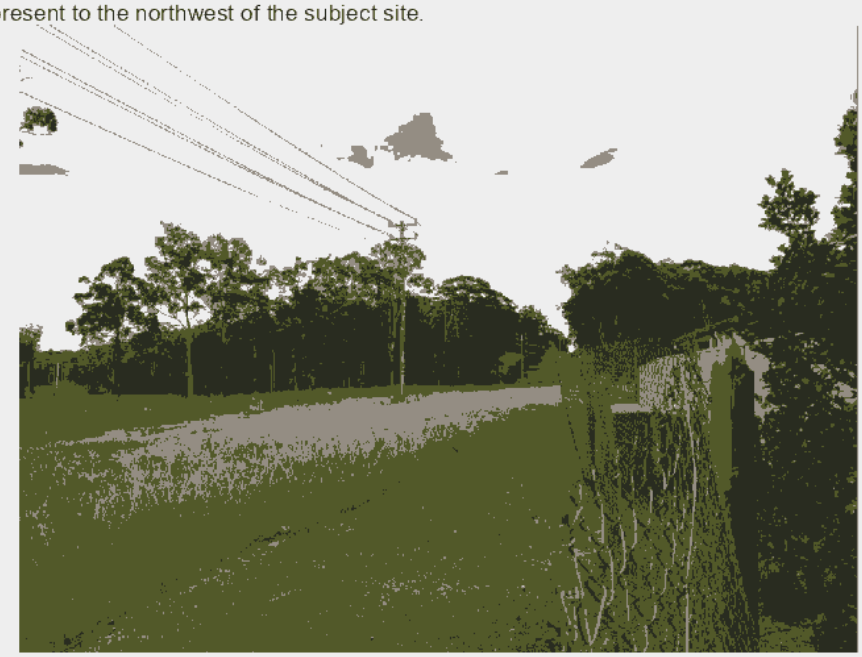
	reserve (The West Ruins Way Area). In adopting a conservative approach to hazard assessment, a remnant vegetation classification was adopted for the western aspect of this area with a specification similar to Rainforest being relevant in the circumstances. **Grasslands with scattered, clusters and narrow bands of tress over The West Ruins Way Area**
The West Ruins Way Area	Vegetation of bushfire hazard significance on adjoining and adjacent land consists of Grasslands within the electricity distribution easement which adjoins the area to the north. **Grasslands within the electricity supply easement to the north of The West Ruins Way area**

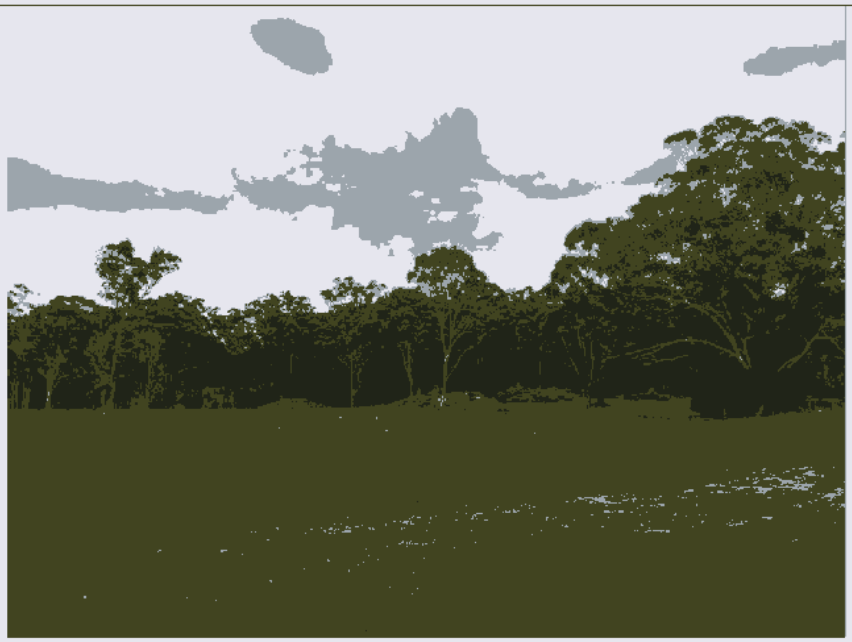
The Grasslands and scattered and clusters of trees associated with the undeveloped golf course and undeveloped residential lots are present to the southwest of the proposed development area with a remnant classification (Rainforest specification) adopted for this area.

Grasslands and Forested Wetland vegetation to the southwest

The modified Dry Sclerophyll Forest associated with The East Ruins Way Area is present to the east of The Ruins Way road reserve. Given that the time frame for the development of The East Ruins Way Area is uncertain a worst-case Forest classification has been adopted for the area to the east of The West Ruins Way Area.

Woodland setting over The East Ruins Way Area

	To the west of this of this area is a combination of Grasslands and Forested Wetland vegetation which is contained within the Lake Innes Nature Reserve. In adopting a conservative approach to bushfire hazard assessment, a Forested Wetland classification has been adopted.  **Forested Wetland vegetation within the Lake Innes Nature Reserve (Peninsula of the nature reserve separates The West Ruins Way and West Lindfield areas)**
West Lindfield Area	Grasslands adjoin the subject site to the north whilst an area of Dry Sclerophyll Forest is present to the northwest of the subject site.  **Grasslands within the electricity supply easement to the north of the West Lindfield area**



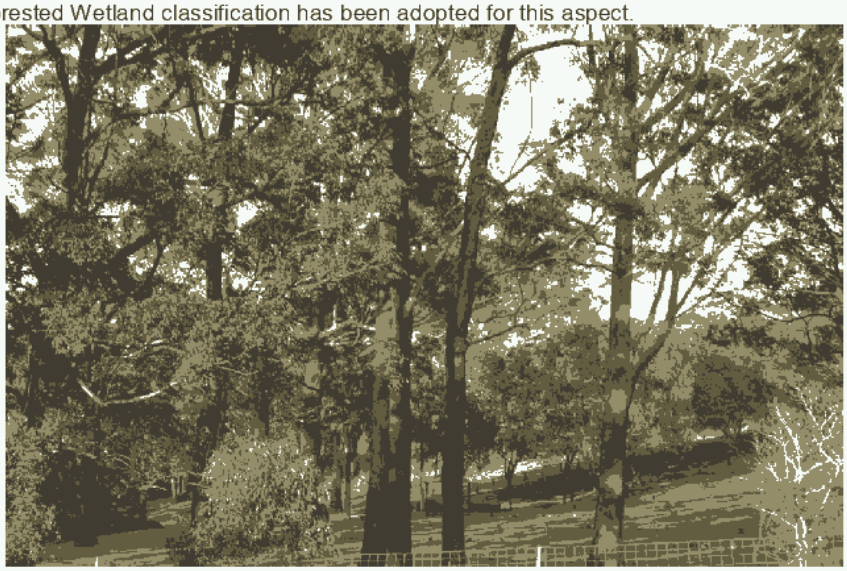
Grasslands and Dry Sclerophyll Forest to the north and northwest of the West Lindfield Area

The Grasslands and scattered and clusters of trees associated with the undeveloped golf course are present to the southwest of the proposed rezoning area with areas of Forested Wetland vegetation within the Lake Inness Nature Reserve present to the east and south.

Forested Wetland vegetation within the Lake Innes Nature Reserve (peninsula of the nature reserve separates The West Ruins Way and West Lindfield Areas)

To the west of this of this area are the managed grounds of the Lake Innes Crematorium and Lawn Cemetery together with some small remnant areas of Forested Wetland

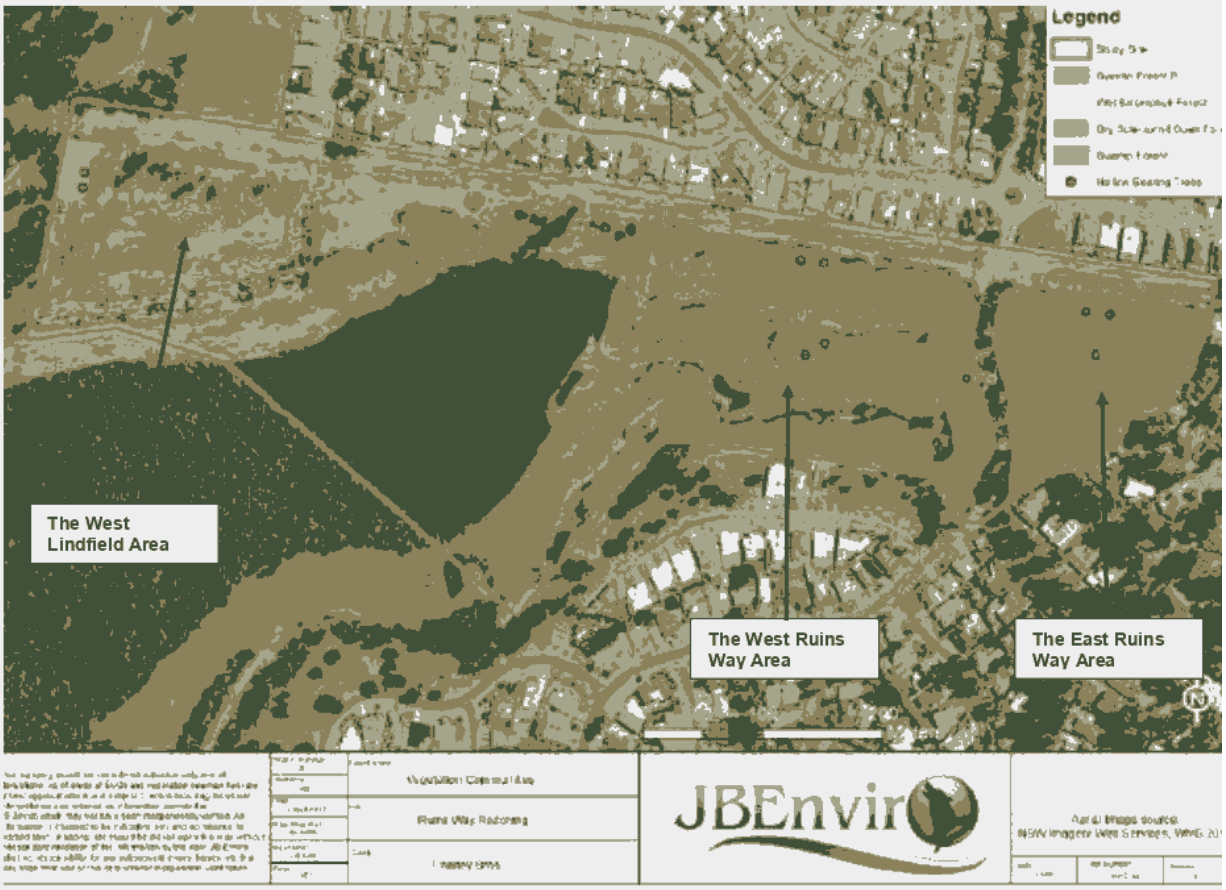
vegetation. In adopting a conservative approach to bushfire hazard assessment, a Forested Wetland classification has been adopted for this aspect.



Managed grounds of the Lake Innes Crematorium and Lawn Cemetery

The vegetation characteristics of the subject site and adjoining and adjacent land are shown in **Figure 7** below;

Figure 7 – Vegetation Characteristics



The following table summarizes the various vegetation structures which are of bushfire significance to the proposed allotments.

Table 6 – Summary of Vegetation Characteristics

ASPECT	VEGETATION DESCRIPTION	VEGETATION CLASSIFICATION – (Keith, 2004)
The East Ruins Way Area		
North	Grasslands within electricity distribution easement to the north of the area	Grasslands
West	Grasslands with scattered, clusters and narrow bands of trees (remnant/highly disturbed Dry Sclerophyll Forest) associated with the West Ruins Way Area	Similar in specification to Rainforest
The West Ruins Way Area		
North	Grasslands within electricity distribution easement to the north of the area	Grasslands
Southwest	Grasslands and scattered and clusters of trees associated with the undeveloped golf	Similar in specification to Rainforest

	course and undeveloped residential lots	
East	The modified remnant Dry Sclerophyll Forest associated with the East Ruins Way area (east of the Ruins Way road reserve)	Similar in specification to Woodland
West	Forested Wetland vegetation within the Lake Innes Nature Reserve	Forested Wetland
West Lindfield Area		
North	Grasslands within electricity distribution easement and adjacent land to the north of the area	Grasslands
Northwest	Dry Sclerophyll Forest vegetation on adjacent land	Forest
South	Forested Wetland vegetation within the Lake Innes Nature Reserve	Forested Wetland
East	Forested Wetland vegetation within the Lake Innes Nature Reserve	Forested Wetland
West	Managed and remnant Forested Wetland vegetation within the Lake Innes Crematorium and Lawn cemetery	Forested Wetland

2.5 Fire Danger Index

The fire weather for the site is assumed on the worst-case scenario. In accordance with NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 and Table 2.1 of AS 3959 - 2009, the fire weather for the site is based upon the 1:50 year fire weather scenario and has a Fire Danger Index (FDI) of 80.

3.0 BUSHFIRE THREAT REDUCTION MEASURES

3.1 NSW Rural Fire Services, *Planning for Bushfire Protection*, 2006

The following issues and constraints have been identified through considering the requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 as they apply to the future residential, (West Lindfield and West Ruins Way Areas), and Special Fire Protection Purpose, (East Ruins Way Area), development of the areas which are the subject of this report.

3.1.1 Defendable Space/Asset Protection Zone

To ensure that the aims and objectives of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 are achieved for the proposed rezoning, a Defendable Space/Asset Protection Zone (APZ) between the asset and the hazard should be provided.

The APZ provides for; minimal separation for safe firefighting, reduced radiant heat, reduced influence of convection driven winds, reduced ember viability and dispersal of smoke. The APZ consists of an Inner Protection Area (IPA) and Outer Protection Area (OPA). The IPA is an area closest to the buildings that incorporates defendable space and is used for managing heat intensities at the building surface. The OPA is positioned adjacent to the hazard and the purpose of the OPA is to reduce the potential length of flame by slowing the rate of spread, filtering embers and suppressing the crown fire.

The following assessment of APZ/defendable space requirements which are relevant to the proposed rezoning is provided as follows. It is noted that the APZ requirements have been based upon the separate development of each of the three (3) separate areas. In this regard where areas are developed simultaneously then improvements in the minimum APZ requirements maybe possible. For example, the development of The East Ruins Way Area

would remove the requirement for an APZ along the eastern aspect of The West Ruins Way Area.

(i) Special Fire Protection Purpose Development (East Ruins Way Area)

It is noted that the future development of the East Ruins Way Areas will require the provision of APZ's in accordance with Special Fire Protection Purposes (SFPP) requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006. APZ's in SFPP situations must be such that radiant heat levels of greater than 10kW/m² will not be experienced by occupants or emergency workers entering or exiting a building.

The following table indicates the minimum 'deemed to satisfy' Asset Protection Zones required from the hazard vegetation to SFPP buildings. The table is based upon the vegetation type, slopes, and fire weather (FDI) which is applicable to this assessment.

Table 7 – Minimum SFPP Development Asset Protection Zone Requirements (PfBP 2006)

ASPECT	VEGETATION	SLOPE	TOTAL REQUIRED APZ			MINIMUM POTENTIALLY AVAILABLE COMPLIANT APZ	COMPLIANCE WITH MINIMUM APZ REQUIREMENTS
			IPA	OPA	APZ		
East Ruins Way Area							
North	Grasslands	2˚ - 3˚ Down slope	**20m****	**-**	**20m**	**>20m**	✔
West	Similar in specification to Rainforest	2˚ - 3˚ Down slope	**40m**	**-**	**41m**	**>41m**	✔

*****Note: APZ determined based upon minimum BAL12.5 outcome (AS 3959 – 2009)***

Having regards to the above the positioning of any future community and/or church building infrastructure on the subject site must be such that compliance with the minimum APZ requirements provided for in **Table 7** can be achieved.

The APZ performance criteria and acceptable solution provisions which would apply to any future Special Fire Protection Purpose development on the subject site are detailed in the following table:

Table 8 – APZ SFPP Development Performance Requirements

Intent of measures: to provide sufficient space for fire fighters and other emergency services personnel, ensuring radiant heat levels permit operations under critical conditions of radiant heat, smoke and embers, while supporting or evacuating occupants.		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
Radiant heat levels of greater than 10kW/m² will not be experienced by occupants or emergency workers	An APZ is provided in accordance with the relevant tables/ figures in Appendix 2 of NSW RFS Planning for Bushfire Protection 2006	✔ To be complied with in relation to the design of future development

entering or exiting a building	Exits are located away from the hazard side of the building.	✔ To be complied with in relation to the design of future development
	The APZ is wholly within the boundaries of the development site. Exceptional circumstances may apply (see section 3.3 of NSWRFS Planning for Bushfire Protection 2006)	✔ To be complied with in relation to the design of future development
Applicants demonstrate that issues relating to slope are addressed: maintenance is practical, soil stability is not compromised and the potential for crown fire is negated.	Mechanisms are in place to provide for the maintenance of the APZ over the life of the development.	✔ All APZ's can be maintained over the life of the development.
	The APZ is not located on lands with a slope exceeding 18 degrees.	✔ All APZ's can be located on land with slopes not exceeding 5 degrees.
APZs are managed and maintained to prevent the spread of fire towards the building.	In accordance with the requirements of Standards for Asset Protection Zones (RFS, 2005) *Note: A Monitoring and Fuel Management Program should be required as a condition of development consent.*	✔ The land within the subject site is to be managed to the standards which are applicable to Inner Protection Areas.
Vegetation is managed to prevent flame contact and reduce radiant heat to buildings, minimise the potential for wind driven embers to cause ignition and reduce the effect of smoke on residents and fire fighters.	Compliance with Appendix 5. NSW RFS Planning for Bushfire Protection 2006	✔ Future landscaping and vegetation management will comply with the requirements of Appendix 5.

Based upon the size and shape of the subject site it is considered that the intent of the requirement for the provision of Special Fire Protection Purpose Development Asset Protection Zones as required by NSW Rural Fire Services, *Planning for Bushfire Protection*, 2006 can be satisfied for the future development of the subject site albeit that the location, nature and form of construction of future development must reflect the requirements of NSW Rural Fire Services, *Planning for Bushfire Protection*, 2006.

As such redesign of any future development proposal on the subject site may be required in order to achieve compliance. It is noted that compliance will require the modification and management of vegetation on the subject site so as to meet, as a minimum, the relevant requirements of Inner Protection Areas.

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(ii) Residential Subdivision Development (West Ruins Way and West Lindfield Areas)

Any future residential subdivision developments of the type nominated for the West Ruins Way and West Lindfield Areas which are the subject of this report require APZ's in accordance with the residential subdivision requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006. APZ's in residential subdivision situations must be such that radiant heat levels of greater than 29kW/m² will not be experienced by residential buildings.
The following table indicates the minimum Asset Protection Zones required from the hazard vegetation to the areas which are the subject of this report. The table is based upon the vegetation type, slopes and fire weather (FDI) which is applicable to this assessment.

Table 9 – APZ Requirements for Residential Subdivision Developments (29kW/m²)

ASPECT	VEGETATION	SLOPE	TOTAL REQUIRED APZ			MINIMUM POTENTIALLY AVAILABLE COMPLIANT APZ	COMPLIANCE WITH MINIMUM APZ REQUIREMENTS
			IPA	OPA	APZ		
The West Ruins Way Area							
North	Grassland	<5˚ Down slope	**10m**	**-**	**10m**	**>10m**	✔
Southwest	Similar in Specification to Rainforest	<5˚ Down slope	**11m**	**-**	**11m**	**>11m**	✔
East	Similar in specification to Woodland	<5˚ Down slope	**17m**	**-**	**17m**	**>17m**	✔
West	Forested Wetland	0˚	**15m**	**12m**	**27m**	**>27m****	✔
The West Lindfield Area							
North	Grassland	0˚ Upslope	**10m**	**-**	**10m**	**>10m**	✔
Northwest	Forest	0˚ Upslope	**10m**	**11m**	**21m**	**>21m****	✔
South	Forested Wetland	<5˚ Down slope	**15m**	**12m**	**27m**	**>27m ****	✔
East	Forested Wetland	0˚	**10m**	**11m**	**21m**	**>21m****	✔
West	Forested Wetland	<5˚ Down slope	**15m**	**12m**	**27m**	**>27m ****	✔

***** Note: Based upon Forest classification as per the required BAL 29 requirements of AS 3959 – 2009.***

Having regard to the above it is noted that the minimum required APZs which would be applicable to any future residential subdivision developments on the areas which are the subject of this report **can** be achieved either within the boundaries of the individual areas or by using a combination of onsite and offsite areas, (i.e. existing and proposed public road reserves).

The APZ acceptable solution provisions which would apply to any future residential subdivision development are detailed in the following table.

Table 10 – APZ Performance Requirements

Intent of measures: to provide sufficient space and maintain reduced fuel loads, so as to ensure radiant heat levels at buildings are below critical limits and to prevent direct flame contact with a building.		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
Radiant heat levels at any point on a proposed building will not exceed 29 kW/m2	An APZ is provided in accordance with the relevant tables/ figures in Appendix 2 of NSWRFS Planning for Bushfire Protection 2006	✔ The minimum required asset protection zones can be provided to any future development – refer to **Table 9**.
	APZ's are wholly within the boundaries of the development site. Exceptional circumstances may apply (see section 3.3 of NSW RFS Planning for Bushfire Protection 2006)	✔ The required asset protection zones can be provided to any future development in compliance.
APZs are managed and maintained to prevent the spread of a fire towards the building.	APZ's managed in accordance with the requirements of Standards for Asset Protection Zones (RFS, 2005) *Note: A Monitoring and Fuel Management Program should be required as a condition of development consent.*	✔ APZ's will need to be created and maintained to the standards which are applicable to Inner and Outer Protection Areas.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is negated	APZ's are located on lands with a slope less than 18 degrees.	✔ No land with steep slopes present in areas which are the subject of this report.

Having regard to the above it will be necessary to ensure that the future design of any residential subdivisions provide for compliance with the minimum APZ requirements specified in **Table 9** above. Importantly it is noted that compliance with the minimum APZ requirements is achievable for future residential development having regard to the size of the subject site and the characteristics of hazard vegetation which are relevant to the areas which are the subject of this report.

Having regard to the above the acceptable solution, (Deemed-to-Satisfy), provisions for APZ's as detailed in Appendix 2 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 can be achieved for the future development of the subject areas to support residential allotments. The future design of residential allotments is to provide for compliance with the minimum APZ requirements which are applicable to the development of the subject site.

Having regard to the information provided in sections (i) and (ii) above APZ compliance concepts have been prepared for each of the subject development areas.

3.1.2 Defendable Space/Asset Protection Zone Management

Areas identified as forming part of the minimum APZ requirements for any future Special Fire Protection Purpose and residential subdivision developments must be managed so as to comply with the standards which are applicable to Asset Protection Zones as follows;

Inner Protection Area

An IPA should provide a tree canopy cover of less than 15% and should be located greater than 2 metres from any part of the roofline of a building.
Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10m from an exposed window or door.

Trees should have lower limbs removed up to a height of 2 metres above the ground

Outer Protection Area

An OPA should provide a tree canopy cover of less than 30% and should have the understorey managed (mowed) to treat all shrubs and grasses on an annual basis in advance of the fire season (usually September).

In this regard it will be necessary to provide and maintain for the life of any future development the minimum Asset Protection Zones as required by **Table 7** of this report.

Compliance with the minimum APZ requirements is achievable for the future development of the subject site having regard to the size of the areas of land which are the subject of this report and the characteristics of the hazard vegetation which are relevant to any future developments.

It is however noted that compliance with the APZ requirements will require the modification and management of vegetation within each of the three (3) sites so as to meet the relevant requirements of APZ's.

3.1.3 Operational Access and Egress

It is noted that The East and West Ruins Way Areas have significant road frontage to The Ruins Way which is a bitumen sealed two wheel drive all weather public road and is the main connecting road within the Lake Innes Residential Estate. Travel is available to and from The East and The West Ruins Way Areas in a northerly or southerly direction. Travel along The Ruins Way provides for access to a number of connecting roads, including the Old Oxley Highway, the use of which would be protected from the impacts of bushfire. It is also noted that The East Ruins Way Area also has connection with Coucal Close the cul de sac of which adjoins this area to the south.

Access and egress infrastructure for the West Lindfield Area is via connection with Redgum Circuit which is a bitumen sealed two wheel drive all weather public road which terminates adjacent to the north-eastern portion of this area. Redgum Circuit services existing residential development to the northeast of the West Lindfield Area with this road infrastructure eventually connecting with The Ruins Way road infrastructure. It is also noted that the preliminary development concept for the West Lindfield Area provides for access and egress opportunities through the development of vacant, (but residentially zoned), land to the north/northwest.

In the context of the location of the subject areas and their relationships with existing urban development it is considered that access and egress to and from any future development of the subject areas can be provided in compliance with the relevant requirements of NSW Rural Fire Services**, *Planning for Bushfire Protection***, 2006.

However, in order to provide for access and egress to and from any future development of the subject areas it will be necessary to provide for public road infrastructure/systems which comply with Section 4.1.3 of NSW Rural Fire Services**, *Planning for Bushfire Protection***, 2006 and summarized as follows;

Table 11- Public Road Requirements (PfBP 2006)

Intent of measures: to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
• firefighters are provided with safe all-weather access to structures (thus allowing more efficient use of firefighting resources)	• public roads are two-wheel drive, all weather roads.	✔ Future design of residential subdivision developments to comply
• public road widths and design that allow safe access for firefighters while residents are evacuating an area.	• urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb), allowing traffic to pass in opposite directions. Non-perimeter roads comply with Table 4.1 – Road widths for Category 1 Tanker (Medium Rigid Vehicle). • the perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas. • traffic management devices are constructed to facilitate access by emergency services vehicles. • public roads have a cross fall not exceeding 3 degrees. • all roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end and direct traffic away from the hazard. • curves of roads (other than perimeter roads) are a minimum inner radius of six metres and minimal in number, to allow for rapid access and egress. • the minimum distance between inner and outer curves is six metres. • maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient. • there is a minimum vertical clearance to a height of four metres	✔ Future design of residential subdivision developments to comply

	above the road at all times.	
• the capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles.	• the capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicate load rating.	✔ Future design of residential subdivision developments to comply
• roads that are clearly sign- posted (with easily distinguishable names) and buildings/properties that are clearly numbered.	• public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression. • public roads between 6.5 metres and 8 metres wide are No Parking on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression.	✔ Future design of residential subdivision developments to comply
• there is clear access to reticulated water supply	• public roads up to 6.5 metres wide provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression. • one way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.	✔ Future design of residential subdivision developments to comply

Subject to compliance with the requirements of **Table 11** above in relation to the design and construction of new public road infrastructure it is considered that the proposed access and egress arrangements will be acceptable for any future residential development of the subject areas having regard to the nature, construction and extent of the existing public road infrastructure which is present in the locality and the internal public road systems which are required to be provided to serve any future development of the areas which are the subject of this report.

Additionally, any new internal access road infrastructure which is required in relation to the Special Fire Protection Purpose Development of The East Ruins Way Area must comply with the relevant access road design requirements provided for in Section 4.1.3 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006. The specific internal road design requirements provided for in Section 4.2.7 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 are also required to be complied with. The internal road provisions which are applicable to any future SFPP development are summarized as follows;

Table 12 – SFPP Acceptable Solutions (Access/Internal Roads)

Intent of measures: to provide safe access to/from the public road system for fire fighters providing property protection during a bush fire and for occupants faced with evacuation.		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
Access to properties is provided in recognition of the risk to fire fighters and/ or evacuating	At least one alternative property access road is provided for individual dwellings (or groups of dwellings) that are located more than 200 metres from a public through road	N/A

occupants.		
The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles. All weather access is provided.	Bridges clearly indicate load rating and pavements and bridges are capable of carrying a load of 15 tonnes.	✔ To be complied with in relation to the design of future development No bridges are likely to be required.
	Roads do not traverse a wetland or other land potentially subject to periodic inundation (other than a flood or storm surge).	✔ To be complied with in relation to the design of future development
Internal road widths and design enable safe access for emergency services and allow crews to work with equipment about the vehicle	Internal roads are two-wheel drive, sealed, all weather roads. Internal perimeter roads are provided with at least two traffic lane widths (carriageway 8 meters minimum kerb to kerb) and shoulders on each side, allowing traffic to pass in opposite directions; Roads are through roads. Dead end roads are not more than 100m in length from a through road, incorporate a minimum 12 meters outer radius turning circle, and are clearly signposted as a dead end; Traffic management devices are constructed to facilitate access by emergency service vehicles; A minimum vertical clearance of four meters to any overhanging obstructions, including tree branches, is provided; Curves have a minimum inner radius of six meters and are minimal in number to allow for rapid access and egress; . The minimum distance between inner and outer curves is six meters; Maximum grades do not exceed 15 degrees and average grades are not more than 10 degrees; Cross fall of the pavement is not more than 10 degrees; Roads do not traverse through a wetland or any other land potentially subject to periodic inundation (other than flood or storm surge); Roads are clearly sign posted and bridges clearly indicate load ratings; The internal road surfaces and bridges have a	✔ The design and construction of access roads is to provide for compliance with the relevant design and construction provisions.

	capacity to carry fully-loaded fire fighting vehicles (15 tonnes).	

3.1.4 Services - Water, Gas and Electricity

As set out in Section 4.1.3 and Section 4.2.7 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006, residential subdivision developments and SFPP developments in bushfire prone areas must maintain a water supply reserve dedicated to fire-fighting purposes.

Given that the existing residential development in the area is serviced by the reticulated water supply which services the Lake Innes Residential Estate it is considered that opportunities exist to extend the reticulated water supply to service any future residential lots and SFPP developments so as to comply with the relevant requirements of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 should the development of the land proceed in the future.

It is however noted that in accordance with NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 the determination of a guaranteed water supply is to be made by the water supply authority where mains water supply is available.

Electricity supply is available and will be accessible to the residential and SFPP development of the land should it proceed in the future

Reticulated gas services are not available in the locality and are therefore not available to the subject site.

The incorporation into any future residential subdivision and SFPP development of the areas which are the subject of this report, of the relevant provisions of the following acceptable solutions as provided for by NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 will ensure compliance with the intent for the provision of services to future residential lots and SFPP developments.

Table 13 – Service Provision Requirements

Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
Non-reticulated water supply areas • for rural-residential and rural developments (or settlements) in bush fire prone areas, a water supply reserve dedicated to firefighting purposes is installed and maintained. The supply of water can be an amalgam of minimum quantities for each lot in the subdivision (community titled subdivisions), or	• the minimum dedicated water supply required for firefighting purposes for each occupied building excluding drenching systems, is provided in accordance with Table 4.2. • a suitable connection for firefighting purposes is made available and located within the IPA and away from the structure. A 65mm Storz outlet with a Gate or Ball valve is provided. • or Ball valve and pipes are adequate for water flow and are metal rather than plastic. • underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank. A hardened ground surface for truck access is supplied within 4 metres of the access hole.	✔ Future development proposals to comply

held individually on each lot	• above ground tanks are manufactured of concrete or metal and raised tanks have their stands protected. Plastic tanks are not used. Tanks on the hazard side of a building are provided with adequate shielding for the protection of fire fighters. • all above ground water pipes external to the building are metal including and up to any taps. Pumps are shielded.	
Electricity Services • location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings • regular inspection of lines is undertaken to ensure they are not fouled by branches.	• where practicable, electrical transmission lines are underground. • where overhead electrical transmission lines are proposed: - lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).	✔ Future development proposals to comply
Gas services • location of gas services will not lead to ignition of surrounding bush land or the fabric of buildings	• reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used. • all fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation. • if gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal. • polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.	✔ Future development proposals to comply

3.1.5 Emergency Evacuation Planning

Special Fire Protection Purpose developments should have suitable management arrangements and structures capable of developing and implementing an Emergency Plan.

Before occupation of any future Special Fire Protection Purpose development on The East Ruins Way Area an Emergency Evacuation Plan incorporating bushfire evacuation will be required to be produced for the future development.

Compliance with the following acceptable solutions as provided for by Section 4.2.7 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 will ensure compliance with the intent for Emergency Evacuation Planning before the occupation of any future Special Fire Protection Purpose development on The East Ruins Way Area.

Table 14 - Acceptable Solutions for Emergency and Evacuation (SFPP Developments)

Intent of measures: to provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
An Emergency and Evacuation Management Plan is approved by the relevant fire authority for the area.	An emergency evacuation plan is prepared consistent with the RFS Guidelines for the preparation of *Emergency/Evacuation Plan*. Compliance with AS 3745-2002 'Emergency control organization and procedures for buildings, structures and workplaces for residential accommodation.'	✔ To comply
Suitable management arrangements are established for consultation and implementation of the emergency and evacuation plan.	An Emergency Planning Committee is established to consult with residents (and their families in the case of schools) and staff in developing and implementing an Emergency Procedures Manual. Detailed plans of all Emergency Assembly Areas including "onsite" and "offsite" arrangements as stated in AS 3745-2002 are clearly displayed, and an annual (as a minimum) trial emergency evacuation is conducted.	✔ To comply

3.1.6 Landscaping

Landscaping is a major cause of fire spreading to buildings, and therefore any landscaping proposed in conjunction with the proposed development of the subject site will need consideration when planning, to produce gardens that do not contribute to the spread of a bushfire.

When planning any future landscaping surrounding any future residential subdivision and SFPP developments, consideration should be given to the following:

- The choice of vegetation – consideration should be given to the flammability of the plant and the relation of their location to their flammability and ongoing maintenance to remove flammable fuels.
- Trees as windbreaks/firebreaks – Trees in the landscaping can be used as windbreaks and also firebreaks by trapping embers and flying debris.
- Vegetation management – Maintain a garden that does not contribute to the spread of bushfire.
- Maintenance of property – Maintenance of the property is an important factor in the prevention of losses from bushfire.

Appendix 5 of NSW Rural Fire Services**, *Planning for Bushfire Protection***, 2006, contains standards that are applicable to the provision and maintenance of landscaping. Any landscaping proposed to be undertaken in conjunction with any future development of the areas which are the subject of this report is to comply with the principles contained in Appendix 5 of NSW Rural Fire Services**, *Planning for Bushfire Protection***, 2006**.**

Compliance with Appendix 5 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006, will satisfy the intent of the bush fire protection measures that are applicable to the provision of landscaping.

3.1.7 Construction Requirements

It is noted that Appendix 3 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 now contains specific construction requirements which the NSW Rural Fire Service will seek to impose, through the development control process, in addition to the construction requirements contained within AS3959 – 2009.

Accordingly, the determination of the construction requirements which will be applicable to any specific future development proposal will need to have regard to the construction requirements nominated in Appendix 3 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 in addition to the requirements of AS3959 – 2009.

It is however noted that due to the conceptual nature of any future development of the subject areas the application of the requirements of Appendix 3 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 is not considered relevant at this stage of the planning process. Notwithstanding the above based upon the size of the subject areas and the opportunities which exist in the planning and design of future development it is considered that the requirements of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 for the siting, design and construction of any future residential and SFPP development buildings can be satisfied.

The relevant requirements of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006, are summarized as follows;

Table 15 – Building Siting and Design Requirements (PfBP 2006)

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
in relation to siting and design: • buildings are sited and designed to minimize the risk of bush fire attack.	• buildings are designed and sited in accordance with the siting and design principles
in relation to construction standards: • it is demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact	• construction determined in accordance with Appendix 3 and the *Requirements for attached garages and other structures*

3.2 Construction of Buildings in Bushfire Prone Areas

3.2.1 General

In NSW, the bushfire protection provisions of the Building Code of Australia, (BCA), are applied to Class 1, 2, 3, Class 4 parts of buildings, some Class 10 buildings and Class 9 buildings that are Special Fire Protection Purposes (SFPP's).

The BCA references AS3959 – 2009 as the Deemed-to-Satisfy (DTS) solution for construction requirements in bushfire prone areas for NSW.

It is however noted that there are a number of NSW variations to the application of AS3959 – 2009 including a restriction on the utilization of the Bushfire Attack Level – Flame Zone requirements of the Australian Standard as a 'deemed to satisfy solution' for these situations. Consequently, in NSW all situations which are determined as being subject to the Bushfire Attack Level – Flame Zone requirements of AS3959 – 2009 must be treated on merit with construction requirements being determined on a specific site assessment basis.

As the development concept involves the construction of residential dwellings and SFPP buildings the requirements of AS3959 – 2009 would typically be applicable to the future development of the subject areas.

Whilst the proposed rezoning of the subject areas does not involve the construction of buildings the determination of specific construction requirements which would be applicable to buildings is not specifically relevant at this stage of the land use planning process.

Notwithstanding the above the following preliminary assessment of Bushfire Attack Levels in accordance with AS 3959 – 2009 is provided as it applies to the residential subdivision and Special Fire Protection Purpose development of the subject areas. This assessment is based upon the provision of the minimum required APZ as provided for by **Tables 7** and **9** of this report.

3.2.2 Vegetation

To complete the assessment under AS 3959 (2009) the vegetation, as originally assessed in accordance with Keith, has to be converted to Specht. The following table shows the conversion:

Table 16 – Summary of Vegetation Characteristics

ASPECT	VEGETATION DESCRIPTION	VEGETATION CLASSIFICATION – (Keith, 2004)	VEGETATION CLASSIFICATION – (AS3959 - 2009) **
The East Ruins Way Area			
North	Grasslands within electricity distribution easement to the north of the area	Grasslands	Grasslands
West	Grasslands with scattered, clusters and narrow bands of trees (remnant/highly disturbed Dry Sclerophyll Forest) associated with the West Ruins Way Area	Similar in specification to Rainforest	Rainforest
The West Ruins Way Area			
North	Grasslands within electricity distribution easement to the north of the area	Grasslands	Grasslands
Southwest	Grasslands and scattered and clusters of trees associated with the undeveloped golf course and undeveloped residential lots	Similar in specification to Rainforest	Rainforest
East	The modified remnant Dry Sclerophyll Forest associated with the East Ruins Way area (east of the Ruins Way road reserve)	Similar in specification to Woodland	Woodland
West	Forested Wetland	Forested Wetland	Forest

	vegetation within the Lake Innes Nature Reserve		
West Lindfield Area			
North	Grasslands within electricity distribution easement and adjacent land to the north of the area	Grasslands	Grasslands
Northwest	Dry Sclerophyll Forest vegetation on adjacent land	Forest	Forest
South	Forested Wetland vegetation within the Lake Innes Nature Reserve	Forested Wetland	Forest
East	Forested Wetland vegetation within the Lake Innes Nature Reserve	Forested Wetland	Forest
West	Managed and remnant Forested Wetland vegetation within the Lake Innes Crematorium and Lawn cemetery	Forested Wetland	Forest

3.2.3 AS3959 – 2009 Construction of Buildings in Bushfire Prone Areas

The following construction requirements in accordance with AS 3959 – 2009 *Construction of Buildings in Bushfire Prone Areas* is required for the bushfire attack level categories.

Table 17 – Bushfire Attack Levels

BUSHFIRE ATTACK LEVEL (BAL)
No construction requirements under AS 3959-2009
BAL - 12.5
BAL - 19
BAL - 40
BAL - FZ

Based upon the information presented in Section 2 of this report the worst-case Bushfire Attack Levels pursuant to AS3959 – 2009 have been determined as being applicable to the proposed rezoning and any future residential subdivision and Special Fire Protection Purpose development of the subject areas.

It is noted that the following BAL assessment has been based upon the provision of the required Asset Protection Zones to residential subdivision and Special Fire Protection Purpose developments as provided for by **Table 7** and **9**.

Table 18 – Worst Case Bushfire Attack Levels for Nominated Vegetation Classifications and Slopes

ASPECT	VEGETATION CLLASSIFICATION	DISTANCE (of proposed Lot/Building from Hazard Vegetation)	SLOPE	BUSHFIRE ATTACK LEVEL (BAL)
The East Ruins Way Area (SFPP Development)				
North	Grasslands	Minimum 20m	2˚ - 3˚ Down slope	BAL 12.5
West	Rainforest	Minimum 40m	2˚ - 3˚ Down slope	BAL 12.5

The West Ruins Way Area				
North	Grasslands	Minimum 10m	<5˚ Down slope	BAL 29
Southwest	Rainforest	Minimum 11m	<5˚ Down slope	BAL 29
East	Woodland	Minimum 17m	<5˚ Down slope	BAL 29
West	Forest	Minimum 27m	0˚	BAL 29
West Lindfield Area				
North	Grasslands	Minimum 10m	0˚ Upslope	BAL 29
Northwest	Forest	Minimum 21m	0˚ Upslope	BAL 29
South	Forest	Minimum 27m	<5˚ Down slope	BAL 29
East	Forest	Minimum 21m	0˚	BAL 29
West	Forest	Minimum 27m	<5˚ Down slope	BAL 29

The information presented in the above table indicates that where the minimum required APZ's are provide in accordance with **Table 7** of this report, future Special Fire Protection Purpose development buildings within The East Ruins Way Area would be subjected to a worst-case Bushfire Attack Level of BAL 12.5. This is consistent with the acceptable solution requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006.

Additionally, where the minimum required APZ's are provide in accordance with **Table 9** of this report, future dwellings erected within The West Ruins Way and West Lindfield Areas would be subjected to a worst-case Bushfire Attack Level of BAL 29. This is consistent with the acceptable solution requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006.

4.0 SUMMARY OF FINDINGS

The following findings are considered to be integral to this bushfire hazard assessment and must be incorporated into the design of any future residential subdivision and SFPP developments on the areas of land which are the subject of this report;

(i) Asset Protection Zones are to be provided in accordance with Section 3.1.1of this report. Specifically;

- The positioning of any future Special Fire Protection Purpose developments within the East Ruins Way Area must demonstrate compliance with the relevant requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 – refer to **Table 7** of this report; and

- APZ's to future residential lots within the West Ruins Way and West Lindfield Areas must provide for a worst case radiant heat exposure of 29kW/m^2 in accordance with the objectives of NSW Rural Fire Services**,** ***Planning for Bushfire Protection***, 2006– refer to **Table 9** of this report

(ii) Water and other services are to be provided to the subject site in accordance with the requirements detailed in Section 3.1.3 of this report.

(iii) The design and construction of all public roads within the proposed residential subdivisions are to comply with the acceptable solutions provided for in Section 4.1.3 of NSW Rural Fire Services**,** ***Planning for Bushfire Protection***, 2006.

(iv) Where internal access road infrastructure is required to be provided in conjunction with the SFPP development of the East Ruins Way Area, its design and construction must comply with the relevant internal road design requirements provided for in Section 4.1.3 and 4.2.7 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006.

(v) Before occupation of any future Special Fire Protection Purpose development on the subject site an Emergency Evacuation Plan incorporating bushfire evacuation will be required to be produced for the future development of the East Ruins Way Area.

(vi) Adopt Landscaping principals in accordance with Section 3.1.4 of this report.

5.0 CONCLUSION

It is considered that the proposed rezoning of land known as Part of Lot 245 DP 1227796 and Part of Lot 299 DP 1234443, The Ruins Way, Port Macquarie is at risk of bushfire attack; however, it is in our opinion that with the implementation of the bushfire threat reduction measures and consideration of the recommendations in this report, the bushfire risk is manageable for the proposed rezoning albeit that the design and construction of any future development will need to demonstrate compliance with the relevant requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006.

With the implementation of the recommendations it is considered that it will be possible for the future development of the subject site to meet the applicable performance objectives and acceptable solutions as provided for in NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006.

This report is however contingent upon the following assumptions and limitations.

Assumptions

(i) For a satisfactory level of bushfire safety to be achieved regular inspection and testing of proposed measures, building elements and methods of construction, specifically nominated in this report, is essential and is assumed in the conclusion of this assessment.

(ii) There are no re-vegetation plans in respect to hazard vegetation and therefore the assumed fuel loading will not alter.

(iii) It is assumed that the building works will comply with the DTS provisions of the BCA including the relevant requirements of Australian Standard 3959 – 2009.

(iv) Any future developments are constructed and maintained in accordance with the risk reduction strategy in this report.

(v) The vegetation characteristics of the subject site and surrounding land remains unchanged from that observed at the time of inspection.

(vi) The information contained in this report is based upon the information provided for review, refer to **Appendices 2, 3** and **4.**

No responsibility is accepted for the accuracy of the information contained within the above plans.

Limitations

(i) The data, methodologies, calculations and conclusions documented within this report specifically relate to the building and must not be used for any other purpose.

(ii) A reassessment will be required to verify consistency with this assessment if there is building alterations and/or additions, change in use, or changes to the risk reduction strategy contained in this report.

6.0 REFERENCES

NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006

AS 3959-2009, ***Construction of Buildings in Bushfire Prone Areas***

Keith David 2004, Ocean ***Shores to Desert Dunes, The Native Vegetation of New South Wales and the ACT***, Department of Environment and Conservation

NSW State Government, ***Rural Fires Act***, 1997

Port Macquarie-Hastings Councils, ***Bushfire Prone Land Mapping***

NSW Rural Fire Service, ***Guideline for Bushfire Prone Land Mapping***, 2002

Australian Building Codes Board, ***Building Code of Australia***, 2011
NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2002*

Disclaimer

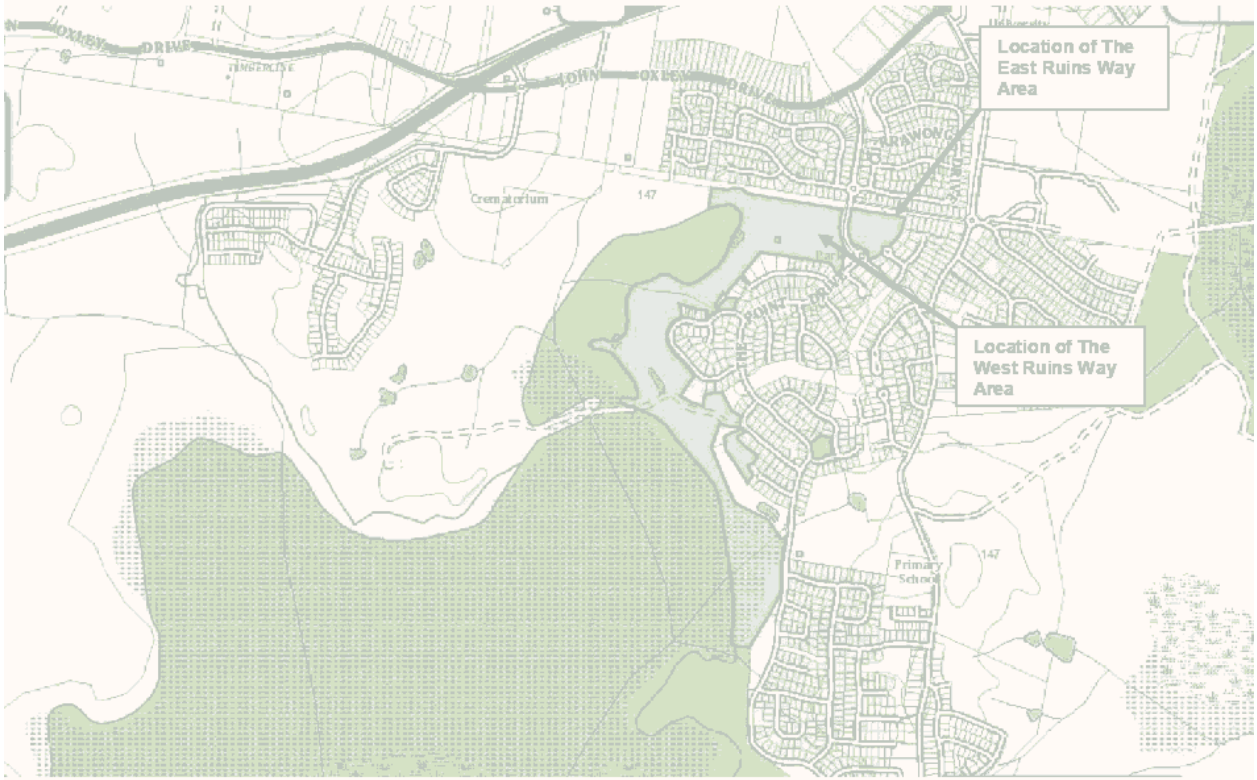
The findings referred to in this report are those which, in the opinion of the author, are required to meet the requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006. It should be noted that the Local Authority having jurisdiction for the area in which the property is located may, within their statutory powers, require different, additional or alternative works/requirements to be carried out other than those referred to in this report.

This report has been prepared partially on information provided by the client. Information provided by the client in respect of details of construction.

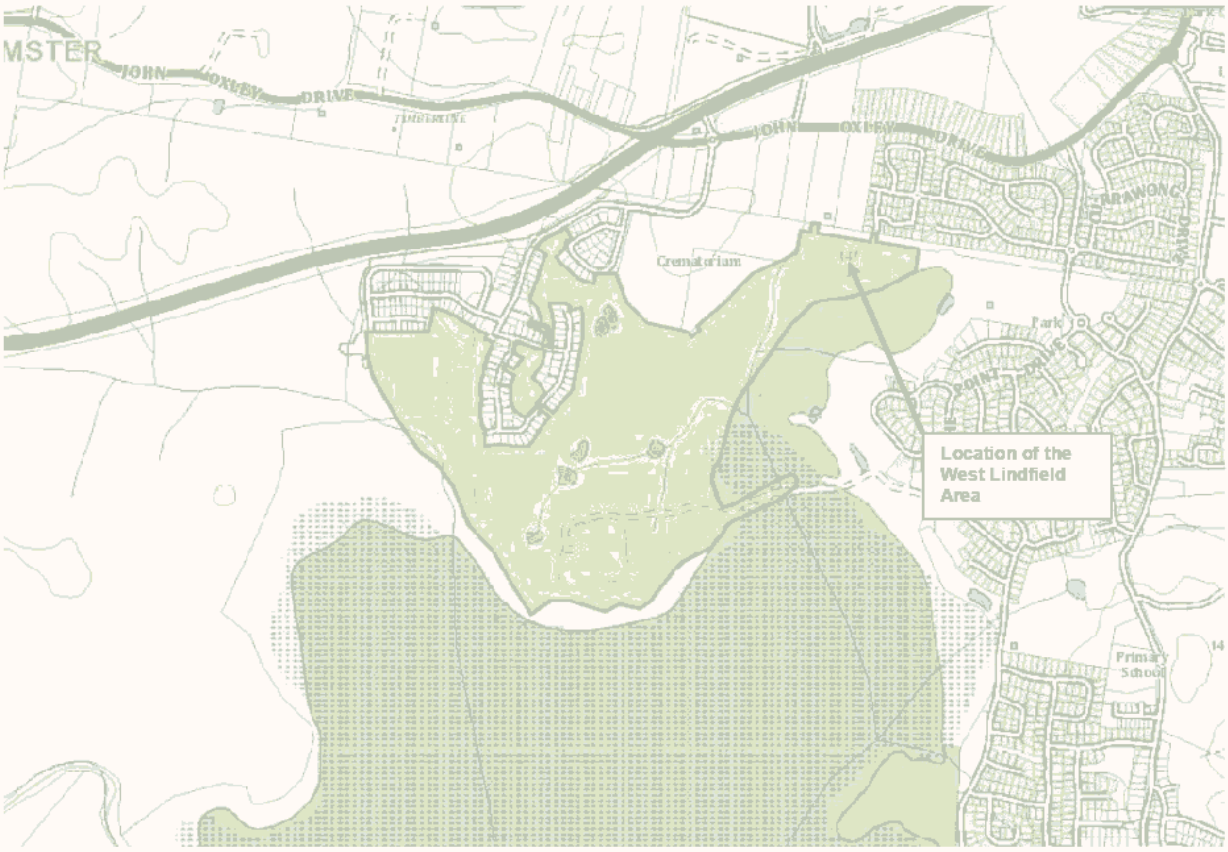
The author denies any legal liability for action taken as a consequence of the following:

- The Local Authority requiring alternative or additional requirements to those proposed or recommended in this report.
- Incorrect information, or mis-information, provided by the client with regard the proposed development which is in good faith included in the strategies proposed in this report and later found to be false.

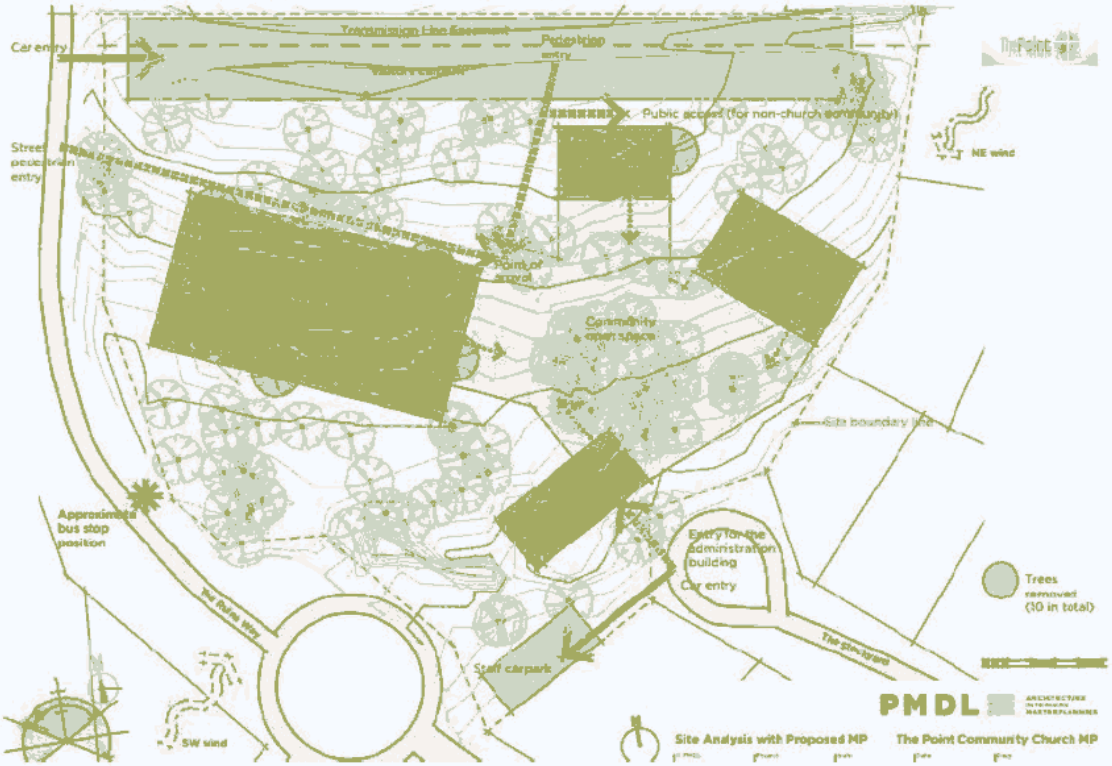
APPENDIX 1
Subject Lots – Lot 245 DP 1227796



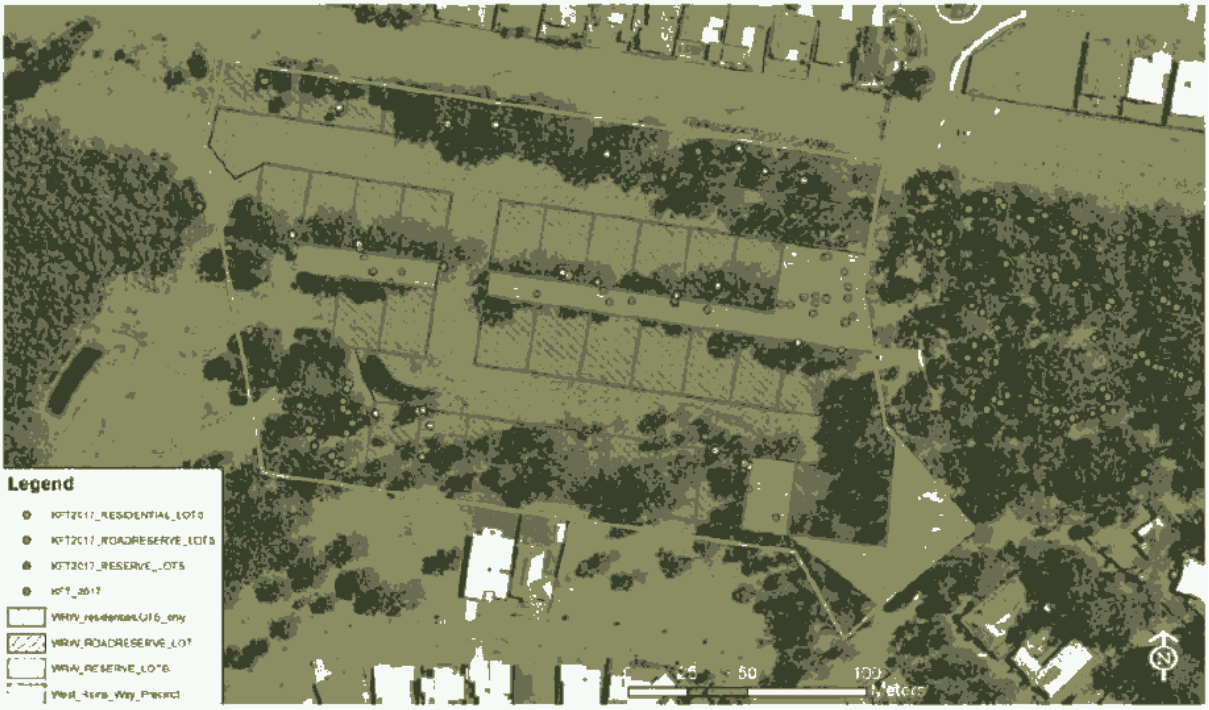
APPENDIX 1
Subject Lots – Lot 299 DP 1234443



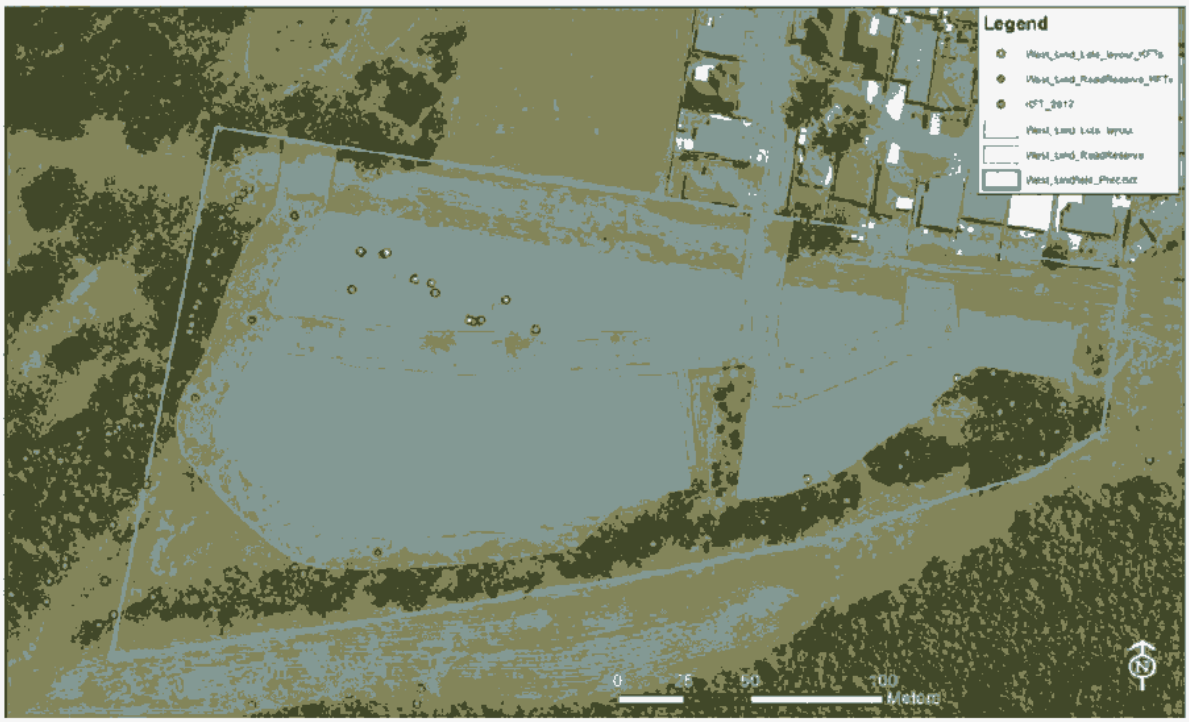
APPENDIX 2
Development Concept – The East Ruins Way Area



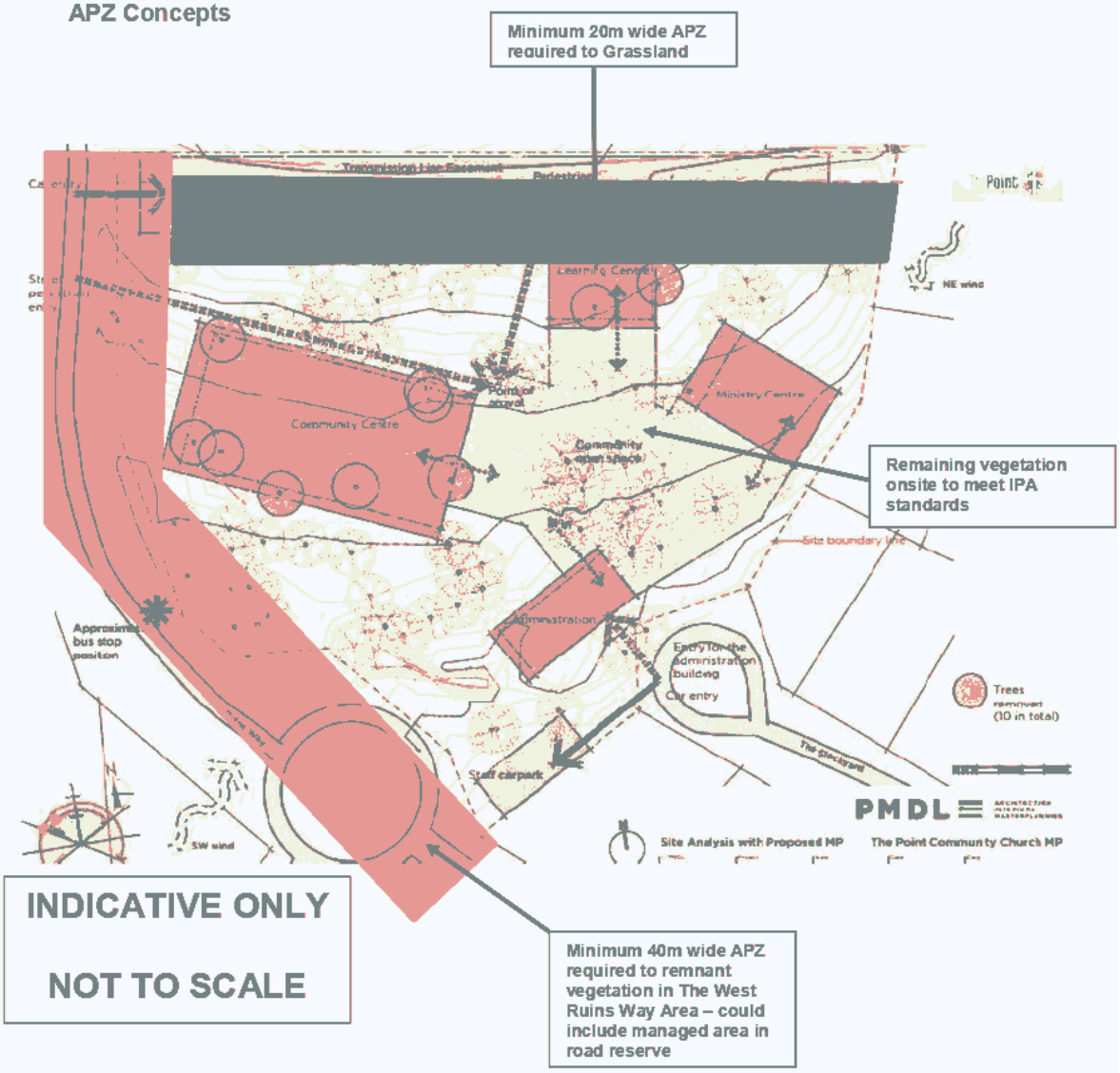
APPENDIX 3
Development Concept – The West Ruins Way Area

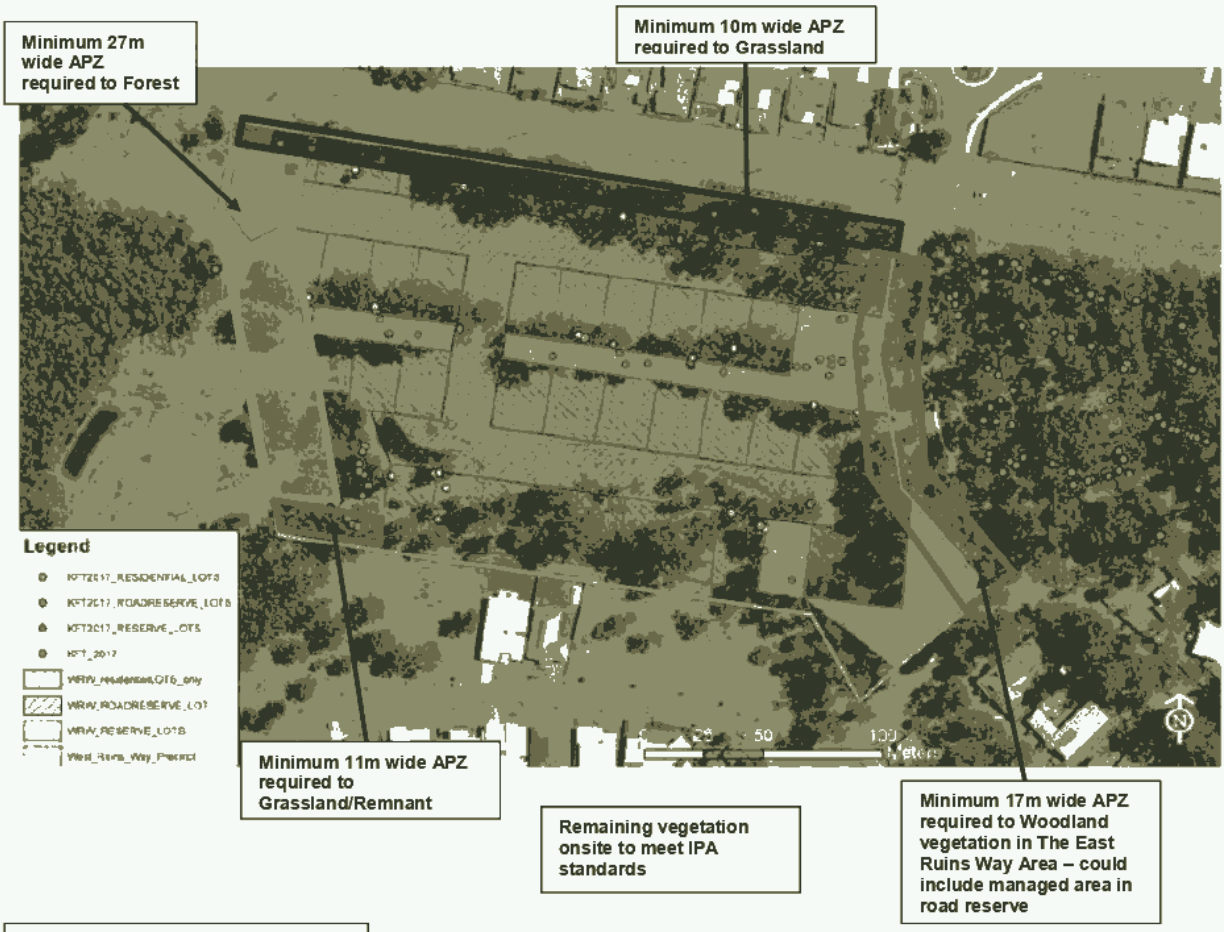


APPENDIX 4
Development Concept – West Lindfield Area



APPENDIX 5
APZ Concepts





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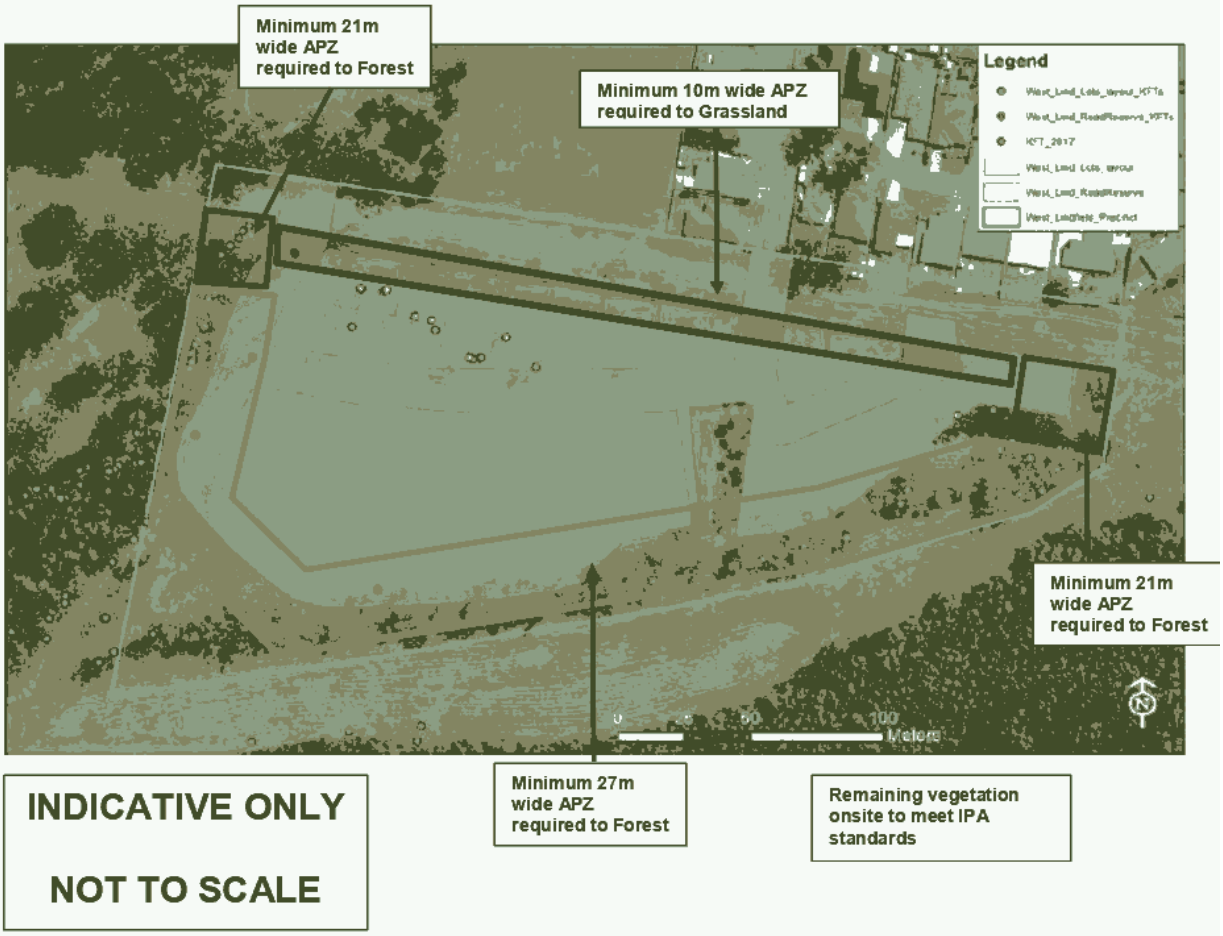

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Planning Proposal Application East & West Ruins Way and West Lindfield PORT MACQUARIE

Michelle Love, Project No 6507
Love Project Management

February, 2018

Document Details

Document Version Date: February, 2018

Authorised by: Michelle Love

Signed: MLove.

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Executive Summary

This planning proposal relates to the investigation and assessment of landuse zones which will assist the long term management of land surrounded by urban zoned land, as well as provide additional housing opportunities for the growing residential population of Port Macquarie.

The land holdings are identified as East Ruins Way, West Ruins Way and West Lindfield. The East Ruins Way property is primarily proposed for usage by a community church which will achieve long term management of the areas of native vegetation. The West Ruins Way property consists of cleared land which is to accommodate residential allotments, and remnant strips of vegetation which will be retained and protected to provide linkages for dispersing fauna, particularly koalas.

The West Lindfield area has previously been considered for zone changes, and this land is now considered in the context of the adjoining properties and is proposed to be zoned part residential over the cleared areas of land, and part environment protection over the areas of the remnant, scattered trees which separate the approved golf fairway and the proposed residential development.

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1. Introduction & Background

This Planning Proposal application has been prepared in response to the need to evaluate and determine the appropriate landuse zones for a large landholding in Port Macquarie which is surrounded by residential and urban forms of development. The land contains minor strips of vegetation, some of which have environmental merit for their retention within an urban setting.

The information provided to Council in this Planning Proposal is intended to assist Council in their consideration of the proposal, and the need to identify the long term management of this land. It is noted that the information sought by the Department of Planning at this stage of the Planning Proposal application is not intended to be to the level required for a development application.

The Department of Planning & Environment set out the following in their Guide to Preparing Planning Proposals:

> *It is not expected that a Council or proponent will provide comprehensive information to support a request for a Gateway determination. As a minimum, a planning proposal before a Gateway determination has been issued must identify relevant environmental, social, economic and other site specific considerations. The planning proposal document may identify the need for investigations and an approach for addressing the issues.*

By way of further explanation, the Guidelines provide the following Explanatory Note:

> *Where vegetation management is an issue for a large site to be rezoned, it would be sufficient for the planning proposal to be submitted to the Gateway to identify the issue and indicate what environmental studies may be necessary to assess and analyse the value and location of the vegetation and how the matter(s) could be addressed.*

In this regard, this Planning Proposal application has addressed in detail the environmental values of the subject land, and in particular the koala habitat areas. The investigations and management provisions have been extended to the level of a full Koala Plan of Management being prepared and submitted with this application. The Koala Plan of Management is consistent with Council's most recently prepared KPOM being for the adjoining South Lindfield rezoning. It is acknowledged that more detail will be contained in Vegetation Management Plans and the likely requirement for Voluntary Planning Agreements, however this application has considered and assessed the primary issue, being the koala habitat management in the long term.

The subject land has previously been investigated for rezoning to support residential development. The East and West Ruins Way areas were deferred as the Council's Strategic Planning focused on the area which included the West Lindfield land and other properties adjoining to the north. Whilst the relevant portion of the subject land was found to be capable of accommodating a 33 lot residential development, agreement could not be reached on the location for offset planting and the long term use of the adjoining golf course land – the latter of which had been approved and cleared for golf course use in the 1980s.

Hence, it is clarified that this proposal does not include the full revegetation of the approved fairway between the properties, but rather a functioning golf course is to be retained.

Whilst a number of environmental investigations were undertaken for the Planning Proposal, the Council has requested these studies be updated by the previous consultant. For this reason, the same consultant was engaged to prepare new reports, as well as a Koala Plan of Management. The introduction of a significant weight of new environment legislation, including new accreditation requirements, resulted in delays in finalizing these reports as consultants and government staff struggled to become familiar with, and compliant in, these new requirements. These reports are now compliant with the current environment legislation, and the assessments have concluded that the subject land is able to sustain a residential subdivision of the land whilst maintaining and enhancing the environmental attributes of the land.

2. Subject Land & Locality

The subject land forms part of the residue of an existing residential estate which was approved in the 1980s. Thus, as each stage of the estate is subdivided, the legal title of the residue is changing. However, for consistency with the consultant reports, the land will be referred to as Part Lot 289 DP 1184284 and Lot 6 DP110560.

The subject land is located within the Port Macquarie town boundaries, with the Innes Lake Estate to the east and south, the Ascot Park estate to the west, and the Annabella Downs estate to the north. The locality plan is shown in the following figure.

Figure 1: Locality Plan

The following aerial plan is a marked up extract from a consultant report and notes the names for each section of the land. This has been done for ease of reference to areas; however it should be noted that the land has been assessed across all shaded areas. The environmental studies consider a broader area, as is required by the relevant legislation, however the planning proposal, and recommendation regarding changes to the zoning of the land, only relates to the shaded areas.

The areas of land inbetween (unshaded areas) form part of existing development consents and some of this unshaded land is in the control of different entities and thus does not form part of the planning proposal.

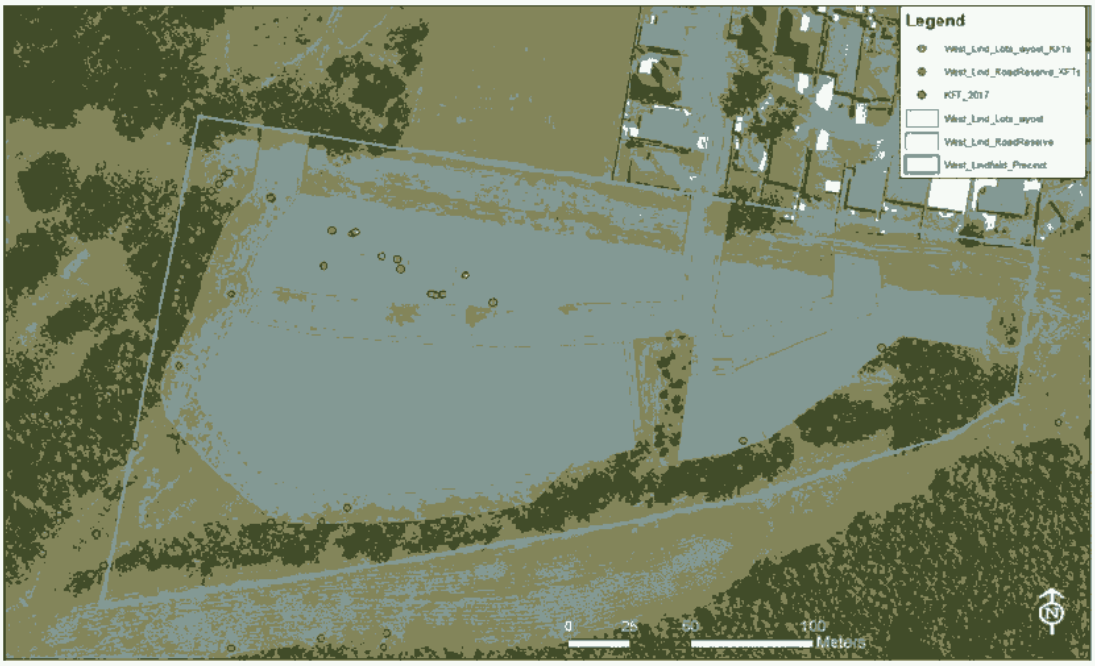
Figure 2: Location of Subject Land shown by shading

The subject land is currently vacant and varies between cleared pasture land over the majority of West Lindfield and West Ruins Way, with forested areas and cleared understorey remaining on East Ruins Way.

3. Proposed Landuse

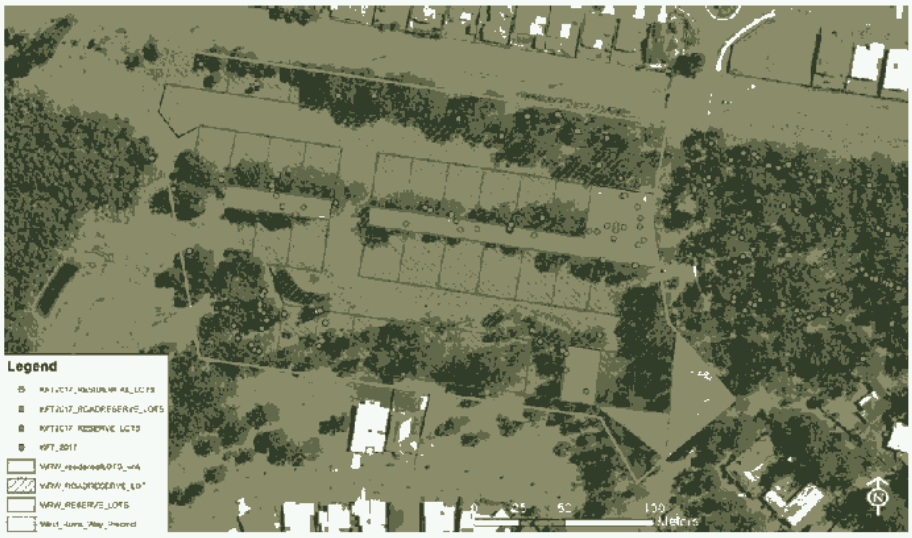
The proposal is to identify appropriate urban landuses and environmental management & protection areas on the subject land. West Lindfield has been assessed as able to accommodate a residential subdivision for some 33 residential lots and an area in the southern portion of the land which will be zoned for environment protection to ensure the long term preservation of a narrow strip of trees which has been retained as a separation between the appoved fairway and the proposed residential subdivision.

Figure 3: West Linfield Concept Plan for Residential subdivision (Source: JBEnviro)



The West Ruins Way land is also proposed to be both residential development and environmental protection areas. The concept plan provides for 38 residential allotments and areas of retained vegetation which will be zoned for environmental protection and enhancement.

Figure 4: West Ruins Way Concept Plan for Residential Subdivision (Source: JBEnviro)

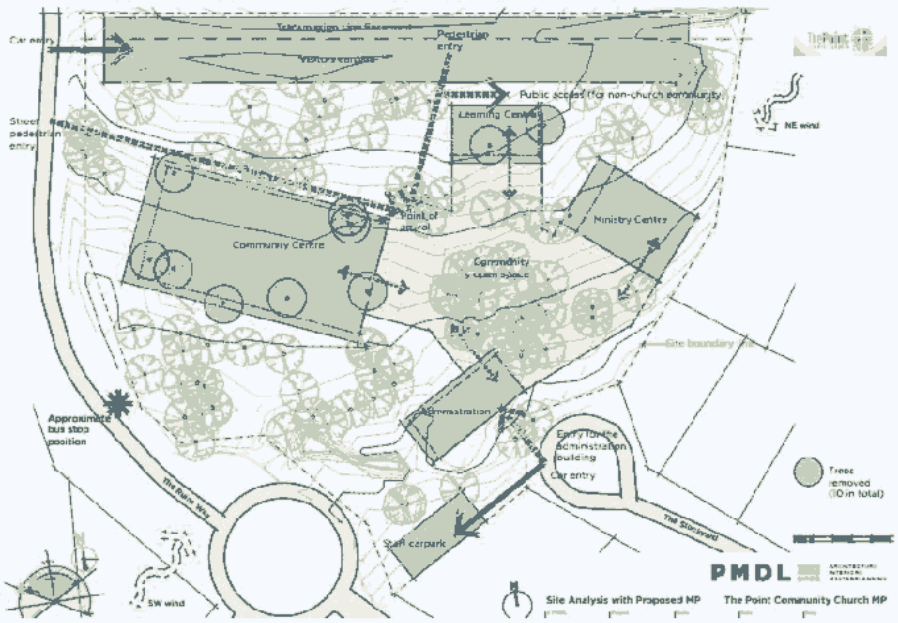


The East Ruins Way site requires a long term management plan which will be achieved through this Planning Proposal. The successful management of large areas of vegetation within an urban environment will require vegetation management plans to form part of the future development consents on the property. The proposal is for this land to become a site owned and managed by a community group, with the footprint of proposed buildings located to maximize retention of koala food trees.

Unmanaged urban bushland areas become weed infested (particularly lantana) and are often used as dumping areas for garden waste and even rubbish. This results in bushland which becomes an environmental liability, and bushfire hazard for surrounding residential properties. For these reasons, the management of this land must be addressed, and the community group will provide social and community benefits, whilst protecting the long term viability of the environmental attributes of the land.

The concept plan for the community use of the land is shown in the following figure and has been used as a basis for the environmental evaluation of this proposal.

Figure 5: East Ruins Way Concept Plan for Community Development & Tree Retention (Source: PMDL)



4. Analysis of Subject Land & Proposal

The subject land has been extensively investigated over a number of years. This includes years of fauna survey data, as well as formal investigations in relation to Aboriginal Cultural Heritage and Bushfire Hazard impacts. The servicing of the land, including connection to reticulated services and the identification of areas for stormwater management, have all formed part of these investigations over the last several years. The separate consultant reports and consultations are attached as appendices to this Planning Proposal application, and discussed in summary as follows.

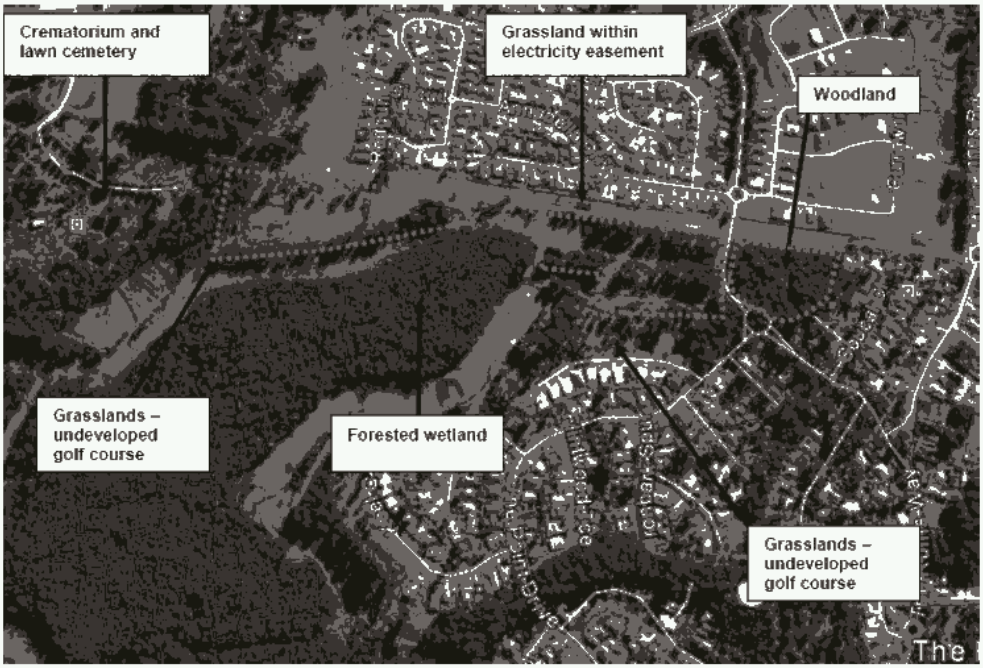
4.1 Bushfire Hazard Analysis

A Bushfire Hazard Analysis was undertaken for the three parcels of land as a collective. The assessment was based on residential subdivision of West Ruins Way and West Lindfield and a large lot residential subdivision of the East Ruins Way land.

The assessment was undertaken in consultation with the ecological assessment to ensure the tree removal required to achieve adequate asset protection zones, was compatible with the vegetation retention and enhancement required to maintain and improve the habitat values of the subject land.

The Bushfire Hazard Analysis included an assessment of the vegetation on site and on surunding lands. The East Ruins Way site was classified as containing a woodland vegetation with cleared understorey. The West Ruins Way site contains grassland and dry sclerophyll forest, as does the West Lindfield area. These vegetation structures remain unchanged. The following is an extract from the Bushfire Hazard Analysis which shows the vegetation classification of the subject land and immediately surrounding areas as per the bushfire legislation.

Figure 6: Extract from Bushfire Report showing vegetation classifications for bushfire hazard analysis purposes



The Asset Protection Zones (APZs) required for the proposed residential development of the land, are as set out in the following table (extract from Bushfire Hazard Analysis).

Figure 7: Extract from Bushfire Report identifying proposed Asset Protection Zones

ASPECT	VEGETATION	SLOPE	TOTAL REQUIRED APZ			MINIMUM POTENTIALLY AVAILABLE COMPLIANT APZ	COMPLIANCE WITH MINIMUM APZ REQUIREMENTS
			IPA	OPA	APZ		
The East Ruins Way Area							
North	Grassland	<5° Down slope	10m	-	10m	>10m	✔
West	Similar in specification to Woodland	<5° Down slope	15m	-	15m	>15m	✔
The West Ruins Way Area							
North	Grassland	<5° Down slope	10m	-	10m	>10m	✔
South	Grassland	<5° Down slope	10m	-	10m	>10m	✔
East	Similar in specification to Woodland	<5° Down slope	15m	-	15m	>15m	✔
West	Forested Wetland	0°	15m	-	15m	>15m**	✔
West Lindfield Area							
North	Grassland	0° Upslope	10m	-	10m	>10m	✔
Northwest	Forest	0° Upslope	10m	10m	20m	>20m	✔
South	Grassland	<5° Down slope	10m	-	10m	>10m	✔
Southeast	Forested Wetland	0°	15m	-	15m	>15m**	✔
East	Forested Wetland	0°	15m	-	15m	>15m**	✔
West	Similar in specification to Woodland	<5° Down slope	15m	-	15m	>15m	✔

The Asset Protection Zones are all able to be achieved on the subject land, and the environmental assessments were based on these areas being achieved on the subject land. The Asset Protection Zones do not encroach on any adjoining landholdings and are all contained within the subject land.

The landuse of East Ruins Way has been altered to now be proposed for use as a Community Facility. Consultation with the bushfire consultation has noted that this landuse is likely to require Asset Protection Zones of 15m to 20m. These areas of the land do not require clear felling, but will require tree removal to achieve a reduction in canopy cover. For this reason, the environmental assessment has considered the Concept Plan developed for East Ruins Way, and assumed that all non koala food trees would be removed from the site. This is to achieve the asset protection zone areas required directly adjoining the buildings.

Thus, the Bushfire Hazard Analysis has determined that the subject land may be developed for residential and urban purposes, subject to the achievement of the asset protection zones identified in the report. The environmental assessment has been undertaken based on this level of vegetation modification to achieve the APZs and has concluded that such works may be achieved without a significant adverse impact on the environmental and habitat values of the subject land. A copy of the Bushfire Hazard Analysis is included in the appendices section of this report.

4.2 Aboriginal Cultural Heritage

The subject land has been part of the development consents from the late 1980s onwards. On a number of occasions, the property owner has engaged with representatives of the Local Aboriginal Land Council to undertake site inspections over the land. These consultations have noted that the land has been the subject of extensive site disturbances, particularly the land clearing and levelling associated with creation of the golf course fairway and the proposed residential developments on both West Lindfield and West Ruins Way. The East Ruins Way site was also underscrubbed and subject to landscaping earthworks when this area was developed as the land sales office for the initial InnesLake Estate land release.

These site disturbances have resulted in an area which is considered to be unlikely to contain any areas of significant Aboriginal Heritage artefacts. The previous site inspections have confirmed the level of surface disturbance and earthworks, and the lack of artefacts on the site. Council's recent engagement of the Local Aboriginal Land Council representatives to inspect the South Lindfield site, reconfirmed this level of disturbance and lack of artefacts on the site.

A search of the OEH Aboriginal Heritage Information Management System noted that no Aboriginal sites and no Aboriginal Places were recorded or declared in or near the subject land. An extensive search noted the nearest site is recorded at the corner of Philip Charley Drive and John Oxley Drive (Lot 5 DP 630393), being within the South Lindfield land recently rezoned for residential development by Council. This site is not adjoining the subject land.

The legislative provisions which protect items of Aboriginal heritage will remain, post any rezoning of the land. Such that, any future development consent for development of the subject land will include a condition of consent requiring all site works to immediately cease and the notification of OEH and the local Aboriginal representatives, should any artefacts be uncovered onsite.

4.3 Reticulated Services

A significant water main is located north of the subject land, within a dedicated easement. This water main will not be adversely impacted by the development proposal. In consultation with Council, and similar to Council's previous responses in relation to the South Lindfield Planning Proposal, it is noted that the subject land may be readily supplied with a reticulated water service. Some extensions to the water supply will be required but Council's network has capacity for the proposal.

The West Lindfield land has already been assessed and catered for in regards to reticulated sewer services. A pumping station, located downstream of the land, to the south-west, has capacity to cater for the proposed residential subdivision.

The development of East and West Ruins Way will only provide for a limited number of addition et loading on the existing sewer network. It is noted that the proposal to develop this land for additional residential occupation has formally been with Council since 2013 and no concerns have been raised regarding the capacity of the network. Thus, it is considered that the existing network has capacty to cater for the proposal.

4.4 Stormwater Management

The standards for Stormwater Management are that there should not be any increase over predevelopment flows. The development of the West Lindfield land has been previously investigated and the location of a stormwater detention faciity downstream was identified and accepted by Council. The sizing of this facility has been developed to ensure there is adequate area to cater for the additional runoff generated by the development of the West Lindfield land. The stormwater detention facility is as shown in blue on the following aerial image, and located south west of the subject land. No other landowner agreement is required.

Figure 8: Location of Stormwater Detention Facility for West Lindfield

The stormwater from West Ruins Way will be directed towards existing easements and the road network. No stormwater detention facilities will be located on adjoining properties. There are a number of existing easements for services and drainage located between the subject land and Blue Wren Close, and these will be integrated into the West Ruins Way development.

The additional stormwater runoff from the small footprint of development proposed on East Ruins Way will be dealt with onsite, and directed to existing networks where required.

4.5 Environmental Analysis

The environmental management for this proposal has been the most significant issue in all previous proposals put to Council. The legislation which controls the standards and provisions for land management have recently been significantly upgraded. This new legislation is only now beginning to be implemented, and the required guidelines and certification of consultants is still being rolled out by those Departments responsible for such tasks. Therefore, the environmental assessment has only just been completed, and is submitted with this Planning Proposal application.

However it should be noted that the environmental evaluation of the subject land has been ongoing for several years. Regular spotlighting and monitoring of the koalas on site has provided us with years of data, and a long term knowledge of koala usage of the site. The subject land is most likely the most studied land in Port Macquarie.

As noted previously, Council specifically requested the updating of the 2013 Environmental Reports by the same consultant. The consultant has undertaken the required new certification, and the report now completed. Both an Ecological Constraints Assessment, and a full Koala Plan of Management are submitted herewith to Council, based on the proposed landuses and land management.

The Ecological Constraints Assessment report noted the following vegetation types on the subject land:

> *The site vegetation consists of:*
> *(a) East Ruins Way:*
> *Pasture along service easement to north.*
> *Dry sclerophyll forest (remnant block) over majority of this precinct.*
>
> *(b) West Ruins Way:*
> *Pasture along fairways and in service easements.*
> *Dry sclerophyll forest in 3 remnant strips between fairways.*
>
> *(c) West Lindfield:*
> *Pasture over most of the precinct.*
> *Dry sclerophyll forest at the end of the strip in the southeast*
> *Narrow band of wet sclerophyll in the northwest corner boundary.*
> *Swamp forest dominated by paperbarks in and adjacent to the southwest corner boundary, and forming a single line of trees along most of the southwest boundary.*

The Ecological Constraints Assessment is summarised as follows:

> *No threatened flora species were recorded on site. No other threatened plant species was considered a significantly likely potential occurrence.*
> *<u>EECs:</u>*
> *Soil investigations on site by a qualified soil scientist found the development precincts and the swamp forest in PLINR did not fall on alluvial soils. Hence none of the forest communities in the development precincts qualified as an EEC.*

Threatened Flora:
No threatened flora species were found on site.
Fauna:
The survey detected the following threatened species on the property:
Little Bent-Wing Bat: Confident call detection.
Grey-Headed Flying Fox: Detected during spotlighting.
Koala: Maximum of 4 Koalas seen on one occasion, with 90 Koala food trees found with scats. The Eastern Cave Bat was considered to be a precautionary "possible"occurrence due to call identification limitations and detection of Vespadelusspecies on the subject land. Another 9 birds and 6 mammals listed as threatened were considered to have varying potential to occur on the site (possibly only in localised areas) on the basis of potential habitat, local records in interconnected habitat, and or regional records in similar habitat.
SEPP 44 –Koala Habitat Assessment
The precincts overall qualify as Potential Koala Habitat, although not uniformly across all precincts e.g. the northern strip on West Ruins Way and the southwest strip of swamp forest on West Lindfield did not qualify. The swamp forest in PLINR did not qualify as Potential Koala Habitat. Historical sightings from database and literature review; previous and recent sightings as part of the proponent's own on-going survey of the site and adjoining lands; and sightings of up to 4 Koalas on site, indicated the site forms part of Core Koala Habitat. Hence a Koala Plan of Management is required to be submitted with any future DA.
Constraint Assessment and Ameliorative Measures
As the site forms part of Core Koala Habitat, a Koala Plan of Management (KPoM) will be required. Consequently, the following will need to be incorporated in the design of future development layouts:

- *Maximum retention of Koala food trees, with any loss replaced by replantings.*
- *Retention of effective connectivity and permeability for Koalas.*
- *Prohibition of dogs in East Ruins Way, and Koala exclusion fencing in the residential areas of West Ruins Way and West Lindfield.*
- *Vehicle speed controls.*

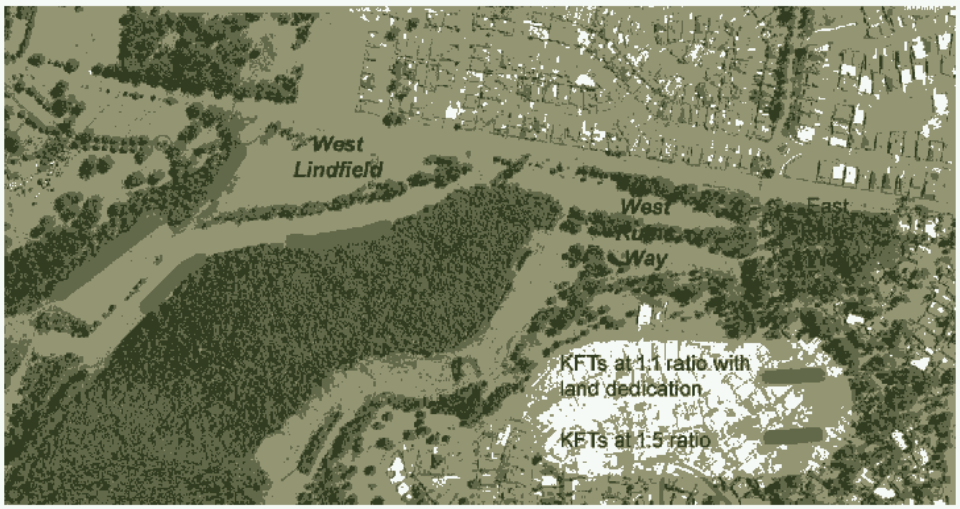
In addition to the Koala, Grey-Headed Flying Fox and Little Bent-Wing Bat which were recorded on site during the survey, 15 other bats and birds were considered potential occurrences on site (the birds and bats have nil or limited potential to breed on site). Of these, the Koala was considered to be the most sensitive to habitat changes by any future development proposal.
Measures required as part of any future development to retain the viable presence of the Koala are required to be implemented under a KPoM. Provided these and the above measures for the Koala are adequately considered and implemented, the local populations of these species should persist in the long term.
Twelve hollow-bearing trees occur on site. Assessment under provisions of DCP 2013 found that 5 trees may require mandatory retention, although one of these needs inspection by an arborist to determine if actual habitable hollows have formed. Four hollow-bearing trees were considered to be potentially able to be removed (at least 1 needs an arborist to confirm if habitable cavities are present). Offset measures will be required if habitable hollows are removed.
Conclusion
Preliminary development concepts have been developed, and preliminary assessment indicates proposed rezoning is unlikely to have significant negative ecological impacts as assessed under statutory obligations, particularly due to the provisions of the Koala Plan of Management. Due cognisance of the identified habitat values and their appropriate incorporation within an informed and innovative final development layout should aim to ensure an ecologically sustainable outcome in the long term.

Therefore, the environmental analysis has determined that the proposals may be undertaken, subject to the replacement planting of koala food trees at a ratio of 5:1, unless the site of the replacement planting is on land to be dedicated to Council. In the latter scenario the standard has become a replacement ratio of 1:1 (as per Council's KPOM for South Lindfield which is the most recently adopted KPOM for the PMHCouncil area).

The Concept Plans for the subject land would result in a total of 83 koala food trees being removed. If the replacement plantings were undertaken on land to be dedicated to Council, then this would require a total of 83 koala food trees to be planted in this locality, at 5m centres. Based on the Concept Plans, it is assumed that 40 koala food trees may be acccommodated within the reserve areas of the proposed subdivisions, thus leaving a further 215 trees to be located within the locality on areas to be managed and maintained in perpetiuity. It is proposed to locate these trees on the edge of the Lake Innes Nature Reserve to enhance this existing reserved land. The report by JBEnviron notes tha the Nature Reserve in this locality has limited habitat value, and thus the proposed replanting will enhance the koala habitat and enrich the value of this Nature Reserve as a local connection and resource for the koala population.

The location of the offset plantings area has been shown on the following Concept Plan. It is noted that 40 Koala Food Trees (KFTs) will be located in the areas shown green, and 215 trees will be located in areas shown blue. There is capacity for additional plantings between golf course fairways further to the west of the subject land.

Figure 9: Koala Food Tree offset planting areas



5. Purpose of the Planning Proposal (Objectives or Intended Outcomes)

The intended outcome of this Planning Proposal is as per similar proposals in this locality and is set out as follows:

The intended outcome is urban development and habitat management across the subject land that is:

- able to be serviced with essential infrastructure;
- compatible with the local environment;
- well designed to facilitate social wellbeing; and
- compatible with surrounding landuses.

The objective is to provide planning based controls which enable urban development to be undertaken whilst achieving the above outcomes.

The secondary objectives are also consistent with similar planning proposals in the locality and are as follows:

- to apply an E3 – Environmental Management zone over the parts of the subject land identified for long term habitat protection.

The Planning Proposal will facilitate the long term management of urban bushland. Best Planning Practice is not to simply leave rural zoned parcels of land within a city environment. The current rural zoning does not reflect the most appropriate long term use of the land. Portions of the land have been identified as suitable and capable of being developed to provide additional residential accommodation, and areas of the land have been identified as suitable for environmental management. Retaining areas of land zoned for Primary Production, when the agricultural use of the land is not the primary and best long term use of the land, would be poor planning. Therefore, the long term use of the subject land needs to be resolved and the full Environmental Assessment has been undertaken and determined that the Concept Plans provide a sustainable outcome.

The Planning Proposal will require amendments to the LEP mapping including the Land Zoning Map, the Lot Size Map, Floor Space Ratio Map, Height of Building Map, and Koala Habitat Map.

The adoption of the Koala Plan of Management will also be required to implement the proposed habitat enhancement works, which will be supported by a Voluntary Planning Agreement.

6. Strategic Justification of Proposal

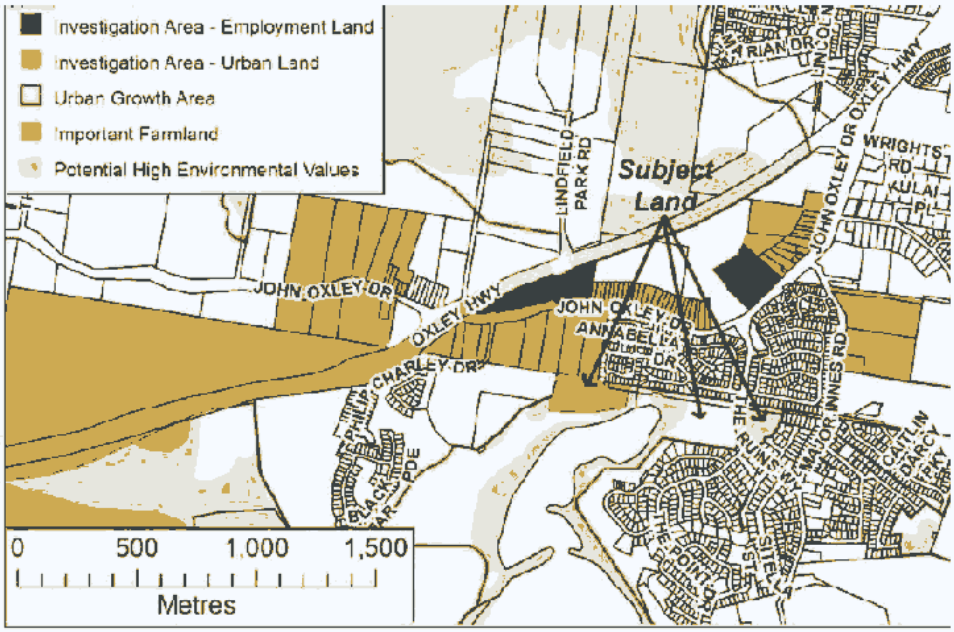
The Department of Planning & Environment issued a Guide to Preparing Planning Proposals, which refers to the questions to be considered when demonstrating a justification for the Planning Proposal. As this Planning Proposal is very similar to the South Lindfield Planning Proposal on the adjoining land, the responses to the questions are also similar due to the relatively similar planning context.

(a) Need for the Planning Proposal

- *Is the planning proposal a result of any strategic study or report?*

The subject land is identified within the Urban Growth Area of the North Coast Regional Plan map within the Department of Planning's North Coast Regional Plan 2036, and also forms part of the Investigation Area – Urban land in Council's Urban Growth Management Strategy 2010-2031. The East Ruins Way area was identified as containing potential high environmental values. This has led to this need to implement a long term management plan for the urban bushland which remains on the East Ruins Way land. An extract from the North Coast Regional Plan is shown below, and it is noted that all of the Subject Land is contained within the red outlined area being the Urban Investigation Area.

Figure 10: North Coast Regional Plan map extract



The Council's recently exhibited Urban Growth Management Strategy, which is required to be consistent with the North Coast Regional Plan, also identified parts of the subject land as suitable for urban growth, as shown in the following plan extract. The

relationship of the Subject Land to the South Lindfield rezoning area is highlighted in the following plan, and the manner in which the Subject Land is surrounded by urban development is also evident in this plan extract.

Figure 11: draft Port Macquarie - Hastings Urban Growth Management Strategy extract

- *Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?*
  The subject land is currently zoned for Primary Production. This is not the most appropriate landuse in this locality, nor with regard to the attributes of the land. Urban development is prohibited under the current zoning, and the Primary Production zone provides limited, if any, level of environment protection for habitat areas. Therefore, this Planning Proposal is the best means of achieving the objectives and intended outcomes.

(b) Relationship to strategic planning framework

- *Is the Planning Proposal consistent with the objectives and actions of the North Coast Regional Plan 2036?*

  The Planning Proposal is consistent with the objectives and actions of the North Coast Regional Plan, and will address the Settlement and Housing provisions of the Plan.

- *Is the Planning Proposal consistent with Council's Community Strategic Plan and Urban Growth Management Strategy 2010 – 2031?*

  The Planning Proposal is consistent with Council and Department of Planning's long term strategy for the growth of Port Macquarie to be directed to the west of the existing CBD and to provide for efficient use of land through infill developments. The

Planning Proposal is particularly consistent with the following Implementation Actions in the Port Macquarie – Hastings Urban Growth Management Strategy 2011 – 2031.

7.Preparation of Koala Plans of Management for Urban Investigation areas and existing urban areas, as necessary to address the management of koala habitat and koala populations;
41. Continue planning of infill areas for residential development: West Lindfield – South, Port Macquarie (etc).

- *Is the Planning Proposal consistent with applicable State Environmental Planning Policies?*

There are a number of State Planning Policies applicable to this Planning Proposal, but of most relevance is State Environmental Planning Policy 44 – Koala Habitat Protection. This Planning Proposal is consistent with the provisions of SEPP 44, and provides a comprehensive plan for the long term protection and enhancement of koala habitat in the locality.

- *Is the Planning Proposal consistent with applicable Ministerial Directions (s117 Directions)?*

Rural Zones: The directive is to not rezone rural land to an urban zone. The inconsistency with this direction is justified such that the land is identified as part of the future urban growth area, and a better long term management of the environmental values will be achieved via this Planning Proposal.

Environment Protection Zones: This direction is to protect and conserve environmentally sensitive areas. A Planning Proposal may be inconsistent only if justified by a study prepared in support of the Planning Proposal. It is noted that this Planning Proposal will provide for development of some areas of koala habitat, and some minor removal of koala food trees. This is supported by the detailed assessment and reports by JBEnviro, and will result in an overall increase in koala habitat in the locality, and will significantly improve the planning protections for the areas of environmental value which are current zoned Primary Production. The Planning Proposal also provides the opportunity to introduce Voluntary Planning Agreements and Vegetation Management Plans for the subject where there are currently no protections. Thus the Planning Proposal provides a greater overall environmental benefit.

Planning for Bushfire Protection: This direction is to protect life, property and the environment from bushfire hazards. It may be interpreted that the direction requires Planning Proposals to contain development application details to the level of asset protection zone identifications, access road links, water supply details, etc. Should that be the interpretation, then it may be considered that this Planning Proposal is inconsistent. However it is noted that this level of detail was not prepared by Council for the South Lindfield Planning Proposal and therefore the detail provided herewith is consistent with the Council's approach.

(c) **Environmental, social and economic impact**

- *Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?*

  The subject land has been extensively surveyed and investigated over several years. The ongoing koala monitoring has provided invaluable information in relation to the detailed estimate of koala population and movements in this precinct. The report lodged with this application provides an assessment based on this extensive depth of information, as well as the most current legislative requirements. In addition, a full Koala Plan of Management has been prepared which will result in an increase in koala habitat in this area. The assessment has concluded that, subject to the ameliorative measures being implemented, that the proposal will not have any adverse environmental impact. As noted previously, the Planning Proposal will impose environmental controls where currently there are limited protections on the land.

- *Are there any other likely environmental effects as a result of the Planning Proposal and how are they proposed to be managed?*

  There are no other likely environmental effects which have not already been considered in the environmental assessments undertaken to date.

- *How has the Planning Proposal adequately addressed any social and economic effects?*

  There is a social and economic benefit to providing additional housing choices for land which is located with easy access to existing educational facilities, as well as public transport to the full range of services and employment opportunities provided by the Regional City standards in the Port Macquarie CBD. The location of the subject land is such that future residents will be within walking distance of Council and Department of Planning's identified health and education precinct. There are significant social and economic benefits to the community in utilising available and readily serviced land.

  The Planning Proposal will also create an opportunity for the social needs of this locality to be serviced via a Community Facility being located on part of the land. The proposal for East Ruins Way will provide for the social wellbeing of the neighbourhood, and provide an important layer in the social fabric which is often forgotten in planning. The East Ruins Way proposal will also aid in the long term management of an urban bushland site, and has potential to create a greater understanding of the value of these sites, and the many active management required to ensure they remain a viable living environment for fauna such as koalas. Thus, the Planning Proposal has adequately addressed the social and economic effects.

7. Conclusion

This Planning Proposal application has been the culmination of several years of studies and investigations in relation to the subject land. The primary production zoning of the land does not reflect the current or long term use of the land. The current zoning does not identify any areas of environmental significance, and there are no planning controls which guide the most appropriate landuses for this locality. The long term management of urban bushland is also a significant factor in this planning assessment.

The environmental reports which accompany this Planning Proposal are the result of years of surveys and therefore, are based on a comprehensive knowledge of the site. With this strong basis, the reports have determined the most appropriate landuses which will result in a suitable use of the land, including long term management and enhancement of the environmental values of the land.

A Koala Plan of Management has been prepared which sets out the mechanism by which the existing habitat areas will be managed and enhanced in perpetuity. There is more than sufficient land to provide for enhancement and offset planting of the koala habitat within the area. Thus, the Koala Plan of Management may be successfully implemented.

The Planning Proposal is generally consistent with the direction for urban growth in the Port Macquarie region, and there is more than adequate information to enable Council to refer this matter for a Gateway determination and allow the finalization of the design plans and supportive management plans. The end result of this Planning Proposal will be to provide a greater level of management and long term protection for the East Ruins Way site, as well as providing for the provision of additional housing over the West Ruins Way and West Lindfield sites.

8. Appendices

- Bushfire Hazard Analysis
- Ecological Constraints Assessment Report
- Koala Plan of Management

DAVID PENSINI
Building Certification and
Environmental Services

BUSHFIRE HAZARD ASSESSMENT

PROPOSED REZONING

**PART LOT 289 DP 1184284 &
PART LOT 2 DP 1190501,
THE RUINS WAY,
PORT MACQUARIE**

CLIENT: CHARLEY BROTHERS

NOVEMBER 2013

3 Blair Street, Port Macquarie NSW 2444 – PO Box 5581, Port Macquarie NSW 2444 – Phone 0434 166 150 – Email kdpensini@bigpond.com
ABN 55 183 050 741

This report has been prepared by David Pensini – Building Certification and Environmental Services with all reasonable skill, care and diligence for Charley Brothers.

The information contained in this report has been gathered from discussions with representatives of Charley Brothers, a review of the plans provided on behalf of Charley Brothers and experience.

No inspection or assessment has been undertaken on other aspects of the proposed development outside the scope of this report.

This report does not imply, nor should it be implied, that the proposed development will comply fully with relevant legislation.

The report shall not be construed as relieving any other party of their responsibilities or obligations.

David Pensini – Building Certification and Environmental Services disclaims any responsibility Charley Brothers and others in respect of any matters outside the scope of this report.

The report is confidential and the writer accepts no responsibility of whatsoever nature, to third parties who use this report, or part thereof is made known. Any such party relies on this report at their own risk.

For and on behalf of David Pensini – Building Certification and Environmental Services.

Prepared by: *David Pensini*

Signed:

Dated: *27th November 2013*

Version	Date	Information relating to report			
		Reason for issue			
1.0	20th October 2013		Draft		
2.0	9th November 2013		Issued to Client		
3.0	27th November 2013		Amended report – changes to mapping and recommendations		
			Prepared by	**Verified by**	**Approved by**
		Name	David Pensini		David Pensini
		Signature			

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APPENDIX 4 – Development Concept (West Lindfield Area)

1.0 INTRODUCTION

The land which comprises the subject site is currently known as Part Lot 289 DP 1184284 and Part Lot 2 DP 1190501, The Ruins Way, Port Macquarie.

It is proposed to rezone two (2) separate areas, referred to as The West Ruins Way and West Lindfield Areas, currently zoned RU1 (Primary Production) to R1 (General Residential). The East Ruins Way Area, (also currently zoned RU1 (Primary Production)), is also proposed to be rezoned so as to allow a range of residential uses.

This report is based on site assessments carried out on 10th October and 3rd November 2013.

As the proposed rezoning of the subject land seeks to support their future use for residential development, any future development of the land for this purpose would be integrated development and would be subject to the issuing of a Bushfire Safety Authority under section 100B of the *Rural Fires Act 1997*.

The purpose of this report is therefore to identify the bushfire hazard management planning principles and requirements which will be applicable to the future development of the subject land for residential purposes.

This report therefore forms part of an overall planning process which will determine the suitability of the subject land for residential development and identify the bushfire related development principles and planning controls which will be applicable to any future development of the land for residential purposes.

NOTE

The report has been prepared with all reasonable skill, care and diligence.

The information contained in this report has been gathered from field survey, experience and has been completed in consideration of the following legislation.

1. Rural Fires Act 1997.
2. Environmental Planning and Assessment Act 1979.
3. Building Code of Australia.
4. Council Local Environment Plans and Development Control Plans where applicable.
5. NSW Rural Fire Services, Planning for Bushfire Protection, 2006.
6. AS 3959 - 2009 Construction of Buildings in Bushfire Prone Areas.

The report recognizes the fact that no property and lives can be guaranteed to survive a bushfire attack. The report examines ways the risk of bushfire attack can be reduced where the site falls within the scope of the legislation.

The report is confidential and the writer accepts no responsibility of whatsoever nature, to third parties who use this report or part thereof is made known. Any such party relies on this report at their own risk.

This report has been based upon the vegetation characteristics observed at the time of site inspection. No responsibility is taken where the vegetation characteristics of the subject site or surrounding areas is changed or modified beyond that which is presented within this report.

1.1 Objectives

The objectives of this report are to:

- Ensure that the proposed rezoning of the land has measures sufficient to minimize the impact of bushfires; and
- Reduce the risk to property and the community from bushfire.

1.2 Legislative Framework

On 1st August 2002 the Environmental Planning and Assessment Act 1979 and the Rural Fires Act 1997 were both amended to enhance bush fire protection through the development assessment process.

In broad terms, the planning considerations provide two main steps. These involve:

(a) Strategic Planning through;

• the mapping of bush fire prone;
• determining suitable bush fire requirements during the preparation of a Local Environmental Plan and/or Development Control Plan; and
• the identification of the extent to which land is bushfire prone.

(b) Development assessment through;

• obtaining a bush fire safety authority for residential or rural-residential subdivision and special fire protection purpose developments in bushfire prone areas from the Rural Fire Service (RFS);

• seeking advice from the RFS in relation to infill and other developments in bushfire prone areas that cannot comply with the requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006; and

• the application of additional requirements of the Building Code of Australia (BCA) in relation to construction standards for Class 1, 2, 3, 4 and some Class 9 buildings in bushfire prone areas.

It is noted that this report focuses upon the strategic planning processes associated with the proposed rezoning of the subject site.

1.2.1 Strategic Planning Considerations

Local Environmental Plans, (LEP's), and Development Control Plans, (DCP's), are the best way of strategically achieving bush fire protection objectives. Inclusion of bush fire planning provisions in an LEP:

• gives weight to bush fire management planning principles, ensuring they are considered at subdivision and construction stages;

• can allow for sufficient space to be incorporated into land use zones for setbacks and adequate access for fire fighting and evacuation; and

• controls inappropriate land uses in Bushfire Prone Areas.

LEP amendments that affect Bushfire Prone Areas are required to address the planning principles of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006. Where appropriate the proposed land uses must be considered with respect to bush fire protection, (including appropriate setbacks).

If a proposed amendment to land use zoning or land use affects a designated Bushfire Prone Area, then the Section 117(2) Direction No 19 must be applied, (Section 117 of the Environmental Planning and Assessment Act, 1979) provides for the Minister for Planning to direct a council, in relation to the preparation of a draft LEP, to apply the planning principles specified in that direction. The Section 117 Direction No 19 requires councils to:

• consult with the Commissioner of the Rural Fire Service (RFS) under section 62 of the Environmental Planning and Assessment Act, 1979, and to take into account any comments by the Commissioner; and

• have regard to the relevant planning principles of NSW Rural Fire Service, ***Planning for Bushfire Protection****, 2006.*

If a council proceeds with a draft LEP that does not comply with the provisions in the Section 117 Direction, the council must obtain written advice from the Commissioner of the Rural Fire Service to the effect that the RFS does not object to that non-compliance.

The requirement to review LEP's in accordance with the Standard LEP is an opportunity to consider appropriate uses on Bush Fire Prone Land as well as exempt and complying development provisions.

1.2.2 Objectives for Residential Subdivision Developments

The specific objectives for residential subdivision developments as provided for by NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 are to;

- Minimise perimeters of the subdivision exposed to the bush fire hazard. Hourglass shapes, which maximise perimeters and create bottlenecks, should be avoided.
- Minimise bushland corridors that permit the passage of bush fire.
- Provide for the siting of future dwellings away from ridge-tops and steep slopes - particularly up-slopes, within saddles and narrow ridge crests.
- Ensure that separation distances (APZ) between a bush fire hazard and future dwellings enable conformity with the deemed- to-satisfy requirements of the BCA. In a staged development, the APZ may be absorbed by future stages.
- Provide and locate, where the scale of development permits, open space and public recreation areas as accessible public refuge areas or buffers (APZs).
- Ensure the ongoing maintenance of asset protection zones.
- Provide clear and ready access from all properties to the public road system for residents and emergency services.
- Ensure the provision of and adequate supply of water and other services to facilitate effective fire fighting.

Any future residential development of the areas of land which are the subject of this report must meet the above objectives together with the relevant acceptable solutions/standards which are applicable to any future residential development.

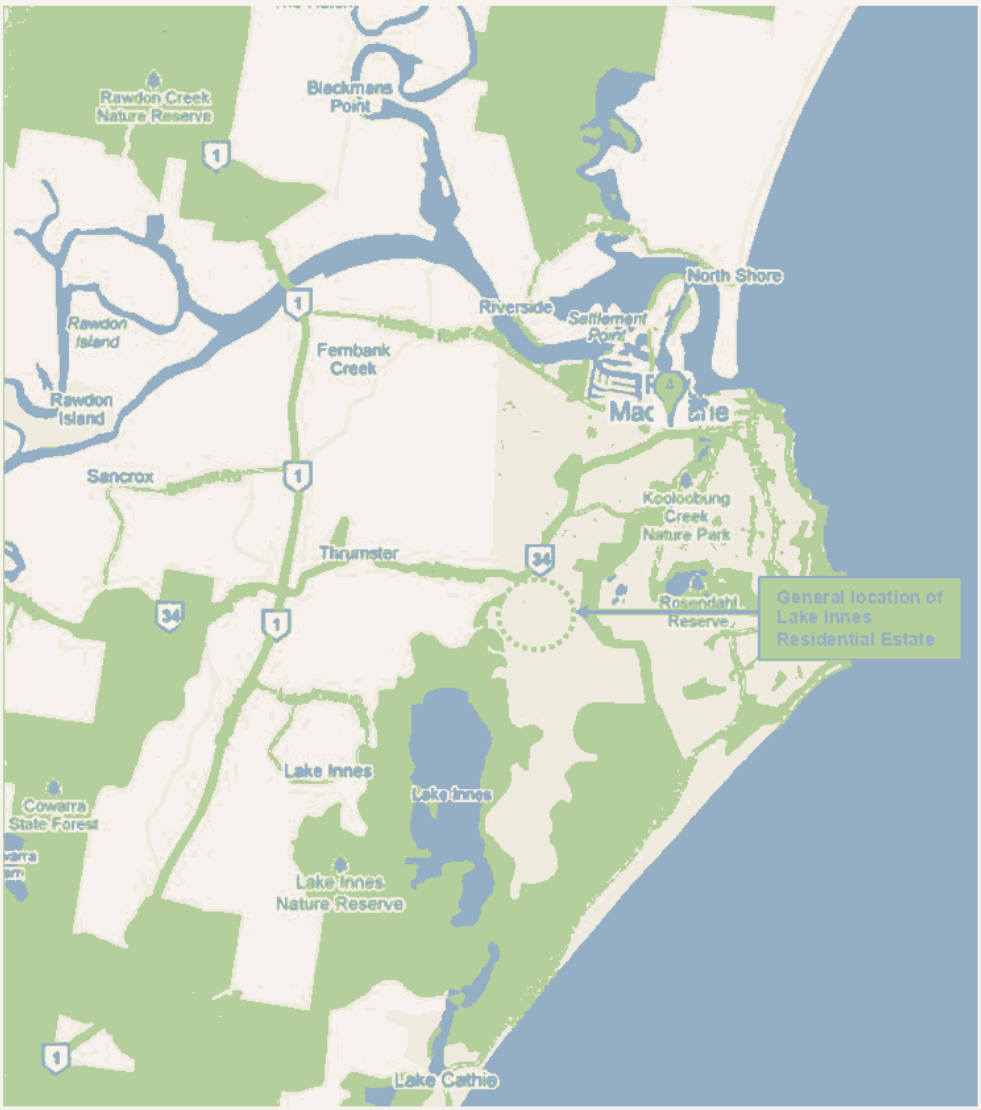
1.3 Location and Site Description

The subject site currently comprises two (2) separate allotments of land which are known as Part Lot 289 DP 1184284 and Part Lot 2 DP 1190501, The Ruins Way, Port Macquarie. The subject site is situated approximately 5.5km to the southwest of the Port Macquarie CBD.

Being located within the Lake Innes urban growth area, which is located on the south western fringes of the urbanized area of Port Macquarie, the land within this area has and will continue to experience significant urban expansion with a transitional land use setting and context.

The character of the locality is that of an urban fringe area with residential development expanding into the undeveloped but residentially zoned parcels of land that exist in the southern portion of the Lake Innes Residential Estate, refer to **Figure 1** below;

Figure 1 - Site Location



Whilst being under two separate land ownership titles, refer to **Appendix 1**, it is noted that the subject site comprises three (3) separate areas of land within the Lake Innes Residential Estate.

Therefore for the purposes of this report the separate areas of land which comprise the subject site are known as;

- The East Ruins Way Area;
- The West Ruins Way Area; and
- West Lindfield Area.

The above mentioned areas of land are shown in **Figure 2** below.

Figure 2 – Subject Areas

All areas of land which comprise the subject sites are irregular in shape and have a current land use zoning of Rural (RU1), refer to **Figure 3** below.

Figure 3 – Landuse Zoning

Having regard to the above and for the for the purposes of this report the separate parcels of land which comprise the subject site are described as follows;

Table 1 – Description of Land Forming Subject Site

PARCEL REFERENCE	AREA	DESCRIPTION
The East Ruins Way Area	1.815 hectares	Located in the north-eastern corner of the Lake Innes Residential Estate, this area of land is accessed off The Ruins Way, (public road), which adjoins the subject site to the west. An electricity distribution line/easement adjoins this area to the north with developed residential lots extending beyond the electricity distribution line. Developed residential lots are present to the south and east whilst The Ruins Way road reserve and the undeveloped land of The West Ruins Way Area extend to the west. With gentle south to north down slopes in the order of 2° - 3° this parcel of land contains modified forest vegetation. The modification of floristic characteristics has resulted in the creation of a woodland setting with a grassland understorey. Vegetation on adjoining and adjacent land consists predominately of grasslands with scattered and small clusters of trees present in some

		areas. An artificial ephemeral creek, (essentially a stormwater drain), has been constructed inside the southern boundary, and runs from the southeast to the southwest boundary. This creek is about 1m deep and 2.5m wide. A linear mound about 1m high and 1:3 slope runs along the northern boundary. A small stormwater drain discharges in the eastern end on the northern foot of this mound. This area of land is zoned Rural (RU1).
The West Ruins Way Area	Approximately 7.6 hectares	This area of land fringes the northern aspect of the developed areas of the Lake Innes Residential Estate. This area of land is accessed off The Ruins Way, (public road), which adjoins the subject site to the east. An electricity distribution line/easement adjoins this area to the north with developed residential lots extending beyond the electricity distribution line. Undeveloped areas of the Lake Innes Residential Estate are present to the south with these undeveloped areas forming part of the approved but as yet undeveloped golf course within the estate. Developed residential lots are present to the south of the undeveloped golf course area. The Ruins Way road reserve and the undeveloped land of The East Ruins Way Area extend to the east. To the west of this area is the narrow vegetated peninsular of the Lake Innes Nature Reserve which separates The West Ruins Way area from the West Lindfield Area. The topography of this area is influenced by a small east to west ridgeline the crest of which is present in the northern part of this area. Northerly and southerly downslopes, (2˚ - 3˚), are present over this area with southerly downslopes predominating over the majority of the land. A westerly cross fall towards the Lake Innes Nature Reserve is also present. A key stormwater drain (linking off-site to the east), has been cut between the middle and southern strip, leading to a small dam on the northwest side of the southern strip. Another drain lies on the southern side of the southern strip. A small dam (3m x 5m) is also present at the eastern end of the undeveloped golf course between the middle and southern strip. Vegetation in this area consists of grasslands with scattered, small clusters and narrow bands (fringes of golf course fairways), of trees present. Vegetation on adjoining and adjacent land consists of Forested Wetland and grasslands with scattered and small clusters of trees present in some areas. This area of land is zoned Rural (RU1).
The West Lindfield Area	2 hectares	The predominately cleared areas of the West Lindfield and The West Ruins Way Areas are largely separated by a vegetated peninsular of the Lake Innes Nature Reserve.

		The West Lindfield Area is accessed off existing road infrastructure within the developed urban areas to the north/northeast. An electricity distribution line/easement adjoins this area to the north with developed residential lots extending beyond the electricity distribution line easement to the northeast and undeveloped, (but residentially zoned land) to the northwest. Undeveloped areas of the Lake Innes Residential Estate golf course within the estate area present to the southwest whilst the vegetated areas of the Lake Innes Nature Reserve peninsula are present to the southeast. The managed grounds of the Port Macquarie Crematorium and Lawn Cemetery are present to the west. The topography of the West Lindfield Area is dominated by southerly downslopes, (2˚ - 3˚), with drainage south towards the Nature Reserve. A lower area lies in the western boundary where an open drainage depression occurs. A stormwater drain rises about midway west across this precinct, draining south. This drain is about 1.5m deep to 3m wide. Vegetation in this area consists of grasslands with scattered and small clusters of trees present. Vegetation on adjoining and adjacent land consists of Dry Sclerophyll Forest, Forested Wetland and grasslands with scattered and small clusters of trees present in some areas. This area of land is zoned Rural (RU1).

The closest Fire Service is located approximately 5 km to the northeast of the subject site, (Port Macquarie Fire Brigade), with the closest Fire Control Centre being at Wauchope which is 20 kilometres west or 20 minutes by car from Port Macquarie.

1.4 Site History

The subject land has been in the ownership of the proponent's family for in excess of 100yrs. It forms part of a formerly much larger holding, of which a significant portion has been previously excised to join the Lake Innes Nature Reserve, including the peninsular of Forested Wetland vegetation which separates the West Lindfield and The West Ruins Way Areas. For most of its time, the property has been used for rural pursuits of cattle grazing and timber production.

In recent decades, cattle grazing has become the predominant land use with varying rotations. The Forested Wetland vegetation between the West Lindfield and The West Ruins Way Areas, (now falling into the Lake Innes Nature Reserve), only developed after drainage changes around the middle of the last century, (Dr Jim Charley, pers. comm.).

In the late 1980s, a Development Application, (DA 88/248), was approved for the development of a golf course and clubhouse on portion of the subject site. The golf course forming part of the residential development concept for the Lake Innes Residential Estate. Works on this development to date have consisted of clearing of the fairways and establishment of irrigation dams. Fairways run through the West Lindfield and The West Ruins Way sites, and around the perimeter of Lake Innes Nature Reserve. Around the same time, other areas in the general locality have also been periodically subdivided and developed into residential precincts, (e.g. Mill Hill, Oxley Park).

Despite the undeveloped nature of much of the subject site vegetation modification and management has and continues to occur over much of the land which forms the subject site.

There are no improvements to the subject site other than some property fencing and a number of small dams and water quality ponds.

Fire has not recently occurred on the site. The East Ruins Way Area in particular has been excluded from fire for >15yrs at least.

The environmental and heritage features of those areas of the subject site which form the basis of this report are summarized as follows;

Table 2 – Environmental and Heritage Features

ENVIRONMENTAL/HERITAGE FEATURE	COMMENT
Riparian Corridors	There are no riparian corridors on the subject site.
SEPP 14 – Coastal Wetland	The subject site is not identified as being subject to SEPP 14 – Coastal Wetlands.
SEPP 26 – Littoral Rainforest	The subject site is not identified as being subject to SEPP 26 – Littoral Rainforest.
SEPP 44 – Koala Habitat	The separate areas overall qualify as Potential Koala Habitat, although not uniformly across all areas e.g. the northern strip on The West Ruins Way Area and the southwest strip of swamp forest on West Lindfield did not qualify. The Forested Wetland in and adjacent to the Lake Innes Nature Reserve also did not qualify as Potential Koala Habitat. Historical sightings from database and literature review; previous and recent sightings as part of the proponent's own on-going survey of the site and adjoining lands; and sightings of up to 4 Koalas on site, indicated the subject site forms part of Core Koala Habitat. Hence a Koala Plan of Management is required to be submitted with any future Development Application.
Areas of geological interest	The subject site is not identified as potentially containing acid sulphate soils although it is noted that potential acid sulphate soils are indicated as being possible in the Lake Innes Nature Reserve, refer below.

	Based upon previous land use it is expected that no land contamination issues will be relevant to the subject site.
Environmental Protection Zones	The subject site currently contains no Environmental Protection Zones. The subject site is zoned, pursuant to Port Macquarie-Hastings Councils LEP, (2011), Primary Production (R1), refer to **Figure 2** above. It is however noted that land which has an environmental protection land use zone separates The West Ruins Way and the West Lindfield Areas – (Lake Innes Nature Reserve). .
Land slip	Given the gently undulating nature of the topography of the subject site and surrounding areas land slip is not considered to be an issue for the subject site.
Flood prone land	The subject site is not identified as being flood prone land and as such is not subject to compliance with the flood planning area provisions of Port Macquarie-Hastings Councils LEP, 2011, refer below.
National Park Estate or other Reserves	The separate areas which form the subject site do not form part of the National Park Estate or other Reserves. It is however noted that land which is contained within the Lake Innes Nature Reserve separates The West Ruins Way and the West Lindfield Areas.
Threatened species, populations, endangered ecological communities and critical habitat	No threatened flora species were recorded on site. No other threatened plant species were considered a significantly likely potential occurrence. In addition to the Koala, Grey-Headed Flying Fox and Little Bent-Wing Bat which were recorded on site during the survey, several other bats and birds were considered potential occurrences on site, (the birds and bats have nil or limited potential to breed on site). Of these, the Koala was considered to be the most sensitive to habitat changes by any future development proposal. Preliminary assessment indicates proposed rezoning is unlikely to have significant negative ecological impacts as assessed under statutory obligations, particularly due to the provisions of the Koala Plan of Management.

Ecologically Endangered Communities (EEC's)	No EEC's were identified on the areas which form the subject site.
OEH Key Habitats and Corridors	The proposed development areas do not fall within a regional or sub-regional corridor. The section of the Lake Innes Nature Reserve which separates the West Lindfield and The West Ruins Way Areas appears to form a cul-de-sac in the mid-north of the regional corridor, the bulk of which is centred on Lake Innes Nature Reserve. Regional corridors with effective linkages are mapped extending north via the Kooloonbung Creek Nature Reserve connection, and coastally including Sea Acres Nature Reserve. Another two link northwest and southwest off Lake Innes.
Aboriginal Heritage	Items of aboriginal heritage are unlikely to be present given the active vegetation modification and management which has occurred on the subject site and the level of site disturbance which is likely to have occurred over the years.

1.5 Development Proposal

It is proposed to rezone the subject site as part of the ongoing residential development of the general area. This reflects the existing residential development within the area and the significant urban expansion which has occurred in the general locality over the past 15 – 20 years.

Being on the western fringes of Port Macquarie the general area has and will continue to experience significant residential development with the character of the area being consistent with that which would be expected for urban fringe areas.

In support of the proposed rezoning of the land preliminary development concepts have been prepared for each area of land, refer to **Appendix 2**. In this regard it has been assumed for the purposes of this report that the development concepts provide for residential development.

Given that the nature and extent of any future development of the subject site is variable this report will focus upon detailing the bushfire threat management requirements which will be applicable to any future development so as to allow for an assessment of the subject sites suitability for rezoning.

1.6 Fauna and Flora Issues

A fauna and flora evaluation has not been undertaken in conjunction with this bushfire hazard assessment and as such issues pertaining to fauna and flora are outside the scope of this report.

2.0 BUSHFIRE HAZARD ASSESSMENT

2.1 Assessment Methodology

In order to meet the scope of activities that are the subject of this report the following method was utilized.

(i) Stage 1 - Desktop Survey.

The identification and assessment of existing and historic information pertaining to the subject site in relation to;

- Road infrastructure.

- Land use.
- Ecological characteristics.
- Topographic features.

(ii) Stage 2 - Field Survey.

A detailed inspection of the subject site was undertaken by David Pensini - Building Certification and Environmental Services on 10th October and 3rd November 2013 in order to identify relevant bushfire hazard factors and characteristics such as;

- Slope conditions.
- Vegetation characteristics.
- Fire Danger Index

Each of the above factors need to be considered in determining the bushfire hazard for the subject site and proposed development. These factors must be reviewed in determining the bushfire protection measures which are applicable to the subject site and the proposed rezoning of the subject site.

The assessment of slope and vegetation characteristics has been carried out in accordance with Appendix 2 and Appendix 3 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 and Section 2 of AS 3959 - 2009.

(iii) Stage 3 - Data Compilation and Project Reporting.

Based upon an assessment of the information obtained from Stages 1 and 2 above the following bushfire hazard management information was determined and documented as being appropriate for the proposed rezoning of the subject land;

- The required minimum Asset Protection Zones, (APZ's), which would be applicable to future tourism, related accommodation developments. This would focus on the minimum APZ requirements for Special Fire Protection Purpose forms of development.

- Indicative Bushfire Attack Levels (BAL's) and associated construction standards which would be applicable to building infrastructure associated with any future development.

- Considerations for the provision of services, (water, electricity and gas).

- Road network considerations in providing for access and egress from future development.

- Emergency management including access for evacuation.

2.2 Hazard Vegetation

Bushfire hazard vegetation and associated buffer zones are identified as follows;

(i) **The East Ruins Way Area** – Category 2 bushfire hazard vegetation is shown over the entire area of this area, refer to **Figure 4** below. There are no other areas of hazard vegetation shown on adjoining or adjacent land to this area. It is however noted that the bushfire risk mapping, (**Figure 4**), does not accurately indicate the presence of Grassland vegetation which is now considered to be bushfire hazard vegetation for the purposes of AS3959 – 2009. In this regard Grassland vegetation is present on adjacent land to the west, (The West Ruins Way Area) and north, (electricity distribution easement).

(ii) **The West Ruins Way Area** – The area of land which is the subject of the rezoning proposal is affected by the 100m buffer zone surrounding the Category 1 bushfire hazard vegetation contained within the Lake Innes Nature Reserve which adjoins to

the west. A small portion of the eastern aspect of the land is affected by the buffer zone surrounding the Category 2 hazard vegetation identified within The East Ruins Way Area, refer to **Figure 4** below. It is however noted that the bushfire risk mapping, (**Figure 4**), does not accurately indicate the presence of Grassland vegetation which is now considered to be bushfire hazard vegetation for the purposes of AS3959 – 2009. In this regard Grassland vegetation is present over this area of land and adjoining areas of land to the north and south.

Figure 4 – Extract from Port Macquarie – Hastings Bushfire Risk Mapping (The East and West Ruins Way Areas)

(iii) **The West Lindfield Area** – The area of land which is the subject of the rezoning proposal is affected by the 100m buffer zone surrounding the Category 1 bushfire hazard vegetation contained within the Lake Innes Nature Reserve which adjoins to southeast. Fragmented areas of hazard vegetation is also shown to the west and southwest of the subject site with the 100m buffer zones extending onto the subject

site, refer to **Figure 5** below. . It is however noted that the bushfire risk mapping, (**Figure 5**), does not accurately indicate the presence of Grassland vegetation which is now considered to be bushfire hazard vegetation for the purposes of AS3959 – 2009. In this regard Grassland vegetation is present over this area of land and adjoining areas of land to the north, south and northeast (The West Ruins Way Area).

The hazard mapping also does not indicate the presence of Forest vegetation which is present to the northwest of the subject site.

Figure 5 – Extract from Port Macquarie – Hastings Bushfire Risk Mapping (West Lindfield Area)

2.3 Slope Assessment

Slope is a major factor to consider when assessing the bushfire risk of any development which is subject to compliance with the requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006. Therefore the slope of the subject site and surrounding area, (to a distance of 100m), was measured using a Suunto PM-5/360 PC Clinometer.

The topography of the subject site and surrounding areas is gently undulating with northerly and southerly downslopes predominating with some easterly and westerly cross-falls present.

Generally slope conditions are in the order of 2˚ - 3˚ although some steeper slopes are present to the west and northwest of the West Lindfield Area. The vegetated areas of the Lake Innes Nature Reserve define a transition to generally flat land with the margins of the Nature Reserve reflecting the gentle south/south-westerly downslopes which dominate The West Ruins Way and West Lindfield Areas.

The hazard vegetation on the subject site and on adjoining and adjacent land that was relevant to the proposed rezoning was identified and the slopes within the vegetation measured. The following table shows the results. It is noted that the identification of hazard vegetation was based upon the preliminary development concepts which were provided, refer to **Appendix 2**.

Table 3 - Slope Assessment Results

DIRECTION OF HAZARD	SLOPE degrees)	UPSLOPE/DOWN SLOPE
The East Ruins Way Area		
North	2˚- 3˚	Down slope
South	N/A	N/A
East	N/A	N/A
West	2˚- 3˚	Down slope
The West Ruins Way Area		
North	2˚- 3˚	Down slope
South	2˚- 3˚	Down slope
East	2˚- 3˚	Down slope
West	0˚	Down slope
West Lindfield Area		
North	0˚	Upslope
South	2˚- 3˚	Down slope
East	0˚	Down slope
West	2˚- 3˚	Down slope

The above slopes were considered when assessing the required defendable spaces and indicative Bushfire Attack Levels, (BAL's), for any future development/s.

2.4 Vegetation Assessment

The vegetation on and surrounding the subject site was assessed over a distance of 140m from the proposed development.

The vegetation formations were classified using the system adopted as per Keith (2004) and in accordance with Appendix 3 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 and Table 2.3 of AS 3959 - 2009.

Given the size and fragmented nature of the various parcels of land which form the subject site bushfire hazard vegetation conditions are variable.

The following information is provided in relation to the floristic characteristics of the subject site and adjoining and adjacent land. In adopting a conservative approach to bushfire hazard assessment worst case vegetation characteristics have been identified.

2.4.1 Vegetation within Subject Site

The following vegetation characteristics were identified as being relevant to the proposed rezoning.

Table 4 – Hazard Vegetation within Subject Areas

REFERENCE	DESCRIPTION
The East Ruins Way Area	Vegetation on this area contains highly modified Dry Sclerophyll Forest with significant levels of understorey removal and some canopy reduction noted. This modification has created a Woodland setting with a grassland understorey. **Woodland setting over The East Ruins Way Area** It has been assumed, for the purposes of this report, that all vegetation of bushfire significance would be removed from this area of land as part of any future development proposal.
The West Ruins Way Area	Vegetation on this area consists of Grasslands with narrow bands and scattered and clusters of trees. It has been assumed, for the purposes of this report, that all vegetation of bushfire significance would be removed from this area of land as part of any future development proposal.

	 Grasslands with scattered, clusters and narrow bands of tress over The West Ruins Way Area
The West Lindfield Area	Vegetation on this area consists of Grasslands with scattered and clusters of trees. **Grasslands with scattered, clusters and narrow bands of tress over the West Lindfield Area** It has been assumed, for the purposes of this report, that all vegetation of bushfire significance would be removed from this area of land as part of any future development proposal.

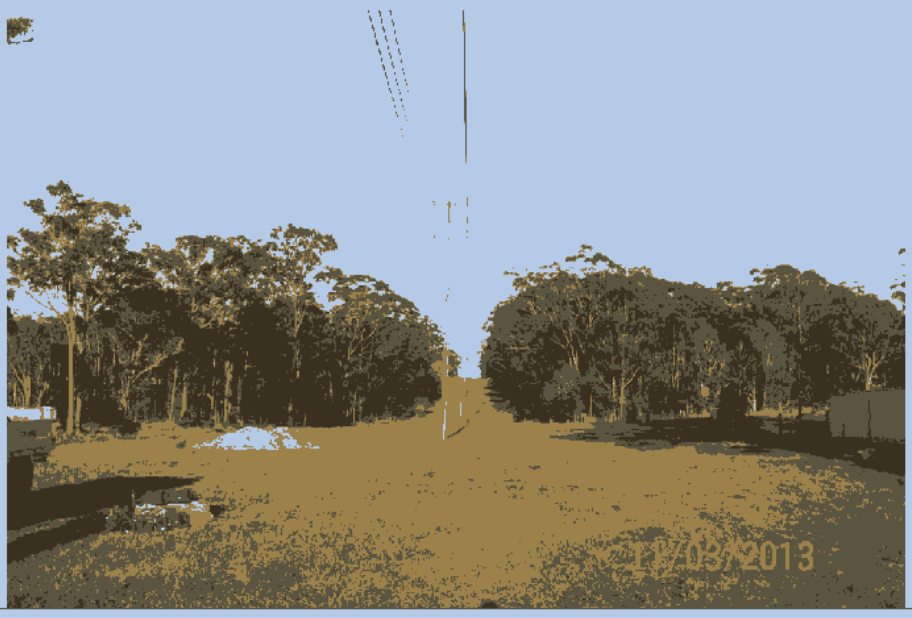
2.4.2 Vegetation on Adjoining and Adjacent Land to Subject Site

The following vegetation characteristics were identified as being relevant to the proposed rezoning of the subject site.

Table 5 – Hazard Vegetation on Land Adjoining/Adjacent the Subject Areas

REFERENCE	DESCRIPTION
The East Ruins Way Area	Vegetation of bushfire hazard significance on adjoining and adjacent land consists of Grasslands within the electricity distribution line easement which adjoins the area to the north. **Grasslands within the electricity supply easement to the north of The East Ruins Way area** Developed residential allotments are present for >140m to the south and east of this area whilst Grasslands with scattered, small clusters and narrow bands of trees present on adjacent land to the west of The Ruins Way road reserve (The West Ruins Way Area). In adopting a conservative approach to hazard assessment a Woodland Classification was adopted for the western aspect of this area.

	 Grasslands with scattered, clusters and narrow bands of tress over The West Ruins Way Area
The West Ruins Way Area	Vegetation of bushfire hazard significance on adjoining and adjacent land consists of Grasslands within the electricity distribution easement which adjoins the area to the north. **Grasslands within the electricity supply easement to the north of The West Ruins Way area** The Grasslands and scattered and clusters of trees associated with the undeveloped golf course are present to the south of the proposed rezoning area with a Grassland classification adopted for this area. The modified Dry Sclerophyll Forest associated with The East Ruins Way Area is

	present to the east of The Ruins Way road reserve. Given that the time frame for the development of The East Ruins Way Area is uncertain a worst case Woodland classification has been adopted for the area to the east of The West Ruins Way Area. To the west of this of this area is a combination of Grasslands and Forested Wetland vegetation which is contained within the Lake Inness Nature Reserve. In adopting a conservative approach to bushfire hazard assessment a Forested Wetland classification has been adopted. **Forested Wetland vegetation within the Lake Innes Nature Reserve (Peninsula of the nature reserve separates The West Ruins Way and West Lindfield areas)**
West Lindfield Area	Grasslands adjoin the subject site to the north whilst an area of Dry Sclerophyll Forest is present to the northwest of the subject site. 

Grasslands within the electricity supply easement and to the north of the West Lindfield Area

Dry Sclerophyll Forest to the northwest of the West Lindfield Area

The Grasslands and scattered and clusters of trees associated with the undeveloped golf course are present to the south/southwest of the proposed rezoning area with areas of Forested Wetland vegetation within the Lake Inness Nature Reserve present to the east and south east.

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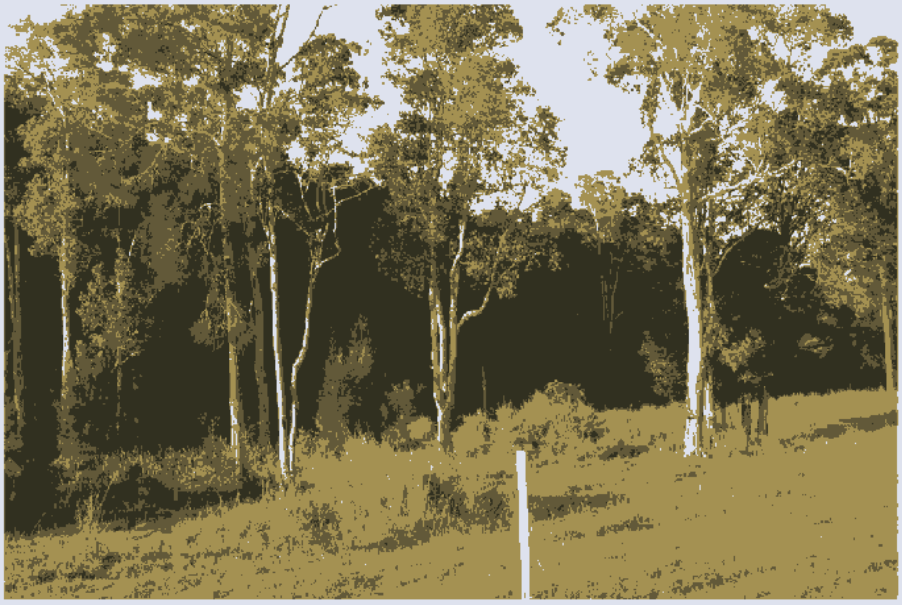


Forested Wetland vegetation within the Lake Innes Nature Reserve (peninsula of the nature reserve separates The West Ruins Way and West Lindfield Areas)

To the west of this of this area are the managed grounds of the Lake Innes Crematorium and Lawn Cemetery.

In adopting a conservative approach to bushfire hazard assessment a Woodland classification has been adopted for this aspect.

Managed grounds of the Lake Innes Crematorium and Lawn Cemetery

An indication of the relationship of the vegetation of bushfire significance to the proposed development is presented in **Figure 6** below.

Figure 6 - Vegetation Relationships to the Subject Land

The following table summarizes the various vegetation structures which are of bushfire significance to the proposed allotments.

Table 6 – Summary of Vegetation Characteristics

ASPECT	VEGETATION DESCRIPTION	VEGETATION CLASSIFICATION – (Keith, 2004)	VEGETATION CLASSIFICATION – (AS3959 - 2009)**
The East Ruins Way Area			
North	Grasslands within electricity distribution easement to the north of the area	Grasslands	Grasslands
West	The Grasslands with scattered, clusters and narrow bands of trees associated with the West Ruins Way Area	Similar in specification to Woodland	Woodland

The West Ruins Way Area			
North	Grasslands within electricity distribution easement to the north of the area	Grasslands	Grasslands
South	Grasslands and scattered and clusters of trees associated with the undeveloped golf course	Grasslands	Grasslands
East	The modified Dry Sclerophyll Forest associated with the East Ruins Way area is present to the east of the Ruins Way road reserve	Similar in specification to Woodland	Woodland
West	Forested Wetland vegetation within the Lake Innes Nature Reserve	Forested Wetland	Forest
West Lindfield Area			
North	Grasslands within electricity distribution easement and adjacent land to the north of the area	Grasslands	Grasslands
Northwest	Dry Sclerophyll Forest vegetation on adjacent land	Forest	Forest
South	Grasslands and scattered and clusters of trees associated with the undeveloped golf course	Grasslands	Grasslands
East/southeast	Forested Wetland vegetation within the Lake Innes Nature Reserve	Forested Wetland	Forest
West	Vegetation within the Lake Innes Crematorium and Lawn cemetery	Similar in specification to Woodland	Woodland

2.5 Fire Danger Index

The fire weather for the site is assumed on the worst-case scenario. In accordance with NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 and Table 2.1 of AS 3959 - 2009, the fire weather for the site is based upon the 1:50 year fire weather scenario and has a Fire Danger Index (FDI) of 80.

3.0 BUSHFIRE THREAT REDUCTION MEASURES

3.1 NSW Rural Fire Services, *Planning for Bushfire Protection*, 2006

The following issues and constraints have been identified through considering the requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 as they apply to the future residential development of the areas which are the subject of this report.

It is noted that for the purposes of this report it has been assumed that the proposed development concepts for the various areas do not contain land uses which are considered to be Special Fire Protection Purpose development in accordance with NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006.

3.1.1 Defendable Space/Asset Protection Zone

To ensure that the aims and objectives of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 are achieved for any future residential subdivision development concepts, a defendable space/Asset Protection Zone (APZ) between the asset and the hazard should be provided.

The APZ provides for; minimal separation for safe fire fighting, reduced radiant heat, reduced influence of convection driven winds, reduced ember viability and dispersal of smoke. The APZ consists of an Inner Protection Area (IPA) and Outer Protection Area (OPA). The IPA is an area closest to the buildings that incorporates defendable space and is used for managing heat intensities at the building surface. The OPA is positioned adjacent to the hazard and the purpose of the OPA is to reduce the potential length of flame by slowing the rate of spread, filtering embers and suppressing the crown fire.

It is noted that any future residential subdivision developments of the type nominated for the areas which are the subject of this report requires APZ's in accordance with the residential subdivision requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006. APZ's in residential subdivision situations must be such that radiant heat levels of greater than 29kW/m² will not be experienced by residential buildings.

The following table therefore indicates the minimum Asset Protection Zones required from the hazard vegetation to the areas which are the subject of this report. The table is based upon the vegetation type, slopes and fire weather (FDI) which is applicable to this assessment.

Table 7 – APZ Requirements for Residential Subdivision Developments

ASPECT	VEGETATION	SLOPE	TOTAL REQUIRED APZ			MINIMUM POTENTIALLY AVAILABLE COMPLIANT APZ	COMPLIANCE WITH MINIMUM APZ REQUIREMENTS
			IPA	OPA	APZ		
The East Ruins Way Area							
North	Grassland	<5˚ Down slope	**10m**	-	**10m**	**>10m**	✔
West	Similar in specification to Woodland	<5˚ Down slope	**15m**	-	**15m**	**>15m**	✔
The West Ruins Way Area							
North	Grassland	<5˚ Down slope	**10m**	-	**10m**	**>10m**	✔
South	Grassland	<5˚ Down slope	**10m**	-	**10m**	**>10m**	✔
East	Similar in specification to Woodland	<5˚ Down slope	**15m**	-	**15m**	**>15m**	✔
West	Forested Wetland	0˚	**15m**	-	**15m**	**>15m****	✔
West Lindfield Area							
North	Grassland	0˚ Upslope	**10m**	-	**10m**	**>10m**	✔
Northwest	Forest	0˚ Upslope	**10m**	**10m**	**20m**	**>20m**	✔

South	Grassland	<5˚ Down slope	**10m**	-	**10m**	**>10m**	✔
Southeast	Forested Wetland	0˚	**15m**	-	**15m**	**>15m****	✔
East	Forested Wetland	0˚	**15m**	-	**15m**	**>15m****	✔
West	Similar in specification to Woodland	<5˚ Down slope	**15m**	-	**15m**	**>15m**	✔

***** Note: It is however noted that the provision of a 15m APZ in relation to the Forested Wetland vegetation contained within the lake Innes Nature Reserve would be unlikely to provide for Bushfire Attack Levels, (pursuant to AS3959 – 2009), which are consistent with the performance requirement that residential subdivision situations must be such that radiant heat levels of greater than 29kW/m². Accordingly a minimum 20m wide APZ, (10m IPA and 10m OPA), are required for these aspects.***

Having regard to the above it is noted that the minimum required APZs which would be applicable to any future residential subdivision developments on the areas which are the subject of this report **can** be achieved either within the boundaries of the individual areas or by using a combination of onsite and offsite areas, (i.e. existing and proposed public road reserves).

The APZ acceptable solution provisions which would apply to any future residential subdivision development are detailed in the following table:

Table 8 – APZ Performance Requirements

Intent of measures: to provide sufficient space and maintain reduced fuel loads, so as to ensure radiant heat levels at buildings are below critical limits and to prevent direct flame contact with a building.		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
Radiant heat levels at any point on a proposed building will not exceed 29 kW/m2	An APZ is provided in accordance with the relevant tables/ figures in Appendix 2 of NSWRFS Planning for Bushfire Protection 2006	✔ The minimum required asset protection zones can be provided to any future development – refer to **Table 7**.
	APZ's are wholly within the boundaries of the development site. Exceptional circumstances may apply (see section 3.3 of NSW RFS Planning for Bushfire Protection 2006)	✔ The required asset protection zones can be provided to any future development in compliance.
APZs are managed and maintained to prevent the spread of a fire towards the building.	APZ's managed in accordance with the requirements of Standards for Asset Protection Zones (RFS, 2005) *Note: A Monitoring and Fuel Management Program should be required as a condition of development consent.*	✔ APZ's will need to be created and maintained to the standards which are applicable to Inner and Outer Protection Areas.
APZ maintenance is practical, soil stability is	APZ's are located on lands with a slope less than 18 degrees.	✔ No land with steep slopes present in areas which are the

not compromised and the potential for crown fires is negated		subject of this report.

Having regard to the above it will be necessary to ensure that the future design of any residential subdivisions provide for compliance with the minimum APZ requirements specified in **Table 7** above. Importantly it is noted that compliance with the minimum APZ requirements is achievable for future residential development having regard to the size of the subject site and the characteristics of hazard vegetation which are relevant to the areas which are the subject of this report.

Having regard to the above the acceptable solution, (Deemed-to-Satisfy), provisions for APZ's as detailed in Appendix 2 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 can be achieved for the future development of the subject areas to support residential allotments. The future design of residential allotments is to provide for compliance with the minimum APZ requirements which are applicable to the development of the subject site.

3.1.2 Defendable Space/Asset Protection Zone Management

Areas identified as forming part of the minimum APZ requirements for any future residential subdivision developments must be managed so as to comply with the standards which are applicable to Asset Protection Zones as follows;

Inner Protection Area

An IPA should provide a tree canopy cover of less than 15% and should be located greater than 2 metres from any part of the roofline of a building.

Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10m from an exposed window or door.

Trees should have lower limbs removed up to a height of 2 metres above the ground

Outer Protection Area

An OPA should provide a tree canopy cover of less than 30% and should have the understorey managed (mowed) to treat all shrubs and grasses on an annual basis in advance of the fire season (usually September).

In this regard it will be necessary to provide and maintain for the life of any future development the minimum Asset Protection Zones as required by **Table 7** of this report.

Compliance with the minimum APZ requirements is achievable for future residential developments having regard to the size of the areas of land which are the subject of this report and the characteristics of the hazard vegetation which are relevant to any future residential development.

3.1.3 Operational Access and Egress

It is noted that The East and West Ruins Way Areas have significant road frontage to The Ruins Way which is a bitumen sealed two wheel drive all weather public road which is the main connecting road within the Lake Innes Residential Estate. Travel is available to and from The East and West Ruins Way Areas in a northerly or southerly direction. Travel along The Ruins Way provides for access to a number of connecting roads, including the Old Oxley Highway, the use of which would be protected from the impacts of bushfire. It is also noted that The East Ruins Way Area also has connection with Coucal Close the cul de sac of which adjoins this area to the south.

Access and egress infrastructure for the West Lindfield Area is via connection with Redgum Circuit which is a bitumen sealed two wheel drive all weather public road which terminates

adjacent to the north-eastern portion of the this area. Redgum Circuit services existing residential development to the northeast of the West Lindfield Area with this road infrastructure eventually connecting with The Ruins Way road infrastructure. It is also noted that the preliminary development concept for the West Lindfield Area provides for access and egress opportunities through the development of vacant, (but residentially zoned), land to the north/northwest.

In the context of the location of the subject areas and their relationship with existing urban development it is considered that access and egress to and from any future development of the subject areas can be provided in compliance with the relevant requirements of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006.

However in order to provide for access and egress to and from any future development of the subject areas it will be necessary to provide for public road infrastructure/systems which comply with Section 4.1.3 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 and summarized as follows;

Table 9 - Public Road Requirements (PfBP 2006)

Intent of measures: to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
• firefighters are provided with safe all weather access to structures (thus allowing more efficient use of firefighting resources)	• public roads are two-wheel drive, all weather roads.	✔ Future design of residential subdivision developments to comply
• public road widths and design that allow safe access for firefighters while residents are evacuating an area.	• urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb), allowing traffic to pass in opposite directions. Non perimeter roads comply with Table 4.1 – Road widths for Category 1 Tanker (Medium Rigid Vehicle). • the perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas. • traffic management devices are constructed to facilitate access by emergency services vehicles. • public roads have a cross fall not exceeding 3 degrees. • all roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end and direct traffic away from the hazard.	✔ Future design of residential subdivision developments to comply

	• curves of roads (other than perimeter roads) are a minimum inner radius of six metres and minimal in number, to allow for rapid access and egress. • the minimum distance between inner and outer curves is six metres. • maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient. • there is a minimum vertical clearance to a height of four metres above the road at all times.	
• the capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles.	• the capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicate load rating.	✔ Future design of residential subdivision developments to comply
• roads that are clearly sign- posted (with easily distinguishable names) and buildings/properties that are clearly numbered.	• public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression. • public roads between 6.5 metres and 8 metres wide are No Parking on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression.	✔ Future design of residential subdivision developments to comply
• there is clear access to reticulated water supply	• public roads up to 6.5 metres wide provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression. • one way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.	✔ Future design of residential subdivision developments to comply

Subject to compliance with the requirements of **Table 9** above in relation to the design and construction of new public road infrastructure it is considered that the proposed access and egress arrangements will be acceptable for any future development of the subject areas having regard to the nature, construction and extent of the existing public road infrastructure which is present in the locality and the internal road systems which are required to be provided to serve any future development of the areas which are the subject of this report.

3.1.4 Services - Water, Gas and Electricity

As set out in Section 4.1.3 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006, residential subdivision developments in bushfire prone areas must maintain a water supply reserve dedicated to fire-fighting purposes.

Given that the existing residential development in the area is serviced by the reticulated water supply which services the Lake Innes Residential Estate it is considered that opportunities exist to extend the reticulated water supply to service any future residential lots so as to comply with the relevant requirements of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 should the residential development of the land proceed in the future. It is however noted that in accordance with NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 the determination of a guaranteed water supply is to be made by the water supply authority where mains water supply is available.

Electricity supply is available and will be accessible to the residential development of the land should it proceed in the future

Reticulated gas services are not available in the locality and are therefore not available to the subject site.

The incorporation into any future residential subdivision of the areas which are the subjects of this report, of the relevant provisions of the following acceptable solutions as provided for by Section 4.1.3 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 will ensure compliance with the intent for the provision of services to future residential lots.

Table 10 – Service Provision Requirements

Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building		
Performance Criteria	**Acceptable Solutions**	**Compliance Comment**
The intent may be achieved where:		
Non-reticulated water supply areas • for rural-residential and rural developments (or settlements) in bush fire prone areas, a water supply reserve dedicated to firefighting purposes is installed and maintained. The supply of water can be an amalgam of minimum quantities for each lot in the subdivision (community titled subdivisions), or held individually on each lot	• the minimum dedicated water supply required for firefighting purposes for each occupied building excluding drenching systems, is provided in accordance with Table 4.2. • a suitable connection for firefighting purposes is made available and located within the IPA and away from the structure. A 65mm Storz outlet with a Gate or Ball valve is provided. • or Ball valve and pipes are adequate for water flow and are metal rather than plastic. • underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank. A hardened ground surface for truck access is supplied within 4 metres of the access hole. • above ground tanks are manufactured of concrete or metal and raised tanks have their stands protected. Plastic tanks are not used. Tanks on the hazard side of a building are provided with adequate shielding for the protection of fire fighters. • all above ground water pipes external to the building are metal including and up to any taps. Pumps are shielded.	✔ Future development proposals to comply
Electricity Services • location of electricity services limits the	• where practicable, electrical transmission lines are underground. • where overhead electrical transmission	✔ Future development proposals to comply

possibility of ignition of surrounding bush land or the fabric of buildings • regular inspection of lines is undertaken to ensure they are not fouled by branches.	lines are proposed: - lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).	
Gas services • location of gas services will not lead to ignition of surrounding bush land or the fabric of buildings	• reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used. • all fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation. • if gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal. • polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.	✔ Future development proposals to comply

3.1.5 Landscaping

Landscaping is a major cause of fire spreading to buildings, and therefore any landscaping proposed in conjunction with the proposed development of the subject site will need consideration when planning, to produce gardens that do not contribute to the spread of a bushfire.

When planning any future landscaping surrounding any future residential subdivision development, consideration should be given to the following:

- The choice of vegetation – consideration should be given to the flammability of the plant and the relation of their location to their flammability and ongoing maintenance to remove flammable fuels.
- Trees as windbreaks/firebreaks – Trees in the landscaping can be used as windbreaks and also firebreaks by trapping embers and flying debris.
- Vegetation management – Maintain a garden that does not contribute to the spread of bushfire.
- Maintenance of property – Maintenance of the property is an important factor in the prevention of losses from bushfire.

Appendix 5 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006, contains standards that are applicable to the provision and maintenance of landscaping. Any landscaping proposed to be undertaken in conjunction with any future development of the areas which are the subject of this report is to comply with the principles contained in Appendix 5 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006.

Compliance with Appendix 5 of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006, will satisfy the intent of the bush fire protection measures that are applicable to the provision of landscaping.

3.1.6 Construction Requirements

It is noted that Appendix 3 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 now contains specific construction requirements which the NSW Rural Fire Service will seek to impose, through the development control process, in addition to the construction requirements contained within AS3959 – 2009.

Accordingly the determination of the construction requirements which will be applicable to any specific future development proposal will need to have regard to the construction requirements nominated in Appendix 3 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 in addition to the requirements of AS3959 – 2009.

It is however noted that due to the conceptual nature of any future development of the subject areas the application of the requirements of Appendix 3 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2006 is not considered relevant at this stage of the planning process. Notwithstanding the above based upon the size of the subject areas and the opportunities which exist in the planning and design of future development it is considered that the requirements of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006 for the siting, design and construction of any future residential buildings can be satisfied.

The relevant requirements of NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006, are summarized as follows;

Table 11 – Building Siting and Design Requirements (PfBP 2006)

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
in relation to siting and design: • buildings are sited and designed to minimize the risk of bush fire attack.	• buildings are designed and sited in accordance with the siting and design principles
in relation to construction standards: • it is demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact	• construction determined in accordance with Appendix 3 and the *Requirements for attached garages and others structures*

3.2 Construction of Buildings in Bushfire Prone Areas

The bushfire construction requirements of Volume 2 of the Building Code of Australia for residential dwellings are now applicable in NSW. In this regard the Building Code of Australia provides that compliance with the relevant requirements of AS3959 – 2009 satisfies the performance requirements which are applicable to Part 3.7.4, (Bushfire Areas), of Volume 2 of the Building Code of Australia.

It is however noted that there are a number of NSW variations to the application of AS3959 – 2009 including a restriction on the utilization of the Bushfire Attack Level – Flame Zone requirements of the Australian Standard as a 'deemed to satisfy solution' for these situations. Consequently in NSW all situations which are determined as being subject to the Bushfire Attack Level – Flame Zone requirements of AS3959 – 2009 must be treated on merit with construction requirements being determined on a site specific assessment basis.

Given that the proposed rezoning does not involve the erection of any buildings the determination of Bushfire Attack Levels that would be applicable to future buildings is not relevant at this time.

Notwithstanding the above it is noted that compliance with the minimum Asset Protection Zone requirements for any future residential lots, as nominated in **Table 7** of this report will provide for opportunities for future dwellings to be constructed upon future residential allotments in compliance with the requirements provided for in AS 3959-2009.

4.0 SUMMARY OF FINDINGS

The following findings are considered to be integral to this bushfire hazard assessment and must be incorporated into the design of any future residential subdivision developments on the areas of land which are the subject of this report;

(i) Asset Protection Zones for any future residential subdivisions are to be provided in accordance with Section 3.1.1 of this report. In this regard the required minimum APZ's are nominated in **Table 7** of this report.

(ii) Water and other services will be required to be provided to any future residential subdivisions in accordance with the requirements detailed in Section 3.1.4 of this report.

(iii) The landscaping principals in accordance with Section 3.1.5 of this report will be applicable to any future landscaping associated with any future development of the subject site.

(iv) The design and construction of access and egress infrastructure servicing any future residential subdivisions shall be in accordance with the requirements detailed in Section 3.1.3 of this report.

5.0 CONCLUSION

It is suggested that with the implementation of the findings of this report, and its recommendations, that the bushfire risk for the future development of the areas of land which are the subject of this report is manageable, and the impact of bushfires to property and community can be significantly reduced beyond that which currently exists.

This report has shown that the future development of the subject areas is capable of meeting the acceptable solutions of in Section 4.1.3 of NSW Rural Fire Services**, *Planning for Bushfire Protection***, 2006. Compliance will however require that the requirements of this report be incorporated into the design of any future development of the areas of land which are the subject of this report.

This report is however contingent upon the following assumptions and limitations.

Assumptions

(i) For a satisfactory level of bushfire safety to be achieved regular inspection and testing of proposed measures, building elements and methods of construction, specifically nominated in this report, is essential and is assumed in the conclusion of this assessment.

(ii) There are no re-vegetation plans in respect to hazard vegetation and therefore the assumed fuel loading will not alter.

(iii) It is assumed that the building works will comply with the DTS provisions of the BCA including the relevant requirements of Australian Standard 3959 – 2009.

(iv) Any future residential subdivision developments are constructed and maintained in accordance with the risk reduction strategy in this report.

(v) The vegetation characteristics of the subject site and surrounding land remains unchanged from that observed at the time of inspection.

(vi) The information contained in this report is based upon the information provided for review, refer to **Appendices 1.**

No responsibility is accepted for the accuracy of the information contained within the above plans.

Limitations

(i) The data, methodologies, calculations and conclusions documented within this report specifically relate to the building and must not be used for any other purpose.

(ii) A reassessment will be required to verify consistency with this assessment if there is building alterations and/or additions, change in use, or changes to the risk reduction strategy contained in this report

David Pensini
David Pensini - Building Certification and Environmental Services

6.0 REFERENCES

NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2006

AS 3959-2009, ***Construction of Buildings in Bushfire Prone Areas***

Keith David 2004, Ocean ***Shores to Desert Dunes, The Native Vegetation of New South Wales and the ACT***, Department of Environment and Conservation

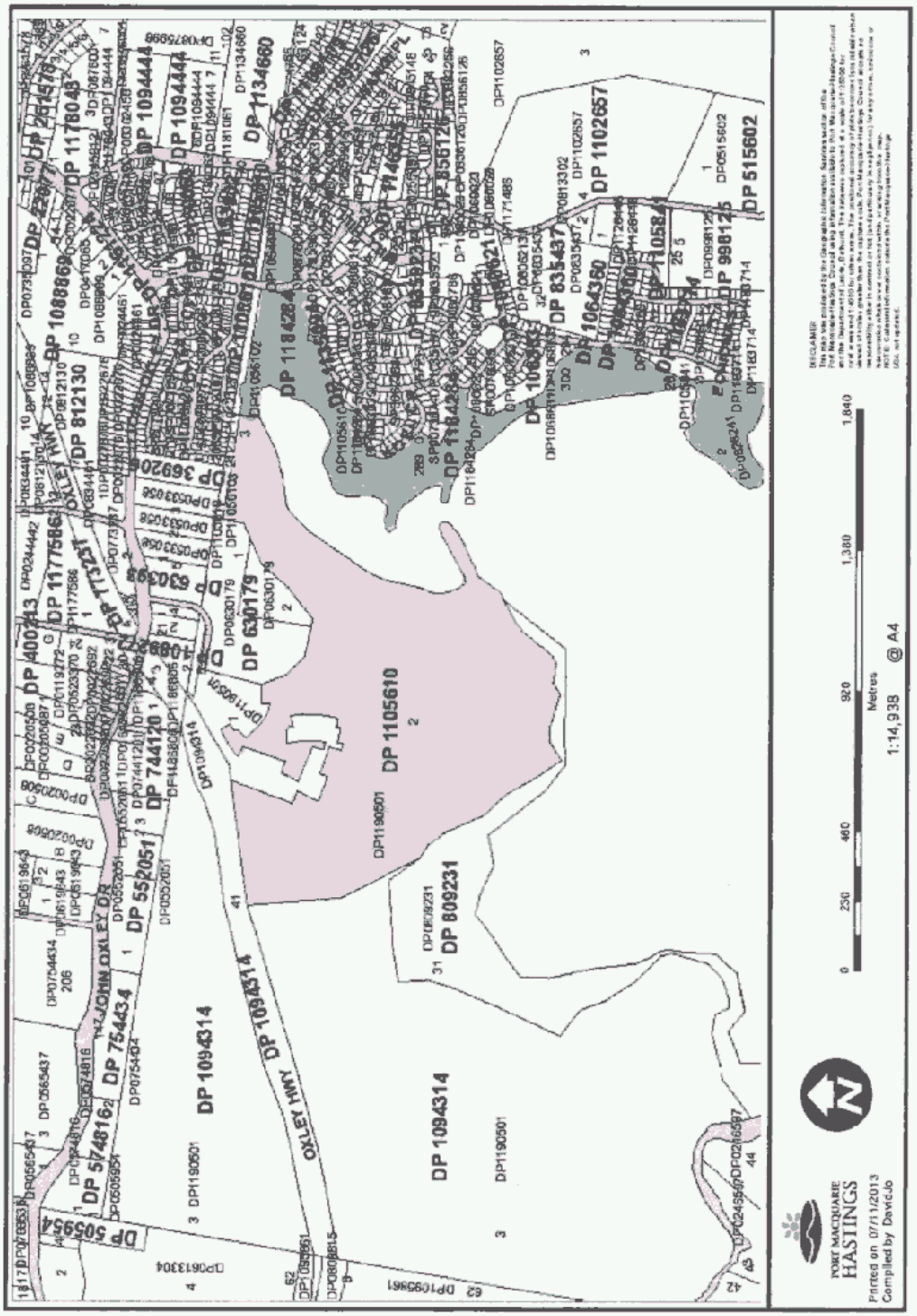
NSW State Government***, Rural Fires Act***, 1997

Port Macquarie-Hastings Councils, ***Bushfire Prone Land Mapping***

NSW Rural Fire Service, ***Guideline for Bushfire Prone Land Mapping***, 2002

Australian Building Codes Board, ***Building Code of Australia***, 2011
NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2002*

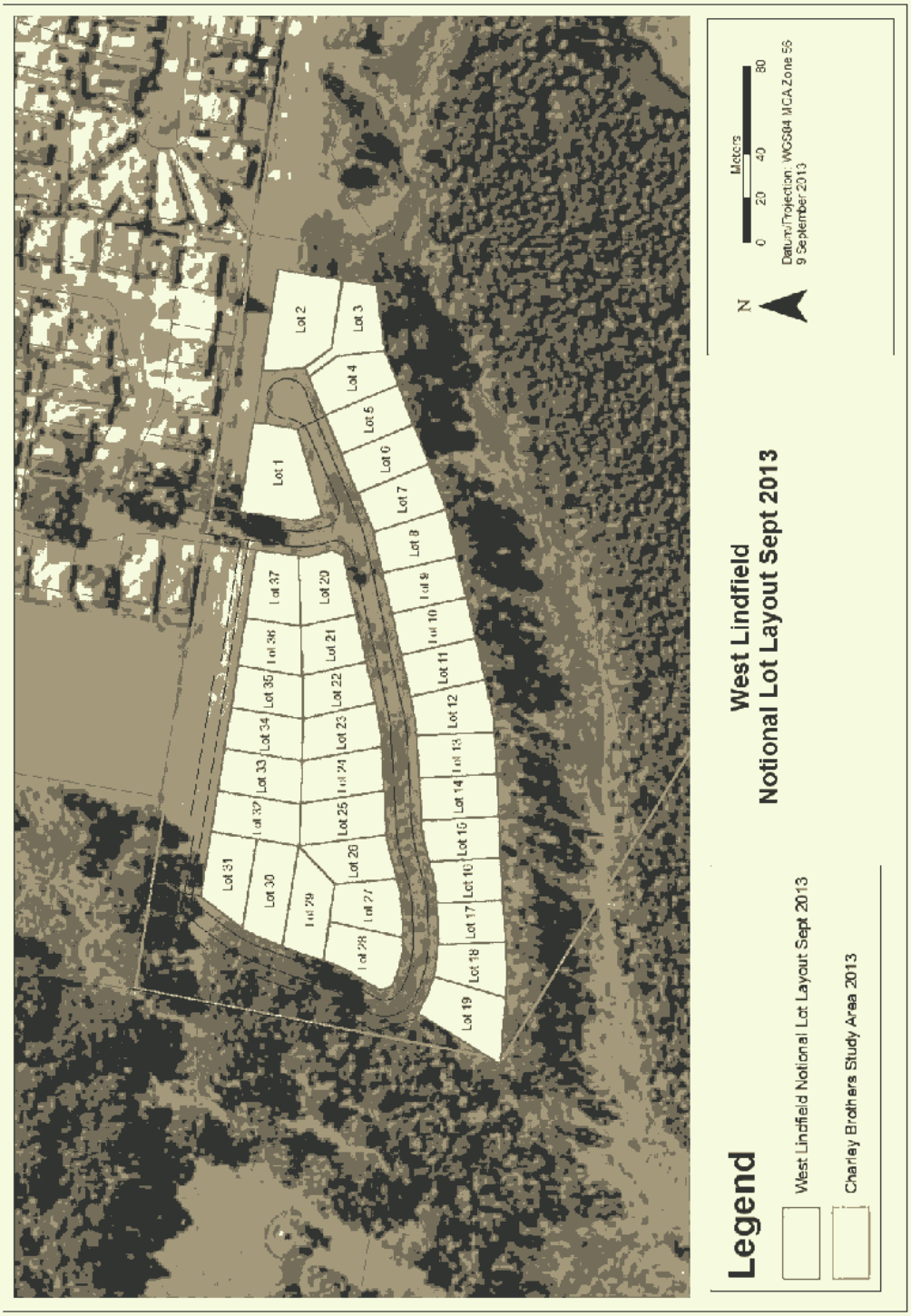
APPENDIX 1
Subject Lots



APPENDIX 2
Development Concept – East Ruins Way Area

APPENDIX 3
Development Concept – West Ruins Way Area

APPENDIX 4
Development Concept – West Lindfield Area



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ECOLOGICAL SURVEY AND CONSTRAINTS ASSESSMENT:

Part Lot 289 DP 1184284 and Lot 6 DP110560, The Ruins Way, Port Macquarie.

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User Notice

This report is presented on an objective basis to fulfil the stated legislative obligations, considerations and requirements in order to satisfy the client's instructions to undertake the appropriate studies and assessments. It is not directly intended to advocate the proponent's ambitions or interests, but is to provide information required in the determination of development consent by the decision-making authority for the subject proposal.

To the best of our knowledge, the proposal described in this assessment accurately represents the proponent's intentions when the report was completed and submitted. However, it is recognised and all users must acknowledge that conditions of approval at time of consent, post development application modification of the proposal's design, and the influence of unanticipated future events may modify the outcomes described in this document. Completion of this report has depended on information and documents such as surveys, plans, etc provided by the proponent. While checks were made to ensure such information was current at the time, this consultant did not independently verify the accuracy or completeness of these information sources.

The ecological information contained within this report has been gathered from field survey, literature review and assessment based on recognised scientific principles, techniques and recommendations, in a proper and scientific manner to ensure thoroughness and representativeness. The opinions expressed and conclusions drawn from this report are intended to be objective, based on the survey results and this consultant's knowledge, supported with justification from collated scientific information, references/citations or specialist advice.

Furthermore, it is clarified that all information and conclusions presented in this report apply to the subject land at the time of the assessment, and the subject proposal *only*.

This report recognises the fact, and intended users must acknowledge also, that all ecological assessments are subject to limitations such as:

- Information deficits (e.g. lack of scientific research into some species and availability of information)
- Influences on fauna detectability e.g. season in which survey is undertaken
- Influences on species occurrence e.g. stage of lifecycle, migratory, etc
- Time, resource and financial constraints.

All users should take into account the above information when making decisions on the basis of the findings and conclusions of this report.

Document Status	Distribution	Date	Authorised By
Rev 1	Love Project Management, Vilro	13/9/2017	JB
Rev 2	Love Project Management, Vilro	28/11/2017	JB
Rev 3	Love Project Management	31/1/2018	JB
Rev 4	Love Project Management	12/2/2018	JB

EXECUTIVE SUMMARY

Background:

This firm has been requested to undertake a flora and fauna survey and specified statutory ecological assessments of the land identified on Part Lot 289 DP 1184284 and Part Lot 6 DP 1105610, The Ruins Way, Port Macquarie. This survey and assessment forms part of investigations to determine development options for the subject land and assist with future rezoning. The assessment includes an assessment under *State Environmental Planning Policy (SEPP) No. 44 - Koala Habitat Protection*

The proponents' desire is to rezone the precincts referred to as West Ruins Way and West Lindfield, currently zoned RU1 (Primary Production) to R1 (General Residential). The East Ruins Way precinct is also proposed to be subject to an appropriate zoning to allow a low intensity development which maximises retention of the existing vegetaton.

Vegetation:

The site vegetation consists of:

(a) East Ruins Way:

- Pasture along service easement to north.
- Dry sclerophyll forest (remnant block) over majority of this precinct.

(b) West Ruins Way:

- Pasture along fairways and in service easements.
- Dry sclerophyll forest in 3 remnant strips between fairways.

(c) West Lindfield:

- Pasture over most of the precinct.
- Dry sclerophyll forest at the end of the strip in the southeast
- Narrow band of wet sclerophyll in the northwest corner boundary.
- Swamp forest dominated by paperbarks in and adjacent to the southwest corner boundary, and forming a single line of trees along most of the southwest boundary.

(d) Part Lake Innes Nature Reserve (PLINR):

- Swamp forest dominated by paperbarks over most of this area.
- Pasture along the cadastral boundaries, mostly in the north.

Several dams also occurred in the western areas with limited aquatic vegetation.

No threatened flora species were recorded on site. No other threatened plant species was considered a significantly likely potential occurrence.

EECs:

Soil investigations on site by a qualified soil scientist found the development precincts and the swamp forest in PLINR did not fall on alluvial soils.

Hence none of the forest communities in the development precincts qualified as an EEC.

Threatened Flora:

No threatened flora species were found on site.

Fauna:

The survey detected the following threatened species on the property:

- *Little Bent-Wing Bat*: Confident call detection.
- *Grey-Headed Flying Fox*: Detected during spotlighting.
- *Koala*: Maximum of 4 Koalas seen on one occasion, with 90 Koala food trees found with scats.

The Eastern Cave Bat was considered to be a precautionary "*possible*" occurrence due to call identification limitations and detection of *Vespadelus* species on the subject land.

Another 9 birds and 6 mammals listed as threatened were considered to have varying potential to occur on the site (possibly only in localised areas) on the basis of potential habitat, local records in interconnected habitat, and or regional records in similar habitat.

SEPP 44 – Koala Habitat Assessment

The precincts overall qualify as Potential Koala Habitat, although not uniformly across all precincts e.g. the northern strip on West Ruins Way and the southwest strip of swamp forest on West Lindfield did not qualify. The swamp forest in PLINR did not qualify as Potential Koala Habitat.

Historical sightings from database and literature review; previous and recent sightings as part of the proponent's own on-going survey of the site and adjoining lands; and sightings of up to 4 Koalas on site, indicated the site forms part of Core Koala Habitat. Hence a Koala Plan of Management is required to be submitted with any future DA.

Constraint Assessment and Ameliorative Measures

As the site forms part of Core Koala Habitat, a Koala Plan of Management (KPoM) will be required. Consequently, the following will need to be incorporated in the design of future development layouts:

- Maximum retention of Koala food trees, with any loss replaced by replantings.
- Retention of effective connectivity and permeability for Koalas.

- Prohibition of dogs in East Ruins Way, and Koala exclusion fencing in the residential areas of West Ruins Way and West Lindfield.
- Vehicle speed controls.

In addition to the Koala, Grey-Headed Flying Fox and Little Bent-Wing Bat which were recorded on site during the survey, 15 other bats and birds were considered potential occurrences on site (the birds and bats have nil or limited potential to breed on site). Of these, the Koala was considered to be the most sensitive to habitat changes by any future development proposal.

Measures required as part of any future development to retain the viable presence of the Koala are required to be implemented under a KPoM.

Provided these and the above measures for the Koala are adequately considered and implemented, the local populations of these species should persist in the long term.

Twelve hollow-bearing trees occur on site. Assessment under provisions of DCP 2013 found that 5 trees may require mandatory retention, although one of these needs inspection by an arborist to determine if actual habitable hollows have formed. Four hollow-bearing trees were considered to be potentially able to be removed (at least 1 needs an arborist to confirm if habitable cavities are present). Offset measures will be required if habitable hollows are removed.

Conclusion

Preliminary development concepts have been developed, and preliminary assessment indicates proposed rezoning is unlikely to have significant negative ecological impacts as assessed under statutory obligations, particularly due to the provisions of the Koala Plan of Management.

Due cognisance of the identified habitat values and their appropriate incorporation within an informed and innovative final development layout should aim to ensure an ecologically sustainable outcome in the long term.

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1 INTRODUCTION

This firm has been requested to undertake an ecological constraints assessment of the land identified on Part Lot 289 DP 1184284 and Part Lot 6 DP 1105610, The Ruins Way, Port Macquarie. This survey and assessment is to assist in determining development options for the subject land, and form part of a rezoning application to Port Macquarie-Hastings Council.

In undertaking the ecological survey, the following have been considered:

- draft Threatened Species Survey and Assessment – Guidelines for Developments and Activities (DEC 2004)
- *Ecological Consultants Association of NSW – Code of Ethics* (2002) available at www.ecansw.org.au.

The assessment includes an assessment under State Environmental Planning Policy (SEPP) No. 44 - Koala Habitat Protection.

This report is an update of a previous assessment to address the legislative framework at time of writing.

2 BACKGROUND INFORMATION

2.1 Site Location and Access

Refer to Figure 1 for the general location of the study site and the locality. The site is located on the Ruins Way in the Lake Innes area, 5.5km southwest of Port Macquarie CBD.

Current access to the study site is directly off The Ruins Way to all 3 sites.

2.2 Rezoning Proposal

(Source: Vilro Pty. Ltd.)

The proposed development envelope (approximately 10.8ha) is shown in Figure 1, and is divided into 3 proposed development precincts (see Figure 2):

- *West Lindfield*: Approximately 4.84ha in the northwest corner of the site. A preliminary subdivision concept is shown in Figure 11.
- *West Ruins Way*: Approximately 4.28ha located in the middle section of the site just west of The Ruins Way, but excluding the swamp forest and immediately adjacent land. A preliminary concept for this area is shown in Figure 10.
- *East Ruins Way*: The approximately 1.66ha remnant east of The Ruins Way, in Lake Innes Estate. A preliminary concept for this area is shown in Figure 9.

The West Lindfield and West Ruins Way precincts are largely separated by a peninsula of Lake Innes Nature Reserve which falls within the nominated study site. This area is referred to as "*Part Lake Innes Nature Reserve*" (PLINR) and is about 4.1ha in extent.

The development envelope is currently zoned RU1 (Primary Production) under the Port Macquarie-Hastings Local Environmental Plan 2011 (PMHC LEP 2011).

Residential zoning is sought for the West Lindfield and West Ruins Way precincts, with a change in zoning for the East Ruins Way precinct proposed to allow a low density development such as a church and associated facilities.

2.3 Key Definitions

The "**study site/site**" is the area of land on the larger property owned by the proponent, indicated by the polygon in Figure 1, which was surveyed for this KPoM. The study site has a total area of 21.5ha and is shown in Figure 1.

The "**development precincts**" refers to the three areas of land proposed to be rezoned/developed shown in Figure 2. This area is approximately 10.8ha. The KPoM will only apply to those three development precints shown in Figure 2. The three precincts are collectively referred to as the "**development envelope**".

For the purposes of potential occurrence and impact assessment, the "**study area**" consists of the site and the adjacent land within 100m (the detectable limit of potential impacts associated with the proposal). The "**locality**" is defined as land within a 10km radius of the study site.

The definitions of site, study area and locality are in line with DECC (2007).

2.4 Climate and Weather

2.4.1 Climate of the Bioregion

The climate of the north coast of the North Coast Bioregion from just north of Newcastle to the Queensland border is generally warm temperate. The main influence is the latitudinal position of subtropical anticyclone centres which move easterly across Australia.

In summer, warm moisture-laden east to south east winds prevail, sometimes bringing rain, with the heaviest in the form of thunderstorms or depressions from subtropical cyclones moving south. In winter, the northern movement of the anticyclones leads to a dominance of usually dry west to south winds, often leading to fine sunny days and cool nights. Rainfall is usually associated with cold fronts and the coldest temperatures.

Rainfall tends to be distributed more in summer in the north of the region, to relatively evenly distributed in the south. Annual rainfall is most influenced by distance from the coast and topographic position, with a general decrease from east to west. Annual rainfall in the coastal Port Macquarie-Hastings area is around 1522mm pa (www.hastings.nsw.gov.au), falling predominantly in summer and autumn.

Temperature over the region primarily varies with altitude, decreasing about 5° per 300m rise, and about 2-3°C from north to south in areas of similar altitude. The average annual temperature on the coast is typically 16-20°C, while the annual range is 18-22°C (Australian Bureau of Meteorology, cited in Hager and Benson 1994).

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Figure 1: Location of study site.

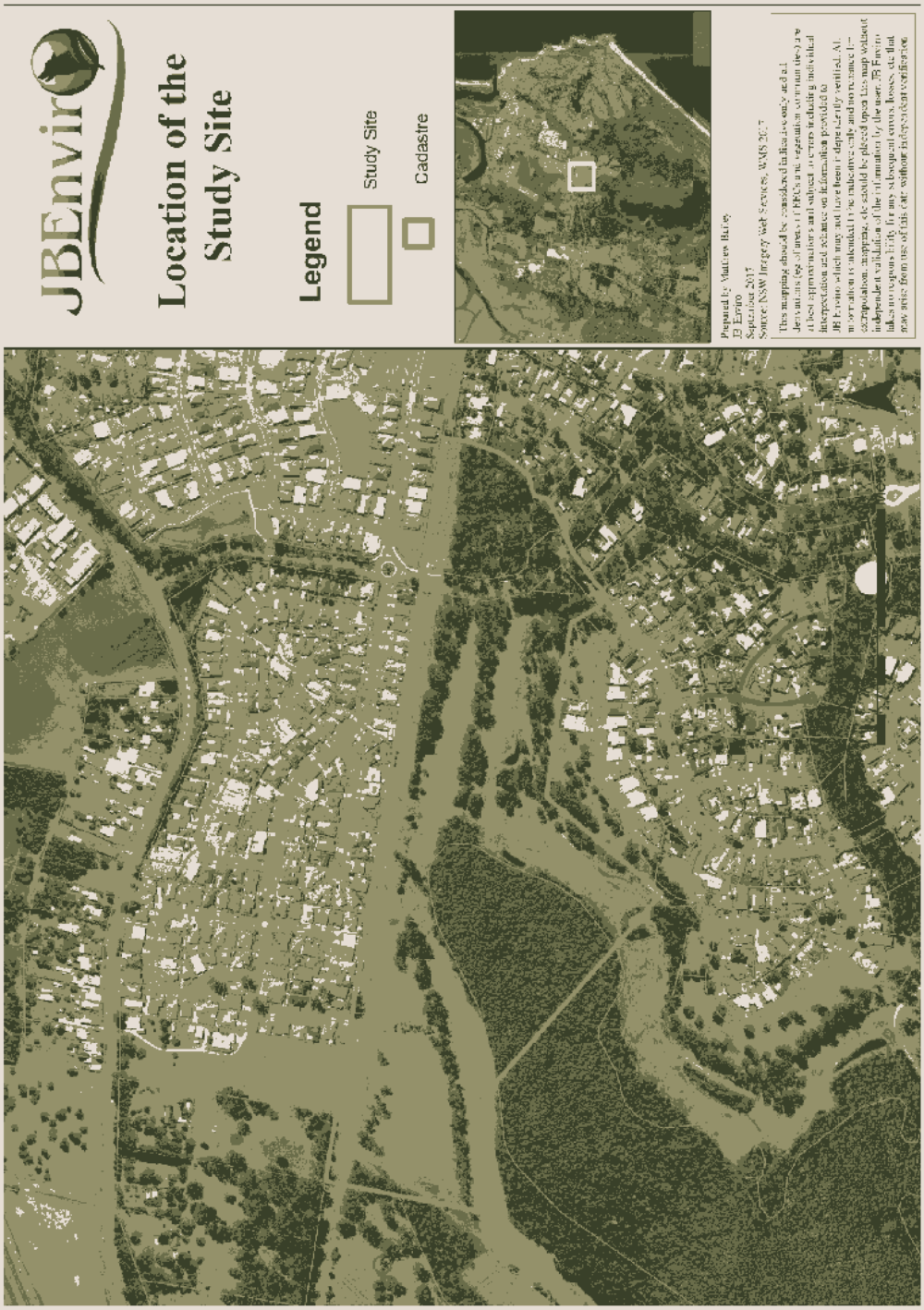

Figure 2: Development precincts

2.4.2 Weather Conditions During Survey

2.4.2.1 Main Survey

The main ecological survey was conducted from the 7th November to 1st December 2011.

Weather conditions were generally warm with low to moderate winds. Maximum temperatures ranged from 21.2 - 31.3°C and minimum temperatures from 15.3 - 21.0°C (Bureau of Meteorology 2011 - nearest weather station at Port Macquarie). Moon phase ranged from full moon to last quarter.

Heavy rain occurred on the nights of 17th & 23rd to the 24th November, and during the day from 23rd-25th November, causing minor flooding on the site.

2.4.2.2 Supplementary Survey

A targeted nocturnal and diurnal Koala survey was undertaken for this project in late July (22nd and 29th 2017), with tree marking and location also undertaken 19th July to 13th August.

Full weather data is provided in Appendix 5.

2.5 Topography and Soils

2.5.1 Topography

Varies with location as follows.

The East Ruins Way area is generally flat with a gentle slope to the north. An artificial ephemeral creek (essentially a stormwater drain) has been constructed inside the southern boundary, and runs from the southeast to the southwest boundary. This creek is about 1m deep and 2.5m wide. A linear mound about 1m high and 1:3 slope runs along the northern boundary. A small stormwater drain discharges in the eastern end on the northern foot of this mound.

The West Ruins Way area is generally flat, with slope gently running west to the PLINR area. A key stormwater drain (linking off-site to the east), which is rather eroded, has been cut between the middle and southern strip, leading to a small dam on the northwest side of the southern strip. Another drain lies on the southern side of the southern strip. A small dam (3m x 5m) is also present at the eastern end of the fairway between the middle and southern strip. Another linear mound also runs along the length of the northern strip.

The West Lindfield area falls over a declining slope, with a fall to the south measured with a declination of 4%. Level landforms occur well south of the site (Abel Ecology 2017). A slightly lower area lies in the western boundary where an open drainage depression occurs. A stormwater drain rises about midway west across this precinct, draining south. This drain is about 1.5m deep to 3m wide.

The PLINR area within the site is located with a very gently sloped drainage depression. Drainage runs south, with evidently higher land in the upper northern and western sides. There is no central drainage line.

2.5.2 Geology and Soils

2.5.2.1 Geology and Geomorphology

Bedrock geology of the locality as mapped by Leitch (1980) was incorporated into coastal Quaternary geology mapping by Troedson and Hashimoto (2008). Both sources shows the site falling on part of a very complex fault of Devonian and Carboniferous sedimentary and minor volcanics of the Central and Coffs Harbour Block (Leitch 1980). These two divisions comprise the western and eastern halves of the study area, as shown in Figure 2.

Soils in the East and West Ruins Way and West Lindfield are predominantly derived from this parent material (Abel Ecology 2017), slowly intergrading downslope to the open drainage depression within the PLINR area.

The PLINR segment to the south of the West Lindfield precinct falls on this underlying parent geology, and is mapped at the 1:25 000 scale (Troedson and Hashimoto 2008) as likely to have a complex mix of Pleistocene clay, silt, and fluvial and marine sands comprising the shallow upper layers. Due to this complexity of geomorphological origins (ie colluvial, estuarine and lacustrine), this area was classed as undifferentiated (Troedson and Hashimoto 2008).

2.5.2.2 Landscape Scale Soil Landscape Mapping

There are two levels of current landscape-scale soil landscape mapping. These are reviewed for later context to site-specific soil investigations (Abel Ecology 2017).

2.5.2.2.1 Atkinson 1999

The Kempsey 1:100 000 Soil Landscape map sheet (Atkinson 1999, DLWC 1999) shows the locality has a complex soil landscape due to the complex range of geomorphological processes. The study area appears to fall close to the boundary of the Thrumster and Cowarra soil landscapes, with the adjacent section of the Lake Innes Nature Reserve occurring on the Cairnscross soil landscape.

In terms of geomorphology, the Thrumster soils are developed on residual landscapes, whereas those of Cairnscross are transferral which typically includes deep deposits of eroded soil and materials washed downslope (colluvium) from residual areas, and often merging with the periphery of alluvial landscapes on their downslope edge. Transferral landscapes are thus defined by contours (Atkinson 1999).

Dominant great soil groups in each of these broad classes are mapped at the 1:100 000 scale as Krasnozems in the Thrumster landscape; and Yellow Podzolics, Soloths and Humic Gleys in the Cairnscross soil landscape.

Specific soil profile investigations were undertaken (Abel Ecology 2017, 2016) to verify this soil landscape mapping (see section 2.5.2.3) to assist determination of the presence/absence of Endangered Ecological Communities (EECs).

2.5.2.2.2 Hashimoto and Troedson 2008

As part of the Comprehensive Coastal Assessment (CCA), a series of 1:25 000 geological maps of Quaternary deposits were made for the coverage area. These maps were prepared to provide a uniform and robust dataset for land use planning and management, and to provide information on issues such as acid sulphate soils and land use capability. These maps are considered the most accurate to date for soil landscape mapping at this scale (Troedson and Hashimoto 2008, Hashimoto and Troedson 2008), but limitations have to be acknowleged at the site scale e.g. no sampling was taken on the site to validate the mapping (Abel Ecology 2016, 2017, Hashimoto and Troedson 2008).

Figure 2 shows this mapping overlaid over the study area, with the following table summarising the properties of the soil landscapes. This mapping clearly shows the complex geology of the locality due to the faults combined with lacustrine/estuarine processes associated with Lake Innes, which was formerly open to the ocean and later altered to an estuarine lagoon, and eventually a freshwater lake with the development of the barrier dune system (Hashimoto and Troedson).

Table 1: Coastal Quaternary soil landscape mapping of the property

Soil Landscape	General Location	Geomorphic Origin	Characteristics
Qpu (Quaternary Unit 1)	Section of Lake Innes Nature Reserve on site.	Undifferentiated Mixed	Pleistocene undifferentiated: clay, silt, fluvial sand, marine sand.
D-Ct (Quaternary Unit 1)	Western half of Western Lindfield, middle part of Ruins Way West, eastern side of Ruins Way East.	Bedrock	Devonian to Carboniferous sedimentary rocks (Tamworth Belt)
Pzs	Eastern-most part of West Lindfield, western end and eastern end of Ruins Way West, western side of Ruins Way West	Bedrock	Cambro-Ordovician, Devonian and Carboniferous sedimentary and minor volcanic rocks

2.5.2.3 Site Soil Landscape Investigations

In order to more clearly define the boundaries of the landscape units with greater precision than shown on the DLWC (1999) 1:100 000 map, which also appears to conflict with the underlying geological mapping by Hashimoto and Troedson (2008) and Leitch (1980); specialist soil investigations were undertaken over the West Lindfield area and the PLINR area (Abel Ecology 2016, 2017).

Soils were examined in a catenary sequence downslope in the western end of the West Lindfield area. The soil profile and its geomorphological and pedogenesis origins were examined via a site soil survey since it is critical for this assessment to distinguish between well drained and poorly drained landscape elements, and soils which match the Final Determination where vegetation that matches the Final Determination is present (NSWSC 2004d, *CBD Prestige Holdings Pty Ltd v Lake Macquarie City Council [2005] NSWLEC 367, Gales Holdings Pty Limited v Tweed Shire Council [2008] NSWLEC 209, Motorplex (Australia) Pty Limited v Port Stephens Council [2007] NSWLEC 74*).

Soil profiles were sampled across the soil landscape gradients mapped by Atkinson (1999) and Hashimoto and Troedson (2008). Methods used included field and laboratory examination and are detailed in Abel Ecology (2016, 2017).

Site investigations found that the soil landscape mapped by Atkinson (1999) as Thrumster (th) on the West Lindfield precinct are clearly not Krasnozems, hence this soil landscape does not exist in this precinct. Rather they are Podzolics, defining the classic upper to lower slope catenary elements so common on fine-grained sedimentaries of this part of the coast. Of particular significance is the influence of previous lateritisation of the saprolite and the inherited characteristics in the present solum, which have given this soil profile its characteristic colours and hence its superficial resemblance to Kraznozem. Similar profiles may be found in parts of the Sovereign Hills area south of the Oxley Highway. These soils are clearly forms or variants of the Kundabung (kg) landscape (Atkinson 1999). Other evidence supporting the soils were not derived from alluvial processes include angular lithic fragments of varying sizes; lack of truncated or multilayered soil profiles; and a dominance by heavy clays.

It also is relevant to note here that Atkinson (1999) states that the 1:100 000 scale of mapping does not allow delineation of soil landscape occurrences smaller than about 40 hectares, hence the complex folding of the locality (see Figure 2) has had a more localised effect on soil landscapes than could be shown by Atkinson (1999).

Furthermore, other soil profile examinations (Abel Ecology 2016, 2017) across the area mapped as Qpu by Hashimoto and Troedson (2008) found that the soils to the eastern boundary of the Hastings Crematorium and in the middle of the fairway are gleyed podzols which contain lithic fragments and pedogenic grit. This indicates that they are derived from weathering of the parent material, with upper layers indicating colluvial processes, as expected given their position on a footslope. These soils are mottled and poorly drained, but by no means at the more hydromorphic end of the gleyed sequence of variants in the landscape classification, and only indicate a long history of alternating periods of wetting and drying (Abel Ecology 2016, 2017).

Abel Ecology (2016, 2017) thus clearly determine that there are no alluvial soil landscapes in the planning precinct.

A separate soil profile examination in the PLINR found the soils were again heavily influenced by the residual substrate, with the upper horizons a mix of colluvial (slope wash from the adjacent areas), estuarine and lacustrine origins (the latter increasing towards Lake Innes). These soils were again in line with Atkinson's Cairncross classification, which includes complex intergrades at merge zones between colluvial and alluvial, estuarine and lacustrine soil forming processes (Atkinson 1999). Alluvial processes are not evident in the soil profile e.g. layering and sorting.

2.6 LANDUSE AND DISTURBANCE HISTORY

2.6.1 General Past and Current Uses

The subject land has been in the ownership of the proponent's family for >100yrs. It forms part of a formerly much larger holding, of which a significant portion has been previously excised to join Lake Innes Nature Reserve, including the peninsular of swamp forest between West Lindfield and West Ruins Way precincts.

For most of its time, the property has been used for rural pursuits of cattle grazing and timber production. In recent decades, the latter has become the predominant landuse with varying rotations. The swamp forest between West Lindfield and West Ruins Way, now falling into Lake Innes Nature Reserve, only developed after drainage changes around the middle of the last century .

In the late 1980s, a Development Application (DA 88/248) was approved for the northeast corner of Lot 6 for a golf course and clubhouse. Works on this development to date have consisted of clearing and preliminary levelling of the fairways, preliminary drainage works and establishment of irrigation dams. Fairways run through the West Lindfield and West Ruins Way sites, and around the perimeter of PLINR.

Around the same time, other portions in the northeast of the locality have also been periodically subdivided and developed into residential precincts (ie Lake Innes estate and Mill Hill). The existing clearing in the centre of the East Ruins Way site was the previous location of the Lake Innes estate sales office and associated parking and pedestrian access through a landscaped area. This building was later moved to the vineyards, and is now the Little Fish Café.

2.6.2 Recent

An underground and overhead services easement runs across the northern boundary of the site. This has recently seen disturbance of the vegetation and soils in the West Lindfield section. Another easement runs south across the western end of the West Ruins Way precinct.

Periodic slashing is undertaken to manage the fairways.

Adjacent landowners to East Ruins Way mow into the adjacent land, and have extended yards with some plantings and garden furniture noted.

2.6.3 Fire

A major fire occurred in the study area in 1994. This saw much of Lake Innes Nature Reserve burnt.

Fire has not recently occurred on the site. East Ruins Way in particular has been excluded from fire for >15yrs at least.

2.6.4 Weed Invasion

Weed invasion varies widely over the site, with the highest areas of weed invasion occurring in the pasture and East Ruins Way (ERW). Weeds here are primarily common pasture species such as Common and Broad-leaved Paspalum, *Setaria*, Cobblers Pegs, Billygoat Weed and Lambs Tongue. The groundcover component of East Ruins Way is virtually dominated by exotic pasture species despite the native overstorey.

Some dense areas of Lantana occur in the northern end and around the edges of the PLINR swamp forest, and small patches of Bitou Bush were noted in several areas of West Ruins Way and East Ruins Way.

2.7 ADJACENT DEVELOPMENTS AND ACTIVITIES

East Ruins Way is bound by existing residential development to the north, east and south. The Ruins Way lies on the western side.

West Ruins Way is bordered by The Ruins Way to the east. Established residential land occurs to the north and south. West is a fairway, and then the band of swamp forest.

West Lindfield is bound by small rural-residential land to the north, with established residential land to the northeast. The band of swamp forest lies to the south to southeast, separated by a cleared fairway which runs to the southwest. The Hastings Crematorium and cemetery lies to the west.

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Figure 3: 1:25 000 Quaternary soil landscape mapping of the site
(Source: Troedson and Hashimoto 2008a)

PART A: FLORA AND FAUNA SURVEY

3 SURVEY METHODS

3.1 GENERAL INFORMATION

Following an initial site inspection on the 30/10/11 to inspect the study area's habitats and to preliminarily determine the threatened species potentially occurring and hence the appropriate survey techniques, the main survey period was conducted from the 7th November to the 29th November 2011, with further dedicated Koala surveys in mid July 2012 and 2013.

Supplementary survey was undertaken from the 19th July 2017 to August 13th 2017 for this assessment.

The available relevant literature and the NSW Office of Environment and Heritage (OEH) BioNet (OEH 2017a) databases were consulted for records of threatened species within a 10 x 10km radius around the site. Species from these searches were considered for potential to occur in the sub-region of the mid north coast of NSW, which included the property.

All field surveying was conducted as per the conditions of the consultant's Animal Research Authority and Section 132c Scientific License.

3.2 FLORA

3.2.1 Local Threatened Flora Records

A search of the available literature and other sources (e.g. Biosis 2004, Dr Steve Phillips pers. comm., NPWS 1995, Kendall and Kendall 1994, Bale 2005, Biolink 2003, Darkheart 1997-2014, Ecovision 1999, pers. obs.) and OEH Rare or Threatened Plants (ROTAP) BioNet database (OEH 2017a) found records of the following threatened species within the locality (10km radius around the site).

3.2.2 Survey and Occurrence Prediction Methods

3.2.2.1 General

The primary vegetation survey was conducted during the ecological survey in November 2011.

Inspection in July-August 2017 noted no significant changes.

The precincts were surveyed intensively, whereas a coarser scale vegetation survey was carried out over PLINR as this area is not directly impacted by the proposal. With 2 ecologists, a total of approximately 20 hours was spent undertaking vegetation sampling i.e. random walking transects for vegetation mapping and targeted threatened species searches.

In addition to the site, remnant vegetation on the boundary of the Hastings Crematorium and Cemetery adjunct to the West Lindfield precinct was also surveyed on specific request of the proponent, to review EEC mapping by Biolink (2013).

The flora survey routinely consisted of 2 main components:

- Identification, description and mapping of the major vegetation communities on the site, and any Endangered Ecological Communities/Endangered Populations listed under the *Threatened Species Conservation Act 1995* (TSCA), and/or *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).
- Searches for and (if found) mapping of threatened species listed under the Threatened Species Conservation Act 1995 (TSCA), and Environment Protection and Biodiversity Conservation Act 1999 (EPBCA).

Information derived from the above was also used to predict the likelihood of occurrence of threatened species recorded in the locality, Local Government Area (LGA) and North Coast Bioregion (see section 3.2.1.1 and Appendix 1).

3.2.2.2 Vegetation Community Survey Methodologies

Due to the limited extent of the study area, random walking transects in a zigzag pattern were used as opposed to plot sampling to survey the vegetation communities and search for threatened species. The sampling methodology utilised was considered suitable for the assessment for the following reasons (Forest Fauna Surveys *et al* 1997, DEC 2004, Cropper 1993):

- Provide the most amount of information for a given input.
- Provide an effective and highly accurate means to sample vegetation boundaries.
- Provide an efficient and effective means for assessing floristic diversity and possible presence of threatened species.

The vegetation communities were described from data collected during transect studies. Classification was based on the *Forest Types Classification Research Note 17* (1989) with sub-formation names for vegetation types adapted from the classification proposed by Beadle and Costin (1952) and Keith (2004) e.g. '*Dry Sclerophyll Forest'* to assist the fauna habitat evaluation, and the structural classification used by Walker and Hopkins (1990). For this updated assessment, vegetation communities were correlated to the NSW Plants Community Type (PCT) database.

Species identification was made with the assistance of GTCC (2007), Bale (1993), Beadle (1982), Harden (1990, 91, 92, 93, 2000), Williams and Harden (1984), Williams and Harden (1980), Williams and Harden (unknown), Robinson (1994), and Brooker and Kleinig (1999). Plant species were identified to species or subspecies level and nomenclature conforms to that currently recognized by the Royal Botanic Gardens and follows Harden and PlantNET for changes since Harden (1990-1992, 2000).

3.2.2.2.1 Conservation Status Assessment

The conservation significance of vegetation communities was determined by comparing equivalent phytosociological associations and their conservation significance on the North Coast of NSW (e.g. Keith 2004, Keith and Scott 2005, NSWSC 2004a, 2004b, 2004c, 2004d, 2004e, 2005f, etc).

Identification of possible Threatened Ecological Communities (TECs) was based on the data collected by the survey and review of the relevant listings on the OEH website (www.environment.nsw.gov.au).

3.2.2.3 Threatened Flora Species Searches and Occurrence Assessment

3.2.2.3.1 Searches

Searches to identify threatened flora records in the LGA and regionally in similar habitats to those occurring on the site (see Appendix 1), were carried out over the survey period in November 2011. The precincts were intensively searched for a dedicated day, consisting of 2 persons searching transects and undertaking random meanders through potential habitat including the dams. During the vegetation community survey, threatened plants were also targeted during random meanders.

The extension to the study area was surveyed over two days after Koala surveys by a senior ecologist in July-August 2017.

Survey for threatened plants in the PLINR was limited to the edge and transects during EEC surveying and assessment, and along the Koala monitoring transects.

3.2.2.3.2 Potential Occurrence Assessment

Potential occurrence assessment of threatened flora species is provided in Appendix 1. This section assesses all considered threatened species listed under the TSCA and EPBCA for their potential to occur on site based on the following factors (DEC 2004, Forest Fauna Surveys 1997, DECC 2007):

- Presence/absence of suitable habitat.
- Condition and disturbance history of habitat.
- Local and regional records.
- Location of site within known distribution of the species.
- Connectivity with habitat where species is known to occur.

3.3 FAUNA

3.3.1 Local Threatened Fauna Records

Tables 25 and 26 in Appendix 1 lists the significant fauna species that have been recorded or reported to occur within the locality (OEH Bionet 2017a, Jones 1995, Aaso 2002, Biosis 2004a, 2005, Biosphere Environmental Consultants 2006, AMBS 2003, 2004, Naturecall 2015, Darkheart 2010k, 2007d, 2006d, 2006e, 2006h, 2005c, 2005d, 2005f, 2005u, 2005i, 2005m, 2005y, 2005z, 2004g, 2004l, 2004n, 2004p, 2004q, Berrigan 2003e, 2003j, 2003m, 2003l, 2001f, 2001g, 2001h,

2001i, 2000e, 2000f, 2000g, 1999c, 1999d, 1999e, Redpath 2003, EcoPro 1999a, 1999b, ERM 2002, 2003, Lewis 2008, NPWS 1995a, Biolink 2005a, 2005b, 2005c, 2004, 2003, Trémont 2005, Standing and Bray 1998, Bernard Whitehead pers. comm.) or within Lake Innes Nature Reserve (NPWS 1994a). Those in bold are dually listed under the EPBCA 1999.

The following species (excluding marine mammals, birds and reptiles as no suitable habitat is affected by the development) are considered likely to occur in the locality due to suitable habitat and regional records (some have been recorded within 20km) (OEH BioNet 2017a, DotEE 2017a, personal observations). Those marked with an asterisk are listed under the EPBCA 1999:

(a) *Mammals*: Long Nosed Potoroo*, Eastern Pygmy Possum, Golden-tipped Bat, Dwyer's Bat*, Eastern Cave Bat, Greater Glider*.
(b) *Birds*: Sooty Owl, Barking Owl, Brolga, Superb Fruit-dove, Flame Robin, Diamond Firetail, Grey-crowned Babbler, Hooded Robin, Speckled Warbler, Red Goshawk*, Painted Snipe, Painted Honeyeater, White-fronted Chat.
(c) *Reptiles:* Pale-headed Snake, Stephens Banded Snake, Three-toed Snake-Tooth Skink*
(d) *Frogs*: Stuttering Frog, Giant Barred Frog, Wallum Sedge Frog.

In addition to these species, the New Holland Mouse is predicted to occur within the locality (DotEE 2017a). This species is not listed under the TSCA, but is listed under the EPBCA 1999 as Vulnerable. It has not been recorded to date in the locality or the Local Government Area (OEH 2017a).

3.3.2 Fauna Survey Methodology

In consideration of the threatened species recorded in the locality, available habitats and potentially occurring species, the following survey methods were employed in the 2011 survey:

* Trapping using Elliot B traps and Elliot A traps
* Hair tubes and hair funnels
* Yangochiropteran bat call detection
* Spotlighting by walking with a variable power 100w hand-held spotlight.
* Scat, burrow and hollow searches and inspections over the development envelope
* Call playback, detection and recording
* Physical searches of habitat e.g. logs, leaf litter, etc
* Dusk stag observations.
* Opportunistic sightings over the entire property.
* Fauna habitat evaluation.

The focus of the above was on the land within the 3 proposed development precincts, with a specific Koala survey undertaken of the PLINR encapsulated within the site (see section 7.2.2).

The updated fauna survey consisted of a diurnal and nocturnal survey as per section 7.2.2.

3.3.2.1 Habitat Evaluation Survey Methodology.

The entire site was surveyed to determine the available potential habitats, and the support value of these habitats for threatened species. Habitats were defined according to parameters such as:

- Structural and floristic characteristics of the vegetation e.g. understorey type and development, crown depth, groundcover density, etc.
- Degree and extent of disturbance e.g. fire, logging, weed invasion, modification to structure and diversity, etc.
- Soil type and suitability e.g. for digging and burrowing.
- Presence of rocky foreshores, seacliffs, islands, mangroves, beaches, mudflats, sand spits, etc.
- Presence of water in any form e.g. dams, creeks, drainage lines, soaks.
- Size and abundance of hollows and fallen timber.
- Availability of shelter e.g. rocks, logs, hollows, undergrowth.
- Wildlife corridors, refuges and proximate habitat types.
- Presence of mistletoe, nectar, gum, seed, sap, etc sources.

Census of these attributes was used to assist with prediction of the likelihood of threatened species occurrence, as detailed in Appendix 1, in line with DEC (2004) and DECC (2007).

3.3.2.2 Trapping and Hair Tubes

Trapping and hair sampling was only undertaken within the 3 development precincts.

3.3.2.2.1 Elliot A trapping

A total of 45 Elliot A traps were set for 4 nights, with 25 at East Ruins Way, and 20 at West Lindfield along the narrow band of dry and swamp sclerophyll forest. Traps were focused on areas of dense groundcover and around debris where trapping success was more likely. Traps were placed 5-10m apart and baited with a mixture of rolled oats, peanut butter, honey and apple. Target species were the Brushtailed Phascogale, Eastern Chestnut Mouse, New Holland Mouse and Common Planigale. A total of 180 trap nights were performed.

3.3.2.2.2 Elliot B (Arboreal) Trapping

Elliot B trapping was undertaken across the site over 3 weeks in four night sessions with the largest trap effort performed in the first week. This consisted of 20 at East Ruins Way, 15 at West Ruins Way and 5 at West Lindfield. In the second week, 10 traps were placed at East Ruins Way, and in the third week, 10 were placed at East Ruins Way and 10 at West Ruins Way.

Traps were mounted about 20-30m apart on canopy trees and were baited with a mixture of honey soaked rolled oats, apple and peanut butter. Just before dusk, a honey solution was sprayed above the mounted platform as a further attractant. The target species were the Squirrel Glider and Brushtailed Phascogale. All traps were mounted on platforms and angled slightly down so as to drain out the entrance. A total of 280 trap nights were performed across all sites over the 3 weeks.

3.3.2.2.3 Hair Tubes/Funnels

Hair tubes were mounted on platforms in trees and hair funnels placed in suitably dense groundcover throughout the site. A total of 8 hair tubes and 5 funnels were placed at East Ruins Way; 9 hair tubes West Ruins Way; and 3 hair tubes and 1 funnel at West Lindfield for 7 nights (182 trap nights). These were baited with a mixture of peanut butter, oats and honey.

Target species included the Long-Nosed Potoroo, Brushtailed Phascogale, Squirrel Glider, Common Planigale, New Holland Mouse and Eastern Chestnut Mouse. Predator baits were not set due to lack of habitat for the Quoll.

All hair samples were sent to nationally recognised hair identification expert, Mrs Barbara Triggs for identification.

3.3.2.3 Spotlighting and Torch Searches

Spotlighting was conducted for at least 2 hours per night by two persons for 10 nights (a total of 24 person hours) over the entire site. Spotlighting involved observing all habitat components i.e. understorey/canopy trees for arboreal fauna, and the ground and terrestrial strata (e.g. logs, areas with good leaf litter accumulations, etc) for terrestrial fauna, etc. It was also periodically conducted during call playback to detect owls attracted but not calling. Every tree on site was specifically surveyed for Koalas as per the modified Dique *et al* (2003) survey technique used by Wildsearch Environmental Services to census Koala populations (Luke and Company 2009).

A one night survey was also undertaken on the 11th July. This consisted of two observers checking every tree on site.

Spotlighting was conducted from just after dusk to around 11pm. Conditions were mostly clear, with light rain on the third night. Wind was variable; with moderate to heavy winds on the second and fourth night and relatively calm conditions for the remaining nights. The moon ranged from full moon to last quarter during the survey period.

Torch searches were conducted around the dams and drainage lines for frogs, over fine nights to a very heavy rain period at the end of the survey period. A total of 6hrs was spent on torch search activities. The primary target species were the Green and Golden Bell Frog, Green Thighed Frog and the Wallum Froglet.

3.3.2.4 Stag Watching

Stag watching was undertaken at West Ruins Way and East Ruins Way precincts for a total of 2 nights. This involved watching trees with hollows for about 30mins before and after dusk with binoculars for signs of fauna emerging from the hollows. A total of 2 hours was spent on this activity.

3.3.2.5 Yangochiropteran Bat Call Detection

Yangochiropteran bat call detection was undertaken utilising 3 Anabat II bat call detectors fitted with a ZCAIM. An active Anabat was carried during spotlighting to opportunistically record bats, and one unit per site was set to record from a fixed position overnight facing at 45° angles towards a canopy or flyway or facing over a dam to target Southern Myotis.

Mobile recordings were carried out for approximately 1 hour per night over 3 nights, with 6 nights of overnight recording (>50 hours total). The recordings were forwarded to Mrs Anna Lloyd of Eco-Location, a bat call identification consultant, for identification of the bat species.

3.3.2.6 Call Playback

Recorded calls of the following species were routinely played in the study area:

- Masked, Grass, Barking and Powerful Owls.
- Squirrel Glider and Yellow-Bellied Glider.
- Koala

Calls were played through a portable MP3 player via a portable 30W PA system from the roof of a 4WD vehicle at a level approximating natural intensities of the species. The general methodology involved an initial period of listening and spotlighting; followed by playback of the calls simulating a natural pattern. This was followed by 10 minutes of listening and 10-15 minutes spotlighting for fauna attracted by the calls (but not responding vocally), within 100m radius of the playback point. Calls were generally played soon after dusk, when such calls are normally heard; with the greater part being from dusk to 9pm. A total of 4 hours was spent on this activity over 8 non-consecutive nights.

Green-Thighed Frog, Wallum Froglet and Green and Golden Bell Frog calls were played around the dams and swamp forest over the survey period on rainy nights, just after dusk. A total of 2hrs was spent on this activity over 6 nights.

3.3.2.7 Diurnal Bird Survey

Birds were generally surveyed by detecting calls and searching by binoculars at point positions or along a transect walked along the forest edges at dawn and dusk (when call chorus and peak activity occurs), and while walking in a random meander around the site looking for birds, and opportunistically during other activities e.g. trapping and scat searches.

A total of 4 dedicated hours was spent on this activity, in addition to incidental observations during other activities. This provided short-term seasonal data on bird occurrences in the area for the particular season (DEC 2004).

3.3.2.8 Reptile, Frog and Habitat Surveys and Secondary Evidence

Physical habitat searches throughout the development envelope/study area were undertaken during the survey. This involved lifting up of building debris and logs, inspection of dense vegetation, raking of leaf litter for frogs and reptiles, observation of likely basking sites, and searches for scats, tracks and scratches in the area.

Specific time was also devoted to searching under potential forage species for Koala scats as part of the Core Koala Habitat assessment (see section 5.0), and opportunistically for owl pellets under large trees with potential to be roosts or nest sites.

A total of 16 dedicated hours was spent on habitat searches (including Koala scat searches) throughout the site.

3.3.2.9 Targetted Koala Surveys

A total of 125 days of targeted Koala surveys have been undertaken over the site since 2011 (David Charley, unpublished data).

Surveys have consisted of a modification of the Dique *et al* (2003) methodology, as detailed in section 6.2.2. Surveys have been conducted predominantly by the proponent, with independant surveys by Darkheart/JBEnviro (2011, 2014, 2017) to provide comparative data (see section 6.2.4).

For this assessment, a diurnal and nocturnal survey were taken 7 days apart to further correlate to the 6 years of Koala monitoring.

3.3.2.10 Survey Methods Not Used

The following survey techniques were not used:

- *Wire cage trapping and sandpads*: Site lacks any significant potential to support the Spotted-Tail Quoll or Long-Nosed Potoroo, hence survey was redundant, and extreme risk of theft/vandalism/interference (all sites).
- *Pitfall trapping*: No significant potential habitat for Common Planigale within development envelope.
- *Harp traps and mist nets*: Not used due to lack of flyways suitable for trap location (West Ruins Way and West Lindfield), and extreme risk of theft/vandalism/interference (all sites).
- *Triplining*: Anabats were set facing waterbodies to detect bats which may use dams for drinking or foraging.
- *PIR cameras*: Extreme risk of theft/vandalism/interference (all sites).

3.4 SURVEY LIMITATIONS

All surveys are limited in their ability to fully document all species of flora and fauna likely or actually occurring on a site. Surveys such as these are merely “snapshots” in time, and can only be expected to provide an indicative not absolutely comprehensive representation of a site’s species assemblage (DEC 2004, Forest Fauna Surveys 1997). To counter this limitation, this survey has employed methods recommended in literature and known from personal experience to best detect the target species under the site and weather conditions at the time, and conservatively considered likelihood of occurrence based on local and historical records, presence of suitable habitat on site/study area, and records in similar habitat in the bioregion (see Appendix 1).

3.4.1 Flora

The study site was intensively traversed by foot during specific flora surveys and during other survey activities during the survey period in November 2011, and to a lesser extent by subsequent surveys in 2017.

The core survey coincided with a peak flowering period of many native species, after a wet start to spring. Consequently, species detection was considered above average.

Regardless, any short-term survey will only provide a list of plants detected during a brief interval of time and in a specific season (DEC 2004). The total species list of an area is usually much greater than can be detected in such a short time and it can be influenced by factors such as: size of the property, fire history, time since disturbance, flowering season (particularly orchids), observer experience, presence of conspicuous features (e.g. flowers, leaves) and presence of reproductive material (DEC 2004).

3.4.2 Fauna

Fauna detectability is limited by seasonal, behavioural or lifecycle characteristics of each species, and even by habitat variations (e.g. flowering periods), which can occur within a year, between years, decades, etc (DEC 2004, Forest Fauna Surveys 1997).

The core fauna survey period fell in spring which is a period of high activity for most fauna e.g. breeding of birds, Koalas, arboreal mammals, and reptiles (DEC 2004). Detection of seasonal breeding frogs would be limited for species breeding in mid to late Spring, or year-round. Winter longitudinal and latitudinal migrants such as the Swift Parrot are also unlikely to be present at this time of year. Conditions were generally ideal for reptiles and frogs, with warm weather dominating the survey period. Very wet conditions at the end of the 2011 survey (24th-26th November) also provided ideal conditions for frog breeding.

The 2017 survey occurred in the beginning of the Koala breeding season.

To counter these limitations, qualitative and quantitative habitat evaluation was used as well as a standard ecological field survey to assess the site's significance to threatened species. Habitat evaluation conservatively assesses the potential occurrence of threatened species based on potentially suitable habitat and local records, providing a prediction of the likelihood of a particular threatened species occurring on the site and/or property (DEC 2004, DECC 2007, Forest Fauna Surveys 1997).

4 SURVEY RESULTS

4.1 VEGETATION COMMUNITIES

Refer to Figure 3 for a map of vegetation communities on the site (grouped into major formations) and of the remnant forest on the boundary with the crematorium, following photos for illustration, and Appendix 2 for the species list.

4.1.1 East Ruins Way

4.1.1.1 Pasture

Biolink (2013)	n/a
PCT Id	n/a
Location	Comprises the easement along the northern side of the precinct.
Description	**(a) Canopy/Understorey: :** Structure and Species: Absent apart from two Swamp Oak <8m tall in a drain. **(b) Shrub Layer:** Structure and Species: Absent apart from scattered Lantana and Bitou, and some young White Sally <1.5m tall. **(c) Ground Layer:** Structure and Species: Comprises a dense cover of primarily exotic grasses from 10-100cm in height. Some herbs also present but mostly outcompeted by vigorous, fast growing grasses. Dominated by Setaria (**Setaria sphacelata*), Broadleaf Paspalum and Common Paspalum (**Paspalum dilatatum*). Other common weeds present include Cobblers Pegs, Billygoat Weed, Purple Top (**Verbena bonariensis*), Paddy's Lucerne (**Sida rhombifolia*) and Lambs Tongue (**Plantago lanceolata*). **(d) Lianas, scramblers, epiphytes, mistletoe etc.:** Absent
Comments	Mostly maintained by slashing, with bund mound not slashed recently

4.1.1.2 Very Tall Open/Dry Sclerophyll Forest A

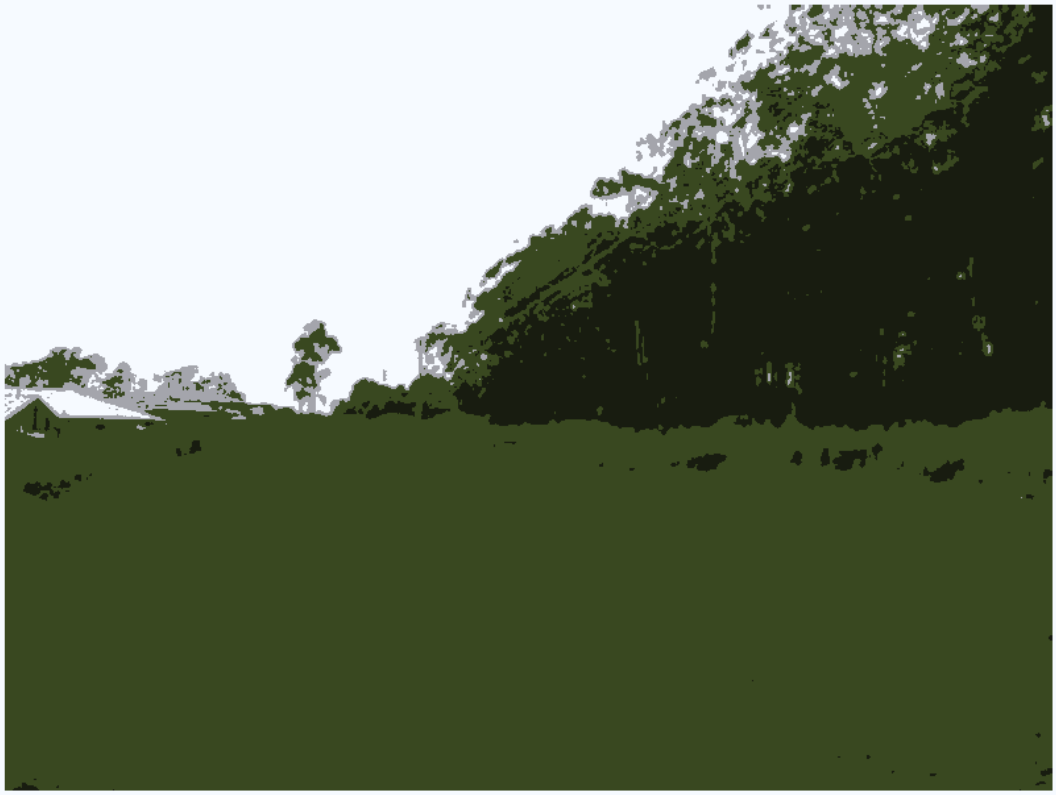
Biolink (2013)	23 Blackbutt Shrubby Moist Forest
PCT Id	695 Blackbutt - Turpentine – Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion
Location	Dominates the precinct aside from clearing associated with the overhead powerline easement on the north boundary. This community is approximately 1.8ha
Description	**(a) Canopy:** Structure and Species: The canopy is open and generally between 20-25m tall. Crown separation ranged from touching to slight separation. Blackbutt (*Eucalyptus pilularis*) and Tallowwood (*E. microcorys*) were co-dominant, with Grey Ironbark (*E. siderophloia*), Forest Red Gum (*E. tereticornis*), Pink Bloodwood (*Corymbia intermedia*) and Narrow-Leaved Red Gum (*E. seeana*) occurring at a lower frequency as canopy associates. Trunk diameter at breast height (DBH) ranged from 30-120cm (mostly 30-50cm).

	(b) Understorey: Sparse to open understorey, with some dense patches around canopy trees, particularly along the northern edge and where a slasher cannot access due to stumps. Dominated by canopy juveniles with Black Oak (*Allocasuarina littoralis*), Forest Oak (*A. torulosa*), Cheese Tree (*Glochidion ferdinandi*) and White Sally Wattle (*Acacia floribunda*). A number of planted native and exotic rainforest plants have also been planted around the creek. Height ranged from 4-8m. **(c) Shrub Layer:** Structure and Species: Generally 0.5-3m high and generally poorly developed with some dense patches on the northern edge, along the creek and around canopy trees. Consists of a mix of species including young upper stratum species, Lantana (**Lantana camara*), Coffee Bush (*Breynia oblongifolia*), Senna (**Senna pendula*), *Wikstroemia indica* and Cheese Tree. **(d) Ground Layer:** Structure and Species: Dense modified groundcover contains primarily exotic species, with Broad-leaf Paspalum (**Paspalum mandiocanum*) being most prevalent. Other fairly commonly occurring species (at least in some areas) include Bushy Hedgehog Grass (*Echinopogon caespitosus*), Spiny-Headed Matrush (*Lomandra longifolia*), Bladey Grass (*Imperata cylindrica*), Basket Grass (*Oplismenus aemulus*), Cobblers Pegs (**Bidens pilosa*) and Billygoat Weed (**Ageratum houstonianum)*. Height to 40cm, but would generally be shorter due to periodic slashing. Numerous seedlings of shrub to canopy species present.. **(e) Lianas, scramblers, epiphytes, mistletoe etc.:** A mix of common climbers and scramblers were present. The dominant species was Monkey Rope (*Parsonsia straminea*) which occurred commonly in many canopy trees, with some Passionfruit (**Passiflora edulis*), Scrambling Lily (*Geitonoplesium cymosum*) and Wombat Berry (*Eustrephus latifolius*).
Comments	This area was the former site of the sales office for Lake Innes Estate, and has been landscaped with an artificial creek crossed by a wooden bridge, and fringed by a rockery and a range of ornamental shrubs and trees (e.g. palms) planted along it. Weed invasion extremely high but limited to the groundcover and shrub layer.

JBEnviro

Photo 1: Dry sclerophyll forest on East Ruins Way

Photo 2: Pasture on East Ruins Way



4.1.2 West Ruins Way

4.1.2.1 Pasture

Biolink (2013)	n/a
PCT Id	n/a
Location	Distributed between the three lines of modified dry sclerophyll forest in West Ruins Way, and between the end of the southern band and the swamp forest. Covers an area of approximately 1.5ha.
Description	**(a) Canopy/Understorey: :** Structure and Species: Absent. **(b) Shrub Layer:** Structure and Species: Scattered canopy recruits and shrubs throughout to 60cm, however are only present as community has not been recently slashed

	(c) Ground Layer: Structure and Species: Comprises a dense cover of primarily exotic grasses from 10-100cm in height. Some herbs also present but mostly outcompeted by vigorous, fast growing grasses. Dominated by Setaria (**Setaria sphacelata*), Broadleaf Paspalum and Common Paspalum (**Paspalum dilatatum*). Other common weeds present include Cobblers Pegs, Billygoat Weed, Purple Top (**Verbena bonariensis*), Paddy's Lucerne (**Sida rhombifolia*) and Lambs Tongue (**Plantago lanceolata*). **(d) Lianas, scramblers, epiphytes, mistletoe etc.:** Several small scramblers and creepers present e.g.. *Rubus parvifolia, Glycine clandestina* and *Smilax glyciphylla*.
Comments	Low to high weed cover depending on location. Regularly slashed.

4.1.2.2 Modified Very Tall Open/Dry Sclerophyll Forest B

Biolink (2013)	23 Blackbutt Shruby Moist Forest
PCT Id	695 Blackbutt - Turpentine – Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion
Location	This community occurs as three remnant windbreaks separated by pasture (fairways), with a small patch on the tip of Lake Innes Nature Reserve comprising the remnants of an ecotone. Total area is approximately 4.4ha.
Description	**(a) Canopy:** Structure and Species: The canopy is open and is distributed across three strips spaced roughly 50m apart. Height ranges between 18-28m tall with crown separation ranging from touching to slight separation or clearly separated. Blackbutt and Tallowwood were generally co-dominant overall, however Grey Ironbark and Pink Bloodwood varied in density as either co-dominant or as minor canopy associates. Most canopy trees are even-aged and trunk DBH was generally around 40-60cm. **(b) Understorey:** Understorey is generally limited to sparse patches or isolated individuals around canopy trees in the southern to middle strips, to longer linear bands and pockets in the western end of the middle and northern strip. Dominated by Black Oak with some Forest Oak (*A. torulosa*), White Sally Wattle and canopy juveniles. Willow Bottlebrush is common in wetter areas in the western end of the middle and southern strip. Height ranged from 6-10m. **(c) Shrub Layer:** Structure and Species: Generally sparse and patchy around canopy trees, with better development in more intact patches of understorey in the northern strip. Ranges from 0.5-3m in height. Some areas are weedy with Lantana and Bitou, while other areas have a mix of native shrubs and understorey juveniles. **(d) Ground Layer:**

	Structure and Species: Open to dense cover and comprises a mix of native and exotic species to 50cm in height but mostly around 15-20cm. Grasses and herbs including Kangaroo Grass (*Themeda australis*), Wiry Panic (*Entolasia stricta*), *Lomandra spp.*, Blue Flax Lily (*Dianella caerulea*) and *Geranium sp.* are the most common in dry areas, while wet areas around drainage lines contained herbs, rushes and sedges including *Cyperus eragrostis*, *Juncus usitatus* and Billygoat Weed. *Setaria* sp. is the dominant exotic grass and occurs widely, becoming dominant in most of the western half of the northern strip. **(e) Lianas, scramblers, epiphytes, mistletoe etc.:** Virtually absent in this community with only a few small twiners such as Appleberry (*Billardiera scandens*) and *Glycine clandestina* encountered. A few Monkey Rope lianas were also noted.
Comments	This vegetation has been derived originally from intensive historical logging, followed by clearing for the golf course to create fairways. Groundcover is regularly slashed, reducing the potential for native species recruitment. Recruitment is limited due to maintenance.

Photo 3: Dry Sclerophyll Forest B

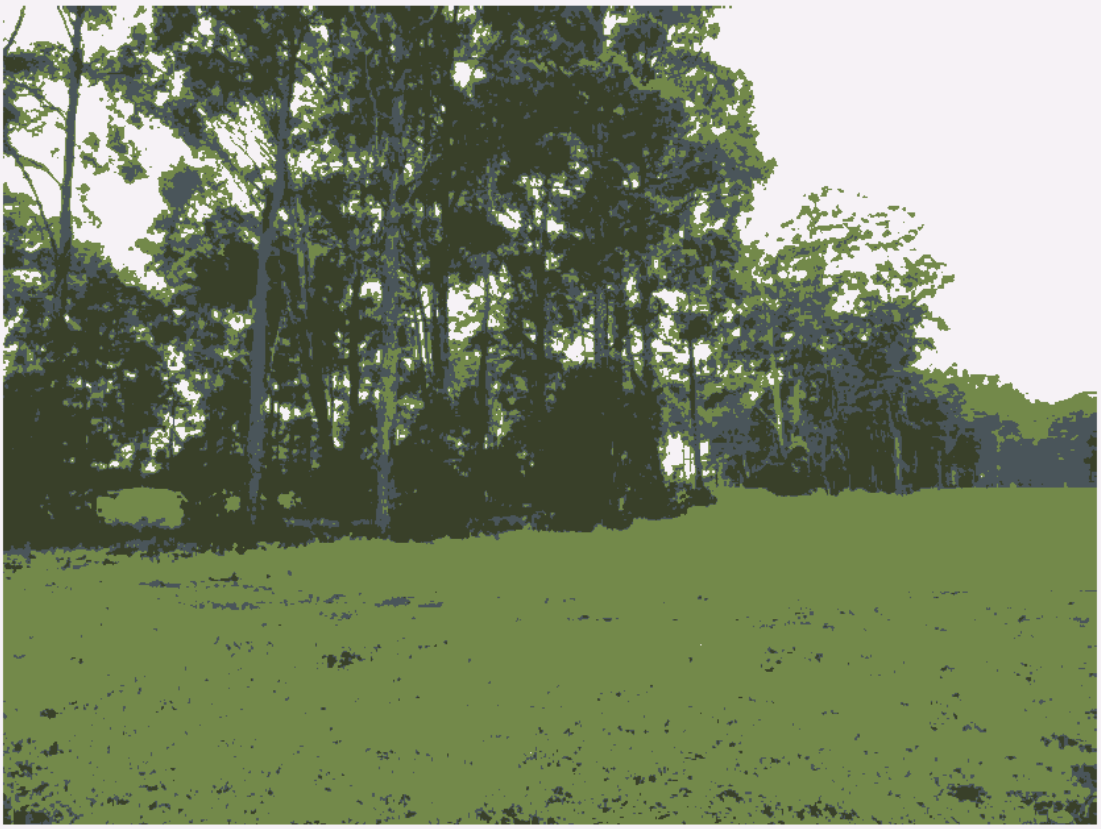


Photo 4: Pasture along fairways in West Ruins Way

4.1.3 West Lindfield

4.1.3.1 Modified Very Tall Open/Dry Sclerophyll Forest B

Biolink (2013)	23 Blackbutt Shruby Moist Forest
PCT Id	695 Blackbutt - Turpentine – Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion
Location	A small oval shaped patch comprising the eastern-most end of a linear patch of forest along the southern side of the West Lindfield precinct. Separated from PLINR swamp forest by a cleared fairway. Grades into swamp forest to the southwest.
Description	As per Dry Sclerophyll Forest B, with almost pure native species in the groundcover.
Comments	Weed invasion low throughout. Some areas feature a dense understorey and shrub layer while in other areas these layers are virtually absent.

4.1.3.2 Tall Open/Swamp Forest A

Biolink (2013	62 Broad-leaved Paperbark - Mixed Eucalypt Swamp Forest Complex
PCT Id	1230 Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion.
Location	This community is located in the far western corner of the West Lindfield precinct, extending southwest, with a single line of trees comprising a strip running off the mid-southern boundary. On-site, this community extends over about 0.8ha in this precinct. This community also extends around the southern side of the Crematorium.

Description	**(a) Canopy:** Structure and Species: Varies with location. In the western corner, it is dominated by a tall open canopy cover of Broad Leaved Paperbark (*Melaleuca quinquenervia*) around 18-20m high, with a few Swamp Mahogany (*E. robusta*) and 1 large Tallowwood on a local patch of high ground. Crown separation is mid-dense to sparse. Trunk DBH is around 20-40cm (Tallowwood is about 70cm). In the fairway boundary strip, consists of Broad-Leaved Paperbark with Swamp Oak (*Casuarina glauca*) becoming common off-site in the western end, and a few Narrow-Leaved Red Gums. **(b) Understorey:** Varies with location. In the western corner, this stratum is mid-dense to sparse, with an upper and lower component. Upper component is mainly young Broad-Leaved Paperbarks with 3 young Tallowwoods 10-14m tall, and trunk DBH 10-15cm. Lower stratum consists of a mix of young paperbarks, *M. sieberi, M. linariifolia*, *Acmena smithii,* Cheese Tree, and Native Guava (*Rhodomyrtus psidioides*). Largely absent from the fairway boundary strip – a few young wattles and *Melaleuca* only. **(c) Shrub Layer:** Structure and Species: In the western area, this stratums is open and generally ranging from 0.4-5m. Dominated by Cheese Tree, Native Guava, Narrow-Leaved Paperbark, *Pultenaea retusa, Callistemon salignus, Banksia spinulosa* and White Sally. This stratum is poorly developed to mostly completely absent in the strip. Mostly consists of a few Narrow-leaved Paperbark, *Pultenaea retusa,* and *Callistemon salignus.* **(d) Ground Layer:** Structure and Species: Dominated by a mix of sedges and grasses ie *Poa* spp, *Lepidosperma* spp, *Chorizandra sphaerocephala, Baumea sp.,* clumps of *Gahnia clarkei*, Wiry Panic, Other occasional species included Blue Fan Flower (*Dampiera stricta*) and *Epacris pulchella.* **(e) Lianas, scramblers, epiphytes, mistletoe etc.:** Diverse but not a major structural feature. The most common species were Twining Lily (*Geitonoplesium cymosum*), Snake Vine (*Stephania japonica*), *Glycine clandestina* and Climbing Guinea Flower (*Hibbertia scandens*).
Comments	Generally in a natural condition. The main body in the southwest is located in broad drainage depression on the footslope. Waterlogging was very high due to poor drainage.

Photo 5: Swamp Forest A

4.1.3.3 Very Tall Open/Wet Sclerophyll Forest

Biolink (2013)	23 Blackbutt Shrubby Moist Forest
PCT Id	695 Blackbutt - Turpentine – Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion
Location	Located in the northwestern boundary of the West Lindfield precinct. It forms the southern limit of the forest type which once extended over the Crematorium and adjoining land to the north. This community extends over about 0.1ha on site.
Description	**(a) Canopy:** Structure and Species: The open canopy is between 25-28m tall. Crown separation ranged from touching to slight separation to clearly separated (mid-dense to sparse). Trunk diameter at breast height (DBH) ranges from 40-115cm. Blackbutt (*Eucalyptus pilularis*) was the dominant species, with Tallowwood (*E. microcorys*) the co-occurrence in lower frequency. **(b) Understorey:** Varies with location. Open canopy between 5-15m tall, with a better developed stratum 5-7m tall dominated by mostly pioneer mesophyllic species. Crown separation ranged mid-dense to sparse in the upper layer, to mid-dense in the lower layer. Trunk diameter at breast height (DBH) ranges from 5-25cm (most 5-15cm). Taller layer dominated by eucalypt saplings plus 2 Broad-Leaved Paperbarks, and a *Callistemon salignus*. Lower stratum dominated by at times dense Cheese Tree (*Glochidion ferdinandi*), with Native Guava (*Rhodomyrtus psidioides*), White Sally (*Acacia floribunda*), *A. longifolia*, Narrow-Leaved Paperbark (*M. linariifolia*) and a single Cherry Ballart (*Exocarpos cupressiformis*), **(c) Shrub Layer:** Structure and Species: Open and generally ranging from 0.4-5m. Dominated by at times dense Cheese Tree, with Native Guava, with other species being less common e.g. White Sally, Narrow-Leaved Paperbark, *Pultenaea retusa*, *Ozothamnus diosmifolius*, *Daviesia genistifolia, Phyllanthus gunnii* and *Leucopogon juniperinus*. **(d) Ground Layer:** Structure and Species: Ranges 10-50cm. Contains a mix of native and exotic species, with sedges appearing to invade due to increased waterlogging. Dominant natives are Spiney-Headed Matrush, Bladey Grass and Bracken Fern, with Wiry Panic, native violets, Short-Hair Plume Grass (*Dichelachne micrantha*), Basket Grass, *Poa* spp., and *Dianella caerulea*. Dominant sedge is *Lepidosperma* spp and *Chorizandra sphaerocephala*, with some establishing *Gahnia clarkei*. Weeds constitute Broad-Leaved Paspalum and Paspalum (**Paspalum dilatatum*) **(e) Lianas, scramblers, epiphytes, mistletoe etc.:** A mix of common climbers and scramblers were present. The most commonly occurring species included Climbing Guinea Flower (*Hibbertia scandens*), Snake Vine (*Stephania japonica*), Scrambling Lily (*Geitonoplesium cymosum*), Australian Bindweed (*Convulvus erubescens embescens*) and Native Raspberry (*Rubus moluccana*).

Comments	Small remnant which is being exposed to increased waterlogging due to establishment of underground services upslope which has altered drainage. Sedges invading groundcover suggest this community may change to an ecotone of swamp forest and wet sclerophyll.

Photo 6: Wet Sclerophyll Forest

4.1.3.4 Pasture/Derived Woodland

Biolink (2013)	23 Blackbutt Shrubby Moist Forest
PCT Id	695 Blackbutt - Turpentine – Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion (disturbed)
Location	Comprises the largely cleared areas of the sub-site, and totalling approximately 3.3ha.
Description	**(a) Canopy:** Structure and Species: Well spaced canopy eucalypts to 25m in height occur in a line extending east from the wet sclerophyll forest. Species comprise Narrow-Leaved Red Gum, Tallowwood and Bloodwood. **(b) Understorey:** Occasional juvenile eucalypts and wattles to 6m in height growing under the larger eucalypts. White Sally and Tallowwood were the only species present. **(c) Shrub Layer:** Absent **(d) Ground Layer:** Structure and Species: Comprises a dense mix of native and exotic herbs and grasses from 10-50cm in height with species composition varying on location. Height would vary depending on the time since slashing. Some areas, especially in the east around the dry sclerophyll forest are dominated by native grasses such as Bladey Grass, Kangaroo Grass, *Panicum sp.*, *Poa sieberiana* and herbs e.g.. Native Violet, *Poranthera microphylla*, Slender Stackhousia (*Stackhousia viminea*) and Settlers Flax (*Lepidosperma laterale*), while other areas subject to soil disturbance are exotic dominated. Exotic species encountered include grasses such as Common Paspalum (**Paspalum dilatatum*), **Setaria sphacelata*, Carpet Grass (**Axonopus fissifolius*) and Elastic Grass (**Eragrostis tenuifolia*) and herbs such as Cobblers Pegs, Billygoat Weed and Scarlet Pimpernel (**Anagallis arvensis*). Damp areas of the community in the west of the sub-site are dominated by a range of semi-aquatic herbs, sedges and rushes such as *Chorizandra cymbaria, Cyperus spp., Juncus usitatus, Persicaria decipiens* and *Ranunculus inundatus*. **(e) Lianas, scramblers, epiphytes, mistletoe etc.:** Absent.
Comments	The original community has been long cleared leaving a handful of trees within an area largely in the form of pasture.

JBEnviro

Photo 7: Pasture in West Lindfield

4.1.4 Part Lake Innes Nature Reserve

4.1.4.1 Tall Open/Swamp Forest B

Biolink (2013)	61 Broad-leaved Paperbark Swamp Woodland/Forest
PCT Id	1064 Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion
Location	This community is located almost entirely within PLINR, with recent regrowth on its southeast edge and some mature forest on its northeast fringe falling on private land. This community is approximately 3.9ha.
Description	**(a) Canopy:** Structure and Species: Dominated by a tall open canopy cover of Broad Leaved Paperbark around 18-20m high. Swamp Oak occurs sporadically, mostly on the higher western edges. On the outermost northern fringes, some young Pink Bloodwood, Narrow-Leaved Red Gum and Grey Ironbark occur, comprising the remnants of a former ecotone. Swamp Mahogany occurs very rarely. Crown separation is mid-dense to sparse. Trunk DBH is around 20-40cm. **(b) Understorey:** Mid-dense to sparse, with an upper and lower component. Upper component is mainly young Broad-Leaved Paperbarks with *Callistemon salignus*, 10-14m tall, and trunk DBH 10-15cm. Lower stratum is often well developed throughout and consists of a mix of young paperbarks, *M. sieberi, M. linariifolia*, *Acmena smithii,* Cheese Tree, Native Guava, Sandpaper Fig (*Ficus coronata*), White Sally, and *Acacia maidenii*. **(c) Shrub Layer:** Open to absent in the interior, and generally ranging from 0.4-5m. Dominated by young Cheese Tree, Native Guava, Narrow-Leaved Paperbark, *Pultenaea retusa, Callistemon salignus* and White Sally. Some dense lantana and Winter Senna occurs, especially in the northern to northeast fringes. **(d) Ground Layer:** Structure and Species: Outer fringe often dominated by Setaria with *Gahnia clarkei*, Billygoat Weed and Broad-Leaved Paspalum. Inner forest varies with local relief, but generally comprises a varying mix of Spiney-Headed Matrush, *Gahnia clarkei*, Common Ground Fern (*Hypolepsis muelleri*), Tassel Sedge (*Carex fascicularis*) and *Viola hederacea*. **(e) Lianas, scramblers, epiphytes, mistletoe etc.:** Common, mainly Monkey Rope and *Morinda jasminoides*, with Twining Lily, Snake Vine, *Glycine clandestina* and Australian Bindweed.
Comments	This vegetation is clearly even-aged regrowth. Weed content is only high in the northern end which is higher and more open. Swamp Mahogany and other eucalypts are not recruiting and are expected to be progressively eliminated by the high moisture regime promulgated by discharge from the adjacent stormwater basin. Soil investigations confirmed this plant community is not on alluvial soils and hence not an EEC.

4.1.4.2 Pasture

Biolink (2013)	N/a
PCT Id	N/a
Location	A small oval shaped patch comprising the eastern-most end of a linear patch of forest along the southern side of the West Lindfield precinct. Separated from PLINR swamp forest by a cleared fairway. Grades into swamp forest to the southwest.
Description	**(a) Canopy/Understorey:** Absent apart from scattered trees comprising Narrow-Leaved Red Gum, paperbarks and a fig. **(b) Shrub layer:** Absent **(c) Ground-layer:** *Structure and Species*: Exotic dominated groundcover due to soil disturbance from earthmoving, up to 1m high. Setaria is most common with other native and exotic grasses, herbs and sedges such as Kikuyu (**Pennisetum clandestinum*), Common Couch (*Cynodon dactylon*) and Broadleaf Paspalum such as Princess Feathers (**Persicaria orientalis*), **Hydrocotyle bonariensis* and *Cyperus eragrostis*. A range of exotic weeds also occur. **(d) Climbers and Scramblers:** Absent.
Comments	Derived from clearing to establish the fairway, stormwater detention basin and bushfire buffer to adjacent residential subdivision.

Photo 8: Swamp Forest B

4.1.5 Miscellaneous Aquatic Vegetation

Four dams occur on site, with two being close or partially within the PLINR area. These have different aquatic vegetation as follows:

- **Dam 1 - West Ruins Way**. This is the smallest dam and is located just above the southern row of trees in the west of the precinct. It is mostly open water with some fringing aquatic vegetation such as *Eleocharis equisetina, Juncus usitatus,* Soft Twig Rush (*Baumea rubiginosa*), Slender Knotweed and Frogsmouth *(Philydrum lanuginosum*).
- **Dam 2 – West Ruins Way.** A semi-circle shaped dam lying across the southern boundary of the site. It is fed by a stormwater drain from the residential areas to the south. Half the dam is open and contains floating and submergent aquatic vegetation and the other half contains a dense stand of *Typha*. Floating aquatic species include Cape Water Lily (*Nymphaea capensis*) and Pondweed (*Potamogeton octandrus*). Other aquatics present are *Eleocharis equisetina, Juncus usitatus*, *Cyperus spp* and Frogsmouth.
- **Dam 3 – Part LINR.** The largest dam on site at 45m in length and 22m wide. It is located within the part LINR boundary on the eastern side. Mostly open water with some aquatics in shallow areas and patches of algae throughout. Fringed by sedges and herbs such as *Juncus usitatus, Cyperus difformis, Schoenoplectus mucronatus,* Frogsmouth and Swamp Goodenia.
- **Dam 4 – Part LINR.** A long narrow dam located within part LINR at the northern tip. Has open water and areas of submergent and floating aquatic vegetation. Several small stands of *Typha* present along with patchy *Eleocharis* and *Baumea*. Floating Pondweed scattered throughout with various fringing sedges, rushes and herbs such as *Persicaria orientalis*, *Juncus usitatus, Cyperus spp.* and Frogsmouth.

Photo 9: Dam north of PLINR

Figure 4: Vegetation communities and hollow-bearing trees on the site

4.2 FLORA OF CONSERVATION SIGNIFICANCE

4.2.1 State/National Significance

4.2.1.1 Threatened Species

Targeted Searches Results

No threatened flora species were recorded on or adjacent to the site by the survey.

Assessment of Threatened Species Occurrence Probability

Literature review and database searches record 14 species in the locality. Appendix 1 evaluates these threatened flora species for their potential to occur on site.

In regards to potential occurrence of these and most threatened flora, it should be noted that threatened plants often occur in habitats with a precise mix of essential ecological requirements, and not randomly in the landscape or a broad structural form of vegetation (e.g. dry sclerophyll forest). Such essential requirements may be a complex nexus of position, soil type (which affects fertility, acidity, etc) and climate, but may also include specific (sometimes symbiotic) association with fungi and bacteria (e.g. Proteaceae), dispersal vectors (e.g. bats) and disturbance regimes e.g. *Acacia aprica* will not recruit without a suitable fire regime (Vallee *et al* 2004, Bennet *et al* 2000, Brown *et al* 2003). Absence of such essential habitat variables or their modification (e.g. by disturbance such as frequent fire) can thus reduce or negate a site's potential for such plants to occur. These often poorly understood ecological factors are also a major contributor in the reason that many translocations of threatened plants and bushland restoration projects fail (Vallee *et al* 2004, Bennet *et al* 2000, Brown *et al* 2003).

Conclusions of Potential Occurrence Assessment

No threatened species were considered likely potential occurrences on any of the precincts, hence no species are considered further.

4.2.2 TSCA 1995 Ecological Communities and Populations

4.2.2.1 EEC - *Swamp Forest on Coastal Floodplains* Assessment

On site, swamp forest occurs in the segment of intact swamp forest largely encapsulated within Lake Innes Nature Reserve; with intact forest on the southwest boundary of West Lindfield, and as a line of single trees on the southwest side of West Lindfield.

These areas were original mapped by Biolink (2013b) and then further refined after correlation to 1:25 000 soil landscape data as EECs (Darkheart 2014), as shown in Figure 5. The classification based on the soil landscape mapping at this scale was made on a precautionary basis due to the limited description of the 'undifferientated' soil landscape mapping unit on which these areas fell (Darkheart 2014, Hashimoto and Troedson 2008), with a recommendation for further site specific examination to clarify pedogensis.

JBEnviro

Figure 5: PMHC EEC mapping prior to site soil landscape survey

Supported by recent detailed site specific soil examinations (Abel Ecology 2016, 2017), the following table reviews these 3 areas to determine if they meet the Final Determination for the EEC – *Swamp Sclerophyll Forest on Coastal Floodplains of the North Coast Bioregion* (NSWSC 2004d, *CBD Prestige Holdings Pty Ltd v Lake Macquarie City Council [2005] NSWLEC 367, Gales Holdings Pty Limited v Tweed Shire Council [2008] NSWLEC 209, Motorplex (Australia) Pty Limited v Port Stephens Council [2007] NSWLEC 74*, Preston and Adam 2004a, 2004b).

Table 2: Swamp Sclerophyll Forest on Coastal Floodplain EEC review

FINAL DETERMINATION CRITERIA	SWAMP FOREST B (Lake Innes Nature Reserve)	SWAMP FOREST A (southwestern boundary of West Lindfield)	SWAMP FOREST A (southwest corner and adjacent to West Lindfield – on crematorium boundary)
Location: Site located in the North Coast Bioregion, and in a specified LGA	Yes: Port Macquarie-Hastings LGA listed in Final Determination.	Yes: Port Macquarie-Hastings LGA listed in Final Determination.	Yes: Port Macquarie-Hastings LGA listed in Final Determination.
Soils: Soils are "humic clay loams and sandy loams" which are *inter alia* predominantly derived from alluvial processes (NSWSC 2004d).	No. Soils are on Cairnscross landscape and show both colluvial to residual influences in the soil profile. No indication of alluvial layer. Hence no evidence to indicate alluvial processes have been dominant, as required (*Gales Holdings Pty Limited v Tweed Shire Council [2008] NSWLEC 209, Motorplex (Australia) Pty Limited v Port Stephens Council [2007] NSWLEC 74*, Preston and Adam 2004a, 2004b).	No. Soils are grading from Kundabung to Thrumster in upper area, grading to Cairnscross landscape, with soil profile showing non-alluvial origins.	No. Soils are grading from Kundabung to Thrumster in upper area, grading to Cairnscross landscape, with soil profile showing non-alluvial origins.
Topographic Location: Occur on waterlogged or periodically inundated alluvial flats and drainage lines associated with coastal floodplains	No. Mostly occurs in open depression that formerly formed uppermost part of originally estuarine lake, which was cut off via a sand barrier and later infilled via colluvium.	No – occurs on poorly drained footslope adjacent to very broad drainage depression.	No – occurs on poorly drained footslope adjacent to very broad drainage depression.
Elevation: Below 50m.	Yes	Yes	Yes
Structural formation: Forest, woodland, shrub, scrub, fernlands, tall reedland, sedgeland,	Yes: Forest	Yes: Forest (remnant strip).	Yes: Forest

FINAL DETERMINATION CRITERIA	SWAMP FOREST B (Lake Innes Nature Reserve)	SWAMP FOREST A (southwestern boundary of West Lindfield)	SWAMP FOREST A (southwest corner and adjacent to West Lindfield – on crematorium boundary)
Floristics: Should contain indicator canopy species, and have floristic mix/structure as detailed in the Final Determination.	Yes – readily met.	Yes – readily met.	Yes – readily met.
Is it an EEC?	**No** – not alluvial soils (Abel Ecology 2016, 2017) and fails key edaphic criteria (Gales Holdings Pty Limited v Tweed Shire Council [2008] NSWLEC 209, Motorplex (Australia) Pty Limited v Port Stephens Council [2007] NSWLEC 74, Preston and Adam 2004a, 2004b).	**No** – does not meet soils or landform criteria, hence fails "habitat" test (Gales Holdings Pty Limited v Tweed Shire Council [2008] NSWLEC 209, Motorplex (Australia) Pty Limited v Port Stephens Council [2007] NSWLEC 74, Preston and Adam 2004a, 2004b).	**No** – does not meet soils or landform criteria, hence fails "habitat" test (Gales Holdings Pty Limited v Tweed Shire Council [2008] NSWLEC 209, Motorplex (Australia) Pty Limited v Port Stephens Council [2007] NSWLEC 74, Preston and Adam 2004a, 2004b).

The above table shows that despite the floristics matching the Final Determination, the swamp forest on and adjacent to the southwest of West Lindfield (adjacent to the crematorium/cemetery boundary) does not meet the geomorphological criteria (*Gales Holdings Pty Limited v Tweed Shire Council [2008] NSWLEC 209, Motorplex (Australia) Pty Limited v Port Stephens Council [2007] NSWLEC 74,* Preston and Adam 2004a, 2004b).

The swamp forest in the segment of Lake Innes Nature Reserve on site falls in the upper transition zone between the residual soil landscapes in the north, to the estuarine soils in the south around the lake (Hashimoto and Troedson 2008). Soil profile tests have demonstrated no evidence of sorting or layering associated with alluvial processes, but rather indicates predominantly colluvial processes in upper stratums over residual soils. Legal precedents indicate this area does not satisfy the Final Determination (*Gales Holdings Pty Limited v Tweed Shire Council [2008] NSWLEC 209, Motorplex (Australia) Pty Limited v Port Stephens Council [2007] NSWLEC 74,* Preston and Adam 2004a, 2004b).

Two patches on the eastern side of PLINR falling on the outermost margins of the West Ruins Way precinct were also previously mapped as EEC. The upper northeast patch ranges from paperbark forest to the ecotone dominated by dry sclerophyll species (predominantly Tallowwood). These also fall on the aforementioned non-alluvial soil landscapes, hence are not EECs.

4.3 FAUNA HABITAT EVALUATION

4.3.1 Summary of Results

The following table summarises the habitat evaluation findings per precinct:

Table 3: Habitat evaluation summary

Habitat Component	East Ruins Way	West Ruins Way	West Lindfield	Lake Innes Nature Reserve
Groundcover	Dry sclerophyll forest in East Ruins Way contains a modified groundcover consisting of a dense layer of primarily exotic grasses such as Common and Broadleaf Paspalum and *Setaria* throughout. Weed such as Cobblers Pegs and Billygoat Weed also common. No threatened species significance.	The dry sclerophyll and strip of swamp forest on the southern boundary has an open groundcover of grasses and herbs, mostly low, but rank and tall in parts of the northern strip. Exotic grasses dominate in the latter. No threatened species significance.	As per West Ruins Way, generally low open pasture periodically slashed. Best developed in forest in northwest corner, narrow band along drain, and under small clump of dry sclerophyll. No threatened species significance as too limited in extent.	The swamp forest has an open to some dense patches of sedges (e.g. *Gahnia*, *Carex* spp. and matrushes) and ferns (e.g. Harsh Ground Fern) mixed with some lantana. Heights range from about 30-60cm, but as mostly open, provides limited cover for rodents, small dasyurids, frogs, reptiles, etc. No considered preferred habitat of Eastern Chestnut Mouse or New Holland Mouse. Insufficient cover for Common Planigale.
Leaf litter	Generally buried under dense paspalum. No significant potential for any threatened species.	Generally very shallow in dry sclerophyll forest with some deeper patches and some areas bare. Consists of a mixture of leaf litter deposited from the canopy (e.g. Blackbutt) and understorey layers (e.g. Black Oak). Limited fungi substrate and invertebrate habitat. No threatened species significance.	As per West Ruins Way	Leaf litter layer more developed in parts of the swamp forest, where it formed a deep layer ideal for frog, small reptile and invertebrate refugia. No specific threatened species significance.

Habitat Component	East Ruins Way	West Ruins Way	West Lindfield	Lake Innes Nature Reserve
Logs and debris	Very sparsely distributed fallen limbs to 30cm in diameter. No hollow logs. Numerous stumps up to about 2m high. Several with hollows usually full of leaf litter – may offer some refuge value for common reptiles, frogs and mammals.	Few limbs in localised areas (e.g. northern strip), with no significant hollows. No significant stumps were noted.	Large log pile just off site to southwest. No hollows present and very wet. Would provide refugia for common frogs, rodents and perhaps dasyurids and reptiles. This pile is expected to be destroyed when dry.	Occasional well-rotted logs throughout. Few stumps noted also well rotted. Some generic refuge value for frogs and invertebrates.
Rocks, scree slopes, rock formations, etc	Ornamental landscaping comprising a rockery occurs in the upper end of the constructed dry creek. These large slabs of rock have some gaps in crevices suitable for common reptiles, rodents and frogs. No threatened species significance given disturbance history of disturbance and isolation from source habitat.	Absent	Absent	Absent
Wattles, Melaleucas, Callistemons and Banksias (shrub layer)	Occasional wattles, Melaleucas and Callistemons and a planted Banksia in the limited shrub layer providing a limited seasonal nectar source and insect attractant.	Wattles common in the shrub layer, other flowering species sparse.	Only present in forest in northwest and southeast corner where consists of common wattles. Some Banksia in swamp forest to southwest offers minor nectar/pollen source for small terrestrial mammals and some birds.	Limited to few juvenile Melaleucas and Callistemons – no specific significance.

Habitat Component	East Ruins Way	West Ruins Way	West Lindfield	Lake Innes Nature Reserve
Passerine bird habitat/diversity/abundance	Small patches of understorey/shrub layer offer poor passerine and woodland bird habitat. General remnant is good for medium sized bird, with diversity and abundance varying with season and food resources. Generic threatened raptor foraging habitat.	Similar to East Ruins Way but high degree of fragmentation significantly reduces support for small birds. Generic threatened raptor foraging habitat.	Small areas of passerine and woodland bird habitat in the dry and swamp sclerophyll forest. Generic threatened raptor foraging habitat.	Swamp forest has areas of dense cover providing good passerine bird habitat for species which use dense forest, but unsuitable for open woodland or shrub dependant species.
Hollows	Rare. See table below	Uncommon. See table below	Rare. See table below	Absent
Flowering canopy species (key nectar/pollen sources)	Contains mostly Spring-Summer flowerers, with Pink Bloodwood flowering from February to early April. Handful of Forest Red Gums and Narrow-Leaved Red Gums offer potential Winter-Spring flowering. Few *Melaleuca quinquenervia* offer some Autumn-Winter flowering. Overall reasonably good range though limited extent of nectar/pollen resources. Pink Bloodwood and Blackbutt are significant nectar producers due to their large fruits. Overall good potential habitat for small gliders and Grey Headed Flying Fox.	Generally as per East Ruins Way but few Red Gums.	Generally as per East Ruins Way, with more *Melaleuca quinquenervia* on and more so adjacent, offering values as detailed for PLINR.	Winter flowering Swamp Mahogany is very rare. Few Grey Ironbark, Pink Bloodwood and Narrow-Leaved Red Gum as well as *C. saligna, M. linariifolia* and *M. stypheloides* offer Spring and Autumn flowerers. sparsely scattered throughout the Abundance of *Melaleuca quinquenervia* which is a significant species as it may flower from late Summer to mid-Winter, but usually peaks in Autumn. This area plus remainder of northern LINR is a key food source for Grey-Headed Flying Fox and Eastern Blossom Bat.
Sap and gum sources	Bloodwood, Forest Red Gum, Narrow-Leaved Red Gum, Grey Ironbark and less preferred Blackbutt and Tallowwood are	As per East Ruins Way	As per East Ruins Way	Limited to few individual Bloodwood, Narrow-Leaved Red Gum, and Grey Ironbark.

Habitat Component	East Ruins Way	West Ruins Way	West Lindfield	Lake Innes Nature Reserve
	potential sap sources for Yellow Bellied Gliders (NPWS 2003a) and Squirrel Gliders.			
Primary preferred koala browse species	Tallowwood co-dominant and some Forest Red Gum present. Canopy and understorey constitutes Potential Koala Habitat.	Tallowwood co-dominant in middle and southern areas. Canopy of middle and southern strip are Potential Koala Habitat.	Tallowwood co-dominant. Canopy and understorey is Potential Koala Habitat.	Rare Swamp Mahogany and no active recruitment. Not Potential Koala Habitat.
Allocasuarinas	Present in localised patches where slashing inaccessible. Mostly young/immature, and offer marginal potential forage habitat for Glossy Black Cockatoo. No chewed cones observed.	Present in low to moderate abundance, generally in northern strip. Marginal potential forage habitat for Glossy Black Cockatoo. No chewed cones observed.	Rare in dry sclerophyll forest. Very marginal potential forage habitat for Glossy Black Cockatoo. No chewed cones observed.	Absent
Yangochiropteran bat foraging habitats	Range of bat foraging habitats present e.g. supra canopy zone, sub canopy and along track and forest interface. Abundant mosquitoes would be significant attractant.	Range of foraging habitat requirements present including aquatic areas for Southern Myotis over small dam at southern end. Many insects present offering foraging resources.	Mainly forest interface species due to nature of forest vegetation.	Dense swamp forest canopy suitable for supra canopy species. Long forest interface also good. Detention basins adjacent to this area have some potential for Southern Myotis.
Aquatic/wetland habitat	East Ruins Way has limited aquatic habitat with only several small depressions and the artificial ephemeral creek that would partially fill after rain for a short period. These depressions contained few aquatic species and were primarily filled with exotic grasses. Small depressions and pooled water after rain would provide temporary frog habitat.	West Ruins Way has 2 small dams containing fringing sedges such as *Eleocharis sp.*, *Carex spp.* and *Typha sp.*, and have some floating aquatic plants such as Cape Water Lily and Pondweed. The drains contain some small pools with fringing sedges, but these are exposed to scouring. Insufficient to support foraging by the osprey or other large wetland birds such as the	Surface water present as oozy soil and highly waterlogged soil on site. Some more waterlogged area to southwest. Latter offers better potential frog habitat, with some generic potential for Wallum Froglet.	Contains 2 dams on the edge of the swamp forest, the largest being 45m x 20m. The dams contain fringing sedges such as *Eleocharis* and *Typha* and have some floating aquatic plants such as Cape Water Lily and Pondweed. Water quality is however very poor. Insufficient to support foraging by the Osprey. Some generic potential for Black-Necked Stork. Habitat requirements for the

Habitat Component	East Ruins Way	West Ruins Way	West Lindfield	Lake Innes Nature Reserve
		Black-Necked Stork and Brolga. Habitat requirements for the Bitterns and Comb-Crested Jacana also do not occur. The dams offer marginal frog habitat due to likely presence of pollutants form urban runoff and abundance of Plague Minnows.		Bitterns and Comb-Crested Jacana do not occur. The dams offer low quality frog habitat due to effect of pollutants from urban runoff and abundance of Plague Minnows. The swamp forest had only a shallow <5cm) layer of water in its lower sections following >250mm of rainfall over the end of the survey period. Considered very marginal for frog breeding, and unsuitable for Wallum Froglet.
Marine/estuarine habitats e.g. estuarine, rocky foreshores, open beaches, Open ocean.	Absent	Absent	Absent	Absent
Key larval food plants	*Viola betonicifolia* absent.	*Viola betonicifolia* absent.	*Viola betonicifolia* absent.	*Viola betonicifolia* absent.
Fruiting species	Limited to a single planted Cabbage Palm and some Lantana. No threatened species values.	Absent part from a few Camphor Laurel. No threatened species values.	Absent	Some mature fruiting species present in the swamp forest e.g. Native Guava, Sandpaper Fig and Acmena smithii, with two young Moreton's Bay Fig and Cabbage Palms. No significant threatened species values.
Caves, cliffs, overhangs, culverts, bridges	Absent apart from a wooden bridge over the constructed creek. Too low for bats (predation risk), but suitable crevices for common rodents, dasyurids, reptiles and frogs.	Absent	Absent	Absent
Small terrestrial prey	Exotic rats and mice detected via ground Elliot trapping. Dense	Sparse cover and likely to be limited small terrestrial species	Some limited areas of dense cover and rodents detected	Dense lantana thickets and some dense groundcover offers cover

Habitat Component	East Ruins Way	West Ruins Way	West Lindfield	Lake Innes Nature Reserve
	grass would provide good cover for these species. Common Grass Skinks also abundant.	apart from dense exotic grassland along northern strip and on mound. Range of frogs detected around dams.	during trapping – very limited prey base.	and foraging habitat for common small to medium mammals, range of passerine birds, reptiles and frogs.

4.3.2 Hollow-Bearing Trees

A total of 12 hollow-bearing trees (2 require an arborist to scale the trees and confirm actual cavities are present) were observed on the site. The details of these trees are shown in the table below and illustrated in Appendix 3. The approximate location of all hollow-bearing trees on the site is shown in Figure 4.

Table 4: Hollow-bearing tree data

Tree Species	Location (UTM WGS 84)	Hollow Location	Opening Type/Size (CM)	Evidence Of Current Usage	Potential Fauna Species
West Lindfield					
Paperbark stag	56 487353 6519116	Top of trunk at base of crown, facing north-south	Vertical fissure <10cm wide and about 40cm long.	Nil	Marginal potential for Yangochiropteran bats and Antechinus.
Blackbutt #1	56 487505 6519091	Large fissure with hollows in top and bottom plus narrow fissure in low broken crown limb	Main fissure <10, with similar size hollows at top and probably bottom. Branch fissure <5cm.	Indeterminable.	Yangochiropteran bats and Antechinus
Stag #1	56 48692 6519160	Numerous hollows in ends of limbs. Larger limbs appear likely to be hollow pipes. Two hollows in a termitaria at top of crown.	Mostly 5-10cm, with 1 >10cm.	Indeterminable	Yangochiropteran bats, Sugar Glider, Squirrel Glider, common rosellas and lorikeets, Forest Kingfisher, Antechinus.

Tree Species	Location (UTM WGS 84)	Hollow Location	Opening Type/Size (CM)	Evidence Of Current Usage	Potential Fauna Species
West Ruins Way					
Blackbutt #2 (northern/ powerline strip)	56 487534 6519085	Two older broken crown limbs on south side of tree.	Near vertical fissures in end of broken limb <5cm diameter and at least 30cm long. Light can be seen through one.	Nil	Very marginal potential for Yangochiropteran bats and Antechinus.
Blackbutt #3 (northern/ powerline strip)	56 487532 6519084	Eastern side of upper trunk.	Small hollow <10cm diameter, probably limited depth.	Indeterminable.	Yangochiropteran bats, Sugar Glider, Squirrel Glider, common rosellas and lorikeets, Antechinus.
Tallowwood (middle strip)	56 487554 6519015	In trunk at base of crown joint facing west	Vertical fissure <10cm wide but about 25cm long between two crown limbs, opening into a larger cavity in trunk	Well worn on western side.	Likely to be used by common possums, Kookaburra or Wood Duck.
Blackbutt #4 (middle strip)	56 487575 6519026	In trunk at base of crown facing west (middle strip)	Round hollow <10cm wide.	Well-worn edges.	Likely to be used by common possums or perhaps medium bird such as Galah.
Blackbutt #5 (middle strip)	56 487646 6518996	One small and probably shallow hollow below 1st joint of crown limb facing northeast. Other is a large vertical hollow (bucket like) in head of former stump. (middle strip)	One small and probably shallow hollow below 1st joint of crown limb facing northeast. Other is a large vertical hollow (bucket like) in head of former stump.	Nil	If actual cavity, limb hollow has potential for Sugar and Squirrel Gliders, antechinus, bats, lorikeets, rosellas.
Blackbutt #6 (southern/boundary strip)	56 487631 6518931	Two upturned stubs on mid trunk, on northwest and southeast side.	Unconfirmed. Upper stub appears to potentially be about 5-10cm and lower stub about 10-15cm.	Nil	If actual cavity, upper hollow has potential for Sugar and Squirrel Gliders, antechinus, bats, lorikeets, rosellas.

Tree Species	Location (UTM WGS 84)	Hollow Location	Opening Type/Size (CM)	Evidence Of Current Usage	Potential Fauna Species
					Lower hollow has potential for common possums, Kookaburra, Galahs, etc, if deep enough cavity present.
East Ruins Way					
Blackbutt #7	56 487737 6519014	2nd joint in southern crown limb, facing northeast	Shallow and filled with water during rain – considered uninhabitable by most species.	Nil	At best, extremely marginal potential for Yangochiropteran bats if sufficient depth to hide from sun, but highly exposed to predation.
Blackbutt #8	56 487760 6519056	Long vertical hollow in mid trunk	About 1m long and 10cm wide. Likely to be hollow at bottom and possibly top.	Nil	Potential for bat roosting in upper section if forms chimney. Bottom may support common possums, Kookaburra.
Pink Bloodwood	56 487753 6519047	Numerous hollows in ends of dead limbs. Few hollows in trunk in various stages of formation	Too numerous to detail. Most hollows are cavities in ends of large dead limbs. Few hollows in trunk. Apertures mostly 2-7cm, with few 8-12cm.	Some showed worn edges.	Hollows in limb ends may be limited due to horizontal pipe-like cavity which provides poor nesting and denning for birds, gliders and possums. Generic potential for common possums, Sugar and Squirrel Gliders, antechinus, bats, lorikeets, rosellas.

4.4 OEH Wildlife Corridors and Key Habitats

4.4.1 General

The OEH has modelled and mapped corridors at a regional scale throughout northern NSW and the corresponding map for the locality was accessed via the website (OEH 2017c). The location of these corridors in relation to the site is shown at Figure 6.

4.4.1.1 Regional Corridors

Regional corridors are typically >500m wide and provide a link between major and/or significant areas of habitat in the region. Ideally they are of sufficient size to provide habitat in their own right and at least twice the width of the average home range area of fauna species identified as likely to use the corridor (OEH 2017c, Scotts 2003).

Figure 6 shows that the proposed development precincts do not fall within a regional corridor.

The section of Lake Innes Nature Reserve on site essentially appears to form a cul-de-sac in the mid-north of the regional corridor, the bulk of which is centred on Lake Innes Nature Reserve. Regional corridors with effective linkages are mapped extending north via the Kooloonbung Creek Nature Reserve connection, and coastally including Sea Acres Nature Reserve. Another two link northwest and southwest off Lake Innes.

4.4.1.2 Sub-Regional Corridors

Sub-regional corridors connect larger landscaped features and are of sufficient width to allow movement and dispersal (generally >300m), but may not provide substantial species habitat (Scotts 2003).

No sub-regional corridors were mapped in close proximity to the site.

The nearest runs northwest from Lake Innes Nature Reserve across - land to the west, into UIA 13, and branching west and more relevantly east back to remnant vegetation around the Port Macquarie airport, to interlink to the main northern regional corridor along Kooloonbung Creek Nature Reserve.

4.4.2 Key Habitats

Key Habitats are areas of predicted high conservation value for forest faunal assemblages, endemic forest vertebrates or endemic invertebrates; spatially depicted as a merging of mapped assemblage hubs, assemblage hot spots and centres of endemism (OEH 2017c, Scotts 2002).

Figure 6 shows that most of the Lake Innes Nature Reserve on and adjacent to the site is mapped as key habitat. The cleared western parts of West Lindfield are also mapped, but appraisal of the aerial photos show that this is clearly an artefact of the mapping resolution (2ha grids), than a representation of the true habitat values of this precinct.

Figure 6: OEH corridors and key habitats

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4.5 FAUNA SURVEY RESULTS

4.5.1 Call Playback, Detection and Recording

The following data is from the 2011 survey.

4.5.1.1 Birds

Call playback failed to gain a response from any of the target species. A number of common birds were detected by call identification (see Table 9).

4.5.1.2 Frogs

No target frogs were detected by call playback. A range of common frogs were heard calling after rain around the dams and from the swamp forest.

4.5.1.3 Mammals

4.5.1.3.1 Arboreal Mammals

No mammal responded to call playback during the survey.

4.5.1.3.2 Bats

Yangochiropteran bat calls recorded during the survey were sent to Ms Anna Lloyd of Eco-Location, a recognised Yangochiropteran bat ecologist for identification. The results are shown in the table below.

Table 5: Yangochiropteran bat call identification

Note: bold indicates species listed as Vulnerable on Schedule 2 of the TSCA Act 1995

Scientific name	Common species names	No. Of definite passes	No. Of probable passes	No. Of possible passes
Chalinolobus gouldii	Gould's Wattled Bat	-	-	1
Chalinolobus morio	Chocolate Wattled Bat	-	2	14
Miniopterus australis	Little Bent Wing Bat	6	-	4
Scotorepens sp.	Undescribed Broad-Nosed Bat	5	-	1
Scotorepens orion	Eastern Broad-nosed Bat	-	-	3
Vespadelus pumilus	Eastern Forest Bat	4	12	37
Vespadelus vulturnus	Little Forest Bat	-	-	83
Vespadelus troughtoni	Eastern Cave Bat	-	-	83

Those species listed as "*definite*" are most likely to be the species actually recorded. As shown above, one threatened Yangochiropteran bat species was confirmed as occurring by this survey: the Little Bent-Wing Bat (V-TSCA).

The Eastern Cave Bat (*Vespadelus troughtoni*) is only considered a default precautionary "*possible*" occurrence as it is virtually indiscernible from its common related *Vespadelus* species (Reinhold *et al* 2001). Hence the presence of this species is described as a low chance of occurrence given the lack of potential roosts on the site or nearby.

4.5.2 Trapping Results

The following data is from the 2011 survey.

4.5.2.1 Elliot B Traps

Despite the very high level of effort, no captures were recorded in the Elliot B traps over the duration of the trapping survey.

4.5.2.2 Elliot A Traps

Elliot A trapping detected 7 Bush Rats, 2 European Rats and 6 House Mouse at East Ruins Way; and 1 Bush Rat and 3 Swamp Rats at West Lindfield.

These were collected over 100 trap nights on East Ruins Way and 80 trap nights on West Lindfield. This was quite a low capture rate.

4.5.2.3 Hair Tubes

Hair samples obtained from the hair tubes/funnels were sent for identification by Barbara Triggs (recognised hair specialist), who identified the samples according to techniques developed by Brunner and Coman (1974).

Hair funnels (terrestrial) only recorded domestic dog, House Mice and a Swamp Rat (*Rattus lutreolus*). The arboreal tubes only recorded the Brushtail Possum.

4.5.3 Spotlighting, Secondary Evidence, and Opportunistic Observations

4.5.3.1 Spotlighting and Torch Searches

2011

Spotlighting was successful in recording 4 Koalas in the canopy at West Ruins Way during spotlight searches on the second night in 2011. A single Koala was seen on another night in the same area during this survey. Only a single Koala (unable to be sexed) was recorded in the 2014 survey – in the northeast corner of East Ruins Way.

No other arboreal mammals were detected. An additional survey of the site in July 2013 only recorded one Koala in the western end of the middle strip in West Ruins Way.

No other arboreal mammals were detected.

A number of common frog species were detected around the dams. These are listed in the following table

Several Yangochiropteran bats were regularly detected in more open foraging on flying insects. Common fauna recorded most nights comprised a number of sleeping birds, Eastern Grey Kangaroo, Red-Necked Wallaby, and Tawny Frogmouth.

2017

The 2017 nocturnal survey recorded only a single Koala, considered likely to be a female (possible pouch opening observed) in the northeast corner of East Ruins Way, as well as common sleeping birds and a herd of deer.

4.5.3.2 Secondary Evidence

4.5.3.2.1 Scratches

Examination of tree trunks showed high levels of arboreal activity on Tallowwoods overall. Scratches were at times also common on Blackbutt trees (due to smooth bark showing definitive scratches), and best detected on the smooth-barked Red Gums.

Due to the rough-barked nature of trees on site and quality of the scratches, no species could be confidently accorded to any particular scratch on these trees, though Koala scats suggested Koalas. Detection of the Brushtail Possum via hairs and recent flowering of Tallowwoods suggests this species was also likely to have contributed to scratches. Definitive Koala scratches on gums were identified and correlated with scat detection.

4.5.3.2.2 Scats and Tracks

Koala scats were observed under numerous Tallowwoods and Forest Red Gums across the site (see section 6.2.3). Macropod scats were also regularly observed, and were identified as the Red-Necked Wallaby and Eastern Grey Kangaroo. Other scats encountered included Feral Deer and *Rattus* species.

4.5.3.2.3 Feeding Signs

(i) Digging and Burrowing

No diggings indicative of bandicoots were observed on the site.

(ii) Chewed Allocasuarina Cones:

No chewed cones indicative of foraging by the Glossy Black Cockatoo were found.

4.5.3.3 Opportunistic Observations

4.5.3.3.1 General

Table 9 lists all fauna species (excluding Yangochiropteran bats) detected by this survey on and adjacent to the subject land by trapping, spotlighting, call detection, opportunistic sighting and habitat inspections.

A total of 83 species were recorded by the survey, consisting of 59 bird species, 12 mammals (excluding bats), 2 reptiles, 11 frogs and 2 fish were recorded.

4.5.3.3.2 Birds

No threatened birds were detected. A single species listed as migratory under the EPBC Act, namely the Rufous Fantail, was detected in the swamp forest.

Passerine bird activity in the study area was reasonable, with morning (most abundant) and afternoon peaks. Laughing Kookaburras, Magpie Larks, Rainbow Lorikeets, Wood Ducks and Scaly Breasted Lorikeets were the most common visually observed species. Diversity was greatest along the edges of the swamp forest.

A Tawny Frogmouth nest with young was observed in the PLINR. Nests of a magpie, Pied Butcherbird and Noisy Miners were observed in the West and East Ruins Way areas.

Several wetland birds were observed in or around the dams including the Intermediate Egret, Chestnut Teal, Wood Duck and Wandering Whistling Duck.

4.5.3.3.3 Reptiles

Sun/Grass Skinks were common amongst leaf litter in all sites, and a single Common Blue Tongue was encountered in the dry sclerophyll at West Lindfield.

No threatened reptile species were detected.

4.5.3.3.4 Mammals

Common macropods (i.e. Swamp Wallaby, Red-Necked Wallaby, Eastern Grey Kangaroo) were regularly observed feeding on groundcover vegetation. A herd of feral deer were also frequently observed at West Lindfield.

4.5.3.3.5 Frogs

No threatened frogs were detected on the site or adjacent. A range of common frogs were observed and heard calling from the dams and swamp forest, especially after rain.

Table 6: Vertebrate fauna recorded on the property

bold indicates threatened species under the TSCA; # indicates threatened species under the EBPCA; + indicates Migratory species under the EPBCA, * indicates introduced species.

Group	Common Name	Scientific Name
BIRDS	Brown Thornbill	*Acanthiza pusilla*
	Brown Goshawk	*Accipiter fasciatus*
	Chestnut Teal	*Anas castanea*
	Pacific Black Duck	*Anas superciliosa*
	Galah	*Cacatua roseicapilla*
	Little Corella	*Cacatua sanguinea*
	Fan-Tailed Cuckoo	*Cacomantis flabelliformis*
	Yellow-Tailed Black Cockatoo	*Calyptorhynchus funereus*
	Pheasant Coucal	*Centropus phasianinus*
	Australian Wood Duck	*Chenonetta jubata*
	Shining Bronze Cuckoo	*Chrysococcyx lucidus*
	White-Headed Pigeon	*Columba leucomela*
	White-Throated Treecreeper	*Cormobates leucophaea*
	Australian Raven	*Corvus coronoides*
	Pied Butcherbird	*Cracticus nigrogularis*
	Grey Butcherbird	*Cracticus torquatus*
	Laughing Kookaburra	*Dacelo novaeguineae*
	Wandering Whistling Duck	*Dendrocygna arcuata*
	Intermediate Egret	*Egretta intermedia*
	Eastern Yellow Robin	*Eopsaltria australis*
	Common Koel	*Eudynamys scolopacea*
	Dollarbird	*Eurystomus orientalis*
	Australian Hobby	*Falco longipennis*
	Buff-Banded Rail	*Gallirallus philippensis*
	Bar-Shouldered Dove	*Geopelia humeralis*
	White-Throated Gerygone	*Gerygone olivacea*
	Magpie Lark	*Grallina cyanoleuca*
	Magpie	*Gymnorhina tibicen*

Group	Common Name	Scientific Name
	Yellow-Faced Honeyeater	*Lichenostomus chrysops*
	Brown Cuckoo-Dove	*Macropygia amboinensis*
	Superb Fairy-Wren	*Malurus cyaneus*
	Noisy Miner	*Manorina melanocephala*
	Lewin's Honeyeater	*Meliphaga lewinii*
	Crested Pigeon	*Ocyphaps lophotes*
	Golden Whistler	*Pachycephala pectoralis*
	Spotted Pardalote	*Pardalotus punctatus*
	House Sparrow*	*Passer domesticus*
	Pelican	*Pelecanus conspicillatus*
	Little Black Cormorant	*Phalacrocorax sulcirostris*
	Pied Cormorant	*Phalacrocorax varius*
	Noisy Friarbird	*Philemon corniculatus*
	White Cheeked Honeyeater	*Phylidonyris albifrons*
	Eastern Rosella	*Platycercus eximius*
	Tawny Frogmouth	*Podargus strigoides*
	Eastern Whipbird	*Psophodes olivaceus*
	Satin Bowerbird	*Ptilonorhynchus violaceus*
	Grey Fantail	*Rhipidura fuliginosa*
	Willie Wagtail	*Rhipidura leucophrys*
	Rufous Fantail+	*Rhipidura rufifrons*
	Channel-Billed Cuckoo	*Scythrops novaehollandiae*
	Yellow-Throated Scrubwren	*Sericornis citreogularis*
	Pied Currawong	*Strepera graculina*
	Spotted Turtle-Dove*	*Streptopelia chinensis*
	Forest Kingfisher	*Todiramphus macleayii*
	Sacred Kingfisher	*Todiramphus sanctus*
	Scaly-Breasted Lorikeet	*Trichoglossus chlorolepidotus*

Group	Common Name	Scientific Name
	Rainbow Lorikeet	*Trichoglossus haematodus*
	Masked Lapwing	*Vanellus miles*
Mammals	Feral Deer*	*Dama dama*
	Eastern Grey Kangaroo	*Macropus giganteus*
	Red-Necked Wallaby	*Macropus rufogriseus*
	Domestic Dog	*Canis familiaris**
	House Mouse*	*Mus musculus*
	Koala	*Phascolarctos cinereus*
	Grey-Headed Flying-Fox#	*Pteropus poliocephalus*
	Bush Rat	*Rattus fuscipes*
	Swamp Rat	*Rattus lutreolus*
	European Rat*	*Rattus rattus*
	Brushtailed Possum	*Trichosurus vulpecula*
	Swamp Wallaby	*Wallabia bicolor*
Reptiles	Garden Sun-Skink	*Lampropholis delicata*
	Common Blue-Tongue	*Tiliqua scincoides*
Amphibians	Common Eastern Froglet	*Crinia signifera*
	Striped Marsh Frog	*Limnodynastes peronii*
	Green Tree Frog	*Litoria caerulea*
	Bleating Tree Frog	*Litoria dentata*
	Dwarf Tree Frog	*Litoria fallax*
	Dainty Tree Frog	*Litoria gracilenta*
	Rocket Frog	*Litoria nasuta*
	Emerald Spotted Tree Frog	*Litoria peronii*
	Laughing Tree Frog	*Litoria tyleri*
	Great Barred Frog	*Mixophyes fasciolatus*
	Dusky Toadlet	*Uperoleia fusca*
Fish	Long-Finned Eel	*Anguilla reinhardtii*

Group	Common Name	Scientific Name
	Plague Minnow*	*Gambusia holbrooki*

4.6 DISCUSSION OF FAUNA SURVEY FINDINGS

4.6.1 Success of Methodology and General Site Ecology

The methods used have been effective for a range of threatened species at other sites in the region and locality (e.g. Parsons Brinkerhoff 2004, CEG 2008, Darkheart 2005q, 2006n, 2008c, 2008d, 2008f, 2006c, 2006g, 2006j, 2006l, 2006n, 2005m, 2005o, Biosis 2004a, 2005, AMBS 2003, Biolink 2003, Redpath 2003, DEC 2004, etc) and most methods were generally used at or above the recommended levels (DEC 2004).

The failure to capture or detect targeted fauna species on-site is considered to be due to:

- *Absence of the specific species*: Some species are considered most likely to be absent due to the following factors:
  - Lack of suitable habitat e.g. rainforest, wetlands, wet sclerophyll forest.
  - Disturbance history e.g. recent/historical clearing, fragmentation.
  - Seasonal variations e.g. species may only occur in locality in specific seasons (e.g. Swift Parrot in winter).
  - Large home range size: Some species have very large ranges, and hence may not have been in the area at the time of the survey e.g. Square-tailed Kite, Little Lorikeet, etc.
- *Seasonal conditions*: The 2011 survey was undertaken in mid to late spring which is a preferred survey period for most fauna groups (e.g. reptiles, Yangochiropteran bats, Summer migrants, etc), but for some others e.g. winter migrants, this would be a limitation on detectability. Some species breeding at this time may also be hard to detect (DEC 2004). For most species specifically targeted in this survey (e.g. Squirrel Glider, Brushtailed Phascogale), survey season was considered a low limitation but for species with limited detectability unless breeding (e.g. Green-Thighed Frog) this is significant limitation (DEC 2004).

4.6.2 Potentially Occurring Threatened Species

4.6.2.1 TSC Act and EPBC Act

From Appendix 1, the following other threatened species are considered potential occurrences (with varying levels of probability) on the property, possibly only in localised areas:

Table 7: Threatened species potentially occurring on the site.

Species	Legal Status	Occurrence Type	Occurrence Likelihood
Square-tailed Kite	V-TSCA	Entire site offers generic potential to form minute portion of large area of potential foraging territory, with generic potential nesting trees. Low diversity and abundance of prey species.	>Moderate chance of occurrence utilising site as small part of a wider foraging range.
Little Eagle	V-TSCA	Entire site offers generic potential to form minute portion of large area of potential foraging territory, with generic potential nesting trees. Low diversity and abundance of prey species.	Low to fair chance of occurrence utilising site as small part of a wider foraging range.
Glossy Black Cockatoo	V-TSCA	Localised food trees on East Ruins Way offers small low quality foraging resource. No likely potential nesting hollows.	Low chance of occurrence as minute part of foraging range.
Swift Parrot	V-TSCA E-EPBCA	Records within 100m of West Lindfield suggest dry sclerophyll and swamp forest (which contain Forest Red Gum and Swamp Mahogany) may be used for seasonal foraging as small part of wider range.	Low to unlikely given extreme rarity, opportunistically foraging as part of large range.
Varied Sittella	V-TSCA	Generic potential foraging and nesting habitat in dry sclerophyll, particularly East Ruins Way. More likely to use only edges adjacent to more extensive undisturbed habitat due to harassment by Noisy Miners and limited cover in most areas.	Low to fair – less modified habitat in locality more optimal.
Little Lorikeet	V-TSCA	Preferred nectar species common on site, but few potential breeding hollows. Site may at most comprise small portion of local foraging and breeding habitat falling within a wider foraging range.	Low to fair chance of occurrence with presence and abundance varying on flowering instances.
Dusky Woodswallow	V-TSCA	Generic potential foraging habitat for non-breeding seasonal occurrences as small part of wider ranger.	Low to fair chance of occurrence in study area as part of larger range.
Black-necked Stork	E-TSCA	Larger dams and low-lying fairways to southwest offer some low quality potential non-breeding foraging habitat. High quality habitat in LINR within 2km south.	Low chance of incidental occurrence as non-breeding forager.
Powerful Owl	V-TSCA	Some prey species occur on site, but wider area is low quality due to very limited arboreal prey. Site would form small marginal portion of large foraging territory. No suitable nest trees.	Considered fair chance as part of wider foraging range as recorded within 1km west and south.
Masked Owl	V-TSCA	As for Powerful Owl.	Considered fair chance as part of wider foraging range as recorded within 1km west.

Species	Legal Status	Occurrence Type	Occurrence Likelihood
Eastern Blossom Bat	V-TSCA	Dry sclerophyll is marginal, however *Melaleuca* swamp forest offers foraging potential during flowering. Limited proximate roosting habitat unless wet sclerophyll along margins of lake.	Low potential to occur during peak flowering events.
Eastern Bent-wing Bat	V-TSCA	Variety of suitable foraging habitats and abundance of insect prey. Potential non-breeding/roosting in tree hollows.	>moderate as recorded within 2km, using property as part of wider foraging range.
East Coast Freetail Bat	V-TSCA	Variety of suitable foraging habitats and abundance of insect prey. Potential breeding/roosting in tree hollows.	>moderate as recorded within 2km, using property as part of wider foraging range
Eastern False Pipistrelle	V-TSCA	Limited connectivity and extent of intact forest qualifies site as relatively marginal. Potential non-breeding/roosting in tree hollows. Best potential in PLINR	Low to fair – recorded within 2km west. May use site as minute part of wider foraging range.
Yellow-bellied Sheathtail Bat	V-TSCA	Variety of suitable foraging habitats and abundance of insect prey. Potential non-breeding/roosting in tree hollows.	>Moderate as recorded on Charley Bros land to west and in Port Macquarie. May use site as part of wider foraging range.
Greater Broad-nosed Bat	V-TSCA	Variety of suitable foraging habitats and abundance of insect prey. Potential breeding/roosting in tree hollows.	>moderate as several local records within 1km of site. May use site as part of wider foraging range.
Southern Myotis	V-TSCA	Dams adjacent to PLINR may form portion of large foraging territory. Potential breeding/roosting in tree hollows.	Fair as part of wider foraging range.

4.6.2.2 Migratory species

A single migratory bird, the Rufous Fantail (*Rhipidura rufifrons*) was recorded in the swamp forest during the survey. This bird has been commonly recorded in wet sclerophyll to the west (Darkheart 2010k, Biosis 2005, 2005, AMBS 2004) and in Lake Innes Nature Reserve (NPWS 1994a).

A significant number of additional EPBCA listed migratory bird species are known (OEH 2017a) or considered potential occurrences in the locality. A search of the MNES website and literature review (Readers Digest 1990, Priest *et al* 2002, Sandpiper 2004, Rogers *et al* 2006, Antos and Weston 2006, Antos 2005, WWF 2005, Nebel *et al* 2008, Shorebirds 2020 2008) also produced a list of likely occurrences. All of these species plus some considered by the consultant as potential occurrences in the LGA in similar habitat to that on the property are also shown in the following table, with an evaluation made on likelihood of occurrence based on cited ecology. Note this list excludes seabirds, etc as detailed above.

Table 8: Migratory bird occurrence assessment

Name	Predicted type of occurrence	Recorded in locality	Habitat on property	Likely to occur on property
*White-Bellied Sea-Eagle *Haliaetus benghalensis*	Species and/or habitat likely to occur within area	Y	Dams on site too small to offer foraging habitat. Large area of high quality habitat to south.	May only occur as occasional fly-over. No significant nesting potential.
Osprey *Pandion cristatus*	-	Y	Generally as for White-Bellied Sea-Eagle.	As for Sea Eagle.
*Latham's Snipe Gallinago hardwickii	Species or habitat may occur in area	N	Very low potential to occur foraging in wetter margins on fairway around West Lindfield when grass is taller.	Very low
**Painted Snipe* *Rostratula benghalensis (australis)*	Species and/or habitat may occur in area	N	No – too open and not preferred habitat.	Unlikely
*Rainbow Bee-Eater *Merops ornatus*	Species/habitat may occur in area	Y	Suitable habitat in dry sclerophyll.	>Moderate chance of occurrence
Swift Parrot *Lathumus discolor*	Species/habitat may occur in area	Y	Small number of Forest Red Gums that may offer limited potential forage for non-breeding transients. Swamp Mahogany not very common in nearby swamp forest.	Low chance of incidental occurrence due to rarity of this bird and very poor conservation status – recorded on adjacent land foraging on flowering Forest Red Gum by chance in 2002.
Rufous Fantail *Rhipidura rufifrons*	Breeding or breeding habitat may occur in area	Y	No preferred habitat – some rainforest understorey in swamp forest margins.	Recorded
Satin Flycatcher *Myiagra cyanoleuca*	Breeding or breeding habitat likely in area	Y	Some potential habitat in forested areas.	Low

Name	Predicted type of occurrence	Recorded in locality	Habitat on property	Likely to occur on property
Black Faced Monarch *Monarcha melanopsis*	Breeding or breeding habitat may occur in area	Y	Marginal habitat in dry sclerophyll	Low
*Oriental Cuckoo *Cuculus saturatus*	Species/habitat likely in area	Y	Potential foraging habitat	Low
*Regent Honeyeater *Xanthomyza phrygia*	Species/habitat may occur in area	Y	Marginal – only small number of Forest Red Gums that may offer limited potential forage for non-breeding transients.	Very low chance of incidental occurrence due to rarity of this bird. At most, a rare transient.
White-Throated Needletail *Hirundapus caudacutus*	Species/habitat likely to occur in area	Y	Yes as part of a broader area	Moderate-high, as transient using study area for aerial foraging.
*Fork-Tailed Swift *Apus pacificus*	Species/habitat may occur in area	Y	Yes as part of a broader area	Fair potential, as transient using study area for aerial foraging.

PART B: SEPP 44 KOALA HABITAT ASSESSMENT

5 POTENTIAL KOALA HABITAT ASSESSMENT

5.1 INTRODUCTION

The identification of an area of land as Potential Koala Habitat (PKH) is determined by the presence of primary Koala-food species. These species are listed under Schedule 2 of SEPP 44: *Koala Habitat Protection*. Potential Koala Habitat is defined as areas where the tree species listed under Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component. An area of land to which the policy applies to must be at least 1ha (and may include adjoining land in the same ownership). According to a Land and Environment Court ruling (*St Ives Bus Services v. Ku-Ring-Gai Council 1995 NSW LEC 189*), it may also refer to a minimum of 1ha of habitat within a larger property containing sufficient Schedule 2 species to qualify as Potential Koala Habitat.

SEPP 44 Primary preferred food species occurring in the LGA are: Tallowwood, Scribbly Gum (*E. signata*), Swamp Mahogany and Forest Red Gum.

5.1.1 ASSESSMENT

5.1.1.1 Methodology

The Potential Koala Habitat assessment was undertaken per precinct, with the portion of the Lake Innes Nature Reserve within the site also assessed for consideration in the Core Koala Habitat assessment. Tallowwood, Swamp Mahogany and Forest Red Gum comprised the Schedule 2 species on site.

All Primary Browse Species occurring within the development precincts were marked in the field with flagging tape and counted. Total tree counts per vegetation area/precinct are provided to allow independent review and to compare with preliminary Potential Koala Habitat mapping by Biolink. Each area of Potential Koala Habitat was mapped on an aerial photo using a GIS (see Figure 8).

Non-Schedule 2 species were counted to complete the calculation.

Due to lack of fruit on the ground under some trees, it was very difficult to distinguish between some Narrow-Leaved Red Gums and some Forest Red Gums at East Ruins Way by leaf, bark and habit characteristic alone (Harden 1992, PlantNet 2017). Hence if indiscernible, the Precautionary Principle was adopted, and the trees were counted as Forest Red Gums.

5.1.1.2 Results

5.1.1.2.1 East Ruins Way

As shown in the table below, the East Ruins Way site qualified as Potential Koala Habitat in both the upper and lower tree layer.

Table 9: East Ruins Way PKH data

Tree species	Upper tree layer	Lower tree layer
Primary preferred species		
Forest Red Gum	13	1
Tallowwood	65	20
Swamp Mahogany	1	0
Total (Schedule 2 Sp.)	**79**	**21**
Other tree species on the site		
Paperbarks	3	6
Blackbutt	72	6

Tree species	Upper tree layer	Lower tree layer
Narrow-Leaved Red Gum	1	0
Rainforest Species	0	6
Willow Bottlebrush	0	2
Black Oak	0	6
Forest Oak	0	2
Swamp Oak	1	0
Wattle	0	3
Turpentine	0	0
Grey Gum	0	0
Flooded Gum	0	0
Grey Ironbark	18	12
Bloodwood	14	5
White Stringybark	1	0
Camphor Laurel	0	0
TOTALS (all species)	**190**	**66**
% Schedule 2 Species	**41%**	**31%**

5.1.1.2.2 West Ruins Way

Overall the West Ruins Way precinct qualifies as Potential Koala Habitat in both stratums.

Table 10: West Ruins Way PKH data

Tree species	Upper tree layer	Lower tree layer
Primary preferred species		
Forest Red Gum	0	1
Tallowwood	68	18
Total (Schedule 2 Sp.	69	19
Other tree species on the site		
Paperbarks	2	5
Blackbutt	98	31
Rainforest Species	0	11

Tree species	Upper tree layer	Lower tree layer
Willow Bottlebrush	3	17
Black Oak	0	27
Forest Oak	0	2
Swamp Oak	3	9
Wattle	0	33
Grey Ironbark	25	16
Pink Bloodwood	19	10
White Stringybark	0	0
Camphor Laurel	0	1
TOTALS (all species)	**150**	**162**
% Schedule 2 Species	**31.5%**	**10.5%**

However, Schedule 2 species were not evenly spread over the precinct. Thus a Potential Koala Habitat assessment was undertaken for each of the 3 strips of trees as follows and shown in Figure 8:

Table 11: Potential Koala habitat at West Ruins Way per strip.

	Upper Tree Layer		Lower Tree Layer		Potential Koala Habitat?	
Strip	Total Schedule 2 trees	Total Other Species	Total Schedule 2 trees	Total Other Species	Upper Tree Layer	Lower Tree Layer
Southern (boundary)	26	46	5	57	**36.1%**	**8.01%**
Middle	37	41	4	36	**47.4%**	**10%**
Northern (powerline)	6	63	10	69	**8.6%**	**12.6%**

This shows that the northern (powerline) strip is not Potential Koala Habitat, and that the middle strip clearly has the highest Potential Koala Habitat values.

5.1.1.2.3 West Lindfield

The remnant vegetation in the West Lindfield area also qualifies as Potential Koala Habitat overall.

Table 12: Tree counts per treed area

Note - all these forest/remnant areas are <1ha and only qualify as Potential Koala Habitat if the additional pasture is combined to form at least 1ha.

	Upper tree layer		Lower tree layer		Potential Koala habitat?	
Area	Total Schedule 2 trees	Total Other Species	Total Schedule 2 trees	Total Other Species	Upper Tree Layer	Lower Tree Layer
Dry Sclerophyll Forest southeast patch	19	21	3	51	**47.5%**	**5.5%**
South to southwest Swamp Forest band	9	30	0	15	**23.1%**	**0%**
*Wet Sclerophyll Forest	18	16	13	24	**52.9%**	**48.1%**
Row of trees in pasture	10	5	7	4	**66.6%**	**63.6%**
Southwest Swamp Forest	3	7	0	14	**30.0%**	**0%**

* There are upper and lower understorey stratums in this community. Only the upper stratum was counted. The lower stratum is dominated by young rainforest species and melaleucas, hence is clearly not Potential Koala Habitat.

Table 13: Total West Lindfield PKH data

Tree species	Upper tree layer	Lower tree layer
Primary Preferred Species		
Forest Red Gum	13	0
Tallowwood	32	19
Swamp Mahogany	14	4
Total (Schedule 2 Sp.)	59	23
Other tree species on the site		
Paperbarks	18	9
Blackbutt	32	38
Narrow-Leaved Red Gum	13	0
Rainforest Species	0	5
Willow Bottlebrush	0	31

Black Oak	0	7
Forest Oak	0	0
Swamp Oak	4	3
Wattle	0	9
Turpentine	0	0
Grey Gum	0	0
Flooded Gum	0	0
Grey Ironbark	0	0
Pink Bloodwood	12	6
White Stringybark	0	0
Camphor Laurel	0	0
TOTALS (all species)	79	108
% Schedule 2 Species	**42.7%**	**17.5%**

5.1.1.2.4 Part Lake Innes Nature Reserve

It is readily self evident from foot traverses through this area that Swamp Mahogany comprises much less than 5% of the upper or local tree component, hence no formal counts were made.

Hence the segment of Lake Innes Nature Reserve on site does not qualify as Potential Koala Habitat.

5.1.2 CONCLUSION

Overall, the Ruins Way East, Ruins Way West and West Lindfield precincts all readily qualify as Potential Koala Habitat. The section of Lake Innes Nature Reserve between West Lindfield and West Ruins Way does not qualify as Potential Koala Habitat.

Consequently Part 2 of SEPP 44 is applicable and an assessment for Core Koala Habitat is required.

Figure 7: Potential Koala Habitat within the development precincts

6 CORE KOALA HABITAT ASSESSMENT

6.1.1 Definition of Core Koala Habitat

Under SEPP 44, Core Koala Habitat is defined as "an area of land with a resident population of koalas, as evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a koala population" (Source: State Environment Planning Policy No. 44 - Koala Habitat Protection 1995).

The definition "an area of land" is interpreted as the land to which the development application applies (if it exceeds 1ha in area, together with any land in the same ownership).

Information to determine if a resident population of koalas exists on the site was obtained by direct survey of the site using standard survey techniques (direct survey of koalas, call playback, scat searches, and tree usage/activity levels assessment) and review of relevant published information and records.

6.2 METHODS AND RESULTS

Information to determine if a resident population of Koalas exists on the site is obtained by direct survey of the site using standard survey techniques (direct survey of Koalas, call playback, scat searches, and tree usage assessment) and review relevant published information, ecological assessments and records.

6.2.1 Literature and Database Review

6.2.1.1 OEH Bionet

An OEH Atlas of Wildlife database (2017) search detected >500 records of Koalas in the locality. Two of these records occur on the study site.

6.2.1.2 Naturecall 2015 – South Lindfield

Naturecall (2015a) were engaged by PMHC to undertake require a detailed study of Koala habitat, usage, population size and distribution within the area nominated as South Lindfield. The study facilitated the development of a draft Koala Plan of Management (Naturecall 2016).

The South Lindfield area included the West Lindfield study site and land to the north to the edge of the Oxley Highway. Vegetation consisted of mostly regrowth forest to a number of trees in yards and a paddock.

The subject land and study area was surveyed for Koalas via day searches for 4 days and spotlighting/call playback for 4 nights spread over 2 weeks. Two Koalas were directly observed during the study. The first was seen adjacent to John Oxley Drive and appeared to be a young female. The second was an adult female that was seen in a Grey Ironbark in the far west of that study site next to the Oxley Highway on two occasions. This Koala showed advanced signs of Chlamydia. No Koalas were recorded on the West Lindfield precinct.

A single male Koala was also heard calling from the eastern end of the crematorium on the first night of call playback and spotlighting.

In addition to scat searches under all primary browse trees on site, a total of five SAT surveys were undertaken based on the 100m grid described above, with two SATs undertaken in preliminary site investigations earlier (none on the West Lindfield site due to insufficient trees and contagious spacing which violates statistical assumptions). The SAT results for the site scored in the low use threshold (<22.52%) for the East Coast (Med-High) range.

In contrast, Biolink (2009) previously performed 3 SATs in the South Lindfield study site, and recorded activity levels of 53.3-73.3% (one SAT scored 100%, but did not sample 30 trees hence did not satisfy the statistical assumptions), and sighted one Koala during the survey.

On the basis of the SAT results at the time, Biolink concluded the site was the northern limit of a larger area Core Koala Habitat extending south and southwest. Usage in 2015 was postulated to have possibly declined due to disturbances or other factors since Biolink's survey (e.g. barrier effect of the Oxley Highway Deviation), but there was still sufficient evidence to satisfy the SEPP 44 definition for Core Koala Habitat ie ongoing Koala records on site. Furthermore, SEPP 44 does not differentiate between a site that contains all or part of identified Core Koala Habitat. Consequently, the site (including the West Lindfield precinct identified as part of this proposal) was considered to form part of a broader landscape of Core Koala Habitat.

6.2.1.3 Biolink (2013) Port Macquarie-Hastings Koala Habitat & Population Assessment

Biolink (2013) were engaged by PMHC to undertaken vegetation community mapping and a Koala study over the coastal portion of the LGA.

In addition to classifying Potential Koala Habitat, the study undertook a review of historical extent of occurrence and generational persistence, and a landscape scale regularised grid spot assessment technique (RGSAT).

Habitat mapping is shown in Figure 7 of the study area from this study. No RGSAT survey sites are shown to have been located on the site (i.e. no site specific data) but activity contour modelling is shown based on off-site data.

6.2.1.4 Biolink – local studies

Biolink (2005a, 2005b) were engaged to survey the Koala population and its habitat over the larger body of land owned by the proponent to the west, colloquially known as the Lake Innes peninsula. Based on the SAT technique, a population of up to 226 Koalas was predicted to occur (Biolink 2005a). No review (e.g. via using other Koala population census methods) has been undertaken to date of this estimation.

Biolink (2005b, 2005e) also predicted that a population of 15-60 Koalas occurred in the approximately 40ha area known as Ascot Park/Maher's Headland (west of the crematorium, and interlinked to the site). Survey by Darkheart (2006e), and Wildsearch Environmental Services over 4 years using the modified Dique *et al* (2004) saturation method recorded a maximum of only 5 Koalas and usually below this number. This long-term monitoring study that commenced

in 1998 and still continues, also showed this small population to have a complex landscape movement pattern, with no Koalas been recorded at times.

6.2.1.5 Draft Hastings Council – Koala Plan of Management: Coastal Area

The draft *Hastings Council Koala Plan of Management* (Connell Wagner 2000a, 2000b) illustrates a high abundance of Koala records in the locality that include State Forests, community and NPWS/OEH records. There is a plethora or records within approximately 5km of the site.

6.2.1.6 Darkheart Eco

In addition to Maher's Headland, Darkheart Eco has completed earlier assessments which have identified Core Koala Habitat on adjoining land to the north of West Lindfield (Berrigan 2003g), as well as Koala sightings over extensive forest along the Oxley Highway deviation (Darkheart 2010h).

Other areas have been identified nearby along The Ruins Way/Major Innes Drive area (Berrigan 2001d, 2003h, 1999b). The formerly much wider forested road reserve along Major Innes Drive was also noted to be an important link for Koalas (Berrigan 2001b), but this has been degraded by clearing for road re-alignment and bus standing areas (pers. obs.).

6.2.1.7 Other Records

A number of other small (e.g. EcoPro 1999a, 1999b) and major (Biolink 2008, 2003, Biosis 2005, 2004a, AMBS 2004) ecological studies have been undertaken in the Lake Innes and Thrumster area. These studies have recorded Koalas and identified Core Koala Habitat.

6.2.1.8 Proponent Surveys

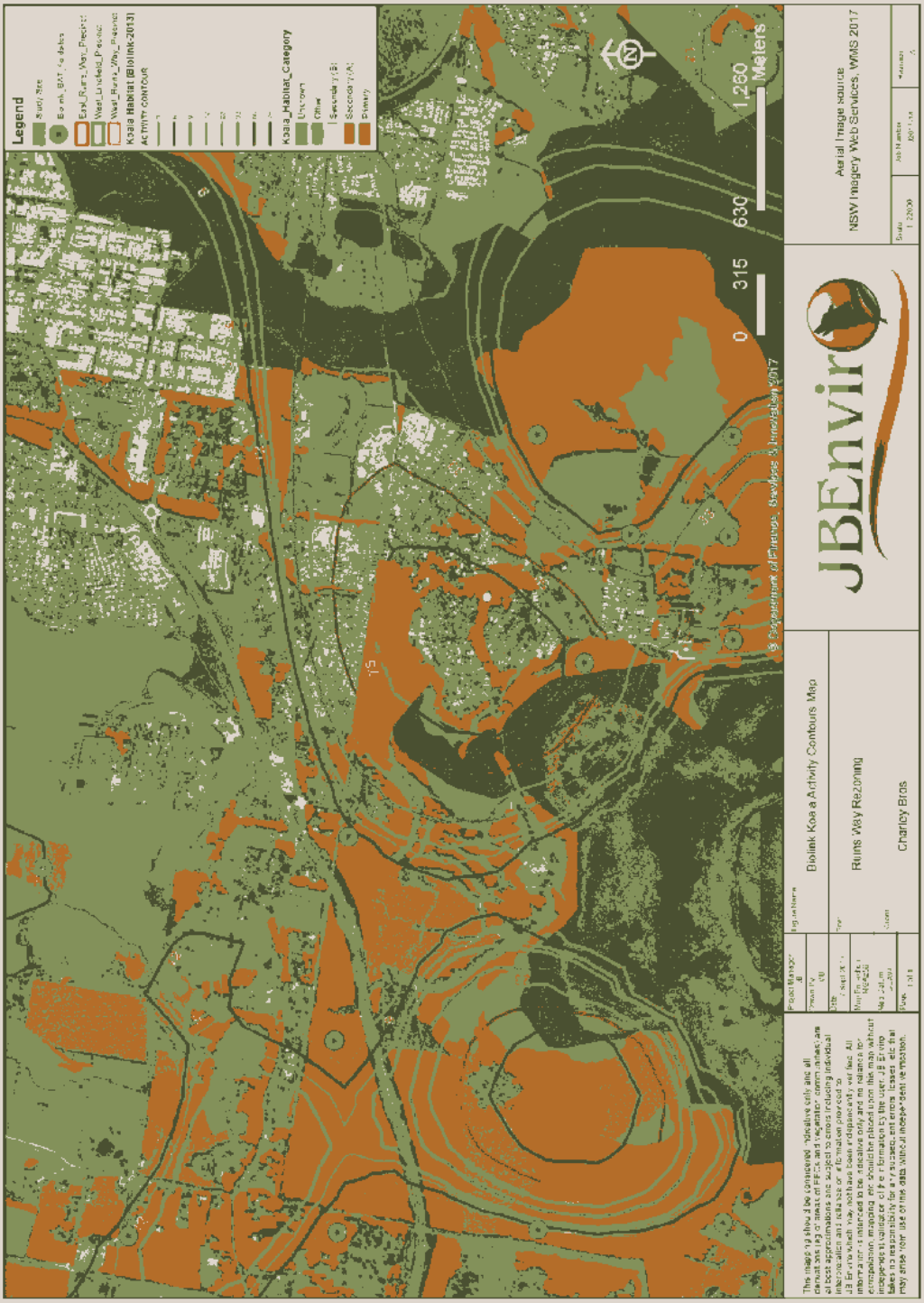
Wildsearch Environmental Services has been undertaking diurnal and nocturnal Koala surveys over the site, the remnant vegetation in the Lake Innes Residential area, Mahers Headland, and the Ruins Way down to Lake Innes for many years.

The survey methodology is as per the modified Dique *et al* (2004) method:

- Two observers (with a 50/100w spotlight if at night), traversing the entire study site by foot over one night.
- The site was divided into an eastern and western half by the existing access track. Two observers assessed the same side the same day/night.
- The observers spotlight separate parallel transects 20-30m wide (walking down centre of transect, and checking all trees 10m either side) until the total site is covered.
- Each observer inspects every single tree on the study site for Koalas regardless of whether it is a preferred browse species or not.

JBEnviro

Figure 8: Biolink (2013a) Koala habitat classification and activity contours in the study area



The primary objectives of this long term monitoring are:

- To census the local Koala population size and constitution.
- Identify areas of preferred habitat use.
- Identify linkages.
- Identify seasonal trends in movement.

The data for the study site is analysed and detailed in section 7.2.4.

6.2.2 Field Survey

6.2.2.1 Diurnal Direct Observations and 100% Coverage Survey

6.2.2.1.1 Methods

Diurnal Direct Observation

The site was surveyed for Koalas by the following methods in 2011:

- Anecdotal observations during other activities e.g. trapping and vegetation analysis.
- Walking throughout the study site searching the crowns and boughs of trees for Koalas.

After collection of traps, during dedicated periods, and during other activities (e.g. diurnal bird survey and threatened plant survey), all trees in the development precinct were scanned for Koalas by an ecologist on each day of the survey from the 7th - 25th November 2011. This generally involved walking a random meander in the East Ruins Way precinct, along the strips and remnants in West Ruins Way and West Lindfield, and along the edge of PLINR.

Saturation/100% Coverage Survey

The saturation/100% coverage survey methodology consists of at least 2 ecologists systematically searching all trees within the non-swamp forest area for Koalas. The PLINR area was searched along 4 transects 50m apart, with viewing distance ranging from 10-30m either side of the transect line. This was completed in 1 day.

In the development precincts, the following methodology was employed:

- 2 ecologists walked in parallel no more than 30m apart (depending on effective sight distance) to survey a belt transect across the precinct.
- Each searched trees within visible distance to the left and right (maximum lateral distance of around 30m). This ensured both sides of the tree were searched twice (once by each ecologist) to counter observer error.
- Each and every tree was systematically searched (starting at the trunk and running the eyes up to the top of the crown, then out from the trunk junction to the extremities of each canopy limb) for Koalas.

- If a Koala was detected, its position and host tree species was recorded. Trees with Koalas were flagged with pink tape in the field.

These systematic surveys are a variation of the Dique *et al* (2004) methodology. The main difference is that this method has the goal of getting a clear snapshot of the exact population size on a site over successive periods of time. Repeated surveys at this level of coverage is argued by its proponents to be the most reliable means of determining Koala population size.

6.2.2.1.2 Results

Daily Searches

The only daily record throughout the entire 2011 survey was of an adult (presumably male due to its size) Koala observed resting in a Blackbutt in the wet sclerophyll forest on the boundary of the Crematorium and West Lindfield site on the 15/11/11 (56 486922, 6519151).

Saturation/100% Coverage Diurnal Survey

Designated surveys have been undertaken by Darkheart/JBEnviro in 2011, 2013, 2014 and 2017.

(a) 2011

The 100% coverage survey was undertaken by two ecologists on the 29th November in 2011. Two Koalas were observed as follows:

- Young female recorded resting in a Pink Bloodwood at the westernmost end of the middle strip in West Ruins Way, adjacent to Lake Innes Nature Reserve.
- Adult male (considered likely to have been the same Koala seen on 15/11/11) in a young Tallowwood in the northwest pasture in West Lindfield.

(b) 2013

A female was recorded in the West Ruins Way area.

(c) 2014

A female Koala recorded in the Wrens Close area.

(d) 2017

This survey recored a single Koala in a Tallowwood in East Ruins Way. Sex was unable to be confirmed, but a resident reported a female in the area the day before.

6.2.2.2 Spotlighting and Call Playback

6.2.2.2.1 Methods

Spotlighting

Spotlighting is a technique with varying success for Koalas. Due to their size and eye-shine, Koalas are readily observable, however dense understoreys or tree crowns or position in the tree may obscure them; or Koalas may avoid looking into the light (and thus failing to show eye-shine). Daily observations are similarly limited ie by dense foliage and Koala position in the tree (DEC 2004, Jurskis and Potter 1997).

Spotlighting was undertaken for 10 nights by two ecologists. The crowns of trees were searched on foot with a hand held variable power 100w spotlight.

Call Playback

Call playback of a male territorial Koala were played in specific locations to ensure the entire study area could be surveyed in one night for possible detection of a dominant breeding male that would indicate females in the area, and a local viable population on-site. Calls were played at a moderate volume, through a portable amplifier. Male Koalas are usually the only respondents to playback of male territorial calls and female encounter calls, and have been known to respond out of the breeding season. Calls may be audible up to 2km away, depending on topographical and weather conditions (Jurskis and Potter 1997). However, they have also been known to not respond at all, or their response is not detectable e.g. Koalas in sight of the observer may only respond by looking, not calling (Jurskis and Potter 1997).

The main survey fell into the early part of the Koala-breeding season (about July to December, sometimes earlier to later - Kel Mackay pers. comm.). The breeding season is when Koalas are expected to be particularly active, responsive and thus readily detectable. This period is also characterised by elevated sub-adult and juvenile activity (DECC 2008, AKF 2007, 2011, Jurskis and Potter 1997).

Anecdotal observation indicates male activity accelerates in the local region around September-October (Jason Berrigan and Kel Mackay pers obs.), thus the main survey occurred during this expected peak activity period. Jurskis and Potter (1997) note that call playback is also limited in success by the following factors:

- Survey timing – best success during breeding season (Spring-early Summer).
- Call playback method – amplifier/P.A. system set at moderate volume better than megaphone.
- Varying individual responses – from Koalas attacking observers, to total disinterest.
- Lack of female response – limited to detecting territorial/breeding males.

Nonetheless, call playback like spotlighting has proven useful in other areas, and is considered one of a number of Koala detection methods that should be used in combination e.g. with spotlighting and scat searches (Jurskis and Potter 1997, NPWS 2001, DEC 2004, 2008). As noted

previously, Koala calls can be heard up to 2km away, especially on still, humid nights, which enable contact to be made amongst individuals of highly dispersed populations (Jurskis and Potter 1997).

6.2.2.2.2 Results

(a) 2011

Spotlighting in 2011 recorded 4 Koalas in one night (including two in one tree), and one Koala on another occasion. All 4 Koalas were found in the western end of West Ruins Way as follows:

- Tallowwood: 56 487481, 6518954.
- Tallowwood: 56 487388, 6519053.
- Blackbutt: 56 487529, 6518956.
- Ironbark: 65 487455, 6518914.

Another survey (using the saturation method) in July 2013 recorded only a single Koala in the Tallowwood in the middle strip of the West Ruins Way. This animal was considered to be a female.

No Koalas were observed in East Ruins Way. No Koalas responded vocally to call playback, including those detected during spotlighting.

(b) 2017

As noted previously, a female was recorded in the nocturnal survey undertaken a week after the diurnal survey in the northeast corner of East Ruins Way.

6.2.3 Scat and Scratch Searches

6.2.3.1 Methods

All SEPP 44 Schedule 2 Koala food trees (ie. Tallowwood, Forest Red Gum, Swamp Mahogany) in the development precincts of the site were flagged with ribbon and searched for scats in 2011. Trees were re-flagged in 2017 but scat searches were not undertaken.

Trees with scats were given a number and marked with pink spray paint, and their identification was recorded.

In general, scat searches involved checking the ground and leaf litter in a 2m radius around trees. This technique is recognised as a very efficient method of detecting Koala presence (Biolink 2008, 2005a, 2005b, 2003, AKF 2011, 2007).

This technique is however limited by the following factors:

- *Scat life* – scats naturally deteriorate over time due to insect attack, weather condition (e.g. rain), fire (though scats have been recorded surviving wildfire) and other disturbances e.g. mowing and slashing, bulldozing, etc.

- *Groundcover/leaf litter density*: Scats may be hidden in dense groundcover or leaf litter, or searches may be physically impossible in areas of tall, dense groundcover, or waterlogged/swampy areas.
- *Identification*: The observer must be able to identify Koala scats and scratches from other scats and scratches e.g. Brushtail Possums and Laced Monitors.
- *Bark type*: Rough barked trees do not show evidence of scratch marks like smooth barks, thus identification or even detection of climbing may not be determinable. Scratch marks are not usually obvious on Swamp Mahogany and Tallowwood unless the tree is heavily used, for example a home range tree.

6.2.3.2 Results

6.2.3.2.1 Scratches:

A large proportion of the trees on the study site were full bark species, thus making it difficult to decipher scratches. Koala scratches were however identified on Red Gums at East Ruins Way.

6.2.3.2.2 Scats:

The detectability of scats on site was generally considered to be very good in most areas due to the low groundcover, except in some areas of East Ruins Way which had areas of thick exotic grass cover and hence detection was difficult in parts of this precinct. Conversely, it has also been over a month since recent underscrubbing and slashing, hence sufficient time had passed for new scats to be deposited.

Koala scats were detected under a total of 90 trees across the development envelope, comprising mostly Tallowwoods and a small number of Forest Red Gums. West Lindfield had the least scat trees, with similar numbers at West and East Ruins Way.

6.2.4 Long term monitoring

As noted in section 3.3.2.9, the proponent has undertaken periodic Koala surveys over the proposed rezoning area and adjacent remant habitat and urban woodland in the Lake Innes residential area since 2011, with several surveys by Darkheart/JBEnviro to provide comparative data. The method has consistently applied the modified Dique et al (2003) methodology for diurnal to nocturnal surveys. A combination of diurnal and nocturnal survey was used to counter variability in Koala activity and to test the effectiveness of both techniques.

Over 120 days surveys over all seasons have been undertaken. Of these surveys, Koalas were only recorded on 64 (52%) days. This indicates the home range of these Koalas is not restricted to the proposed rezoning area i.e. they are moving outside the survey area at times. The following table shows maximum and minimum number of Koalas recorded by this monitoring per season:

Table 14: Koala numbers per season 2011-2017

	Summer	Autumn	Winter	Spring
Min. number of Koalas	0	0	0	0
Max. number of Koalas	2	2	4	3

The following table shows the varying locations of the 39 Koala records (0-4 Koalas at any given time, but most commonly only 1 Koala at most) in the precinct over this time frame, including the results of the recent surveys undertaken for this assessment:

Table 15: Koala occurrence locations over time

Survey session	East Ruins Way			West Ruins Way			West Lindield			Adjacent to study site			Total Number Koalas recorded:			
Sex	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1: 11/5/2011									1						1	1
2: 21/10/2011												1			1	1
3: 7/11/2011						3									3	3
4: 15/11/2011						1	1						1		1	2
5: 25/11/2011						1									1	1
6: 29/11/2011					1		1						1	1		2
7: 14/3/2012									1						1	1
8: 28/9/2012																
#9: 7/12/2013											*2			*2		2
10: 10/1/2013									1						1	1
11: 19/2/2013												1				
12: 22/4/2013			1												1	1
13: 7/5/2013			1												1	1
14: 10/5/2013			1												1	1
15: 21/5/2013			1												1	1
16: 22/5/2013			1												1	1
17:23/5/2013			1												1	1
18: 3/6/2013			1												1	1
19: 4/6/2013			1												1	1

Survey session	East Ruins Way			West Ruins Way			West Lindield			Adjacent to study site			Total Number Koalas recorded:			
Sex	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
20: 5/6/2013			1												1	1
21: 11/7/2013					1									1		1
22:12/7/2013					1									1		1
23: 25/7/2013		1		1		2							1	1	2	4
24: 2/8/2013					2									2		2
25: 18/9/2013		1												1		1
26: 11/9/2014			1												1	1
27: 17/9/2014											1			1		1
28: 18/8/2016			1													
29: 2/9/2016								1						1		1
30: 11/10/2016		1												1		1
31: 19/7/2017		1												1		1
32: 22/7/2017		1												1		1
33: 29/7/2017		1												1		1
Total No. Sightings	0	6	11	1	5	7	2	1	3	0	1	2	3	13	19	39

***M = male; F = female; U = unknown; T = total' # = female and joey**

The table very clearly illustrates that the proposed zoning area plus habitat from the southern end of The Mill Hill and Major Innes Drive supports a small (about 4, but mostly 0 or 1 at any given time) residential population of Koalas. These Koalas range widely spatially and temporally from the southern end of The Ruins way to the subject land, using both intact forest remnants and trees within the urban woodland. Joeys are not often seen, and the dominant adult male was reported to show signs of Chlamydia infection in 2011 (Dr Jim Charley, pers. comm.). A female with advanced signs of Chlamydia was also noted in the South Lindfield rezoning precinct in 2015 (Naturecall 2015a).

This aggregate or some its members may also utlise habitat to the northwest in South Lindfield given the proximity and connectivy, and are likely to be related to the similar sized group identified on and adjacent to Ascot Park (Naturecall 2015a).

6.2.5 Site Context and Linkages

6.2.5.1 Linkages

As detailed in section 4.4 and shown in Figures 6 and 7, the site, study area and immediate locality has a high level of fragmentation.

The peninsula of intact swamp forest within Lake Innes Nature Reserve (partially encapsulated within the site) is the only fully intact forest in close proximity to the site. This forest has very few preferred Koala food trees (hence very limited forage potential and minimal carrying capacity), but it does provide an intact arboreal and terrestrial link directly to the remainder of the Reserve, as well as to the significant Koala habitat along the northwestern fringes of the Nature Reserve where food trees are more common (Biolink 2005a, 2005b, 2008, Phillips 2000b).

Conversely, this linkage (and more importantly the Kooloonbung Creek Nature Reserve corridor) may also be important for Koalas moving out of this habitat when burnt out by major bushfire to refuge habitat within the Lake Innes residential precinct, or dispersing between the urbanised population in Port Macquarie and the Lake Innes Peninsular population (Connell Wagner 2000b, Wilkes and Snowden 1998).

Linkage across West Lindfield and West Ruins Way is only provided by narrow remnant strips of forest between fairways. As the Koala will cross open ground and use scattered trees in urban woodlands (AKF 2007, Wilkes and Snowden 1998, Biolink 2013), these strips are adequate for use in Koala movement west to east across the site. These areas would be used by residential Koalas as part of their lifecycle movements, and less frequently by dispersing sub-adults from local Core Koala Habitat.

Linkage to the north is limited by fences and lack of habitat along most of the boundary to West Ruins Way. Land to the mid-north of the site is identified Core Koala Habitat (Berrigan 2003g), but only a few food trees have been retained in the road reserve of the estate (Oxley Grove) as an urban woodland. Koalas are known to continue to use these trees (evidenced by scats and sightings). Koala movement further north is minimal due to lack of sufficient habitat and barriers posed by more extensive cleared and low-lying land (Darkheart 2010a, 2010b, Biosis 2005, AMBS 2003), and now the Oxley Highway which has fauna fencing/sound barriers intended to direct fauna to designated underpasses.

Linkage east to southeast of East and West Ruins Way is provided by a very well vegetated urban woodland which is adequate for the Koala to both inhabit and move through (Connell Wagner 2000b, Wilkes and Snowden 1998, AKF 2007). Figure 7 shows that a distinct urban woodland corridor runs from East Ruins Way to Mill Hill via the wooded road reserve along The Ruins Way and Mill Hill Road. A cleared services easement, scattered trees and small remnants to the east also offer linkage (though barriers posed by fencing and yards with dogs would be a limitation) to the narrow link along Major Innes Drive which links to the Oxley Highway and Kingfisher Rd area, and other small remnants in the southeast Ruins Way area and ultimately Lake Innes Nature Reserve. These all link to a dedicated corridor off Mill Hill that links west to Lake Innes Nature Reserve. Koalas are periodically sighted in this main corridor, indicating its significance (Dr Jim Charley, pers. comm.).

Overall thus, there are no effective barriers across the site to the Koala despite the level of fragmentation, but movement in the adjacent urban areas is limited by lack of/limited habitat, fences, dogs (outside areas currently under KPoMs) and major roads.

6.2.5.2 Locally Identified Koala Populations and Habitats

Studies of the adjacent Lake Innes Nature Reserve (Starr 1990, Mt King Ecological Surveys 1991, Connell Wagner 2000b), the majority of Vilro Pty Ltd land holding (Biolink 2005a, 2005b, Darkheart 2006e), Thrumster (Biolink 2008, 2003) and Port Macquarie (Starr 1990, Mt King Ecological Surveys 1991, Connell Wagner 2000b, Wilkes and Snowden 1998, Martin 1996) have determined that a sizeable Koala population exists in the locality.

Estimates have been proposed in the range of 400-500 in Port Macquarie (Martin 1996) with a smaller number in the northern reaches of Lake Innes Nature Reserve (NPWS 1999, Phillips unpub. data cited in Biolink 2005a, 2005c), and the Thrumster area (Biolink 2008). These numbers are only provisional estimates however based on extrapolation of various data sources, with no comprehensive or verified statistical census undertaken to date (DECC 2008), or assessment using a comparative methodology e.g. Dique *et al* 2004.

As noted above, periodic survey by the proponent of the Lake Innes residential area (including the site) has indicated only a small group of Koalas are present, with usage in specific areas varying with season and lifecycle stage. This is further supported by survey over Ascot Park and the South Lindfield area which also recorded a significantly smaller Koala population than previously predicted (Naturecall 2016, Darkheart 2006e).

6.2.5.3 Site Context

As detailed previously, there are a plethora of Koala records in the locality. This includes numerous records within approximately 1km of the site (e.g. Naturecall 2015a, Biolink 2008, 2005a, 2005b, Berrigan 2003c, 2003g, 2003h, 2001b, 2001c, 2001d, 2000b, 2000c, 1999a, 1999b, Darkheart 2007e,2006e, 2005d, 2005f, 205l, 2004g, 2004l, 2004g, 2004l, 2004n, 2004p, 2004q, etc, Connell Wagner 2000b, Wilkes and Snowden 1998, Biosis 2005, 2004, AMBS 2003).

Previous local studies have determined that the immediate locality contains Core Koala Habitat within both the northern reaches of Lake Innes Nature Reserve and adjacent forested rural land (Biolink 2005a, 2005b, 2008, 2003), supported by a matrix of remnants, roadside trees and an urban woodland (Naturecall 2015a, Berrigan 1999c, 2001i, 2003m, 2003n, Darkheart 2007c, EcoPro 1999b, Connell Wagner 2000b, Hastings Council 2003, Wilkes and Snowden 1998, Biolink 2005a, 2005b, 2008).

In the local context, appraisal of Figure 7 shows that the site's limited remnant habitat and the adjacent wooded road reserves form part of a larger matrix of remnants amongst mostly developed land in the Ruins Way/Major Innes Drive area, which is gradually being converted from rural to residential areas.

As noted above, the site itself has limited corridor values for biodiversity maintenance, with the eastern precinct becoming a cul-de-sac due to limited habitat east (only urban woodland) and residential development. This landscape mosaic is however Koala permeable (Wilkes and

Snowden 1998, Connell Wagner 2000b, Starr 1990, Biolink 2008, 2005b, AKF 2007), as illustrated by the long term monitoring of the study area detailed in Table 15.

Coupled with the road reserve habitat links along Mill Hill and the Ruins Way, the Ruins Way precincts provide linkages for Koalas from Lake Innes Nature Reserve to other remnants in the Major Innes Drive area. These links collectively provide connectivity for movement between the local remnants, and assist genetic exchange between the urban and Nature Reserve populations to maintain viability of the local Koala population (Connell Wagner 2000b, Biolink 2008, 2005a, 2005b).

As the site and local area of interlinked fragments is adjacent to identified major Koala habitat areas (ie Lake Innes Nature Reserve and the urban Koala population of Port Macquarie), it is likely to support both resident and periodically transient Koalas moving through the wider area of Core Koala Habitat at various times according to their lifecycle stage, territory size and sex (NPWS 2003a, Biolink 2008, 2005a, 2005b, Wilkes and Snowden 1998, AKF 2007).

Koalas occurring in this local matrix are increasingly threatened by further fragmentation and gradual attrition of habitat via residential development, increased exposure to predators (wild and domestic dogs), and the introduction of barriers/mortality threats posed by local roads which may all contribute to the decline of the local population (DECC 2008, AKF 2007, 2006, 2011, Curtin *et al* 2002, Port Stephens Council 2001, Hindell and Lee 1990, Connell Wagner 2000b, Dique *et al* 2004, Hume 1995, Jurskis and Potter 1997, Phillips 2000, Phillips *et al* 2000, Biolink 2005a, 2005b, 2008).

6.3 DISCUSSION AND CONCLUSION

SEPP 44 defines Core Koala Habitat as "an area of land with a resident population of Koalas, as evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a Koala population". The attributes are provided as examples of only some characteristics Core Koala Habitat may demonstrate, and thus to meet the definition of Core Koala Habitat, a site does not necessarily need to show all of these attributes, and may even show other evidence indicating the site is Core Koala Habitat.

In regards to the two identified attributes though, the following is provided:

1) "*Breeding females (that is, females with young)*". This survey failed to directly record Koalas with joeys on the site. However breeding males (responding to call playback) have been reported by residents in the East Ruins Way precinct and in the grounds of the adjacent crematorium (Naturecall 2015a), and regular presence of an adult male has been reported by the proponents.
2) "*Recent sightings and historical records of a Koala population*". As mentioned earlier, the survey recorded up to 4 Koalas on the site. This correlates to reports by adjacent residents and survey by the proponent from 2011 recording 1-3 Koalas. Historical records also occur on site (predominantly along the Ruins Way. There are also numerous records of Koalas within 1km of the site which include Core Koala Habitat (e.g. Berrigan 2003c, 2003g, 2003h, 2001b, 2001c, 2001d, 2000b, 2000c, 1999a, 1999b, Darkheart 2007e,2006e, 2005d, 2005f, 205l, 2004g, 2004l, 2004g, 2004l, 2004n, 2004p, 2004q, etc, Biolink 2005a,

2005b, EcoPro 1999a, OEH 2013a, Connell Wagner 2000b) which is within dispersal range of the site (DECC 2008). Thus, it is considered that there is ample recent and historical evidence of a local population in the area and this population includes the site as part of its home range.

The information collated for this assessment thus indicates that the subject land qualifies as Core Koala Habitat. Hence a Koala Plan of Management will be required to be submitted with future Development Applications.

PART C: DEVELOPMENT CONSTRAINTS AND PRELIMINARY RECOMMENDATIONS

7 CORE KOALA HABITAT

As detailed in section 6, the recent and historical sightings of Koalas on and directly adjacent to the site, as well as numerous trees with scats, readily determined that the site supports part of the home range of several Koalas, and hence forms part of Core Koala Habitat. A Koala Plan of Management (KPoM) will thus be required to accompany future Development Applications.

Preliminary layouts have been provided for consideration, and are shown in Figures 9-11. The following table identifies and assesses the constraints that Core Koala Habitat will have on the proposed rezoning of each precinct, and impact of the preliminary concepts:

Table 16: Core Koala Habitat constraints assessment

Constraint Assessment			
Precinct	**Koala Food Trees (KFTs)**	**Impact of concept layout**	**Mitigable?**
West Lindfield	Koala food trees are present in varying abundance in the remnant vegetation strips. Potential for development occurs in the former fairways and where vegetation is dominated by non-KFTs. Long term monitoring has only recorded Koalas in the central and southern strips, and trees adjacent to the western edge of this precinct. Not in the isolated paddock trees.	Preliminary concept overlaid with KFT location shows all isolated trees standing in the paddock in the northwest will be removed. Most of trees along western boundary and in linear remnant will be retained. Total of 38 KFTs proposed to be removed. All non-KFTs in the residential footprint to be removed. Risk that tall trees may be perceived as hazards close to dwellings hence risk of long term habitat erosion via incremental loss.	Yes. The design is only nominal at present and tree locations need to be surveyed (currently only GPS located) to confirm location to inform final design. KFT loss is recommended to be minimised by strategic design of the final layout with due consideration of other constraints and the practicality of retaining trees within a residential area in the long term, with offset plantings in nearby secure location. Ratio of offset plantings to see significant net increase in Koala habitat to allow future expansion of population. Provision for mechanism to replace any KFTs removed to ensure no long term erosion of habitat.

Constraint Assessment			
West Ruins Way	Koala food trees are present as scattered in a line along the northwest corner; along the western boundary; and in the linear remnant on the south to the east. Potential for development occurs where KFTs are absent or sparse in the open paddock. Long term monitoring recorded Koalas most frequently on the western boundary, with less sightings in the scattered trees and eastern linear remnant. Also a sighting on adjacent edge of PLINR where KFTs occur in low abundance on the outermost margins.	Preliminary concept overlaid with KFT location shows 14 trees in northern strip will be removed; 11 in the middle strip, and 10 in the southern strip. Concept proposes retaining dense clusters of KFTs in eastern end of central strip and in a linear reserve along the centre to provide linkage as well; a reserve to contain trees in the eastern end of the southern strip, and retains the cluster of KFTs in the west. All non-KFTs to be removed. Risk that tall trees may be perceived as hazards close to dwellings hence risk of long term habitat erosion via incremental loss.	Yes. The design is only nominal at present and tree locations need to be surveyed (currently only GPS located) to confirm location to inform final design. The KFT replacement ratio is recommended to be at 1:5 (lower if on land to be dedicated to PMHC), with offset plantings in nearby secure location. Ratio of offset plantings to see significant net increase in Koala habitat to allow future expansion of population. Provision for mechanism to replace any KFTs removed to ensure no long term erosion of habitat.
East Ruins Way	High constraint – KFTs are widespread over site and are tall trees, hence will overhang any structure and pose a windfall risk. Long term monitoring has shown periodic occurrence of Koalas here, including a female. Development potential will be low intensity, relying on removal of non-KFTs to create envelopes.	Concept for a church and associated landuses utilises the existing electricity easement for parking, with four buidlings located across the site. These generally strive to utilise existing clearings. Approximately 10 Koala food trees appear directly impacted by concept. Others very close to building footprints may also have to be removed. All non-KFTs to be removed to achieve bushfire fuel load limits and setbacks. Risk that tall trees may be perceived as hazards close to dwellings hence risk of long term habitat erosion via incremental loss. Risk of long term loss of habitat as no recruitment – need to provide for on-going replacement.	Yes. The design is only nominal at present and tree locations need to be surveyed (currently only GPS located) to confirm location to inform final design. KFT replacement ratio is recommended to be at 1.5, with offset plantings in nearby secure location. Ratio of offset plantings to see significant net increase in Koala habitat to allow future expansion of population. Provision for mechanism to replace any KFTs removed to ensure no long term erosion of habitat.

Constraint Assessment		
Precinct	**Vehicle Strike**	**Mitigable?**
West Lindfield	Proposed access via a loop road from existing subdivision to northeast, and exiting northwest via a future connection, with a cul-de sac in northeast. This collector road will be 50kph but will not pass through habitat at least until the northwest exit on adjacent land (if retained). May be a risk of Koalas attracted into the residential area or traversing it to move across landscape.	Readily – design can include measures to slow traffic along roads. Speed humps and lighting can be provided at the crossings. Exclusion fencing could also be used on western and southern boundaries to deter Koalas from entering the subdivision and use the retained habitat on periphery for corridor.
West Ruins Way	Proposed access directly off Ruins Way to an internal road which proposes single entry/exit, not connected to West Lindfield. Single crossing of central strip. Given road will be residents, visitors and service vehicles, and its short length, speed will naturally be very limited (<40 kph), hence collision risk should be low. Some potential risk where road passes through central corridor.	Yes. Habitat retention measures combined with road design (e.g. curving, short) and engineering measures (e.g. speed humps, chicanes) can reduce speed to below 40kph and less where a linkage is crossed. No through road proposed to West Lindfield. Specific lighting will be required at key crossings/risk areas to maximise visibility.
East Ruins Way	No risk on site as no roading within habitat – access to carpark from Ruins Way.	No further mitigation required.
Precinct	**Risk of Dog Attack**	**Mitigable?**
West Lindfield	No retention of trees in back yards hence Koala exclusion fencing can be used to separate dogs from Koalas. Risk of dogs wandering into adjacent habitat.	Prohibit dogs from the East Ruins Way precinct as Koala exclusion fencing is not practical here. Use exclusion fencing in West Lindfield and West Ruins Way. No unleashed dogs outside yards. Signage required to alert residents that dogs prohibited on East Ruins Way and PMHC to enforce compliance.
West Ruins Way	No retention of trees in back yards hence Koala exclusion fencing can be used to separate dogs from Koalas. Risk of dogs wandering into adjacent habitat.	
East Ruins Way	Nil risk if development limited to non-residential development.	
Precinct	**Barriers to Movement**	**Mitigable?**
West Lindfield	Loss of trees in northwest of open paddock may impact current movements if Koalas use these trees as stopping points moving across the local landscape. However linear remnant providing	Barrier fencing on western and southern sides to separate Koala habitat from residential areas, thereby minimising risk of traffic

Constraint Assessment		
	connection from west to east retained and could be augemented with more plantings to increase linkage value.	collision and dog attack, and focus any movement across the landscape using habitat.
West Ruins Way	Creation of residential areas and changes to current open nature of site to dwellings and fences will require Koalas to utilise designated corridors.	Exclusion fencing to prevent dog access into corridor.
East Ruins Way	Low density of proposed concept suggests site will remain Koala permeable, provided no security fence required.	Yes. No perimeter fencing which is Koala impermeable.
Precinct	**Bushfire**	**Mitigable?**
West Lindfield	No expected change – no incentive for increased fuel reduction frequency of bushland.	No specific measures required – existing bushfire buffer zone to Lake Innes Nature Reserve provided by golf course fairways.
West Ruins Way	No expected change – no incentive for increased fuel reduction frequency of bushland.	No specific measures required – existing bushfire buffer zone to Lake Innes Nature Reserve provided by golf course fairways
East Ruins Way	Residual habitat likely to be restored to parkland by regular mowing of exotic groundcover to lawns to meet bushfire planning requirements and to increase aesthetics.	Active management of understorey remainder will eliminate risk of fire.

Precinct	Disease	Mitigable?
All	Nearby Koala recorded to have Chalmydia infection. Loss of KFTs poses risk of inducing further stress due to loss of carrying capacity Changes to landscape patterns of habitat risk incurring stress. Potential introduction of dogs increases risk of Koala and dog contact.	Any Koala with signs of Chlamydia to be captured and examined by Koala Hospital to minimise risk of transferral across population and determine if sterile. KPoM will require population monitoring. Design will have to minimise food tree loss, retain functional connectivity, and provide for on-going replacement of any trees removed to ensure no net erosion of habitat over long term. If Koala food trees are to be removed, offsets will need to be established as soon as possible to minimise lags between habitat loss and recruitment. Effective linkage across the precinct will need to be maintained.

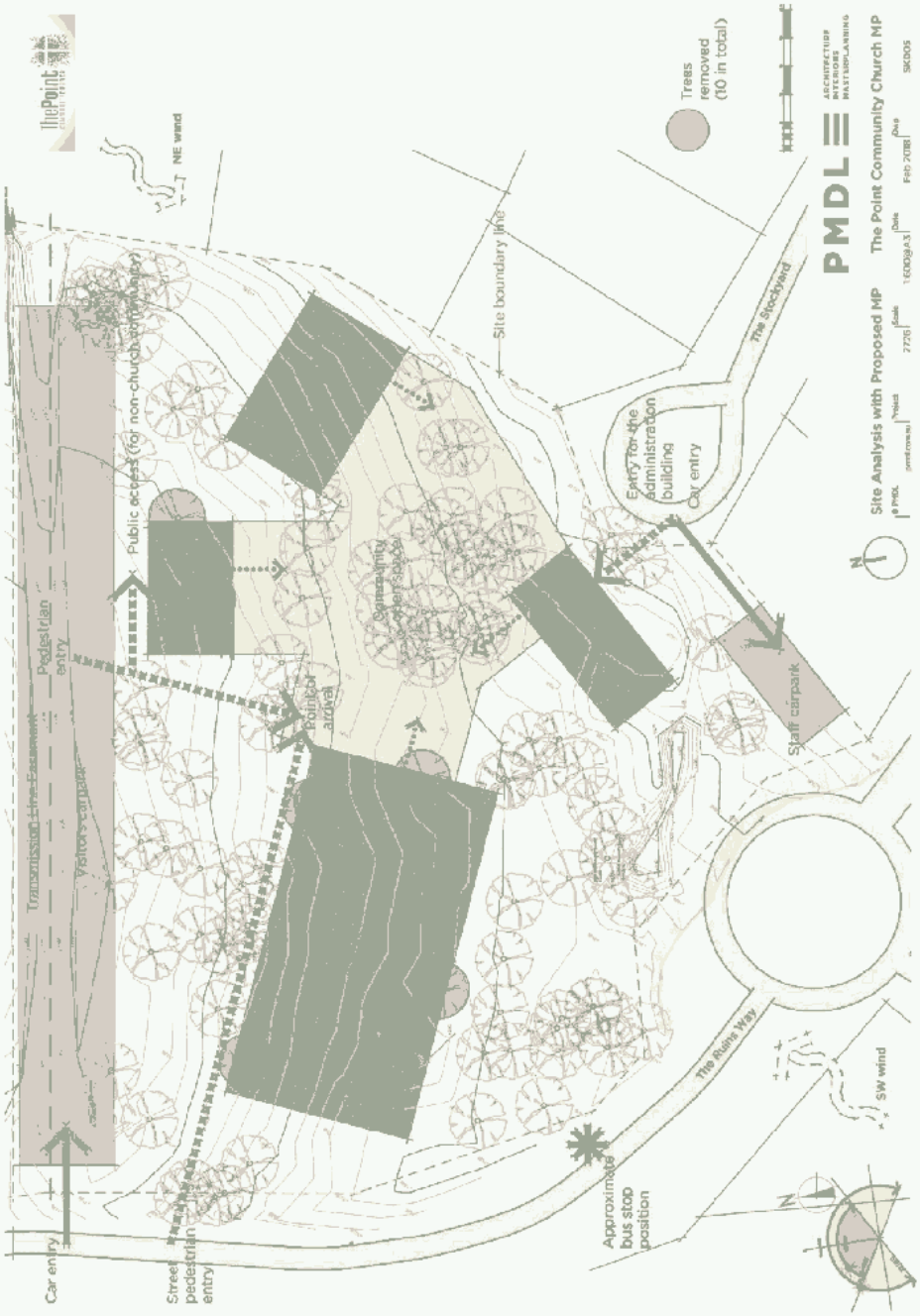


Figure 9: Preliminary concept for East Ruins Way

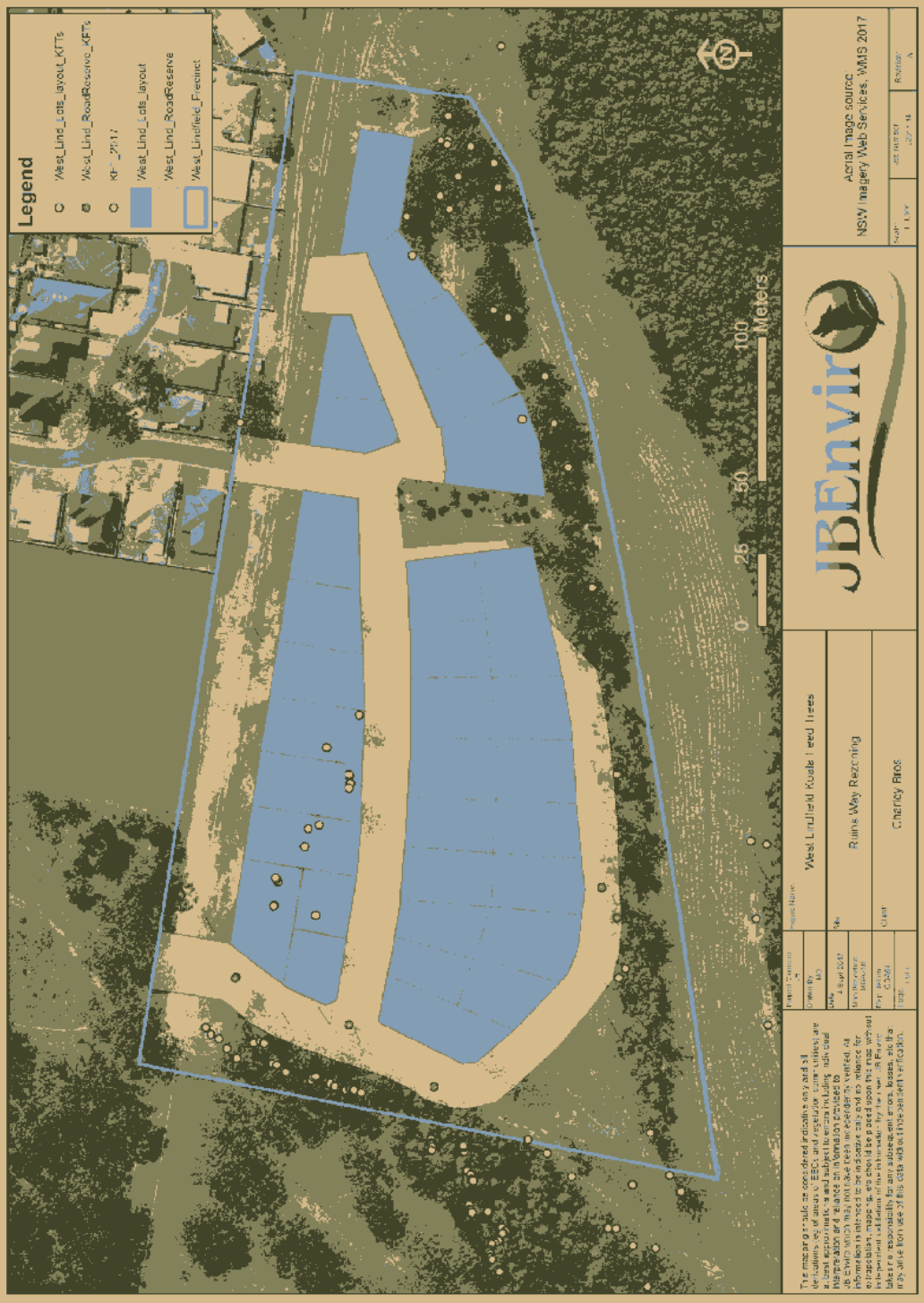
(Source: PMDL 2018)

JBEnviro

Figure 10: Preliminary concept for West Ruins Way

JBEnviro

Figure 11: Preliminary concept for West Lindfield



8 THREATENED SPECIES

In addition to the Koala, Grey-Headed Flying Fox and Little Bent-Wing Bat which were recorded on site during the 2011 survey, several other bats and several birds are considered potential occurrences on site (the birds and bats have nil or limited potential to breed on site).

Of these, the Koala is the most sensitive to vegetation loss due to the finite abundance of key habitat components (ie food trees); the likelihood that key lifecycle stages would occur on site (ie breeding) as part of their evidently larger range; and the connectivity between Lake Innes Nature Reserve and the three precincts with surrounding areas.

Measures required as part of any future development to retain the viable presence of the Koala have been listed above. Measures to support the potential occurrence of other threatened species as part of any future development should include:

- Avoiding loss of the most significant hollow-bearing trees (and minimising loss of marginal hollow-bearing trees), and offset loss with nest boxes (e.g. in PLINR).
- Retaining sufficient connectivity between Lake Innes Nature Reserve and East Ruins Way, and adjacent urban woodland.
- Minimising/avoid light spillage on retained habitat and linkages.

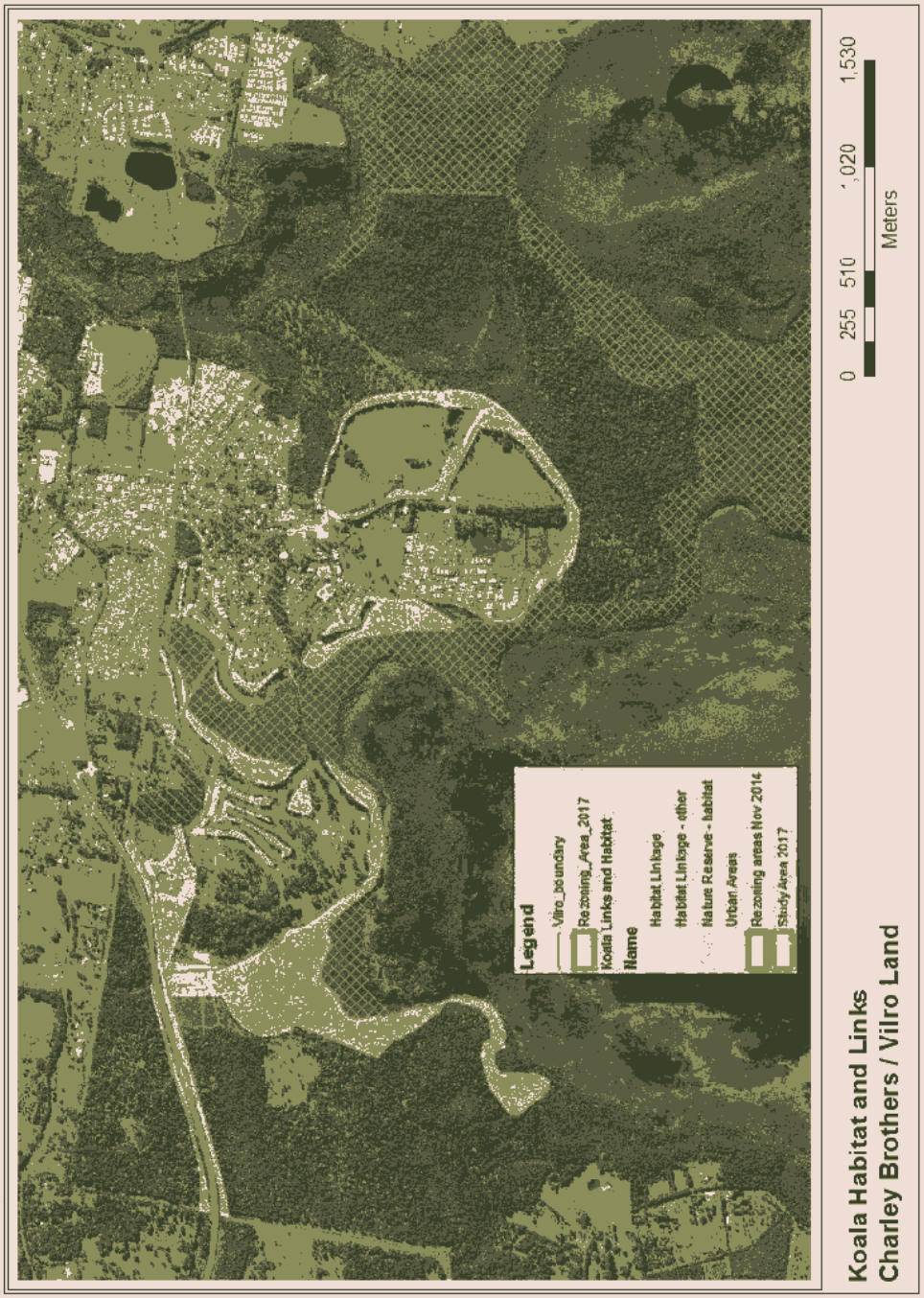
9 LANDSCAPE CONNECTIVITY MAINTENANCE

Sufficient connectivity will be required to support the Koala given Core Koala Habitat has been identified on site and in the wider area (as detailed in section 6.0).

The proponent has considered long term connectivity over the broader landscape, and via masterplanning (Luke and Company 2009), provided for long term provisions for establishing and maintaining key linkages. These linkages are shown in Figure 12. These linkages have been arranged to ensure long term connectivity is retained across the Lakes Innes peninsula encompassed by Vilro Pty Ltd land, south and southeast to Lake Innes Nature Reserve, and northwest to Thrumster e.g. via aligning with the fauna underpasses. They also link into the extensive forests of Lake Innes Nature Reserve. The reserved links east of the PLINR are currently known to be used by Koalas, particularly the Mill Hill link (as evidenced by the Vilro survey data).

Figure 12: Current and long term landscape connectivity

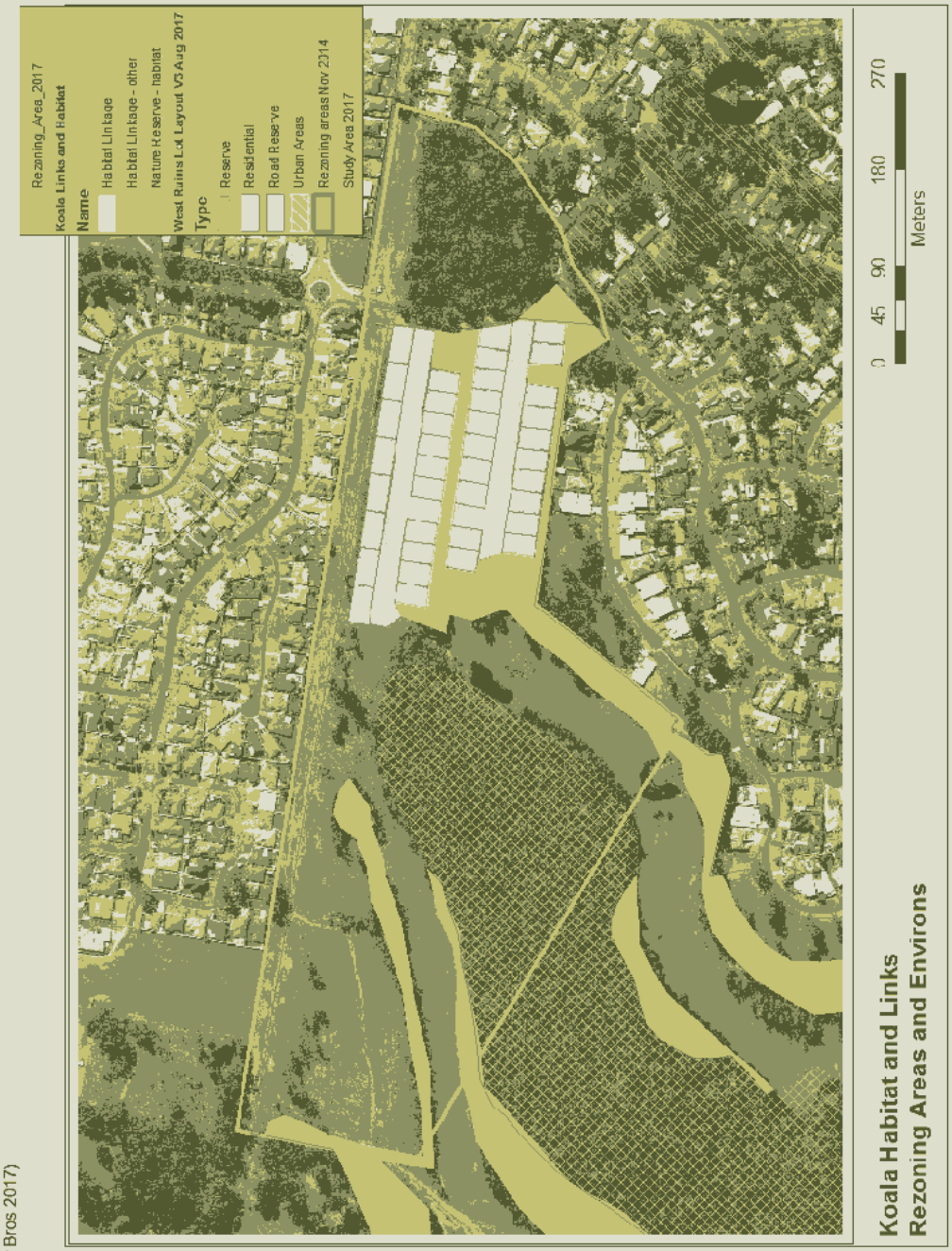
(Source: Charley Bros 2017)



JBEnviro

Figure 13: Habitat linkage across West Ruins Way

(Source: Charley Bros 2017)



10 HOLLOW-BEARING TREES

10.1 DCP 2011: Hollow-Bearing Trees

10.1.1 Background Information

Under the new Port Macquarie-Hastings Council Local Environmental Plan (PMHC LEP) 2010, Council has prepared and implemented the *PMHC Development Control Plan* (DCP) *2011*.

The DCP has a specific section titled *Environmental Management*. This section has relevant provisions for hollow-bearing trees. The DCP requires hollow-bearing trees (HBTs) affected by development proposal to be assessed under a HBT assessment. This assessment assigns arbitrary scores to various attributes of the subject tree. Based on the scores from assessment, the following provisions apply:

- **Score <8**: Tree may be considered for removal subject to compensatory measures.
- **Score 8-12**: Tree may be considered for removal if management measures are 'impractical to allow retention' (determined by an arborist). Compensatory measures required.
- **Score >12**: Tree must be retained within an exclusion zone/buffer (minimum 1.25x the tree height, measured horizontally), or located with an area protected as environmental land.

The trees shown in Figure 4 are assessed as per the DCP protocol as follows:

10.1.2 HBT Assessments

Table 17: West Lindfield HBT assessment

Tree	Alive/Dead		Trunk DBH		No. Hollows		Hollow Size (mm)		Habitat Proximity		Longevity		Total Score
Paperbark Stag	Dead	1	40cm	0	1	0	>5cm	2	i/s	3	Low	0*	7
Blackbutt #1	Alive	3	>100	3	2	1.5	>10cm	3	i/s	3	Low	0	13.5
Stag #1	Dead	1	>100	3	>5	3	5-10cm	2	i/s	3	Low	0	12

The stag was assigned a 'low' longevity as it is rapidly declining. The Blackbutt leans heavily to the north and the ground is evidently increasing in frequency of waterlogging due to redirection of stormwater from the north into this area from the adjacent easement (as evidenced by dieback of eucalypts along the western boundary).

Table 18: West Ruins Way HBT assessment

Tree	Alive/Dead		Trunk DBH		No. Hollows		Hollow Size (mm)		Habitat Proximity		Longevity		Total Score
Northern (Powerline) Strip													
Blackbutt #2	Alive	3	73cm	1.5	2	1.5	<5cm	1	>30m	0	High	3	10
Blackbutt #3	Alive	3	62cm	1.5	1	0	5-10cm	2	>30m	0	High	3	9.5
Middle Strip													
Tallowwood	Alive	3	42cm	0	1	0	>5cm	2	i/s	3	High	3	11
Blackbutt #4	Alive	3	62cm	1.5	1	0	>10cm	3	i/s	3	High	3	13.5
Blackbutt #5	Alive	3	103cm	3	2	1.5	>10cm	3	i/s	3	High	3*	16.5
Southern (Boundary) Strip													
Tree	Alive/Dead		Trunk DBH		No. Hollows		Hollow Size (mm)		Habitat Proximity		Longevity		Total Score
Blackbutt #6	Alive	3	110cm	3	2	1.5	>10cm	3	<30m	2	High*	3	15.5

The fissure hollows in Blackbutt #2 may not be habitable. Fissures formed by snapping of crown limbs appear to have left narrow gaps which have may have marginal potential for bat roosting. An arborist may have to ascend this tree to confirm if a suitable cavity is present, especially if it is proposed to be removed.

Blackbutt #4 is assigned a high longevity, but would fail a SULE rating as it is a formerly lopped tree which has reshot from epicormic buds to form 3 live trunk limbs. A safe buffer zone will be required to this tree to allow its retention.

Blackbutt #6 could not be confirmed to have visible cavities as they were upturned stubs, hence a precautionary approach was taken at this time. An arborist is required to ascend this tree to confirm if actual habitable cavities are present. This tree also has a major structural fault on its northern foot, which is expected to disqualify it as suitable for retention in a residential area, hence an arborist's inspection is required.

Note that Blackbutt #7's hollow is not considered likely to be habitable at this stage (too shallow). This hollow was noted to fill with rain.

Blackbutt #8 also has a major fire scar at its base which predisposes it a very high risk of failure in the event of gale force wind, hence the 'low' longevity score. A safety buffer zone would probably be required to this tree to allow its retention.

Table 19: East Ruins Way HBT assessment

Tree	Alive/Dead		Trunk DBH		No. Hollows		Hollow Size (mm)		Habitat Proximity		Longevity		Total Score
Blackbutt #7	Alive	3	52cm	0	1	0	>5cm	2	<30m	2	High	3	10
Blackbutt #8	Alive	3	120cm	3	1	0	>10cm	3	i/s	2	Low	0	11
Pink Bloodwood	Alive	3	120cm	3	>5	3	>10cm	3	i/s	3	High	3	18

10.2 Implications for Future Development

The assessment has determined that 5 trees appear to require mandatory retention: 4 in the West Ruins Way precinct, 1 in the East Ruins Way precinct, and 1 in the West Lindfield area.

Inspection by an arborist may disqualify Blackbutt #2 qualifying as a hollow-bearing tree if the fissures are not found to contain habitable hollows. Inspection of Blackbutts #6 and #7 may also prove these hollows are uninhabitable (too shallow) or unformed.

Currently nominated development areas appear likely to impact Blackbutt #2, #3, #6 and #7. All other trees appear likely to be readily kept in retained habitat.

If these 4 or any hollow-bearing trees are removed, compensatory measures as per DCP 2013 will be required in the form of:

- Adequate number of nest boxes for each hollow lost (see below).
- Identification and securement of recruits in retained habitat.

10.3 Recommendations

10.3.1 Nest Boxes

Nest boxes are to be selected to target the species which may potentially use any hollows proposed to be removed. As nest box designs are specific to the target animal, more than one nest box may be required to offset the same hollow if it offers habitat for more than one type of animal.

Nest boxes should be mounted in advance of tree removal to allow fauna to detect and potentially occupy them before loss of tree hollows occurs. Mounting height and orientation is to reflect the current literature in regard to nest box mounting e.g. Gibbons and Lindenmayer 2002, Beyer and Goldingay 2006, Goldingay and Stevens 2009, Birds Australia 2001, .

A brief report detailing the following is to be provided to Council within 14 days of mounting:

- GPS coordinates of the nest boxes (with nest boxes numbered consecutively).
- Host tree species, trunk DBH, and height.

- Height and aspect of each nest box.

As stated in the DCP, nest boxes are be maintained over a period of 10 years funded by the proponent. Maintenance is to include cleaning, pest control (e.g. bees), repair and if necessary, full replacement.

10.3.2 Hollow Bearing Tree Removal Protocol

If any hollow bearing trees unavoidably require removal as a result of any future proposed development, their removal must be undertaken via a method that will minimise the risk of injury/mortality of any denning/roosting fauna (particularly the Yangochiropteran bats) within practical feasibility and limitations of Occupational Health and Safety (OH&S) obligations. Ideally, hollow-bearing tree felling would be undertaken outside the likely breeding and/or torpor season of hollow-obligate threatened species.

Felling of hollow-bearing trees is suggested to be achieved by the following general procedure:

- Initial hard bumping of tree to initiate evacuation of any residents (subject to OH&S restrictions). This is to be repeated at least 3 times at about one minute intervals over at least 5 minutes per tree (preferably longer). Caution will be required not to risk personal injury via falling branches as per OH&S obligations.
- The tree should be removed via a method that does not require traditional tree felling methods ie a chainsaw "cut and clear drop" method is <u>not</u> to be utilised unless there is no other safe option. The use of crane or an excavator with an articulated pincer attachment that can hold the trunk while the tree base/limb/section is sawn, allowing the tree to be lowered gently to the ground, is the most preferred method. If this is not available, and with due OH&S considerations, an arborist can cut the limbs and gently lower each hollow-limb or tree section down one by one via ropes and pulleys or assistance with a crane.
- An ecologist with relevant experience or approved member of FAWNA/WIRES **must** be present during felling of the hollow bearing tree to monitor the process, capture any resident animals, and undertake appropriate emergency actions if required e.g. transport animal to veterinary treatment (care at proponent's cost) and/or see that they are taken into care by FAWNA/WIRES. Hollows are to be immediately inspected once the tree is felled or section removed for animals, and appropriate measures undertaken. All rehabilitated animals are to be released in the retained habitat directly adjacent to the site.
- If a hollow cannot be cleared of fauna occupation (e.g. via use of an inspection camera), the following options are to be employed:
    - The exit is to be blocked with porous material (to minimise risk of panicked animals being injured), and the limb/trunk carefully cut with a chainsaw, with progressive inspections until the hollow is cleared (required if the material must be windrowed or immediately chipped).
    - If practical, the hollow-bearing section of tree/limb is to be carefully excised via chainsaw, and placed on the edge of the construction area with the hollow facing upwards, to allow passive escape after dusk of any fauna.

A written report is to be provided to Council within 14 days following the removal of hollow-bearing tree detailing all results and actions undertaken.

11 EPBC ACT 1999

11.1 Overview

The provisions of the EPBC Act require determination of whether the proposal has, will or is likely to have a significant impact on a "*matter of national environmental significance".*

The relevant matters are listed and addressed in summary as follows:

1. **World Heritage Properties**: The site is not listed as a World Heritage area nor does the proposal affect any such area.

2. **Ramsar Wetlands of International Significance**: A Ramsar wetland does not occur on the site, nor does the proposal affect a Ramsar Wetland in the study area.

3. **EPBC Act listed Threatened Species and Communities**: No EPBC Act listed communities are known to occur in the study area, hence none require consideration.

   The ecological requirements of the important population of the Grey-Headed Flying-Fox (Vulnerable) would far exceed the study area. Given this, the species' ecology, and that no roosting habitat is impacted, the proposal clearly has no potential to compromise viability of an important population.

   The population of Swift Parrot (Endangered) would be any birds seasonally foraging in the locality as part of their seasonal migration from Tasmania. Given the marginal habitat impacted and no loss of nesting habitat, the proposal clearly has no potential to compromise viability of an important population.

   The Koala is assessed in the following section.

4. **Migratory Species Protected under International Agreements**: As detailed in section 4.6.2, the Rufous Fantail (an abundant species in NSW) was the only migratory species recorded on the edge of West Lindfield. A few aerial foragers, forest birds and egrets comprise the only other migratory species listed under the Act with potential to occur (mostly on the fringe of PLINR). As none of these species would be occurring at the limits of their range, the study area is not important habitat, no invasive species will be introduced, and the lifecycle of any of these species will not be disrupted, it is considered the proposal will not significantly impact any relevant species.

5. **Nuclear Actions**: The proposal is not a nuclear action.

6. **The Commonwealth Marine Environment (CME)**: The site is not within the CME nor does it affect such.

7. **The Great Barrier Reef Marine Park:** The proposal does not affect the Great Barrier Reef Marine Park.
8. **National Heritage**: The site is not listed as National Heritage.
9. **A water resource, in relation to coal seam gas development and large coal mining development:** The proposal is not a mining development.

The proposal thus is not considered to require referral to Department of the Environment and Energy (DotEE) for approval under the EPBC Act.

11.2 Koala

The Koala is listed as Vulnerable under the Act. The important population of this species is considered to be that within the Lake Innes Peninsula (more than 1300ha), an area of land that includes all of the land south of the Oxley Highway including Lake Innes Nature Reserve (over 1300ha). (which the site forms part of), which has been estimated to support 226 Koalas, and considered to be of regional and State significance (Luke and Company 2009). This population supplements an estimated 78 (+/- 32) Koalas in the Urban Investigation Area (UIA) 13 area, and also feed and receive recruits to and from the larger Port Macquarie township population (Connell Wagner 2000b).

Under the Act, proposed actions must be assessed under the Commonwealth Department of the Environment (2014) guidelines, and hence assessment is required. The assessment is three stages:

1. Qualification as Critical Koala Habitat assessment.
2. Impacts on Critical Koala Habitat.
3. Assessment of other threats.

The habitat on site has been assessed using the Koala habitat assessment tool from the EPBC Act Referral Guidelines (DotE 2014) to determine if the site contains habitat critical to the survival of the Koala. To qualify as critical habitat, it must score 5 or more. This is shown in the following table:

Table 20: Critical Koala Habitat assessment

Attribute	Score	Reason	
Koala occurrence	2	Desktop	Numerous records within 1-10km of the site on Bionet Atlas, including records on site
		On-ground	Evidence of Koalas found on site.
Vegetation structure and composition	2	Desktop	Site is mapped as containing Potential Koala Habitat.
		On-ground	Site surveys confirmed Potential Koala Habitat in the proposed rezonining area but not in the PILNR

Attribute	Score	Reason	
Habitat connectivity	2	Site is part of a contiguous landscape >500ha.	
Key existing threats	1	Desktop	Records of Koala mortality from vehicle strike and dog attack on major roads and residential areas.
		On-ground	No evidence of Koala road kill found during survey. No evidence of dogs on site. Dogs at numerous residences in study area.
Recovery value	2	The following factors indicate that it is important for achieving the interim recovery objectives for the Koala: • Evidence of Koala activity in the study area • Presence of food trees interlinked to significant areas of known Koala habitat. • Linkage to other known Koala habitat.	
Total	**9**	Site **qualifies** as critical habitat	

As per the Koala habitat assessment tool, the site qualifies as critical habitat. An assessment has been undertaken to determine if the proposed action will adversely affect this habitat and/or interfere substantially with the recovery of the Koala and require referral to the Minister.

The following table derived from the Koala Referral Guidelines (DotE 2014) assesses whether the proposed action is likely to adversely affect habitat critical to the survival of the Koala:

Table 21: Critical Koala Habitat impact assessment

Factor	Y/N	Reason
Does impact area contain habitat critical to the survival of the Koala	Y	Site scores 9 as per the Koala habitat assessment tool.
Do the areas proposed to be cleared contain known Koala food trees	Y	Habitat to be removed contains some Tallowood which are primary preferred Koala food tree species. However, the overwhelming majority will be retained and offsets are proposed to result in a significant net increase in Koala habitat.
Are you proposing to clear<2ha of habitat containing known Koala food trees in an area with a habitat score of ≤5	N	Proposed action will clear or further fragment existing fragmented parkland habitat containing scattered Koala food trees in an area that scores 9.
Are you proposing to clear >20ha of habitat containing known Koala food trees in an area with a habitat score of ≥8	N	Proposed action will clear or further fragment existing fragmented parkland habitat containing scattered Koala food trees in an area that scores 9.
Outcome	Impact uncertain but unlikely to be significant as: • Overwhelming majority of Koala habitat will be retained.	

Factor	Y/N	Reason
		• Linkage between local habitats will be retained and enhanced via offset planting. Further assessment required as per DotE (2014) guidelines.

If the impact of habitat loss is uncertain, the Guidelines require consideration of whether the proposed action may interfere with the recovery of the Koala, as follows:

Table 22: Impact on recovery assessment

Threat	Likely to increase Y/N	Reason
Increasing Koala fatalities in habitat critical to the survival of the Koala due to dog attacks to a level that is likely to result in multiple, ongoing mortalities.	N	No: Prohibition on dogs proposed in East Ruins Way and Koala exclusion fencing in West Ruins Way and West Lindfield to prevent Koalas entering yards with dogs. Dogs not allowed to roam on site with advisory signage provided.
Increasing Koala fatalities in habitat critical to the survival of the Koala due to vehicle-strikes to a level that is likely to result in multiple, ongoing mortalities.	N	Proposed action will see increase in traffic volume on site, but short road and no 'through' traffic flow, hence effective speed reduced to <50kph. In additional physical control measures can be implemented to ensure speeds not >40kph.
Facilitating the introduction or spread of disease or pathogens for example *Chlamydia* or *Phytophthora cinnamomi*, to habitat critical to the survival of the Koala, that are likely to significantly reduce the reproductive output of Koalas or reduce the carrying capacity of the habitat.	N	Local population known to have Chlamydia infections. Minimal loss of Koala food trees coupled with replanting of offset trees in areas immediately adjacent to but not within the development will see significant net increase in carrying capacity. This should avoid stress, especially if offset trees are planted in the short term and subdivision occurs over a period that allows trees to mature to a sufficient level to allow use.
Creating a barrier to movement to, between or within habitat critical to the survival of the koala that is likely to result in a long-term reduction in genetic fitness or access to habitat critical to the survival of the Koala.	N	Strategic retention of majority of habitat on East Ruins Way, overwhelming majority of food trees on West Ruins Way, and overwhelming majority of food trees on West Lindfield, will retain connectivity.
Changing hydrology which degrades habitat critical to the survival of the Koala to the extent that the carrying capacity of the habitat is reduced in the long-term.	N	The stormwater management plan prepared for the DA is expected to demonstrate compliance with NSW legislation to ensure that ground and surface water is not significantly impacted. Assuming this is the outcome, the habitat present is expected to be maintained as high quality potential Koala habitat.
Outcome	Referral **not required** as impact unlikely to be significant as: • Measures generally at least exceed low criteria for mitigation.	

12 CONCLUSION

Overall, the site's vegetation communities and inter-community structural and floristic variations, plus the range of disturbances experienced on the property and retention of albeit generally tenuous linkages to other habitat has produced an area with a varying level of habitat suitability and capability for threatened species, as demonstrated by this survey and assessment.

Preliminary development concepts have been developed, and preliminary assessment indicates rezoning as desired is unlikely to have significant negative ecological impacts if due consideration is provided in retained the maximum number of Koala food trees and offsetting losses to create a net gain in Koala habitat, and connectivity suitable for Koalas is retained.

Due cognisance of the identified habitat values and their appropriate incorporation within an informed and innovative final development layout should aim to ensure an ecologically sustainable outcome in the long term.

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APPENDIX 1: POTENTIAL OCCURRENCE ASSESSMENT

The following tables are used as a summary to address threatened species (as detailed below) in terms of potential occurrence, and likelihood of being significantly affected by the proposal, and hence requiring formal 7 Part Test assessment at the DA stage. Threatened species have been assessed if it is:

a) Recorded on-site;
b) Not recorded on site, but recorded within a 10km radius (the locality), and may occur to some degree on-site or in the study area (land within 100m of site) due to potential habitat, key habitat component, etc;
c) Not recorded in the locality as yet, but recorded in the bioregion, and thus may occur in the locality, and possibly to some extent, may occur on the site, due to potential habitat.
d) The "*habitat requirements*" column is derived from the previously listed references. Likelihood of occurrence is based on the probability of occurrence in terms of:
   - Habitat extent (e.g. sufficient to support an individual or the local population; comprises all of home range; forms part of larger territory, etc); quality (ie condition, including an assessment of threats, historical land uses on and off-site, and future pressures); interconnectivity to other habitat; and ability to provide all the species life-cycle requirements (either the site alone, or other habitat within its range);
   - Occurrence frequency (ie on-site resident; portion of larger territory; seasonal migrant or transitory opportunist and thus when and how often, etc)
   - Usage ie breeding or non-breeding; opportunistic foraging (e.g. seasonal, migratory or opportunistic); marginal fringe of core range; refuge; roosts; etc.
   - An indicative 1-5 scale used by the author to indicate the likelihood of the species to potentially occur in the habitat on the study sites (if they have not been recorded in the locality) is as follows:
   - 0: *Unlikely* (<1% probability) - no potentially suitable habitat; too disturbed; or habitat is very poor. No or few records in region or records/site very isolated e.g. by pastoral land, urbanisation, etc.
   - 1: *Low* (1-10%)- few minor areas of potential habitat; highly modified site/habitat; or few habitat parameters present, but others absent or relatively insignificant (sub-optimum habitat). Usually very few records in locality.
   - 2: *Fair* (11-25%) - some significant areas of potential habitat, but some habitat parameters limited. Potential for occasional foraging e.g. from nearby more optimal areas or known habitat. Records at least within 10-15km radius of site.
   - 3: *Good* (26-50%) - significant abundance of habitat parameters/areas of habitat, and more locally e.g. adjacent. Potential part of larger territory, but probably unable to support breeding in isolation. Recorded within 10km in similar habitat/environs.
   - 4: *Moderate* (51-75%) - quite good potentially suitable habitat on and adjacent to the site, and/or good quality and abundance of some vital habitat parameters. Records within <10km, or adjacent to site, or adjacent to high quality habitat where species likely to occur.
   - 5: *High* (>75%) - very good to optimum habitat occurring on or adjacent to the site (support breeding pair or population). Recorded within 5-10km of site in same or similar habitat.

The "*Assessment of Significance*" column is based on consideration of the habitat on-site, likelihood of occurrence, and consideration of the DECC guidelines for assessment under the 7 Part Tests (DECC 2007). Recognising that some species with very large ranges or varying

tolerances to habitat modification, some species which may have low potential to occur in the study area and will obviously not be significantly affected by the proposal will not be formally assessed to avoid production of superfluous information. Rather these species are assessed in the final column with justification for this assessment. However, recognising that significance is open to interpretation, the decision on whether a species is formally assessed or not by the 7 Part Tests in this assessment is based on the following rules:

a) If there is *any* justifiable risk, based on consideration, of a significant impact as a result of direct or indirect impacts, a 7 Part Test is required (ie the Principle of Uncertainty is applied).
b) Any threatened species recorded on-site or in the study area, or of at least fair chance of occurrence on-site in terms of potential habitat, is **automatically** selected for the 7 part Tests, unless the proposal clearly has no potential for a significant effect and formal assessment is superfluous (justification provided).

A1 FLORA

The following species have been recorded in the locality, or within their range regionally in similar habitats to that on the property.

Table 23: Likelihood of threatened flora occurrence

SPECIES	LOCAL RECORDS	HABITAT REQUIREMENT	LIKELIHOOD OF OCCURRENCE
Acronychia littoralis	4	An understorey tree found in littoral rainforest on sand. Recorded on Bare Point, Hastings, Kempsey, Nambucca, Macksville, Ballina, Tweed, Byron, Bellingen and Coffs Harbour databases	No potential habitat on site. Unlikely to occur.
Allocasuarina defungens	5	A straggly oak about 2m high with blue-green foliage found in heath on sand (sometimes clay and sandstone soils), and swamp sclerophyll forest margins. This plant has been recorded. Recorded on Hastings LGA, Kempsey, Bare Point, Coffs Harbour, Greater Taree City Council LGA, Bulahdelah and Camden Haven databases	Not suitable substrate and not found on edge of PLINR. Not recorded within close proximity – nearest record near airport. Unlikely to occur.
Asperula asthenes	1	An herb found in damp sites along riverbanks and similar areas, typically from Taree to Bulahdelah in LGAs: Bulahdelah, Great Lakes, Greater Taree, Port Stephens, Kempsey and Hastings (in State Forest near Wilson River).	Single local record over 7km northeast of the site. Swamp forest margins may qualify as potential habitat, although generally associated with waterways. Not detected during survey, unlikely to occur given lack of proximate records.
Chamaesyce psammogeton	3	An herb that grows on fore dunes and exposed sites on headlands. Recorded on Bare Point, Kempsey, Hastings, Nambucca, Coffs Harbour and Bulahdelah LGA databases.	Recorded in locality but no suitable habitat on site. Unlikely to occur.
Cryptostylis hunteriana	0	An orchid that has no leaf that is found in a range of communities, including swamp heath and woodland. Appears to prefer open areas in the understorey of these communities and is often found in association with the Large Tongue Orchid (*C. subulata*) and the Tartan Tongue Orchid (*C. erecta*). Recorded in Coffs Harbour and Bulahdelah databases.	Not recorded in locality or LGA, with nearest record in Coffs Harbour LGA. No suitable habitat on site. Unlikely to occur.
Cynanchum elegans	2	A twiner occurring predominately in dry rainforest, littoral rainforest and the ecotone between dry rainforest and open forest, however it has been found in the Manning Valley and Hastings in Open Forest types on specific geologies e.g. limestone and serpentine respectively (Garry	Recorded in locality but no suitable habitat on site (too degraded). Unlikely to occur.

SPECIES	LOCAL RECORDS	HABITAT REQUIREMENT	LIKELIHOOD OF OCCURRENCE
		Germon pers. comm. 2004, personal observations). It occurs on a variety of lithology's and soil types. It has been found between the altitudinal ranges of 0 to 600 metres ASL and rainfall >760mm annually (NPWS 1999). Common associated species include Geijera parviflora, Notelaea microcarpa, Banksia integrifolia, Ficus spp., Guioa semiglauca, Melia azedarach, Streblus brunonianus and Pittosporum revolutum. Recorded in Camden Haven, Port Macuarie-Hastings, Clarence Valley, Kempsey, Byron, Wingham, and Bulahdelah databases.	
Diuris sp. aff. chrysantha	1	A terrestrial orchid which grows from a tuber, and has no parts visible above ground during Summer and Autumn. In late Winter, a single stem and two grass-like leaves emerge. Found grassland and low heathland on stony clay, clay loam, sandy-clay loams. Previously only known from a single population of 100 plants at Byron Bay in low grassy heath on clay. Recorded on Coffs Harbour, Byron and Hastings LGA databases. Distributed from Crowdy Head to Yamba.	No preferred habitat on site. Unlikely to occur.
Dendrobium melaleucaphilum	4	An epiphyte on Melaleuca styphelioides, rainforest trees or rocks in coastal districts north from the Blue Mountains. It has square stems, similar to D. tetragonum and it flowers Jul.-Oct. Records in Bellingen LGA.	Suitable habitat in swamp forest, however has been historically cleared and subject to disturbances. Not detected by survey. Unlikely to occur.
Marsdenia longiloba	1	A slender climber with clear, watery latex (sap). Occurs in rainforest and moist eucalypt forest adjoining rainforest, at no particular altitude, sometimes in areas with rock outcrops. Found at scattered sites from Barrington Tops to SE Queensland (NPWS 2000).	No preferred habitat on site. Unlikely to occur.
Maundia triglochinoides	9	An aquatic herbaceous plant found in swamps or shallow fresh water on heavy clay on the north and central NSW coast. Recorded on Hastings, Port Stephens, Richmond Valley and Kempsey databases.	Not found by targeted survey of dams. Unlikely to occur.
Melaleuca biconvexa	44	A paperbark shrub/small tree found in damp places, often near streams, on the coast and adjacent tablelands from Jervis Bay to Port Macquarie. Recorded on Bulahdelah, Kempsey, Port Stephens, Hastings and Camden Haven databases.	Possibly some suitable habitat in swamp forest and drainage lines in western fringe of site. Numerous local records, however not recorded by targeted survey. Unlikely chance of occurrence as swamp

SPECIES	LOCAL RECORDS	HABITAT REQUIREMENT	LIKELIHOOD OF OCCURRENCE
			forest not on Thrumster soil landscape which appears to restricted to.
Oberonia titania	1	An epiphytic orchid that grows in a tight clump in a variety of habitats from subtropical to littoral rainforest, Melaleuca swamps, and gorges within dry sclerophyll forest. Occurs north of Kendall. Recorded on Coffs Harbour, Hastings, Richmond Valley, Bellingen and Ballina databases.	Generic potential habitat in swamp forest, however has been historically cleared. Not detected by survey on site or sampled part of PLINR. Unlikely to occur.
Phaius tankervilliae *P. australis*	0	Large terrestrial orchids that generally grow in Melaleuca quinquenervia swamps on the coast or at sea level, as well as littoral rainforest, dunes (including stabilised dunes), riparian forests (including gallery rainforests), swamp forests, swamps (including marshes and intermittent wetlands), mainly at low altitudes. Sandy alluvium is the favoured geology and sandy, damp to humic soils are favoured. Flowers September-October.	The swamp forest in PLINR and southwest of West Lindfield is considered structurally suitable habitat for these species (at least in some areas). Not found by targeted survey on site or surveyed sections of PLINR. Considered unlikely to occur given lack of local records and proximity to major urban centre (due to historical collection).
Peristeranthus hillii	1	An epiphytic orchid restricted to coastal and near-coastal environments, particularly remnants of littoral rainforest growing on Aeolian sands and lowland subtropical rainforest on floodplains. Hosts are woody climbers and trees. Recorded at Sea Acres Nature Reserve (NPWS 1995), and reaching its southern limit in the Hastings.	No preferred habitat on site. Unlikely to occur.
Senna acclinis	1	A shrub found in or on the edges of subtropical and dry rainforest. Variable geology and soils are favoured	No preferred habitat on site. Unlikely to occur.
Sophora tomentosa	7	A coastal shrub that occurs on recent sands on frontal coastal dunes northwards from Port Stephens. Port Macquarie has the largest known population e.g. Shelley and Nobby's Beaches. Recorded on Kempsey, Hastings LGA, Coffs Harbour LGA, Clarence Valley LGA, Tweed LGA and Bare Point databases.	No preferred habitat on site. Unlikely to occur.

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A2 FAUNA

As previously noted in section 2.3.1, a significant number of threatened fauna have been recorded in the locality, and a number of others are considered potential occurrences by the consultant. In the table below, these species are evaluated for their potential to occur on the site.

Table 24: Fauna potential occurrence assessment

Name	Local records	Habitat requirements	Likelihood of occurrence
Swift Parrot (*Lathumus discolor*)	21	Breeds in Tasmania and winters in Victoria with some dispersal northwards. Feeds mostly on pollen and nectar of winter flowering eucalypts, but also feeds on fruit, seeds, lerps and insect larvae (Schodde and Tideman 1990). Also favours profusely flowering banksias. Favoured species are *E. robusta*, *Corymbia gummifera*, *E. globulus, E. sideroxylon, E. leucoxylon, E. labens, E. ovata, C. maculata, Banksia serrata* and *B. integrifolia*	Site contains limited Winter-Spring flowering species. Previously recorded by consultant on adjoining land to north. Considered low chance of incidental occurrence on site depending on flowering incidence and numbers in locality.
Little Lorikeet (*Glossopsitta pusilla*)	9	Gregarious, usually foraging in small flocks, often with other species of lorikeet feeding primarily on nectar and pollen in the tree canopy, particularly on profusely-flowering eucalypts, but also on a variety of other species including, melaleucas and mistletoes. Mostly occurs in dry, open eucalypt forests and woodlands. They have been recorded from both old-growth and logged forests in the eastern part of their range, and in remnant woodland patches and roadside vegetation on the western slopes. In south-east Queensland (Smyth *et al.* 2002), were more likely to occupy forest sites with relatively short to intermediate logging rotations (15–23 years) and sites that have had short intervals (2.5– 4 years) between fires.	Recorded in the locality to within 700m of site. Site and wider property providing potential foraging habitat (e.g. *Eucalyptus, Melaleucas*) during flowering periods. Several hollows provide potential nesting opportunities but likely to compete with common species for this limited resource. Species considered a low to fair potential occurrence.
Glossy Black Cockatoo (*Calyptorhynchus lathamii*)	36	Dry sclerophyll forest and woodland containing Allocasuarina and Casuarina, and large tree hollows. Preferred regional forage species are *A. littoralis* and *A. torulosa*. Requires sufficient extent of forage within home range to support breeding.	Recorded in locality but not detected on site by survey. Black Oaks and Forest Oaks on site may attract this species for foraging but offer a very limited food resource. No suitable sized hollows for nesting occur. Species considered a low chance of occurrence.

Name	Local records	Habitat requirements	Likelihood of occurrence
Powerful Owl (*Ninox strenua*)	11	Wet and dry sclerophyll forests. Nests in tree hollows. Requires high diversity and abundance of medium-sized arboreal prey. Very large territory.	Recorded in locality. Appears to be limited arboreal prey species on site as evidenced by trapping results. While site is too small to small to support a pair, close proximity records suggest at least fair chance of site forming a portion of a larger foraging territory. No suitable nesting hollows.
Barking Owl (*N. connivens*)	N	Well-forested hills and flats, eucalypt savannah (especially), and riverine woodland in coastal and sub-coastal areas. Prefers hunting in more open country for mammals (rabbits, rats, mice, small bats and small marsupials) and birds (small up to Frogmouths and Magpies). Large territories. Nest in hollows.	Not recorded in locality. Site has some prey species such as rodents, however lacks open country for hunting. No nest hollows present. Not detected by searches and call playback. Likelihood to occur on site considered unlikely given sparse LGA records.
Masked Owl (*Tyto novaehollandiae*)	12	Eucalypt forest and woodlands with sparse understorey. Nests in tree hollows. Requires high diversity and abundance of prey 200-600g weight. Large territory.	Generally as for Powerful Owl. Habitat on the property overall forms part of extensive habitat which in total is considered good potential habitat for this species. Recorded within locality and relatively close proximity, hence at least fair chance of site forming a portion of a larger foraging territory. No suitable nesting hollows.
Sooty Owl (*Tyto tenebricosa*)	N	Rainforest and tall, moist, diverse eucalypt forest. Roosts in dense foliage, tree hollows & caves/overhangs. Nests in hollow in tall forest tree. Requires high diversity and abundance of medium-sized arboreal and/or terrestrial prey. Large territory.	Site as well as proximate forest not preferred habitat. Not recorded in locality. Species considered unlikely potential to occur.
Eastern Grass Owl (*T. capensis*)	20	Inhabit coastal and inland grasslands, coastal heath, agricultural crops and swamp margins. Dependant on good numbers of rodent prey. Highly mobile.	Records in habitat in LINR to south and Fernbank Creek area in heathland and sedgeland. Site does not have preferred habitat structure for this species and was not recorded by survey. Unlikely to occur.
Regent Honeyeater (*Xanthomyza phrygia*)	2	Nomadic. Inhabits temperate eucalypt woodlands and open forest, including forest edges, woodland remnants on farmland and urban areas. Also uses *Casuarina cunninghamiana* gallery forests. Requires reliable and ample nectar supplies to support semi-permanent (core	Preferred winter flowering species (e.g. *E. robusta*) present in low abundance, offering some foraging habitat during flowering periods. Few Mistletoes also present. Site very unlikely to support breeding,

Name	Local records	Habitat requirements	Likelihood of occurrence
		breeding) habitat. Favoured nectar sources are *E. sideroxylon, E. albens, E. melliodora, E. leucoxylon, E. robusta, E. planchoniana*, and heavy infestations of mistletoe. Also take insects and orchard fruits. Breeds in pairs or small colonies in open woodland/forest and occasionally more disturbed woodland near housing and farmland, depending on food availability, from August-January. Breeding less likely to occur if nectar flows are low or unreliable, or heavy competition with more aggressive honeyeaters e.g. Noisy Miner, Red Wattlebirds and Noisy Friarbirds.	and only broadly generic potential foraging habitat for non-breeding transients. Not recorded on site during the survey and sparse records in locality – generally concentrated in New England. Very low to unlikely to extreme rarity, at most as a rare incidental transient.
Red Goshawk (*Erythrotriorchis radiatus*)	N	Found in tropical open woodland, taller woodland, open forests, rainforest edges and dense riparian vegetation of coastal and subcoastal drainages. Territorial and utilise same nest. Breeding territories estimated 50-220km^2. Preys on bird especially Honeyeaters, parrots, kookaburras and slight waterbirds, as well as some mammals, reptiles and large insects.	Not recorded on site or in locality (no recent records south of Clarence Valley). General locality is potentially generically suitable. Unlikely potential to occur due to absence of records from south of Grafton and site located far south of known range. Probably only one pair occurs in NSW and that is in the upper Richmond River catchment adjacent to the Qld /NSW border.
Little Eagle (*Hieraaetus morphnoides*)	2	Occupies habitats rich in prey within open eucalypt forest, woodland or open woodland, sheoak or acacia woodlands and riparian woodlands of interior NSW are also used (Marchant and Higgins 1993; Aumann 2001a). For nest sites it requires a tall living tree within a remnant patch, where pairs build a large stick nest in winter and lay in early spring. It eats birds, reptiles and mammals, occasionally adding large insects and carrion (Marchant and Higgins 1993; Aumann 2001b; Debus et al. 2007). It is distributed throughout the Australian mainland except in the most densely forested parts of the Dividing Range escarpment (Marchant and Higgins 1993). It occurs as a single population throughout NSW.	Potential prey species present, with site considered to potentially form part of much wider home range. Not recorded by survey and no nest found. Considered low to fair chance of occurrence foraging.
Spotted Harrier (*Circus assimilis*)	1	Occurs in grassy open woodland including acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe (e.g. chenopods) (Marchant and Higgins 1993; Aumann 2001a). It is found mostly commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. The species builds a stick nest in a tree and lays eggs in spring (or	Single record in the locality. Site does not contain preferred habitat type. Given lack of local records, preference for more open and drier habitats, and most records occurring in upper hinterlands, species is considered unlikely chance of occurrence.

Name	Local records	Habitat requirements	Likelihood of occurrence
		sometimes autumn), with young remaining in the nest for several months. Diet includes terrestrial mammals, birds and reptiles, occasionally large insects and rarely carrion (Marchant and Higgins 1993; Aumann 2001b). Many of the remaining key prey species (e.g. terrestrial grassland birds such as quail, button-quail, pipits, larks and songlarks) require ground cover and are sensitive to habitat degradation from grazing (Marchant and Higgins 1993).	
Square-tailed Kite (*Lophoictinia isura*)	26	Open forests and woodlands in coastal and subcoastal areas. Forages low over, or in, canopy for eggs, nestlings, passerines, small vertebrates and invertebrates. Large home range (>100km^2). Observed foraging in residential areas of Port Macquarie. Large stick nest in high fork of living tree. Breeds July-December. Probably migrates to northern Australia in winter. (Debus 1998, NSW NPWS 2000)	Potential prey species (particularly passerines) present, site likely to form part of much wider home range. Not recorded by survey and no nest found. Recorded within 300m near Oxley Highway including former nest site. Considered >moderate chance of occurrence.
Varied Sittella (*Daphoenositta chrysoptera*)	20	Sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands, with a nearly continuous distribution in NSW from the coast to the far west (Higgins and Peter 2002; Barrett *et al.* 2003). It inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee and *Acacia* woodland. Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees, and from small branches and twigs in the tree canopy. It builds a cup-shaped nest of plant fibres and cobweb in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years.	Site contains range of potential habitats for this species. Recorded in locality but not on site by survey. Considered a low to fair chance of occurrence, most likely on western edge adjacent to more extensive forest.
Dusky Woodswallow (*Artamus cyanopterus cyanopterus*)	3	Eastern Australian population found in open eucalypt forests and woodlands, also uses shrublands, heathlands and modified habitats such as roadside vegetation and golf courses; less often in wet sclerophyll and rainforest. Prefers open canopy and sparse canopy. In western NSW, more associated with larger wooded riparian zones. Roost communally and may form flocks of 20-30 birds (up to 300 in abundant food areas e.g. grasshopper swarms and flowering trees). Insectivorous taking prey on the wing, in the air and on the ground; but also eating foliage and grassy materials. Also demonstrates kleptoparasitism. Resident or nomadic species with a large home range	Broad range of habitats in which this species has been observed in suggests potential to occur in study area. Considered to have fair potential to occur as non-breeding transient.

Name	Local records	Habitat requirements	Likelihood of occurrence
		depending on conditions and regional location, migrating to north NSW and SE Qld in autumn; and south in spring (Sept-Nov) to breed. Nests colonially and vigorously protect young and drive away competitors and predators, with stick bowl nests in tree forks to small vertical hollows (including in fence posts) 1-10m above ground in August to January (NSWSC 2016, Higgins and Peter 2002).	
Osprey (*Pandion haliaetus*)	49	Fish (mostly Mullet) and carrion eater. Forages along coastal rivers, lakes, beaches, creeks and inlets. Tall, dead tree for staging or feeding roost. Nests on exposed tree within 2km of water, but rarely adjacent, and with access to Paperbark or Swamp Oak for nest material. Breeds April-Sept. (Clancy, 1991)	Recorded in locality but no records proximate to site. Dams not large enough to support foraging, however may occasionally fly over due to large areas of potential habitat in LINR. Unlikely to forage or nest on site.
Black-Necked Stork/Jabiru (*Ephippiorhynchus asiaticus*)	63	Wetlands, mudflats, mangroves, floodplains, irrigated fields, farm dams. Forages in shallow water for small vertebrates. Shuns cover, prefers extensive open shallows. Nests in a tree, often above water in a secluded swamp. Eggs laid Aug-Nov in NSW. Adults resident, juveniles dispersive (DEC 2005a, Lindsey 1992).	No suitable wetlands on site. High quality habitat and records within 2km south may suggest incidental fly-over. Larger dams offer low quality incidental foraging, and may use fairways to southwest of West Lindfield which were noted to have surface water. Low chance of occurrence.
Brolga (*Grus rubicunda*)	N	Inhabits coastal and inland wetlands, shallow lakes, grassland, saltmarsh, farm and dry open land. Forages for large invertebrates, frogs, fish, seeds, green shoots and bulbs. Breeding occurs predominantly in tropical wetland and large inland swamps and irrigated grasslands at inland and central northern Australia (e.g. Queensland and Northern Territory), though has been recorded in the northwest and north-eastern corner of NSW and Victoria.	As for Jabiru, but not recorded locally. Unlikely to occur.
Comb Crested Jacana (*Irediparra gallinacean*)	N	Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation. Forage on floating vegetation, walking with a characteristic bob and flick. They feed primarily on insects and other invertebrates, as well as some seeds and other vegetation.	Extent of potential habitat in dams on site too small and lacks preferred vegetation to support foraging or nesting. No local records. Unlikely to occur.

Name	Local records	Habitat requirements	Likelihood of occurrence
Black Bittern (*Dupetor flavicollis*)	4	Coastal waterways, estuaries, swamps with densely wooded edges, Swamp Oak, Mangroves. Secretive, partly nocturnal. Roosts in trees overhanging water or in dense reeds. Critical breeding habitat is mangrove belts (Lindsey 1992). Breeds Dec-Mar, nests in trees over water. (NSW NPWS 2000, DEC 2005a)	No preferred habitat on site (dams to small and lack sufficient vegetation), and no proximate records. Unlikely to occur.
Australasian Bittern (*Botaurus poiciloptilus*)	4	Wetlands, preferably with dense sedges, rushes, reeds. Prefers freshwater, but also uses densely vegetated saltmarsh and flooded grasslands. Roosts on the ground, forages in shallow water from a platform of trampled vegetation, nests above water on similar platform. Single or groups to 12. Usually sedentary, but nomadic in response to flood, drought.	Local record in LINR to far south but in different habitat to that on site. Unlikely to occur due to lack of sufficient suitable habitat on site and historical disturbances.
Painted Snipe (*Rostratula benghalensis*)	N	Apparently migratory, breeding Oct-Feb. in southern Australia, but also nomadic, responding to conditions (Smith 1991). Favours shallow, densely vegetated freshwater wetland, feeds on mudflats, but also mangroves and open areas: predominantly inland areas. Solitary, secretive, feeds at dusk. Seldom stays in an area long. Nests in dense cover above water level (Lindsey 1992, Smith 1991).	Not recorded in locality. Unlikely to occur due to lack of suitable habitat on site and historical disturbances.
Freckled Duck (*Stictonetta naevosa*)	3	Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds. Generally rest in dense cover during the day, usually in deep water. Feed at dawn and dusk and at night on algae, seeds and vegetative parts of aquatic grasses and sedges and small invertebrates. Nesting usually occurs between October and December but can take place at other times when conditions are favourable. Nests are usually located in dense vegetation at or near water level.	Aquatic habitat on site considered too small and unsuitable for this species. Unlikely to occur.
Blue-Billed Duck (*Oxyura australis*)	2	Deep, densely vegetated freshwater wetlands. Rarely comes ashore. Nests in vegetation over water. Nocturnal. Mainly inland. (Lindsey 1992)	As for Freckled Duck.

Name	Local records	Habitat requirements	Likelihood of occurrence
Magpie Goose (*Anseranas semipalmata*)	1	Recently (2015) recorded attempting to breed at sewage treatment ponds in Port Macqaurie.	Dams considered too small – more likely to be attracted to larger aquatic habitats in nearby Nature Reserves. Unlikely to occur.
Brushtailed Phascogale (*Phascogale tapoatafa*)	9	Range of forest habitats but prefers drier sclerophyll forest with sparse ground cover. Forages on large rough-barked trees for small fauna, also utilises eucalypt nectar. Rests in tree hollows, stumps, bird nests. Requires tree hollows for nesting. (NSW NPWS, 2000) Breeds May-July. Occupies territory of 20-100ha. Has been recorded in swamp forest.	Dry sclerophyll represents generic potential foraging and denning habitat however, historical disturbances, close proximity to urban area and likely presence of feral predators likely to preclude occurrence on site. Not recorded in Thrumster. Not detected despite intensive survey. Unlikely chance of occurrence.
Common Planigale (*Planigale maculata*)	3	Wide variety of habitats. Preference for areas of dense groundcover due to heat/dehydration problems. May prefer ecotones of dry/wet habitats (Denny 1982). Preys on arthropods, small vertebrates, shelters in nest under/in fallen timber or rock (Strahan 1995). Home range about 0.5ha. Breeds Oct-Jan (NSW NPWS 2000).	Recorded locality with 2 close records to north and south. Mostly poor potential habitat on site (which lacks any significant dense ground/shrub layer vegetation due to extensive disturbance history). Due to the large amount of fragmentation locally, the potential for the study area to actually support the subject species is very limited. Overall considered unlikely potential occurrence on site.
Spotted-tail Quoll (*Dasyurus maculatus*)	21	Various forested habitats with preference for dense forests. Requires tree hollows, hollow logs or caves for nesting. Large home range (>500ha) and may move over several kilometres in a few days. Tends to follow drainage lines.	Not recorded during the survey. Recorded in the locality. East Ruins Way is poorly connected and enclosed in an urban area, and other areas are too open or small. PLINR marginal – no potential den sites and limited prey diversity. Presence of predators/competitors (ie foxes, dingoes/wild dogs and probably feral cats) is a limitation. Overall considered a very low to unlikely potential occurrence on site at most as a brief transient.
Yellow-Bellied Glider (*Petaurus australis*)	13	Moist and dry mature eucalypt forest and woodland. Tree hollows, diversity of winter-flowering and suitable sap-feeding eucalypt species required. Large territory.	Recorded on Vilro property to the southeast. Forest vegetation on study site is generically suitable but potential den sites rare. Not recorded in habitat to west despite extent and suitability, possibly due to historical logging and rarity of hollow-bearing trees.

Name	Local records	Habitat requirements	Likelihood of occurrence
			Unlikely to occur on site other than as transient disperser.
Squirrel Glider (*Petaurus norfolcensis*)	23	Dry, open forest and woodland, and occasionally wet eucalypt and rainforest. Most common in floriferous sub-coastal and coastal forests with abundant winter flowering trees and shrubs (coastal populations apparently rely heavily on Acacia sap and flowering Banksias.	Not recorded during the survey despite intense surveying. Forest vegetation (excluding swamp forest) considered marginally suitable though limited connectivity and high risk of predation. Recorded in locality, including within tentatively connected habitat (Darkheart 2005d, 2005i, 2004l, etc) within 1km, and most significantly during tree felling on land to immediate north of East Ruins Way which recorded a female and a male (female died from injuries). While potential den sites (ie actual tree hollows) are not common, those that are present are considered potentially suitable as den sites. However, cumulative effect of local loss of habitat to north and along Major Innes Drive coupled with failure to detect over 3 weeks of trapping or by long term Koala spotlighting surveys strongly indicates the species is locally extinct (animals detected during adjacent clearing monitoring may have been resident colony), hence considered unlikely potential occurrence.
Greater Glider (*P. volans*)	2	The greater glider is restricted to eucalypt forests and woodlands of eastern Australia. Its diet is mostly eucalypt leaves and occasional flowers and is found in highest abundance in taller, montane, moist eucalypt forests, with relatively old trees and abundant hollows. The distribution may be patchy even in suitable habitat. Forests with a diversity of eucalypt species, due to seasonal variation, is its preferred tree species.	Not recorded on site or in interconnected habitat. Scant hollows and high fragmentation indicates unlikely to occur.
Eastern Pygmy Possum (*Cercartetus nanus)*	N	Found in rainforest, sclerophyll forest, woodland and tree heath. Predominantly nectarivorous (opportunistically insectivorous and also eats fruits during flowering lulls) feeding on Banksias, Leptospermum, Melaleucas, Eucalypts and Callistemons. Nest in very small hollows, or	Not recorded on site or in locality. Dry sclerophyll and swamp considered structurally unsuitable but

Name	Local records	Habitat requirements	Likelihood of occurrence
		within bark/leaf nests in tree forks (e.g. Melaleucas and Banksias), Myrtaceous shrubs, abandoned bird nests or under loose eucalypt bark. Often Winters in torpor.	have been subject to a range of current and historical disturbances. Unlikely to occur.
Eastern Chestnut Mouse (*Pseudomys gracilicaudatus*)	14	Appears to prefer heathland especially dense wet heath and swampy areas usually occupied by Swamp Rat (AMBS 1996). Also recorded from mid-elevation grasslands, open dry and wet sclerophyll woodland. In the Port Macquarie area, associated with heathland with dense shrub layer of Banksia ericifolia, B. serratifolia, Xanthorrhoea spp, Dillwynia floribunda, Boronia spp, Leptospermum flavescens and Melaleuca nodosa. Requires specific fire regime, greatest density 3-4 years after fire. Omnivorous, seeds, fungi, green stem, arthropods. Home range <0.5ha (NSW NPWS 2000).	Not recorded during survey. Recorded in locality. No suitable habitat present and extent of fragmentation and presence of predators (foxes, wild dogs/dingoes and probably feral cats) also reduces potential. Unlikely to occur.
Common/Eastern/ Queensland Blossom Bat (*Syconycteris australis*)	1	Roosts in rainforest and wet sclerophyll forest. Feeds in heathlands and paperbark swamps up to 4km from roost. Key food species include Banksia, Melaleucas, Callistemons and Bloodwoods.	Dry sclerophyll is marginal, however Melaleucas swamp forest offer foraging potential during flowering. Limited proximate roosting habitat unless wet sclerophyll along margins of lake. Single record in locality. Optimum habitat on sand may eliminate need to occur in proximity – only low potential to occur during peak flowering events. .
Common/Eastern/Large Bent Wing Bat (*Miniopterus schreibersii*)	15	Habitat generalist - forages above well-forested areas. Roosts in old buildings, caves, mines etc and in tree hollows. Dependant on nursery caves and communal roosts. Recorded foraging along vegetated roadside verges; along tracks in forest, and interfaces of forest and pasture.	The study site/area's habitat is considered structurally suitable as potential foraging habitat. Potential for non-breeding roosting is also provided by trees with hollows/crevices/notches. Not recorded during survey but recorded in locality. Overall >moderate potential occurrence at some stage.
East-Coast Freetail Bat (*Micronomus norfolkensis*)	15	Specific habitat requirements of this species are poorly known. Has been recorded in habitats ranging from rainforest to dry sclerophyll and woodland, with most recorded in the latter (State Forests 1995, Allison 1991). Roosts in small colonies in tree hollows and under loose bark; has been found under house eaves, in roofs and metal caps on telegraph poles. Recorded roosting in roof in Hat Head village. Probably forages above forest or woodland canopy, and in clearings adjacent to	The study site/area's vegetation is suitable as foraging habitat. Potential breeding roosts sites are also provided by trees with hollows, while trees with crevices/notches and/or decorticating bark may provide potential non-breeding roost sites. Recorded in the locality and considered >moderate potential occurrence on site.

Name	Local records	Habitat requirements	Likelihood of occurrence
		forest. Most records are of single individuals, and is likely to occur at low densities over its range.	
Eastern False Pipistrelle (*Falsistrellus tasmaniensis*)	5	A large vespertilionid which feeds on moths and insects. Known to roost in caves, abandoned buildings, but mostly in trees hollows higher rainfall forested areas. It is suspected that some populations migrate in Winter from higher altitudes to coastal areas, or may simply enter torpor. Prefers tall forests (>20m high) and extensive movements (e.g. 12km recorded between foraging and roost sites).	Forest on the study site has limited potentially structurally suitable foraging habitat. Potential roosting opportunities are also provided by trees with notches/crevices and hollows (the latter may also provide potential breeding sites). Not recorded during survey, but recorded in locality in Oxley Highway deviation study area (despite records at low elevations being scant). Overall at least low potential of occurrence.
Dwyer's Bat/Large Eared Pied Bat (*Chalinobus dwyeri*)	N	Found in moderately wooded habitats such as dry sclerophyll forest, tall open eucalypt forests, woodlands, and sub-alpine woodlands, edge of rainforest and wet sclerophyll forest. Roosts in caves, mines and abandoned bottle-shaped mud nests of Fairy Martins. In caves and mines, tend to roost in twilight sections near entrance. Insectivorous but habits poorly known. Fly relatively slowly, direct and manoeuvrable, low to ground or 6-10m above ground.	General foraging preferences of this poorly known species suggests the study site/area and locality may potentially be structurally suitable foraging habitat. No caves, mines, etc on or adjacent to the site for roosting. Not recorded within 10km radius of site (or LGA). Not recorded by survey. Considered a very low to unlikely occurrence.
Yellow-Bellied Sheathtail Bat (*Saccolaimus flaviventris*)	4	Ecology poorly known. Found in almost all habitats, particularly wet and dry sclerophyll forests and woodlands below 500m altitude, and also open woodland, Acacia shrubland, mallee, grasslands and desert. Roosts mainly in tree hollows, but also under bark, under roof eaves and in other artificial structures. Fast flying species, believed to forage above the canopy or closer to the ground in open areas. Insectivorous. May be Summer migrant.	The study site provides some suitable foraging habitat. Potential roosts are also provided by trees with hollows/crevices/notches and/or decorticating bark (potential for breeding is limited as this species may be a Summer migrant). Records in the locality and within 1km west hence considered >moderate chance of occurrence on site.
Greater Broad Nosed Bat (*Scoteanax rueppellii*)	18	Forages over range of habitats including rainforests and moist forests, but prefers ecotones between riparian forest, woodland and cleared land. Requires sparse understorey and will forage over water. Roosts in tree hollows. Feeds on larger insects, small vertebrates and perhaps other bats. Recorded foraging in rural residential areas and on edge of large forest remnants and pasture.	Several records within close proximity of the site. Potential foraging habitat on site with potential breeding/roosting provided by tree hollows. Not recorded by Anabat surveys, however considered a moderate chance of occurrence on site as recorded in identical habitat along Major Innes Drive.

Name	Local records	Habitat requirements	Likelihood of occurrence
Hoary Bat (*Chalinolobus nigrogriseus*)	1	Occurs in a range of habitats, such as monsoon forest, tall open forest, open woodland, vine thickets, coastal scrub, sand dunes, grasslands, floodplains, watercourses and dams. Roosts in eucalypt tree hollows, as well as rock crevices. Breeding colonies have been recorded in roofs of buildings. Preferred prey is beetles and moths, but also spiders, mantids, crickets, grasshoppers, cicadas, bugs, diving beetles, flies and ants (thus may land and forage).	Not? rrecorded in locality to date. Site provides suitable marginal foraging and generic roosting habitat. Not normally found south of Kempsey hence very low to unlikely potential to occur.
Beccari's Freetail Bat (*Mormopterus beccarii*)	N	Wide range of habitats from rainforest, floodplains, tall open forest, savannah woodlands, arid shrublands and grasslands. Commonly caught along watercourses, over water and over canopy as prefers areas free of obstructions due to low manoeuvrability. Feeds above canopy in fast flight but agility on ground suggests ability to forage on flightless insects. Very few records in NSW – sporadic and possibly Summer nomadic.	Not recorded in the locality and not normally found south of Alstonville. Site does not contain typical habitat for this species and due to rarity it is considered an unlikely occurrence.
Eastern Cave Bat (*Vespadelus troughtoni*)	8	Rare and poorly known bat. Cave dwelling bat roosting in small (5) to large (500) groups in sandstone overhang caves, boulder piles, mines, tunnels and sometimes buildings. Tend to roost in well lit portions of caves in avons, domes, cracks and crevices. Inhabits tropical mixed woodland and wet sclerophyll forest on the coast and dividing range, but extend into drier forest on western slopes and inland areas.	Marginally structurally suitable foraging habitat may occur on the study site/area. Recorded in locality. No potential roost on the study site/area. This species is considered at best a low potentialk occurrence as its call cannot be separated from the common *Vespadelus* species (which is known to occur).
Southern Myotis (*Myotis macropus)*	16	Tunnel, cave, bridges, old buildings, tree hollow and dense foliage roosting bat which prefers riparian habitat over 500m long with nearby roosting habitat. Key habitats are streams, rivers, creeks, lagoons, lakes and other water bodies. Feeds on aquatic insects and small fish. Has recently been observed foraging in small bodies of water.	Dams at West Ruins Way provide some suitable foraging habitat. Tree hollows may provide potential roosting (possible breeding) opportunities. Not recorded during survey, but recorded in locality within 1km of the site. Overall considered a fair potential occurrence at some stage.
Pale-Headed Snake (*Hoplocephalus. bitorquatus*)	N	Wet and dry sclerophyll, preferring those with Callitrus spp, riparian vegetation, and occasionally rainforest. Terrestrial and semi-arboreal predator of small vertebrates (mainly lizards and frogs, small mammals and probably co-habitating bats). Shelters under decorticating bark and within hollows especially close to watercourses.	The study site is at best very marginal as potential habitat. Tree hollows and logs are generally not common. All of the study site/area has been disturbed in some way, which is likely too substantially reduced the potential for this species

Name	Local records	Habitat requirements	Likelihood of occurrence
			to occur. Not detected by survey but extremely difficult to detect. Not recorded in locality. Unlikely potential to occur due to disturbance history and lack of local records and requirement for large tracts of vegetation
Stephen's Banded Snake (*H. stephensii*)	N	Inhabits variety of habitats including dry rainforest, sub-tropical rainforest, wet and dry sclerophyll, rocky outcrops (especially granite and sandstone) - requires close proximity to variety of vegetation formations. Nocturnal and primarily arboreal - sheltering under decorticating bark, within tree scars, hollows, logs, rock crevices and slabs. Active predator of variety of vertebrates including geckos, skinks, frogs, small mammals, bats, birds	As for Stephen's Banded Snake, unlikely potential occurrence.
Green and Golden Bell Frog (*Litoria aurea*)	3	Found in permanent swamps and ponds. Prefers water bodies which are: still; shallow; unshaded; ephemeral; unpolluted; generally isolated; and free of native fish species or Plague Minnow (*Gambusia holbrooki*) and little macro-algae. Requires emergent vegetation, grass tussocks or rocks for shelter. May use disturbed sites opportunistically - may depend on several stages. Eats insects and other frogs. Summer breeder. (Hero et al 2004).	Dams on site provide marginal potential habitat as evidently polluted by urban runoff and *Gambusia* present. Two Atlas records from 2001 in very close proximity. Not detected on site or at former location at Oxley Highway junction during survey, or by major survey in Summer 2009-2010 from Lindfield Park Rd to Wrights Rd. Unlikely to occur.
Green-Thighed Frog (*Litoria brevipalmata*)	4	Poorly known. Found in a range of habitats such as warm temperate open forest, rainforest, and forestry dams in dry, open forest; breeding aggregations around oxbow lakes, ditches, flooded paddocks, overflows and grassy semi-permanent ponds. Males call only for few days after spring and early summer rains. Possibly a lowland forest ground-dweller.	Not recorded during the survey, though recorded in the locality. The swamp forest and eucalypt forests may be suitable as foraging habitat, but no significant potential breeding habitat (dams full of Plague Minnow). Significant disturbance history of the site may also reduce potential. Overall considered unlikely potential occurrence on site.
Wallum Froglet (*Crinia tinnula*)	48	Predominantly confined to acidic paperbark swamps of coastal areas (Cogger 1992). Also found in wet heathland and Melaleuca sedgelands. Breeds in late Winter.	Not recorded during survey and only marginal potential habitat on and adjacent to site in the swamp forest and wet areas southwest of West Lindfield. Recorded in locality, including in Lake

Name	Local records	Habitat requirements	Likelihood of occurrence
			Innes Nature Reserve, but not close to site. Overall considered a very low potential occurrence as should have been detected under ideal survey conditions if present.

A number of other species (see table below) are known or considered potential occurrences within the locality. However due to a number of factors, these species were not considered potential occurrences on site. Thus the proposal is not considered to have a significant impact on the viability of any local population of the subject species and a formal Seven Part Test evaluation was not considered required to superfluously demonstrate the proposal is unlikely to have a significant impact. Marine and estuarine species are excluded as the site and study area does not have suitable habitat.

Table 25: Fauna considered unlikely to occur on the property due to lack of potential habitat

Preferred Habitat	Species	Site considered unsuitable habitat	Presence of predators likely to have excluded this species	Disturbance history likely to have excluded this species	Lack of local records
Rainforest/Wet Sclerophyll Forest	Three-Toed Snake-Tooth Skink (*Coeranoscincus reticulatus*)	X	X	X	X
	Marbled Frogmouth (*Podargus ocellatus*)	X			X
	Barred Cuckoo Shrike (*Coracina lineata*)	X			Recorded locally
	Wompoo Fruit Dove (*Ptilinopus magnificus*)	X			Recorded locally
	Rose-Crowned Fruit Dove (*Ptilinopus. regina*)	X			Recorded locally

Preferred Habitat	Species	Site considered unsuitable habitat	Presence of predators likely to have excluded this species	Disturbance history likely to have excluded this species	Lack of local records
	Superb Fruit-Dove (*Ptilinopus superbus*)	X			X
	Golden-Tipped Bat (*Phoniscus papuensis*)	X			X
	Parma Wallaby (*Macropus parma*)	X	X	X	X
	Long-Nosed Potoroo (*Potorous tridactylus*)	X	X	X	Single record on North Shore
Dry Sclerophyll Forest/Woodland/ Open Grassy Woodlands	Turquoise Parrot (*Neophema pulchella*)	X			X
	Bush-Stone Curlew (*Burhinus grallarius*)	X	X	X	Recorded locally
	Brown Treecreeper (*Climacteris picumnus*) *eastern subspecies*	X			Recorded locally
	Speckled Warbler (*Pyrrholaemus sagittata*)	X			X
	Hooded Robin (*Melanodryas cucullata cucullata*) southeastern form	X			X

Preferred Habitat	Species	Site considered unsuitable habitat	Presence of predators likely to have excluded this species	Disturbance history likely to have excluded this species	Lack of local records
	Diamond Firetail (*Stagonopleura guttata*)	X			X
	Grey-Crowned Babbler (*Pomatostomus temporalis temporalis*) eastern subspecies	X			X
	Painted Honeyeater	X			X
	Flame Robin (*Petroica phoenicea*)	X			X
	Scarlet Robin (*Petroica boodang*)	X			Recorded locally
	Rufous Bettong (*Aepyprymnus rufescens*)	X	X	X	Recorded in locality
Heath	Ground Parrot (*Pezoporus wallicus*)	X			Recorded locally
Saltmarsh/Estuarine/Marine	White Fronted Chat	X			X
	White-bellied Sea-eagle	X			Recorded locally
Swamp/Aquatic/Freshwater/Wetland/Riparian	Giant Dragonfly (*Petalura gigantea*)	X			Recorded locally
	Laced Fritillary	X			Recorded locally

Preferred Habitat	Species	Site considered unsuitable habitat	Presence of predators likely to have excluded this species	Disturbance history likely to have excluded this species	Lack of local records
	(*Argyreus hyperbius* spp. *inconstans*)				
	Brolga (*Grus rubicunda*)	X			X
	Stuttering Frog (*M. balbus*)	X			X
	Giant Barred Frog (*Mixophyes iteratus*)	X			X
	Olongburra Tree Frog	X			X

APPENDIX 2: PLANT SPECIES LIST

Frequency: D: Dominant,

C: Common,

O: Occasional,

U: Uncommon,

R: Rare on site, few specimens

Community: DSF: Dry Sclerophyll Forest and Modified Dry Sclerophyll Forest

SF: Swamp Forest

P: Pasture Grassland

Table 26: Plant species list for the site.

COMMON NAME	SCIENTIFIC NAME	COMMUNITY	FREQUENCY
Canopy Trees			
Swamp Oak	*Casuarina glauca*	DSF, SF	R, O
Pink Bloodwood	*Corymbia intermedia*	DSF	C
Coastal Blackbutt	*Eucalyptus pilularis*	DSF	D
Tallowwood	*E. microcorys*	DSF	D
Swamp Mahogany	*E. robusta*	DSF, SF	R, O
Grey Ironbark	*E. siderophloia*	DSF	C
Forest Red Gum	*E. tereticornis*	DSF, SF	O, O
Broad-Leaved Paperbark	*Melaleuca quinquenervia*	DSF, SF	R, D
Understorey Trees			
Black Oak	*Allocasuarina littoralis*	DSF	U
Forest Oak	*A. torulosa*	DSF	R
Red Ash	*Alphitonia excelsa*	DSF	U
Blueberry Ash	*Elaeocarpus reticulatus*	DSF	U
Sandpaper Fig	*Ficus coronata*	SF	C
Rusty Fig	*Ficus rubiginosa*	DSF	R
Cheese Tree	*Glochidion ferdinandi*	DSF, SF	C, C
Guioa	*Guioa semiglauca*	DSF	R

Cabbage Palm	*Livistona australis*	SF	R
Narrow Leaved Paperbark	*Melaleuca linariifolia*	DSF, SF	U, C
-	*Melaleuca sieberi*	SF	U
Prickly-Leaved Tea-Tree	*Melaleuca styphelioides*	SF	O
Shrubs			
-	*Acacia falcata*	DSF	U
White Sally Wattle	*Acacia floribunda*	DSF	C
Green Wattle	*Acacia irrorata*	DSF, SF	U, R
Sydney Golden Wattle	*Acacia longifolia subsp. longifolia*	DSF	O
Maiden's Wattle	*Acacia maidenii*	DSF	O
Lilly Pilly	*Acmena smithii*	SF	R
White Aspen	*Acronychia oblongifolia*	DSF	U
Hairpin Banksia	*Banksia spinulosa*	SF	R
Coffee Bush	*Breynia oblongifolia*	DSF, SF	C, O
Wallum Bottlebrush	*Callistemon pachyphyllus*	SF	O
Green Cestrum	**Cestrum parqui*	SF	R
Bitou Bush	**Chrysanthemoides monilifera subsp rotundata*	DSF	O
Camphor Laurel	**Cinnamomum camphora*	DSF, SF	U. R
Bush Lemon	**Citrus x tatiensis*	DSF	U
Narrow-Leaved Palm Lily	*Cordyline stricta*	SF	O
Gorse Bitter Pea	*Daviesia ulicifolia*	DSF	R
Cherry Ballart	*Exocarpos cupressiformis*	DSF	R
Rough Guinea Flower	*Hibbertia aspera*	DSF	R
Lantana	**Lantana camara*	DSF, SF	O, C
-	*Lasiopetalum parviflorum*	SF	U
Prickly Tea-Tree	*Leptospermum juniperinum*	SF	R
Prickly Beard-Heath	*Leucopogon juniperinus*	DSF	O
Lance Beard-Heath	*Leucopogon lanceolatus*	DSF	R
Crinkle Bush	*Lomatia silaifolia*	DSF	U
Brush Muttonwood	*Myrsine howittiana*	SF	O

Large Mock Olive	*Notelaea longifolia*	SF	R
Mickey Mouse Plant	**Ochna serrulata*	DSF	U
Dogwood	*Ozothamnus diosmifolius*	DSF	O
-	*Persoonia conjuncta*	DSF	U
-	*Persoonia levis*	DSF	O
Scrubby Spurge	*Phyllanthus gunnii*	DSF, WSF	U, U
Wild Yellow Jasmine	*Pittosporum revolutum*	DSF, SF	R, R
Sweet Pittosporum	*Pittosporum undulatum*	DSF	R
Handsome Flat-Pea	*Platylobium formosum*	DSF	U
Elderberry Panax	*Polyscias sambucifolia*	DSF	O
Notched Bush Pea	*Pultenaea retusa*	DSF	U
Senna	**Senna pendula var. glabrata*	DSF, SF	C, C
Wild Tobacco	**Solanum mauritianum*	SF	U
Blackberry Nightshade	**Solanum nigrum*	DSF, SF	O, U
Scentless Rosewood	*Synoum glandulosum*	SF, WSF	U
Native Peach	*Trema aspera*	DSF	R
Tree Heath	*Trochocarpa laurina*	DSF	R
-	*Wikstroemia indica*	DSF	U
Ferns & Epiphytes			
Maidenhair Fern	*Adiantum aethiopicum*	DSF, SF	R
Native Ginger	*Alpinia caerulea*	DSF	R
Swamp Water Fern	*Blechnum indicum*	SF	U
Rainbow Fern	*Calochlaena dubia*	SF, WSF	U
-	*Cyclosorus interruptus*	SF	U
Harsh Ground Fern	*Hypolepsis muelleri*	DSF, SF	O, D
Fishbone Fern	*Nephrolepis cordifolia*	SF	R
Elkhorn	*Platycerium bifurcatum*	SF	R
Bracken Fern	*Pteridium esculentum*	DSF	O
Grasses			
Carpet Grass	**Axonopus fissifolius*	P	O

Quaking Grass	**Briza minor*	DSF, P	U, O
Common Couch	*Cynodon dactylon*	P	C
Shorthair Plumegrass	*Dichelachne micrantha*	DSF, P	C
Small-Flowered Finger Grass	*Digitaria parvifolia*	DSF, P	O
Bushy Hedgehog Grass	*Echinopogon caespitosus*	DSF	C
Bordered Panic	*Entolasia marginata*	DSF, SF	O, O
Wiry Panic	*Entolasia stricta*	DSF	U
Browns Lovegrass	*Eragrostis brownii*	DSF, P	O
Elastic Grass	**Eragrostis tenuifolia*	P	C
Australian Basket Grass	*Oplismenus aemulus*	DSF, SF	U, O
Creeping Beard Grass	*Oplismenus imbecillis*	DSF, SF	O, U
-	*Poa siberiana*	DSF	U
-	*Panicum sp.*	DSF, P	O, C
Common Paspalum	**Paspalum dilatatum*	DSF, P	C, D
Broadleaf Paspalum	**Paspalum mandiocanum*	DSF, SF, P	D, U, U
Kikuyu	**Pennisetum clandestinum*	P	C
Pale Pigeon Grass	**Setaria pumila*	DSF, SF, P	U. U, C
Setaria	**Setaria sphacelata*	DSF, SF, P	C, O, C
African Parramatta Grass	**Sporobolous africanus*	P	C
Kangaroo Grass	*Themeda australis*	DSF	O
Groundcover, Forbs and Herbs			
Crofton Weed	**Ageratina adenophora*	SF	U
Billy Goat Weed	**Ageratum houstonianum*	DSF, SF, P	C, O, D
Scarlet Pimpernel	**Anagallis arvensis*	P	U
Gotu-Kola	*Centella asiatica*	SF	O
Spear Thistle	* *Cirsium vulgare*	P	O
Native Wandering Jew	*Commelina cyanea*	SF	U
Purple Flax-Lily	*Dianella caerulea*	DSF	C
Kidney Weed	*Dichondra repens*	DSF, P	C, C
Saw Sedge	*Gahnia aspera*	DSF	R

Tall Saw Sedge	*Gahnia clarkei*	SF	C
-	*Geranium sp.*	DSF, P	C, O
Raspwort	*Gonocarpus micranthus*	SF, P	O, O
Raspwort	*Gonocarpus teucrioides*	DSF, SF, P	U, O, U
Swamp Goodenia	*Goodenia bellidifolia subsp. bellidifolia*	SF	O
-	*Hydrocotyle peduncularis*	DSF	C
Cats Ear	**Hypochaeris glabra*	DSF, P	O,O
Settlers Flax	*Lepidosperma laterale*	DSF, P	R. U
Mat-Rush	*Lomandra confertifolia subsp. pallida*	DSF, P	O. O
Spiny-Headed Mat-Rush	*Lomandra longifolia*	DSF, SF	C, C
Many-Flowered Mat-Rush	*Lomandra multiflora*	DSF	U
Slender Onion Orchid	*Microtis parvifolia*	DSF	U
Lambs Tongue	**Plantago lanceolata*	DSF, P	O. C
-	*Poranthera microphylla*	DSF, P	O, O
White Root	*Pratia purpurascens*	DSF, SF, CHS	C, C, O
Fireweed	**Senecio madagascariensis*	DSF, SF	O, U
Paddy's Lucerne	**Sida rhombifolia*	DSF, P	U, O
Ladies' Tresses	*Spiranthes australis*	SF	O
Slender Stackhousia	*Stackhousia viminea*	DSF	O
Wandering Jew	**Tradescantia fluminensis*	SF	U
Purple Top	**Verbena bonariensis*	P	C
Native Violet	*Viola hederacea*	DSF, SF	C, C
-	*Xanthorrhoea fulva*	SF	O
Lianas and Scramblers			
Appleberry	*Billardiera scandens*	DSF	O
-	*Cassytha glabella*	SF	R
Devils Twine	*Cassytha pubescens*	DSF	R
Native Grape	*Cayratia clematidea*	DSF	U
Water Vine	*Cissus hypoglauca*	DSF	R

Blushing Bindweed	*Convolvulus erubescens*	SF	O
Desmodium	*Desmodium rhytidophyllum*	DSF	U
Wombat Berry	*Eustrephus latifolius*	DSF	C
Scrambling Lily	*Geitonoplesium cymosum*	DSF, SF	O, O
-	*Glycine clandestina*	DSF	U
Climbing Guinea Flower	*Hibbertia scandens*	DSF	O
Cockspur Thorn	*Maclura cochinchinensis*	DSF	R
Milk vine	*Marsdenia rostrata*	DSF	R
Jasmine Morinda	*Morinda jasminoides*	DSF, SF	U, C
Monkey Rope	*Parsonsia straminea*	DSF, SF	C, C
Passionfruit	**Passiflora edulis*	DSF	O
Corky Passionfruit	**Passiflora suberosa*	DSF	R
Blackberry	**Rubus fruticosus complex*	DSF, P	O, U
Molucca Bramble	*Rubus moluccanus*	DSF	U
Small-Leaved Bramble	*Rubus parvifolius*	DSF	U
Native Raspberry	*Rubus rosifolius*	SF	U
Austral Sarsaparilla	*Smilax australis*	DSF	U
Snake Vine	*Stephania japonica*	DSF, SF	O
Aquatic/Wetland Species			
Soft Twigrush	*Baumea rubiginosa*	SF, P	U, O
Tall Sedge	*Carex appressa*	DSF	U
Tassel Sedge	*Carex fascicularis*	DSF, SF	C, O
-	*Chorizandra cymbaria*	SF, Dam	U
-	*Chorizandra sphaerocephala*	SF	U
Dirty Dora	*Cyperus difformis*	Dam	O
-	*Cyperus eragrostis*	P	O
-	*Eleocharis equisetina*	Dam	O
Common Rush	*Juncus usutatus*	SF, P, Dam	C
Cape Water Lilly	*Nymphaea capensis*	Dam	U
Slender Knotweed	*Persicaria decipiens*	P, Dam	O

Water Pepper	*Persicaria hydropiper*	P, Dam	O
Princess Feathers	*Persicaria orientalis*	P	O
Frogmouth	*Philydrum lanuginosum*	Dam	U
Pondweed	*Potamogeton octandrus*	Dam	C
River Buttercup	*Ranunculus inundatus*	SF, P	U, U
-	*Schoenoplectus mucronatus*	Dam	C
Narrow-leaved Cumbungi	*Typha domingensis*	Dam	C

APPENDIX 3: HOLLOW-BEARING TREE PHOTOS

Photo 10: Blackbutt 7 at East Ruins Way

Photo 11: Blackbutt 8 and Bloodwood at East Ruins Way

Photo 12: Fissure in limb and trunk of Blackbutt 1.

Photo 13: Stag 1 in wet sclerophyll in West Lindfield

Photo 14: Paperbark stag in northern strip of West Ruins Way

Photo 15: Blackbutt 3 in the northern strip at West Ruins Way

Photo 16: Blackbutt 2 in northern strip

Photo 17: Blackbutt 4 in middle strip

Photo 18: Tallowwood in middle strip

Photo 19: Blackbutt 5 in middle strip

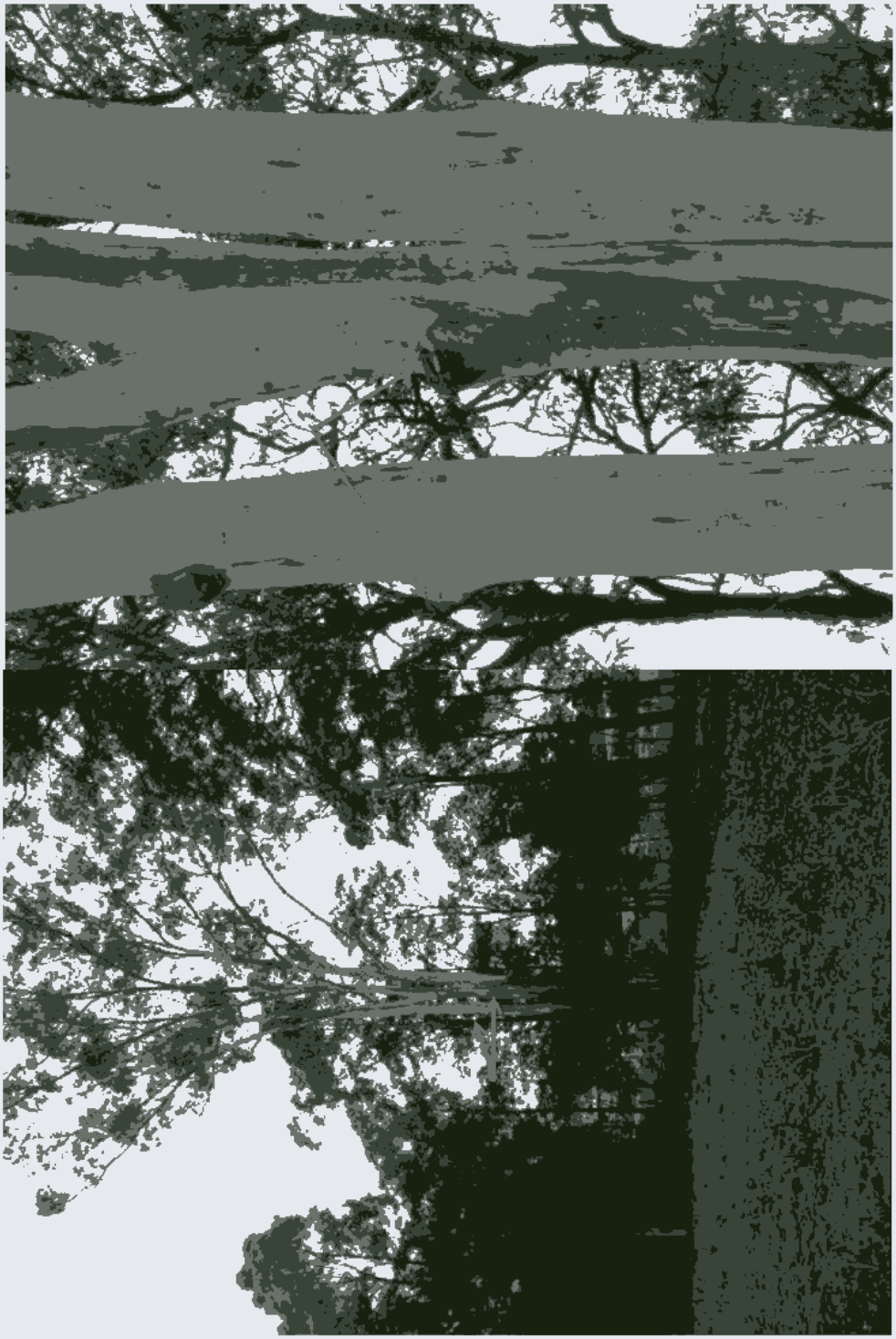

Photo 20: Blackbutt 6 in middle strip

APPENDIX 4: YANGOCHIROPTERAN BAT CALL REPORT

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Bat Call Sequences from the South-Side of Port Macquarie, Mid North Coast, NSW.

Introduction and Methodology

Bat calls were analysed using the program AnalookW (Version 3.3q 03 October 2006, written by Chris Corben, www.hoarybat.com). Identifications were made using a regional based guide to the echolocation calls of microbats in New South Wales NSW (Pennay *et al*. 2004) and the accompanying reference library of over 200 calls from north-eastern NSW (http://www.forest.nsw.gov.au/research/bats/default.asp). In addition, a reference library of 269 calls from NSW (Law, State Forests of NSW) and a local reference library consisting of 42 calls recorded within 150km of Coffs Harbour (Lloyd & Tolhurst). The species identification was complicated by the proximity of the site to the bat call region of western slopes and plains (Pennay *et al*. 2004). Additionally, the survey sites are in a location where there are gaps in the knowledge of the bat fauna assemblage.

Bat calls can be difficult to identify due to intra-specific and geographic variation, therefore a reference library of local calls is a valuable tool for bat call identification.

Bat call analysis is reliant upon the presence of species-specific parameters such as call shape, characteristic frequency, initial slope and time between calls (de Oliveira 1998, Rinehold *et al*. 2001). Without the presence of definitive species-specific characteristics, a definite identification cannot be made. In addition, some species can never be distinguished (eg. *Nyctophilus* species), while others, such as *Rhinolophus megaphyllus,* are distinctive.

To ensure reliable and accurate results the following protocols *(*adapted from *Lloyd et. al. 2006)* were followed:

1. Recordings containing less than three pulses were not analysed (Law *et al*. 1999, Law & Chidel 2002).

2. Only search phase calls were analysed (McKenzie *et al.* 2002).

3. Four categories of confidence in species identification were used (Mills *et al.* 1996):
    a. definite – identity not in doubt
    b. probable – low probability of confusion with species of similar calls
    c. possible – medium to high probability of confusion with species with similar calls; and
    d. unknown bat – calls made by bats which cannot be identified to even a species group.

4. *Nyctophilus* spp. are difficult to identify confidently from their calls and no attempt was made to identify this genus to species level (Pennay *et al*. 2004, Law & Chidel 2002).

5. Other species found within the North East Region of NSW are difficult to differentiate confidently on recordings of poor quality. These calls are assigned to the following species groups (Mills *et al.* 1996, Pennay *et al.* 2004) and are included under each species as a possible call:
    a. Miniopterus australis / Vespadelus pumilus

b. *Miniopterus schreibersii oceanensis / Vespadelus darlingtoni*
c. *Miniopterus schreibersii oceanensis/ Vespadelus regulus*
d. *Vespadelus regulus / Vespadelus darlingtoni*
e. *Vespadelus troughtoni / Vespadelus vulturnus / Vespadelus pumilus*
f. *Chalinolobus gouldii / Mormopterus spp.*
g. *Mormopterus sp.2 / Mormopterus norfolkensis*
h. *Nyctophilus spp.*
i. *Nyctophilus spp. / Myotis macropus*
j. *Scotorepens orion / Scoteanax rueppellii*
k. *Scotorepens orion / Falsistrellus tasmaniensis*

Results and Discussion

A total of 1233 files were submitted for identification. Table 1 below shows the number of files with bat calls.

Table 1: Summary of files recorded from the south-side of Port Macquarie, Mid North Coast, NSW.

Survey	Total number files	Files containing bat call where attempt at analysis was made	Files with bat call of low quality	Files with bat call too short for ID	No bat call present on file
Anabat 1	337	124 (37%)	68	83	62
Anabat 2	603	53 (9%)	14	23	513
Week 1	293	67 (23%)	18	14	194

The survey was undertaken on 10, 11, 14, 15 and 16 November 2011 and the results are presented below separately for each survey.

Table 2: Species identified from Anabat 1 survey from the south-side of Port Macquarie, Mid North Coast, NSW.

	Identification confidence		
Species	Definite	Probable	Possible
Chalinolobus gouldii			1
Chalinolobus morio		2	14
Miniopterus australis#	6		4
Scotorepens sp.			3
Vespadelus pumilus	4	12	37
Vespadelus troughtoni#			83
Vespadelus vulturnus			83

Listed as Vulnerable under Schedule 2 of the Threatened Species Conservation Act 1995.

Table 3: Species identified from Anabat 2 survey from the south-side of Port Macquarie, Mid North Coast, NSW.

	Identification confidence		
Species	Definite	Probable	Possible
Chalinolobus gouldii	2	2	1
Chalinolobus morio			2
Miniopterus australis#	5	4	6
Mormopterus norfolkensis#			1
Mormopterus sp.2			1
Scotorepens orion		1	2
Scotorepens sp.	1		3
Vespadelus pumilus	19		11
Vespadelus troughtoni#			9
Vespadelus vulturnus			9

Listed as Vulnerable under Schedule 2 of the Threatened Species Conservation Act 1995.

Table 4: Species identified from Week 1 survey from the south-side of Port Macquarie, Mid North Coast, NSW.

	Identification confidence		
Species	Definite	Probable	Possible
Chalinolobus gouldii	1		1
Miniopterus australis#	3	2	
Nyctophilus spp.*	1		
Scotorepens orion	3	1	
Scotorepens sp.	5		
Vespadelus pumilus	5	4	6
Vespadelus troughtoni#			41
Vespadelus vulturnus	6		41

Listed as Vulnerable under Schedule 2 of the Threatened Species Conservation Act 1995.
* Could be N. geoffroyi or N. gouldi

The following figures show calls from bats identified with a 'definite' confidence level.

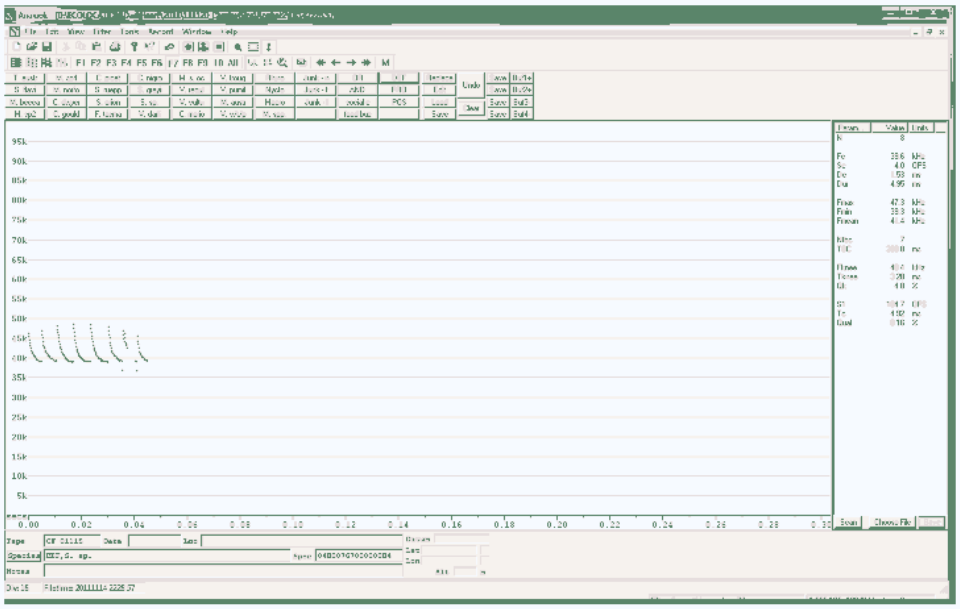

Figure 1: Scotorepens sp. recorded from the south-side of Port Macquarie, Mid North Coast, NSW.

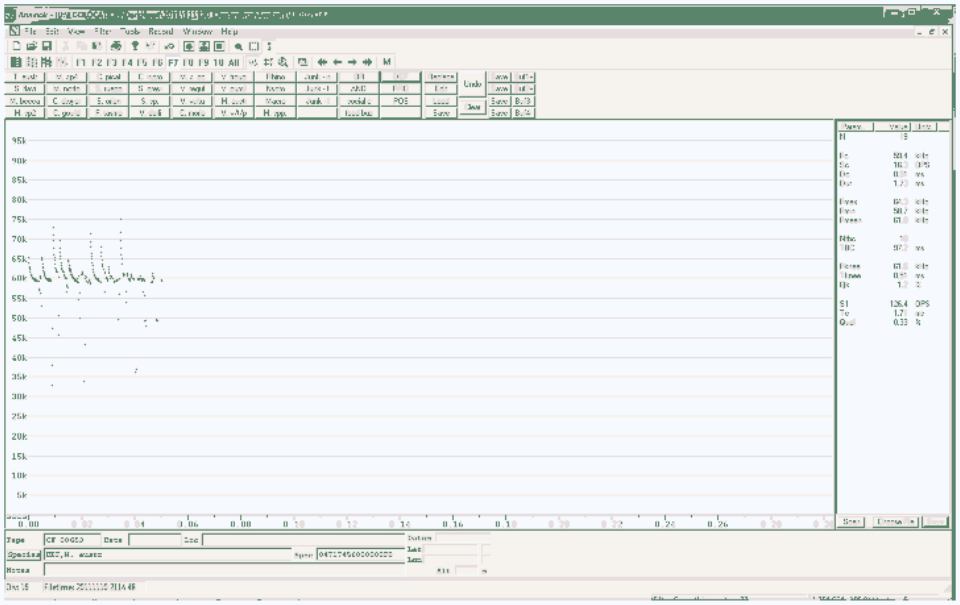

Figure 2: Miniopterus australis recorded from the south-side of Port Macquarie, Mid North Coast, NSW.

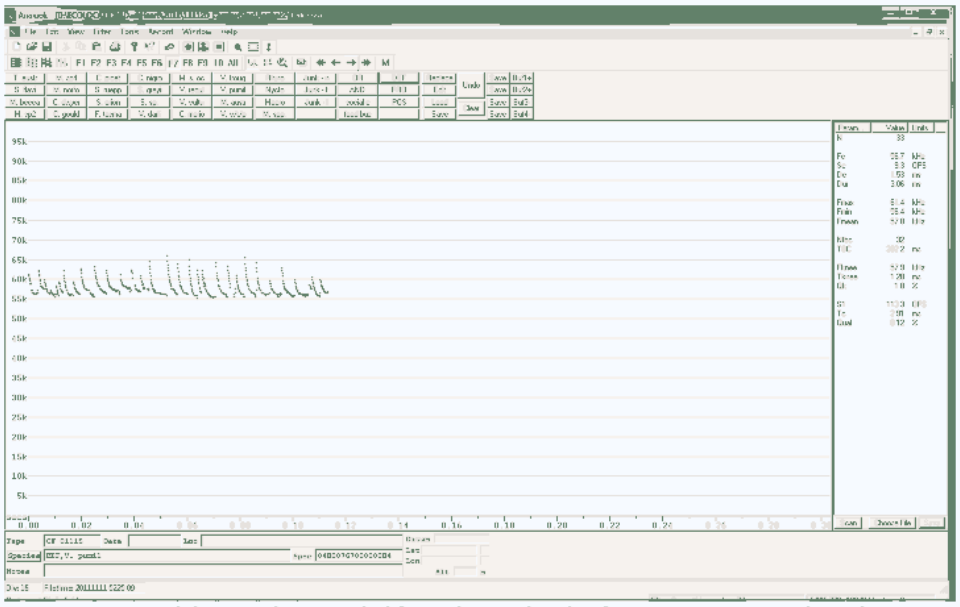

Figure 3: Vespadelus pumilus recorded from the south-side of Port Macquarie, Mid North Coast, NSW.

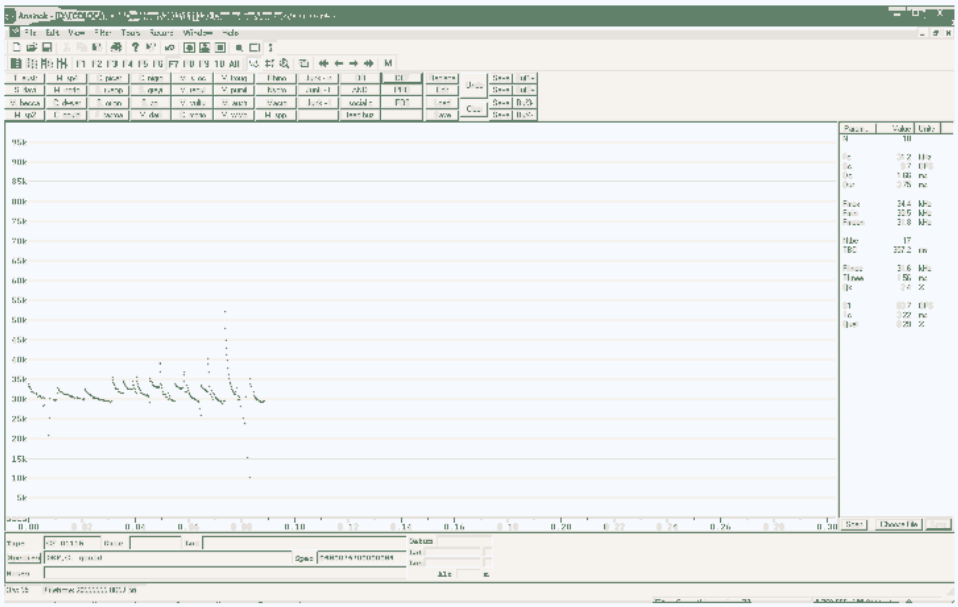

Figure 4: Chalinolobus gouldii recorded from the south-side of Port Macquarie, Mid North Coast, NSW.

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APPENDIX 5: JULY – AUGUST WEATHER DATA

Port Macquarie, New South Wales
July 2017 Daily Weather Observations

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Sa	6.0	17.0	0			WSW	35	11:27	10.6	59	1	W	13	1028.9	16.2	54		SW	20	1026.8
2	Su	6.6	19.0	0			WNW	26	00:13	11.7	66		WNW	11	1027.8	17.5	58		ENE	13	1023.8
3	Mo	4.6	19.5	0			NNE	22	12:22	9.7	88		WNW	4	1022.9	17.9	61	8	NNE	13	1016.9
4	Tu	6.5	25.1	0			N	24	11:34	18.6	74		N	11	1015.5	24.5	44		NNW	7	1011.9
5	We	2.0	20.1	0			NE	22	14:19	11.6	67		WNW	7	1017.6	18.7	39		NE	15	1012.5
6	Th	2.4	19.1	0			WNW	20	11:02	11.5	72		NW	7	1018.6	17.9	44		NE	13	1015.5
7	Fr	2.9	19.4	0.2			WNW	24	00:53	10.4	78		NW	11	1015.2	18.2	37		ESE	13	1011.1
8	Sa	3.2	19.3	0			W	28	13:05	11.1	69		WNW	13	1018.1	18.0	42		SE	9	1015.7
9	Su	3.5	18.9	0			NW	20	00:27	9.7	76		NW	7	1022.3	17.7	41		NE	9	1019.6
10	Mo	4.8	18.2	0			SSW	28	13:04	11.5	61		WNW	17	1026.7	16.9	46		SSW	9	1024.7
11	Tu	6.5	18.5	0			S	30	14:36	11.0	70		W	9	1029.6	17.3	42		SSW	20	1027.6
12	We	5.3	18.3	0			SW	35	10:18	13.8	77	8	W	17	1031.4	16.4	71	3	SSW	13	1029.3
13	Th	8.5	18.7	8.2			ENE	22	15:20	12.1	86	8	WNW	11	1029.0	17.3	60		NE	13	1025.1
14	Fr	5.3	20.9	0			ENE	22	15:00	10.8	89		NW	9	1022.4	19.6	58		ENE	17	1017.8
15	Sa	8.1	13.9	1.6			SW	17	11:01	11.7	95	7		Calm	1019.9	13.5	97	8		Calm	1018.8
16	Su	8.9	18.7	6.8			W	26	04:49	12.2	84		W	9	1022.6	17.0	66	7	SSE	15	1020.7
17	Mo	6.0	20.7	0.2			NW	20	10:31	10.9	94		NW	6	1021.8	20.2	50		NE	11	1017.7
18	Tu	6.8	24.3	0			NNE	28	16:17	13.5	83		NNW	7	1017.0	23.6	42		N	20	1010.5
19	We	6.8	18.6	0			W	46	11:42	14.7	45		WNW	13	1009.5	16.6	36	2	W	28	1006.2
20	Th	7.2	20.7	0			W	39	14:58	14.9	53		WNW	15	1014.1	19.8	25		W	22	1011.3
21	Fr	1.8	17.8	0			WSW	44	11:05	11.4	55		WSW	17	1019.3	17.2	48		SW	24	1018.4
22	Sa	7.4	19.6	0			W	28	00:10	12.7	55		W	17	1024.1	18.3	53		NE	15	1019.7
23	Su	1.8	20.8	0			NE	19	15:45	8.8	78		NNW	9	1019.7	19.3	41		ENE	13	1015.5
24	Mo	2.6	22.2	0			ESE	22	14:09	15.7	47		NW	6	1020.4	20.4	32		E	15	1018.2
25	Tu	4.7	19.5	0			WNW	20	03:15	12.8	64		WNW	9	1024.4	18.3	42		ESE	11	1020.9
26	We	4.0	26.1	0			W	44	15:45	11.3	81	3	N	7	1019.0	25.1	22		W	26	1014.7
27	Th	1.3	19.5	0			SW	22	10:34	13.4	61		W	9	1025.1	17.1	58		SE	11	1022.8
28	Fr	3.0	21.1	0			NW	19	06:50	10.2	88	6	NNW	9	1019.6	20.1	38	5	NE	9	1015.4
29	Sa	-0.7	19.9	0			NE	22	13:50	10.6	62		WNW	11	1022.4	18.0	44		ENE	15	1018.4
30	Su	2.2	22.2	0			WNW	20	01:55	10.7	65	3	NNW	9	1018.7	22.0	47	1	NE	6	1015.7
31	Mo	8.6	27.1	0			W	41	19:06	17.0	68		NW	6	1018.5	22.5	60	1	NNE	17	1012.4
Statistics for July 2017																					
	Mean	4.8	20.2							12.1	71	5		9	1021.4	18.8	48	4		14	1017.9
	Lowest	-0.7	13.9							8.8	45	1		Calm	1009.5	13.5	22	1		Calm	1006.2
	Highest	8.9	27.1	8.2			W	46		18.6	95	8	#	17	1031.4	25.1	97	8	W	28	1029.3
	Total			17.0																	

Observations were drawn from Port Macquarie Airport AWS {station 060139}

Some cloud observations are from automated equipment; these are somewhat different to those made by a human observer and may not appear every day.

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Port Macquarie, New South Wales
August 2017 Daily Weather Observations

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Tu	4.8	19.4	0			SW	37	13:05	14.2	57		W	13	1023.5	19.0	37		SW	24	1021.1
2	We	3.9	19.7	0			WNW	30	02:26	13.1	62		W	17	1024.2	18.4	53		SSE	17	1020.2
3	Th	5.8	18.7	0			NNE	30	20:28	12.6	67		W	9	1020.4	17.0	64	3	NE	17	1014.2
4	Fr	6.4	21.4	4.0			WNW	35	21:43	15.3	55	1	WSW	7	1012.0	21.1	33		NW	15	1009.3
5	Sa	1.2	19.7	0			ENE	30	14:43	12.3	70			Calm	1016.4	18.6	49		NE	20	1013.5
6	Su	4.8	21.9	0			NE	39	16:01	13.1	72		NNW	9	1018.6	19.8	47		NE	22	1012.2
7	Mo	3.4	23.8	0			NW	43	13:35	11.7	77	3	WNW	13	1012.8	22.9	24		WNW	20	1009.1
8	Tu	1.3	20.1	0			W	35	11:23	14.7	42		W	11	1018.0	19.6	25		SW	17	1016.7
9	We	-1.1	20.9	0			SSE	26	16:25	12.3	53		W	13	1022.9	18.8	41		SSE	17	1019.6
10	Th	4.2	23.3	0			N	24	11:14	11.5	77		NNW	9	1021.0	21.1	49		ENE	19	1015.0
11	Fr	4.0	27.9	0			NNE	22	13:18	12.8	74		NW	7	1016.4	26.5	28		NNE	11	1012.9
12	Sa	9.3	22.8	0			NE	20	12:35	14.8	69		SW	2	1020.1	20.8	37		NE	13	1017.4
13	Su	1.6	20.3	0			SSE	26	12:29	13.2	58		W	7	1023.2	18.7	49		SSE	17	1020.3
14	Mo	5.3	21.4	0			SSE	20	12:18	13.2	61		W	11	1020.3	20.3	38		SE	11	1015.8
15	Tu	5.0	25.4	0			N	24	22:16	14.9	64		NW	9	1016.9	23.7	41	4	NNE	13	1011.9
16	We	14.9	32.4	0			W	57	14:47	22.1	45		N	24	1004.1	30.7	17		W	31	1002.5
17	Th	7.3	23.9	0			NNE	30	10:06	18.5	67		NW	9	1010.6	23.0	58		ENE	15	1006.2
18	Fr	2.3	21.2	0			NW	56	11:12	19.0	31		W	24	1009.9	19.7	23		WSW	31	1008.0
19	Sa	10.0	17.4	0			SW	61	13:15	14.2	35		WSW	19	1014.0	16.8	30	5	SW	35	1014.3
20	Su	9.4	16.8	0.2			SW	52	10:26	13.8	51	4	SW	28	1021.8	15.2	57	8	SW	20	1020.3
21	Mo	4.6	17.1	0			N	24	13:17	11.6	73	1	NW	9	1021.2	15.9	55	8	N	9	1017.3
22	Tu	6.5	21.8	0			S	33	12:48	14.6	63	1	WSW	11	1018.5	19.9	52		S	20	1017.4
23	We	6.5	21.9	0			ENE	33	13:20	15.7	74		NW	7	1020.9	21.1	64		NE	24	1016.2
24	Th	7.8	21.0	0			S	48	16:35	17.5	63		SW	15	1016.4	19.0	52		S	30	1014.0
25	Fr	10.4	16.4	1.6			SW	50	11:12	13.9	70	5	SW	20	1020.6	14.8	87	8	SW	17	1020.2
26	Sa	8.1		4.6						16.3	66	1	SW	19	1023.6						
Statistics for the first 26 days of August 2017																					
	Mean	5.7	21.5							14.5	61	2		12	1018.0	20.1	44	6		19	1014.6
	Lowest	-1.1	16.4							11.5	31	1		Calm	1004.1	14.8	17	3	N	9	1002.5
	Highest	14.9	32.4	4.6			SW	61		22.1	77	5	SW	28	1024.2	30.7	87	8	SW	35	1021.1
	Total			10.4																	

Observations were drawn from Port Macquarie Airport AWS {station 060139}
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KOALA PLAN OF MANAGEMENT:

Part Lot 289 DP 1184284 and Lot 6 DP110560, The Ruins Way, Port Macquarie.

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User Notice

This report is presented on an objective basis to fulfil the stated legislative obligations, considerations and requirements in order to satisfy the client's instructions to undertake the appropriate studies and assessments. It is not directly intended to advocate the proponent's ambitions or interests, but is to provide information required in the determination of development consent by the decision-making authority for the subject proposal.

To the best of our knowledge, the proposal described in this assessment accurately represents the proponent's intentions when the report was completed and submitted. However, it is recognised and all users must acknowledge that conditions of approval at time of consent, post development application modification of the proposal's design, and the influence of unanticipated future events may modify the outcomes described in this document. Completion of this report has depended on information and documents such as surveys, plans, etc provided by the proponent. While checks were made to ensure such information was current at the time, this consultant did not independently verify the accuracy or completeness of these information sources.

The ecological information contained within this report has been gathered from field survey, literature review and assessment based on recognised scientific principles, techniques and recommendations, in a proper and scientific manner to ensure thoroughness and representativeness. The opinions expressed and conclusions drawn from this report are intended to be objective, based on the survey results and this consultant's knowledge, supported with justification from collated scientific information, references/citations or specialist advice.

Furthermore, it is clarified that all information and conclusions presented in this report apply to the subject land at the time of the assessment, and the subject proposal *only*.

This report recognises the fact, and intended users must acknowledge also, that all ecological assessments are subject to limitations such as:

- Information deficits (eg lack of scientific research into some species and availability of information)
- Influences on fauna detectability eg season in which survey is undertaken
- Influences on species occurrence eg stage of lifecycle, migratory, etc
- Time, resource and financial constraints.

All users should take into account the above information when making decisions on the basis of the findings and conclusions of this report.

Document Status	Distribution	Date	Authorised By
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Revision 3	Love Project Management, Charley Bros.	12/02/2018	JB

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1 INTRODUCTION

This firm has been requested to undertake a flora and fauna survey and SEPP 44 assessment of the land identified on Part Lot 289 DP 1184284 and Part Lot 6 DP 1105610, The Ruins Way, Port Macquarie. This survey and assessment is to assist in determining development options for the subject land, and form part of a rezoning application to Port Macquarie-Hastings Council.

In undertaking the ecological survey, the following have been considered:

- draft Threatened Species Survey and Assessment – Guidelines for Developments and Activities (DEC 2004)
- Threatened Species Assessment Guidelines – Assessment of Significance (DECC 2007).
- *Ecological Consultants Association of NSW – Code of Ethics* (2002) available at www.ecansw.org.au.

The assessment includes an assessment under State Environmental Planning Policy (SEPP) No. 44 - Koala Habitat Protection

2 BACKGROUND INFORMATION

2.1 Key Definitions

The **"study site/site**" is the area of land on the larger property owned by the proponent, indicated by the polygon in Figure 1, which was surveyed for this KPoM. The study site has a total area of 21.5ha and is shown in Figure 1.

The **"development precincts"** refers to the three areas of land proposed to be rezoned/developed shown in Figure 2. This area is approximately 10.8ha. The KPoM will only apply to those three development precincts shown in Figure 2. The three precincts are collectively referred to as the "**development envelope**".

For the purposes of potential occurrence and impact assessment, the "**study area**" consists of the site and the adjacent land within 100m (the detectable limit of potential impacts associated with the proposal). The "**locality**" is defined as land within a 10km radius of the study site.

The definitions of site, study area and locality are in line with DECC (2007).

2.2 Site Location and Access

Refer to Figure 1 for the general location of the site and the locality. The site is located on the Ruins Way in the Lake Innes area, 5.5km southwest of Port Macquarie CBD.

Current access to the site is directly off The Ruins Way to all 3 areas to be rezoned and developed.

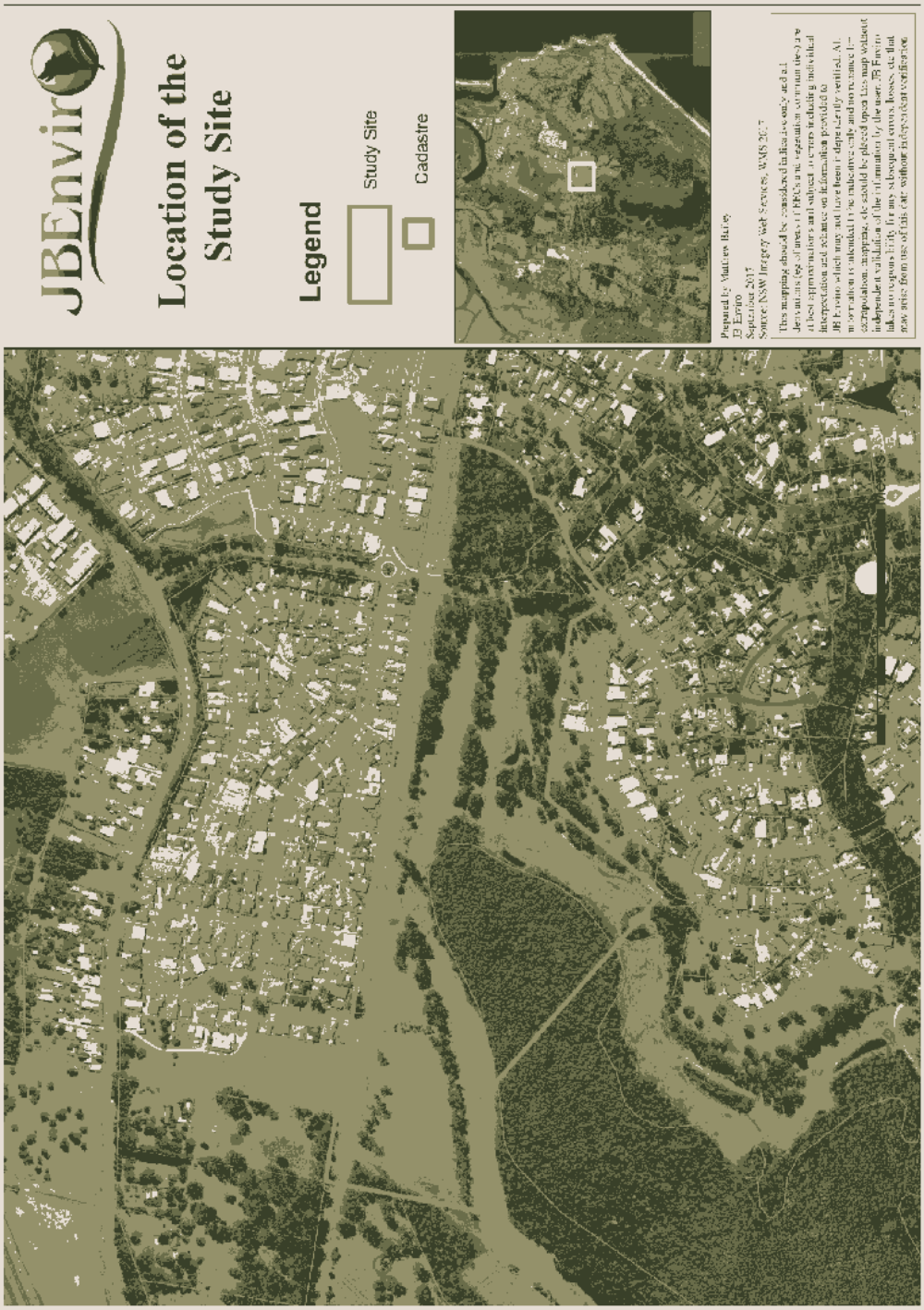

Figure 1: Location of study site.

Figure 2: Development precincts

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2.3 Rezoning Proposal

The proposed development envelope (approximately 10.8ha) on the study site is shown in Figure 2, and is divided into 3 development precincts (see Figure 2):

- *West Lindfield*: Approximately 4.84ha in the northwest corner of the site. A preliminary subdivision concept is shown in Figure 11.
- *West Ruins Way*: Approximately 4.28ha located in the middle section of the site just west of The Ruins Way, but excluding the swamp forest and immediately adjacent land. A preliminary concept for this area is shown in Figure 10.
- *East Ruins Way*: Approximately 1.66ha to the east of The Ruins Way, in Lake Innes Estate. A preliminary concept for this area is shown in Figure 9.

The West Lindfield and West Ruins Way precincts are located east and west of a peninsular of Lake Innes Nature Reserve which falls in the middle-south within the study site. This area is referred to as "*Part Lake Innes Nature Reserve*" (PLINR) and is about 4.1ha in extent.

The development envelope is currently zoned RU1 (Primary Production) under the Port Macquarie-Hastings Local Environmental Plan 2011 (PMHC LEP 2011).

Residential zoning is sought for all three precincts. For the East Ruins Way precinct, the proposal is for a low density development such as a church and associated facilities. This is in an advanced stage of planning.

3 LEGISLATIVE AND POLICY FRAMEWORK

3.1 Commonwealth

3.1.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Federal Government's primary environmental legislative instrument. This act necessitates approval for any action that will have a Significant Impact on Matters of National Environmental Significance (MNES). MNES recognised under the EPBC Act, that act as a trigger for the Commonwealth assessment and approval process include;

- World Heritage properties;
- National Heritage Places;
- RAMSAR wetlands of international significance;
- Threatened species and ecological communities;
- Migratory species;
- Nuclear actions, including uranium mining;

- The Commonwealth marine environment;
- A water resource, in relation to coal seam gas development and large coal mining development

The Koala was listed as Vulnerable under the EPBC Act in April 2012. This listing covered the most at-risk Koala populations in Queensland, NSW and the ACT. As a result, any actions that are likely to have a significant impact on the Koala in these states must be referred to the Minister who will decide whether an assessment is required under the EPBC Act (DoE 2013).

3.1.2 National Koala Conservation Strategy 1998

This report was prepared in 1998 by the Australian and New Zealand Environment and Conservation Council (ANZECC) and subsequently signed by the Commonwealth, States and Territories. The primary aim of the strategy was "*to conserve Koalas by retaining viable populations in the wild throughout their natural range*".

The report sets out the following six objectives to achieve this:

- To conserve Koalas in their existing habitat
- To rehabilitate and restore Koala habitat and populations
- To develop a better understanding of the conservation biology of Koalas
- To ensure that the community has access to factual information about the distribution, conservation and management of Koalas at a national, state and local scale
- To manage captive, sick or injured Koalas and orphaned wild Koalas to ensure consistent and high standards of care
- To manage over-browsing to effectively prevent both Koala starvation and ecosystem damage in discrete patches of habitat

A 10 year review of the strategy was undertaken by Parsons Brinckerhoff in 2008 (Predavec 2008). This found that the strategy had been poorly implemented and coordinated overall and had achieved few positive outcomes. The review also stated that significant declines in Koala populations and habitat in Queensland, New South Wales and Victoria had occurred since the strategy was implemented and the main threatening processes continued to operate.

3.1.3 National Koala Conservation and Management Strategy 2009-2014

This report was prepared by the Natural Resource Management Ministerial Council to supersede the 1998 National Koala Strategy, and was effective from December 2009 with a review undertaken in 2014. It identified shortcomings of the 1998 strategy by including a detailed implementation plan and setting up an implementation team to coordinate the identified actions which were linked to outputs, prioritised, and given a timeframe

The plan also aimed to strengthen partnerships between government, stakeholders and the community and effectively engage the community in Koala conservation.

3.2 NSW

3.2.1 SEPP No. 44 - Koala Habitat Protection

State Environmental Planning Policy no. 44 – Koala Habitat Protection (SEPP 44) is a planning policy that "aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for Koalas to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline".

SEPP 44 requires the identification of Potential and Core Koala Habitat on development sites and planning areas, and the preparation of a Koala Plan of Management (KPOM) if Core Koala Habitat is found.

SEPP 44 also allows local governments to prepare LGA wide Koala management plans referred to as Comprehensive Koala Plans of Management (CKPoM). Coastal LGA's that have implemented CKPoMs include Kempsey, Coffs Harbour, Port Stephens and Lismore. No approved CKPoM has been prepared for the Port Macquarie-Hastings LGA to date, however a large Koala population study has recently been undertaken by Biolink (2013).

3.2.2 Koala Recovery Plan 2008

A NSW Recovery Plan for the Koala was prepared by the then Department of Environment and Climate Change (DECC) in 2008. The overall objective of the plan is "*to reverse the decline of the Koala in New South Wales, to ensure adequate protection, management and restoration of Koala habitat, and to maintain healthy breeding populations of Koalas throughout their current range.*"

The plan adopted the specific objectives of the National Koala Conservation Strategy (ANZECC 1998) to achieve broader conservation outcomes. A number of specific recovery actions and performance criteria were formulated to implement the objectives.

3.2.3 Threatened Species Conservation Act 1995 / Biodiversity Conservation Act 2016

The *Threatened Species Conservation Act 1995* (TSC Act) relates to the conservation of threatened species, populations and ecological communities and promotion of ecologically sustainable development. Provision is made under the Act for the preparation of recovery plans, threat abatement plans and mapping of critical habitat.

An assessment under the Act is required if a development or activity is likely to significantly impact identified threatened species, populations or ecological communities.

The Koala is listed as Vulnerable under the TSC Act.

As of August 25th 2017, the *Biodiversity Conservation* (BC) *Act 2016* replaced the TSC Act. The Koala remains listed as Vulnerable under the Act.

Depending on the transition provisions, Development Applications under Part 4 of the *Environmental Planning and Assessment Act 1979* will have to address the new provisions of the BC Act 2016 and associated *Biodiversity Conservation Regulation 2017*, which may include offsets for clearing.

3.2.4 Saving our Species Iconic Koala Project and NSW Koala Strategy

The NSW Koala Strategy is under development, but is intended to be a whole of government approach to recovering the Koala in NSW. The strategy aims to:

- Collect and collate knowledge of Koala ecology, including filling in data gaps and establishing a new NSW Koala habitat map inform about habitat preferences and extent, population trends and threats.
- Provide a foundation for a coordinated approach to manage and mitigate identified threats to the Koala.

The NSW Koala strategy will include the Saving our Species Iconic Koala Project. The Project aims to secure the Koala in the wild in NSW for 100 years. Actions undertaken from 2012-2015 are:

- Provide incentives to landholders to manage and improve priority Koala habitat on their land.
- Identify Koala habitat and threats, and recommend mitigation measures for councils and the community.
- Evaluate the effectiveness of previous tree plantings to better target future conservation actions.
- Investigate where remedial actions can be most effective in providing drought refuges and reducing the impact of disease.
- Undertake community surveys to track changes in Koala populations.
- Develop a standard approach to mapping Koala habitat.

The Project has now identified a series of actions to address threats from 2017-2021. These actions include measures to address threats through to training programs for carers rehabilitating Koalas, and targeted research, as well as funding priorities. The Project's success is to be measured against specified performance criteria to refine the approach and achieve its objectives.

4 KPoM Objectives and Performance Criteria

4.1 Guidelines for Individual Koala Plans of Management

The SEPP 44 B35 Circular (Department of Urban Affairs and Planning 1995) provides guidelines for the preparation of individual Koala plans of management. These are shown in Table 1 below along with the section in which they are addressed in the KPoM.

Table 1: SEPP 44 KPoM guidelines

Number	Criteria	Section Addressed
i)	An estimate of population size	Section 5.3.1
ii)	Identification of preferred tree species for the locality and extent of resource available	Section 5.2.1, 5.3.2
iii)	An assessment of the regional distribution of Koalas and the extent of alternative habitat available to compensate for that to be affected by the actions	Section 5.3.3
iv)	Identification of linkages of Core Koala Habitat to other adjacent areas of habitat and movement of Kolas between areas of habitat. Provision of strategies to enhance and manage these corridors	Section 5.3.3 Section 6.1
v)	Identification of major threatening processes such as disease, clearance of habitat, road kill and dog attack which impact on the population. Provision of methods for reducing these impacts	Section 6
vi)	Provision of detailed proposals for amelioration of impacts on Koala populations from any anticipated development within zones of Core Koala Habitat	Section 7
vii)	Identification of any opportunities to increase size or improve condition of existing core habitat, this should include lands adjacent to areas of identified Core Koala Habitat	Section 7
viii)	The plan should state clearly what it aims to achieve (for example, maintaining or expanding the current population size or habitat area)	Section 4.2
ix)	The plan should state criteria against which achievement of these objectives is to be measured (for example, a specified population size or specific time frame or the abatement of threats to the population)	Section 4.3
x)	The plan should also have provisions for continuing monitoring, review and reporting. This should include an identification or who will undertake further work and how it will be funded.	Section 8 and appendices

4.2 Objectives

The principle objective of this Koala Plan of Management is to ensure the study area retains its ability to support a Koala population, and also to enhance this by increasing potential carrying capacity and linkages within the broader Core Koala Habitat.

The objective of this Koala Plan of Management (KPoM) is to maintain the viability of the current Koala population which occurs in the local area via:

- Retaining the majority of existing mature Koala food trees trees, and current activity areas.
- Increasing the net extent of primary browse species to increase its carrying capacity and potentially allow population expansion;
- Maintaining and enhancing linkages with other habitat known to be required by the local Koala population; and,
- Effectively mitigate threats to the viability of Koalas induced by the proposal.

4.3 Performance Criteria

The criteria against which achievement of the objectives are to be measured are:

1. A net increase of food trees within the study area.
2. Maintenance of effective linkages within the study area.
3. Nil Koala losses or injury due to road strike, drowning in pools, or attack by dogs via adequate mitigation measures.
4. No increase in disease incidence.
5. No unmitigated increase in threats to Koalas within the study area.

5 KOALA HABITAT AND POPULATION CHARACTERISTICS

5.1 Site Vegetation Communities

As shown in Figure 3, the site vegetation consists of:

(a) East Ruins Way:

- Pasture along service easement to north.
- Dry sclerophyll forest (remnant block) with slashed grassy understorey over majority of this precinct.

(b) West Ruins Way:

- Pasture along fairways and in service easements.
- Dry sclerophyll forest with mostly maintained undergrowth in 3 remnant strips between fairways.

(c) West Lindfield:

- Pasture over most of the precinct.
- Dry sclerophyll forest at the end of the strip in the southeast
- Narrow band of wet sclerophyll in the northwest corner boundary.
- Swamp forest dominated by paperbarks in and adjacent to the southwest corner boundary, and forming a single line of trees along most of the southwest boundary.

(d) Part Lake Innes Nature Reserve (PLINR):

- Swamp forest dominated by paperbarks over most of this area.
- Pasture along the cadastral boundaries, mostly in the north.

Several dams also occurred in the western areas with limited aquatic vegetation.

5.2 SEPP 44 KOALA HABITAT ASSESSMENT

5.2.1 Koala Habitat Assessment

5.2.1.1 Potential Koala Habitat assessment

Three Schedule 2 browse species are present on the site: Tallowwood, Forest Red Gum and Swamp Mahogany.

A formal Potential Koala Habitat Assessment was undertaken over the three precincts (JBEnviro 2017), with all three having at least 1ha of habitat surpassing the 15% threshold required by SEPP 44. Potential Koala Habitat mapping is shown in Figure 4.

5.2.1.2 Core Koala Habitat assessment.

As detailed in JBEnviro (2017), the site has been subject to a series of surveys from 2011 to 2017, using diurnal and nocturnal Koala surveys as per a modified Dique *et al* (2004) methodology.

These surveys have consistently recorded 0-4 Koalas on various parts of the site, with seasonal usage varying as shown in the following table.

Table 2: Koala numbers per season 2011-2017

	Summer	Autumn	Winter	Spring
Min. number of Koalas	0	0	0	0
Max. number of Koalas	2	2	4	3

The data to date very clearly illustrates that the proposed zoning area plus habitat from the southern end of The Ruins Way and Major Innes Drive forms at least part of the home range of a small (about 4) residential population of Koalas. The data also demonstrates that these Koalas are not confined to the study site, but range widely spatially and temporally from the southern end of The Ruins Way to the Mill Hill area, using both intact forest remnants and trees within the urban woodland. Joeys are not often seen, and the dominant adult male was anecdotally reported to show signs of Chlamydia infection in 2011. A female with advanced signs of Chlamydia was also noted in the South Lindfield rezoning precinct in 2015 (Naturecall 2015a).

These Koalas may also utlise habitat to the northwest in South Lindfield given the proximity and connectivy, and are likely to be related to the similar sized group identified on and adjacent to Ascot Park (Naturecall 2015a, Biolink 2005a, 2005b, 2005e, Darkheart 2006e, 2011).

5.2.1.3 Conclusion

Due to the presence of female Koalas with joeys; both males and females on site; reports of a breeding male in the study area; and ongoing records of Koalas within associated habitats: the site was considered to form part of a larger area of Core Koala Habitat.

JBEnviro

Figure 3: Vegetation communities and hollow-bearing trees on the site

Figure 4: Potential Koala Habitat in the development precincts

JBEnviro

5.3 Characteristics of the Core Koala Habitat

5.3.1 Estimate of Population Size

JBEnviro (2017) and previous studies (Naturecall 2015a, Biolink 2005a, 2005b, 2005e, Darkheart 2006e, 2011) confirm that the site is part of a wider area of Core Koala Habitat used by a population of Koalas. This population appears to range well beyond the site, possibly over the wider Ruins Way/Mill Hill area, south to Lake Innes Nature Reserve, and possibly west to Ascot Park. This wider population appears to be small, as suggested by the extensive and on-going survey for and by Vilro; other nearby studies (e.g. Naturecall 2015a, Darkheart 2006e, 2011) and sightings by this and previous surveys on and adjacent to the site.

Due to this wider landscape of Core Koala Habitat (eg Mahers Headland, Lake Innes Nature Reserve, etc), there is also likely to be a periodic influx of recruits to maintain genetic diversity in the study area. Hence at certain times of the year, it is possible that temporary resident Koalas may be present in the study area eg sub-dominant males.

In line with Koala ecology, the local aggregate using the site and adjacent habitat for at least a small part of their range is thus considered likely to be at most about 4 Koalas, constituting a dominant male, at least 1-2 breeding females and their young.

5.3.2 Preferred Tree Species

From a collation of previous landscape-based Koala food tree research and data collected the coastal LGA study, Biolink (2013a) determined that the following are the primary preferred Koala browse species in the PMHC LGA, depending on soil landscape:

Table 3: PMHC LGA primary preferred Koala food trees per soil landscape

Transferral, Alluvial, Swamp and Thrumster Residual (TASTr) Soil Landscapes: Medium to High Fertility	Erosional, other Residuals, Colluvial, Beach and Aeolian (ERCBA) Soil Landscapes: Low to Medium Fertility
Tallowwood (*E. microcorys*)	*Tallowwood (*E. microcorys*)
Swamp Mahogany (*E. robusta*)	Swamp Mahogany (*E. robusta*)
Grey Gum (*E. propinqua*)	
Forest Red Gum (*Eucalyptus tereticornis*)	

* Tallowwood use appears to be size dependent on low to medium soil landscapes (Biolink 2013).

Tallowwood, Swamp Mahogany and Forest Red Gum (in decreasing order of abundance) are the only preferred Koala browse species on site.

Naturecall (2015) recorded use of these species on adjoining land to the northwest. Biolink (2005a) and Darkheart (2005g, 2006e) recorded use of Tallowwood in Ascot Park to the southwest.

5.3.3 Distribution of Koala Populations, Site Context and Linkages

5.3.3.1 Regional Distribution of Koalas

Koala numbers have declined throughout most of their previous range in NSW, with the main occurrences being in the northeast of the state (DECC 2008). Most coastal populations now persist in fragmented and isolated areas of habitat (predominantly secondary class A with some localised primary areas supporting high density populations), with extensive areas of potential habitat appearing to be devoid of Koalas (DECC 2008). In contrast, some well-known western populations appear to be increasing. The difference is considered to primarily be due to increasing development pressure eg from agriculture and urban expansion in the coastal region (DECC 2008, AKF 2014, 2007).

In the north coast and mid-north coast regions, areas with large numbers of records are restricted to localities such as Ballina, Port Stephens, Port Macquarie, Coffs Harbour, Tweed and Lismore (Connell Wagner 2000b, Lunney *et al* 1999, Port Stephens Council 2001, DECC 2008, AKF 2008, 2007). The Koala Recovery Plan (DECC 2008) notes that in addition to these major population centres are numerous small populations many of which are disjunct to urban and rural development, as well as natural barriers (DECC 2008).

5.3.3.2 Distribution and Abundance of Koalas in the PMHC LGA:

The coastal sector of the Hastings Local Government Area (LGA) is well known to contain a viable Koala population in varying densities, generally within the following major areas (Biolink 2013, Connell Wagner 2000a, 2000b, Starr 1990, Biolink 2003, 2005a, 2005a, 2005c, 2008, 2013, AMBS 2003, Biosis 2004, Darkheart 2013, 2008a, 2008b, 2006e, 2005a-i, 2005a-h, Berrigan 2003a-d, 2002a-c, 2001a-e, 2000a-f, 1999a-c, 1998, 1997, Kendall 1993, 1991, Mt King Ecological Surveys 1993, OEH 2014a):

- Port Macquarie urban area
- Lake Cathie Plains to Lakes Innes/Thrumster area (approaching Sancrox)
- Lake Innes Nature Reserve/Kooloonbung Creek Nature Reserve and adjoining private lands
- Lake Cathie area
- Dunbogan Peninsula
- Point Plomer area

A number of other well-known smaller population centres also occur in scattered occurrences eg Broken Bago State Forest, Telegraph Point, North Brother, Bonny Hills, North Shore and Huntington area (OEH 2014a, Biolink 2005c, 2013, Darkheart 2005a, 2005b, 2004a, Kel Mackay pers. comm., Mrs Penny Marshall BHCC pers. comm.).

Biolink (2013a) in their major study estimated a population of approximately 2000 Koalas in the coastal LGA, occupying an Area of Occupancy of only 24% of available habitat.

Studies of the nearby Lake Innes Nature Reserve (Starr 1990, Mt King Ecological Surveys 1991, Connell Wagner 2000b), Thrumster (Biolink 2008, 2005a, 2005b, 2005d, 2003, Darkheart 2005g, 2006e) and Port Macquarie (Starr 1990, Mt King Ecological Surveys 1991,

Connell Wagner 2000b, Wilkes and Snowden 1998, Martin 1996) have estimated that a sizeable Koala population exists in the locality. Estimates range from 400-500 in Port Macquarie (Martin 1996) with a similar number in the northern reaches of Lake Innes Nature Reserve (NPWS 1999, Phillips unpub. data cited in Biolink 2008, 2005a, 2005b), to >200 in the Thrumster area (Biolink 2008, 2005a, 2005c). These are however only estimates or based on modelling and hence a number of limitations of this data must be considered e.g. reliance on extrapolation from SAT data with limited validation.

An estimated 300 Koalas in the Lake Cathie area has been proposed though given limitations on survey methodology (ie public records which may be many sightings of the same Koala), this figure is recommended by Biolink to be treated with caution (Biolink 2005a, 2005c).

The Lake Innes-Thrumster population is considered by Biolink (2013) to be of national and state significance (Biolink 2008, 2005a, 2005b, 2013).

5.3.3.3 Local Populations

Studies of the adjacent Lake Innes Nature Reserve (Biolink 2013, Starr 1990, Mt King Ecological Surveys 1991, Connell Wagner 2000b), the majority of Vilro Pty Ltd land holding (Biolink 2005a, 2005b, Darkheart 2006e), Thrumster (Biolink 2008, 2003) and Port Macquarie (Starr 1990, Mt King Ecological Surveys 1991, Connell Wagner 2000b, Wilkes and Snowden 1998, Martin 1996) have determined that a sizeable Koala population exists in the locality.

As noted above, estimates have been proposed in the range of 400-500 in Port Macquarie (Martin 1996) with a smaller number in the northern reaches of Lake Innes Nature Reserve (NPWS 1999, Phillips unpub. data cited in Biolink 2005a, 2005c), and the Thrumster area (Biolink 2008). These numbers are only provisional estimates however, with no comprehensive survey or verified statistical census undertaken to date (DECC 2008). Biolink (2005a, 2008) has offered estimates from their work in the northern Lake Innes Peninsular and Thrumster area, but these have not been independently verified or validated by using comparative methodologies e.g. Dique et al 2004.

Any lack of firm knowledge about the extent and health status of the local Koala population is a significant concern for planning. Over-estimation of the Koala population size and poor understanding of health status (eg low fertility due to Chlamydia) can mask declines, hence in the absence of adequate data, the Uncertainty Principle must be applied to management of Koalas in Port Macquarie and its environs.

Nothwithstanding this limitation on the larger population size, the long term monitoring of the Mill Hill/Ruins Way and Ascot Park by Vilro coupled with studies by Darkheart and Naturecall provide a high level of confidence of the size and seasonal variation in use of habitat within the study area.

5.3.3.4 Linkages

Regional:

The Office of Environment and Heritage (OEH) has mapped corridors at a regional scale throughout northern NSW. This map is shown in Figure 5.

The subject site does not fall within a regional or sub-regional corridor. As evident in Figure 5, a regional corridor is mapped to the south of the site within Lake Innes Nature Reserve, and a sub-regional corridor is mapped well to the west.

The focal species of these corridors are the Koala, Brushtailed Phascogale and the Eastern Chestnut Mouse (Scotts 2002). Due to the lack of fragmentation of this portion of the corridor, it is considered likely to support Koala movement as this species may use as little as 1 tree/ha - Wilkes and Snowden 1998).

Local:

As shown in Figures 3 and 5, the study area and immediate locality has a high level of fragmentation by urban development and historical rural land uses. Koalas occurring in this local matrix are also increasingly threatened by further fragmentation and gradual attrition of habitat via residential development, increased exposure to predators (wild and domestic dogs), and the introduction of barriers/mortality threats posed by local roads which may all contribute to the decline of the local population (DECC 2008, AKF 2006, 2006, 2011, Curtin *et al* 2002, Port Stephens Council 2001, Hindell and Lee 1990, Connell Wagner 2000b, Dique *et al* 2004, Hume 1995, Jurskis and Potter 1997, Phillips 2000, Phillips *et al* 2000, Biolink 2005a, 2005b, 2008).

The peninsular of intact swamp forest within Lake Innes Nature Reserve between the West Lindfield and West Ruins Way precincts is the only fully intact forest in close proximity to the site. This forest has preferred Koala food trees (predominantly Swamp Mahogany) most commonly on the outer margins and provides an intact arboreal and terrestrial link directly to the remainder of the Reserve, as well to significant Koala habitat along the northwestern fringes of the Reserve where food trees are more common (Biolink 2005a, 2005b, 2008, Phillips 2000b).

Conversely, this linkage (and more importantly the Kooloonbung Creek Nature Reserve corridor) may also be important for Koalas moving out of this habitat when burnt out by major bushfire to refuge habitat within the Lake Innes residential precinct, or dispersing between the urbanised population in Port Macquarie and the Lake Innes Peninsular population (Connell Wagner 2000b, Wilkes and Snowden 1998).

Linkage across West Lindfield and West Ruins Way is only provided by narrow remnant strips of forest between fairways. As the Koala will cross open ground and use scattered trees in urban woodlands (AKF 2007, Wilkes and Snowden 1998), these strips are adequate for use in Koala movement west to east across the site. These areas would be used by residential Koalas as part of their lifecycle movements, and less frequently by dispersing sub-adults from local Core Koala Habitat.

Linkage to the north is limited by fences and lack of habitat along most of the boundary to West Ruins Way. Land to the northeast of West Lindfield is identified Core Koala Habitat (Berrigan 2003g), and a few food trees have been retained in the road reserve of the estate (Oxley Grove) as an urban woodland. Koalas are known to continue to use these trees (evidenced by scats and sightings). Koala movement further north is minimal due to lack of sufficient habitat and barriers posed by more extensive cleared and low-lying land (Darkheart 2010a, 2010b, Biosis 2005, AMBS 2003), and now the Oxley Highway Deviation which has fauna fencing/sound barriers intended to direct fauna to designated underpasses.

Figure 5: OEH corridors
© OEH 2017c, Dept of Lands 2017

Linkage east to southeast of East and West Ruins Way is provided by a very well vegetated urban woodland which is adequate for the Koala to both inhabit and move through (Connell Wagner 2000b, Wilkes and Snowden 1998, AKF 2007). Figure 9 shows that a distinct urban woodland corridor runs from East Ruins Way to Mill Hill via the wooded road reserve along The Ruins Way and Mill Hill Road. A cleared services easement, scattered trees and small remnants to the east also offer linkage (though barriers posed by fencing and yards with dogs would be a limitation) to the narrow link along Major Innes Drive which links to the Oxley Highway and Kingfisher Rd area, and other small remnants in the southeast Ruins Way area and ultimately Lake Innes Nature Reserve. These all link to a dedicated corridor off Mill Hill that links west to Lake Innes Nature Reserve. Koalas are periodically sighted in this main corridor, indicating its significance.

Overall thus, there are no effective barriers across the site to the Koala despite the level of fragmentation, but movement in the adjacent urban areas to the north is limited by lack of/limited habitat, fences, dogs (outside areas currently under KPoMs) and major roads.

Site Context:

In the local context, appraisal of Figure 5 shows that the site's and adjacent land's limited remnant habitat combined with the wooded road reserves form part of a larger matrix of remnants amongst mostly developed land in the John Oxley Drive/Ruins Way/Major Innes Drive area. Historical photos also show that this area has been subject to a cumulative loss of Koala habitat, particularly in the last 5 years.

As detailed previously, there are a plethora of Koala records in the locality. This includes several records on and close to the site, and numerous records within approximately 1km of the site (eg OEH 2017a, Biolink 2013a, 2008, 2005a, 2005b, Berrigan 2003c, 2003g, 2003h, 2001b, 2001c, 2001d, 2000b, 2000c, 1999a, 1999b, Naturecall 2015a, Darkheart 2007e,2006e, 2005d, 2005f, 205l, 2004g, 2004l, 2004g, 2004l, 2004n, 2004p, 2004q, etc, Connell Wagner 2000b, Wilkes and Snowden 1998, Biosis 2005, 2004, AMBS 2003).

This and other studies have determined that the site and the Ruins Way/Lake Innes residential area to Ascot Park areas contains Core Koala Habitat spread over both the northern reaches of Lake Innes Nature Reserve and adjacent forested rural land (Biolink 2005a, 2005b, 2008, 2003), supported by a matrix of remnants, roadside trees and an urban woodland (Berrigan 1999c, 2001i, 2003m, 2003n, Darkheart 2007c, 2013, EcoPro 1999b, Connell Wagner 2000b, Hastings Council 2003, Wilkes and Snowden 1998, Biolink 2005a, 2005b, 2008).

Koalas occurring on site thus form part of the local sub-population within the larger population which use the site as part of their range. This range is likely to extend over the adjacent Vilro land, the crematorium, northern extent of Lake Innes Nature Reserve, and possibly west to Ascot Park and east to the Ruins Way area.

6 THREAT ASSESSMENT

6.1 Current Threats

The following impacts/threats are generally associated with development of Koala habitat (Connell Wagner 2000a, 2000b, Wilkes and Snowden 1998, Biolink 2003, 2005a, 2005b, 2005c, 2008, Dr Stephen Phillips pers. comm., Lunney *et al* 1999, Port Stephens Council 2001, AKF 2007, 2000, State Forests 2000, DECC 2008). In context of the anticipated rezoning, these are first identified, and then the ameliorative measures/recommendations to address this threat/impact are described in this section.

Identified threatening processes are:

- Loss of forage trees/habitat
- Injury during clearing
- Road kill
- Dog attack
- Drowning in pools
- Physical barriers
- Bushfire
- Disease

These are described in detail below.

6.1.1 Loss of Forage Trees/Habitat

Habitat loss and/or fragmentation is the most serious threat to Koalas both historically and at present (DECC 2008, AKF 2014, 2007, 2000, Connell Wagner 2000b, Port Stephens Council 2001, Lunney *et al* 1999, Wilkes and Snowden 1998, etc.).

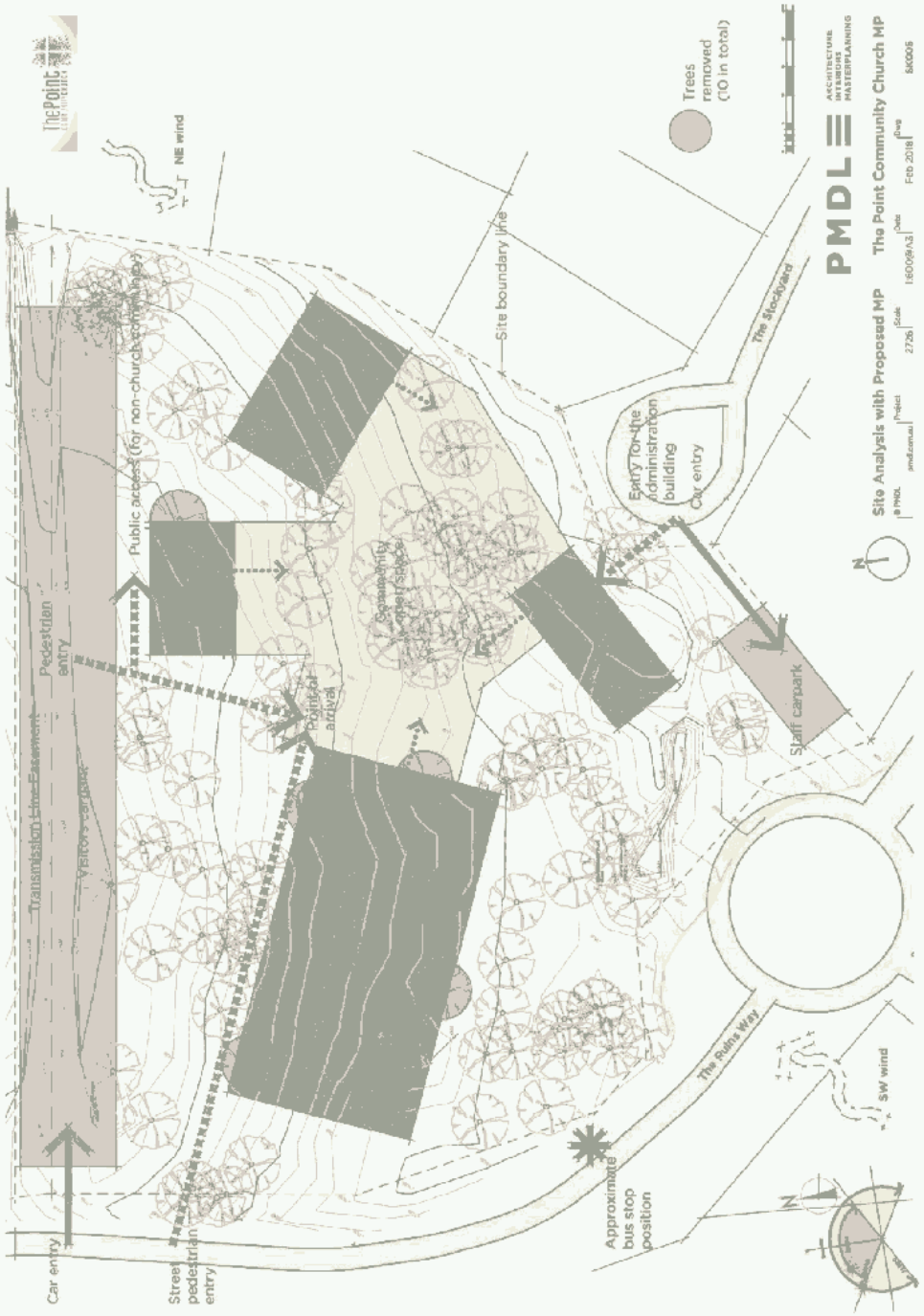
Figures 6-8 show the key habitat areas containing Koala food trees within the site which are to be largely retained. Koala food trees outside these areas may be permitted to be removed with offsets if they cannot be retained via effective long term measures.

It anticipated that approximately 82 Koala food trees may be removed if these concepts are realised as shown. The following figures show an intent to retain the overwhelming majority. No trees are proposed to be retained within yards in the West Lindfield or West Ruins Way precincts as these lots will be required to have Koala exclusion fencing to avoid dog/Koala interactions (see 6.1.4). All non-Koala food trees in the East Ruins Way precinct will also be removed.

PMHC have advised for similar developments that planning provisions will be emplaced to ensure retained trees and habitat are not able to removed under other provisions eg. NSW Rural Fire Service (2013) *10/50 Vegetation Clearing Code of Practice for NSW.*

JBEnviro

Figure 6: Preliminary concept for East Ruins Way



JBEnviro

Figure 7: Preliminary concept for West Ruins Way

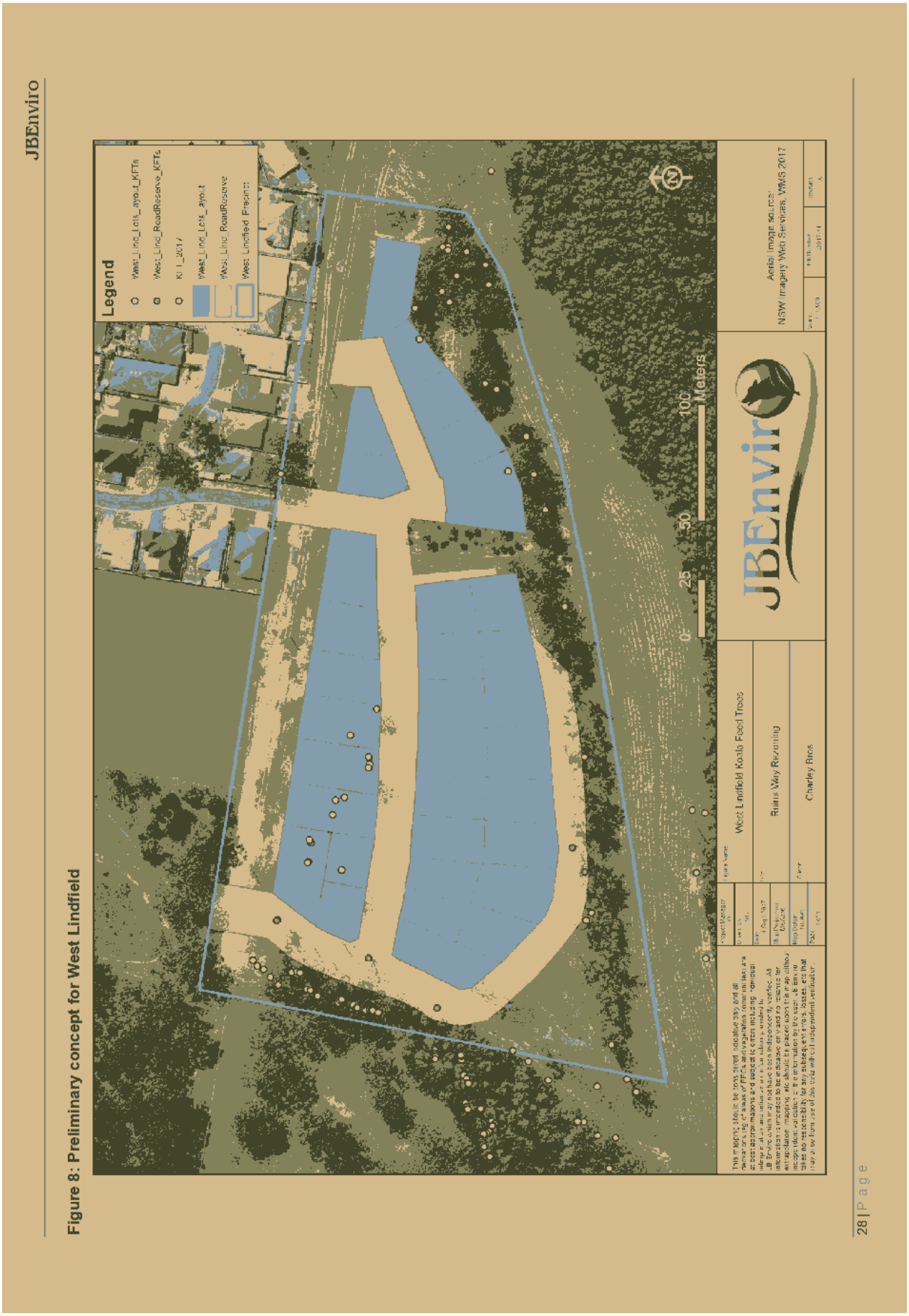


Figure 8: Preliminary concept for West Lindfield

6.1.2 Potential Injury During Clearing

Tree-felling and clearing will pose an associated risk of injury or mortality to any Koalas present on site at the time (AKF 2007).

At least 1-4 Koalas are known to have an association with the site, hence pre-clearing surveys and supervision by an ecologist will be required during any clearing undertaken on the site to reduce the risk of injury or mortality.

6.1.3 Traffic Collision (Road Kills)

Wilkes and Snowden (1998) and Connell Wagner (2000b) note that traffic collision (usually resulting in death) is a major threatening process to the Port Macquarie Koala population, particularly to males, who account for most of the injured animals (most likely due to more frequent and longer movements during their life cycle eg during breeding seasons).

The proposal will see an incremental and cumulative increase in traffic on local roads such as The Ruins Way. Access to the East Ruins Way may necessitate changes to The Ruins Way which may reduce maximum speed and hence further reduce the risk of road strike on this road.

Development on East Ruins Way itself is not expected to introduce this risk as the proposed development concept is for a church, with carparking limited to the north and hence no through road.

The concept for West Ruins Way proposes access directly off Ruins Way to an internal road which proposes single entry/exit, not connected to West Lindfield. There is a single crossing of the central strip of forest, of which the central band is to be retained for a corridor. Given road will be residents, visitors and service vehicles, and its short length, speed will naturally be very limited (<40 kph), hence collision risk should be low.

Proposed access to West Lindfield is via a short loop road from existing subdivision to northeast, and exiting northwest in north to future development, with a cul-de sac in north. This collector road will be 50kph but will not pass through habitat at least until the northwest exit on adjacent land (if retained).

6.1.4 Pets and Feral Predators

Domestic Dogs

Dog attack is a major cause of Koala mortality. Domestic dogs are probably the main source of dog attack mortality near residential areas (Wilkes and Snowden 1998, Lunney *et al* 1999, Port Stephens Council 2001, Connell Wagner 2000, State Forests 2000).

To meet the performance criteria of nil injuries or mortality due to domestic animal attack, dogs will be required to be excluded from the East Ruins Way precinct; with Koala exclusion fencing required on all Lots within the West Ruins Way and West Lindfield, to avoid the risk of dog/Koala interaction.

Feral Cats and Foxes

Cats are not considered a serious predator to the Koala (NWSC 2000a, Dickman 1996, Wilkes and Snowden 1998, DECC 2008, Lunney *et al* 1999, Connell Wagner 2000b, etc). Hence no specific prescription is provided in this KPoM.

Foxes are not considered a significant threat to Koalas, though there is the potential for attack on sick, injured or juvenile Koalas (DECC 2008). These vermin are also a serious threat to native species ie recognised as Key Threatening Processes (NSWSC 2000a, 2000b, Dickman 1996). These are subject to current controls under the PMHC Feral Species Management Strategy.

6.1.5 Drowning In Pools

Koalas can swim, but have been recorded drowning in pools where they could not climb out. Koalas may enter the pool via falling from overhanging branches, or walking in by mistake (DECC 2008). Wilkes and Snowden (1998) state that since the implementation of child-proof fencing around pools, accidental drowning has ceased to be a significant threatening process in Port Macquarie.

As pools may be installed by new landowners, there may be a risk of Koalas drowning if there are trees overhanging the pools if trees were located in rear yards. This should be avoided as no Koala trees are to be retained in rear yards of residential lots.

Standard provisions are provided to mitigate this threat if and where relevant.

6.1.6 Barriers

Developments may result in physical and behavioural barriers that impair Koala usage of the site or access to adjacent areas.

Fences offer the main physical barrier. Koalas can climb sturdy chain mesh, wooden paling or solid-type fences with wooden fences on both sides (Port Stephens Council 2001, Wilkes and Snowden 1998). Busy roads, barking or aggressive dogs, and adverse human contact may pose behavioural barriers (DECC 2008).

The site is currently partially fenced along boundaries of West Lindfield (west), West Ruins Way (north, south and east) and East Ruins Way (east). Fencing ranges from security fencing which poses a barrier to Koalas, to paling fencing which Koalas may be able to climb if required, to post and wire or post and rail which does not pose a barrier to Koalas. Most of this existing boundary fencing will remain post development.

The crematorium is also fenced with deer proof fencing, however the presence of Koala activity either side of this fence indicates that Koalas are able to cross it eg. via leaping between proximate trees.

The proposed development will eventually establish new fences around each residential Lot. Some are likely to be sheet metal (colorbond) fences that are a barrier for Koalas (Wilkes and

Snowden 1998). These may prevent access to certain areas of habitat on the site by Koalas, hence it is recommended that any Lots that contain Koala habitat or preferred feed trees have Koala permeable fencing.

6.1.7 Bushfire

Bushfires, particularly intense, crown-burning fires, are a major threat to wildlife and threatened fauna such as Koalas (DECC 2008). Extensive fires that burn out a large extent of habitat – particularly habitat that is isolated or fragmented, and thus limited in escape, refuge or re-colonisation potential, are particularly damaging if not catastrophic via direct mortality or indirectly (e.g. insufficient resources left to support the population).

Less intense fires may also cause secondary problems such as smoke-inhalation/breathing disorders, loss of food supply, stress and displacement (e.g. via complete burning of an individual's home range).

Altered fire frequency can also ultimately simplify or alter the character of vegetation communities by removing fire sensitive species (e.g. convert wet sclerophyll to dry), and even develop fire-prone communities e.g. promote development of a grassy groundcover (NSWSC 2000).

The site is bound by residential areas to the east, north and two thirds of the south, hence there is no risk of fire approaching the site from these areas.

The main fire threat overall is from the south ie Lake Innes Nature Reserve. The fairways provide a key gap in the canopy separating the vegetation on site from this hazard. Consequently, there is only a low risk of bushfire impacting the site.

6.1.8 Disease

Most Koalas are naturally infected with Chlamydia pathogens (Sharp and Phillips 1999, Phillips 1997). Chlamydia and other diseases may develop when Koalas are under stress, of which one cause is habitat loss/disturbance (DECC 2008, Catling 1991, McFarland 1999, AKF 2007, Port Stephens Council 2001). Chlamydia infections may lead to urinary tract and reproductive tract infections which can cause female infertility.

This disease occurs throughout the Port Macquarie Koala population (Connell Wagner 2000b), and a dominant male several years ago to the south was observed showing signs. A female was observed by Naturecall (2015a) to the northwest also showing advanced infection signs. This is a concern given the risk of transmission of this disease through the population via breeding activity, and potential sterilisation of dominant adults limiting recruitment and fecundity.

The proposal may increase stresses on the local aggregate that are commonly associated with development such as loss and modification of habitat, barriers and increased human presence. This has the potential to increase vulnerability to Chlamydia (AKF 2007), and monitoring and public awareness will be required to determine if any new infections are occurring and undertake remedial action.

7 AMELIORATIVE MEASURES

7.1 Habitat Retention, Consolidation and Linkage Enhancement

7.1.1 Habitat Retention and Protection

The development concepts are preliminary only, and Koala food tree locations have only been surveyed with hand-held GPS, hence final location will need to be determined via formal survey to determine the final number of trees retained.

The final development concepts are recommended to be designed to maximise retention of Koala food trees, specifically avoiding trees where Koalas have been recorded within as these are likely to be key food trees. An innovative layout design will demonstrate compliance with Australian Standard 4970 - 2009 *Protection of trees on development sites* to ensure retained trees are not incrementally and cumulatively removed as they are perceived in the future as threats.

Data has been collected on all trees including trunk diameter at breast height (DBH), height, and an arbitrary score of low, medium and high value to Koalas based on values such as health/vigour, crown development and structural integrity. This information can be used to triage assess trees for their relative value in retention within the future development.

Consistent with the KPoM for the adjoining South Lindfield development precinct (Naturecall 2015a), Koala food trees removed for the development will be subject to an offset ratio of 1:5 if plantings are proposed on land remaining in private ownership, or 1:1 if planted on land dedicated to Council. This ratio is required to ensure the current viability of the Koala population is retained and support potential for expansion.

Offset plantings must be located within an area secured under a suitable planning mechanism nearby so that Koalas impacted by tree loss will benefit from the net habitat gain. Offset plantings will be subject to a Vegetation Management Plan.

7.1.2 Habitat Replacement and Linkage Enhancement

Habitat replacement

The offset plantings are to comprise Tallowwoods, Forest Red Gum and Swamp Mahogany, with species selection being in accordance with the soils and environmental conditions at the planting location.

Council policy requires that replacement plantings are to be spaced at a minimum of 10m apart on cleared land or 5m apart where existing canopy gaps exist to allow maximum crown development via allowing low branching (woodland form) and reduced competition. Trees to be used preferred to advanced size trees that meet NATSPEC *Specifying Trees*, unless plantings are undertaken pre-emptively (preferably at least 5 years before actual tree loss) in which case small size classes may be used.

All plantings should either be planted with soil derived from the Koala habitat being cleared, or inoculated with commercially available mycorrhizal inoculant for native hardwoods.

These plantings will be managed and monitored by a Vegetation Management Plan (VMP), which must address the KPoM's objectives.

The VMP will ensure any planting area which may fall within a bushfire Asset Protection Zone or in proximity to dwellings does not conflict with current or future planning, engineering, infrastructure and bushfire requirements, including the 10/50 Vegetation Clearing Code of Practice.

Enhancement of Linkages

Linkage east to west between the three precincts retained within the residential area is recommended to be augmented with additional food tree plantings. These may occur in a designated reserve on West Ruins Way, interlinking to East Ruins Way and West Lindfield via other retained/existing habitat, as shown in Figure 9. The additional food tree plantings will be subject to bushfire, engineering and infrastructure limitations but it is noted that areas of low tree density (as little as 1 tree/ha) still serve as linkage and dispersal networks for Koalas (Wilkes and Snowden 1998).

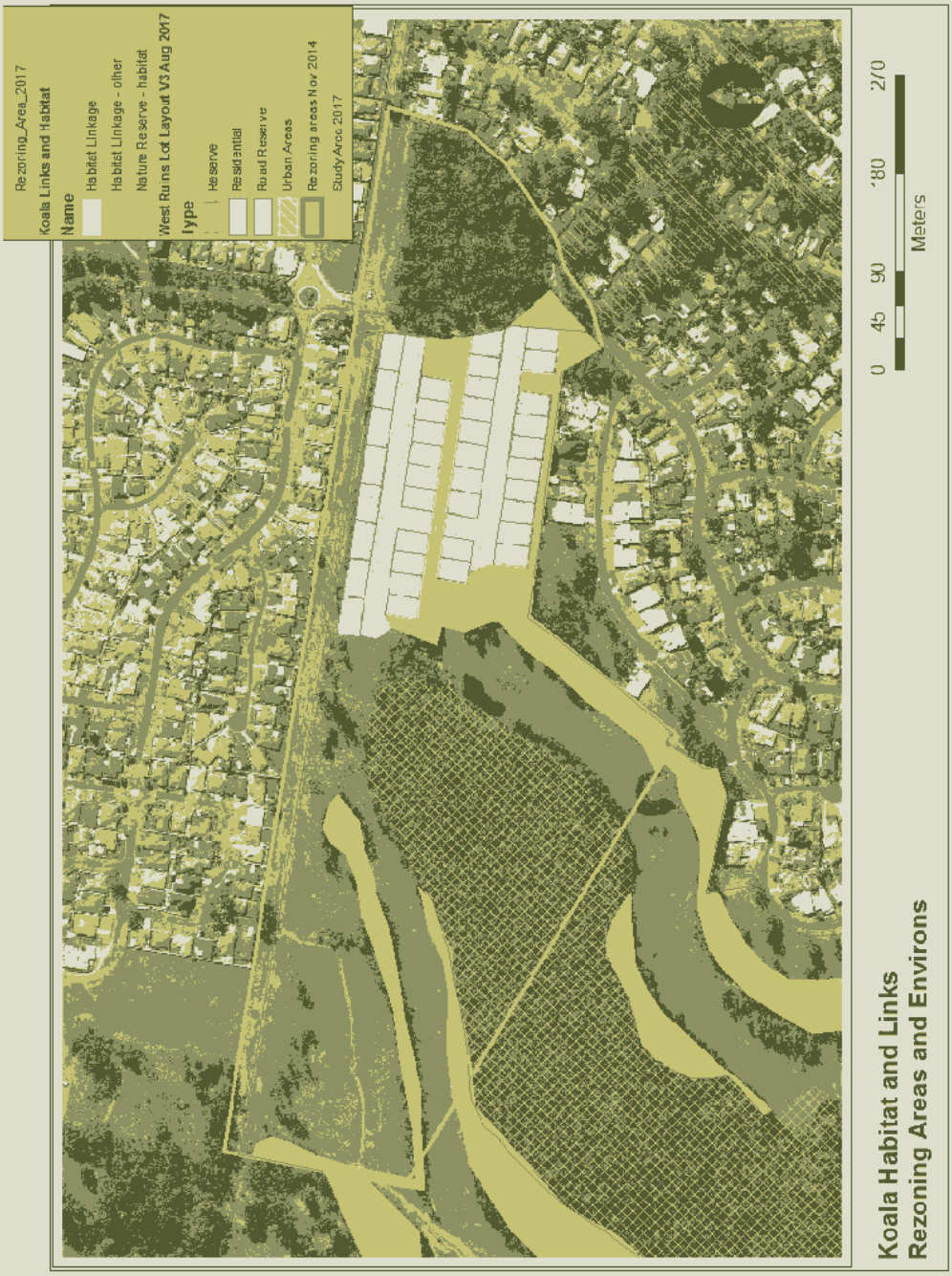
Offset plantings will also aim to reinforce existing corridors from Ascot Park to Lake Innes Nature Reserve, and the perimeter of the peninsula of the Reserve to the southeast.

7.2 Clearing Management

In order to minimize the risk of Koala's being killed or injured during any clearing works on the site; the following measures must be implemented:

- The area of work is to be inspected for Koalas by an ecologist immediately prior to commencement of any vegetation removal.
- The ecologist is to remain on-site during vegetation removal to maintain surveillance for Koalas and rescue other fauna as required.
- No such vegetation removal is to be carried out while any Koala is present in the area of operation unless a 50m buffer is established. If the Koala shows signs of sickness or injury, the Port Macquarie Koala Hospital is to be advised.
- A report by the ecologist is to be provided within 7 days of the clearing event detailing methods and results of the supervision.

Figure 9: Koala habitat linkages within the West Ruins Way area



7.3 Road Design and Speed Controls

As discussed previously, current concepts and planning indicates new internal roads will pass through vegetation that forms part of a linkage between retained habitat.

To reduce the risk of Koala road strike, the following measures will need to be implemented:

- Speeds at the crossing points through the linkage between retained habitat to be limited via design measures to 40km/h eg rumble zones and/or blisters.
- Koala crossing and warning signage should be erected at this crossing point. The Port Macquarie Koala Hospital number is to be displayed on the sign.
- Street lighting to be strategically positioned at the crossing points.

7.4 Dog Management

The following measures are proposed to reduce the risk of dog attack on Koalas using the site:

7.4.1 East Ruins Way

- Dogs are to be prohibited from East Ruins Way.
- The dog ban is to be noted on signage with Koala Hospital details for emergencies and Council Ordinance Officer number to report stray dogs.
- Council Ordinance Officer to ensure compliance.

7.4.2 West Ruins Way and West Lindfield

Dogs are permitted but only via use of Koala and dog impermeable fencing to separate dogs from Koala habitat on each residential lot i.e. dogs must be confined to yards with no Koala access. Dogs must only be on leash when outside a yard, with signage provided in the street advising of this restriction.

This restriction will be incorporated into the area specific Development Control Plan for the area, and binding via Development Application approval for future dwellings.

No Koala food trees are to be retained or planted in rear yards to avoid encouraging Koalas into yards with dogs.

7.5 Barriers

Development of the site will introduce new barriers for Koalas in the form of fences, hence the following measures should be implemented where habitat is to be retained:

- No fence design (either temporary or permanent) is to include a material or design feature that may potentially injure Koalas (or other fauna) eg barbs and loose wire.

- No fence is to form a barrier to retained or offset habitat. If a fence is required, it will require a 250mm gap under the fence; or be of a material and design that permits free access by Koalas or a structure will be provided which allows Koalas to circumvent the fence on both sides.

7.6 Drowning in Pools

Pools may be installed by future residents in backyards of residential lots on West Ruins Way and West Lindfield.

Any pool established will require a pool fence as per the *Swimming Pools Act 1992*. This should largely prevent Koalas from entering pools, and as no Koala food trees will be retained within the boundaries of a pool fence, no further provisions are specified.

7.7 Bushfire

The following measures are to be implemented in regards to bushfire:

- The designation/location and management of APZs is to minimise perceived risk of vulnerability to bushfire and hence demand for hazard reduction in adjacent habitat including retained habitat and offset areas.
- Offsets are to be located to avoid conflicts with APZs and negate risk for their potential to be removed by legislation changes, etc.

7.8 Disease

Disease is a current threat to the local Koala population and habitat loss associated with development of the site has the potential to increase the current disease risk. To help reduce this, the following measures are to be implemented in addition to the offset plantings:

- Contact details for Koala Hospital at site office during construction.
- Koala warning signage is to detail contact details for the Koala Hospital to facilitate prompt reporting of sick or injured Koalas.

8 IMPLEMENTATION, MONITORING AND COMPLIANCE

8.1 Monitoring and Review

Given that full development of the area will be realised in the long term, the monitoring regime has been devised to consider short and long term achievement of the KPoM objectives and measures (see 8.1.2).

The check list appended to this document summarises the specific actions required to be undertaken by responsible authorities to implement the recommendations of the KPoM. This can assist to ensure the provisions of the KPoM are implemented.

The provision of a KPoM Compliance Check with each DA will also assist in ensuring both the relevant provisions of the KPoM and conditions of consent of future are implemented and provide a means of feedback for compliance assessment.

The KPoM will be deemed successful if monitoring determines that the objectives stated in section 3.0 are achieved as per the listed specified performance criteria.

8.1.1 Per DA KPoM Compliance Checks

To ensure key measures of this KPoM are implemented, any future DA must demonstrate compliance with the provisions of the KPoM at various stages from the DA to post-construction eg prior to issuing the Subdivision Certificate, it must be demonstrated that clearing was monitored and offset plantings have been established under a VMP. Table 4 shows a provisional timeline for implementation of the KPoM measures and key reporting requirements. This is to ensure KPoM measures such as clearing monitoring and establishment of offset plantings are undertaken as required until the full development of the area is realised.

8.1.2 Strategic Reviews

As part of a wider strategic review funded by Voluntary Planning Agreement (VPA) contributions, the following is to be undertaken by an approved ecologist, and reported to PMHC:

1. **Koala Presence and Usage Survey**: A Koala survey is to be undertaken to census Koala usage of retained habitat and check for the incidence of disease. Methods are to:
   - Include a combination of survey techniques to be used eg. 100% coverage spotlighting surveys, call playback, day searches, and scat searches (with application of the SAT if statistical assumptions can be met). Objective is to detect Koalas present, indicate current population size, and assess health (eg signs of Chlamydia) and fecundity (eg presence of young, breeding activity of male).
   - Be undertaken during the Koala breeding season to increase detection; and include several non-consecutive day and night surveys.
   - In line with previous monitoring and to allow analysis of trends, the whole site must be

surveyed on one night (or day).

2. **VMP Review**: The VMP is to be reviewed for success in reaching key performance indicators eg number of established offset plantings, improved condition as indicated by very low weed diversity and density, etc.

Annual reviews of the VMP are to be taken to ensure works are on track and recommendations/remediation measures implemented, and allow compliance enforcement.

A major review (including the above Koala survey) is recommended to be undertaken every 5 years until the development is completed to ensure the KPoM is addressing its objectives and the VMP are effectively implemented. Recommendations are to be implemented before the next review period.

8.2 Implementation Schedule

The following table provides a summary of the timeline for implementation of the ameliorative measures for assisting with compliance assessment.

Table 4: Implementation schedule for ameliorative measures

Issue	Pre-DA/Rezoning Stage	DA Approval	Construction Phase	Operation Phase
Retention and Protection of Key Habitat	▪ Koala food trees to be removed or retained identified. ▪ Planning mechanisms to protect retained habitat implemented. ▪ DA to demonstrate compliance with KPoM	▪ Approval of plan detailing trees/habitat to be removed. ▪ VMP required to be prepared and commenced before clearing commences. ▪	▪ Clear identification and fencing off of trees/vegetation to be removed/retained. ▪ Construction undertaken in accordance with KPoM and consent conditions. ▪ Compliance enforcement by Council.	▪ All planted trees managed and protected permanently. ▪ Implementation of any recommendations for improvements of current measures. ▪ Compliance enforcement by Council.
Habitat replacement	▪ Identify Koala food trees to be removed. ▪ Identify and map proposed location of all planting areas in relation to development, and estimate number of replacements.	▪ Plans for offset plantings regeneration approved and become binding on proponent to execute as detailed. ▪ Commence and complete VMP and planting works.	▪ Maintain plantings as applicable per development stage.	▪ Maintenance of weeds and plantings until established. ▪ Ongoing maintenance until all plantings self-sufficient. ▪ Compliance enforcement by Council. Implementation of any recommendations for improvements until plantings are self-sufficient.
Predator Control	▪ Planning provisions to prohibit dogs within East Ruins Way; and exclusion fencing in West Ruins Way and West Lindfield.	▪ Title covenant specifying Koala-proof fences where relevant; and prohibition of dogs on East Ruins Way.	▪ Compliance enforcement by Council.	▪ Compliance enforcement by Council. ▪ Records kept of Koala injuries and included in monitoring reports. ▪ Implementation of any recommendations for improvements of current measures.

Issue	Pre-DA/Rezoning Stage	DA Approval	Construction Phase	Operation Phase
Pools	▪ Planning provisions to manage pools.	▪ Council to ensure Koala-proof fencing	▪ Compliance enforcement by Council.	▪ Compliance enforcement by Council.
Mortality/injury during clearing of habitat	▪ Survey and mapping of all habitat to be retained/removed.	▪ Consent condition specifying ecologist to supervise clearing and manage Koala welfare.	▪ Clearing as per protocol. ▪ Report to PMHC confirming compliance.	▪ N/A
Vehicle Collision	▪ Identify where engineering designs required to control speed, signage required; and strategic lighting.	▪ DA approval of appropriate engineering mechanisms, lighting and signage installation.	▪ Measures implemented. ▪ Road design as per KPoM.	▪ Measures effective. ▪ Records kept of Koala incidents involving fences and vehicles included in monitoring reports. ▪
Physical and Behavioural Barriers (fences and roads)	▪ DA plans to show permanent fencing is required ▪ Measures to ensure temporary construction fences Koala friendly where required.	▪ Consent approval subject to Koala friendly fencing where applicable. ▪ Compliance enforcement by Council.	▪ Fencing constructed as per development consent conditions ▪ Compliance enforcement by Council.	▪ Reporting of any injured Koalas to Koala Hospital. ▪ Remedial action taken following reporting of injuries. ▪ Compliance enforcement by Council.
Disease	▪ Provisions for signage to include Koala Hospital number.	▪ Signage required as condition of consent.	▪ Construction undertaken in accordance with plans. ▪ Contact details for Koala Hospital provided on site during construction	▪ Records kept and included in monitoring reports. ▪ Permanent public Koala signage at crossing points with Koala Hospital phone number. ▪ Compliance enforcement by Council.

9 CONCLUSION

Due cognisance of the identified habitat values and their appropriate incorporation within an informed and innovative final development layout is required to ensure an ecologically sustainable outcome in the long term to meet the objectives of SEPP 44.

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APPENDIX 1: COMPLIANCE CHECKLIST

The following checklist details the specific actions to be taken to achieve the objectives the KPoM and the responsible authorities for implementation. This Plan will help compliance assessment of the KPoM in regards to its performance criteria.

Number	Action	Responsible Organisation	Timeframe	Action completed	Comments
In-situ Habitat Retention					
1a	Koala food trees identified to be retained and protected achieved.	PMHC Proponents	During rezoning and future development	☐	
1b	Trees demonstrated can be retained as per Australian Standard 4970 - 2009 *Protection of trees on development sites.*	Proponents	Pre-DA DA	☐	
1c	Trees retained in-situ protected from future removal via other planning processes and mechanisms.	Proponents	Pre-DA DA	☐	
1d	Number of offset plantings determined.	Proponents	Pre-DA DA	☐	
Offset Plantings					
2a	Suitable offsets provided; and trees planted as per required specifications.	Proponents	Pre-DA DA Post DA	☐	
2b	Offsets located in secure area where cannot be removed under other planning processes and mechanisms.	Proponents PMHC	Pre-DA DA	☐	
2c	Offset plantings enhance linkages	Proponents PMHC	Pre-DA DA	☐	
2d	Prepare and implement VMP to manage plantings/offset areas	Proponents PMHC	Pre-DA DA Post-DA	☐	

Number	Action	Responsible Organisation	Timeframe	Action completed	Comments
2e	Planning mechanism to ensure continuous replacement of Koala food trees where removed under a planning mechanism	PMHC	On-going	☐	
Clearing and Construction Management					
3a	All trees to be removed surveyed by a registered surveyor and mapped on plan for DA approval to demonstrate KPoM Compliance	Surveyor PMHC	Pre-DA DA	☐	
3b	Pre-clearing survey by ecologist prior to clearing	Ecologist	Clearing Phase	☐	
3c	Clearing monitoring by ecologist	Ecologist		☐	
3d	Any Koalas found to be monitored during clearing and inspected for signs of disease. Any welfare concerns to be referred to the Koala Hospital	Ecologist		☐	
3e	Report to PMHC on clearing monitoring	Ecologist	Post-clearing.	☐	
Traffic Collision					
4a	Speed limitations at key link crossing reduced by engineering measures to 40km/hr	Planner/Engineer PMHC	Design at pre-DA and DA.	☐	
4b	Koala warning signage	Planner PMHC	Pre-DA DA	☐	
4c	Additional street lighting at key crossings	PMHC, Proponent	Pre-DA DA	☐	
Dog Attack					

Number	Action	Responsible Organisation	Timeframe	Action completed	Comments
5a	Prohibition of dogs via effective planning mechanism from East Ruins Way	PMHC	Rezoning	☐	
5b	Dog ban to be noted on signage with Koala Hospital details for emergencies and Council Ordinance Officer number to report stray dogs.	PMHC Proponent	DA	☐	
5c	Koala exclusion fencing around all residential lots in West Lindfield and West Ruins Way where dogs may be kept.	PMHC Proponent	DA	☐	
5d	Council Ordinance Officer to ensure compliance	PMHC	On-going	☐	
Pools					
6a	Pool fence to be Koala proof where required.	PMHC Proponent	DA	☐	
Barriers					
7a	No fence design (either temporary or permanent) is to include a material or design feature that may potentially injure Koalas (or other fauna) eg barbs and loose wire.	PMHC Proponents Construction Contractors	DA Construction	☐	
7b	No fence to form a barrier to access of retained or offset habitat.	PMHC Proponent	DA	☐	
Bushfire					
8a	Designation and management of APZs to minimise perceived risk of vulnerability to bushfire and hence demand for hazard reduction in adjacent habitat.	PMHC Planners/proponents	Pre-DA DA	☐	

Number	Action	Responsible Organisation	Timeframe	Action completed	Comments
8b	Offsets to be located to avoid conflicts with APZs and negate risk for their potential to be removed by legislation changes, etc	PMHC Planners/proponents	Pre-DA DA	☐	
Disease					
9a	Public signage detailing contact details for the Koala Hospital to facilitate prompt reporting of sick or injured Koalas.	PMHC Proponent	DA	☐	
9b	Monitoring to census Koala health and records of disease in Koalas in vicinity of site from Koala Hospital.	PMHC Ecologist	Operational phase	☐	
9c	Contact details for Koala hospital at construction site during construction to report any sick or injured Koalas	PMHC Construction Contractor	DA Construction Phase	☐	

Birpai Local Aboriginal Land Council

Aboriginal Cultural Heritage Assessment

The Ruins Way

Port Macquarie

Prepared by

Birpai Local Aboriginal Land Council

In response to a

Request for Charlie Brothers Pty Ltd

PO Box 876 Port Macquarie NSW 2444 Tel: 02 65849066 Email: birpailalc@midcoast.com.au

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1. Introduction

The subject land is located at The Ruins Way Road Port Macquarie (Lot 245 DP 1227796 and Lot 299 DP 1234443). While the land is over 60ha in size, the study area is only around 4ha. The land is located approximately 5km southwest of the Port Macquarie CBD and is made up of three areas known as South Lindfield, Ruins Way West and Ruins Way East.

The aboriginal cultural heritage assessment focuses on the northern edge of the property adjoining the existing residential land to the South and East that is planned to be rezoned as residential land.

The remainder of the property was not investigated with vegetation generally comprising wetland and swamp forest areas.

The objectives of the Cultural Heritage Assessment are:

- To identify whether the subject land contains objects or is a place of importance or a part of the wider cultural landscape pertaining to local aboriginal people and the area.
- To determine if any potential harm on identified Aboriginal Cultural heritage would be likely to occur from the proposed rezoning and future development of the southern fringe of the land for residential uses.
- To determine the significance of potential harm to any identified Aboriginal objects, places or wider cultural heritage that may be associated with the subject land, should that be the case.

This report has been prepared for Charley Brothers Pty Ltd for their proposed rezoning. It is not to be used for any other purpose

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2. Investigator and Contributors

The Site Investigations have been undertaken by:

Mr. Jason Holten, Sites Officer of the Birpai Local Aboriginal Land Council

The site investigator has significant local experience in carrying out site survey investigations and regularly undertakes Sites works in the Port Macquarie area. Mr. Holten has a wealth of knowledge of Aboriginal Culture and Heritage in the local area.

3. Previous Archaeological work

Search of the Aboriginal Heritage Information Management System (AHIMS) – Basic search conducted 27 April 2018 using Longitude and Latitude coordinates with a buffer of 50 m.

- Basic search identified no Aboriginal Places and no Aboriginal Site in the vicinity of the 50 m buffer.

- Cultural Heritage records held with Birpai Land Council include:

  The Birpai Local Aboriginal Land Council holds no records of any items of cultural significance in the vicinity of the land in question.

Of the above resources, references to this area and the Birpai Aboriginal People were the primary search focus. Information relevant to the site or its immediate surrounds was identified as follows:

There are no known aboriginal cultural heritage sites within the subject land. Especially in the area of the proposed residential land.

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4. Landscape context

General Coastal character & predictive model

The results of reviews of archaeological investigations to date indicate that rocky shore, sandy beach, estuarine and hinterland environments were typically utilised by Aboriginal groups. The densest and most diverse archaeological remains are generally found along the coast where food resources were richer. Reliance on estuarine and adjacent hinterland areas was probably sporadic, possibly using freshwater swamps as a primary resource.

A large proportion of recorded sites indicate they have been found on flat terrain, predominantly in coastal heath, along estuarine stream banks, some woodland and dry sclerophyll eucalypt forest and in subtropical rainforest. Less commonly, sites are also found in undulating to hilly terrain either in dry sclerophyll eucalypt forest. Even less so in steep rugged terrain.

There is a greater likelihood of the existence and discovery of Aboriginal sites into the coastal plain. Particularly the crests and basal slopes of low spurlines that extend into and are situated adjacent to flood prone valley floors.

Stone artefacts may occur as open artefact scatters and isolated finds. Midden deposits may occur subsurface on former beach ridges and other alluvial or colluvial deposits which fringe valley floors. Including the former shoreline of the marine embayment and subsequent estuary which formed following the last sea level rise at around 6000 years BP.

Open artefact scatters (or campsites) are considered more likely to occur on relatively flat terrain, well-drained and not too distant from sources of freshwater or along the crests of low ridgelines.

Scarred trees may occur wherever old-growth trees remain. Potential locations include road reserves, remnant riparian vegetation on farmlands, and isolated trees within the state forests.

Prehistoric burial sites are most likely to be found in locally elevated landforms with a relatively deep profile of soft sediments of in the deposits of midden sites.

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Local Aboriginal History

Before European settlement, Aboriginal people roamed the area and used the land to hunt and gather food. Aboriginal ties to the land can be identified with the significant sites in and around the Port Macquarie area with some sites recorded, including burial sites at the Town Green in the CBD.

Location of the site

The subject land is located approximately 5km southwest of the Port Macquarie CBD. The site is generally surrounded by residential land to the North, South and East with generally forested land to the West.

On site, forest vegetation occurs throughout the site with cleared fringes along road frontages.

6 Site Survey & Results

Sampling Strategy

The sampling strategy is to attend the property by vehicle and undertake intensive walking inspection of the part of the site likely to be impacted upon by the proposed rezoning and future residential lots.

In a landscape context, this area is consistent with the landscape unit "crests and basal slopes of low spurlines that extend into and are situated adjacent to flood prone valley floors". In this context intensive walking survey of the area is considered the most appropriate survey strategy.

The site survey was undertaken on 19 March 2018 by Mr Jason Holten, Senior Site Officer of Birpai Local Aboriginal Land Council.

Survey Coverage

On 19 March 2018 exposure and visibility across the site is described as generally good.

No text excavations were considered necessary and were not undertaken.

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7. Results of Survey of 19 March 2018

After a lot of walking over the proposed rezoning area the senior site officer, Mr Jason Holten noted that there had been a lot of disturbance over the years, with the removal of trees and stumps from the site and movement of topsoil. Any sign of Aboriginal activity in the area is believed to have been lost or destroyed.

Mr Holten, Senior Sites Officer who attended the property and undertook the survey concluded that no evidence of Aboriginal activity was located on the site areas, being the Northern part of lot 245 DP 1227796 and Lot 299 DP 1234443.

Analysis & Discussion

Consultation with local Aboriginal peoples with a relationship to the area revealed no knowledge of occupation or cultural heritage associations with the subject land.

No site recording is required as there are no material traces, evidence or expressed knowledge of Aboriginal land use of the site.

The proposed development is not considered likely to impact upon or have any significance for the local Aboriginal community and their cultural heritage.

The assessing site officers can see no reason why the proposal cannot continue.

Recommendation

At such time as development site works start, should any artefacts be turned up or located, Birpai Local Aboriginal Land Council are to be contacted immediately and work on site stopped pending further assessment.

Signed

27/4/18.

Mr David Carroll

CEO - Birpai Local Aboriginal Land Council

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LPM

Love Project Management

PO Box 161 Wauchope NSW 2446 Phone: 0400953101
ABN: 26 108 622 745

General Manager **1st March, 2019**
Port Macquarie – Hastings Council
PO Box 84
PORT MACQUARIE NSW 2444
Sent via email

Attn: Mr Peter Cameron

Dear Peter,

RE: Planning Proposal Application
East and West Ruins Way, and West Lindfield, Port Macquarie

Reference is made to the abovementioned Planning Proposal Application and Council's request for a response to the issues outlined in their letter of 31st August, 2018.

There have been a number of internal discussions with the proponents, particularly regarding the proposed use of East Ruins Way. Whilst it is unfortunate, the direction from Council provides no further option but to remove this area of the land from any further consideration in this Planning Proposal. Therefore, the rezoning now only relates to South Lindfield and West Ruins Way as identified in the reports.

The delay in providing a response to Council's letter of 31st August included a number of matters of which Council is aware. This included a site meeting with Council staff, discussions with the proponents regarding amended layouts, and the project ecologist being on leave overseas for a period of time. In addition, the Christmas / New Year period creates delays as all parties take periods of leave.

Following on from our meeting with Council staff on Monday of this week, we did advise that a response to Council's correspondence would be provided by today, being Friday. This was to enable sufficient time for Council staff to incorporate our response into the required report to the March Council meeting.

In response to Council's correspondence, the Planning Proposal has been amended to delete the area identified as East Ruins Way and to amend the layout of West Ruins Way to include a wide connectivity corridor through the property and the identification of reserved areas for the preservation of koala food trees.

The Planning Proposal will also provide for offset planting of koala food trees along the north-eastern side of the Nature Reserve vegetation in order to improve the koala habitat connectivity through this area. Suggested locations for these areas have previously been

identified. The proponent has an extensive boundary with the Nature Reserve which adjoins areas of approved golf course fairway. Therefore, it is abundantly obvious that there is sufficient area of land available to accommodate this offset planting, particularly for swamp mahoganies.

A specific response to each matter setout in Council's correspondence of 31st August, 2018 is attached, including a response from the Ecological Consultants.

Therefore, we have provided information which is compliant with the most up to date environmental legislation. We look forward to progressing this Planning Proposal without further delay.

Please don't hesitate to contact the undersigned if you require any explanation of the above details.

Regards

MLove.

Michelle Love

Enclosures:

1. Response to matters setout on pages 1-3 of Council's correspondence as provided by Ecological Consultants, JB Enviro

2. Response to matters setout on pages 4 – 5 of Council's correspondence as provided by Environmental Planner, LPM

3. Amended Concept Plan for West Ruins Way

Thursday, 28 February 2019

ABN: 86139603268

6 John Street
Port Macquarie 2444
Phone: 6593 6178
Mobile: 0431 833 968
Email: jbenvironsw@gmail.com

Charley Bros Pty Ltd
c/o
Mr David Charley
PO Box 293
Alstonville 2477

Delivery via email: dcharley@optusnet.com.au

Dear David,

Re: Koala Plan of Management and Updated Environmental Assessment for proposed rezoning of part Lot 341 DP 1135094 and part Lot 6 DP 1105610, The Ruins Way, Port Macquarie – Response to PMHC Comments.

As per request, we provide the additional information in regards to the above in the following table.

Table 1: Additional information

PMHC Issue	Additional information
Tree Loss	
The extent of tree loss, including koala food trees, has not been sufficiently detailed and is potentially an under-estimation of the total number of trees that would be removed in practice	• Presume this primarily comment relates to East Ruins Way which has now been excluded. • All other potential tree losses in the concepts provided and assessed for the purpose of the rezoning are clearly shown in Figures 10-11. Due to resolution, some points overlap so the figure may suggest less trees than actually calculated via ArcGIS. • Note that these development concepts are just that – concepts, not a final plan for a Development Application (DA), but an indication of the potential maximum development footprint once all constraints have been duly considered (including compliance with an approved Koala Plan of Management). For instance, what is shown now as a standard residential lot may ultimately be another form of development permitted under R1 that sees the trees within the development footprint retained within an Asset Protection Zone (APZ) or Open Space. It is not a "*fait accompli*". The exact number of trees to be removed would be determined at that time, in line with the statutory framework in place when the DA is being made.
The Ecological Report only broadly considers the footprint of the development in a conceptual sense.	• Correct – the design concepts are just that: concepts, as detailed above. Layout design in a future DA will be subject to the legislation at the time (now the *Biodiversity Conservation (BC) Act 2016* which will require extensive offsets which may also influence final design, as well as changes to bushfire protection) and the final KPoM or the PMHC Coastal Koala Plan of Management if finalised by the time DAs are being made. • The application is for a rezoning only, not a rezoning and subsequent DA, hence concept plans are sufficient to indicate what development within the desired rezoning footprint may look like under the rezoning, as has been accepted practice since the *Threatened Species Conservation Act 1995* and SEPP 44 were implemented.
The Ecological Report does not consider the losses of vegetation associated with mitigating bushfire risk. This is particularly true with the community infrastructure proposed for the East Ruins way precinct, where almost total vegetation clearing would be required to achieve compliance.	• Correct – design was concept only and were supplied for assessment by the proponent without bushfire constraints, with final concept subject to all constraints to determine final layout, as detailed above. • East Ruins Way now excluded from the rezoning process. Regardless, the final concept for the other two areas is expected to achieve equal or less impact than assessed in the rezoning due to the constraints posed by the BC Act, a KPoM and bushfire provisions.

Retention of koala food trees within residential lots is not supported as experience has shown that such trees are seldom retained after development has taken place. The Ecological Report notes the "Risk that tall trees may be perceived as hazards close to dwellings, hence the potential risk of long term habitat erosion via incremental loss" (Table 16)	• As stated in section 6.1.1 of the KPoM: "No trees are proposed to be retained within yards in the West Lindfield or West Ruins Way precincts as these lots will be required to have Koala exclusion fencing to avoid dog/Koala interactions (see 6.1.4). All non-Koala food trees in the East Ruins Way precinct will also be removed. "PMHC have advised for similar developments that planning provisions will be emplaced to ensure retained trees and habitat are not able to removed under other provisions eg. NSW Rural Fire Service (2013) 10/50 Vegetation Clearing Code of Practice for NSW." • As stated in s7.1.1 in the KPoM: "An innovative layout design will demonstrate compliance with Australian Standard 4970 - 2009 *Protection of trees on development sites* to ensure retained trees are not incrementally and cumulatively removed as they are perceived in the future as threats. This action is consistent with the KPoMs for UIA 13 and 14 which has a similar provision for layout design." • Again, the concepts are only to illustrate an indicative development footprint within the R1 zone. The final layout will be expected to address the above to avoid the issue of incremental erosion of KFTs. Provisions in the DCP also allow on-going replacement to be required by PMHC, or contingency plantings could be made as part of the necessary offsets under the KPoM.
Comparison of Table 16 and Figures 9-11 show inconsistencies in the number of koala food trees proposed to be removed.	• Tree count obtained via ArcGIS as indicated by the legend, and tree locations are indicative as they are from a hand-held GIS. Also as noted above, some icons may merge several trees due to close proximity (eg Figure 11). The layout is however conceptual only and the final design would need to demonstrate compliance with the "avoid, minimise, offset" obligations of the BC Act and an approved KPoM. This should see the estimated tree loss reduced further.
As the Ecological Report states, the ability to retain several hollow bearing trees due to structural issues is uncertain.	Correct – based on preliminary concepts provided. Two trees (2 and 6) also needed further investigations to confirm they are actual hollows in the tree (upturned stubs). This was expected to be resolved for a future DA which would see amendment of the final layout accordingly.
The Ecological Report correctly states that there will be a cumulative loss of trees over time throughout the area as tree recruitment will not be able to occur (slashing, concreted surfaces, yards etc).	• Assume this primarily relates to East Ruins Way, now withdrawn. • All three areas under current management and zoning provisions also allow slashing, etc, which also prevents recruitment. If the current maintenance regime were maintained in perpetuity, then the current trees would eventually all succumb to natural attrition and not be replaced (there is not current statutory obligation to replace trees which succumb to natural attrition). • This threat is addressed by the offsets required under the BC Act (ecosystem and species credits); and provisions of the DCP that will apply to any application for tree removal; and the high offset ratio (in addition to the BC Act offsets) which will see a significant net increase in habitat and offset any cumulative loss in the medium and long term.

Field Work	

Much of the field work was conducted c. 7 years ago, with survey effort in recent times minimal and surveys in "the extension to the study area" surveyed with limited effort in winter.
 	
Appendix 2 discounts the potential presence of Swift Parrots, stating that there are insufficient winter-flowering trees on site for it to be of use, despite that fact that there are in excess of 83 winter-flowering trees to be removed from the site as part of this development. There are also contemporary records of Swift Parrots in large numbers approximately 500 m from the study site.
	• Targeted survey for other threatened species which have limited home ranges and hollow-obligates undertaken at levels of effort well above DECC (2007) guidelines to confirm absence in the original assessment. With absence of close proximity records, there is no chance they would have colonised the site since the original survey.
	• Subsequent survey focused on Koala as the logical key constraint species.
	• Recognised standard flowering season of tree species on site as per literature (Beadle 1982, Law et al 2000, >20yrs personal observations):
	  o Tallowwood: winter to early summer (spring dominant)
	  o Swamp Mahogany: Spring-early summer.
	  o Forest Red Gum: Spring (early to mid in mid-north coast, sometimes earlier).
	  o Blackbutt: Summer (some irruptive flowering in autumn-winter)
	  o Narrow-leaved Red Gum: Early summer
	  o Paperbarks: *M. quinquenervia* – late summer to early winter (peak early autumn); *M. linariifolia* and *M. styphelioides* – spring.
	  o Weeping Bottlebrush: Spring.
	  o Grey Ironbark: Winter to mid-spring (peak late winter-early spring).
	  o Bloodwood: late summer to early autumn.
	  o White Stringybark: Summer-winter (erratic – part of population may flower in mid-winter in warm winters in some areas).
	• Aside from the ecology of the species, flowering season is largely rainfall and temperature dependent – the latter as it influences hormones (Birtchnell and Gibson 2008), and many eucalypts (and Corymbia and Angophora) do not flower annually (some species may only flower once in a decade eg. Blackbutt). Hence a portion of the Tallowwood population may flower in winter (as may Forest Red Gum and White Stringybark), but peak flowering for the species across the region is in spring. Drought has also been show to delay flowering of eucalypts and *Corymbia* (Law et al 2000). Latitudinal and longitudinal influences (again likely to reflect temperature) are also demonstrative within a species eg. Spotted Gum flowers early in the southern part of its range.
	• Plants have evolved to flower at the same time to maximise genetic exchange and success of pollination (eg. Keaser et al 2008). This is why they have flowering seasons, and not random

events. It is however documented that recent decades have seen an increase in sporadic episodes of localised unseasonal flowering (earlier generally), and this has detrimental implications for nectarivores (eg. Garnett et al 2013).

- Australian nectarivores have evolved in response to these regular, predictable flowering seasons – hence preferred species are well known. These are listed in the Swift Parrot Recovery Plan (Saunders and Tzaros 2011). These are other nomadic nectarivores (eg. Grey-headed Flying Fox) follow these flowering patterns across their range, which for the Swift Parrot extends (in the non-breeding season when the bird leaves Tasmania for the mainland) from Victoria to south-east Qld.
- In addition to flowering season which affects use by nectarivores, is the ability of the tree to produce sufficient quantities of nectar ie. nectar is not produced continuously over a season or even in a day. Some species have evolved to produce nectar at a specific time to target species pollinators (eg. Keaser et al 2008). With this consideration in mind, the accepted general rule of what constitutes a key nectar producing species for nectarivores is cone size ie larger cones or complex flowers with numerous nectar producing structures generally equate to a higher nectar reward (eg. Grevilleas, Banksias and Callistemon for the latter). The former is why all Corymbia and large-fruited Eucalyptus (eg. Blackbutt, Needlebark Stringybark), and large flowered Banksias (eg. *B. integrifolia, B. ericifolia*) are preferred (eg. by gliders and flying-foxes), and their flowering is tied to major migrations and the breeding cycle of dependent species eg. flying foxes.
- Tallowwood has only small fruits, hence has limited nectar capacity compared to Swamp Mahogany, Red Bloodwood and Forest Red Gum which have larger fruits and usually flower when the Swift Parrot is visiting the mainland (Saunders and Tzaros 2011). Tallowwood is not recognised as a preferred species by apiarists eg. Valley Bees (undated). This is why these species are in the Recovery Plan and indicate priority habitats. Many of the preferred forage species are now key characteristic species of EECs (Saunders 2008) eg. Forest Red Gum.
- The bird is also known to use important areas repeatedly, and these Important Areas of habitat of the Swift Parrot's winter range are now mapped by the OEH. Vegetation loss in such areas incurs an automatic Species Credit obligation under the BC Act ie. Species Credits are required where important habitat is to be removed. This mapping covers areas where:
  - Recognised preferred food trees are locally common.
  - Consistent records of the Swift Parrot in number occur, indicating the area is subject to regular seasonal visitation.
- Given these species are not dominant, the site is not likely to be mapped as an important area. Such areas may occur within 5-10km within Lake Innes Nature Reserve and certainly on the south and southwest of Lake Innes. Hence the pattern of irruptive records.
- The Swift Parrot was previously observed on land adjoining the site in 2002, where a patch of Forest Red Gums once occurred, as noted in the table. It known to use urban woodlands on the

central coast and Sydney where retained or planted food trees occur (Saunders 2008), albeit in competition with true generalist species eg. Red Wattlebirds.

- The recent local records of small numbers (not large – flocks >100 would be considered large; 3-15 birds are more typical in marginal habitats used for short term foraging) in the west of Port Macquarie (compared to the numbers recorded in core areas in Victoria and in core areas of NSW such as Cessnock, around Sydney, the South Coast and the Central Coast – a review of the records on Bionet clearly illustrates these areas) of the bird coincides with areas where Forest Red Gums are locally common. These and other records in the LGA at the same period follow a prolonged drought which has seen a disruption of flowering season in the box-ironbark and box woodland country where the core non-breeding foraging habitat of this bird originally occurred before extensive clearing (Tzaros et al 2009; Saunders & Tzaros 2011, Saunders et al 2016).
- The bird's presence has been determined to be primarily associated with abundance of lerp and nectar resources, and non-aggressive competitors (Saunders 2008). In fact, the species is statistically more likely to occur with increasing number of non-aggressive species.
- Such occurrences in the study area are irruptive only (many of the recent records in Port Macquarie occur in the same month and year), and only in extreme situations (eg. prolonged drought) where core areas which have consistent records are not suitable (Saunders 2008, Saunders et al 2016). More consistent sightings occur south of Lake Innes Nature Reserve (eg. near Lake Cathie) and along Mitchell Houston Drive where Swamp Mahogany and Forest Red Gum are locally important. Examination of the recent LGA records indicate what appear to be birdwatchers essentially trailing a group of Swift Parrots during such an irruptive event, much the same way as a pair of vagrant Regent Honeyeaters were tracked a few years ago.
- The core areas mentioned above occur in Plant Community Types where key species are locally dominant (eg. Spotted Gum, Forest Red Gum, Swamp Mahogany). Two of these are locally dominant in the south and southwest of Lake Innes. Forest Red Gum and Spotted Gum are also locally common in the upper west of the Karuah to Hastings-Macleay IBRA sub-regions. These areas are likely to be important drought refuges for this species.
- Swift Parrot occurrence is also detrimentally affected by competition with the larger and more aggressive Noisy Miner, Wattlebirds and Rainbow Lorikeets (Saunders 2008), both of which are present and dominant, and are increasing in abundance due to their ready utility of modified woodland habitats such as that on site. Logically, these birds would prefer areas of larger local flowering incidences to minimise contact aggression with these and other species eg. Scaly-breasted Lorikeet and there is evidence indicating this (Saunders 2008), but can and readily do use urban woodlands and isolated trees where suitable opportunities present themselves (Saunders 2008).

	• The site only contains a handful of preferred species (Forest Red Gum and Swamp Mahogany), hence the likelihood of the bird occurring on site is justifiably low given the limited preferred foraging habitat, relative to the extent of more optimum habitat locally and within the LGA (ie had the site been located along Mitchell Houston Drive where such trees are locally abundant, it would have a moderate to high rating); and the increasing rarity of the bird (the latter primarily due to on-going and increasing threats to its breeding habitat). • The offset plantings will see a significant net increase in preferred nectar species for this bird as plantings of Swamp Mahogany and Forest Red Gum are intended for the fringes of the study area (on the proponent's land) adjunct to the Lake Innes Nature Reserve (LINR). The net result thus should be an increase in carrying capacity in the study area, which is currently dominated by non-preferred species according to the Recovery Plan and literature. • Regardless, the greatest threats to the species is loss of breeding habitat, predation by the introduced Sugar Glider in its nesting habitat, and fires within its breeding habitat. Climate Change has also modelled likely extinction of this bird due to increased temperatures in its breeding habitat (Saunders & Tzaros 2011, DotE 2016). The loss of a handful of preferred trees with a highly modified woodland subject to competition with common and increasing aggressive competitors is thus justifiably not likely to make a significant contribution to the probability of extinction of this bird.
Legal requirements for assessing impacts to threatened species	
On p.170, the Ecological Report states "thus the proposal is not considered to have a significant impact on the viability of any local population of the subject species and a formal Seven Part Test evaluation was not considered required to superfluously demonstrate the proposal is unlikely to have a significant impact." However this is a legal requirement, particularly as numerous threatened species have been recorded on the site, Appendix 2 shows that numerous species have a fair-definite chance of occurring, but discounts the presence of species without adequate scientific justification. Table 4 shows that many of the hollow-bearing trees could be significant for a range of threatened species and	• The tables and methodology used to assess the likelihood of occurrence and requirement for assessment for 7 Part Tests is based on the original NPWS guidelines for the former 8 Part Tests, and later the 7 Part Tests; as well as the legal interpretation of the key words in the guidelines (eg. 'likely') in the NSW Land and Environment Court since 1995; and are consistent with the methodology used by consultants and government agencies since 1995. The guidelines also clearly state that a 7 Part Test is not required for species not considered likely to occur, and this justified in both tables. The legal obligation is met. This has been tested in the L&EC and deemed sufficient. • All those deemed 'fair-definite chance of occurring' would have been subject to 7 Part Test in a future DA. No 7 Part Test is provided in the report. The quoted phrase also CLEARLY refers to the following table for species which are NOT considered potential occurrences for the reasons given. • Survey above minimal DECC (2007) effort have confirmed hollow-obligates which are most at risk of a significant impact are absent ie gliders and Brush-tailed Phascogale. Bent-wings do not breed in tree hollows.

in the case of the koala, the EPBC Referral Tool indicates an impact to critical habitat is likely.	• See below in regard to Koala and EPBC Act referral tool.
Impacts on a Nationally Significant Koala Population	
A draft Ecological Survey and Constraints Assessment supported the initial proposal confirmed up to 4 koalas on site at the time of survey and some 90 trees with scats indicating the sites form part of Core Koala Habitat. The Ecological Report clearly states that this area is "Core Koala Habitat" and the EPBC Referral Criteria shows that the study site is "Critical Habitat". This habitat is part of the broader Lake Innes area that is used by a nationally significant koala population.	• Noted and confirmed by monitoring data provided by the proponent.
Approximately 35 ha of Core Koala Habitat has been cleared within this landscape (as per Figure 12) in recent years, most of it on the land owned by the proponents. Further areas have development applications already approved over Core Koala Habitat. The Cumulative Impact of clearing needs to be considered before permission is given to clear further areas of core habitat	• There is no requirement or specification in the DoE (2014) guidelines to consider cumulative impact. This is probably due to the fact that the legislation is tied to the trigger of an 'action' being undertaken for the Act to apply eg. habitat loss as direct result of taking an 'action' ie. a development. This is reflected in the referral triggers in Figure 2 of the guidelines which are based on extent of habitat loss incurred by the action.
As the Ecological Report states, most of the Core Koala Habitat falls on the private property in this area, with Lake Innes Nature Reserve not supporting Core Koala Habitat in this area.	• Noted
The loss of at least 82 koala food trees cannot be offset within the current or following generation of koalas. This represents a significant 'bottleneck' in food availability within this local landscape which will cause an immediate	• Withdrawal of East Ruins Way presumably significant reduces this risk, although monitoring suggests the numerous KFTs here have very little activity/use by the current generation, for reasons which remain poorly understood eg. individual genetic characteristics of these trees reducing their palatability.

impact to the koala population either though starvation or increased competition (leading to dispersal, and its associated risks such as road strike, and stress, and its associated impacts such as disease).	• This assumes any and all of the KFTs to be removed are used by the current generation. • Finally, the concept only suggests 83 KFTs may be removed in a maximum yield scenario if all the proposed R1 were to be fully developed. As detailed above, the final plan will need to have cognizance of all constraints as well as the statutory framework, hence KFT loss is ultimately expected to be minimised in the final layout presented for a DA eg. via retention in APZs within the R1.
Limited koala food trees are available within Lake Innes Nature Reserve to the south.	• Correct – there are limited KFTs in the adjacent LINR due to the forest type and edaphics, but subsequent survey has recorded hundreds of Swamp Mahogany on the proponent's land to the southwest. • Proponent proposes to plant offset KFTs on edge of LINR to boost the value of this area as Koala habitat, and in line with the draft PMHC Coastal KPoM – outside the development footprint.
The current site not only offers habitat, but provides important connectivity around the north-eastern part of the Lake Innes precinct. The Ecological Report notes (p.95) that the corridors across the open fairways are currently used by koalas for connectivity purposes, noting that "these strips are adequate for use in koala movement west to east across the site".	• The 'linkage' consists of a series of fragments terminating at East Ruins Way into only urban woodland which tentatively links across a residential area southeast to intact remnant habitat on private land and eventually LINR. • While the Koala can readily use these remnants and the urban woodland (eg. Wilkes and Snowden 1998) for a corridor, it is not justifiably an **important** corridor for biodiversity overall eg. lack of lower stratums for foraging and refugia, and maximum edge effects. The 'important' corridors for biodiversity (and the important population in terms of the EPBC Act of Koalas) are those tracts of intact forest and have sufficient width to buffer edge effects, as well defined in the literature, which form the basis of the corridor widths specified in the guidelines (as detailed below). Such a linkage does not exist on site and never will interlink east due to the existing residential area. • Linkage in the intervening residential area to the east will eventually erode as retained trees in the urban woodland succumb to natural and anthropocentric attrition, hence for biodiversity per se, this further undermines its value as a linkage in the long term, irrespective of what occurs on the site. • The final design will retain a linkage which is recognised in the literature as sufficient to maintain connectivity for dispersal and home range movements of the Koala at the current scale that the series of fragments and urban woodland provide. This will include threat abatement eg. fences, dog and traffic controls.
The proposed 'corridors' through the development are of insufficient width once they are in the urban context. The EPBC Criteria states that corridors must be 100m wide to	• The corridors are consistent with existing corridors used by Koalas in the same residential context in Port Macquarie (Wilkes and Snowden 1998).

avoid impacts to movement. These proposed corridors are in places less than one quarter the required standard and will be ineffectual or a 'sink' in the urban context.	• This is taken out of context. The EPBC Act criteria relates to corridors as per the Interim recovery objectives for an important population. It is clearly stated in Table 1 as an Interim Recovery Objective: ○ "Protect and conserve large, connected areas of koala habitat particularly **large**, connected areas that support koalas…... ○ Maintain corridors and connective habitat that allow movement of koalas between **large** areas of habitat." (emphasis added). • The site lies on the outermost fringe of an area which qualifies as a 'contiguous landscape' defined by the guidelines; and at the landscape scale, is not important compared to the northwest and southeast linkages to the important population of Koalas, as subsequently detailed. • The Guidelines assess the impacts in context of the 'important' population, not the local population (which is why it asks if >20ha of high scoring habitat is affected – 20ha of high scoring habitat could support a local population). The important population for the purposes of the assessment, which as stated by PMHC and defined by Biolink (2013), occurs in Port Macquarie, Thrumster, and northern end of Lake Innes. The Dunbogan peninsular is another important population as it is genetically distinct from the main Port Macquarie population. • In this context, the site is not an important corridor for the important population: the linkage running northwest to Thrumster from Lake Innes and northeast from LINR to Kooloonbung Creek NR area, as supported by the regional and sub-regional corridor mapping, Biolink (2013a), Connell Wagner (2000a, 2000b) and Wilkes and Snowden (1998). • There is thus no justification for a 100m wide corridor on the site.
The Ecological Report also downplays the presence of Regional Corridors for Connectivity in this landscape. The existing trees on this site provide an immediate link to a Regional Corridor. Figure 12 in the Ecological Report shows purported corridors for koalas in the area. Several of the areas depicted have been cleared since that mapping was conducted effectively severing the corridors in places. These corridors are narrow, are in the urban context and in places occur on land zoned residential. They therefore cannot be relied upon for connectivity over time.	• Scott (2002) defines regional corridors as "Regional corridors are typically >500m wide and provide a link between major and/or significant areas of habitat in the region. Ideally they are of sufficient size to provide habitat in their own right and at least twice the width of the average home range area of fauna species identified as likely to use the corridor." The site and regional and sub-regional corridors which cross through residential areas of Port Macquarie north and northeast of the site clearly do not meet this criteria, hence for most species, these corridors terminate in Port Macquarie. • The focal species of the mapped regional corridor and sub-regional corridor are the Koala, Eastern Blossom Bat, Brushtailed Phascogale and Eastern Chestnut Mouse. The site corridor and associated urban woodland interlinking to LINR and the associated regional corridor is only suitable for species capable of traversing residential areas where there are few or no hollows, numerous roads, fences, cats, dogs, artificial lighting, no canopy gaps, and vegetation essentially comprising parkland and gardens and lawns. The literature clearly shows this is hostile to any

	fauna but mobile habitat generalists (eg. medium sized woodland birds). They have no value for the Brushtailed Phascogale and Eastern Chestnut Mouse.
The Draft KPoM	
There is no map of Core Koala Habitat provided in the KPoM. This information is a minimum requirement.	• That relates to Comprehensive Koala Plans of Management. The entire site is Core Koala Habitat.
The proposed offset for any loss of koala food trees has not been identified or quantified in the KPoM.	• Client has not advised location at time of writing. This has now been provided: on the proponent's land on edge of LINR to build on existing habitat and located in area separate from the residential precinct in line with PMHC CKPoM. Planting will be planned to avoid incurring issues with bushfire management.
The suitability, security, long management of any offset land, and how this meets the commitments to increase koala habitat and reverse the current trend of the decline is missing in the KPoM.	• To be according with the provisions draft PMHC CKPoM.
The KPoM concedes that the development design is 'nominal at present' and trees have not yet been surveyed against any final development layout.	• Not a concession – statement of fact, and re-confirming the layouts are conceptual only eg. "approximately 82 Koala food trees may be removed if these concepts are realised as shown" in section 6.1.1; in s7.1.1 "The development concepts are preliminary only, and Koala food tree locations have only been surveyed with hand-held GPS, hence final location will need to be determined via formal survey to determine the final number of trees retained"; and the headings all state "**Preliminary** concept".
Also loss of koala foods are approximated. Integrating such a tightly packed residential development footprint into Core Koala Habitat requires detailed design and survey of every tree to understand the full impact of the development (water pipes, other cables and infrastructure, structural stability following root loss, trimming etc). This detail is not included in the KPoM and thus cannot be properly assessed until this is provided.	• As detailed above. The KPoM is for a rezoning, not a fixed layout. Like the UIA 13 and 14 KPoM's which are not based on a fixed layout, the DA must demonstrate conformance with the KPoM's provisions • There is nothing legally preventing a KPoM to be amended to improve its performance. The final KPoM can be updated to reflect a final layout.

The objective of the KPoM is, "to ensure the study area retains its ability to support a Koala population, and also enhance this by increasing the potential carrying capacity and linkages" (pl4). The proposed development does not achieve this objective.	• The concepts provided are preliminary only. The final layout for future DA's will need to demonstrate compliance with the final KPoM to meet this objective, and hence SEPP 44.
The proposed development is therefore contrary to the intent of SEPP 44 which "aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline".	• See above.
Hollow-bearing Trees	
JBEnviro's ecological assessment states that of the 12 HBTs identified on site, 5 require mandatory retention.	• Blackbutt 1 and the stag are retained in the reserve. • Blackbutt 4 has a major structural defect. • If 2 and 6 contain actual hollows: an arborist needs to climb the trees to inspect a split and upturned stubs to determine if habitable cavities are present. Three are trained on East Ruins Way, as are many potential recruit trees. • None of these hollows appear likely to be used by a threatened species.
There is no map to define where these 5 HBTs are located in relation to the proposed development and how the proposed rezoning accommodates the required buffers to development as required in the Development Control Plan, nor whether the full development will be able to accommodate retention of the trees (e.g. sewer pipes, footpaths, public safety etc) and ensure their structural stability over time.	• The proposal is a rezoning, not a DA. • Further investigation including confirmation of whether trees 2 and 6 are actual HBTs was envisaged to be undertaken at DA.

Other Matters, Biodiversity Conservation Act, Coastal SEPP	
The Ecological Assessment does not give regard to the Coastal SEPP and the fact that much of the current site is contained within the Proximity to Coastal Wetlands Layer.	• Not in place at time of writing. • A simple assessment will confirm the rezoning proposal readily complies as no major adverse changes to hydrology or buffer vegetation are likely.

Yours faithfully,

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MECANSW, MRZSNSW, MABS, MAHS, MAPCN

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LPM

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ATTACHMENT- LPM Response

JB Enviro has responded to each of the matters on pages 1 – 3 of Council's correspondence of 31st August, 2018. The below responses relate to the matters listed on Pages 4 - 5.

Matters setout on Page 4 and 5 of Council's correspondence

There is no identification, assessment on the suitability of, or discussion on the long-term security of any receiving lands for offset nest boxes.

Response: This is a Planning Proposal. Proposals that include the identification of offset planting areas and habitat areas are subject to site specific vegetation management plans forming part of any development consent. This Planning Proposal includes concept plans which provide for a 'worst case' scenario in regards to vegetation impacts. Land adjoining the Nature Reserve has been identified for offset areas.

Bushfire

It is important to take into account the fact that Planning for Bushfire Protection 2017 is likely to be in force by the time any DAs would be submitted and detailed design would likely impact on future lot yields in relation to bushfire protection measures. In this regard it should be noted that environment zonings do not permit Bushfire Asset Protection Zones.

Response: Noted. The revised PfBP legislation has not been finalised at the time of writing. Any future development application will have to be made in accordance with the legislation at the time of the application. It is noted that a residential zoning is not a guarantee of lot yield at the DA stage.

The proposed environmental corridors depending on their width and size may pose a bushfire risk in themselves requiring applicable APZ.

Response: Noted. Again, the subdivision plans shown are concept plans only and any yields will be subject to the legislation as it is at the time of development application lodgement.

East Ruins Way

Response: The comments made in regards to East Ruins Way have not been responded to as this area of the land has been excluded from the Planning Proposal.

West Ruins Way

The minimum APZ requirements for dry sclerophyll forest, 0-5deg downslope (PfBP 2017) for residential, would be 24 metres. The concept does not provide for a perimeter road to the bushfire hazard to the south west, would need to re-assess the ecological and KPOM impacts for this.

Response: The concept plan for West Ruins Way has been amended. A perimeter road has been provided. Again, lot yield is not guaranteed and will be subject to the bushfire legislation as applies at the time of the development application lodgement.

South Lindfield

Consideration needs to be given to the bushfire requirements of Ascot Park development – namely fire trail connections and any proposed offsets / revegetation and the rezoning would have an impact on the protection measures. The minimum APZ requirements for dry sclerophyll forest, 0-5 deg downslope (PFBP 2017) for residential, would be 24 metres.

Response: Noted. The fire trail connection for Ascot Park would be strengthened by providing the proposed roads within South Lindfield. We are well aware of the connection requirement and have resisted Council's attempts to close off the fire trail access through South Lindfield from Ascot Park. The offset planting areas against the north-western side of the Nature Reserve are well outside of the Ascot Park Asset Protection Zones approved as part of the existing Ascot Park development consent. Therefore, no adverse impact on Ascot Park would arise from the proposed offset areas.

Other Matters, Biodiversity Conservation Act, Coastal SEPP

Most of the Ruins Way investigation area is outside the Urban Growth Area Boundary in the Regional Plan. Council staff cannot justify inconsistencies with the North Coast Regional Plan, including:

- **Direction 1.1 Deliver environmentally sustainable growth by focusing urban development to mapped Urban Growth Areas (UGA);**
- **Direction 2.1 Enhance biodiversity, coastal and aquatic habitats, and water catchments by focusing development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value; and**
- **Direction 3.1 Manage natural hazards and climate change by identifying, avoiding and managing vulnerable areas and hazards.**

Response: South Lindfield is identified in the Urban Growth Area of the Regional Plan and therefore a Planning Proposal for this area IS NOT inconsistent with the North Coast Regional Plan. The removal of East Ruins Way has addressed Council's concerns regarding the impacts noted in the Council's correspondence. The concept plan for West Ruins Way provides a mechanism by which areas of koala food trees may be protected in the long term and a connectivity corridor through the property has been identified. The location of offset planting adjoining the Nature Reserve also provides an improved habitat function by strengthening connectivity for koala habitat areas as Council has advised that they do not believe this area of the Nature Reserve presently provides any koala habitat value – therefore the planting of koala food trees along the edge of this Nature Reserve creates a connection where there is presently limited, if any, connectivity.

The development of South Lindfield relates to the zoning of an essentially cleared paddock to provide for residential development, and the concept plan for West Ruins Way concentrates residential development within an area which has been previously cleared for an approved golf course and areas where there are no koala food trees. The offset plantings required for any development of the land will result in a significant increase in the number koala food trees across the properties and therefore an overall increase in area available for koala habitat.

These outcomes are consistent with the directions noted by Council and therefore do not require Council to justify any inconsistency.

The Ecological Assessment does not have regard to the Coastal SEPP and the fact that much of the current site is contained within Proximity to Coastal Wetlands Layer.

Response: Council is well aware that the additional information lodged in February, 2018, in accordance with the deadline set by Council staff, was completed and lodged with Council PRIOR to the gazettal of the Coastal SEPP. Therefore, it is clearly evident that the Planning Proposal could not address the provisions of this SEPP at that time, as the legislation did not exist.

However, in response to the provisions of this new legislation: Clause 11 of the Coastal SEPP applies to DEVELOPMENT on land in proximity to coastal wetlands (etc). Any development application for land in proximity to what is essentially the Nature Reserve area, will be required to demonstrate that the development will not significantly impact on the downstream wetland area, including the quantity and quality of surface and ground water flows.

In response to this requirement, it is noted that the Nature Reserve wetlands have been a matter for consideration in all the existing and approved residential developments which have been granted consent by Council to date. Any future development consents issued for the subject land will also be required to demonstrate that the stormwater runoff – in relation to both quantity and quality – will not have any adverse impact on the downstream wetland areas. There have previously been identified, suitable locations for stormwater detention ponds within the approved golf course fairways. These existing and proposed stormwater structures will be utilised by any future residential developments to provide the required stormwater controls and protections.

Amended Concept Plan for West Ruins Way – February, 2019
Residential
Connectivity Reserve
Residential
Reserve

Port Macquarie-Hastings Council
PO Box 84
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DX 7415
e council@pmhc.nsw.gov.au

ABN 11 236 901 601

PORT MACQUARIE HASTINGS COUNCIL

2 August 2018

Refers to: PP 2011 – 9.3

Michelle Love
Love Project Management
PO Box 161
WAUCHOPE NSW 2446

Dear Michelle,

Request to rezone land at Ruins Way, Port Macquarie - PP2013.9.3 – Love Project Management Pty Ltd for Vilro Pty Ltd and Charley Bros Pty Ltd

I refer to your request that Council progress a planning proposal for land at The Ruins Way, Port Macquarie and to the additional information received by Council on 16th February 2018 in support of your request.

This additional information was submitted in response to Council's written advice to you on 19 May 2017, which summarised the matters that need to be addressed in order to progress a planning proposal in this case and confirmed following a report to Council in August 2017.

As advised on 19 May 2017, the following matters need to be addressed in order that Council can determine whether to refer a planning proposal for Gateway Determination:

1. Revised Concept Plans sufficient to proposed development area boundaries, relationships to surrounding development, servicing strategies for road, water, sewer and stormwater infrastructure, survey information including for existing vegetation, offset locations, and relationship to surrounding approvals to be clearly stated.
2. Koala Plan of Management (KPOM), based on the above concept plans, and consistent with *State Environmental Planning Policy (SEPP) No. 44 Koala Habitat Protection*, supporting NSW government *Guidelines*, and surrounding approved Koala Plans of Management for the broader Innes Peninsula.
3. Environmental Assessments consistent with items 1 and 2 above and current legislation.
4. Bushfire Hazard Assessment consistent with items 1 and 2 above and relevant legislative requirements.
5. Justification as to the consistency of the proposal with Port Macquarie-Hastings Council Development Control Plan provisions for koala habitat and environmental buffers.
6. Aboriginal Archaeological and Cultural Heritage Assessment.
7. Strategic Merit of the proposed change to planning controls, and
8. Consistency with relevant legislation and NSW Planning and Environment Guidelines; *A guide to preparing planning proposals*, and *A guide to preparing local environmental plans*.

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9 Laurie Street, Laurieton NSW 2443

Refers to: PP 2011 – 9.3

Council staff have now undertaken a review of the additional information submitted in response to these matters, with reference to the earlier information submitted in relation to your proposal, to determine whether a planning proposal can be supported in this case.

The information reviewed includes the planning proposal application (February 2018), draft Koala Plan of Management (February 2017), Ecological Survey and Constraints Assessment (February 2017), Bushfire Hazard Assessment (2013), Aboriginal Cultural Heritage Assessment (May 2018) and a revised Bushfire Hazard Assessment (May 2018).

In summary, I can advise that:

a. The Ecological reports that you have submitted assume the loss of at least 83 habitat trees and assume the retention and integration of retained vegetation within and adjoining proposed lots shown on your concept plans.

   In many instances, the assumed vegetation retention in your ecological reports is in direct conflict with servicing requirements, property boundaries and importantly, the assumptions made in the revised Bushfire Hazard Assessment, which assumes modification and management of vegetation of bushfire significance.

   For example, your concept plan of subdivision shows reserve areas of retained vegetation at the rear of lots through the centre of the site, which will need to be managed or removed to satisfactorily address asset protection zone requirements for those lots in accordance with the submitted bushfire reports.

b. Vegetation offsets lie outside the study area and appear to be in conflict with previous approvals and the offset requirements for those approvals.

   For example, the southernmost area of proposed offset planting is located within National Parks estate and on land approved as fairway for an approved golf course.

c. There are other inconsistencies in the submitted reports, particularly in relation to the provisions and requirements of *State Environmental Planning Policy (Coastal Management) 2018*, and impending statutory changes to Planning for Bushfire Protection - raised recently with you in relation to the proposed development of the East Ruins Way area.

   I note your recent comments that is almost impossible to comply with the draft changes in Planning for Bushfire Protection, as there may be further change. This is true, nevertheless, there are indications that the requirements will change to become more stringent and as stated above, there are inconsistencies between your ecological and bush fire reports which we do not believe can be reconciled.

The proposal was originally considered by Council in July 2011 as a site specific proposal, subject to satisfactory urban design and conservation outcomes and on the basis that a number of important issues would need to be addressed. These include "the status of conservation outcomes in the area, having regard to what was originally planned, the need for a Koala Plan of Management, the relationship to the adjoining Nature Reserve and the potential loss of private open space associated with the current subdivision".

Despite your efforts to address these issues over the past 7 years, Council staff have concluded that the proposed vegetation loss and expected further vegetation removal required for asset protection zones etc, cannot be undertaken without significant impact on the habitat of local populations of vulnerable species and on habitat connectivity.

Refers to: PP 2011 – 9.3

The submitted material does not sufficiently address the previously stated concerns about the integration of urban development within a high environmental value landscape as proposed in your concepts and the inconsistency in the assumptions of the reports to support your proposal. The proposal is also inconsistent with previous advice from the Office of Environment and Heritage.

It is regrettable that the proposal has taken so long and that your client has expended significant resources to reach this point. I note, however, that Council has previously flagged these issues since the original Council report and that the large majority of the time since 2011, Council has been awaiting information to address the issues that were raised at the outset.

It is proposed that this matter will be reported to Council based on this assessment. At that time you will have an opportunity to address Council should you wish to do so.

Yours sincerely,

J R Sharp
Director Strategy & Growth

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PORT MACQUARIE HASTINGS COUNCIL

31 August 2018

Refers to: PP 2011 – 9.3

Michelle Love
Love Project Management
PO Box 161
WAUCHOPE NSW 2446

Dear Michelle

Request to rezone land at Ruins Way, Port Macquarie - PP2011 - 9.3 – Love Project Management Pty Ltd for Vilro Pty Ltd and Charley Bros Pty Ltd

I write to provide further detail from the Council staff assessment in relation to your proposal for land at Ruins Way, Port Macquarie, as discussed at our meeting on 28 August 2018.

Further to the points raised in Council's letter to you dated 1 July 2018, the following issues have been identified:

Tree Loss

- The extent of tree loss, including koala food trees, has not been sufficiently detailed and is potentially an under-estimation of the total number of trees that would be removed in practice.
- The Ecological Report only broadly considers the footprint of the development in a conceptual sense.
- The Ecological Report does not consider the losses of vegetation associated with mitigating bushfire risk. This is particularly true with the community infrastructure proposed for the East Ruins way precinct, where almost total vegetation clearing would be required to achieve compliance.
- Retention of koala food trees within residential lots is not supported as experience has shown that such trees are seldom retained after development has taken place. The Ecological Report notes the "Risk that tall trees may be perceived as hazards close to dwellings, hence the potential risk of long term habitat erosion via incremental loss" (Table 16).
- Comparison of Table 16 and Figures 9-11 show inconsistencies in the number of koala food trees proposed to be removed.
- As the Ecological Report states, the ability to retain several hollow bearing trees due to structural issues is uncertain.
- The Ecological Report correctly states that there will be a cumulative loss of trees over time throughout the area as tree recruitment will not be able to occur (slashing, concreted surfaces, yards etc).

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Refers to: PP 2011 – 9.3

Field Work

- Much of the field work was conducted c. 7 years ago, with survey effort in recent times minimal and surveys in "the extension to the study area" surveyed with limited effort in winter. Appendix 2 discounts the potential presence of Swift Parrots, stating that there are insufficient winter-flowering trees on site for it to be of use, despite that fact that there are in excess of 83 winter-flowering trees to be removed from the site as part of this development. There are also contemporary records of Swift Parrots in large numbers approximately 500 m from the study site.

Legal Requirements for Assessing Impacts to Threatened Species

- On p.170, the Ecological Report states "thus the proposal is not considered to have a significant impact on the viability of any local population of the subject species and a formal Seven Part Test evaluation was not considered required to superfluously demonstrate the proposal is unlikely to have a significant impact." However this is a legal requirement, particularly as numerous threatened species have been recorded on the site,
- Appendix 2 shows that numerous species have a fair-definite chance of occurring, but discounts the presence of species without adequate scientific justification.
- Table 4 shows that many of the hollow-bearing trees could be significant for a range of threatened species and in the case of the koala, the EPBC Referral Tool indicates an impact to critical habitat is likely.

Impacts on a Nationally Significant Koala Population

- A draft Ecological Survey and Constraints Assessment supported the initial proposal confirmed up to 4 koalas on site at the time of survey and some 90 trees with scats indicating the sites form part of Core Koala Habitat.
  The Ecological Report clearly states that this area is "Core Koala Habitat" and the EPBC Referral Criteria shows that the study site is "Critical Habitat". This habitat is part of the broader Lake Innes area that is used by a nationally significant koala population.
- Approximately 35 ha of Core Koala Habitat has been cleared within this landscape (as per Figure 12) in recent years, most of it on the land owned by the proponents. Further areas have development applications already approved over Core Koala Habitat. The Cumulative Impact of clearing needs to be considered before permission is given to clear further areas of core habitat.
- As the Ecological Report states, most of the Core Koala Habitat falls on the private property in this area, with Lake Innes Nature Reserve not supporting Core Koala Habitat in this area.
- The loss of at least 82 koala food trees cannot be offset within the current or following generation of koalas. This represents a significant 'bottleneck' in food availability within this local landscape which will cause an immediate impact to the koala population either though starvation or increased competition (leading to dispersal, and its associated risks such as road strike, and stress, and its associated impacts such as disease).
- Limited koala food trees are available within Lake Innes Nature Reserve to the south.

PORT MACQUARIE HASTINGS COUNCIL

Refers to: PP 2011 – 9.3

- The current site not only offers habitat, but provides important connectivity around the north-eastern part of the Lake Innes precinct. The Ecological Report notes (p.95) that the corridors across the open fairways are currently used by koalas for connectivity purposes, noting that "these strips are adequate for use in koala movement west to east across the site".
- The proposed 'corridors' through the development are of insufficient width once they are in the urban context. The EPBC Criteria states that corridors must be 100m wide to avoid impacts to movement. These proposed corridors are in places less than one-quarter the required standard and will be ineffectual or a 'sink' in the urban context.
- The Ecological Report also downplays the presence of Regional Corridors for Connectivity in this landscape. The existing trees on this site provide an immediate link to a Regional Corridor. Figure 12 in the Ecological Report shows purported corridors for koalas in the area. Several of the areas depicted have been cleared since that mapping was conducted effectively severing the corridors in places. These corridors are narrow, are in the urban context and in places occur on land zoned residential. They therefore cannot be relied upon for connectivity over time.

The Draft KPoM

- There is no map of Core Koala Habitat provided in the KPoM. This information is a minimum requirement.
- The proposed offset for any loss of koala food trees has not been identified or quantified in the KPoM.
- The suitability, security, long management of any offset land, and how this meets the commitments to increase koala habitat and reverse the current trend of the decline is missing in the KPoM.
- The KPoM concedes that the development design is 'nominal at present' and trees have not yet been surveyed against any final development layout.
- Also loss of koala foods are approximated. Integrating such a tightly packed residential development footprint into Core Koala Habitat requires detailed design and survey of every tree to understand the full impact of the development (water pipes, other cables and infrastructure, structural stability following root loss, trimming etc). This detail is not included in the KPoM and thus cannot be properly assessed until this is provided.
- The objective of the KPoM is, "to ensure the study area retains its ability to support a Koala population, and also enhance this by increasing the potential carrying capacity and linkages" (p14). The proposed development does not achieve this objective.
- As discussed above, the proposal would result in an overall decline in functionality of the identified koala habitat corridor of the east and west Ruins Way area.

- The proposed development is therefore contrary to the intent of SEPP 44 which "aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline".

- **Hollow-Bearing Trees**
  - JBEnviro's ecological assessment states that of the 12 HBTs identified on site, 5 require mandatory retention.
  - There is no map to define where these 5 HBTs are located in relation to the proposed development and how the proposed rezoning accommodates the required buffers to

PORT MACQUARIE HASTINGS COUNCIL

Refers to: PP 2011 – 9.3

development as required in the Development Control Plan, nor whether the full development will be able to accommodate retention of the trees (e.g. sewer pipes, footpaths, public safety etc) and ensure their structural stability over time.

- There is no identification, assessment on the suitability of, or discussion on the long term security of any receiving lands for offset nest boxes.

Bushfire

- It is important to take into account the fact that Planning for Bushfire Protection 2017 is likely to be in force by the time any DA's would be submitted and detailed design would likely impact on future lot yields in relation to bushfire protection measures. In this regard it should be noted that environmental zonings do not permit Bushfire Asset Protection Zones.

- The proposed environmental corridors depending on their width and size may pose a bushfire risk in themselves requiring applicable APZ.

East Ruins Way

- The Bushfire Hazard Assessment of vegetation as Woodland risk is inconsistent with the updated ecological assessment of the vegetation of dry sclerophyll forest. Planning for Bushfire Protection 2017 (and currently PBP 2006) generally classifies woodlands as having *"an open to sparse layer of eucalypts with the crowns rarely touching"*. It is Council's assessment is that this vegetation should be assessed as forest.
- PBP 2017 suggests that places of public worship and public assembly buildings –including community halls, should be carefully considered in regards to the vulnerability of large numbers of people, and Class 9 Assembly areas under the Building code of Australia that are not Special Fire Protection Purposes (SFPP) should be assessed and be considered as if they were SFPP against the objectives of chapter 6.
- It is Council's view that the proposed vegetation retention for ecological and koala habitat protection will not comply with the bushfire protection measures recommended above. Consideration should also be given to the future impacts of additional removal under the 10/50 rules despite the requirements for approval if the vegetation is protected.
- Understory mowing to grass will not facilitate ongoing recruitment for koalas.
- If APZ requirements for class 9 assembly buildings were assessed as SFPP the minimum APZ requirements for dry sclerophyll forest on flat land would be 67 metres.

West Ruins Way

- The minimum APZ requirements for dry sclerophyll forest, 0-5 deg downslope (PBP 2017) for residential, would be 24 metres.
- The concept does not provide for a perimeter road to the bushfire hazard to the south west, would need to re-assess the ecological and KPOM impacts for this.

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South Lindfield

- Consideration needs to be given to the bushfire requirements of the Ascot Park development – namely fire trail connections and any proposed offsets/ revegetation and the rezoning that would have an impact on the protection measures
- The minimum APZ requirements for dry sclerophyll forest, 0-5 deg downslope (PBP 2017) for residential, would be 24 metres.

Other Matters, Biodiversity Conservation Act, Coastal SEPP

- Most of the Ruins Way investigation area is outside the Urban Growth Area boundary in the Regional Plan. Council staff cannot justify inconsistencies with the North Coast Regional Plan, including:
  - Direction 1.1 Deliver environmentally sustainable growth by focusing urban development to mapped Urban Growth Areas (UGA);
  - Direction 2.1 Enhance biodiversity, coastal and aquatic habitats, and water catchments by focusing development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value; and
  - Direction 3.1 Manage natural hazards and climate change by identifying, avoiding and managing vulnerable areas and hazards).
- The Ecological Assessment does not give regard to the Coastal SEPP and the fact that much of the current site is contained within the Proximity to Coastal Wetlands Layer.

As advised in the 31 July 2018 letter, Council staff have concluded that based on the information provided, the proposed vegetation loss and expected further vegetation removal required for asset protection zones etc, cannot be undertaken without significant impact on the habitat of local populations of vulnerable species and on habitat connectivity. It is based on this assessment that Council staff have formed the view that these issues are significant and, in reality, may not be able to be satisfactorily resolved over the majority of the subject land. While the issues appear to be somewhat detailed for a rezoning/planning proposal it is the cumulative, overlapping and contradictory impacts of the issues that necessitate their consideration at this stage in the process.

The possible exception is that part of the study area that has been investigated as part of the South Lindfield investigation area, which may have scope for a residential zone. However, the appropriate location of residential zone boundaries remains unresolved as the proposed arrangements for a vegetated buffer along the southern edge of that land, are currently at odds with advice from NSW Office of Environment and Heritage. Vegetation offsets and habitat connectivity also need to be considered as reported to Council in March 2017.

As indicated at our meeting of 28 August, I am happy to provide this further opportunity for you to address the issues listed above and this will be reflected in the proposed report to Council in September 2018, regarding current site-specific amendments.

Council's aim is to determine site-specific matters efficiently and we therefore remain committed to reporting this to Council as soon as practicable. Accordingly, it would be appreciated if you could provide any further comments/information that you would like to have

PORT MACQUARIE HASTINGS COUNCIL

Refers to: PP 2011 – 9.3

considered in a report to Council by 28 September 2018. Should you not be able to meet this deadline, please do not hesitate to contact me.

Should you wish to meet again to address the matters, I would be happy to do so. This could include a discussion with your client regarding a broader, landscape approach to the management of development and ecological outcomes on your client's land if you wish to take this approach.

Yours sincerely

J R Sharp
Director
Strategy & Growth

PUBLIC EXHIBITION DATES
10 April to 13 May 2019

Planning Proposal

Draft Port Macquarie-Hastings LEP 2011

(Amendment No 53)

Highway Service Centre

Lot 11 DP 1029846

No 1179 Oxley Highway Sancrox

Ccl ref: PP2017-10.1
DP&E ref: PP_2018_PORTM_004_00
Date: 10 April 2019
Version 2: For public exhibition

PORT MACQUARIE HASTINGS COUNCIL

Planning Proposal status (for this copy)

Stage	Version Date *(blank until achieved)*
Reported to Council - section 3.33	16/5/18
Referred to DP&E - section 3.34(1)	10/8/18
Gateway Panel determination - section 3.34(2)	29/8/18
Revisions required: No	NA
Public Exhibition - Schedule 1 clause 4	10/4/19 – 13/5/19
For Council review - section 3.35(1)	
Adopted by Council for submission to Minister's delegate – section 3.36(2)	

Council reference:	PP2017–10.1 Port Macquarie-Hastings LEP 2011 (Amendment No 53)
Department of Planning & Environment reference:	PP_2018_PORTM_004_00

Council Address	Contact Officer
Port Macquarie-Hastings Council PO Box 84 PORT MACQUARIE NSW 2444	Sandra Bush Senior Strategic Land Use Planner Email sandra.bush@pmhc.nsw.gov.au Phone 02 6581 8025

Adoption of the Planning Proposal

1. For initial Gateway determination

This Planning Proposal was endorsed on 10 August 2018 by the undersigned Council delegate:

Signed .....

Name Steve Schwartz

Position Acting Group Manager Strategic Land Use Planning

2. For section 3.35 finalisation

This Planning Proposal was endorsed on ..... by *Port Macquarie-Hastings Council*, or *the undersigned Council delegate* (delete one):

Signed .....

Name .....

Position .....

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Executive Summary & Exhibition information

Planning Proposal

This is a Planning Proposal to permit development of a Highway Service Centre on the south-western corner of the intersection of the Oxley Highway and Pacific Highway at Sancrox, west of Port Macquarie.

What is a Planning Proposal?

The preparation of a Planning Proposal is the first step in making an amendment to the *Port Macquarie-Hastings Local Environmental Plan* (LEP) *2011*. A Planning Proposal is a document that explains the intended effect and justification for the proposed amendment. Under the *Environmental Planning and Assessment Act 1979*, Council must prepare and submit a Planning Proposal to the Department of Planning and Environment for consideration of an amendment to the *Port Macquarie-Hastings LEP 2011*.

This Planning Proposal is set out in the manner required by the State government and it contains information required by the State government when Councils prepare changes to their LEPs.

What is the intent of this Planning Proposal?

The intent of this Planning Proposal is to amend the *Port Macquarie-Hastings LEP 2011* to allow development for the purpose of a Highway Service Centre on No 1179 Oxley Highway Sancrox (Lot 11 DP 1029846). It is also proposed to incorporate ancillary hotel or motel accommodation to permit overnight accommodation for heavy vehicle drivers.

The site is proposed to be subdivided into two lots, with one lot containing a Highway Service Centre site and the other lot containing an existing dwelling. Following construction of a Highway Service Centre, the Planning Proposal will permit further subdivision of the individual tenancies within the Highway Service Centre.

Public exhibition

This Planning Proposal is on public exhibition from **10 April to 13 May 2019**. Copies of the Planning Proposal and supporting information are available for the duration of the exhibition period at Council's offices between 8.30am and 4.30pm on normal business days. The Planning Proposal will also be available on Council's Have Your Say website haveyoursay.pmhc.nsw.gov.au

All interested persons are invited to view and comment on the proposal during the exhibition period. All comments received will be reported to Council for a final decision. Note: Any submission may be made public. Contact details remain confidential, however, please let us know if you would like your name to remain confidential.

If you lodge a submission and have made a political donation or provided a gift to a Councillor or Council employee in the last two years, you need to declare this. Refer to Council's website for details on making a statement.

Written submissions can be made online, or send your submission by email, or post to:

The General Manager
Port Macquarie-Hastings Council
PO Box 84
Port Macquarie NSW 2444
Email: council@pmhc.nsw.gov.au

Any questions, contact:

Sandra Bush on telephone 6581 8025
or email sandra.bush@pmhc.nsw.gov.au

Background

Proposal	Port Macquarie Highway Service Centre
Property Details	Part of Lot 11 DP 1029846, No. 1179 Oxley Highway, Sancrox
Current Land Zone	RU1 Primary Production
Proponent	Scott PDI No 6 Pty Ltd
Landowner	MM Hore
Location	A location map is included in Part 4 - Mapping

This Planning Proposal has been prepared in accordance with the *Environmental Planning and Assessment Act 1979* and the NSW Department of Planning and Environment's *A guide to preparing planning proposals* 2018 and *A guide to preparing local environmental plans 2018*.

It explains the intended effects of a proposed amendment to the *Port Macquarie-Hastings Local Environmental Plan 2011* (LEP 2011) to enable development of a Highway Service Centre (HSC) for northbound traffic on the south-west corner of the Pacific Highway and the Oxley Highway, being Lot 11 DP 1029846, No 1179 Oxley Highway, Sancrox.

The land is the subject of a request to prepare a Planning Proposal lodged by GEM Planning Projects on behalf of Scott PDI on 27 February 2018. A copy of the submitted concept plans and photomontages are at **Attachment 1**.

A Development Application (DA) was lodged with the Planning Proposal for the subdivision of the land and the construction of a HSC. The DA is currently on-hold pending a decision on this Planning Proposal.

The land is identified in the *Port Macquarie-Hastings Urban Growth Management Strategy 2017-2036* (UGMS) as a Gateway Site and is identified by the Roads and Maritime Services (RMS) as a location for a future HSC. Under LEP 2011 however, the RU1 Primary Production zoning of the site prohibits the development of a HSC.

On 16 May 2018, Council considered a planning report on the proposal and resolved to commence the preparation of a Planning Proposal to permit the development of a HSC on the land. The Council report and Meeting Minutes are at **Appendix A**.

On 29 August 2018, the NSW Department of Planning and Environment issued a Gateway Determination to allow the preparation of the Planning Proposal to commence and also specified requirements for consultation with State Government agencies and the community. An alteration to the Gateway Determination was issued on 24 September 2018 to correct a typing error in the site address. The initial Gateway Determination and later alteration are at **Appendix B**.

Pre-exhibition consultation in relation to the proposal has occurred with the Roads and Maritime Services, NSW Rural Fire Service, Office of Environment & Heritage, and the Environment Protection Authority. Details of this consultation are provided under Section D, Question 11.

The Site

The site is located on the south-west corner of the Pacific Highway and the Oxley Highway, being Lot 11 DP 1029846 and known as No. 1179 Oxley Highway, Sancrox (see **Figure 1**). Under LEP 2011, the site is zoned RU1 Primary Production, which is a rural zone that prohibits HSCs.

The site has frontage to both the Pacific Highway and the Oxley Highway and has a total area of 51.81 hectares (ha). The request for the preparation of a Planning Proposal is for an area of about 18 ha, to be excised from the land for construction of a HSC and associated parking and effluent disposal areas, plus ancillary motel accommodation for heavy vehicle drivers.

The site is mostly cleared with a stand of vegetation along the eastern and northern boundaries and a larger patch of forest in the south-east. There is a ridge that runs east west through the middle of the site, with a saddle that extends north south from the centre to a point to the west of the centre of the northern boundary.

Land surrounding the site to the north, south and west is generally zoned RU1 Primary Production. There is a small area south-west of the site along Birralee Drive and Burrawan Forest Drive which is zoned RU5 Village.

Land to the east of the site on the opposite side of the Pacific Highway (south of the Oxley Highway) is generally zoned RU1 Primary Production and further to the east, R1 General Residential. An existing Service Centre is located on the south-east corner of the Pacific and Oxley Highways in Thrumster.

Figure 1: Subject Site

The Proposal

The Proponent's indicative development concept for the site is shown in **Figure 2** and includes:

- Service station
- Service station restaurant with 3 food & drink outlets and drive-through
- Stand-alone food and drink outlet with drive-through
- 8 room motel
- Truck service facility including truck wash
- 102 car parking spaces
- 5 x car and trailer (boat, caravan) parking spaces
- 70 parking spaces suitable for B-doubles
- 10 B-double plus parking spaces
- 4 Pylon Signs

The site is relatively steep and the development proposal is to excavate to create a level pad for the proposed HSC development. A north bound exit ramp from the Pacific Highway directly into the site is proposed with entry and exit from the Oxley Highway.

Figure 2: Proponent's indicative development concept (Feb 2018)

Part 1 - Objectives or Intended Outcomes

This Planning Proposal aims to amend LEP 2011 to permit a HSC to be located on the south-west corner of the intersection of the Oxley Highway and Pacific Highway at Sancrox, west of Port Macquarie.

The LEP 2011 provides the following definitions:

> ***Highway Service Centre*** *means a building or place used to provide refreshments and vehicle services to highway users. It may include any one or more of the following:*
> *(a) a restaurant or café,*
> *(b) take away food and drink premises,*
> *(c) service stations and facilities for emergency vehicle towing and repairs,*
> *(d) parking for vehicles,*
> *(e) rest areas and public amenities.*
>
> ***Service station*** *means a building or place used for the sale by retail of fuels and lubricants for motor vehicles, whether or not the building or place is also used for any one or more of the following:*
> *a) the ancillary sale by retail of spare parts and accessories for motor vehicles,*
> *b) the cleaning of motor vehicles,*
> *c) installation of accessories,*
> *d) inspecting, repairing and servicing of motor vehicles (other than body building, panel beating, spray painting, or chassis restoration),*
> *e) the ancillary retail selling or hiring of general merchandise or services or both.*

It is proposed to excise an area of about 18 ha from the lot to contain the proposed HSC. The residue lot will have an area of about 33 ha and will contain an existing dwelling.

In addition to the HSC use, it is proposed to permit:

- ancillary hotel or motel accommodation for heavy vehicle drivers
- subdivision to excise the HSC site from the residue area
- subsequent subdivision of the HSC site, following construction, to create separate titles for individual tenancies; and
- a dwelling entitlement on the residue lot.

Part 2 - Explanation of Provisions

The Planning Proposal seeks to amend LEP 2011 by:

1. Revising Schedule 1 (Additional Permitted Uses) to:

   a) Allow a HSC, with ancillary hotel or motel accommodation for heavy vehicle drivers, as additional permitted uses on part of Lot 11 DP 1029846, and

   b) Allow a two lot subdivision of Lot 11 DP 1029846 to excise the HSC site despite the minimum lot size provisions, and

   c) Allow a dwelling house on the residue of Lot 11 DP 1029846 following excision of the HSC site despite the minimum lot size provisions, and

   d) Allow subdivision of the land parcel containing the HSC site, following its construction, despite the minimum lot size provisions.

2. Revising the Additional Permitted Uses Map to identify the HSC site which will be referred to in the amendment to Schedule 1.

See **Part 4** for proposed mapping changes.

Part 3 – Justification

In accordance with the Department of Planning and Environment's *A guide to preparing planning proposals*, this Part provides a response to the following matters:

- Section A: Need for the Planning Proposal
- Section B: Relationship to strategic planning framework
- Section C: Environmental, social and economic impact
- Section D: State and Commonwealth interests

Section A – Need for the Planning Proposal

1. Is the Planning Proposal a result of any strategic study or report?

Yes. The land is identified in the *Port Macquarie-Hastings Urban Growth Management Strategy 2017-2036* as a Gateway Site, and is identified by the Roads and Maritime Services (RMS) as an approved location for a HSC. Action 9.3 of the *North Coast Regional Plan 2036* includes the establishment of a HSC at this intersection.

The Planning Proposal is the subject of a rezoning request lodged by GEM Planning Projects on behalf of development group, Scott PDI. The following supporting information and reports were submitted with the request:

- Draft Planning Proposal (GEM Planning Projects)
- Site Plans (Hopkins Consultants)
- Concept Plans and Photomontages (TRG Queensland Pty Ltd)
- Biodiversity Development Assessment Report, (Biodiversity Australia)
- Bushfire Hazard Assessment (Midcoast Building and Environmental)
- Stage 1 Contaminated Site Assessment (Commercial Asset Management Services Pty Ltd)
- Traffic Impact Assessment (TTM)
- Stormwater Management Plan (Hopkins Consultants)
- Onsite Sewage Management – Site Feasibility Assessment (HMC Environmental Consulting Pty Ltd)
- Economic Impact Assessment (Foresight Partners Pty Ltd)
- Acoustic Assessment (Matrix Thornton)
- Preliminary Lighting Assessment (Light Harmony, Queensland)
- Aboriginal Cultural Heritage Assessment (Birpai Local Aboriginal Land Council)

Following issue of the Gateway Determination and prior to public exhibition, a Traffic Modelling Report (Bitzios) was also submitted in support of the Planning Proposal.

These reports are contained in **Attachments 1 to 12**.

2. Is the Planning Proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

Yes. Under LEP 2011, HSCs are prohibited in all zones. The proposed amendment to LEP 2011 is the best means of achieving the objectives of the Planning Proposal and the listing of a HSC on the land as an additional permitted use is considered to be appropriate.

It is not appropriate for HSCs to be listed as permissible with consent in the RU1 Primary Production zone as this zone is widespread throughout the local government area and will have the effect of making HSCs permissible with consent in inappropriate locations.

The additional permitted use for subdivision of the site into two (2) lots could be achieved through an amendment to the minimum lot size map. However, this option is not preferred, because it would likely require a particular minimum lot size for the HSC site that would be different to the minimum lot size for the residue lot. Detailed design of the development may also result in the HSC site boundary being modified.

The 'Additional Permitted Uses' approach retains flexibility in the final development footprint and lot size requirement and will locate all the special development controls for the site in the same clause of LEP 2011.

Section B - Relationship to strategic planning framework

3. Is the Planning Proposal consistent with the objectives and actions of the North Coast Regional Plan 2036?

Consideration of Planning Proposal in context of the relevant goals, directions and actions of the State Government's Regional Plan is provided below:

Goal 1 - The most stunning environment in NSW

- Direction 2: Enhance biodiversity, coastal and aquatic habitats, and water catchments

  Action 2.1: Focus development to areas of least biodiversity sensitivity in the region and implement the "avoid, minimise, offset" hierarchy to biodiversity, including areas of high environmental value.

  The HSC is to be developed predominately on the cleared areas of the site, with the forested area in the south-east intended to be retained. To achieve visibility of the site and traffic safety outcomes to the satisfaction of the RMS, existing vegetation within the Pacific Highway and Oxley Highway road reserves adjoining the eastern and northern boundaries of the subject site is proposed to be cleared. Through the DA process, the clearing is to be offset using the Biodiversity Offsets Scheme and the retirement of biodiversity credits. It is considered that the development will comply with the 'avoid, minimise, offset' consistent with Action 2.1 of the Regional Plan.

- Direction 3: Manage natural hazards and climate change

  Action 3.1 Reduce the risk from natural hazards, including the projected effects of climate change, by identifying, avoiding and managing vulnerable areas and hazards.

  The site is mapped as bushfire prone land. The Proponent's Bushfire Hazard Assessment report (**Attachment 2**) has demonstrated that the hazard can be managed in respect to the proposed development.

Goal 2 - A thriving, interconnected economy

- Direction 9: Strengthen regionally significant transport corridors

  Action 9.3 Ensure the effective management of the State and regional road network by:
  - *preventing development directly adjoining the Pacific Highway*
  - *preventing additional direct 'at grade' access to motorway-class sections of the Pacific Highway*

- *locating highway service centres on the Pacific Highway at Chinderah, Ballina, Maclean, Woolgoolga, Nambucca Heads, Kempsey and Port Macquarie, approved by the Department of Planning and Environment and Roads and Maritime Services; and*
- *identifying strategic sites for major road freight transport facilities.*

The site is specifically identified for a HSC and is entirely consistent with Action 9.3, pending the approval of the NSW Department of Planning and Environment and the RMS.

- Direction 16: Collaborate and partner with Aboriginal communities

  Action 16.2 Ensure Aboriginal communities are engaged throughout the preparation of local growth management strategies and local environmental plans.

  The Planning Proposal request is supported by an Aboriginal Cultural Heritage Assessment (**Attachment 3**) prepared by the Birpai Local Aboriginal Land Council, who have advised that there is no reason that the rezoning cannot proceed in respect to Aboriginal Cultural Heritage issues.

Goal 3 - Vibrant and engaged communities

- Direction 20: Maintain the region's distinctive built character

  Action 20. 1 Deliver new high-quality development that protects the distinct character of the North Coast, consistent with the North Coast Urban Design Guidelines (2009).

  The *North Coast Urban Design Guidelines* do not relate to HSCs. However, Council has prepared draft development controls for land known as the 'Highways Gateway Sites', which includes the subject land.

  The aim of the draft controls is to promote good urban design and visual amenity outcomes for future development of the Highways Gateway Sites and to ensure that future development promotes the character of the Port Macquarie-Hastings area.

  The draft Highways Gateway Sites development controls are on public exhibition together with this Planning Proposal.

- Direction 21: Coordinate local infrastructure delivery

  Action 21.2 Maximise the cost-effective and efficient use of infrastructure by directing development towards existing infrastructure or promoting the co-location of new infrastructure.

  The HSC site is identified for longer term urban employment purposes but is unable to be connected to reticulated sewer at this time. The Proponent and the landowner have offered to enter into a Planning Agreement with Council to come to satisfactory arrangements for the connection of the site to sewer in the medium to longer term.

  The draft Planning Agreement is on public exhibition together with this Planning Proposal.

Urban Growth Area Maps

The Regional Plan identifies the site on the Urban Growth Area Map for Port Macquarie-Hastings as part Investigation Area – Employment Land (over the HSC site), and part Investigation Area – Urban land (over the residue area of the site), as shown in **Figure 3** below.

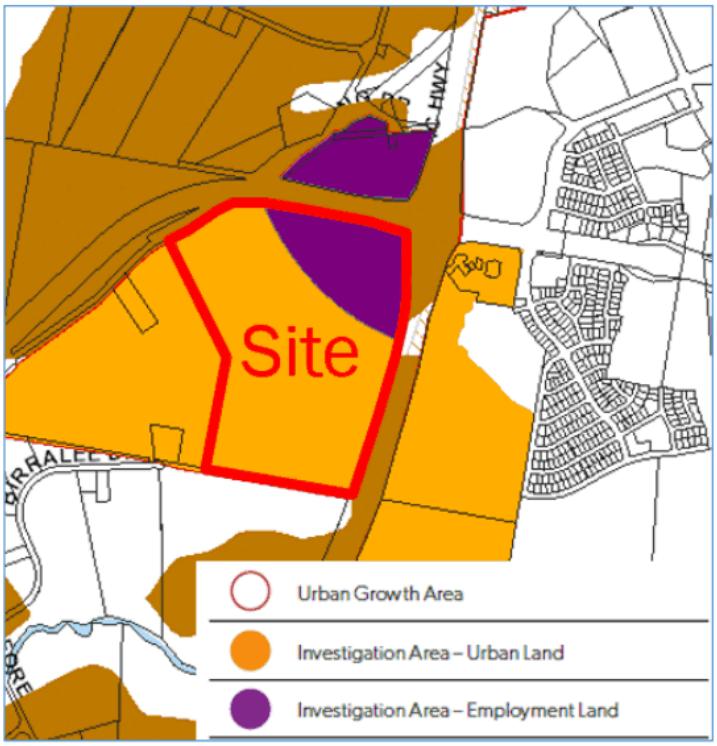

Figure 3: Extract from North Coast Regional Plan – Port Macquarie-Hastings Urban Growth Area Map

4. Is the Planning Proposal consistent with Council's Community Strategic Plan and Urban Growth Management Strategy?

It is considered that the Planning Proposal is consistent with Council's *Towards 2030 Community Strategic Plan 2017* (CSP) which identifies the following overarching Vision of the community as *A sustainable high quality of life for all.* Consideration to the CSP objectives and strategies of relevance to the Planning Proposal are below:

- Objective 3 Your Business and Industry seeks to achieve a region that is a successful place that has a vibrant, diversified and resilient regional economy. Key strategies include:

  3.3 Embrace opportunity and attract investment to support the wealth and growth of the community.

  The site is a key Gateway to the Port Macquarie-Hastings region and provides an opportunity to promote the region and attract investment. It is expected that the proposed HSC will attract grant funding due to the priority for the establishment of HSCs along the Pacific Motorway.

  An Economic Impact Assessment (**Attachment 4**) submitted in support of the proposal concludes that there is a strong need for a HSC on the site.

- Objective 4 Your Natural and Built Environment seeks to achieve a connected, sustainable, accessible community and environment that is protected now and into the future. Key strategies include:

4.1 Provide (appropriate) infrastructure and services including water cycle management, waste management, and sewer management.
4.3 Facilitate development that is compatible with the natural and built environment.
4.4 Plan for integrated transport systems that helps people get around and link our communities.

Development of the site requires strategic planning for future connection to reticulated sewerage, protection of ecological values and the identification of access solutions to ensure traffic safety on the Pacific and Oxley Highways.

As previously noted, the Proponent and the landowner have offered to enter into a Planning Agreement with Council to ensure satisfactory arrangements for connection of the proposed HSC to reticulated sewerage in the medium to longer term.

Ecological impacts have been assessed in accordance with the *Biodiversity Conservation Act* 2016 and it is considered the 'avoid, minimise, mitigate' test will be able to be satisfied for the development.

In relation to traffic safety and access design, the construction of an off-ramp from the Pacific Highway and a roundabout on the Oxley Highway is proposed to provide direct access to the site. The State government agency, RMS, is the Road Authority responsible for approval of any new access points with the design to be in accordance with RMS requirements. This matter, including the outcome of pre-exhibition consultation with the RMS, is discussed under Section D.

In considering the Planning Proposal, Council is seeking to establish that the road infrastructure arrangements for the HSC are compatible with what is needed in the longer term to service future development in the wider Sancrox area. In this regard, the Proponent and the landowner have offered to enter into a Planning Agreement with Council to ensure satisfactory arrangements are in place for a co-ordinated access point from the proposed HSC to the Oxley Highway, which can service the subject site and lands to the north.

The draft Planning Agreement is being exhibited for public comment together with this Planning Proposal.

The *Port Macquarie Urban Growth Management Strategy 2017–2036* (UGMS) provides the strategic framework for residential, rural residential, retail, industrial and tourism development in the Port Macquarie-Hastings local government area.

Action 16 of the UGMS specifically lists *Planning for the 'gateway sites' at the intersection of the Pacific and Oxley Highways in Port Macquarie* as an action to be taken in the first 1 to 2 years of the Strategy.

Figure 4 provides an extract from the UGMS that identifies the Highways Gateway Sites, which includes the subject land. It is considered that the proposal is consistent with the UGMS.

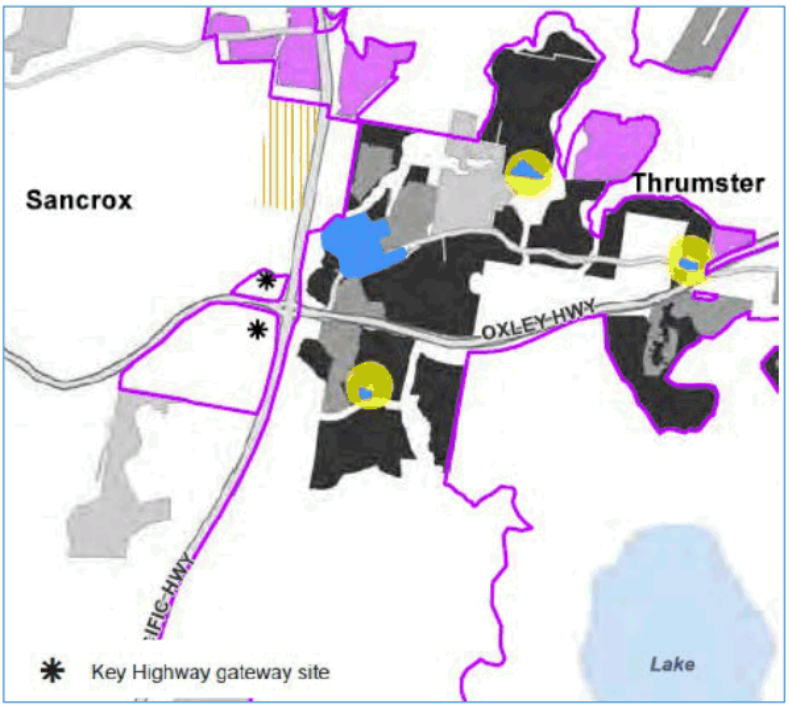

Figure 4: Extract from UGMS

5. Is the Planning Proposal consistent with applicable State Environmental Planning Policies?

An assessment of consistency with State Environmental Planning Policies (SEPPs) of relevance is provided below.

SEPP	*Consistent*	*Reason for inconsistency or comment*
No 55 - Remediation of Land	Yes	*Introduces state-wide planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated.* The Proponent's Stage 1 Contaminated Site Assessment Report (**Attachment 5**) concluded that the land is suitable, or is able to be made suitable, for the proposed use, in terms of potential contamination.
No 64 - Advertising and Signage	Yes	*Introduces state-wide planning controls for signage including advertising.* Clause 15 of SEPP 64 limits the display of advertisements on rural or non-urban land to advertisements that relate to the land, or premises situated on the land, or is a notice directing the travelling public to tourist facilities or activities. The development only intends to display advertisements that relate to the site. Assessment of any future DAs will be required to consider the assessment criteria under the SEPP.

SEPP	*Consistent*	*Reason for inconsistency or comment*
Infrastructure 2007	Yes	*The aim of this Policy is to facilitate the effective delivery of infrastructure across the State.* Clause 101 of the Policy provides controls over development with frontage to classified roads to ensure that new development does not compromise the effective and ongoing operation and function of classified roads, and to prevent or reduce the potential impact of traffic noise and vehicle emission on development adjacent to classified roads. The Proponent's Traffic Impact Assessment (**Attachment 6**) proposed the construction of an off ramp from the Pacific Highway and a roundabout on the Oxley Highway to provide direct access to the site. The Oxley Highway is a State road and the RMS is the Road Authority responsible for approval of any new access points. To supplement the initial Assessment, the Proponent commissioned additional traffic modelling in accordance with a brief prepared in consultation with the RMS. The resultant Traffic Modelling Report (**Attachment 7**) assessed the performance of the road network and the potential traffic impacts associated with the HSC proposal. As discussed in more detail under Section 10 of this Planning Proposal, following review of the additional traffic modelling the RMS has advised conditional support to the proposal. Clause 104 requires applications for traffic generating development of certain types and scale to be referred to the RMS and for Council to consider any comments. Any future DA that includes a service station will require referral to the RMS for review.
Rural Lands 2008	Yes	*The aim of this policy is to facilitate the orderly and economic use and development of rural lands for rural and related purposes. The SEPP contains a number of 'Rural Planning Principles' that must be considered in preparing any Planning Proposals affecting rural land.* The site has not been identified as regionally significant farmland and is considered to have limited agricultural value.
State and Regional Development 2011	Yes	*The aims of this Policy are to identify development that is State significant development, State significant infrastructure and critical State significant infrastructure, and that is regionally significant development.* Development with a capital investment value of more than $30 million is declared to be regionally significant development, and is required to be determined by the relevant Regional Planning Panel. It is likely that the HSC will be regionally significant development and will be reported to the Regional Planning Panel for determination in the future.

6. Is the Planning Proposal consistent with applicable Ministerial Directions?

An assessment of consistency with Ministerial Directions of relevance is below.

1. Employment and Resources

S9.1 Direction	*Consistent*	*Reason for inconsistency or comment*
No 1.2 - Rural Zones	No	*The objective of this direction is to protect the agricultural production value of rural land.* The proposal does not rezone the land from rural to an urban zone, however, it does propose provisions to allow development that is of an urban character. The inconsistency with this Direction is allowed to occur if it is in accordance with the relevant Regional Plan. In this regard, the Planning Proposal is in accordance with the *North Coast Regional Plan 2036*, which identifies the site for a HSC.
No - 1.5 Rural Lands	No	*This direction aims to protect the agricultural production value of rural land and to facilitate the orderly and economic development of rural lands for rural and related purposes.* The site has not been identified as regionally significant farmland and is considered to have limited agricultural value. The inconsistency of the proposal with this Direction is considered to be of minor significance.

2. Environment and Heritage

S9.1 Direction	*Consistent*	*Reason for inconsistency or comment*
No 2.1 - Environmental Protection Zones	Yes	*The objective of this direction is to protect and conserve environmentally sensitive areas.* The site and adjoining road reserves contain native vegetation. The Proponent's Biodiversity Development Assessment Report (**Attachment 8**) concludes that there were no threatened flora species, fauna species or Endangered Ecological Communities detected on the site and that the proposed development will result in the loss of pasture grassland and scattered paddock trees only. In correspondence dated 11 January 2019, the NSW Office of Environment and Heritage (OEH) raised no issues in relation to biodiversity on the basis that they will undertake a detailed review of the submitted Biodiversity Development Assessment Report at DA stage. Refer to Section D Question 10, for further details in relation to OEH's comments.

4. Hazard and Risk

S9.1 Direction	*Consistent*	*Reason for inconsistency or comment*
No 4.4 - Planning for Bushfire Protection	Yes	*The objectives of this direction are to protect life, property and the environment from bush fire hazards by discouraging the establishment of incompatible land uses in bush fire prone areas; and to encourage sound management of bush fire prone areas.* The site is mapped as bushfire prone land. The Proponent's Bushfire Hazard Assessment (**Attachment 2**) has assessed the bushfire hazard. The report concludes that the proposed development is capable of complying with *Planning for Bushfire*

		Protection 2006, and will provide for adequate Asset Protection Zones, access roads and water supply. In correspondence dated 23 January 2019, the NSW Rural Fire Service (RFS) advised no objection to the Planning Proposal. Refer to Section D Question 10 for further details in relation to RFS's advice.

5. Regional Planning

S9.1 Direction	*Consistent*	*Reason for inconsistency or comment*
5.4 Commercial and Retail Development along the Pacific Highway, North Coast	Yes	*The objectives for managing commercial and retail development along the Pacific Highway are:* *(a) to protect the Pacific Highway's function, that is to operate as the North Coast's primary inter- and intra-regional road traffic route;* *(b) to prevent inappropriate development fronting the highway;* *(c) to protect public expenditure invested in the Pacific Highway;* *(d) to protect and improve highway safety and highway efficiency;* *(e) to provide for the food, vehicle service and rest needs of travellers on the highway; and* *(f) to reinforce the role of retail and commercial development in town centres, where they can best serve the populations of the towns.* This Direction controls new development on the Pacific Highway to ensure the ongoing safety and efficiency of the highway. The establishment of HSCs are permitted at the localities listed in Table 1 (which includes the subject site), provided that the RMS is satisfied that the HSC can be safely and efficiently integrated into the Highway interchanges at those localities. In correspondence dated 15 February 2019, the RMS raised no objection to the Planning Proposal, subject to conditions. Refer to Section D Question 10 for further details in relation to the comments from RMS.
5.10 - Implementation of Regional Plans	Yes	*The objective of this direction is to give legal effect to the vision, land use strategy, goals, directions and actions contained in Regional Plans.* The Planning Proposal is consistent with the *North Coast Regional Plan 2036*. The site is within the mapped urban growth area.

6. Local Plan Making

S9.1 Direction	*Consistent*	*Reason for inconsistency or comment*
No 6.1 - Approval and Referral Requirements	Yes	*The objective of this direction is to ensure that LEP provisions encourage the efficient and appropriate assessment of development.* The Planning Proposal is consistent with this Direction.
6.3 Site Specific Provisions	Yes	*The objective of this direction is to discourage unnecessarily restrictive site specific planning controls.* The Planning Proposal allows a HSC with ancillary hotel or motel accommodation on the site without imposing any development standards or requirements in addition to those already contained in LEP 2011. The Planning Proposal also allows subdivision of the site despite the minimum lot size provisions of LEP 2011.

Section C - Environmental, social and economic impact

7. Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

The proposed development will require removal of approximately 3 ha of native vegetation and associated habitat components. Other potential indirect impacts include habitat fragmentation and weed invasion. The loss of vegetation will be offset through the purchase of biodiversity credits. The credit requirement for the proposal is detailed in the Proponent's Biodiversity Development Assessment Report (**Attachment 8).** A range of mitigation measures will be implemented to reduce other impacts associated with the proposal.

Consideration of 'Serious and Irreversibly Impacts' (SAII) determined that there are no potential SAII species or ecological communities that will be impacted by the proposal. Further, the proposal will not have any effect on 'Areas of Outstanding Biodiversity Value'.

As noted under Section D Question 10, the Office of Environment & Heritage has raised no issues regarding biodiversity on the basis that a detailed review of the submitted Biodiversity Development Assessment Report will be undertaken at the subsequent DA stage.

8. Are there any other likely environmental effects as a result of the Planning Proposal and how are they proposed to be managed?

Disposal of Sewage

The site is identified for future urban development, however, reticulated sewerage services are not yet available.

The Proponent's Onsite Sewage Management – Site Feasibility Assessment (**Attachment 9**) provides a concept design for the site. It is considered that the system will be acceptable in the short-term.

Certainty for Council regarding satisfactory arrangements for connection of the proposed HSC to reticulated sewer in the medium to longer term is included in the draft Planning Agreement that the Proponent and the landowner have offered to enter into with Council.

The draft Planning Agreement is being exhibited for public comment, together with this Planning Proposal.

Stormwater

The Proponent's Stormwater Management Plan (**Attachment 10**) provides concept design for the management of stormwater flows from the site. It is considered that stormwater is able to be managed for the development, with detailed design and assessment to be undertaken at the DA and subsequent Construction Certificate design stages.

Noise

The Proponent's Acoustic Assessment (**Attachment 11**) provides reasonable demonstration that noise emission from vehicles using the proposed HSC is predicted to comply with acceptable noise levels at the nearest dwellings.

9. How has the Planning Proposal adequately addressed any social and economic effects?

Aboriginal heritage

The Proponent's Aboriginal Cultural Heritage Assessment (**Attachment 3**) provides an assessment of cultural heritage values of the site and concludes there is no reason for the rezoning not to proceed.

Visual amenity

The proposal as described by the Proponent, will involve large scale earthworks, removal of existing vegetation along the Pacific and Oxley Highway boundaries to the site and large-scale development features such as pylon signs.

A Preliminary Lighting Assessment (**Attachment 12**) provides an initial evaluation of the potential effects of outdoor lighting to inform a future comprehensive Lighting Assessment Report which will be require at the subsequent DA stage.

Due to the significance of the site, and its importance as a Gateway site to the Port Macquarie-Hastings region for tourists and the travelling public, Council has prepared draft development control provisions which apply to both the northern and southern Gateway sites.

The intent is that development on these sites provides good urban design and visual amenity outcomes for the community, visitors and the travelling public. The draft controls include provisions for setbacks, landscaping, materials and articulation, landform modification, signage and public art.

The draft Highways Gateway Sites Development Control Plan provisions are being exhibited for public comment, together with this Planning Proposal.

Section D - State and Commonwealth interests

10. Is there adequate public infrastructure for the Planning Proposal?

Vehicular Access

The Proponent's Traffic Impact Assessment (**Annexure 6**) proposed a north bound exit ramp from the Pacific Highway directly into the site and a three-way roundabout on the Oxley Highway, approximately 150m east of Billabong Drive, to provide entry and exit to the site. The State government agency, RMS, is the Road Authority responsible for approval of any new access points, with the design required to be in accordance with RMS requirements.

Following issue of the Gateway Determination and in consultation with the RMS, a Traffic Modelling Report (**Attachment 7**) was commissioned by the Proponent to supplement the initial Traffic Impact Assessment. The additional modelling formed an extension to the Oxley Highway modelling and assessed the performance of the broader road network and the potential traffic impacts as a result of the HSC proposal.

The report modelled three access options for the proposed HSC as follows:

- **Option 1** - proposed HSC with a staggered access intersection arrangement with Billabong Drive (see **Figure 5**)
- **Option 2** - proposed HSC with Billabong Drive realigned as Bushland Drive to a four-way roundabout access fronting the HSC (see **Figure 6**); and

- **Option 3** - proposed HSC with a four-way roundabout access at the existing Oxley Highway and Billabong Drive intersection (see **Figure 7**).

In each option the proposed HSC access upgrades were modelled, which included:

- an additional eastbound lane on the Oxley Highway between the proposed access and the Pacific Highway interchange, and
- an extension of the Pacific Highway northbound off-ramp by approximately 200m with direct ingress only into the site.

Figure 5 - Option 1 modelled network

Figure 6 - Option 2 modelled network

Figure 7 - Option 3 modelled network

The modelling was undertaken for the AM and PM peaks for 2018 Base, 2019 (anticipated year of HSC opening) and 2029 Base (10-year design horizon), plus 2019 and 2029 Options scenarios.

The key outcomes documented in the Traffic Modelling Report were as follows:

- Significant traffic impacts occur on the Oxley Highway closer to Port Macquarie in all models (i.e. irrespective of development).

- In the 2019 AM Base model, queues on the northbound Pacific Highway off-ramp extend back onto the highway due to the impact from the interchange.
- In the 2019 AM Options models, the modelling indicates that there is a lower probability based on the five modelled seed runs for queues on the northbound Pacific Highway off-ramp to extend back onto the highway compared to the Base (i.e. due to the increased off-ramp length provided by the development).
- Comparing the 2019 Options models to the Base, there is minimal difference operationally in the overall performance of the models.
- Comparing between the Options models, there is minimal difference between the access intersection arrangements, with only minor delays experienced in all options.
- Focusing on the 2019 results (due to the significance of the impacts in 2029), the Pacific Highway / Oxley Highway interchange is over capacity (Level of Service F) while the Oxley Highway intersections with Billabong Drive and the proposed HSC operate with minimal impact (Level of Service A) in all scenarios.

The Traffic Modelling Report concluded that the models all have similar results, so the "*preferred option is likely to be the most practical, taking into consideration constructability, functionality and interaction with any future road network upgrades. Comparatively however, the Option 1 modelling outputs are generally shown to have the least impact to the Pacific Highway interchange based on delay and queuing metrics when compared to Option 2 and Option 3*" (Bitzios, 2019: 24).

As discussed under Question 11 below, the RMS has agreed to the proposed access arrangements subject to conditions.

The draft Highways Gateway Sites Development Control Plan (also on public exhibition) proposes that in relation to vehicular access, consultation occur with Council and the RMS to plan for a four-way intersection along the Oxley Highway that will service the likely future needs of both the southern and the northern Gateway Sites.

Water supply

An existing 300mm water main located at the intersection of Billabong Drive and the Oxley Highway has sufficient capacity to supply the development. The site will require an extension to this water main (approx. 400m) to service the proposed HSC site.

Sewer

As previously noted, the Proponent and the landowner have offered to enter into a Planning Agreement with Council to ensure satisfactory arrangements to connect the HSC site to reticulated sewer in the medium to longer term. The draft Planning Agreement is being exhibited for public comment, together with this Planning Proposal.

11. What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

The Department of Planning and Environment's Gateway Determination (**Appendix B**) required that consultation on the Planning Proposal occur with the following State Government agencies:

- Roads and Maritime Services
- NSW Rural Fire Service (RFS)
- Office of Environment and Heritage (OEH)

- Environment Protection Authority (EPA)

These agencies were consulted prior to the public exhibition of this Planning Proposal. A copy of the written responses received are at **Appendix C.** A summary of the advice and Council comment is below.

Roads and Maritime Services (RMS) – *letter dated 15 February 2019*

No objections were raised to the Planning Proposal. The correspondence drew on the complexities of the road network and traffic modelling and acknowledged that there are some unknowns in terms of understanding impacts for a 10-year design horizon.

The RMS concluded that it supports the progression of the Planning Proposal on the basis that the following works are undertaken to mitigate the impact of the HSC on opening, and to support future works:

1) Construction of a two-lane concrete roundabout on Oxley Highway at the HSC access, including a fourth leg stub on the northern side to support a potential future connection of Billabong Drive.
2) Two lanes eastbound on Oxley Highway from west of the HSC access to Pacific Highway / Oxley Highway interchange roundabout.
3) Installation of hardware to support monitoring end-of-queue eastbound on Oxley Highway and roundabout metering of the HSC egress to Oxley Highway.
4) Extension of the Pacific Highway northbound off-ramp, noting the HSC access off-ramp needs to be located beyond the current queue length of 500m in the AM peak.

The correspondence emphasised that extension of the Pacific Highway off-ramp is a key mitigation aspect for the HSC and that the modelled off-ramp concept would need to be lengthened to adequately cater for the expected development impact. Given that this will need to be adequately addressed at the later DA stage, the RMS did not consider this would prevent the concept from being publicly exhibited.

Council comment:

As noted in the May 2018 report to Council (**Appendix A**), a new roundabout on the Oxley Highway in the location proposed the Proponent is not supported by Council's Transport Engineers. The preferred access solution was that the Oxley Highway access be aligned with Billabong Drive (or alternatively Billabong Drive realigned) to achieve a four-way intersection. The intent is to ensure that road infrastructure arrangements for the HSC will be compatible with what is needed in the longer term to service future development in the wider Sancrox area.

In this regard, the Proponent and the landowner have offered to enter into a Planning Agreement with Council to ensure satisfactory arrangements are in place for a co-ordinated access point from the proposed HSC to the Oxley Highway, which can service the subject site and lands to the north. The draft Planning Agreement is being exhibited for public comment together with this Planning Proposal.

The RMS, as the approval authority for any new access points to the highway, are satisfied with the location of the proposed Oxley Highway roundabout as proposed by the Proponent, subject to a fourth leg stub on the northern side to support a potential future connection of Billabong Drive. The impact that this connection may have on the northern landowner and any future development on that site has not been assessed.

Further consideration of this access point in terms of the northern gateway site will need to be considered in accordance with Council's March 2019 resolution (report & Meeting Minutes at **Appendix D**) that this occur as part of the Sancrox / Fernbank Creek structure planning process.

NSW Rural Fire Service (RFS) – *letter dated 23 January 2019*

The RFS raised no objections to the Planning Proposal. Advice was provided that any future subdivision of the proposed motel complex within the HSC site and dwelling on the residue lot are to have sufficient separation to the proposed property boundary to comply with *Planning for Bush Fire Protection guidelines*.

Council comment:

Council's *Port Macquarie-Hastings Development Control Plan 2013* includes provisions related to bushfire hazard management that will ensure this advice can be successfully achieved at the consequent DA stage.

Office of Environment and Heritage (OEH) – *letter dated 11 January 2019*

The OEH raised no objections to the Planning Proposal, noting that a detailed review of the submitted Biodiversity Development Assessment Report will be required at the consequent DA stage.

The correspondence also noted that the Aboriginal Cultural Heritage Assessment report would have benefited from a more detailed description of the survey method, including the survey effort and the locations where the survey was undertaken, and from more detailed evidence of the consultation undertaken with Aboriginal knowledge-holders.

Council comment:

Noted.

Environment Protection Authority (EPA) – *letter dated 11 December 2018*

The EPA raised no objections to the Planning Proposal. General commentary was provided around the need to ensure any noise generated by increased traffic as a result of the HSC proposal will not impact significantly on the existing amenity, and that construction noise comply with the State Government's *Interim Construction Noise Guidelines 2009*. The EPA also advised that the proposal is to ensure suitable stormwater quality and integrated water cycle management outcomes.

Council comment:

Noise as a result of the construction and operation phases of a future HSC on the site, in addition to ensuring appropriate stormwater management outcomes, will be subject to detailed design and assessment to be undertaken at the DA and subsequent Construction Certificate design stages.

Part 4 – Mapping

Proposed map amendments to LEP 2011, as described in **Part 2** of this Planning Proposal, are shown below.

Additional Permitted Uses Map

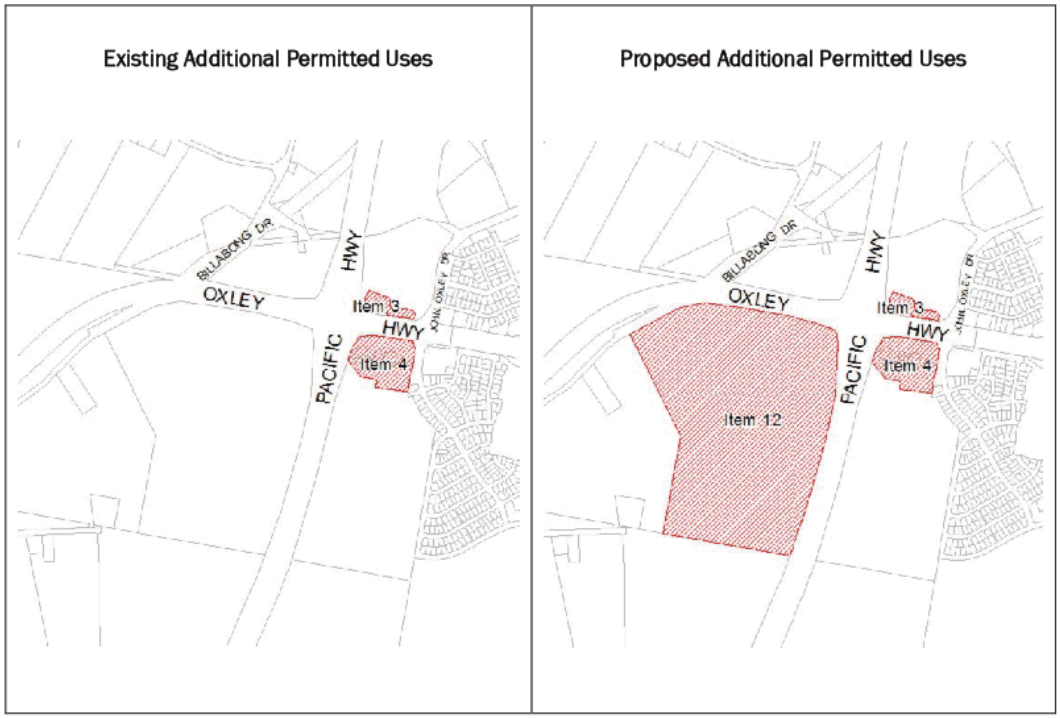

Figure 8: Schedule 1 Additional Permitted Uses – existing & proposed

Technical note:

- The proposed Additional Permitted Uses (APU) Map covers two map sheets (APU_013B & APU_013D).
- Currently map sheet APU_013B does not exist in the LEP 2011 APU Map series and will need to be created for the purpose of this Planning Proposal.
- Therefore, the index displayed on all existing APU map sheets in the series (i.e. APU_011B, APU_013C, APU_013D, APU_013FA, APU_013G, APU_014B & APU_014C) will need to be updated to include reference to the new APU_013B map sheet.

Part 5 – Community Consultation

As required by the Department of Planning and Environment's Gateway Determination, this Planning Proposal is on public exhibition for 28-days and includes:

Advertisement in local newspaper
Placement of an advertisement in the Port Express, Wauchope Gazette and Camden Haven Courier newspapers at the start and halfway through the exhibition period.

Consultation with affected owners and adjoining landowners
Written notification of the exhibition to the Proponent, the landowner and all adjoining/adjacent landowners.

Display at Council's Port Macquarie, Wauchope and Laurieton offices
Display of this Planning Proposal and accompanying documentation at Council's Port Macquarie, Wauchope and Laurieton offices during normal business hours.

Exhibition on Council's website
Display of this Planning Proposal and accompanying documentation on Council's Have Your Say website at haveyoursay.pmhc.nsw.gov.au

Following public exhibition, this section of the Planning Proposal will be updated to include details of the community consultation.

Part 6 – Project Timeline

The Gateway Determination specifies that this Planning Proposal is to be completed by 29 April 2019. Subject to agreement from the Department of Planning and Environment to an extension of time to complete the Planning Proposal, the project timeline below is based on anticipated dates and timeframes, noting that there can be unexpected delays.

Action	Anticipated Timeframe
Commencement (date of Gateway determination)	Aug 2018
Timeframe for the completion of required additional information (as required by Gateway Determination)	Not applicable
Timeframe for government agency consultation (as required by Gateway Determination)	Dec 2018 - Feb 2019
Public exhibition period	10 Apr–13 May 2019
Timeframe for consideration of submissions	May 2019
Timeframe for the consideration of a proposal post exhibition	June 2019
Date Council will make the plan (if delegated)	Aug 2019
Date Council will forward to the Department for notification	Aug 2019

Appendix A – Report to Council & Meeting Minutes 16 May 2018

Appendix B – Gateway Determination & Alteration

Appendix C – State Government Agency Feedback

Appendix D – Report to Council & Meeting Minutes 20 March 2019

Attachment 1 Concept Plans and Photomontages

Attachment 2 Bushfire Hazard Assessment

Attachment 3 Aboriginal Cultural Heritage Assessment

Attachment 4 Economic Impact Assessment

Attachment 5 Contaminated Site Assessment

Attachment 6 Traffic Impact Assessment

Attachment 7 Traffic Modelling Report

Attachment 8 Biodiversity Development Assessment Report

Attachment 9 Onsite Sewage Management Assessment

Attachment 10 Stormwater Management Plan

Attachment 11 Acoustic Assessment

Attachment 12 Preliminary Lighting Assessment

Draft Amendment to Port Macquarie-Hastings Development Control Plan 2013 (Part 4 Greater Port Macquarie area-based provisions)

Highway Gateway Sites

Land to which this section applies

This section applies to the land shown below in **Figure 1**.

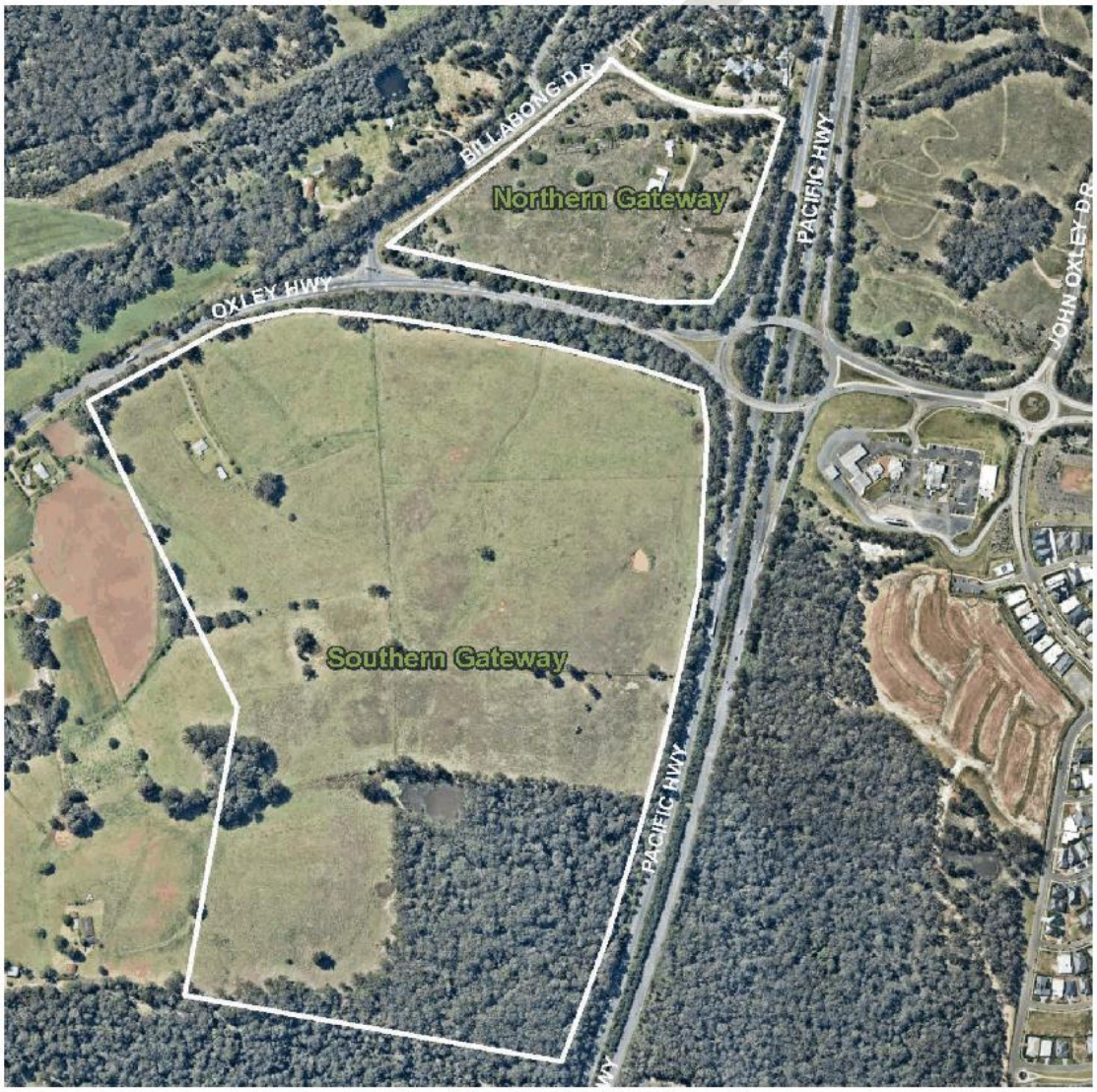

Figure 1: Land to which this section applies

Strategic Context

Council strategy identifies the gateway sites on the western side of the interchange of the Pacific and Oxley Highways as key sites at the main road entry to Port Macquarie and Wauchope.

State government policy also identifies that a Highway Service Centre may be suitable for a Highway Service Centre on one of the Gateway sites.

The following development controls have been informed by a visual impact assessment and urban design analysis prepared on behalf of Council by Envisage Consulting Pty Ltd (Nov 2018) to guide the form and visual presentation of future development on the Highway Gateway Sites.

Purpose

The purpose of these provisions is to ensure that new development respects the visual prominence of these sites at an important Gateway entry to Port Macquarie (to the east) and Wauchope (to the west). The intent is that future development provides good urban design and visual amenity outcomes for the community, visitors and the travelling public alike.

These provisions supplement the relevant provisions in Parts 2 and 3 of the Port Macquarie Development Control Plan. Where there is inconsistency between these Area Based Provisions and the provisions in Parts 2 and 3, for the extent of the inconsistency these Area Based Provisions prevail.

Note: The figures shown in this plan are conceptual, not to scale and show indicative locations only.

Development Guide

Documentation

Objective

- To ensure that any proposed development responds to the context of the site.
- To ensure a high quality of documentation is provided that is clear, accurate and can be easily understood by the general public.

Development Provisions

a) Documentation submitted with the Development Application should include:

- A formal urban design/landscape analysis with a set of architectural diagrams explaining the design, and how it responds to the site context. The site analysis is also to include an evaluation of existing trees for protection and retention.
- Detailed cross-sections through the entire site, including through the location of main access points and across the highway boundaries. The cross-sections are to be of a scale that can be clearly read and indicate:
  - The existing and proposed landform in separate colours and line form (e.g. use a dashed line for proposed)
  - Areas of cut and fill
  - Reduced Levels (RLs) of main features and heights of any buildings and structures such as signs
  - Location of existing and proposed vegetation, defining where any vegetation is proposed for removal.
- A Concept Lighting Plan.
- Photomontages to illustrate the development proposal as accurately as possible and produced in accordance with the NSW Land and Environment Court's Use of Photomontages document as available on their website. In addition, the photomontages are to:

Documentation

- Be approximately from the following locations indicated in **Figure 2**: Viewpoints B and D applicable to the Southern Site and Viewpoints E and G applicable to the Northern Site. In addition, a photomontage is to be included from wherever the main access will be from the Oxley Highway, looking into the site.
- Photomontages are to include an image of the existing situation, an image of the development immediately following construction (i.e. with any new landscaping shown as immature) and at approximately 5-7 years post construction (i.e. showing new landscaping with estimated growth likely to be achieved in that timeframe).

Vehicular access (also refer DCP Part 2.5)

Objective

- To plan and locate access so that the Southern Site and the Northern Site are both considered and that the arrangement does not negatively constrain future development options or lead to an unfair burden in terms of cost.

Development Provisions

a) In consultation with Council and the Roads and Maritime Services, plan for a four-way intersection along the Oxley Highway that will service the likely future needs of both the Southern Site and the Northern Site.

Site layout and boundary treatment

Objective

- To achieve a well-considered layout that nestles the built elements and any parking areas within a generously landscaped environment.
- To ensure an attractive site boundary is achieved which balances a commercial need for highway exposure with a public expectation of a 'gateway' that is of high scenic quality and retains the most desired elements of the existing landscape character.

Development Provisions

b) Locate car and truck parking areas so that extensive areas of hard pavement are broken-up and articulated with landscaping, different materials/colours and level changes and sites buildings so as to contribute to screening views of car parking from outside views.

c) Provide a 40m minimum setback to all buildings from the Pacific Highway frontage, and 20m from the Oxley Highway frontage.

The general requirements for this setback in terms of landscaping and the siting of hard surface areas is shown diagrammatically in **Figures 3 and 4**.

If it can be shown that the Roads and Maritime Services can guarantee the retention of the majority of large trees within the existing road reserves along the highway boundaries in the long term (over 20 years) then consideration could be given to reducing the requirement for the Pacific Highway boundary setback to 20m, including a reduced landscape buffer to 10m. Such a scenario and its implications would need to be negotiated with Council.

d) In consultation with Council and the Roads and Maritime Services, road access points from either the Pacific Highway or Oxley Highway are to be designed, as far as possible, to maintain the natural integrity of existing landform, vegetation and drainage systems. Structural drainage elements should be used in preference to mass fill embankments.

Landform considerations (also refer DCP Part 2.3)

Objective

- To ensure that any development responds sensitively to the existing landform of the site and seeks to minimise visual impacts as far as possible.

Development Provisions

a) Any batters and retaining walls must be treated to reduce visual impacts and stabilise the landform.

b) As a general rule, batters should be kept to a maximum gradient of 1V:2.5H (i.e. 1m vertical to 2.5m horizontal) and terraced so as to avoid a high single batter and allow trees of at least 5m mature height to be established on the terraces and base of the batter. Total maximum vertical height of any batter to be 8m.

c) Excessive retaining walls are to be avoided, with a maximum height of 8m permitted.

d) Alternative batter and retaining wall treatments may be considered providing that it is clearly shown that the objective of this provision is achieved.

Landscape works (also refer DCP Part 3.4)

Objective

- To achieve a final landscape that is attractive, has generous areas of landscape planting and provides aesthetic and general amenity benefits such as shade.
- To create parking areas that are as attractive as possible and provide shade.

Development Provisions

a) Within the setback along the Pacific Highway and Oxley Highway boundaries design for a corridor of vegetation along the boundary of at least 15m wide (at ground level) for the Pacific Highway frontage and 10m wide for the Oxley Highway frontage.

The corridor is to apply to at least 75% of the length of the boundary with coverage of at least one plant per m2.

Design for a mix of: 20% canopy trees (with a mature height over 20m); 30% mid-storey shrubs/small trees (mature heights 3–10m); and a 50% understorey of small shrubs/groundcovers (mature heights under 3m).

Canopy trees are to be relatively evenly spread; yet mid-storey shrubs/small trees may be grouped as appropriate if a glimpse through vegetation from highways is desired.

b) Once plants are well-established, if increased highway exposure is desired it should be achieved by:
   - Selective pruning of lower tree limbs up to a maximum height of 6m
   - Ongoing management of existing and new vegetation.

c) Design for a mix of garden areas, tree groups (of 10-20m in mature height) and open grassed areas that combined, produce pleasant spaces for public seating and use, shade, separation of different use areas and variety.

Any proposal for a highway service centre should include consideration of opportunities for public recreation facilities in conjunction with the highway service centre use.

d) Select plant species that are suitable for the growing environment and relatively low maintenance. The majority of plant species are to be locally native species. Exotic species may be suitable in

Landscape works (also refer DCP Part 3.4)

certain locations, particularly those with some cultural relationship to the local area that can be used to draw attention to parts of the site, or for playgrounds and public seating areas.

e) Development should include supply, installation and maintenance of at least one advanced (minimum height of 2m at planting) clear trunked broad canopy tree (with a minimum mature height of approx. 10m) for every six at-grade car parking spaces and one for each truck parking space.

f) Each landscape planting area should include at least one medium to large tree species with suitable ground covers or low shrubs below and have a minimum width of 3m and include measures to protect trees from vehicle damage.

Built form

Objective

- Achieve a high-quality built form design with demonstrated architectural merit and attention to detail.
- Ensure that the height of buildings does not cause negative visual impact or overly dominate the surrounding character of the local landscape.
- Ensure signage achieves a balance between providing appropriate directions and notification to travellers yet does not overly dominate the surrounding character of the local landscape.
- Provide for a high quality of amenity for site users.
- Provide for an integrated and site appropriate lighting scheme.
- Avoid the dominance of fencing and create an attractive site.

Development Provisions

a) Design a suite of buildings and structures with a complementary visual relationship that are of a high-quality architectural design.

b) Consider the roof form, particularly when viewed from the Pacific Highway and Oxley Highway. Design a roof form that is aesthetically pleasing and of elegant form.

c) Consider building articulation, architectural features and the presentation of the façade. Buildings with minimal articulation will not be accepted.

d) The location of loading bays, garbage storage and collection should be such that these cannot be seen from the Pacific or Oxley Highways.

e) Buildings should not be visible above the dominant existing and future tree-line (i.e. approx. 20m) when viewed from the locations indicated in **Figure 2**: Viewpoints B, D and H applicable to the Southern Site and Viewpoints E, F and G applicable to the Northern Site.

f) Signage is required to satisfy State Environmental Planning Policy 64 - Advertising and Signage.

In addition, proposed signage should be shown in the photomontages and be demonstrated to achieve the objectives of this area based DCP.

g) In general, signs should not be visible above the dominant existing tree-line (evident at the time of this DCP, i.e. mature trees in place alongside highway boundaries) when viewed from the locations indicated in **Figure 2**: Viewpoints B and D applicable to the Southern Site and Viewpoints E and G applicable to the Northern Site. If the majority of trees within the highway reserve are removed then a maximum permitted height of 10m applies.

h) Balance the type and level of lighting to address the safety and needs of users, the potential for negative visual impact to surrounding viewpoints and any desire for highway exposure.

DRAFT

Built form
i) Sensitively designed lighting could be used to enhance the gateway role of the sites, particularly along the highway edges, yet the effect and potential visual impact would need to be demonstrated to be aesthetically pleasing and have a public benefit.
j) Avoid fencing where unnecessary and where unavoidable, use aesthetically pleasing alternatives in terms of materials, colours, lower heights and integrated landscaping such as planting and mounding.

Public art
Objective • To make a positive contribution to the built environment of the Port Macquarie-Hastings region and promote the inclusion and integration of public art work that responds to and reflects the local culture and character, including the area's indigenous cultural history and traditions, European heritage and contemporary culture, as well as the area's unique natural environment. • Ensure any new intersection along the Oxley Highway is attractive and consider the potential to create a design that acknowledges this location as part of the approach to Wauchope.
Development Provisions a) The development should provide quality artwork(s) in publicly accessible location(s) and take into account links and connections between the development and the area's natural and cultural heritage. b) The public art is to be 1% of the total cost of the development to provide works of art for appreciation from the public domain, including the Pacific Highway and/or the Oxley Highway (NSW Roads & Maritime Services approval may be required). c) Specifically designed lighting may be appropriate as either an integral part of any public art or to highlight it. d) In consultation with Council, develop an appropriate response to the Oxley Highway intersection that could include specific landscape planting and/or a public art element.

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Figure 2: Main viewpoint locations to Gateway

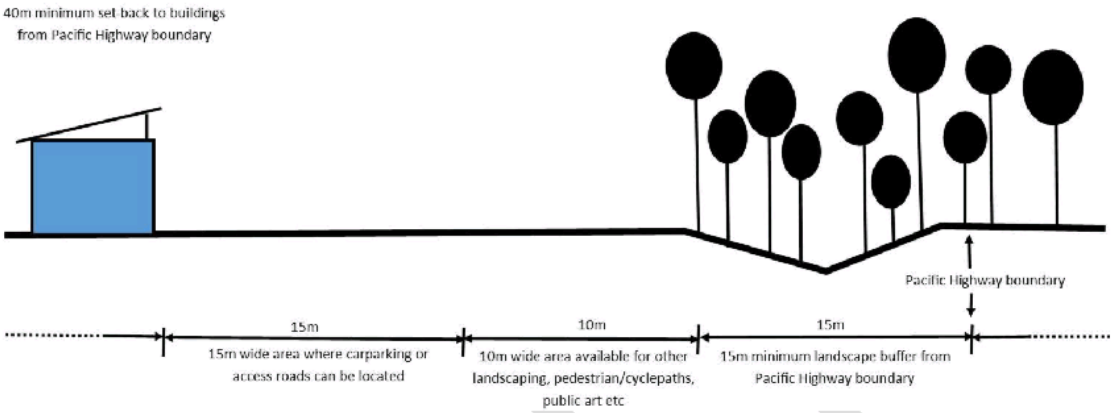

Figure 3: Conceptual diagram of Pacific Highway boundary treatment

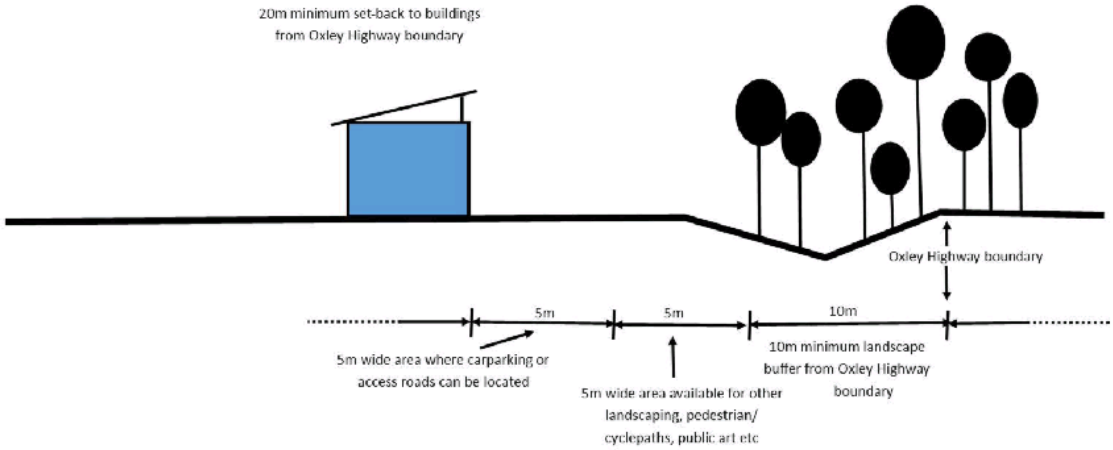

Figure 4: Conceptual diagram of Oxley Highway boundary treatment

Deed

1179 Oxley Highway, Sancrox Planning Agreement

Planning Agreement

Under s7.4 of the *Environmental Planning and Assessment Act 1979*

Port Macquarie-Hastings Council

Scott PDI No-6 Pty Ltd

Margaret Mary Hore

Date:

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1179 Oxley Highway, Sancrox Planning Agreement

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Scott PDI No.6 Pty Ltd
Margaret Mary Hore

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Scott PDI No.6 Pty Ltd

Margaret Mary Hore

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1179 Oxley Highway, Sancrox Planning Agreement

Summary Sheet

Council:

Name: Port Macquarie-Hastings Council

Address: Cnr Lord & Burrawan Streets Port Macquarie NSW, Port Macquarie, NSW 2444

Telephone: (02) 6581 8111

Facsimile: (02) 6581 8123

Email: Council@pmhc.nsw.gov.au

Representative: Peter Cameron

Developer:

Name: Scott PDI No.6 Pty Ltd ACN 622 051 156

Address: PO Box 520, Runaway Bay, QLD 4216

Telephone: (07) 5537 8544

Facsimile: (07) 5537 9522

Email: mail@camspl.com

Representative: David Scott

Landowner:

Name: Margaret Mary Hore

Address: C/- Alan Priest, Priest Legal, 41 Hay Street (DX7402), Port Macquarie, NSW 2444

Telephone: (02) 6583 1777

Facsimile: (02) 6584 9516

Email: apriest@priestlegal.com.au

Representative: Alan Priest, Priest Legal

Land:

See definition of *Landowner's Land* and *HSC Land* in clause 1.1.

1179 Oxley Highway, Sancrox Planning Agreement
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Scott PDI No.6 Pty Ltd
Margaret Mary Hore

Development:

See definition of *Development* in clause 1.1.

Development Contributions:

See Clause 9 and Schedule 1.

Application of s7.11, s7.12 and s7.24 of the Act:

See clause 8.

Security:

See Part 5.

Registration:

See clause 30.

Restriction on dealings:

See clause 31.

Dispute Resolution:

See Part 4.

1179 Oxley Highway, Sancrox Planning Agreement

Under s7.4 of the *Environmental Planning and Assessment Act 1979*

Parties

Port Macquarie-Hastings Council ABN 11 236 901 601 of Cnr Lord & Burrawan Streets Port Macquarie NSW , NSW 2444 (**Council**)

and

Scott PDI No.6 pty Ltd ACN 622 051 156 of PO Box 520, Runaway Bay, QLD 4216 (**Developer**)

and

Margaret Mary Hore C/- Alan Priest, Priest Legal, 41 Hay Street (DX7402), Port Macquarie, NSW 2444 (**Landowner**)

Background

A The Developer has requested that the Council prepare a Planning Proposal for the making of the LEP Amendment.

B The Developer has lodged a Development Application for the erection of a highway service centre on the HSC Land and for a subdivision of the Landowner's Land to create a separate lot of land being the HSC Land on which the highway service centre is to be located if the LEP Amendment is made.

C The Developer offers to make Development Contributions on terms set out in this Deed in connection with the making of the LEP Amendment and carrying out of Development.

D This Deed has effect only for the development of a highway service centre on the HSC Land and is to be registered on the HSC Land.

Operative provisions

Part 1 - Preliminary

1 Interpretation

1.1 In this Deed the following definitions apply:

Access Dedication Land means the land shown as such on the plan in Annexure 1.

Access Dedication Land Works means the construction of a road to a standard approved by Council on the Access Dedication Land as indicatively shown on the plan in Annexure 1.

Act means the *Environmental Planning and Assessment Act 1979* (NSW).

Adjoining Land Access Land means the land indicatively shown as such on the plan in Annexure 1 or as otherwise agreed by the parties, but only to the extent that such land is within the HSC Land that is acquired by the Developer.

Approval includes approval, consent, licence, permission or the like.

Authority means the Commonwealth or New South Wales government, a Minister of the Crown, a government department, a public authority established by or under any Act, a council or county council constituted under the *Local Government Act 1993*, or a person or body exercising functions under any Act including a commission, panel, court, tribunal and the like.

Bank Guarantee means an irrevocable and unconditional undertaking without any expiry or end date in favour of the Council to pay an amount or amounts of money to the Council on demand issued by:

(a) one of the following trading banks:

  (i) Australia and New Zealand Banking Group Limited,

  (ii) Commonwealth Bank of Australia,

  (iii) Macquarie Bank Limited,

  (iv) National Australia Bank Limited,

  (iv) St George Bank Limited,

  (v) Westpac Banking Corporation, or

(b) any other financial institution approved by the Council in its absolute discretion.

Claim includes a claim, demand, remedy, suit, injury, damage, loss, Cost, liability, action, proceeding or right of action.

Contribution Value means the $ amount agreed between the Parties as the value of a Development Contribution made under this Deed.

Cost means a cost, charge, expense, outgoing, payment, fee and other expenditure of any nature.

Deed means this Deed and includes any schedules, annexures and appendices to this Deed.

Defect means anything that adversely affects, or is likely to adversely affect, the appearance, structural integrity, functionality or use or enjoyment of a Work or any part of a Work.

Defects Liability Period means the period of 1 year commencing on the day immediately after a Work is completed for the purposes of this Deed.

Development means any development on the HSC Land that is only permissible by reason of the taking effect of the LEP Amendment.

Development Application has the same meaning as in the Act..

Development Consent has the same meaning as in the Act.

Development Contribution means a monetary contribution, the dedication of land free of cost, the carrying out of work, or the provision of any other material public benefit, or any combination of them, to be used for, or applied towards a public purpose, but does not include any Security or other benefit provided by a Party to the Council to secure the enforcement of that Party's obligations under this Deed for the purposes of s7.4(3)(g) of the Act.

Development Servicing Plan – Sewerage Services means the document titled *Port Macquarie-Hastings Council Development Servicing Plans for Water Supply and Sewerage 2014*, or any document that replaces that document.

Dispute means a dispute or difference between the Parties under or in relation to this Deed.

Equipment means any equipment, apparatus, vehicle or other equipment or thing to be used by or on behalf of the Developer in connection with the performance of its obligations under this Deed.

ET (Equivalent Tenement) has the same meaning as in Council's *Development Contribution Assessment Policy 2014*, or any document that relevantly replaces that document.

GST has the same meaning as in the GST Law.

GST Law has the same meaning as in *A New Tax System (Goods and Services Tax) Act 1999* (Cth) and any other Act or regulation relating to the imposition or administration of the GST.

Highway Upgrade Works means the construction of:

(a) an intersection, and

(b) upgrading of the Oxley and Pacific Highways,

to serve the Development and address the impacts of the Development, to a design and a standard approved by NSW Roads and Maritime Services.

HSC Land means that part of Lot 11 DP1029846 to be subdivided from the Landowner's Land and developed for a highway service centre by the Developer, within the area shown hatched on the plan in Annexure 3.

Item means specified in Column 1 of Schedule 1.

Just Terms Act means the *Land Acquisition (Just Terms Compensation) Act 1991*.

Landowner's Land means Lot 11 DP1029846.

LEP means Port Macquarie-Hastings Local Environmental Plan 2011.

LEP Amendment means an amendment to the LEP in accordance with the Planning Proposal.

Maintain, in relation to a Work, means keep in a good state of repair and working order, and includes repair of any damage to the Work.

Party means a party to this Deed.

Planning Proposal means a planning proposal (within the meaning of s3.33 of the Act being NSW Department of Planning and Environment Ref: PP_2018_PORTM_004_00) that proposes the rezoning of the HSC Land to facilitate a highway service centre as an additional permitted use on the HSC Land as may be amended from time to time in accordance with any Gateway determination or Council resolution.

Rectification Notice means a notice in writing:

(a) identifying the nature and extent of a Defect,

(b) specifying the works or actions that are required to Rectify the Defect,

(c) specifying the date by which or the period within which the Defect is to be rectified.

Rectify means rectify, remedy or correct.

Regulation means the *Environmental Planning and Assessment Regulation 2000*.

Security means a Bank Guarantee, or a bond or other form of security to the satisfaction of the Council.

Sewer Catchment means the area shown on the plan in Annexure 2(b).

Sewerage Infrastructure Connection Works means construction of that part of the Sewerage Infrastructure Long Term Works being item '*c. Sewer Gravity Main*' from the Development to the northern side of the Oxley Highway.

Sewerage Infrastructure Contribution means a monetary Development Contribution of $219,681.00, indexed from the date of this Deed to the date of payment in accordance with the *Consumer Price Index (All Groups – Sydney)* published by the Australian Bureau of Statistics.

Sewerage Infrastructure Contribution Reduction means the sum of the following costs of the construction of the Sewerage Infrastructure Long Term Works determined by Council:

(a) 100% of the cost of item *'a. Sewer Pump Station'*, and
(b) 100% of item *'b. Sewer Rising Main'*, and
(c) 74% of item *'c. Sewer Gravity Main'*,

less the sum of the following amounts:

(d) any contribution that may be made to the works by Council, and
(e) the amount of any Sewerage Services DSP Contribution the Developer would ordinarily be required to pay in respect of the Development pursuant to the Development Servicing Plan – Sewerage Services,

indexed from the date of the determination to the date of payment in accordance with the *Consumer Price Index (All Groups – Sydney)* published by the Australian Bureau of Statistics.

Sewerage Infrastructure Long Term Works means construction of the:

(a) sewerage pump station, and
(b) sewer rising main, and
(c) sewer gravity main,

designed to cater for development within the Sewer Catchment as determined by Council having regard to the indicative estimated ET shown on the plan in Annexure 2(b) and generally in accordance with the plan in Annexure 2(a).

Sewerage Infrastructure Onsite Works means the construction on the HSC Land of an onsite sewerage management system to serve the Development together with the Sewerage Infrastructure Connection Works.

Sewerage Services DSP Contribution means a monetary Development Contribution for sewerage headworks, payable in respect of development in

the Sewer Catchment, pursuant to the Development Servicing Plan – Sewerage Services.

Stage means a stage of the Development approved by a Development Consent or otherwise approved in writing by the Council for the purposes of this Deed.

Subdivision Certificate has the same meaning as in the Act.

Work means the physical result of any building, engineering or construction work in, on, over or under land and includes without limitation, the Sewerage Infrastructure Long Term Works or the Sewerage Infrastructure Onsite Works and the Access Dedication Land Works.

1.2 In the interpretation of this Deed, the following provisions apply unless the context otherwise requires:

1.2.1 Headings are inserted for convenience only and do not affect the interpretation of this Deed.

1.2.2 A reference in this Deed to a business day means a day other than a Saturday or Sunday on which banks are open for business generally in Sydney.

1.2.3 If the day on which any act, matter or thing is to be done under this Deed is not a business day, the act, matter or thing must be done on the next business day.

1.2.4 A reference in this Deed to dollars or $ means Australian dollars and all amounts payable under this Deed are payable in Australian dollars.

1.2.5 A reference in this Deed to a $ value relating to a Development Contribution is a reference to the value exclusive of GST.

1.2.6 A reference in this Deed to any law, legislation or legislative provision includes any statutory modification, amendment or re-enactment, and any subordinate legislation or regulations issued under that legislation or legislative provision.

1.2.7 A reference in this Deed to any agreement, deed or document is to that agreement, deed or document as amended, novated, supplemented or replaced.

1.2.8 A reference to a clause, part, schedule or attachment is a reference to a clause, part, schedule or attachment of or to this Deed.

1.2.9 An expression importing a natural person includes any company, trust, partnership, joint venture, association, body corporate or governmental agency.

1.2.10 Where a word or phrase is given a defined meaning, another part of speech or other grammatical form in respect of that word or phrase has a corresponding meaning.

1.2.11 A word which denotes the singular denotes the plural, a word which denotes the plural denotes the singular, and a reference to any gender denotes the other genders.

1.2.12 References to the word ‘include’ or ‘including’ are to be construed without limitation.

1.2.13 A reference to this Deed includes the agreement recorded in this Deed.

1.2.14 A reference to a Party to this Deed includes a reference to the servants, agents and contractors of the Party, the Party's successors and assigns.

1.2.15 A reference to 'dedicate' or 'dedication' in relation to land is a reference to dedicate or dedication free of cost.

1.2.16 Any schedules, appendices and attachments form part of this Deed.

1.2.17 Notes appearing in this Deed are operative provisions of this Deed.

2 Status of this Deed

2.1 This Deed is a planning agreement within the meaning of s7.4(1) of the Act.

3 Commencement

3.1 This Deed commences and has force and effect on and from the date when the Parties have:

3.1.1 each executed the same copy of this Deed, or

3.1.2 each executed separate counterparts of this Deed and exchanged the counterparts.

3.2 The Parties are to insert the date when this Deed commences on the front page and on the execution page.

3.3 For the avoidance of doubt, the Developer is not required to provide the Development Contribution or Security unless and until the LEP Amendment takes effect.

4 Application of this Deed

4.1 This Deed applies to the Landowner's Land, the HSC Land and to the Development.

5 Warranties

5.1 The Parties warrant to each other that they:

5.1.1 have full capacity to enter into this Deed, and

5.1.2 are able to fully comply with their obligations under this Deed.

6 Further agreements

6.1 The Parties may, at any time and from time to time, enter into agreements relating to the subject-matter of this Deed that are not inconsistent with this Deed for the purpose of implementing this Deed.

7 Surrender of right of appeal, etc.

7.1 The Developer is not to commence or maintain, or to cause or procure the commencement or maintenance, of any proceedings in any court or tribunal or similar body appealing against, or questioning the validity of this Deed, or an Approval relating to the Development in so far as the subject-matter of the proceedings relates to this Deed.

8 Application of s7.11, s7.12 and s7.24 of the Act to the Development

8.1 This Deed does not exclude the application of s7.11 to the Development.

8.2 This Deed does not exclude the application of s7.12 to the Development.

8.3 This Deed does not exclude the application of s7.24 to the Development.

8.4 For the avoidance of doubt, any benefits under this Deed should not be taken into consideration when determining a development contribution under s7.11 of the Act in relation to the Development.

Part 2 – Development Contributions

9 Provision of Development Contributions

9.1 The Developer is to make Development Contributions to the Council in accordance with Schedule 1, any other provision of this Deed relating to the making of Development Contributions and otherwise to the satisfaction of the Council.

9.2 Any Contribution Value specified in this Deed in relation to a Development Contribution does not serve to define the extent of the Developer's obligation to make the Development Contribution.

9.3 The Council is to apply each Development Contribution made by the Developer under this Deed towards the public purpose for which it is made and otherwise in accordance with this Deed.

9.4 Despite clause 9.2, the Council may apply a Development Contribution made under this Deed towards a public purpose other than the public purpose specified in this Deed if the Council reasonably considers that the public interest would be better served by applying the Development Contribution towards that other purpose rather than the purpose so specified.

10 Payment of monetary DSP Contributions

10.1 A monetary Development Contribution is made for the purposes of this Deed when the Council receives the full amount of the contribution payable under this Deed in cash or by unendorsed bank cheque or by the deposit by means of electronic funds transfer of cleared funds into a bank account nominated by the Council.

10.2 Except as otherwise provided under this Deed, the Developer is required to pay the Sewerage Services DSP Contribution.

11 Dedication of land

11.1 A Development Contribution comprising the dedication of land is made for the purposes of this Deed when:

11.1.1 a deposited plan is registered in the register of plans held with the Registrar-General that dedicates land as a public road (including a temporary public road) under the *Roads Act 1993* or creates a public reserve or drainage reserve under the *Local Government Act 1993*, or

11.1.2 the Council is given:

(a) an instrument in registrable form under the *Real Property Act 1900* duly executed by the Developer as transferor that is effective to transfer the title to the land to the Council when executed by the Council as transferee and registered,

(b) the written consent to the registration of the transfer of any person whose consent is required to that registration, and

(c) a written undertaking from any person holding the certificate of title to the production of the certificate of title for the purposes of registration of the transfer.

11.2 The Developer is to do all things reasonably necessary to enable registration of the instrument of transfer to occur.

11.3 The Developer is to ensure that land dedicated to the Council under this Deed is free of all encumbrances and affectations (whether registered or unregistered and including without limitation any charge or liability for rates, taxes and charges) except as otherwise agreed in writing by the Council.

11.4 If, having used all reasonable endeavours, the Developer cannot ensure that land to be dedicated to the Council under this Deed is free from all encumbrances and affectations, the Developer may request that Council agree to accept the land subject to those encumbrances and affectations, but the Council may withhold its agreement in its absolute discretion.

11.5 Despite any other provision of this Deed, if the Developer is required to dedicate land to the Council on which the Developer is also required to carry out a Work under this Deed, the Developer is to comply with clause 11.1.2 not later than 28 days after the Work is completed for the purposes of this Deed.In accordance with timeframe set out in Schedule 1 of this Agreement, the Developer must dedicate to Council the Adjoining Land Access Land sufficient for the purpose of public road access (including any road batters) to the residue of the Landowner's Land following the subdivision of the HSC Land from the Landowner's Land.

12 Carrying out of Work

12.1 Without limiting any other provision of this Deed, any Work that is required to be carried out by the Developer under this Deed is to be carried out in accordance with any design or specification specified or approved by the Council, any relevant Approval and any other applicable law.

12.2 The Developer, at its own cost, is to comply with any reasonable direction given to it by the Council to prepare or modify a design or specification relating to a Work that the Developer is required to carry out under this Deed.

12.3 Prior to commencing any part of the Development, the Developer is to notify Council within 30 days whether it, at its discretion, elects to construct either:

12.3.1 the Sewerage Infrastructure Long Term Works, or

12.3.2 the Sewerage Infrastructure Onsite Works.

12.4 If the Developer elects to carry out the Sewerage Infrastructure Long Term Works:

12.4.1 the Developer is to construct and complete the Sewerage Infrastructure Long Term Works and the Sewerage Infrastructure Connection Works:

(a) in a good and workmanlike manner having regard to the intended purpose of the Sewerage Infrastructure Long Term Works and the Sewerage Infrastructure Connection Works,

(b) in accordance with all Approvals and applicable laws, and

(c) to the reasonable satisfaction of Council,

12.4.2 the Developer is not liable to pay a Sewerage Services DSP Contribution in respect of the Development,

12.5 The Council, at its absolute discretion, may make a contribution, either by way of a monetary contribution or by providing materials or undertaking work to the Sewerage Infrastructure Long Term Works if it is of the opinion that such a contribution would achieve the timely and cost effective provision of infrastructure with sufficient capacity to serve the Sewer Catchment.

12.6 If the Developer elects to construct the Sewerage Infrastructure Onsite Works:

12.6.1 the Developer is to carry out and complete the Sewerage Infrastructure Onsite Works and the Sewerage Infrastructure Connection Works:

(a) in a good and workmanlike manner having regard to the intended purpose of the Sewerage Infrastructure Onsite Works,

(b) in accordance with all Approvals and applicable laws, and

(c) to the reasonable satisfaction of Council,

12.6.2 the Developer is to pay to Council:

(a) the Sewerage Infrastructure Contribution prior to the release of the any construction certificate relating to the Development,

(b) the Sewerage Services DSP Contribution at the time the Development is connected to reticulated sewerage services.

12.7 No occupation of the Development may occur until either the Sewerage Infrastructure Long Term Works, or the Sewerage Infrastructure Onsite Works as the case may be, are completed in accordance with clause 19.

13 Variation to Work

13.1 The design or specification of any Work that is required to be carried out by the Developer under this Deed may be varied by agreement in writing between the Parties, acting reasonably, without the necessity for an amendment to this Deed

13.2 Without limiting clause 13.1, the Developer may make a written request to the Council to approve a variation to the design or specification of a Work in order to enable it to comply with the requirements of any Authority imposed in connection with any Approval relating to the carrying out of the Work.

13.3 The Council is not to unreasonably delay or withhold its approval to a request made by the Developer under clause 13.2.

13.4 The Council, acting reasonably, may from time to time give a written direction to the Developer requiring it to vary the design or specification of a Work before the Work is carried out in a specified manner and submit the variation to the Council for approval.

13.5 The Developer is to comply promptly with a direction referred to in clause 13.4 at its own cost.

13.6 The Parties acknowledge that the plans contained in Annexures 1, 2 and 3 illustrate the general location and nature of the proposed Development and Works and these plans may be subject to minor variation following detailed design and final survey.

14 Access to land by Developer

14.1 The Council is to permit the Developer, upon receiving reasonable prior notice from the Developer, to enter any other Council owned or controlled land in order to enable the Developer to properly perform its obligations under this Deed.

14.2 Nothing in this Deed creates or gives the Developer any estate or interest in any part of the land referred to in clause 14.1.

15 Access to land by Council and Landowner

15.1 The Council may enter any land on which Work is being carried out by the Developer under this Deed in order to inspect, examine or test the Work, or to remedy any breach by the Developer of its obligations under this Deed relating to the Work.

15.2 The Council is to give the Developer prior reasonable notice before it enters land under clause 15.1.

15.3 The Landowner may enter the HSC Land for the purposes of constructing a public road on the Adjoining Land Access Land at reasonable times and in accordance with any reasonable directions made by the Developer.

15.4 The Landowner is to give the Developer prior reasonable notice before it enters land under clause 15.3.

15.5 In the event that the existing right of access from the Oxley Highway to the Landowner's Land is no longer permitted by Road and Maritime Services, then prior to the dedication of the Adjoining Land Access Land to Council, the

Developer must ensure that the Landowner and its invitees, contractors and agents have a right of access to the Landowner's Land through the Adjoining Land Access Land or such other part of the HSC Land as may be agreed between the parties and the Developer shall consent to registration on the HSC Land of any dealing reasonably required to support such access.

16 Council's obligations relating to Work

16.1 The Council is not to unreasonably delay, hinder or otherwise interfere with the performance by the Developer of its obligations under this Deed, and is to use its reasonable endeavours to ensure third parties unrelated to the Developer do not unreasonably delay, hinder or otherwise interfere with the performance of those obligations.

17 Protection of people, property & utilities

17.1 The Developer is to ensure to the fullest extent reasonably practicable in relation to the performance of its obligations under this Deed that:

17.1.1 all necessary measures are taken to protect people and property,

17.1.2 unnecessary interference with the passage of people and vehicles is avoided, and

17.1.3 nuisances and unreasonable noise and disturbances are prevented.

17.2 Without limiting clause 17.1, the Developer is not to obstruct, interfere with, impair or damage any public road, public footpath, public cycleway or other public thoroughfare, or any pipe, conduit, drain, watercourse or other public utility or service on any land except as authorised in writing by the Council or any relevant Authority.

18 Repair of damage

18.1 The Developer is to maintain any Work required to be carried out by the Developer under this Deed until the Work is completed for the purposes of this Deed or such later time as agreed between the Parties.

18.2 The Developer is to carry out its obligation under clause 18.1 at its own cost and to the satisfaction of the Council.

19 Completion of Work

19.1 The Developer is to give the Council written notice of the date on which it will complete Work required to be carried out under this Deed or any Stage.

19.2 The Council is to inspect the Work the subject of the notice referred to in clause 19.1 within 14 days of the date specified in the notice for completion of the Work.

19.3 Work required to be carried out by the Developer under this Deed, or a Stage, is completed for the purposes of this Deed when the Council, acting reasonably, gives a written notice to the Developer to that effect.

19.4 If the Council is the owner of the land on which Work the subject of a notice referred to in clause 19.1 is issued, the Council assumes responsibility for the Work upon the issuing of the notice, but if it is not the owner at that time, it assumes that responsibility when it later becomes the owner.

19.5 Before the Council gives the Developer a notice referred to in clause 19.3, it may give the Developer a written direction to complete, rectify or repair any specified part of the Work to the reasonable satisfaction of the Council.

19.6 The Developer, at its own cost, is to promptly comply with a direction referred to in clause 19.5.

20 Rectification of defects

20.1 The Council may give the Developer a Rectification Notice during the Defects Liability Period.

20.2 The Developer, at its own cost, is to comply with a Rectification Notice according to its terms and to the reasonable satisfaction of the Council.

20.3 The Council is to do such things as are reasonably necessary to enable the Developer to comply with a Rectification Notice that has been given to it under clause 20.1

21 Works-As-Executed-Plan

21.1 No later than 60 days after Work is completed for the purposes of this Deed, the Developer is to submit to the Council a full works-as-executed-plan in respect of the Work.

21.2 The Developer, being the copyright owner in the plan referred to in clause 21.1, gives the Council a non-exclusive licence to use the copyright in the plans for the purposes of this Deed.

22 Removal of Equipment

22.1 When Work on any Council owned or controlled land is completed for the purposes of this Deed, the Developer, without delay, is to:

22.1.1 remove any Equipment from the land and make good any damage or disturbance to the land as a result of that removal, and

22.1.2 leave the land in a neat and tidy state, clean and free of rubbish.

Part 3 – Recoupment

23 Recoupment

23.1 Once the Developer has complied with its obligation to build the Sewerage Infrastructure Long Term Works, Council is to pay to the Developer:

23.1.1 any monetary Sewerage Services DSP Contributions it later receives from another person in respect of development on land (other than the HSC Land) that creates a demand for or derives a benefit from the Sewerage Infrastructure Long Term Works pursuant to another planning agreement under s7.4 of the Act which can lawfully be applied towards the Sewerage Infrastructure Long Term Works and which Council considers, acting reasonably, should be paid to the Developer, or

23.1.2 any other Sewerage Services DSP Contributions it later receives that Council determines at its absolute discretion could be paid to the Developer

23.2 The amount Council is required to pay the Developer under clause 23.1 is not to exceed the Sewerage Infrastructure Contribution Reduction.

Part 4 – Dispute Resolution

24 Dispute resolution – expert determination

24.1 This clause applies to a Dispute between any of the Parties to this Deed concerning a matter arising in connection with this Deed that can be determined by an appropriately qualified expert if:

24.1.1 the Parties to the Dispute agree that it can be so determined, or

24.1.2 the Chief Executive Officer of the professional body that represents persons who appear to have the relevant expertise to determine the Dispute gives a written opinion that the Dispute can be determined by a member of that body.

24.2 A Dispute to which this clause applies is taken to arise if one Party gives another Party a notice in writing specifying particulars of the Dispute.

24.3 If a notice is given under clause 24.2, the Parties are to meet within 14 days of the notice in an attempt to resolve the Dispute.

24.4 If the Dispute is not resolved within a further 28 days, the Dispute is to be referred to the President of the NSW Law Society to appoint an expert for expert determination.

24.5 The expert determination is binding on the Parties except in the case of fraud or misfeasance by the expert.

24.6 Each Party is to bear its own costs arising from or in connection with the appointment of the expert and the expert determination.

24.7 The Parties are to share equally the costs of the President, the expert, and the expert determination.

25 Dispute Resolution - mediation

25.1 This clause applies to any Dispute arising in connection with this Deed other than a Dispute to which clause 24 applies.

25.2 Such a Dispute is taken to arise if one Party gives another Party a notice in writing specifying particulars of the Dispute.

25.3 If a notice is given under clause 25.2, the Parties are to meet within 14 days of the notice in an attempt to resolve the Dispute.

25.4 If the Dispute is not resolved within a further 28 days, the Parties are to mediate the Dispute in accordance with the Mediation Rules of the Law Society of New South Wales published from time to time and are to request the President of the Law Society to select a mediator.

25.5 If the Dispute is not resolved by mediation within a further 28 days, or such longer period as may be necessary to allow any mediation process which has been commenced to be completed, then the Parties may exercise their legal rights in relation to the Dispute, including by the commencement of legal proceedings in a court of competent jurisdiction in New South Wales.

25.6 Each Party is to bear its own costs arising from or in connection with the appointment of a mediator and the mediation.

25.7 The Parties are to share equally the costs of the President, the mediator, and the mediation.

Part 5 - Enforcement

26 Security for performance of obligations

26.1 This clause applies to the construction of any Work required to be carried out on Council owned land under this Deed.

26.2 The Developer is not to carry out any Work to which this clause applies unless, before the commencement of the Work, the Developer provides the Council with Security to secure the performance of the Developer's obligations relating to the Work in accordance with an agreement between the Council and the Developer relating to the provision of Security or, failing such agreement, on such terms and conditions required by the Council acting reasonably.

26.3 For the purposes of clause 26.2, the parties are to have regard to any policy or practice of the Council, current at the time the Security is provided, relating to the provision of security to the Council for the construction of public infrastructure by Developers.

26.4 The Council is to release and return the Security or any unused part of it to the Developer within 14 days of compliance by the Developer of its obligations under this Deed to the reasonable satisfaction of the Council.

26.5 The Developer may at any time provide the Council with a replacement Security.

26.6 On receipt of a replacement Security, the Council is to release and return to the Developer, as directed, the Security it holds that has been replaced.

26.7 The Council may call-up the Security if it reasonably considers that the Developer has not complied with its Development Contributions obligations under this Deed.

26.8 If the Council calls-up the Security, it may use the amount paid to it in satisfaction of any costs incurred by it in remedying the non-compliance including but not limited to:

26.8.1 the reasonable costs of the Council's servants, agents and contractors reasonably incurred for that purpose,

26.8.2 all fees and charges necessarily or reasonably incurred by the Council in order to have the Work carried out, completed or rectified, and

26.8.3 all legal costs and expenses reasonably incurred by the Council, by reason of the Developer's non-compliance.

26.9 If the Council calls-up the Security, it may, by notice in writing to the Developer, require the Developer to provide a further or replacement Security in an amount that, when added to any unused portion of any existing Security, does not exceed the amount of the Security the Council is entitled to hold under this Deed.

26.10 The dispute resolution provisions of this Deed do not apply to any matter the subject of this clause.

27 Acquisition of land required to be dedicated

27.1 If the Developer does not dedicate land required to be dedicated under this Deed at the time at which it is required to be dedicated, the Developer and Landowner consent to the Council compulsorily acquiring the land for compensation in the amount of $1 without having to follow the pre-acquisition procedure under the Just Terms Act.

27.2 The Council is to only acquire land pursuant to clause 27.1 if it considers it reasonable to do so having regard to the circumstances surrounding the failure by the Developer to dedicate the land required to be dedicated under this Deed.

27.3 Clause 28.1 constitutes an agreement for the purposes of s30 of the Just Terms Act.

27.4 If, as a result of the acquisition referred to in clause 27.1, the Council is required to pay compensation to any person other than the Developer, the Developer is to reimburse the Council that amount, upon a written request being made by the Council, or the Council can call on any Security provided under clause 26.

27.5 The Developer indemnifies and keeps indemnified the Council against all Claims made against the Council as a result of any acquisition by the Council of the whole or any part of the land concerned except if, and to the extent that, the Claim arises because of the Council's negligence or default.

27.6 The Developer is to promptly do all things necessary, and consents to the Council doing all things necessary, to give effect to this clause 27, including without limitation:

27.6.1 signing any documents or forms,

27.6.2 giving land owner's consent for lodgement of any Development Application,

27.6.3 producing certificates of title to the Registrar-General under the *Real Property Act 1900*, and

27.6.4 paying the Council's costs arising under this clause 27.

28 Breach of obligations

28.1 If the Council reasonably considers that the Developer is in breach of any obligation under this Deed, it may give a written notice to the Developer:

28.1.1 specifying the nature and extent of the breach,

28.1.2 requiring the Developer to:

(a) rectify the breach if it reasonably considers it is capable of rectification, or

(b) pay compensation to the reasonable satisfaction of the Council in lieu of rectifying the breach if it reasonably considers the breach is not capable of rectification,

28.1.3 specifying the period within which the breach is to be rectified or compensation paid, being a period that is reasonable in the circumstances.

28.2 If the Developer fails to fully comply with a notice referred to in clause 28.1, the Council may, without further notice to the Developer, call-up the Security provided by the Developer under this Deed and apply it to remedy the Developer's breach.

28.3 If the Developer fails to comply with a notice given under clause 28.1 relating to the carrying out of Work under this Deed, the Council may step-in and remedy the breach and may enter, occupy and use any land owned or controlled by the Developer and any Equipment on such land for that purpose.

28.4 Any costs incurred by the Council in remedying a breach in accordance with clause 28.2 or clause 28.3 may be recovered by the Council by either or a combination of the following means:

28.4.1 by calling-up and applying the Security provided by the Developer under this Deed, or

28.4.2 as a debt due in a court of competent jurisdiction.

28.5 For the purpose of clause 28.4, the Council's costs of remedying a breach the subject of a notice given under clause 28.1 include, but are not limited to:

28.5.1 the costs of the Council's servants, agents and contractors reasonably incurred for that purpose,

28.5.2 all fees and charges necessarily or reasonably incurred by the Council in remedying the breach, and

28.5.3 all legal costs and expenses reasonably incurred by the Council, by reason of the breach.

28.6 Nothing in this clause 28 prevents the Council from exercising any rights it may have at law or in equity in relation to a breach of this Deed by the Developer, including but not limited to seeking relief in an appropriate court.

29 Enforcement in a court of competent jurisdiction

29.1 Without limiting any other provision of this Deed, the Parties may enforce this Deed in any court of competent jurisdiction.

29.2 For the avoidance of doubt, nothing in this Deed prevents:

29.2.1 a Party from bringing proceedings in the Land and Environment Court to enforce any aspect of this Deed or any matter to which this Deed relates, or

29.2.2 the Council from exercising any function under the Act or any other Act or law relating to the enforcement of any aspect of this Deed or any matter to which this Deed relates.

Part 6 – Registration & Restriction on Dealings

30 Registration of this Deed

30.1 The Parties agree to register this Deed for the purposes of s7.6(1) of the Act in accordance with this clause.

30.2 Not later than 10 days prior to an application for the issue of a certificate for subdivision of the Landowner's Land creating the lot which is the HSC Land, the Developer is to deliver to the Council in registrable form:

30.2.1 an instrument requesting registration of this Deed on the title to the HSC Land duly executed by the Developer and the Landowner (if necessary), and

30.2.2 the written irrevocable consent of each person referred to in s7.6(1) of the Act to that registration.

30.3 The Developer must lodge this Deed for registration on the HSC Land contemporaneously with the lodgement for registration of the certificate of subdivision and do such other things as are reasonably necessary to enable registration of this Deed to occur at that time.

30.4 The Parties are to do such things as are reasonably necessary to remove any notation relating to this Deed from the title to the HSC Land:

30.4.1 once the Developer has completed its obligations under this Deed to the reasonable satisfaction of the Council (including dedication of the Adjoining Land Access Land) or this Deed is terminated or otherwise comes to an end for any other reason.

31 Restriction on dealings

31.1 The Landowner and the Developer are not to:

31.1.1 sell or transfer the Landowner's Land, other than the sale of the HSC Land to the Developer for the purposes of the Development, or

31.1.2 assign the Landowner's and the Developer's rights or obligations under this Deed, or novate this Deed,

to any person unless:

31.1.3 the Developer or the Landowner (as relevant) have, at no cost to the Council, first procured the execution by the person to whom the Landowner's Land or the HSC Land part is to be sold or transferred or the Developer's and the Landowner's respective rights or obligations under this Deed are to be assigned or novated, of a deed in favour of the Council on terms reasonably satisfactory to the Council, and

31.1.4 the Developer and the Landowner are not in breach of this Deed, and

31.1.5 the Council otherwise consents to the transfer, assignment or novation, such consent not to be unreasonably withheld.

31.2 Subject to clause 31.3, the Developer and Landowner acknowledge and agree that they remain liable to fully perform their obligations under this Deed unless and until they have complied with their obligations under clause 31.1.

31.3 Clause 31.1 does not apply in relation to any sale or transfer of the land if this Deed is registered on the title to the land at the time of the sale.

Part 7 – Indemnities & Insurance

32 Risk

32.1 The Developer and the Landowner perform this Deed at their own risk and their own cost.

33 Release

33.1 The Developer releases the Council from any Claim it may have against the Council arising in connection with the performance of the Developer's obligations under this Deed except if, and to the extent that, the Claim arises because of the Council's negligence or default.

33.2 The Landowner releases the Council from any Claim it may have against the Council arising in connection with the performance of the Landowner's obligations under this Deed except if, and to the extent that, the Claim arises because of the Council's negligence or default.

34 Indemnity

34.1 The Developer indemnifies the Council from and against all Claims that may be sustained, suffered, recovered or made against the Council arising in connection with the performance of the Developer's obligations under this Deed except if, and to the extent that, the Claim arises because of the Council's negligence or default.

34.2 The Landowner indemnifies the Council from and against all Claims that may be sustained, suffered, recovered or made against the Council arising in connection with the performance of the Landowner's obligations under this

Deed except if, and to the extent that, the Claim arises because of the Council's negligence or default.

35 Insurance

35.1 The Developer is to take out and keep current to the satisfaction of the Council the following insurances in relation to Work required to be carried out by the Developer under this Deed up until the Work is taken to have been completed in accordance with this Deed:

35.1.1 contract works insurance, noting the Council as an interested party, for the full replacement value of the Works (including the cost of demolition and removal of debris, consultants' fees and authorities' fees), to cover the Developer's liability in respect of damage to or destruction of the Works,

35.1.2 public liability insurance for at least $20,000,000.00 for a single occurrence, which covers the Council, the Developer and any subcontractor of the Developer, for liability to any third party,

35.1.3 workers compensation insurance as required by law, and

35.1.4 any other insurance required by law.

35.2 If the Developer fails to comply with clause 35.1, the Council may effect and keep in force such insurances and pay such premiums as may be necessary for that purpose and the amount so paid shall be a debt due from the Developer to the Council and may be recovered by the Council as it deems appropriate including:

35.2.1 by calling upon the Security provided by the Developer to the Council under this Deed, or

35.2.2 recovery as a debt due in a court of competent jurisdiction.

35.3 The Developer is not to commence to carry out any Work unless it has first provided to the Council satisfactory written evidence of all of the insurances specified in clause 35.1.

Part 8 – Other Provisions

36 Annual report by Developer

36.1 The Developer is to provide to the Council by not later than each anniversary of the date on which this Deed is entered into a report detailing the performance of its obligations under this Deed.

36.2 The report referred is to be in such a form and to address such matters as required by the Council from time to time.

37 Review of Deed

37.1 The Parties agree to review this Deed if either party is of the opinion that any change of circumstance has occurred, or is imminent, that materially affects the operation of this Deed.

37.2 For the purposes of clause 37.1, the relevant changes include (but are not limited to) any change to a law that restricts or prohibits or enables the Council or any other planning authority to restrict or prohibit any aspect of the Development.

37.3 For the purposes of addressing any matter arising from a review of this Deed referred to in clause 37.1, the Parties are to use all reasonable endeavours to agree on and implement appropriate amendments to this Deed.

37.4 If this Deed becomes illegal, unenforceable or invalid as a result of any change to a law, the Parties agree to do all things necessary to ensure that an enforceable agreement of the same or similar effect to this Deed is entered into.

37.5 A failure by a Party to agree to take action requested by the other Party as a consequence of a review referred to in clause 37.1 (but not 37.4) is not a Dispute for the purposes of this Deed and is not a breach of this Deed.

38 Notices

38.1 Any notice, consent, information, application or request that is to or may be given or made to a Party under this Deed is only given or made if it is in writing and sent in one of the following ways:

38.1.1 delivered or posted to that Party at its address set out in the Summary Sheet,

38.1.2 faxed to that Party at its fax number set out in the Summary Sheet, or

38.1.3 emailed to that Party at its email address set out in the Summary Sheet.

38.2 If a Party gives the other Party 3 business days' notice of a change of its address, fax number or email, any notice, consent, information, application or request is only given or made by that other Party if it is delivered, posted, faxed or emailed to the latest address or fax number.

38.3 Any notice, consent, information, application or request is to be treated as given or made if it is:

38.3.1 delivered, when it is left at the relevant address,

38.3.2 sent by post, 2 business days after it is posted,

38.3.3 sent by fax, as soon as the sender receives from the sender's fax machine a report of an error free transmission to the correct fax number, or

38.3.4 sent by email and the sender does not receive a delivery failure message from the sender's internet service provider within a period of 24 hours of the email being sent.

38.4 If any notice, consent, information, application or request is delivered, or an error free transmission report in relation to it is received, on a day that is not a business day, or if on a business day, after 5pm on that day in the place of

the Party to whom it is sent, it is to be treated as having been given or made at the beginning of the next business day.

39 Approvals and Consent

39.1 Except as otherwise set out in this Deed, and subject to any statutory obligations, a Party may give or withhold an approval or consent to be given under this Deed in that Party's absolute discretion and subject to any conditions determined by the Party.

39.2 A Party is not obliged to give its reasons for giving or withholding consent or for giving consent subject to conditions.

40 Costs

40.1 The Developer is to pay to the Council the Council's costs not exceeding $17,000.00 of preparing, negotiating, executing and stamping this Deed, and any document related to this Deed within 7 days of a written demand by the Council for such payment.

40.2 The Developer is also to pay to the Council the Council's reasonable costs of enforcing this Deed within 7 days of a written demand by the Council for such payment.

40.3 The Developer is to pay to the Landowner the Landowners costs not exceeding $10,000.00 of reviewing, negotiating and executing this Deed and all other due diligence relating to or arising from this Deed within 7 days of a written demand by the Landowner ~~Council~~ for such payment.

41 Entire Deed

41.1 This Deed contains everything to which the Parties have agreed in relation to the matters it deals with.

41.2 No Party can rely on an earlier document, or anything said or done by another Party, or by a director, officer, agent or employee of that Party, before this Deed was executed, except as permitted by law.

42 Further Acts

42.1 Each Party must promptly execute all documents and do all things that another Party from time to time reasonably requests to effect, perfect or complete this Deed and all transactions incidental to it.

43 Governing Law and Jurisdiction

43.1 This Deed is governed by the law of New South Wales.

43.2 The Parties submit to the non-exclusive jurisdiction of its courts and courts of appeal from them.

43.3 The Parties are not to object to the exercise of jurisdiction by those courts on any basis.

44 Joint and Individual Liability and Benefits

44.1 Except as otherwise set out in this Deed:

44.1.1 any agreement, covenant, representation or warranty under this Deed by 2 or more persons binds them jointly and each of them individually, and

44.1.2 any benefit in favour of 2 or more persons is for the benefit of them jointly and each of them individually.

45 No Fetter

45.1 Nothing in this Deed shall be construed as requiring Council to do anything that would cause it to be in breach of any of its obligations at law, and without limitation, nothing shall be construed as limiting or fettering in any way the exercise of any statutory discretion or duty.

46 Illegality

46.1 If this Deed or any part of it becomes illegal, unenforceable or invalid as a result of any change to a law, the Parties are to co-operate and do all things necessary to ensure that an enforceable agreement of the same or similar effect to this Deed is entered into.

47 Severability

47.1 If a clause or part of a clause of this Deed can be read in a way that makes it illegal, unenforceable or invalid, but can also be read in a way that makes it legal, enforceable and valid, it must be read in the latter way.

47.2 If any clause or part of a clause is illegal, unenforceable or invalid, that clause or part is to be treated as removed from this Deed, but the rest of this Deed is not affected.

48 Amendment

48.1 No amendment of this Deed will be of any force or effect unless it is in writing and signed by the Parties to this Deed in accordance with clause 25D of the Regulation.

49 Waiver

49.1 The fact that a Party fails to do, or delays in doing, something the Party is entitled to do under this Deed, does not amount to a waiver of any obligation of, or breach of obligation by, another Party.

49.2 A waiver by a Party is only effective if it:

49.2.1 is in writing,

49.2.2 is addressed to the Party whose obligation or breach of obligation is the subject of the waiver,

49.2.3 specifies the obligation or breach of obligation the subject of the waiver and the conditions, if any, of the waiver,

49.2.4 is signed and dated by the Party giving the waiver.

49.3 Without limitation, a waiver may be expressed to be conditional on the happening of an event, including the doing of a thing by the Party to whom the waiver is given.

49.4 A waiver by a Party is only effective in relation to the particular obligation or breach in respect of which it is given, and is not to be taken as an implied waiver of any other obligation or breach or as an implied waiver of that obligation or breach in relation to any other occasion.

49.5 For the purposes of this Deed, an obligation or breach of obligation the subject of a waiver is taken not to have been imposed on, or required to be complied with by, the Party to whom the waiver is given.

50 GST

50.1 In this clause:

Adjustment Note, **Consideration**, **GST**, **GST Group**, **Margin Scheme**, **Money, Supply** and **Tax Invoice** have the meaning given by the GST Law.

GST Amount means in relation to a Taxable Supply the amount of GST payable in respect of the Taxable Supply.

GST Law has the meaning given by the *A New Tax System (Goods and Services Tax) Act 1999* (Cth).

Input Tax Credit has the meaning given by the GST Law and a reference to an Input Tax Credit entitlement of a party includes an Input Tax Credit for an acquisition made by that party but to which another member of the same GST Group is entitled under the GST Law.

Taxable Supply has the meaning given by the GST Law excluding (except where expressly agreed otherwise) a supply in respect of which the supplier chooses to apply the Margin Scheme in working out the amount of GST on that supply.

50.2 Subject to clause 50.4, if GST is payable on a Taxable Supply made under, by reference to or in connection with this Deed, the Party providing the Consideration for that Taxable Supply must also pay the GST Amount as additional Consideration.

50.3 Clause 50.2 does not apply to the extent that the Consideration for the Taxable Supply is expressly stated in this Deed to be GST inclusive.

50.4 No additional amount shall be payable by the Council under clause 50.2 unless, and only to the extent that, the Council (acting reasonably and in accordance with the GST Law) determines that it is entitled to an Input Tax Credit for its acquisition of the Taxable Supply giving rise to the liability to pay GST.

50.5 If there are Supplies for Consideration which is not Consideration expressed as an amount of Money under this Deed by one Party to the other Party that are not subject to Division 82 of the *A New Tax System (Goods and Services Tax) Act 1999*, the Parties agree:

50.5.1 to negotiate in good faith to agree the GST inclusive market value of those Supplies prior to issuing Tax Invoices in respect of those Supplies;

50.5.2 that any amounts payable by the Parties in accordance with clause 52.2 (as limited by clause 50.4) to each other in respect of those Supplies will be set off against each other to the extent that they are equivalent in amount.

50.6 No payment of any amount pursuant to this clause 50, and no payment of the GST Amount where the Consideration for the Taxable Supply is expressly agreed to be GST inclusive, is required until the supplier has provided a Tax Invoice or Adjustment Note as the case may be to the recipient.

50.7 Any reference in the calculation of Consideration or of any indemnity, reimbursement or similar amount to a cost, expense or other liability incurred by a party, must exclude the amount of any Input Tax Credit entitlement of that party in relation to the relevant cost, expense or other liability.

50.8 This clause continues to apply after expiration or termination of this Deed.

51 Explanatory Note

51.1 The Appendix contains the Explanatory Note relating to this Deed required by clause 25E of the Regulation.

51.2 Pursuant to clause 25E(7) of the Regulation, the Parties agree that the Explanatory Note is not to be used to assist in construing this Planning Deed.

Schedule 1

(Clause 9)

Development Contributions

1179 Oxley Highway, Sancrox Planning Agreement

Port Macquarie-Hastings Council

Scott PDI No.6 Pty Ltd

Margaret Mary Hore

Column 1	Column 2	Column 3	Column 4
Item/ Contribution	Public Purpose	Manner & Extent	Timing
A. Monetary Contributions			
1. Sewerage Infrastructure Contribution (if the Developer elects to undertake the Sewerage Infrastructure Onsite Works)			Prior to the release of the first construction certificate relating to the Development.
2. Sewerage Services DSP Contribution (if the Developer elects to undertake the Sewerage Infrastructure Onsite Works)			Immediately prior to connecting the Development to reticulated sewerage services or the issue of a certificate of compliance under s307 of the Water Management Act whichever is the earlier.
B. Dedication of Land			
1. Access Dedication Land			Immediately prior to the issue of the occupation certificate for the Development.

2.	Adjoining Land Access Land	Within 4 weeks (or such other time as may be agreed with Council) of the date of the issue of a notice from Council advising the Developer that the construction of a road (to a design approved by Council) has been completed on the Adjoining Land Access Land to the satisfaction of Council.

C. Carrying out of Work

1.	Access Dedication Land Works.	To be completed immediately prior to the issue of the occupation certificate for the Development.
2.	Highway Upgrade Works	To be completed Immediately prior to the issue of the occupation certificate for the Development.
3.	Sewerage Infrastructure Long Term Works **or** Sewerage Infrastructure Onsite Works	To be completed immediately prior to the issue of the occupation certificate for the Development.
4.	Sewerage Infrastructure Connection Works	To be completed immediately prior to the issue of the occupation certificate for the Development.

1179 Oxley Highway, Sancrox Planning Agreement
Port Macquarie-Hastings Council
Scott PDI No.6 Pty Ltd
Margaret Mary Hore

Execution

Executed as a Deed

Dated:

Executed on behalf of the Council

_____	_____
General Manager	**Witness**
_____	_____
Mayor	**Witness**

Executed on behalf of the Developer in accordance with s127(1) of the Corporations Act (Cth) 2001

_____

Name/Position

_____

Name/Position

Executed on behalf of the Landowner

_____	_____
Margaret Mary Hore	**Witness**

Appendix

(Clause 54)

Environmental Planning and Assessment Regulation 2000

(Clause 25E)

Explanatory Note

Draft Planning Agreement

Under s7.4 of the *Environmental Planning and Assessment Act 1979*

Parties

Port Macquarie-Hastings Council ABN 11 236 901 601 of Cnr Lord & Burrawan Streets Port Macquarie NSW, NSW 2444 (**Council**)

and

Scott PDI No.6 pty Ltd ACN 622 051 156 of PO Box 520, Runaway Bay, QLD 4216 (**Developer**)

and

Margaret Mary Hore of PO Box 291, Wauchope, NSW 2446 (**Landowner**)

Description of the Land to which the Draft Planning Agreement Applies

Part of Lot 11 DP 1029846

Description of Proposed Development

The amendment to Port Macquarie Hastings Local Environmental Plan 2011 and the grant of development consent to permit the subdivision of part of Lot 11 DP 1029846 and the subsequent use of the subdivided lot part as a highway service centre.

Summary of Objectives, Nature and Effect of the Draft Planning Agreement

Objectives of Draft Planning Agreement

The objective of the Draft Planning Agreement is to:

- provide sewerage infrastructure or funding for sewerage infrastructure to meet the Development and the needs of the Development within the sewer catchment area, and
- provide for the construction of an intersection to provide access onto the Oxley Highway from the Development.

Nature of Draft Planning Agreement

The Draft Planning Agreement is a planning agreement under s7.4 of the *Environmental Planning and Assessment Act 1979* (Act). The Draft Planning Agreement is a voluntary agreement under which Development Contributions (as defined in clause 1.1 of the Draft Planning Agreement) are made by the Developer for public purposes (as defined in s7.4(3) of the Act).

Effect of the Draft Planning Agreement

The Draft Planning Agreement:

- relates to the carrying out of the Development (as defined in clause 1.1 of the Draft Planning Agreement) on the HSC Land by the Developer,
- does not exclude the application of s7.11, s7.12 and s7.24 of the Act to the Development,
- requires the Developer to:
  - carry out certain sewerage works for the benefit of the wider catchment, or.
  - pay a monetary contributions towards sewerage infrastructure works for the benefit of the catchment area if the developer only elects to carry out sewerage works on the land,

Assessment of the Merits of the Draft Planning Agreement

The Planning Purposes Served by the Draft Planning Agreement

The Draft Planning Agreement:

- promotes and co-ordinates the orderly and economic use and development of the land to which it applies,
- promotes the provision and co-ordination of community services and facilities, and
- provides increased opportunity for public involvement and participation in environmental planning and assessment of the Development.

How the Draft Planning Agreement Promotes the Public Interest

The Draft Planning Agreement promotes the public interest by promoting the objects of the Act as set out in s1.3(c), (g), (h) of the Act.

For Planning Authorities:

Development Corporations - How the Draft Planning Agreement Promotes its Statutory Responsibilities

N/A

Other Public Authorities – How the Draft Planning Agreement Promotes the Objects (if any) of the Act under which it is Constituted

N/A

Councils – How the Draft Planning Agreement Promotes the Elements of the Council's Charter

The Draft Planning Agreement promotes the elements of the Council's charter by:

- ensuring that effective and efficient services are provided to meet the needs of the local community,
- ensuring that land and assets are properly manage lands so that current and future local community needs can be met in an affordable way,
- setting out how the Council works with others to secure appropriate services for local community need,
- keeping the local and wider community informed about its activities.

All Planning Authorities – Whether the Draft Planning Agreement Conforms with the Authority's Capital Works Program

The Draft Planning Agreement requires the Developer to carry out specified sewerage and road works and dedicate land to Council The works are not included in the Council's relevant current capital works program. However, the Council's Management Plan identifies these times of works in the relevant capital works program. Accordingly, the provision of these works under the Draft Planning Agreement is consistent and conforms with the capital works envisioned by the Council's Management Plan.

All Planning Authorities – Whether the Draft Planning Agreement specifies that certain requirements must be complied with before a construction certificate, occupation certificate or subdivision certificate is issued

Yes. This Draft Planning Agreement contains requirements that must be complied with before Construction Certificates and Occupation Certificates are issued.

1179 Oxley Highway, Sancrox Planning Agreement

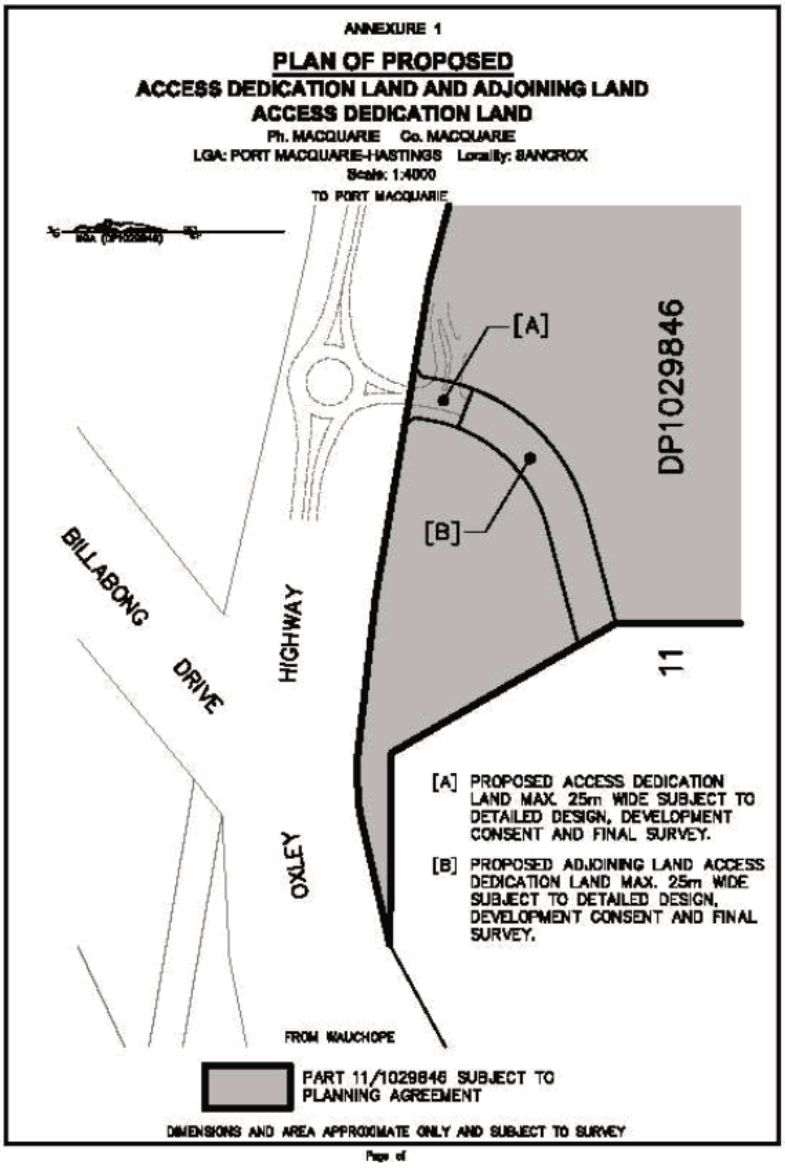
Port Macquarie-Hastings Council

Scott PDI No.6 Pty Ltd

Margaret Mary Hore

Annexure 1

(clause 1)



1179 Oxley Highway, Sancrox Planning Agreement

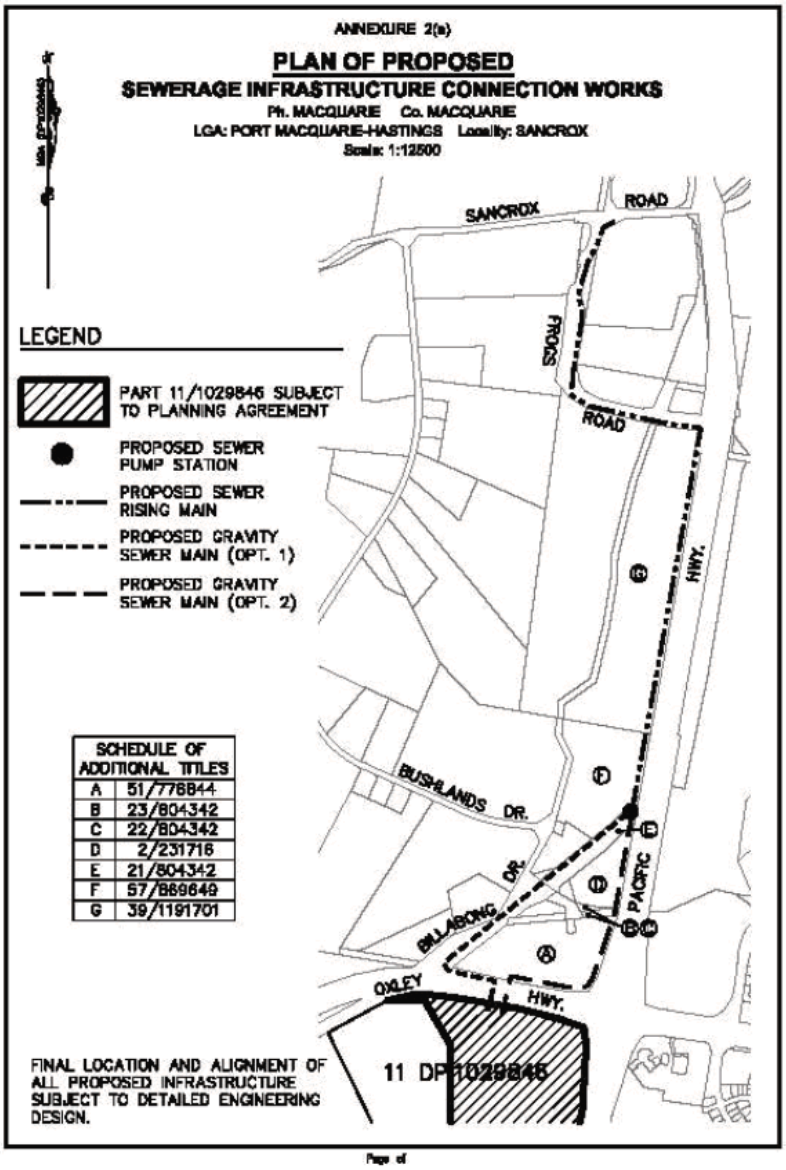
Port Macquarie-Hastings Council

Scott PDI No.6 Pty Ltd

Margaret Mary Hore

Annexure 2(a)

(clause 1)



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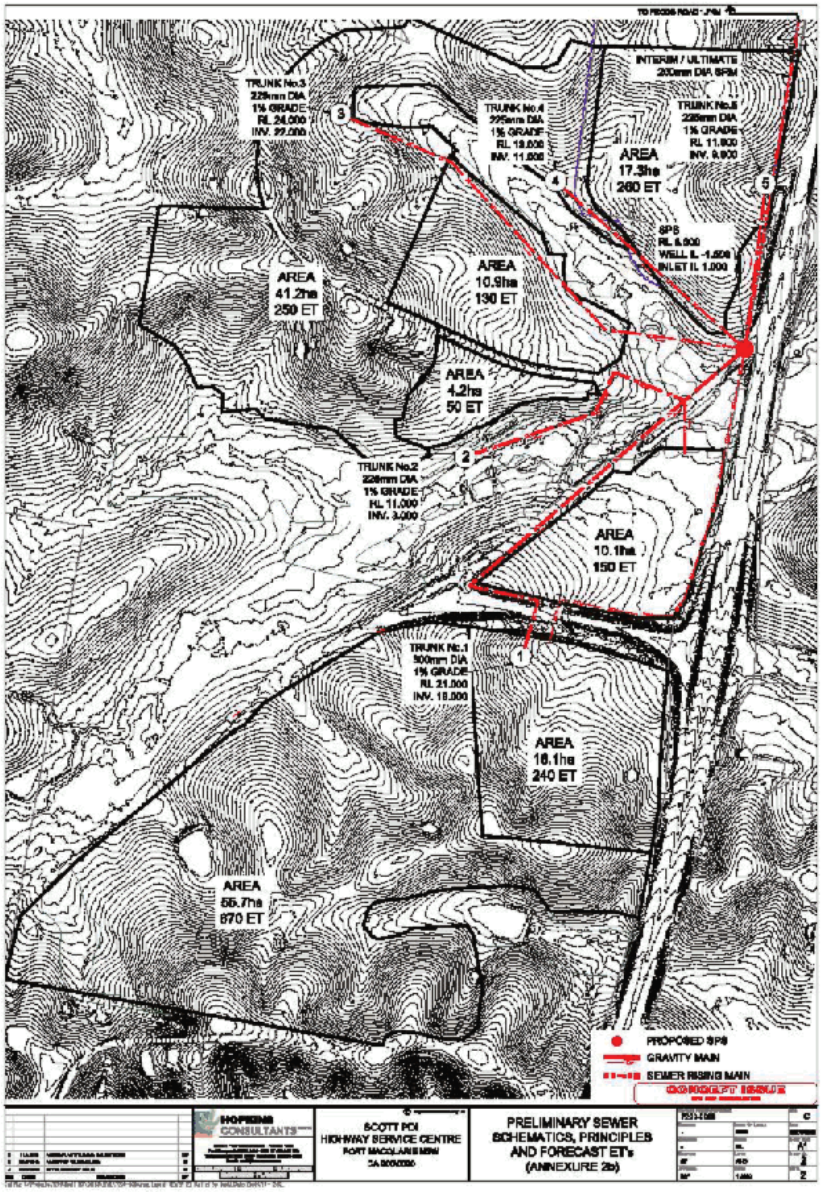
Scott PDI No.6 Pty Ltd

Margaret Mary Hore

Annexure 2(b)

(clause 1)



1179 Oxley Highway, Sancrox Planning Agreement

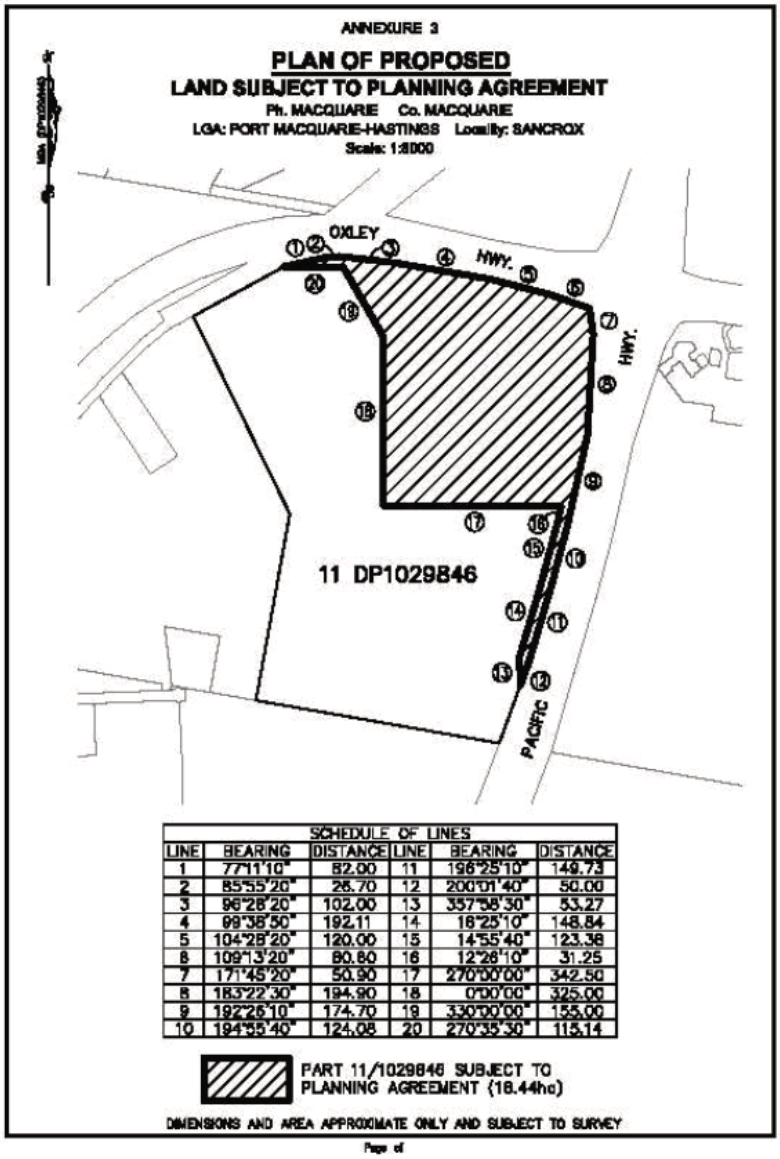
Port Macquarie-Hastings Council

Scott PDI No.6 Pty Ltd

Margaret Mary Hore

Annexure 3

(clause 1)



SCHEDULE OF LINES

LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
1	77°11'10"	82.00	11	196°25'10"	149.73
2	85°55'20"	26.70	12	200°01'40"	50.00
3	96°28'20"	102.00	13	357°58'30"	53.27
4	99°38'50"	192.11	14	16°25'10"	148.84
5	104°28'20"	120.00	15	14°55'40"	123.38
6	109°13'20"	80.80	16	12°26'10"	31.25
7	171°45'20"	50.90	17	270°00'00"	342.50
8	183°22'30"	194.90	18	0°00'00"	325.00
9	192°26'10"	174.70	19	330°00'00"	155.00
10	194°55'40"	124.08	20	270°35'30"	115.14

Draft Amendment to Port Macquarie-Hastings Development Control Plan 2013 (Part 4 Greater Port Macquarie area-based provisions)

Highway Gateway Sites

Land to which this section applies

This section applies to the land shown below in **Figure 1**.

Figure 1: Land to which this section applies

Strategic Context

Council strategy identifies the gateway sites on the western side of the interchange of the Pacific and Oxley Highways as key sites at the main road entry to Port Macquarie and Wauchope.

State government policy also identifies that a Highway Service Centre may be suitable ~~for a Highway Service Centre~~ on one of the Gateway sites.

The following development controls have been informed by a visual impact assessment and urban design analysis prepared on behalf of Council by Envisage Consulting Pty Ltd (Nov 2018) to guide the form and visual presentation of future development on the Highway Gateway Sites.

Purpose

The purpose of these provisions is to ensure that new development respects the visual prominence of these sites at an important Gateway entry to Port Macquarie (to the east) and Wauchope (to the west). The intent is that future development provides good urban design and visual amenity outcomes for the community, visitors and the travelling public alike.

These provisions supplement the relevant provisions in Parts 2 and 3 of the Port Macquarie Development Control Plan. Where there is inconsistency between these Area Based Provisions and the provisions in Parts 2 and 3, for the extent of the inconsistency these Area Based Provisions prevail.

Note: The figures shown in this plan are conceptual, not to scale and show indicative locations only.

Development Guide

Documentation
Objective • To ensure that any proposed development responds to the context of the site. • To ensure a high quality of documentation is provided that is clear, accurate and can be easily understood by the general public.
Development Provisions a) Documentation submitted with the Development Application should include: o A formal urban design/landscape analysis with a set of architectural diagrams explaining the design, and how it responds to the site context. The site analysis is also to include an evaluation of existing trees for protection and retention. o Detailed cross-sections through the entire site, including through the location of main access points and across the highway boundaries. The cross-sections are to be of a scale that can be clearly read and indicate: – The existing and proposed landform in separate colours and line form (e.g. use a dashed line for proposed) – Areas of cut and fill – Reduced Levels (RLs) of main features and heights of any buildings and structures such as signs – Location of existing and proposed vegetation, defining where any vegetation is proposed for removal. ~~o A Concept Lighting Plan.~~ o Photomontages to illustrate the development proposal as accurately as possible and produced in accordance with the NSW Land and Environment Court's Use of Photomontages document as available on their website. In addition, the photomontages are to:

Documentation
– Be approximately from the following locations indicated in **Figure 2**: Viewpoints B and D applicable to the Southern Site and Viewpoints E and G applicable to the Northern Site. In addition, a photomontage is to be included from wherever the main access will be from the Oxley Highway, looking into the site. – Photomontages are to include ~~an image of the existing situation,~~ an image of the development immediately following construction (i.e. with any new landscaping shown as immature) and at approximately 5-7 years post construction (i.e. showing new landscaping with estimated growth likely to be achieved in that timeframe).

Vehicular access (also refer DCP Part 2.5)
Objective • To plan and locate access so that the Southern Site and the Northern Site are both considered and that the arrangement does not negatively constrain future development options or lead to an unfair burden in terms of cost.
Development Provisions a) In consultation with Council and the Roads and Maritime Services, ~~plan for~~ a four-way intersection ~~along~~ will need to be provided at the intersection of the Oxley Highway with Billabong Drive ~~that will~~ to service the likely future needs of ~~both the Southern Site and the Northern Site.~~ development to the north and south of the Oxley Highway. The intersection design will need to be approved by the NSW Roads and Maritime Services and Council. b) Prior to development of the Southern Gateway Site, provide detailed information demonstrating that the 'Access Land Dedication Land' referred to in the Highway Service Centre Planning Agreement is appropriately located and can be constructed to current AUS SPEC standards.

Site layout and boundary treatment
Objective • To achieve a well-considered layout that nestles the built elements and any parking areas within a generously landscaped environment. • To ensure an attractive site boundary is achieved which balances a commercial need for highway exposure with a public expectation of a 'gateway' that is of high scenic quality and retains the most desired elements of the existing landscape character.
Development Provisions a) Locate car and truck parking areas so that extensive areas of hard pavement are broken-up and articulated with landscaping, different materials/colours and level changes and sites buildings so as to contribute to screening views of car parking from outside views. b) Provide a 40m minimum setback to all buildings from the Pacific Highway frontage, and 20m from the Oxley Highway frontage. The general requirements for this setback in terms of landscaping and the siting of hard surface areas is shown diagrammatically in **Figures 3 and 4**. If it can be shown that the Roads and Maritime Services can guarantee the retention of the majority of large trees within the existing road reserves along the highway boundaries in the long term (over 20 years) then consideration could be given to reducing the requirement for the Pacific Highway boundary setback to 20m, including a reduced landscape buffer to 10m. Such a scenario and its implications would need to be negotiated with Council.

Site layout and boundary treatment

a) In consultation with Council and the Roads and Maritime Services, road access points from either the Pacific Highway or Oxley Highway are to be designed, as far as possible, to maintain the natural integrity of existing landform, vegetation and drainage systems. Structural drainage elements should be used in preference to mass fill embankments.

Landform considerations (also refer DCP Part 2.3)

Objective

- To ensure that any development responds sensitively to the existing landform of the site and seeks to minimise visual impacts as far as possible.

Development Provisions

a) Any batters and retaining walls must be treated to reduce visual impacts and stabilise the landform.

b) As a general rule, batters should be kept to a maximum gradient of 1V:2.5H (i.e. 1m vertical to 2.5m horizontal) and terraced so as to avoid a high single batter and allow trees of at least 5m mature height to be established on the terraces and base of the batter. Total maximum vertical height of any batter to be 8m.

c) Excessive retaining walls are to be avoided, with a maximum height of 8m permitted.

d) Alternative batter and retaining wall treatments may be considered providing that it is clearly shown that the objective of this provision is achieved.

Landscape works (also refer DCP Part 3.4)

Objective

- To achieve a final landscape that is attractive, has generous areas of landscape planting and provides aesthetic and general amenity benefits such as shade.
- To create parking areas that are as attractive as possible and provide shade.

Development Provisions

a) Within the setback along the Pacific Highway and Oxley Highway boundaries design for a corridor of vegetation along the boundary of at least 15m wide (at ground level) for the Pacific Highway frontage and 10m wide for the Oxley Highway frontage.

The corridor is to apply to at least ~~75~~60% of the length of the boundary with coverage of at least one plant per m2.

Design for a mix of: 20% canopy trees (with a mature height over 20m); 30% mid-storey shrubs/small trees (mature heights 3–10m); and a 50% understorey of small shrubs/groundcovers (mature heights under 3m).

Canopy trees are to be relatively evenly spread; yet mid-storey shrubs/small trees may be grouped as appropriate if a glimpse through vegetation from highways is desired.

b) Once plants are well-established, if increased highway exposure is desired it should be achieved by:
   - Selective pruning of lower tree limbs up to a maximum height of 6m
   - Ongoing management of existing and new vegetation.

Landscape works (also refer DCP Part 3.4)
c) Design for a mix of garden areas, tree groups (of 10-20m in mature height) and open grassed areas that combined, produce pleasant spaces for public seating and use, shade, separation of different use areas and variety. Any proposal for a highway service centre should include consideration of opportunities for public recreation facilities in conjunction with the highway service centre use.
d) Select plant species that are suitable for the growing environment and relatively low maintenance. The majority of plant species are to be locally native species. Exotic species may be suitable in certain locations, particularly those with some cultural relationship to the local area that can be used to draw attention to parts of the site, or for playgrounds and public seating areas.
e) Within parking areas, d~~D~~evelopment should include supply, installation and maintenance of at least one advanced (minimum height of 2m at planting) clear trunked broad canopy tree (with a minimum mature height of approx. 10m) for every ~~six~~ eight at-grade car parking spaces and one for ~~each~~ every three truck parking spaces.
f) Each landscape planting area should include at least one medium to large tree species with suitable ground covers or low shrubs below and have a minimum width of 3m and include measures to protect trees from vehicle damage.

Built form
Objective • Achieve a high-quality built form design with demonstrated architectural merit and attention to detail. • Ensure that the height of buildings does not cause negative visual impact or overly dominate the surrounding character of the local landscape. • Ensure signage achieves a balance between providing appropriate directions and notification to travellers yet does not overly dominate the surrounding character of the local landscape. • Provide for a high quality of amenity for site users. • Provide for an integrated and site appropriate lighting scheme. • Avoid the dominance of fencing and create an attractive site.
Development Provisions a) Design a suite of buildings and structures with a complementary visual relationship that are of a high-quality architectural design. b) Consider the roof form, particularly when viewed from the Pacific Highway and Oxley Highway. Design a roof form that is aesthetically pleasing and of elegant form. c) Consider building articulation, architectural features and the presentation of the façade. Buildings with minimal articulation will not be accepted. d) The location of loading bays, garbage storage and collection should be such that these cannot be seen from the Pacific or Oxley Highways. e) Buildings should not be visible above the dominant existing and future tree-line (i.e. approx. 20m) when viewed from the locations indicated in **Figure 2**: Viewpoints B, D and H applicable to the Southern Site and Viewpoints E, F and G applicable to the Northern Site. f) Signage is required to satisfy State Environmental Planning Policy 64 - Advertising and Signage. In addition, proposed signage should be shown in the photomontages and be demonstrated to achieve the objectives of this area based DCP.

Built form
g) In general, signs should not be visible above the dominant existing tree-line (evident at the time of this DCP commencing, i.e. mature trees in place alongside highway boundaries) when viewed from the locations indicated in **Figure 2**: Viewpoints B and D applicable to the Southern Site and Viewpoints E and G applicable to the Northern Site. If the majority of trees within the highway reserve are removed, then a maximum permitted height of ~~10m~~ 15m applies.
h) Balance the type and level of lighting to address the safety and needs of users, the potential for negative visual impact to surrounding viewpoints and any desire for highway exposure.
i) Sensitively designed lighting could be used to enhance the gateway role of the sites, particularly along the highway edges, yet the effect and potential visual impact would need to be demonstrated to be aesthetically pleasing and have a public benefit.
j) Avoid fencing where unnecessary, and where unavoidable, use aesthetically pleasing alternatives in terms of materials, colours, lower heights and integrated landscaping such as planting and mounding.

Public art
Objective • To make a positive contribution to the built environment of the Port Macquarie-Hastings region and promote the inclusion and integration of public art work that responds to and reflects the local culture and character, including the area's indigenous cultural history and traditions, European heritage and contemporary culture, as well as the area's unique natural environment. • Ensure any new intersection along the Oxley Highway is attractive and consider the potential to create a design that acknowledges this location as part of the approach to Wauchope.
Development Provisions a) The development should provide quality artwork(s) in publicly accessible location(s) and take into account links and connections between the development and the area's natural and cultural heritage. b) The public art is to be 1% of the total cost of the development to provide works of art for appreciation from the public domain, including the Pacific Highway and/or the Oxley Highway (NSW Roads & Maritime Services approval may be required). c) Specifically designed lighting may be appropriate as either an integral part of any public art or to highlight it. d) In consultation with Council, develop an appropriate response to the Oxley Highway intersection that could include specific landscape planting and/or a public art element.

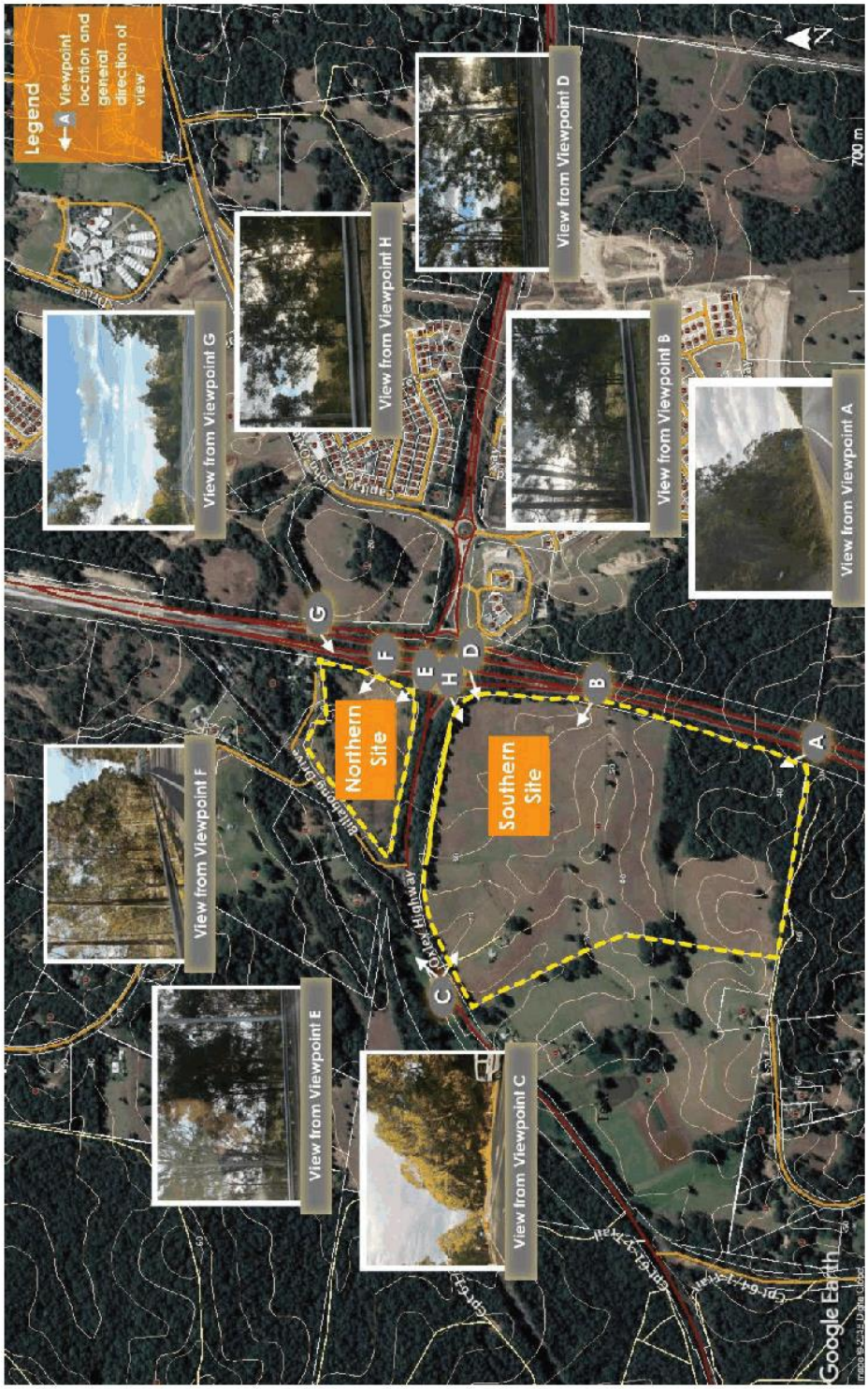


Figure 2: Main viewpoint locations to Gateway

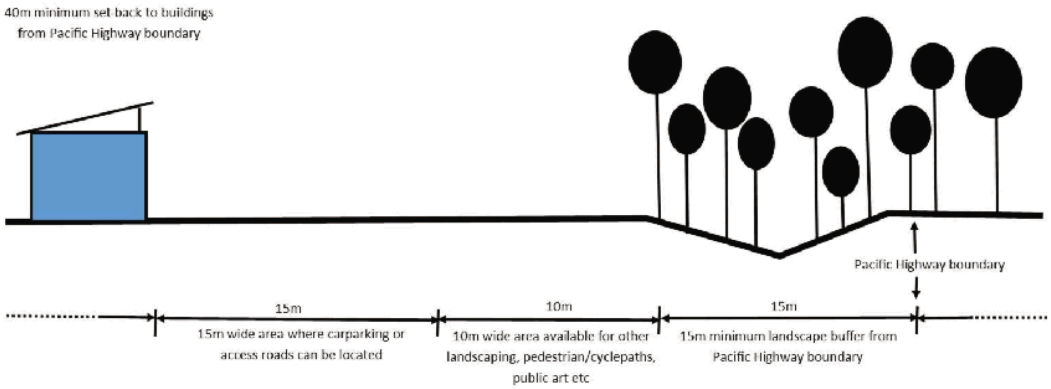


Figure 3: Conceptual diagram of Pacific Highway boundary treatment

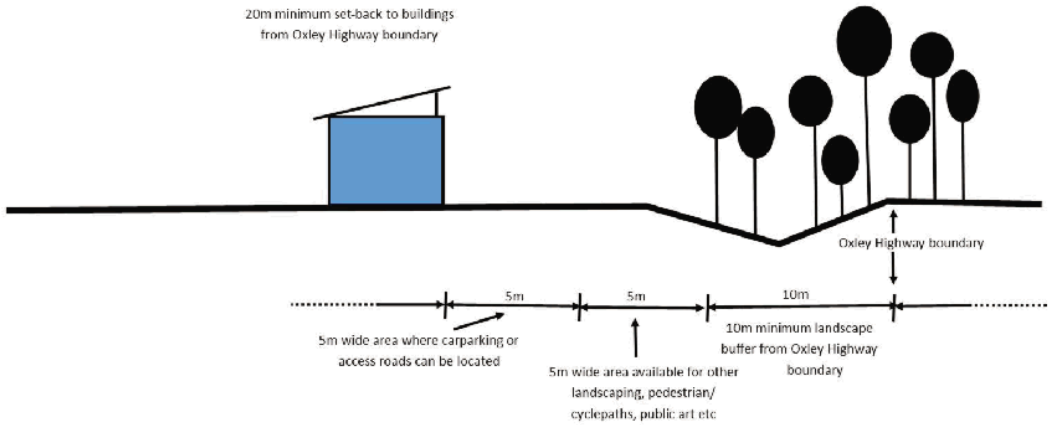


Figure 4: Conceptual diagram of Oxley Highway boundary treatment

FOR USE BY PLANNERS/SURVEYORS TO PREPARE LIST OF PROPOSED CONDITIONS - 2011

NOTE: THESE ARE DRAFT ONLY

DA NO: 2018/353 **DATE: 9/05/2019**

PRESCRIBED CONDITIONS

The development is to be undertaken in accordance with the prescribed conditions of Part 6 - Division 8A of the *Environmental Planning & Assessment Regulations* 2000.

A – GENERAL MATTERS

(1) (A001) The development is to be carried out in accordance with the plans and supporting documents set out in the following table, as stamped and returned with this consent, except where modified by any conditions of this consent.

Plan / Supporting Document	Reference	Prepared by	Date
Statement of Environmental Effects	17 Clarence Street	David Pensini	June 2018
Development plans as stamped	1806	Wayne Ellis Architect	12 September 2018 and 10 May 2019

In the event of any inconsistency between conditions of this development consent and the plans/supporting documents referred to above, the conditions of this development consent prevail.

(2) (A002) No work shall commence until a Construction Certificate has been issued and the applicant has notified Council of:

a. the appointment of a Principal Certifying Authority; and

b. the date on which work will commence.

Such notice shall include details of the Principal Certifying Authority and must be submitted to Council at least two (2) days before work commences.

(3) (A008) Any necessary alterations to, or relocations of, public utility services to be carried out at no cost to council and in accordance with the requirements of the relevant authority including the provision of easements over existing and proposed public infrastructure.

(4) (A009) The development site is to be managed for the entirety of work in the following manner:

1. Erosion and sediment controls are to be implemented to prevent sediment from leaving the site. The controls are to be maintained until the development is complete and the site stabilised with permanent vegetation;
2. Appropriate dust control measures;
3. Building equipment and materials shall be contained wholly within the site unless approval to use the road reserve has been obtained. Where work

adjoins the public domain, fencing is to be in place so as to prevent public access to the site;

4. Building waste is to be managed via an appropriate receptacle;
5. Toilet facilities are to be provided on the work site at the rate of one toilet for every 20 persons or part of 20 persons employed at the site.
6. Building work being limited to the following hours, unless otherwise permitted by Council;
   - Monday to Saturday from 7.00am to 6.00pm
   - No work to be carried out on Sunday or public holidays

   The builder to be responsible to instruct and control his sub-contractors regarding the hours of work.

(5) (A011) The design and construction of all public infrastructure works shall be in accordance with Council's adopted AUSPEC Specifications.

(6) (A014) This approval does not provide any indemnity to the owner or applicant under the Disability Discrimination Act 1992 with respect to the provision of access and facilities for people with disabilities.

(7) (A017) A separate development application for any proposed advertising signs (other than signs which are exempt development or approved under this consent) must be submitted to and approved by council prior to the erection or display of any such signs.

(8) (A030) The restoration of any vehicle access rendered redundant by the development, to standard kerb and footpath formation at no cost to Council, in accordance with Council's current AUSPEC Specifications and Standards. All works must be approved by Council pursuant to Section 138 of the Roads Act.

(9) (A032) The developer is responsible for any costs relating to minor alterations and extensions to ensure satisfactory transitions of existing roads, drainage and Council services for the purposes of the development.

(10) (A033) The applicant shall provide security to the Council for the payment of the cost of the following:

a. making good any damage caused to any property of the Council as a consequence of doing anything to which the consent relates,
b. completing any public work (such as road work, kerbing and guttering, footway construction, utility services, stormwater drainage and environmental controls) required in connection with the consent,
c. remedying any defects in any such public work that arise within twelve (12) months after the work is completed.

Such security is to be provided to Council prior to the issue of the Subdivision Certificate/Construction Certificate or Section 138 of the Roads Act, 1993.

The security is to be for such reasonable amount as is determined by the consent authority, being an amount that is 10% of the contracted works for Torrens Title subdivision development/the estimated cost plus 30% for building development of public works or $5000, whichever is the greater of carrying out the development by way of:

i. deposit with the Council, or
ii. an unconditional bank guarantee in favour of the Council.

The security may be used to meet any costs referred to above and on application being made to the Council by the person who provided the security any balance remaining is to be refunded to, or at the direction of, that person.

Should Council have to call up the bond and the repair costs exceed the bond amount, a separate invoice will be issued. If no application is made to the Council for a refund of any balance remaining of the security within 6 years after the work to which the security relates has been completed the Council may pay the balance to the Chief Commissioner of State Revenue under the Unclaimed Money Act 1995.

(11) (A049) The existing footpath/verge area in Clarence Street is to be raised to contain stormwater in the street. Design plans must be approved by Port Macquarie-Hastings Council pursuant to Section 138 of the Roads Act 1993.

(12) (A195) Prior to the preparation of any engineering plans or submission of any applications for construction to Council, the applicant is to contact Councils Engineering Development to ensure any design accords with Town Centre Master Plan works already carried out on Clarence Street across the subject property frontage. Works to be carried out as part of this development include raising verge, carriageway and kerb levels to improve surface drainage conditions for the full frontage of the development.

(13) B196) Each apartment and commercial unit will require individual water metering with the meters either located on the road frontage or at the unit with remote reading facility located adjacent to the road frontage or in an easily accessible area such as a foyer. Details to be provided as part of the section 68 application.

(14) Development consent shall be sought for the first use of the ground floor commercial tenancy 1.

B – PRIOR TO ISSUE OF A CONSTRUCTION CERTIFICATE

(1) (B001) Prior to release of the Construction Certificate, approval pursuant to Section 68 of the Local Government Act, 1993 to carry out water supply, stormwater and sewerage works is to be obtained from Port Macquarie-Hastings Council. The following is to be clearly illustrated on the site plan to accompany the application for Section 68 approval:

- Position and depth of the sewer (including junction)
- Stormwater drainage termination point
- Easements
- Water main
- Proposed water meter location

(2) (B003) Submission to the Principal Certifying Authority prior to the issue of a Construction Certificate detailed design plans for the following works associated with the developments. Public infrastructure works shall be constructed in accordance with Port Macquarie-Hastings Council's current AUSPEC specifications and design plans are to be accompanied by AUSPEC DQS:

1. Road works along the frontage of the development.
2. Public parking areas including;
   a. Driveways and access aisles;
   b. Parking bays;
   c. Delivery vehicle service bays & turning areas in accordance with AS2890.
3. Sewerage reticulation. Council records indicate that the development site is connected to sewer via an end of line connection in the north western corner of the lot. A sewer reticulation supply strategy shall be submitted as part of the infrastructure construction certificate.

4. Water supply plans shall include hydraulic plans for internal water supply services and associated works in accordance with AS 3500, Plumbing Code of Australia and Port Macquarie-Hastings Council Policies. Final water service sizing will need to be assessed by a hydraulic consultant to suit the commercial, domestic and fire service components of the proposed development, as well as backflow protection requirements.
5. Retaining walls
6. Stormwater systems.
7. Erosion and Sediment controls.
8. Location of all existing and proposed utility services including:
    a. Conduits for electricity supply and communication services (including fibre optic cable).
    b. Water supply
    c. Sewerage
    d. Stormwater
9. Traffic Management Control Plan.
10. Erection of hoardings and buildings in and/over the public road verge.
11. Landscaping.
12. Detailed driveway profile in accordance with Australian Standard 2890, AUSPEC D1, and ASD 202 and ASD 207, Port Macquarie-Hastings Council current version.
13. All roadworks along the full frontage including full width paving, lighting and any necessary kerb construction or reconstruction in accordance with the current Town Centre Master Plan.
14. Provision of a full width concrete footpath across the full road frontage of the property.

(3) (B006) An application pursuant to Section 138 of the Roads Act, 1993 to carry out works required by the Development Consent on or within public road is to be submitted to and obtained from Port Macquarie-Hastings Council prior to release of the Construction Certificate.

Such works include, but not be limited to:

- Civil works
- Traffic management
- Work zone areas
- Hoardings
- Concrete foot paving
- Footway and gutter crossing
- Functional vehicular access

(4) (B009) The applicant shall surrender the consents relating to DA No.2016/149 for Shop Top Housing, DA No. 2015/332 for car park associated with shop top housing and DA No.2014/410 for shop top housing at Lot 123 DP 1219042 by submitting an application for "Surrender of a Consent" to Council in accordance with the Environmental Planning and Assessment Regulation 2000, prior to release of the Construction Certificate.

(5) (B010) Payment to Council, prior to the issue of the Construction Certificate of the Section 94 contributions set out in the "Notice of Payment – Developer Charges" schedule attached to this consent unless deferral of payment of contributions has been approved by Council. The contributions are levied, pursuant to the Environmental

Planning and Assessment Act 1979 as amended, and in accordance with the provisions of the following plans:

- Port Macquarie-Hastings Administration Building Contributions Plan 2007
- Hastings S94 Administration Levy Contributions Plan
- Port Macquarie-Hastings Contributions Plan 1993

  - Part C – Car Parking
- Port Macquarie-Hastings Open Space Contributions Plan 2018
- Hastings S94 Major Roads Contributions Plan
- Port Macquarie-Hastings Community Cultural and Emergency Services Contributions Plan 2005

The plans may be viewed during office hours at the Council Chambers located on the corner of Burrawan and Lord Streets, Port Macquarie, 9 Laurie Street, Laurieton, and High Street, Wauchope.

The attached "Notice of Payment" is valid for the period specified on the Notice only. The contribution amounts shown on the Notice are subject to adjustment in accordance with CPI increases adjusted quarterly and the provisions of the relevant plans. Payments can only be made using a current "Notice of Payment" form. Where a new Notice of Payment form is required, an application in writing together with the current Notice of Payment application fee is to be submitted to Council.

(6) (B011) As part of Notice of Requirements by Port Macquarie-Hastings Council as the Water Authority under Section 306 of the Water Management Act 2000, the payment of a cash contribution, prior to the issue of a Construction Certificate, of the Section 64 contributions, as set out in the "Notice of Payment – Developer Charges" schedule attached to this consent unless deferral of payment of contributions has been approved by Council. The contributions are levied in accordance with the provisions of the relevant Section 64 Development Servicing Plan towards the following:

- augmentation of the town water supply headworks
- augmentation of the town sewerage system headworks

(7) (B024) Submission to Council of an application for water meter hire, which is to be referred to the Water Supply section so that a quotation for the installation can be prepared and paid for prior to the issue of a Construction Certificate. This application is also to include an application for the disconnection of any existing service not required.

(8) (B032) Details of the proposed slab/flooring and wall construction for structural independency are to be submitted to the Principal Certifying Authority prior to issue of the Construction Certificate.

(9) (B034) Prior to release of the Construction Certificate the submission of details to Council for the disposal of any spoil gained from the site and/or details of the source of fill, heavy construction materials and proposed routes to and from the site, including, but not limited to:

- The pavement condition of the route/s proposed (excluding collector, sub-arterial and arterial roads) for the haulage of fill material to the site and/or haulage of excess material from the site. The condition report shall include photographs of the existing pavement and pavement deflection test results taken in the travel lanes;
- Recommended load limits for haulage vehicles and;

- A procedure for monitoring the condition of the pavement during the haulage;
- Bond to guarantee public infrastructure is not damaged as a result of construction activity,

and;

Council shall determine the need for and extent of any rectification work on the haulage route/s considered attributable by the haulage of materials to and/or from the site.

(10) (B038) Footings and/or concrete slabs of buildings adjacent to sewer lines or stormwater easements are to be designed so that no loads are imposed on the infrastructure. Detailed drawings and specifications prepared by a practising chartered professional civil and/or structural engineer are to be submitted to the Principal Certifying Authority with the application for the Construction Certificate.

(11) (B041) Prior to the issue of the Construction Certificate a dilapidation report shall be prepared by a suitably qualified person for buildings on adjoining properties. Such report shall be furnished to the Principal Certifying Authority.

(12) (B042) A certificate from an approved practising chartered professional civil and/or structural engineer certifying the structural adequacy of the proposed retaining structures supporting the road reserve is to be submitted to Port Macquarie-Hastings Council prior to the release of the building Construction Certificate.

(13) (B045) A schedule of existing and proposed fire safety measures is to be submitted to the Principal Certifying Authority with the application for the Construction Certificate.

(14) (B072) A stormwater drainage design is to be submitted and approved by Council prior to the issue of a Construction Certificate. The design must be prepared in accordance with Council's AUSPEC Specifications and the requirements of Relevant Australian Standards and make provision for the following:

a) The legal point of discharge for the proposed development is defined as Council's piped drainage system.

   In this regard, Council's piped drainage system must be extended by an appropriately sized pipeline to the frontage of the site to allow direct piped connection from the development site into the public drainage system.

   The pipeline must be designed to have the capacity to convey flows that would be collected at that section of street as generated by a 20 year Average Recurrence Interval storm event.

b) The design is to be generally in accordance with the preliminary stormwater drainage concept plan being drawing No 2018-51 prepared by David Johnson Consulting Engineer and dated 21 June 2018.

c) The design shall incorporate on-site stormwater detention facilities to limit site stormwater discharge to pre development flow rates for all storm events up to and including the 100 year ARI event. Note that pre development discharge shall be calculated assuming that the site is a 'greenfield' development site as per AUSPEC requirements.

d) Where works are staged, a plan is to be provided which demonstrates which treatment measures are to be constructed with which civil works stage. Separate plans are required for any temporary treatment (where applicable e.g. for building phase when a staged construction methodology is adopted) and ultimate design.

e) An inspection opening or stormwater pit must be installed inside the property, adjacent to the boundary, for all stormwater outlets.

f) The design shall provide details of any components of the existing stormwater drainage system servicing the site that are to be retained.

(15) (B053) The design of the carpark and accesses is to be in accordance with Australian Standard 2890 (including AS 2890.1, AS 2890.2 and AS 2890.6). Certification of the design by a suitably qualified consultant is to be provided to the Principal Certifying Authority prior to release of the Construction Certificate.

(16) (B054) A driveway longitudinal section shall accompany the section 138 application pursuant to section 138 of the *Roads Act, 1993*. The section shall demonstrate compliance with Council's adopted AUSPEC Design and Construction Guidelines.

(17) (B071) Prior to the issue of any Construction Certificate, the provision of water and sewer services to the land are to be approved by the relevant Water Authority and relevant payments received.

(18) (B195) The building Construction Certificate shall not be issued over any part of the site requiring a controlled activity approval (i.e. dewatering) until a copy of the approval has been provided to Council.

C – PRIOR TO ANY WORK COMMENCING ON SITE

(1) (C001) A minimum of one (1) week's notice in writing of the intention to commence works on public land is required to be given to Council together with the name of the principal contractor and any major sub-contractors engaged to carry out works. Works shall only be carried out by a contractor accredited with Council.

(2) (C003) A controlled activity approval shall be obtained from the airport operator for any crane that may be used during the construction phase that would penetrate the Obstacle Limitation Surface (OLS). To avoid any doubt as to whether an approval is required, applicants should check with the airport operator at the earliest possible stage.

(3) (C004) Prior to works commencing an application being made to the electricity and telecommunications service providers. Services are required to be underground.

(4) (C013) Where a sewer manhole and Vertical Inspection Shaft exists within a property, access to the manhole/VIS shall be made available at all times. Before during and after construction, the sewer manhole/VIS must not be buried, damaged or act as a stormwater collection pit. No structures, including retaining walls, shall be erected within 1.0 metre of the sewer manhole or located so as to prevent access to the manhole.

(5) The proponent is to prepare a construction management plan which includes the following at a minimum:

- Schedule of works and approximate timing;

- Contact number for construction site supervisor/manager; and

- Mechanism for providing a minimum of 24 hours' notice to immediately adjoining land owners of scheduled noisy works.

D – DURING WORK

(1) (D001) Development works on public property or works to be accepted by Council as an infrastructure asset are not to proceed past the following hold

points without inspection and approval by Council. Notice of required inspection must be given 24 hours prior to inspection, by contacting Council's Customer Service Centre on (02) 6581 8111. You must quote your Construction Certificate number and property description to ensure your inspection is confirmed:

a. prior to commencement of site clearing and installation of erosion control facilities;
b. at completion of installation of erosion control measures
c. prior to installing traffic management works
d. at completion of installation of traffic management works
e. at the commencement of earthworks;
f. when the sub-grade is exposed and prior to placing of pavement materials;
g. when trenches are open, stormwater/water/sewer pipes and conduits jointed and prior to backfilling;
h. at the completion of each pavement (sub base/base) layer;
i. before pouring of kerb and gutter;
j. prior to the pouring of concrete for sewerage works and/or works on public property;
k. on completion of road gravelling or pavement;
l. during construction of sewer infrastructure;
m. during construction of water infrastructure;
n. prior to sealing and laying of pavement surface course.

All works at each hold point shall be certified as compliant in accordance with the requirements of AUSPEC Specifications for Provision of Public Infrastructure and any other Council approval, prior to proceeding to the next hold point.

(2) (D010) Reduced levels prepared by a registered surveyor must be submitted to the Principal Certifying Authority at the completion of the roof framework and include certification that building heights comply with the plans approved with the development consent.

(3) (D015) The swimming pool shall not to be filled with water until a safety fence/barrier complying with the current Swimming Pools Act and Regulations has been installed and an inspection has been carried out and approval given by the Principal Certifying Authority.

(4) (D016) Where depth of water in the pool exceeds 300mm during construction a temporary barrier or fence in accordance with the current Swimming Pools Act and Regulations is to be erected or other precaution taken so as to prevent entry of children into the pool.

(5) (D046) Should any historical relics be unexpectedly discovered in any areas of the site not subject to an excavation permit, then all excavation or disturbance to the area is to stop immediately and the Heritage Council of NSW is to be informed in accordance with Section 146 of the *Heritage Act 1977*.

E – PRIOR TO OCCUPATION OR THE ISSUE OF OCCUPATION CERTIFICATE

(1) (E001) The premises shall not be occupied or used in whole or in part until an Occupation Certificate has been issued by the Principal Certifying Authority.

(2) (E005) Prior to the release of any bond securities held by Council for infrastructure works associated with developments, a formal written

application is to be submitted to Council specifying detail of works and bond amount.

(3) (E010) Driveways, access aisles and parking areas shall be provided with a concrete surface. Such a surface shall be on a suitable pavement, constructed and maintained in accordance with Council's Development, Design and Construction Manuals (as amended).

(4) (E016) Prior to occupation or the issue of the Occupation Certificate (or Interim Occupation Certificate) the owner of the building must cause the Principal Certifying Authority to be given a fire safety certificate (or interim fire safety certificate in the case of a building or part of a building occupied before completion) in accordance with Clause 153 of the Environmental Planning and Assessment Regulation 2000 for each measure listed in the schedule. The certificate must only be in the form specified by Clause 174 of the Regulation. A copy of the certificate is to be given to the Commissioner of the New South Wales Fire Brigade and a copy is to be prominently displayed in the building.

(5) (E021) Pool to be fenced in accordance with the Swimming Pools Act, 1992.

(6) (E022) Depth markers are to be installed on the swimming pool.

(7) (E030) Vehicle ramps, driveways, turning circles and parking spaces being paved, sealed and line marked prior to occupation or the issue of the Occupation Certificate or commencement of the approved land use.

(8) (E034) Prior to occupation or the issuing of the Occupation (Final or Interim) provision to the Principal Certifying Authority of documentation from Port Macquarie-Hastings Council being the local roads authority certifying that all matters required by the approval issued pursuant to Section 138 of the Roads Act have been satisfactorily completed.

(9) (E040) Each onsite detention system is to be marked by a plate in a prominent position which states:

"This is an onsite detention system. It is an offence to reduce the volume of the tank or basin or interfere with any part of the structure that controls the outflow".

This plate is to be fixed into position prior to occupation or the issue of the Occupation or Subdivision Certificate.

(10) (E046) Prior to the issue of an Occupation Certificate, a positive covenant is to be created under Section 88E of the Conveyancing Act 1919, burdening the owner(s) with the requirement to maintain the on-site stormwater detention facilities on the property.

The terms of the 88E instrument with positive covenant shall include, but not be limited to, the following:

a. The Proprietor of the property shall be responsible for maintaining and keeping clear all pits, pipelines, trench barriers and other structures associated with the on-site stormwater detention facilities ("OSD").

b. The Proprietor shall have the OSD inspected annually by a competent person.

c. The Council shall have the right to enter upon the land referred to above, at all reasonable times to inspect, construct, install, clean, repair and maintain in good working order all pits, pipelines, trench barriers and other structures in or upon the said land which comprise the OSD or which convey stormwater from the said land; and recover the costs of any such works from the proprietor.

d. The registered proprietor shall indemnify the Council and any adjoining land owners against damage to their land arising from the failure of any component of the OSD, or failure to clean, maintain and repair the OSD.

The proprietor or successor must bear all costs associated in the preparation of the subject 88E instrument. Evidence of registration with the Lands and Property Information NSW shall be submitted to and approved by the Principal Certifying Authority prior to the issue of an Occupation Certificate.

(11) (E049) A final Dilapidation Report including a photographic survey must be submitted after the completion of works. A copy of this Dilapidation Report together with the accompanying photographs must be given to the adjoining property owners. A copy must be submitted to Council and the Principal Certifying Authority prior to the issue of an Occupation Certificate.

Any damage identified in the Dilapidation Report must be fully rectified by the applicant or owner at no cost to the Council prior to the issue of an Occupation Certificate.

(12) (E051) Prior to occupation or the issuing of any Occupation Certificate a section 68 Certificate of Completion shall be obtained from Port Macquarie-Hastings Council.

(13) (E053) All public infrastructure works shall be certified by a practicing Civil Engineer or Registered Surveyor as compliant with the requirements of AUSPEC prior to issue of Occupation Certificate or release of the security bond, whichever is to occur first.

(14) (E056) A Certificate of Compliance under the provisions of Section 307 of the *Water Management Act* must be obtained prior to the issue of any occupation or subdivision certificate.

(15) (E061) Landscaped areas being completed prior to occupation or issue of the Occupation Certificate. Public landscaping may be bonded as agreed to by Council.

(16) (E062) Prior to occupation or the issue of any Occupation Certificate, evidence must be provided to the Principal Certifying Authority that satisfactory arrangements are in place for collection of general waste (rubbish), recycling and food and garden organics from the premises by a private waste contractor. All wastes are to be collected as separate waste streams.

(17) (E068) Prior to the issue of an Occupation Certificate, evidence to the satisfaction of the Certifying Authority from the electricity and telecommunications providers that satisfactory services arrangements have been made to the development (including street lighting and fibre optic cabling where required).

(18) (E082) Submission of a compliance certificate accompanying Works as Executed plans with detail included as required by Council's current AUSPEC Specifications. The information is to be submitted in electronic format in accordance with Council's "CADCHECK" requirements detailing all infrastructure for Council to bring in to account its assets under the provisions of AAS27. This information is to be approved by Council prior to issue of the Subdivision or Occupation Certificate. The copyright for all information supplied, shall be assigned to Council.

(19) A roof top management plan for use of the rooftop space is to be prepared and approved by Port Macquarie-Hastings Council prior to the issue of any occupation certificate.

(20) Parking spaces numbered 55 to 58 shall be clearly marked and sign posted as staff parking.

F – OCCUPATION OF THE SITE

(1) (F003) All loading and unloading operations associated with servicing the site must be carried out within the confines of the site, at all times and must not obstruct other properties/units or the public way.

(2) (F005) The units are approved for short term accommodation.

(3) (F010) Within each 12 months after completion of the building, the owner of the building must cause Council to be given an annual fire safety statement in accordance with Clause 177 of the Environmental Planning and Assessment Regulation 2000 for each measure listed in the schedule. The statement must only be in the form specified by clause 181 of the Regulation. A copy of the statement is to be given to the Commissioner of the New South Wales Fire Brigade and a copy is to be prominently displayed in the building.

(4) (F025) Hours of operation of the motel reception is restricted to the following hours:

- 7am to 9pm – Seven days a week.

(6) (F027) The swimming pool filtration motor shall be operated between the following hours only:

Monday to Friday (other than a public holiday)
7.00 am – 8.00 pm

Saturday to Sunday and Public Holidays
8.00 am – 8.00 pm

Should noise levels exceed 5dBA above the ambient noise level measured at the boundary, the pool filtration motor shall be enclosed with an effective soundproof unit.

(7) (F036) Any exterior lighting on the site shall be designed and installed so as not to cause a nuisance or adverse impact on the amenity of the surrounding area by light overspill. The lighting shall be the minimum level of illumination necessary for safe operation and must be designed, installed and used in accordance with AS 4282 - 1997 control of the obtrusive effects of outdoor lighting. No flashing, moving or intermittent lighting is permitted on the site.

(8) The approved plan of management for use of the rooftop space is to be displayed in a prominent position on the rooftop at all times.

(9) A noise/nuisance complaints register must be kept up to date at all times by management and must be made available to Council on request. The register must contain:

- Complaint date and time;
- Name of person making the complaint;
- Contact details (phone and address) of person lodging the complaint;
- Nature of complaint;
- Name of staff managing the complaint;
- Action taken (by whom and when); and
- Outcome and or further action required;
- A telephone number is to be provided on the front of the building to enable the public to register a complaint with the property manager.

DRAFT

Justification of Variation to Development Standard Floor Space Ratio –

Report Pursuant to Clause 4.6 of Port Macquarie–Hastings Local Environmental Plan (2011)

PROPOSED TOURIST ACCOOMMODATION & COMMERCIAL DEVELOPMENT AT 17 - 19 CLARENCE STREET, PORT MACQUARIE NSW

SEPTEMBER 2018

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1. INTRODUCTION

1.1 Purpose of Report

This report has been prepared to accompany a development application which seeks approval for the construction of a mixed tourist accommodation and commercial development at Lot 123 DP 1219042, 17 Clarence Street, Port Macquarie.

Figure 1 – Site Location

The purpose of this report is to provide justification for a variation to the Floor Space Ratio provisions of Port Macquarie-Hastings Councils Local Environmental Plan, (LEP) 2011 for the mixed-use development which is proposed to be undertaken on the subject site.

1.2 Background

The proposed includes the construction of a seven (7) storey tourist accommodation and commercial residential flat building with a basement level to accommodate onsite carparking.

A commercial tenancy, (195m^2), together with the tourist accommodation reception and building access infrastructure, (vehicle and pedestrian), will occupy the ground floor of the building. Twenty-one (21) carparking spaces together with, loading dock, amenity and waste management storage areas are also proposed for this level.

Motel/Serviced Apartment accommodation comprising 48 apartments and associated infrastructure are distributed over Levels 1 – 7 of the building. The proposed development provides for the following apartment configuration;

- 4 x 3 bedroom/2-bathroom apartments (twin key); and
- 27 x 2 bedroom/2-bathroom apartments (twin key); and
- 12 x 2 bedroom/2-bathroom apartments; and
- 5 x 1-bedroom apartment.

The usage arrangements of the proposed apartments provide for a maximum of 79 lettable apartments.

Each apartment is proposed to be provided with lift access. Each of the proposed apartments will be provided with an external balcony. The floor areas of the apartments are variable ranging from 48m^2 to 106.4m^2.

A single basement level of car parking, (providing forty (40) spaces), is proposed with access via a single vehicular driveway off Clarence Street via the ground floor of the building. As well as the car parking areas the basement levels will include general and dedicated service areas for the development. Lift access to the basement level is proposed.

The proposed development also provides for motel/serviced apartment ancillary use areas on Level 7 of the proposed development. In this regard a Conference Room, Gymnasium, BBQ area, amenities and a swimming pool are located on the top floor area of the development.

The subject site has approximately 2m fall from south to the north (from Clarence Street to the rear of the property). A 1m east to west cross fall is also present although the natural topography of the subject site has been altered as a result of the historic development of the subject site and recent demolition works. The topography of adjoining and adjacent land contains gentle south to north down slopes and a westerly cross-fall.

This report therefore provides justification as to why Port Macquarie-Hastings Council should support the variation to the buildings floor space ratio as proposed.

2. LEP 2011 REQUIREMENTS

2.1 Introduction

Port Macquarie – Hastings LEP 2011 specifies a number of principle development standards that are applicable for the erection of buildings in the Port Macquarie-Hastings Local Government Area.

In this regard Part 4 of the LEP provides for development standards related to;

- *Lot size;*
- *Rural Subdivision;*
- *Building Height;*
- *Floor Space Ratio;*

Being a "performance based" document the LEP provides for a series of objective together with specific design provisions that are 'Deemed to Satisfy' the performance objectives. Adoption of the specified design provisions would therefore provide for a building solution to be approved by Council as this specified solution is deemed to meet the relevant performance objectives.

However, Clause 4.6 of the LEP recognizes the need to allow for exceptions to the specified design provisions. In this regard Clause 4.6 (2) of the LEP provides that;

(2) Development consent may, subject to this clause, be granted for development even though the development would contravene a development standard imposed by this or any other environmental planning instrument. However, this clause does not apply to a development standard that is expressly excluded from the operation of this clause.

It is noted that issues pertaining to the floor space ratio of buildings is not expressly excluded from the operation of Clause 4.6.

In addition to establishing a framework for the consideration of exceptions to LEP development standards Clause 4.6 (3) – (5) of the LEP establishes the process by which exceptions to development standards are to be lodged, assessed and determined. The LEP which are applicable are as follows;

(3) Development consent must not be granted for development that contravenes a development standard unless the consent authority has considered a written request from the applicant that seeks to justify the contravention of the development standard by demonstrating:
(a) that compliance with the development standard is unreasonable or unnecessary in the circumstances of the case, and
(b) that there are sufficient environmental planning grounds to justify contravening the development standard.
(4) Development consent must not be granted for development that contravenes a development standard unless:
(a) the consent authority is satisfied that:
(i) the applicant's written request has adequately addressed the matters required to be demonstrated by sub clause (3), and
(ii) the proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out, and
(b) the concurrence of the Director-General has been obtained.
(5) In deciding whether to grant concurrence, the Director-General must consider:
(a) whether contravention of the development standard raises any matter of significance for State or regional environmental planning, and
(b) the public benefit of maintaining the development standard, and
(c) any other matters required to be taken into consideration by the Director-General before granting concurrence.

This report will provide justification for the variation of the acceptable design solution for the Floor Space Ratio of the proposed building having regard to the relevant provisions of the LEP.

2.2 Floor Space Ratio Development Standard

Clause 4.4 of the LEP provides that the floor space ratio of a building erected on the subject site is not to exceed 3.5:1, refer to **Figure 1** below;

Figure 2 – Floor Space Ratio 'Deemed to Satisfy' Standard for Subject site.

It is noted that Clause 4.5 of the LEP provides guidance on the calculation of the floor space ratio of a building as follows;

4.5 Calculation of floor space ratio and site area

(1) Objectives

The objectives of this clause are as follows:
*(a) to define **floor space ratio**,*

(b) to set out rules for the calculation of the site area of development for the purpose of applying permitted floor space ratios, including rules to:
(i) prevent the inclusion in the site area of an area that has no significant development being carried out on it, and
(ii) prevent the inclusion in the site area of an area that has already been included as part of a site area to maximise floor space area in another building, and
(iii) require community land and public places to be dealt with separately.

*(2) **Definition of "floor space ratio"***

*The **floor space ratio** of buildings on a site is the ratio of the gross floor area of all buildings within the site to the site area.*

*(3) **Site area***

*In determining the site area of proposed development for the purpose of applying a floor space ratio, the **site area** is taken to be:*
(a) if the proposed development is to be carried out on only one lot, the area of that lot, or
(b) if the proposed development is to be carried out on 2 or more lots, the area of any lot on which the development is proposed to be carried out that has at least one common boundary with another lot on which the development is being carried out.

In addition, subclauses (4)–(7) apply to the calculation of site area for the purposes of applying a floor space ratio to proposed development.

*(4) **Exclusions from site area***

The following land must be excluded from the site area:
(a) land on which the proposed development is prohibited, whether under this Plan or any other law,
(b) community land or a public place (except as provided by subclause (7)).

*(5) **Strata subdivisions***

The area of a lot that is wholly or partly on top of another or others in a strata subdivision is to be included in the calculation of the site area only to the extent that it does not overlap with another lot already included in the site area calculation.

*(6) **Only significant development to be included***

The site area for proposed development must not include a lot additional to a lot or lots on which the development is being carried out unless the proposed development includes significant development on that additional lot.

*(7) **Certain public land to be separately considered***

For the purpose of applying a floor space ratio to any proposed development on, above or below community land or a public place, the site area must only include an area that is on, above or below that

community land or public place, and is occupied or physically affected by the proposed development, and may not include any other area on which the proposed development is to be carried out.

(8) ***Existing buildings***

The gross floor area of any existing or proposed buildings within the vertical projection (above or below ground) of the boundaries of a site is to be included in the calculation of the total floor space for the purposes of applying a floor space ratio, whether or not the proposed development relates to all of the buildings.

(9) ***Covenants to prevent "double dipping"***

When development consent is granted to development on a site comprised of 2 or more lots, a condition of the consent may require a covenant to be registered that prevents the creation of floor area on a lot (the restricted lot) if the consent authority is satisfied that an equivalent quantity of floor area will be created on another lot only because the site included the restricted lot.

(10) ***Covenants affect consolidated sites***

If:
*(a) a covenant of the kind referred to in subclause (9) applies to any land (**affected land**), and*
(b) proposed development relates to the affected land and other land that together comprise the site of the proposed development, the maximum amount of floor area allowed on the other land by the floor space ratio fixed for the site by this Plan is reduced by the quantity of floor space area the covenant prevents being created on the affected land.

2.3 Development Standard Exemption Sought

It is noted that the size of the site is 1517.23m2 which provides that the floor space of a building on the subject site would need to be 5,310.30m^2 in order to be consistent with the development standard provided for by Clause 4.4 of the LEP (3.5:1 FSR).

It is noted that the floor area of the proposed building for the purposes of determining the proposed floor space ratio is 5344.33m^2. The floor space of the proposed building has therefore been calculated to be 3.52:1.

The following table summarizes the development standard together with the proposed floor space ratio of the building together with the quantum of the variation which is sought. The following table has been prepared having regard to the building floor space definition provided for in Section 2.2 of this report;

Table 1 – Building Height Summary.

FLOOR SPACE RATIO DEVELOPMENT STANDARD	PROPOSED FLOOR SPACE RATIO	QUANTUM OF VARIATION TO DEEMED TO SATISFY FLOOR SPACE RATIO STANDARD	FLOOR AREA ABOVE FSR DEVELOPMENT STANDARD
3.5:1	3.52:1	0.02:1	34.03m^2

		(0.57% or)	

3. PERFORMANCE ASSESSMENT

As has already been identified the structure of Port Macquarie Hastings LEP 2011 provides for merit assessment of variations to development standards.

This structure is reflected in;

- The inclusion of Clause 4.6 into the LEP which recognizes the need to allow for exceptions to the specified design provisions.
- The inclusion of performance objectives in relation to development standards. The inclusion of specific performance objectives provides for a design solution to be approved on the basis that its outcomes will be consistent with the nominated performance objectives.

It is however noted that the LEP does not indicate the manner by which a performance assessment is to be carried out.

3.1 Performance Objectives

The performance objectives that are relevant to the requested variation are contained within Clause 4.4(1) of LEP (2011) as follows;

The objectives of this clause are as follows:
(a) to regulate density of development and generation of vehicular and pedestrian traffic,
(b) to encourage increased building height and site amalgamation at key locations,
(c) to provide sufficient floor space for high quality development for the foreseeable future,
(d) to ensure that buildings are compatible with the bulk and scale of the existing and desired future character of the locality.

It is therefore considered that where a building design solution is consistent with the above objectives it can be assessed as being consistent with the requirements of PMHC LEP (2011) and as such development consent can be issued on the basis that the proposed development is in accordance with the relevant development standards.

3.2 Performance Assessment Method

To ensure that a performance-based solution meets the relevant Performance Objectives it must be assessed using a nominated/accepted Assessment Method. In this regard it is noted that PMHC LEP (2011) does not nominated a process/method of assessment of an alternative design solution. In this regard common assessment methods used for performance-based building design are as follows;

(a) Evidence to support that a design meets a Performance Requirement or a Deemed-to-Satisfy Provision.

(b) Verification Methods.

(c) Comparison with the Deemed-to-Satisfy Provisions.

(d) Expert Judgement.

Having regard to the above it is proposed to utilize a combination of (a) and (c) above as the method of assessing the proposed building design and the variation of the buildings height when compared to the 'Deemed to Satisfy' provision.

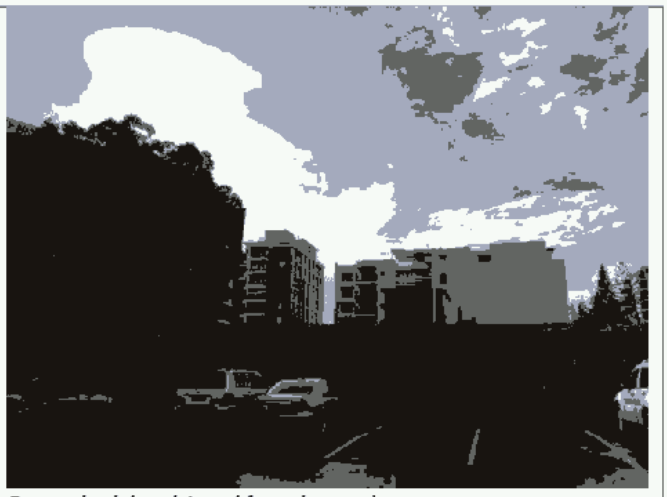
3.3 Performance Assessment

The following justification is provided in respect of each of the performance objectives listed in section 3.1 of this report;

Table 2 – Performance Assessment

PERFORMANCE OBJECTIVE	PERFORMANCE ASSESSMENT
(a) to regulate density of development and generation of vehicular and pedestrian traffic,	The existing and future character of the locality is mixed with tourist and residential development dominating the immediate area with cafes and other tourist and residential uses fronting Clarence Street. The relevance of the proposed building height design solution to the existing and future character of the locality is assessed as follows; **Existing Character** It is noted that the existing character of the area, from the perspective of height, bulk and scale, is dominated by several taller buildings in the immediate vicinity. These include the Tasman, to the northeast (9 storeys), Northpoint, located immediately to the north of the subject site (8 storeys), Port Pacific on the southern side of Clarence Street (8 storeys) and Macquarie Waters to the east (7 storeys). It is also noted that the existing height of the of Macquarie Waters building to the east of the subject site provides for a height relationship to the subject site which is in excess of a 7 storey envelope due to the predominating east to west topography and the lack of response of the Macquarie Waters building to landform. Whilst lower density development is present on immediately adjoining land to the west the predominant

	building height back drop when viewed from the north, south and west is that of 7 – 8 storey buildings with heights up to at least 25m common in these aspects. Whilst lower building heights predominate further to the west of the subject site, buildings of a height of up to 25m are also present in this aspect (e.g. Rydges). *Northern backdrop (viewed from the south)* *Southern backdrop (viewed from the north)*



Eastern backdrop (viewed from the west)

Western backdrop

The building design outcome which is proposed is not only consistent with the historical development in the locality but also in relation to recently constructed buildings, (within the past 10 years).

Having regard to the above the outcomes provided for by the proposed building height design solution are entirely consistent with the existing character of the locality in relation to height, bulk and scale.

It is also noted that the proposed heights of the building are entirely consistent with building heights already approved for the subject site. In this regard a six (6) storey shop top hosing development recently approved for the

	subject site via DA 410/2014 and DA 149/2016 provided for a building height of 22.5m. In this regard the design outcome now proposed provides for a building height outcome which is less than that previously approved. **Future Character** The building height development standards provided for by LEP 2011 for the subject site and surrounds provide for a 'Deemed to Satisfy' standard of 19m which would typically provide for a 6 – 7 storey building. In this regard it is noted that the proposed development is entirely consistent with this development standard on the Clarence Street frontage with the roof of the main building being between 20.9m and 22m which taking into account the topography of the area provides for a seven (7) storey building. The stepping back of the top floor of the development together with the integration of open space areas on this level, (swimming pool/BBQ area), is a feature intended to reduce the perceived scale of the building by disrupting the layering effect of each storey. It is also noted that the majority of the height exceedance associated with the main bulk of the building is associated with the south to north topography of the subject site. In the context of the topography of the subject site and adjoining and adjacent land the bulk and scale of the lower elevated areas of the building will be masked by adjoining development to the north, east and west. Additionally, the top storey of the building is setback from the main bulk and scale of the building with enclosed areas not occupying the entire area of the storey. This approach greatly assists in reducing the overall bulk and scale of the top storey area. When viewed from the Clarence Street frontage the additional building height associated with the top storey will be largely obscured and as such will have a minimal impact on the existing and future character of the area. In this regard the bulk and scale of the top storey is moderated through the setbacks which have been incorporated at this level. Clarence Street is a main connector road being some 30m wide and can clearly accommodate development of greater densities and heights through site redevelopment within

	the framework of integrating good urban design principles. The width of the Clarence Street and its ability to accommodate developments of greater densities and heights is further reinforced by the significant setback of the existing bulk and scale of the building to the south of the Clarence Street road reserve adjacent to the subject site. Similarly, when viewed from adjoining and adjacent buildings in the area the portion of the subject building which is in excess of the 19m development standard will have a negligible impact in relation to proposed buildings bulk and scale as it; • Will be generally indiscernible from the main bulk of the building. • Will have a minimum impact when considered in the context of the height, bulk and scale backdrop which exists by virtue of existing multi storey buildings in the locality which have a height beyond that contemplated for the proposed building. • Will be consistent with the height of buildings which could result through the redevelopment of adjoining land to the east of the subject site. Having regards to the above it is considered that the impact on the future character of the locality of the proposed building design solution as it relates to building height will be minimal. It is also noted that notwithstanding the height development standards provided for in LEP 2011 the future character of the locality has to a large extent been significantly influenced by the height of buildings which have been constructed in the past ten (10) years particularly in relation to buildings in proximity to the subject site. In the context of the life cycle of building infrastructure most recent decisions of Council have had a significant impact upon the achievement of the future character envisaged by the LEP development standard.
(b) to encourage increased building height and site amalgamation at key locations,	Solar access studies show acceptable results for June 22 as a result of the proposed development in relation to adjoining and adjacent existing development. Accordingly, the proposed building height design solution will have no

	significant impact on solar access beyond that contemplated by the 'Deemed to Satisfy' development standard. It is noted that when viewed from Clarence Street the proposed building will present as a seven (7) storey building which is generally consistent with the 'Deemed to Satisfy' development standard. Accordingly, the visual impact of the proposed building height solution will minimal. Given the dominance of existing buildings to the north, east and south the proposed building will have no greater visual impact than that which currently exists as the existing buildings define the bulk scale and scale when viewed from adjoining buildings. In this regard the bulk and scale of the proposed development is consistent, (even less), than that which currently exist. Views will not be impacted upon by the proposed development as view paths to the north, south and east are constrained by the existing buildings which form the backdrop in these aspects. View impacts to the west will be minimized due to; • The location of the major bulk of the subject building in the southern portion of the site provides for view sharing promoted to the west. • The orientation of the adjacent buildings to take advantage of views to the north, northeast and east. In this regard the design of a number of buildings to the east of the proposed building do not seek to take advantage of view paths to the west. Notwithstanding the variation to the building height development standard acceptable standards of solar access will continue to be provided to adjoining and adjacent buildings. Having regard to the above it is clear that quality urban and building design will be achieved as a result of the proposed development and that the proposed building height design solution will have negligible impact in relation to visual impact, views, loss of privacy and loss of solar access issues.
(c) to provide sufficient floor space for high quality development for the foreseeable future,	Whilst the subject site forms part of an area which the LEP identifies as being of potential heritage importance the archeological assessment which has been completed for

	the subject site indicates that the proposed development will have no impact on the heritage values of the subject site. In a broader context identified items/issues of heritage significance are not located in the immediate area to the subject site and as such the height of the proposed development is appropriate in the context of existing and future height, bulk and scale of the locality.
(d) to ensure that buildings are compatible with the bulk and scale of the existing and desired future character of the locality.	The proposed building height design solution will continue to provide for a transition in built form and land use intensity within the area covered by this Plan.

Having regard to the above it is considered that the design solution of the subject building as it relates to the issue of building height is consistent to the relevant performance objectives of Port Macquarie – Hastings Council LEP 2011.

3.4 Consistency with LEP Exception Requirements

Given that the proposed building height design solution is consistent with the relevant building height development standard performance objectives of the LEP it is considered that the issuing of development approval for the subject development, (as proposed), by Port Macquarie-Hastings Council is consistent with the requirements of Clause 4.3 of the LEP in that;

- *compliance with the development standard is unreasonable or unnecessary in the circumstances of the case, as the proposed alternative design solution satisfies the specific performance objectives which are relevant to the height of buildings; and*
- *there are sufficient environmental planning grounds to justify contravening the development standard as demonstrated in the performance assessment (Section 3.2of this report); and*
- *the applicant's written request has adequately addressed the matters required to be demonstrated; and*
- *the proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out; and*
- *the contravention of the subject development standard does not raise any matter of significance for State or regional environmental planning, and*
- *based upon merit assessment there is no public benefit in maintaining the development standard, and*

Accordingly, it is recommended that Port Macquarie-Hastings Council seek the concurrence of the Director-General (NSW Department of Planning) for the variation to the height standard as provided for by the proposed building design solution.

4. CONCLUSION

Having regard to the above it is considered that the proposed building design solution is consistent with the relevant building height performance standards as provided for by Clause 4.3 of the LEP and as such the exemption to the development standard is appropriate in the specific circumstances.

Accordingly, the proposed building design solution is able to be supported by Port Macquarie-Hastings Council pursuant to Clause 4.3 of the LEP.

Justification of Variation to Development Standard Building Height –

Report Pursuant to Clause 4.6 of Port Macquarie–Hastings Local Environmental Plan (2011)

PROPOSED TOURIST ACCOOMMODATION & COMMERCIAL DEVELOPMENT AT 17 - 19 CLARENCE STREET, PORT MACQUARIE NSW

SEPTEMBER 2018

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1. INTRODUCTION

1.1 Purpose of Report

This report has been prepared to accompany a development application which seeks approval for the construction of a mixed tourist accommodation and commercial development at Lot 123 DP 1219042, 17 Clarence Street, Port Macquarie.

Figure 1 – Site Location

The purpose of this report is to provide justification for a variation to the Building Height provisions of Port Macquarie-Hastings Councils Local Environmental Plan, (LEP) 2011 for the mixed-use development which is proposed to be undertaken on the subject site.

1.2 Background

The proposed includes the construction of a seven (7) storey tourist accommodation and commercial building with a basement level to accommodate onsite carparking.

A commercial tenancy, (195m^2), together with the tourist accommodation reception and building access infrastructure, (vehicle and pedestrian), will occupy the ground floor of the building.

Twenty-one (21) carparking spaces together with, loading dock, amenity and waste management storage areas are also proposed for this level.

Motel/Serviced Apartment accommodation comprising 48 apartments and associated infrastructure are distributed over Levels 1 – 7 of the building. The proposed development provides for the following apartment configuration;

- 4 x 3 bedroom/2-bathroom apartments (twin key); and
- 27 x 2 bedroom/2-bathroom apartments (twin key); and
- 12 x 2 bedroom/2-bathroom apartments; and
- 5 x 1-bedroom apartment.

The usage arrangements of the proposed apartments provide for a maximum of 79 lettable apartments.

Each apartment is proposed to be provided with lift access with each of the proposed apartments provided with an external balcony.

The floor areas of the apartments are variable ranging from 48m^2 to 106.4m^2.

A single basement level of car parking, (providing forty (40) spaces), is proposed with access via a single vehicular driveway off Clarence Street utilizing the ground floor level of the proposed development. As well as the car parking areas the basement level will include general and dedicated service areas for the proposed development. Lift access to the basement level is proposed.

The proposed development also provides for motel/serviced apartment ancillary use areas on Level 7 of the proposed development. In this regard a Conference Room, Gymnasium, BBQ area, amenities and a swimming pool are located on the top floor area of the development.

The subject site has approximately 2m fall from south to the north (from Clarence Street to the rear of the property). A 1m east to west cross fall is also present.

It is however noted that the topography of the subject site has been altered as a result of the historic development of the subject site and recent demolition works and required heritage and geotechnical assessment.

The topography of adjoining and adjacent land contains east to west down slopes and a northerly cross-fall.

This report therefore provides justification as to why Port Macquarie-Hastings Council should support the variation to the building height standard as proposed.

2. LEP 2011 REQUIREMENTS

2.1 Introduction

Port Macquarie – Hastings LEP 2011 specifies a number of principle development standards that are applicable for the erection of buildings in the Port Macquarie-Hastings Local Government Area.

In this regard Part 4 of the LEP provides for development standards related to;

- *Lot size;*
- *Rural Subdivision;*
- *Building Height;*
- *Floor Space Ratio;*

Being a "performance based" document the LEP provides for a series of objective together with specific design provisions that are 'Deemed to Satisfy' the performance objectives. Adoption of the specified design provisions would therefore provide for a building solution to be approved by Council as this specified solution is 'deemed' to meet the relevant performance objectives.

However, Clause 4.6 of the LEP recognizes the need to allow for exceptions to the specified design provisions. In this regard Clause 4.6 (2) of the LEP provides that;

(2) Development consent may, subject to this clause, be granted for development even though the development would contravene a development standard imposed by this or any other environmental planning instrument. However, this clause does not apply to a development standard that is expressly excluded from the operation of this clause.

It is noted that issues pertaining to the height of buildings is not expressly excluded from the operation of Clause 4.6.

In addition to establishing a framework for the consideration of variations to the LEP development standards, Clause 4.6 (3) – (5) of the LEP establishes the process by which variations to development standards are to be lodged, assessed and determined. The LEP provisions which are applicable are as follows;

(3) Development consent must not be granted for development that contravenes a development standard unless the consent authority has considered a written request from the applicant that seeks to justify the contravention of the development standard by demonstrating:

(a) that compliance with the development standard is unreasonable or unnecessary in the circumstances of the case, and
(b) that there are sufficient environmental planning grounds to justify contravening the development standard.
(4) Development consent must not be granted for development that contravenes a development standard unless:
(a) the consent authority is satisfied that:
(i) the applicant's written request has adequately addressed the matters required to be demonstrated by sub clause (3), and
(ii) the proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out, and
(b) the concurrence of the Director-General has been obtained.
(5) In deciding whether to grant concurrence, the Director-General must consider:

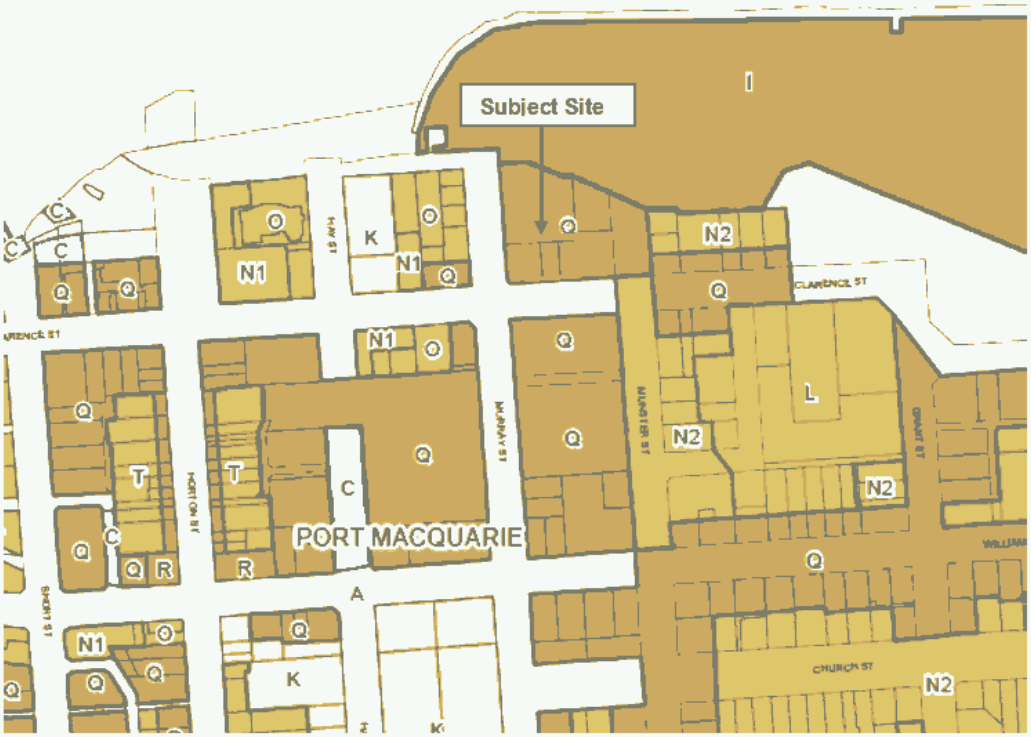
(a) whether contravention of the development standard raises any matter of significance for State or regional environmental planning, and
(b) the public benefit of maintaining the development standard, and
(c) any other matters required to be taken into consideration by the Director-General before granting concurrence.

This report will provide justification for the variation of the acceptable design solution for the Height of the proposed building having regard to the relevant provisions of the LEP.

2.2 Building Height Development Standard

Clause 4.3 of the LEP provides that the height of a building erected on the subject site is not to exceed 19m, refer to **Figure 1** below;

Figure 2 - Building Height 'Deemed to Satisfy' Standard for Subject site.



It is noted that the following definition applies to the determination of the actual height of building;

***building height** (or **height of building**) means the vertical distance between ground level (existing) and the highest point of the building, including plant and lift overruns, but excluding communication devices, antennae, satellite dishes, masts, flagpoles, chimneys, flues and the like.*

2.3 Development Standard Exemption Sought

Along the Clarence Street frontage of the subject site the roof of the proposed building above existing ground level ranges between 17.8 metres (south-eastern corner of boundary) and 19.5m (south-western corner of boundary). Along the northern elevation of the proposed building, (which is setback approximately 8.7m from the northern property boundary), the building height above ground level ranges between 22.65m and 23.65m.

It is noted that the top floor of the proposed building is setback from the Clarence Street frontage with the height of the building at this point above ground level being 20.55m (south eastern corner) and up to 22.65m (south western corner)

It is noted that the differences in building height reflect changes in the significant changes in the topography of the subject site.

The following table summarizes the development standard together with the proposed height of the building together with the quantum of the variation which is sought. The following table has been prepared having regard to the building height definition provided for in Section 2.2 of this report;

Table 1 – Worst Case Building Height Summary (worst case existing site ground levels)

BUILDING HIEGHT DEVELOPMENT STANDARD	BUILDING HIEGHT SOUTHEASTERN ASPECT OF PROPOSED BUILDING	BUILDING HIEGHT NORTHWESTERN ASPECT OF PROPOSED BUILDING	QUANTUM OF VARIATION TO DEEMED TO SATISFY BUILDING HIEGHT STANDARD
19m	20.8m	23.65m	1.8m – 4.65m

The height of the proposed building and its relationship to the 19m height standard is illustrated in **Appendix 1** of this report – Height Plane Plan.

It is however noted that the determination of the height of the building has been based upon existing ground levels. In this regard it is noted that the subject site has been the subject of significant excavation in conjunction with archaeological and geotechnical assessments which were carried out in early 2017 as part of planning for the commencement of construction of the previously approved residential flat building on the subject site (DA 410/2014 and DA 149/2016) of significance is the changes in topography in the western central portion of the subject site whereby current ground levels are at least 700mm lower than historic natural ground levels. This is significant in the context of considering the quantum of the height variation which is relevant to the proposed development. The following table therefore summarizes the development standard together with the proposed height of the building together with the quantum of the variation which is sought having regards to the historical ground levels.

Table 2 – Building Height Summary (historical ground levels)

BUILDING HIEGHT DEVELOPMENT STANDARD	BUILDING HIEGHT SOUTHEASTERN ASPECT OF PROPOSED BUILDING	BUILDING HIEGHT NORTHWESTERN ASPECT OF PROPOSED BUILDING	QUANTUM OF VARIATION TO DEEMED TO SATISFY BUILDING HIEGHT STANDARD
19m	20.8m	22.95m	1.8m – 3.95m

It is also noted that Councils Town Centre Masterplan works require that the Clarence Street frontage road reserve height be raised in order to accommodate revised finished levels for the northern portion of the Clarence Street carriageway and associated footpath area. Accordingly, the finished ground level adjacent to the southern elevation of the building will be approximately 800mm above the existing ground levels. Accordingly, the height, bulk and scale of the building when viewed from the southern and western aspects will have a context to the required new ground levels along Clarence Street and not the existing ground levels. Accordingly, the height of the proposed building (at its highest 3.0m behind the southern property boundary), when viewed from the southern aspect and having regard to the new Clarence Street road reserve levels will be in the range of 19.77m and 21.9m. This again is an important consideration in the context of quantifying and qualifying the height of the proposed development and its actual bulk and scale impacts.

3. PERFORMANCE ASSESSMENT

As has already been identified the structure of Port Macquarie Hastings LEP 2011 provides for merit assessment of variations to development standards.

This structure is reflected in;

- The inclusion of Clause 4.6 into the LEP which recognizes the need to allow for exceptions to the specified design provisions.
- The inclusion of performance objectives in relation to development standards. The inclusion of specific performance objectives provides for a design solution to be approved on the basis that its outcomes will be consistent with the nominated performance objectives.

It is however noted that the LEP does not indicate the manner by which a performance assessment is to be carried out.

3.1 Performance Objectives

The performance objectives that are relevant to the requested variation are contained within Clause 4.3(1) of LEP (2011) as follows;

'(1) The objectives of this clause are as follows:

(a) to ensure that buildings are compatible with the height, bulk and scale of the existing and desired future character of the locality,
(b) to minimise visual impact, disruption of views, loss of privacy and loss of solar access to existing development,
(c) to minimise the adverse impact of development on heritage conservation areas and heritage items,
(d) to nominate heights that will provide a transition in built form and land use intensity within the area covered by this Plan'.

It is therefore considered that where a building design solution is consistent with the above objectives it can be assessed as being consistent with the requirements of PMHC LEP (2011) and as such development consent can be issued on the basis that the proposed development is in accordance with the relevant development standards.

3.2 Performance Assessment Method

To ensure that a performance-based solution meets the relevant Performance Objectives it must be assessed using a nominated/accepted Assessment Method. In this regard it is noted that PMHC LEP (2011) does not nominated a process/method of assessment of an alternative design solution. In this regard common assessment methods used for performance-based building design are as follows;

(a) Evidence to support that a design meets a Performance Requirement or a Deemed-to-Satisfy Provision.
(b) Verification Methods.

(c) Comparison with the Deemed-to-Satisfy Provisions.

(d) Expert Judgement.

Having regard to the above it is proposed to utilize a combination of (a) and (c) above as the method of assessing the proposed building design and the variation of the buildings height when compared to the 'Deemed to Satisfy' provision.

3.3 Performance Assessment

The following justification is provided in respect of each of the performance objectives provided for in the LEP and d listed in Section 3.1 of this report;

Table 2 – Performance Assessment

PERFORMANCE OBJECTIVE	PERFORMANCE ASSESSMENT
(a) to ensure that buildings are compatible with the height, bulk and scale of the existing and desired future character of the locality.	The existing and future character of the locality is mixed with tourist and residential development dominating the immediate area with cafes and other tourist and residential uses fronting Clarence Street.

	The relevance of the proposed building height design solution to the existing and future character of the locality is assessed as follows; **Existing Character** It is noted that the existing character of the area, from the perspective of height, bulk and scale, is dominated by several taller buildings in the immediate vicinity. These include the Tasman, to the northeast (9 storeys), Northpoint, located immediately to the north of the subject site (8 storeys), Port Pacific on the southern side of Clarence Street (8 storeys) and Macquarie Waters to the east (7 storeys). It is also noted that the existing height of the of Macquarie Waters building to the east of the subject site provides for a height relationship to the subject site which is in excess of a 7 storey envelope due to the predominating east to west topography and the lack of response of the Macquarie Waters building to landform. Whilst lower density development is present on immediately adjoining land to the west the predominant building height back drop when viewed from the north, south and west is that of 7 – 8 storey buildings with heights up to at least 25m common in these aspects. Whilst lower building heights predominate further to the west of the subject site, buildings of a height of up to 25m are also present in this aspect (e.g. Rydges). *Northern backdrop (viewed from the south)*

Southern backdrop (viewed from the north)

Eastern backdrop (viewed from the west)

Western backdrop

The relationship of the proposed building to the existing height, bulk and scale character of the area is illustrated in **Appendix 2** of this report – Bulk and Scale Context Plan.

As can be seen in **Appendix 2** the building design outcome which is proposed is not only consistent with the historical development in the locality but also in relation to recently constructed buildings, (within the past 10 years).

Having regard to the above the outcomes provided for by the proposed building height design solution are entirely consistent with the existing character of the locality in relation to height, bulk and scale.

It is also noted that the proposed heights of the building are entirely consistent with building heights already approved for the subject site. In this regard a six (6) storey shop top hosing development recently approved for the subject site via DA 410/2014 and DA 149/2016 provided for a building height of 22.5m. The height bulk and scale relationship of the proposed development with the previously approved development concept for the subject site is shown in **Appendix 2** of this report – Bulk and Scale Context Plan.

As can be seen in **Appendix 2 t**he design outcome now proposed provides for a building height outcome which is entirely consistent with and in some areas less than that previously approved by Council. This is important in quantifying and qualifying the impacts of the proposed

	development above that which has already been assessed by Port Macquarie Hastings Council as being acceptable via the issuing of development approvals DA 410/2014 and DA 149/2016. It is however acknowledged that the top floor area of the previously approved development concept for the site did include some open structures however it is noted that the open nature of the structures would be in general not perceivable when viewed from ground level open space areas with the roof structures being the most likely influence on perceived building height and as such the height, bulk and scale impacts of the proposed development will be entirely consistent with that which has already been assessed by council as being acceptable and appropriate for the locality. **Future Character** The building height development standards provided for by LEP 2011 for the subject site and surrounds provide for a 'Deemed to Satisfy' standard of 19m which would typically provide for a 6 – 7 storey building. In this regard it is noted that the proposed development is entirely consistent with this development standard on the Clarence Street frontage with the roof of the main building being between 20.8m and 22.65m which taking into account the topography of the area provides for a seven (7) storey building. The stepping back of the top floor of the development together with the integration of open space areas on this level, (swimming pool/BBQ area), is a feature intended to reduce the perceived scale of the building by disrupting the layering effect of each storey. In this regard when viewed from the street the top floor of the building will not be visible from the northside footpath and will only be partially visible from the southside footpath along Clarence Street. It is also noted that Councils Town Centre Masterplan works require that the Clarence Street frontage road reserve height be raised in order to accommodate revised finished levels for the northern portion of the Clarence Street carriageway and associated footpath area. Accordingly, the finished ground level adjacent to the southern elevation of the building will be approximately 800mm above the existing ground levels. Accordingly, the height, bulk and scale of the building when viewed from

	the southern and western aspects will have a context to the required new ground levels along Clarence Street and not the existing ground levels. Therefore, the height of the proposed building when viewed from the southern aspect and having regard to the new Clarence Street road reserve levels will be in the range of 19.77m and 21.9m. This again is an important consideration in the context of quantifying and qualifying the resulting height, bulk and scale of the proposed development and its impacts. It is noted that the majority of the height exceedance associated with the main bulk of the building is associated with the south to north topography of the subject site. In the context of the topography of the subject site and adjoining and adjacent land the bulk and scale of the lower elevated areas of the building will be masked by adjoining development to the north, east and west with the height, bulk and scale with the southern and western elevations providing the visual context for the height, bulk and scale rather than the northern aspect of the proposed building whereby the existing Northpoint building dominates the height, bulk and scale landscape. Similarly, the height, bulk and scale of the eastern aspect of the proposed building is obscured by the existing Macquarie Waters building with the proposed building retaining a consistent height, bulk and scale with the Macquarie Waters building, refer to **Appendix 2**. Additionally, the top storey of the proposed building is setback from the main bulk and scale of the building with enclosed areas not occupying the entire area of the top storey. This approach greatly assists in reducing the overall bulk and scale of the top storey area with stepping down of the building's height, bulk and scale towards the western boundary of the subject site. Therefore, when viewed from the Clarence Street frontage the additional building height associated with the top storey will be largely obscured and as such will have a minimal impact on the existing and future character of the area. As can be seen in **Appendix 1**, the height, bulk and scale of the top storey is moderated through the setbacks which have been incorporated at this level. As can be seen in **Appendix 1** the major elements of the top storey which will be evident from Clarence Street will be portion of the roof structure of the building which is

	consistent with the visual impacts assessed and approved by Council through the issuing of development approval for the residential flat building concept for the subject site ((DA 410/2014 and DA 149/2016). As can be seen in **Appendix 2** the future development of adjoining land to the west of the subject site has the potential to provide for a built form which significantly shields the height, bulk and scale of the proposed building with the future development of the land on the corner of Murray and Clarence Streets being the dominant factor in terms of height, bulk and scale impacts associated with the proposed development when viewed from the western aspect. It is also noted that Clarence Street is a main connector road within the Port Macquarie CBD `being some 30m wide and can clearly accommodate development of greater densities and heights through site redevelopment within the framework of integrating good urban design principles. The width of the Clarence Street and its ability to accommodate developments of greater densities and heights is further reinforced by the significant setback of the existing bulk and scale of the building to the south of the Clarence Street road reserve adjacent to the subject site. Similarly, when viewed from adjoining and adjacent buildings in the area the portion of the subject building which is in excess of the 19m development standard will have a negligible visual and amenity impacts in relation to the proposed buildings height, bulk and scale as it; • Will be generally indiscernible from the main bulk of the building. • Will have a minimal impact when considered in the context of the height, bulk and scale backdrop which exists by virtue of existing multi storey buildings in the locality which already have a height beyond that contemplated for the proposed building. • Will be consistent with the height of buildings which could result through the redevelopment of adjoining land to the east of the subject site. Having regards to the above it is considered that the impact on the future character of the locality of the

	proposed building design solution as it relates to building height will be minimal. It is also noted that notwithstanding the height development standards provided for in LEP 2011 the future character of the locality has to a large extent been significantly influenced by the height of buildings which have been constructed in the past ten (10) years particularly in relation to buildings in proximity to the subject site. In the context of the life cycle of building infrastructure most recent decisions of Council have had a significant impact upon the achievement of the future character envisaged by the LEP development standard.
(b) to minimise visual impact, disruption of views, loss of privacy and loss of solar access to existing development	Solar access studies show acceptable results for June 22 as a result of the proposed development in relation to adjoining and adjacent existing development. Accordingly, the proposed building height design solution will have no significant impact on solar access beyond that contemplated by the 'Deemed to Satisfy' development standard. It is noted that when viewed from Clarence Street the proposed building will present as a seven (7) storey building which is generally consistent with the 'Deemed to Satisfy' development standard. Accordingly, the visual impact of the proposed building height solution will minimal. Given the dominance of existing buildings to the north, east and south the proposed building will have no greater visual impact than that which currently exists as the existing buildings define the bulk scale and scale when viewed from adjoining buildings. In this regard the bulk and scale of the proposed development is consistent, (even less), than that which currently exist. Views will not be impacted upon by the proposed development as view paths to the north, south and east are constrained by the existing buildings which form the backdrop in these aspects. View impacts to the west will be minimized due to; • The location of the major bulk of the subject building in the southern portion of the site provides for view sharing promoted to the west. • The orientation of the adjacent buildings to take advantage of views to the north, northeast and east.

	In this regard the design of a number of buildings to the east of the proposed building do not seek to take advantage of view paths to the west. Notwithstanding the variation to the building height development standard acceptable standards of solar access will continue to be provided to adjoining and adjacent buildings. Having regard to the above it is clear that quality urban and building design will be achieved as a result of the proposed development and that the proposed building height design solution will have negligible impact in relation to visual impact, views, loss of privacy and loss of solar access issues.
(c) to minimise the adverse impact of development on heritage conservation areas and heritage items,	Whilst the subject site forms part of an area which the LEP identifies as being of potential heritage importance the archeological assessment which has been completed for the subject site indicates that the proposed development will have no impact on the heritage values of the subject site. In a broader context identified items/issues of heritage significance are not located in the immediate area to the subject site and as such the height of the proposed development is appropriate in the context of existing and future height, bulk and scale of the locality.
(d) to nominate heights that will provide a transition in built form and land use intensity within the area covered by this Plan'.	The proposed building height design solution will continue to provide for a transition in built form and land use intensity within the area covered by this Plan.

Having regard to the above it is considered that the design solution of the subject building as it relates to the issue of building height is consistent to the relevant performance objectives of Port Macquarie – Hastings Council LEP 2011.

3.4 Consistency with LEP Exception Requirements

Given that the proposed building height design solution is consistent with the relevant building height development standard performance objectives of the LEP it is considered that the issuing of development approval for the subject development, (as proposed), by Port Macquarie-Hastings Council is consistent with the requirements of Clause 4.3 of the LEP in that;

- *compliance with the development standard is unreasonable or unnecessary in the circumstances of the case, as the proposed alternative design solution satisfies the specific performance objectives which are relevant to the height of buildings; and*

- *there are sufficient environmental planning grounds to justify contravening the development standard as demonstrated in the performance assessment (Section 3.2 of this report); and*
- *the applicant's written request has adequately addressed the matters required to be demonstrated; and*
- *the proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out; and*
- *the contravention of the subject development standard does not raise any matter of significance for State or regional environmental planning, and*
- *based upon merit assessment there is no public benefit in maintaining the development standard, and*

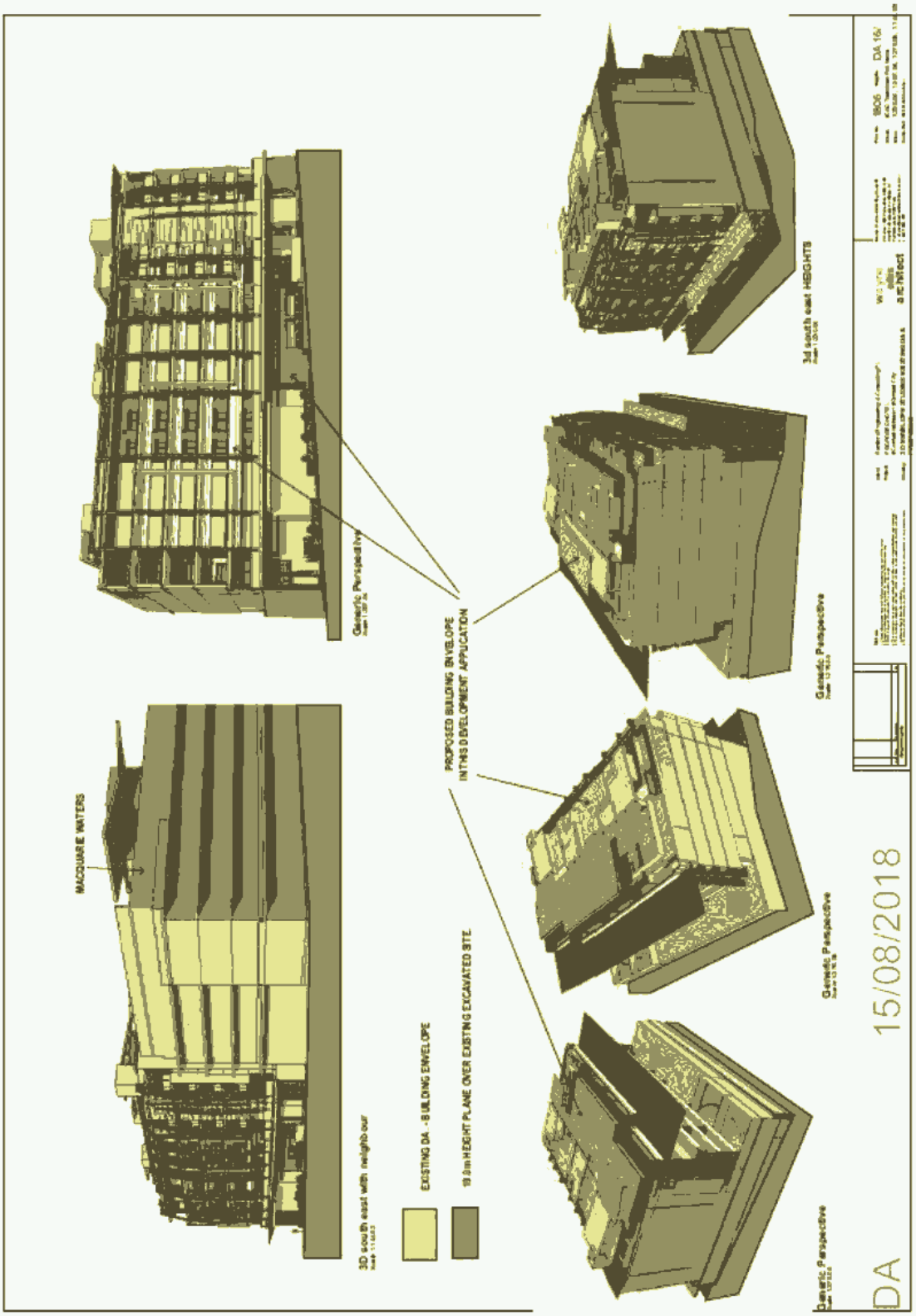
Accordingly, it is recommended that Port Macquarie-Hastings Council seek the concurrence of the Director-General (NSW Department of Planning) for the variation to the height standard as provided for by the proposed building design solution.

4. CONCLUSION

Having regard to the above it is considered that the proposed building design solution is consistent with the relevant building height performance standards as provided for by Clause 4.3 of the LEP and as such the exemption to the development standard is appropriate in the specific circumstances.

Accordingly, the proposed building design solution is able to be supported by Port Macquarie-Hastings Council pursuant to Clause 4.3 of the LEP.

Appendix 1 – Height Plane Plan



Appendix 2 – Bulk and Scale Context Plan

DAVID PENSINI
Building Certification and
Environmental Services

25th September 2018

Port Macquarie-Hastings Council
PO Box 84
PORT MACQUARIE NSW 2444

Attention: Ben Roberts

Dear Ben,

Re: DA2018 - 353.1 Motel/Serviced Apartment Building - 17 Clarence St, Port Macquarie

I refer to Councils request for additional information and wish to provide the following information in response;

1. Justification of Building Heights

   COMMENT

   Please find attached an amended development standard variation report pursuant to Clause 4.6 of Port Macquarie Hastings LEP 2011 with respect to the buildings proposed height.

   Also attached are the following additional plans;

   - 19m building height plane plan
   - Building context plan

2. The building height and variation sought appears to have been be taken from pre-existing (i.e. prior to cut) levels on the site. The site has obviously been cut and the proposed building height needs to be measured from ground level (existing) as it is now. Please provide plans that accurately reflect ground level (existing).

   COMMENT

   Please find attached amended plans which reflect existing ground conditions.

3. Provide a new survey plan of the site (as it exists now).

   COMMENT

   Please find attached a current survey plan for the subject site.

3 Blair Street, Port Macquarie NSW 2444 – PO Box 5581, Port Macquarie NSW 2444 – Phone 0434 166 150 – Email kdpensini@bigpond.com
ABN 55 183 050 741

4. The proposed height variation and subsequent clause 4.6 report will also need to reflect ground level (existing).

   COMMENT

   Please find attached an amended development standard variation report pursuant to Clause 4.6 of Port Macquarie Hastings LEP 2011 with respect to the buildings proposed height.

   Also attached are the following additional plans;

   - 19m building height plane plan
   - Building context plan

5. A written request seeking justification for the proposed Floor Space Ratio (FSR) variation (Clause 4.6 report).

   COMMENT

   Please find attached a development standard variation report pursuant to Clause 4.6 of Port Macquarie Hastings LEP 2011 with respect to the buildings proposed floor space ratio.

6. Provide height plane plans through the building which provide for an appreciation of the building height variation sought.

   Please find attached the following plans which provide context for the proposed buildings height;

   - 19m building height plane plan
   - Building context plan

7. Nominate proposed building height on the plans.

   COMMENT

   Please find attached amended plans which reflect the proposed buildings height.

8. The proposed dual key arrangement is noted. In terms of parking demand (and consistent with DCP 2013) please provide a parking demand study/report from a suitably qualified person that assesses the peak parking demands for the overall development. It is suggested the layout of the parking be reviewed by this person to ensure capability of AS2890 compliance.

   COMMENT

   Please find attached a Traffic Impact Assessment Report prepared by consultants, TTM.

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ABN 55 183 050 741

9. Concern is expressed surrounding the lack of an onsite manager given the short-term nature of stays. Provide details measures/arrangements for issues that short term stays can present.

COMMENT

It is noted that the operating model for the motel operators (Quest) is such that onsite management is not typically present between 9pm and 6am. The design and construction of the proposed development therefore does not contemplate onsite accommodation for managers.

In this regard the following management strategies are in place to manage activities onsite to ensure that noise and amenity impacts continue to be consistent with that which would be expected within a Central Business District setting;

- The target market for visitors are corporate travelers and family groups with inappropriate behaviors not generally associated with either of these market sectors.
- The direct booking of accommodation with Quest provides for an opportunity to actively vet potential occupants of the accommodation facility.
- Booking of the property is subject to strict terms and conditions which includes prohibitions on activities which maybe the cause of noise generation which would not be consistent with the locality.
- The use of facilities within the development, (i.e. conference room, swimming pool, gymnasium), will be subject to time restrictions and conditions of behavioral use which will manage the times of use and standards of behavior in accordance with expectations which are applicable to residential areas.
- Notwithstanding the availability of an onsite manager at all times, facility management will be available at all times to respond to complaints regarding inappropriate behavior. This will be provided for through the provision of an on-call arrangement whereby management can be contacted afterhours and will be available to respond to issues.
- The security arrangements for the proposed development are such that entry to the accommodation and other use areas of the building will be strictly controlled during all hours with access only available to visitors who have been the subject of a 'booking in process' and provided with details of conditions of use of the building and its facilities.
- As with other forms of accommodation, (e.g. dwellings), inappropriate behavior can be addressed through other regulatory mechanisms e.g. Police/local council.

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10. Revise site plan to show easement to drain water at rear.

COMMENT

Please find attached a revised site plan showing the easement to drain water.

It is however noted that action is proposed to have the easement extinguished as the proposed development of the subject site will render the easement, (and associated infrastructure), redundant as the development of the subject site will not rely upon the easement as part of the stormwater management strategy for the site and the land to the east of the subject site, (Macquarie Waters Development), does not currently rely upon the easement or its associated infrastructure as part of the stormwater management strategy for the existing development.

Should I be able to provide any further assistance please do not hesitate to contact me on 0434 166150.

Yours Faithfully,

David Pensini
David Pensini – Building Certification and Environmental Services

3 Blair Street, Port Macquarie NSW 2444 – PO Box 5581, Port Macquarie NSW 2444 – Phone 0434 166 150 – Email kdpensini@bigpond.com
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Heritage Council of New South Wales

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Our File No: SF18/54553
Our Ref: DOC18/453914
Your ref: DA2018/353

Mr Ben Roberts
Development Assessment Planner
Port Macquarie-Hastings Council
PO Box 84
PORT MACQUARIE NSW 2444
Email: Ben.Roberts@pmhc.nsw.gov.au

Dear Mr Roberts

DEVELOPMENT APPLICATION REFERRAL Commercial premises and tourist accommodation, 15-19 Clarence Street, Port Macquarie, (Port Macquarie Hastings Council DAR 2018/353)

I refer to your letter received by Heritage Division on 5 July referring the above named development application for comment under the terms of the Port Macquarie Hastings Local Environmental Plan 2011 (LEP). This site falls within Item A111, 'Archaeology of early European settlement' in the LEP and was the subject of two previous applications under the *Heritage Act 1977* to undertake archaeological investigation and potential salvage of relics. This excavation has been undertaken and a final report has recently been received by Heritage Division and reviewed to assist this response.

The current development application is for construction of a seven storey mixed tourist accomodation and commercial development, including a basement level to provide carparking.

The works are addressed in the following documents:

A. *DA 2018/353 – Commercial Premises and Tourist Accomodation with Clause 4.3 (Height of Building) of Port Macquarie- Hastings Local Environment Plan 2011 LOT:123 DP:12109042 17 Clarence Street PORT MACQUARIE application describing the works ; and*

B. *Final Archaeological Report – 15-19 Clarence Street, Port Macquarie prepared by I Vetta and J Baloh, dated August 2018.*

Review of the information supplied has been undertaken to advise Council whether it is likely that additional relics may be impacted through the proposed works required for this DA. The Final Archaeological Report prepared to document that investigation found no archaeological evidence of 1820s structures or occupation in the nineteenth century other than a channel, which could not be dated but which may be an early agricultural drain. It is therefore considered that the proposed works do not involve excavation that will impact archaeological relics. No further investigation or approval under the *Heritage Act 1977* is needed to manage the archaeological resources on the site. However it is recommended that the following standard condition be retained in the DA conditions for approval:

D – DURING WORK (8)
(D046) Should any historical relics be unexpectedly discovered in any areas of the site not subject to an excavation permit, then all excavation or disturbance to the area is to stop immediately and the Heritage Council of NSW is to be informed in accordance with Section 146 of the *Heritage Act 1977*.

If you have any questions regarding the above matter please contact Pamela Forbes, Archaeologist, at the Heritage Division, Office of Environment and Heritage, on (02) 9995 6914 or by email at pamela.forbes@environment.nsw.gov.au.

Yours sincerely

21 August 2018

Felicity Barry
Acting Senior Team Leader, Specialist Services
Heritage Division
Office of Environment and Heritage
AS DELEGATE OF THE NSW HERITAGE COUNCIL OF NSW

Helping the community conserve our heritage

FINAL ARCHAEOLOGICAL REPORT

15-19 Clarence Street, Port Macquarie NSW

AMAC
Archaeological

Ivana Vetta

Archaeo*logical* Management & Consulting Group

for

Bamford Engineering and Consulting

August 2018

Disclaimer

The veracity of this report is not guaranteed unless it is a complete and original copy.

This report may be inaccurate, incomplete, not original, or modified, if it appears in monochrome form and the signature below is a copy.

Martin Carney
Director
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Cover Image
Archaeological Monitoring, 15 Clarence Street, Port Macquarie, facing south. AMAC Image 2663, 17/03/16

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EXECUTIVE SUMMARY

Documentary Research

The study site is located near the c.1824 Surgeon's Quarters (later the Clergyman's House), the Clerk of Works Quarters, and the original Government Gardens. The study site likely formed part of the curtilage afforded to the Colonial Chaplain, Reverend John Cross, and may have been the location of the c.1826 kitchen associated with his residence, the Clergyman's House. Reverend Cross and his family occupied the study site from 1827-1837, after their departure the house and kitchen were likely condemned and demolished c.1839.

After the period of government ownership, the study site formed part of Allotments 1-3 in Section 2A of the subdivision of Port Macquarie. Original owners included the Trustees of the Presbyterian Church in 1843 (Lot 1), William Fraser in 1855 (Lot 2) and Archibald Clunes Innes and William Cross (Lot 3- in trust for Louisa McIntyre). All three allotments were in the hands of the McIntyre family by 1917, however, no known development occurred to the study site during this time. The sole phase of development to take place on the study site followed after the second subdivision where Allotments 1-3 became nine new lots, these residential structures were extant on each lot at the time of site inspection. These buildings were demolished in September 2015.

Results of Archaeological Monitoring

No relics were uncovered during archaeological monitoring of the eastern portion of the site, 15 Clarence Street, and these results confirm the analysis of data collected during Test Excavation. Only the concrete foundations of the previous 1930s apartment block were uncovered as well as a series of 20th century services. These features were all cut into the natural topsoil. It is clear that the natural soil profile remains intact on the site and has not been truncated by later development. This assertion is consistent with the conclusion that the site remained undeveloped and unoccupied during the 19th century. No evidence was found of the kitchen associated with the c.1826 Clergyman's House and it is suggested that this building must have been contained by the neighbouring allotment. For this reason, the archaeological potential for the site is reassessed as nil.

Recommendations

As no archaeological relics have been identified on the site and it has been determined that it is unlikely that the site was occupied at all prior to the 1930s, no further archaeological works are recommended for the site.

It is recommended that this current report be submitted to the Heritage Division in fulfilment of Conditions 17 and 18 of Permit 2016/S140/01.

GLOSSARY

Term	Definition
AMAC	Archaeological Management and Consulting Group
Archaeological feature	Archaeological material which is not considered a relic in terms of the NSW Heritage Act 1977. For example- postholes, artefact scatters, cesspits or rubbish pits
DCP	Development Control Plan
DP	Deposited Plan
Former relic	A deposit, artefact, object or material evidence whereby the integrity of the relic is viewed to have been destroyed or disturbed to the point where it is no longer considered to hold any significance as a relic in terms of the NSW Heritage Act 1977.
Heritage Division	Formerly known as the Heritage Branch
LEP	Local Environment Plan
LGA	Local Government Area
LTO	Land Titles Office
NPW Act	National Parks and Wildlife Act 1974
OEH	NSW Office of Environment and Heritage (formerly known as the DECCW)
Relic	Defined by the NSW Heritage Act (see Section 1.5.3) as: "any deposit, artefact, object or material evidence that: (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and (b) is of State or local heritage significance"
S57	Refers to definition of Section 57 in the NSW Heritage Act 1977
S60	Refers to definition of Section 60 in the NSW Heritage Act 1977
S139	Refers to definition of Section 139 in the NSW Heritage Act 1977
S140	Refers to definition of Section 140 in the NSW Heritage Act 1977
SHI	State Heritage Inventory
SHR	State Heritage Register
Work	Archaeological material related to road and rail infrastructure which is not considered a relic in terms of the NSW Heritage Act 1977, however may retain an archaeological significance independent of the statutory definitions. The interpretation of a 'work' has been defined in consultation with the Heritage Division

Figure 1.1 **Site location, outlined in red.**
NSW Land and Property Information, Six Maps Viewer, accessed 26th October 2015.

Figure 1.2 **Aerial photograph showing the study site outlined in red.**
NSW Land and Property Information, Six Maps Viewer, accessed 26th October 2015.

1.0 INTRODUCTION

1.1 BACKGROUND

Bamford Engineering and Consulting have commissioned the Archaeological Management and Consulting Group to prepare a Final Archaeological Report in accordance with Conditions 17 and 18 of Permit 2016/s140/01 following archaeological monitoring at 15-19 Clarence Street, Port Macquarie. No relics were found during this work and this report provides details of the archaeological monitoring which took place in March 2017. The report conforms to Heritage Office Guidelines for Archaeological Assessment.[1]

1.2 STUDY AREA

The study site is that piece of land described as Lots 1-3 in Land Titles Office Deposited Plan 18834. The street address for the site is 15-19 Clarence Street, Port Macquarie, in the Parish of Macquarie, County of Macquarie.

1.3 SCOPE

This report does not consider the potential Aboriginal archaeology of the study site. However, any Aboriginal sites and objects are protected by the National Parks and Wildlife Act (see Section 1.5.2). No Aboriginal objects were identified at the study site during archaeological monitoring.

The heritage value of the structures currently standing on the study site is not assessed as part of this report.

The discovery of unknown and unassessed remains will require additional assessment.

1.4 AUTHOR IDENTIFICATION

This report was researched and written by Ivana Vetta using existing information written by Ivana Vetta and Jaki Baloh (see historical summary, Section 2.0 and Section 1.6.2-1.6.3). This report has been reviewed by Martin Carney.

The collections used were the Port Macquarie-Hastings Library, National Library of Australia (Trove), Mitchell Library, Births, Deaths and Marriages Register, Ancestry Online, Land and Property Information and NSW State Records.

1.5 STATUTORY CONTROLS AND HERITAGE STUDIES

1.5.1 NSW Heritage Act 1977 (as amended)

The NSW Heritage Act 1977 affords automatic statutory protection to relics that form archaeological deposits or part thereof. The Act defines relics as:

> Relic means any deposit, artefact, object or material evidence that:
> (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and
> (b) is of State or local heritage significance

[1] Heritage Office and Department of Urban Affairs and Planning (1996).

Sections 139 to 145 of the Act prevent the excavation or disturbance of land for the purpose of discovering, exposing or moving a relic, except by a qualified archaeologist to whom an excavation permit has been issued by the Heritage Council of NSW.

1.5.2 National Parks and Wildlife Act (1974)

The *National Parks and Wildlife Act 1974* (as amended) affords protection to all Aboriginal objects and is governed by the NSW Office of Environment and Heritage. These objects are defined as:

> any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction and includes Aboriginal remains.[2]

It is an offence to destroy Aboriginal objects or places without the consent of the Director-General.[3] Section 86 discusses 'Harming or desecration of Aboriginal objects and Aboriginal places':

> (1) A person must not harm or desecrate an object that the person knows is an Aboriginal object. Maximum penalty:
> (a) in the case of an individual-2,500 penalty units or imprisonment for 1 year, or both, or (in circumstances of aggravation) 5,000 penalty units or imprisonment for 2 years, or both, or
> (b) in the case of a corporation-10,000 penalty unit.
> (2) A person must not harm an Aboriginal object. Maximum penalty:
> (a) in the case of an individual-500 penalty unit or (in circumstances of aggravation) 1,000 penalty units, or
> (b) in the case of a corporation-2,000 penalty unit.
> (3) For the purposes of this section, "circumstances of aggravation" are:
> (a) that the offence was committed in the course of carrying out a commercial activity, or
> (b) that the offence was the second or subsequent occasion on which the offender was convicted of an offence under this section.
> This subsection does not apply unless the circumstances of aggravation were identified in the court attendance notice or summons for the offence.
> (4) A person must not harm or desecrate an Aboriginal place.
> Maximum penalty:
> (a) in the case of an individual-5,000 penalty units or imprisonment for 2 years, or both, or
> (b) in the case of a corporation-10,000 penalty unit.
> (5) The offences under subsections (2) and (4) are offences of strict liability and the defence of honest and reasonable mistake of fact applies.
> (6) Subsections (1) and (2) do not apply with respect to an Aboriginal object that is dealt with in accordance with section 85A.
> (7) A single prosecution for an offence under subsection (1) or (2) may relate to a single Aboriginal object or a group of Aboriginal objects.
> (8) If, in proceedings for an offence under subsection (1), the court is satisfied that, at the time the accused harmed the Aboriginal object concerned, the accused did not know that the object was an Aboriginal object, the court may find an offence proved under subsection (2).[4]

[2] Part 1 Section 5, National Parks and Wildlife Act 1974.
[3] Part 6 Section 90 (1) National Parks and Wildlife Act 1974.
[4] Part 6 Section 86, National Parks and Wildlife Act 1974.

1.5.2.1 Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW

In October 2010 DECCW (now the Office of Environment and Heritage) introduced the "Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW".[5] This code of conduct was released in response to changes in the NPW Act which now states "A person must not harm or desecrate an object that the person knows is an Aboriginal object" or that "A person must not harm or desecrate an Aboriginal place" (NPW Act, Amendment 2010). Individuals or organisations who are contemplating undertaking activities which could harm Aboriginal objects should consult this code or engage the services of an appropriately qualified archaeological consultant to carry out a Due Diligence study on any proposed development.

This code provides a process whereby a reasonable determination can be made as to whether or not Aboriginal objects will be harmed by an activity, whether further investigation is warranted, and whether the activity requires an Aboriginal Heritage Impact Permit (AHIP) application.

If through this or any other process which meets the standards of this code, such as the commission of an Environmental Impact Assessment, one has already taken reasonable steps to identify Aboriginal objects in an area subject to a proposed activity. Subsequently if it is already known that Aboriginal objects will be harmed, or are likely to be harmed by an activity, then an application should be made for an AHIP.

1.5.3 State Heritage Register and Inventory

The NSW State Heritage Register or Inventory is a list which contains places, items and areas of heritage value to New South Wales. These places are protected under the New South Wales Heritage Act 1977.

The site is not listed on the NSW State Heritage Register or Inventory.

1.5.4 National Heritage List

The National Heritage List is a list which contains places, items and areas of outstanding heritage value to Australia. This can include places and areas overseas as well as items of Aboriginal significance and origin. These places are protected under the Australian Government's EPBC Act.

The study site is not listed on the National Heritage List.

1.5.5 Commonwealth Heritage List

The Commonwealth Heritage List can include natural, Indigenous and historic places of value to the nation. Items on this list are under Commonwealth ownership or control and as such are identified, protected and managed by the federal government.

The study site is not listed on the Commonwealth Heritage List.

[5] Office of Environment and Heritage, http://www.environment.nsw.gov.au/resources/cultureheritage/ddcop/10798ddcop.pdf

1.5.6 Port Macquarie-Hastings Local Environmental Plan 2011

The Port Macquarie-Hastings Local Environmental Plan was prepared in 2011 by the Port Macquarie-Hastings Council. Heritage Conservation is dealt with in Section 5 Part 10 of this plan. Section 5.10.2.c states that consent is required for

> disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed.

Procedures for dealing with "Archaeological Sites" is stated in Section 5.10.7 of this plan. It states that:

> The consent authority must, before granting consent under this clause to the carrying out of development on an archaeological site (other than land listed on the State Heritage Register or to which an interim heritage order under the *Heritage Act 1977* applies):
> (a) notify the Heritage Council of its intention to grant consent, and
> (b) take into consideration any response received from the Heritage Council within 28 days after the notice is sent.

The study site is listed as part of an Archaeological Site, under Schedule 5 Part 3 of this plan. The site is part of the "Port Macquarie – Archaeology of Early Settlement - Parts of Town Centre and Town Beach precincts (Item A111) which is listed as being of local significance (See Figure 1.3 in AMAC July 2015).

1.5.7 Hastings Heritage Study

The *Hastings Heritage Study* was prepared by Suters Architects Snell, Newcastle, in 1991. The study site is not listed within the heritage study.

1.5.8 Archaeological Management Plan, Port Macquarie

The Archaeological Management Plan was prepared for Hastings Council in August 1994 by Dr Edward Higginbotham. The study site is dealt with as Inventory Number 154. This area is described as partly disturbed, being cut into the slope at the front. The site is described as being locally significant:

> This site possesses historical or archaeological significance because it may reveal evidence relating to 3b. The late 19th or 20th century development of the town (Representative. Local).

1.6 PREVIOUS HERITAGE STUDIES AND REPORTS

1.6.1 Anne Bickford Heritage Consultants (March 2003) 'Archaeological Assessment: Corner of Munster and Clarence Streets, Port Macquarie' for King and Campbell Pty Ltd

In 2003 Anne Bickford Heritage Consultants completed an archaeological assessment for the site adjacent to the eastern side of the study site, known as 5 Munster Street and 11 Clarence Street, Port Macquarie. Historical research indicated that the Munster and Clarence Street site was the location of two early 1820s Government buildings within an area designated as the Government Garden, of which the easternmost portion of the present study site formed part of this original wider allotment. Historical overlays by Bickford further indicated the possibility of

1820s subsidiary structures being present within the footprint of 15 Clarence Street (Lot 1 DP18834), or a portion of the original Clergyman's residence.[6]

1.6.2 AMAC Group (March 2014), 'Baseline Archaeological Assessment: 17-19 Clarence Street, Port Macquarie', for Bamford Engineering and Consulting

In March 2014 AMAC Group completed a Baseline Archaeological assessment for part of the study site at 17-19 Clarence Street (Lots 2 and 3 DP18834), Port Macquarie. The assessment found no evidence for development of the site prior to the construction of the present buildings. However, its location is close to the Government Gardens and the site may contain archaeological material associated with this early occupation phase of Port Macquarie. Consultation with the Heritage Division (see Appendix 9.1) has recommended archaeological test excavation within 17-19 Clarence Street to determine the presence or absence of archaeological material dating to this early occupation period.

1.6.3 AMAC Group (March 2015), 'Baseline Archaeological Assessment: 15 Clarence Street, Port Macquarie', for Wayne Ellis Architects on behalf of Anthony Vereker

In March 2015 AMAC Group completed a Baseline Archaeological assessment for part of the study site at 15 Clarence Street. The assessment identified the potential to contain archaeological relics of local or State significance. These relics relate to c.1824 – c. 1850 domestic occupation and may include whole or part of a c.1826 kitchen structure associated with the c.1824 Surgeon's House (later Clergyman's House). Based on the historical research and potential for early nineteenth century relics, archaeological test excavation was recommended as a way to determine the nature and condition of the archaeological resource in order to inform future development.

1.6.4 AMAC Group (July 2015) 'Archaeological Assessment supporting Exception Notification for Archaeological Test Excavation: 15-19 Clarence Street, Port Macquarie', for Bamford Engineering and Consulting

Based on the results of previous baseline assessments, in July 2015, AMAC Group submitted an Exception Notification application for archaeological test excavation at 15-19 Clarence Street, Port Macquarie. Test excavation was planned with the intention of identifying the presence or absence of material relating to the early nineteenth century government occupation of the wider area through the Surgeon's House (Clergyman's House). This document forms the results of archaeological test excavation.

1.6.4 AMAC Group (November 2015) 'Interim Archaeological Test Excavation Report: 15-19 Clarence Street, Port Macquarie', for Bamford Engineering and Consulting

Archaeological test excavation was carried out by AMAC Group in October 2015. The Interim Archaeological Test Excavation Report details the results of the test excavation. No relics were uncovered during these works. This report also provides a methodology and research design endorsed by Permit 2016/S140/01 and forms the basis of this current document.

[6] Anne Bickford Heritage Consultants (March 2003), Figure 5.1, p. 47.

2.0 SITE HISTORY

The following section contains a summarised version of the historical development of the study site based on previous reports by AMAC Group, with the addition of some new aerial and historical photographs.[7] For a complete history, including a title table and all historical maps, plans and photographs, refer to earlier reports by AMAC Group.

2.1 ORIGINAL GRANT

Prior to the original grant, the study site was government owned land and formed part of the government gardens. By the 1824 plan that land was shown divided and annotated, with the number '9' in the north and number '10' in the south - the study site being located within the area marked number 9. Also within this area, in the north-eastern corner, were two fenced areas that contained a small structure each, numbered '2' and '4' (Figure 2.1). [8] By 1826 these cottages and the study site were still shown within area '9', which at that point in time was still noted as 'government gardens' (Figure 2.2).[9] The numbering of the cottages had swapped in the 1826 plan: the structure that was '2' in 1824 is labelled '4' in 1826 and the structure that was '4' in 1824 is '2' in 1826. The northernmost of the pair (1824: '2' and 1826: '4') is referred to as 'the pilot's quarters' in the key for the 1826 plan. The southernmost of the pair (1824: '4' and 1826: '2') is referred to as 'the surgeon's quarters' in the key for the 1826 plan.[10]

An account of the occupation of the Surgeon's (later Clergyman's) building between 1824 and 1839 is given by an existing study by Bickford:[11]

> "The first chaplain's place of residence is not recorded but it seems most likely that this was in the centre of the settlement with the other civil officers. It may even have been the cottage on the east side of the Government Garden that was later used by the Reverend John Cross (Building 2 on the 1826 plan - Figure 2.2) which could have enlarged or rebuilt for Hassall's arrival.
>
> On the basis of the 1831 plan (Figure 2.3) and of other documentary evidence, the residence allocated to the Reverend John Cross and his family can be identified as the cottage at the north-east corner of the old Government Garden. These were the quarters that were being used by the surgeon in 1826 [Building 2]."[12]

The study site forms three separate grants of land forming part of Allotments 1, 2 and 3 of Section 2A of the subdivision of Port Macquarie: 15 Clarence Street forms part of original Lot 3; 17 Clarence Street part of original Lots 2 and 3; and 19 Clarence Street part of original Lots 1 and 2. Original Lot 1 was granted to the Presbyterian Church in 1843, via Trustees Robert Andrew Wauch, Alexander Thomson, Joseph Richard Middleton and William Mackenzie. The land was retained by the trustees of the church until 1917 when it was transferred into the possession of the McIntyre family. Original Lot 2 was granted to William Fraser of Hastings River in 1855, who in turn passed the property on to Louisa McIntyre (also spelt

[7] AMAC Group (March 2014); AMAC Group (March 2015); AMAC Group (July 2015).
[8] Bickford, A. (March 2003), pp. 21-23, 35.
[9] Bickford, A. (March 2003), p. 23, 35.
[10] Bickford, A. (March 2003), p. 22.
[11] For a larger excerpt from Bickford's report, see AMAC Group (July 2015), p. 19.
[12] Bickford, A. (March 2003), p. 23, 30.

MacIntyre) two years later. Original Lot 3 was granted to Archibald Clunes Innes and William Cross, in trust for Louisa McIntyre in 1851.

2.2 SUBSEQUENT OWNERS AND OCCUPANTS

Louisa McIntyre (nee Cross), arrived in the colony aboard *Barring* in 1819 with her parents Reverend John Cross, Ann Cross and two other siblings. In 1828, the family moved to Port Macquarie as John Cross had been appointed as the chaplain of the new St Thomas' Church.[13] In 1838, Louisa Cross married Dr James McIntyre, a government medical officer and together they had seven children, Louisa Isabella (born 1840), James William (born 1842), Ann Margaret (born 1844), William (born 1845), John Cross (born 1846), Eliza Caroline (born 1847) and Sarah Elizabeth (born 1850).[14] Dr McIntyre continued to live and work in Port Macquarie until his death in 1853.[15] Louisa McIntyre already owned Lot 3 and acquired Lot 2 in 1857. Following her death in 1887, the property was inherited by her daughter Eliza Caroline McIntyre.

In 1907, Eliza Caroline died in Queensland,[16] and left the lot to her sister Sarah Elizabeth Noble (then married to John H. Noble) who in turn gave the property to her elder brother John Cross in 1913. Lot 1 had also been promised to John Cross, though this transfer was never made official. John Cross McIntyre (1846-1915)[17] worked as a grazier in Port Macquarie and appears to have had continuing involvement with the Church of England, acting as a reader for the church and nominated as a trustee for land owned by the Church of England.[18] He married Ellen Pender in 1889[19] and together they had four children.[20] Following the death of John Cross in 1915, Lots 1, 2 and 3 were transferred to the trustees of his will, his nephew James Neville Parker (1869-1965),[21] son John Pender McIntyre and nephew Ernest George McIntyre (1878-1957).[22]

In 1936, John Pender McIntyre, working as a station overseer in Queensland, and his sister Leila Lester (nee McIntyre) Hope, purchased all three lots and within three years had subdivided the land into nine smaller lots (DP18834). This subdivision placed the study site into their current formation, Lots 1-3 DP18834.

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[13] Herbert Marshall, 'Cross, John (1781–1858)', Australian Dictionary of Biography, National Centre of Biography, Australian National University, http://adb.anu.edu.au/biography/cross-john-1937/text2315, accessed 6 December 2013.

[14] NSW Births, Deaths and Marriages Index V18402037 25A/1840; V18421973 26A/1842; V1844378 44A/1844; V1846412 44A/1846; V1845969 30A/1845; V1847467 44A/1847; V1850599 44A/1850

[15] Port Macquarie Historical Society (1996) p.264.

[16] Ancestry.com Australia Death Index, 1787-1985

[17] NSW Births, Deaths and Marriages Index V1846412 44A/1846; 18373/1915

[18] Sydney Morning Herald, 16 August 1882, p.7; Maitland Mercury and Hunter River General Advertiser, 10 November 1883, p.3.

[19] NSW Births, Deaths and Marriages Index 5076/1889

[20] John Pender (1891-1976), Leila Lester (1894-1962), Frank I (born 1899) and Harry Parker (born 1907). NSW Births, Deaths and Marriages Index, 29348/1891; 104297/1976; 27858/1894; 25334/1962; 24309/1899; 17282/1907

[21] Son of Louisa Isabella nee McIntyre and Henry H Parker. NSW Births, Deaths and Marriages Index 16964/1869; 24838/1965

[22] Son of James William and Catherine Martha McIntyre NSW Births, Deaths and Marriages Index 20641/1878; 6136/1957; LPI Primary Application 32951

Lot 1 (15 Clarence Street) was purchased by Horace Leslie Larcombe and his wife Elsie Isabel Larcombe in 1943. Lot 1 was later sold to Harry Charles Potts in 1950, who then sold it to Wilfred and Ilma Oxenbridge in 1953. During the 1960s the property was owned by a succession of local residents before being purchased by Edwin and Colleen Stubbs in 1977.

Lot 2 (17 Clarence Street) was purchased by Alice Winifred Kennards in 1943. No further land titles have been found to indicate the owners of the property or the year in which Kennards sold the property.

Lot 3 (19 Clarence Street) was sold in 1945 to Lavinia Maud Smith. Lavinia Maud (nee Bogan) married William Alexander Smith in 1911.[23] Electoral roll records show that Lavinia and her husband, a dentist, were living on Horton Street during the late 1940s and 1950s.[24] Following her death in 1959[25] the property was acquired by her husband, William Alexander Smith in 1960 and then by Joan Smith in 1963.[26] During the 1960s the property was owned by a succession of local residents of Port Macquarie before being purchased by Yung Kwang and Lucy Lowe Chu in 1973.[27]

2.3 DEVELOPMENT

The study site forms a small part of Section 2A of the original Port Macquarie subdivision. During the early years of the settlement, Block 2A was owned by the Government and formed part of the government gardens. The study area, 15 Clarence Street (Lot 1 DP18834) is thought to be located in the vicinity of two c.1820s cottages and may be the location of a c.1826 kitchen as well as being within the curtilage of both cottages. There is no specific evidence to suggest development on the area of the study site contained by 17 or 19 Clarence Street (Lots 2 and 3 DP18834) from its first use as part of the government gardens, up until the early twentieth century. Not until the mid-twentieth century does such evidence appear. It could be that no development occurred or that no record was made.

15 Clarence Street (Lot 1 DP18834)

By 1824, the Government Gardens were characterised by fenced areas: '9' being the gardens, '10' which '*contains the first plantings of the Sugar Cane'*, and two smaller fenced areas in the north-eastern corner which each contained one timber building (Figure 2.1).[28] Existing analysis of the 1824 map also suggests:

> "Running parallel with the eastern boundary of the fenced area and the enclosure alongside building No. 4 was what would appear to be (by comparison with similar features elsewhere) a drainage line."[29]

The precise location of the drainage line is uncertain, and it is unlikely to fall within the bounds of the current site, however, this type of structure should be noted as a possibility for development in its general vicinity. Particularly in light of the many drainage lines noted in the garden area south of the c.1824 Commandant's

[23] NSW Births, Deaths and Marriages Index 10436/1911
[24] *Australian Electoral Rolls 1903-1980* (1949; 1954; 1958)
[25] NSW Births, Deaths and Marriages Index 27659/1959
[26] LPI Vol 5531 Fol 241
[27] LPI Vol 5531 Fol 241
[28] Bickford, A. (March 2003), p. 21.
[29] Bickford, A. (March 2003), p. 21.

residence and the nearby sugar cane plantation. The two fenced areas in the north-eastern corner which contain two timber structures marked '2' in the north and '4' in the east were respectively known as the Pilot's Quarters and the Surgeon's Quarters.[30]

By 1826, the numbers for the structures have swapped, the northernmost Pilot's Quarters now '4' and shown as having an 'L' shape, possibly with a veranda or outbuilding on its southern face. The eastern 'Surgeon's quarters' (now '2', and also likely now occupied by Reverend Thomas Hassall),[31] had either been replaced or expanded since their representation in 1824. By 1826, the structure appears to have a north and east facing veranda and a smaller rectangular outbuilding to its west (Figure 2.2).[32] This structure is likely the kitchen described in the repairs request by Alexander Thomson in 1833. The garden associated with this house is also thought to be 'much enlarged after 1826.'[33]

Further details on the Clergyman's House and its kitchen are included in a repairs specification made by Alexander Thomson, Clerk of Works, in March 1833.[34] These are detailed in a previous study:[35]

> "Thomson described the main building as about 40 feet long, 16 feet wide and 9 feet high, divided into five rooms and a hall with a verandah in front and at one end. The detached kitchen, about 8 feet from the house, was 17 feet by 16 feet. The specifications provided for a covered way to be built between the back of the house and the kitchen and a weatherboard building 30 feet by 14 feet with a skilling roof, divided into two rooms by a studded partition."[36]

It is not certain whether the specifications were asking permission to build the skilling roof structure or if it existed and required repair. This is a question that has been included in the research design for test excavation.

As these accounts are contemporaneous with the 1831 plan of Port Macquarie, it is posited that once an estimate exists for the location of the Clergyman's House, Thomson's repairs request could be used to estimate a location and size for the kitchen building to its west.[37] Based on the historical descriptions and imagery, it is estimated that the kitchen, or part of it, falls within the bounds of the study site and within the lot known as 15 Clarence Street (Lot 1 DP18834), however, no evidence of this building was found during archaeological test excavation or monitoring indicating that it was most likely located in the neighbouring property and therefore outside of the study site.

Last occupied by Reverend Cross in 1837, the former Surgeon's Quarters (from c.1827 known as 'Clergyman's House'), and likely the kitchen structure were

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[30] Bickford, A. (March 2003), p. 21.
[31] Bickford, A. (March 2003), p. 23.
[32] Bickford, A. (March 2003), p. 22.
[33] Bickford, A. (March 2003), p. 24.
[34] 'Specification of repairs &c required to be done at the parsonage Port Macquarie', signed by Alex Thomson, Clerk of Works, Commissariat Branch 12 March 1833, Clergy & School Lands Corporation, Architects' and Mechanics' Estimates and Tenders 1833,4/348 pp 75-82, Letter 33/169 (State Records NSW); Bickford, A. (March 2003), p. 24.
[35] For a larger excerpt from Bickford's report, see AMAC Group (July 2015), p. 27.
[36] Bickford, A. (March 2003), p. 24.
[37] Refer to Section 3.3 in AMAC Group (March 2015) and AMAC Group (July 2015), for a detailed discussion on the location and size estimate of the kitchen structure devised from Thomson's repairs request.

considered "condemned and abandoned" by November 1839 and were subsequently demolished by 1840 (Figure 2.4).[38]

There is no evidence to suggest development on the study site between 1841 and the early twentieth century and this is confirmed by the archaeological evidence. No maps or plans of Port Macquarie were found for the periods during the 1850s and early 1900s, which in turn creates difficulty for identifying the presence of any buildings or dwellings unless it has been acknowledged among written records. Aerial photographs dating to 1909 and 1933 (Figure 2.5 and Figure 2.6) suggests the site was likely vacant. The Royal Hotel, a presence since at least 1840, is known to have remained on the same allotment on Horton Street well into the twentieth century. As a result, the hotel has been identified by a blue arrow in all plans and photographs as a matter of orientation for the current study site. With this in mind, the 1909 photograph shows the northern end of Hay Street with Horton Street to the left and Murray Street to the right. The approximate western edge of the study site might be within this photograph and the area appears vacant. Whether the site can be seen in this photograph is dependent on the original width of Murray Street.

It can be suggested that development did not occur directly on the study site until after the subdivision from original Lots 1, 2 and 3 into nine new lots during the late 1930s (Figure 2.7). An aerial photograph dating to 1941 shows the study site still vacant (Figure 2.8). 15 Clarence Street (Lot 1 DP18834) had been developed sometime after 1941 and prior to 1959, most likely with the current structure, as indicated by second aerial photograph (Figure 2.9). A survey of the surrounding area, date unknown, shows a brick and fire cement structure on the site as well as a smaller fibre cement outbuilding in the lot's north east corner. That smaller structure is no longer extant, and the outline of the main structure is different to that presented in the current survey of the 15 Clarence Street (Figure 2.11).

17 and 19 Clarence Street

The early plans (Figure 2.1 - Figure 2.3) detailing the government gardens, Surgeon's Quarters (later Clergyman's House) and Pilot's Quarters (later Sergeant's Quarters), indicate that the area now contained by 17 and 19 Clarence Street (Lot 2 and 3 DP18834), west of 15 Clarence Street, would have formed part of the yard space associated with those early dwellings. No evidence has been found to suggest the presence of any buildings or structures on this part of the study site during the government occupation phase.

As with 15 Clarence Street, there is no evidence to suggest development on either original lots 1, 2 or 3 in Section 2A between 1841 (following the closure of Clergyman's House and government gardens), and the early twentieth century. It can be suggested that development did not occur directly on 17 or 19 Clarence Street until after the subdivision from original lots 1, 2 and 3 into their present formation (current Lots 2 and 3). Direct development of 17 and 19 Clarence Street is believed to date between the 1940s and early 1950s. A split level fibro dwelling was constructed on 17 Clarence Street (Lot 2 DP18834) during its ownership by Alice Winifred Kennards (purchased in 1943). A 1959 aerial photograph (Figure 2.9), shows that 19 Clarence Street was occupied by a square shaped building. This is the same two-storey, fibro and brick building which currently occupies the study site.

[38] Report by Colonial Architect on parsonage houses 13 November 1839, Colonial Secretary from Port Macquarie 1836-1841, 4/2546 (State Records NSW); Bickford, A. (March 2003), p. 28.

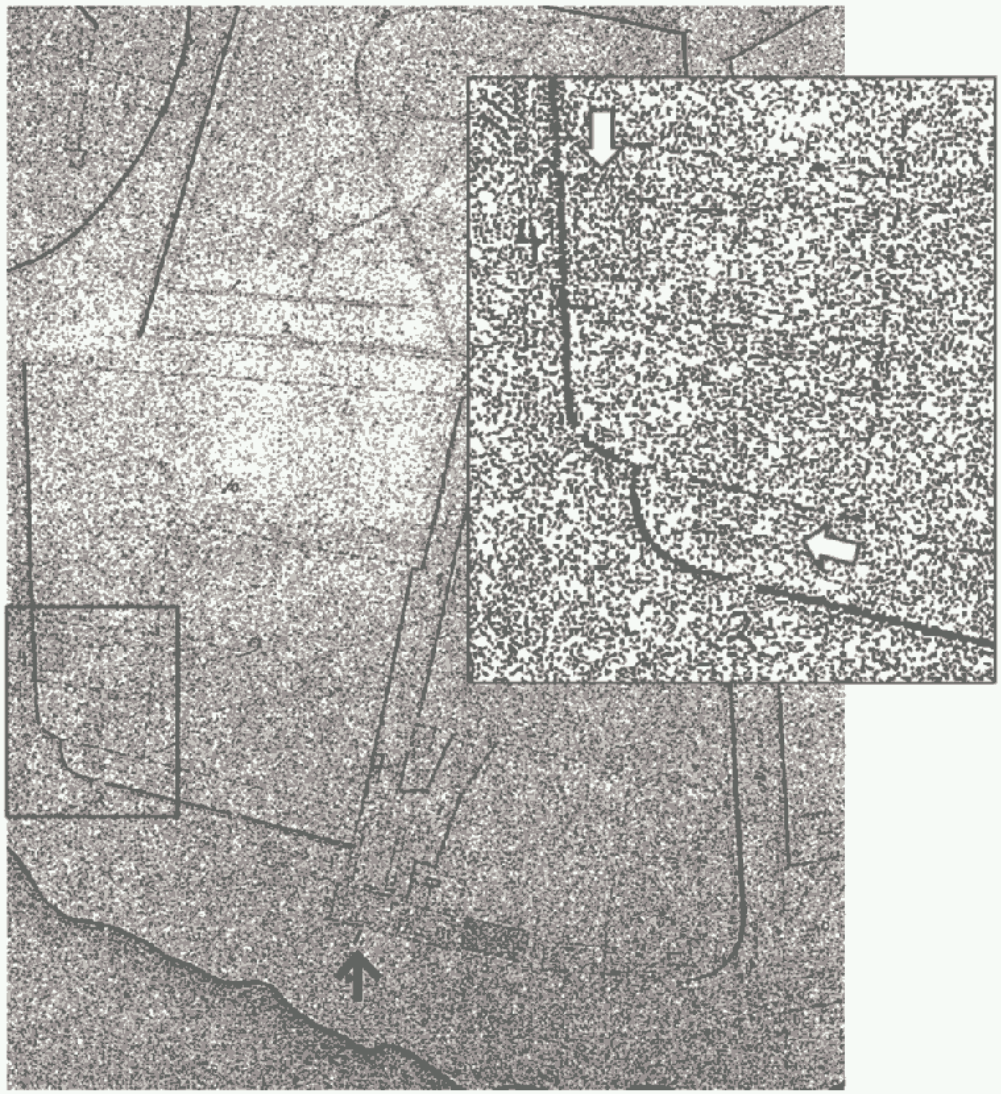

Figure 2.1 **Excerpt from the 1824 plan of Port Macquarie.**
Note map reproduction is very faint, arrows are approximate.
Black arrow shows Commandant's House, '1'
Green arrow shows Surgeon's Quarters (later Clergyman's House), '4'
Purple arrow shows Pilot's Quarters (later Sergeant's Quarters), '2'
State Records NSW Map 74
Bickford, A. (March 2003) 35.

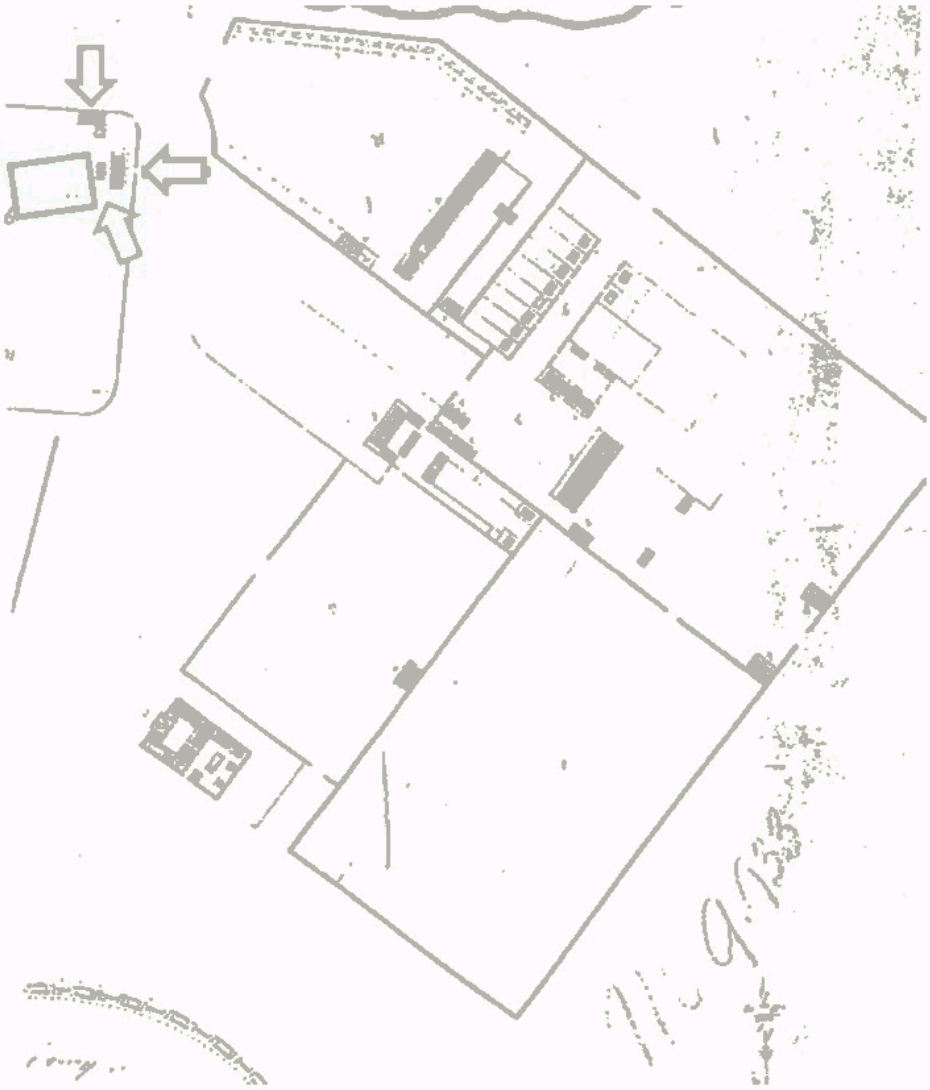

Figure 2.2 **Part of an 1826 plan showing the layout of Port Macquarie.**
The approximate area of the study site is outlined in red.
Surgeon's Quarters (Later Clergyman's House) indicated by green arrow.
'Pilot's Quarters' indicated by purple arrow and Kitchen shown by orange arrow. Bickford, A. (March 2003), 22-23, 37 State Archives (Reference: Map 3821).

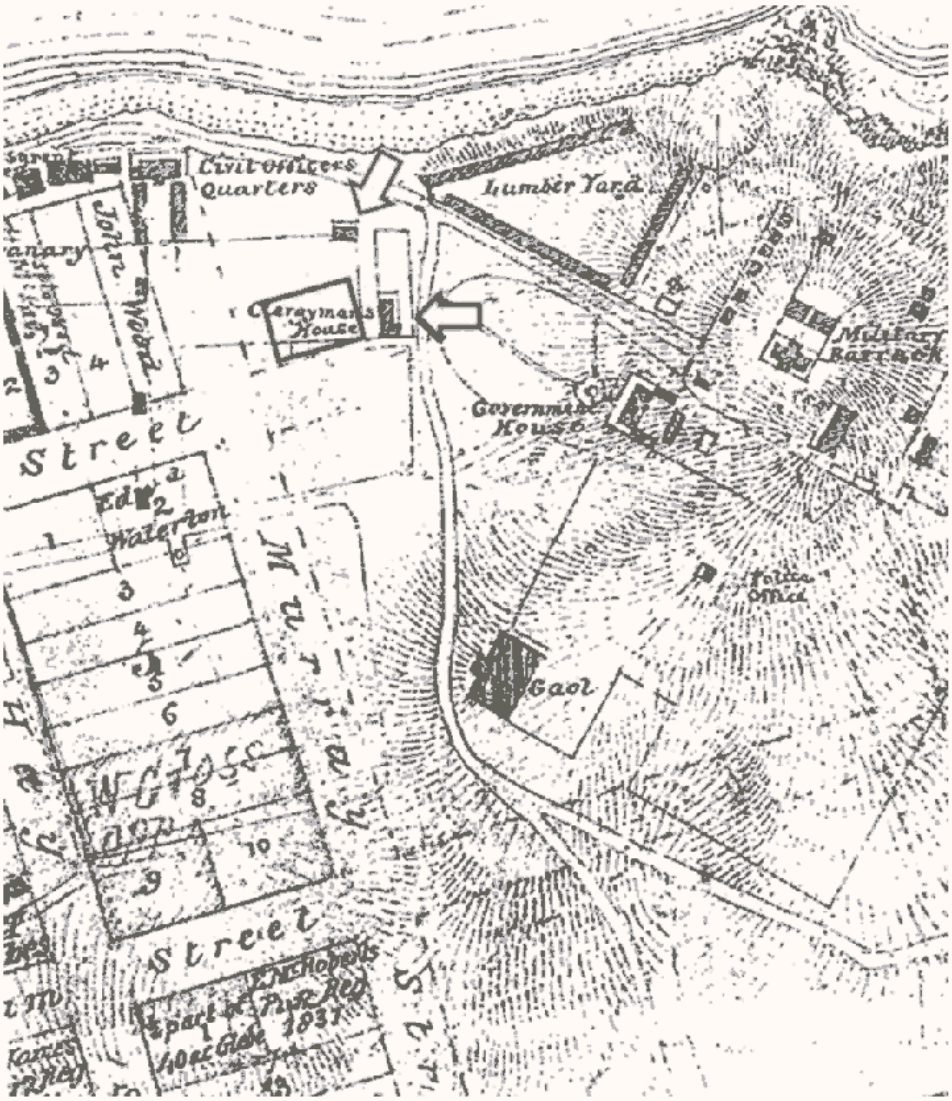

Figure 2.3 **A section of an 1831 plan, showing new street alignments and development.**
Note that the approximate area of the study site is outlined in red, with the Clergyman's house indicated by the green arrow and 'Pilot's Quarters' indicated by purple arrow. Murray Street is yet to be established.
State Records of NSW (Reference: Map 6372).

Figure 2.4 **An 1840 plan of Port Macquarie, showing block 2A with the approximate study site outlined in orange.**
The 'L' shape building north of the study site is marked 'Clerk of Works Quarters'.
State Records of NSW (Reference: Map 3673).

Figure 2.5 **A photograph dated to 1909, showing the northern side of Hay Street to the harbours edge.**
For orientation, the Royal Hotel is indicated by the blue arrow. The approximate edge of the study area is indicated by the red arrow, however, dependent on the width of Murray Street, it is possible that some of the current study site has been cut off.
Mitchell Library (1909: Reference d1_11570).

Figure 2.6 **Part of a 1933 aerial photograph of Port Macquarie.**
Approximate study site outlined in red.
Accessed through Trove online (original reference Fairfax archives PIC 15611).

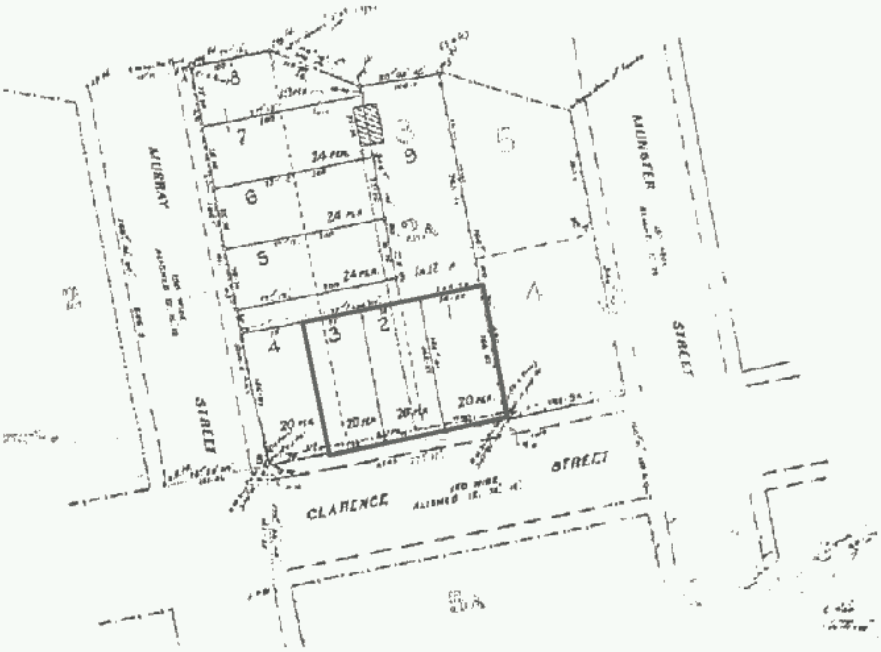

Figure 2.7 **A plan showing the subdivision of original Lots 1-3 into nine separate allotments during 1939.**
The study site is outlined in red.
Port Macquarie Council (1939: LPI DP 18834).

Figure 2.8 **A 1941 aerial photograph of Port Macquarie.**
The approximate area of the study site is indicated by the red arrow, showing that no development has taken place. Note that subdivision of the nine allotments has already occurred and two structures are present east and west of the study site.
Port Macquarie-Hastings Council website (accessed 8th July 2015).

Figure 2.9 **A 1959 aerial photograph of Port Macquarie.**
Study site indicated by red arrow.
Land and Property Information (1959).

Figure 2.10 Survey plan of structures along Clarence Street, study site shown as Lots 1-3 (outlined in red).
Partly illegible notes on Lot 1 (15 Clarence St): 'Marie(?) (? / Flats (B) (?) F. C.' Which may refer to a name for the structure and then go on to describe it as 'Flats' of brick and fibre cement construction. Note also fibre cement outbuilding in northeast of site. Lot 2 (17 Clarence St): 'Aberdeenshire Holiday Flats FC'. Lot 3 (19 Clarence St): 'FC & Br'.
Undated plan included in property information report made in 1972 by Brian Bede Tierney of Dulhunty and Tierney Pty. Limited regarding Lot 3 DP 18834.

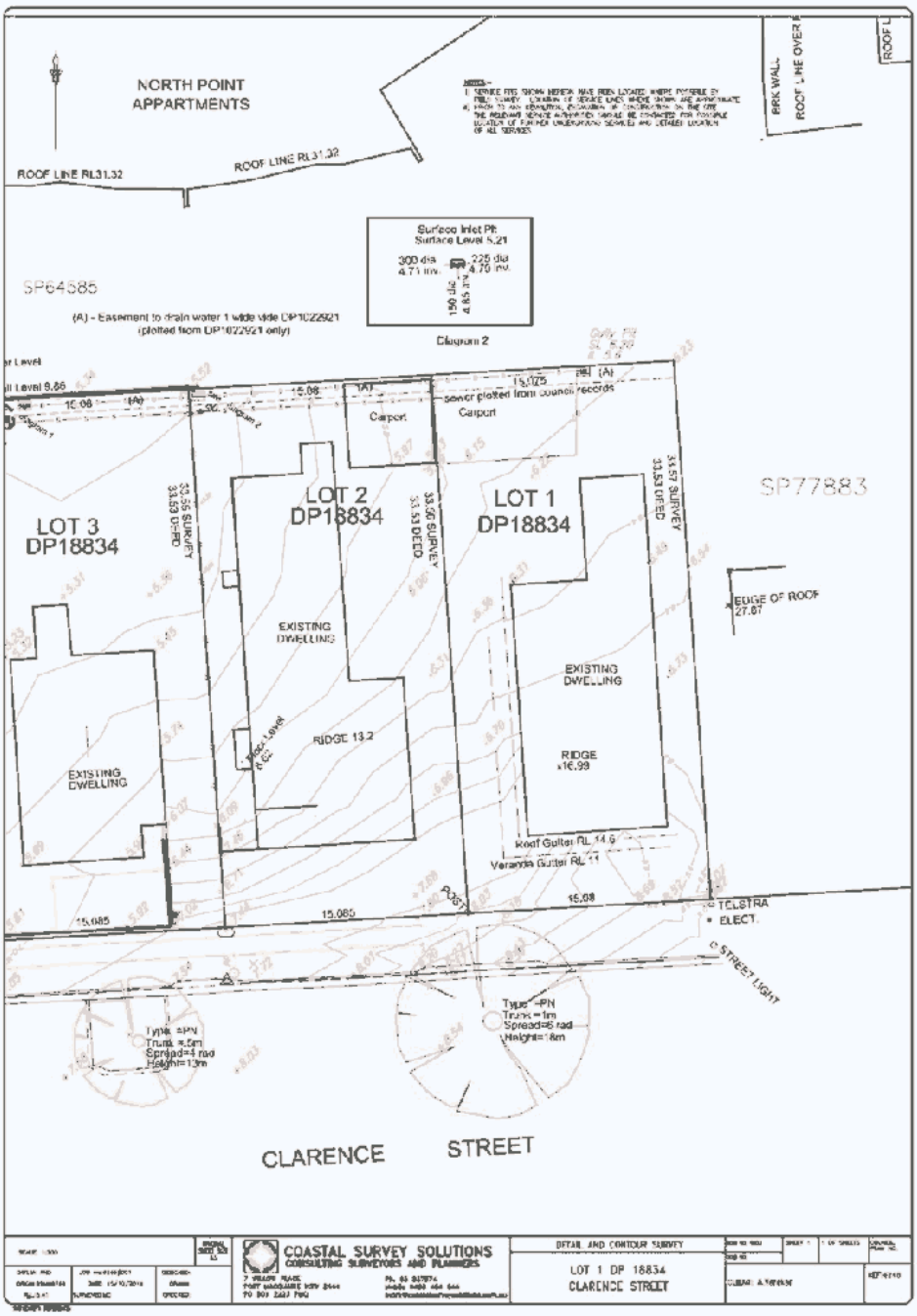

Figure 2.11 **Current survey of the study site, showing details for 15 Clarence Street (Lot 1 DP 18834), as well as contour details for 17 (Lot 2 DP18834) and 19 Clarence Street (Lot 3 DP18834).**
Coastal Survey Solutions (2014).

3.0 ARCHAEOLOGICAL MONITORING

3.1 BACKGROUND

Archaeological monitoring was carried out at 15 -19 Clarence Street, Port Macquarie, on 17 March 2016 with Ivana Vetta of AMAC Group supervising the works. This work was carried out in compliance with Permit 2016/S140/01. Monitoring was confined to 15 Clarence Street (Lot 1 DP18834) as this was the area with the highest archaeological potential as per the Interim Test Excavation Report (November 2015). During this work, the sump identified in the centre of the site during test excavation was further exposed and photographed. No relics were uncovered during any of these works (Figure 3.1).

3.1.1 Archaeological Monitoring Methodology

All buildings were demolished to the level of footings prior to archaeological works commencing on the site. A qualified archaeologist monitored the removal of all topsoil by a mechanical excavator using a mud bucket in the eastern third of the site (Figure 3.1) to identify whether any material remains exist in this portion of the site. The excavation was carried out according to the direction of the archaeologist. In general, machinery used moved backwards in order not to damage any potential archaeological relics. The soil was removed in stratigraphic layers, with no more than one context, such as topsoil, being removed at one time.

No archaeological relics were found during this work.

3.2 GEOLOGY AND SOILS

The study site appears to fall within 'disturbed terrain' of the Soils Landscapes of the Kempsey sheet (1:100 000). Urban development and the site's close proximity to the river foreshore are most likely determining factors in the disturbed nature of the soil profile. Also bordering the site, and possibly present in pockets, is the 'Thrumster' (th) soil profile.[39] A short summary has been made to outline the soil profile and its characteristics, which is present over a large portion of the original town settlement of Port Macquarie.

The Thrumster (th) soil profile is located across the Kempsey Low Hills, around the west coast of the Pacific Highway.[40] The soil hydrology of the Thrumster (th) landscape is slowly permeable, moderately well drained and overall considered to be a quality agricultural soil.[41] The geology of the profile is metamorphic complexes of the Port Macquarie Block and is an erosion hazard. Land use for this soil profile across the wider Port Macquarie area is primarily urbanised, with pockets of private forested land or agricultural land.[42]

The dominant or expected soil materials/profiles for the Thrumster (th) profile include:[43]

- **th1 –** dark reddish brown pedal clay loam (topsoil, A1 horizon). Commonly sandy to light clay, low wet bearing strength, high permeability.

[39] Atkinson (1999), pp. 56-59.
[40] Atkinson (1999), pp. 56.
[41] Atkinson (1999), pp. 56.
[42] Atkinson (1999), pp. 56.
[43] Atkinson (1999), pp. 57.

- **th2** – dark reddish brown sub-plastic pedal clay (subsoil, B horizon). Sub-plastic clay loam, coarse fragments typically absent, low wet bearing, high permeability, low fertility.
- **th3** – mottled red sub-plastic pedal clay (deep subsoil, C horizon). Dark reddish brown to red sub-plastic clay loam to light clay. Parent material coarse fragments (<20%), low fertility.

Associated soil materials include:

- **th4** – orange pedal light clay (deep subsoil on steep slopes, C horizon). Orange light clay with moderate smooth-faced peds, Parent material coarse fragments (<20%).
- **th5** – gravelly pedal clay (subsoil in drainage plans, C horizon). Pedal grey clay commonly containing chert gravel in angular bands.

Road Net Pty Ltd conducted bore hole testing at the study site in June 2015.[44] Four boreholes were drilled across the site prior to the buildings being demolished. The report also notes the site's location within the Thrumster soil landscape, describing the profile as:

> The dominant soil materials are clays and clay loams, generally dark reddish brown, mottled red or orange pedal clays. Some laterite ironstone can be found within the landscape. Serpentine is also present in the area.[45]

Results from bore hole testing stated the presence of clay of varying colours with some layers described as silty clay, sandy clay and some with gravel inclusions.[46] Of note is that the soil structure as a whole was described as a silty clay, which is different to the pedal clay in the Thrumster soil landscape.[47] The colouration of almost all sampled soil layers do not match the general dark reddish-browns of the Thrumster landscape.

3.3 RESULTS OF ARCHAEOLOGICAL MONITORING

3.3.1 15 Clarence Street (Lot 1 DP18834)

The surface of the southern part of the eastern allotment was covered with a mottled dark reddish-brown loamy clay [500] which was approximately 1.4m in depth and appears to have been introduced in the 20th century to build up this part of the site which is significantly below street level (Figure 3.3-Figure 3.4). Some of this fill was displaced during the demolition works and partly overlaid the concrete foundations of the former 1930s apartment block. These foundations [502] (oriented east-west) and [503] (oriented north-south) which were contained by construction trench [505] which cut directly into the natural mid brown loamy clay (A1 horizon) [501]. Fill [500] sat directly above natural A1 horizon [501] except for in the southeast part of this allotment where fill [500] overlay an introduced topsoil [504] which contained some fragments of sandstone and concrete. In this area fill [504] sat directly above the natural [501] (Figure 3.4-Figure 3.8). In the northern part of this allotment, fill [500] sat directly above a natural stiff orange clay [507], natural B horizon. It appears that natural soil [501] was previously removed in this area with this part of the site truncated down to the B horizon.

[44] Road Net Pty Ltd (June 2015).
[45] Road Net Pty Ltd (June 2015), p. 4.
[46] Road Net Pty Ltd (June 2015), p. 5.
[47] Road Net Pty Ltd (June 2015), p. 6.

In the east of this area, a rectangular pit cut [508] (2.5x4m) was located butting the neighbouring building. This pit was filled with redeposited B horizon clay [506] and appears to have been the investigative trench excavated to explore the depth of the foundations on the neighbouring property (this work occurred during test excavation). See Figure 3.9.

The northern part of this allotment contained a number of modern service trenches, filled with broken pipes and red brown clay, which cut the natural soils [501] and [507]. This includes service trench [510] with fill [511] (oriented north-south), adjoining service trench [523] with fill [509] (oriented east-west), service trench [512] with fill [513] (oriented northwest-southeast) and adjoining service trench [514] with fill [515] (Figure 3.10-Figure 3.11). The rough location of these features is shown in Figure 3.2.

The driveway along the western side of this allotment was covered with a concrete surface [516]. This surface sat above a mixed yellowish orange sand and clay [517] which was used as bedding for the slab. Below fill [517] was a mottled reddish brown loamy clay fill [518] which was the same as fill [500] which in turn sat above a mottled yellowish grey sand and clay fill [519]. Fill [519] sat above natural A1 topsoil [501] (Figure 3.12-Figure 3.13). A concrete partition [521] separated the driveway for 15 Clarence Street from the driveway for 17 Clarence Street. Below concrete slab [516] on the 17 Clarence Street side of the driveway was an orange-red clay fill [520] which in turn sat above a lens of dark grey clay [522]. Fill [522] sat above natural [501].

Table 3.1 Context List (Archaeological Monitoring)

Context Number	Type	Description
500	Fill	Mottled reddish brown loamy clay
501	Natural	Natural A1 horizon – mid grey brown loamy clay
502	Structure	Concrete foundation
503	Structure	Concrete foundation
504	Deposit	Modified topsoil – interface between [500] and [501]
505	Cut	Construction cut for foundations [502] and [503]
506	Fill	Redeposited B1 horizon clay
507	Natural	Natural B1 horizon
508	Cut	Rectangular cut
509	Fill	Fill in cut [508]
510	Cut	Service trench
511	Fill	Fill in cut [510]
512	Cut	Service trench
513	Fill	Fill in cut [512]
514	Cut	Service trench
515	Fill	Fill in cut [514]
516	Structure	Concrete surface of driveway
517	Fill	Yellowish orange sandy clay bedding fill
518	Fill	Mottled reddish brown loamy clay
519	Fill	Mottled yellowish grey sand and clay
520	Fill	Orange-red clay

Context Number	Type	Description
521	Structure	Concrete barrier wall between 15 and 17 Clarence Street
522	Fill	Lens of dark grey clay
523	Cut	Service trench

3.3.2 Sump in 19 Clarence Street

The sump in 19 Clarence Street was inspected as part of this work. This sump was lined with modern timber planks and was saturated with water. The upper portion of the sump was removed, however, the quantity of water prevented further excavation. This feature was modern and likely associated with the mid-20th century use of the site (Figure 3.14-Figure 3.15).

3.4 INTERPRETATION OF RESULTS

No relics were uncovered during the monitoring of the 15 Clarence Street part of the site. It is noted that natural topsoils still survive in most of this allotment and there was no evidence during any of the excavations, of the 19th century occupation of Port Macquarie. This suggests that this site was not built upon prior to the mid-20th century apartment blocks which once stood here. This is consistent with the historic research. It is suggested that this land may not have been suitable for early construction being apparently low-lying. The modern sump in 19 Clarence Street is testament to the fact that water may have been a problem on the site making it unsuitable for earlier occupation. Based on this, it is clear that the kitchen constructed for the 1820s Clergyman's House was most likely on the neighbouring site, 11-13 Clarence Street.

Figure 3.1 **Location of archaeological monitoring (green) with approximate location of sump (blue arrow).**
Study site is outlined in red. NSW Land and Property Information, Six Maps Viewer, accessed 24th November 2015.

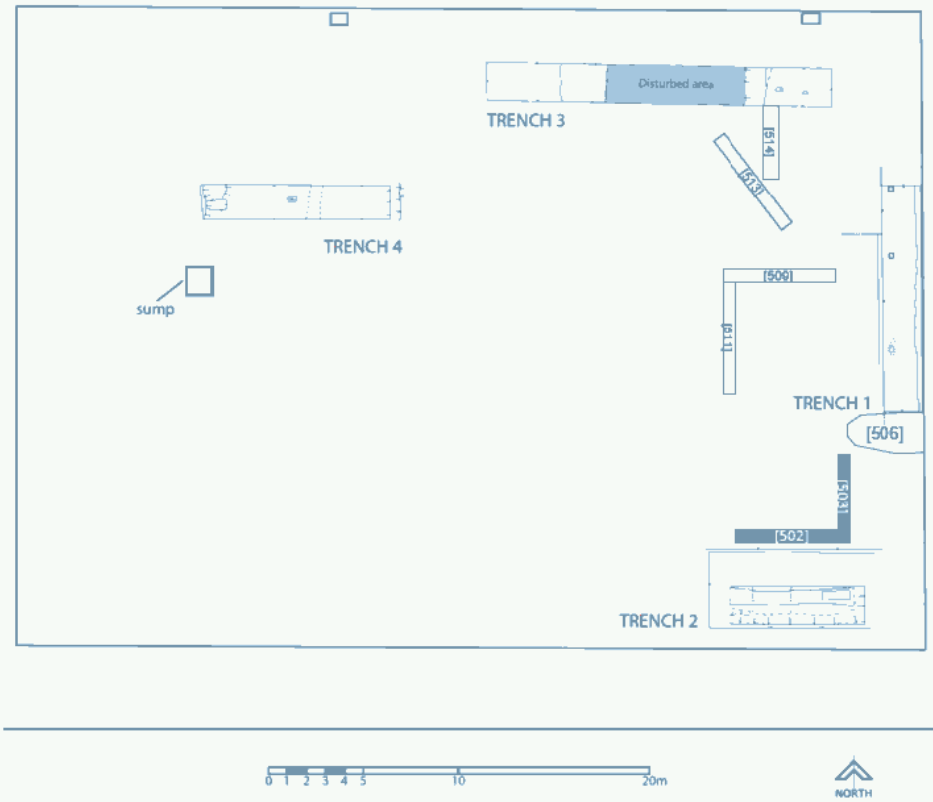

Figure 3.2 **Location of features from monitoring on test trench plan.**
Note monitoring features not to scale.

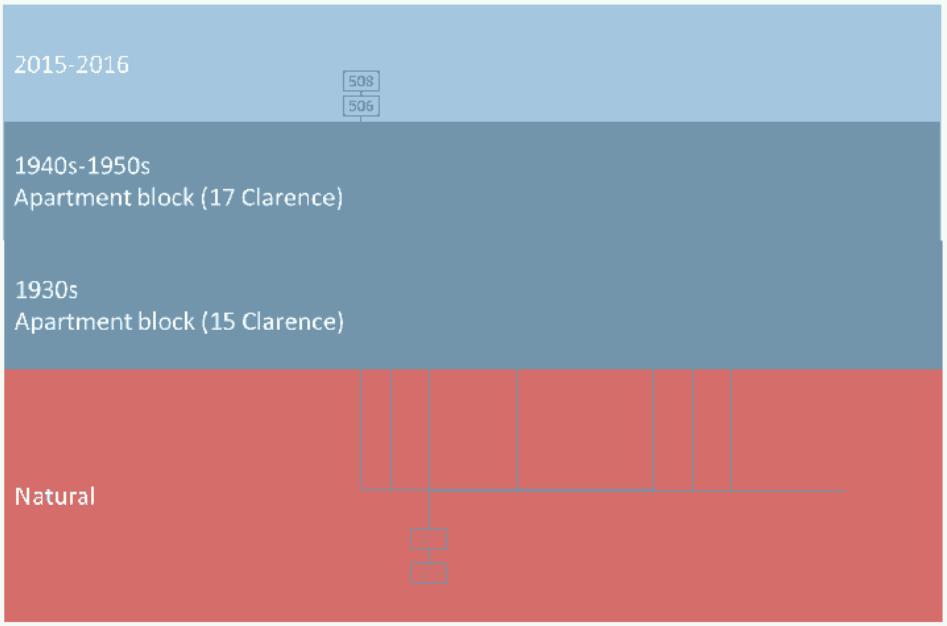

Figure 3.3 **Harris Matrix.**
I. Vetta, March 2016.

Figure 3.4 **15 Clarence Street prior to excavation, facing south.**
AMAC Image 2565, 17/03/16.

Figure 3.5 **Excavation of fill [500], facing southwest.**
AMAC Image 2573, 17/03/16.

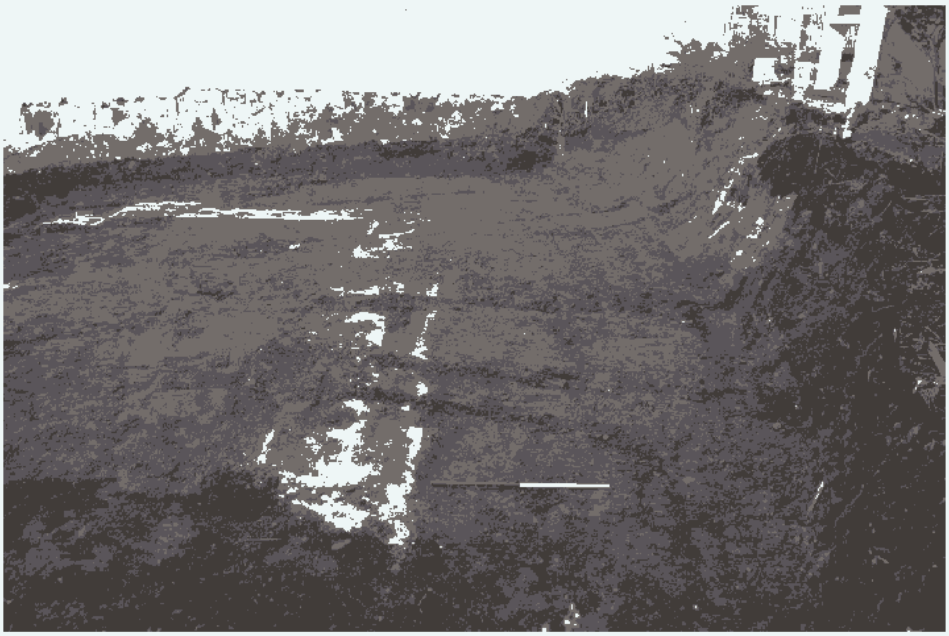

Figure 3.6 **Exposure of concrete footings [502] and [503] cutting natural [501], facing east.**
AMAC Image 2652, 17/03/16.

Figure 3.7 **Exposure of concrete footings [502] and [503] cutting natural [501], facing south.**
AMAC Image 2630, 17/03/16.

Figure 3.8 **Exposure of concrete footings [502] and [503] cutting natural [501], facing south.**
AMAC Image 2603, 17/03/16.

Figure 3.9 **Backfilled investigative trench [508], facing north.**
AMAC Image 2641, 17/03/16.

Figure 3.10 **Service trenches in rear yard, facing north.**
AMAC Image 2655, 17/03/16.

Figure 3.11 **Service trenches in rear yard, facing south.**
AMAC Image 2663, 17/03/16.

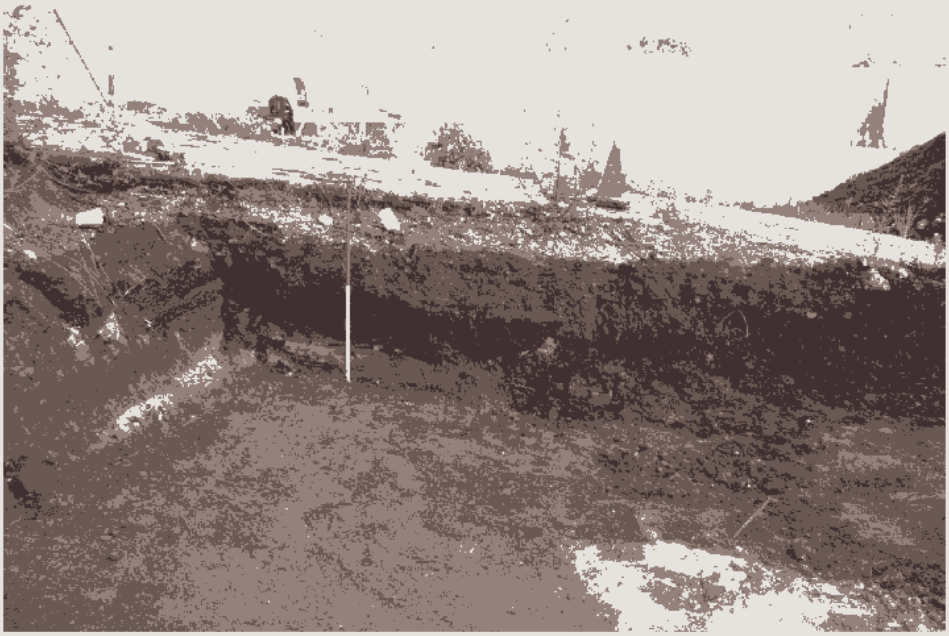

Figure 3.12 **Section below driveway, facing west.**
AMAC Image 2667, 17/03/16.

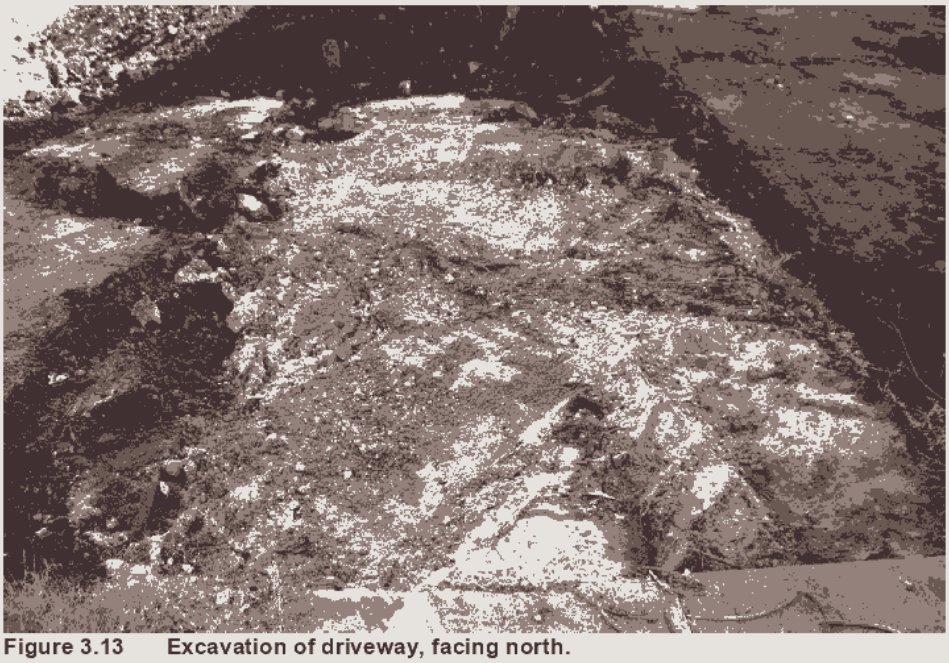

Figure 3.13 **Excavation of driveway, facing north.**
AMAC Image 2675, 17/03/16.

Figure 3.14 **Sump, facing south.**
AMAC Image 2698, 17/03/16.

Figure 3.15 **Sump, facing west.**
AMAC Image 2700, 17/03/16.

4.0 Response to Research Design

4.1 Introduction to Research Design

The following is a response to the research design provided in the archaeological assessment and Exception Notification application by AMAC Group[48] and amended research design in the Interim Test Excavation Report[49] developed based on the Heritage Council of NSW's Historical Themes in order to guide the methodology for the proposed archaeological excavation of the site. The research design has been set out in accordance to these themes (Table 6.1).

The following responses incorporate both the results of Test Excavation (October 2015) and Archaeological Monitoring (March 2016) and present an amended version of the responses provided in the Interim Test Excavation Report with additional responses to the questions posed in that report.

Table 4.1 Historical Themes concerning the study site

Australian Theme	NSW Theme	Study Site
1. Tracing the natural evolution of Australia	Environment – naturally evolved	Pre nineteenth century use of the site
1. Building settlements, towns and cities	Towns, suburbs and villages	c.1840s town subdivision of Port Macquarie
4. Building settlements, towns and cities	Utilities	Unknown infrastructure associated with Clergyman's house, and c.1826 kitchen. For example: well, cesspit
4. Building settlements, towns and cities	Accommodation	Mid twentieth century residential dwellings
8. Developing Australia's cultural life	Domestic Life	Use of c.1826 kitchen structure and rear yard space associated with Clergyman's House

4.2 Revised Research Design

General Questions

These are general questions designed to consider the overall archaeological footprint of the study site. These questions can be considered in isolation or in conjunction with the subsequent chronology specific questions detailed further.

Question	Response
At what level are archaeologically sensitive materials found?	Archaeological works did not reveal evidence for any structures or features relating to the c.1826 kitchen structure or associated with the early nineteenth century government settlement of Port Macquarie. A timber lined pit/sump feature, exposed during demolition of the building at 19 Clarence Street was determined to be a twentieth century feature likely associated with the mid-twentieth century development of the site. The top of the

[48] AMAC Group (July 2015).
[49] AMAC Group (November 2015).

	timber lined sump sat at approximately RL 5.36. Two extant timber posts [111] and [114] within Test Trench 1 sat at RL 6.16 and RL 6.1 respectively, though both formed part of the mid-twentieth century development of the site.
What archaeological evidence is there of the features which are known to have existed on the site?	The initial archaeological assessment (AMAC Group, March 2015; July 2015) indicated the potential for a single, weatherboard kitchen structure constructed in c.1826 for the Clergyman's House. No evidence for this structure was found during archaeological works at the site, though the proposed locations were based on written descriptions to create an interpretive overlay. It is now most likely that this kitchen was located in the neighbouring property (11-13 Clarence Street).
What evidence is there of previously unknown features?	A timber lined sump feature was identified on the western side of the site within the area once contained by 19 Clarence Street. Found by contractors during the demolition of existing structures, the feature was covered and left in situ. Inspection of the feature during test excavation and again during archaeological monitoring determined that the timber lined pit most likely formed a twentieth century sump utilised by the occupants at 19 Clarence Street. A circular cut had been made into the top remaining timber board on the western side for a ceramic service pipe. Only the pipe join remained, no cut visible in the exposed section for a service line therefore suggesting that the line was likely removed from the yard following the sump's disuse. The fill in the top of the sump was typical with the demolition fill seen across all parts of the site, though the base of the sump was not visible. Some internal areas were also waterlogged which further affected inspection of the base. Although a common practice with this type of infrastructure, it could not be determined as to whether the sump had been constructed on top of an existing well or cesspit.
How has the process of development affected earlier remains on the site?	Trenches for modern services have affected parts of the natural soil profile but impacts to archaeological material is nil as none were found. Cut and levelling processes for the mid-twentieth century residential buildings have occurred to the southern front of the site, although this area was found to have been significantly built up with imported fills.
What information can the relics on the site provide? How does this compare to information available from documentary sources?	No relics were identified on the study site during archaeological test excavation or monitoring.

Environment – Naturally Evolved

Question	Response
Is there any evidence of the natural flora and	Excavation of Test Trench 2 and archaeological monitoring indicated that the current slope of the study

topography of the site that was present prior to European presence in Port Macquarie? Do any intact soil profiles remain on the site?	site has been artificially created by the introduction of more than 1.5 metres of imported fill. Evidence for intact soil profiles were identified in all four test trenches, showing a predominantly dark brown-black loamy clay A horizon topsoil ([106], [207], [302], [403]) on top of a yellowish cream B horizon clay ([303], [404]) and during archaeological monitoring ([501]). Archaeological monitoring exposed the compact, clean yellowish-orange B horizon clay [507]. While the study site's location falls within the 'Thrumster' soil landscape or disturbed terrain, the matrix and colouration of the natural soil profile better matches the 'Cairncross' soil landscape, which is a transferral landscape present across pockets of Port Macquarie. The imported fills seen across the southern boundary of the study site are consistent with the Thrumster soil landscape and a stark contrast to the natural soil profiles identified on site. It is also likely that the original topography of the site was considerably flatter than its current state, or if the level of Clarence Street has remained the same, the site sloped up towards Clarence Street though not evident in historical photographs (Figure 2.6). No evidence was found to indicate the natural flora of the site.
Test excavation presented evidence for intact soil profiles across various portions of the site. Is this consistent with the exposed soil profiles removed during bulk excavation?	Archaeological monitoring within 15 Clarence Street confirmed the natural profile uncovered during Test Excavation.
The 'Soil Landscapes of the Kempsey 1:100 000 Sheet' indicates that the study site falls within the 'Thrumster' soil landscape or 'disturbed terrain', though the results of the test excavation suggested that the natural profiles do not correlate to this soil landscape. Can more information be shed regarding the natural soil profile of the study site?	The same soil profile was uncovered during archaeological monitoring as was identified during testing. This soil profile does not conform to the Thrumster soil landscape but more closely resembles the neighbouring Cairncross profile.
Excavation of Test Trench 2 indicated the built up nature of the southern portion of the site, altering the natural	No further data was obtained during archaeological monitoring to clarify this question.

topography of the site. Can any information be found to suggest that the original level of Clarence Street is the same as its present level?	
Is the level of Clarence Street the only catalyst for altering the natural topography of the study site?	This was not apparent from archaeological monitoring.

Building settlements, towns and cities: Towns, suburbs and Villages, Utilities and Accommodation

Clergyman's House and Government Gardens: c.1820s – c.1840

The study site forms part of an area originally designated as government gardens and furthermore forms part of the rear yard space for the c.1820s Clergyman's House and Pilot's Quarter's. No out buildings or subsidiary structures for either of these main dwellings are indicated among the early maps and plans, however, based on written evidence a detached c.1826 kitchen constructed for the Clergyman's House was anticipated to be within the southeast portion of the study site. However, no evidence of this structure was uncovered.

Question	Response
Does any physical evidence exist to indicate the presence of the c.1826 kitchen structure on the study site?	No evidence for the c.1826 kitchen structure, nor any material associated with the Clergyman's House was identified during archaeological test excavation or archaeological monitoring. As the natural A horizon topsoil is present across this area unmodified, it is proposed that this kitchen was not located on the study site, rather was more likely in the neighbouring allotment.
If present, what building materials have been used for the construction of the kitchen structure?	No evidence for the kitchen structure was identified during archaeological test excavation or monitoring.
Does the location of the kitchen structure correlate to either position offered by the interpretive overlay (Figure 3.21 in AMAC Group, July 2015)?	No evidence for the kitchen structure was identified during archaeological test excavation or monitoring.
A repairs specification made by Alexander Thomson, Clerk of Works in March 1833, outlines the request for a "covered way" to be constructed between the rear of the Clergyman's House and the kitchen. Does any	No nineteenth century structural or occupational evidence was identified during archaeological test excavation or monitoring. This suggests that this site was not occupied during the 19th century.

evidence exist for this structure?	
Thomson also requests the construction of a weatherboard building "30 feet by 14 feet with a skilling roof" on the site containing the Clergyman's House, although no location has been specified for this structure. Does any evidence exist pertaining to this structure? Can any comment be made as to its function?	No nineteenth century structural or occupational evidence was identified during archaeological test excavation or monitoring. This suggests that this site was not occupied during the 19th century.
Is there any evidence for associated infrastructure such as wells, drainage lines, privies or out buildings?	A channel cut [208] running east-west through Test Trench 2 may have formed an agricultural drain. Cut into the natural soil profile below the introduced fills used to level the southern frontage with the level of Clarence Street, there is no definitive evidence to indicate when the feature was cut. If the channel is in fact an agricultural drain, it is possible that the feature could have been made during the government gardens occupation phase. At the same time, while the site was undeveloped, neighbours may have been utilising the property as agricultural land. No artefacts were seen within the fill [209] for the channel cut [208] as an aid for dating. No other evidence for outbuildings or associated infrastructure were found during archaeological test excavation or monitoring.
Does any archaeological evidence exist to suggest use of the site by the nearby Pilot's Station or later Sergeant's Quarters?	No evidence was found during archaeological test excavation or monitoring to suggest use of the site by the nearby Pilot's Station or later Sergeant's Quarters.
Test Trench 1 and 2 presented no evidence for the c.1826 kitchen structure. Has any evidence been found to indicate its location (cuts, fills etc.)?	No further evidence was found during archaeological monitoring. The intact natural soil profiles in 15 Clarence Street suggests that if this area was once part of the c.1826 kitchen, there should have been evidence in the soil profile. It is therefore concluded that the kitchen was never constructed within the study site but was more likely located on the neighbouring property.
A channel cut [208] for a possible agricultural drain was found within Test Trench 2. Does this cut continue west? Can any more information be found to indicate its function?	No further evidence of this feature was found during archaeological monitoring.
A large fragment of a possible convict brick was found pressed into the	No evidence was found during the archaeological monitoring of this area to suggest that the site was ever occupied during the 19th century.

natural topsoil layer in Test Trench 3 (east side) as well as a single posthole. Does any other evidence exist in the northeast corner of the site to suggest use of the site during the 19th century?	

Original subdivision of Port Macquarie and private ownership: c.1840 – c.1936

Following the overall decline in government presence in Port Macquarie, demolition and removal of the Clergyman's House and government gardens, the site was subdivided and advertised for private sale. The study site forms part of three original allotments (1-3 in Section 2A), of which no development phases are known to have occurred during the nineteenth and early twentieth centuries.

Question	Response
Does evidence for nineteenth or early twentieth century activities predating the present structures exist, and if so what is the date, nature and significance of the evidence?	No evidence for nineteenth or early twentieth century activities predating the present structures were identified during archaeological test excavation or monitoring. A channel cut [208] possibly forming an agricultural drain was identified within Test Trench 2 (see above response), however, it is not possible to apply an absolute date to this feature. Historical photographs dating to the early twentieth century imply that the land was being used as agricultural paddocks by neighbouring properties.

Re-subdivision and development of the study site: c.1936 – present

The re-subdivision of the wider study site into its present formation (Lots 1-3 DP18834) saw the construction of apartment buildings on each lot during the mid-twentieth century.

Question	Response
Site inspection indicates that cut and levelling processes during construction have occurred in particular for the dwellings fronting 17 and 19 Clarence Street. To what extent has this process affected any earlier remains?	Excavation of Test Trench 2 and archaeological monitoring indicated that the southern frontage of the study site has been significantly built up with imported fills prior to the cut and levelling processes which were visible across 15-19 Clarence Street during site inspection. More than 1.5 metres of imported fill ([203], [204], [205], [206]) was visible in profile across the south section of Test Trench 2 (also identified during monitoring). The general matrix of the fills was consistent with the Thrumster soil landscape (reddish-brown loamy clay) therefore certainly not forming redeposited natural from the study site, but rather likely imported from a nearby source. The initial observation from site inspection that the building at 15 Clarence Street mostly respects the natural slope of the land is incorrect as the slope itself is artificial. While no structural remains predating the mid-twentieth century development were identified during test excavation, it can be suggested that the amount

	of imported fill along the southern front of the site would preserve any early remains rather than disturb them. The fact that no remains were found during archaeological monitoring of this area suggests that the site remained unoccupied during the 19th century and early 20th century.
Have modern services for the present dwellings affected any earlier remains?	Modern services were found within three of the four test trenches and along the north of the monitoring area. This included cuts for service trenches covered with rubble as fill (Test Trench 3 and 4), as well as ceramic service pipes sitting beneath modern concrete slabs (Test Trench 1) and services cut into the natural profile (service trenches [510], [523], [512] and [514] observed during archaeological monitoring). The ceramic pipe partially truncated the cuts for two wooden posts [111] and [114] in Test Trench 1, however, these posts were also of twentieth century construction. The modern services were predominantly orientated north-south, heading towards the main connection line along the northern boundary of the site. As no earlier remains were found on site, these services have not impacted earlier remains.
What is the depth of the timber sump? Has it been constructed on top of existing infrastructure (for example, a well or cesspit)?	The full depth of the sump was not able to be ascertained during monitoring due to the high water level within the feature. It is suggested that this sump was constructed to manage the water drainage issues on the site.
Trenches 1, 3 and 4 were disturbed by modern services, in particular across the northern half of the site. Has the southern half of the site been affected to the same extent?	More services were uncovered during archaeological monitoring, however, these were mostly contained within the northern part of the site.

Developing Australia's cultural life – Domestic Life

Question	Response
Are there any features such as rubbish pits or artefact scatters present on the study site which may relate to the use of the c.1826 kitchen structure?	No occupation material, deposits or artefact scatters were found during test excavation or archaeological monitoring dating to the early nineteenth century government occupation phase. No evidence for the c.1826 kitchen structure, or any other early structure, was identified during archaeological investigation. Interpretation of this evidence suggests that the site was not occupied during this period and that the kitchen was in fact located on the neighbouring property 11-13 Clarence Street.
The kitchen in Thomson's 1833 repairs request is described as needing "to	No evidence of the kitchen structure was found during test excavation or archaeological monitoring.

be re-laid with bricks or tiles". Does evidence for two phases of flooring exist? And if so, has this affected the collation of occupation deposits?	
Does any archaeological material in the form of rubbish pits or artefacts exist and can be specifically attributed to either the Clergyman's House, Pilot's Quarter's or Sergeant's Quarters?	No archaeological material relating to the Clergyman's House, Pilot's Quarter's or Sergeant's Quarters was found during test excavation or archaeological monitoring.
Does any occupation material or underfloor deposits exist within the footprint of the c.1826 kitchen structure?	No evidence of the kitchen structure was found during test excavation or archaeological monitoring.
Does any evidence exist to provide specific information demonstrating occupation and use of the study site in relation to the government gardens?	Part of an agricultural drain running east-west was discovered in Trench 2, however, it could not be conclusively linked to the government occupation of the study site. It may also relate to the early twentieth century use of the site by neighbouring properties. No further evidence was identified during archaeological monitoring
Does any occupation material, artefact scatters or rubbish pits exist at the study site?	No such evidence was uncovered during archaeological monitoring.
Based on the lack of early archaeological material found during test excavation, does any material evidence exist to suggest direct occupation of the study site during the nineteenth century?	No evidence has been uncovered during any of the archaeological works at the site to suggest the 19th century occupation of the site. It is proposed that this was most likely low lying land, unsuitable for construction and possibly prone to inundation and it is for this reason that the site remained undeveloped until the middle of the 20th century.

5.0 REVISED ASSESSMENT OF SIGNIFICANCE

5.1 METHODOLOGY

The current standard for assessment of significance of heritage items in NSW is the publication 'Assessing Significance for Historical Archaeological Sites and 'Relics'' produced by the Heritage Branch of the NSW Department of Planning (December 2009). This production is an update to the NSW Heritage Manual (1996), and the criteria detailed therein are a revised version of those of the Australia ICOMOS Burra Charter, formulated in 1979, which was based largely on the Venice Charter (for International Heritage) of 1966.

Archaeological heritage significance can also be viewed in light of the framework set out by Bickford and Sullivan in 1984.[50] Bickford and Sullivan, taking into consideration the "archaeological, scientific or research significance" of a site posed three questions in order to identify significance:

1. Can the site contribute knowledge which no other resource can?
2. Can the site contribute knowledge which no other site can?
3. Is this knowledge relevant to general questions about human history or other substantive problems relating to Australian history, or does it contribute to other major research questions?[51]

These questions have been broadly used to shape the response to the heritage significance criteria as described in Sections 5.2 and 5.3.

The criteria and the definitions provided by 'Assessing Significance for Historical Archaeological Sites and 'Relics'' have been adhered to in assessing the cultural significance of the potential archaeological site at 15-19 Clarence Street, Port Macquarie. An assessment of significance, under each of the criteria, is made possible by an analysis of the broad body of archaeological sites previously excavated both locally and elsewhere, in conjunction with the historical overview of the study site in particular.

The Criteria used to assess Heritage Significance in NSW are the following:

Table 5.1 Criteria for Assessing Heritage in NSW

Criterion	Description	Significance
Criterion A	An item is important in the course, or pattern, of NSW's or the local area's cultural or natural history	State significant or locally significant
Criterion B	An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's or a local area's cultural or natural history	State significant or locally significant
Criterion C	An item is important in demonstrating aesthetic characteristics and/or a high	State significant or locally significant

[50] Bickford and Sullivan (1984).
[51] Bickford and Sullivan (1984), p.23-4.

	degree of creative or technical achievement in NSW or the local area	
Criterion D	An item has strong or special association with a particular community or cultural group in NSW or a local area for social, cultural or spiritual reasons	State significant or locally significant
Criterion E	An item has potential to yield information that will contribute to an understanding of NSW's or a local area's cultural or natural history	State significant or locally significant
Criterion F	An item possesses uncommon, rare or endangered aspects of NSW's or a local area's cultural or natural history	State significant or locally significant
Criterion G	An item is important in demonstrating the principal characteristics of a class of NSW's or a local area's - cultural or natural places; or - cultural or natural environments	State significant or locally significant

The following assessment deals only with sub-surface archaeological features and deposits. The built environment is not considered in this study.

5.2 IDENTIFICATION OF SIGNIFICANCE

Archaeological Research Potential (NSW Heritage Criterion E)

The study site is located within the earliest developed part of the town of Port Macquarie. The site is within close proximity to three c. 1820s residences: the c. 1824 Surgeon's Quarters (later Clergyman's House) to the west its c. 1826 kitchen, which may be within the study site, and the c. 1824 Pilot's Quarters (later Sergeant's Quarters) to the north. In addition to the kitchen structure, the study site was close enough to the Clergyman's House and Sergeant's Quarters to have formed a part of their immediate curtilage from approximately the 1820s to the 1850s. Based on this historical data, it was anticipated that the study site would contain the mixed remains of two phases of domestic occupation; the first related to the Surgeon's Quarters/Clergyman's House and kitchen (c.1824 to c.1840) and the second related to the Sergeant's Quarters (c.1840 to 1850s) once the Clergyman's House and kitchen was demolished.

However, test excavation and archaeological monitoring have found no evidence of the 19th century occupation of this area. The intact natural soil profiles within the study site, without evidence of 19th century occupation, suggests that the site remained vacant throughout the early township of Port Macquarie and remained unoccupied until the early to mid 20th century. Therefore, the c.1826 kitchen associated with the Clergyman's House must have been constructed on the neighbouring allotment and not within the study site.

Based on the results of archaeological test excavation and monitoring, the study site was found to have no archaeological research potential and therefore is not considered significant according to this criterion.

Associations with individuals, events or groups of historical importance (NSW Heritage Criteria A, B and D)

In terms of Criterion D, the study site is not widely recognised nor does it have symbolic value or belong to a community of interest which values the site specifically, therefore is not considered significant according to that criterion.

Criterion B is relevant to an appreciation of the site's significance as it is associated with the occupation of Reverend John Cross and his family between c.1827 to c.1837. The site is considered potentially locally significant for this association. Test excavation and archaeological monitoring did not reveal any material evidence for this early occupation period, nor specifically associated with Reverend John Cross.

Aesthetic or technical significance (NSW Heritage Criterion C)

The study site is not considered significant according to this criterion.

Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria A, C, F & G)

Historical research demonstrates a period of occupation on and immediately surrounding the study site between c.1824 and the 1850s, however, no evidence of this period was identified from the archaeological works at the site. It is suggested that the site was largely unoccupied during the 19th century and therefore no archaeological remains exist within the site to attribute significance according to Criteria A, C, F and G.

5.3 STATEMENT OF CULTURAL SIGNIFICANCE

The study site was initially assessed as having potential to hold a state level of cultural heritage significance for its association with the earliest phase of settlement and development at Port Macquarie during the 1820s, however, no evidence was found during archaeological testing or monitoring of this phase of occupation. The presence of intact natural soil profiles within the site suggests that the site was not disturbed or truncated, indicating that archaeological remains and deposits were never created within the study site. The archaeological evidence suggests that the study site is situated on low lying land, most likely prone to inundation, and therefore was not suitable for early development. In this way, no evidence was found of the c. 1826 kitchen associated with the Clergyman's House and it is suggested that the building must have been located on the neighbouring property. As there is no potential for archaeological evidence on the site predating the construction of the 1930s and 1940s apartment blocks, the site is assessed as having no significant archaeological remains. In this way, the study site is not considered culturally significant in terms of archaeological remains.

6.0 RESULTS AND RECOMMENDATIONS

6.1 RESULTS

No relics were uncovered during archaeological monitoring of the eastern portion of the site, 15 Clarence Street, and these results confirm the analysis of data collected during Test Excavation. Only the concrete foundations of the previous 1930s apartment block were uncovered as well as a series of 20th century services. These features were all cut into the natural topsoil. It is clear that the natural soil profile remains intact on the site and has not been truncated by later development. This assertion is consistent with the conclusion that the site remained undeveloped and unoccupied during the 19th century. No evidence was found of the kitchen associated with the c.1826 Clergyman's House and it is suggested that this building must have been contained by the neighbouring allotment. For this reason, the archaeological potential for the site is reassessed as nil.

6.2 RECOMMENDATIONS

As no archaeological relics have been identified on the site and it has been determined that it is unlikely that the site was occupied at all prior to the 1930s, no further archaeological works are recommended for the site.

It is recommended that this current report be submitted to the Heritage Division in fulfilment of Conditions 17 and 18 of Permit 2016/S140/01.

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8.0 APPENDICES

8.1 HERITAGE DIVISION EXCAVATION PERMIT 2016/S140/01

NSW GOVERNMENT
Heritage Council of New South Wales

3 Marist Place
Parramatta NSW 2150

Locked Bag 5020
Parramatta NSW 2124
DX 8225 PARRAMATTA

Telephone: 61 2 9873 8500
Facsimile: 61 2 9873 8599

heritage@heritage.nsw.gov.au
www.heritage.nsw.gov.au

File: EF14/21884
Our ref: DOC15/528598

Mr Blake Cannavo
Managing Director
Bamford Engineering & Consulting Pty Ltd
10/6-14 Clarence Street
PORT MACQUARIE NSW 2444

Dear Mr Cannavo

Re: Excavation Permit – S140 for monitoring and salvage of locally significant relics at 15-19 Clarence Street, Port Macquarie.

Reference is made to your application under Section 140 of the *Heritage Act* 1977 (the Act), to undertake archaeological work at the above property (Application number 2016/S140/01).

Under delegated authority approval is given for the S140 application for an archaeological excavation permit. Please note this permit is subject to the conditions attached. Acceptance of these statutory conditions by the Applicant and Excavation Director is a requirement of this permit. It should be noted that as the Applicant, this Approval (and the fulfilment of all subsequent conditions) rests with you and not the Land which is the subject of the works.

You are reminded that it is a condition of this permit that the Applicant is responsible for the safe keeping of artefacts recovered from this site. You are required to nominate a repository for archaeologically excavated material, as well as referencing the final location in the excavation report as per section 146(b) of the Act. This is to enable a record to be kept of the location of all archaeologically excavated material.

It should be noted that an approval for an archaeological permit under the Act covers only those archaeological works described in the application. Any additional archaeological investigations will require a further approval. It should also be noted that an approval for an archaeological permit under the Act is additional to those which may be required from other local, State or Commonwealth Government authorities. Inquiries about any other approvals needed should, in the first instance, be directed to the local council, State and Commonwealth Government where appropriate.

You are also requested to provide the following information:

(1) The estimated total cost of the archaeological investigations (both in the field and laboratory), including GST;

(2) The estimated total cost of the development/redevelopment, including GST;

(3) Whether this project creates new long term jobs (for example through providing a new service or facility);

(4) If this project creates new long term jobs, how many? and

(5) How many construction and professional workers will be engaged on this project during the life of the project?

This information will help the Heritage Council of NSW determine the economic role of heritage in development in NSW and should be submitted to the Director of the Heritage Division within one (1) month of the completion of the field excavation programme. This information should be updated at the

end of the project and updated figures should be submitted with the Final Excavation Report to the Heritage Council for approval within one (1) year of the completion of the field excavation programme.

This permit, issued by the Heritage Council of NSW, does not give approval to harm Aboriginal objects. Aboriginal objects and Aboriginal places in NSW are protected under the *National Parks and Wildlife Act 1974* (NPW Act). It is an offence to do any of the following without an exemption or defence (penalties apply):

- knowingly harm or desecrate an Aboriginal object (the 'knowing' offence)
- harm or desecrate an Aboriginal object or Aboriginal place (the 'strict liability' offence)

The NPW Act provides a number of exemptions and defences to these offences and also excludes certain acts and omissions from the definition of harm. For more information about the regulation of Aboriginal cultural heritage, go to the OEH website: http://www.environment.nsw.gov.au/licences/achregulation.htm

This permit is issued to the applicant on the condition that the nominated Excavation Director is present at the site supervising all archaeological fieldwork activity likely to expose significant relics. Permits are not transferable without the written consent of the Heritage Council of New South Wales. Your attention is drawn to the right of appeal against these conditions in accordance with section 142 of the *Heritage Act, 1977*.

Inquiries on this matter may be directed to Katrina Stankowski on 9873 8589 or via email at Katrina.Stankowski@environment.nsw.gov.au.

Yours sincerely

Rajeev Maini
A/Manager Conservation
Heritage Division
Office of Environment and Heritage
As Delegate of the Heritage Council of NSW

DATE: 15 January 2018

Enclosure: Approval Conditions for S140 Permit

CC: The Chief Executive Officer, Port Macquarie-Hastings Council, PO Box 84, Port Macquarie NSW 2444

15-19 Clarence Street, Port Macquarie
Conditions of Approval 2016/S140/01

Approved Archaeological Works

01. All works shall be in accordance with the approved research design and methodology outlined in 'Interim Archaeological Test Excavation Report: Permit Application S140 Heritage Act NSW – 1977 – Research Design & Excavation Methodology: 15-19 Clarence Street, Port Macquarie' by AMAC Archaeological, dated November 2015,

except as amended by the following conditions:

02. This permit covers the removal of locally significant archaeology, only.

03. This archaeological approval is valid for five (5) years from the date of approval. Requests for extensions beyond this time must be made in writing prior to expiry of the permit.

Fieldwork

04. The Heritage Council of NSW or its delegate must be informed of the commencement and completion of the archaeological program at least 5 days prior to the commencement and within 5 days of the completion of work on site. The Heritage Council and staff of the Heritage Division, Office of Environment & Heritage authorised under section 148(1) of the *Heritage Act, 1977*, reserve the right to inspect the site and records at all times and to access any relics recovered from the site.

05. The Applicant must ensure that if substantial intact archaeological deposits and/or State significant relics not identified in 'Interim Archaeological Test Excavation Report: Permit Application S140 Heritage Act NSW – 1977 – Research Design & Excavation Methodology: 15-19 Clarence Street, Port Macquarie' by AMAC Archaeological, dated November 2015, are discovered, work must cease in the affected area(s) and the Heritage Council of NSW must be notified. Additional assessment and approval may be required prior to works continuing in the affected area(s) based on the nature of the discovery.

06. Should any Aboriginal objects be uncovered by the work, excavation or disturbance of the area is to stop immediately and the Office of Environment & Heritage (Enviroline 131 555) is to be notified in accordance with Section 89A of the *National Parks and Wildlife Act, 1974* (NPW Act). Aboriginal objects in NSW are protected under the NPW Act. Unless the objects are subject to a valid Aboriginal Heritage Impact Permit, work must not recommence until approval to do so has been provided by the Office of Environment & Heritage.

07. The Heritage Council of NSW must approve any substantial deviations from the approved research design outlined in 'Interim Archaeological Test Excavation Report: Permit Application S140 Heritage Act NSW – 1977 – Research Design & Excavation Methodology: 15-19 Clarence Street, Port Macquarie' by AMAC Archaeological, dated November 2015, including extent and techniques of excavations, as an application for the variation or revocation of a permit under section 144 of the *Heritage Act, 1977*.

08. The Applicant must ensure that the approved Primary and Secondary Excavation Directors nominated in the section 140 application 2016/S140/01, Martin Carney and Ivana Vetta, are present at the site supervising all archaeological fieldwork activity likely to expose significant relics.

09. The Applicant must ensure that the approved Primary and Secondary Excavation Directors nominated in the section 140 application 2016/S140/01, Martin Carney and Ivana Vetta, take adequate steps to record in detail relics, structures and features discovered on the site during the archaeological works in accordance with current best practice. This work must be undertaken in accordance with relevant Heritage Council guidelines.

10. The Applicant must ensure that the nominated Excavation Director briefs all personnel involved in the project about the requirements of the NSW *Heritage Act, 1977* in relation to the proposed archaeological program. This briefing should be undertaken prior to the commencement of on-site excavation works.

11. The Applicant must ensure that the nominated Excavation Director and the excavation team is given adequate resources to allow full and detailed recording to be undertaken to the satisfaction of the Heritage Council.

12. The Applicant must ensure that the site under archaeological investigation is made secure and that the unexcavated artefacts, structures and features are not subject to deterioration, damage, destruction or theft during fieldwork.

13. The Applicant is responsible for the safe-keeping of all relics recovered from the site.

Analysis and Reporting

14. The Applicant must ensure that the approved Primary Excavation Director or an appropriate specialist, cleans, stabilises, labels, analyses, catalogues and stores any artefacts recovered from the site in a way that allows them to be retrieved according to both type and provenance.

15. The Applicant must ensure that a summary of the results of the field work, up to 500 words in length, prepared by the approved Primary and Secondary Excavation Directors nominated in the section 140 application 2016/S140/01, Martin Carney and Ivana Vetta, are submitted to the Heritage Council of NSW for approval within one (1) month of completion of archaeological field work. This information is required in accordance with section 146(b) of the *Heritage Act, 1977*.

16. The Applicant must ensure that a final excavation report is written by the approved Primary and Secondary Excavation Directors nominated in the section 140 application 2016/S140/01, Martin Carney and Ivana Vetta, to publication standard, within one (1) year of the completion of the field based archaeological activity unless an extension of time or other variation is approved by the Heritage Council of NSW in accordance with section 144 of the *Heritage Act, 1977*.

17. The Applicant must ensure that one (1) electronic copy of the final excavation report is submitted on CD to the Heritage Council of NSW together with two (2) printed copies of the final excavation report. These reports are required in accordance with section 146(b) of the *Heritage Act, 1977*. The Applicant must also ensure that further copies are lodged with the local library and/or another appropriate local repository in the area in which the site is located. It is also required that all digital resources (including reports, context and artefact data, scanned field notes, other datasets and documentation) should be lodged with a sustainable, online and open-access repository.

18. The Applicant must ensure that the information presented in a final excavation report includes the following:
    - a/. An executive summary of the archaeological programme;
    - b/. Due credit to the client paying for the excavation, on the title page;
    - c/. An accurate site location and site plan (with scale and north arrow) and including geo-reference data;
    - d/. Historical research, references, and bibliography;
    - e/. Detailed information on the excavation including the aim, the context for the excavation, procedures, treatment of artefacts (cleaning, conserving, sorting, cataloguing, labelling, scale photographs and/or drawings, location of repository) and analysis of the information retrieved;
    - f/. Nominated repository for the items;
    - g/. Detailed response to research questions (at minimum those stated in the Heritage Council approved Research Design);
    - h/. Conclusions from the archaeological programme. This information must include a reassessment of the site's heritage significance; statement(s) on how archaeological investigations at this site have contributed to the community's understanding of the early Port Macquarie housing sites; recommendations for the future management of the site and how much of the site remains undisturbed;
    - i/. Details of how this information about this excavation has been publicly disseminated (for example, provide details about Public Open Days and include copies of press releases, public brochures and information signs produced to explain the archaeological significance of the site).

Compliance

19. Officers of the Office of Environment and Heritage, Heritage Division are to be permitted entry to the site at any time as a condition of this approval.

20. Officers of the Office of Environment and Heritage, Heritage Division may photograph, take samples or request records in relation to any aspects of the approved activity.

REGIONAL
GEOTECHNICAL SOLUTIONS

Manning-Great Lakes

Port Macquarie

Coffs Harbour

RGS20193.1-AC

25 June 2013

Belinda Rodger c -/
David Pensini
Via email: kdpensini@bigpond.com

Dear David,

RE: Proposed Development, 19 Clarence Street, Port Macquarie

Geotechnical Investigation

As requested, RGS has undertaken a geotechnical investigation at the site of a proposed development at 19 Clarence Street, Port Macquarie.

The purpose of the work described herein was to undertake a limited geotechnical investigation at the property to provide an indication of subsurface conditions present and the depth to the groundwater.

Field work was undertaken on 17 June 2013 and comprised one borehole undertaken by a trailer mounted drilling rig equipped with solid flyte augers, logged by a Senior Engineering Geologist. Standard Penetration Testing (SPT) was undertaken at regular intervals. The engineering log for the borehole is attached.

The location of the borehole is shown on Figure 1 and was obtained on site by measurement relative to existing site features. The reduced level at the borehole location was estimated from the supplied drawing and is shown on the borehole log.

The site is situated in an area underlain by deeply weathered geological units of the Port Macquarie Block which includes slate, basalt, serpentinite and dolerite. The subsurface conditions encountered in the borehole comprised 0.3m of topsoil overlying colluvial sands and clays which overlay alluvial clays and sands from 1.0m. Residual high plasticity clays were encountered from 2.7m and graded into extremely weathered serpentinite clay soils with depth.

Groundwater inflow was encountered in the alluvial sand horizon at 2.3m. It should be noted that fluctuations in groundwater levels can occur as a result of seasonal variations, temperature, rainfall and other similar factors, the influence of which may not have been apparent at the time of the assessment.

Regional Geotechnical Solutions Pty Ltd
ABN 51141848820

5C/23 Clarence Street
Port Macquarie NSW 2444
Ph. (02) 6553 5641

Email tim.morris@regionalgeotech.com.au
Web: www.regionalgeotech.com.au

If materials encountered during construction vary significantly from those discussed in this report, Regional Geotechnical Solutions Pty Ltd should be contacted for further advice.

This report alone should not be used by contractors as the basis for preparation of tender documents or project estimates. Contractors using this report as a basis for preparation of tender documents should avail themselves of all relevant background information regarding the site before deciding on selection of construction materials and equipment.

If you have any questions regarding this project, or require any additional consultations, please contact the undersigned.

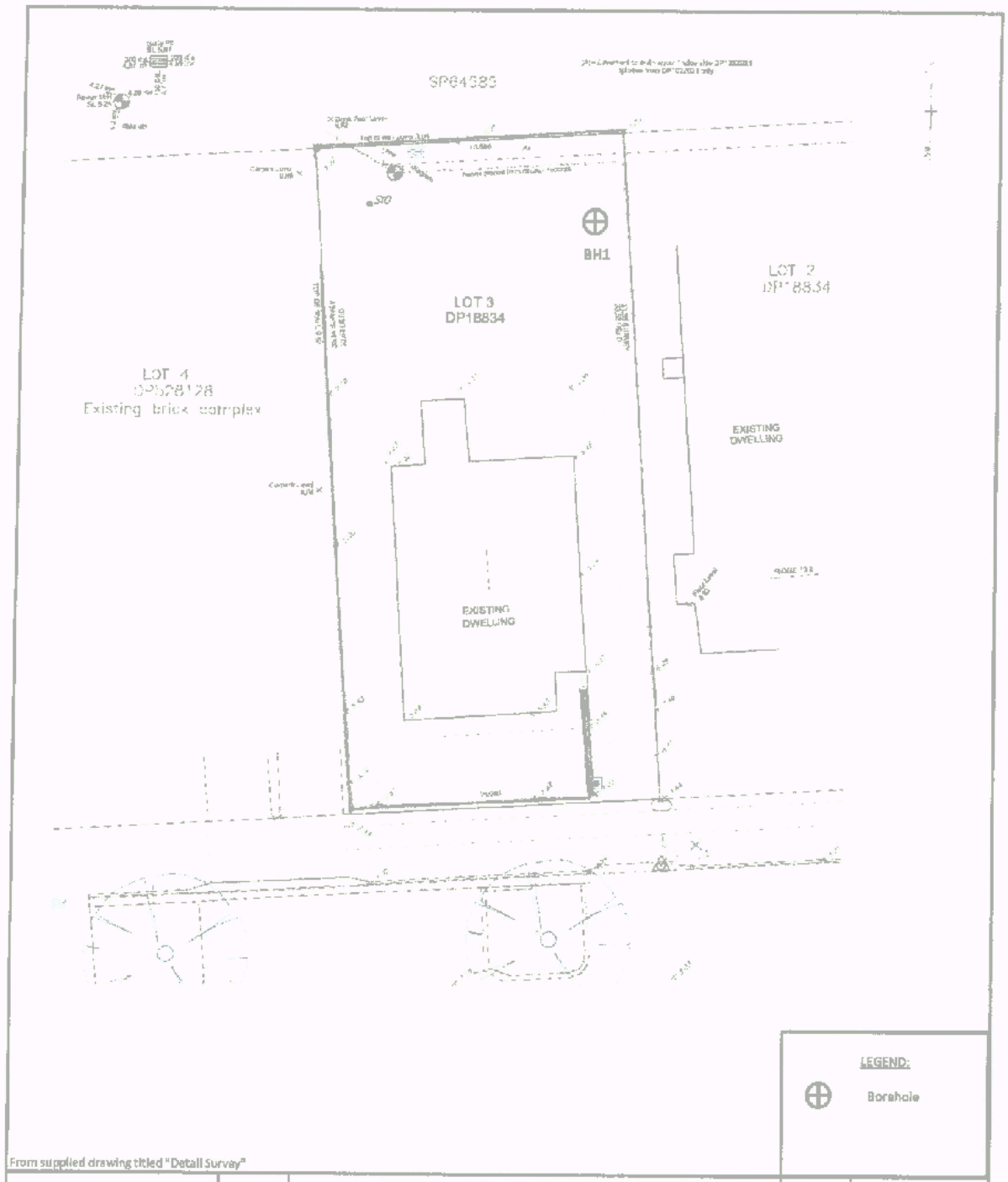
For and on behalf of

Regional Geotechnical Solutions Pty Ltd

Tim Morris

Senior Engineering Geologist

Attached: Figure 1
Results of Field Investigations



From supplied drawing titled "Detail Survey"

REGIONAL GEOTECHNICAL SOLUTIONS	Client	BELINDA RODGERS	Job No.	RGS20193.1
	Project:	PROPOSED DEVELOPMENT 19 CLARENCE STREET, PORT MACQUARIE	Drawn By:	TLM
			Date:	25-Jun-13
	Title:	BOREHOLE LOCATION PLAN	Drawing No.	FIGURE 1

REGIONAL GEOTECHNICAL SOLUTIONS

ENGINEERING LOG - BOREHOLE

CLIENT:	Belinda Rodgers	BOREHOLE NO:	BH1
PROJECT NAME:	19 Clarence St Port Macquarie	PAGE:	1 OF 1
		JOB NO:	RGS20193.1
		LOGGED BY:	TLM
LOCATION:	Refer to figure 1	DATE:	17/6/13

DRILL TYPE:	CMG Trailor Mounted	SURFACE RL:	5.2 m
BOREHOLE DIAMETER:	100 mm	DATUM:	AHD

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
AD/V			5.0			SM	0.10m FILL: Silty SAND, fine to medium grained, dark brown, some Clay low plasticity, grass roots	M	Fb			TOPSOIL/FILL
						SP	0.30m FILL: SAND, pale grey, trace brick fragments	M				FILL-SAND
						SM	Silty SAND: fine to medium grained, brown/pale brown, some Clay low plasticity 0.60m	M / W				COLLUVIAL
		1.00m		1.0		CL	Sandy CLAY: medium plasticity, brown, Sand, fine to medium grained 1.00m	M > w_p	F / St	HP	=100	
		SPT 3,2,3 N=5 1.45m	4.0			CL	Sandy CLAY: low to medium plasticity, grey with orange/orange mottling with depth 2.00m	M > w_p	St	HP HP	=150 =200	ALLUVIAL
		2.50m SPT 4,3,5 N=8 2.95m	3.0	2.0		SC	Clayey SAND: fine to medium grained, grey/pale grey, Clay low plasticity 2.70m	M / W				MINOR WATER INFLOW
			2.0	3.0		CH	CLAY: high plasticity, pale green with minor orange/brown iron oxide mottling associated with trace Gravel, fine grained, subangular	M > w_p	VSt	HP	=250	RESIDUAL SOIL
			1.0	4.0								
		5.10m SPT 5,14,21 N=35 5.55m	0.0	5.0			CLAY: high plasticity, pale grey/pale green, with thin bands of orange/brown iron oxide gravel, fine to medium grained, subangular 5.95m		H / Fb			GRADING TO EXTREMELY WEATHERED SERPENTINITE

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests Hole Terminated at 5.95 m

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Moisture Condition	
D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

Density			
	V	Very Loose	Density Index <15%
	L	Loose	Density Index 15 - 35%
	MD	Medium Dense	Density Index 35 - 65%
	D	Dense	Density Index 65 - 85%
	VD	Very Dense	Density Index 85 - 100%

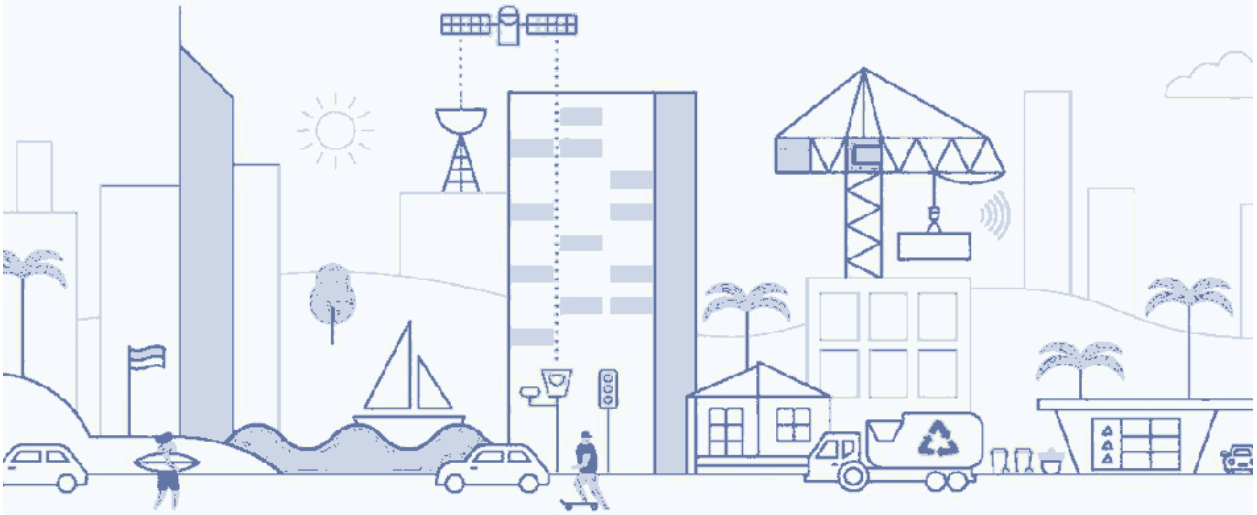
RG LIB : 02.GLB Log RG NON-CORED SCREHOLE - TEST PIT RGS20193.1 SINT.GPJ <<DrawingFile>> 26/06/2013 15:41 6.30.002 Geotech Lab and In Situ Test

Traffic Impact Assessment

Proposed Mixed Use - Motel and Commercial

At 15, 17 & 19 Clarence Street, Port Macquarie

On behalf of Bamford Engineering and Consulting Pty Ltd



About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

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Acoustics Data Traffic Waste

Revision Record

No.	Author	Reviewed/Approved	Description	Date
1.	B. Baker	R. Jones	DA Report	26/07/18
2.	B. Baker	R. Jones	TIA Report	09/08/18
3.				
4.				
5.				

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1 Introduction

1.1 Background

TTM Consulting has been engaged by Bamford Engineering and Consulting Pty Ltd to prepare a traffic engineering report investigating a proposed motel development.

1.2 Scope

This report investigates the transport aspects associated with the proposed development. The scope of the transport aspects investigated includes:

- Parking supply required to cater for development demand
- Parking layout to provide efficient and safe internal manoeuvring
- Identification of likely traffic volumes and traffic distribution from the future development
- Qualitatively discuss the likely traffic impact of development on the public road network
- Access configuration to provide efficient and safe manoeuvring between the site and the public road network
- Internal road layout to provide efficient and safe internal manoeuvring for service vehicles
- Suitability of access and internal facilities to provide for pedestrian and cyclist operation
- Access to suitable level of public transport

To assess the proposed transport arrangements, the development plans have been assessed against the following guidelines and planning documents:

- Port Macquarie-Hastings Local Environmental Plan 2011
- Port Macquarie-Hastings Development Control Plan, specifically:
  - Transport, Traffic Management, Access and Car Parking
- Australian Standard 2890
- Austroads guidelines
- Building Code of Australia

1.3 Site Location

The site is located at 15, 17 & 19 Clarence Street, Port Macquarie NSW 2444, near the intersection of Clarence Street and Murray Street, as shown in Figure 1.1.The property description is Lot 123 on RP1219042. The site has road frontage to Clarence Street. The site used to be occupied by 3 detached dwellings. It is understood that the former detached dwellings have been demolished and flattening earthworks has been undertaken. Access to the site is currently via a 6.5m wide crossover from Clarence Street. It is understood that access to the site was formerly provided via a residential dwelling driveway and a shared driveway.

Figure 1.1: Site location

Figure 1.2: Site area

1.4 Development Profile

The proposed land uses for this development are summarised in Table 1.1.

Table 1.1: Proposed land uses

Use	Area/Qty
Tenancy 1 – Commercial	
– Tenancy	141.6 m²
– Toilets	10.8 m²
– External Terrace	53.7 m²
Tenancy 2 – Motel	
– Rooms	47 Units
– Administration	201.4 m²
– Service Areas	63.8 m²
– Gym, BBQ, Amenities	246.7 m²

1.5 Access

The development plan includes the following access arrangements:

- Clarence Street Access located at the southern side of the subject site. The characteristics of this access include:
  - Category 2 driveway access
  - 6.0m wide at the property boundary
  - Priority control
  - All turns permitted

1.6 Parking

The development proposal includes the following car parking supply:

- 64 car parking spaces, which are located in the basement levels and on the ground level including:
  - 1 PWD bay and associated shared bay
  - 11 staff parking bays
  - 2 pairs of tandem bays
  - 48 general parking bays
- 2 vehicular drop-off / check-in bays

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2 Existing Transport Infrastructure

2.1 The Road Network

The majority of roads in the immediate vicinity of the site are administered by the Port Macquarie-Hasting Council. The hierarchy and characteristics of roads in the vicinity of the site are shown in Table 2.1.

Table 2.1: Local Road Hierarchy

Road	Speed Limit	Lanes	Classification	Road Authority
Clarence Street	50kph	2 (divided, plus on-street parking)	Local Road	Council
Murray Street	50kph	2 (undivided plus on-street parking)	Local Road	Council
Munster Street	50kph	2 (undivided plus on-street)	Local Road	Council

Clarence Street has a 22.7m wide carriageway at the site frontage. The intersection of Clarence Street and Murray Street is a priority controlled 4-way intersection.

2.2 Road Planning

Council / RMS did not specify any other works in the vicinity of the site which will impact upon or be impacted by the proposed development.

A standard condition of approval will be the construction/repair and reinstatement of pedestrian footpaths across the frontage of the site subsequent to construction activity on the site.

2.3 Public Transport and Pedestrian Facilities

Buses

There is a bus stop located on Munster Street, approximately 350m to the south of the site. The bus stop provides regular services to the surrounding residential areas, shopping centres and town centre. The bus stop services the 324, 327, 329, 334 and 334K bus routes. These bus routes are operated by Transport NSW.

There is also a bus stop located on Hayward Street, approximately 850m walking distance from the site. This bus stop provided regular services to the Port Macquarie Airport (along the 340 and 341 routes). It also provides connection to the Munster Street stop discussed above, as it services the 5 bus services outlined above.

Pedestrians

Formal pedestrian footpaths are located on both sides of Clarence Street.

Cyclists

There are no dedicated on-street cyclist facilities.

2.4 On-Street Parking

Clarence Street and the site is located within the Port Macquarie Community Core Zone. On-street parking along the site frontage is limited to two hours between Monday to Friday, 8:30am to 6pm and between 8:30am to 12:30pm on Saturdays. There are angled and parallel parking on both sides of Clarence Street and a perpendicular parking aisle forms part of the central median on Clarence Street, as shown in Figure 1.2.

3 Car Parking Arrangements

3.1 Council Parking Supply Requirement

Council's Development Control Plan's (DCP) minimum parking requirements for a Restaurant/Food premises and Serviced Apartment/Motel type developments, are outlined in Table 3.1.

Table 3.1: Parking Supply Requirement

Land Use	Council Requirement	Extent	Requirement	Provision
Tenancy 1 – Commercial – Restaurant / Food Premises	1 per 30m² serviced floor area (in commercial zones)	195.3m²	6.5	64 Bays + 2 check-in / drop-off bays
Tenancy 2 – Motel – Serviced Apartment / Motel	1.1 per unit + 1 per 2 employees (on-site at any one time) + 1 for on-site manager	47 units 6 employees On-site manager	51.7 3 1	
Total			62.2	

The development is proposing to provide 64 parking spaces, which consists of 11 staff bays (for both tenancies), 2 pairs of tandem bays, 1 PWD bay with associated shared bay and 48 general bays.

The total parking provision exceeds the parking requirement outlined within Council's DCP. TTM understands that the allocation of spaces is not strictly in accordance with Council's requirements. However, TTM considers the proposed provision and allocation to be suitable for the development and is discussed below in Section 3.3.4.

TTM consider this to be adequate to service the developments demands as the development is within the Port Macquarie Commercial Centre, which would have high pedestrian traffic and has a large amount of on-street public parking.

3.2 People with Disability (PWD)

The Building Code of Australia (BCA) outlines the requirements for parking for people with a disability (PWD). The development, with motel/serviced apartment and food tenancy uses, is not required to provide any PWD spaces for motel/services apartment uses and would be required to provide PWD parking spaces at a rate of 1 space per 50 car parking spaces for the food tenancy uses.

It is proposal incorporates 1 PWD space with associated shared space. TTM expects this to be sufficient to cater for the requirements of the proposed development.

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3.3 Car Park Layout

Table 3.2 identifies the characteristics of the proposed parking area with respect to the Council requirements. The last column identifies the compliance of each design aspect. Where compliance with Council is not achieved, further information is provided below.

Table 3.2: Parking Design Requirements

Design Aspect	Minimum AS2890.1 Standard	Proposed Provision	Compliance
Parking space length: – General Bay – Staff Bay – Tandem Bay – PWD Bay / Shared Area	 5.4m 5.4m 10.8m 5.4m	 5.4m 5.4m 10.8m 5.4m	 Compliant Compliant Compliant Compliant
Parking space width: – General Bay – Staff Bay – Tandem Bay – PWD Bay / Shared Area	 2.5m 2.4m 2.4m 2.4m	 2.5m 2.4m 2.5m 2.5m	 Compliant Compliant Compliant Compliant
Aisle Width: – Parking Aisle – Circulation Aisle/Ramp	 5.8m 6.1m	 5.8m minimum 6.1m	 Compliant Compliant
Parking envelope clearance - Column intrusion	0.25m into bay within 0.3m & 0.2m into bay within 1.2m of front of bay	No intrusion	Compliant
Parking envelope clearance - Column adjacent to bay	Located between 0.75m and 1.75m of aisle	Located between 0.75m and 1.75m of aisle	Compliant
Parking envelope clearance – space adjacent to wall	Space 0.3m clear of wall	Space 0.3m clear of wall	Compliant
Maximum Gradient: – Parking Bay – Parking Aisle – Ramp – PWD Bay	 1:20 (5.0%) 1:16 (6.25%) 1:5 (20%) 1:40 (2.5%)	 1:20 (5.0%) 1:20 (5.0%) 1:5 (20%) 1:40 (2.5%)	Compliant
Maximum Change in Grade	1:8 (12.5%) summit 1:6.67 (15.0%) sag	1:8 (12.5%) summit 1:6.67 (15.0%) sag	Compliant
Height Clearance – General Min. – Absolute Min.	 2.2m NA	 2.2m	Compliant
Parking Aisle Extension	1m beyond last bay	1m beyond last bay	Compliant

3.3.1 Tandem Bays

TTM recommends that each of the two pairs of tandem bays be designated to a single serviced apartment. Therefore, there would be a parking provision for effectively 50 spaces, which would equate to parking for 50 apartments (at a rate of 1 space per apartment).

3.3.2 Staff Bays

Car parking spaces 1-11 on the ground floor are to be designated to employees of the motel and commercial uses. These spaces have been designed to be 5.4m long by 2.4m wide, which is in accordance with User Class 1A car parking spaces as per AS2890.1. TTM considers the proposed staff parking arrangement to be suitable for the proposed development.

3.3.3 Drop-off / Set-down Area

TTM understands that access to all of the car park is restricted by a security access door.

The proposal incorporates a drop-off area suitable to accommodate 2 vehicles, as shown in Figure 3.1. This would allow for people to temporarily park, check-in and then drive to their designated parking space.

The drop off area is clear of the access drive and would not impede entering and exiting vehicles.

TTM understands if a vehicle is not provided access beyond the security line, a vehicle would be able to perform a 3-point turn, utilising the drop-off area, and egress the site, as shown in Figure 3.2.

TTM consider this arrangement to be suitable to cater for the proposed development.

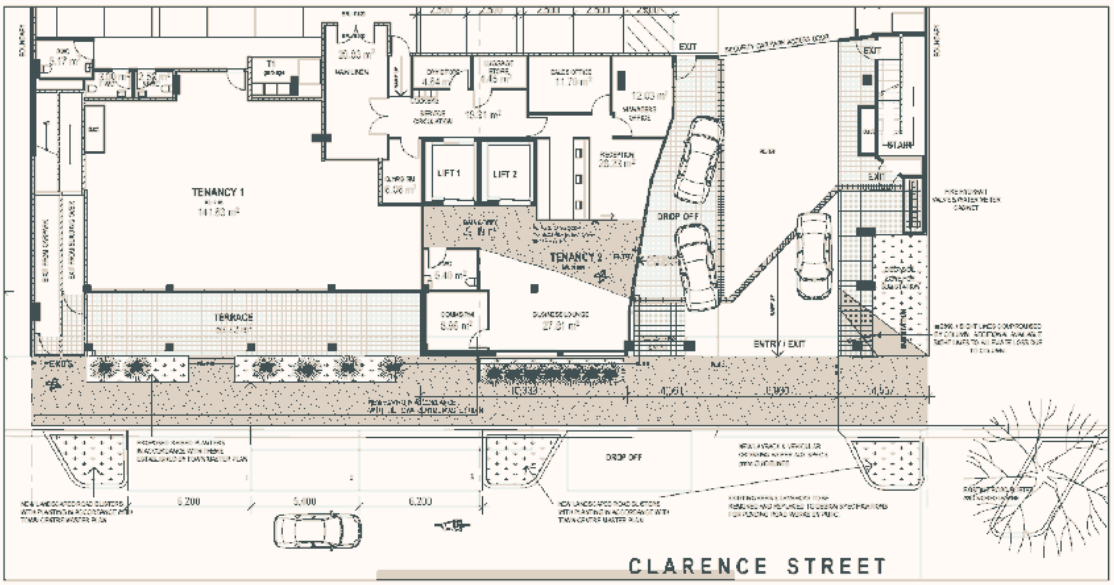


Figure 3.1: Drop-off / Set-down Area

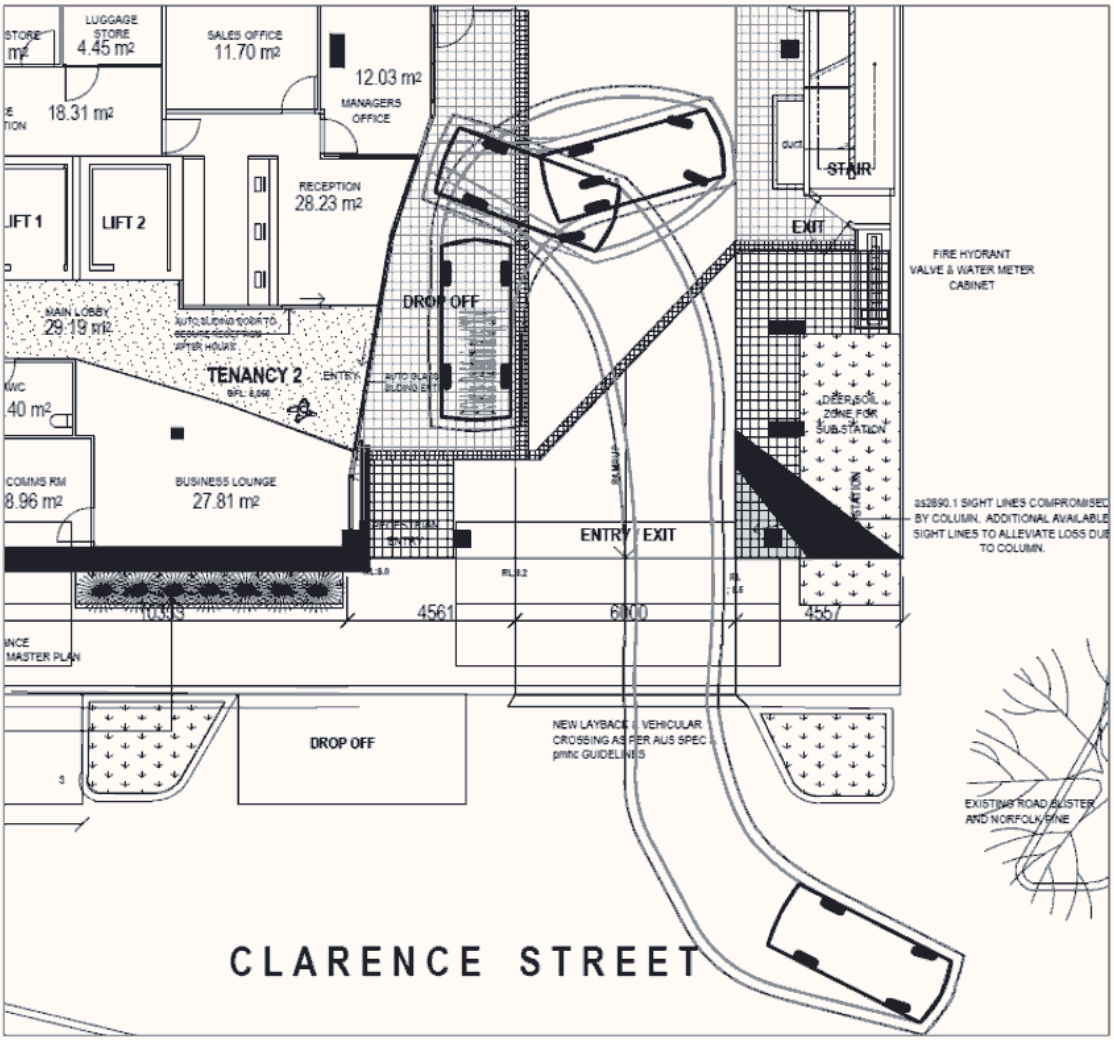


Figure 3.2: Drop-off / Set-down Area Turnaround

3.3.4 Car Parking Allocation

As outlined in Section 3.1, the proposed development would incorporate 64 parking spaces, including:

- 11 staff bays
- 48 general bays
- 1 PWD bay with associated shared bay
- 2 pair for tandem bays (4 spaces in total)

TTM understands that access to the car parking area is restricted to be for staff of the motel and commercial uses and residents of the motel. The staff and resident parking provision exceeds Council's DCP requirements.

TTM understands that the proposal would incorporate no public car parking for the proposed commercial development. TTM considers this to be suitable given the following:

- It is expected that a number of the patrons to the commercial food premises would be from the services apartments (ie there would be cross utilisation of within the site).
- On-site parking is provided for employees of the commercial use.
- TTM understands that as the development is within the commercial core, there would be a large cross utilisation of parking throughout the precinct (ie people are likely to drive into town, walk around and go to a number of destinations).
- Coupled with the point above, it is unlikely that the proposed commercial use would be a sole destination for patrons.
- There is ample on-street parking available throughout the Commercial Core precinct.

Based on the above, TTM considers that the proposed parking allocation and provision is suitable to cater for the proposed development. TTM expects that providing no public visitor car parking for the commercial use would not have a significant adverse impact on the local street network.

3.3.5 Car Parking Provision – Dual Occupancy Sensitivity Assessment

TTM understands that a number of the proposed motel units / serviced apartments are dual occupancy (ie one unit with two separate liveable areas and room keys). The development plans indicate that of the 47 units, 32 are dual occupancy. This equates for a potential of 79 separate units.

TTM has estimated the car parking demand for the development based on a yield of 79 units. TTM assumptions are outlined below:

- 80% occupancy (ie design scenario)
- 20% of guests arrive via taxi, ridesharing services, public transport (ie not with a personal / hire vehicle)

Based on the assumptions outlined above, TTM estimates that the car parking demand for the 79 units (residents) would be approximately 50-51 car parking spaces. As outlined in Section 3.3.1, there would be effectively 50 separate spaces available for car parking. Therefore, the proposed car parking capacity is sufficient to cater for the expected daily demand of the proposed development.

TTM understands that during periods of high occupancy (ie peak holiday periods) that the car parking demand may be higher. TTM recommends that a parking booking system be implemented to manage the available car parking spaces.

3.3.6 Ground Floor – Car Parking Space 17

TTM understands that Ground Floor car parking space 17 is 2,700mm wide, which includes a 2,400mm wide space and a 300mm wide wall clearance. TTM understands that this is 100mm narrower than that required by AS2890.1. TTM recommends that this space be designated as a small car bay (ie 5,000mm long by 2,300mm wide).

3.3.7 Ramp Design

TTM understands that the ramp has not been designed in detail at this stage. TTM undertaken a preliminary assessment of the ramp design (ie length, grades, transitions etc) and confirms that there is sufficient ramp length available for suitable transitions and grades to achieve the proposed Reduced Level.

3.3.8 On-Street Parking

TTM understands that Clarence Street currently incorporates indented angled parking, parallel parking and parking between the eastbound and westbound carriageways. Along the westbound carriageway there are currently 2 parallel parking bays and 3 indented angled parking spaces, as shown in Figure 3.3.

Figure 3.3: Clarence Street On-Street Parking

The proposed development would allow for 4 parallel parking bays and landscaping road blisters in accordance with the Town Centre Master Plan.

TTM understands that the proposal would reduce the on-street parking capacity by one car parking space. TTM considers this to be appropriate as the development incorporates 3 landscaped kerb blisters along Clarence Street, which are in accordance with the Town Centre Master Plan.

4 Traffic Operations

4.1 Existing Site Traffic

The existing site used to consist of 3 residential detached dwellings. For the purposes of the Impact Assessment, it has been assumed that the existing site traffic is negligible.

4.2 Estimated Development Traffic Generation

The Roads and Maritime Services (RMS, formly RTA) 'Guide to Traffic Generating Development' recommends using specific generation rates, for planning purposes, for different development types. Application of these rates to the proposed development, results in the estimate of development site traffic generation, as shown in Table 4.1.

Based on industry practice, TTM has assumed that the peak hour trip generation rate would be 10% of the daily rate.

Table 4.1: Daily Trip Generation

Land Use	RTA Rate	Extent	Trip Generation – Daily Rate	Peak Hour Rate
Motel	3 trips per unit	47 Units	141	14.1
Restaurants	60 trips per 100m²	205.3m²	123	12.3
Total			264	27

From Table 4.1, it is expected that the development would generate approximately 264 daily trips and 27 trips during the peak hour periods.

TTM expects that the motel and restaurant uses would generate traffic with a 50 : 50 in : out split. Therefore, this would equate to a peak hour traffic generation of approximately 14 vehicles in and 14 vehicles out.

The expected development traffic volumes equate to an increase of one car every two minutes entering and exiting the development during the peak hour periods. This level of traffic generation is not expected to have a significant impact on the operations of the local road network.

5 Site Access Arrangements

The proposed Clarence Street access driveway requirements are specified in Table 5.1.

Table 5.1: Typical Driveway Requirements for the Clarence Street Access

Design Aspect	AS2890.1 Requirement	Proposed Provision	Compliance
Distance from a minor intersection	6m (min) from tangent point.	50m	Compliant
Distance from another driveway	3m (min)	40m	Compliant
Sight Distance	60km/h - Desirable 83m, minimum 65m	Clear sight distance to the 4-way intersections on Clarence Street to the east and west	Performance Solution
Driveway Design Type	Category 2	Category 2	Compliant
Driveway Width / Entry and Exit Widths	Combined entry and exit: 6.0 - 9.0m width	6.0m	Compliant
Pedestrian Sight Triangle	2.5m by 2.0m	Column intrusion, extended sight triangle	Performance Solution

5.1 Proposed Access Arrangements and Their Adequacy

The proposed access arrangements generally comply with AS2890.1's requirements. The following issues are discussed in further detail.

5.1.1 Driveway Design

The development proposes to provide vehicular access via a 6.0m Category 2 driveway, as shown in Figure 5.1. The driveway design is suitable to cater for two-way vehicle movements and can provide access to the largest vehicle expected to access the site, as discussed in Section 6.

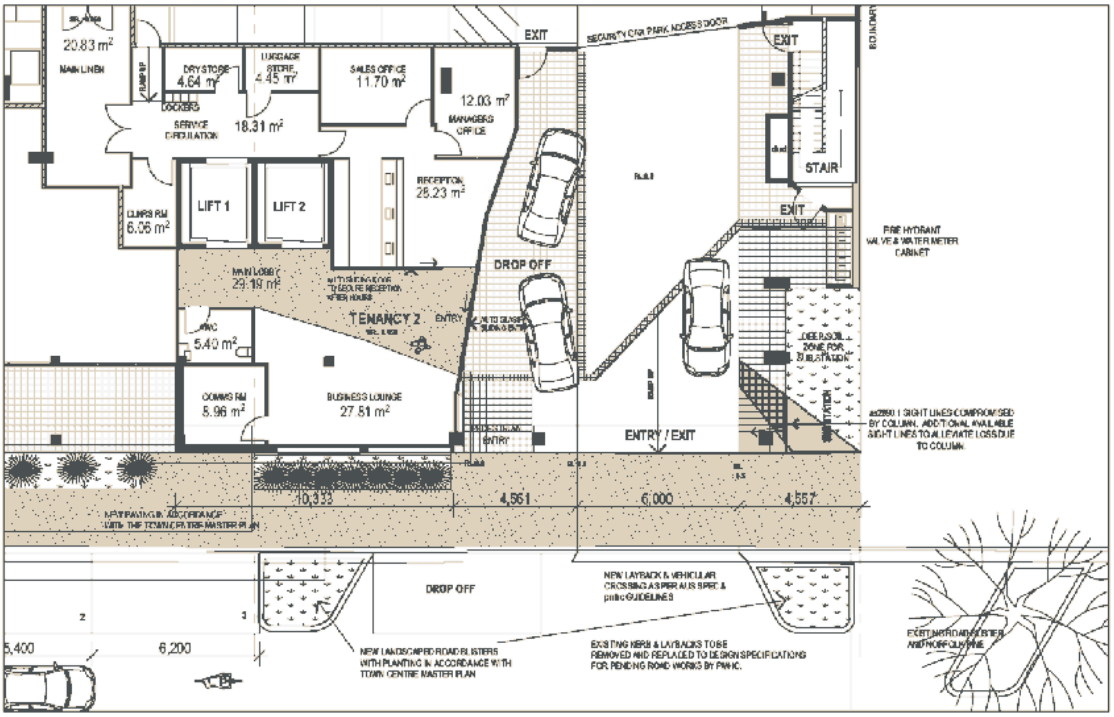


Figure 5.1: Driveway Design

5.1.2 Sight Distance

There is clear vision from the proposed access driveway to the Clarence St / Munster St intersection (to the east) and the Clarence St / Murray St (to the west). TTM estimates that a minimum of 65m of sight distance would be available in both the east and west directions. TTM estimates that the available sight distance is in accordance with AS2890.1's minimum requirements. Therefore, the proposed access is considered suitable to cater for the proposed development.

Furthermore, TTM expects that vehicle speed along Clarence Street would be substantially slower than the design speed (ie 60kph), given the following:

- Vehicles would slow down in order to negotiate the 4-way raised intersections
- Vehicles generally travel slowly through town centres as there a large amount of pedestrian traffic and vehicle movements (ie on-street parking movements)

5.1.3 Pedestrian Sight Lines

AS2890.1 requires pedestrian sight triangles, for exiting vehicles, with a dimension of 2.5m into the site a 2.0m along the property boundary.

The AS2890.1 pedestrian sight triangle would be marginally obstructed by a 450mm x 450mm structural column.

As a performance solution, it is proposed that a larger pedestrian sight triangle be incorporated into the design of the access. This is typified by being 4.5m long across the property boundary and 3.5m into the site, as shown in Figure 5.1. TTM considers this to be suitable due to the following:

- A motorist would be able to see a walking pedestrian approaching the column and access driveway, given the extended sight triangle.
- The column would not fully obstruct a pedestrian walking along the footpath (refer note below), as the pedestrian would be visible on their approach to the column
- Motorists would have adequate time (if not more than what would be provided with the AS2890.1 sight triangle) to react and allow a pedestrian the cross.

Therefore, based on the above TTM considers the proposed access arrangement to provide a suitable pedestrian sight distance and it is expected that the proposal would not have a significant impact on the local street environment.

Note: the standard body ellipse is 0.6m x 0.45m as outlined in Transport for London's Guidance Document 'Pedestrian Comfort Level Guidance' and shown in Figure 5.2.

Figure 5.2: Standard Body Ellipse

5.1.4 Queuing

The secure line is located approximately 15m from the property boundary, which would provide queuing for 2 vehicles. In addition to this, there is a drop-off / set-down area as discussed in Section 3.3.3. Therefore, there would effectively be space for 4 vehicles queuing to access the site.

AS2890.1 outlines that queuing should be provided at a rate of a minimum of 2 cars or 3% of capacity (for car parks up to 100 spaces). Therefore, the proposal would require a queuing provision of 2 cars.

The queuing provision exceeds the Australian Standards requirements. Therefore, TTM consider the proposed queuing arrangements suitable to cater for the development.

6 Service Vehicle Arrangements

To assess the required number of service bays for the development, TTM has referred to the Port Macquarie-Hastings Council's requirements for service vehicles. Other service vehicle provisions are generally in accordance with AS2890.2.

6.1 Council Requirements

The proposed development includes a Commercial use and a Motel/Serviced Apartment use. The DCP service vehicle requirements are shown in Table 6.1.

Table 6.1: Minimum Service Vehicle Requirements

Use	Requirement
Commercial	Floor space of less than 500m² need not provide a loading bay
Motel	Not specified, performance solution discussed below

6.2 Proposed Service Vehicle Arrangements and Their Adequacy

The development is proposing an on-site loading area, which is suitably designed to accommodate a VAN vehicle.

TTM expects that a VAN would be the largest vehicle that would require access to the site (ie to access the main linen area for the motel).

TTM has undertaken a swept path assessment demonstrating that a VAN would be able to access the site in a forward gear, servicing area and egress the site in a forward gear, as shown in Figure 3.1 and attached. The swept paths demonstrate that a VAN would obstruct the parking aisle whilst servicing the site. TTM considers this to be suitable as the VAN would marginally obstruct the staff parking area only.

As outlined in the Port Macquarie-Hastings Council DCP, commercial uses with a GFA of less than 500m² are not required to provide a loading bay. Therefore, the proposed commercial use would not require a loading area.

TTM considers that the proposed on-site servicing arrangement is suitable.

ttm

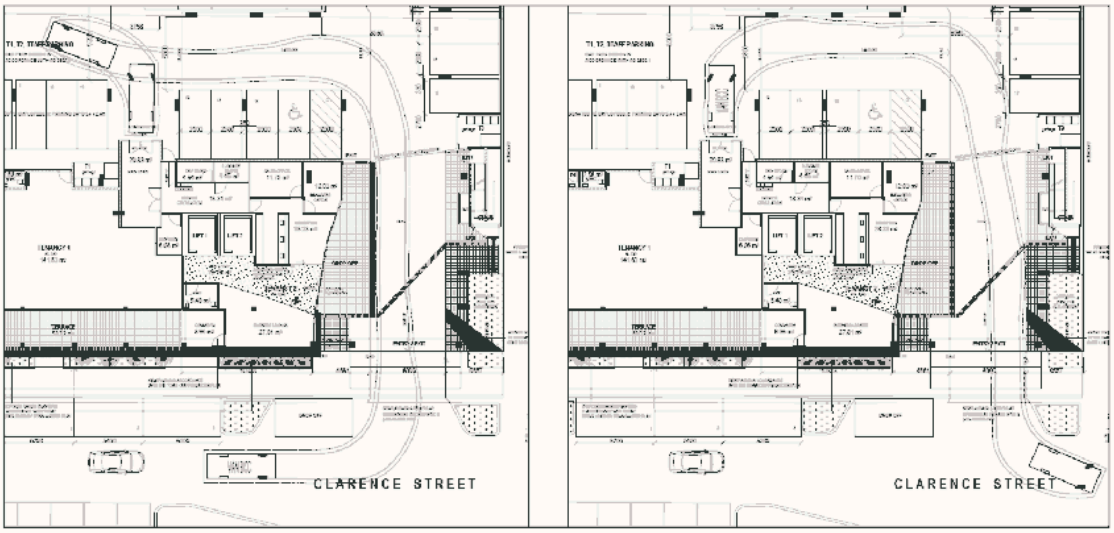


Figure 6.1: VAN Swept Path

6.3 Refuse Collection Servicing Arrangements

Refuse collection is proposed to occur from the kerb-side on Clarence Street. The bins will be stored in the refuse rooms located on the Ground Floor (as shown in Figure 6.2).

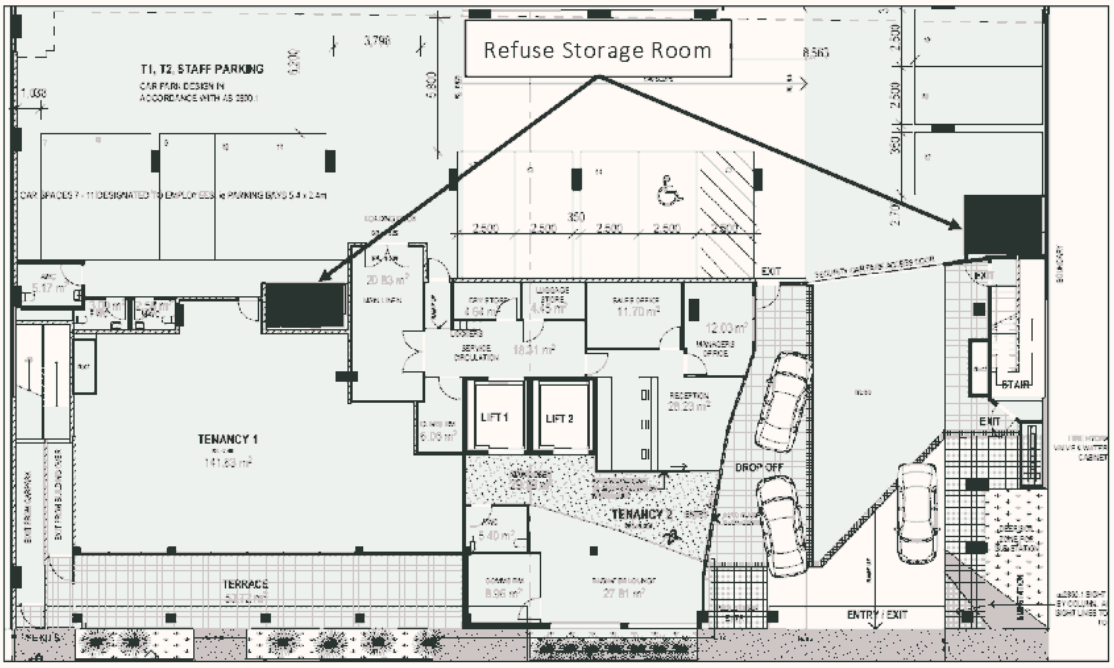


Figure 6.2: Refuse Storage Rooms

7 Active Transport

7.1 Pedestrian Access

Pedestrian access to the site is achieved via footpath provided along the Clarence Street frontage.

7.2 Cyclist Requirements

The DCP does not specify that on-site bicycle parking is required for commercial food and drink uses and motel uses.

The proposed development provides no bicycle parking, which is in accordance with Council's DCP.

7.3 Public Transport Requirements

The proposed development does not require the provision of any additional public transport facilities. The development is well serviced by existing public transport facilities.

8 Summary and Conclusions

8.1 Development Summary

The access is proposed to be via a 6.0m wide Category 2 access crossover.

The development access will provide an effective queue provision of 4 vehicles between the property boundary and the security access door.

8.2 Car Parking Arrangements

The car parking provision generally exceeds Council's Development Control Plan's minimum parking requirements.

The ground level and basement car park layouts, as a minimum, comply with the Australian Standard requirements. Overall, TTM considers the proposed car parking arrangements for this development are adequate.

8.3 Impact on Surrounding Road Network

Assessment of the proposed development indicates that the development will not have a significant impact on the future road network. As such, no further mitigating road works are required.

8.4 Service Vehicle Arrangements

Servicing for this development will be facilitated in the designated loading area on the ground level, accessed from Clarence Street. The largest design vehicle, a VAN, can enter, manoeuvre, service and exit the site in a forward gear. Overall, the proposed service vehicle arrangements are considered adequate to meet the needs of the proposed development.

8.5 Active Transport Facilities

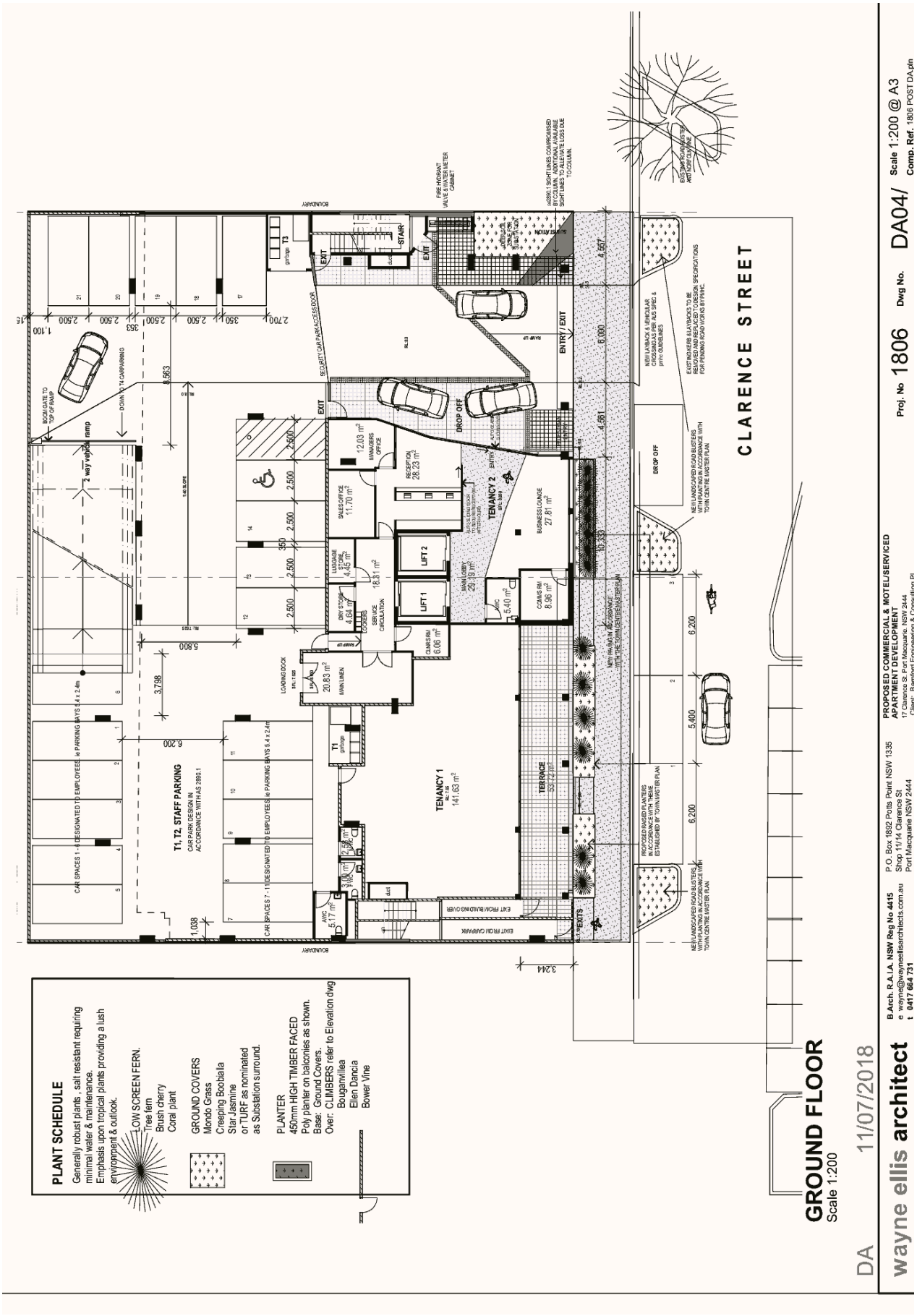
The current public transport infrastructure and proposed site provisions for pedestrian/bicycle facilities is considered adequate for the development.

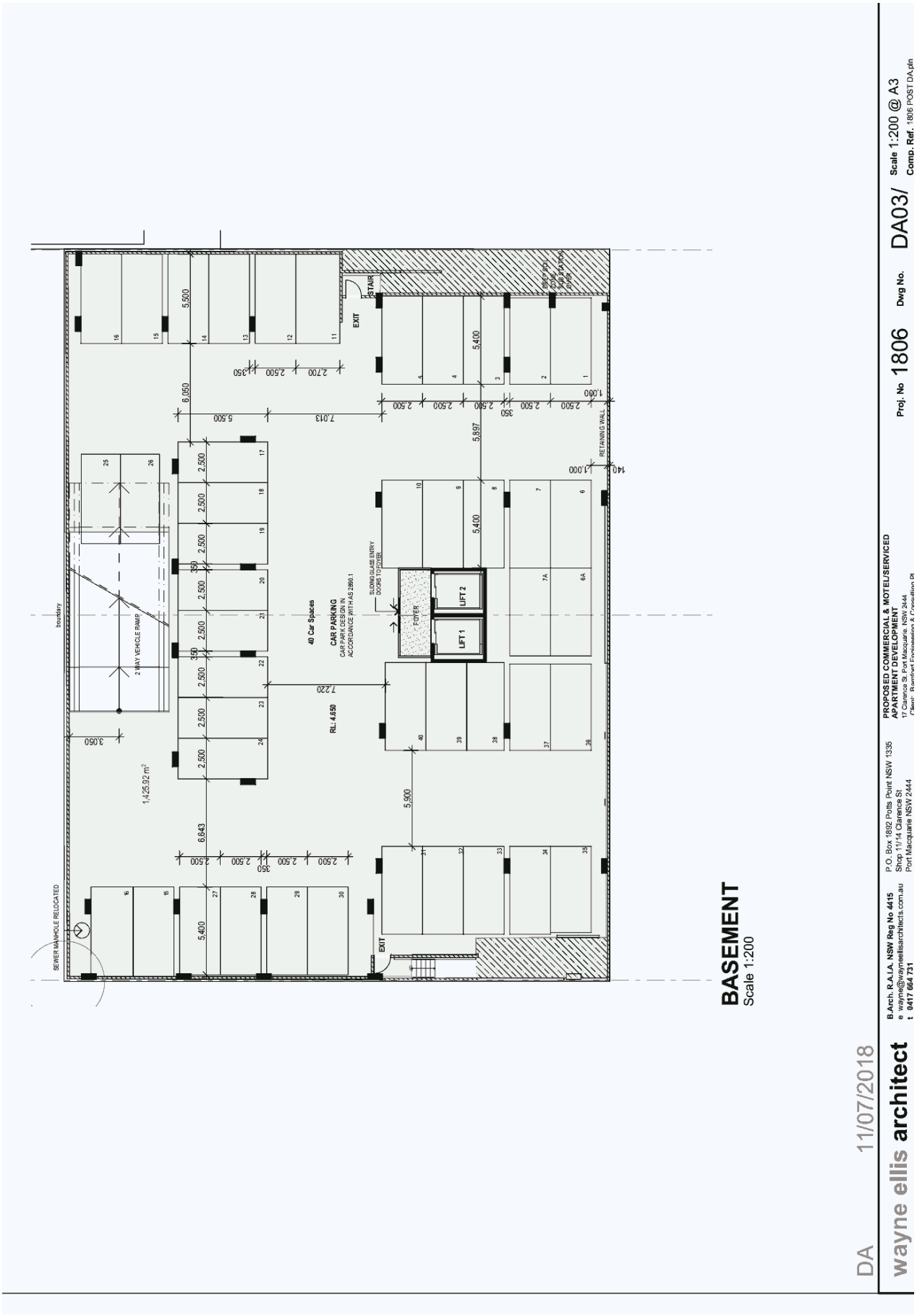
8.6 Conclusion

Based on the assessment contained within this report, TTM see no traffic engineering reason why the relevant approvals should not be granted.

Appendix A Proposed Site Plan

Site: 17 Clarence Street, Port Macquarie - Motel
Reference: 18GCT0166


PLANT SCHEDULE
Generally robust plants , salt resistant requiring minimal water & maintenance.
Emphasis upon tropical plants providing a lush environment & outlook.
LOW SCREEN FERN.
Tree fern
Brush cherry
Coral plant
GROUND COVERS
Mondo Grass
Creeping Boobialla
Star Jasmine
or TURF as nominated
as Substation surround.
PLANTER
450mm HIGH TIMBER FACED
Poly planter on balconies as shown.
Base: Ground Covers.
Over: CLIMBERS refer to Elevation dwg
Bouganvillea
Ellen Dancia
Bower Vine
GROUND FLOOR
Scale 1:200
DA
11/07/2018
wayne ellis architect
B Arch. R.A.I.A. NSW Reg No 4415
e wayne@wayneellisarchitects.com.au
t 0417 664 731
P.O. Box 1892 Potts Point NSW 1335
Shop 11/14 Clarence St
Port Macquarie NSW 2444
PROPOSED COMMERCIAL & MOTEL/SERVICED APARTMENT DEVELOPMENT
17 Clarence St, Port Macquarie, NSW 2444
Client: Bamford Engineering & Consulting Pt
Proj. No 1806
Dwg No. DA04/
Scale 1:200 @ A3
Comp. Ref. 1806 POST DA.pln
CLARENCE STREET
T1, T2, STAFF PARKING
TENANCY 1
TENANCY 2
LIFT 1
LIFT 2
DROP OFF
ENTRY / EXIT
EXIT
STAIR
BOUNDARY


BASEMENT
Scale 1:200
40 Car Spaces
CAR PARKING
CAR PARKING DESIGN IN ACCORDANCE WITH AS 2890.1
RL: 4.850
2 WAY VEHICLE RAMP
1,425.92 m²
LIFT 1
LIFT 2
FOYER
SLIDING GLASS ENTRY DOORS TO COVER
STAIR
EXIT
RETAINING WALL
SEWER MANHOLE RELOCATED
boundary
DA
11/07/2018
wayne ellis architect
B.Arch. R.A.I.A. NSW Reg No 4415
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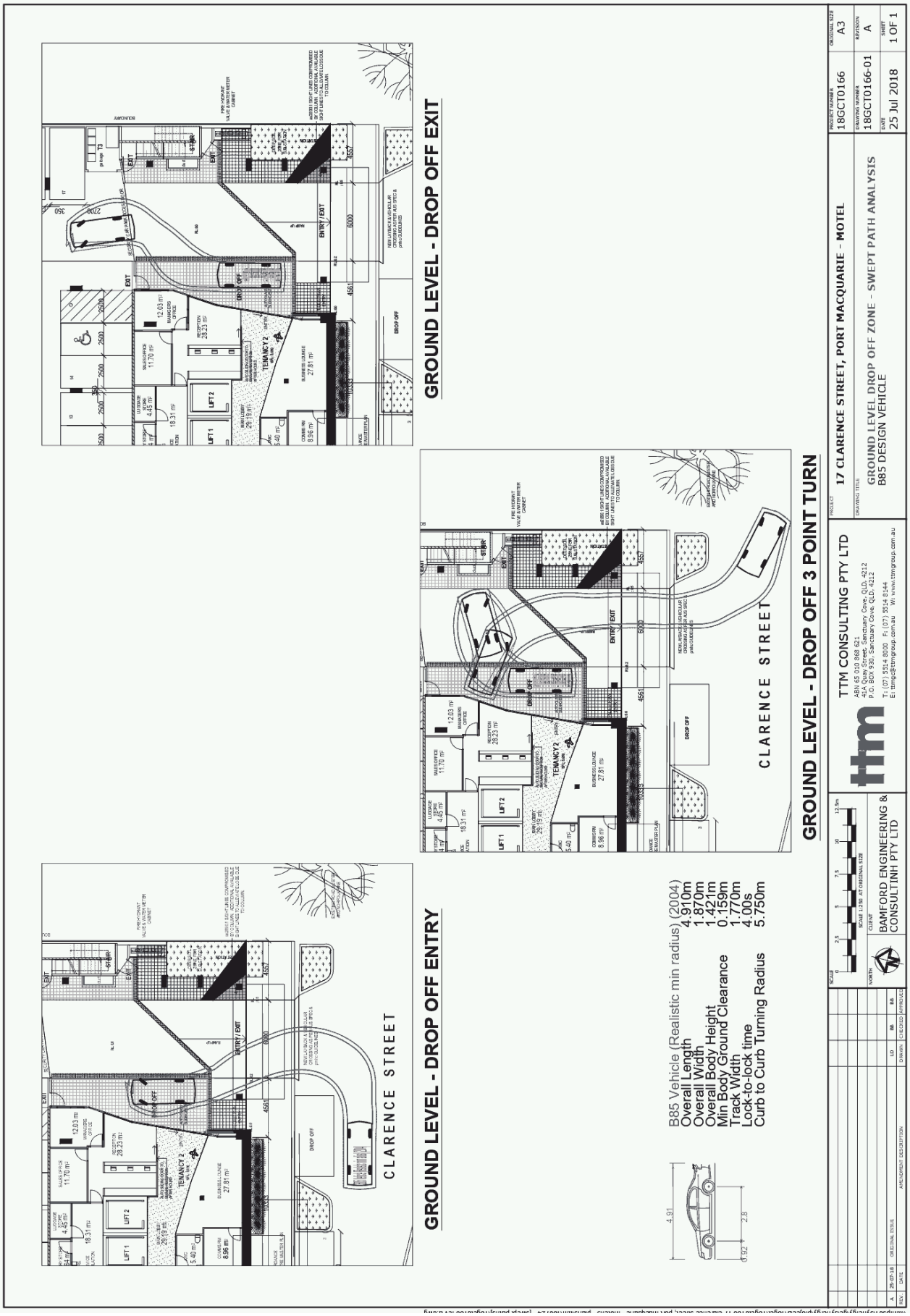
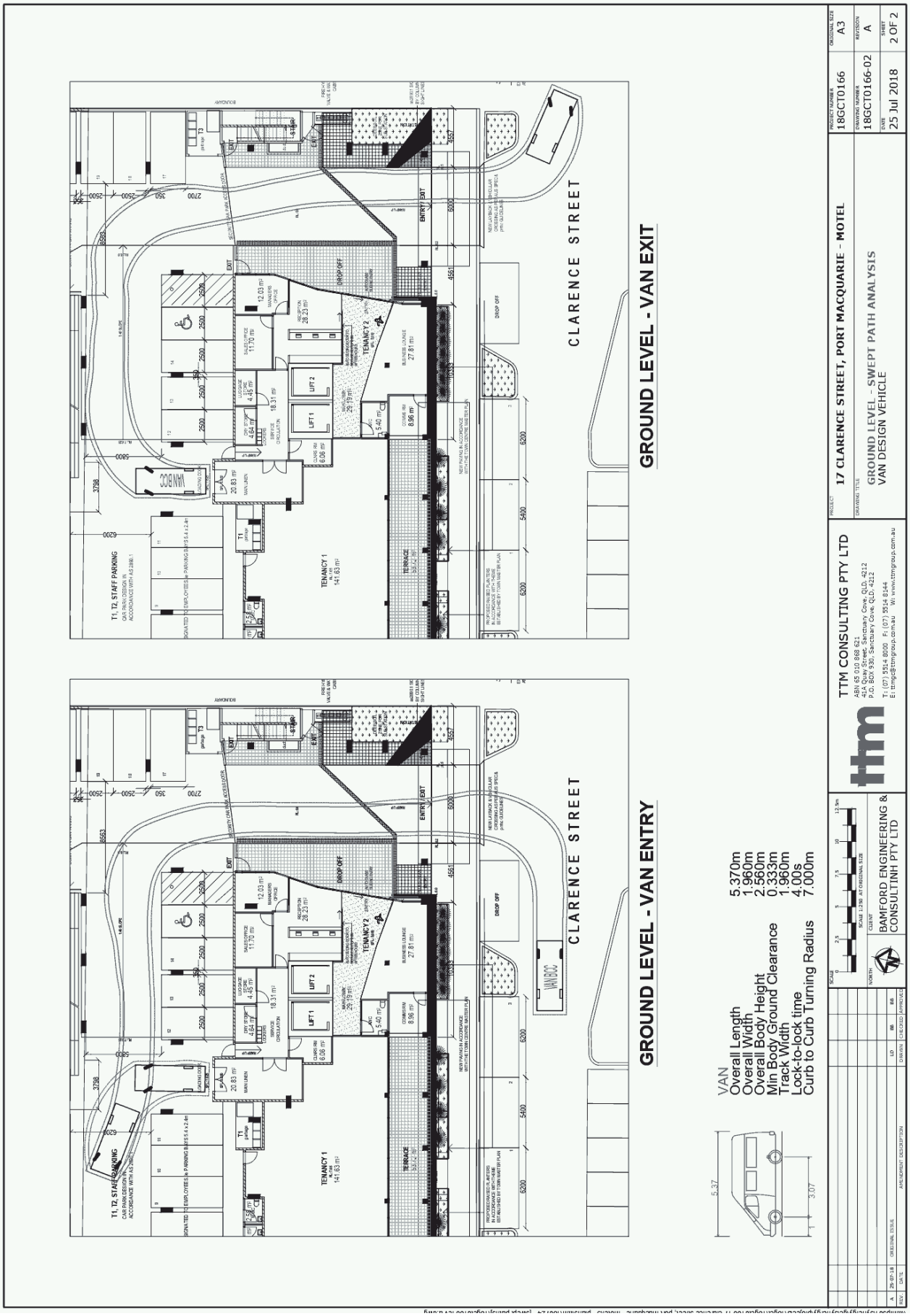
t 0417 664 731
P.O. Box 1892 Potts Point NSW 1335
Shop 11/14 Clarence St
Port Macquarie NSW 2444
PROPOSED COMMERCIAL & MOTEL/SERVICED APARTMENT DEVELOPMENT
17 Clarence St, Port Macquarie, NSW 2444
Client: Barnhart Engineering & Consulting Pt
Proj. No 1806
Dwg No. DA03/
Scale 1:200 @ A3
Comp. Ref. 1806 POST DA.pln

Appendix B Service Vehicle Swept Paths

Site: 17 Clarence Street, Port Macquarie - Motel
Reference: 18GCT0166


GROUND LEVEL - DROP OFF EXIT
GROUND LEVEL - DROP OFF ENTRY
GROUND LEVEL - DROP OFF 3 POINT TURN
CLARENCE STREET
B85 Vehicle (Realistic min radius) (2004)
Overall Length 4.910m
Overall Width 1.870m
Overall Body Height 1.421m
Min Body Ground Clearance 0.159m
Track Width 1.770m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 5.750m
17 CLARENCE STREET, PORT MACQUARIE - MOTEL
GROUND LEVEL DROP OFF ZONE - SWEPT PATH ANALYSIS
B85 DESIGN VEHICLE
TTM CONSULTING PTY LTD
BAMFORD ENGINEERING & CONSULTINH PTY LTD
18GCT0166
18GCT0166-01
25 Jul 2018
A3
A
1 OF 1


GROUND LEVEL - VAN EXIT
GROUND LEVEL - VAN ENTRY
CLARENCE STREET
VAN
Overall Length 5.370m
Overall Width 1.960m
Overall Body Height 2.560m
Min Body Ground Clearance 0.333m
Track Width 1.960m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 7.000m
TTM CONSULTING PTY LTD
17 CLARENCE STREET, PORT MACQUARIE - MOTEL
GROUND LEVEL - SWEPT PATH ANALYSIS
VAN DESIGN VEHICLE
18GCT0166
18GCT0166-02
25 Jul 2018
A3
A
2 OF 2
BAMFORD ENGINEERING & CONSULTINH PTY LTD

STATEMENT OF ENVIRONMENTAL EFFECTS & SUPPORTING INFORMATION

PROPOSED COMMERCIAL &
MOTEL/SERVICED APARTMENT DEVELOPMENT
AT
LOT 123 DP 1219042,
17 CLARENCE STREET,
PORT MACQUARIE

JUNE 2018

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1. INTRODUCTION

This report is submitted to Port Macquarie - Hastings Council as part of a development application for the construction of a mixed commercial and motel/serviced apartment development at Lot 123 DP 1219042, 17 Clarence Street, Port Macquarie.

The final design of the proposed development complies with the requirements of Council's strategic planning objectives and development standards. The proposed development is also consistent with the land use zoning for the area and is compatible with the local context.

This report addresses the nature and form of the development, the characteristics of the site and surrounding area and the impacts of the proposed development.

Aspects of the proposed development have been through a pre-DA consultation process albeit that this involved a development concept centered on a six (6) storey shop top housing development concept. The pre-DA consultation included;

- Council pre-lodgment meeting - refer to **Appendix 1**.
- Consideration of the preliminary design by Councils Urban Design Review Panel.

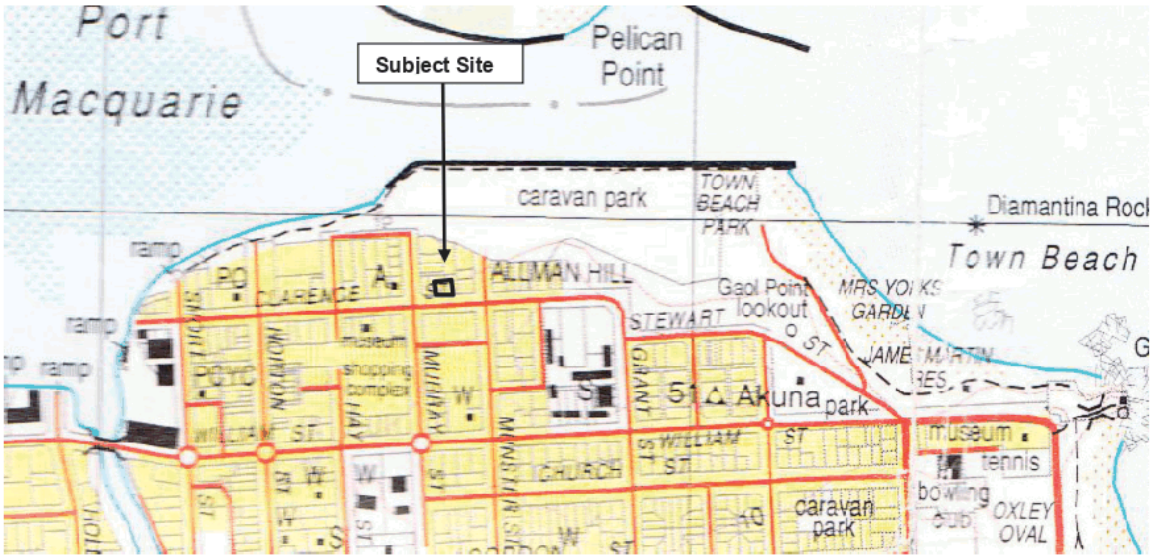
It is noted that the shop top housing development proposal for the subject site was subsequently approved by Council via Development Consents 332/2015 and 149/2016.

2. LOCATION DESCRIPTION

2.1 Local and Regional Context

The subject site is located on the eastern fringe of the Port Macquarie Central Business District (CBD). It is within easy walking distance to the services and facilities located within the CBD as well as Town Beach and the Hastings River Break wall, refer to **Figure 1.**

Figure 1 – Site Location



The subject site is also in proximity to a range of community/recreational facilities including entertainment venues and sporting and recreational facilities.

The area is characterized by a mix of commercial and residential development which reflects the subject sites CBD fringe location. Apart from commercial land uses the locality contains a range of residential development including serviced apartment developments and older multistory and low-density residential flat and unit developments.

The age of existing building infrastructure is mixed with more recent developments, (i.e. 10 years old), intermingled with historical developments which are more than 40 – 50 years old.

2.2 The Site

The subject site consists of a single Torrens Title lot at 17 Clarence Street, Port Macquarie. The subject site is currently vacant of improvements with historic residential flat buildings having recently been demolished

The subject site has approximately 2m fall from south to the north (from Clarence Street to the rear of the property). A 1m east to west cross fall is also present although the natural topography of the subject site has been altered as a result of the historic development of the subject site and recent demolition works. The topography of adjoining and adjacent land contains gentle south to north down slopes and a westerly cross-fall.

The subject site is legally known as Lot 123 DP 1219042, 17 Clarence Street, Port Macquarie. The subject site is rectangular in shape with a total site area of approximately 1517.23m^2. It has a frontage of 45.25m to Clarence Street, and an average depth of 33.53m.

The subject site does not contain any significant vegetation with bare earth and grasses being the predominant surface conditions on the subject site.

The immediate locality, particularly to the north, south and east is dominated by larger residential flat and serviced apartment buildings. The western aspect of the subject site is dominated by commercial buildings which are generally up to two (2) storey in bulk and scale. The bulk and scale of buildings in the western aspects becomes more significant with distance to the west.

2.3 Description of Existing Environment

2.3.1 Climate

The local climate is considered to be temperate with summer dominant rainfall.

The average daily maximum temperature is around 21.5^{0}C, while the average daily minimum temperature is around 10^{0}C - 11^{0}C.

Long-term average annual rainfall is around between 1,500 mm.

Annual pan evaporation is estimated to be approximately 1,400 mm.

2.3.2 Soils and Vegetation

As detailed in the Department of Land and Water Conservations, soil landscapes of Kempsey 1: 1,000,000 Sheet (1999), the soil grouping on the subject site is shown to be potentially by human activity and as such soils could be high variable in characteristics and limitations.

Geological investigations indicate that the site is situated in an area of red krasnozem clay soils overlying deeply weathered geological units of the Port Macquarie Block which includes slate, basalt, serpentinite and dolerite. Areas of disturbed ground are present in the upper 1m of the soil profile due to the demolition of the former structures at the site and the presence of historical service trenches.

Ground water is variable across the subject site however its presence was encountered approximately 1.5m below ground level. It should be noted that fluctuations in groundwater levels can occur as a result of seasonal variations, temperature, rainfall and other similar factors, the influence of which may not have been apparent at the time of the assessment.

All native vegetation has been removed from the subject site and immediate surrounds as part of the development of the land for the residential uses which exist in the locality.

2.3.3 Drainage

The subject site is well suited to residential/commercial uses, with gentle slopes in all aspects of the subject site. The presence of Clarence Street to the south of the subject site provides for drainage opportunities to the south of the subject site. It is also noted that an inter-allotment drainage line is present along the northern portion of the subject site and as such drainage opportunities exist to the north also. Accordingly, there are no constraints regarding site drainage.

Sufficient drainage infrastructure is present within the Clarence Street road reserve to service the proposed development.

2.3.4 Land Use

The subject site forms part of the Port Macquarie Central Business District.

The northern and eastern boundaries of the subject site adjoin residential land uses with more recently developed multi storey serviced apartment developments incorporating ground floor commercial uses present to the north and east of the subject site. The southern boundary of the subject site adjoins the Clarence Street road reserve. Beyond the road reserve to the south is an older style multi storey serviced apartment development.

Land use in the western aspect of the subject site consists of a mixture of single and two storey commercial buildings and public road infrastructure.

The foreshore areas of the Hastings River are located approximately 200m to the north of the subject site whilst Town Beach is located approximately 600m to the east of the subject site.

2.3.5 Flora and Fauna

The subject site contains disturbed surface conditions with grasses being the predominant vegetation on the subject site.

Given the modified and highly disturbed nature of the subject site it has limited ecological or habitat value for native flora and fauna.

2.3.6 Air

The air quality at the subject site and surrounds reflects the mixed commercial and residential nature of the land use in the locality. In this regard the existing air quality of the area reflects the dust, odour and exhaust emissions from the commercial activities which are undertaken within the Port Macquarie CBD.

Notwithstanding this, the air quality at the subject site and surrounding area is generally good. This reflects the scale and nature of the development within the CBD.

2.3.7 Noise and Vibration

It is noted that the existing noise and vibration characteristics of the subject site and surrounding areas is dominated by the commercial activities within the Port Macquarie CBD.

Notwithstanding this, the acoustic environment of the subject site and surrounding area is consistent with that which would be expected for a residential habitation within an area which supports the operation of commercial businesses in a town centre landscape.

3. PROPOSED DEVELOPMENT

The proposal includes the construction of a seven (7) storey mixed use commercial and motel/serviced apartment building with a single basement carparking level.

A commercial tenancy, (195m^2), together with building access infrastructure, (vehicle and pedestrian), will occupy the ground floor of the building. Twenty-one (21) carparking spaces together with motel/serviced apartment and ancillary use areas are also proposed for this level.

Motel/Serviced Apartment accommodation and associated infrastructure are distributed over Levels 1 – 7 of the building. The proposed development provides for forty-seven (47) apartments with the following configuration;

- 4 x 3 bedroom/2-bathroom apartments (twin key); and
- 28 x 2 bedroom/2-bathroom apartments (twin key); and
- 12 x 2 bedroom/2-bathroom apartments; and
- 3 x 1-bedroom apartment.

The usage arrangements of the proposed apartments provide for a maximum of 79 lettable units.

The floor areas of the units are variable ranging from 48m^2 to 106.4m^2.

Access to each apartment will be by lift access. Each of the proposed apartments will be provided with an external balcony.

One level of basement car parking, (providing forty (40) spaces), is proposed with access via a single vehicular driveway off Clarence Street via the ground floor of the building. Lift access to the basement level is proposed.

The proposed development also provides for motel/serviced apartment ancillary use areas on Level 7 of the proposed development. In this regard a Conference Room, Gymnasium, BBQ area, amenities and a swimming pool are located on the top floor area of the development.

As indicated on the architectural plans prepared by Wayne Ellis Architects, (included in the development proposal plans), the proposed development will be finished in contemporary tone colours.

Details of the floor areas of the proposed development are provided as follows;

Table 1 – Development Floor Areas

SITE	TOTAL
Total Gross Floor Area	5344.33m^2
Site Area	1517.23m^2
Proposed floor space ratio	**3.52:1**

4. PLANNING CONTROLS

The statutory and strategic planning instruments that are relevant to this proposal are:

- Environmental Planning and Assessment Act 1979
- Water Management Act, 2000
- State Environmental Planning Policy No. 71 – Coastal Protection
- North Coast Regional Environmental Plan
- Port Macquarie - Hastings Local Environmental Plan 2011
- Port Macquarie - Hastings Development Control Plan 2013

4.1 Environmental Planning and Assessment Act 1979

Part 4 of the Environmental Planning and Assessment Act, 1979 is relevant to the proposed development; refer to Section 5 of this report.

4.2 Water Management Act, 2000

It is noted that a preliminary worst case geotechnical assessment of the ground water conditions of the subject site, (refer to **Appendix 2**), indicates that the construction of the proposed building will intersect ground waters. Ground water conditions have been experienced at approximately 1m below the lowest existing ground level. In this regard the lowest basement level is proposed to be at approximately RL 2.6m (including floor slab thickness).

Accordingly, the proposed development will require an aquifer interference approval issued pursuant to Clause 91 of the Water Management Act, 2000.

In this regard it is noted that the proposed development will be integrated development under Section 91 of the *Environmental Planning & Assessment Act, 1979* as there is a need for the granting of an approval under the Water Management Act, 2000.

4.3 State Environmental Planning Policy 55 – Remediation of Land and Managing Land Contamination

Based upon historical land use the subject site is not subject to the contaminated land provisions of State Environmental Planning Policy 55 – Remediation of Land and Managing Land Contamination.

4.4 State Environmental Planning Policy No. 71 – Coastal Protection

One of the overall aims of SEPP No. 71 – Coastal Protection is ***"to protect and manage the natural, cultural, recreational and economic attributes of the New South Wales coast"***.

It seeks to do this by requiring additional assessment matters for developments located within the Coastal Zone.

SEPP No. 71 applies to the subject site, as it is located within this Coastal Zone as defined by the SEPP. The matters required to be considered in the assessment of a development application by Port Macquarie-Hastings Council under Clause 7 of the SEPP are as follows:

Table 2 – SEPP 71 Compliance

Clause 8 matters for consideration, SEPP No. 71 – Coastal Protection	Compliance	Proposal as assessed under Clause 8 matters for consideration, SEPP No. 71 – Coastal Protection
(a) the aims of this Policy set out in clause 2, (1) This Policy aims: (a) to protect and manage the	Complies	The proposal will have a

natural, cultural, recreational and economic attributes of the New South Wales coast, and		minimal impact on the natural, cultural, recreational and economic attributes of the NSW coast. This development will support economic investment within the local area specifically and the Mid-North Coast generally and will have positive economic benefits for the community.
(b) to protect and improve existing public access to and along coastal foreshores to the extent that this is compatible with the natural attributes of the coastal foreshore, and	Not applicable	The proposal has no impact on public access to and along the coastal foreshore.
(c) to ensure that new opportunities for public access to and along coastal foreshores are identified and realized to the extent that this is compatible with the natural attributes of the coastal foreshore. and	Not applicable	See above comment
(d) to protect and preserve Aboriginal cultural heritage, and Aboriginal places, values, customs, beliefs and traditional knowledge, and	Complies	Based on the archaeological clearance assessment contained in **Appendix 3** there are no known archaeological or heritage issues present on site.
(e) to ensure that the visual amenity of the coast is protected, and	Complies	The proposal will protect the visual amenity of the coast as it will be in keeping with the characteristics of the area.
(f) to protect and preserve beach environments and beach amenity, and	Complies	The proposal will have no impact on the environment or amenity of beach areas.
(g) to protect and preserve native coastal vegetation, and	Not applicable	The proposal will have no impact on native coastal vegetation.
(h) to protect and preserve the marine environment of NSW,	Not applicable	The proposal will have no impacts on the marine

and		environment of NSW
(i) to protect and preserve rock platforms, and	Not applicable	The proposal will have no impacts on rock platforms
(j) to manage the coastal zone in accordance with the principles of ecologically sustainable development (within the meaning of section 6 (2) of the Protection of the Environment Administration Act 1991), and	Not applicable	The proposal has been designed to consider the principles of ecologically sustainable development. Compliance with the energy efficiency requirements of the Part J of the BCA are applicable to the proposed building.
(k) to ensure that the type, bulk, scale and size of development is appropriate for the location and protects and improves the natural scenic quality of the surrounding area, and	Complies	The proposal is of an appropriate type, bulk, scale and size for its location which complements not only the existing built environment but also the scenic quality of the surrounding area.
(l) to encourage a strategic approach to coastal management.	Complies	The proposal does not impact on strategic coastal management.
(b) existing public access to and along the coastal foreshore for pedestrians or persons with a disability should be retained and, where possible, public access to and along the coastal foreshore for pedestrians or persons with a disability should be improved,	Not applicable	The proposal has no impact on public access to and along the coastal foreshore.
(c) opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability,	Not Applicable	
(d) the suitability of development given its type, location and design and its relationship with the surrounding area,	Complies	See the comments made earlier in relation to 1(k).

(e) any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing of the coastal foreshore and any significant loss of views from a public place to the coastal foreshore,	Complies	The proposal will not result in any detrimental impact, overshadowing or loss of views from a public place to the foreshore.
(f) the scenic qualities of the New South Wales coast, and means to protect and improve these qualities,	Complies	Given the location of the subject development there are no scenic protections issues
(g) measures to conserve animals (within the meaning of the Threatened Species Conservation Act 1995) and plants (within the meaning of that Act), and their habitats,	Not applicable	Given the developed nature of the subject site it is extremely unlikely that the site includes any threatened species or items of conservation significance.
(h) measures to conserve fish (within the meaning of Part 7A of the Fisheries Management Act 1994) and marine vegetation (within the meaning of that Part), and their habitats	Not applicable	The proposal will have no impact on fish species or their environment.
(i) existing wildlife corridors and the impact of development on these corridors,	Not applicable	No corridors exist on or adjacent to the subject site
(j) the likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards,	Not applicable	Given the location of the subject site it is unlikely that coastal processes or hazards will impact on the development.
(k) measures to reduce the potential for conflict between land-based and water based coastal activities,	Not applicable	Due to its location the development proposal will not conflict with land based and water-based activities.
(l) measures to protect the cultural places, values, customs, beliefs and traditional knowledge of Aboriginals,	Complies	See comments made earlier in this table regarding cultural and archaeological considerations.

(m) likely impacts of development on the water quality of coastal water bodies,	Complies	The proposal will not have a detectable impact on the water quality of coastal waters.
(n) the conservation and preservation of items of heritage, archaeological or historic significance,	Complies	See the comments made earlier in this table regarding archaeological issues on the subject site.
(o) only in cases in which a council prepares a draft local environmental plan that applies to land to which this Policy applies, the means to encourage compact towns and cities,	Not Applicable	Not Applicable
(p) only in cases in which a development application in relation to proposed development is determined: (i) the cumulative impacts of the proposed development on the environment, and (ii) measures to ensure that water and energy usage by the proposed development is efficient.	Complies	As the proposal is a redevelopment and the subject site is located within an established urban area, the cumulative impacts of the proposal on the environment are considered to be minimal. Compliance with the Building Code of Australia requirements which are applicable to the subject development will provide for water and energy efficiency in the occupation of the proposed serviced apartments.

4.5 North Coast Regional Environmental Plan

The following clauses of the North Coast Regional Plan (REP) are considered to be relevant to this application:

Table 3 – NCREP Compliance Requirements

Relevant Development Controls under North Coast Regional Environmental Plan	Compliance	Proposal as assessed under
Clause 36 Development control—heritage items, generally	Complies	The archeological clearance assessment provided as **Appendix 3** confirms there are no known archeological or heritage issues associated with

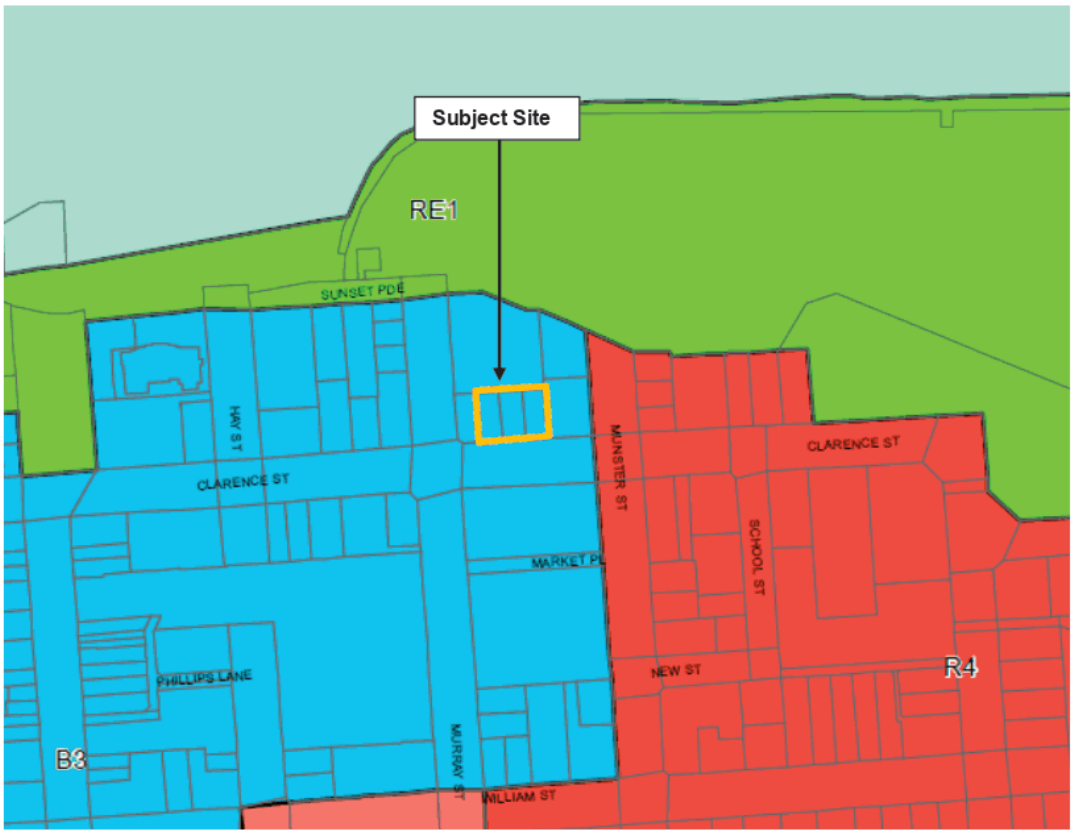
		the development of the site.

4.6 Port Macquarie-Hastings Local Environmental Plan 2011

4.6.1 Land Use Zoning

It is noted that the subject site is zoned B3 (Business Core) under the provisions of Port Macquarie-Hastings LEP 2011, refer to **Figure 2**.

Figure 2 – Site Zoning



The objectives of the B3 zone are:

- To provide a wide range of retail, business, office, entertainment, community and other suitable land uses that serve the needs of the local and wider community.
- To encourage appropriate employment opportunities in accessible locations.
- To maximise public transport patronage and encourage walking and cycling.
- To ensure that new residential accommodation and tourist and visitor accommodation within the zone does not conflict with the primary function of the centre for retail and business use.

- To provide for the retention and creation of view corridors and pedestrian links throughout the Greater Port Macquarie city centre.

The proposal development satisfies the objectives of the zone and is therefore an appropriate form of development for the subject site and the general locality.

The location of the development is intended to support the commercial development in conjunction with the tourist and visitor accommodation use of the subject site.

The proposed development will be in keeping with the existing and expected amenity of the area.

It is noted that the proposed development is permissible in the zone. The land use requirements of Port Macquarie Hastings LEP 2011 for the R1 Zone are as follows;

'2 Permitted without consent

Home-based child care; Home occupations

3 Permitted with consent

Boarding houses; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Shop top housing; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Caravan parks; Cemeteries; Correctional centres; Crematoria; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; Heavy industrial storage establishments; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Mortuaries; Open cut mining; Research stations; Residential accommodation; Rural industries; Sewerage systems; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Wharf or boating facilities; Wholesale supplies'

As the proposed development provides for commercial and tourist/visitor accommodation it is a permissible use which is subject to the issuing of development consent by the local council.

4.6.2 LEP Compliance Requirements

Other relevant clauses of the LEP that are considered to be applicable to the subject development are as follows;

Table 4 – LEP Compliance Requirements

Relevant Development Controls under Port Macquarie - Hastings LEP 2011	Compliance	Proposal as assessed under Port Macquarie - Hastings LEP 2011
Part 2 - Permitted and prohibited Development		
2.7 Demolition Requires Consent	N/A	Consent has previously been obtained for the demolition of the buildings which previously occupied the subject site.
Part 3 - Exempt and Complying Development		
3.3 Environmentally Sensitive Areas excluded	Complies	The subject site does not currently have any trees which trigger Council's TPO.
Part 4 – Principal Development Standards		
4.3 Height of Buildings	Complies - refer to **Appendix 4** for Justification of Proposed Building Height in accordance with Clause 4.6 of the LEP	The roof of the proposed building is at 22.0 metres above ground level on the west boundary and 20.9m above ground level on the east boundary along Clarence street frontage due to the topography. It is noted that the proposed building height is in excess of the 19m development standard provided for by Section 4.3 of the LEP. Justification of the proposed building height solution in accordance with Clause 4.6 of the LEP is provided as **Appendix 4**.
4.4 Floor Space Ratio	Complies	Floor Space Ratio; Required - 1:3.5 Proposed - 1: 3.51 It is noted there is a minor deviation from the floor space ratio which is provided for in relation to the development of the subject site. The quantum of the deviation from the development standard is considered to be minimal with the design outcome consistent with the outcome envisaged by the development standard.
Part 5 – Miscellaneous Provisions		
5.5 Development in the Coastal Zone	Complies	The proposed development is consistent with the NSW Coastal Policy and SEPP 71; refer to **Table 2** of this report.

5.6 Architectural features on the roof	Complies	There are no architectural features on the roof of the proposed development.
5.9 Preservation of trees or vegetation	Complies	The site does not currently have any trees which trigger Council's TPO.
5.10 Heritage Conservation	Complies	The archeological clearance assessment provided as **Appendix 3** confirms there are no known archeological or heritage issues associated with the development of the site.
5.11 Bushfire Hazard Reduction	Not Applicable	The subject site is not shown as being Bushfire Prone Land.
Part 7 – Additional Local Provisions		
7.1 Acid Sulphate Soils	Not Applicable	The subject site is not shown as being affected by acid sulphate soils on Council's acid sulphate soils maps.
7.2 Earthworks	Complies	The undertaking of proposed earthworks is consistent with the requirements of this provision.
7.4 Flood Planning	Complies	The subject site whilst not identified as being subject to the flood planning level is shown to be affected by the Level of Probable Maximum Flood. In this regard the proposed development is consistent with the requirements of the LEP with no specific evacuation considerations required for the nature of the proposed development. The proposed development will not have significant impact in terms of affecting flood behaviour nor will the proposed development be negatively impacted upon by flood waters.
7.5 Koala Habitat	Not applicable	The proposed development contains no vegetation of koala habitat significance.
7.6 Coastal Hazards	Not applicable	The subject site is not subject to coastal hazards.
7.9 Development subject to acoustic controls	Not applicable	The subject site is not subject to specific requirements for acoustic controls.
7.13 Essential Services	Complies	All essential services are available to the

		land and subject development.

Having regard to the above it is considered that the proposed development is consistent with the relevant provisions and requirements of of Port Macquarie-Hastings LEP 2011.

4.7 Port Macquarie-Hastings Development Control Plan 2013

The subject site is located within the area affected by Port Macquarie -Hastings Development Control Plan (DCP) 2013.

The subject site is subject to the general provisions of the DCP and also the specific development controls which are considered to be applicable to the Town Centre Area of Port Macquarie.

The DCP has both a number of generic requirements that apply to the entire area affected by the DCP and specific block controls for the individual precincts and sub-precincts.

An assessment of the proposed development against the relevant DCP provisions follows;

Table 5 – DCP Compliance Requirements

DCP CRITERIA – RELEVANT DEVELOPMENT CONTROL STANDARDS	COMPLIANCE COMMENT
PART 2 – GENERAL PROVISIONS	
2.2 Advertising and Signage	
N/A	N/A – no signage proposed as yet. Future signage will be the subject of a separate development application.
2.3 Environmental Management	
Cut and fill regrading	Complies – all excavation will be contained within the perimeter of the proposed building.
Environmental management areas and buffers	N/A – there are no environmental management areas and buffers applicable to the proposed development.
Koala habitat	N/A – there are no koala habitat issues relevant to the proposed development.
Hollow bearing trees	N/A – there are no hollow bearing trees on the site of the proposed development.
2.4 Hazards Management	
Airspace protection	N/A

Bushfire hazard management	N/A – the subject site is not bushfire prone land.
Flooding	Complies. The subject site whilst not identified as being subject to the flood planning level is shown to be affected by the Level of Probable Maximum Flood. In this regard the proposed development is consistent with the requirements of the LEP with no specific evacuation considerations required for the nature of the proposed development. The proposed development will not have significant impact in terms of affecting flood behaviour nor will the proposed development be negatively impacted upon by flood waters.
Stormwater	Complies A concept plan for storm water management is provided as **Appendix 5**.
2.5 Transport, Traffic Management, Access and Car Parking	
Road hierarchy	Complies.
Parking provision	**Relevant DCP Requirements;** (i) Restaurant/Food premises - in commercial zones: 1 per 30 m² serviced floor area. 195.35m²/30 = 6.5 (7 spaces) (ii) Serviced Apartment/Motel - 1.1 per unit + 1 per 2 employees (onsite at any one time) + 1 for on-site manager. **(Maximum of 6 employees onsite at any time with no onsite manager)** **Onsite Parking Requirements** Units 47 = 51.7 spaces (52 spaces) Employees = 3 spaces Commercial = 7 spaces Total Required = 62 spaces **Total Proposed** = 61 Based upon the above there is a short fall in carparking of 1 space.

	It is however noted that the above carparking calculations have no regard to the likely occupancy of the building and is indicative of peak conditions which is likely to be achieved infrequently. Additionally, the above calculations do not reflect the reality that a number of visitors arrive via other forms of transport (i.e. public transport/taxi) which is particularly relevant of CBD locations and the target corporate traveller user. Accordingly, the following factors are considered relevant to the issue of carparking; • Average accommodation occupancy – 80% • Arrival other than by private vehicle – 10% Applying the above factors provides that the following parking demand is appropriate; Units 47 = 51.7 spaces (52 spaces) @ 70% demand (occupancy and other forms of travel) = 36.4 (37) spaces Employees = 3 spaces Commercial = 7 spaces Total Required = 47 spaces **Total Proposed Carparking Spaces** = 61 Based upon the above there is an excess of 14 spaces available to the development. **<u>Sensitivity analysis – motel/apartment occupancy</u>** Notwithstanding the above the proposed development provides for 79 separate room keys and as such the carparking requirements for the motel/apartment component have been further reviewed based upon the following scenario; • 80% overall occupancy • 10% of visitors not reliant on private vehicles transport • 50% of dual key apartments let as separate spaces • 50% of apartments let as whole • 1.1 space per apartment • 1 space per dual key room. Based upon the above the following worst case carparking demand is anticipated; • No. of Apartments @ 80% 0ccupancy = 39 • No. of let apartments @ 50% mix = 20

	• No. dual key rooms = 40 • 10% of dual key rooms arrive without vehicle = 4 rooms (36 dual key rooms require parking) **Motel carparking demand =** • Apartments 1.1 x 20 = 22 spaces • Dual key rooms 1 x 36 = 36 • Total motel demand = 58 Therefore, carparking demand for development is; Motel = 58 spaces Employees = 3 spaces Commercial = 7 spaces Total Required = 68 spaces **Total Proposed** = 61 Based upon the above there is a short fall in carparking of 7 spaces. It is considered that the above assessment encompasses the realistic carparking demand for the proposed development. In this regard any shortfall in onsite carparking is considered acceptable in the circumstance as; • The employee carparking spaces will be available for use by tourists/visitors as the employees will not be present for the majority of time during peak daily occupancy (afternoon and evening). This factor reduces any deficiency in carparking to 3 spaces only. • Some commercial carparking spaces will be available for use by tourists/visitors as some occupants of the commercial floor space employees will not be present for the majority of time during peak daily occupancy, (afternoon and evening). • There are significant on street and other public carparking facilities in close proximity to the subject site. The use of public carparking facilities is considered acceptable on the basis that demand for spaces by tourists/visitors would be mainly outside of peak periods of use by the public.
Parking layout	Complies.

Redevelopment of heritage items – Conservation Incentives	Not Applicable - the proposed development is not a redevelopment of a heritage item.
Section 94 Contributions	Contributions are not proposed in relation to the provision of carparking spaces.
Landscaping of parking areas	Not applicable – all carparking spaces are located behind the built form of the building and will be obscured from view. Therefore, landscaping is not required.
Surface finishes	Complies – all surfaces will be reinforced concrete.
Driveway grades	Complies.
Drainage	Complies. A concept plan for storm water management is provided as **Appendix 5**.
Loading bays	Complies - a designated loading area is provided within the development. It is also noted that there is ample opportunity to conduct deliveries from the Clarence Street frontage as it is envisaged that some deliveries will be infrequent and undertaken by van or small rigid truck the parking of which can be accommodated for short periods within Clarence Street.
Industrial development	Not Applicable
Traffic generating development	The proposed development is not a traffic generating development.
2.6 Tree Management	
Tree Management – Clause 5.9 of LEP	N/A – there are no trees to which the LEP provisions apply on the subject site.
Tree management private land	N/A – there are no trees on the site of the proposed development.
Tree management Council controlled land	Complies.
2.7 Social Impact assessment and crime prevention	
Social impact assessment	The proposed development will assist in making the locality more of a lively area with an increased demand for localized services.

	The proposed development is compatible with the land use zoning applicable to the area and the amenity of the area. The proposed development will make a positive contribution to the locality by reinforcing the trend for mixed tourist/visitor accommodation and commercial development complying with Council's strategic objectives for the area. The proposal will have a positive economic impact through the serviced apartments which will represent a major injection into the local economy and generate significant employment opportunities and flow on benefits to other local businesses. Benefits will also be provided to the local construction industry and related services through the construction phase of the project.
Crime prevention	Complies. The proposal has been designed to minimize the risk of crime and maximize safety and security. Pedestrian entrances will be well lit, secure and visibility to and from the entrances is maintained. The basement car parking areas are secured via controlled roller shutters. All apartments will have good casual surveillance of the street from the internal and external living areas (without sacrificing privacy). In addition, key card access is proposed to be provided to all apartments.
PART 3.3 – RESIDENTIAL FLAT DEVELOPMENT, TOURIST & VISITOR ACCOMMODATION AND MIXED-USE DEVELOPMENT	
Site analysis	Complies.
Site layout	Complies.
Streetscape and front setback	Complies - the top storey of the development is stepped back from the southern and western boundaries of the subject site and for the majority of the eastern boundary thereby reducing the bulk and scale of this aspect of the proposed development particularly when viewed from the public areas which have line of sight of the building. As the DCP envisages the amalgamation of the subject

	site with lots either side it is clear that a continuous facade was envisaged as being acceptable with the top floor setback only applying to the far ends, (east and west) of the amalgamated site. In this regard the proposed development is consistent with that which is envisaged in the DCP. The proposed development in its current form has no visual, bulk and scale or amenity impacts which are inconsistent with that envisaged by the DCP nor the existing streetscape features and character.
Side and rear setbacks	N/A – refer to specific block controls. It is however noted that the design solution adopted for the subject site provides for a minimum 8.7m rear boundary setback for Levels 1 – 7 of the proposed building. Additionally, the rear setback to the north-eastern portion of the proposed building has been increased on the 5th and 6th floor levels in response to minimizing the impact on the adjoining development to the east of the subject site.
Building depth and deep soil zone	Building depth is considered appropriate given the proposed use of the development. Ventilation, solar access and view amenity are considered to be appropriate for the nature of use of the proposed building. No deep soil zone is required.
Energy Conservation and solar access	Complies. Apartments have either a north or south orientation. North facing apartments will have high levels of solar access whilst south facing apartments will have limited solar access. Notwithstanding this the level of solar access which is provides is considered appropriate given the short-term occupancy of the proposed apartments. The impact of the proposed building on solar access have been reviewed for the adjoining sites to the east and west. The assessment indicates that the proposed development will result in a 3-hour time slot of no overshadowing. In addition, compliance with the Part J Energy Efficient Requirements of the Building Code of Australia will provide for significant active and passive energy and thermal performance.

Landscaping	The subject site does not have any significant vegetation. All of this existing vegetation will be removed, and new landscaping incorporated into the new development. The landscaping will be designed to be in scale with the buildings, improve the privacy of the serviced apartments, relate to the building forms, add to the amenity of the balconies by screening excessive sun and generally soften the buildings.
Private open space	N/A as there are no ground floor apartments. Notwithstanding this all apartments will have access to external balconies. It is considered that the size and relationship of the balconies is considered acceptable in the context of the short-term occupation of the apartments.
Fences and walls	Complies.
Acoustic privacy	The serviced apartments have been designed to comply with the noise transmission requirements of the Building Code of Australia. Wherever possible like rooms in adjoining apartments have been located together thereby reducing the potential for reduced acoustic privacy.
Visual privacy	Complies – direct views are minimized through the orientation of all serviced apartments to the front and rear of the subject site. Where necessary privacy has been maintained via the use of walls and screens. Complies - privacy walls/screens provided where necessary.
Accessibility	Complies. Requirements of AS 1428 will be complied with. Street level access into the development will be available via the main entry areas off Clarence Street. Access will be provided from the ground floor level to all storeys of the building and the communal open space area will be possible. The proposal has lift access to all levels of the buildings

	(including all basement car parking area).
Social dimensions and housing affordability	Complies – being located within the Port Macquarie CBD the development is in close proximity to areas of open space, recreation and entertainment facilities. The mix of apartment sizes and configurations provides for flexibility of use and occupation.
Roof form	Complies.
Façade composition and articulation	Complies. 41% of the ground floor area is setback 3.2m in order to provide for an outdoor terrace area which has a direct relationship with the ground floor commercial area of the proposed development. In addition, approximately 14.5m of the south-eastern ground floor area of the proposed development is not occupied by the building with this area providing for vehicle and pedestrian access infrastructure. A small element, (approximately 10m), of the motel/serviced apartment area of the building addresses the street and will define this element of the proposed development. The façade above ground level is simple and consists of elements to reduce the layering effect of the proposed apartments. Vertical fin walls in the façade which in combination with horizontal awning and balcony materials reinforce building articulation and differentiation. Similarly, the stepping in of the top floor of the building assists in disassociating the top level. The façade treatment will create the base, middle and top effect that the designer was after. Being an infill building it was considered preferable to take this approach because when the sites either side are developed their floor levels are not likely to align because of the slope of Clarence street and the building can be more successful married together if they don't have to contend with misaligned setbacks.
Entries and corridors	Complies. The main entrance to the proposed commercial tenancy will be via Clarence Street and as such will be unambiguous and publicly accessible. The main entry into the proposed motel/serviced

	apartments will also be off Clarence Street. Again, the entry arrangements for the motel/serviced apartments will be unambiguous and publicly accessible. Reflecting the tourist accommodation nature of the proposed apartments the lift entry will be safe, well lit and sheltered. In this regard the proposed apartment access strategy provides for two (2) single passenger lifts providing access to a centrally located corridor in each floor with each apartment access off the central corridor.
Balconies	All of the proposed apartments will have access to an external balcony. Balconies are, in the main, an extension of main habitable areas of the apartments, being designed as useable and effective outdoor living spaces.
Laundries and cloths drying facilities	Laundry and drying facilities are not typically
Mailboxes	N/A
Safety and security	Complies. The proposal has been designed to minimize the risk of crime and maximize safety and security. Pedestrian entrances will be well lit, secure and visibility to and from the entrances is maintained. The basement car parking areas are secured via controlled roller shutters. In addition, key card access is proposed to be provided in relation to lift access to the residential units. Communication devices will be provided at the ground level lift entry area. The Clarence street frontage is well lit and overlooked from neighbouring buildings specifically the Port Pacific across the road. The entry to the motel portion of the building whilst not being on the street frontage is well defined via paving, will be well and continuously illuminated and will be covered via CCTV surveillance. The basement carpark can only be accessed by building occupants via remote control activation of the security garage door. There is no other access to the site.
Site storage	Complies.

	Dedicated storage areas which are relevant to the commercial and tourist occupation of the building have been incorporated into the design of the proposed development.
Waste management	Complies. A communal waste storage area has been provided on the ground floor level of the proposed development. Providing the waste storage area on the ground floor area ensures that the facilities are easily accessible to the serviced apartments and commercial tenants alike. The ground floor location also provides for ease of servicing of the facility.
Utilities	All utilities are available to the subject site.
PART 3.3 – AREA BASED PROVISIONS (Starting Page 5 – 3)	
GENERAL	
Site Amalgamation	
DP1.1 Amalgamations are desired on land identified in Figure 26.	The subject site historically comprised of three (3) separate Torrens Title lots which have subsequently been consolidated to form a single development site. As such the proposed development is in keeping with the site amalgamations which are considered to be desirable. Further site amalgamation is not financially viable and as such have not been pursed further.
Shop Front Widths	
DP2.1 Maximum shop widths comply with Figure 27: Maximum shop widths.	Complies – the proposed ground floor shop front width is less than the 30m maximum as required by Figure 27 of the DCP.
BLOCK B1 CONTROLS	
Maximum Building Depth	
Front Setback	
0m except for minimum 3m for top floor	Complies The top floor is setback a minimum of 3m.

Side Setback	
0m except for 3m for top floor	The proposal has adopted 0m setbacks to the eastern and western (side) boundaries of the subject site except for the top floor which maintains a minimum 2.6m – 3.9m setback except for a small portion of the northeastern wall of the proposed building. The top floor setbacks range between 0m, (approximately 7.6m length of eastern aspect of building – stair shaft and portion of Unit 604), up to 13.695m (northwestern aspect of building). The setback variation to the 3m setback standard in relation to portion of the top floor is supportable on the basis of the: • reasonably short wall lengths of the proposed building compared to the overall length of the site. • the relationship of the non-compliant length of external wall of the proposed building with the existing western external wall of the adjoining building to east. • the relationship of the proposed building to the bulk and scale of development to the east. • the significant open area of the proposed development. • the overall merits of the proposed development and the practical difficulties associated with compliance and achieving a viable project. • the lack of detrimental overshadowing of the adjoining properties due to the existing lots orientation to north and south. • the minimization of privacy impacts to the adjoining properties due to a lack of regular windows in the proposed side elevations, • the size and scale of existing adjoining development to the east, west and north. • the flow through ventilation for the proposed units which do not need to rely on side windows to provide ventilation. • the use of varying finishes on the side elevations to create additional interest and relief and to decrease the vertical emphasis on the building as a whole. • the non-compliance will result in no loss of primary views for residents of other buildings. • The integration of the subject building into the desired streetscape envisaged by the DCP through the amalgamation of the sites either side of the subject site (refer to previous discussion on streetscape impacts).

	Having regards to the above this proposal has considered the future adjacent developments in that it would be a first stage to an ultimate outcome that would fulfil the objectives of the DCP, i.e. a continuous street aligned activated facade).
Façade Enclosure	
Ground – 60% First – 50% Remainder – 40%	Complies
Front Articulation Zone	
Ground – minimum 0m First to fifth – Minimum 1.8m Maximum 4m Top – N/A	Generally compliant The proposed materials and colours will reflect a coastal, environmental feel utilizing timber colours, with stone and brickwork. Landscape elements will be utilized where appropriate. The building will have an attractive presentation that will complement its context. Materials and colours are provided on the Materials Schedule which forms part of the development application plans.
Rear/Side Articulation	
0m	Complies
Vehicle Entry	
Vehicle entry from streets and paths	Complies – vehicular entry is provided for off Clarence Street.
New Streets. Laneways and Paths	
Off Block 1 Lane, Munster or Murray Streets Minimum 7m wide - two-way vehicle movement and 1m footpath Minimum 3m wide, extension of Sunset Parade Minimum 3m wide	It is noted that the Block Controls provide for the creation of a new services laneway along the northern aspect of the subject site and adjoining and adjacent lots to the east and west. It is considered that opportunities to create this feature have been lost through the recent construction of the Macquarie Waters development on the corner of Clarence and Munster Streets. In this regard the laneway concept was not included in this development and as such any opportunity to implement a laneway has been lost as the timeframe for any redevelopment of the

	Macquarie Waters site is considerable. Additionally, the full site occupancy of the commercial building on the corner of Clarence and Murray Streets is such that future access to any laneway is uncertain. It is also noted that the size of the individual lots in the area are such that the sacrifice of land along the northern aspects of the lots is not sustainable in the context of providing for viable development opportunities on each of the lots.
Carparking	
Underground, on street, some on grade	Complies

5. ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Section 79C (1b) of the Environmental Planning and Assessment Act 1979 as amended specifies the matters which a consent authority must consider when determining a development application.

Comments on these matters are provided as follows;

5.1 Context and Setting

The proposed development makes a positive contribution to the streetscape and its context. This is supported by the level of compliance of the proposed development with the applicable requirements of Port Macquarie–Hasting LEP 2011 and DCP 2013, refer to Sections 4.6 and 4.7 of this report.

5.2 Access and Transport

The subject site is on the eastern fringes of the Port Macquarie CBD thereby minimizing the need for vehicular trips to the CBD to utilize the wide range of services which are available within the CBD.

Being located in the CBD building occupants will be able to walk to the main open space areas, access walks alongside the Hastings River and break-wall as well as taking full benefit of nearby beaches.

The subject site is also easily accessible to public transport routes along Clarence Street where many public transport routes start and finish.

In light of the subject site's CBD location and proximity to recreation facilities and open space areas, the proposed traffic generation from the proposal is not considered to be significant. Given the nature of road infrastructure in the area it is considered that traffic generation from the proposed development will be easily accommodated within the existing capacity of the existing public road system.

Building access and parking infrastructure have been designed to comply with the relevant standards.

5.3 Public Domain

The proposal is of benefit to the surrounding area as it proposes a positive development of high quality design that will improve surveillance and safety of the adjoining and adjacent streets.

5.4 Utilities

The demands of the development on utility supplies are reasonable given the urban context and the location of all required servicing. All installations will meet the requirements of utility providers.

A storm water management concept plan is provided as **Appendix 5** and demonstrates that the building can be constructed in accordance with the capacity of the public storm water drainage infrastructure.

It is also noted that the proposed development will require the relocation of the reticulated sewerage main which is located in the northern portion of the subject site.

5.5 Heritage

Notwithstanding that the subject site is identified as an archaeological site, (Archaeology of early European Settlement – reference A111), the archaeological clearance assessment and certification of the subject site, refer **Appendix 3** of this report, indicates that there are no items of archaeological significance or interest on the subject site.

5.6 Other Land Resources

Not applicable

5.7 Water

The water requirements of the proposal are considered appropriate given the location and current access to services. The proposed development can be serviced by the reticulated water supply without the need for major augmentation of the existing system.

Appropriate controls will be installed to prevent soil erosion and sediment transport from the site during rainfall during the construction phase of the project. A variety of erosion and sediment controls will be used on the site. Strategies to be used on site will include:

- Hay bale retardation and sediment retention basin. The removal of stormwater from the excavated area will be via a temporary hay bale structure which will be provided on site. The size of the structure to be determined via the volume of water to be treated. In this regard the operation of the structure is to be inspected on a daily basis and the quality of discharge water monitored.

  Where necessary the size of the structure will be increased so as to ensure that acceptable discharge standards are met.

  All stormwater is to be collected and conveyed to the structure using suitable sized pumps. The foot valve of the pump is to be fitted with a silt sock. The hay bale structure will act as a two-stage sedimentation basin. Pumped water will be discharged into the larger section of the structure where it will be allowed to settle and seep through the straw bales into the final section where it will be allowed to settle before draining through the overflow to discharge into the stormwater drain servicing the site.

The pond shall be regularly inspected, and excess sediment removed on a daily or more frequent basis as required.

- Sediment filter fencing, or gravel groynes/sausages will be used downstream of the discharge from the hay bale structure to provide additional treatment.

- Gravel groynes/sausages for sediment retention will be utilized around stormwater drains, inlets and pits once constructed.

- Tracking of sediment from the site by tucks entering and leaving will be controlled by the provision of a 'shaker grid' at the site entry together with the placing of a gravel driveway at the entry site.

Discharges from dewatering operations shall be treated to remove excess suspended matter prior to discharge from the site. Discharges shall be free of pollutants, shall be within a pH range of 6.5-8.5 and shall have a maximum non-filterable residue (NFR) concentration of 50 mg/L to allow for discharge to the stormwater system within Environment Protection Authority requirements.

Removal of suspended matter from dewatering discharges shall be achieved by treatment of discharges through the hay bale filtration/sedimentation pond detailed in 6.1 above.

In the event that any sewerage or other wastewater discharge is encountered during site works or other operations, immediate steps will be taken to isolate and repair the point of discharge and prevent the discharge of wastewater from the site. Appropriate controls will be implemented to prevent any wastewater entering stormwater drains and other sensitive environments until the discharge source has been repaired and residual wastewater has been removed.

The washing of any equipment used on site shall be carried out in a designated site wash down area that contains all wastewater on the work site. Equipment washing wastewater shall not be discharged from the site to any waters.

5.8 Soils

Given the historical residential occupation and use of the subject site there are no soil contamination issues that are required to be addressed.

Soil disturbance will occur as a result of the construction of the proposed development including the movement of vehicles to and from the site during construction.

The utilization of standard erosion and sediment control devices can be incorporated on site to minimize any erosion and sedimentation caused through site disturbance. In this regard an erosion and sediment control plan will be implemented on site during construction activities on the site.

Once the construction of the proposed building has been completed the impacts on soils will be minimal.

The subject site is not identified as containing Acid Sulphate Soils and as such no specific management actions are required.

Based upon historical land use the subject site is not subject to the contaminated land provisions of State Environmental Planning Policy 55 – Remediation of Land and Managing Land Contamination.

5.9 Air and Microclimate

The proposal will not give rise to any significant air or microclimate impacts although construction activities on the site have the potential to create dust emissions.

The main sources of potential dust generation will be;

- The mechanical disturbance of the site as part of the creation of site levels
- The movement of trucks to and from the site.

Dust generation mitigation and control measures such as the following will be implemented on site;

- *wetting down the disturbed areas;*
- *limiting the extent of haulage routes and the utilization of any existing stabilized road surfaces to accommodate vehicle movements;*
- *wetting down of road surfaces which are likely to generate dust;*
- *regular cleaning of road and work surfaces so as to minimize the accumulation of soil and waste particles.*

5.10 Flora and Fauna

Given that the subject site has been cleared of all native vegetation as part of the historical development and occupation of the site for residential purposes there are no impacts on flora and fauna associated with the proposed redevelopment of the subject site beyond that which already exists.

5.11 Waste

Adequate dedicated waste storage and collection facilities complying with Council's waste requirements will be incorporated into the operation of the proposed development.

Arrangements will be put in place for proposed the storage and collection of waste and recyclables during the construction of the subject structure.

A construction waste management plan has been prepared for the proposed development and is included as **Appendix 6** of this report.

5.12 Energy

Energy saving devices and fittings will be installed into the proposed development in accordance with the requirements of Part J of the Building Code of Australia.

5.13 Noise and Vibration

The noise levels from the development will be consistent with the mixed tourist and visitor/residential and commercial nature of the locality.

The imposition of Councils standard conditions with respect to the hours of work and maximum sound pressure levels provides for control of noise and vibration generated throughout the construction phase of the project.

5.14 Natural Hazards

Given the location of the subject site the proposed development is not considered to be subjected to any natural hazards.

Whilst not being identified as being subject to the flood planning level, the subject site is shown to be affected by the Level of Probable Maximum Flood. In this regard the proposed development is consistent with the requirements of the LEP with no specific evacuation considerations required for the nature of the proposed development.

The proposed development will not have significant impact in terms of affecting flood behaviour nor will the proposed development be negatively impacted upon by flood waters.

5.15 Safety, Security and Crime Prevention

The proposal has been designed to maximize safety and minimize the opportunities for criminal behavior. There are no issues related to safety, security and crime prevention that arise as a result of the proposed development.

5.16 Social Impact in the Locality

The proposed development will assist in making the locality more of a lively area with an increased demand for localized services.

The proposed development is compatible with the land use zoning applicable to the area and the amenity of the area.

5.18 Economic Impact in the Locality

The proposed development will make a positive contribution by reinforcing the trend for mixed tourist/visitor accommodation and commercial development complying with Council's strategic objectives for the area.

The proposal will have a positive economic impact through the serviced apartments which will represent a major injection into the local economy and generate significant employment opportunities and flow on benefits to other local businesses.

Benefits will also be provided to the local construction industry and related services through the construction phase of the project.

5.19 Site Design and Internal Design

The proposed building addresses and contributes to the street frontage whilst also providing opportunities for casual surveillance.

Whilst site orientation, setbacks and street address predominantly dictate the building orientation this also provided optimum orientation and assists the residential units to take advantage where possible solar access and cross ventilation.

5.20 Cumulative Impacts

The subject allotment is adequately sized, shaped and orientated to accommodate the proposed development. The ability of the site to absorb the proposed density is demonstrated by the general compliance with Council's development controls and the limited environmental impacts.

Accordingly, the cumulative impact of the development on the amenity of the locality is expected to be negligible.

5.21 The Public Interest

It is considered that the proposal development is consistent with the public interest.

Having regard to the location of the subject site, and the preceding assessment of the proposal the site will adequately accommodate the development in that:

- The proposed development will reinforce the existing trend for redevelopment of the mixed-use area and be in line with Council's strategic objectives; and
- The subject site is located within the Port Macquarie CBD with its retail, recreational, local open space and tourist attractions in close proximity; and
- The proposed development takes advantage of, addresses and defines the site's street frontage; and
- The adjacent developments do not pose any prohibitive constraints and will not be detrimentally affected by the proposal; and
- It is not subject to any natural hazards that may inhibit its operation in the proposed form.

6.0 CONCLUSION

The proposed mixed commercial and serviced apartment development will contribute architecturally to the area, create economic benefits and positively contribute to the amenity of the area.

The proposal will also take advantage of the site's excellent proximity to the Port Macquarie CBD, Town Beach, the Hastings River, coastal walks, local recreational facilities and will make the immediate area an even more attractive place to live and visit.

Appendix 1

Pre-lodgment Meeting Advice (June 2012)

Appendix 2
Ground Water Assessment

Appendix 3
Archaeological Assessment and Clearance

Appendix 4
LEP Height Variation Justification

Appendix 5
Stormwater Concept Plan

Appendix 6
Waste Management Plan

Developer Charges - Estimate

PORT MACQUARIE HASTINGS

Applicants Name: David Pensini
Property Address: 17 Clarence Street, Port Macquarie
Lot & Dp: Lot(s):123,DP(s):1219042
Development: Commercial Premises and Tourist and Visitor Accommodation

Water and Sewerage Headworks Levies are levied under S64 of the LGA Act & S306 of the Water Management Act 2000.
Other contributions are levied under Section 7.11 of the Environmental Planning and Assessment Act and Council's Contribution Plans.

	Levy Area	Units	Cost		Estimate
1	Water Supply	31.78	$10,120.00	Per ET	$321,603.40
2	Sewerage Scheme Port Macquarie	41.28	$3,840.00	Per ET	$158,511.30
3	Since 1.7.04 - Major Roads - Port Macquarie - Per ET	38.48	$7,586.00	Per ET	$291,909.20
4	Since 31.7.18 - Open Space - Port Macquarie - Per ET	38.48	$5,589.00	Per ET	$215,064.70
5	Commenced 3 April 2006 - Com, Cul and Em Services CP - Port Macquarie	38.48	$4,589.00	Per ET	$176,584.70
6	Com 1.3.07 - Administration Building - All areas	38.48	$903.00	Per ET	$34,747.40
7	N/A				
8	N/A				
9	PMQ CBD Car Parking Contribution	0.704	$22,606.00	Per Space	$15,914.60
10	N/A				
11	N/A				
12	N/A				
13	N/A				
14	N/A				
15	Admin General Levy - Applicable to Consents approved after 11/2/03	2.2% S94 Contribution			$16,152.80
16					
17					
18					
	Total Amount of Estimate (Not for Payment Purposes)				**$1,230,488.10**

Not for Payment Purposes

NOTES: These contribution rates apply to new development and should be used as a guide only.
Contributions will be determined in conjunction with a Development Application (DA) or Complying Development Application (CDA).
DAs will be subject to the contributions plans in force at the time of issue of the Consent and for CDCs at time of lodgement.
Contribution Rates are adjusted quarterly in line with the CPI.

DATE OF ESTIMATE: **15-May-2019**

Estimate Prepared By **Ben Roberts**

This is an ESTIMATE ONLY - NOT for Payment Purposes

id Pensini, 17 Clarence Street, Port Macquarie, 15-May-2019.xls

PORT MACQUARIE-HASTINGS COUNCIL

MATERIAL SCHEDULE:

SKILLON ROOF
Colourbond surfmist

CONCRETE
Car parking floor slabs
Tilt Panel walls- stair shafts

PAVING
Footpath as per ***Town Centre Master Plan***

BRICK
External wall - designer charcoal

TERRACE TILE

CLADDING
Powder Coated Aluminium ***TIMBER*** panelling

METAL
Window frames, exposed steel, balustrade framing. ***Ironstone***

SOFFITS
Soffits to Entry & Commercial Terrace areas. ***Beech***

BALUSTRADE
Powder coated ***White*** folded sheet metal
Timber top rail

STREET VIEW

STREET VIEW

DRAWING LIST - ARCHITECTURAL

DA00 COVER PAGE
DA01 LOCATION PLAN/SITE ANAYSIS
DA02 SITE PLAN
DA03 BASEMENT CAR PARK PLAN
DA04 GROUND FLOOR & LANDSCAPE PLAN
DA05 1ST FLOOR PLAN
DA06 2ND FLOOR PLAN
DA07 3RD FLOOR PLAN
DA08 4TH FLOOR PLAN
DA09 5TH FLOOR PLAN
DA10 6TH FLOOR PLAN
DA11 SECTION 22
DA12 SECTION 15
DA13 ELEVATIONS
DA14 ELEVATIONS

PROPOSED COMMERCIAL & MOTEL/SERVICED APARTMENT DEVELOPMENT:

2 COMMERCIAL TENANCIES ON GROUND FLOOR
HOTEL ENTRY ON GROUND FLOOR
AREA SCHEDULE:

TENANCY 1	TENANCY 2 HOTEL
INTERNAL FLOOR AREAS	GROUND FLOOR ADMINISTRATION & SERVICE AREAS: 201.4m2
TOILETS: : 10.8 m2	INTERMEDIATE FLOORS SERVICE AREAS: 63.8m2
TENANCY : 141.6 m2	6TH FLOOR: GYM, BBQ AREA, CONFERENCE & AMENITIES: 246.7m2
EXTERNAL TERRACE: 53.7m2	ROOMS: 3869.1m2

SITE AREA: 1517.23m2
DESCRIPTION: LOT 123 DP 1219042 CLARENCE STREET. PORT MACQUARIE

NOTE: 3d Images & Rendered Elevations are ***'Artists Impression'*** only.
For details of finishes, mode of construction and general arrangement refer to Architectural & Engineering drawings & Specifications.

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17 Clarence St. Port Macquarie. NSW 2444
Client: Bamford Engineering & Consulting Pl

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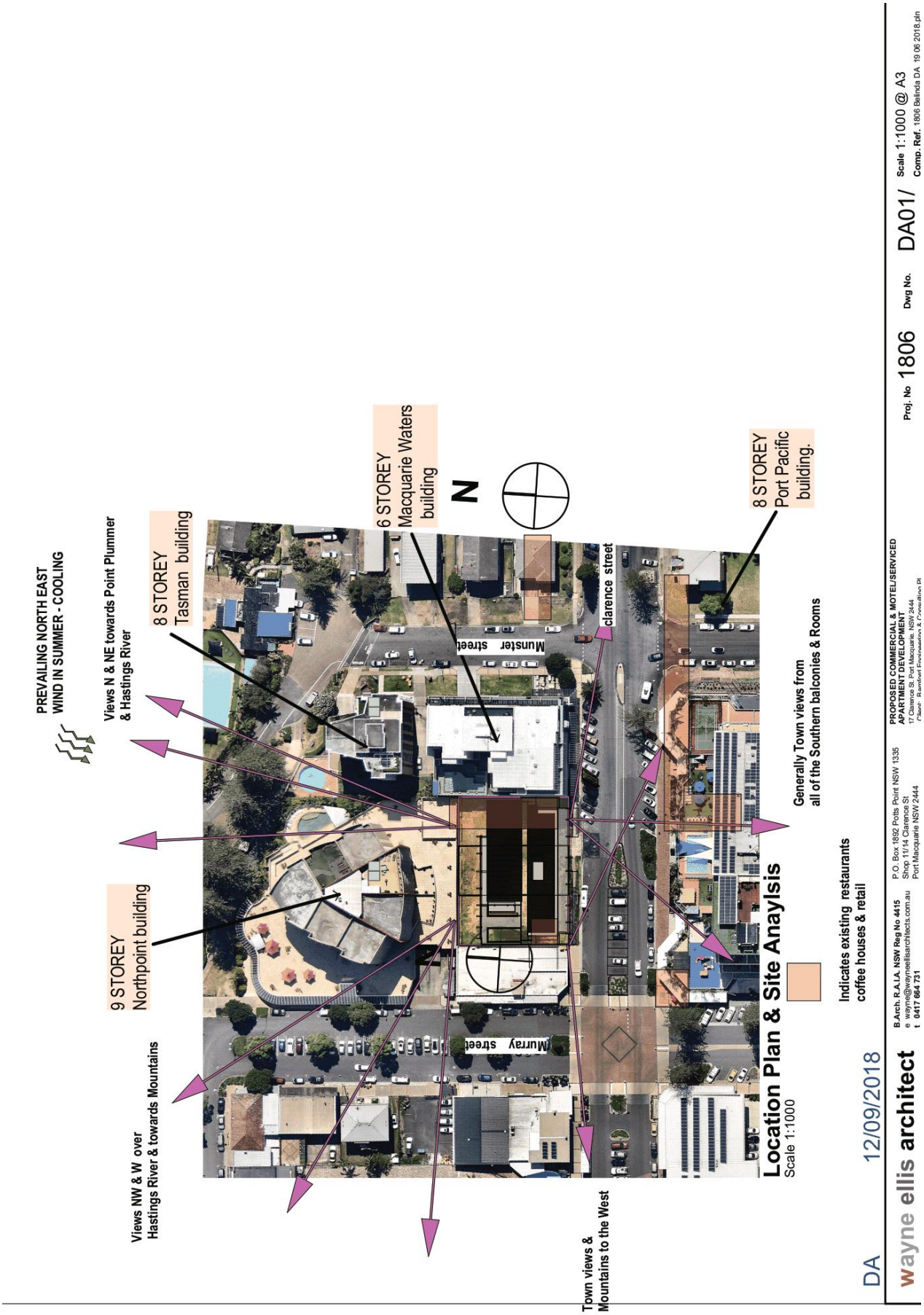
PREVAILING NORTH EAST WIND IN SUMMER - COOLING
Views N & NE towards Point Plummer & Hastings River
8 STOREY Tasman building
6 STOREY Macquarie Waters building
N
8 STOREY Port Pacific building.
clarence street
Munster street
Murray street
9 STOREY Northpoint building
Views NW & W over Hastings River & towards Mountains
Town views & Mountains to the West
Generally Town views from all of the Southern balconies & Rooms
Indicates existing restaurants coffee houses & retail
Location Plan & Site Anaylsis
Scale 1:1000
DA
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Client: Rainford Engineering & Consulting Pl
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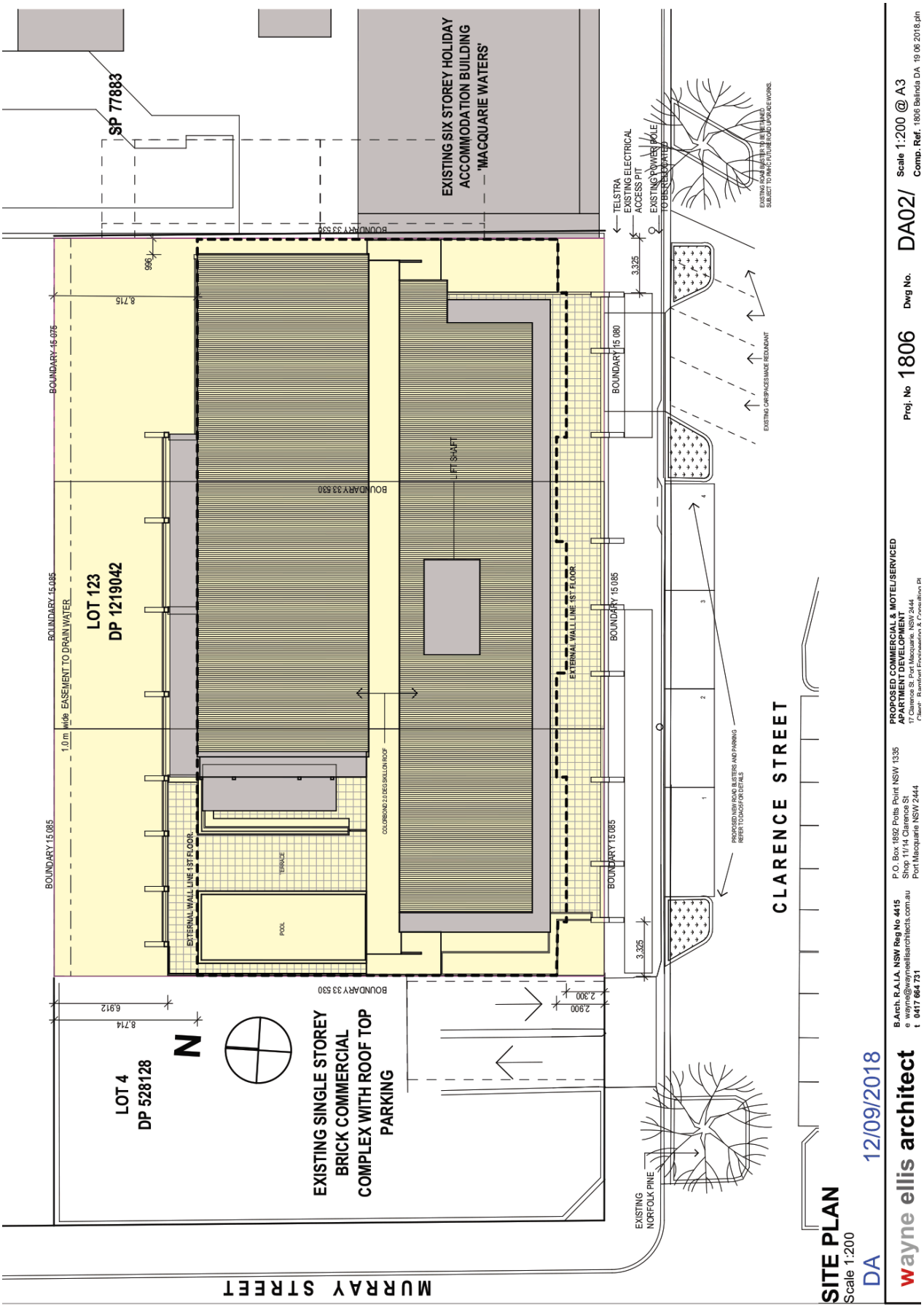
SP 77883
EXISTING SIX STOREY HOLIDAY ACCOMMODATION BUILDING 'MACQUARIE WATERS'
LOT 123
DP 1219042
LOT 4
DP 528128
EXISTING SINGLE STOREY BRICK COMMERCIAL COMPLEX WITH ROOF TOP PARKING
1.0 m wide EASEMENT TO DRAIN WATER
BOUNDARY 15 075
BOUNDARY 15 085
BOUNDARY 15 080
BOUNDARY 33 530
LIFT SHAFT
EXTERNAL WALL LINE 1ST FLOOR
TERRACE
POOL
COLORBOND 2.0 DEG SKILLON ROOF
TELSTRA EXISTING ELECTRICAL ACCESS PIT
EXISTING POWER POLE TO BE RELOCATED
EXISTING CARSPACES MADE REDUNDANT
PROPOSED NEW ROAD BUSTERS AND PARKING REFER TO DA05 FOR DETAILS
EXISTING NORFOLK PINE
CLARENCE STREET
MURRAY STREET
N
SITE PLAN
Scale 1:200
DA
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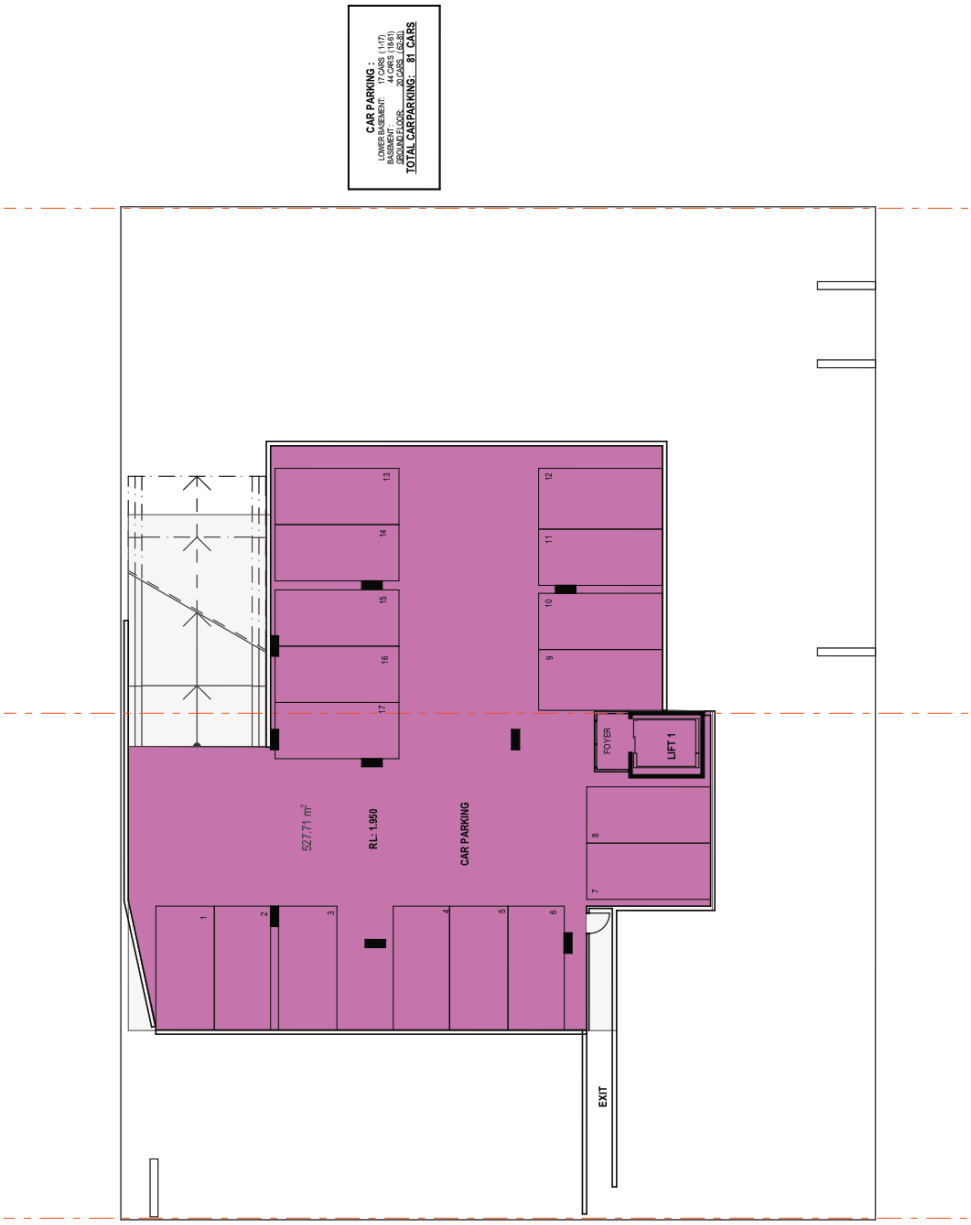
Comp. Ref. 1806 Belinda DA 19 06 2018.pln



LOWER BASEMENT
Scale 1:200

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Client: Barnhart Properties & Consulting Pt

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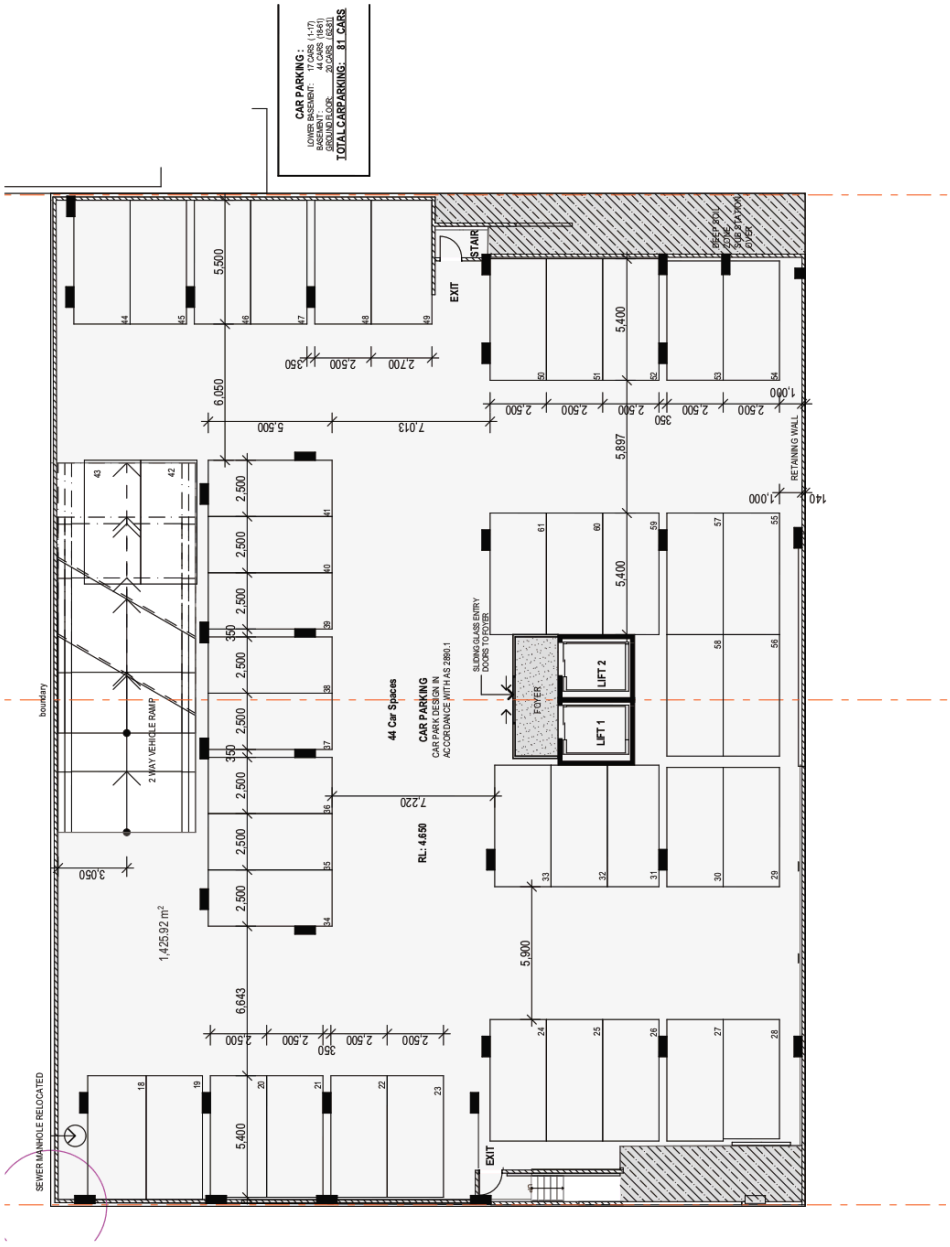

BASEMENT
Scale 1:200

DA 10/05/2019

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Client: Barnhart Engineering & Consulting Pt

Proj. No 1806 **Dwg No.** DA03/ **Scale** 1:200 @ A3
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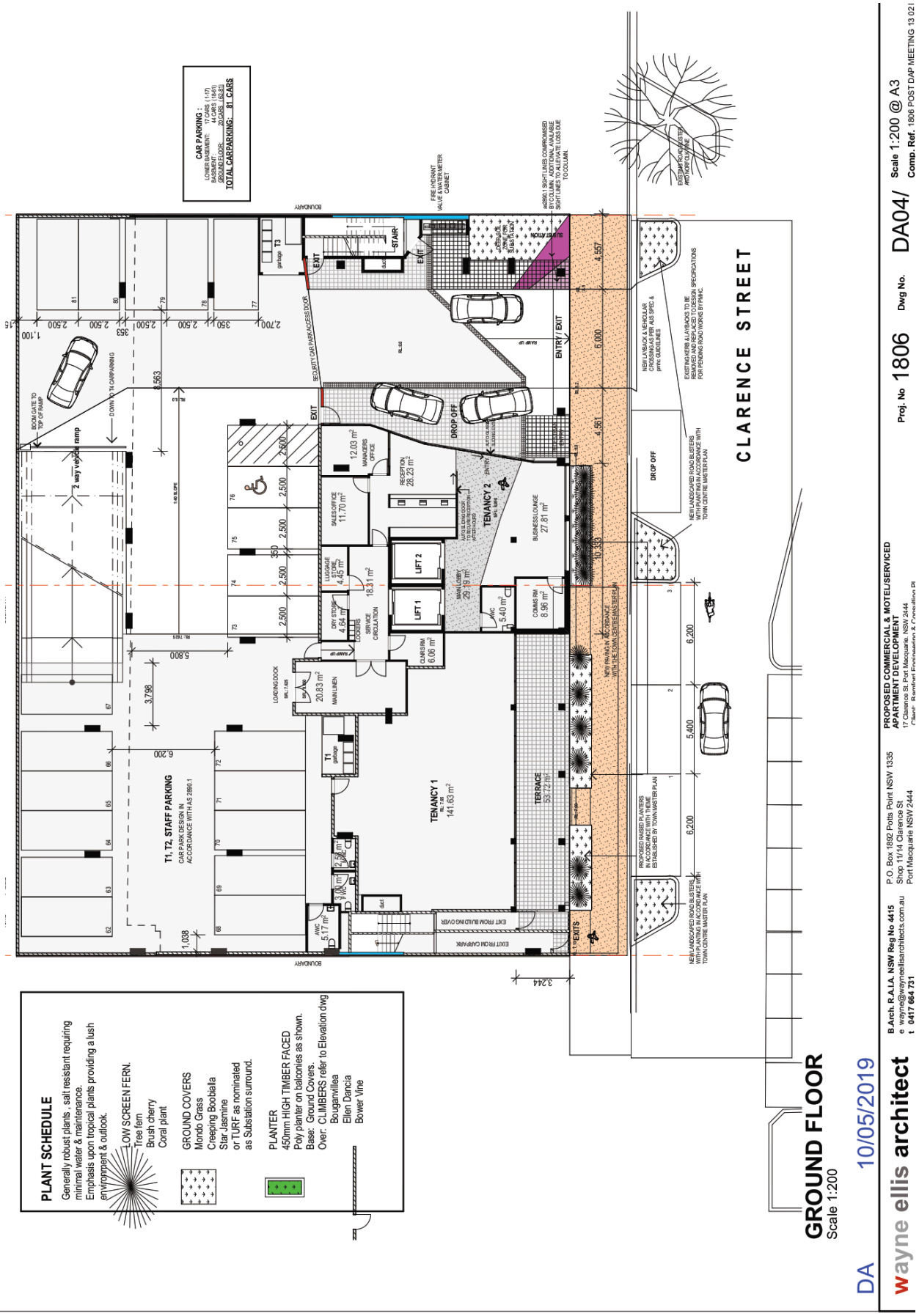
CLARENCE STREET
GROUND FLOOR
Scale 1:200
DA
10/05/2019
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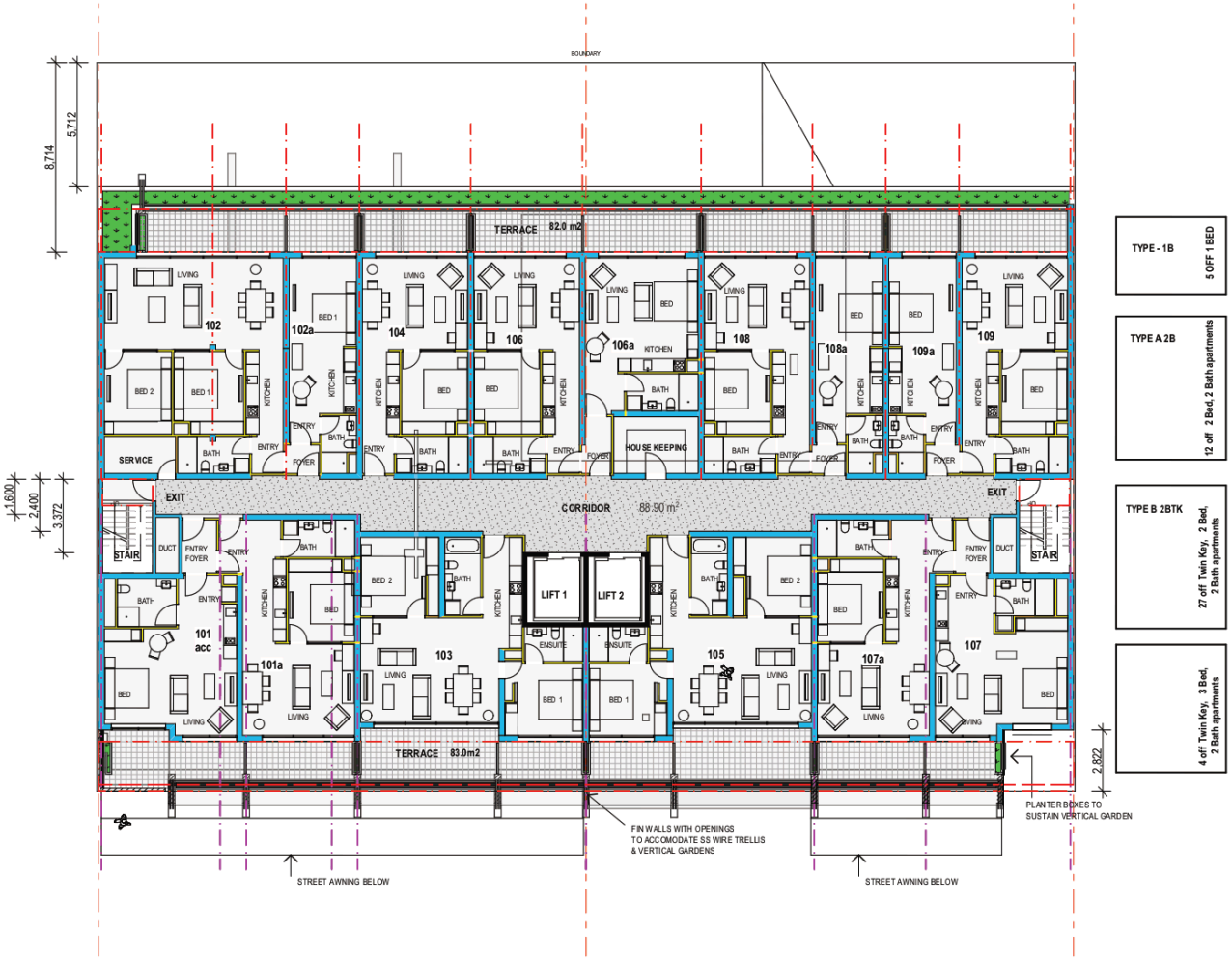
PROPOSED COMMERCIAL & MOTEL/SERVICED APARTMENT DEVELOPMENT
17 Clarence St, Port Macquarie, NSW 2444
Proj. No 1806
Dwg No. DA04/
Scale 1:200 @ A3
Comp. Ref. 1806 POST DAP MEETING 13 02
PLANT SCHEDULE
Generally robust plants , salt resistant requiring minimal water & maintenance.
Emphasis upon tropical plants providing a lush environment & outlook.
LOW SCREEN FERN.
Tree fern
Brush cherry
Coral plant
GROUND COVERS
Mondo Grass
Creeping Boobialla
Star Jasmine
or TURF as nominated as Substation surround.
PLANTER
450mm HIGH TIMBER FACED
Poly planter on balconies as shown.
Base: Ground Covers.
Over: CLIMBERS refer to Elevation dwg
Bouganvillea
Ellen Dancia
Bower Vine
CAR PARKING :
TOTAL CARPARKING: 81 CARS
T1, T2, STAFF PARKING
TENANCY 1
141.63 m²
TENANCY 2
27.81 m²
LIFT 1
LIFT 2
DROP OFF
ENTRY / EXIT
EXIT
STAIR
BOUNDARY



AREA SCHEDULE - UNITS.

UNIT	BEDROOMS /TYPE	UNIT AREA
101 - 101a	2 Bed TK	101m2
102 - 102a	3 Bed TK	106.4m2
103	2 Bed	77.8m2
104	1 Bed	48.0m2
105	2 Bed	77.8m2
106 - 106a	2 Bed TK	88.4m2
107 -107a	2 Bed TK	103.0m2
108 -108a	2 Bed TK	78.6m2
109 - 109a	2 Bed TK	78.6m2
201 - 201a	2 Bed TK	101m2
202 - 202a	3 Bed TK	106.4m2
203	2 Bed	77.8m2
204	1 Bed	48.0m2
205	2 Bed	77.8m2
206 - 206a	2 Bed TK	88.4m2
207 -207a	2 Bed TK	103.0m2
208 -208a	2 Bed TK	78.6m2
209 - 209a	2 Bed TK	78.6m2
301 - 301a	2 Bed TK	101m2
302 - 302a	3 Bed TK	106.4m2
303	2 Bed	77.8m2
304	1 Bed	48.0m2
305	2 Bed	77.8m2
306 - 306a	2 Bed TK	88.4m2
307 -307a	2 Bed TK	103.0m2
308 -308a	2 Bed TK	78.6m2
309 - 309a	2 Bed TK	78.6m2
401 - 401a	2 Bed TK	101m2
402 - 402a	3 Bed TK	106.2m2
403	2 Bed	77.8m2
404 - 404a	2 Bed TK	86.1m2
405	2 Bed	77.8m2
406 - 406a	2 Bed TK	88.3m2
407 - 407a	2 Bed TK	103.0m2
408	2 Bed	75.1m2
501 - 501a	2 Bed TK	101m2
502 - 502a	2 Bed TK	78.2m2
503	2 Bed	77.8m2
504 - 504a	2 Bed TK	78.2m2
505	2 Bed	77.8m2
506 - 506a	2 Bed TK	88.3m2
507 - 507a	2 Bed TK	103.0m2
508	2 Bed	75.1m2
601 - 601a	2 Bed TK	71.8m2
602 - 602a	2 Bed TK	88.3m2
603 - 603a	2 Bed TK	73.4m2
604 - 604a	2 Bed TK	85.5m2

1ST FLOOR
Scale 1:200

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Proj. No 1806 Dwg No. DA05/ Scale 1:200 @ A3
Comp. Ref. 1806 Belinda DA 19 06 2018.pln

2ND FLOOR
Scale 1:200

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Proj. No 1806 **Dwg No.** DA06/ **Scale** 1:200 @ A3
Comp. Ref. 1806 Belinda DA 19 06 2018.pln

3RD FLOOR
Scale 1:200

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Proj. No 1806 **Dwg No.** DA07/ **Scale** 1:200 @ A3
Comp. Ref. 1806 Belinda DA 19 06 2018.pln

4TH FLOOR
Scale 1:200

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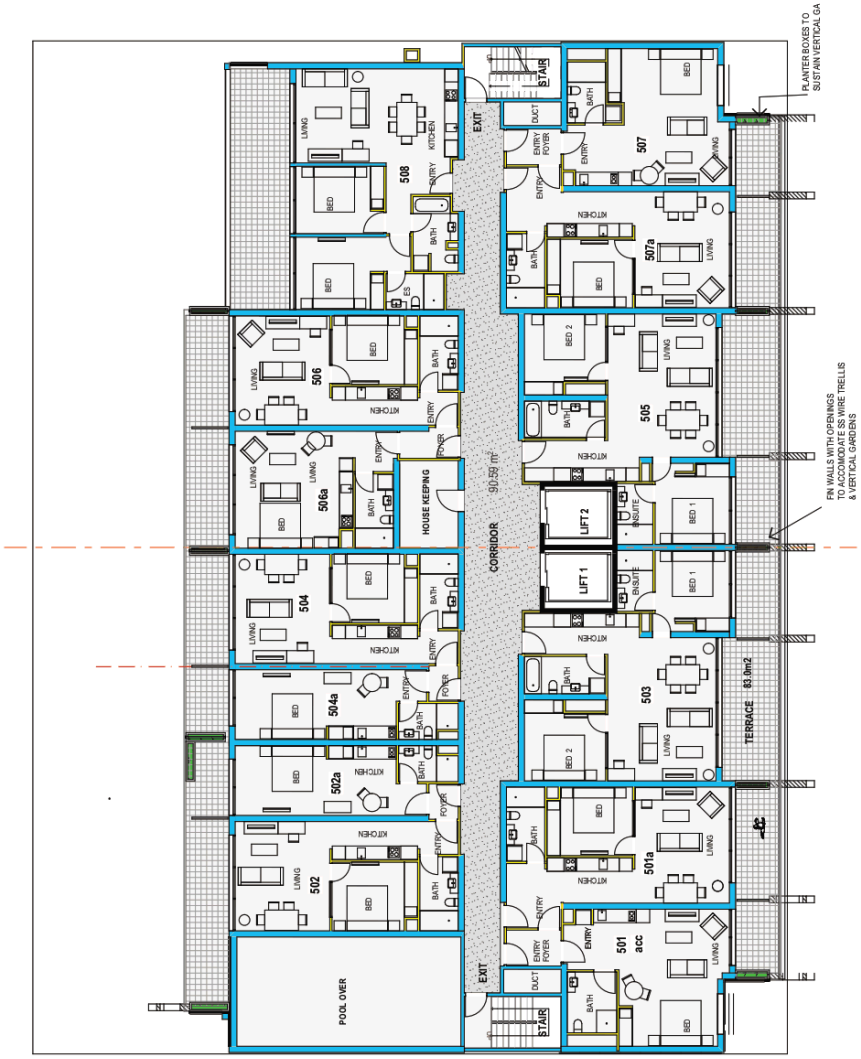

5TH FLOOR
Scale 1:200

DA 12/09/2018

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17 Clarence St, Port Macquarie, NSW 2444
Client: Bamford Engineering & Consulting Pl

Proj. No 1806 Dwg No. DA9/ Scale 1:200 @ A3
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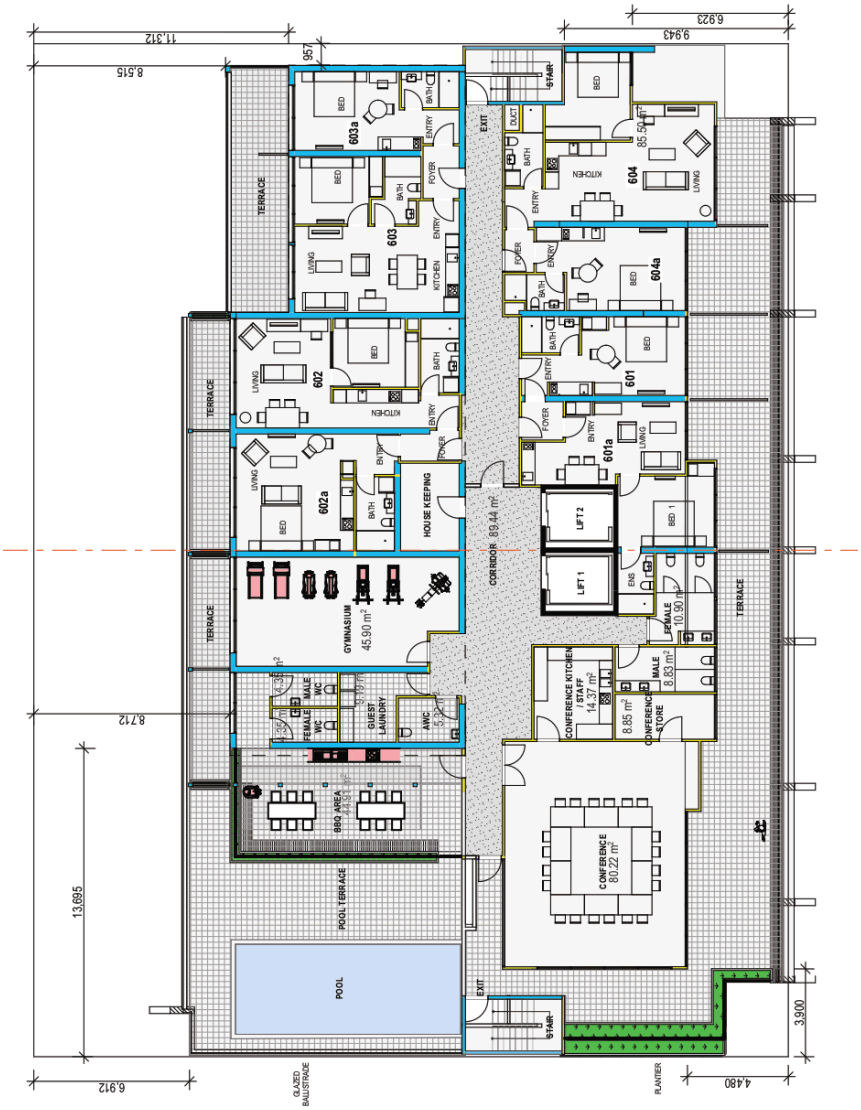

6TH FLOOR
Scale 1:200

DA 12/09/2018

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17 Clarence St, Port Macquarie, NSW 2444
Client: Bamford Engineering & Consulting Pl

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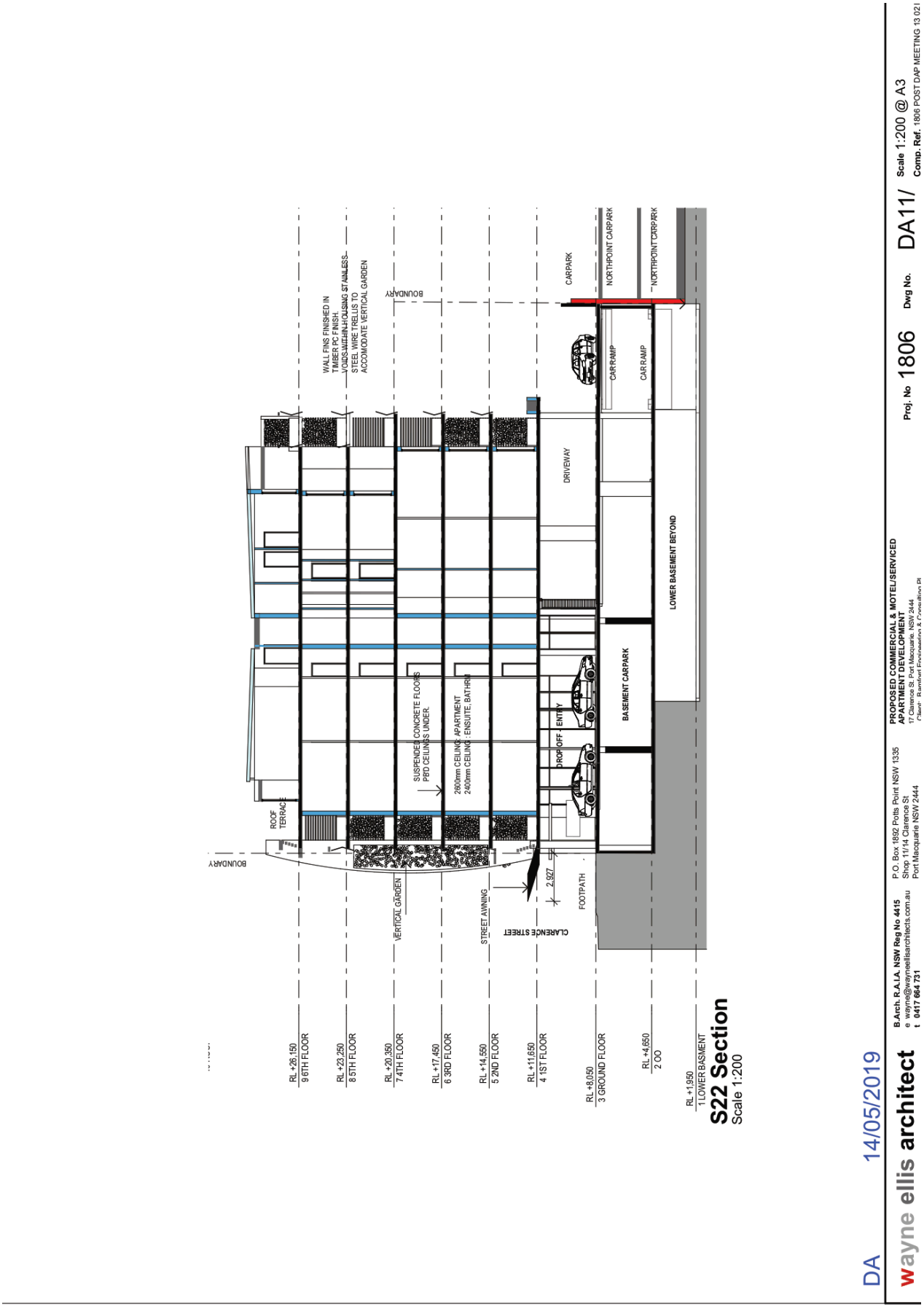
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RL +23,250 8 5TH FLOOR
RL +20,350 7 4TH FLOOR
RL +17,450 6 3RD FLOOR
RL +14,550 5 2ND FLOOR
RL +11,650 4 1ST FLOOR
RL +8,050 3 GROUND FLOOR
RL +4,650 2 OO
RL +1,950 1 LOWER BASMENT
BOUNDARY
ROOF TERRACE
VERTICAL GARDEN
STREET AWNING
CLARENCE STREET
FOOTPATH
2,927
SUSPENDED CONCRETE FLOORS PBD CEILINGS UNDER.
2600mm CEILING : APARTMENT
2400mm CEILING : ENSUITE, BATHRM
DROP OFF - ENTRY
BASEMENT CARPARK
LOWER BASEMENT BEYOND
DRIVEWAY
CAR RAMP
CAR RAMP
CARPARK
NORTHPOINT CARPARK
NORTHPOINT CARPARK
WALL FINS FINISHED IN TIMBER PC FINISH. VOIDS WITHIN HOUSING STAINLESS STEEL WIRE TRELLIS TO ACCOMODATE VERTICAL GARDEN
DA
14/05/2019
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Proj. No 1806
Dwg No. DA11/
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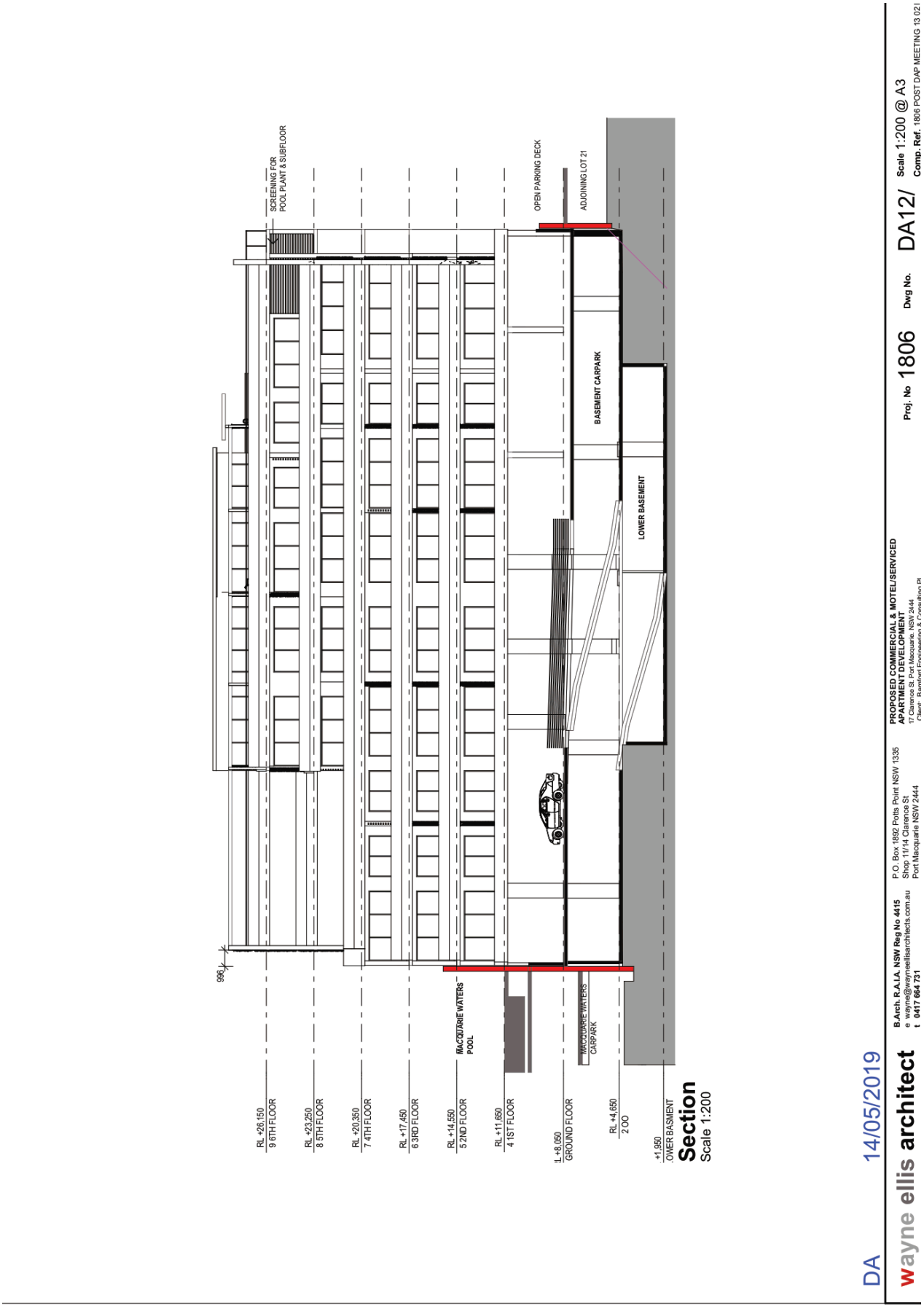
Comp. Ref. 1806 POST DAP MEETING 13 02 I


SCREENING FOR POOL PLANT & SUBFLOOR
OPEN PARKING DECK
ADJOINING LOT 21
BASEMENT CARPARK
LOWER BASEMENT
MACQUARIE WATERS POOL
MACQUARIE WATERS CARPARK
996
RL +26,150 9 6TH FLOOR
RL +23,250 8 5TH FLOOR
RL +20,350 7 4TH FLOOR
RL +17,450 6 3RD FLOOR
RL +14,550 5 2ND FLOOR
RL +11,650 4 1ST FLOOR
RL +8,050 GROUND FLOOR
RL +4,650 2 OO
+1,950 OWER BASMENT
Section
Scale 1:200
DA
14/05/2019
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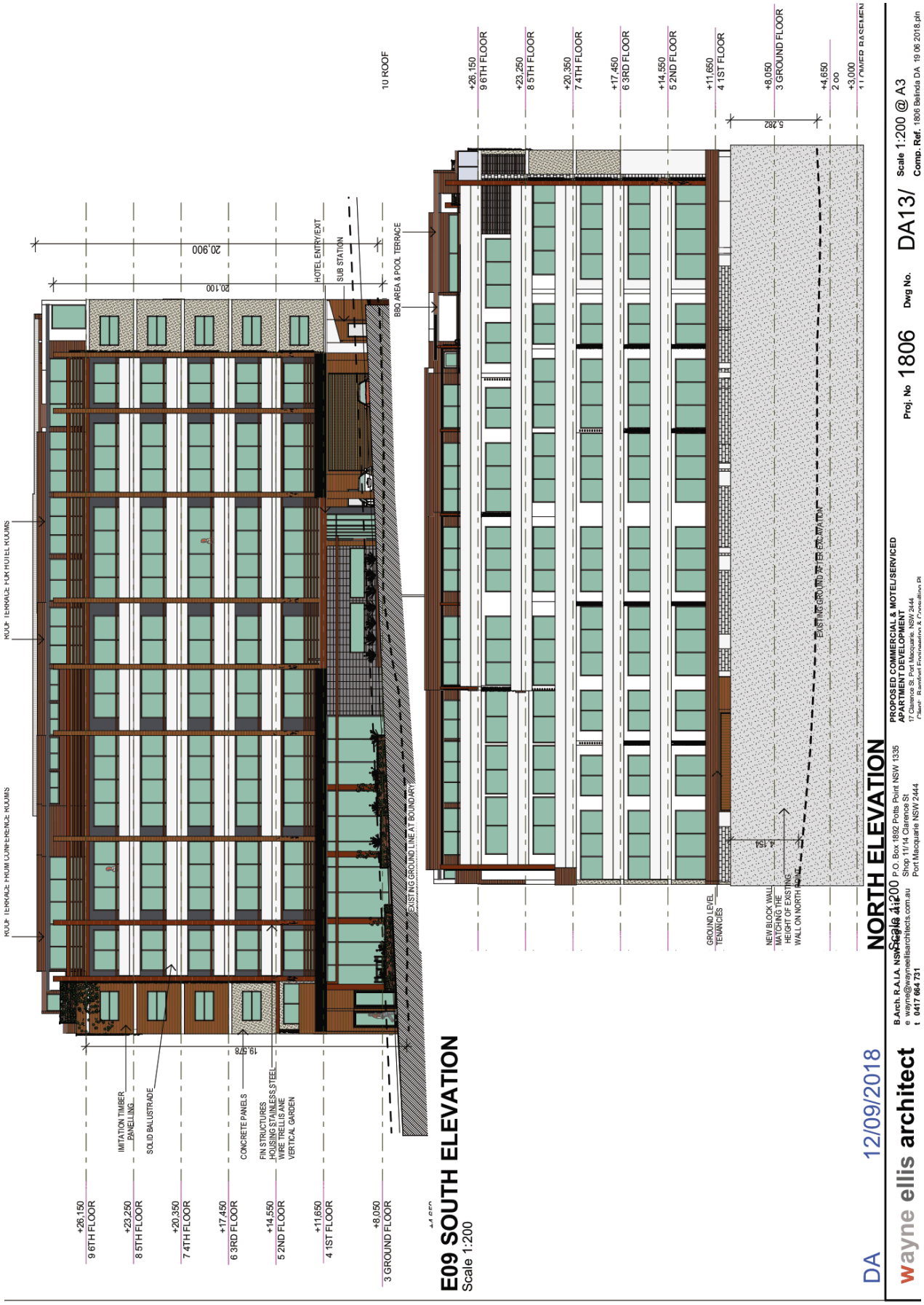
E09 SOUTH ELEVATION
Scale 1:200
NORTH ELEVATION
Scale 1:200
DA 12/09/2018
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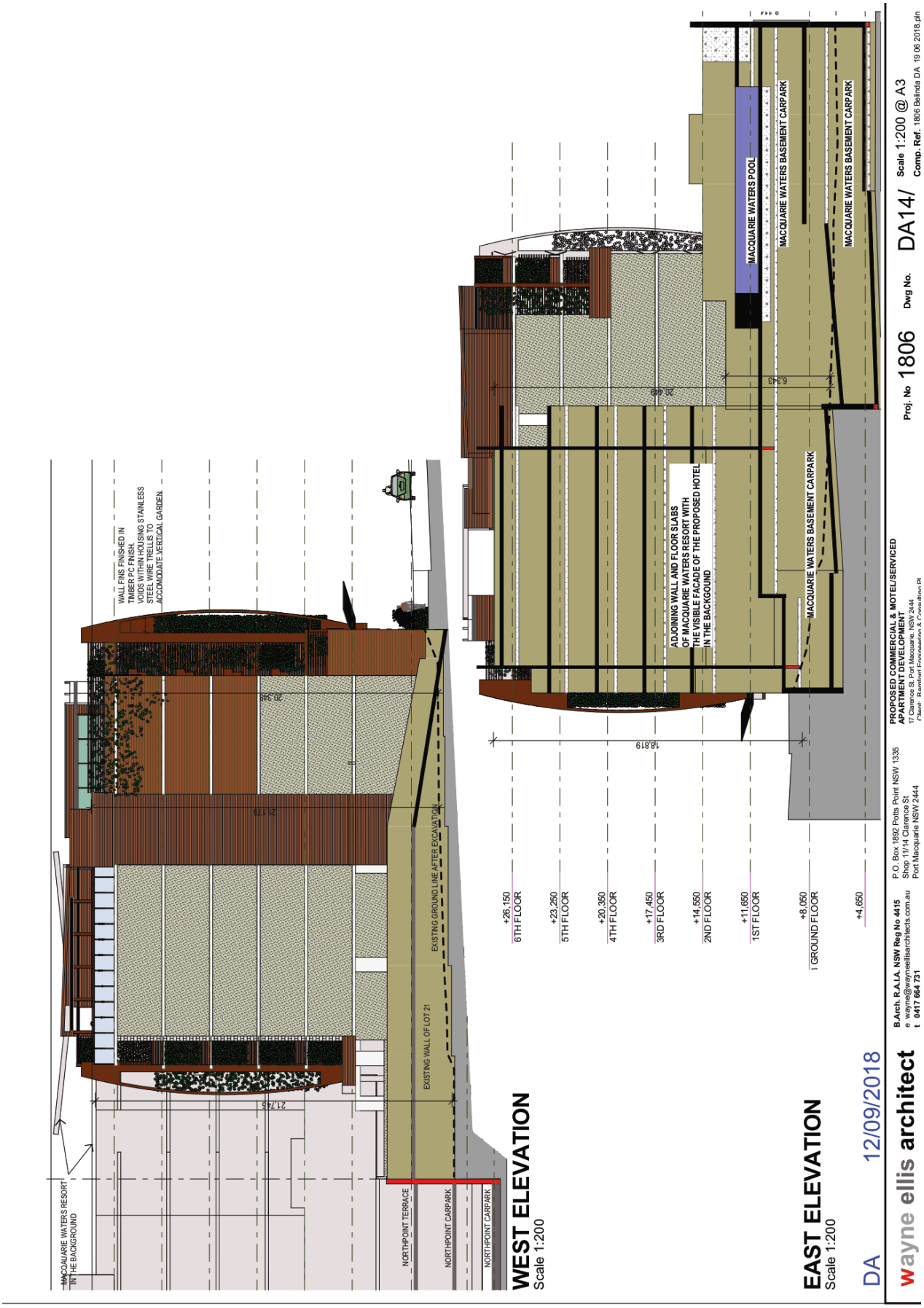
PROPOSED COMMERCIAL & MOTEL/SERVICED APARTMENT DEVELOPMENT
17 Clarence St. Port Macquarie. NSW 2444
Proj. No 1806
Dwg No. DA13/
Scale 1:200 @ A3
Comp. Ref. 1806 Belinda DA 19 06 2018.pln
+26,150 9 6TH FLOOR
+23,250 8 5TH FLOOR
+20,350 7 4TH FLOOR
+17,450 6 3RD FLOOR
+14,550 5 2ND FLOOR
+11,650 4 1ST FLOOR
+8,050 3 GROUND FLOOR
+4,650 2 oo
+3,000 1 LOWER BASEMENT
10 ROOF
20,900
20,100
19,578
5,282
4,154
HOTEL ENTRY/EXIT
SUB STATION
BBQ AREA & POOL TERRACE
ROOF TERRACE FOR HOTEL ROOMS
ROOF TERRACE FROM CONFERENCE ROOMS
EXISTING GROUND LINE AT BOUNDARY
EXISTING GROUND AFTER EXCAVATION
GROUND LEVEL TENANCIES
NEW BLOCK WALL MATCHING THE HEIGHT OF EXISTING WALL ON NORTH POINT
IMITATION TIMBER PANELLING
SOLID BALUSTRADE
CONCRETE PANELS
FIN STRUCTURES HOUSING STAINLESS STEEL WIRE TRELLIS ANE VERTICAL GARDEN


WEST ELEVATION
Scale 1:200
EAST ELEVATION
Scale 1:200
WALL FINS FINISHED IN TIMBER PC FINISH. VOIDS WITHIN HOUSING STAINLESS STEEL WIRE TRELLIS TO ACCOMODATE VERTICAL GARDEN
MACQUARIE WATERS RESORT IN THE BACKGROUND
NORTHPOINT TERRACE
NORTHPOINT CARPARK
NORTHPOINT CARPARK
EXISTING WALL OF LOT 21
EXISTING GROUND LINE AFTER EXCAVATION
+26,150 6TH FLOOR
+23,250 5TH FLOOR
+20,350 4TH FLOOR
+17,450 3RD FLOOR
+14,550 2ND FLOOR
+11,650 1ST FLOOR
+8,050 GROUND FLOOR
+4,650
ADJOINING WALL AND FLOOR SLABS OF MACQUARIE WATERS RESORT WITH THE VISIBLE FACADE OF THE PROPOSED HOTEL IN THE BACKGOUND
MACQUARIE WATERS BASEMENT CARPARK
MACQUARIE WATERS BASEMENT CARPARK
MACQUARIE WATERS BASEMENT CARPARK
MACQUARIE WATERS POOL
DA 12/09/2018
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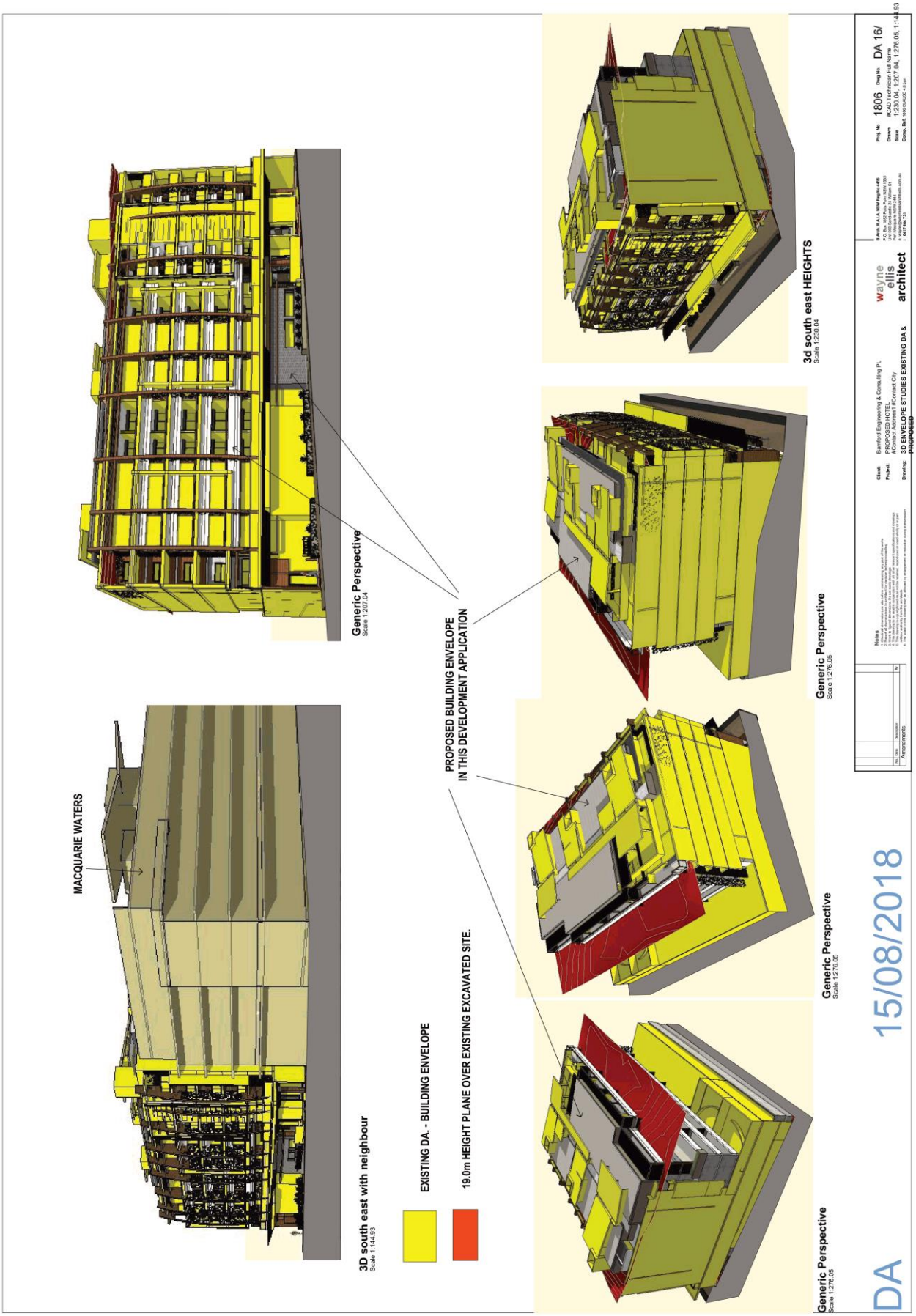
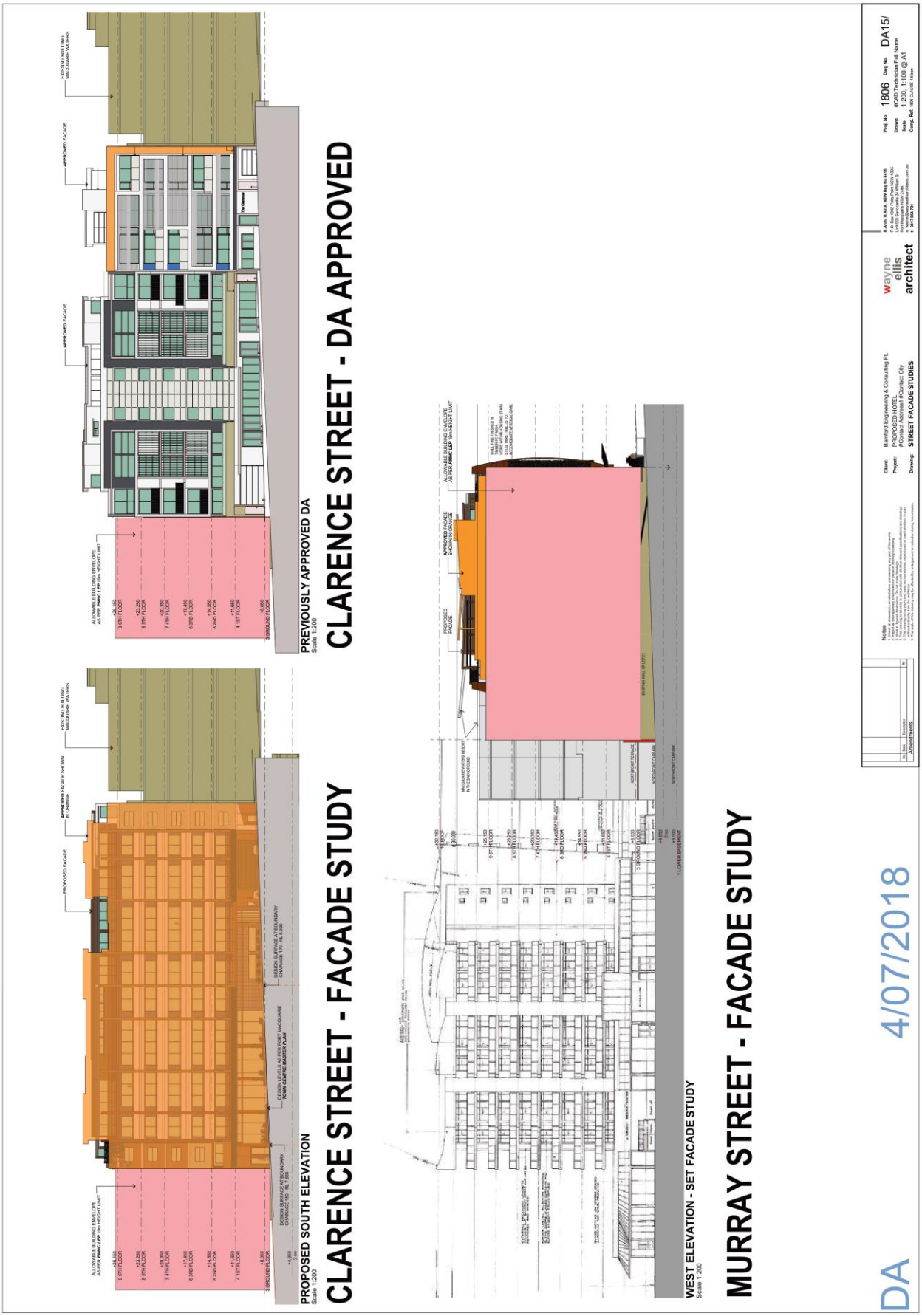
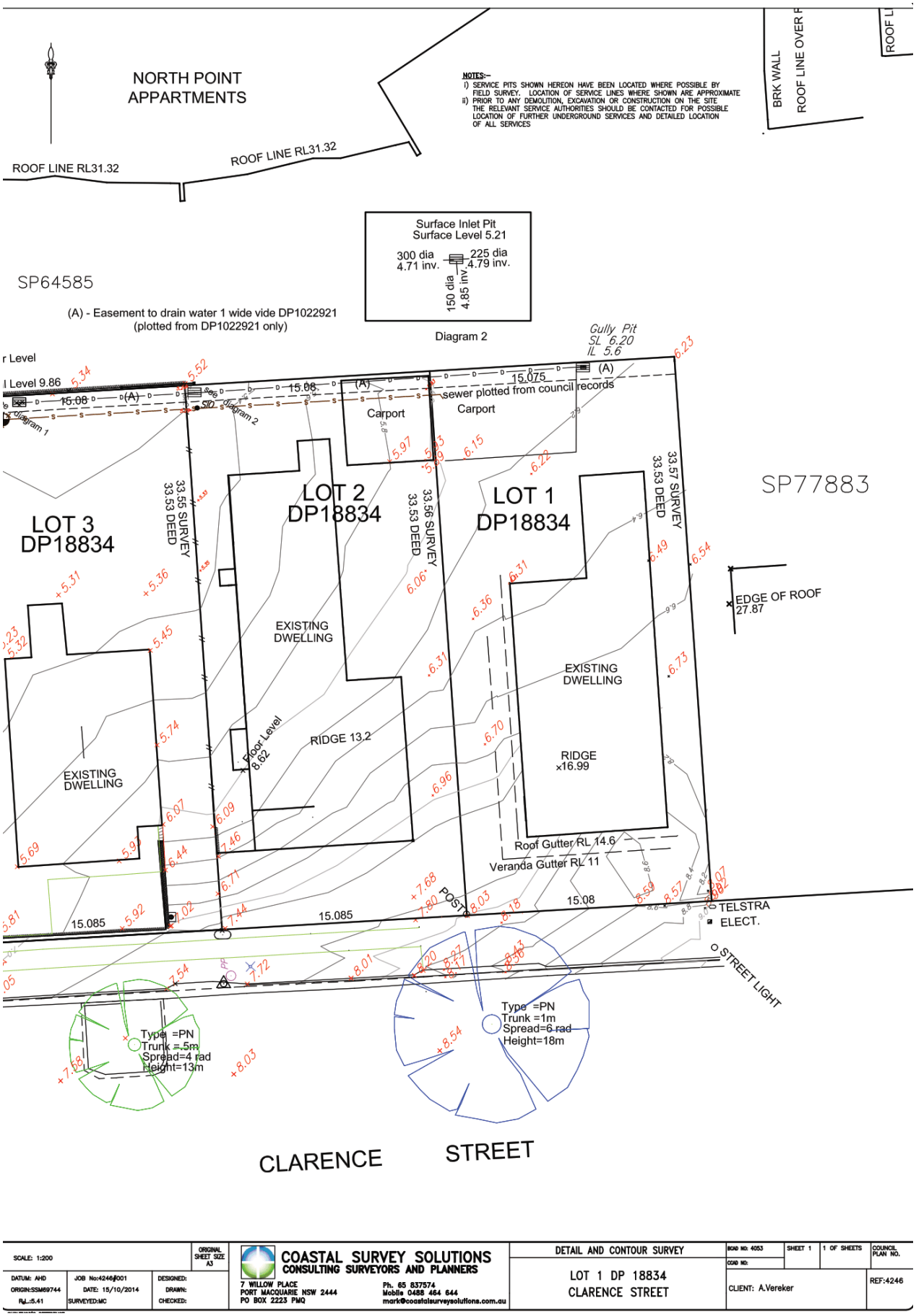

MACQUARIE WATERS
3D south east with neighbour
Scale 1:144.93
EXISTING DA. - BUILDING ENVELOPE
19.0m HEIGHT PLANE OVER EXISTING EXCAVATED SITE.
PROPOSED BUILDING ENVELOPE
IN THIS DEVELOPMENT APPLICATION
Generic Perspective
Scale 1:207.04
Generic Perspective
Scale 1:276.05
Generic Perspective
Scale 1:276.05
Generic Perspective
Scale 1:276.05
3d south east HEIGHTS
Scale 1:230.04
DA
15/08/2018
wayne ellis architect
Bamford Engineering & Consulting PL
PROPOSED HOTEL
#Contact Address1 #Contact City
3D ENVELOPE STUDIES EXISTING DA & PROPOSED
1806
DA 16/


CLARENCE STREET - FACADE STUDY
PROPOSED SOUTH ELEVATION
Scale 1:200
CLARENCE STREET - DA APPROVED
PREVIOUSLY APPROVED DA
Scale 1:200
MURRAY STREET - FACADE STUDY
WEST ELEVATION - SET FACADE STUDY
Scale 1:200
DA
4/07/2018
wayne ellis architect
Client: Bamford Engineering & Consulting PL
Project: PROPOSED HOTEL
Drawing: STREET FACADE STUDIES
Proj. No 1806
Dwg No. DA15/
Drawn #CAD Technician Full Name
Scale 1:200, 1:100 @ A1


NORTH POINT APPARTMENTS
ROOF LINE RL31.32
ROOF LINE RL31.32
NOTES:-
i) SERVICE PITS SHOWN HEREON HAVE BEEN LOCATED WHERE POSSIBLE BY FIELD SURVEY. LOCATION OF SERVICE LINES WHERE SHOWN ARE APPROXIMATE
ii) PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE THE RELEVANT SERVICE AUTHORITIES SHOULD BE CONTACTED FOR POSSIBLE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATION OF ALL SERVICES
BRK WALL
ROOF LINE OVER
Surface Inlet Pit
Surface Level 5.21
300 dia
4.71 inv.
225 dia
4.79 inv.
150 dia
4.85 inv.
SP64585
(A) - Easement to drain water 1 wide vide DP1022921
(plotted from DP1022921 only)
Diagram 2
Gully Pit
SL 6.20
IL 5.6
sewer plotted from council records
Carport
Carport
LOT 3
DP18834
LOT 2
DP18834
LOT 1
DP18834
SP77883
33.55 SURVEY
33.53 DEED
33.56 SURVEY
33.53 DEED
33.57 SURVEY
33.53 DEED
EXISTING DWELLING
EXISTING DWELLING
EXISTING DWELLING
RIDGE 13.2
RIDGE
16.99
Floor Level
8.62
EDGE OF ROOF
27.87
Roof Gutter RL 14.6
Veranda Gutter RL 11
15.085
15.085
15.08
TELSTRA
ELECT.
STREET LIGHT
Type =PN
Trunk =.5m
Spread=4 rad
Height=13m
Type =PN
Trunk =1m
Spread=6 rad
Height=18m
CLARENCE STREET
SCALE: 1:200
ORIGINAL SHEET SIZE A3
DATUM: AHD
ORIGIN:SSM69744
RL:5.41
JOB No:4246#001
DATE: 15/10/2014
SURVEYED:MC
DESIGNED:
DRAWN:
CHECKED:
COASTAL SURVEY SOLUTIONS
CONSULTING SURVEYORS AND PLANNERS
7 WILLOW PLACE
PORT MACQUARIE NSW 2444
PO BOX 2223 PMQ
Ph. 65 837574
Mobile 0488 464 644
mark@coastalsurveysolutions.com.au
DETAIL AND CONTOUR SURVEY
LOT 1 DP 18834
CLARENCE STREET
BCAD NO: 4053
CCAD NO:
SHEET 1
1 OF SHEETS
COUNCIL PLAN NO.
CLIENT: A.Vereker
REF:4246

Client

Bamford

Proposed Stormwater Management

Clarence Street, Port Macquarie 2444

C01 - Existing Catchment

C02 - Proposed Catchment

C03 - Proposed Detention

C04 - Detention Layout

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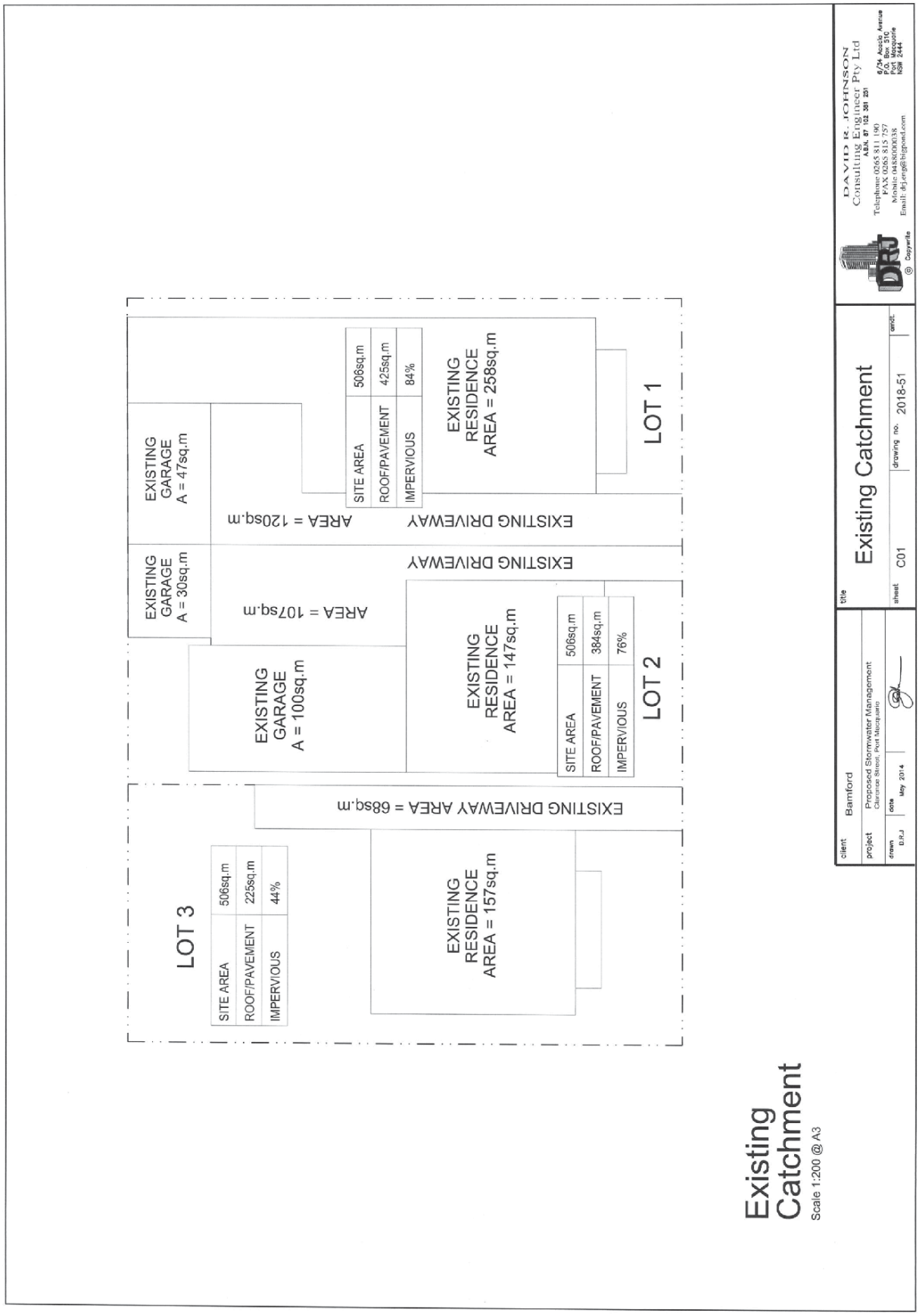
LOT 1
EXISTING RESIDENCE AREA = 258sq.m
SITE AREA 506sq.m
ROOF/PAVEMENT 425sq.m
IMPERVIOUS 84%
EXISTING GARAGE A = 47sq.m
EXISTING DRIVEWAY AREA = 120sq.m
LOT 2
EXISTING RESIDENCE AREA = 147sq.m
SITE AREA 506sq.m
ROOF/PAVEMENT 384sq.m
IMPERVIOUS 76%
EXISTING GARAGE A = 100sq.m
EXISTING GARAGE A = 30sq.m
EXISTING DRIVEWAY AREA = 107sq.m
LOT 3
EXISTING RESIDENCE AREA = 157sq.m
SITE AREA 506sq.m
ROOF/PAVEMENT 225sq.m
IMPERVIOUS 44%
EXISTING DRIVEWAY AREA = 68sq.m
Existing Catchment
Scale 1:200 @ A3
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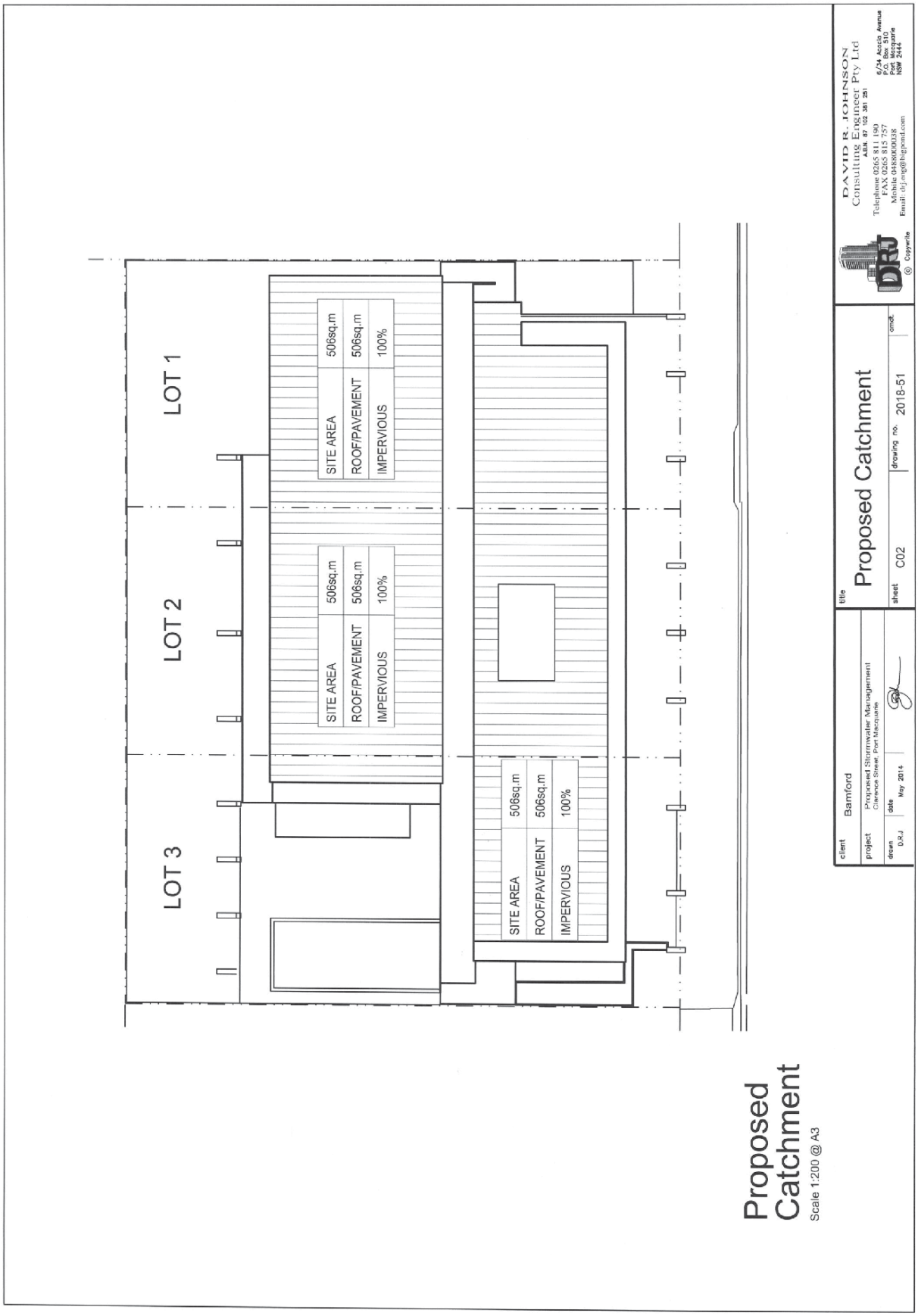
title
Existing Catchment
sheet C01
drawing no. 2018-51
amdt.
client Bamford
project Proposed Stormwater Management
Clarence Street, Port Macquarie
drawn D.R.J
date May 2014


LOT 1
LOT 2
LOT 3
SITE AREA 506sq.m
ROOF/PAVEMENT 506sq.m
IMPERVIOUS 100%
SITE AREA 506sq.m
ROOF/PAVEMENT 506sq.m
IMPERVIOUS 100%
SITE AREA 506sq.m
ROOF/PAVEMENT 506sq.m
IMPERVIOUS 100%
Proposed Catchment
Scale 1:200 @ A3
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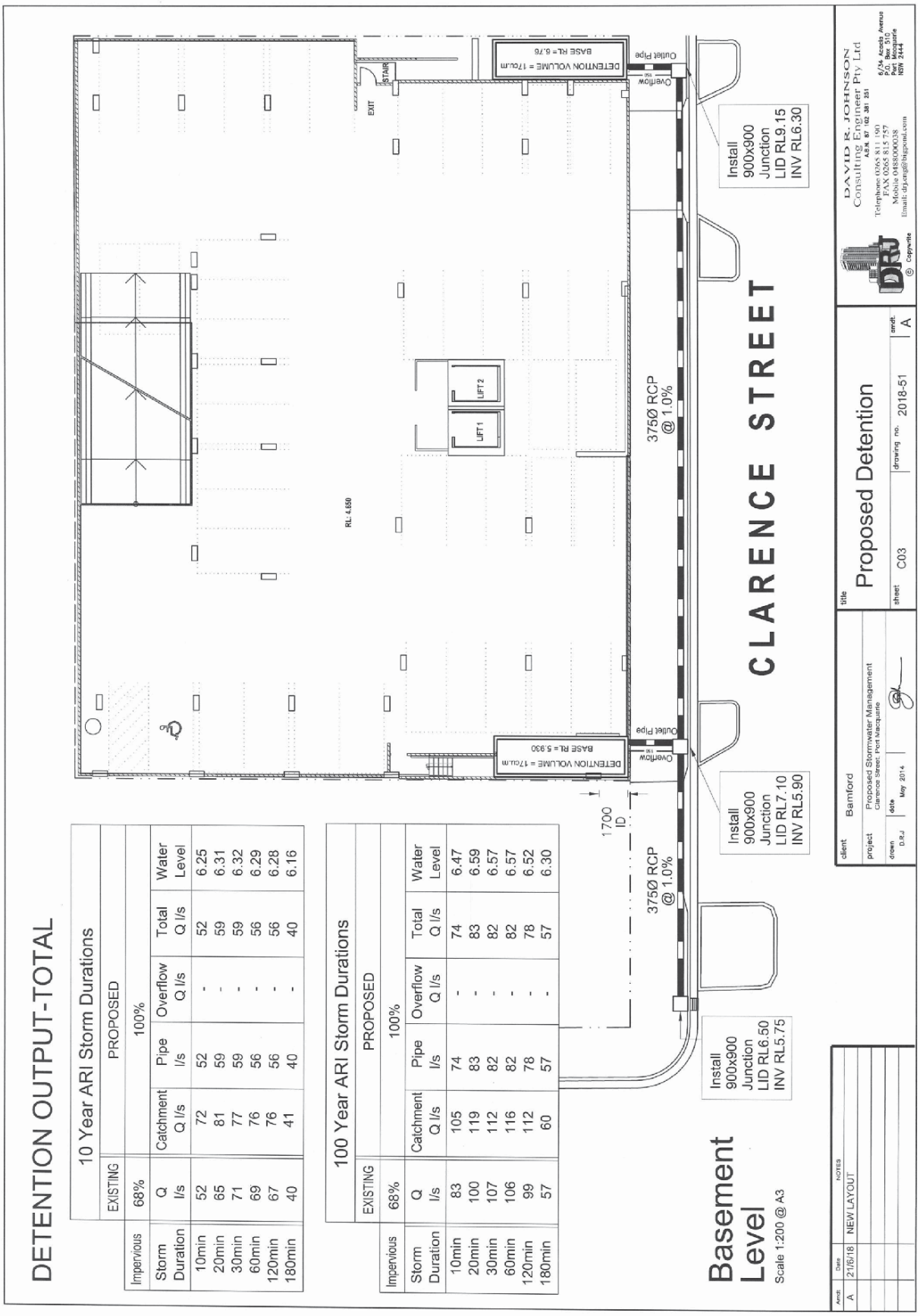
title
Proposed Catchment
sheet C02
drawing no. 2018-51
amdt.
client Bamford
project Proposed Stormwater Management
Clarence Street, Port Macquarie
drawn D.R.J
date May 2014

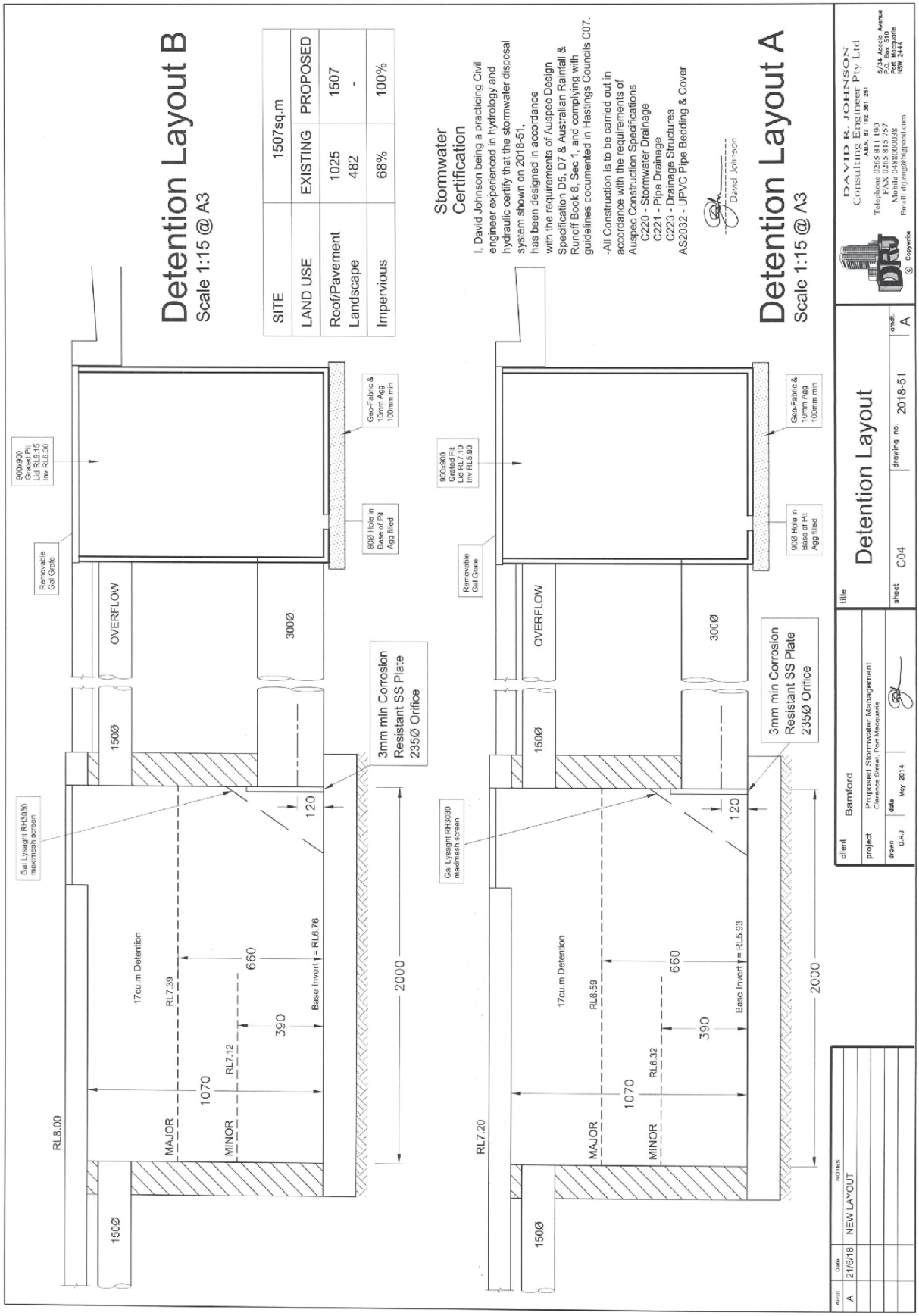


10 Year ARI Storm Durations

Impervious	EXISTING	PROPOSED				
	68%	100%				
Storm Duration	Q l/s	Catchment Q l/s	Pipe l/s	Overflow Q l/s	Total Q l/s	Water Level
10min	52	72	52	-	52	6.25
20min	65	81	59	-	59	6.31
30min	71	77	59	-	59	6.32
60min	69	76	56	-	56	6.29
120min	67	76	56	-	56	6.28
180min	40	41	40	-	40	6.16

100 Year ARI Storm Durations

Impervious	EXISTING	PROPOSED				
	68%	100%				
Storm Duration	Q l/s	Catchment Q l/s	Pipe l/s	Overflow Q l/s	Total Q l/s	Water Level
10min	83	105	74	-	74	6.47
20min	100	119	83	-	83	6.59
30min	107	112	82	-	82	6.57
60min	106	116	82	-	82	6.57
120min	99	112	78	-	78	6.52
180min	57	60	57	-	57	6.30


Detention Layout B
Scale 1:15 @ A3
SITE 1507sq.m
LAND USE EXISTING PROPOSED
Roof/Pavement 1025 1507
Landscape 482 -
Impervious 68% 100%
Stormwater Certification
I, David Johnson being a practicing Civil engineer experienced in hydrology and hydraulic certify that the stormwater disposal system shown on 2018-51, has been designed in accordance with the requirements of Auspec Design Specification D5, D7 & Australian Rainfall & Runoff Book 8, Sec 1, and complying with guidelines documented in Hastings Councils C07.
-All Construction is to be carried out in accordance with the requirements of Auspec Construction Specifications
C220 - Stormwater Drainage
C221 - Pipe Drainage
C223 - Drainage Structures
AS2032 - UPVC Pipe Bedding & Cover
David Johnson
Detention Layout A
Scale 1:15 @ A3
900x900 Grated Pit Lid RL9.15 Inv RL6.30
Removable Gal Grate
Geo-Fabric & 10mm Agg 100mm min
80Ø Hole in Base of Pit Agg filled
OVERFLOW
300Ø
150Ø
3mm min Corrosion Resistant SS Plate 235Ø Orifice
Gal Lysaght RH3030 maximesh screen
120
17cu.m Detention
RL7.39
660
390
Base Invert = RL6.76
RL7.12
1070
MAJOR
MINOR
RL8.00
2000
900x900 Grated Pit Lid RL7.10 Inv RL5.90
RL6.59
Base Invert = RL5.93
RL6.32
RL7.20
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NSW 2444
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title Detention Layout
sheet C04
drawing no. 2018-51
amdt. A
client Bamford
project Proposed Stormwater Management
Clarence Street, Port Macquarie
drawn D.R.J
date May 2014
Amdt A
Date 21/6/18
NOTES NEW LAYOUT

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Kooloonbung Creek Flying-fox Camp Management Plan

Draft 4
March 2019

PORT MACQUARIE-HASTINGS COUNCIL

ecology / vegetation / wildlife / aquatic ecology / GIS

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Acknowledgements

Port Macquarie-Hastings Council would like to thank everyone who participated in community consultation, with all comments considered in the development of this plan and incorporated where possible. Council acknowledges input by the New South Wales Office of Environment and Heritage to the Plan in developing the template upon which this Camp Management Plan is based, and Dr Peggy Eby who provided advice which was included in the template.

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Acronyms and abbreviations

ABLV	Australian bat lyssavirus
BAM	Biodiversity Assessment Method
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BDAR	Biodiversity Development Assessment Report
BFF	Black flying-fox (*Pteropus alecto*)
the camp	Kooloonbung Creek flying-fox camp
CE	Critically endangered
Council	Port Macquarie-Hastings Council
DoEE	Department of the Environment and Energy (Commonwealth)
DPI	Department of Primary Industries (NSW)
E	Endangered
EEC	Endangered Ecological Communities
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
FKCNP	Friends of Kooloonbung Creek Nature Park
GHFF	Grey-headed flying-fox (*Pteropus poliocephalus*)
the Guideline	Referral guideline for management actions in grey-headed and spectacled flying-fox camps 2015 (Commonwealth)
HeV	Hendra virus
KCPoM	Kooloonbung Creek Plan of Management 2012
LEP	Local Environmental Plan
LGA	Local Government Area
LGNSW	Local Government of New South Wales
LRFF	Little red flying-fox (*Pteropus scapulatus*)
MNES	Matters of national environmental significance
NFFMP	National flying-fox monitoring program

NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NPWS	National Parks and Wildlife Service (NSW)
OEH	Office of Environment and Heritage (NSW)
the Park	Kooloonbung Creek Nature Park
the Plan	this Camp Management Plan
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
the Policy	Flying-fox Camp Management Policy 2015 (NSW)
SEPPs	State Environmental Planning Policies
SIS	Species impact statement
TEC	Threatened ecological community
V	Vulnerable

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1 Introduction

The Kooloonbung Creek Camp Management Plan (the Plan) provides Port Macquarie-Hastings Council (Council) with a framework for managing community impacts associated with flying-foxes roosting along Kooloonbung Creek, whilst ensuring flying-foxes and their ecological services are conserved.

Three species of flying-foxes occur in New South Wales (NSW):

- grey-headed flying-fox (*Pteropus poliocephalus*) (GHFF)
- black flying-fox (*P. alecto*) (BFF)
- little red flying-fox (*P. scapulatus*) (LRFF).

Kooloonbung Creek flying-fox camp (the camp) is mainly occupied by GHFF, and at times by BFF and the highly transient LRFF. All three species of flying-foxes, and their habitats, are protected under NSW legislation. The GHFF is also listed as Vulnerable under Commonwealth legislation, affording it additional protection.

Detail of relevant legislation and policy related to flying-foxes is provided in Appendix 1. Flying-fox ecology, species profiles and roost characteristics are provided in Appendix 2.

The Kooloonbung Creek camp is one of eight flying-fox camps in the Port Macquarie-Hastings local government area (LGA), monitored as part of the National Flying-fox Monitoring Program (NFFMP) (Figure 1).

1.1 Flying-foxes in urban areas

Flying-foxes are highly nomadic, moving across their range between a network of camps. Camps may be permanently occupied, seasonal, temporary or sporadic, and numbers can fluctuate significantly on a daily/seasonal basis. Flying-foxes may travel up to 100 km a night in search of food resources (nectar, pollen and fruit), and their occurrence within the region is tightly linked to flowering and fruiting of foraging trees. Typically, the abundance of resources within a 20–50 km radius of a camp site will be a key determinant of the size of a camp (SEQ Catchments 2012). However, understanding the availability of foraging resources is difficult because flowering and fruiting are not reliable every year and vary between locations (SEQ Catchments 2012). This highlights the need for a multi-faceted approach to management that is continually adapted as situations change or further research improves our understanding of flying-foxes and their management.

Living near a flying-fox camp can be challenging for communities, with impacts associated with noise, odour, faecal drop, damage to vegetation and concern about potential health risks. There are also challenges associated with management. State approval is required under legislation to manage a camp, and actions which may affect the GHFF must also adhere to federal policy. Attempts to relocate flying-foxes are extremely costly, and often splinter a camp to multiple undesirable locations that are difficult to predict. Flying-foxes will also regularly

attempt to recolonise their preferred camp site when resources are available, and it is not appropriate or possible to remove all of the flowering and fruiting trees that attract them to the region.

Flying-foxes appear to be roosting and foraging in urban areas more frequently. During a study of national flying-fox camp occupation, almost three quarters of the 310 active GHFF camps (72%) were located in urban areas, 22% on agricultural land and only 4% in protected areas (Timmiss 2017). Furthermore, the number of camps increased with increasing human population densities (up to ~4000 people per km^2) (Timmiss 2017).

There are many possible drivers for this urbanising trend, as summarised by Tait et al. (2014):

- loss of native habitat and urban expansion
- opportunities presented by year-round food availability from native and exotic species found in expanding urban areas
- disturbance events such as drought, fires, cyclones
- human disturbance or culling at non-urban camps or orchards
- urban effects on local climate
- refuge from predation
- movement advantages, e.g. ease of manoeuvring in flight due to the open nature of the habitat or ease of navigation due to landmarks and lighting.

These drivers mean that flying-foxes are likely to continuing occupying the camp into the future. Favourable habitat and food resources within the local government area (LGA) mean that camps may also establish in new locations.

Regular stakeholder engagement during the development of this plan aims to ensure the values of the Port Macquarie community are considered, and concerns of residents who have been directly impacted are addressed.

1.2 Plan objectives

The Plan has been prepared in accordance with the NSW Flying-fox Camp Management Policy (2015) framework, administered by the Office of Environment and Heritage (OEH).

The objectives of this Plan are to:

- manage community impacts and concerns associated with the camp, whilst conserving flying-foxes and their habitat
- improve community understanding and appreciation of flying-foxes, including their critical ecological role
- enable land managers and other stakeholders to use a range of suitable management responses to sustainably manage flying-foxes

- effectively communicate with stakeholders during planning and implementation of management activities
- clearly outline the camp management actions that have been approved and will be utilised at the camp
- ensure camp management does not contribute to loss of biodiversity or increase threats to threatened species/communities
- ensure management actions are consistent with legislative responsibilities
- ensure flying-fox welfare is a priority during works
- ensure long-term conservation of flying-foxes in appropriate locations.

Figure 1: Camp locations in Port Maquaire-Hastings Council

Port Maquarie-Hastings Council

Kooloonbung Creek CMP

2 Context

2.1 Camp description

The camp is located within Kooloonbung Creek Nature Park (the Park) in Port Macquarie, along an estuarine waterway that includes Wrights Creek. The camp is bordered by residential areas to the east, west and south, a historical cemetery and recreational area adjoin the Park in the north.

Figure 2 Kooloonbung Creek

Kooloonbung Creek camp meets the criteria for a Nationally Important camp under the Referral Guidelines for Management Actions in GHFF and SFF camps (DoE 2015) as it has contained over 10,000 GHFF for two consecutive years and 2,500 permanently or seasonally every year for the last 10 years (OEH 2017).

Vegetation within the camp mainly consists of:

- Broad-leaved Paperbark Swamp Woodland/Forest
- Grey Mangrove Woodland/Forest.

Vegetation throughout the Park also consists of Broad-leaved Paperbark – Mixed Eucalypt Swamp Forest; Sand couch Saltmarsh Grassland and Swamp Oak Coastal Floodplain Wetland Forest (Figure 5). There are also a number of mown areas between residences and the Park (Figure 3).

Figure 3 Mown areas between the camp and residents

Figure 4 Boardwalk through mangroves

Figure 5: Vegetation communities

Maximum camp extent

Port Maquarie-Hastings Council

Kooloonbung Creek CMP

ecosure

Job number: PR3995
Revision: 0
Author: KF
Date: 26/11/2018

0 25 50 100
Metres

GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

In 1985, volunteer group Friends of Kooloonbung Creek Nature Park (FKCNP) formed with a goal to regenerate the natural bushland and make the Park accessible to the public. FKCNP in conjunction with Council have continued with ongoing bush regeneration and park maintenance as well as establishing facilities such as seats and interpretive signage. A public footpath and extensive boardwalk network (Figure 4) extend throughout the Park offering educational and recreational opportunities for cycling, walking or bird watching. Various interpretive signage exists through the Park (Figure 6), however the only flying-fox related messaging is "Flying Foxes at rest – please do not disturb" (Figure 7).

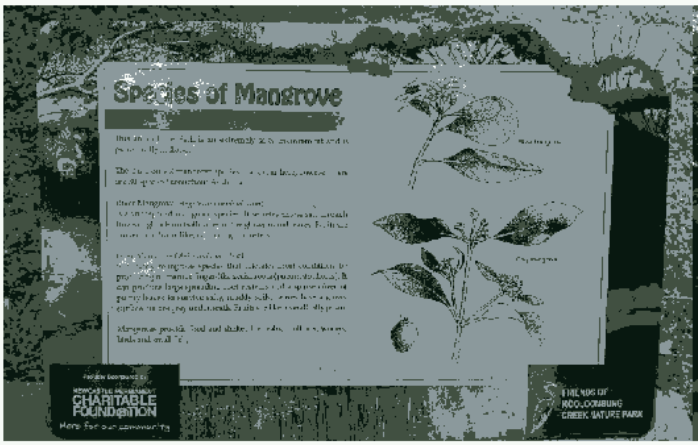

Figure 6 Friends of Kooloonbung interpretive signage

Figure 7 Council sign

A large number of pups on mothers was observed during the November site assessment by Ecosure (Figure 8). The area occupied by flying-foxes during the November site assessment was 2.9 ha. The maximum known camp extent is 77.01 ha (PMHC 2018). Both are shown in Figure 11.

Figure 8 GHFF resting in camp

Whilst Figure 11 illustrates the maximum camp extent, and Figure 12 shows the changes in the area occupied seasonally by flying-foxes between the years 2015 and 2018.

Some properties on Glebe Close side of the camp have 5m of cleared vegetation in the asset protection zone, although a few properties still have vegetation from the reserve close to or overhanging boundaries (Figure 9). Hollingworth road side of the camp (Figure 10) provides a 15m road buffer plus a 15m vegetative buffer between homes and the maximum known camp extent on the western side of the Park.

Figure 9 Vegetation overhanging property boundaries

Figure 10 Hollingworth street acts as a buffer from roosting flying-foxes in the Park.

Figure 11: Kooloonbung maximum camp extent

2018)

Port Maquarie-Hastings Council

Kooloonbung Creek CMP

Camp extent (November

Maximum camp extent

Property boundary

ecosure

Job number: PR3995
Revision: 0
Author: KF
Date: 26/11/2018

0 25 50 100
Metres

GCS GDA 1994
Datum: GDA 1994
Units: Degree

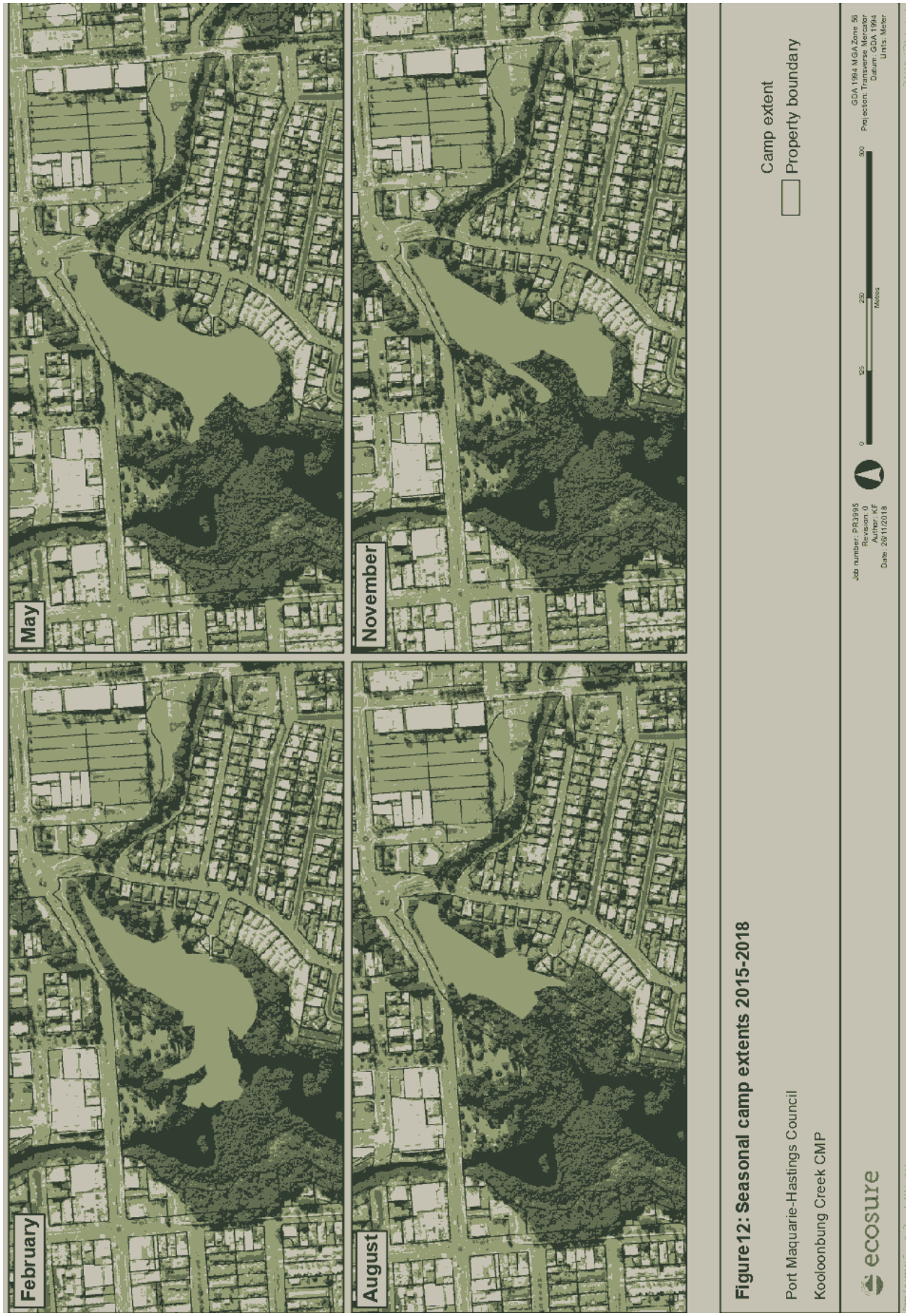

Figure12: Seasonal camp extents 2015-2018

Port Maquarie-Hastings Council

Kooloonbung Creek CMP

2.2 Tenure

The camp is located on multiple land parcels including freehold, Council land and Crown land for which Council is appointed Trustee. Table 1 provides a list of properties that comprise the maximum camp extent. This will assist in identifying the location/s for potential management actions.

Table 1 Properties comprising the maximum camp extent. Lot and plans are mapped in Section 2.1.

Lot and DP	Tenure	Zoning
7300/DP1154392	Council	RE1 Public recreation (Historical cemetery)
7301/DP1154392	Council	E2 Environmental conservation
7302/DP1154392	Council	E2 Environmental conservation
7303/DP1154392	Council	E2 Environmental conservation
7304/DP1154392	Crown	E2 Environmental Conservation (Kooloonbung Creek Nature Park)
9/DP243243	Freehold	R2 Low Density Residential
21/DP249270	Freehold	R1 General residential
23/DP249270	Freehold	R1 General residential
26/DP249270	Council	RE1 Public recreation
7011/DP1024184	Council	E2 Environmental conservation (behind girl guides)
14/DP223700	Council	E2 Environmental conservation
12/DP246438	Freehold	E2 Environmental conservation
355/DP754434	Crown	E2 Environmental conservation
596/DP754434	Crown	E2 Environmental conservation
2/DP575680	Freehold	B2 Local centre
SP70635	Strata Freehold	R1 General residential
SP73183	Strata Freehold	R1 General residential
2/DP1038008	Freehold	R1 General residential

2.3 Other ecological values

Thirty-three threatened species are known to occur or have been recorded within 1 km of Kooloonbung Creek camp (Table 2) (Figure 13). Migratory and marine species found within the area have been excluded from this list but are provided in Appendix 3. The Park also contains five threatened plant communities; subtropical coastal floodplain forest (Endangered Ecological Community {EEC}), freshwater wetlands on coastal floodplains (EEC), coastal saltmarsh (EEC), swamp oak floodplain forest (EEC) and coastal upland swamp (EEC) (PMHC 2012) (Figure 14).

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Table 2 Other ecological values known to occur or recorded within 1km of the camp

Protection level	Source	Category	Values/significance	Details
Federal	NFFMP (DoEE 2018)	Nationally important camp	See definition Appendix 1.	Site meets criteria.
	Protected Matters Search Tool (DoEE 2018) Atlas of Living Australia 2019	Threatened species^	Regent Honeyeater (*Anthochaera phrygia*) (CE) Australasian Bittern (*Botaurus poiciloptilus*) (E) Red Knot (*Calidris canutus*) (E) Curlew Sandpiper (*Calidris ferruginea*) (CE) Lesser Sand Plover (*Charadrius mongolus*) (E) Eastern Curlew (*Numenius madagascariensis*) (CE) Fairy Prion (*Pachyptila turtur subantarctica*) (V) Spot-tailed Quoll (*Dasyurus maculatus maculatus*) (E) Koala (*Phascolarctos cinereus*) (V) *Allocasuarina thalassoscopica* (E)	10 species (2 mammals, 7 birds and 1 plant) known to occur within the area (SPRAT data not mapped)
State	Bionet (OEH 2018) Atlas of Living Australia 2019	Threatened species	Magpie Goose (*Anseranas semipalmata*) (V) Bush Stone-Curlew (*Burhinus grallarius*) (E) Glossy Black Cockatoo (*Calyptorhychus lathami*) (V) White-eared Monarch (Carterornis leucotis) (V) Spotted Harrier (*Cicus assimilis*) (V) Barred Cuckoo-shrike (*Coracina lineata*) (V) Varied Sittella (*Daphoenositta chrysoptera*) (V) Black-necked Stork (*Ephippiorhychus asiaticus*) (E) Black Falcon (*Falco subniger*) (V) Pied Oystercatcher (*Haemtopus longirostris*) (V) Swift Parrot (*Lathamus discolour*) (E) Square-tailed Kite (*Lophoictinia isura*) (V) Eastern Curlew (*Numenius madagascariensis*) (CE) Eastern Osprey (*Pandion cristatus*) (V) Little Lorikeet (*Parvipsitta pusilla*) (V) Koala (*Phascolarctos cinereus*) (V) Eucalyptus nicholii (V)	15 species (13 birds, 1 mammal and 1 plant) have been recorded within 1 km of camp
Local	KCPoM (2012)	Threatened species identified in the reserve	Black-necked Stork (*Ephippiorhynchus asiaticus*) (E) Black Bittern (*Ixobrychus flavicollis*) (V) Freckled Duck (*Stictonetta naevosa*) (V) Eastern Osprey (*Pandion cristatus*) (V) Little Bent-wing Bat (*Miniopterus australis*) (V) Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis)* (V) Eastern Freetail-bat (*Mormopterus norfolkensis)* (V) Southern Myotis (*Myotis macropus)* (V) Greater Broad-nosed Bat (*Scoteanax rueppellii)* (V) Biconvex paperbark (*Melalueca biconvexa*) (V)	10 species identified in the park (not recorded in database searches)

^ listing status: CE – Critically Endangered, EN – Endangered, VU – Vulnerable

Bionet records

- *Anseranas semipalmata*, Magpie Goose
- *Burhinus grallarius*, Bush Stone-curlew
- *Calyptorhynchus lathami*, Glossy Black-Cockatoo
- *Coracina lineata*, Barred Cuckoo-shrike
- *Daphoenositta chrysoptera*, Varied Sittella
- *Ephippiorhynchus asiaticus*, Black-necked Stork
- *Haematopus longirostris*, Pied Oystercatcher
- *Lophoictinia isura*, Square-tailed Kite
- *Numenius madagascariensis*, Eastern Curlew
- *Pandion cristatus*, Eastern Osprey
- *Phascolarctos cinereus*, Koala

ALA records

- *Burhinus grallarius*, Bush Stone-curlew
- *Carterornis leucotis*, White-eared Monarch
- *Circus assimilis*, Spotted Harrier
- *Coracina lineata*, Barred Cuckoo-shrike
- *Daphoenositta chrysoptera*, Varied Sittella
- *Ephippiorhynchus asiaticus*, Black-necked Stork
- *Eucalyptus nicholii*
- *Falco subniger*, Black Falcon
- *Haematopus longirostris*, pied oystercatcher
- *Lathamus discolor*, Swift Parrot
- *Parvipsitta pusilla*, Little Lorikeet

Figure 13: Bionet threatened species records

Port Maquarie-Hastings Council

Kooloonbung Creek CMP

1 km buffer
Camp extent (November 2018)
Maximum camp extent

ecosure

Job number: PR3995
Revision: 1
Author: KF
Date: 3/01/2019

0 75 150 300
Metres

GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

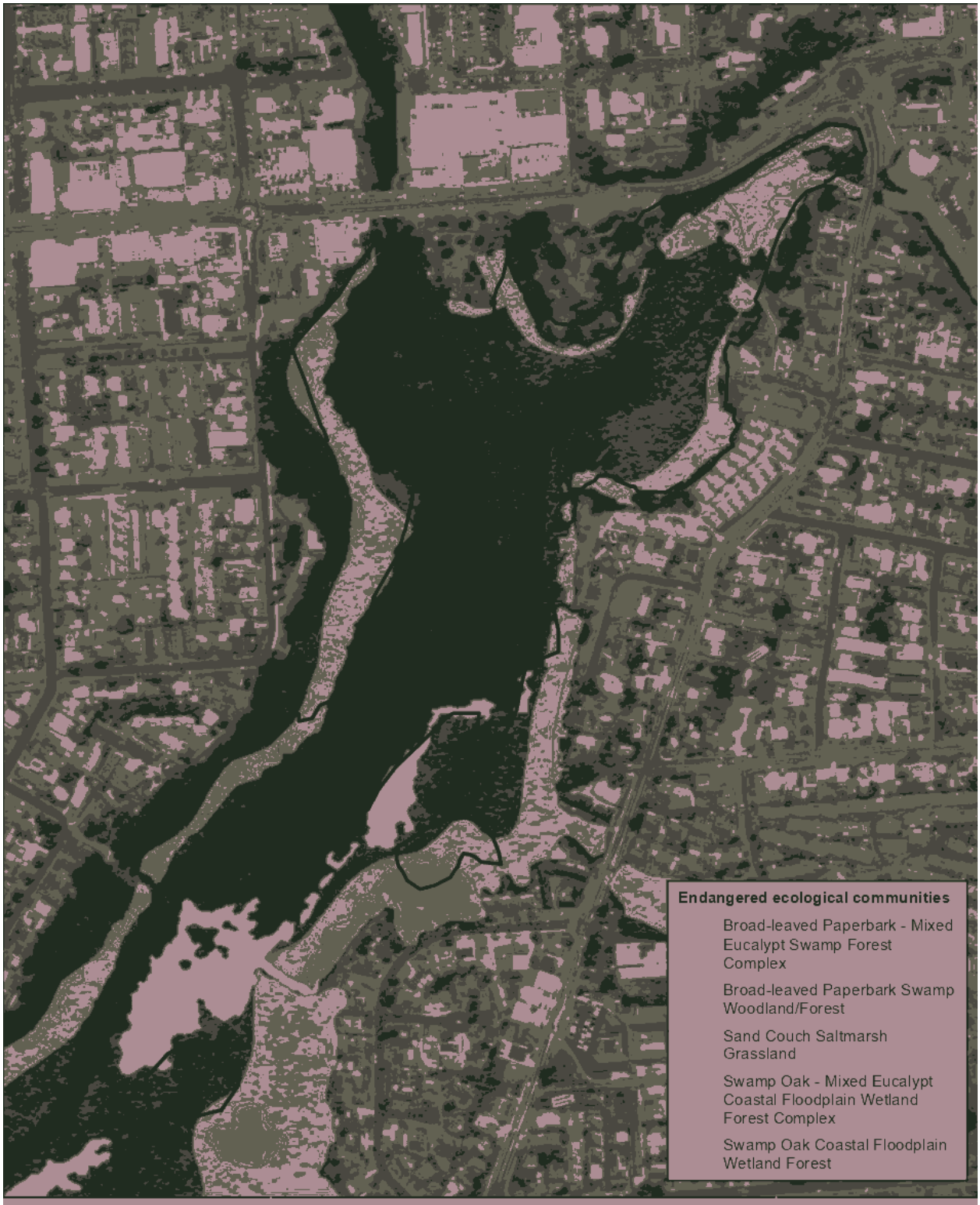

Figure 14 : Endangered ecological communities

Maximum camp extent

Port Maquarie-Hastings Council

Kooloonbung Creek CMP

ecosure

Job number: PR3995
Revision: 0
Author: SR
Date: 26/11/2018

0 25 50 100
Metres

GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

2.4 History of the camp

Flying-foxes arrived at the Kooloonbung Creek camp in the 1990s (PMHC 2012). Prior to this, flying-foxes had occupied Sea Acres Nature Reserve, approximately 3.5 km to the south east (Figure 1). The camp has recorded a maximum of 173,000 flying-foxes in January 2014 since quarterly monitoring began in 2012 as part of the NFFMP (OEH 2017). This influx mainly comprised the highly nomadic LRFF. Camp numbers are usually below 20,000 with some influxes over 100,000 flying-foxes in 2014 and 2016. As this site is a maternity camp, it is likely that some individuals have a strong site fidelity, returning year after year as part of seasonal migrations.

The GHFF population will generally move south within their range (see Appendix 2) in spring and summer, then return to the coastal forests of north-east NSW and south-east Queensland in winter (Ratcliffe 1932; Eby 1991; Parry-Jones & Augee 1992; Roberts et al. 2012). In autumn they occupy primarily coastal lowland camps. LRFF travel south within their range (see Appendix 2) to visit the coastal areas of south-east Queensland and NSW during the summer months.

The LRFF has the most nomadic distribution, strongly influenced by availability of food resources (predominantly the flowering of eucalypt species) (Churchill 2008), which means the duration of their stay in any one place is generally very short. LRFF travel south to visit the coastal areas of south-east Queensland and NSW during the summer months. Flying-foxes also occupy Brombin camp and two camps in Kendall: Bakers Creek and Logans crossing.

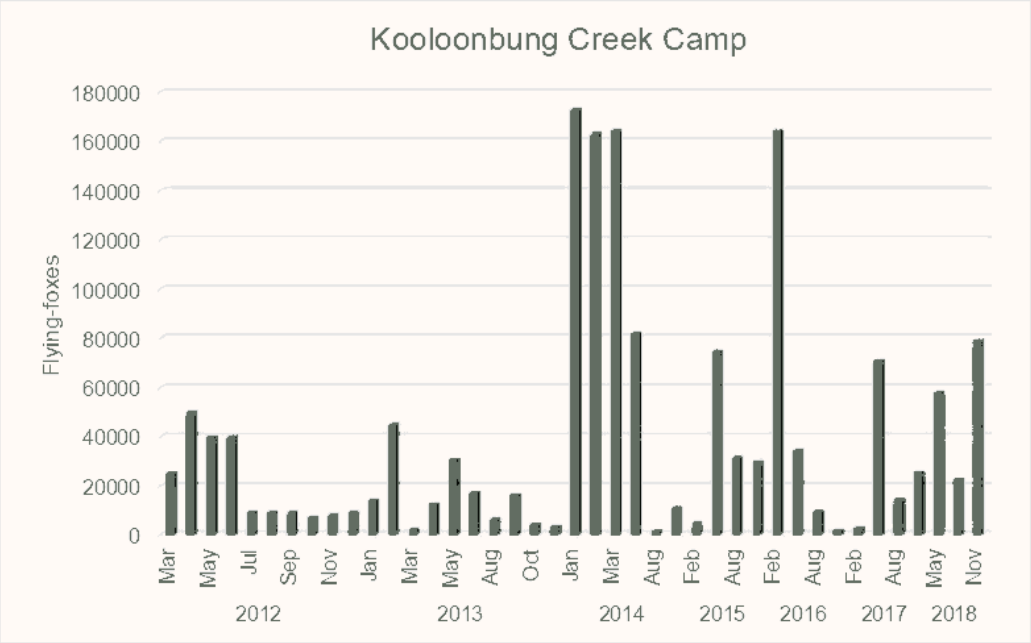

Figure 15 Numbers of flying-foxes at Kooloonbung Creek camp (Source: OEH 2017; PMHC 2018). Count methods are consistent with those described in Westcott et al. 2011.

2.5 Sensitive receptors

Sensitive receptors are those locations that host vulnerable people where risks need to be managed. Sensitive receptors (i.e. schools, hospitals with helipads, airports, equine facilities) within 2 km of the maximum camp extent and within 13 km for aerodromes are provided in Table 3 and Figure 16. Identifying sensitive receptors is necessary with regards to any management actions that could inadvertently cause the camp to splinter to undesirable or sensitive locations surrounding the camp.

Table 3 Sensitive receptors surrounding the camp

Sensitive receptor	Distance from maximum camp extent (m)
Port Macquarie community preschool	54
Hastings family day care	282
Port Macquarie public school	487
St Agnes primary school	660
Hastings Secondary College	869
Hastings preschool and long day care	1030
Hastings Secondary College Westport campus	1049
Portside preschool and long day care	1057
St Josephs primary school	1127
Westport public school	1342
MacKillop College	1420
St Peters primary school	1588
Hastings public school	1728
Port Macquarie race club	2332
Port Macquarie airport	3530

Figure16: Sensitive receptors
Port Maquarie-Hastings Council
Kooloonbung Creek CMP
Camp extent (November 2018)
Maximum camp extent
Airport
Childcare
Equine
School
Job number: PR3995
Revision: 0
Author: KF
Date: 26/11/2018
0 250 500 1000
Metres
GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter
ecosure
1728 m
1420 m
1588 m
660 m
2332 m
3530 m
1127 m
1049 m
1030 m
1342 m
292 m
487 m
54 m
869 m
916 m

2.6 Management to date

A number of plans have been developed for the park:

- Catchment Management Plan 1992
- Reserve Management Plan 1996
- Kooloonbung Creek Nature Park Plan of Management (KCPoM) (Port-Macquarie-Hastings Council 2012).

During the development of the 2012 KCPoM, Dr Peggy Eby provided a presentation on bat ecology to residents at a community forum. Council also provided an on-line survey and subsequent issues paper (PVHC 2012). The KCPoM produced a number of management actions to address flying-fox issues. Table 4 provides a review on the progress of actions outlined in the KCPoM for consideration within this Plan.

Bush fire management and weed removal also have consequences for roost occupation patterns, and vegetation removal may exacerbate the effects of Heat Stress Events (HSE). Friends of Kooloonbung (FOK) have been undertaking bush regeneration (Figure 17) in the Park since 1985, improving public access, facilities and providing interpretational signage. Although FOK signage includes a flying-fox logo/illustration, no signs with flying-fox ecology information were observed in the Park.

The Inaugural Committee Meeting for the Flying-fox Camp Management Plan was held on Tuesday 4th September 2018 opened by Mayor Peta Pinson, with attendance by the Community Consultative Committee and Ecosure. Residents were provided legislative background on flying-fox management and information regarding the ecological importance and behaviour of flying-foxes.

When Council commissioned the development of this Plan, two further community consultative meetings were scheduled. Outcomes of these meetings held on Wednesday 14 November 2018 and 12 December 2018 are provided in Section 3 Community Engagement.

Table 4 Progress of 2012 actions for flying-fox issues. Adapted from Table 2 and Appendix A KCPoM (PMHC 2012)

Management action	Actions to be taken	Progress	Ecosure review
Undertake monthly flying-fox habitat mapping and broad population size estimations	Fluctuations in population and roosting area monitored; roost boundaries adjacent to residents identified. Mapping uploaded to Council Website for Community access	Commenced: Council undertakes quarterly monitoring of camp and produces. The public is able to access this information on the interactive flying fox mapping tool on the Department of Environment and Energy's website. http://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide.jsf	*Highly informative and a beneficial action to continue.* *Enables temporal and spatial analysis for this Plan and future management.*
Community Health Risk	Annual inspection of advisory signage. Annual check on recorded Lyssavirus. Hendra Virus, Menangle Virus and Leptospirosis infections	These actions have not been initiated	*Educational messaging including prevention of risk is better than the collation of incident data alone.* *Residents should be informed that disease transmission is extremely low and vaccines are available for post exposure.*
Community and Council monitoring of the Flying-fox population	Develop a web based community monitoring system and movements of flying foxes in the Park and to record complaints.	Commenced: Council undertake the census which records movements of the camp. Council website has not been updated with this information.	*Update Council's webpage with quarterly monitoring of camp extent.* *Recording and promoting positive stories of rehabilitation, educational visits and tours or observations of fly outs (not just complaints).*
Community education	Install signage on bats to inform park users to avoid contact and to not disturb them. Provide NSW Dept. of Health fact sheets for all Flying Fox diseases to adjacent residents.	Commenced: Some basic warning signage installed Facts sheets produced in 2013	*Avoidance messaging on its own is inadequate and promotes negative attitudes and fear towards flying-foxes.* *Educational signage could be interwoven with indigenous values for flying-foxes.* *The bat logo/ illustration on Friends of Kooloonbung signage should be continued on future signage.*

ecosure

Management action	Actions to be taken	Progress	Ecosure review
Vegetation removal	Glebe Close (1st priority) Removal of vegetation within 10m of the Glebe Close properties. Hollingworth Street. (2nd Priority) Vegetation removal within the Hollingworth Street road reserve between Table Street and Koorong Avenue intersections (equates to a 25 - 30m buffer from residential properties). Vegetation removal within the Hollingworth Street Road Reserve between Ackroyd and Table Street intersections to the change of grade on roadside batter (equates to a 15m wide buffer from residential boundaries). Fischer Street (3rd Priority) Removal of overhanging branches back the trunk of trees that are within 10m of the Fischer Street property boundary.	Completed: 1st Priority in Glebe Close (figure 18) 2nd Priority Hollingworth Street	*Trees overhanging properties in Glebe are mapped EECs (figure 17).* *The previously proposed buffer distances are considered adequate to provide relief from issues such as faecal drop to improve amenity. However, canopy area inside Kooloonbung Park must be considered with regards for the available roosting area for maximum number of bats.* *Noise and odour may need to be addressed using other management options such as improving building insulation and using air deodorisers.* *Important for residents to acknowledge the mobility of camp and the temporary nature of impacts in order to build resilience within community*
Desk top assessment	Additional roosting site for the flying foxes	Not yet initiated	*Whilst assessing suitable nearby vegetation may be beneficial for identifying potential habitat, it can not be guaranteed that flying-fox will take up alternative sites either temporarily or permanently.*
Bush regeneration/ weed control	Proposed bush regeneration works zones	Ongoing	*Any habitat improvement will benefit the flying-foxes however the timing of work zones ought to consider areas occupied by bats especially during breeding and summer months.* *Need to coordinate with Council mapping that shows seasonally occupied roost space.* *Do volunteers know what to do if they see a sick or injured bat?*

Figure 17 Bush restoration works in the understory of the Park

Figure 19 Asset protection zone behind properties in Glebe Close

Figure 18 Vegetation mapped as EEC overhanging behind Glebe Close properties

3 Community engagement

3.1 Stakeholders

There are a range of stakeholders directly or indirectly affected by flying-foxes, or who are interested in management of the camp. Stakeholders include those shown in Table 5.

Table 5 Stakeholders of Kooloonbung Creek camp

Stakeholder group	Stakeholder	Interest/reported impacts
Community	Residents and business owners	The location of the camp within a residential area means there are many residents affected by amenity issues (e.g. noise, smell, faecal drop), including residents of: - Glebe Close - Gordon Street - Hollingworth St - Lake Road - Anita Crescent - Lake Road
	Conservation groups	Friends of Kooloonbung have been undertaking bush regeneration in the Park since 1985
	Indigenous community	Traditional owners have a general interest in flying-foxes, including the ecological services they provide and the potential for sustainable harvesting for food or medicinal purposes.
Industry	Horse owners and managers	Horse owners, equine facility managers and local vets should be aware that Hendra virus risk is associated with foraging flying-foxes (e.g. risk is present across the entire flying-fox range), and appropriate mitigation measures.
	Orchardists and fruit growers	Fruit growers may be impacted by flying-foxes raiding orchards and should have access to wildlife friendly netting information.
	Port Macquarie Airport	Airport managers have a responsibility to reduce the risk of wildlife-aircraft strike. Port Macquarie Airport is located 3.5 km to the west of Kooloonbung camp and should be consulted regarding any management that may influence flying-fox movements or behaviour.
Government	Port Macquarie-Hastings Council	Council is responsible for administering local laws, plans and policies, and appropriately managing assets (including land) for which it is responsible.
	OEH	OEH is responsible for administering state legislation relating to (among other matters) the conservation and management of native plants and animals, including threatened species and ecological communities.
	Commonwealth Department of the Environment and Energy (DoEE)	DoEE is responsible for administering federal legislation relating to matters of national environmental significance, such as the grey-headed flying-fox which roosts at Kooloonbung Creek camp.
	Local Government NSW (LGNSW)	LGNSW is an industry association that represents the interests of councils in NSW. LGNSW also administered funds under the NSW Flying-fox Grants Program.
Non-government organisations	Wildlife carers and conservation organisations	Wildlife carers and conservation organisations have an interest in flying-fox welfare and conservation of flying-foxes and their habitat.
	Researchers/universities/CSIRO	Researchers have an interest in flying-fox behaviour, biology and conservation.

3.2 Engagement methods and results

Extensive effort has been made to engage with the community in the development of this plan. The aim of the engagement was to:

- seek feedback from the community concerning the impact of flying-foxes and advice on potential mitigation options
- understand the impacts, positive and negative, directly and indirectly affecting the community
- share information and seek ideas about possible future management options
- correct misinformation and alleviate fears regarding health risks to people and domestic animals (see Appendix 4 for information about human and animal health)
- raise awareness about the ecological importance of flying-foxes.

During development of the Plan, three methods will be used to engage with the Port Macquarie community; an online survey, community consultation meetings and public exhibition of the draft Plan (Table 6).

Table 6 Community engagement methods

Engagement method	Key dates	Outcomes
Inaugural Committee Meeting	4 September 2018	21 attendees. Minutes of Flying-fox Camp Management Plan 2018 Inaugural Committee Meeting available from Council.
Community consultation meeting #2	14 November 2018	23 attendees provided feedback to Ecosure on their preferred management options for inclusion in the Plan.
Online survey	20-30 November 2018	Online survey results will be included in section 3.2.2
Community consultation meeting #3	12 December 2018	Outcomes of meeting included in section 3.2.1
Public exhibition of draft Plan	5 December 2018 – 11 February	Submissions received by Council on the draft Plan incorporated into the final plan
Community consultation meeting #4	27 February 2018	TBA

3.2.1 Community consultation meeting

Concerns reported by the Port Macquarie-Hastings community include:

- fear of disease transfer to humans and domestic animals
- excessive noise, particularly depriving sleep and contributing to other health issues, and reduced amenity
- odour entering homes and reduced lifestyle amenity
- faecal drop on vehicles and outdoor areas
- damage to vegetation.

Impacts reported by residents are confined to the northern extent of Kooloonbung Creek Nature Park, particularly behind properties on Glebe Close, the Glebe Terraces Villas and Grove Terraces and the northern most end of Lake Road (Figure 20).

Attendees at the consultation meeting on November 14, 2018 provided feedback to Ecosure on which camp management actions (Section 4) to prioritise or disregard. Attendees were also invited to suggest how or where best to implement those actions. Comments in 'Actions to Priortise', Actions to Disregard' and 'How and Where to Implement' have come directly from the consultation committee (Appendix 7). Actions were attributed to a corresponding level of management outlined in Section 4.

Meeting 2 revealed that the committee preferred, or were interested in learning more about, the following management actions:

- education and awareness programs specifically:
  - removal of non-natives
  - information on flying-fox diseases
  - advice on tree trimming
  - banning barbed wire in residential areas
  - promoting wildlife friendly netting.
- property acquisition
- creating alternative habitat or roost site
- subsidies for water and power use
- buffers through tree trimming or removal
- canopy-mounted sprinklers.

Concerns regarding flying-fox disease need to be addressed as part of an educational strategy. One resident at the meeting enquired about bat dander. Dander is an airborne allergen associated with the shedding of fur, hair or feathers (ALA 2017). The two flying-fox diseases; Australian Bat Lyssavirus and Hendra Virus (Appendix 4) cannot be transmitted through air-borne particles. Suspected allergies to flying-fox dander should be treated the same way as reactions to other general allergens such as dust and pollen. It is also possible that allergies perceived to be associated with flying-foxes may be due to coinciding increases in flowering (and pollen) that attracted an increased number of flying-foxes.

Although some committee members indicated that signage had already been installed and was an action that could be disregarded, the current signage only states, 'do not disturb' and does not improve knowledge or awareness of flying-fox ecology or conservation.

Some attendees had concern for removal of vegetation and making sure that the Park's other values such as koala movement was not impeded through actions such as noise attenuation fencing. Endangered ecological communities mapped to the border of some property boundaries exclude the option of tree removal within asset protection zones according the

Council Development Control Plan (Appendix 1).

The committee is in favour of subsidies to assist with the costs associated with water for cleaning and high electricity use from air-conditioners due to not being able to open windows when the camp is emitting odour. A distance-based subsidy program could be created for residents to apply for financial assistance or professional advice regarding building insulation or double-glazed windows.

The third community consultative meeting discussed a dispersal scenario for the camp with reference to other Councils' dispersal results between 1990-2013 (Roberts and Eby 2013). Matters for consideration included financial cost, duration and resources required, likelihood of long-term success and, consequences of moving the camp to unknown or more problematic locations.

In 2013, Roberts and Eby summarised dispersals between 1990 and 2013:

- In all cases, dispersed animals did not abandon the local area.
- In 16 of the 17 cases, dispersals did not reduce the number of flying-foxes in the local area.
- Dispersed animals did not move far (63% of the time within 600m).
- In 85% of cases, new camps established nearby.
- In all cases it was not possible to predict where replacement camps would form.
- Conflict was often not resolved. In 71% of cases conflict still being reported either at the original site or within the local area years after the initial dispersal actions.
- Repeat dispersal was always required except where extensive vegetation removal occurred.

3.2.2 Survey responses

The community was invited to participate in an online survey linked to Council's website. The survey period was open for two weeks and contained 21 questions that comprised:

- flying-fox awareness (7 questions)
- flying-fox interaction (3 questions)
- flying-fox management (8 questions)
- respondent demographic (2 questions)
- open comment (1).

Results from the community survey are provided in Appendix 5.

A total of 43 survey respondents answered all or some of the questions. Some questions were optional while others requested more details depending upon the response, e.g. if a respondent answered 'no' to 'is the protection of flying-foxes important to you as a community member?' they were then prompted to respond to questions about why they had responded

in this way i.e. why they did not consider the protection of flying-foxes important. There were also opportunities for respondents to provide additional information if their points of view were not included in the available options.

3.2.3 Public submissions on draft Plan

The public submission period for the draft Plan is 5 December 2018 – 11 February 2019.

Figure 20: Community impact area

Port Maquarie-Hastings Council

Kooloonbung Creek CMP

Maximum camp extent

Impacted resident 1

Impacted resident 2

Impacted resident 3

Impacted resident 4

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Job number: PR3995
Revision: 0
Author: KF
Date: 27/11/2018

0 25 50 100
Metres

GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

4 Camp management options

Below is an overview of management options commonly used throughout NSW and Australia which were considered in the development of the Plan. These are categorised as Level 1, 2 or 3 in accordance with the Policy.

4.1 Level 1 actions: routine camp management

4.1.1 Education and awareness programs

This management option involves undertaking a comprehensive and targeted flying-fox education and awareness program to provide accurate information to the local community about flying-foxes.

Such a program would include information about managing risk and alleviating concern about health and safety issues associated with flying-foxes, options available to reduce impacts from roosting and foraging flying-foxes, an up-to-date program of works being undertaken at the camp, and information about flying-fox numbers and flying-fox behaviour at the camp.

Residents should also be made aware that faecal drop and noise at night is mainly associated with plants that provide food, independent of camp location. Staged removal of foraging species such as fruit trees and palms from residential yards, or management of fruit (e.g. bagging, pruning) will greatly assist in mitigating this issue.

Collecting and providing information should always be the first response to community concerns in an attempt to alleviate issues without the need to actively manage flying-foxes or their habitat. Where it is determined that management is required, education should similarly be a key component of any approach.

The likelihood of improving community understanding of flying-fox issues is high. However, the extent to which that understanding will help alleviate conflict issues is probably less so. Extensive education for decision-makers, the media and the broader community may be required to overcome negative attitudes towards flying-foxes.

It should be stressed that a long-term solution to the issue resides with better understanding flying-fox ecology and applying that understanding to careful urban planning and development.

An education program may include components shown in Figure 21.

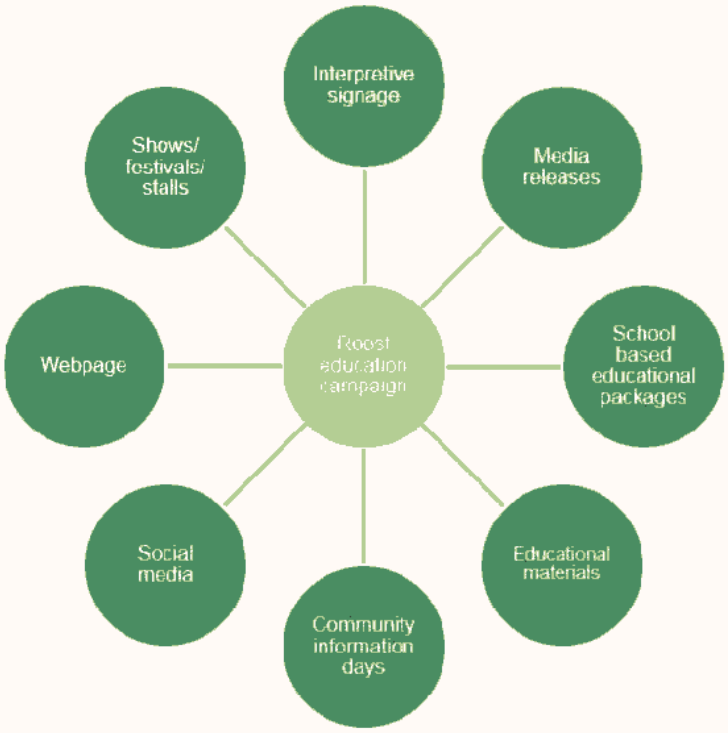

Figure 21 Possible components of an education program

4.1.2 Property modification without subsidies

The managers of land on which a flying-fox camp is located would promote or encourage the adoption of certain actions on properties adjacent to or near the camp to minimise impacts from roosting and foraging flying-foxes:

- Create visual/sound/smell barriers with fencing or hedges. To avoid attracting flying-foxes, species selected for hedging should not produce edible fruit or nectar-exuding flowers, should grow in dense formation between two and five metres (Roberts 2006) (or be maintained at less than 5 metres). Vegetation that produces fragrant flowers can assist in masking camp odour where this is of concern.
- Manage foraging trees (i.e. plants that produce fruit/nectar-exuding flowers) within properties through pruning/covering with bags or wildlife friendly netting, early removal of fruit, or tree replacement.
- Cover vehicles, structures and clothes lines where faecal contamination is an issue, or remove washing from the line before dawn/dusk.
- Move or cover eating areas (e.g. BBQs and tables) within close proximity to a camp or foraging tree to avoid contamination by flying-foxes.

- Install double-glazed windows, insulation and use air-conditioners when needed to reduce noise disturbance and smell associated with a nearby camp.
- Follow horse husbandry and property management guidelines provided at the NSW Department of Primary Industries Hendra virus web page (DPI 2015a).
- Include suitable buffers and other provisions (e.g. covered car parks) in planning of new developments.
- Turn off lighting at night which may assist flying-fox navigation and increase fly-over impacts.
- Consider removable covers for swimming pools and ensure working filter and regular chlorine treatment.
- Appropriately manage rainwater tanks, including installing first-flush systems.
- Avoid disturbing flying-foxes during the day as this will increase camp noise.

The cost would be borne by the person or organisation who modifies the property; however, opportunities for funding assistance (e.g. environment grants) may be available for management activities that reduce the need to actively manage a camp.

4.1.3 Property modification subsidies

Fully funding or providing subsidies to property owners for property modifications may be considered to manage the impacts of the flying-foxes. Providing subsidies to install infrastructure may improve the value of the property, which may also offset concerns regarding perceived or actual property value or rental return losses.

The level and type of subsidy would need to be agreed to by the entity responsible for managing the flying-fox camp.

4.1.4 Service subsidies

This management option involves providing property owners with a subsidy to help manage impacts on the property and lifestyle of residents. The types of services that could be subsidised include clothes washing, cleaning outside areas and property, car washing or power bills. Rate reductions could also be considered.

Critical thresholds of flying-fox numbers at a camp and distance to a camp may be used to determine when subsidies would apply.

4.1.5 Routine camp maintenance and operational activities

Examples of routine camp management actions (permissible subject to animal welfare measures listed in Appendix 6) are provided in the Policy. These include:

- removal of tree limbs or whole trees that pose a genuine health and safety risk, as determined by a qualified arborist

- weed removal, including removal of noxious weeds under the *Noxious Weeds Act 1993*, or species listed as undesirable by a council
- trimming of understorey vegetation
- the planting of vegetation
- minor habitat augmentation for the benefit of the roosting animals
- mowing of grass and similar grounds-keeping actions that will not create a major disturbance to roosting flying-foxes
- application of mulch or
- removal of leaf litter or other material on the ground.

Protocols should be developed for carrying out operations that may disturb flying-foxes, which can result in excess camp noise. Such protocols could include limiting the use of disturbing activities to certain days or certain times of day in the areas adjacent to the camp and advising adjacent residents of activity days. Such activities could include lawn-mowing, using chainsaws, whipper-snippers, using generators and testing alarms or sirens.

4.1.6 Revegetation and land management to create alternative habitat

This management option involves revegetating and managing land to create alternative flying-fox roosting habitat through improving and extending existing low-conflict camps or developing new roosting habitat in areas away from human settlement.

Selecting new sites and attempting to attract flying-foxes to them has had limited success in the past, and ideally habitat at known camp sites would be dedicated as a flying-fox reserve. However, if a staged and long-term approach is used to make unsuitable current camps less attractive, whilst concurrently improving appropriate sites, it is a viable option (particularly for the transient and less selective LRFF). Supporting further research into flying-fox camp preferences may improve the potential to create new flying-fox habitat.

When improving a site for a designated flying-fox camp, preferred habitat characteristics detailed in Appendix 3 Alternative camp site investigation report Section 1.3 Roosting preferences should be considered.

Foraging trees planted amongst and surrounding roost trees (excluding in/near horse paddocks) may help to attract flying-foxes to a desired site. They will also assist with reducing foraging impacts in residential areas. Consideration should be given to tree species that will provide year-round food, increasing the attractiveness of the designated site. Depending on the site, the potential negative impacts to a natural area will need to be considered if introducing non-indigenous plant species.

The presence of a water source is likely to increase the attractiveness of an alternative camp location. Supply of an artificial water source should be considered if unavailable naturally, however this may be cost-prohibitive.

Potential habitat mapping using camp preferences and suitable land tenure can assist in initial

alternative site selection. A feasibility study would then be required prior to site designation to assess likelihood of success and determine the warranted level of resource allocated to habitat improvement.

4.1.7 Provision of artificial roosting habitat

This management option involves constructing artificial structures to augment roosting habitat in current camp sites or to provide new roosting habitat. Trials using suspended ropes have been of limited success as flying-foxes only used the structures that were very close to the available natural roosting habitat. It is thought that the structure of the vegetation below and around the ropes is important.

4.1.8 Protocols to manage incidents

This management option involves implementing protocols for managing incidents or situations specific to particular camps. Such protocols may include monitoring at sites within the vicinity of aged care or child care facilities, management of compatible uses such as dog walking or sites susceptible to heat stress incidents (when the camp is subjected to extremely high temperatures leading to flying-foxes changing their behaviour and/or dying).

4.1.9 Participation in research

This management option involves participating in research to improve knowledge of flying-fox ecology to address the large gaps in our knowledge about flying-fox habits and behaviours and why they choose certain sites for roosting. Further research and knowledge sharing at local, regional and national levels will enhance our understanding and management of flying-fox camps.

4.1.10 Appropriate land-use planning

Land-use planning instruments may be able to be used to ensure adequate distances are maintained between future residential developments and existing or historical flying-fox camps. While this management option will not assist in the resolution of existing land-use conflict, it may prevent issues for future residents.

4.1.11 Property acquisition

Property acquisition may be considered if negative impacts cannot be sufficiently mitigated using other measures. This option will clearly be extremely expensive, however is likely to be more effective than dispersal and in the long-term may be less costly.

4.1.12 Do nothing

The management option to ‘do nothing’ involves not undertaking any management actions in relation to the flying-fox camp and leaving the situation and site in its current state.

4.2 Level 2 actions: in-situ management

4.2.1 Buffers

Buffers can be created through vegetation removal and/or the installation of permanent/semi-permanent deterrents.

Creating buffers may involve planting low-growing or spiky plants between residents or other conflict areas and the flying-fox camp. Such plantings can create a visual buffer between the camp and residences or make areas of the camp inaccessible to humans.

The Kooloonbung Creek camp exists in relatively narrow strips of vegetation around a treeless wetland and therefore it is necessary to devise a suitable buffer distance that provides relief for residents and avoids forcing flying-foxes into backyards or splintering the camp to other problematic locations, and maintains the ecological and amenity values of the vegetation. This requires consideration of the approximate total area of the camp, the area that would need to be modified/removed to create a suitable buffer, and whether there is an equivalent replacement area available in an appropriate location for the displaced flying-foxes.

Previous studies have recommended that vegetation buffers consisting of habitat not used by flying-foxes, should be 300 m or as wide as the site allows to mitigate amenity impacts for a community (SEQ Catchments 2012). Buffers need to take into consideration the variability of use of a camp site by flying-foxes within and across years, including large, seasonal influxes of flying-foxes. The usefulness of a buffer declines if the flying-fox camp is within 50 m of human habitation (section 4.2.1).

Buffers through vegetation removal

Vegetation removal aims to alter the area of the buffer habitat sufficiently so that it is no longer suitable as a camp. The amount required to be removed varies between sites and camps, ranging from some weed removal to removal of most of the canopy vegetation.

Any vegetation removal should be done using a staged approach, with the aim of removing as little native vegetation as possible. This is of particular importance at sites with other values (e.g. ecological or amenity), and in some instances the removal of any native vegetation will not be appropriate. Thorough site assessment will inform whether vegetation management is suitable (e.g. can impacts to other wildlife and/or the community be avoided?).

Removing vegetation can also increase visibility into the camp and noise issues for neighbouring residents which may create further conflict.

Suitable experts should be consulted to assist selective vegetation trimming/removal to minimise vegetation loss and associated impacts.

The importance of under- and mid-storey vegetation in the buffer area for flying-foxes during heat stress events also requires consideration.

Buffers without vegetation removal

Permanent or semi-permanent deterrents can be used to make buffer areas unattractive to flying-foxes for roosting, without the need for vegetation removal. This is often an attractive option where vegetation has high ecological or amenity value.

While many deterrents have been trialled in the past with limited success, there are some options worthy of further investigation:

Visual deterrents – Visual deterrents such as plastic bags, fluoro vests (GeoLINK 2012) and balloons (Ecosure, pers. comm.) in roost trees have shown to have localised effects, with flying-foxes deterred from roosting within 1–10 metres of the deterrents. The type and placement of visual deterrents would need to be varied regularly to avoid habituation. Potential for litter pollution should be considered and managed when selecting the type and placement of visual deterrents. In the absence of effective maintenance, this option could potentially lead to an increase in rubbish in the natural environment.

- Noise emitters on timers – Noise needs to be random, varied and unexpected to avoid flying-foxes habituating. As such these emitters would need to be portable, on varying timers and a diverse array of noises would be required. It is likely to require some level of additional disturbance to maintain its effectiveness, and ways to avoid disturbing flying-foxes from desirable areas would need to be identified. This is also likely to be disruptive to nearby residents.
- Smell deterrents – For example, bagged python excrement hung in trees has previously had a localised effect (GeoLINK 2012). The smell of certain deterrents may also impact nearby residents, and there is potential for flying-foxes to habituate.
- Canopy-mounted water sprinklers – This method has been effective in deterring flying-foxes during dispersals (Ecosure personal experience), and current trials in Queensland are showing promise for keeping flying-foxes out of designated buffer zones. This option can be logistically difficult (installation and water sourcing) and may be cost-prohibitive. Design and use of sprinklers need to be considerate of animal welfare and features of the site. For example, misting may increase humidity and exacerbate heat stress events, and overuse may impact other environmental values of the site.

Note that any deterrent with a high risk of causing inadvertent dispersal may be considered a Level 3 action.

4.2.2 Noise attenuation fencing

Noise attenuation fencing could be installed in areas where the camp is particularly close to residents. This may also assist with odour reduction, and perspex fencing could be investigated to assist fence amenity. Although expensive to install, this option could negate the need for habitat modification, maintaining the ecological values of the site, and may be more cost-effective than ongoing management.

4.3 Level 3 actions: disturbance or dispersal

4.3.1 Nudging

Noise and other low intensity active disturbance restricted to certain areas of the camp can be used to encourage flying-foxes away from high conflict areas. This technique aims to actively 'nudge' flying-foxes from one area to another, while allowing them to remain at the camp site.

Unless the area of the camp is very large, nudging should not be done early in the morning as this may lead to inadvertent dispersal of flying-foxes from the entire camp site. Disturbance during the day should be limited in frequency and duration (e.g. up to four times per day for up to 10 minutes each) to avoid welfare impacts. As with dispersal, it is also critical to avoid periods when dependent young are present (as identified by a flying-fox expert).

4.3.2 Dispersal

Dispersal aims to encourage a camp to move to another location, through either disturbance or habitat modification.

There is a range of potential risks, costs and legal implications that are greatly increased with dispersal (compared with in-situ management as above). See Appendix 6 for more details. These include:

- impact on animal welfare and flying-fox conservation
- splintering the camp into other locations that are equally or more problematic
- shifting the issue to another area
- impact on habitat value
- effects on the flying-fox population, including disease status and associated public health risk
- impacts to nearby residents associated with ongoing dispersal attempts
- excessive initial and/or ongoing capacity and financial investment
- negative public perception and backlash
- increased aircraft strike risk associated with changed flying-fox movement patterns
- unsuccessful management requiring multiple attempts, which may exacerbate all of the above.

Despite these risks, there are some situations where camp dispersal may be considered. Dispersal can broadly be categorised as 'passive' or 'active' as detailed below.

Passive dispersal

Removing vegetation in a staged manner can be used to passively disperse a camp, by gradually making the habitat unattractive so that flying-foxes will disperse of their own accord over time with little stress (rather than being more forcefully moved with noise, smoke, etc.).

This is less stressful to flying-foxes, and greatly reduces the risk of splinter colonies forming in other locations (as flying-foxes are more likely to move to other known sites within their camp network when not being forced to move immediately, as in active dispersal).

Generally, a significant proportion of vegetation needs to be removed in order to achieve dispersal of flying-foxes from a camp or to prevent camp re-establishment. For example, flying-foxes abandoned a camp in Bundall, Queensland once 70% of the canopy/mid-storey and 90% of the understorey had been removed (Ecosure 2011). Ongoing maintenance of the site is required to prevent vegetation structure returning to levels favourable for colonisation by flying-foxes. Importantly, at nationally important camps (Appendix 1) sufficient vegetation must be retained to accommodate the maximum number of flying-foxes recorded at the site.

This option may be preferable in situations where the vegetation is of relatively low ecological and amenity value, and alternative known permanent camps are located nearby with capacity to absorb the additional flying-foxes. While the likelihood of splinter colonies forming is lower than with active dispersal, if they do form following vegetation modification there will no longer be an option to encourage flying-foxes back to the original site. This must be carefully considered before modifying habitat.

There is also potential to make a camp site unattractive by removing access to water sources. However, at the time of writing this method had not been trialled so the likelihood of this causing a camp to be abandoned is unknown. It would also likely only be effective where there are no alternative water sources in the vicinity of the camp.

Active dispersal through disturbance

Dispersal is more effective when a wide range of tools are used on a randomised schedule with animals less likely to habituate (Ecosure pers. obs. 1997–2015). Each dispersal team member should have at least one visual and one aural tool that can be used at different locations on different days (and preferably swapped regularly for alternate tools). Exact location of these and positioning of personnel will need to be determined on a daily basis in response to flying-fox movement and behaviour, as well as prevailing weather conditions (e.g. wind direction for smoke drums).

Active dispersal will be disruptive for nearby residents given the timing and nature of activities, and this needs to be considered during planning and community consultation.

This method does not explicitly use habitat modification as a means to disperse the camp, however if dispersal is successful, some level of habitat modification should be considered. This will reduce the likelihood of flying-foxes attempting to re-establish the camp and the need for follow-up dispersal as a result. Ecological and aesthetic values will need to be considered for the site, with options for modifying habitat the same as those detailed for buffers above.

Early dispersal before a camp is established at a new location

This management option involves monitoring local vegetation for signs of flying-foxes roosting in the daylight hours and then undertaking active or passive dispersal options to discourage the animals from establishing a new camp. Even though there may only be a few animals

initially using the site, this option is still treated as a dispersal activity, however it may be simpler to achieve dispersal at these new sites than it would in an established camp. It may also avoid considerable issues and management effort required should the camp be allowed to establish in an inappropriate location.

It is important that flying-foxes feeding overnight in vegetation are not mistaken for animals establishing a camp.

Maintenance dispersal

Maintenance dispersal refers to active disturbance following a successful dispersal to prevent the camp from re-establishing. It differs from initial dispersal by aiming to discourage occasional over-flying individuals from returning, rather than attempting to actively disperse animals that have been recently roosting at the site. As such, maintenance dispersal may have fewer timing restrictions than initial dispersal, provided that appropriate mitigation measures are in place.

4.4 Unlawful activities

4.4.1 Culling

Culling is addressed here as it is often raised by community members as a preferred management method; however, culling is contrary to the object of the *Biodiversity Conservation Act* and will not be permitted as a method to manage flying-fox camps.

Culling was used in the early 1800's and into the 1920s.

4.5 Camp management options analysis

Table 7 provides an analysis of the camp management options described in Section 4 and their suitability for implementation at Kooloonbung Creek Camp. An appraisal is provided for the options to be either adopted, investigated further or disregarded within this plan.

Table 7 Camp management options analysis

Management options	Relevant impacts	Cost $-$$$ Low-high	Advantages	Disadvantages	Suitability for site
Level 1 options					
Education and awareness programs	Fear of disease Noise Smell Faecal drop	$	Low cost, increasing awareness will help the community coexist with flying-foxes, providing options for landholders to reduce impacts is an effective long-term solution and can be undertaken quickly.	Education and advice itself will not mitigate all issues, and on its own would not be acceptable to the community.	Early consultation indicates the community is in favour of a range of educational tools and methods. There appears to be some fears and concerns regarding disease risk that needs addressing. Ongoing education is a good way to manage expectations around achievable flying-fox management actions Appraisal: Adopt
Property modification / service subsidies	Noise Smell Faecal drop Health/wellbeing Property devaluation Lost rental return	$–$$	Property modification is one of the most effective ways to reduce amenity impacts of a camp without dispersal, relatively low cost, promotes conservation of FFs, can be undertaken quickly, will not impact on the site and may add value to the property. Property modification, such as glazing windows or installing insulation, will greatly assist with noise impacts inside residences and businesses. Installing shade sails, a car port or covering other affected areas will reduce the impacts of faecal drop.	May be cost-prohibitive for private landholders, however subsidies would assist.	Property modification can assist in reducing all amenity concerns, although may be cost prohibitive for residents – subsidies would assist. Appraisal: Adopt distance-based subsidies program.

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Management options	Relevant impacts	Cost $-$$$ Low-high	Advantages	Disadvantages	Suitability for site
			Council could provide car covers, clothesline covers, free hire of pressure cleaners or consider rate reductions to assist with faecal drop impacts.		
Odour reducing / masking plants	Noise Smell Health/wellbeing Property devaluation	$	Planting dense screens and fragrant plants to assist with odour and noise. Provide for the trimming of vegetation to maintain a low growing form. Tall trees to be assessed and modified only by a suitably qualified arborist.	May take time for plants to provide the desired effect. May not work effectively for residents located immediately next to the camp but would assist for residents living in the vicinity of the reserve	Residents could be encouraged to modify properties by planting dense screens and fragrant plants. If paired in conjunction with cleared buffers, could replace gaps with low shrubs to mitigate visual or odour impacts from camp. Appraisal: Adopt
Routine camp management	Health/well-being	$	Weed removal has the potential to reduce roost availability and reduce numbers of roosting FFs.	Will not generally mitigate amenity impacts for nearby landholders.	Friends of Kooloonbung and Council regularly undertake bush regeneration and maintenance in the Park Appraisal: Adopt (ongoing)
Alternative habitat creation	Noise Smell Faecal drop Health/wellbeing Property devaluation Lost rental return	$$-$$$	If successful in attracting FFs away from high conflict areas, dedicated habitat in low conflict areas will mitigate all impacts and helps FF conservation. Rehabilitation of degraded habitat that is likely to be suitable for FF use could be a more practical and faster approach than habitat creation. Improving potential alternative camp habitat should be part of a medium-long term plan.	Generally costly, long-term approach so cannot be undertaken quickly, previous attempts to attract FFs to a new site have not been known to succeed.	Undertake a desktop investigation into nearby suitable flying-fox habitat and potential alternative camp sites. A risk assessment of the alternative sites against the current site would help in determining feasibility of moving the camp. Appraisal: Adopt

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Management options	Relevant impacts	Cost $-$$$ Low-high	Advantages	Disadvantages	Suitability for site
Provision of artificial roosting habitat	Noise Smell Faecal drop Health/wellbeing Property devaluation Lost rental return	$-$$	Artificial roosting habitat could be considered to supplement the narrow available roosting space between the wetland and residential properties	No guarantee that flying-foxes would use artificial habitat, but collaborating with a researcher on varying design options would increase the likelihood of success.	Not enough evidence to explore this as a viable option to support habitat restoration. Appraisal: Disregard
Protocols to manage incidents	Health/wellbeing Fear of disease	$	Low cost, will reduce actual risk of negative human/pet–FF interactions, promotes conservation of FFs, can be undertaken quickly.	Will not mitigate amenity impacts, but will reduce fear of disease.	Previous management actions (Table 4) recommended annual check on recorded Lyssavirus. Hendra Virus, Menangle Virus and Leptospirosis infections. Need to develop understanding of records or incidents and whether protocols are needed to reduce exposure to risk such as for staff, subcontractors or volunteers working in the Park. Appraisal: Investigate further
Research	Noise Smell Faecal drop Health/wellbeing Property devaluation Lost rental return	$	Support research that improve understanding and more effectively mitigates impacts. Develop understanding of native flowering event in area.	Generally cannot be undertaken quickly, management trials may require cost input.	Not considered an urgent action at this site. Council will endeavour to stay up to date with contemporary research as it arises. Appraisal: Investigate further

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Management options	Relevant impacts	Cost $-$$$ Low-high	Advantages	Disadvantages	Suitability for site
Appropriate land-use planning	Noise Smell Faecal drop Health/wellbeing Property devaluation Lost rental return	$	Suitable planning for future development will reduce potential for future conflict. Identification of degraded sites that may be suitable for long-term rehabilitation for FFs could reduce impacts.	Will not generally mitigate current impacts.	Council may consider including additional management buffer zones within their codes in future planning scheme updates where properly documented and justified. Appraisal: Investigate further
Property acquisition	All for specific property owners Nil for broader community	$$$	Option to lease properties back to community	Extremely expensive	Some consultation committee members wanted this option considered. Appraisal: Investigate further
Do nothing	Nil	Nil	No resource expenditure.	Will not mitigate impacts and would not be considered acceptable by impacted members of the community.	Not appropriate. Appraisal: Disregard
Level 2 options					
Buffers through vegetation removal	Noise Smell Health/wellbeing	$–$$	Any vegetation removal should be done using a staged approach, with the aim of removing as little native vegetation as possible and only in vegetation directly affecting residents subject to a Vegetation Management Plan. Asset protection zones provide a buffering function in other areas of the Kooloonbung Creek where residents have not indicated high levels of impact.	Removing vegetation can also increase visibility into the camp and noise issues for neighbouring residents which may create further conflict. No certainty that removal of vegetation will improve condition for impacted residents. Vegetation removed too quickly could cause inadvertent dispersal.	TEC vegetation in KCNP also is protected by coastal SEPP. Biodiversity Values mapped will require a Biodiversity Development Assessment Report in accordance with a Biodiversity Assessment Method. Further assessment and offsetting of this vegetation may not bring the intended mitigation and should be investigated further. Appraisal: Investigate further
Buffers without vegetation removal – canopy-mounted	Noise Smell Health/wellbeing	$$	Canopy-mounted water sprinklers – This method has been effective in deterring flying-foxes from designated buffer zones in Queensland (Ecosure pers. comm.).	This option can be logistically difficult regarding installation and water sourcing. Could alter design using flagpole structures. Would	Some residents were in favour of this technique. TS licence require on private property or assessed under Part 5 EP&A Act on public land

Management options	Relevant impacts	Cost $-$$$ Low-high	Advantages	Disadvantages	Suitability for site
sprinklers	Damage to vegetation or habitat			require guidelines regarding frequency and duration of use to mitigate exacerbating HSE effects.	Appraisal: Investigate further for boundary between Lot 26/DP249270 and 3/SP70635 and 3/SP73183
Noise attenuation fencing	Noise Smell Health/wellbeing Property devaluation Lost rental return/income	$$	Standard noise attenuation fencing is intended to alleviate amenity issues for residents. Advice from an acoustic consultant may provide site-specific alternatives (see Section 9).	Noise attenuation fencing is costly and can be considered unsightly for property fencing. Concerns regarding permeability of the landscape for animal movement particularly koalas. Area is also subject to some flooding	The committee did not show preference for this method. Appraisal: Disregard
Level 3 options					
Nudging	All	$$–$$$	Can encourage flying-foxes to shift away from high conflict areas next to residential areas.	May lead to inadvertent dispersal if not done at the correct time, frequency or duration.	Level 2 management actions that have been proposed will serve to nudge flying-foxes away from high impact areas. Active nudging will only be considered if Level 2 actions are deemed to have been unsuccessful for the community. Appraisal: Investigate further
Active dispersal	All at that site but not generally appropriate for amenity impacts only	$$$	If successful can mitigate all impacts at that site.	Dispersal is rarely successful without significant vegetation removal (not appropriate at this location) or ongoing effort and excessive expenditure (e.g. several years and $1M for Sydney Botanic Gardens). Flying-foxes will almost always continue to roost in the area (generally within 600m), and often splinter into several locations nearby (including many remaining at the original site) (e.g. a single camp	This option is not considered appropriate at this site. Appraisal: Disregard

Management options	Relevant impacts	Cost $-$$$ Low-high	Advantages	Disadvantages	Suitability for site
				permanently splintered to numerous sites as a result of dispersal in Maclean, including remaining at the original site).	

If flying-foxes are being unlawfully and intentionally disturbed, this should be reported to NSW Office of Environment and Heritage's Environment Line by calling 131 555. Native animals are protected under the BC Act 2016 and EPBC Act and there are penalties for people found guilty of an offence. Offences are dealt with before the Local Court or before the Land and Environment Court. The RSPCA (NSW) is legally able to prosecute infringements that directly contradict the *Prevention to Cruelty Act 1979*.

5 Planned management approach

Council will take a risk-based approach to management based on:

- potential health, safety, wellbeing and economic implications for the community
- likelihood of management success
- potential flying-fox welfare and conservation impacts
- cost of management, and who would contribute to these costs
- risk of splintering the camp to other locations that are equally or more problematic.

Management options provided herein are intended primarily to provide relief for residents living in close proximity to the camp. Management options have been staged to prevent exacerbating issues associated with the camp whilst ensuring the welfare of flying-foxes.

Management options for adoption or further investigation are outlined in Actions in Table 8 contingent on securing funds and staff resourcing levels. Funds for actions will be sourced via grants and Council commitments.

Table 8 along with proposed timing: short-term (within 12 months), medium-term (within 2 years) or long-term (within 3-5 years). Note also that all management, and routine maintenance, must be done in accordance with mitigation measures detailed in Appendix 6.

The proposed management approach considers feedback received during community engagement, with the community indicating a preference for those below.

N.B. All management must be consistent with legislation detailed in Appendix 1, and any other applicable legislation.

5.1 Level 1 management

Level 1 management actions include:

- education and awareness programs specifically:
  - options for property modification such as removal of non-native foraging vegetation
  - information on flying-fox diseases
  - wearing a hat when walking through the park to reduce contact with faecal drop
  - advice on tree trimming or odour masking plants on private properties
  - banning barbed wire in residential areas
  - promoting wildlife friendly netting.
- property acquisition
- creating alternative habitat or camp site

- subsidies for water and power use.

Misconceptions that flying-foxes are not threatened, are pests and about health risks can be reduced by adopting an education and awareness program to reduce misconceptions and appease fears. Residents are in favour of upgrading of the boardwalk to improve their enjoyment of and ability to use the park safely. This work will be undertaken as a separate item to this Plan.

A distance based subsidy program will be investigated to assist with cost associated cleaning and using air-conditioning. For instance, power rebates for residents living within 50m (Figure 22) and then within 100m. The community survey indicated a preference for driveway and roof cleaning.

Finding an alternative camp site for the flying-foxes to inhabit could be beneficial to residents living around Kooloongbung Creek. A desktop investigation of alternative flying-fox camp sites will be undertaken by Council along with a comparable risk assessment of alternative sites against Kooloonbung camp.

5.2 Level 2 management

Level 2 management actions include:

- buffers through tree trimming or removal
- canopy-mounted sprinklers.

Level 2 buffers may consist of a combination of vegetation removal and sprinklers where tree removal is not preferred or constrained by the presence of EECs (Figure 22). **Level 2 actions require OEH authorisation prior to commencing (Appendix 1). Additional approvals may also be required under other legislation (Appendix 1).** An arborist should be engaged to investigate which trees are suitable for trimming or removal in line with the aforementioned provisions.

The Code of Practice Authorising Flying-fox Camp Management Actions 2018 under the Biodiversity Conservation Regulation does not exempt Council from meeting its responsibilities under the *Biodiversity Conservation Act 2016* and *Environmental Planning and Assessment Act 1979*.

Due to the presence of EECs behind the villas in Lake Road, the installation of canopy-mounted sprinklers in this area may trigger the need for a threatened species 'test of significance' under the *Biodiversity Conservation Act 2016*. Alternative or innovative designs for the sprinkler installation may include using poles instead of attaching to sprinklers to trees, and locating the poles on the border of Council and private property to avoid impacts to the EEC.

5.2.1 Canopy-mounted sprinklers

Canopy sprinklers have been used successfully elsewhere to deter flying-foxes from areas of

conflict. It is not the intention to disperse flying-foxes away from the camp, but maintain a buffer between residents and the flying-fox camp.

Canopy sprinklers have been effectively used at several camps in south-east Queensland, with adjacent residents given the option to activate sprinklers for short periods during the day if flying-foxes enter the buffer zone. By limiting flying-foxes in the buffer zones (the high conflict areas), there was also less disturbance of the camp, which provided the secondary benefit of reduced noise, smell, daytime fly-overs and faecal drop. Residents report a sense of regained control, which combined with the increased distance to roosting flying-foxes achieved with the sprinklers, has greatly assisted in reducing conflict with the camp. It is recommended residents near the Kooloonbung Creek camp should be able to activate sprinklers when necessary (with consideration to guidelines below).

Provided that adequate water pressure can be achieved (with a pump station), each sprinkler should have approximately a 13-15 m reach (radius). Figure 22 shows approximate locations where four sprinklers are planned for installation as soon as practicable to minimise current conflict.

Note that consultation is still required with irrigation/sprinkler specialists to confirm feasibility at this site, however based on previous Ecosure experience this option should be achievable.

Installation costs for similar programs elsewhere, including all infrastructure and eight sprinklers, were approximately $30,000. The majority of this cost is in infrastructure (pump shed, control board, plumbing, etc.) with individual sprinklers costing less than $1,000. As such the installation of four sprinklers, and associated infrastructure (pump, control board, etc.) will cost an estimated $20,000 (plus maintenance and operation costs, including ~100 L water/week/sprinkler).

5.2.1.1 Installation and operational considerations

Placement - Exact placement will be dependent on finding suitable location to install poles These will be designed to withstand high wind and vegetation debris fall, and will be highly visible to flying-foxes to avoid collisions.

Water pressure – Water pressure must be firm so it is sufficient to deter flying-foxes, however must not risk injuring flying-foxes (or other fauna) or knocking an animal from the tree. Water misting should be minimised as this is unlikely to deter flying-foxes.

Noise – Sprinklers should release a jet of air prior to water, as an additional deterrent and to cue animals to move prior to water being released. The intention of the sprinklers is to make the buffer unattractive, and effectively 'train' individuals to stay out of the buffer area.

Potential for additional sprinklers – Infrastructure should accommodate additional sprinklers if possible should they be required in the future.

Residents involved in a similar approved trial elsewhere also reported noise impacts associated with the water hammer.

Access for maintenance/adjustments – Sprinklers should be designed and attached in a way that allows the easiest possible access for future maintenance, replacement and sprinkler head adjustments.

Sprinkler control – The system control station should allow independent programming of each individual sprinkler. The number of times per day each sprinkler is activated, duration of each activation and sequence of sprinkler activation needs to be fully adjustable (minutes and seconds programming required). The operational time of day also needs to be adjustable. Ideally water pressure to individual sprinklers could also be adjusted.

Sprinklers will operate on a random schedule, and in a staggered manner (i.e. not all sprinklers operating at the same time, to avoid excessive disturbance). Each activation will be for approximately 20 seconds per sprinkler. It is anticipated each sprinkler will be activated up to four times per hour between 0600 and 1700, totalling approximately 15 minutes run time per sprinkler per day. Sprinklers will not operate during fly-in or fly-out periods to avoid inadvertent dispersal.

Sprinkler settings will need to be changed regularly to avoid flying-foxes habituating, and to account for seasonal changes (e.g. not in the heat of the day during summer when they may be an attractant). Individual sprinklers may also need to be temporarily turned off depending on location of creching young, or if it appears likely that animals will be displaced to undesirable locations.

Flying-fox heat stroke generally occurs when the temperature reaches 42°C, however can occur at lower temperatures in more humid conditions (Bishop 2015). Given that humidity is most likely to be increased with water mist, if sprinkler design cannot limit mist, sprinklers may need to be turned off in higher temperatures (e.g. >30°C) to avoid exacerbating heat stress.

5.3 Level 3 management

Some people have an expectation that flying-foxes can be moved or controlled. Level 3 dispersal actions are extremely expensive, resource intense and very rarely successful in the long term due to flying-foxes returning year after year. Dispersal should only be considered once Level 1 and Level 2 management methods have been implemented and impacts have not been mitigated. OEH approval would be required.

Actions in Table 8 contingent on securing funds and staff resourcing levels. Funds for actions will be sourced via grants and Council commitments.

Table 8 Staged approach to management at Kooloonbung Creek flying-fox camp. Note all actions must be done in accordance with measures in Appendix 6. **Authorisation for Level 2 and 3 actions is required**, and additional approvals may be required under other legislation (see Appendix 1).

Management option	Management level	Appraisal	Action(s)	Timing	Estimated cost
Education and awareness programs	Level 1	Adopt	Increase community understanding and improve perceptions of flying-foxes. · mail out flyers; disease risk; removal of non-natives in gardens (i.e. Cocos palms), removal of barbed wire fencing, using wildlife friendly netting · produce webpage on Council's website summarising Council's approach to flying-fox management (or refer to sites such as http://littleaussiebat.com.au/health/) · design and install signage promoting flying-fox ecology and conservation · train staff on positive flying-fox messaging Continue to consult with affected community members.	Short term (within 12 months)	$4,000 $2,000 $10,000 $2,000 **$18,000**
Property modification / service subsidies	Level 1	Adopt	Investigate a subsidy program to assist with property modification for PMHC residents. The subsidy program will identify an eligibility matrix for subsidies based on the following parametres · location of flying-fox camp · proximity to residential areas · level of likely impacts from noise, odour, visibility Rebates/subsidies will be offered for · water or electricity bills · double glazed windows · cleaning services · car covers	Short term (within 12 months)	$20,000 $5,000 **$25,000**
Routine camp management	Level 1	Adopt (ongoing)	Friends of Kooloonbung have been undertaking bush regeneration in the Park since 1985.	(ongoing)	Friends of Kooloonbung in kind
Alternative habitat creation	Level 1	Adopt	Stage 1 - Undertake an investigation of nearby alternative flying-fox camp sites to determine feasibility of identified sites. This will include a risk	Short term	**$10,000** (assumes up to three sites, additional

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Management option	Management level	Appraisal	Action(s)	Timing	Estimated cost
			assessment to determine sensitive receptor areas, zoning conflicts and potential current and future use conflicts, assessment of current vegetation condition to determine what resource investment would be required to improve the sites suitability. Stage 2 – Select feasible sites for investment. Write plan of management / rehabilitation plans for selected sites. Stage 3 – Implementation of plans of management.	(within 12 months)	$5,000 per additional site)
Canopy-mounted sprinklers	Level 2	Investigate further	Liaise with landholders and an irrigation specialist regarding feasibility and costs associated with installing canopy-mounted sprinklers in the buffer zone between Lot 26/DP249270 and 3/SP70635 and 3/SP73183 Design and frequency/ duration of use must also be considerate of animal welfare and other ecological values of the site. **Level 2 action and so licence from OEH required prior to installing.** **Action may trigger a test of significance.**	Medium term (within 2-3 years)	~ **$10,000** for each sprinkler including installation.
Buffers through vegetation trimming and removal	Level 2	Investigate further	Improve buffers for residents in high impact areas in Lots 3/SP70635 and 3/SP73183. An arborist should be engaged to investigate which trees are suitable for trimming or removal in line with Council's Planning Provisions. **Level 2 action and authorisation from OEH required prior to commencing.**	Long term (4-5 years after sprinklers deemed ineffective)	$50,000 Estimate based on previous vegetation works
Protocols to manage incidents	Level 1	Investigate further	Previous management actions (Table 4) recommended annual check on recorded Lyssavirus. Hendra Virus, Menangle Virus and Leptospirosis infections. Develop understanding of records or incidents and whether protocols are needed to reduce exposure to risk such as for staff, subcontractors or volunteers working in the Park. Gather data during heat stress events and provide to researchers via https://www.animalecologylab.org/heat-stress-data-form.html	Short term (1-2 years)	Council in kind
Research	Level 1	Investigate further	Support research through continued flying-fox census data collection. Develop understanding of native flowering events in area.	Long term (ongoing)	Council in kind
Appropriate land-use planning	Level 1	Investigate further	Identification of zoning for FFs to mitigate impacts to residents.	Long term (within 3 years)	Council in kind

Management option	Management level	Appraisal	Action(s)	Timing	Estimated cost
			Measures to avoid future impacts will be considered when assessing development applications. Flying-fox camp proximity to be included on the section 149 certificate		

Figure 22: Community impact area and proposed management options

Port Maquarie-Hastings Council

Kooloonbung Creek CMP

Sprinkler

Maximum camp extent

Impact area 1

Impact area 2

Impact area 3

Impact area 4

Optional tree thinning/removal - 10 m

Subsidy area

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Job number: PR3995
Revision: 1
Author: KF
Date: 4/01/2019

0 25 50 100
Metres

GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

6 Evaluation and review

This Plan will be in operation for five years (2019-2023) with annual review of management actions set out in Section 5.

The following will trigger a reactive internal review of the Plan:

- completion of a management activity
- progression to a higher level of management
- changes to relevant policy/legislation
- new management techniques becoming available
- outcomes of research that may influence the Plan
- incidents associated with the camp.

Monitoring and reporting requirements are detailed in Section 7.

If the Plan is to remain current, a full review including stakeholder consultation and expert input will be undertaken in the final year of the Plan prior to being re-submitted to OEH.

7 Plan administration

7.1 Monitoring of the camp

Reports for Level 1 actions that comply with this Plan are not required to be submitted to OEH. It is recommended that Council keep internal records to allow the effectiveness of each management action to be evaluated.

Reports for Level 2 actions will be submitted to OEH one month after commencement of works and then quarterly in periods where works have occurred. Each report is to include:

- results of pre- and post-work population monitoring
- any information on new camps that have formed in the area
- further management actions planned to include a schedule of works
- an assessment of how the community responded to the works, including details on the number and nature of complaints before and after the works
- detail on any compensatory planting
- expenditure and contributors
- outcomes from evaluation and review (Section 6).

7.2 Responsibilities

Council is responsible for implementation of the Plan once it has been endorsed by OEH, licences have been obtained for Level 2 actions and resources have been allocated for implementation. Council will seek advice from OEH and other flying-fox experts as required during implementation.

Administration may also include determining residents' eligibility for subsidies for services such as arborist advice, vegetation trimming/removal and green waste removal or providing details of suppliers for canopy-mounted sprinklers.

All Council personnel, contractors and volunteers working in Kooloonbung Creek are responsible for complying with mitigation measures detailed in Appendix 6. Council will ensure non-Council staff and volunteers are aware of this responsibility and will provide assistance if required. All on-ground works towards implementation of this Plan, will be performed in accordance with a Safe Work Method Statement that includes risks and mitigation measures for working in a flying-fox camp.

7.3 Funding commitment

Council will commit available funds on an annual basis over the life of the five year Plan to implement actions in Table 8. Allocation of Council funding will be dependent on resources available and annual priorities. Council will also seek opportunities for funding through relevant grant programs, such as the NSW Flying-fox Grants Program.

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Appendix 1 Legislation

Local

Port Macquarie-Hastings Council Local Environmental Plan 2011

The Park is zoned E2 (Environmental Conservation). The objectives of this zone are to:

- *To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.*
- *To prevent development that could destroy, damage or otherwise have an adverse effect on those values.*
- *To protect coastal wetlands and littoral rainforests.*
- *To protect land affected by coastal processes and environmentally sensitive land.*
- *To prevent development that adversely affects, or would be adversely affected by, coastal processes.*
- *To enable development of public works and environmental facilities where such development would not have an overall detrimental impact on ecological, scientific, cultural or aesthetic values.*

Port Macquarie-Hastings Development Control Plan 2013

For actions relating to trees and vegetations, the Tree Management Provisions in Port Macquarie-Hastings Council Development Control Plan 2013 apply to the reserve and any development in the Park by regulating the removal of trees requiring consent where exemptions do not apply.

Environmental Management Areas and Buffers must be considered in relation to potential vegetation works around the camp.

Development Provisions

a) For coastal floodplain endangered ecological communities a minimum, fully vegetated buffer of 35m must be provided.

b) For Freshwater Wetland on Coastal Floodplain endangered ecological community a fully vegetated buffer of 100m is to be provided.

c) For all other endangered ecological communities, a fully vegetated buffer of 50m must be provided.

e) Fully vegetated buffers cannot contain road infrastructure or an asset protection zone.

State

Flying-fox Camp Management Policy 2015

The Flying-fox Camp Management Policy 2015 (the Policy) has been developed to empower land managers, primarily local councils, to work with their communities to manage flying-fox camps effectively. It provides the framework within which OEH will make regulatory decisions. In particular, the Policy strongly encourages local councils and other land managers to prepare Camp Management Plans for sites where the local community is affected.

Flying-fox Camp Management 2018

OEH has prepared a Code of Practice under the *Biodiversity Conservation Regulation 2017* authorising camp management actions on public land. The code defines standards for effective and humane management of flying-fox camps.

Camp management actions can only be implemented under the Code in accordance with a camp management plan endorsed by the Environment Agency Head (i.e. OEH).

The objective of the code is to enable camp managers to act quickly if flying-fox camps are causing a concern on public land. If camp management actions are consistent with the code, a Biodiversity Conservation licence will not be required.

Biodiversity Conservation Act 2016

The purpose of the *Biodiversity Conservation Act 2016* (BC Act) is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development including conserving biodiversity, maintaining the diversity and quality of ecosystems, regulating human interactions with wildlife, and supporting conservation and threat abatement action to slow the rate of biodiversity loss and conserve threatened species and ecological communities in nature.

The Grey-headed Flying-fox is listed as a threatened species under the BC Act.

Part 2 Division 3 of the BC Act provides for the issuing of Biodiversity Conservation Licences to authorise the doing of an act likely to result in one or more of the following:

a. harm or attempted harm to any animal that is of a threatened species or is part of threatened ecological community
b. harm or attempted harm, dealing in, or liberating a protected animal
c. the picking of any plant that is of a threatened species or is part of threatened ecological community
d. picking or dealing in protected plants
e. damage to declared areas of outstanding biodiversity value
f. damage to any habitat of a threatened species or threatened ecological community.

Part 7 of the BC Act provides for the biodiversity assessment and approvals required under the *Environmental Planning and Assessment Act 1979* for development other than complying

development, activities and state significant development and infrastructure.

An assessment of impacts is required for any threatened species or threatened ecological community, or their habitats, that are likely to be harmed by the doing of an act proposed in the Plan.

Note: that the definition of 'harm' includes kill, injure or capture the animal, but does not include harm by changing the habitat of the animal, and attempt to harm an animal includes hunting or pursuing, or using anything, for the purpose of harming the animal. The definition of 'pick' includes to gather, take, cut, remove from the ground, destroy, poison, crush or injure the plant or any part of the plant. The definition of habitat includes an area periodically or occasionally occupied by a species or ecological community and the biotic and abiotic components of an area.

Local Government Act 1993

The primary purpose of this Act is to provide the legal framework for an effective, efficient and environmentally responsible, open system of local government. Most relevant to flying-fox management is that it also provides encouragement for the effective participation of local communities in the affairs of local government and sets out guidance on the use and management of community land which may be applicable to land which requires management of flying-foxes.

National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) provides for the conservation of nature, objects, places or features of cultural value and the management of land reserved under this Act. The Act protects Aboriginal objects and declared Aboriginal Places. An Aboriginal Heritage Impact Permit may be required under this Act to authorise camp management actions that may harm Aboriginal objects a declared Aboriginal Places.

Prevention of Cruelty to Animals Act 1979

It may be an offence under this Act if there is evidence of unreasonable/unnecessary torment associated with management activities. Adhering to welfare and conservation measures provided in Section 10.3 will ensure compliance with this Act.

Environmental Planning and Assessment Act 1979

The objects of the *Environmental Planning and Assessment Act 1979* (EP&A Act) are to encourage proper management, development and conservation of resources, for the purposes of the social and economic welfare of the community and a better environment. It also aims to share responsibility for environmental planning between different levels of government and promote public participation in environmental planning and assessment.

The EP&A Act is administered by the NSW Department of Planning and Environment.

Development control plans under the EP&A Act should consider flying-fox camps so that planning, design and construction of future developments is appropriate to avoid future conflict.

Development given consent under Part 4 or activities assessed under Part 5 of the EP&A Act do not require licensing under the BC Act. Consent and determining authorities are required to consider the impacts of such proposals on threatened species, threatened ecological communities, and their habitats in accordance with Part 7 of the BC Act.

Where development consent under Part 4 or assessment under Part 5 of the EP&A Act is not required, a licence under the BC Act may be required to authorise the doing of an act that harms protected animals, threatened species, or threatened ecological community, or which damages the habitat of a threatened species or ecological community. This includes the doing of an act likely to harm any flying-fox or damaging the habitat of grey-headed flying-foxes.

Where a proposal to manage a flying-fox camp involves the cutting down, destruction, lopping or removal of a substantial part of a tree or other vegetation that is not covered by a development consent or assessment under Part 5 it may still require authorisation. Depending on the land on which the vegetation occurs and the character of the vegetation, it may require an approval or a permit under the *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* (SEPP) or an approval under the *Local Land Services Act 2013*.

Where flying-fox camps occur or impact on private land, private land owners are advised to contact their local council to explore management options and the appropriate approval processes for addressing arising issues.

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

This policy aims to protect the biodiversity, and amenity values of trees, and other vegetation in non-rural areas of the State. A person must not cut down, fell, up root, kill, poison, ringbark, burn or otherwise destroy the vegetation, or lop or otherwise remove a substantial part of the vegetation to which this Policy applies without a permit granted by council, or in the case of vegetation clearing exceeding the biodiversity offset thresholds (as stated in Part 7 of the *Biodiversity Conservation Regulation 2017*), approval by the Native Vegetation Panel.

Proponents will need to consider whether the SEPP (Vegetation in Non-Rural Areas) applies to their proposal, and if any approvals under the BC Act.

Commonwealth

Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth's EPBC Act provides protection for the environment, specifically matters of national environmental significance (MNES). A referral to the Commonwealth DoE is required under the EPBC Act for any action that is likely to significantly impact on an MNES.

MNES under the EPBC Act that relate to flying-foxes include:

- world heritage sites (where those sites contain flying-fox camps or foraging habitat)
- wetlands of international importance (where those wetlands contain flying-fox camps or foraging habitat)
- nationally threatened species and ecological communities.

The GHFF is listed as a vulnerable species under the EPBC Act, meaning it is an MNES. It is also considered to have a single national population. DoE has developed the Referral guideline for management actions in GHFF and SFF camps (DoE 2015) (the Guideline) to guide whether referral is required for actions pertaining to the GHFF.

The Guideline defines a nationally important GHFF camp as one that has either:

- contained ≥10,000 GHFF in more than one year in the last 10 years, or
- been occupied by more than 2500 GHFF permanently or seasonally every year for the last 10 years.

Provided that management at nationally important camps follows the mitigation standards below, DoE has determined that a significant impact to the population is unlikely, and referral is not likely to be required.

Referral will be required if a significant impact to any other MNES is considered likely as a result of management actions outlined in the Plan. Self-assessable criteria are available in the Significant Impact Guidelines 1.1 (DoE 2013) to assist in determining whether a significant impact is likely; otherwise consultation with DoEE will be required.

Mitigation standards

The action must not occur if the camp contains females that are in the late stages of pregnancy or have dependent young that cannot fly on their own.

The action must not occur during or immediately after climatic extremes (heat stress event, cyclone event), or during a period of significant food stress.

Disturbance must be carried out using non-lethal means, such as acoustic, visual and/or physical disturbance or use of smoke.

Disturbance activities must be limited to a maximum of 2.5 hours in any 12-hour period, preferably at or before sunrise or at sunset.

Trees are not felled, lopped or have large branches removed when flying-foxes are in or near to a tree and likely to be harmed.

The action must be supervised by a person with knowledge and experience relevant to the management of flying-foxes and their habitat, who can identify dependent young and is aware of climatic extremes and food stress events. This person must make an assessment of the relevant conditions and advise the proponent whether the activity can go ahead consistent with these standards.

The action must not involve the clearing of all vegetation supporting a nationally-important flying-fox camp. Sufficient vegetation must be retained to support the maximum number of flying-foxes ever recorded in the camp of interest.

These standards have been incorporated into mitigation measures detailed in Section 10.3. If actions cannot comply with these mitigation measures, referral for activities at nationally important camps is likely to be required.

Appendix 2 Flying-fox ecology & behaviour

Ecological role

Flying-foxes, along with some birds, make a unique contribution to ecosystem health through their ability to move seeds and pollen over long distances (Southerton et al. 2004). This contributes directly to the reproduction, regeneration and viability of forest ecosystems (DoE 2016a). It is estimated that a single flying-fox can disperse up to 60,000 seeds in one night (ELW&P 2015). Some plants, particularly Corymbia spp., have adaptations suggesting they rely more heavily on nocturnal visitors such as bats for pollination than daytime pollinators (Southerton et al. 2004).

GHFF may travel 100 km in a single night with a foraging radius of up to 50 km from their camp (McConkey et al. 2012) and have been recorded travelling over 500 km in two days between camps (Roberts et al. 2012). In comparison bees, another important pollinator, move much shorter foraging distances of generally less than one kilometre (Zurbuchen et al. 2010).

Long-distance seed dispersal and pollination makes flying-foxes critical to the long-term persistence of many plant communities (Westcott et al. 2008; McConkey et al. 2012), including eucalypt forests, rainforests, woodlands and wetlands (Roberts et al. 2006). Seeds that are able to germinate away from their parent plant have a greater chance of growing into a mature plant (EHP 2012). Long-distance dispersal also allows genetic material to be spread between forest patches that would normally be geographically isolated (Parry-Jones & Augee 1992; Eby 1991; Roberts 2006). This genetic diversity allows species to adapt to environmental change and respond to disease pathogens. Transfer of genetic material between forest patches is particularly important in the context of contemporary fragmented landscapes.

Flying-foxes are considered 'keystone' species given their contribution to the health, longevity and diversity among and between vegetation communities. These ecological services ultimately protect the long-term health and biodiversity of Australia's bushland and wetlands. In turn, native forests act as carbon sinks, provide habitat for other fauna and flora, stabilise river systems and catchments, add value to production of hardwood timber, honey and fruit (e.g. bananas and mangoes; Fujita 1991), and provide recreational and tourism opportunities worth millions of dollars each year (EHP 2012; ELW&P 2015).

Black flying-fox (*Pteropus alecto*)

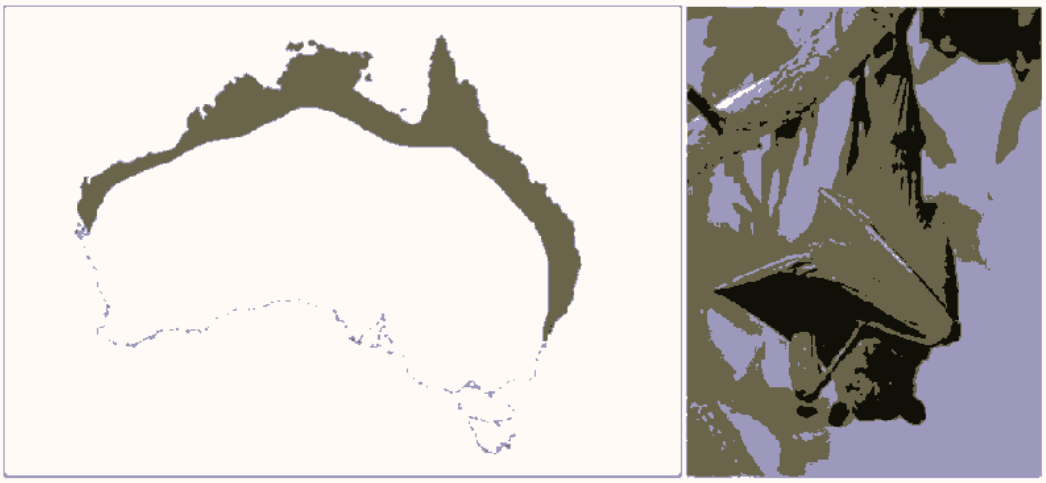

Figure 23 Black flying-fox indicative species distribution, adapted from OEH 2015a

The black flying-fox (BFF) (Figure 23) has traditionally occurred throughout coastal areas from Shark Bay in Western Australia, across Northern Australia, down through Queensland and into NSW (Churchill 2008; OEH 2015a). Since it was first described there has been a substantial southerly shift by the BFF (Webb & Tidemann 1995). This shift has consequently led to an increase in indirect competition with the threatened GHFF, which appears to be favouring the BFF (DoE 2016a).

They forage on the fruit and blossoms of native and introduced plants (Churchill 2008; OEH 2015a), including orchard species at times.

BFFs are largely nomadic animals with movement and local distribution influenced by climatic variability and the flowering and fruiting patterns of their preferred food plants. Feeding commonly occurs within 20 km of the camp site (Markus & Hall 2004).

BFFs usually roost beside a creek or river in a wide range of warm and moist habitats, including lowland rainforest gullies, coastal stringybark forests and mangroves. During the breeding season camp sizes can change significantly in response to the availability of food and the arrival of animals from other areas.

Grey-headed flying-fox (*Pteropus poliocephalus*)

Figure 24 Grey-headed flying-fox indicative species distribution, adapted from OEH 2015a

The GHFF (Figure 24) is found throughout eastern Australia, generally within 200 kilometres of the coast, from Finch Hatton in Queensland to Melbourne, Victoria (OEH 2015d). This species now ranges into South Australia and has been observed in Tasmania (DoE 2016a). It requires foraging resources and camp sites within rainforests, open forests, closed and open woodlands (including melaleuca swamps and banksia woodlands). This species is also found throughout urban and agricultural areas where food trees exist and will raid orchards at times, especially when other food is scarce (OEH 2015a).

All the GHFF in Australia are regarded as one population that moves around freely within its entire national range (Webb & Tidemann 1996; DoE 2015). GHFF may travel up to 100 kilometres in a single night with a foraging radius of up to 50 kilometres from their camp (McConkey et al. 2012). They have been recorded travelling over 500 kilometres over 48 hours when moving from one camp to another (Roberts et al. 2012). GHFF generally show a high level of fidelity to camp sites, returning year after year to the same site, and have been recorded returning to the same branch of a particular tree (SEQ Catchments 2012). This may be one of the reasons flying-foxes continue to return to small urban bushland blocks that may be remnants of historically-used larger tracts of vegetation.

The GHFF population has a generally annual southerly movement in spring and summer, with their return to the coastal forests of north-east NSW and south-east Queensland in winter (Ratcliffe 1932; Eby 1991; Parry-Jones & Augee 1992; Roberts et al. 2012). This results in large fluctuations in the number of GHFF in NSW, ranging from as few as 20% of the total population in winter up to around 75% of the total population in summer (Eby 2000). They are widespread throughout their range during summer, but in spring and winter are uncommon in the south. In autumn they occupy primarily coastal lowland camps and are uncommon inland and on the south coast of NSW (DECCW 2009).

There is evidence the GHFF population declined by up to 30% between 1989 and 2000 (Birt 2000; Richards 2000 cited in OEH 2011a). There is a wide range of ongoing threats to the survival of the GHFF, including habitat loss and degradation, deliberate destruction associated

with the commercial horticulture industry, conflict with humans, infrastructure-related mortality (e.g. entanglement in barbed wire fencing and fruit netting, power line electrocution, etc.) and competition and hybridisation with the BFF (DECCW 2009). For these reasons it is listed as vulnerable to extinction under NSW and federal legislation (see Section 3).

Little red flying-fox (*Pteropus scapulatus*)

Figure 25 Little red flying-fox indicative species distribution, adapted from OEH 2015a

The little red flying-fox (LRFF) (Figure 25) is widely distributed throughout northern and eastern Australia, with populations occurring across northern Australia and down the east coast into Victoria.

The LRFF forages almost exclusively on nectar and pollen, although will eat fruit at times and occasionally raids orchards (Australian Museum 2010). LRFF often move sub-continental distances in search of sporadic food supplies. The LRFF has the most nomadic distribution, strongly influenced by availability of food resources (predominantly the flowering of eucalypt species) (Churchill 2008), which means the duration of their stay in any one place is generally very short.

Habitat preferences of this species are quite diverse and range from semi-arid areas to tropical and temperate areas, and can include sclerophyll woodland, melaleuca swamplands, bamboo, mangroves and occasionally orchards (IUCN 2015). LRFF are frequently associated with other *Pteropus* species. In some colonies, LRFF individuals can number many hundreds of thousands and they are unique among *Pteropus* species in their habit of clustering in dense bunches on a single branch. As a result, the weight of roosting individuals can break large branches and cause significant structural damage to roost trees, in addition to elevating soil nutrient levels through faecal material (SEQ Catchments 2012).

Throughout its range, populations within an area or occupying a camp can fluctuate widely. There is a general migration pattern in LRFF, whereby large congregations of over one million individuals can be found in northern camp sites (e.g. Northern Territory, North Queensland) during key breeding periods (Vardon & Tidemann 1999). LRFF travel south to visit the coastal areas of south-east Queensland and NSW during the summer months. Outside these periods

LRFF undertake regular movements from north to south during winter–spring (July–October) (Milne & Pavey 2011).

Reproduction

Black and grey-headed flying-foxes

Males initiate contact with females in January with peak conception occurring around March to April/May; this mating season represents the period of peak camp occupancy (Markus 2002). Young (usually a single pup) are born six months later from September to November (Churchill 2008). The birth season becomes progressively earlier, albeit by a few weeks, in more northerly populations (McGuckin & Blackshaw 1991), however out of season breeding is common with births occurring later in the year.

Young are highly dependent on their mother for food and thermoregulation. Young are suckled and carried by the mother until approximately four weeks of age (Markus & Blackshaw 2002). At this time, they are left at the camp during the night in a crèche until they begin foraging with their mother in January and February (Churchill 2008) and are usually weaned by six months of age around March. Sexual maturity is reached at two years of age with a life expectancy up to 20 years in the wild (Pierson & Rainey 1992).

As such, the critical reproductive period for GHFF is generally from August (when females are in final trimester) to the end of peak conception around April. Dependent pups are usually present from September to March (Figure 26).

Little red flying-fox

The LRFF breeds approximately six months out of phase with the other flying-foxes. Peak conception occurs around October to November, with young born between March and June (McGuckin & Blackshaw 1991; Churchill 2008) (Figure 26). Young are carried by their mother for approximately one month then left at the camp while she forages (Churchill 2008). Suckling occurs for several months while young are learning how to forage. LRFF generally birth and rear young in temperate areas (rarely in NSW).

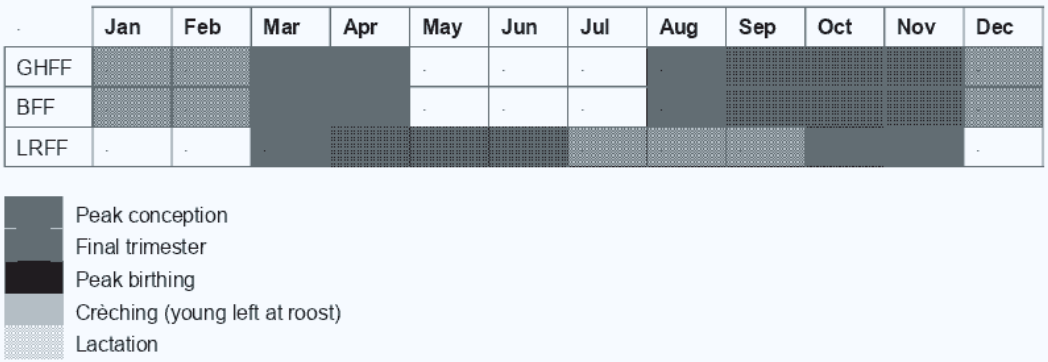

Figure 26 Indicative flying-fox reproductive cycle.

Note that LRFF rarely birth and rear young in NSW. The breeding season of all species is variable between years and location, and expert assessment is required to accurately determine phases in the breeding cycle and inform appropriate management timing.

Heat stress events

Flying-foxes suffer from heat stress when the ambient temperature exceeds the physiological limits flying-foxes can endure for maintaining a comfortable body temperature (Bishop 2014). Flying-foxes are susceptible to heat stress due to their inability to sweat (Snoyman et al 2012), therefore they need to expend energy on cooling mechanisms such as fanning. BFF are considered to be more susceptible to HSE than GHFF due to the southern expansion of their range with temperature extremes increasing in severity with latitude in eastern Australia (Welbergen et al 2008).

Appendix 3 Protected Matters

Australian Government
Department of the Environment and Energy

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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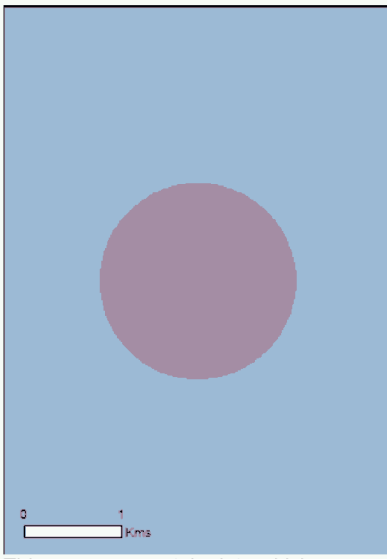
Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 1.0Km

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	52
Listed Migratory Species:	57

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member o a listed marine species.

Commonwealth Land:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	61
Whales and Other Cetaceans:	1
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	1
Invasive Species:	35
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Foraging, feeding or related behaviour known to occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Fish		

Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area
Frogs		
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area
Insects		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat likely to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Plants		
Acronychia littoralis Scented Acronychia [8582]	Endangered	Species or species habitat likely to occur within area
Allocasuarina thalassoscopica [21927]	Endangered	Species or species habitat known to occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area

Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Dugong dugon Dugong [28]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area

Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]		Foraging, feeding or related behaviour known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis Red-necked Stint [860]		Foraging, feeding or related behaviour known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Foraging, feeding or related behaviour known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Foraging, feeding or related behaviour known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Foraging, feeding or related behaviour may occur within area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely

Name	Threatened	Type of Presence
		to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Numenius phaeopus Whimbrel [849]		Foraging, feeding or related behaviour known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
Pluvialis squatarola Grey Plover [865]		Foraging, feeding or related behaviour known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Foraging, feeding or related behaviour known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Foraging, feeding or related behaviour known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land - Australian Postal Commission
Commonwealth Land - Australian Telecommunications Commission

Listed Marine Species [Resource Information

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]		Foraging, feeding or related behaviour known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis Red-necked Stint [860]		Foraging, feeding or related behaviour known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area
Charadrius bicinctus Double-banded Plover [895]		Foraging, feeding or related behaviour known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Foraging, feeding or related behaviour known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Foraging, feeding or related behaviour known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area

Name	Threatened	Type of Presence
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Foraging, feeding or related behaviour may occur within area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Foraging, feeding or related behaviour known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Numenius phaeopus Whimbrel [849]		Foraging, feeding or related behaviour known to occur within area

Name	Threatened	Type of Presence
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
Pluvialis squatarola Grey Plover [865]		Foraging, feeding or related behaviour known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Sterna albifrons Little Tern [813]		Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche sp. nov. Pacific Albatross [66511]	Vulnerable*	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Foraging, feeding or related behaviour known to occur within area
Mammals		
Dugong dugon Dugong [28]		Species or species habitat may occur within area
Reptiles		

Name	Threatened	Type of Presence
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area

Whales and other Cetaceans [Resource Information]

Name	Status	Type of Presence
Mammals		
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area

Extra Information

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur

		within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull) or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-31.436161 152.908569

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Appendix 4 Human and animal health

Human and animal health

Flying-foxes, like many animals, carry pathogens that may pose human health risks. Many of these are viruses which cause only asymptomatic infections in flying-foxes themselves but may cause significant disease in humans or other animals that are exposed. In Australia, the most well-defined of these include Australian bat lyssavirus (ABLV), Hendra virus (HeV) and Menangle virus. Specific information on these viruses is provided below.

Excluding those people whose occupations require contact with bats, such as wildlife carers and vets, human exposure to ABLV, HeV and Menangle virus, their transmission and frequency of infection is extremely rare. HeV infection in humans requires transfer from an infected intermediate equine host (i.e. close contact with an infected horse) and spread of the virus directly from bats to humans has not been reported.

These diseases are also easily prevented through vaccination, personal protective equipment, safe flying-fox handling (by trained and vaccinated personnel only) and appropriate horse husbandry. Therefore, despite the fact that human infection with these agents can be fatal, the probability of infection is extremely low, and the overall public health risk is also judged to be low (Qld Health 2016).

Disease and flying-fox management

A recent study at several camps before, during and after disturbance (Edson et al. 2015) showed no statistical association between HeV prevalence and flying-fox disturbance. However, the consequences of chronic or ongoing disturbance and harassment and its effect on HeV infection were not within the scope of the study and are therefore unknown.

The effects of stress are linked to increased susceptibility and expression of disease in both humans (AIHW 2012) and animals (Henry & Stephens-Larson 1985; Aich et. al. 2009), including reduced immunity to disease.

Therefore, it can be assumed that management actions which may cause stress (e.g. dispersal), particularly over a prolonged period or at times where other stressors are increased (e.g. food shortages, habitat fragmentation, etc.), are likely to increase the susceptibility and prevalence of disease within the flying-fox population, and consequently the risk of transfer to humans.

Furthermore, management actions or natural environmental changes may increase disease risk by:

- forcing flying-foxes into closer proximity to one another, increasing the probability of disease transfer between individuals and within the population.
- resulting in abortions and/or dropped young if inappropriate management methods are used during critical periods of the breeding cycle. This will increase the

likelihood of direct interaction between flying-foxes and the public, and potential for disease exposure.

- adoption of inhumane methods with potential to cause injury which would increase the likelihood of the community coming into contact with injured/dying or deceased flying-foxes.

The potential to increase disease risk should be carefully considered as part of a full risk assessment when determining the appropriate level of management and the associated mitigation measures required.

Australian bat lyssavirus

ABLV is a rabies-like virus that may be found in all flying-fox species on mainland Australia. It has also been found in an insectivorous microbat and it is assumed it may be carried by any bat species. The probability of human infection with ABLV is very low with less than 1% of the flying-fox population being affected (DPI 2013) and transmission requiring direct contact with an infected animal that is secreting the virus. In Australia three people have died from ABLV infection since the virus was identified in 1996 (NSW Health 2013).

Domestic animals are also at risk if exposed to ABLV. In 2013, ABLV infections were identified in two horses (Shinwari et al. 2014). There have been no confirmed cases of ABLV in dogs in Australia; however, transmission is possible (McCall et al. 2005) and consultation with a veterinarian should be sought if exposure is suspected.

Transmission of the virus from bats to humans is through a bite or scratch but may have potential to be transferred if bat saliva directly contacts the eyes, nose, mouth or broken skin. ABLV is unlikely to survive in the environment for more than a few hours, especially in dry environments that are exposed to sunlight (NSW Health 2013).

Transmission of closely related viruses suggests that contact or exposure to bat faeces, urine or blood does not pose a risk of exposure to ABLV, nor does living, playing or walking near bat roosting areas (NSW Health 2013).

The incubation period in humans is assumed similar to rabies and variable between two weeks and several years. Similarly, the disease in humans presents essentially the same clinical picture as classical rabies. Once clinical signs have developed the infection is invariably fatal. However, infection can easily be prevented by avoiding direct contact with bats (i.e. handling). Pre-exposure vaccination provides reliable protection from the disease for people who are likely to have direct contact with bats, and it is generally a mandatory workplace health and safety requirement that all persons working with bats receive pre-vaccination and have their level of protection regularly assessed. Like classical rabies, ABLV infection in humans also appears to be effectively treated using post-exposure vaccination and so any person who suspects they have been exposed should seek immediate medical treatment. Post-exposure vaccination is usually ineffective once clinical manifestations of the disease have commenced.

If a person is bitten or scratched by a bat they should:

- wash the wound with soap and water for at least five minutes (**do not scrub**)

- contact their doctor immediately to arrange for post-exposure vaccinations.

If bat saliva contacts the eyes, nose, mouth or an open wound, flush thoroughly with water and seek immediate medical advice.

Hendra virus

Flying-foxes are the natural host for Hendra virus (HeV), which can be transmitted from flying-foxes to horses. Infected horses sometimes amplify the virus and can then transmit it to other horses, humans and on two occasions, dogs (DPI 2014). There is no evidence that the virus can be passed directly from flying-foxes to humans or to dogs (AVA 2015). Clinical studies have shown cats, pigs, ferrets and guinea pigs can carry the infection (DPI 2015a).

Although the virus is periodically present in flying-fox populations across Australia, the likelihood of horses becoming infected is low and consequently human infection is extremely rare. Horses are thought to contract the disease after ingesting forage or water contaminated primarily with flying-fox urine (CDC 2014).

Humans may contract the disease after close contact with an infected horse. HeV infection in humans presents as a serious and often fatal respiratory and/or neurological disease and there is currently no effective post-exposure treatment or vaccine available for people. The mortality rate in horses is greater than 70% (DPI 2014). Since 1994, 81 horses have died, and four of the seven people infected with HeV have lost their lives (DPI 2014).

Previous studies have shown that HeV spillover events have been associated with foraging flying-foxes rather than camp locations. Therefore, risk is considered similar at any location within the range of flying-fox species and all horse owners should be vigilant. Vaccination of horses can protect horses and subsequently humans from infection (DPI 2014), as can appropriate horse husbandry (e.g. covering food and water troughs, fencing flying-fox foraging trees in paddocks, etc.).

Although all human cases of HeV to date have been contracted from infected horses and direct transmission from bats to humans has not yet been reported, particular care should be taken by select occupational groups that could be uniquely exposed. For example, persons who may be exposed to high levels of HeV via aerosol of heavily contaminated substrate should consider additional PPE (e.g. respiratory filters), and potentially dampening down dry dusty substrate.

Appendix 5 Survey results

The highest proportion of respondents were not aware of the community engagement for the development of the 'Kooloonbung Creek Nature Park Plan of Management' in 2012 (17) while the remaining had participated (11) or did know about it but had not participated (15) (Figure 1).

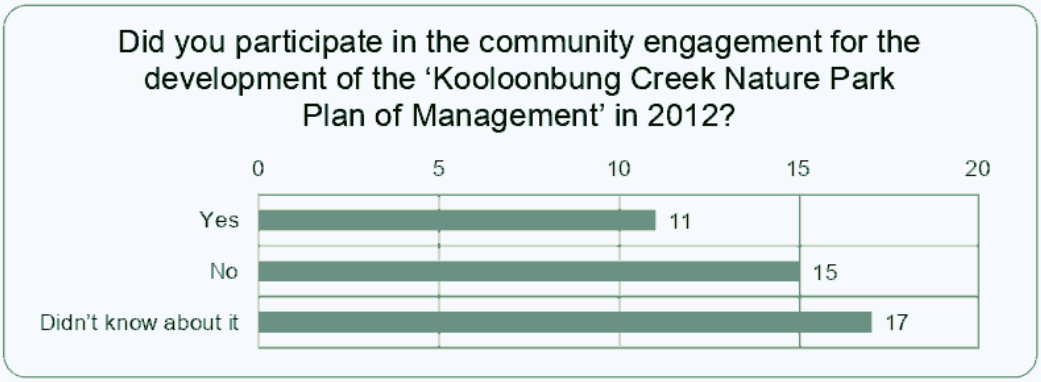

Figure 27 Responses regarding participation in the development of 'Kooloonbung Creek Nature Park Plan of Management' in 2012

Survey responses indicated that the majority were aware that the camp constitutes a Nationally Important Camp providing critical habitat (69.7% answered yes, 11.6% responded no and 18.6% did not care) (Figure 2).

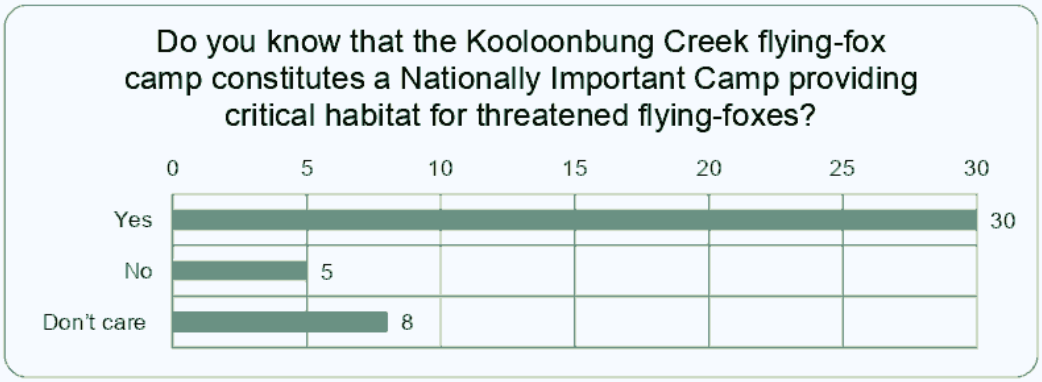

Figure 28 Knowledge of the classification of the camp as a Nationally Important Camp

The majority of respondents were aware that flying-foxes are a protected native species (39, 92.8%) while the remaining didn't care (Figure 3).

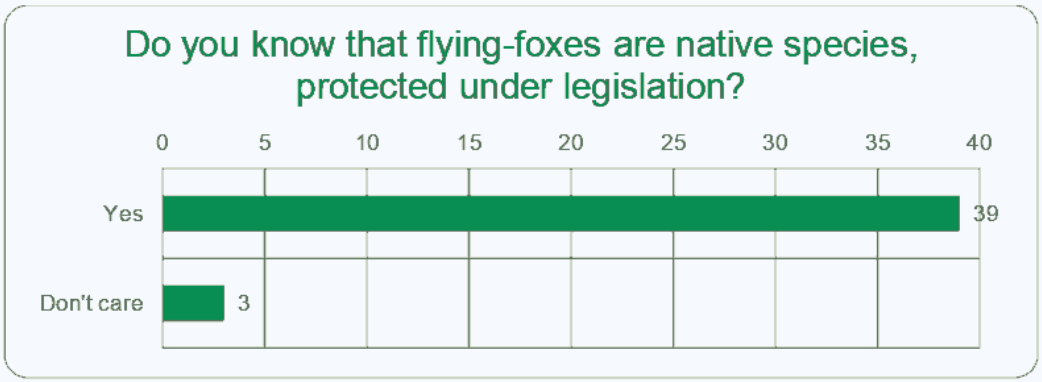

Figure 29 Knowledge of the status of flying-foxes

Similar results were provided regarding the species' role in long distance seed dispersal and pollination (86% answered yes, 6.9% responded no, 6.9% didn't care or understand the question). The majority of respondents are aware that disease can be prevented by not handling flying-foxes and through appropriate horse husbandry (83.3%), with the remaining answering no (Figure 4). When asked if the respondents knew that the GHFF is the main species of flying-fox that uses the Koolonbung creek camp site, 60.9% responded positively, while 21.9% did not know, and 17.1% didn't care.

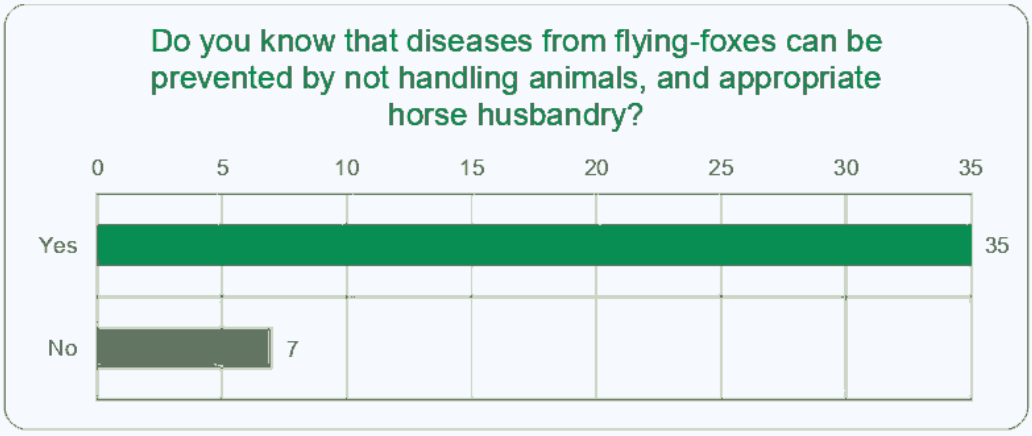

Figure 30 Disease from flying-foxes

Survey results indicated a majority of respondents held positive feelings towards the protection of flying-foxes (62.8%), with 37.2% indicating that it is not important to them (Figure 5).

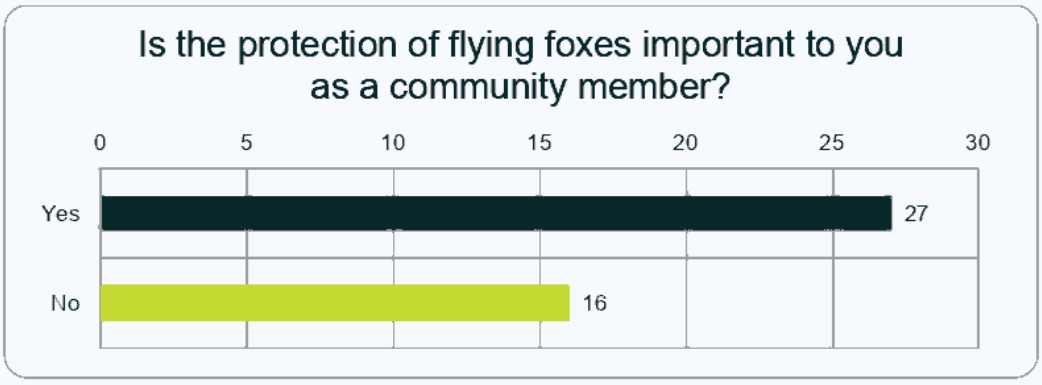

Figure 31 Protection of flying-foxes

54.7% of respondents indicated that their experience or interaction with flying-foxes in the Port Macquarie area has been negative, 35.7% responded positively and 1% were neither positive nor negative (Figure 6).

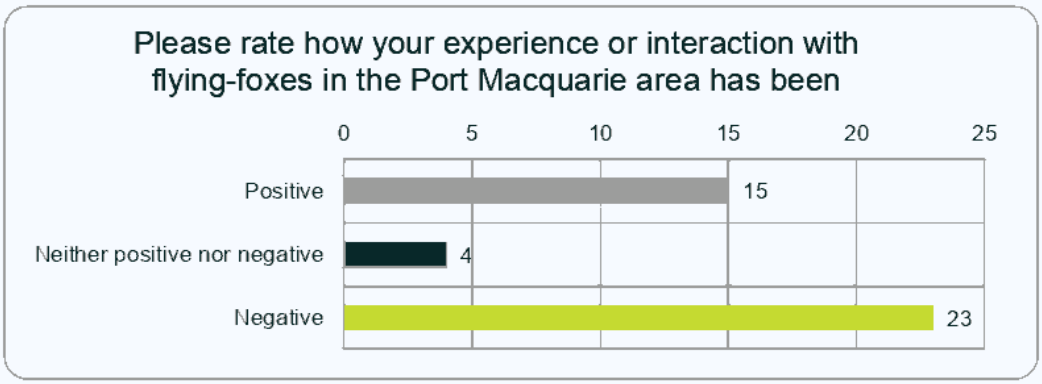

Figure 32 Experience with flying-foxes

Respondents who indicated that they are negatively impacted (23), were being most impacted around the home. These respondents identified the majority of impacts related to smell, excrement and noise (Figure 7). Twelve respondents (who selected 'other' in the survey) added 'quality of life', 'constant health issues', 'isolation due to family and friends not wanting to visit' and 'destruction of habitat for other species i.e. small birds' being of concern.

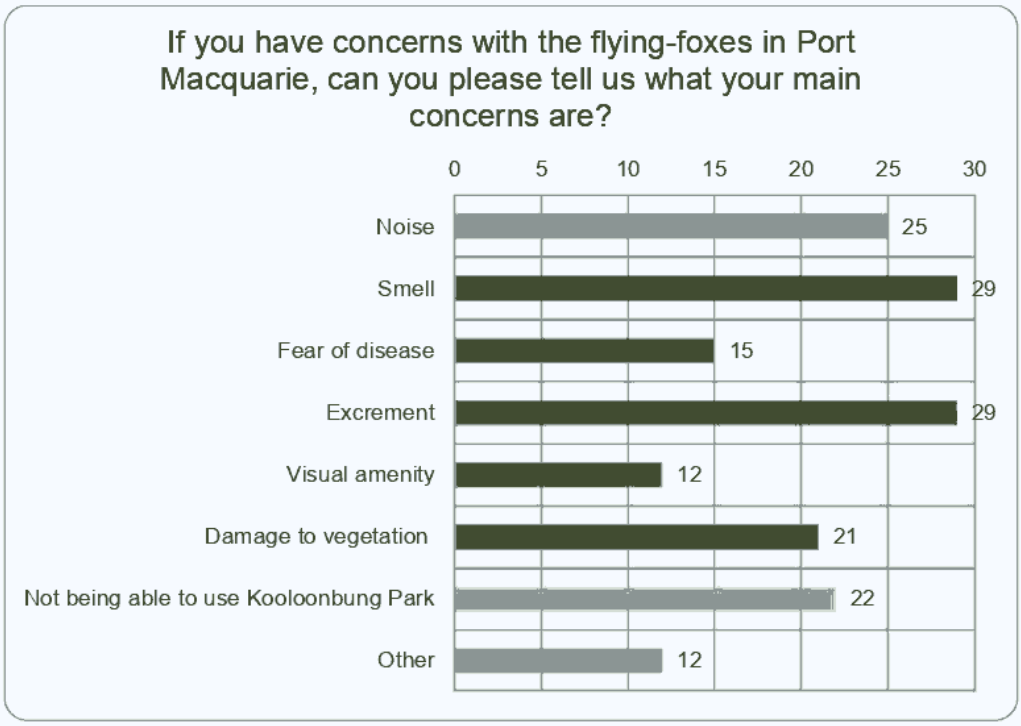

Figure 33 Main concerns about flying-foxes

In relation to costs associated with any management actions, the majority of respondents answered that is was moderately important that it was of low cost to ratepayers (48%), while 33% considered this not at all important, and 19% responded as very important (Figure 8).

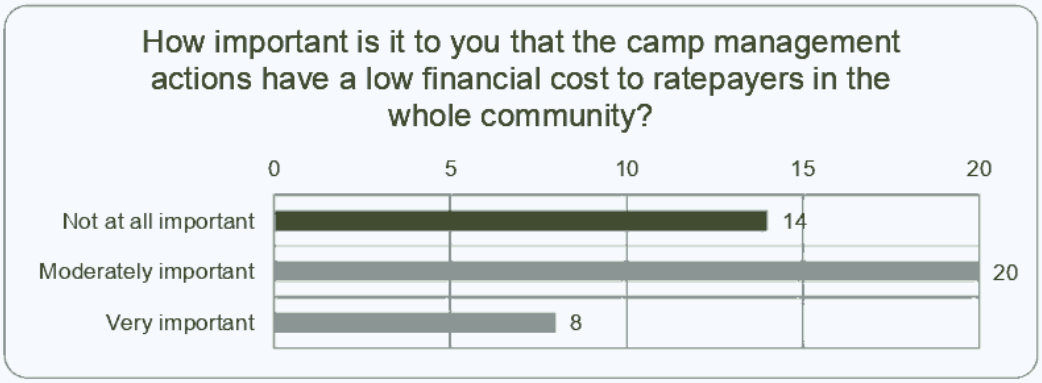

Figure 34 Financial impacts to ratepayers

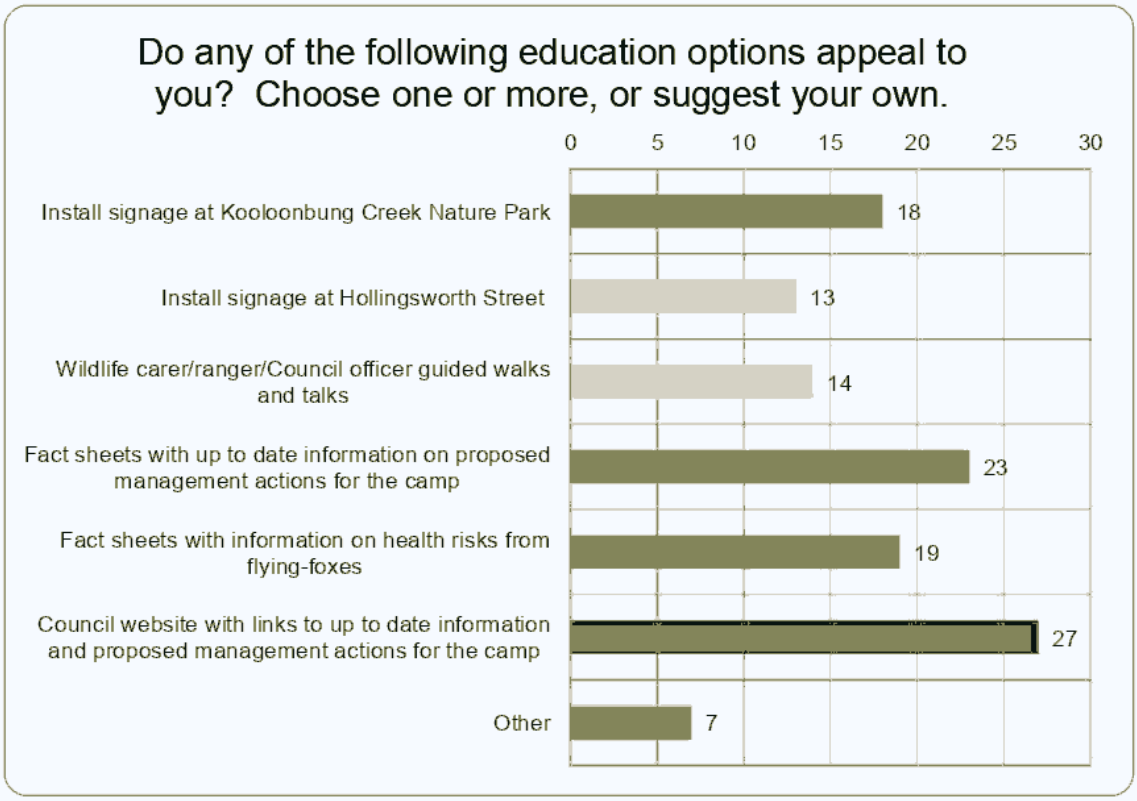

Figure 35 Educational options

Respondents were asked to choose one or more education options, or suggest their own. 'Council websites with links to up to date information and proposed management actions for the camp' received the highest number of votes (64%). The second-most highly rated option was 'fact sheets with up to date information on proposed management actions for the camp' (54%). All other options received similar ranking priority (Figure 9). Other suggested options were, 'action to reduce noise/removing the bats', 'cull a proportion of the flying-fox population' and for 'Friends of Kooloonbung Creek Nature Park' (FKCNP) to take guided walks through the park.

The majority of the respondents identified as 'not living within 100 metres of the camp' (67.4%). All (14) respondents answered 'no' when asked if more information was required concerning plants that may be attracting flying-foxes to their backyard. Of those 14 respondents, when asked 'Would receiving service subsidies help in reducing flying-fox impacts on your property if funding assistance was provided in some way?'; 9 answered 'yes' and 5 responded 'no'.

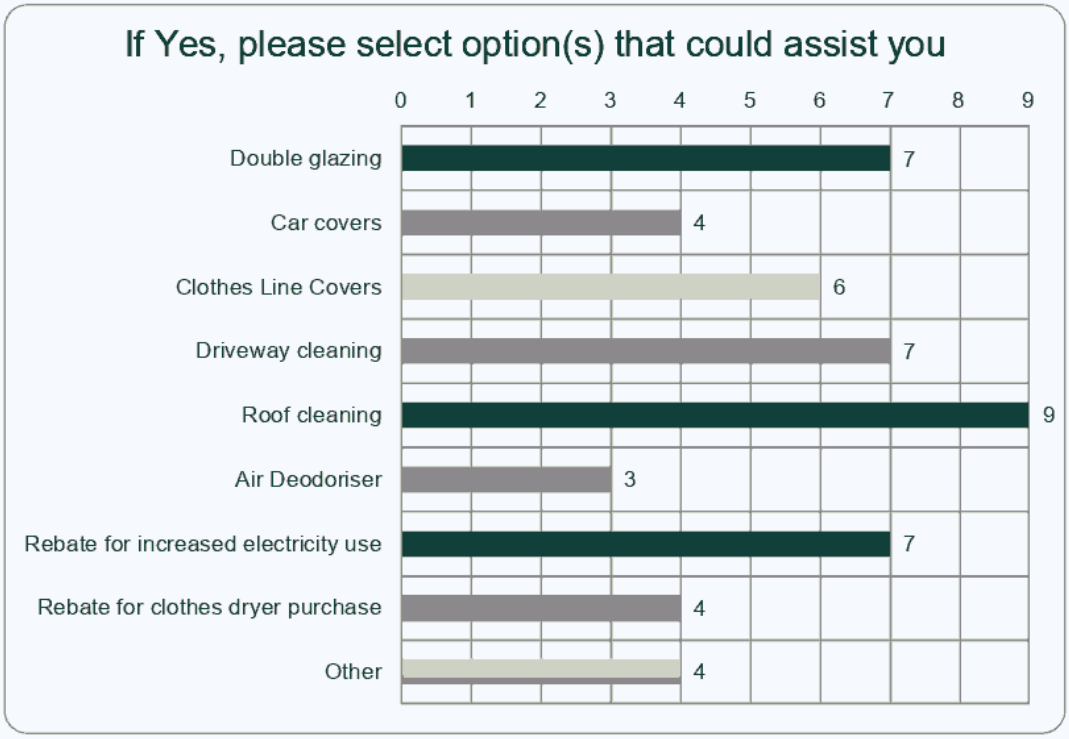

Figure 36 Management options to assist

In regards to which options could assist residents if funding assistance was provided in some way; roof cleaning had the most selections (9 selections from each of the 9 respondents) (Figure 10). The next rated options after roof cleaning were 'double glazing', 'driveway cleaning' and 'rebate for increased electricity use' with 7 votes each. Four respondents (who selected 'other' in the survey) added water rebate for hosing off outdoor areas, rebate for air-conditioner installation or solar panels to reduce electricity costs when residences must be closed due to odour/noise and rebate for regular cleaning of solar panels.

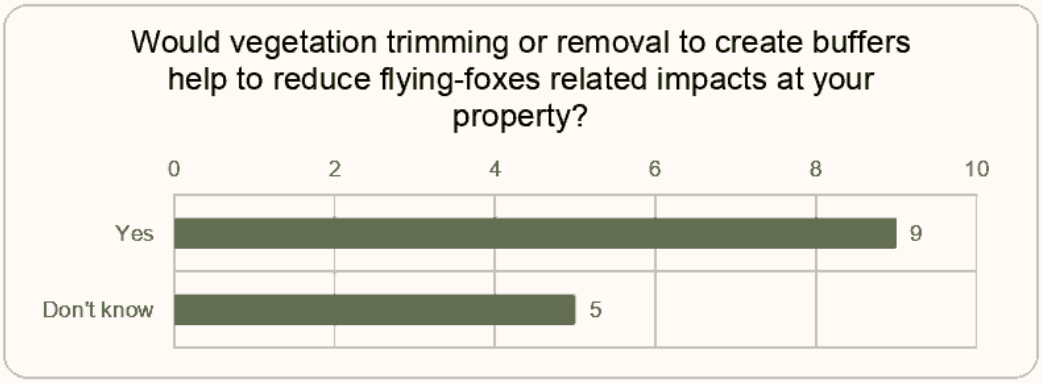

Figure 37 Buffer creation to reduce flying-fox related impacts

The majority of respondents (64.3%) answered 'yes' to would vegetation trimming or removal to create buffers would help to reduce flying-fox related impacts at their property (Figure 11). Nine respondents (who selected 'yes') added what street they live on to the survey. Addresses included; Lake Road, Glebe Close, Fischer Street and Anita Crescent.

Respondents who indicated that they are interested in learning more about management options (39), were most interested in managing impacts to amenities. Respondents selected 'improving the boardwalk to prevent slipping' as the most preferred management option (Figure 12). Nineteen respondents were interested to learn about canopy-mounted sprinklers.

Fourteen respondents (who selected 'other' in the survey) added "*relocate the colony*", "change conditions to move flying-fox elsewhere", "clear roosting trees along the cutting path through Kooloonbung so that the walkway and bridge can be used without the fear of slipping in excrement", "replant flying-fox roosts trees to replace those lost during the nudging process", "cull numbers of flying-fox", "minimise the camp size", "relocate the camp to state forests and national parks", "clear the area of trees due to bushfire concerns", "smoke bombs, low humming motors" and "develop an eradication program".

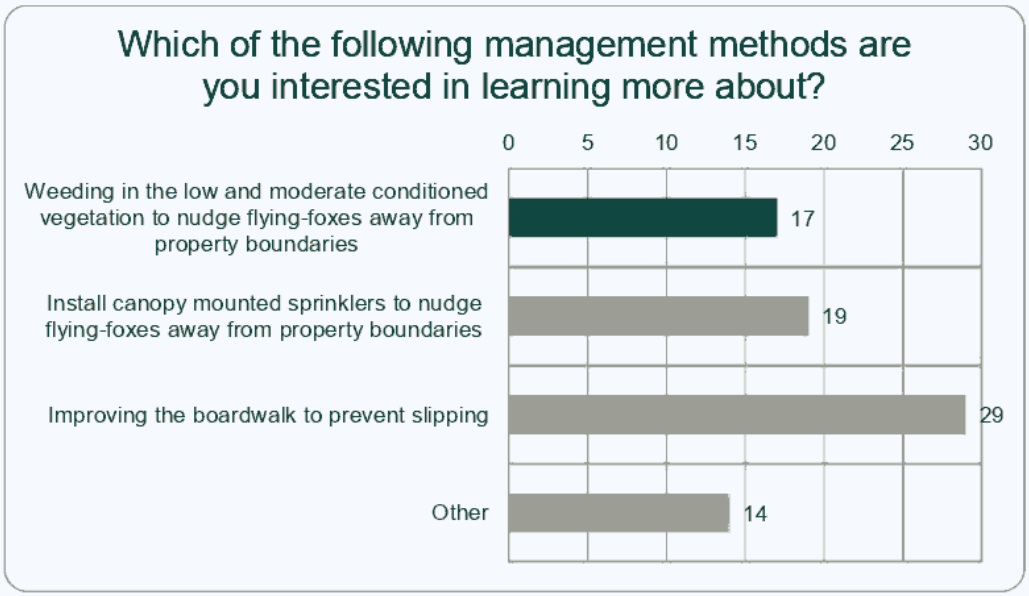

Figure 39 Management options that participants are interested in learning

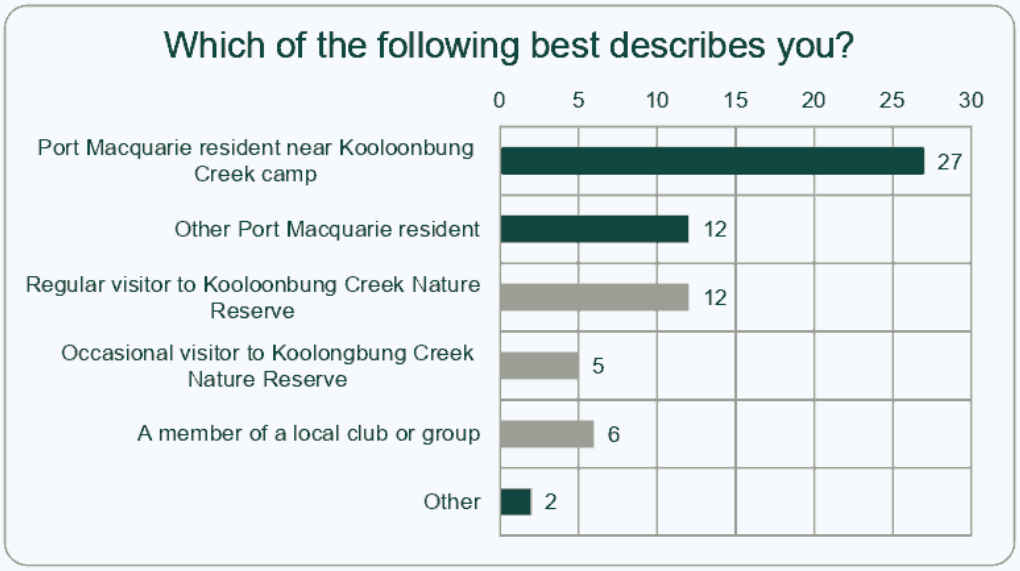

Figure 38 Survey distribution.

'Port Macquarie resident near Kooloonbung Creek camp' was the highest response group in the survey (62.8%) (Figure 13). 62.8% of participants were aged 50-75, 18.6% were 36-50, 13.9% were 76+ and 18-35 and >18 were both 2.3% of the participants.

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Table 9 Responses to question; Do any of the proposed management options not appeal to you? And if so which ones and for what reason?

Response type	Respondents comments
Remove flying-fox	*"Just get rid of the problem".*
Remove flying-fox	*"NONE - get rid of them. All of these management options cost money and don't solve the problem".*
Remove flying-fox	*"Rebates for water, double glazing, etc.* *I want population reduced and none of the options listed will achieve that".*
Remove flying-fox	*"Weeding - can't see how this helps unless it involves removal of future roosting & paper bark tree seedlings".*
Remove flying-fox	*"I would to have them removed as the smell is repulsive".*
Remove flying-fox	*"In Kooloonbung there are 2 endangered things. The bat camp & the rainforest, & only one of those species can be moved & or minimised. One of your options mystifies me, what do you mean by weeding ?? To my mind bats are not what you would classify as ground foragers".*
Remove flying-fox	*"None of the service subsidies required if bat colony persuaded to live elsewhere. Financial grants, if I understand correctly, were made to combat the problems we have. Why was no action taken? Personally, I think incompetency at a higher level should not be left unuttered. Trimming, pruning to create a buffer would only hasten the demise of our beautiful arboreal world...We don't need to axe the rain forest the bats execute the demise effortlessly".*
Remove flying-fox	*"I lived in Albury before moving to Port Macquarie. We had a colony of bats move into the Botanic Gardens. The council was given permission to move the bats to another location. This was done by making a lot of noise each morning with power tools, banging tin lids etc. The bats moved to another location that was not near any homes.* *I feel that the people who live near the bats must find the smell unbearable".*
Remove flying-fox	*"Sydney moved their population along, we can do the same, within the guidelines set out by N.S.W Gov.* *We do not propose to killing the bats, just moving them on to a less populated area".*
Remove flying-fox / cull	*"as above remove them completely or cull them. The national parks condone culling of brumbies and we are allowed to cull Kangaroos why is the fox different? they have a far worse impact".*
Remove flying-fox / cull	*"Don't see how it will work as the smell and flying foxes will still be there with the above options".*
Remove flying-fox / cull	*"Remove them completely. Thats it - get them out of there".*
Remove flying-fox / cull	*"No.... none of these address the real issue. Management is not on my agenda! Eradication is.... is is feasible and achievable!".*
Management method	*"This community problem has been well known for many years and the time has come for proactive responses.* *Council already has the views of 10,000 residents who have Petitioned for action. This survey must recognise those voices.* *Options limited to information about PROPOSED management actions are insufficient. Citizens now also need to know what has actually been done and how effective (or not) that has been".* *"Education alone does not solve the issue"*
Management method	*"Sprinklers - water costs money".*
Management method	*"Canopy-mounted sprinklers sounds like it would require a lot of infrastructure to be*

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Response type	Respondents comments
	installed, this may be expensive and require vegetation to be removed or disturbed".
Management method	*"Sprinklers or any other method that negatively impacts the bats' bodies, habitat or flight paths should not be used as this is a threatened species that needs as much protection as we can give it. While the bats like to roost above water, being wet could reduce their ability to keep warm and perhaps to fly and to forage. Peggy Eby told us that they are extremely loyal to their roost and are unlikely to desert it in spite of interference by humans. They occupy only a tiny part of the town and they "pay rent" in the form of the ecosystem services they deliver"*
Management method	*"FKCNP are already involved with the other management methods listed above".*

Table 10 Further comments to survey from participants

Theme	Respondents comment
Relocate flying-fox	*"Relocate them to a nonresidential or recreational area if possible".*
Relocate flying-fox	*"It is my understanding that the colony was moved from the Sea Acres NP in the eighties, because the NPWS did not like having them around. Back then, Kooloonbung Creek Nature Reserve was beautiful, with no fruit bat colony established until the Sea Acres 'eviction'. Additionally, back in those days, the water in Kooloonbung Creek was more brackish than it is now. The ever-increasing discharge of treated effluent into Kooloonbung Creek has diluted the naturally-occurring brackish water in the inter-tidal zone. This has provided the colony with a ready supply of drinking water that has provided the foundation for the fruit bat colony to grow more than it otherwise might have been.* *The fruit bat colony has ruined the amenity of a beautiful area, and it is my opinion that they should be moved from that location. Council should at least salinate the water they discharge into the creek so that it does not alter the natural state of the inter-tidal zone".*
Relocate flying-fox	*"I want Council $ spent on reducing population of FFs in KCR, not on education or writing management reports with no tangible outcomes".*
Relocate flying-fox	*"Don't hold much hope of a council solution to relocating bats, there are avenues for this, but think the problem has become too complicated for this council. Another tourist venue destroyed in PM, only ones these days are the khaki hat brigade. No longer a tranquil spot for wedding photos etc. used to be a wonderful walk through boardwalk with visitors, no longer"!*
Relocate flying-fox	*"I am sure the bats will move on to another site when it suits them, when is another question".*
Relocate flying-fox	"Please do something urgently, they have moved and settled into our area in the last 12 months"!!
Relocate flying-fox	*"GET RID OF THEM!!!!!!* *WE WANT OUR ENVIRONMENT BACK SO WE CAN USE IT AND BE SAFE".*
Relocate flying-fox	*"I have excrement drop on my house and driveway. There are palm trees, next door, which attract the bats. The removal of these non-native plants would help, in my case. The decline of smaller native birds is very noticeable, since the bats took over the reserve.* *I will not use the boardwalk, since the bats took over. It used to be a special place for me.* *My visitors cannot enjoy the renovated picnic area, because of the noise, smell and the excrement.* *There have been cases where other N.S.W Councils have moved the bats on, we should be able to do the same".*
Engagement process	*"How is the community to comment if they do not happen to log into the website. I have not seen any notification in the local paper.*

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Theme	Respondents comment
	As a resident who has already expressed concern on these issues it is important to know that community engagement has been openly sought before the deadline closes".
Engagement process	*"Proof read your surveys before sending them out! Too repetitive".*
Engagement process / relocate flying-fox	*"Your survey is false and deliberately based on lies at worst, misinformation at best. There are plenty of colonies that can be studied in this area, Wingham to Kempsey, and NSW Govt will assist with funding to relocate inappropriately located colonies. The time frame for this survey seems very short, deliberately structured to sabotage the effectiveness of this exercise. You should be ashamed. Don't you understand your responsibility as a council servant".*
Park closure	*"e.g Singleton area - They had to close their Park & some Businesses due to flying foxes? is this going to happen in Port Macquarie and who pays for this? Our main street and area will be abandon".*
Health problems	*"This year has caused health problems which I have discussed with my G.P. I am a non-smoker. I have a permanent cough and have been under great stress through lack of/disturbed sleep, sore ears from the use of ear plugs and general depression at not being able to enjoy the lifestyle in our own backyard. Our interstate visitors are not keen to return to Port because of the strong bat smell in this area; commenting on why a beautiful holiday destination is so spoilt by the stench of the flying foxes..... Word gets around"!*
Flying-fox advocate	*"I would like to see the retention of this naturally occurring FF population within KCNP. As a rate-payer with a 17 year affiliation with the Park, I know that the FF population numbers and species are variable, and truly hope that no drastic action is taken to remove the* colony to appease relatively short-term residents who chose to live next to a bushland area and wildlife corridor".
Flying-fox advocate	*"if people had the opportunity to interact like the koala hospital they would realise there is more to them then the smell".*
Flying-fox advocate	"To have a colony of wild animals within the township is an asset and already a tourist attraction which could be better managed and promoted. How about a Flying Fox Cafe nearby with fruit specialties on the menu, souvenirs and photos? Let's promote these gentle, intelligent and intriguing animals the way we promote our koalas. We need more signage to educate people about the bats' role in making our forests. Encourage people to wash their hands and clean their shoes after walking through, while explaining the facts about possible disease risks to address fear and disinformation. Replacing the timber boardwalk with the same black fibreglass mesh used at Sea Acres and parts of Kooloonbung would greatly improve safety and allow droppings to wash off because they can make the boardwalk slippery. If walkers are still concerned about droppings, suggest they use an umbrella or choose an alternative walking route, e.g. beside Lake Road. The proximity of homes to the bat roost is due to development being permitted too close to the creek: this is the fault of humans, not the bats, which are suffering from habitat loss throughout their range, exacerbated by climate change".
Flying-fox advocate	"FKCNP strongly support the protection of the Flying Fox camp in Kooloonbung Creek NP. Although some trees may be adversely affected by the FF's, there is also much evidence of regenerating native plants in the Reserve as a result of the FF foraging through and beyond the Reserve. FKCNP recognises the critical role that FF's play in maintaining healthy ecological processes in native forests. Having said this our group acknowledges the significant issues affecting immediate neighbours to the Reserve and is keen to work with Council and these residents to develop management actions which may alleviate some of the problems faced by the residents while at the same time minimising major disturbance to the FF camp".
Flying-fox advocate	"I think the Bats are wonderful creatures who have a vital role to play in the Eco System & I hope we have a win win situation for both bats & man in this survey".
Support for reserve	*"Please save the Reserve....it is unique to Port Macquarie and should be available for all to enjoy".*

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Theme	Respondents comment
Support for education	*"I applaud the educational approach adopted by the council, education is the best option to work with people who live in the area".*
Support for education	*"We have neighbors that purposely disturbed the bats regularly making banging sounds with pots and pans and whistles they wake the bats in the day it's realy annoying as the bats are usually fine sleeping in the day, when they are right at our back fence I have to use the dryer or hang clothes inside but I'm happy having the bats there in fact I believe we are lucky to be able to live near them and have a duty to protect them as we are the ones who have destroyed allot of their natural habitat anyway. Just wish there was more education for those who live on the creek and penalties for those who disturb the bats".*
Support for education	*"I understand the difficult nature of flying fox camps in close proximity to houses but very strongly support community education regarding the importance of these species on long term forest health as well as the least invasive methods to gently nudge them away from roosting close to homes".*
Council responsiveness	*"1 - This community problem has been well known for many years and the time has come for proactive responses. Spending more years on education without action to control the adverse impacts is not sufficient. Council already has the views of 10,000 residents who have Petitioned for action. This survey/report to Council must also recognise those very patient voices. 2 - The cost of attending to the problem has to be considered in the same way that all worthwhile Council initiatives are considered in the Budget - cost effective activity that addresses a recognised need. Looking for a 'low financial cost' as this survey suggests should not be the approach for any project - identifying best value outcomes is important. 3 - Intending to seek funding from the State Government, without mentioning in this survey, the relevance of the State Government's Code seems odd. 4 - To engage, in the future, only with the community 'around a camp' is limiting. Flying-foxes have impacted the broader community including tourism operators, community groups and walkers. Broader engagement is required. 5 - Engaging and educating community members is inadequate where it relates only to some input and little after that. Council should commit to: informing the community of decisions taken; planned actions and timeframes; performance measures and the results of the actions. A considered management plan could do this. 6 - All the options identified in the NSW Government's Draft Code of Practice Authorising Flying-Fox Camp Management Actions 2018 including the many practical options not identified in this survey, must be considered".*
Council responsiveness	*"I encourage Council to effectively deal with this problem in the near future as residents, particularly those close to Koolongbung Creek, have suffered the effects for far too long".*
Council responsiveness	*"We hold council totally responsible for the terrible situation we are now in. If council had acted many years ago we would not be in this position. council now needs to act with URGENCY".*
Council responsiveness	*"Yes, please get on with it, please don't just have this survey for some people in Council to justify their job or position, & seem to say, look what we are doing to help. You can if you wish, contact me if you need any clarification on my thoughts. Thank you for the opportunity*

Appendix 6 Standard measures to avoid impacts to flying-foxes

The following mitigation measures will be complied with at all times during implementation of any activities within or immediately adjacent the camp.

- All personnel will be appropriately experienced, trained and inducted. Induction will include each person's responsibilities under this Plan.
- All personnel will be briefed prior to the action commencing each day and debriefed at the end of the day.
- Works will cease and OEH consulted in accordance with the 'stop work triggers' section of the Plan.
- Large crews will be avoided where possible.
- The use of loud machinery and equipment that produces sudden impacts/noise will be limited. Where loud equipment (e.g. chainsaws) is required they will be started away from the camp and allowed to run for a short time to allow flying-foxes to adjust.
- Activities that may disturb flying-foxes at any time during the year will begin as far from the camp as possible, working towards the camp gradually to allow flying-foxes to habituate.
- Any activity likely to disturb flying-foxes so that they take flight will be avoided during the day during the sensitive GHFF/BFF birthing period (i.e. when females are in final trimester or the majority are carrying pups, generally August – December) and avoided altogether during crèching (generally November/December to February). Where works cannot be done at night after fly-out during these periods, it is preferable they are undertaken in the late afternoon close to or at fly-out. If this is also not possible, a person experienced in flying-fox behaviour will monitor the camp for at least the first two scheduled actions (or as otherwise deemed to be required by that person) to ensure impacts are not excessive and advise on the most appropriate methods (e.g. required buffer distances, approach, etc.).
- OEH will be immediately contacted if LRFF are present between March and October or are identified as being in final trimester / with dependent young.
- Non-critical maintenance activities will ideally be scheduled when the camp is naturally empty. Where this is not possible (e.g. at permanently occupied camps) they will be scheduled for the best period for that camp (e.g. when the camp is seasonally lower in numbers and breeding will not be interrupted, or during the non-breeding season, generally May to July).
- Works will not take place in periods of adverse weather including strong winds, sustained heavy rains, in very cold temperatures or during periods of likely population stress (e.g. food bottlenecks). Wildlife carers will be consulted to determine whether the population appears to be under stress.

- Works will be postponed on days predicted to exceed 35°C (or ideally 30°C), and for one day following a day that reached ≥35°C. If an actual heat stress event has been recorded at the camp or at nearby camps, a rest period of several weeks will be scheduled to allow affected flying-foxes to fully recover. See the OEH fact sheet on Responding to heat stress in flying-fox camps.
- Any proposed variations to works detailed in the Plan will be approved, in writing, by OEH before any new works occur.
- OEH may require changes to methods or cessation of management activities at any time.
- Ensure Level 2 management actions and results are recorded to inform future planning. See the OEH fact sheet on Monitoring, evaluating and reporting.

Vegetation trimming/removal (if required)

- Dead wood and hollows will be retained on site where possible as habitat.
- Vegetation chipping/mulching is to be undertaken as far away from roosting flying-foxes as possible (at least 100 m).

Canopy vegetation trimming/removal (if required)

Prior to works

- Trees to be removed or lopped will be clearly marked (e.g. with flagging tape) prior to works commencing, to avoid unintentionally impacting trees to be retained.

During works

- Any tree lopping, trimming or removal is undertaken under the supervision of a suitably qualified arborist (minimum qualification of Certificate III in Horticulture (Arboriculture) who is a member of an appropriate professional body such as the National Arborists Association) (e.g. Highland Arbor; Chris Watchirs).
- Trimming will be in accordance with relevant Australian Standards (e.g. AS4373 Pruning of Amenity Trees), and best practice techniques used to remove vegetation in a way that avoids impacting other fauna and remaining habitat.
- No tree in which a flying-fox is roosting will be trimmed or removed. Works may continue in trees adjacent to roost trees only where a person experienced in flying-fox behaviour assesses that no flying-foxes are at risk of being harmed. A person experienced in flying-fox behaviour is to remain on site to monitor, when canopy trimming/removal is required within 50 metres of roosting flying-foxes.
- While most females are likely to be carrying young (generally September – January) vegetation removal within 50 metres of the camp will only be done in the evening after fly-out, unless otherwise advised by a flying-fox expert.
- Tree removal as part of management will be offset at a ratio of at least 2:1. Where threatened vegetation removal is required, the land manager will prepare an Offset

Strategy to outline a program of restoration works in other locations (in addition to existing programs). The strategy will be submitted to OEH for approval at least two months prior to commencing works.

Bush regeneration

- All works will be carried out by suitably qualified and experienced bush regenerators (i.e. Landcare groups), with at least one supervisor knowledgeable about flying-fox habitat requirements (and how to retain them for Level 1 and 2 actions) with knowledge regarding working under a camp.
- Vegetation modification, including weed removal, will not alter the conditions of the site such that it becomes unsuitable flying-fox habitat for Level 1 and 2 actions.
- Weed removal should follow a mosaic pattern, maintaining refuges in the mid- and lower storeys at all times.
- Weed control in the core habitat area will be undertaken using hand tools only (or in the evening after fly-out while crèching young are not present).
- Species selected for revegetation will be consistent with the habitat on site, and in buffer areas or conflict areas should be restricted to small shrubs/understorey species to reduce the need for further roost tree management in the future.

Stop work triggers

Management activities in or near Kooloonbung Creek camp will cease and will not recommence without consulting OEH if:

- any of the animal welfare triggers occur on more than two days during the program, such as unacceptable levels of stress (Table 10)
- there is a flying-fox injury or death
- a new camp/camps appear to be establishing
- impacts are created or exacerbated at other locations
- there appears to be potential for conservation impacts (e.g. reduction in breeding success identified through independent monitoring)
- standard measures to avoid impacts cannot be met.
- Management may also be terminated at any time if:
  - unintended impacts are created for the community around the camp
  - allocated resources are exhausted.

Table 11 Planned action for potential impacts during any works under or near the camp. A person with experience in flying-fox behaviour (as per Appendix 6) will monitor for welfare triggers and direct works in accordance with the criteria below.

Welfare trigger	Signs	Action
Unacceptable levels of stress	If any individual is observed: - panting - saliva spreading - located on or within 2 m of the ground	Works to cease for the day.
Fatigue	In-situ management - more than 30% of the camp takes flight - individuals are in flight for more than 5 minutes - flying-foxes appear to be leaving the camp	In-situ management Works to cease and recommence only when flying-foxes have settled* / move to alternative locations at least 50 m from roosting animals.
Injury/death	- A flying-fox appears to have been injured/killed on site (including aborted foetuses) - dependent/crèching young present and adults likely to take flight or abandoned camp	Works to cease immediately and OEH notified AND rescheduled OR adapted sufficiently so that significant impacts (e.g. death/injury) are highly unlikely to occur, as confirmed by an independent expert OR stopped indefinitely and alternative management options investigated.

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Appendix 7 Community feedback

Table 12 Community feedback from consultative meeting 2

Level	Theme	Actions to prioritise	Actions to disregard	How or where to implement
1	Education and awareness	Information on removal of non-natives		Friends of Kooloonbung do this in Park however, need to educate residents of home removal of weeds including tobacco and Cocos palm
		Kooloonbung Friends educate at schools		
		Update information sheets on flying-fox disease		
		Tourism		
		Information on removal of non-native		Particularly those that are sources of bat food
		Signage at Kooloonbung Park		
		Ban barbed wire in residential areas and black monofilament netting		Promote wildlife friendly netting
		Priority – facts sheets on flying-fox disease risk - Information on council website - Advice on tree trimming Medium – signage at Kooloonbung Creek - Wildlife educator - Information on removal of non-natives		
		Information on removal of non-native Advice on tree trimming or removal		Removal of blossoming trees close to housing Removal of roosting trees close to housing
		Information on removal of non-native Advice on tree trimming or removal	Signage in Kooloonbung Fact sheets on flying-fox disease risk information on council website wildlife educator at schools or clubs	
			Signage already there	

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Level	Theme	Actions to prioritise	Actions to disregard	How or where to implement
			Signage not required	
			Wildlife educator	
	Property acquisition	priority		
		✓✓		Must be at top of market value so as not disadvantage residents
	Level 1		Level 1 management actions mostly completed refer 2012 KCPoM	
	Create alternative habitat	✓		Alternative camp corner of Lake Road and Ocean Drive – mostly paperbark vegetations
	Create alternative roost sites	Priority		Look at expanding planting at the Hatch as Alternative Roost Site
	Subsidies	Air-conditioning – who pays power bill?		
		High pressure hosing		but more to do with sound and important to have shock value
		Car / clothes line / pool covers priority		
		Air deodorisers, high pressure hosing, air -conditioning, double glazed windows all priorities		rate and electricity subsidies
		Car / clothes line / pool covers, Air deodorisers, high pressure hosing, air -conditioning, double glazed windows		
		High pressure hosing – consider for cleaning back patio		
		Subsides for all air-conditioning		
		Water subsidy for daily washdown		
		Water subsidy should be in place		
		High pressure hosing, air-conditioning, double-glazed windows		Would consider this a good option to try. Would allow us to breath at

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Level	Theme	Actions to prioritise	Actions to disregard	How or where to implement
				night. Think this would assist with noise control to help us get some sleep and could actually have visitors at our home
		Double-glazed windows would help with noise		
			Air deodorisers – impossible as the smell covers a huge area outside making living on back areas impossible	
			Car / clothes line / pool covers	
2	Buffers	Canopy-mounted sprinklers useful to shift bats near around homes		Near affected homes
		Canopy-mounted sprinkler; idle diesel generator motor; air compressor noise		
		Canopy-mounted sprinkler high priority seems to have worked in other areas		
		Canopy-mounted sprinkler		
		Canopy-mounted sprinkler, vegetation trimming and removal		Need to address tree choice. Less roosting trees and food sources in the park. There are huge areas of blossom down the road in the industrial area.
		Will consider canopy-mounted sprinkler, vegetation trimming, vegetation removal and acoustic barrier		
		Canopy-mounted sprinkler and vegetation removal		Bats within5 metres of back fence in tall paperbark trees
		Vegetation trimming - maybe		
			Vegetation removal not feasible otherwise compromise reserve values	
			Removal of a narrow band of trees would affect other wildlife	

Level	Theme	Actions to prioritise	Actions to disregard	How or where to implement
			Barriers could affect movement of koalas	
		Acoustic barrier but shock value as with Royal Melbourne Botanical Gardens		
				Concerned that shadiest roost area left is along the rear of houses – other areas have lost canopy cover and therefore heat stress concern

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Revision History

Revision No.	Revision date	Details	Prepared by	Reviewed by	Approved by
00	4/12/2018	PR3995 Kooloonbung Creek Camp Management Plan	Emily Hatfield, Senior Wildlife Biologist	Jess Bracks, Principal Wildlife Biologist	
01	04/01/2018	PR3995 Kooloonbung Creek Camp Management Plan.DR2	Emily Hatfield, Senior Wildlife Biologist	Julie Whelan, Senior Environmental Scientist	
02	06/03/2019	PR3995 Kooloonbung Creek Camp Management Plan.DR3	Emily Hatfield, Senior Wildlife Biologist	Jess Bracks, Principal Wildlife Biologist	
03	22/03/2019	PR3995 Kooloonbung Creek Camp Management Plan.DR4	Emily Hatfield, Senior Wildlife Biologist	Jess Bracks, Principal Wildlife Biologist	

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BIODIVERSITY MANAGEMENT STRATEGY

2019–2030

A strategy to conserve the biodiversity
of the Port Macquarie-Hastings LGA

PORT MACQUARIE
HASTINGS
COUNCIL

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The information in this publication is primarily intended to direct strategic planning at the local government area scale and intended only as a broad guide for individual sites. Port Macquarie-Hastings Council takes no responsibility for decisions made by individuals based on the information contained in this report.

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Port Macquarie-Hastings Council acknowledges the Birpai People as the traditional custodians of the lands within its local government boundaries. The watersheds of the Manning River in the south, the Maria River in the north and the Apsley River in the west create the natural boundaries of the Birpai Nation. Council also acknowledges the Dunghutti People as the traditional custodians of land within the northern part of the local government boundary. The richly diverse landscapes of the region provide spiritual and physical resources such as food, shelter and other necessities of daily life, which allowed the community to thrive in harmony with the environment for many thousands of years prior to the arrival of Europeans. Port Macquarie-Hastings Council pays respect to Birpai and Dunghutti Elders both past and present. Port Macquarie-Hastings Council extends that respect to all other Aboriginal and Torres Strait Islander people present.

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A MESSAGE FROM THE MAYOR

It gives me great pleasure to introduce the *Biodiversity Management Strategy 2019–2030* for the Port Macquarie-Hastings Local Government Area.

The Port Macquarie-Hastings is rich in biodiversity. The area's natural values are a major reason so many people enjoy living in and visiting the area. Council recognises that biodiversity is fundamental to the region. It contributes to the ecological balance necessary for successful functioning of our important agricultural and primary industries. The challenge is to protect these important natural biodiversity values for current and future generations while facilitating sustainable development and economic prosperity for the area.

This Biodiversity Management Strategy identifies the most important natural assets of the area, the threats to these assets and the actions that can be undertaken to manage these threats.

The Strategy builds on Council's strategic planning work, environmental modelling and natural resource projects undertaken. It uses the best possible current science to deliver its objectives. This Biodiversity Management Strategy is integral to delivering the goals of the *Towards 2030 Community Strategic Plan* and underpins the *Urban Growth Management Strategy* and the *Port Macquarie-Hastings Council Local Environment Plan*.

Council looks forward to engaging with the community in order to responsibly deliver the Biodiversity Management Strategy over the coming years.

Peta Pinson

Mayor

DEFINITIONS AND ACRONYMS

Ecological resilience	In ecology, resilience is the capacity of an ecosystem to respond to a disturbance (or perturbation) by resisting damage and recovering quickly.
Ecological maintenance	A state in which the majority of layers of vegetation (i.e. strata) and species are present in an ecosystem (with few weeds) such that the site becomes resilient to future disturbances such as weed invasion.
Environmental weeds	Environmental weeds are plants that invade native ecosystems and adversely affect the survival of native flora and fauna. Environmental weeds can be foreign plants accidentally or intentionally introduced into Australia, or they can be native plants that have become weedy because they are outside of their normal range. In the Port Macquarie-Hastings area, for example, many plants from northern Queensland become weedy.
Biodiversity	Biodiversity is defined as the variety of living organisms on the planet. It includes terrestrial, aquatic and other ecosystems and the ecological complexes of which they are a part. Biodiversity occurs at a variety of scales including genetic diversity, species diversity and ecosystem diversity. In this Strategy, biodiversity refers to plants and animals native to the Port Macquarie-Hastings Local Government Area.
Forestry Lands	For the purposes of this Strategy, 'Forestry Lands' are taken to be: • Areas with a private native forestry licence (as of October 2016) • Forestry Corporation NSW lands outside Protected Areas.
GAP CLoSR	General Approach to Planning Connectivity from Local Scales to Regional. A modelling tool which can be used to examine landscape connectivity and habitat fragmentation.
Habitat component	An area defined by GAP CLoSR wherein wildlife may move around within the component, but not out of the component, due to impermeable barriers or a lack of linking habitat. They are like 'islands' in the landscape that wildlife cannot move from.
Habitat linkage	An area defined by GAP CLoSR that effectively links two habitat patches together. These links may be narrow strips of vegetation or scattered paddock trees (which act like 'stepping stones' across the landscape). They are too small to be considered as a 'habitat patch' but play an important role in connectivity.
Habitat patch	A consolidated area of vegetation wherein wildlife has sufficient resources (food, shelter, mates) available for long-term survival.
LEP	Local Environment Plan
Mesic	In ecology, a mesic habitat is a type of habitat with a moderate or well-balanced supply of moisture, e.g. a mesic forest.

National parks	This includes all parks and reserves in National Parks and Wildlife Service estate, including national parks, nature reserves, state conservation areas and historic sites.
Precautionary principle	The precautionary principle states that when a human-induced activity raises a significant threat of harm to the environment or human health, then precautionary measures should be taken even if there is no scientific consensus regarding cause and effect. It is akin to 'better safe than sorry'. It is embedded in much national and international environmental legislation.
Protected Areas	For the purposes of this Strategy, 'Protected Areas' are taken to be: • National Parks and Wildlife Service estate (national parks, nature reserves, historic areas, state conservation areas) • Forestry Corporation lands dedicated under the Forest Management Zones 1 or 2 purely for biodiversity conservation • E2 Lands within Port Macquarie-Hastings Council's 'Managed Public Bushland' portfolio (as of June 2016).
Silviculture	Silviculture is the practice of controlling the establishment, growth, composition, health and quality of forests to meet diverse needs and values.
Threatened ecological community	An ecological community is a group of native plants, animals and other organisms that naturally occur together and interact in a unique habitat. A threatened ecological community is one that has limited geographic distribution and is therefore at risk of extinction. These communities may be protected under state and/or federal legislation.
Threatened species	Plant or animal species that are at risk of becoming extinct. These species may be protected under state and/or federal legislation.
Transforming weeds	Invasive plant species which have the capacity to undermine the ecological processes which maintain the health of native vegetation and hence the habitat of indigenous plants and animals. Many transforming weeds can change the ecosystem to benefit their species ahead of native species, such as through changing soil chemistry or fire regimes.
Zonation	Zonation is a modelling tool (developed by the University of Helsinki) which seeks to rank the landscape in terms of the relative importance of areas for supporting biodiversity values. 'High value' sites may support a high diversity or abundance of species, or may support just one species found nowhere else.
NC LLS	North Coast Local Land Services
PMHC	Port Macquarie-Hastings Council
OEH	Office of Environment and Heritage
NPWS	National Parks and Wildlife Service
ARI	Average recurrence interval
UGMS	Urban Growth Management Strategy

HOW TO USE THIS STRATEGY

This Biodiversity Management Strategy is divided into five chapters.

Chapter 1 provides some context for the importance of biodiversity to the Port Macquarie-Hastings Local Government Area (LGA) and why a Strategy is required. It outlines the aims and objectives of the Strategy and the legislative context. It also outlines the various datasets that were used to conduct the modelling and mapping associated with this Biodiversity Management Strategy.

Chapter 2 identifies and maps the biological values of the Port Macquarie-Hastings LGA, such as landscape units, vegetation communities, important wetlands and threatened species. It outlines the program 'Zonation' which was used to compile various datasets and identify the most important areas for biodiversity in the LGA.

Chapter 3 examines the concepts of landscape connectivity and habitat fragmentation. It outlines the program 'GAP CLoSR' which was used to examine how well the Port Macquarie-Hastings LGA is 'connected' for wildlife and which areas may require some additional assistance to reconnect them or consolidate tenuous links. It also examines issues such as broader-scale wildlife corridors and the connectedness of wetland systems.

Chapter 4 uses the knowledge derived from Chapters 2 and 3 to derive a 'Priority Investment Layer'. These are the areas on private lands and land managed/owned by Council where strategic investment for biodiversity (such as through government funding streams or the biodiversity offset market) would be best spent. Helping to conserve these areas would be highly beneficial to protecting the biodiversity of the Port Macquarie-Hastings LGA.

Chapter 5 identifies threats to the biological assets of the LGA and considers the relative threats operating in different landscape units. It includes some quantitative analysis of the impacts of climate-induced sea-level rise on biological assets and the amount of land affected by private native forestry.

Chapter 6 outlines the four key themes that Council will use to identify actions in the annual operational plan(s) and future delivery program which assist in delivering biodiversity conservation.

All scientific names for species mentioned are in Appendix A.

All technical terms are defined in the Definitions and Acronyms (at the front of the Strategy).

We hope this Strategy helps develop a new or improved understanding of the valuable biological resources of the Port Macquarie-Hastings LGA, the threats that face these resources and the actions that are required to protect them for future generations.

SUMMARY

The Port Macquarie-Hastings Local Government Area (LGA) is a biodiverse area and these biological assets are highly valued by the Council and community. They contribute to the cultural, lifestyle, aesthetic and recreational identity of our LGA. The importance of biodiversity to the local economy (e.g. property values, tourism, agriculture, silviculture, and economic development generally) is also highly valued and recognised.

There are, however, untold challenges for the biodiversity of our LGA, including feral pest invasion, clearing for development and agriculture, and a rapidly changing climate.

The key messages from this Strategy are:

- We need to protect our most important biological assets to maximise biodiversity conservation.
- These important areas need to be ecologically connected so they can function properly.
- We need to manage the threats that undermine the resilience of these important areas.
- Everyone in the Port Macquarie-Hastings community and visitors to the region have a role to play in protecting biodiversity.

This Biodiversity Management Strategy:

- identifies the most important biological priority areas in our LGA (using Zonation and other software packages)
- identifies islands/patches of contiguous vegetation and where the key habitat linkages and connections are between these patches (using GAP CLoSR)
- identifies threats to biodiversity
- identifies four overarching themes, or programs, to generate annual biodiversity actions.

A major focus of the Biodiversity Management Strategy has been to use the best available information and science to identify the areas that are most valuable for biodiversity in the Port Macquarie-Hastings LGA. This work has allowed us to create a Priority Investment Layer that can be used to assist landholders to direct biodiversity offset schemes and apply for funding to protect key biological assets on private lands.

The Port Macquarie-Hastings LGA has an educated and inspired community, with some amazing examples of community-led initiatives that support biodiversity conservation. Port Macquarie-Hastings Council plays a key role in bringing together different stakeholders (government, education, private individuals, community groups etc.) to attract funding and deliver projects to make a difference.

This Biodiversity Management Strategy provides many spatially explicit outputs (using tools such as Zonation, GAP CLoSR, climate change modelling, species distribution models) that can inform future strategic planning and conservation initiatives. Possessing such models, and using these to justify projects, will greatly increase the chances of receiving funding for projects in the LGA. These spatially explicit models can also help guide biodiversity management and protection in the LGA, particularly in a time where environmental legislation is undergoing a radical overhaul.

Many of the challenges to biodiversity are not easy to solve, but they do present exciting opportunities along the way. The challenges are certainly worth the knowledge that we stand our children in better stead to inherit a world still rich in natural wonders and capable of supporting the full range of ecosystem services we all rely on.

1. INTRODUCTION

1.1 PORT MACQUARIE-HASTINGS LOCAL GOVERNMENT AREA

The Port Macquarie-Hastings Local Government Area (LGA) (Figure 1) is an area rich in biodiversity supporting a diverse and significant assemblage of both terrestrial and aquatic plants and animals. Situated in the Macleay–McPherson overlap, the area contains elements of both tropical and temperate biota. The LGA, with an area of 3680 km², also spans a wide range of altitudes — from the high plateaus of Werrikimbe National Park through to the coastal plains. For many species, the Port Macquarie-Hastings area is a stronghold for the population (such as the Koala or the White-flowered Wax Plant), while for others it is an area where the species is at the edge of either their southern or northern geographical distribution (such as the Lesser Swamp-orchid and Coastal Pandanus). Conserving the altitudinal and latitudinal ranges of species is important given impending changes to climate. Some species, such as the North Brother Wattle and the Big Nellie Hakea, are found virtually nowhere else in the world.

The LGA also includes specific areas of biological importance. For example, Limeburners Creek Nature Reserve is one of only two coastal wilderness areas in NSW. Lake Innes Nature Reserve is considered the 'engine room' for Koala populations in the LGA and contains a 'nationally significant population' (as defined by federal government criteria). Sea Acres Nature Reserve and adjoining Council land are some of the largest remaining patches of littoral rainforest, particularly outside far-northern Queensland, and the Antarctic Beech forests of Werrikimbe National Park (with Gondwanan origins) are of great significance. The estuaries and foreshores of the Camden Haven area as well as those around Pelican Point,

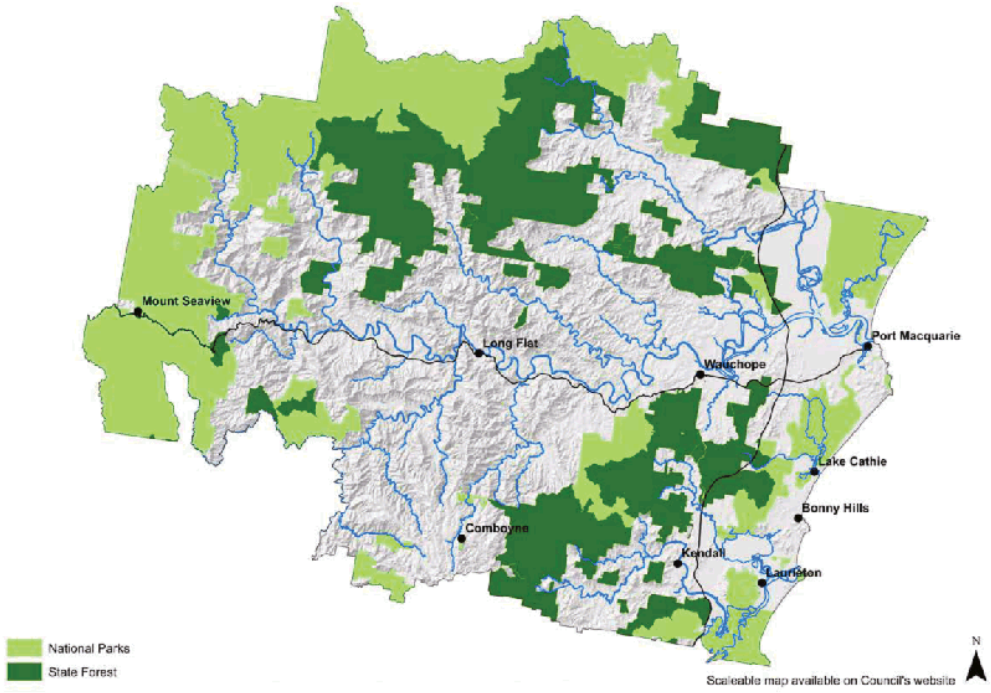


Figure 1. Port Macquarie-Hastings Local Government Area

including Woregore Nature Reserve, are of immense importance for migratory shorebirds listed under international conventions and agreements. Clearly we live in an area with nationally and internationally important biological values.

The identity and economy of the Port Macquarie-Hastings LGA is strongly tied to its rich biological values, with many people attracted to live, work or play in the area because of these values. A community research survey undertaken in 2008 identified that the natural environment/beauty of the area was the item that 21% of residents valued most about living in the LGA. Residents were also asked to rate the importance of specific criteria in regards to planning of the LGA in the next 10 years. The items considered to be of highest importance (across all criteria) were:

- 'That water is conserved' and
- 'That bushland, open spaces and natural habitats are protected'.

Furthermore, Environmental Monitoring and Protection was ranked of higher importance than Managing Commercial Development, or Managing Residential Development (importance scores of 4.43, 4.01 and 4.24 respectively). A similar study of Port Macquarie residents in 2015 showed that:

- 98% of residents surveyed 'believed that looking after the biodiversity value of Port Macquarie's green spaces is important'
- 95% of residents agreed that removing weeds from bushland reserves is important
- virtually all (99%) residents agreed that the bushland corridors are important for wildlife
- the vast majority (89%) of people believed that the bushland reserves are important for views
- 97% of residents stated that they liked living in a place near wildlife
- more than 93% of residents stated that they were attracted to live at their residence because of proximity to/views of the bush.

Numerous studies around the world have shown that proximity to/views of green spaces can increase the value of urban dwellings.

Port Macquarie-Hastings LGA prides itself in having the largest remaining coastal population of Koalas, and many people view this species as a 'cultural icon' for the area. Cultural or historical ties to forestry, fishing and farming across the LGA ensure that some people feel passionate about, for example, the long-term conservation of ecologically functional forest and marine ecosystems. The Birpai and Dunghutti peoples of this area also have strong cultural ties to the biodiversity of the area and a strong interest in the protection of the area's biological values. Of particular importance are the seven Birpai animal dreaming totems, several of which have declined in extent in our LGA and elsewhere, including pademelons (species uncertain) and the Australian Bass.

While the Port Macquarie-Hastings LGA has numerous national parks and nature reserves with high biological importance, the majority of these reserves are located in areas historically not suitable for housing development, forestry or agriculture, such as swamps and steep ridges. Thus, while such reserved areas capture some of the biological values of the area, they are not fully comprehensive or representative of the LGA's biodiversity. Land outside the formally protected area network therefore has an important role to play in conserving the full range of biodiversity found within our local government area.

The Port Macquarie-Hastings LGA is undergoing rapid economic expansion and development. For example, from 2011 to 2016, the average number of development applications received each month has increased by 63% and the population of Port Macquarie is expected to increase by 30% to 103,000 in the next 20 years. Port Macquarie-Hastings Council faces the challenge of trying to preserve its biological values, while simultaneously accommodating such economic opportunities.

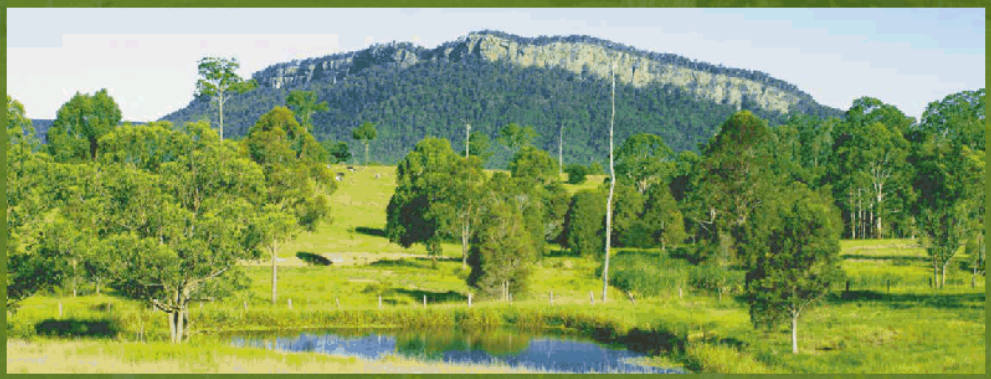
BOX 1. BIODIVERSITY IS PART OF US

The Port Macquarie-Hastings Local Government Area has magnificent natural values. Our spectacular sweeping beaches and fertile coastal plains are backed by the spectacular hinterland with the distinctive Three Brothers and the Bago Bluff mountains. Beyond this, the landscape rises to the heights of the escarpments of Mount Seaview and Werrikimbe National Park. Our landscape is diverse and as such it supports a diversity of plants and animals. Both tropical and temperate plants and animals abound in the Port Macquarie-Hastings, with many species occurring at the edge of their range.

The region's identity is strongly tied to its natural values and the way people connect with them. Our biodiversity is part of our existence, our lifestyle and collective memories. Our legendary Koala populations, the region's strong history with the forestry industry, childhood reminiscences of summertime Christmas Bells on the Christmas Bells Plains, the dawn bird chorus and evening frog call cacophony, the spectacular backdrop of littoral rainforest along Shelly Beach, enjoying our beautiful rainforests on a hot summer's day, or appreciating our coastal lakes and rivers.

Henry Kendall (*The Song of the Shingle-splitters*), writing during his time in the state forests of this area, captures this sense of our biodiversity being with us wherever we go.

In dark wild woods, where the lone owl broods
And the dingoes nightly yell
Where the curlew's cry goes floating by,
We splitters of shingles dwell.
And all day through, from the time of the dew
To the hour when the mopoke calls,
Our mallets ring where the woodbirds sing
Sweet hymns by the waterfalls.



1.2 THE IMPORTANCE OF BIODIVERSITY

Biodiversity is defined as the variety of life, or the variability of living organisms on the planet. It includes terrestrial, aquatic and other ecosystems and the ecological complexes of which they are a part. Biodiversity occurs at a variety of scales including genetic diversity, species diversity and ecosystem diversity. Biodiversity is recognised as an important feature of healthy natural assets and increases flexibility and resilience in the face of change (i.e. resilience from natural disasters including floods, droughts and fires). The more healthy and diverse a system is, the more able the system as a whole is able to absorb stresses and compensate for damage or loss that may occur in one part of the system.

Conserving biodiversity is an essential part of safeguarding the biological life support systems. All living creatures, including humans, depend on and contribute to these life support systems for the necessities of life. For example, we need oxygen to breathe, clean water to drink, fertile soil for food production, and physical materials for shelter and fuel. These necessities can be described collectively as 'ecosystem services'. Ecosystem services are provided by healthy ecosystems. These functions are supported by biodiversity and its attributes, including the number of different species in an area, the number of individuals of each species (i.e. their abundance), the composition or mix of species in any particular area, and the interactions between these species. Ecosystem services can be divided into four groups:

1. provisioning services (e.g. food, fibre, fuel, fresh water)
2. cultural services (e.g. spiritual values, recreation and aesthetic values, knowledge systems)
3. supporting services (e.g. primary production, habitat provision, nutrient cycling, atmospheric oxygen production, soil formation and retention)
4. regulating services (e.g. pollination, seed dispersal, climate regulation, pest and disease regulation, water purification).

The resilience of ecosystems in Australia and around the world is currently being reduced by a number of threats, including habitat loss and consequent loss of species, degradation and fragmentation, invasive species, unsustainable use and management of natural resources, changes to the aquatic environment and water flows, changing fire regimes and climate change. For ecosystems to be resilient to these and other threats, they need a healthy diversity of individuals, species and populations.

This Biodiversity Management Strategy provides a framework for actions to protect our local biodiversity in the Port Macquarie-Hastings LGA and preserve these values for the wellbeing of future generations. As *Australia's Biodiversity Conservation Strategy 2010–2030* states, 'business as usual is no longer an option' if ongoing damage to biodiversity is to be prevented.

Throughout this Strategy, the term '**biodiversity**' means the biodiversity that is native to the Port Macquarie-Hastings LGA.

A major focus of the Strategy has been terrestrial biodiversity; an element over which local government has jurisdiction (compared with marine diversity for which Council has no jurisdiction). The Strategy uses the best available information and focuses on the species that have a good amount of information available. Therefore, animals such as invertebrates, although highly important, are largely not considered due to a lack of information on their occurrence and requirements.

BOX 2. BIODIVERSITY: AT THE HEART OF EVERYTHING WE DO

Who wouldn't want to live in a region with beautiful beaches, waterways, nature reserves and over 40,000 hectares of national park and state forest? Talk to any local and they will tell you that life in the Port Macquarie-Hastings region is enriched by our natural environment. It's our biodiversity which sets us apart, allowing our unique waterways, flora and fauna to thrive. But it's more than just lifestyle. Our local economy is supported by agriculture, aquaculture, forestry and fishing sectors which sell more than $100 million worth of goods out of our region each year. All of these industries are reliant on our natural resources and biodiversity conservation.

Our tourism sector is also heavily dependent on our biodiversity assets. Some of the most popular tourist activities in the Port Macquarie area are nature-based. Visitors flock to our region to enjoy our beaches, coastal walks, national parks and wildlife — Koalas being the clear favourite with our international visitors. Locals and visitors alike are increasingly taking an interest in where their food comes from (choosing food sources which have a 'clean and green' image or other sustainable credentials) and emerging farm-gate experiences are adding to the range of ways which we can enjoy our natural environments. Tourism Research Australia recently confirmed that the 'unprecedented numbers of domestic travellers pursuing outdoor nature-based and cultural activities' has underpinned the strong growth in holiday-based travel.

Our region's biological resources are precious. As a community, we are all stewards of our local environment and we need to take responsibility for using and sharing it in a responsible and sustainable way.

1.3 PRINCIPLES AND OBJECTIVES OF THE BIODIVERSITY MANAGEMENT STRATEGY

Principles

Australia's Biodiversity Conservation Strategy 2010–2030 (Natural Resource Management Ministerial Council, Commonwealth of Australia, 2010) outlines a number of principles, including:

- We share the Earth with many other life forms that have intrinsic value and warrant our respect.
- All Australians benefit from biodiversity; all Australians can and should contribute to its wellbeing.
- Biodiversity is best conserved by protecting existing natural habitats.
- Effective conservation of biodiversity operates at the landscape scale across public and private tenures.
- Natural ecosystems are dynamic but have a finite capacity to recover from external impacts.
- Building resilience (see Box 3) recognises the critical links between ecological and social systems.
- Knowing that our knowledge is limited, we should apply the 'precautionary principle' while employing adaptive management approaches using new science and practical experience. The precautionary principle is that the lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there is a risk of serious environmental damage.

The principles have been taken into account in the development of this Strategy. These principles are commensurate with the objectives also outlined in the Port Macquarie-Hastings Council's *Towards 2030 Community Strategic Plan* (discussed in further detail below).

Objectives

This Strategy is a local response to *Australia's Biodiversity Conservation Strategy*, the *Draft New South Wales Biodiversity Strategy 2010–2015*, the *Northern Rivers Regional Biodiversity Management Plan* (the Port Macquarie-Hastings LGA is part of the Northern Rivers region) and the *Draft Mid North Coast Regional Conservation Plan*.

The Objectives of this Strategy are in accordance with these broader guiding documents and are to:

1. Maintain and improve biodiversity and ecological processes by protecting, rehabilitating and managing native vegetation across all land tenures, particularly those areas with high biological values.
2. Promote landscape connectivity to help biodiversity conservation and reduce climate change impacts (such as rising sea levels, increased drought, fire, flood events).
3. Contribute to identifying and mitigating threats acting on biodiversity values.
4. Provide targeted actions to protect and assist the recovery of biodiversity across all ecosystems.
5. Improve awareness of the importance of biodiversity conservation and ways this can be achieved.
6. Work cooperatively with regional, state and federal stakeholders on biodiversity conservation initiatives.

While Council will work towards these Objectives, it is important to remember that many of the impacts on biodiversity in the region are beyond the control of Council, either because of the scale at which they operate, or because the power of jurisdiction rests at the state or federal level or with private individuals, or because Council simply does not have the financial resources to address the issue. There are also 'lag' effects from historical disturbances which are not readily reversible. For example, the full loss of biodiversity from clearing and/or habitat fragmentation is often only observed years after the clearing event. However, the knowledge gained from this Strategy will greatly aid the community and Council in its ability to lobby other sectors and stakeholders as well as to empower and educate the community, even for issues over which Council has no direct control.

This Biodiversity Management Strategy also seeks to guide delivery of key goals outlined in the *Towards 2030 Community Strategic Plan*, including:

- Goal 4.6 Restore and protect natural areas
- Goal 4.3 Facilitate development that is compatible with the natural and built environment
- Goal 4.8 Increase awareness of issues affecting our environment including preservation of flora and fauna.

BOX 3. BUILDING ECOSYSTEM RESILIENCE: THE IMPORTANCE OF BUSHLAND RESTORATION

Objective 1 of this Strategy is to 'Maintain and improve biodiversity and ecological processes by protecting, rehabilitating and managing native vegetation across all land tenures, particularly those areas with high biological values'.

Since 2006, Port Macquarie-Hastings Council has taken a pro-active approach in the management of 5000 hectares of native bushland under its jurisdiction through its *Strategic Bushland Reform Program*. Much of this vegetation is one of a number of listed threatened ecological communities and supports a wide range of threatened plant and animal species.

A six-person Bushland Management Team, alongside community volunteers such as Landcare, works hard to remove weeds and rubbish from urban community bushland and restore the biological values and ecological functioning of these important areas. The aim is to bring these sites to 'ecological maintenance' — that is, a state in which the majority of the strata (or layers of vegetation) and species are present in the ecosystem, such that the site becomes resilient to future disturbances such as weed invasion.

Weed invasion has a major impact on the resilience of vegetation. Weedy areas do not support the full range of potential species that should occur there, are visually unappealing and often have a higher fire risk due to exotic annual grasses and vine weeds. Conversely, when the full complement of native species is present in the ground layer there are no available spaces for weed species to germinate and colonise the site. These sites are more resilient and are closer to the ideal 'ecological maintenance' state.

Monitoring of sites in the LGA has demonstrated the success of our collective bushland management program.

Port Macquarie Landcare members in a rehabilitated area.

1.4 THE ROLE OF LOCAL GOVERNMENT IN BIODIVERSITY CONSERVATION

Local government is a key player in the conservation and management of terrestrial biodiversity and threatened species in an area. As land-use planners, local government has legislative responsibilities for planning and regulating many activities which may impact biodiversity and threatened species. Councils must therefore consider such activities against numerous pieces of state and federal legislation governing biodiversity conservation. Councils also manage large areas of public land, much of which contain important biodiversity values.

Local government regularly considers biodiversity in its day-to-day operations including:

- strategic land use
- assessing development applications
- managing public operational land (e.g. sewage plants, water tower reserves, drainage areas)
- managing public bushland
- supporting landholders
- planning and constructing infrastructure
- ensuring that Council operations do not adversely impact the environment
- acting as the local control authority for biosecurity issues.

Port Macquarie-Hastings Council has recognised the importance of the preservation of the biological values of the LGA in a number of policy and planning documents. The *Towards 2030 Community Strategic Plan* states that:

> We understand and manage the impact that the community has on the natural environment. We protect the environment now and in the future (Focus Area 4).

The *Port Macquarie-Hastings Urban Growth Management Strategy* states that we will work:

> To maintain and improve existing environmental values in the Port Macquarie-Hastings LGA (Key Natural Environment Strategy).

The *Port Macquarie-Hastings Council Operational Plan* (2016–2017) states that we will:

> Prepare a draft Biodiversity Management Strategy to determine environmental priorities for conservation and restoration (Action 4.7.1.2). (This Strategy ultimately fulfils that aim).

Many existing Council programs are outlined in Appendix B.

1.5 KNOWLEDGE IS KEY

The knowledge delivered by this Strategy will help Council to meet planning obligations under the *North Coast Regional Plan 2036: Implementation Plan 2017–2019*, Action 2.1 which states:

> Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value.

Information is fundamental to local government when making decisions which protect biodiversity and when providing high quality advice. This includes knowledge on where the most important areas for biodiversity are, the regional patterns and drivers in the distribution of biodiversity, knowledge on which species are threatened, and key threats to species. These areas of knowledge form the basis for this Biodiversity Management Strategy, which seeks to:

1. identify areas of high biological importance in the LGA (see Section 2 and Section 4)
2. identify patterns in landscape connectivity (see Section 3)
3. identify threats to key biological values in the LGA (see Section 5)
4. provide a framework to develop annual action plans to help mitigate these threats (see Section 6).

This Biodiversity Management Strategy aims to deliver this information in a spatially explicit (i.e. mapped) manner wherever possible. Most importantly, this knowledge has been delivered at a scale appropriate to the Port Macquarie-Hastings LGA. While the *Northern Rivers Regional Biodiversity Management Plan* (DECCW 2010) similarly identified areas of biological importance and threats to biodiversity, it is of too coarse a scale to be of practical assistance for many areas considered by Council. The knowledge delivered by this Strategy will greatly aid strategic planning. It will assist Council, private landholders and other parties to gain grant funding to protect important biological areas. It will help inform the biodiversity offset market (see Box 4). For offset works to be appropriate, Council must understand areas that represent 'like-for-like'. The relative biological values of an area must also be understood spatially and temporally across all species to uphold the 'maintain or improve' concept of offsetting.

BOX 4. BIODIVERSITY OFFSETTING: AN EXAMPLE

A development company, Prosperity Enterprises, buys a property for a housing development. They draw up full plans (a substantial investment) and then engage an ecological consultant to assess the impact. The consultant finds that there are Squirrel Gliders on site. Squirrel Gliders are a threatened species under NSW legislation. Some Squirrel Glider habitat will be lost if the housing development proceeds.

The ecological consultant concludes that there is no point trying to plant trees for Squirrel Gliders on the site as it is not large enough (so would not support a sustainable population) and the housing development will allow dogs and cats (which are key threats to the gliders). Furthermore, the land surrounding the site is also scheduled for future developments and any plantings on the site would therefore effectively become an 'island' in a sea of suburbia within the next 5 years. The Bushfire Consultant concludes that the proposed development is in a bushfire prone zone and any tree planting would contravene asset protection zone requirements. The development cannot, however, proceed without mitigating the impacts to Squirrel Gliders.

Port Macquarie Hastings Council agrees that the development can proceed **if** the developer can 'offset' the impacts by improving Squirrel Glider habitat elsewhere in the LGA. Modelling associated with this Biodiversity Management Strategy has shown that Farmer Smith's property nearby has good potential for Squirrel Gliders. An ecological consultant surveys the site and determines that, while a small colony of Squirrel Gliders is present, the population is not at its full potential due to the presence of foxes and a depauperate (i.e. not diverse) mid-storey vegetation layer. If foxes were controlled and wattles planted, the population would increase. Farmer Smith is very happy to get some money to do fox control on his farm and plant some wattles. Prosperity Enterprises pays Farmer Smith to manage his farm for Squirrel Gliders for a number of years and a biodiversity offset has occurred. The development proceeds.

1.6 DATASETS USED IN THIS BIODIVERSITY MANAGEMENT STRATEGY

Port Macquarie-Hastings Council has been active in preparing and compiling datasets for informing the Strategy. In addition, a range of freely available datasets have been utilised. The datasets used are outlined in Table 1 (see Appendix C for a detailed description of these datasets).

This Biodiversity Management Strategy has been prepared using the best available datasets and methodology available at the time of preparation. Nonetheless, no mapping or modelling process is ever 100% accurate due to issues with scale, on-ground disturbances and input data (see Box 5). Therefore, due to limitations with both the available datasets and the modelling processes used, on-ground verification will always be required to determine the accuracy of the mapping. The information is primarily intended to direct strategic planning at the local government area scale and intended only as a broad guide for individual sites. Individual landholders should seek professional advice to verify the data at the site level prior to any decision-making processes.

The Biodiversity Management Strategy should also be viewed as constantly evolving. For example, priority species identified in this Strategy may be downgraded in the future should a new, larger threat emerge. Conversely, the relative value of an area may be upgraded if other similar areas were to be progressively cleared over time.

Due to such limitations and the ever-changing world in which we live, it is proposed that the Biodiversity Management Strategy be reviewed every 5 years.

Table 1. Datasets used to inform the Biodiversity Management Strategy

Dataset	Brief description
Port Macquarie-Hastings Council vegetation community mapping	Maps patches of vegetation existing in 2009 outside of national parks and state forests. Maps developed using aerial photographs and field surveys.
CRAFTI vegetation mapping	Comprehensive Regional Assessment Forestry Type Inventory mapping of national parks and state forests across New South Wales. Created in the mid-1990s. Less accurate than PMHC vegetation mapping.
Koala habitat mapping	Maps different classes of Koala habitat across the LGA. Maps developed in 2013.
Threatened ecological community (TEC) mapping	Maps created using PMHC vegetation community mapping plus other datasets of geomorphic features (e.g. elevation and soil type).
BioNet	Publicly available NSW Government database of plant and animal records in the State. Formerly the Atlas of NSW Wildlife.
Atlas of Living Australia	Publicly available information on Australia's biodiversity (including records, calls, images).
BirdLife Australia Birdata	Comprehensive database administered by Birdlife Australia. Data was purchased for use in species distribution modelling.
Climate change scenarios	Estuarine and coastal inundation maps of Hastings, Lake Cathie/Lake Innes and Camden Haven developed as part of PMHC Sea Level Rise Mapping Project (data and report available from Council upon request).
ANUCLIM	Bioclimatic data (e.g. rainfall, altitude, aspect) from ANUCLIM was used by the University of Melbourne for species distribution modelling.

BOX 5. A WORD OR TWO ON MODELLING

The American statistician, George Box, once stated that 'All models are wrong but some are useful'. Similarly, the statisticians, Burnham and Anderson, noted 'A model is a simplification or approximation of reality and hence will not reflect all of reality'.

A good model can be compared to a good map – it will never replicate each and every intricacy of reality, but it will give good direction (and is certainly better than no map at all when navigating unclear terrain!). Similarly, the models and mapping produced by this report provide an approximation of reality. They will always require ground validation and checking.

2. BIOLOGICAL VALUES OF THE LGA

2.1 FLORA AND FAUNA IN THE LGA

The Port Macquarie-Hastings LGA is a biodiverse area supporting a varied and important assemblage of terrestrial and aquatic plants and animals across approximately 368,000 hectares. Situated in the Macleay–McPherson overlap (i.e. the overlap between tropical and temperate bioregions), the area contains a mix of both tropical and temperate species. The LGA also spans a wide range of altitudes — from the high altitude plateaus of Werrikimbe National Park (1266 metres above sea level) through to the low coastal plains and beaches.

The Port Macquarie-Hastings LGA can be broadly divided into four **landscapes**: Coastal Plains, Midland Hills, Escarpment Ranges and Tablelands (see Figure 2). Each of these different landscape units has different biophysical factors (e.g. geology and climate) and therefore supports a different assemblage, or mix, of plants and animals. Each of these landscape units also experiences different levels of environmental protection. For instance, while close to 100% of the Tablelands Landscape is protected in national parks, only 10% of the Midland Hills Landscape is similarly protected. This means that species typical of the Midland Hills are currently poorly represented in the formal reserve network in the Port Macquarie-Hastings LGA. Each landscape unit also experiences different levels of development, grazing and tree cover.

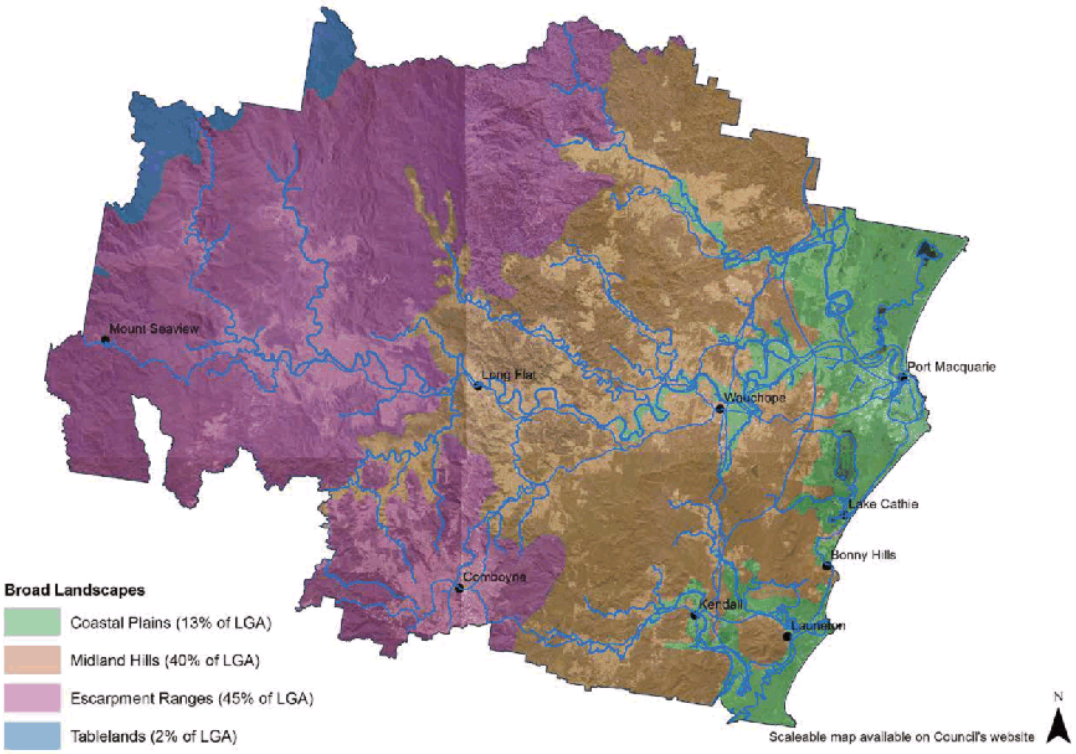


Figure 2. Landscape units in the Port Macquarie-Hastings LGA

Each landscape unit has different biological values and supports different assemblages of plants and animals.

Compared to many other local government areas, the Port Macquarie-Hastings LGA still has a good coverage of **remaining native vegetation** at the LGA-wide scale, with around 283,000 hectares (76%) remaining (including for the purposes of this Biodiversity Management Strategy, native grasslands and wetland vegetation). Nonetheless, the amount of remnant vegetation does not occur equally between the four landscape units. The very small area of Tablelands Landscape in the LGA is entirely vegetated (being national park and state forest) and the Escarpment Ranges retain 86% of their vegetation. At the other end of the scale, and not surprisingly with its many current and historical developments, the Coastal Plains Landscape has undergone the heaviest clearing and has 56% remaining vegetation. The Midland Hills, with its predominantly agricultural land uses, is still 72% vegetated. However, much forested land has been, or is, subject to timber harvesting. Much of the vegetation is therefore 'regrowth' of varying ages and does not support trees of large diameter, stately formation and hollow-bearing characteristics as in old-growth forest. Old-growth forest is highly important to a wide range of animals, particularly hollow-dependent species (such as gliders and large forest owls). Such forests only now occur in limited extent in the Port Macquarie-Hastings LGA and elsewhere.

A wide range of **broad vegetation formations** are represented in the LGA (Table 2). Of these broad types, Wet Sclerophyll Forests are the predominant forest type and occur on all landscapes and account for over half of the vegetation types of the Port Macquarie-Hastings LGA (~187,500 hectares or 66%). Rainforests are another dominant vegetation type and account for 58,744 hectares or 20% of the total native woody vegetation in the LGA. Grassy Woodlands are rare across the LGA, occupying only 1,340 hectares (0.5%). Figure 3 shows the broad vegetation formations in the LGA.

Table 2. Native vegetation formations by area and percentage of total

Formation	Area (ha)	% of total
Wet Sclerophyll Forests (Grassy)	99,408	33.9
Wet Sclerophyll Forests (Shrubby)	88,143	30.9
Rainforests	58,744	20.6
Dry Sclerophyll Forests (Shrubby)	11,100	3.9
Dry Sclerophyll Forests (Grassy)	7,141	2.5
Forested Wetlands	7,132	2.5
Heathlands	5,958	2.1
Freshwater Wetlands	2,250	0.8
Saline Wetlands	1,954	0.7
Grassy Woodlands	1,340	0.5
TOTAL	**283,169**	

Separate to the broad vegetation formation maps, Port Macquarie-Hastings Council has completed very detailed **vegetation community** mapping of all remnants outside state forests and national parks across the LGA (see Box 6). In the LGA, 83 vegetation communities are described in detail and mapped at a very fine scale. The communities are too detailed to illustrate in this Strategy, however, an example of an area is included in Box 7, and the maps are available from Council upon request. The mapping has identified that while some vegetation communities are widespread (e.g. Grey Gum - Tallowwood - White Mahogany Grassy Forest), others are very limited in their extent (such as Themeda Headland Grassland). Council's mapping work also revealed an entirely new vegetation community, Lighthouse Gully Subtropical Rainforest, which is currently only known to occur in the Port Macquarie LGA.

The Port Macquarie-Hastings LGA supports an amazing array of species with some 1890 native plant species and 621 native animal species recorded for the LGA. Among these, there are around 140 threatened animals,

50 threatened plants and 9 threatened ecological communities as listed under New South Wales and/or federal legislation. These numbers are given as estimates only as the official list of threatened species changes frequently and knowledge on which species occur in the LGA is imperfect. Most of the ecological communities listed as threatened occur in the flattest, most fertile parts of the landscape where clearing has affected the largest area. For individual species, mammals, birds and plants together make up the bulk of the threatened species. Each of these animals and plants has different habitat requirements and life cycles. Some of the animals move widely around the landscape to satisfy feeding and breeding requirements (and thus require a 'whole of landscape' approach to conservation), while others are quite sedentary and may be highly reliant on one small area for their survival. Some of our threatened species are found nowhere else in the world, such as the North Brother Wattle (see Box 8). The habitat of some animals is principally found on private land (for instance 80% of primary Koala habitat in the LGA is on private land), and for other species, national parks and state forests provide important habitat. It is therefore clear that all stakeholders within the Port Macquarie-Hastings LGA (government agencies like Forestry Corporation of NSW and National Parks and Wildlife Service, private landholders, the community and Council) have a role to play in protecting threatened species and other plants and animals that are native to the LGA.

Having a large number of threatened species can be considered both a blessing and a curse. While it is a good thing that these species are still present and utilising habitat in the LGA, it is still unfortunate that their long-term persistence in the wild across the full extent of their range is not secure. A large number of threatened species in the LGA therefore represents an opportunity to help reverse their decline while there is still time and in a place where there is still hope. The new NSW *Biodiversity Conservation Act 2016* fully recognises that such opportunities be followed through with funding under Biodiversity Stewardship arrangements for private landholders.

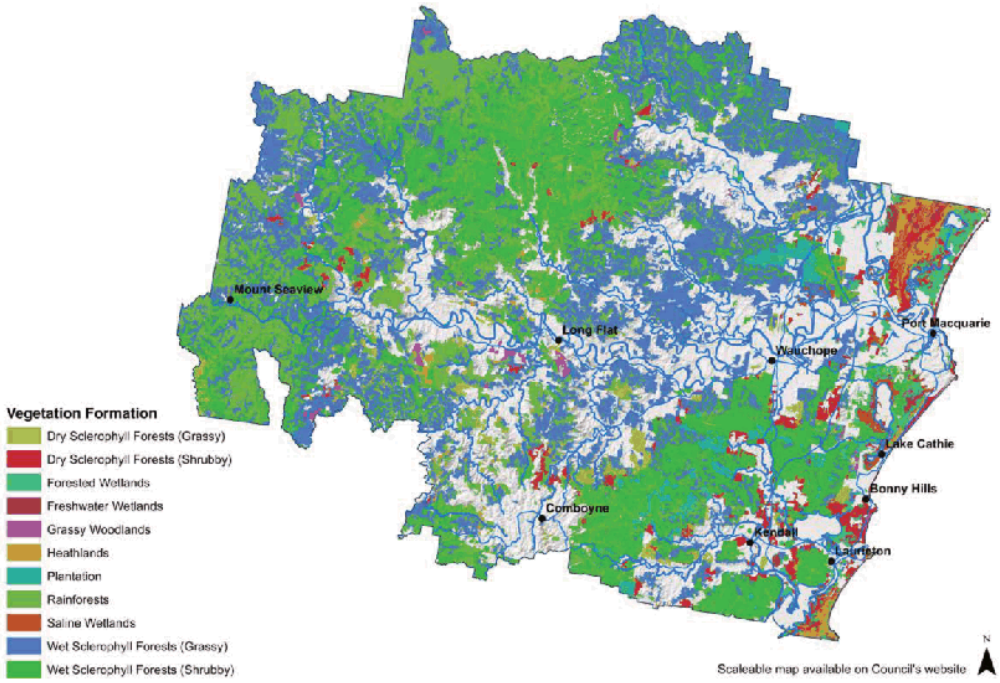


Figure 3. Broad Vegetation Formations across the LGA

It should be noted that while some vegetation formations are widespread, others are limited in spatial extent and/or are restricted to one landscape unit.

BOX 6. VEGETATION CLASSIFICATION

A classification is any ordered grouping of objects. Vegetation in Australia is 'classified' using a range of features such as vegetation structure, physiognomy (i.e. physical appearance or features), and species composition (i.e. the mix of different plants). Classifying vegetation helps us to simplify and distil the complex patterns of vegetation that occur across the landscape. These classifications are also used to create maps and systems which are valuable tools for communicating fundamental information about the environment.

In New South Wales, the adopted standards follow the hierarchical classification system which is outlined in the book ***Ocean Shores to Desert Dunes*** by David Keith (2004). At the highest level, vegetation is assigned to a **vegetation formation**. These broad groups tend to be based on structural features, for example Rainforest, Grasslands or Heathlands, but may also be based on locations where they are found, for example Saline Wetlands or Alpine Complexes.

At the next level, the vegetation is assigned to a **vegetation class**. These groups are defined mainly by overall floristic (species) similarities, although they may also share structural and habitat characteristics. So for instance, nested within the Rainforest vegetation formation are Subtropical Rainforests and Cool Temperate Rainforests vegetation classes. A Subtropical Rainforest would be readily identifiable from a Cool Temperate Rainforest by the species present, with the former likely to support Rosewoods, Moreton Bay Figs, Red Cedars, and Booyongs and the latter readily identifiable by species such as Antarctic Beech and Mountain Laurel. Unfortunately, species patterns are highly complex due to geographic variation and other factors such as disturbance history.

Vegetation is then assigned to a **plant community**. These are assemblages of plant species that live together, generally at the same time. They are usually the features found in vegetation maps. They also frequently share structural similarities, although these vary based on the condition of the vegetation.

Changes in vegetation species are frequently representative of changes in other biodiversity as well, with some species, for instance, only occurring in one vegetation class. Some species may be so specific they only occur in one plant community type.

Box 6 continued

Within the Port Macquarie-Hastings LGA, vegetation mapping revealed 83 different plant communities, including 'derived' or 'novel' vegetation communities (e.g. Camphor Laurel Forest). These are referred to as Port Macquarie-Hastings Vegetation Communities.

Vegetation formation

Rainforest

↓

Vegetation class

Littoral rainforest

↓

Plant community type

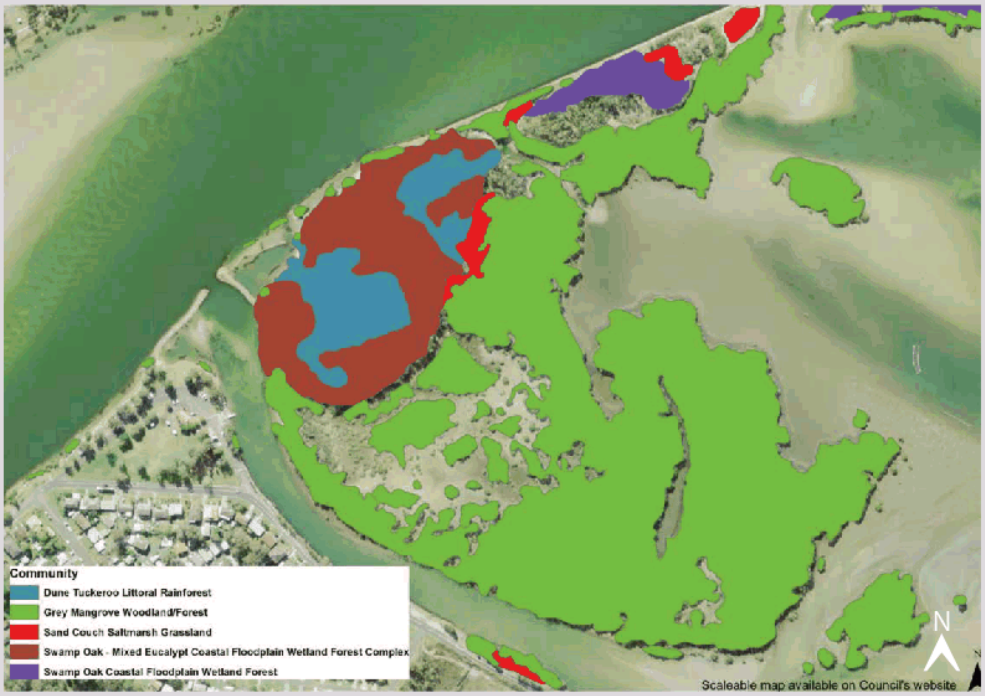
Brushbox headland littoral rainforest, NSW North Coast Bioregion and Southern Eastern Queensland Bioregion

Within New South Wales, a great deal of work is currently being undertaken to conduct comprehensive analysis of ***plant community types*** and associated mapping. Port Macquarie-Hastings Council is currently working with the Office of Environment and Heritage to align the Port Macquarie Vegetation Communities with the plant community types used under the Biodiversity Conservation Act.

The Biodiversity Conservation Act dictates that environmental impacts be calculated relative to these plant community types. At the local level, councils may wish to conduct their own vegetation community mapping, which further splits NSW plant community types into locally recognised discrete communities. Mapping plant community types is not easy because areas frequently include components of two community types – this is particularly true where the communities occur adjacent to each other (in what are called ecotones).

BOX 7. VEGETATION COMMUNITIES

As described above, vegetation communities are much more finely detailed than vegetation classes or formations, and at the local level, even more detailed than plant community types. An example of the diversity of plant community types that can be found in a small local area is shown in the figure for Googleys Island below. The area (or spatial extent) of some communities also varies over time. For instance, work by the Port Macquarie-Hastings Council's Bushland Management Team has shown the recovery and increase in the spatial extent of the Littoral Rainforest on this island over time.



BOX 8. NORTH BROTHER WATTLES

The North Brother Wattle is found only in the Laurieton district, occurring on North Brother, Middle Brother and South Brother mountains. It is not known from anywhere else in the world. North Brother Wattle usually grows on steep, dry, rocky slopes and in mixed dry forest on shallow soils, often under a canopy of White Mahogany and Grey Gum.

It is a tall shrub or weeping tree 7–20 metres high. The bark is smooth and grey when young and later becomes black and furrowed. Small branches are a maroon-brown colour. The leaves are dull green and narrow, up to 18 centimetres long, and have a small gland on the leaf edge just above the stem. From late spring to mid-summer, spikes of pale yellow globular flowers are produced followed by straight or curved, narrow woody pods up to 18 centimetres long.

It is at risk of extinction due to the low numbers of individuals known to exist, and it is threatened by inappropriate disturbance regimes, particularly fire but also road construction and Lantana encroaching habitat and preventing germination. The conservation of this species within its natural range in the Port Macquarie-Hastings LGA is therefore of high significance.

North Brother Wattle in flower. Photo © Louisa Billeter - https://www.flickr.com/photos/louisa_catlover/8165797045/

2.2 BIOLOGICALLY SIGNIFICANT AREAS IN THE LGA

2.2.1 OVERVIEW

While the Port Macquarie-Hastings LGA is important for biodiversity, not all areas have equal importance. For strategic planning purposes at the LGA scale, it is very important to understand the *relative* biological significance of a particular parcel of land or location compared with other locations. This is because examining locations in isolation reveals very little about their importance for the long-term conservation of biodiversity (or of a particular species) in the LGA as a whole. For instance, if a site supported only one species it may be concluded that this site was of low biological diversity and therefore of low importance. It might be concluded that this site had few ecological constraints for development and that the site was of low value for environmental funding opportunities. If the species was, for example, an Australian Raven which is widely distributed and very common, this would be an accurate conclusion ... But what if the one species on the site occurred nowhere else in the LGA? Clearly the goalposts have shifted entirely.

The Port Macquarie-Hastings LGA supports more than 2500 native plant and animal species. Therefore, the 'one species' example above is simplistic and the reality of conservation planning across the LGA is extremely complex. The large number of species in the LGA coupled with the fact that most species are not just limited to one easily identified site make strategic planning very complex. This is compounded by the lack of information on where species are distributed across the LGA, as not all areas have been surveyed.

A basic principle of biodiversity conservation is to ensure that species that are native to an area do not become extinct. Ultimately, the goal of biodiversity conservation is to conserve as much habitat as possible for as many locally native species as possible. In practice, this goal must be balanced against many competing land uses. For the Port Macquarie-Hastings LGA we used **Zonation**, a spatial prioritisation modelling software package, to identify which areas of land will work together to best conserve the habitats of *all* species that are native to the LGA. Zonation uses species distribution models as a fundamental input to the modelling process. These models show the location of the species' **predicted habitat** in the LGA.

Protection of habitat for species of limited spatial extent (i.e. species that only occur in a small area) is prioritised first and foremost to ensure their conservation. The modelling identifies the minimal area of land that will make the biggest contribution to biodiversity conservation. So, for instance, the best 20% of lands might represent habitat for 70% of species, whereas the best 80% of lands might still only represent habitat for 80% of species. The process of 'prioritising' land identified as having high biological importance does not, however, automatically ensure species conservation because:

- the mapping only identifies priority areas — it does not change planning rules or dictate what activities may or may not be appropriate
- no model is ever perfect and field verification is always required
- the model does not examine threats to species (such as predation from foxes or disease) in reserved lands
- the model does not examine minimum patch sizes or connectivity, both of which are fundamental to long-term species persistence (and hence the use of the GAP CLoSR analysis).

Nonetheless, spatial prioritisation models are of great value for strategic planning, particularly in examining landscape patterns and allowing all stakeholders to know the likely value of a parcel of land for biodiversity conservation.

Port Macquarie-Hastings Council engaged experts from the University of Melbourne in 2015 to undertake spatial prioritisation modelling to prioritise areas within the Port Macquarie-Hastings LGA based on their importance for representing the LGA's biodiversity. The assessment aimed to ensure that the best data and science is used to inform strategic planning and biodiversity investment in the LGA. The full report prepared by the university is available from Council on request. The work was done in conjunction with an analysis undertaken for the Upper Hunter group of Councils.

2.2.2 SPECIES DISTRIBUTION MODELS

For the Biodiversity Management Strategy, Zonation used the species distribution models that were developed for the broader Upper Hunter assessment, restricted to the Port Macquarie-Hastings LGA. This increased the statistical power of the analysis for the Port Macquarie-Hastings LGA and allowed for consideration of the full

range of natural environments that various species are found in.

Two different types of models were used as inputs to Zonation:

- species distribution models which are based on available records (i.e. locations where the species is known to occur) and other environmental datasets (e.g. vegetation and soil)
- species presence–absence models which are based on available records only.

Information on where each species was known to occur was obtained from online public databases, such as BioNet, and from records held by Council. MaxEnt, a freely available software package, was used to construct the species distribution models.

Species distribution models were developed for 404 species for which there was sufficient data (i.e. at least 20 records). This included a range of native fauna and threatened plants (not all plants could be included and the available datasets were quite biased, e.g. there were a very large number of orchid records).

Species distribution models show the likelihood of finding a species in each 'pixel' (i.e. each 100x100 metre grid cell in the LGA) given the environmental conditions that exist in that pixel relative to the environmental conditions in pixels where that species is known to occur. See Figure 4. The environmental conditions were assessed using (one or more of) 18 ecologically relevant environmental variables to predict the distribution of species. These included variables describing the climate, vegetation, topography and soils (the full list of variables is shown in Appendix D). So for instance, if a species is known to occur in an area with vegetation type X, topography A, soil type B and climatic conditions C, D, E, other areas with these characteristics (X, A, B, C, D, E) would be predicted to have a high likelihood of supporting that species as well.

The vegetation variables included both CRAFTI mapping and the Port Macquarie Vegetation Communities mapping (see Table 1). The models considered the vegetation occurring in the 100x100 metre grid cell as well as the vegetation context of the area (e.g. how much rainforest, wet sclerophyll or dry sclerophyll forest a grid cell had around it). Where more than one of these environmental variables was significantly correlated (or strongly linked) to the known locations for a species, only the one with the highest explanatory power was retained in the model outputs. For example, the records for a species may all occur in a vegetation community that is restricted to only one soil type, but soil type is the more strongly linked variable so the final model only used soil type, not vegetation.

An important step was to account for observer bias. Publicly held species records such as BioNet are incredibly useful, however, they are strongly biased towards the areas that people visit regularly or areas that have been surveyed. In our LGA, this includes national parks and state forests, locations along the coast and the more populated areas of the LGA. Failure to correct for such geographic biases can produce models that reflect the levels of visitation or survey effort rather than true species distribution. Sampling bias grids were introduced into the modelling process to remove observer biases and ensure all areas were treated more equally. Average model performance was around 80% which indicates a robust model.

The species distribution model for one species, the Burton's Snake-lizard, was identified as being poorly modelled by MaxEnt. The species had only 63 records so it was converted to a presence–absence model. This resulted in 403 species distribution models being available for the analysis.

Species presence–absence models were developed for 32 species with less than 20 records in the LGA. To do this, the point locations were overlain with a 100x100 metre grid cell to indicate their known locations.

In total, 435 models were developed: 403 species distribution models and 32 presence–absence models. See Table 3 for a taxonomic breakdown and Appendix E for the list of species.

Table 3. Taxonomic breakdown of the 435 species models

Taxonomic group	Number of species
Frogs	37
Reptiles	50
Birds	265
Mammals	63
Threatened Plants	20
TOTAL	**435**

While species distribution models give an excellent oversight into potential habitat for a species, there may

be a mismatch between the species' actual, current distribution and their predicted distribution. For example, a species may be absent from a site that is predicted to be suitable habitat. There are various reasons why this may occur, for example:

- other species may be competitively excluding the species
- the species may have a low dispersal ability that prevents it from colonising the site
- there may be historic factors that have excluded the species from a previously occupied site (e.g. land-use practices may have changed the habitat).

However, while these areas may not currently be occupied, they are likely to represent potentially suitable habitat for the species concerned and may still be important for conservation purposes. The models may also predict a species absence, when in fact it is present or visa versa. Field surveys are therefore always required to validate the models.

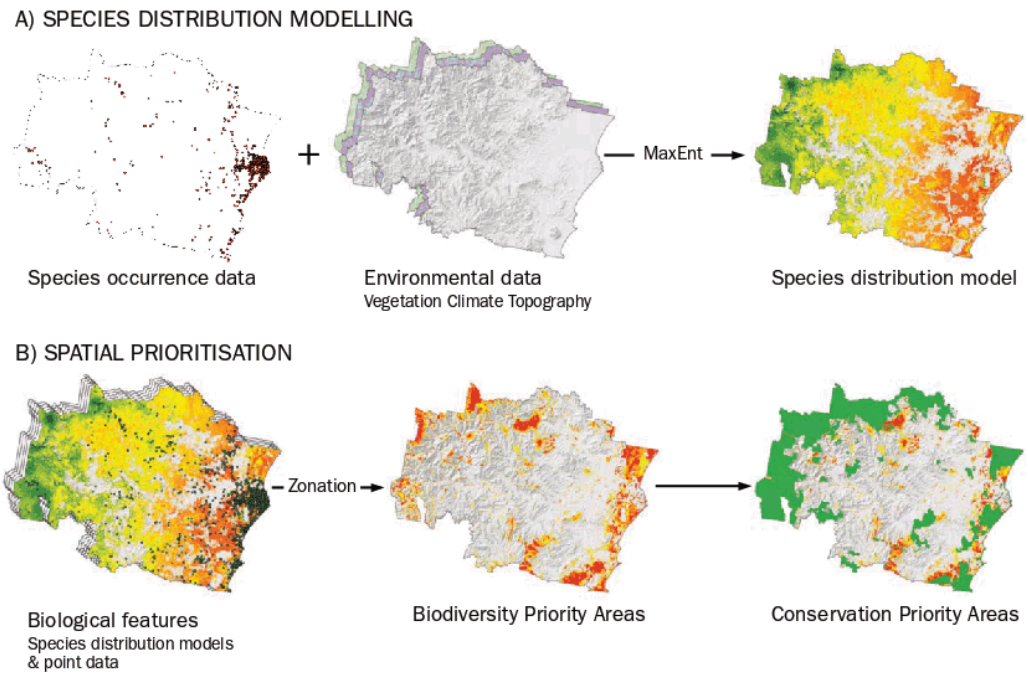


Figure 4. Schematic diagram representing the two-step modelling process used to generate the biodiversity prioritisation

a) Species records (occurrence data) were combined with environmental data to produce species distribution models.

b) These models were clipped to the PMHC area and combined with additional biodiversity features (i.e. point data for species for which there was too little data to complete formal modelling) in the spatial conservation prioritisation software, Zonation, to identify priority areas for biodiversity. We identified the top 30% of the landscape as conservation priorities ('Biodiversity Priority Areas'). By accounting for how well species are already conserved in currently 'Protected Areas' in the LGA (dark green areas on map), we can then identify priorities outside current Protected Areas for potential biodiversity investment ('Conservation Priority Areas').

2.2.3 ZONATION

Zonation conservation planning software: what it is and what it can do

'Zonation' was used to identify areas of high biodiversity value in the Port Macquarie-Hastings LGA. Zonation is a publicly available conservation planning software program, and a framework for conservation prioritisation and large-scale spatial conservation planning. It identifies areas, or landscapes, that are important for retaining habitat quality and connectivity simultaneously for multiple species (or any other biodiversity features). As such it provides a quantitative method for enhancing persistence of biodiversity in the long term. Zonation uses information about biodiversity features — such as species, their relative occurrences and biological needs — to create a hierarchical ranking of sites across any given landscape. See Figure 4.

The hierarchical ranking of sites is created through a 'removal' process where the software starts by assuming that all sites (i.e. 100x100 metre grid cells) in the landscape are to be protected. It then proceeds by removing the grid cells that cause the smallest marginal loss in conservation value (in terms of species abundance and diversity). This is repeated until all cells have been removed. The least valuable cells are removed first and the most valuable cells are retained until the very end. The order in which cells are removed produces a ranking, or priority value, for each cell. These can be grouped into classes (e.g. to identify the highest ranking areas). In this way, landscapes can be mapped according to their *potential* for biodiversity conservation.

The purpose is not to produce a detailed conservation plan for a large region, but to identify priority areas of the landscape that could be subjected to more detailed analysis and planning that accounts for other land-use pressures. It helps to identify the least important parts of the landscape, that is, those areas where human activity would cause the least harm to biodiversity value, as well as those areas that have high biological values and should be targeted for biodiversity protection and investment. The output of Zonation should be seen as an analysis of conservation value which feeds into a broader land-use planning framework where planning and political decisions are made and where other constraints and opportunities are considered.

Analysis for the Biodiversity Management Strategy

In this Strategy, priority areas are the 30% of sites which together best captured the biodiversity of the Port Macquarie-Hastings LGA. Thirty percent was chosen as the target for priority areas for several reasons, notably:

- Many studies (e.g. Walpole 1999; Doerr et al. 2013) have shown that landscapes where native vegetation cover falls below 30% experience rapid declines in biodiversity conservation and ecological services (a 'threshold' effect).
- Examination of the Zonation outputs for Port Macquarie-Hastings LGA showed that the amount of predicted habitat captured under various percentages increased most markedly up to 30% (and indeed, probably beyond). The top 30% of priorities encompassed, on average, 40% of species' predicted habitat.
- It is unlikely that even 30% of lands outside existing conservation reserve networks can all be subject to biodiversity investment works, either because of a lack of landholder desire/willingness, or a lack of available funds. A target of 30% is therefore likely to pick up sufficient lands to enable choice among species, locations and landholder wishes while still clearly identifying the 'most important' areas.

For each of the 435 species that were modelled (see Section 2.2.2 and Appendix E), an individual map showing the species' predicted distribution within the LGA (as produced by the species modelling) was used as input data for spatial prioritisation. Each model was 'clipped' to the Port Macquarie-Hastings LGA. All input layers were also restricted to areas of remnant native vegetation within the LGA. All species were assigned equal importance (i.e. not weighted). While there may be some merit to assigning threatened species a higher conservation weighting, if they are naturally rare in the landscape they will automatically be assigned a higher ranking by virtue of the way that Zonation operates.

Zonation was used in three stages. The first stage was to run a 'tenure-blind analysis'. This tenure-blind analysis identified the relative value of all areas for biodiversity across the entire LGA. Cells which were identified as '**Biodiversity Priority Areas**' in this analysis (i.e. the top ranked 30%) are of paramount importance for biodiversity conservation. They are likely to have values which are irreplaceable and should be protected wherever possible.

The second stage was to assume that lands within 'Protected Areas' were secure. The ranking process was then re-run to show the highest priority areas outside Protected Areas. These areas are referred to as 'Conservation Priority Areas'.

Protected Areas include:

- National Parks and Wildlife Service estate (national parks, nature reserves, historic areas, state conservation areas)
- Forestry Corporation lands dedicated under the Forest Management Zones 1 or 2 purely for biodiversity conservation
- lands zoned E2 (environmental conservation in the PMHC LEP) within Port Macquarie-Hastings Council's 'Managed Public Bushland' portfolio.

This analysis identified which lands outside formal conservation reserves could best complement the Protected Areas to ensure that the maximum amount of species habitat is protected.

The third stage was to remove Forestry Lands (i.e. areas with a private native forestry licence as of October 2016 and Forestry Corporation lands outside Protected Areas) from the Conservation Priority Areas layer to create 'Priority Action Areas'. These areas comprised community land (i.e. Crown land managed by Council and Council-owned land) and private lands. These Priority Action Areas fed into the Priority Investment Layer and form priorities for funding (see Section 4).

These three analyses are explained in further detail below.

Analysis 1: Tenure-blind results – Biodiversity Priority Areas

In the first step, Zonation was run 'tenure-blind' to examine the relative biodiversity value of ALL lands across the LGA irrespective of their tenure. The results are shown in Figure 5 (in 10% priority classes). The highest ranked 30% of lands are referred to as 'Biodiversity Priority Areas'. These Biodiversity Priority Areas are likely to represent lands with values which cannot easily be replaced. For instance, they may support rare species that only occur in a single location or only a few locations in the LGA, or they may support a high diversity and abundance of native species.

The results showed that many of the Biodiversity Priority Areas were within existing Protected Areas (see Table 4). Werrikimbe National Park; the cross-section of Kippara and Mount Boss State Forest and Willi National Park; Limeburners Creek and Lake Innes nature reserves; the combined area of Dooragan, Crowdy Bay and Middle Brother national parks and Middle Brother State Forest; and along Comboyne, Upsalls Creek and Kerewong state forests were areas of high biological importance.

Concentrations of Biodiversity Priority Areas outside Protected Areas were found mostly along the coastal region near Camden Haven River in Kew and Rossglen; along Maria River at Torrens Island and Blackmans Point; and in several other locations such as Fernbank Creek, Riverside, North Shore and Thrumster East. More isolated areas of high priority were also present in Birdwood, around Koorebang Nature Reserve and along the Hastings and Forbes rivers.

The area of predicted habitat for each species encompassed by the Biodiversity Priority Areas varied greatly – from 22% to 100% – and averaged 47% for all species modelled. The amount of predicted habitat encompassed within these priority areas also varied between species guilds. For instance, shorebirds were the best represented guild with about 81.2% of species distributions within Biodiversity Priority Areas. On the other hand, frugivorous birds, cave-roosting bats and the group 'phalangers, phascogales and their predators' had the lowest relative representation, with only on average 36%, 37% and 34% of predicted habitat encompassed respectively. This is approaching the minimum 30% threshold below which significant declines are likely. These results are not surprising as shorebirds are found only at a few sites, which are quickly captured by the iterative process, whereas frugivorous birds are widely distributed across many sites in the LGA (and indeed require many dispersed areas to satisfy their requirements).

The amount of different land tenures that was encompassed within the Biodiversity Priority Areas is shown in Table 4.

Table 4. Biodiversity Priority Areas in different land tenures

Tenure	% of total Biodiversity Priority Areas
Protected Areas	50%
Forestry Lands	24%
Community/Private lands	26%

The analysis shows that only half (50%) of Biodiversity Priority Areas are protected (see Protected Areas definition), the rest of these vitally important areas are not formally protected.

While some species have relatively large areas of predicted habitat occurring within Protected Areas, others do not, such that on average across all species Protected Areas only encompassed 36% of predicted habitat. Eight species occurred completely **outside** Protected Areas, namely: White-eared Monarch, Speckled Warbler, Brown Treecreeper, Brown Tree Frog, Black-chinned Honeyeater, Central-eastern Broad-nosed Bat, Rough-scaled Snake and Tyler's Toadlet. It should, however, be noted that many of these species were rare and/or under-surveyed in the study area indicating further work is required. Four of these species are listed as vulnerable under NSW legislation. Of specific 'guilds' of conservation interest (with the exception of shorebirds the habitat of which were well-represented in Protected Areas), most averaged just over 30% of predicted habitat occurring within Protected Areas (again representing a minimum threshold). The above analysis shows that the most preferred habitat for numerous species does not align with existing Protected Areas. The best conservation opportunities for these species must therefore be sought outside these Protected Areas, necessitating additional prioritisation analysis.

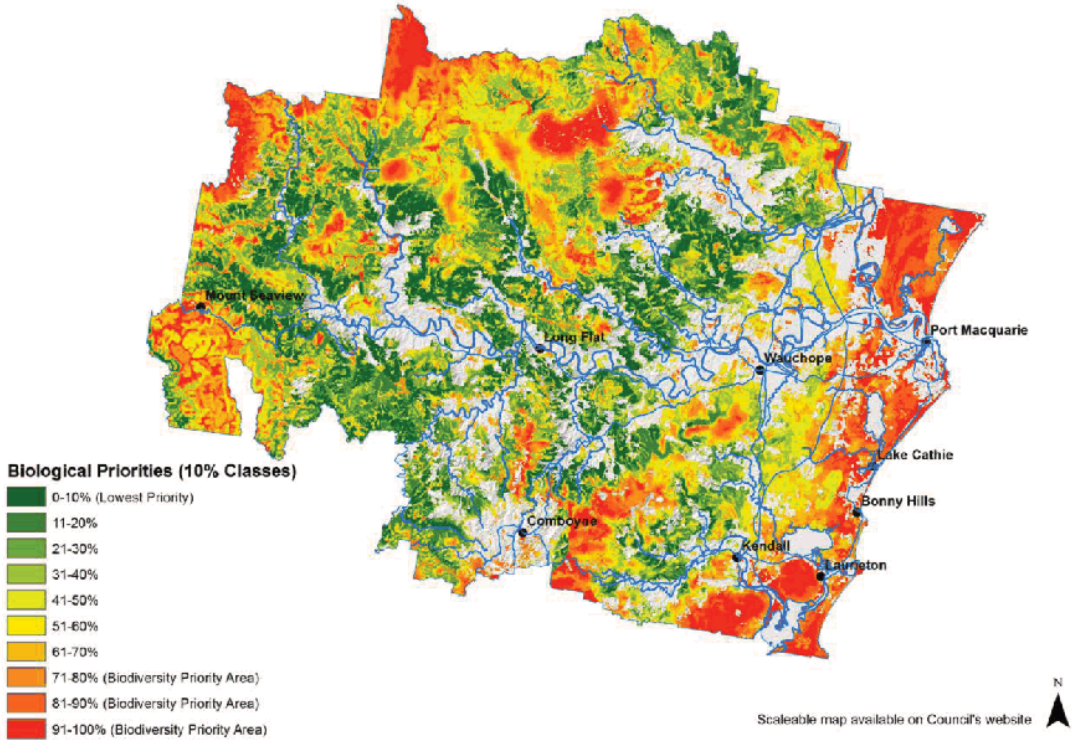


Figure 5. Biological priorities in the Port Macquarie-Hastings LGA, including Biodiversity Priority Areas

The figure shows areas of least biological importance (green) through to areas of highest biological importance (red). The top 30% are the 'Biodiversity Priority Areas'.

Analysis 2: Priorities outside of Protected Areas – Conservation Priority Areas

In the second step, Zonation was used to rank priorities on lands outside of Protected Areas (as described above). Zonation includes these Protected Areas in the top biodiversity priorities regardless of their actual predicted biodiversity value. This analysis allowed identification of areas that would best complement existing Protected Areas and therefore most effectively increase their representativeness in terms of local biodiversity in the Port Macquarie-Hastings LGA.

The highest ranked 30% are called 'Conservation Priority Areas' and are shown in Figure 6. Conservation Priority Areas were evenly divided between Forestry Corporation lands (50%, see Figure 7) and Community/Private lands (50%).

Conservation Priority Areas were found across the LGA with particular concentrations in the Kippara/Bril Bril, Kerewong/Swans Crossing, Batar Creek/Ross Glen, Bonny Hills-Lake Cathie, Dunbogan, Lake Innes, Upper Pappinbarra, Thrumster/Sancrox and Comboyne localities.

Analysis revealed that protection of all the Conservation Priority Areas (i.e. the top 30%) could increase the average coverage of species distributions from the 36% currently protected, to 73%. Even just securing the top 5% would increase the average coverage to 47% of species distributions. More importantly, securing this top 5% would ensure that no species would be left without protection and that all species would have a least 25% of their distribution protected within the Port Macquarie-Hastings LGA.

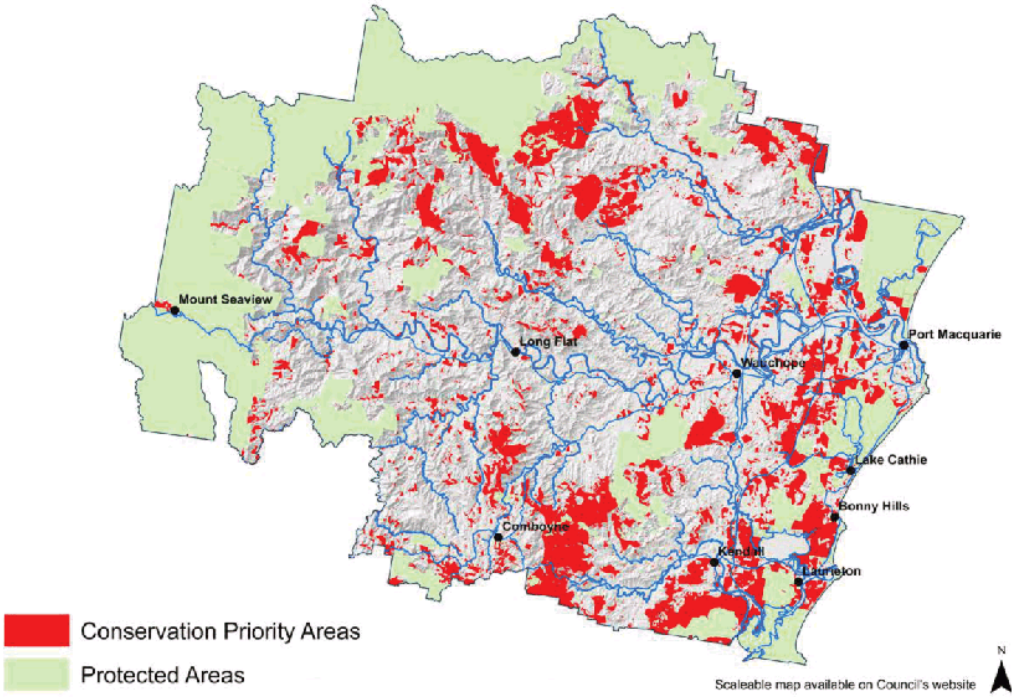


Figure 6. Conservation Priority Areas in the Port Macquarie-Hastings LGA

These areas, if protected, provide the maximum benefit to help ensure the conservation of all species distributions across the LGA (it is assumed that species habitats within Protected Areas are secure). It should be noted that other sites may be suitable for incentive funding or works for an individual species (the species distribution models can help to identify such sites).

Analysis 3: Priority Action Areas

The final analysis was to identify 'Priority Action Areas' in the LGA.

For this analysis, Forestry Corporation lands were simply deleted from the Conservation Priority Areas layer. Forestry Corporation lands are areas with a private native forestry licence as of October 2016 and Forestry Corporation lands outside Protected Areas. As such, the Priority Action Areas are either community lands (i.e. Crown land managed by Council and Council-owned land) or private lands. They do not include 'protected' Council Lands which are part of Council's Bushland Management Program and already managed for conservation outcomes.

To ensure maximum interpretation of the Zonation model outputs and to ensure that the model was contemporary, additional mapping work was then performed. This included the following:

1. Removing all areas which have been cleared since publication of the aerial imagery which underpinned the Zonation model (i.e. the 2010–2012 imagery). This was performed using the latest Near Map imagery for any area as shown in Appendix F.
2. Working to identify which natural feature(s) the Zonation raster (gridded cell) 'polygons' indicated. This was done by examining all natural features in an area (aspect, slope, vegetation communities, riparian features, the underlying species distribution models and a knowledge of such species' biology) and then mapping those local features which best matched the Zonation model output.

3. Removing isolated individual grid cells, unless they were part of a 'chain' of natural features (as commonly occurred along ridge tops or drainage lines for example). A buffering tool was used to help inform whether cells were isolated or part of a chain.

The final Priority Action Areas Layer contained slightly more areas than captured by the Conservation Priority Layer. This is because either:

- no natural features differentiated the area identified by the raster polygon from surrounding features, or
- at a fine scale, there were a multitude of single raster polygons scattered through a locality and thus that whole locality was picked up using natural features.

These Priority Action Areas are a major component of the Priority Investment Layer (see Section 4). Port Macquarie-Hastings Council can direct biodiversity investment funds towards priority areas on Council land and similarly can work with interested private landholders, Crown Lands and other stakeholders to help them prioritise and direct biodiversity actions in areas where the most benefit can be gained. Council can also work with such individuals to help secure conservation funding opportunities.

Two percent (837 hectares) of Priority Action Areas are on land owned or managed by Council. The remaining 98% are on private lands. A total of 47,418 hectares of land are identified as Priority Action Areas, providing ample opportunities for works through the life of this Biodiversity Management Strategy.

On Council lands, three particularly large and consolidated areas of importance were identified by Zonation:

1. The area of bushland around the MotoCross Track. This land contains the unique Narrow-leaved Red Gum – Orange Gum Swamp Woodland and important Koala habitat.
2. The area of bushland around the Port Macquarie Airport (currently part of a Biocertification process which will protect key areas of the Airport lands in perpetuity). This area contains unique wetland vegetation communities and numerous threatened flora and fauna species, including important populations of the Wallum Froglet.
3. Areas around Kew, including lands associated with the new Kew Waste Transfer Station and associated environmental offset lands, and the Kew sewerage treatment works.

The latter example illustrates the importance of having models such as Zonation for strategic planning purposes. Zonation was not available at the time of this development, although the biological importance of the land was recognised and offset works conducted. Another relatively large area of biological importance on Council land was also found at the western end of Rosendahl Reservoir. This area is managed for weeds and vertebrate pests, and Koala stiles have been installed to allow Koalas and other arboreal marsupials to access this area. Having such areas highlighted as Priority Action Areas can help inform future planning decisions.

Examining Priority Action Areas on lands owned or managed by Council can help inform Council's bushland management priorities and indeed, since the Zonation

analysis was completed, some such areas have been added to the Bushland Management Portfolio using specific grant funding (e.g. the links running from Dooragan National Park to the estuaries using the Estuarine Lakeside Linkages project funding). The importance of these links was previously recognised by Council staff anecdotally and Zonation gave quantitative evidence to further support works programs.

On private lands, Priority Action Areas are quite widely distributed across the LGA. Localities with higher concentrations of Priority Action Areas included Thrumster/Sancrox, Lake Innes, North Shore, Lake Cathie, Bonny Hills, Grants Beach, Dunbogan, Kew, Comboyne, Byabarra, Ellenborough, Lakewood and Kippara. Consolidated areas of importance were also found on the North Shore and around the Maria River. One of these properties has subsequently been incorporated into Limeburners Creek Nature Reserve while another was purchased by the Koala Hospital for conservation opportunities.

Figure 8 shows the location of Priority Action Areas on Council owned/managed land across the LGA and Figure 9 shows the location of Priority Action Areas on private lands. It is important to note that, in recognition of their high biological values, many Priority Action Areas mapped using Zonation have already been incorporated into NSW regulatory mapping layers, such as the Biodiversity Values layer under the Biodiversity Conservation Act, the Coastal Wetlands layer under the Coastal Management Act and the Sensitive and Vunerable lands layers under the Local Land Services Act.

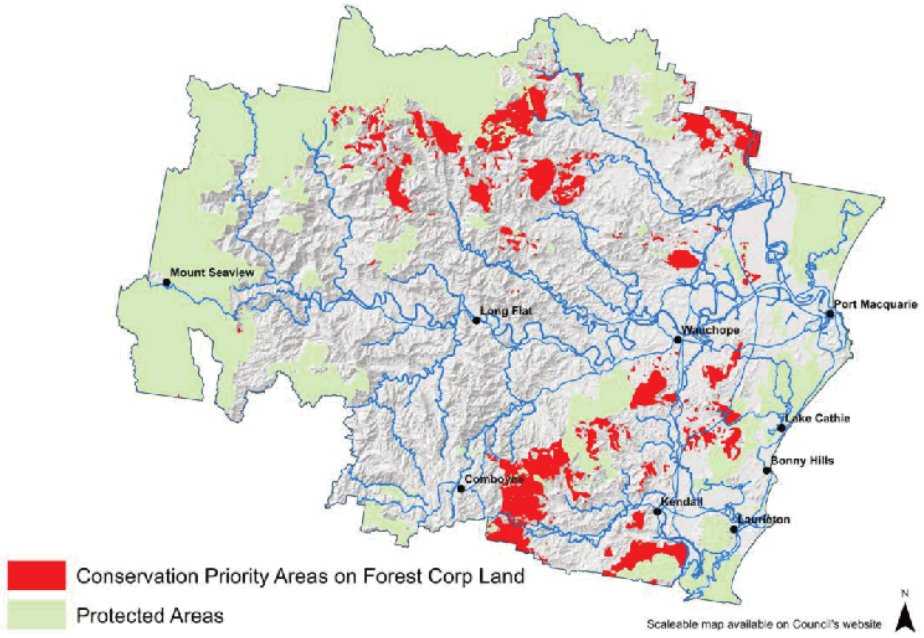


Figure 7. Conservation Priority Areas (as identified by Zonation) on Forestry Corporation lands in the Port Macquarie-Hastings LGA

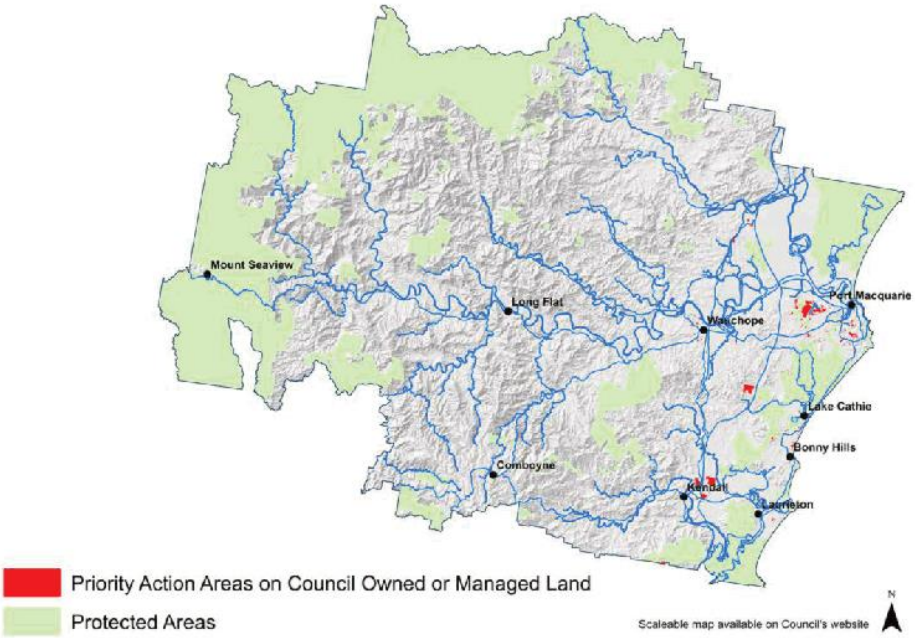


Figure 8. Priority Action Areas on Council-owned or -managed land in the Port Macquarie-Hastings LGA

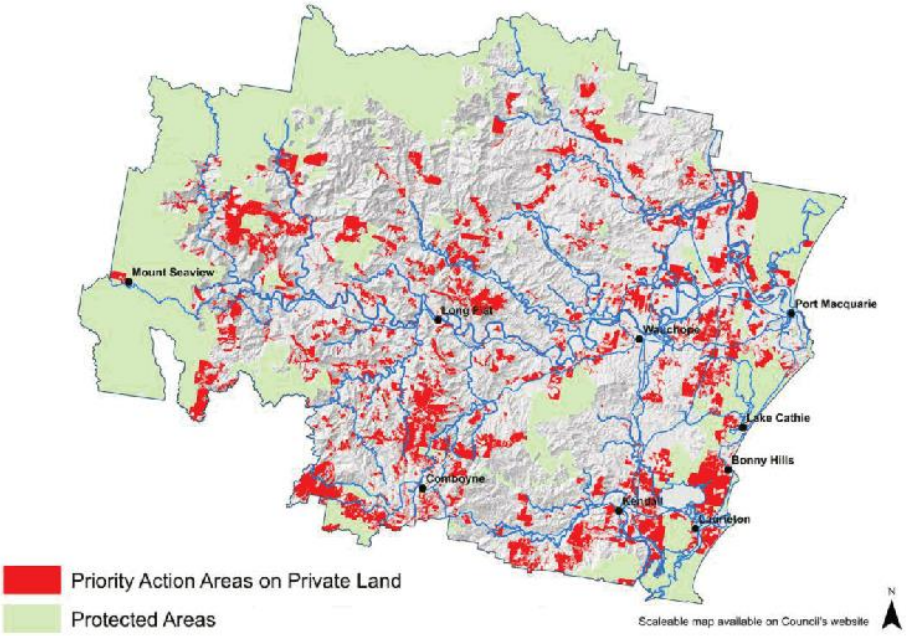


Figure 9. Priority Action Areas on private land in the Port Macquarie-Hastings LGA

The sites indicated show those areas where Council can work with interested landholders to better conserve biodiversity, such as through targeted investment schemes.

2.2.4 SUMMARY OF BIODIVERSITY PRIORITISATION ANALYSIS

The results of the analysis revealed three major findings.

The first was that the current Protected Areas within the Port Macquarie-Hastings LGA encompass or represent the distribution of species relatively well. Across all species and nominated guilds of conservation interest, the average proportion of predicted habitat within Protected Areas was 36%. However, there is notable variation among species: some species have their entire distribution within Protected Areas but others have none of their distribution within Protected Areas. Therefore, clear opportunities exist to improve biodiversity conservation within currently unprotected areas of the Port Macquarie-Hastings LGA.

The second point is that if additional relatively small, but well prioritised, areas were to be managed for conservation, all species could be adequately protected in the LGA (i.e. could have more than 30% of their predicted distribution being managed for conservation). Even just managing the top 5% of the identified Conservation Priority Areas for conservation would increase the average percent of predicted habitat to 47% and, most importantly, would ensure that all species have at least 25% of their predicted habitat being managed for conservation.

The third point is that community and, in particular, private lands can play a big role in biodiversity conservation with 25% of the Biodiversity Priority Areas occurring on these lands. When Protected Areas are excluded from the analysis, Zonation showed that 49% of the most important Conservation Priority Areas (or just over 28,000 hectares) are on private land.

It should be noted that this work is not 'static'. It represents a snapshot in time. If some areas of habitat/vegetation, particularly within high priority areas, are lost through clearing or other land use changes as a result of natural impacts such as fire or climate change this rapidly results in other areas automatically assuming a higher importance. For this reason, some areas that are not currently Priority Action Areas may emerge as being important priority areas in the future because they possess values being lost elsewhere in the landscape. Some areas may be so unique (again, particularly high priority areas) that they simply cannot be replicated or protected/represented elsewhere in the landscape (such as through biodiversity offset schemes).

Finally, it should be mentioned that like all data modelling exercises this work has unavoidable uncertainties. Nonetheless, the final models were statistically robust and therefore provide a significant improvement to our understanding of biodiversity patterns within the Port Macquarie-Hastings LGA and the relative value that any one area of land plays in the protection of species' habitat at the LGA scale (see Box 9). The work will have many applications, including:

- informing landholders about the value of their land for biodiversity
- informing prospective developers about the likely ecological constraints they may face on a parcel of land prior to purchase
- informing those interested in entering the rapidly burgeoning biodiversity offset market about where the best opportunities exist
- providing much-needed knowledge for those community members interested in applying for land management or biodiversity conservation grants (allowing them for the first time to express the importance of their grant in a broader context — a necessity in this increasingly competitive grant funding environment).

2.3 IMPORTANT WETLANDS AND COASTAL LAKES

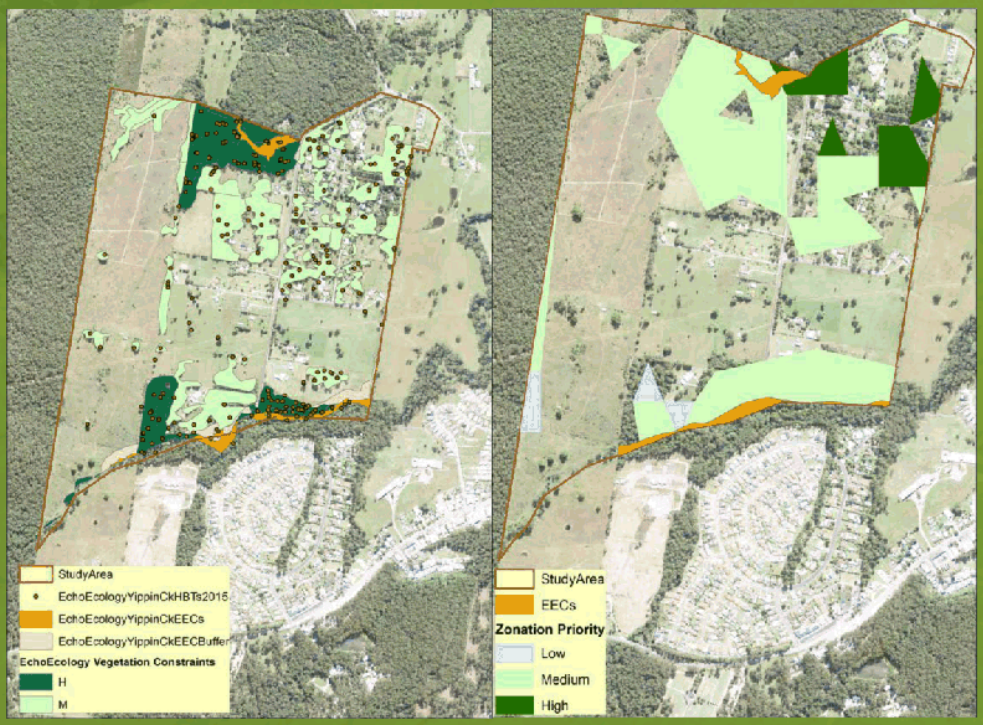
Estuarine wetlands, coastal floodplain wetlands and coastal lakes are ecologically, socially and economically important. They provide many ecosystem functions, ecosystem services (see Section 1.2) and habitats for a wide range of animals (e.g. waterbirds, fish, frogs and invertebrates) and water-dependent plants (e.g. sedges, rushes and various tree species), including many threatened species and ecosystems. Estuarine and coastal wetlands and coastal lakes also provide shelter, breeding grounds and nurseries for a variety of fauna, particularly insects, fish, frogs and waterbirds, including migratory birds listed under various international agreements including the Bonn Convention and the bilateral migratory bird agreements with Japan, China and the Republic of Korea.

The Port Macquarie-Hastings LGA has some very significant estuarine and coastal wetlands and coastal lakes located along its coastal strip. These include wetlands within Limeburners Creek Nature Reserve (listed on the *Directory of Important Wetlands in Australia*),

BOX 9. HOW DOES ZONATION COMPARE AGAINST ON-GROUND ECOLOGICAL ASSESSMENTS?

In 2015, Port Macquarie-Hastings Council contracted Echo Ecology to do a comprehensive on-ground ecological assessment of the biological values on an area of land near Wauchope (Yippin Creek) to determine areas of low, medium and high ecological constraints which could influence a proposed housing development on the site. The study examined a broad range of taxa, including mammals, plants, birds, amphibians and micro-chiropteran bats. The study also identified areas of threatened ecological communities. The results are shown in the figures below.

The results of this survey were compared against the tenure-blind outputs of Zonation because they provide an idea of the importance of a site relative to the whole LGA. Zonation has correctly identified that the majority of the land is of moderate biological value. It also identified that there is an area of higher biological value in the northern section of the site, but under-predicted the spatial extent of this. Zonation also ranked an area in the southern section of the site as 'moderate' that was identified by Echo Ecology as 'high' value. It ranked a few areas in the eastern section of the site 'high' which were identified by Echo Ecology as 'moderate' but which also supported numerous large hollow-bearing trees. Overall the results of Zonation should be considered as a good overall guide to the likely biological constraints operating in the area. The Zonation output also relates to a tenure-blind analysis of the LGA. Areas may have been ranked higher if using the priorities focusing on areas outside reserve networks.



Partridge Creek, Lake Innes, Saltwater Lake, Lake Cathie, Googleys Lagoon (Watson-Taylor Lake) and Queens Lake. Such areas are highly valued by the community and biodiversity alike. Saltwater Lake is considered to be in 'near pristine condition' (as per 'EcoHealth' Assessments undertaken by the University of New England). The location of these important biological assets (as identified and classified by the *Northern Rivers Biodiversity Management Plan*) is shown in Figure 10.

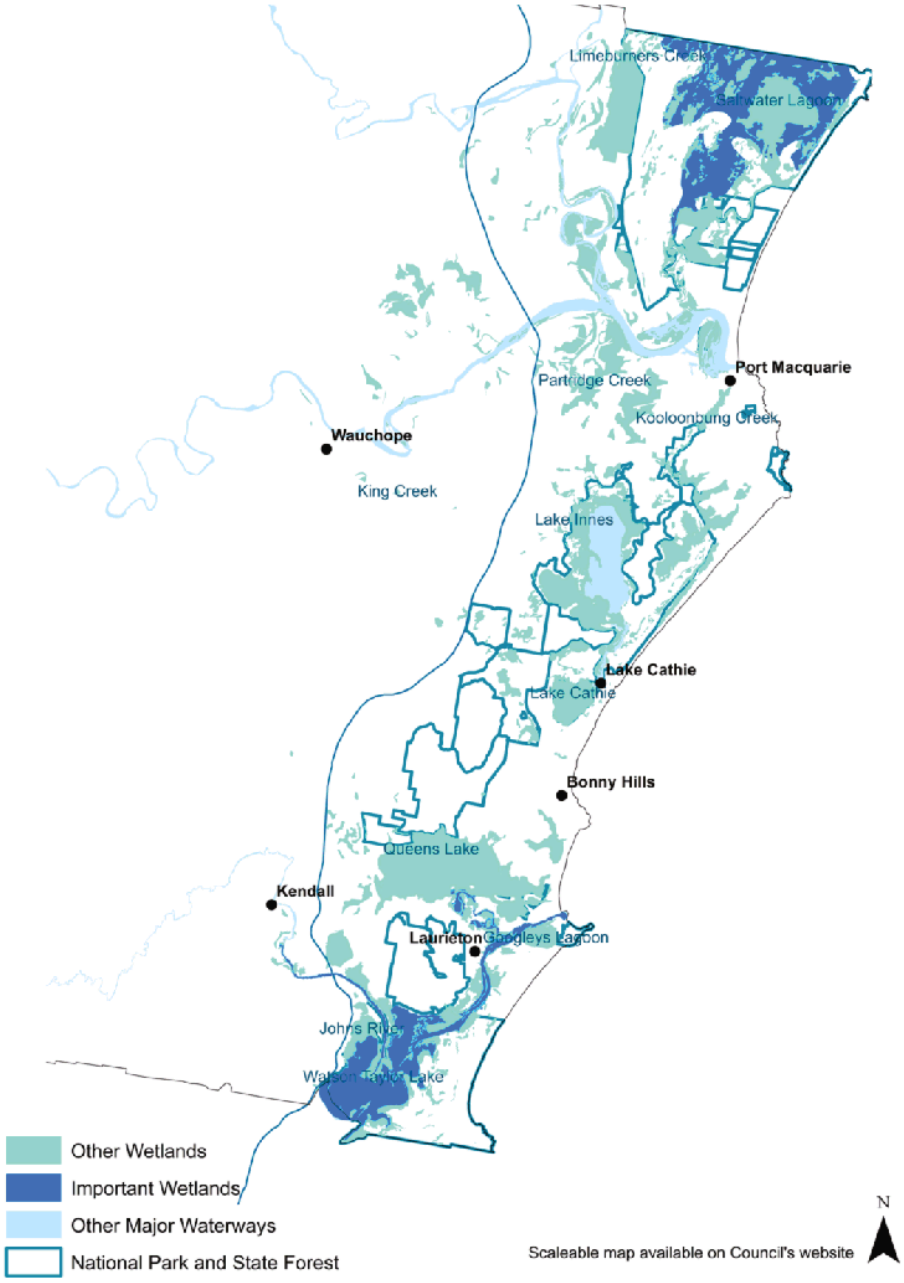


Figure 10. Location of coastal and estuarine wetlands and lakes

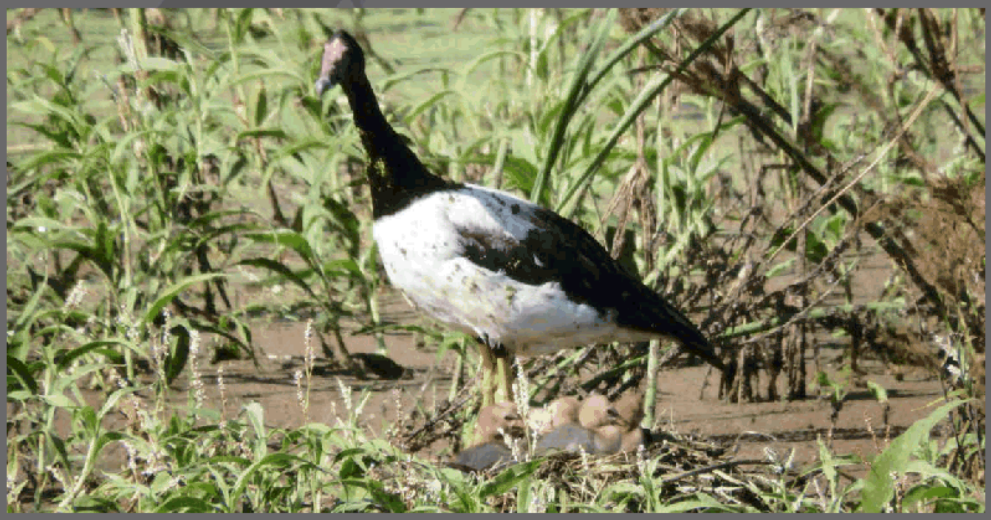
BOX 10. AN UNLIKELY PLACE TO START A FAMILY?

Magpie Geese are listed as a threatened species in New South Wales as they disappeared from south-east Australia by 1920 due to draining and overgrazing of their breeding habitat. Since the 1980s there have been an increasing number of records from central and north New South Wales. The only record of a breeding pair in southern Australia (until 2015!) was of introduced birds at the Shortland Wetlands near Newcastle.

Imagine the surprise when, in 2015, staff of Port Macquarie-Hastings Council not only saw three of these birds (one male and two females) inhabiting overflow ponds associated with the Port Macquarie sewage treatment plant, but then saw them building a nest! They quickly contacted Council's ecologist, who recommended that scheduled cleaning works of the ponds be delayed until the chicks could be fledged. The example shows that humans and biodiversity can at times happily co-exist, even somewhere as unlikely as a sewage treatment plant!

Magpie Geese are medium-sized waterbirds standing about 90 centimetres high and with a wingspan of up to 1.8 metres. With a black head, a distinctive knob on the crown (larger in males) which increases in size with age, and a hooked bill, they are quite unmistakable. Unlike other waterfowl, the Magpie Goose has half-webbed feet. The call is a resonant honk. Magpie Geese are mainly found in shallow water such as large wetlands and dams, especially with dense growth of rushes or sedges and with permanent lagoons and grasslands nearby. The Magpie Goose is a specialised feeder with wild rice, Oryza, some grasses and spike-rush forming the bulk of its diet.

During the breeding season Magpie Geese build nests in secluded places, usually close to wetlands (and sometimes in sewage treatment plants!). The nest is almost single-handedly constructed by the male. It usually consists of a simple unlined cup placed either in a floating platform of trampled reeds or built in tree-tops. Pairs of geese mate for life, but a male may have two females. Two females may occasionally use the same nest to lay the large, oval, off-white coloured eggs. All adults share incubation and care for the young.



Magpie Geese and young at the STP. Photo by Lark Whittingham.

The coastal lakes and wetlands of the Port Macquarie-Hastings area support numerous threatened species. In particular, some areas such as Partridge Creek and Lake Innes support notable populations of Black Bittern and Wallum Froglet. Black-necked Stork intermittently utilise many of the wetlands across the Port Macquarie-Hastings landscape, which is encouraging as the species has declined across the southern part of its range. The threatened Giant Dragonfly, one of the largest dragonflies in the world, is also known from wetlands within the Port Macquarie-Hastings LGA. Areas of Queens Lake are important roosting grounds for wading birds and shorebirds (many threatened) and indeed the Port Macquarie-Hastings area is included among the Key Biodiversity Areas of Australia (as recognised by BirdLife International), in part for its shorebirds, particularly the Sharp-tailed Sandpiper as well as wading birds such as the Australasian Bittern.

Even relatively small wetlands on private property, such as around King Creek, can be important. For instance, properties in this area are known to support Comb-crested Jacanas, which is unusual as the species is usually found only north of Grafton. Magpie Geese, now threatened in New South Wales and largely absent from southern Australia since the 1920s, have also been sighted in wetlands of the Port Macquarie area. Some even bred in the 'wetlands' of the Port Macquarie sewage treatments works! (See Box 10.)

2.4 THREATENED ECOLOGICAL COMMUNITIES

Ecological communities are groups of plants and animals that occur together in a particular area. This area is characterised by a set of environmental conditions which define suitable habitats, for example, soil types, landforms and climatic conditions. As a result, an ecological community may be distinguished from others by its characteristic species and the area in which it occurs (for example, a wetland on the coastal floodplain on alluvial soils). Ecological communities are complex, so correct identification often requires specialist advice.

Some ecological communities are threatened with extinction, either because their distribution has been significantly reduced by clearing (this is particularly true for those communities that occur on fertile land favoured for housing or agriculture), or because their distribution is naturally restricted which means that the whole community is susceptible to significant threats. Ecological communities may also be threatened if the ecological function of that community is undergoing a significant decline. For instance, a community may be particularly prone to invasion of a feral species resulting in a change in the structure and composition of the community and resulting in its fragmentation and degradation. Some communities are also threatened because they only occur under a narrow set of climatic conditions (e.g. alpine bogs). Ecological communities can be listed under state or federal legislation as critically endangered, endangered or vulnerable, depending on their risk of extinction.

With its coastal location and long history of agriculture and housing development on the rich coastal floodplains, the Port Macquarie-Hastings LGA supports numerous threatened ecological communities. The LGA is an important stronghold for many types, such as Littoral Rainforest, Lowland Rainforest, coastal floodplain forest communities and various wetland communities. Figure 11 shows the location of these important biological assets. The report outlining the methodology for mapping these threatened ecological communities is listed in Table 1 and available from Council upon request.

In addition to communities listed under state or federal legislation, an area may support 'novel' communities that have not yet been fully described or subject to the formal listing process. This is certainly the case in the Port Macquarie-Hastings LGA, where Council's vegetation community mapping has identified the presence of three ecological communities which are of particular interest because they:

1. have a narrow spatial distribution
2. largely occur outside formal conservation reserve networks
3. are experiencing significant declines in ecological function due to a range of external threatening processes.

These three communities are the Orange Gum – Swamp Gum Woodland (see Box 11), Serpentinite Grasstrees Woodland and the Lighthouse Gully Subtropical Lowland Rainforest. These areas require additional work to help secure their protection and to gain additional funding for works to reverse declines in their condition. Port Macquarie-Hastings Council are working closely with the NSW Office of Environment and Heritage to better determine other locally significant plant communities.

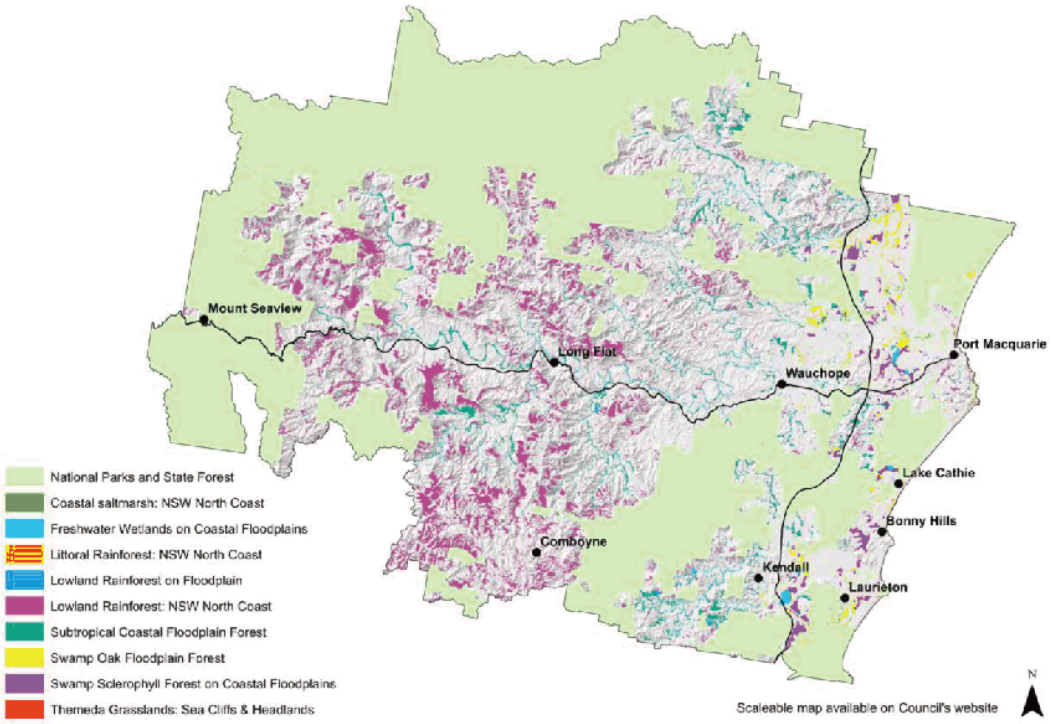


Figure 11. Location of threatened ecological communities within the LGA outside Forestry Lands or Protected Lands

Some additional threatened ecological communities are likely to occur in the LGA, particularly in Protected Areas, such as Werrikimbe National Park, high in the Escarpment (e.g. Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions). Knowledge of their spatial extent is poor.

2.5 HIGH VALUE FOREST AREAS

The Port Macquarie-Hastings LGA has always been an important area for the timber harvesting industry. Cedar cutters moved into the area in the 1830s following establishment of the penal settlement in Port Macquarie in 1823.

Logging did not take place evenly across the landscape. Certain species with superior timber qualities and occurring in particular vegetation communities were selected and felled first and in higher quantities than other less desirable species.

The rush for 'red gold' saw the near extermination of Red Cedar from many rainforests in the region. Tallowwood, Blackbutt and various ironbarks were also heavily targeted for bridge timbers, railway sleepers, power poles and building timber. Large trees were also preferentially felled. Trees of large dimensions are known to offer superior habitat opportunities for many animals (see Box 12). Trees in flatter, more accessible areas were also preferentially logged for logistical and operational reasons. However, these trees on flat, more fertile country are also superior habitat for a range of animals, including Koalas and Swift Parrots, compared to trees on steeper, rocky country.

Learning from the loss of the valuable Red Cedar industry, from 1871 the NSW Government declared some areas to be 'forest reserves' (now called state forests). While some of these forests are still within Forestry Corporation of NSW estate, others have been reserved as national parks in recognition of their natural values and are

BOX 11. ORANGE GUM WOODLAND ON SERPENTINITE: A UNIQUE VEGETATION COMMUNITY WORTHY OF PROTECTION

Vegetation mapping by the Northern Rivers Catchment Management Authority revealed a spatially restricted vegetation community found only in the Port Macquarie-Hastings LGA. The community has no known equivalents in New South Wales or the Northern Rivers region. The community was classified as 'NR 222 Orange Gum woodland on serpentinite in the Burrawan – Cowarra area, NSW North Coast Bioregion'. More recent vegetation mapping by Biolink (2012) for Port Macquarie-Hastings Council confirmed the presence and floristic composition of this community and found that only 212 hectares of this community existed outside state forests or national parks (areas which were not mapped by Biolink).

This vegetation community is found only on serpentinite soils, which are known to give rise to unique assemblages of plants. The majority of serpentinite communities occur on dry rocky outcrops and are made up of native grasses and a diversity of forbs (herbaceous plants) and grasstrees. They tend to be treeless. The Orange Gum Woodland on Serpentinite community is unique for serpentinite in the area because it is dominated by a tree, the Orange Gum, which reaches around 10 metres high in this community. The area where the community occurs is also much moister than other areas supporting serpentinite vegetation communities.

The mid-high to tall woodland is dominated by Orange Gum and also includes Red Mahogany, Narrow-leaved Red Gum, Turpentine, Tallowwood and White Stringybark. Orange Gum, Narrow-leaved Red Gum and Tallowwood are important Koala food trees and therefore the Orange Gum Woodland on Serpentinite community is important Koala habitat. The mid-storey and understorey reflect the moist ground layer and include a variety of paperbarks, Swamp Oaks, tea-tree and Willow Bottlebrush. The groundcover is a mid-high sedgeland; again typical of wetter environments and not typical of serpentinite communities.

The term 'serpentine' refers to magnesium- and iron-rich rocks, principally serpentinite and peridotite, and the soils derived from them. Serpentine is a harsh environment for plants because of its low nutrient levels, high levels of metal (causing metal toxicity) and, in some cases, poor water-holding capacity. Throughout the world, vegetation on serpentine is more sparse, stunted and drier (xeromorphic) than the vegetation of most other soils. Distinctive vegetation communities and plants occur on serpentine, both because it excludes many plant species from the surrounding communities, and because it often supports specialist species ('serpentine endemics'). Many ecologists have noted that serpentine endemic flora provides excellent examples of the linkage between adaptation and speciation.

Vegetation communities on serpentinite often support a high abundance of wildflowers. Many plants have even developed specialised adaptations to exist on serpentine soils and such plants have been used to treat environmental problems by taking up certain heavy metals from polluted soil.

The NSW Threatened Species Scientific Committee Guidelines considers the geographic extent of vegetation communities and the number of locations in its consideration to list an ecological community as 'threatened' or 'endangered'. The narrow geographic extent of this community, as well as the threats to it from potential mining and inappropriate recreational uses as well as weed incursion, certainly would make this unique and restricted vegetation community a candidate. Port Macquarie-Hastings Council will continue to work with the NSW Office of Environment and Heritage to protect this community.

now managed by NSW National Parks and Wildlife Service (NPWS).

We are fortunate in our LGA to have outstanding examples of old-growth forests in national parks and state forests, such as Willi Willi National Park (formerly the Wilson River Primitive Reserve) and Middle Brother National Park. Other precious pockets of old-growth forest remain on private properties, scattered across the LGA, even in coastal areas, however the extent of these is quite limited and generally little understood. In the Coffs Harbour LGA, a study revealed that old-growth forests comprise less than 1% of all forests on private land (therefore a very small percentage of all freehold land in total). It is likely that a similar pattern occurs in the Port Macquarie-Hastings LGA due to similar land-use histories and landscapes. It is important that private landholders understand the supreme importance of such areas for biodiversity and receive appropriate advice and assistance to aid their long-term protection.

2.6 LOCAL PRIORITY AREAS, COMMUNITIES AND SPECIES

This Biodiversity Management Strategy was formulated with the assistance of an **Expert Panel** (comprised of members of NSW Government agencies from the North Coast and local practicing ecologists), and a **Community Panel** (comprised of a diversity of various stakeholders in the community, including those with a good deal of knowledge about biodiversity in the local area). Members of both the Expert Panel and the Community Panel were asked to identify local priority areas, communities and/or species.

The Expert Panel identified areas they believed were important for different species (see Figure 12). These areas were largely within Biodiversity Priority Areas identified by Zonation in the tenure-blind analysis (see Section 2.2.3). In a few instances, the areas depicted by the Expert Panel gave a bit more emphasis to an area than did Zonation. The values of the areas are listed in Table 5. In addition, the Expert Panel identified a number of vegetation communities they believed were of importance (see Figure 12).

BOX 12. OLD TREES: THERE'S NOTHING QUITE LIKE 'EM

Large eucalypts have undergone serious declines as a result of selective logging practices. The mighty eucalypts once seen regularly by timber-getters are now scarce to non-existent. Many of the largest 'giants' felled in the days of cross-saws and bullocks would have been 500 years or older when felled, and it takes many eucalypts more than 100 years to attain stately proportions and basic hollows.

The loss of large eucalypts has had serious consequences for wildlife. This is because large eucalypts offer superior habitat opportunities.

Old trees support **more hollows** as well as **different types of hollows** (e.g. hollows of different sizes, shapes, volumes and positions in the tree). Animals require this diversity of hollows in the landscape because each species has different hollow requirements. An abundance of hollows is also required, not only to support a good abundance of animals, but because many animals require more than one hollow to call home. Swapping hollows prevents the build-up of parasites, keeps would-be predators guessing and assists with moving in response to seasonal requirements.

Old trees also support the highest volumes of **loose and shedding bark** (also called 'decorticating' bark). This bark is home to a vast variety of invertebrates (e.g. spiders, bugs and insects) which are important prey items for many vertebrate animals. Some animals also like to roost under the flaking bark layers, notably geckoes and micro-chiropteran bats such as the Eastern Freetail-bat.

Large, old trees also support the highest amounts of **eucalypt blossom and nectar** flow. A study by the NSW Department of Primary Industries found that mature forest produces almost 10 times more sugar per hectare than recently logged forest. This resource is extremely important for birds such as honeyeaters, as well as mammals such as possums and gliders.

Large, old trees also have **better perching sites** for animals due to the size and diversity of branches. They also often support **epiphytes** (e.g. orchids, ferns, mosses and lichens) and **mistletoes** which are an important food resource.

Clearly, old trees are vastly important resources in the landscape and every remaining one in the LGA is precious. Unfortunately nest boxes are a poor substitute for the real thing, require maintenance and tend only to attract common species. The loss of any remaining large eucalypts cannot be 'offset' in our lifetime, or our children's lifetime, or their children's lifetime, or their grandchildren's lifetime....

Photo © Bernard Dupont - https://www.flickr.com/photos/berniedup/10559975966/

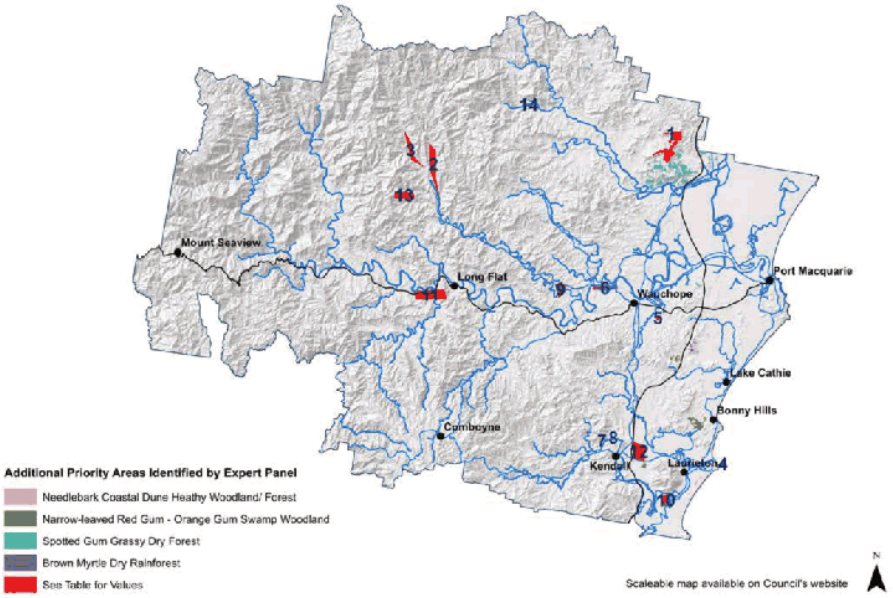


Figure 12. Priority areas identified by the Biodiversity Strategy Expert Panel

These areas are known by the Panel to support important biological assets, including healthy populations of threatened species (see key in Table 5), and rare vegetation communities (see map legend).

Table 5. Key to Expert Panel priority areas

Number	Broad location	Biological assets identified by Expert Panel
1	Red Hill	Red Hill Basalt. Complex vegetation assemblages, important populations of frugivorous birds and Pacific Bazas.
2	Pappinbarra Right Arm	Diverse and abundant fauna populations including many threatened species (e.g. Giant Barred Frog, Red-legged Pademelon).
3	Pappinbarra Left Arm	Diverse and abundant fauna populations including many threatened species (e.g. Giant Barred Frog, Red-legged Pademelon).
4	Diamond Head	Southern Limit of Coastal Pandanus.
5	King Creek	King Creek wetlands. Good populations of waterbirds including Comb-Crested Jacanas.
6	Hastings River	Important Rainbow Bee-eater nesting habitat on banks of Hastings River near Beechwood.
7	Logans Crossing	Flying-fox camp (first area), mostly Grey-headed Flying-foxes.
8	Logans Crossing	Flying-fox camp (second area), mostly Grey-headed Flying-foxes.
9	Brombin	Range extension of *Eucalyptus nobilis*.
10	Crowdy Bay	Substantial area of Needlebark Stringybark in Crowdy Bay National Park.
11	Long Flat to Ellenborough	Range extension of Drooping Ironbark.
12	East Kew	Important populations of arboreal marsupials (Yellow-belled Glider, Squirrel Glider, Brush-tailed Phascogale) and Wallum Froglets.
13	Cooks Trail	Sphagnum Frog at low elevations (and buried sphagnum).
14	Upper Rollands Plains	Maternal colony of Southern Myotis.

In contrast, the Community Panel predominantly identified species and ecological communities they felt were 'iconic' to the Port Macquarie-Hastings LGA. Those species/ communities that fell within the scope of this report (i.e. terrestrial biota) are listed below. In addition, both groups identified the limestone caves in the Toms Creek area and old mining shafts in the Kippara area to be critical habitat for cave-roosting bats. These have not been spatially depicted.

Important biological areas and species of interest:

Mammals

- Platypus
- Koala
- Brush-tailed Phascogale
- Red-legged Pademelon
- Red-necked Pademelon
- Long-nosed Potoroo
- Grey-headed Flying-fox
- Black Flying-fox
- Little Red Flying-fox
- Spotted-tailed Quoll
- Dingoes
- Hastings River Mouse (identified by Expert Panel)

Frogs

- Green-thighed Frog (Expert Panel)
- Green and Golden Bell-frog
- Giant-barred Frog

Birds

- shorebirds
- Eastern Curlew
- Glossy Black-cockatoo
- Rose-crowned Fruit-dove
- forest owls (Expert Panel)
- Brolgas and Black-necked Storks (Hastings River Drive)

Plants

- Antarctic Beech
- *Melaleuca biconvexa*
- Christmas Bells
- Orange Gum
- plants at northern and southern end of their range (e.g. Coastal Pandanus, Lesser Swamp-orchid, Silver Bush)

Invertebrates

- Spiny Crayfish (*Eustacus* spp.)
- native bees
- Fritillary Butterfly (Expert Panel)

Communities

- Serpentinite Grass Tree Woodland
- littoral rainforest
- wetlands
- alluvial terraces
- mangroves and sea grass
- hardwood forests
- Swamp Mahogany/ Forest Red Gum Associations for Swift Parrots

3. CONNECTING THE DOTS: LANDSCAPE CONNECTIVITY IN THE LGA

3.1 INTRODUCTION

A significant consequence of increased human activity and development is the loss of habitat, most generally caused by habitat clearing and destruction. When habitat is lost, the original contiguous natural landscapes become subdivided (fragmented) into a mosaic of remnant habitats surrounded by the 'landscape matrix'. This process is known as **habitat fragmentation**; and habitat fragmentation reduces **habitat connectivity**.

The **landscape matrix** which surrounds remnant habitat will exist in different configurations and be comprised of different elements depending on the land-use history of an area. For example, the landscape matrix may be predominantly built elements such as buildings and urban areas, industrial areas, and highways and roads. Or it may be comprised of unbuilt elements such as rural landscapes with native grasses, paddocks and scattered trees. In the case of Port Macquarie-Hastings LGA, the landscape matrix surrounding remnant vegetation is a mix of built and unbuilt elements.

Some parts of the landscape matrix will be more 'permeable' (i.e. able to be crossed by species) and therefore provide greater connectivity. Rural landscapes with native grasslands and scattered paddock trees are a good example of what a '**permeable matrix**' is for many species. On the other hand, an industrial estate with a busy four-lane highway would be a relatively '**impermeable matrix**' for many species.

3.1.1 HABITAT FRAGMENTATION

Habitat fragmentation is a serious threat to wildlife because many of the habitat patches that remain are too small to support viable populations of biota in the longer term. Also, habitat fragmentation directly influences the ability of wildlife to move about the landscape to breed and feed. Specific issues are discussed here.

Reduced genetic exchange

Habitat fragmentation reduces genetic flow between populations and therefore reduces genetic vigour and the resilience of the population to disturbances, such as disease and climatic variability. Isolated habitat patches may be restricted from any genetic exchanges, resulting in in-breeding depression.

Reduced patch size

The net effect of sustained habitat fragmentation is a reduction in the average size of remaining habitat patches, such that they no longer provide the resources necessary for an animal's long-term survival. Some animals have very large home ranges (for instance a Spotted-tailed Quoll requires several hundred hectares) and small patches cannot cater to their long-term existence. Exceptions occur when animals may satisfy some or all of their life-history requirements by, for example:

- using different elements of the landscape matrix (e.g. mobile species using scattered paddock trees for shelter or feeding, or honeyeaters using urban gardens)
- by occupying multiple *connected* habitat patches (e.g. several small habitat patches that occur in close proximity separated by a 'permeable' matrix).

Increased edge effects

Smaller habitat patches tend to have an increased edge:area ratio. Larger, more blocky shaped patches have a lower edge:area ratio than long, narrow patches of vegetation. Edges of habitat patches offer less intact habitat for flora and fauna, and often have higher weed loads, and suffer from wind effects and sunlight.

Increased susceptibility to disturbance events

Habitat fragmentation often results in a steady reduction in populations of species across the landscape because individual populations in isolated patches are easily lost as a result of random (i.e. stochastic) disturbance events, such as wildfire and drought. This is because animals are unable to leave the 'habitat island' or if they do, they are quickly lost in an inhospitable matrix. Such patches cannot then be recolonised as they are isolated from any other populations.

Inability to perform seasonal movements

Many animals move in response to the seasons. Such animals include 'latitudinal migrants' (for example, the Swift Parrot moves from Tasmania as far as south-eastern Queensland each year) and 'altitudinal migrants' (for example, the Noisy Pitta moves from rainforests high in the hinterland to the coastal floodplain each winter). Many other species are 'locally nomadic', moving about widely between habitat patches to find sufficient resources (fruit-doves and honeyeaters are classic examples). During the breeding season, some animals such as the male Koala will move widely to find mates. Many animals will also move to drought refuges in response to drier periods. All of these animals require their multiple habitat patches to be connected at various scales, or at least be within a permeable matrix, for them to perform these important seasonal movements.

3.1.2 HABITAT CONNECTIVITY

Connectivity can be defined as the extent to which a landscape facilitates the movements of organisms and their genes. Connectivity operates at multiple scales relative to individual species' movement abilities. What is therefore connected habitat for a small, mouse-sized Brown Antechinus is very different to what is connected for a highly mobile Black-necked Stork. Different species are also able to move through different types of 'landscape matrix' with various levels of success. Some landscape matrixes will be more permeable to some species than others. For example, a Noisy Miner readily moves through and occupies a range of highly modified habitats, whereas a Paradise Riflebird is highly restricted to high quality consolidated habitat. These different abilities and tolerances for modified landscapes mean that each species views the relative habitat connectivity of the same landscape differently.

Connectivity is built around core habitats (also known as refugia) including areas protected in formal reserves and areas of private land. These core habitats are linked across different land uses by patches of remnant vegetation, corridors and 'stepping stones'. So connectivity is not just about corridors — it includes core habitats, small and large patches of vegetation, stepping stones, areas managed for conservation, and remnant vegetation such as scattered trees and narrow corridors along roadsides or riparian areas (see Figure 13).

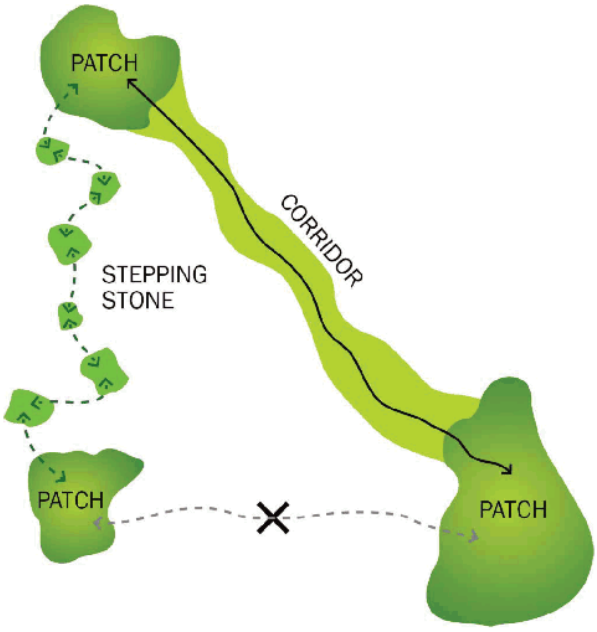


Figure 13. Examples of habitat patches and various kinds of connectivity within the landscape matrix

In this example, some animals are able to cross from patch to patch using the corridor or the 'stepping stones', but are unable to cross the open ground to move directly between the two lower patches.

Wildlife corridors are typically thought of as vegetated (i.e. woody, treed) areas stretching across the landscape and linking up areas of more consolidated **patches** of habitat. In fact, **corridors** come in all shapes, sizes and types. For example, some species disperse across suitable grasslands, while others move from rocky outcrop to rocky outcrop.

Corridors also exist at different scales, from continental to local. For instance, The Great Eastern Ranges Corridor extends 3600 kilometres from the Victorian Alps to the Atherton Tablelands in Far North Queensland. The Great Eastern Ranges Corridor contains Australia's longest and most unfragmented north–south mountainous landscapes and habitats.

Within the North Coast Bioregion, wildlife corridors have also been identified at the regional and subregional scale (see Figure 14 and refer to Scotts, D (2003), *Key Habitats and Corridors for Forest Fauna. Occasional Paper 32.*

NSW NPWS for more information on how these were derived). These broad-scale corridors help to identify major woody-vegetated areas forming natural corridors (e.g. along river systems) and in so doing identify important pathways for altitudinal and latitudinal migrants and areas that link key populations. Nonetheless, they are restricted to identifying broad patterns and are limited in number. Such broad-scale corridors alone do not provide the full range of connectivity required for effective conservation.

Every day, all around us, there is a flow of biota and associated genetic material between parcels of habitat. Such flow does not always occur along lines of woody vegetation or mapped corridors, and in many cases the distances travelled between habitat is small. For short distances, animals are able to cross open space, or use stepping stones such as isolated paddock trees. Seeds may even wash across open ground from one habitat patch to another. Increasingly, empirical studies are revealing that the dispersal movements of animals in fragmented landscapes depend on very fine-resolution elements of structural (woody) connectivity, such as roadside corridors, scattered paddock trees or small patches. These short distance **connections** are numerous, and represent the reality of how the landscape is actually working every day. Some such links are more important than others, representing the 'vital link' in the chain of habitat.

Empirical studies also highlight the importance of **habitat patches** along linkages (e.g. vegetated corridors or stepping stones, such as scattered trees). Just as we need regular pit-stops for food and rest while driving along the highway, so too dispersing biota need regular access to patches of habitat to survive. Studies of dispersing woodland birds have shown that they will only move from a habitat patch along a linkage for about 1.1 kilometres. If no habitat patch is encountered at this distance, they will return to the original habitat patch. The spatial distribution of habitat patches is therefore fundamental to species' survival and ability to move through the landscape. Traditional corridor models fail to highlight their importance.

New modelling approaches such as 'GAP CLoSR' (The General Approach to Planning Connectivity from Local Scales to Regional — see below) are seeking to model these finer-scale connectivity features at the landscape or regional scale. These new approaches consider a number of these factors, such as:

- biota will cross 'gaps' in the landscape only for finite distances
- different elements of the 'landscape matrix' have different crossing costs, with some simply being impassable
- biota can only move along links for finite distances unless patches are encountered
- fine-scale elements, such as scattered trees, are an essential part of landscape connectivity.

The underlying data is empirical based on expert opinion.

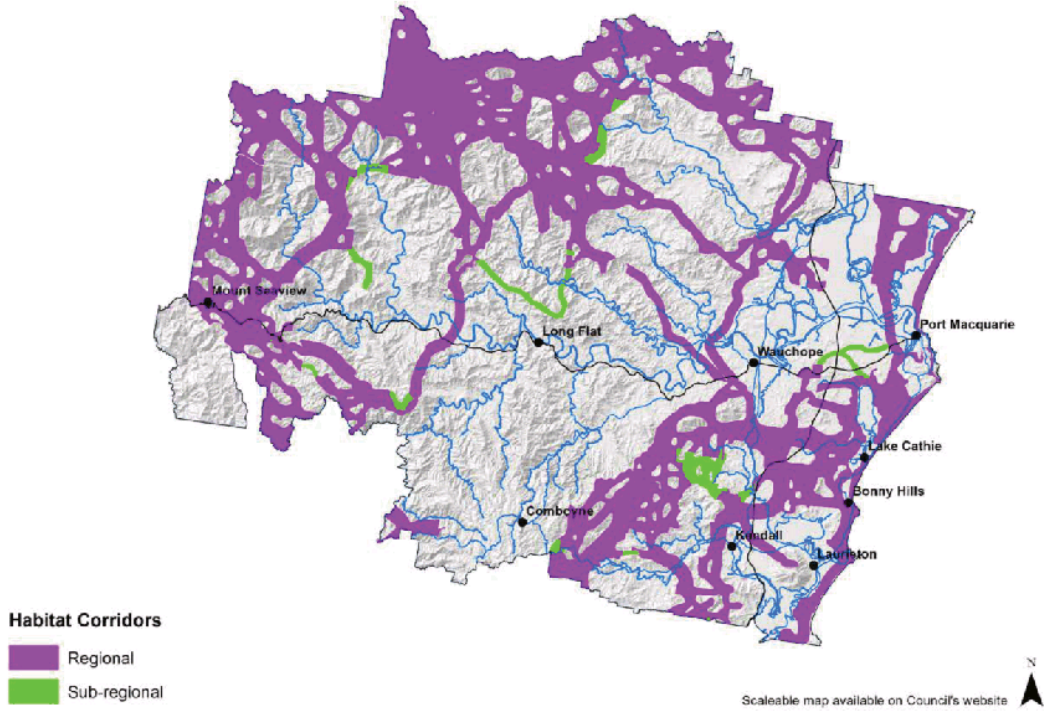


Figure 14. Regional and subregional corridors in the Port Macquarie-Hastings LGA (as identified in the Northern Rivers Biodiversity Management Plan)

Source: Scotts, D (2003), *Key Habitats and Corridors for Forest Fauna. Occasional Paper 32.* NSW NPWS

3.2 MAPPING CONNECTIVITY IN THE LGA

3.2.1 AN INTRODUCTION TO GAP CLOSR

As habitats become increasingly fragmented, smaller landscape features such as paddock trees and narrow strips of roadside vegetation become more important. These features can act as stepping stones to connect larger patches of vegetation.

GAP CLoSR (The General Approach to Planning Connectivity from Local Scales to Regional) is a software package that is able to pick up these small-scale features at a regional level.

> GAP CLoSR identifies the most important patches and appropriate locations for wildlife connectivity based on the habitat and dispersal requirements of target species.
>
> (Lechner & Lefroy 2014)

The software uses high resolution spatial data (aerial imagery) to examine the environments encountered by species in the landscape and considers these against the actual movement patterns of species, groups of species, or 'biodiversity' as a whole. For instance, will a species cross open ground and, if so, for what distance? How big does a habitat patch need to be to sustain a population

of that species? If moving through stepping stones, such as isolated paddock trees, how far would it use these stepping stones before giving up?

GAP CLoSR is a free software modelling program developed by the University of Tasmania (Lechner & Lefroy 2013), and has previously been used to aid strategic planning by local councils, such as through the Upper Hunter.

3.2.2 INPUTS TO GAP CLOSR

GAP CLoSR uses a number of inputs to map the important patches and locations for wildlife connectivity — referred to as the **connectivity map** in this strategy. The fundamental layer that drives the analysis is a map of woody vegetation. Other inputs represent the habitat and dispersal requirements of target species (the target species may be a single species, or in the case of this Biodiversity Management Strategy, multiple species which are all encapsulated under the habitat and dispersal parameters set). The model also uses a land surface crossing costs layer. These inputs are discussed here.

Woody vegetation layer

A 'Woody vegetation/No woody vegetation' layer was derived as an input to GAP CLoSR. This was based on the latest aerial imagery available for any given area of the LGA (ranging from 2018 for the Camden Haven area to 2010 for the western hinterland areas). The aerial imagery was converted to a grid (raster) layer using 5 metre pixels (i.e. 5x5 metre grid cells) in ArcGIS software. Reflectivity (colour-matching) software was used to accurately pick woody vegetation from non-woody vegetation across the LGA. Given that most trees within the LGA easily have canopies equal to, or larger than, the pixel size used, any grid cell accurately predicted whether it was occupied by a tree or not.

The resultant layers were then visually checked by Council staff to find and remove any errors across the LGA (for instance, the verdant green of sewage treatment ponds often reflected as vegetation). Areas known to have been cleared since the aerial imagery was taken were also manually removed, as were areas where clearing will take place in the near future (for instance because of approved developments). Some vegetation was also added into the vegetation layer, for instance, areas which are known to have been (or will be) planted since the aerial imagery was captured.

GAP CLoSR software considers connectivity for species reliant on woody vegetation only, that is, **trees and shrubs**. As such, some vegetation communities were excluded from the Woody vegetation/No woody vegetation layer, either because they did not support large trees or shrubs, or because they did have trees or shrubs but had a very wet understorey impermeable to many terrestrial animals. This was done by overlaying the Woody vegetation/No woody vegetation layer with CRAFTI vegetation mapping and Port Macquarie Vegetation Communities and cutting some vegetation communities out. The list of vegetation communities removed from the vegetation layer is provided in Appendix G. Species whose dispersal is reliant on different habitat, for instance, hill-tops (e.g. butterflies), wetlands (e.g. frogs) or grassslands are therefore not appropriately considered by this model as their key habitat has not been modelled.

Biodiversity habitat and dispersal requirements

Before running GAP CLoSR, the Expert Panel met to discuss the input parameters to represent the habitat and dispersal requirements of biodiversity in the LGA. The Expert Panel included people with diverse areas of interest (plants, mammals, birds, reptiles), and individuals provided advice/input based on their areas of expertise while also considering published literature.

As mentioned previously, connectivity works at multiple scales and, unlike other regional corridors models, the GAP CLoSR model is able to pick up very fine-scale habitat elements such as scattered paddock trees. The challenge for the Expert Panel was to determine the best parameters to use to derive a connectivity map suitable for 'biodiversity' at the scale of the Port Macquarie-Hastings LGA. The model parameters had to represent the requirements of as many species as possible. Following discussion, it was felt that many species in our LGA would be captured by a model which incorporated the following parameters:

- **A 'gap-crossing distance' of 60 metres**. Most species could cross open ground (i.e. no trees or shrubs) for 60 metres. As examples, many small birds can easily disperse from tree to tree over this distance, while a Squirrel Glider can glide 50 metres on average (but up to 100 metres depending on the terrain).

- **A patch size of 10 hectares**. Populations of many species in the LGA would survive in patches that were 10 hectares or larger.
- **An 'inter-patch distance' of 550 metres**. Most species would continue to use stepping stones for 550 metres before 'giving up' and returning to their original patch, or before encountering an unfortunate end, such as predation.

The Expert Panel considered that these biodiversity requirements represented a range of species across taxonomic groups (mammals, reptiles, birds) native to the LGA. The Common Ringtail Possum (see picture) is just one example of a species for which the GAP CLoSR model is likely to be appropriate.

As a result of this rule set, the model may fail to identify or explain the appropriate connectivity for small or sedentary species (such as the Eastern Pygmy Possum or Yellow-throated Scrubwren) that are unable or unwilling to cross open ground for 60 metres. Neither would it provide for species which require consolidated habitat patches much larger than 10 hectares for their survival (for instance, the Spotted-tailed Quoll).

For some highly mobile species, such as larger birds like the Powerful Owl and Black-necked Stork, the model may be overly constrained, showing a fragmented landscape when in fact these species could easily cross the landscape. Similarly, the model may be overly pessimistic for species that have small home ranges and can have large, sustainable populations existing in a 10 hectare patch (for instance Delicate Skinks). A future application of GAP CLoSR is running models for key species such as the Koala.

A list of species likely, and not likely, to be represented by this model is contained at Appendix H.

GAP CLoSR trials were also undertaken using different metrics to consider the performance of the model and the results discussed with the Expert Panel. For instance, while it may be intuitive to make patch sizes bigger (to ensure that they are large enough to cater for the long-term persistence of a broader range of species), the trials revealed that locally known important patches in the landscape were not detected (because they were smaller than the patch size used in the trial). Similarly, reducing the gap-crossing distance to 40 metres frequently caused 'breaks' in connectivity when the Expert Panel believed that the area probably was connected for most species.

The Common Ringtail Possum is an example of an animal covered by the GAP CLoSR parameters. Photo © David Cook

The Eastern Pygmy Possum is an example of a species which requires finer-scale connectivity than provided by the GAP CLoSR modelling. It has a predicted inter-patch crossing distance of only 200 metres.

Often this was a result of the 'pixel shading' in the underlying maps, something which seemed to be largely overcome when the gap-crossing distance was increased to 60 metres.

Land surface crossing costs

The other input required for the GAP CLoSR model was a layer showing land surface crossing costs. This provides a mapped representation of the matrix referred to above (and how permeable or impermeable) it is in the LGA. This input considers the different 'land surfaces' through which biodiversity of the LGA would have to cross. A land surface layer was derived for the LGA using maps including the Local Environmental Plan, land information mapping (e.g. for roads and streams), forestry maps and private native forestry maps.

Each of the different land surfaces was assigned a nominal/relative 'crossing cost' as shown in Table 6.

The costs are based on the principle that it is harder for an animal (or it is less likely that the animal will be successful) to move through an industrial estate than it is for them to move through a grassy paddock. Some land surfaces are so difficult for an animal to cross that the crossing cost must be considered as 'infinite'. An infinite cost was defined by the Expert Panel as presenting a barrier to an animal wherein it would be unable to either cross this surface at all, or cross this surface repeatedly and still live out its natural lifespan. For instance, the Pacific Highway was defined as a barrier with infinite crossing cost due to the paucity of crossing places suitable for a wide range of biodiversity, the associated fencing and the large volume of traffic. These crossing costs are consistent with those used for similar surfaces in previous GAP CLoSR models.

Table 6. Crossing costs for biodiversity though various land surfaces (least cost to infinite cost)

Category	Crossing cost
Environment (land managed for this purpose)	10
Native vegetation on rural land (not PNF)	10
Streams of order 1–3 (highest in catchment)	10
Environmental management areas (E3 and E4 lands)	20
Parks and fields	20
Forestry – Operational Forestry Corporation lands	20
Forestry – private native forestry (PNF)	20
Sub-arterial roads	20
Streams of order 4–6 (e.g. mid-lower Pappinbarra River)	20
Hardwood plantation	20
Rural land (paddocks etc.)	20
Other arterial roads	30
Developed areas	40
Streams of order 7 and above (e.g. Hastings River)	40
Pacific Highway	Infinite
Oxley Highway (to Huntingdon)	Infinite
Hastings River Drive	Infinite
Ocean Drive	Infinite
Lake Road	Infinite
John Oxley Drive	Infinite
North Coast Railway	Infinite

3.2.3 OUTPUTS OF GAP CLOSR

The GAP CLoSR software applies the parameters for biodiversity requirements and the crossing costs layer rule sets to the woody vegetation layer to map 'components' and 'habitat linkages'.

Components

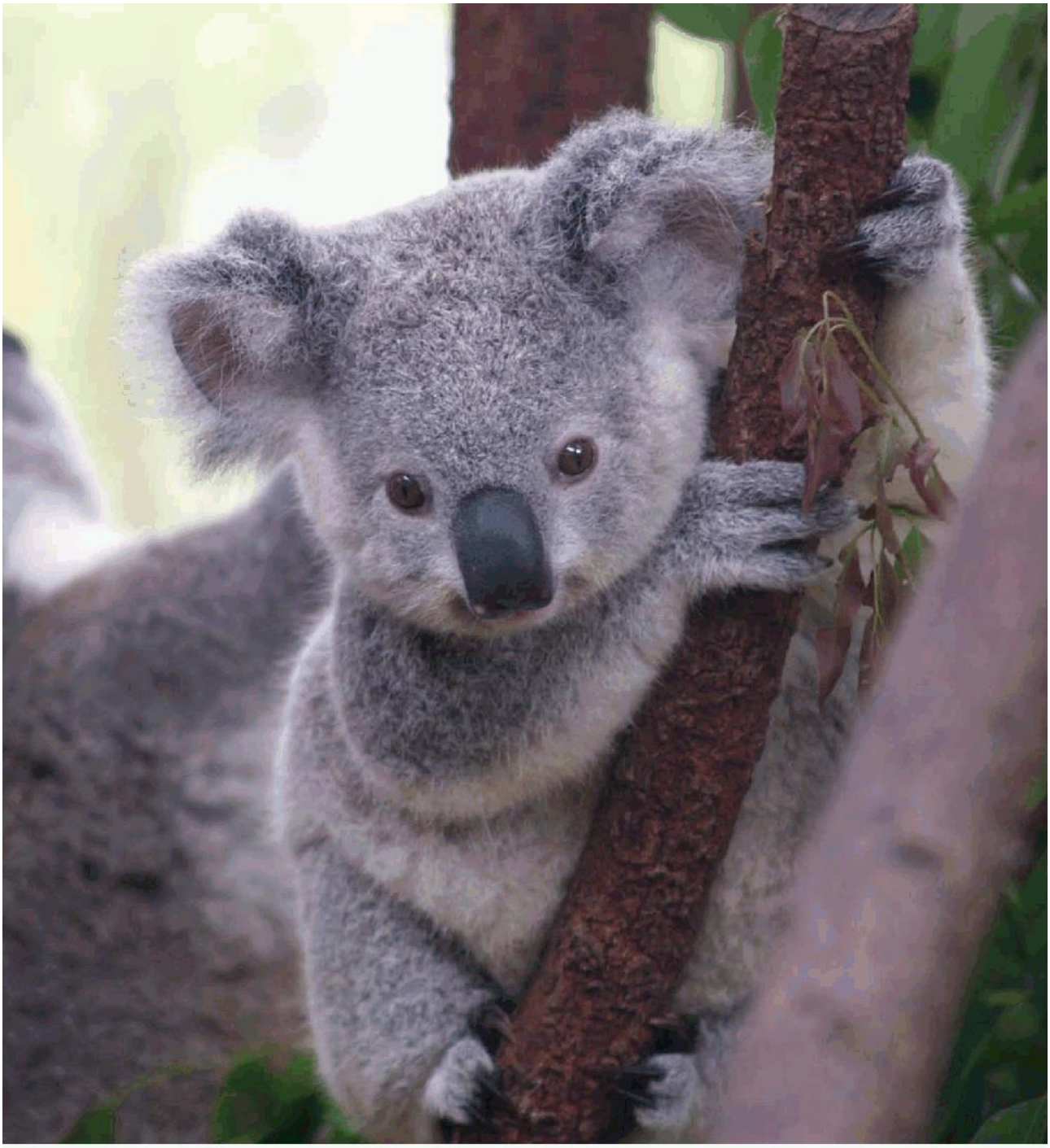
Components represent **islands** in the landscape. Components encompass areas of woody and non-woody vegetation. The woody vegetation in a component may be present as consolidated habitat patches (shown by the coloured patches) or as unconsolidated habitat patches (i.e. those that are too small or fragmented to meet the 10 hectare minimum patch size — see Section 3.2.2).

Biodiversity can survive and move around within components, but is unable to move beyond them because the component is not connected by woody vegetation to the adjacent component, or there is a hard barrier (such as a river or a highway) which animals cannot cross.

If habitat is scant within a component, it may be insufficient to sustain a local population of a particular species in the longer term. In these areas, intervention is needed to link adjoining components through plantings or other works (such as fauna road crossings) to create a bigger component with sufficient habitat. If large consolidated areas of habitat are present and connected within a component, its isolation from other areas will not be an issue for the long-term survival of many wildlife populations.

Habitat linkages

Habitat linkages are areas where biodiversity moves through existing vegetation, that is not part of a patch, to get from habitat patch to habitat patch. These areas may be corridors of vegetation or scattered trees which act as 'stepping stones'.



This vegetation may be roadside vegetation, a narrow planting in an otherwise cleared paddock, small clumps of isolated paddock trees or native trees in people's backyards. While such vegetation may not look to be important upon field inspection, the results of GAP CLoSR can reveal its true importance in helping to link potentially highly important habitat patches.

The presence of habitat linkages within a component is significant because the GAP CLoSR model does not 'split' a larger component into smaller components where there are sufficient linkages to enable adequate connectivity within the component.

As such, the habitat linkages mapped by GAP CLoSR are vitally important connectivity links. Such links need to be strengthened where possible, such as through widening the corridor and undertaking strategic planting programs to slowly replace weedy species with native species.

3.2.4 GAP CLOSR MODEL RESULTS: THE PORT MACQUARIE-HASTING CONNECTIVITY MAP

Woody vegetation model

The GAP CLoSR connectivity map for Port Macquarie-Hastings LGA is shown in Figure 15.

Components (shown outlined in red) are those 'islands' in the landscape where target species can move around *within* the area, but not *out of* the area, given the parameters (60 metre gap-crossing distance, 550 metre inter-patch crossing distance, 10 hectare minimum patch size) and land costs adopted. Habitat linkages (shown as purple dots) represent the vital links within the components. Areas with many small components represent parts of the landscape that are less connected than areas with larger components.

Overall, the results showed that with current levels of woody vegetation the Port Macquarie-Hastings LGA has generally **good levels of connectivity**. The largest 'component' encompasses the area west of the Pacific Highway (heading north from Johns River) to Herons Creek, then to Wauchope, Telegraph Point then following the Pacific Highway north. This represents the most connected part of the LGA. The most fragmented areas (small components) of the LGA occur along the Hastings River floodplain and north of the Hastings River in areas near the Pacific Highway. The immediate environs of Port Macquarie are also, not surprisingly quite fragmented, but closer inspection also reveals that the habitat linkages in Port Macquarie's urban areas (Sea Acres, Wrights and Yarranabee creeks and Kooloonbung Creek) are fundamental to the ecological connectivity and health of the coast and urban areas.

The results strongly showed that within the Port Macquarie-Hastings LGA, the **coastal corridor** is an amazingly connected resource, particularly for north–south migrants. This can be seen in the large components to the north and south of Port Macquarie. Collaborative work with Kempsey Shire Council showed that this corridor extends north beyond the Port Macquarie-Hastings LGA, revealing its true magnitude and significance.

Unfortunately, the results also showed that the **Pacific Highway** and **North Coast Railway line represent serious barriers** to species movement and therefore ecological connectivity in the LGA. The Oxley Highway also represents a barrier to movements which will no doubt increase over time as the road becomes busier. The results also showed that some areas along the Hastings River floodplain, particularly where they occur near the highway, are quite fragmented and do not currently support sufficient habitat for the long-term survival of many species.

The results showed that **some areas are at risk of becoming seriously fragmented**, such as the Comboyne Plateau. The reason why GAP CLoSR did not map Comboyne Plateau as a separate component is the presence of many stepping stones. Unfortunately, many of these are narrow, tenuous links comprised of thickets of Privet along fencelines. Work to control these Privet thickets in otherwise open landscapes may have both positive and negative ecological outcomes.

A similar example, which highlights the important of stepping stones is the area around Hyndmans Creek. A snapshot is discussed in Box 13.

Figure 15 also shows the different habitat patches within the LGA that are greater than 10 hectares (as set in the species movement ruleset). The largest is 164,000 hectares and includes adjoining large areas of national parks and state forests, as well as private lands. The smaller patches are approaching the lower end of what is sufficient habitat for many species. Examining the smaller patches in this way reveals places where any further clearing, or habitat fragmentation, would effectively render an existing patch 'ecologically redundant' for many species. Examples are found on the Hastings River floodplain.

If habitat is scant within a component, it may be insufficient to sustain a local population of a particular species in the longer term. There are several areas along the Hastings River floodplain dissected by the Pacific Highway which illustrate this concept.

Importantly, members of the Expert Panel and Community Panel all felt that the results of the GAP CLoSR modelling were an appropriate reflection of important links and habitat patches in the LGA and supported previous decision-making by Port Macquarie-Hastings Council regarding areas important for connectivity (see Box 14).

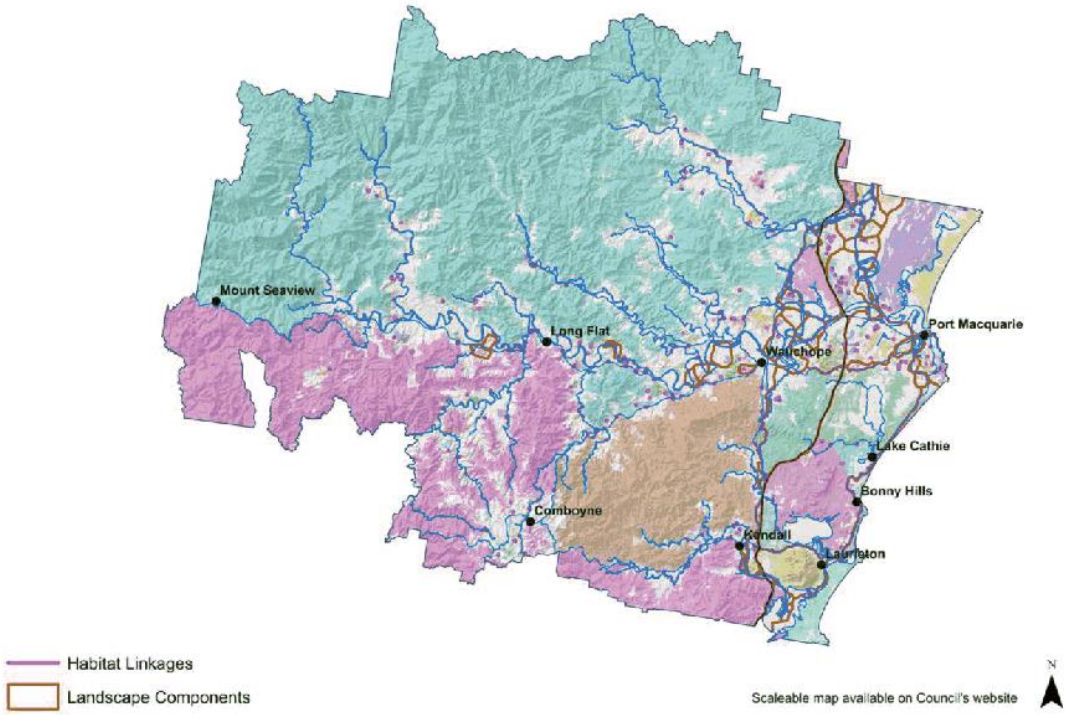


Figure 15. Habitat components and linkages in the Port Macquarie-Hastings LGA

BOX 13. THE IMPORTANCE OF HABITAT LINKAGES

The Hastings River floodplain supports rich alluvial soil, much prized for agriculture. As a result, it has been largely cleared. This cleared swathe on both sides of the river, together with the river itself, therefore presents a barrier for many species as they attempt to make north–south movements across otherwise quite consolidated areas of bushland. The figure below shows how seemingly small and insignificant strips of vegetation (purple lines) that run from ridges down to and across the Hastings River floodplain can play a key role as habitat linkages preventing landscape fragmentation.

BOX 14. CONNECTIVITY IN PORT MACQUARIE-HASTINGS LGA

The GAP CLoSR modelling showed that the LGA has generally good levels of connectivity.

Green ribbons of Port Macquarie's urban areas (Sea Acres, Wrights and Yarranabee creeks and Kooloonbung Creek) are fundamental to the ecological connectivity and health of the coast and urban areas.

Within the Port Macquarie-Hastings LGA and stretching north into Kempsey Shire, the coastal corridor is an amazingly connected resource, particularly for north–south migrants.

The Pacific Highway and North Coast Rail lines represent serious barriers to species movement and therefore ecological connectivity in the LGA. The Oxley Highway and Ocean Drive also represent barriers to movements which will no doubt increase over time as the roads become busier.

Some areas along the Hastings River floodplain, particularly where they occur near the highway are quite fragmented and do not support sufficient habitat for the long-term survival of many species.

Some areas, such as the Comboyne Plateau, are at the edge of becoming seriously compartmentalised, only still working in a connected fashion courtesy of many narrow, tenuous 'links'. Unfortunately, many of these links are actually thickets of Privet along fencelines, indicating that work to control such Privet thickets in otherwise open landscapes may have both positive and negative ecological outcomes.

The GAP CLoSR results matched with local Expert Panel knowledge about important areas for connectivity.

A tranquil area within Kooloonbung Creek Nature Reserve: an important area for ecological connectivity.

BOX 15. A REAL-WORLD TEST CASE FOR GAP CLOSR

During the development of the Waverley Glade Estate at Shelly Beach, Port Macquarie, it was argued that the vegetation on the site was part of an important wildlife corridor, linking the World Heritage–listed Sea Acres National Park with the Wrights Creek system and beyond. The development was allowed to proceed and, with support of the developer, the southernmost portion of the site was retained to facilitate at least some remaining connectivity (see picture on the right). This area was placed under a vegetation management plan to protect this important area and increase the biological functioning of this narrow strip of vegetation.

The aerial imagery used in the GAP CLoSR connectivity pre-dated the Waverley Glade development and the whole site was identified by GAP CLoSR as being a significant link in the landscape that facilitated connectivity (see picture on the left). The modelling outputs validates the planning process and will help to identify other areas in the LGA where protective measures may be needed to maintain connectivity and improve biodiversity values.

Wet sclerophyll and rainforest only model

The Port Macquarie-Hastings LGA has numerous significant stands of rainforest and wet sclerophyll forest. Many species are restricted to these habitats and yet must move around widely between these habitat patches to satisfy life-history requirements. Particular examples are frugivorous birds, such as the Rose-crowned Fruit-dove and Wompoo Fruit-dove (both of which are threatened species in New South Wales). To illustrate the different ways that species view the environment, habitat patches and connectivity, a GAP CLoSR model was constructed to consider only rainforest and wet sclerophyll forest.

The Expert Panel agreed that the inter-patch crossing distance and patch size should remain the same as in the general model (i.e. at 550 metres and 10 hectares respectively). However, the 'gap-crossing' distance was reduced from 60 metres to 40 metres, given that the species of interest inhabit finely textured, dense habitat, rather than the more open woodlands and dry sclerophyll forest environments. The results (see Figure 16) show that for species reliant on more mesic forests, the landscape is much more fragmented. Of note are fragmented areas that are of known importance for rainforest-dwelling species, such as the Comboyne Plateau and littoral rainforests along the coastal strip. The results also show a different set of strategic links between habitat patches. Careful attention is required to ensure these habitats are not further fragmented.

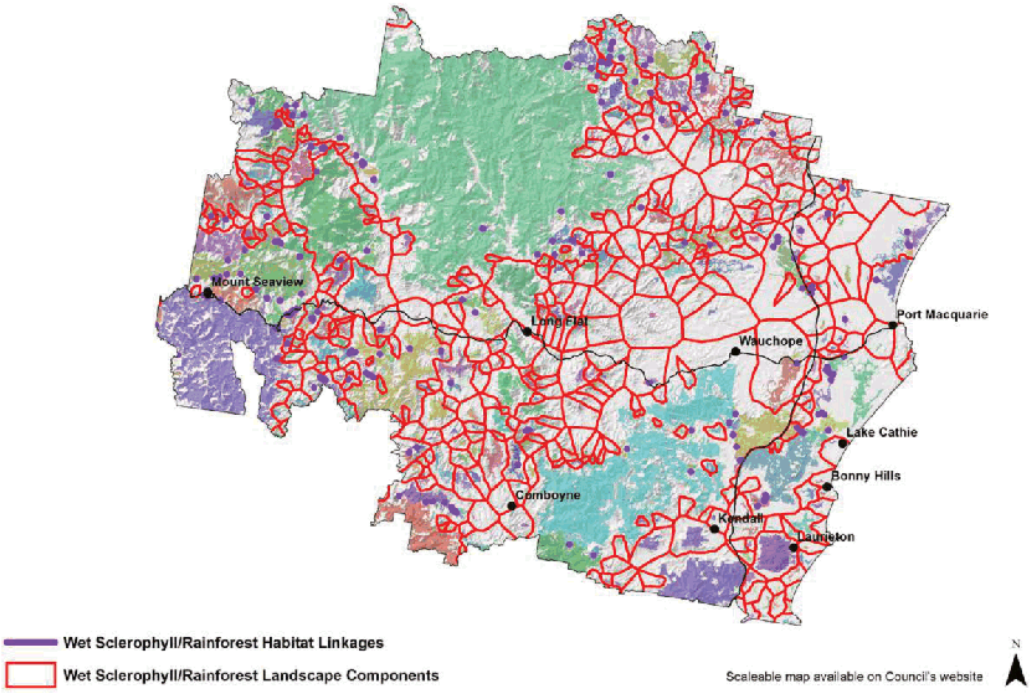


Figure 16. Wet sclerophyll and rainforest model for the Port Macquarie-Hastings LGA

Protected Areas only model

It is often argued that there is sufficient habitat available within national parks and other protected areas for the adequate protection of species. As a purely informative exercise, a GAP CLoSR model was run which assumed that the only available habitat in the LGA existed in 'Protected Areas' (see definition in Zonation discussion above, Section 2.2.3). The results (see Figure 17) show a landscape much more fragmented (i.e. with many more island 'components') than the general woody vegetation model. This shows the incredibly important role that private lands play in ensuring that the landscape is connected to an appropriate level for effective ecological functioning, particularly in the highly fertile landscapes so valued by many species.

3.2.5 THE FUTURE WITH GAP CLOSR

The importance of any given link, component or patch can be further interrogated using GraphAb software which accompanies the GAP CLoSR software. Another program, CircuitScape, is also available to help best plan the location of replanting efforts which seek to reconnect isolated components or identify connectivity bottlenecks that require embellishing. This information can be later used to assist with strategic planning and biodiversity incentive delivery schemes.

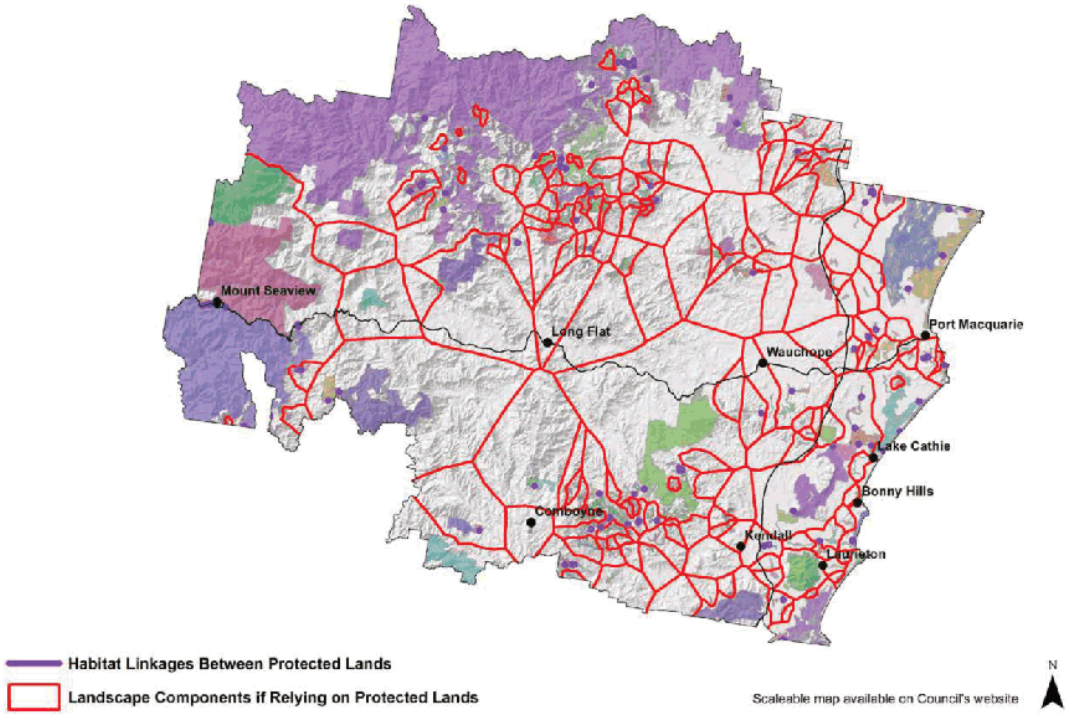


Figure 17. 'Protected Areas only' scenario

The results show extreme fragmentation in many areas.

3.3 WETLAND CONNECTIVITY

As outlined in Section 2.3, Port Macquarie-Hastings Council has numerous important coastal wetlands, notably Lake Innes, Queens Lake, Watson-Taylor Lake (Googleys Lagoon), Partridge Creek, and significant areas of coastal wetland on the North Shore adjoining Limeburners Creek Nature Reserve. Traditionally, these locations have been shown on maps as open bodies of water, with little reference/acknowledgement of the fringing vegetation which is habitat to so many wetland-dependent species, in particular amphibians, wading and waterbirds and even insects such as the threatened Giant Dragonfly.

In recognition of the importance of this fringing vegetation, maps were constructed which showed the vegetation formations (see Section 2.1 for more information on vegetation formations) that are associated with these open water wetlands. Formations included were Forested Wetlands, Freshwater Wetlands and Saline Wetlands (see Figure 3). Maps were produced showing vegetation classes encompassed by these broad vegetation formations. Two vegetation mapping sets were used (CRAFTI and Port Macquarie Vegetation Communities mapping – see Table 1 and Section 2.1).

Adjoining (continuous) patches of the different vegetation communities were then mapped to examine the connectivity of wetland vegetation in the LGA. See Figure 18. Some of these wetland 'patches' are quite large (e.g. the Lake Innes/Lake Cathie complex), and individual wetlands (e.g. Queens Lake and Watson-Taylor Lake) appear to be operating ecologically as one entity. Other systems such as 'Partridge Creek' are genuinely a unique wetland system and indeed, Council's vegetation mapping revealed unique vegetation communities in this area which are now under further investigation by OEH.

The mapping also shows that Kooloonbung Creek is connected to much larger areas of wetland, such as Lake Innes. The strategic importance, particularly of Kooloonbung Creek Nature Reserve but also of Partridge Creek, in facilitating connectivity for wetland-dependent species north and south of the Hastings River is apparent.

The wetland patch map provides a reference point should works become required to better link wetland habitat into the future, and shows where wetlands might naturally expand as a result of climate change–induced sea-leave rise. It also shows where narrow links of wetland associated vegetation (riparian strips) can link to much larger areas of wetland habitat. The importance of such small areas may not be fully appreciated when otherwise examining them in isolation.

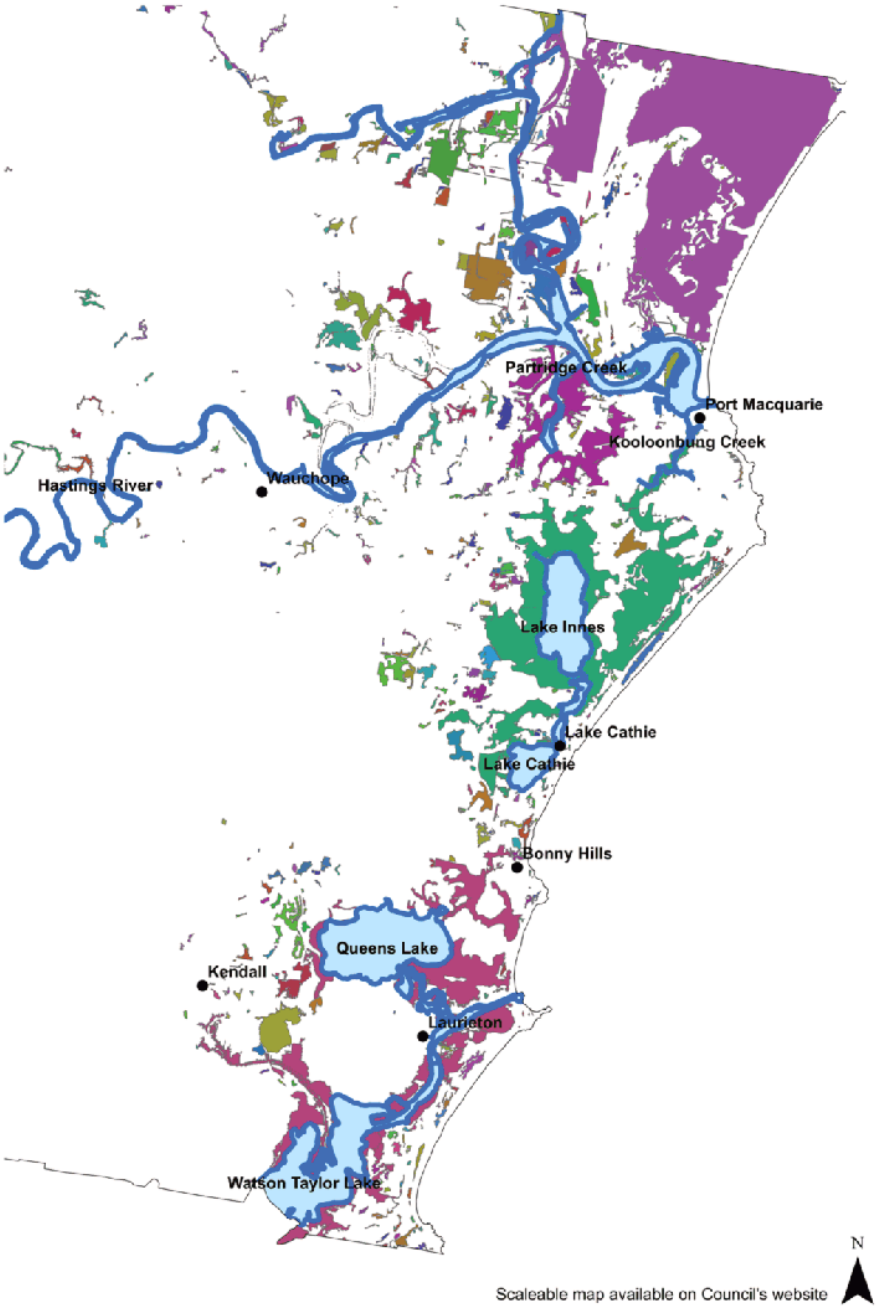


Figure 18. Important wetlands and areas of wetland vegetation

The different colours show different wetland patches (i.e. contiguous areas of wetland vegetation).

3.4 SOME FINAL WORDS ON CONNECTIVITY

Connectivity is vital to the effective functioning of ecosystems and ensuring species long-term persistence in the landscape. The work here has shown that landscape connectivity is *everyone's business*. Traditional corridor mapping approaches run over relatively few parcels of land, leaving people in those areas wondering how this will affect their rights and responsibilities. While these larger-scale corridors are undoubtedly important, the reality is that day-to-day connectivity occurs all around us at much finer scales and it is only when the patches are dissected and eroded, and the links between the patches lost, that fragmentation occurs.

Whether an urban landholder, or a rural farmer on large acreage, we can all play a role in helping the landscape to be more 'permeable' to wildlife so animals can move through the landscape easily with relatively little crossing cost and ensuring that all areas offer some habitat. These initiatives include planting endemic trees in our gardens and streetscapes, reducing roadkill, controlling weeds and reducing the incident of predation of native animals, including predation/harm by companion animals in the urban landscape.

The work here has shown some strategic areas for investment to improve landscape connectivity. Examples are:

- widening and strengthening habitat linkages (links need to be at least 50 metres wide to be truly effective and ideally comprised of native species)
- decreasing landscape fragmentation (i.e. the number of components) by adding new strategic links through native vegetation plantings
- ensuring that remaining patches are of a suitable size for the long-term persistence of species (or creating patches of suitable size in key locations)
- installing infrastructure (i.e. technical solutions such as road underpasses, overpasses, glider poles and crossings and stiles, which enable animals to cross otherwise impermeable fences) (see Box 16).

In some cases, these strategic areas of investment can even have a win-win approach for farmers and conservation (see Box 17).

Unfortunately connectivity also brings with it threats, for instance, connected land may be more susceptible to feral animals (who can also now travel to the habitat patch), weeds and bushfire. Connected lands therefore need to be appropriately managed to reduce such threats (also see Section 4).

BOX 16. A TECHNOLOGICAL FIX: INCREASING CONNECTIVITY WITH WILDLIFE STILES

In 2016, Port Macquarie Landcare received funding under the federal government's Work for the Dole scheme to work with the young participants and install Koala stiles in key locations around the urban areas of Port Macquarie. Working with the Bushland Management Team of Port Macquarie-Hastings Council, these stiles were placed over barbwire-topped chain-mesh fences to better facilitate crossing of these otherwise impassable barriers around areas of key habitat. The stiles were principally installed for Koalas, but will be used by a number of arboreal marsupials, such as possums and gliders, as well as other species. This 'infrastructure solution' has greatly helped to increase landscape connectivity in an otherwise fragmented area.

Landcarers installing koala stiles.

BOX 17. WIN-WIN: GOOD FOR THE FARMER AND GOOD FOR ECOLOGICAL CONNECTIVITY

The Comboyne Plateau is an amazingly fertile agricultural area in the Port Macquarie-Hastings LGA and of great economic importance. The climate is subtropical, though at an elevation of 705 metres, it is cooler than nearby coastal areas. The Comboyne Plateau has always been famous for its rich dairy industry, but these days the deep red basalt loams, high rainfall and variety of terrains ensures that avocadoes are a booming industry along with kiwifruits, blueberries, macadamias and potatoes.

Previously, the area was covered extensively in subtropical rainforest which was almost all cleared by the early 20th century. The early explorers originally sought the valuable timber of the Australian Red Cedar. Pockets of cool temperate rainforest also exist on the Comboyne Plateau. Today, remaining pockets of vegetation are truly hidden 'gems' and support important populations of threatened species, many of which are found nowhere else in the LGA. Factoring ecological connectivity into this highly cleared agricultural landscape is therefore important and many landholders are keen to participate, having previously been involved in conservation projects on the plateau.

The GAP CLoSR analysis revealed that connectivity in the Comboyne Plateau largely continues courtesy of narrow strips of vegetation along fencelines. These strips are often comprised of Privet. Nonetheless, many species, such as the Wompoo Fruit-Dove have been seen moving through and using these resources.

In this elevated, exposed plateau, wind chill and wind throw is a real threat for farmers and numerous quick-growing (and often short-lived) windrows have been planted. Traditionally exotic bamboo has been used. A prime opportunity exists for government funding to be made available to farmers to plant appropriate locally endemic quick-growing species behind, or in conjunction with, existing windrows. This will ensure that the windrows will be longer lasting, pose less weed threat to remaining pockets of bush, be of greater ecological value to the species in the local area, and will improve the overall connectivity of the Comboyne area.

4. PRIORITY INVESTMENT LAYER

4.1 WHAT IS A PRIORITY INVESTMENT LAYER?

The Priority Investment Layer uses the maps and models on individual biodiversity assets described above.

This layer effectively identifies the **priority areas for biodiversity investment in the LGA**, or in other words, those areas which if protected would best help to conserve the area's native flora and fauna. It does not include those important biological areas within Protected Areas (it is assumed that they are already managed appropriately) or on operational Forestry Lands.

The vast majority of lands within this layer are on private properties, however, a smaller amount are on Council-owned or managed land. Council is not considering back-zoning areas of private land for environmental protection. Rather, we will work positively and pro-actively with landholders to seek funding opportunities to enable them to protect biodiversity priorities in the LGA, such as through funding bids and the burgeoning biodiversity offset market. Similarly, Council will work proactively to ensure that its own operations do not impact these important biological areas and will seek funding to better aid their protection, such as through bushland management works to reduce weeds and rubbish and increase ecological functioning.

The areas in the Priority Investment Layer are those that represent the best 'bang for your buck' in relation to conservation incentive programs. Formally identifying these priority areas puts Council and landowners in a strong position to bid for government funding. The likelihood of receiving government funding will further increase when there is strong support from landholders working together in a local landscape.

The Priority Investment Layer is a 'snapshot in time'. Other priorities may emerge over time, and lands within this layer may also be subject to private native forestry arrangements. Following forestry operations, the intrinsic values of these areas (i.e. older-growth forest and associated flora and fauna habitats) are likely to be reduced, which in turn may greatly reduce the likelihood of receiving funding or offset opportunities.

All areas identified in the Priority Investment Layer require on-ground assessment to validate the presence of modelled/mapped values prior to the delivery of investment schemes, particularly the offset market. Nonetheless, the layer forms a valuable starting point for negotiations with landholders having lands with particular biodiversity values and for identifying strategic landscape-scale patterns and associated projects.

The Priority Investment Layer greatly enables identification of potential local offsets thereby helping to ensure offsets stay in the LGA and that there is not a net loss of local biodiversity. For individual species requiring offsetting, the underlying species distribution models can be re-examined to determine all offset locations. However, wherever these species occur in lands identified in the Priority Investment Layer, these areas would be preferred as offset sites. This is because conservation of these areas is more likely to protect numerous species (the 'offset' species effectively acting as an 'umbrella species' to protect many others).

The Priority Investment Layer is also likely to stimulate a market for people wishing to purchase lands of a high biodiversity value. Such people may be attracted to these lands for altruistic reasons, for the enjoyment of living with abundant flora and fauna or for financial reasons (i.e. rural land that comes with an income stream in perpetuity when a biodiversity offset is achieved). There has been a growing interest in property marketed for its biodiversity values as evidenced by businesses such as the Nature Conservation Trust. Private conservancy groups, such as the Australian Wildlife Conservancy, Bush Heritage Australia and other charitable trusts, also purchase lands of high conservation values.

The Priority Investment Layer is not a legal document and does not affect existing property owner's existing legislative rights or requirements. Participating in any biodiversity incentive schemes is voluntary and the decision of the land owner.

4.2 WHAT LANDS DOES THE PRIORITY INVESTMENT LAYER INCLUDE?

The Priority Investment Layer is shown in two parts in Figure 19 and Figure 20.

Figure 19 focuses on **protecting and restoring existing bushland** areas of high biodiversity values outside Protected Areas and Forestry Lands. Example works in these areas could include supplementary plantings, vertebrate pest control, nest box installation, control of invasive weeds, riparian works, ecological monitoring and cessation of clearing. It includes:

- The Priority Action Areas identified using Zonation (from Figure 7 – priority areas on Council owned/ manage lands and Figure 8 – private land priority areas).
- Threatened ecological communities (from Figure 11).
- Coastal and estuarine wetlands and lakes and associated areas of wetland vegetation (from Figure 10). However, all of these areas were either already captured by the Priority Action Areas or, in the case of a small area immediately to the north-east edge of Queens Lake, already captured by the threatened ecological community layer.
- Additional priority areas identified by the Expert Panel (from Figure 12).

It does not include core Koala habitat as an explicit overlay as this is the focus of a Coastal Koala Plan of Management, however, Koalas were one of the modelled species determining priority areas and therefore received equal consideration with a number of other fauna species.

Figure 20 focuses on **enhancing landscape connectivity**. It shows those areas that require additional native vegetation plantings, and associated invasive weed control to increase connectivity. It includes:

- Habitat linkages identified using GAP CLoSR (from Figure 15) — these are areas that currently comprise only narrow strips of trees or isolated trees.
- Key planting connections (digitised by hand), including:
  - ◊ areas that would reconnect small components identified by the woody vegetation model of GAP CLoSR (see Figure 15).
  - ◊ areas where Northern Rivers habitat corridors (regional and subregional as shown in Figure 14) currently cross open, predominantly cleared land.
- Areas requiring 'technical solutions' for connectivity. Such solutions typically include road underpasses, overpasses, glider poles, Koala stiles or other initiatives to reduce the incidence of roadkill. These areas were identified through discussion with the Expert Panel (who know where the 'road-kill' black-spots occur) and through examination of the woody vegetation model of GAP CLoSR which showed where either small components occurred because of major roads or where two larger components were separated only by virtue of a road.
- The 'Comboyne Corridors for Conservation' area. The plateau is more than 80% cleared (see EcoLogical Australia 2007), has unique and diverse biological values found nowhere else in the LGA, and currently has connectivity only by virtue of small linear strips mostly comprising introduced species. This area requires substantial investment, such as the creation of a *Comboyne Corridors for Conservation* project. If done in close consultation with landholders, this could result in wins for the farming industry and wins for biodiversity.

4.3 WORKING WITH THE PRIORITY INVESTMENT LAYER

The Priority Investment Layer should be considered a 'guide' only to the biological values of the LGA. It does not guarantee funding. Other sites outside these areas are likely to be worthy of biodiversity investment. All of the areas identified require on-ground verification of potential values. In some instances, for example projects seeking to improve landscape connectivity, the willing participation of multiple landholders may be required for a project to be of benefit and worthy of funding. The Priority Investment Layer will require updating every 5 years to ensure it reflects current knowledge.

Port Macquarie-Hastings Council is happy to work with landholders to discuss the potential biological values of their land. The Priority Investment Layer and maps of various biological values will be made freely available to the public.

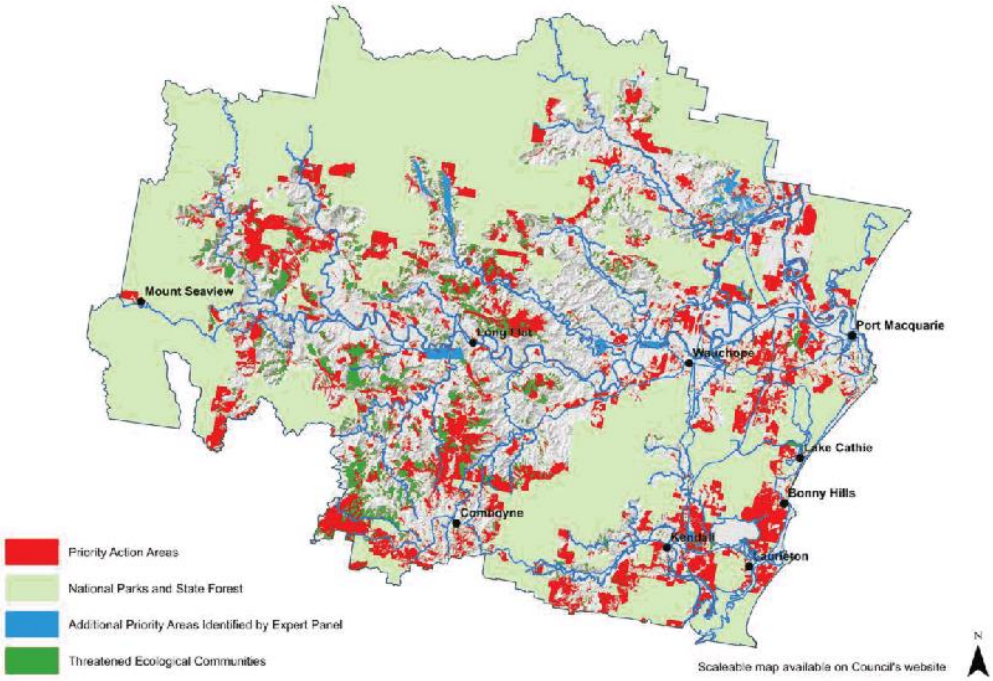


Figure 19. Priority Investment Layer for works aiming to protect and restore existing bushland

There are a large number of opportunities and avenues for landholders interested in biodiversity to participate, and often receive funds for, work to protect and restore the biological values of their lands.

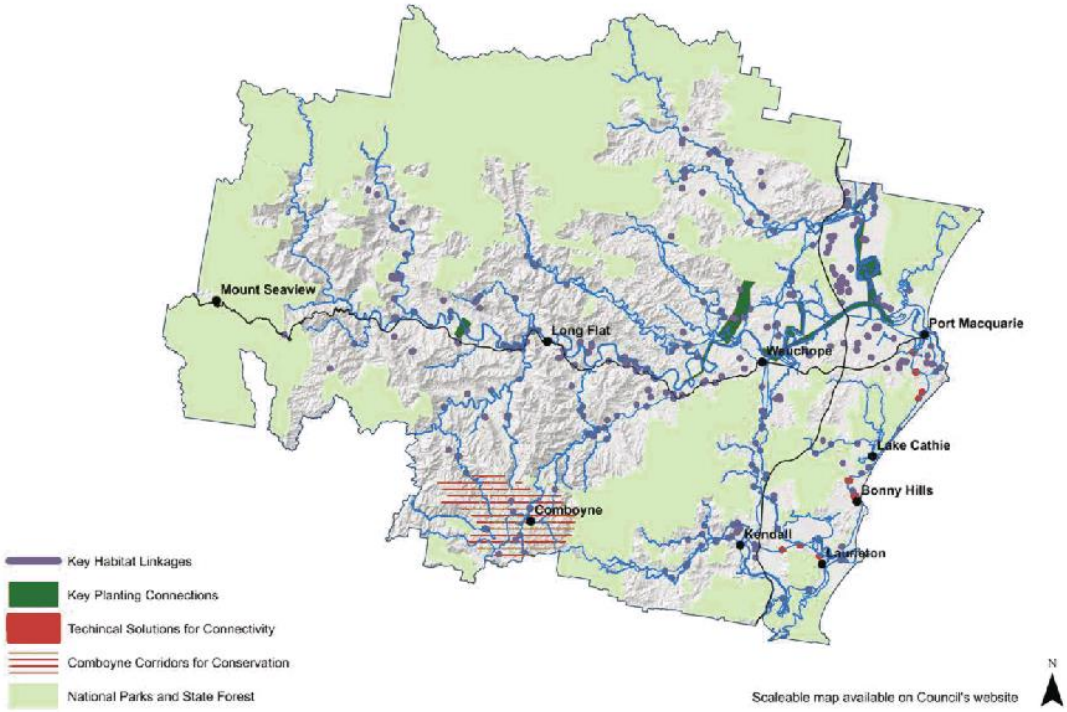


Figure 20. Priority Investment Layer for works aiming to enhance landscape connectivity

5. THREATS TO BIOLOGICAL VALUES IN THE LGA

5.1 INTRODUCTION

Around the world, biodiversity is being lost every day. Many species are lost before they have even been scientifically described. It is estimated that over 40% of the world's species are at risk of extinction.

Australia is one of the most biologically diverse countries in the world. We have 10% of the world's species, most of which occur nowhere else, in under 6% of the earth's land surface. And while we pride ourselves on our unique wildlife, by virtually every measure our record of biodiversity loss is the worst in modern times. More than 14% of our vertebrate animals and 12% of our plants are threatened; a substantially higher percentage than the next two worst performing countries, USA and Mexico. Of nearly 80 mammal extinctions recorded globally since the 1600s and the Age of Exploration, about 20 were lost from Australia during the last 220 years. Today, many hundreds of species are listed as threatened within Australia at the federal and/or state levels.

While the Port Macquarie-Hastings LGA has fared better than many other parts of Australia in protecting diversity, the loss to biodiversity is still apparent, with many old-timers having stories to tell of the 'old days' and 'how you just don't see them like to used to'. Central in many people's minds is the Koala and how abundant they used to be relative to today. Today, there are approximately 190 species and 10 ecological communities listed as threatened at either the state and/or federal level that occur within the Port Macquarie-Hastings LGA, and this list grows every day. For instance, recent evidence has shown that populations of the White-bellied Sea-Eagle are declining, with many individuals failing to rear chicks. The NSW Threatened Species Committee has recently added the eagle to the list of threatened species.

So why is biodiversity declining? The answer is really quite simple: at the heart of biodiversity decline and species extinction is the **loss of habitat**. Habitat can be lost through clearing, fragmentation, degradation (e.g. incursion of feral plant and animal species) and modification (e.g. through inappropriate fire regimes, rising sea-levels causing increased inundation). The impacts can occur immediately after the change, or can be delayed. This is referred to as an extinction 'debt', wherein the species' fate is already sealed following previous impacts but the effects take time to become apparent.

The impacts of habitat loss can act directly on species, for example, vegetation clearing can lead to a lack of food resources or hollows. Or the impacts can act indirectly on a species. For instance, increasing urbanisation may allow Common Mynahs to inhabit an area which was previously unsuitable. The Mynahs then displace native hollow-dwelling species. Another indirect impact of habitat loss is that it may cause animals to become stressed which leaves them vulnerable to disease.

Seemingly small changes and actions can result in 'ecosystem unravelling' when species that provide fundamental services in the ecosystem are lost. This in turn affects other species in that ecosystem. For example, a parcel of bush may be 'underscrubbed' in a rural-residential development removing shrubs and understorey species. This is important habitat for small bush birds (e.g. wrens and scrub birds). Noisy Miners, preferring more open understories, invade the site and drive away other birds. A reduction in insectivorous birds allows insect populations to become locally abundant. An increase in some foliage-eating insects then drives dieback in the eucalypt canopy, which in turn further renders the habitat unsuitable for insectivorous birds and other species dependent on canopy attributes, and a downward spiral begins.

5.2 THREATS ACROSS THE PORT MACQUARIE-HASTINGS LGA

The NSW Office of Environment and Heritage prepared a report listing the major threats, and their impact level, for the different landscape units (see Figure 2) present in the Port Macquarie-Hastings LGA. A short summary for each of the different landscape units is presented below.

Coastal plains

The coastal plains, covering 13% of the LGA, provide an attractive 'sea change' lifestyle for many people seeking to move out of capital cities. This shift in demographics is placing a vastly increased pressure on the natural environment, leading to further clearing and fragmentation of existing vegetation and habitats to satisfy an increased demand for urban and rural-residential land, infrastructure and services. As well, there are increased risks of fires, weed invasion, pollution and predation on wildlife by domestic cats and dogs. As a result, the coastal plains, in comparison to the three other landscapes, has the highest overall number of threat activities and the most number of threats unique to a landscape.

Threats include:

- clearing and disturbance of vegetation for urban, rural-residential and industrial development (including setbacks for fire protection)
- invasion by introduced plant species
- the establishment and spread of Bitou Bush and Lantana
- competition and predation by the European Red Fox
- inappropriate fire regimes in some locations.

Competition, predation and disease by feral cats is also of high concern within this landscape. While Cane Toads are presently not established in the LGA, they are a potential threat. Feral deer are having large impacts throughout the coastal floodplains. Their browsing is causing a lack of regeneration in some vegetation communities, including littoral rainforest, and evidence of their trampling and rubbing is also widely evident. The role that they play in disease transmission is yet unknown, but is of major concern.

Additionally, there are a number of significant future threats unique to the coastal plains landscape, such as sea-level rise, storm surge and possible increased storm events due to the impacts associated with climate change. Inundation of low-lying areas may fundamentally change the character of the coastline and estuaries, displacing important habitats for shorebirds, estuarine species and littoral rainforest. The ecology of freshwater wetlands is also likely to change dramatically as saltwater incursions increase. Increasing stochastic events such as cyclones, storms and floods may alter or destroy important coastal habitats.

Due to their location in the landscape, riparian areas within the coastal plains are constantly reinvaded by weeds carried downstream during floods. Floods also increase erosion of degraded stream banks and, following heavy rain, low-lying swampy areas that have been drained can discharge acidic waters that result in fish kills.

Waterways in the coastal plains are also impacted by stormwater run-off and pollution from the urban and industrial developments near estuaries and rivers. The expanding population and urban areas also increase pressures on the natural environment from recreational activities such as boating and fishing.

Many habitats in the coastal plains are highly disturbed and fragmented and major roads such as the Pacific Highway cause significant barriers to the movement of species. This causes genetic isolation of populations and an inability for species to recolonise areas after local extinctions. Flying-fox camps on the coastal plains are often within or adjoining urban areas, making them vulnerable to disturbances and habitat loss.

The coastal Koala population is under significant levels of threats from cars, dogs, fragmented habitat and potential wildfire. Disease is also an ongoing problem. The potential for wildfire in the coastal national parks which support key Koala populations is a significant risk.

Midland hills

The midland hills landscape covers 40% of the LGA and, in comparison to the coastal plains, has less overall threat activities reflecting the relatively lower population density. The diversity of land uses is less and they are mainly associated with agricultural activities, primarily cattle grazing. Forestry is also widespread on both private land and Forestry Corporation of NSW lands. The main threats include:

- clearing and disturbance of vegetation for agriculture, invasion from introduced plant species
- the establishment and spread Lantana
- competition and predation by the European Red Fox, feral deer and feral pigs
- inappropriate fire regimes in some locations.

Competition, predation and disease by feral cats is also of high concern within this landscape. While Cane Toads are presently not established in the LGA, they are a potential threat. Some areas are also subject to urban, rural-

residential and industrial development (including clearing setbacks for fire protection).

The impacts associated with climate change are likely to be less in the midland hills than in the coastal plains landscape. There may however be impacts from increased wildfire potential and the invasion of new weeds and pests such as the Cane Toad may occur. Some plant species and the floristics of some vegetation communities may also change as a result of changes in the current range and distribution of temperature and rainfall. Increasing stochastic events such as cyclones, storms and floods may also alter or impact on important habitats.

Some habitats in the midland hills are highly disturbed and fragmented and/or have roads or cleared lands that cause significant barriers to the movement of species. This can cause genetic isolation of populations and an inability for species to recolonise areas after local extinctions.

Escarpment ranges

The escarpment ranges (45% of the LGA) is a dramatically different landscape to the other landscapes in the region due largely to the steep, rugged landforms. These have precluded, in many areas, the extensive development of land uses that are major threats to biodiversity in the other landscapes. There are low levels of human settlement, less agriculture than the coastal plains and midland hills due to the difficulty of the steep terrain, and a relatively large areas of national park and state forest.

Threats to this landscape, although much reduced compared to other land uses, are still present and include inappropriate fire regimes as a result of wildfires. These can result in the burning of large inaccessible areas, including rainforest, under extreme conditions. Inappropriate fire regimes encompass those that are too frequent, or not frequent enough, dependent on the ecosystem. Predation from foxes, and feral cats and dogs can also occur throughout these areas, predominantly in disturbed forest areas, along forest edges and in the rural agricultural lands. Feral goats and deer may be an emerging issue. Forestry is a major industry in the escarpment ranges. It occurs on both state forests and private land, with potential threats including loss of hollow-bearing trees, increased erosion, inappropriate fire regimes, Bell Miner associated dieback, firewood collection, increased predation and human interference.

Overall the escarpment ranges landscape is likely to be more resilient to the potential impacts of climate change because of the highly variable topography and the mosaic of generally well-connected vegetation communities. Nevertheless, restricted vegetation communities such as upland wetlands, rocky outcrops, dry rainforest and cool temperate rainforest are vulnerable to the catastrophic consequences of climate change as a result of extended dry periods, increased fire and/or storm intensities. Bell Miner associated dieback may be an emerging threat to the escarpment ranges. Chytrid fungus is a serious threat to the many frogs that inhabit the streams and moist forests and may be an emerging threat in the escarpment ranges. Weed invasion in disturbed areas may be a problem.

Tablelands

The small area of tablelands landscape (2% of the LGA) comprises all public land (national parks). Threats are generally much lower than in the other landscapes and relate mainly to wildfire, weed invasion and feral animals.

5.3 SPECIFIC THREATS TO THE LGA: DISCUSSIONS WITH THE EXPERT AND COMMUNITY PANELS

The Biodiversity Strategy Expert and Community Panels read the OEH Report as described above and met to discuss specific threats they felt had high levels of impact on the biodiversity of the Port Macquarie-Hastings LGA. These threats included:

- impacts from feral pest animals, most notably foxes, cats, rabbits, Common Mynahs and deer, with specific concern expressed over the impact of deer browsing on littoral rainforests (and also the impact of domestic pets, notably cats and dogs, on wildlife)
- development and associated clearing and habitat fragmentation
- agricultural enterprises which result in further clearing, particularly in sensitive and already over-cleared landscapes, such as the Comboyne Plateau
- weed invasion (with a particular emphasis on riparian community weeds)
- forestry (including private native forestry)
- road kills
- inappropriate fire regimes
- shorebird declines as a result of recreational activities (including jet skis, boats and sea planes)

causing wash into important roosting and nesting areas, most notably Pelican Island, Queens Lake and Watson-Taylor Lake and recreational four-wheel driving impacting shorebird habitat and nesting environments (and generally the North Shore's environment)

- alteration to the natural flow regimes of rivers, streams and wetlands from habitat modification and degradation.
- overly-intenstive domestic livestock grazing, trampling and competition
- mining in headwaters
- climate change.

5.4 SIGNIFICANT THREATS IN THE LGA

The Panels felt that it was important for this Biodiversity Management Strategy to explicitly consider habitat losses which may occur as a result of development, climate change and private native forestry. The following sections, developed by Council, discuss these significant threats.

5.4.1 LOSS TO DEVELOPMENT

The coastal floodplain, with its temperate climate, coastal lifestyle and proximity to the beach and major urban centres such as Port Macquarie, is a highly desirable place for urban development. Unfortunately, this area also has some of the most fertile soils, best fauna habitat, largest hollow-bearing trees and remaining patches of many threatened ecological communities, such as Littoral Rainforest. The coastal floodplain also has the most important Koala habitat, and indeed Port Macquarie's Koala population is of national significance. It is fundamentally important to understand that these biological assets are not distributed evenly throughout the LGA, and impacts on the coastal floodplain are likely to further result in key habitat loss and fragmentation in this already fragmented and over-cleared landscape unit.

While all developments must undergo ecological assessments, the challenge is that any individual development may not cause a 'significant impact on a local population or community', and therefore is allowed to proceed. However, it is the cumulative impacts of many such individual developments that cause significant losses to biodiversity and the ancillary impacts that follow developments (such as increasing weed encroachment from urban landscapes, road strikes and influence of predation from companion animals), that cause the long-term damage and such impacts are much harder to regulate and control. Thus, both the immediate threats to biodiversity from development and the ongoing threats require consideration. This has been an increasing focus of Port Macquarie-Hastings Council to:

1. separate critical biodiversity conservation issues from urban areas so as to avoid conflicts which will result in further biodiversity losses. For instance, using consolidated off-site offsets rather than trying to retain small parcels of habitat on the development site which will only be a 'population sink' due to factors such as road strike, predation and weed incursion. Experience has also shown that retaining trees in the urban landscape is fraught with difficulties as such trees or habitat parcels are often lost in time to vandalism or removed for safety considerations.
2. find ways that biodiversity losses can be, in the first place avoided, but failing that, minimised and offset elsewhere
3. improve strategic planning by considering all available biological data (particularly that now provided by this Biodiversity Management Strategy) and the cumulative impacts.

The population of Port Macquarie is expected to increase by 30% to 103,000 in the next 20 years. The Urban Growth Management Strategy outlines where this development may take place. That Strategy has been developed with consideration of work from the Biodiversity Management Strategy, particularly Zonation and GAP CLoSR. The key outcomes of the Urban Growth Management Strategy as they relate to biodiversity are summarised in Box 18.

BOX 18. THE URBAN GROWTH MANAGEMENT STRATEGY AND ITS RELATIONSHIP TO BIODIVERSITY

The purpose of the Urban Growth Management Strategy is to provide a sound strategic planning framework for residential, rural-residential, retail, industrial and tourism development in the Port Macquarie-Hastings Local Government Area to 2036.

The Urban Growth Management Strategy achieves Council's vision of 'A sustainable high quality of life for all' by identifying land-use management strategies to maintain and enhance the quality of life for everyone in the community in a balanced way for current and future generations. A 'balanced way' means that social, economic and ecological objectives are balanced with none being more important than the others.

Our population is anticipated to grow, on average, by more than 1000 people per year over the next 20 years. This equates to more than 500 new dwellings a year on average, or nearly 50 hectares of cleared land needed every year if all of this development is accommodated in new housing estates. Allowing urban development while simultaneously protecting our natural environment presents significant challenges for the Urban Growth Management Strategy.

Council's ecological data, including outputs from Zonation and GAP CLoSR, has helped to create a map of high environmental values for the LGA. This mapping is the fundamental basis for selection of areas for potential urban development. Land free of environmental values is rare, particularly in our highly desirable coastal area east of the Pacific Highway. Our policy to facilitate a compact urban form by encouraging growth around our centres and encouraging more efficient use of land for development is reinforced by our environmental values mapping.

5.4.2 LOSSES TO SEA-LEVEL RISE

Climate change and sea-level rise have the potential to impact private and public land and assets, including biodiversity, within the Port Macquarie-Hastings LGA as well as other coastal areas around New South Wales and Australia. BMT WBM was commissioned by Council in 2013 to undertake an estuary and coastline inundation mapping study to assist in the assessment of areas at risk from sea-level rise. The aim of the study was to determine the estuarine and coastal inundation extent for a range of 'design events' as outlined in Table 7.

Table 7. Design events for climate changes

Design event	Comment
Spring tide	This represents a typical tidal case as would be observed many times each month.
King tide	This represents a less typical tidal case as would only be observed several times each year.
1 year ARI	This peak tidal level is expected on average to be exceeded once each year and would occur due to a minor storm event.
50 year ARI	This peak tidal level is expected on average to be exceeded once every 50 years and would occur due to a major storm event. Alternatively, this peak water level event only has a 2% chance of occurring in a given year.
100 year ARI	This peak tidal level is expected on average to be exceeded once every 100 years and would occur due to a major storm event. Alternatively, this peak water level event only has a 1% chance of occurring in a given year.

ARI = average recurrence interval

The three timeframes and associated mean sea levels included in the study were:

- Current; mean sea level = 0.0 metre AHD (Australian height datum)
- 2050; mean sea level = 0.4 metre AHD
- 2100; mean sea level = 0.9 metre AHD.

These levels are based on the previous NSW Government planning benchmarks which are a projected rise in sea level (relative to the 1990 mean sea level) of 0.4 metres by 2050 and 0.9 metres by 2100 (DECCW 2009). The best available estimates of sea-level rise projections indicate that these increases in mean sea level will occur by the year 2050 and 2100 as presented in the former NSW Planning Guidelines and adopted by Council (along with many other coastal councils in NSW). High quality mapping of the inundation extents for the estuaries and coastal areas was undertaken using LiDAR ground elevation data collected for Council in October 2005. The report is available from Council.

While temporary inundation, as may be experienced with a 1:100 year flood event or even a king tide, may have little ecological impact on the biodiversity of an area, repeated inundation over a month (as occurs in the spring tide scenario) would almost certainly impact the biota on a site. Many plants would not only be unable to cope with the waterlogged conditions, but more importantly would not be able to survive in the increasingly saline conditions. Such saline conditions greatly reduce the ability of a plant to uptake nutrients, thus affecting their flowering, fruiting and survival. Leaf chemistry would also be altered, which is of great concern for folivores, such as the Koala (which are notoriously fussy eaters). In the case of saltmarshes, the repeated inundation and *reduced* hyper-saline conditions (through regular tidal flushing) is likely to transform these communities into Grey Mangrove woodlands/forests.

For the purposes of this Biodiversity Management Strategy, the sea-level rise scenarios for the three mean sea levels were compared against spatial data for threatened ecological communities (outside state forests and NPWS estate) and Swamp Sclerophyll Forests (Keith Formation, tenure-blind analysis). This community occupies low-lying parts of the landscape and is therefore at risk from inundation. Wallum Froglet and Black Bittern also occupy low-lying areas on the coastal floodplain and thus inundation of their prime habitat (the top 30% of predicted habitat from their individual MaxEnt models used in Zonation) was also examined. The scenarios examined the amount of these lands which experience inundation under spring tides currently, and compared this against likely inundation scenarios for a spring tide in 50 and 100 years' time.

The results show that while many vegetation communities will not be affected, several already threatened ecological communities will experience substantially increased inundation within 50 and 100 years, most likely resulting in major modification (see Figure 21 and Figure 22). Of

particular note are the following wetland and floodplain threatened ecological communities: Coastal Saltmarsh, Freshwater Wetlands on Coastal Floodplains, Swamp Oak Floodplain Forest, and Swamp Sclerophyll Forest on Coastal Floodplains.

Indeed, there will be a 20-fold increase in the area of wetland and floodplain threatened ecological communities experiencing spring tide inundation in 100 years. The modelling indicates that **all** Coastal Saltmarsh is likely to be inundated by 2103.

The results showed that Swamp Sclerophyll Forests (both the recognised threatened ecological community on coastal floodplain soils and the broader ecological formation, see Figure 23) will experience high levels of spring tide inundation. These communities represent some of the most Preferred Koala Habitat in the region, for their combination of primary food trees, such as Swamp Mahogany and Broad-leaved Paperbark (a tree offering food and shelter). They are also important habitat for other threatened animals such as the Swift Parrot and Wallum Froglet and threatened plants such as *Maundia triglochinoides* and the Lesser Swamp-orchid.

As a quantitative example, specific modelling of the best Wallum Froglet habitat showed that 16% of this will experience regular spring tide inundation within 100 years (see Figure 24). Wallum Froglets are highly sensitive to changes in water quality, pH and water levels. Modelling of additional species will be completed in line with this Biodiversity Management Strategy to examine potential climate change refuge areas that will have a disproportionate importance in time.

The results show the importance of considering the impacts of climate-mediated sea-level rise on vegetation in strategic planning. For example, 'offset' sites should remain free of such impacts (see Box 19). The results also show that 'marginal areas' of species habitat, particularly for wetland-associated species, may become fundamentally more important over time when other areas are inundated. For example, the Black Bittern, a threatened species, inhabits coastal wetlands and is well known from the Partridge Creek area, which will experience much greater inundation within 50 years (see Box 20).

It is often argued that the impacts of climate-induced sea-level rise will be marginal because species will simply 'migrate' up topographic gradients. While the idea has merit, this is unlikely to occur in many areas of the LGA due to urban development immediately adjoining existing vegetation and also the time scales at which these changes may operate (particularly given storm surges and so forth). There is a growing recognition that future strategic planning must allow for buffers around areas

BOX 19. CONSIDERING CLIMATE CHANGE WHEN PREPARING BIODIVERSITY OFFSET SITES

Establishing sites that seek to 'offset' the environmental impacts of development is increasingly becoming common place. Many such sites involve planting replacement habitat trees, such as Koala food trees, in larger ratios than they were removed. Such offsets take time to function ecologically. For instance, a Koala food tree typically takes a minimum of 5 years to be used, with many species not reaching full functionality until about 20 years. Trees planted for hollow-dependent species may take 100 or more years to begin offering the full suite of habitat requirements.

Planning for offsets therefore needs to consider many long-term issues, such as:

- Will the area become geographically isolated in time due to surrounding clearing?
- Will the area have major roads nearby that could result in road-strike?
- Will the area experience more frequent inundation (sea-level or overland flow) in the future?
- Will the area experience more severe fires in the future?

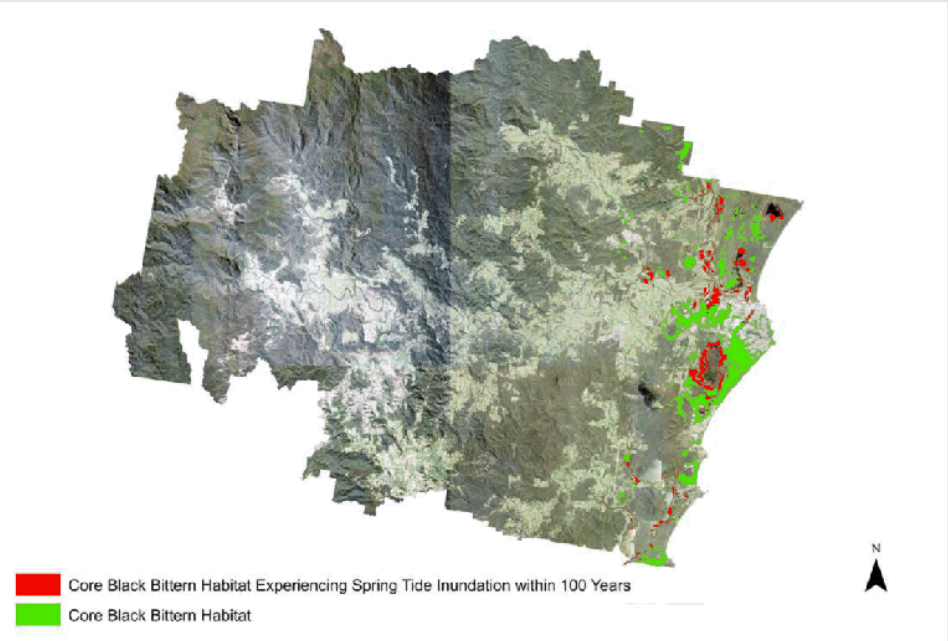
Within the Port Macquarie-Hastings Council area, a development was required to find an 'offset' site on which to plant Koala food trees. A parcel of land, supporting fringing Primary Koala Habitat (Swamp Sclerophyll Forest on the Coastal Floodplain) was located by the developer and submitted to Council for approval. While all looked appropriate by today's standards, modelling associated with this Biodiversity Management Strategy revealed that Koala habitat in this area is predicted to regularly experience tidal inundation within 50 years. This is highly likely to have an impact on eucalypt survival and browse palatability and nutritional content. The developer was required to find a more suitable offset site.

When planting offset sites, it is important to consider what that site may be like in the fullness of time, and particularly the impacts of climate change, to ensure that such areas will not be seasonally or permanently inundated.

BOX 20. CONSIDERING CLIMATE CHANGE WHEN PREPARING BIODIVERSITY OFFSET SITES

The Black Bittern (see image opposite) is a sooty black or dark brown wading bird with a yellow patch on the sides of the neck, extending from the throat to the wing. The feathers on the crown and lower neck are almost plumes. Black Bitterns live in tree-lined wetlands and mangroves. There they forage among the shallow water by slowly stalking prey, such as fish and frogs, or by standing and waiting for prey to emerge. Sometimes they may plunge at prey from a perch, stabbing it with their sharp bills. They forage in both daylight and darkness but by day they are usually quite secretive, skulking among areas of short marshy vegetation. Unlike many other wading birds, Black Bitterns are mainly sedentary throughout the year, therefore being strongly tied to a particular wetland. They nest on platforms built in trees overhanging water. Damage to wetlands, upon which this species is so reliant, has resulted in the Black Bittern being declared a threatened species in New South Wales.

Climate change will result in large changes to water levels and water quality of key Black Bittern habitat. Such changes will have flow-on effects for the availability and composition of their prey items as well as areas of suitable habitat for daytime refuges, perching and nesting opportunities, as many such areas will be 'drowned' by rising water levels. An examination of current core Black Bittern habitat against spring tide inundation in 100 years, showed that 25% of core Black Bittern habitat is likely to experience regular spring tide inundation (area shows in red below), which is 8.75 times higher than the levels of habitat currently affected. Areas outside the zones of inundation (areas shown in green below) are therefore of key importance.



Areas of core Black Bittern habitat that are likely to be inundated during spring tides within 100 years.

which may experience more inundation as a result of climate-induced sea-level rise.

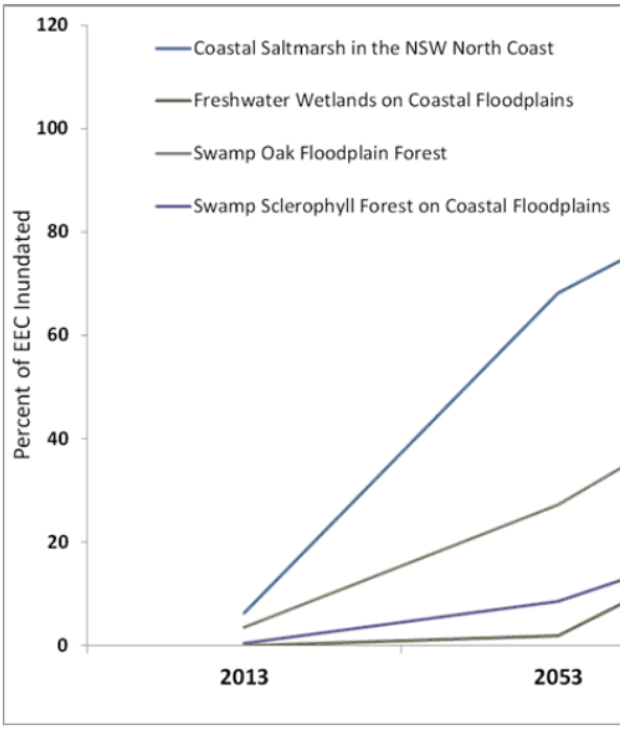


Figure 21. Percentages of most affected threatened ecological communities which will experience significantly more inundation (even under spring tide scenarios) with increasing sea-level rise

Note: this analysis does not include areas within state forests or national parks as this data was not available. It is the percentage that exists on private, Council or Crown land that will be affected.

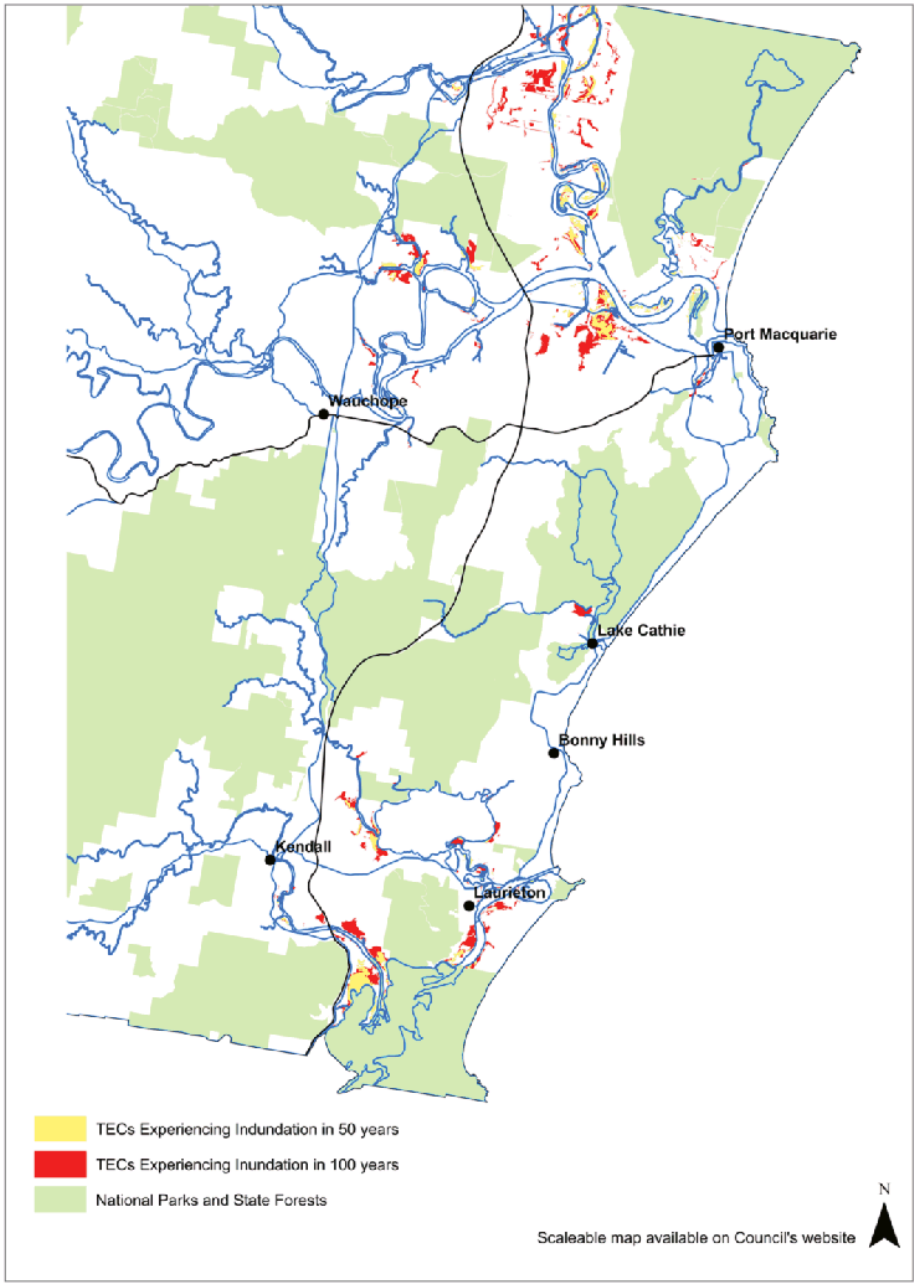


Figure 22. Threatened ecological communities (TECs) (outside Protected Areas and Forestry Lands) which will undergo significant modification through tidal inundation within 50 and 100 years with spring tides

There will be a 20-fold increase in areas inundated. While the area of affected TECs within national parks and state forests is not shown, a similar quantity of TECs is likely to be impacted in these areas, particularly in low-lying areas such as Lake Innes.

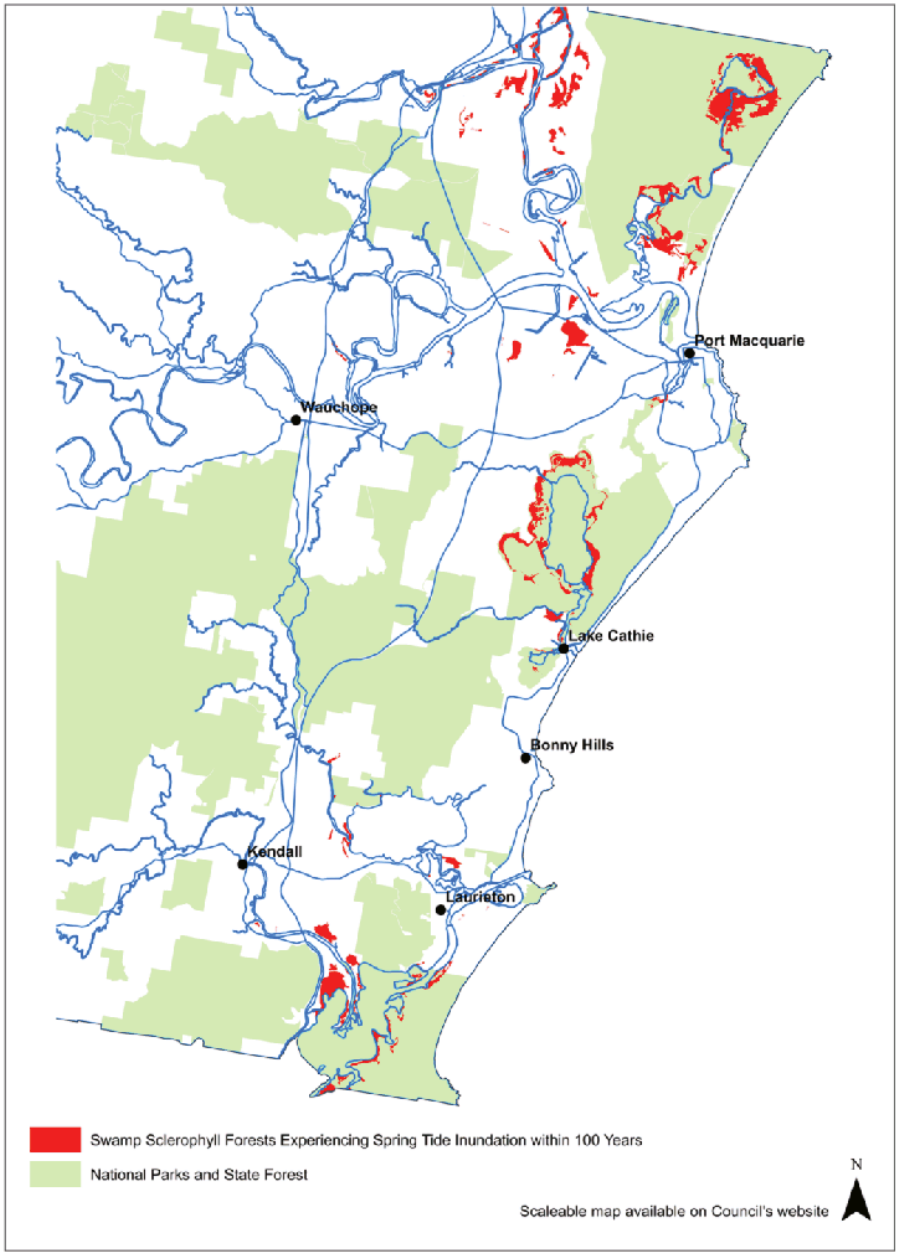


Figure 23. Areas of swamp sclerophyll forest (Keith Formation) which will experience increased inundation under spring tide scenarios with climate-induced sea-level rise

Approximately 30% of swamp sclerophyll forest will experience regular inundation with spring tides. Increased inundation is likely to affect the ability of plants to uptake nutrients, which affect their survival and palatability for folivores, such as the Koala, for which this ecological community is among its most preferred habitat on the coastal floodplain.

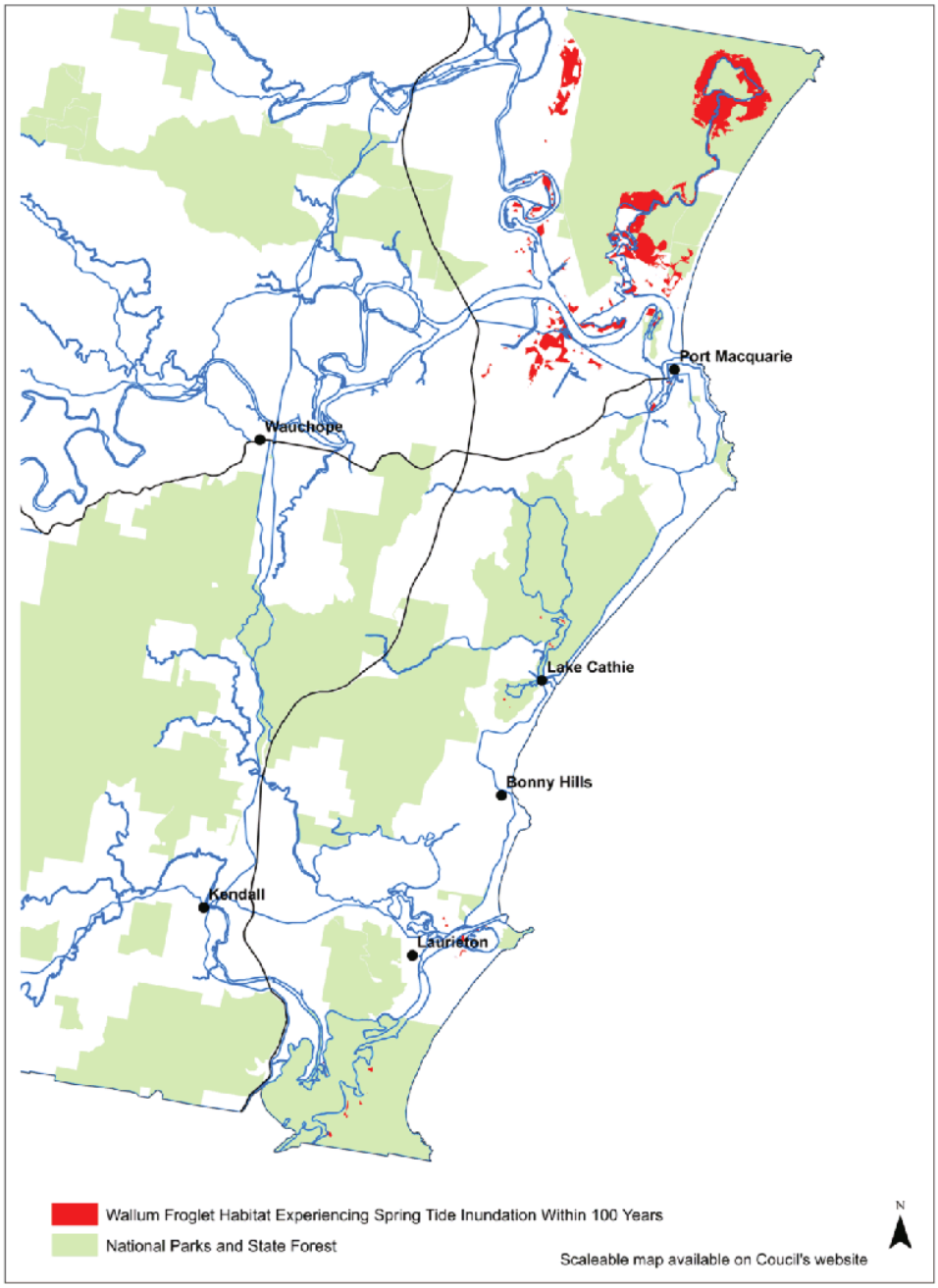


Figure 24. Areas of Wallum Froglet habitat which will experience increased inundation under spring tide scenarios with climate-induced sea-level rise

Approximately 16% of predicted habitat will experience regular inundation with spring tides which is likely to have consequences for species survival.

5.4.3 PRIVATE NATIVE FORESTRY

While Port Macquarie-Hastings Council is not the regulatory authority on private native forestry, the industry is a large one within the LGA. Because of this, the Expert and Community Panels requested that this industry be further examined here. An examination of available data revealed:

- As of October 2016, there was 17,799 hectares of land subject to private native forestry agreements within the Port Macquarie-Hastings LGA.
- From 2015–2016 an average of two private native forestry licences were granted each month in the LGA.
- 15,330 hectares of the private native forestry licences issued were located on Preferred Koala Habitat. Indeed, 16% of Primary Koala Habitat (outside of national parks and state forests) was covered by a private native forestry licence. Any significant loss of Primary Koala Habitat is likely to have an impact on Koala ecology and survival.
- Some ecological communities are likely to be more affected than others (see Table 8). For instance, 100% of Coachwood – Black Booyong Warm Temperate Rainforest, 77.8% of Narrow-leaved Red Gum – Orange Gum Swamp Woodland and 77.6% of Spotted Gum Grassy Dry Forest (outside national parks and state forests) has a private native forestry licence over it as of October 2016. The two latter vegetation communities were specifically identified as being of biological significance by the Expert Panel. Another significant vegetation community identified by the Expert Panel was the Brown Myrtle Dry Rainforest on the western shores of Lake Innes. Parts of this community also have a private native forestry licence over them as of October 2016. It should be noted that while licences have

Table 8. Percentage of vegetation communities (outside State Forests or NPWS Estate) with a private native forestry licence as of October 2016 as revealed by the PMHC Vegetation Mapping Dataset.
It should be noted that the Code precludes logging within rainforest and other threatened ecological communities.

Port Macquarie Vegetation Community	% of community (outside national parks and state forests) under a PNF Licence*
Coachwood - Black Booyong Warm Temperate Rainforest	100
Narrow-leaved Red Gum - Orange Gum Swamp Woodland	77.82
Spotted Gum Grassy Dry Forest	76.63
Blackbutt Shrubby Moist Forest	64.68
Blackbutt Grassy Forest	58.23
Grey Gum - Grey Ironbark Moist Forest	57.17
Grey Ironbark Grassy Forests	56.68
Brushbox - Blue Gum Moist Riparian Forest	49.24
Grey Gum - Tallowwood - White Mahogany Grassy Forest	48.57
Mountain Grey Gum - Broad-leaved Mahogany Grassy Dry Forest	41.99
Swamp Mahogany Forest	41.37
Sydney Blue Gum - Tallowwood +/- Brush Box White Mahogany Moist Forest	38.30
Flooded Gum Moist Riparian and Gully Forest	37.36
Black Booyong Subtropical Rainforest	35.76
Native Tamarind - Brush Box - Bangalow Palm Gully Subtropical Rainforest	35.57
Blackbutt Coastal Dune Satinwood Forest	29.58
Brown Myrtle Dry Rainforest	27.56
White Stringybark - Tallowwood - Grey Gum Dry Forest	27.10
Shatterwood Dry Rainforest	26.71
Wattle Scrub (Dist)	26.10

* It is important to note that some communities are not likely to be found in large quantities in national parks or state forests.

seemingly been issued over some such areas due to discrepancies in vegetation mapping datasets, the Code explicitly excludes logging operations within all areas of mapped rainforest, old-growth forest and threatened ecological communities identified on the ground, and sets prescriptions regarding logging operations within proximity of these areas and other key habitat areas.

5.5 INAPPROPRIATE BURNING REGIMES

Bushfire is part of the Australian landscape. While some species require fire on a semi-regular basis — for instance the Eastern Chestnut Mouse requires a fire interval of approximately 4 years to ensure appropriate habitat — other species or communities, such as Littoral Rainforest, are extremely fire intolerant. Conducting planned hazard reduction burns at appropriate fire intervals across the landscape to minimise the risk of unplanned wildfires in areas supporting species or communities intolerant of fires, and as a means of minimising the risk of 'catastrophic fires', is highly important. Planned 'ecological burns' are also important to retain some ecological communities in the landscape, such as Themeda Headland Grassland (see Box 21).

The threat of unplanned, inappropriate burns to biodiversity can be greatly improved by increased spatial knowledge depicting key biological assets such as where fire should be avoided, and areas where fire would be beneficial (and at what intervals). Such information can then be shared with key stakeholders, such as the Rural Fire Service, the NPWS and landholders. The threat of inappropriate fire regimes can also be reduced by having appropriate personnel to assist in hazard reduction burns and fire control activities.

Some areas of the Port Macquarie-Hastings LGA currently are at risk from bushfires. For instance, the Christmas Bells Plains area supports key Koala habitat, and patches of Littoral Rainforest (not mapped in SEPP 26 legislation). These assets both occur amid an area of heath which is highly prone to intense fire and indeed requires fire for proper ecological functioning.

Rainforest environments do not respond well to fire, with most rainforest species suffering when burnt. Figure 25 shows that many rainforest patches have likely burned in the last 15 years.

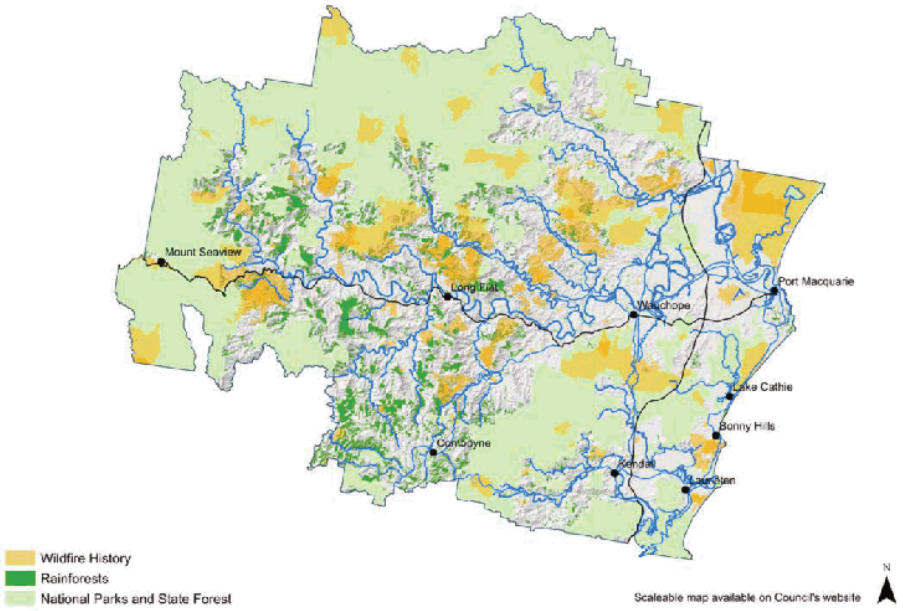


Figure 25. Wildfire history (2000–2015)

While the fire mapping extent is 'broad-brush' and may not have affected every patch of rainforest, the data still reveals the need for better understanding of biological assets that may be at risk from wildfire and actions to protect them.

BOX 21. THEMEDA HEADLAND GRASSLAND AND THE NEED FOR ECOLOGICAL BURNS

Themeda Grassland on Seacliffs and Coastal Headlands in NSW is a threatened ecological community. It occurs in several areas in the Port Macquarie-Hastings LGA, with perhaps the most accessible examples at Gaol and Tacking points. The community contains a rich diversity of small forbs, grasses and shrubs as well as unique micro-organisms, fungi and cryptogamic plants, such as lichens, mosses and ferns. The exact composition of species varies from one site to another, illustrating their spatial isolation, independent evolution, and the importance of protecting all sites in order to conserve the full range of biodiversity found in this community. Individual stands of the community are often very small, a few square metres, but some sites may be several hectares in size.

Many of the plants in this community have developed unique growth habits and forms to deal with the highly exposed conditions. For instance, the *Themeda* grass (also called Kangaroo Grass) in this community is prostrate (i.e. lying flat on the ground) with glaucous leaves (covered with a whitish bloom which reflects the harsh sunlight). These features are retained when the plant is cultivated/propagated and this particular form of the grass is believed to be genetically distinct from Themeda grass in other situations.

Many shrubs in the community also have a prostrate, matted form, which provides important habitat for many animals, such as skinks, which live under the layered branches. Themeda Headland Grasslands are important for other fauna species as well. For example, raptors such as Nankeen Kestrels hunt over the open ground, nectarivorous birds feed on the shrubs and invertebrates associated with the grasses and groundcovers. Kangaroo Grass is a food source for the caterpillars of the moth species *Pterolocera amplicornis*. The genetic diversity and uniqueness of these sites and their importance for a wide range of species is therefore high.

Themeda Headland Grassland is believed to be a 'derived ecological community'. That is, the community arose as a result of traditional Aboriginal burning regimes. It is believed these areas were burnt regularly for communication between people positioned on different headlands and to help with fishing (burning improved ocean views) and hunting (kangaroos were attracted to the fresh green pick and the headland formation enabled 'herding'). They were also important sites for rituals and gatherings. There has been some evidence that cessation of strategic burning in these areas has led to invasion of both native and exotic shrubs, such as wattles and banksias. While this is a 'natural process', it may deplete genetic diversity over time as species strictly associated with these communities are lost.

Unfortunately, the high pedestrian and car traffic in areas dominated by Themeda Headland Grassland also leaves them prone to weed invasion. Being 'grassland', it is more difficult to control invasive grasses without 'off-target' damage to the native grasses, which are often intergrown. Many studies have shown that strategic use of fire (i.e. ecological burns) can stimulate the native grasses and forbs while decreasing the weed load. Strategic use of fire may also 'open up' the grassland thereby allowing better spot-spraying of weeds with less off-target damage. Studies have shown that in contrast, unburnt headlands continue to deteriorate, with ongoing senescence of Kangaroo Grass and continued invasion of exotic plants. Nonetheless, moderation is key because too frequent burning can reduce the abundance of prostrate shrubs, which are functionally important.

Rose-crowned Fruit-Dove: Photo © Bjorn Christian Torrissen https://en.wikipedia.org/wiki/Rose-crowned_fruit_dove#/media/File:Rose-Crowned_Fruit_Dove.jpg

5.6 SO WHAT DO WE DO?

Considering all of the above threats can seem somewhat overwhelming, particularly when many are beyond the control of an individual, or even a regulatory authority such as local government.

The simple answer is that we can all make local ecosystems as resilient as possible and thereby assist biodiversity conservation. Ecosystem resilience refers to the capacity of an ecosystem to recover from disturbance or withstand ongoing pressures. It can be achieved by ensuring that ecosystems have:

- good levels of habitat (and particularly conserving the 'best bits' first)
- habitats that are well connected
- have the appropriate species composition for that ecological community
- have the appropriate 'ecosystem services' species and processes present
- are weed and pest animal free (thus enabling the persistence of the appropriate species).

Within the Port Macquarie-Hastings LGA we can all play a role in this by undertaking specific actions. Each year Council will identify actions we can take to fulfill the essence of this document. This information will be contained in the annual Operational Plan..

6. ACTIONS REQUIRED TO REVERSE THREATS AND PROTECT BIODIVERSITY

The Biodiversity Management Strategy will be implemented through four key themes (identified by the Community and Expert Panels) to assist in delivering biodiversity conservation. These themes effectively overarch the specific threats listed by the Office of Environment and Heritage's analysis of the Port Macquarie-Hastings LGA. Each year a series of actions generated from the Biodiversity Management Strategy will be implemented. Factors such as external funding opportunities, internal resourcing requirements, Council's priorities and biological priorities will be considered when determining which actions are undertaken each year. A full list of actions will be included in Council's annual Operational Plan.

The four key themes/programs are:

Community Engagement/Education Program

Actions in this theme will centre around increasing the community's awareness and knowledge of biodiversity in the LGA. At the same time, Council will work towards improving and building the capacity of individuals and community groups by reducing impacts and increasing environmental works.

Operational Programs

This theme will focus on ensuring the ongoing on-ground work including:

a) biosecurity works through the control of invasive weeds and vertebrate pest control
b) biodiversity and fire management
c) delivery of actions within the Koala Recovery Strategy
d) Biodiversity and Indigenous Lands Program
e) Riparian Biodiversity Program.

Biodiversity Offsetting and Investment Opportunities Program

It is recognised that Council has a role in helping to find appropriate offset sites within the LGA. This role is seen as an opportunity to assist in both management and procurement of offset sites for Council requirements but also to assist local residents to navigate this topic.

Biodiversity Guidance/Standards

Opportunities for improving guidance, processes and standards will always be an ongoing management action. Changes in biodiversity conservation legislation, new research and innovations will continuously create pressure for Council to operate effectively and remain in line with best practice management and the latest developments in this sector. Therefore, actions in this theme will focus on creating continuous improvements.

7. REVIEW

A major focus of the Biodiversity Management Strategy has been to use the best available information and science to identify the areas that are most valuable for biodiversity in the Port Macquarie-Hastings LGA. This work has allowed us to create a Priority Investment Layer that can be used to assist landholders to direct biodiversity offset schemes and apply for funding to protect biological assets on private lands.

The Strategy provides spatially extent explicit outputs that can inform future strategic planning and conservation initiatives. Possessing such models and using these to justify projects greatly increases the accountability in decision-making and helps guide biodiversity management in the LGA.

To ensure maps and models provide accurate data, Port Macquarie-Hastings Council commits to reviewing the document every 5 years including an assessment of key performance measures.

7.1 KEY PERFORMANCE MEASURES

- Number and description of a targeted actions delivered on ground that protected and assisted in the recovery of biodiversity across all ecosystems.
- Relationships with external stakeholders including regional, state, federal and community are established and demonstrated by programs delivered.
- Programs are in place that improve the awareness of the importance of biodiversity conservation and ways this can be achieved.
- Reduction in overall weed load and improvement in bushland reserves ecosystem health from 2019 baseline levels is achieved by maintaining, protecting, rehabilitating, and managing native vegetation across Council-owned land, particularly in areas with high biodiversity values.
- An increase in landscape connectivity across the LGA, from the 2019 baseline levels, achieved through compensatory planting, weed removal and bushland rehabilitation.

Reminiscence

I was born into a coloured country;
spider-webs in dew on feathered grass,
mountains blue as wrens,
valleys cupping sky in like a cradle,
christmas-beetles winged with buzzing opal;
finches, robins, gang-gangs, pardalotes
tossed the blossom in its red-streaked trees.

My father had a tale of an old neighbour,
the kind of reminiscence one inherits.
Asked for difficult detail in stories
at those bygone ample crowded teas,
(cup and saucer balanced on his knees):
'Madam, you might as well
ask me to enumerate the parrots.'

Hundreds, thousands, birds uncountable
babbling, shrieking, swirling all around –
skiesful, treesful: lorikeets, rosellas,
lorilets and cockatiels and lowries,
Red-backed, Ring-necked, Orange-breasted,
Turquoise,
Purple-crowned, Red-collared, Rainbow, Varied,
Scarlet-chested, Blue-browned, Scalybreasted,
Swift and Night and Paradise and Crimson,
Twenty-eight and Red-capped, Musk and
Elegant-
I give up. But see him
sitting stiffly in a basket-chair
circled by their millions, formally
stirring three of sugar in his tea
in an afternoon I never knew
making conversation with the ladies.

Not a flock of parrots left to number.
Just a picture, fifty years behind,
left embroidered on my childish mind.
Parrots! They were something to remember.

Judith Wright

Appendix A. Scientific names for species mentioned in this Strategy

Common name	Scientific name
PLANTS	
No common name	*Melaleuca biconvexa*
Antarctic Beech	*Nothofagus moorei*
Big Nellie Hakea	*Hakea archaeoides*
Blackbutt	*Eucalyptus pilularis*
Christmas Bells	*Blandfordia grandiflora*
Coastal Pandanus	*Pandanus tectorius*
Drooping Ironbark	*Eucalyptus caleyi*
Forest Red Gum	*Eucalyptus tereticornis*
Small-fruited Grey Gum	*Eucalyptus propinqua*
Kangaroo Grass	*Themeda triandra*
Lesser Swamp-orchid	*Phaius australis*
Narrow-leaved Red Gum	*Eucalyptus seeana*
Needlebark Stringybark	*Eucalyptus planchoniana*
North Brother Wattle	*Acacia courtii*
Orange Gum	*Eucalyptus bancroftii*
Privet	*Ligustrum* spp.
Red Cedar	*Toona ciliata*
Red Mahogany	*Eucalyptus resinifera*
Screw Pine	*Pandanus tectorius*
Silver Bush	*Sophora tomentosa*
Spike-rush	*Eleocharis* spp.
Swamp Mahogany	*Eucalyptus robusta*
Swamp Oak	*Casuarina glauca*
Tallowood	*Eucalyptus microcorys*
Turpentine	*Syncarpia glomulifera*
White Mahogany	*Eucalyptus acmenoides*
White Stringybark	*Eucalyptus globoidea*
White-flowered Wax Plant	*Cynanchum elegans*
Wild Rice	*Oryza* spp.
Willow Bottlebrush	*Callistemon salignus*
INVERTEBRATES	
Fritillary Butterfly	*Argyreus hyperbius inconstans*
Giant Dragonfly	*Petalura gigantea*
Spiny Crayfish	*Eustacus* spp.
FISH	
Australian Bass	*Macquaria novemaculeata*
FROGS	
Giant-barred Frog	*Mixophyes iteratus*
Green and Golden Bell-frog	*Litoria aurea*
Green-thighed Frog	*Litoria brevipalmata*

Common name	Scientific name
Wallum Froglet	*Crinia tinnula*
REPTILES	
Delicate Skink	*Lampropholis delicata*
BIRDS	
Australasian Bittern	*Botaurus poiciloptilus*
Australian Raven	*Corvus coronoides*
Black Bittern	*Ixobrychus flavicollis*
Black-necked Stork	*Ephippiorhynchus asiaticus*
Brolga	*Grus rubicunda*
Eastern Yellow Robin	*Eopsaltria australis*
Eastern Curlew	*Numenius madagascariensis*
Glossy Black-cockatoo	*Calyptorhynchus lathami*
Ground Parrot	*Pezoporus wallicus*
Magpie Goose	*Anseranas semipalmata*
Nankeen Kestrel	*Falco cenchroides*
Noisy Miner	*Manorina melanocephala*
Noisy Pitta	*Pitta versicolor*
Paradise Riflebird	*Ptiloris paradiseus*
Pied Oystercatcher	*Haematopus longirostris*
Rose-crowned Fruit-dove	*Ptilinopus regina*
Sharp-tailed Sandpiper	*Calidris acuminata*
Sooty Oystercatcher	*Haematopus fuliginosus*
Swift Parrot	*Lathamus discolor*
Yellow-throated Scrubwren	*Sericornis citreogularis*
MAMMALS	
Black Flying-fox	*Pteropus alecto*
Brown Antechinus	*Antechinus stuartii*
Brush-tailed Phascogale	*Phascogale tapoatafa*
Common Ringtail Possum	*Pseudocheirus peregrinus*
Dingo	*Canis dingo*
Eastern Freetail-bat	*Mormopterus norfolkensis*
Eastern Pygmy Possum	*Cercartetus nanus*
Grey-headed Flying-fox	*Pteropus poliocephalus*
Hastings River Mouse	*Pseudomys oralis*
Koala	*Phascolarctos cinereus*
Little Red Flying-fox	*Pteropus scapulatus*
Long-nosed Potoroo	*Potorous tridactylus*
Red-legged Pademelon	*Thylogale stigmatica*
Red-necked Pademelon	*Thylogale thetis*
Spotted-tailed Quoll	*Dasyurus maculatus*
Squirrel Glider	*Petaurus norfolcensis*

Appendix B. Existing and continuing initiatives in the Port Macquarie-Hastings LGA to protect biodiversity

Initiative	Partners
Increase ecological resilience of public bushland	
Active community involvement in public bushland management	PMHC, Port Macquarie Landcare, Friends of Kooloonbung, Friends of Mrs Yorks Garden, Camden Haven Landcare, Lake Cathie Landcare, Bonny Hills Landcare, Pappinbarra Landholders Conservation Management Network
Bushland Management Team working on 90 publicly owned bushland reserves using best practice methods	PMHC
Formalised Bushland Management Monitoring Program	PMHC
State of the art 'ArcCollector' reporting system for weed mapping (public lands, roadsides and rural lands)	PMHC
Tree planting and restoration initiatives (e.g. National Tree Day)	PMHC, Port Macquarie Landcare
PMHC successful recipient of numerous grants to implement the Bushland Management Program	PMHC, North Coast Local Land Services, Office of Environment and Heritage
Significant roadside vegetation and hollow-bearing trees mapped	PMHC
Active weed management	
Bushland Management Program (as described above)	PMHC
Annual urban weed tree removal works (street trees and trees in public bushland)	PMHC
Invasive Weeds Team reducing weeds in known incursion pathways, such as roadsides and waterways.	PMHC
Annual weed inspections and extension/education on rural properties	PMHC
Extension/education work on weed control and identification at field days etc.	PMHC, North Coast Local Land Services, Hastings Landcare
Supporting community groups such as the Pappinbarra Landholders Conservation Management Network	PMHC, Hastings Landcare
Protecting biodiversity on rural land	
Increasing soil fertility and productivity through natural processes (e.g. soil biota)	Hastings Landcare and North Coast Local Land Services
Extension/education work on weed control and identification at field days etc.	PMHC, North Coast Local Land Services, Hastings Landcare
Funding programs for riparian restoration and protection works	Hastings Landcare and North Coast Local Land Services
Comboyne Corridor Conservation and Remnant Rescue Program	Bolwarra Environmental Services, Hastings Landcare
Land for Wildlife Program	Community Environment Network (CEN) in partnership with the Office of Environment and Heritage (OEH) and locally run in conjunction with Hastings Landcare.

Initiative	Partners
Strategic planning and development controls	
Plan of Management for Kooloonbung Creek Nature Reserve Flying-fox colony (and monitoring of this colony four times per annum through the National Flying-fox Census)	PMHC
Koala Plan of Management (and close working relationship with Port Macquarie Koala Hospital)	PMHC
Vegetation community mapping for Port Macquarie-Hastings LGA	PMHC
Close liaison with Development Assessment Team and NRM staff	PMHC
Preparation of vegetation management plans to help ensure 'Avoid, Minimise, Offset' philosophy	PMHC and development industry
Use of endemic native species for planting on public lands, including urban street trees and roadside plantings	PMHC and development industry
Biodiversity controls articulated in DCP, including: • hollow-bearing tree protocol • buffers for threatened ecological communities, riparian areas etc. • Koala habitat trees offsets • an Indigenous street and open space planting list	PMHC
Bushfire management	
Consideration of how asset protection zone (APZ) works can benefit bushland reserves and minimise harm	PMHC
Involving stakeholders in inspecting areas before and after hazard reduction burns	PMHC, Koala Hospital, For Australian Wildlife Needing Aid (FAWNA)
Ensuring that APZs and fire trails/tracks are contained within the development proposal area	PMHC
Fire and Biodiversity Consortium for the Port Macquarie-Hastings LGA	PMHC, National Parks and Wildlife Service (NPWS), RFS, Forestry Corporation of NSW
Protecting waterways	
Active aquatic weed monitoring and control works (e.g. Salvinia)	PMHC
Ecohealth Monitoring Program	PMHC and UNSW
Riparian Vine Weeds Program	PMHC, Hastings Landcare
River restoration works	PMHC, Hastings Landcare
Riparian protection works to prevent stock trampling and reduce weed incursion	Hastings Landcare
Feral animal control	
Deer control in key areas (e.g. Port Dam, Thrumster)	Recreational Game Hunters, North Coast Local Land Services, NPWS, PMHC
Fox, cat and rabbit control in some coastal areas	PMHC (BioFund, Estuarine Lakeside Linkages Project with NCLLS and OEH), NPWS
Increasing landscape connectivity	
Installing Koala stiles to assist Koalas moving about the landscape	PMHC with Port Macquarie Landcare and Work for the Dole
Ensuring offsets and vegetation management plans increase landscape connectivity	PMHC

Initiative	Partners
Community extension/education	
Working with, and supporting, community stakeholders as requested	Koala Hospital, Schools, Landcare, Living Futures Hub, FAWNA, PMHC
Signage programs (and compliance as required) for illegal clearing for coastal view enhancement	PMHC
Work with community groups to facilitate improved data collection	PMHC with Hastings Birdwatchers, Koala Hospital and Landcare

Appendix C. Datasets used in the Biodiversity Management Strategy

Dataset and description	Reference
PMHC Vegetation Community Mapping Maps all extant vegetation remaining as of 2009 in patches greater than 0.25 ha (0.1 ha for Littoral Rainforest) outside National Parks and State Forest lands and assigns the patch to one of c. 90 vegetation communities defined for our LGA. Patches were assigned based on a combination of aerial imagery analysis and field assessment. The methods adhered to the NSW Government's Native Vegetation Type Standard.	Vegetation of the Port Macquarie-Hastings Local Government Area, BioLink Ecological Consultants April 2013. Available from PMHC upon request.
CRAFTI Vegetation Mapping Comprehensive Regional Assessment Forestry Type Inventory (CRAFTI) vegetation mapping was used to identify vegetation on State Forest and National Parks land and for tenure-blind analyses undertaken. It is coarser and less-accurate than the PMHC Vegetation Community Mapping but is commonly used across NSW.	Resource and Conservation Division (1997). CRAFTI Aerial Photographic Interpretation Manual. Unpublished report. Department of Urban Affairs and Planning.
Koala Habitat Mapping Maps 'Primary', 'Secondary (A)', 'Secondary (B)', 'Secondary (C)' koala habitat across the LGA. Each of these habitat classes contains quantities of trees known to be browsed by koalas in the LGA (Koala Food Trees). 'Primary Koala Habitat' is the most important of these. The mapping also identifies 'Other Koala Habitat'. This habitat is not known to support significant numbers of koala food trees, but may still be important for connecting key areas of habitat etc.	Port Macquarie-Hastings Koala Habitat & Population Assessment. Final Report to Port Macquarie-Hastings Council, June 2013. BioLink Ecological Consultants. Available from PMHC upon request.
Threatened ecological community (TEC) mapping The Scientific Committee Final Determinations and NSW Land and Environment Court case precedents illustrate that TECs are defined by more than the vegetation composition. This is particularly true for the coastal floodplain TECs in the bioregion which must occur on alluvial topographic formations to qualify. This mapping revises BioLink's vegetation mapping to identify those vegetation communities which satisfy both the floristic and geomorphic criteria of coastal floodplain TECs specified in the Final Determinations.	PMHC Vegetation Community Mapping: Coastal Floodplain EEC Mapping Review. DarkHeart Eco-Consultancy, February 2014. Available from PMHC upon request.
BioNet BioNet is a portal for accessing government-held information about plants and animals in NSW. Records in the Atlas come from a variety of sources, including from members of the public and scientific surveys. An Atlas search will retrieve species records from across the entire Atlas database. Anyone can use the BioNet database to search for records, but registered users (as per PMHC) can access more spatially-explicit information for some species.	See: http://www.bionet.nsw.gov.au/

Dataset and description	Reference
The Atlas of Living Australia (ALA) The Atlas is a free online resource, which provides access to a wealth of information about Australia's biodiversity. The type of information available includes species occurrence records (based on field observations, specimens from biological collections, and surveys), photographs, sound recordings, maps, molecular data, and links to additional literature. Powerful mapping tools allow users to explore and analyse this information in a myriad of ways. The ALA is used for research, environmental monitoring, conservation planning and management, education, Citizen Science, and biosecurity activities.	See: http://www.ala.org.au/
BirdLife Australia BirdData This comprehensive database is administered by BirdLife Australia. Records are from BirdLife Australia members, many of whom regularly contribute using standardised surveys. Data was purchased by PMHC for use in Species Distribution Modelling to ensure the maximum number of records and increase model robustness.	See: http://birdata.com.au/homecontent.do
Climate Change Scenarios BMT WBM was commissioned by Port Macquarie-Hastings Council (PHMC) to undertake an estuary and coastline inundation mapping study to assist in the assessment of areas at risk from sea level rise. The aim of the study is to determine the estuarine and coastal inundation extent for a range of design ocean events including: spring tide, king tide; 1 year Average Recurrence Interval (ARI), 50 year ARI, and 100 year ARI. The three epochs and associated mean sea levels (MSL) included in the study are: Current (MSL = 0.0 m AHD), 2050 (MSL = 0.4 m AHD), and 2100 (MSL = 0.9 m AHD). These levels are based on the previous NSW Government planning benchmarks which are a projected rise in sea level (relative to the 1990 mean sea level) of 0.4 metres by 2050 and 0.9 metres by 2100 (DECCW, 2009). It is important to note that due to the inherent difficulty in forecasting actual rates of sea level rise (SLR) the mapping in this study shows the impact of 0, 0.4 and 0.9 m of SLR but does not specify the timing of these changes to mean sea level. The study uses three numerical models of the major estuaries in the LGA including: the Hastings, Lake Cathie/Lake Innes, and Camden Haven. High quality mapping of the inundation extents for the estuaries and coastal areas was undertaken using LiDAR ground elevation data collected for Council in October 2005.	Port Macquarie - Hastings Council Sea level Rise Mapping Project. BMT WBM Consulting. Final Report to PMHC, June 2013.
ANUCLIM Bio-climatic data were sourced from ANUCLIM for the PMHC LGA by the University of Melbourne for use in species distribution modelling. A range of climatic and geographic variables were included (e.g. rainfall, altitude, aspect, soil type).	See: http://fennerschool.anu.edu.au/research/products/anuclim-vrsn-61

Appendix D. Abbreviated names and definitions of mapped environmental data used as candidate predictor variables for inclusion in species distribution models

All environmental data were available in raster format with a resolution of 100m.

Candidate variable	Definition
mean_temp	Mean annual temperature (ANUCLIM)
cold_temp	Mean temperature of the coldest period (ANUCLIM)
hot_temp	Mean temperature of the hottest period (ANUCLIM)
mean_rain	Mean annual rainfall (ANUCLIM)
seasonal_rain	Mean annual temperature (ANUCLIM)
mean_solar	Mean annual solar radiation (ANUCLIM)
Altitude	The altitude of a cell (in metres) above sea level (25m DEM of Hunter Valley)
Slope	The slope of a cell (in degrees) (derived from Altitude)
Eastness	The degree to which the aspect of a cell is east (east = 1, west = -1) (derived from Altitude)
Northness	The degree to which the aspect of a cell is north (north = 1, south = -1) (derived from Altitude)
rugg1000	Topographic ruggedness (standard deviation in elevation) in a 1000m radius (derived from Altitude)
terr1000	Relative terrain position in a 1000m radius (derived from Altitude)
Wetness	Compound topographic index (derived from Altitude)
final_vegetation	Keith formation vegetation categories derived from PMH (Phillips et al. 2013), CRAFTI, the Parsons Brinkerhoff (Cockerill et al. 2013) and Greater Hunter (Sivertsen et al. 2011) vegetation mappings
Dry_sclerophyll_forests2000	The percentage of cells within a 2000m radius dominated by dry sclerophyll forest (derived from final_vegetation)
rainforests2000	The percentage of cells within a 2000m radius containing rainforest (derived from final_vegetation)
Wet_sclerophyll_forests2000	The percentage of cells within a 2000m radius dominated by wet sclerophyll forest (derived from final_vegetation)
Soils	Digital Atlas of Australian Soils (CSIRO 2014)

ANUCLIM: Fenner School of Environment and Society, Australian National University http://fennerschool.anu.edu.au/research/products/anuclim-vrsn-61

CRAFTI: Comprehensive Regional Assessment Aerial Photograph Interpretation – A vegetation mapping process undertaken as part of the north-east Regional Forestry Agreement

Appendix E. List of species modelled in Zonation

Note: Colour code indicates guilds to which species were assigned

Shore Birds	Water Birds	Nectarivorous Birds	Phalangers, Phascogales and their predators	Cave-Roosting Microbats	Amphibians	Frugivorous Birds

Red= Edge of range and limited records

Species	Common Name	Family	Data type
Adelotus brevis	Tusked Frog	Myobatrachidae	SDM
Crinia signifera	Common Eastern Froglet	Myobatrachidae	SDM
Crinia tinnula	Wallum Froglet	Myobatrachidae	SDM
Lechriodus fletcheri	Fletcher's Frog	Myobatrachidae	SDM
Limnodynastes dumerilii	Eastern Banjo Frog	Myobatrachidae	SDM
Limnodynastes peronii	Brown-striped Frog	Myobatrachidae	SDM
Limnodynastes tasmaniensis	Spotted Grass Frog	Myobatrachidae	SDM
Litoria aurea	Green and Golden Bell Frog	Hylidae	SDM
Litoria booroolongensis	Booroolong Frog	Hylidae	points
Litoria brevipalmata	Green-thighed Frog	Hylidae	SDM
Litoria caerulea	Green Tree Frog	Hylidae	SDM
Litoria chloris	Red-eyed Tree Frog	Hylidae	SDM
Litoria daviesae	Davies' Tree Frog	Hylidae	SDM
Litoria dentata	Bleating Tree Frog	Hylidae	SDM
Litoria ewingii	Brown Tree Frog	Hylidae	points
Litoria fallax	Eastern Dwarf Tree Frog	Hylidae	SDM
Litoria freycineti	Freycinet's Frog	Hylidae	SDM
Litoria gracilenta	Dainty Green Tree Frog	Hylidae	SDM
Litoria jervisiensis	Jervis Bay Tree Frog	Hylidae	SDM
Litoria latopalmata	Broad-palmed Frog	Hylidae	SDM
Litoria lesueuri	Lesueur's Frog	Hylidae	SDM
Litoria nasuta	Rocket Frog	Hylidae	SDM
Litoria pearsoniana	Pearson's Green Tree Frog	Hylidae	SDM
Litoria peronii	Peron's Tree Frog	Hylidae	SDM
Litoria phyllochroa	Leaf-green Tree Frog	Hylidae	SDM
Litoria revelata	Revealed Frog	Hylidae	SDM
Litoria subglandulosa	Glandular Frog	Hylidae	SDM
Litoria tyleri	Tyler's Tree Frog	Hylidae	SDM
Litoria verreauxii	Verreaux's Frog	Hylidae	SDM
Mixophyes fasciolatus	Great Barred Frog	Myobatrachidae	SDM
Paracrinia haswelli	Haswell's Froglet	Myobatrachidae	SDM
Philoria sphagnicolus	Sphagnum Frog	Myobatrachidae	SDM
Pseudophryne bibronii	Bibron's Toadlet	Myobatrachidae	SDM
Pseudophryne coriacea	Red-backed Toadlet	Myobatrachidae	SDM
Uperoleia fusca	Dusky Toadlet	Myobatrachidae	SDM
Uperoleia laevigata	Smooth Toadlet	Myobatrachidae	SDM
Uperoleia tyleri	Tyler's Toadlet	Myobatrachidae	points

Species	Common Name	Family	Data type
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	Acanthizidae	SDM
Acanthiza lineata	Striated Thornbill	Acanthizidae	SDM
Acanthiza nana	Yellow Thornbill	Acanthizidae	SDM
Acanthiza reguloides	Buff-rumped Thornbill	Acanthizidae	SDM
Acanthorhynchus tenuirostris	Eastern Spinebill	Meliphagidae	SDM
Accipiter cirrocephalus	Collared Sparrowhawk	Accipitridae	SDM
Accipiter fasciatus	Brown Goshawk	Accipitridae	SDM
Accipiter novaehollandiae	Grey Goshawk	Accipitridae	SDM
Acrocephalus australis	Australian Reed-Warbler	Acrocephalidae	SDM
Actitis hypoleucos	Common Sandpiper	Scolopacidae	SDM
Aegotheles cristatus	Australian Owlet-nightjar	Aegothelidae	SDM
Ailuroedus crassirostris	Green Catbird	Ptilonorhynchidae	SDM
Alectura lathami	Australian Brush-turkey	Megapodiidae	SDM
Anas castanea	Chestnut Teal	Anatidae	SDM
Anas gracilis	Grey Teal	Anatidae	SDM
Anas rhynchotis	Australasian Shoveler	Anatidae	SDM
Anas superciliosa	Pacific Black Duck	Anatidae	SDM
Anhinga novaehollandiae	Australasian Darter	Anhingidae	SDM
Anseranas semipalmata	Magpie Goose	Anseranatidae	SDM
Anthochaera carunculata	Red Wattlebird	Meliphagidae	SDM
Anthochaera chrysoptera	Little Wattlebird	Meliphagidae	SDM
Anthochaera phrygia	Regent Honeyeater	Meliphagidae	SDM
Anthus novaeseelandiae	Australian Pipit	Motacillidae	SDM
Apus pacificus	Fork-tailed Swift	Apodidae	SDM
Ardea ibis	Cattle Egret	Ardeidae	SDM
Ardea intermedia	Intermediate Egret	Ardeidae	SDM
Ardea modesta	Eastern Great Egret	Ardeidae	SDM
Ardea pacifica	White-necked Heron	Ardeidae	SDM
Arenaria interpres	Ruddy Turnstone	Scolopacidae	SDM
Artamus cyanopterus	Dusky Woodswallow	Artamidae	SDM
Artamus leucorynchus	White-breasted Woodswallow	Artamidae	SDM
Artamus personatus	Masked Woodswallow	Artamidae	SDM
Artamus superciliosus	White-browed Woodswallow	Artamidae	SDM
Atrichornis rufescens	Rufous Scrub-bird	Atrichornithidae	SDM
Aviceda subcristata	Pacific Baza	Accipitridae	SDM
Aythya australis	Hardhead	Anatidae	SDM
Biziura lobata	Musk Duck	Anatidae	SDM
Botaurus poiciloptilus	Australasian Bittern	Ardeidae	SDM
Burhinus grallarius	Bush Stone-curlew	Burhinidae	SDM
Butorides striatus	Striated Heron	Ardeidae	SDM
Cacatua sanguinea	Little Corella	Cacatuidae	SDM
Cacatua tenuirostris	Long-billed Corella	Cacatuidae	SDM
Cacomantis flabelliformis	Fan-tailed Cuckoo	Cuculidae	SDM
Cacomantis pallidus	Pallid Cuckoo	Cuculidae	SDM
Cacomantis variolosus	Brush Cuckoo	Cuculidae	SDM

Species	Common Name	Family	Data type
Calidris acuminata	Sharp-tailed Sandpiper	Scolopacidae	SDM
Calidris canutus	Red Knot	Scolopacidae	SDM
Calidris ferruginea	Curlew Sandpiper	Scolopacidae	SDM
Calidris ruficollis	Red-necked Stint	Scolopacidae	SDM
Calidris tenuirostris	Great Knot	Scolopacidae	SDM
Calyptorhynchus funereus	Yellow-tailed Black-Cockatoo	Cacatuidae	SDM
Calyptorhynchus lathami	Glossy Black-Cockatoo	Cacatuidae	SDM
Carterornis leucotis	White-eared Monarch	Monarchidae	points
Centropus phasianinus	Pheasant Coucal	Centropodidae	SDM
Ceyx azureus	Azure Kingfisher	Alcedinidae	SDM
Chalcites basalis	Horsfield's Bronze-Cuckoo	Cuculidae	SDM
Chalcites lucidus	Shining Bronze-Cuckoo	Cuculidae	SDM
Chalcophaps indica	Emerald Dove	Columbidae	SDM
Charadrius bicinctus	Double-banded Plover	Charadriidae	SDM
Charadrius mongolus	Lesser Sand-plover	Charadriidae	SDM
Charadrius ruficapillus	Red-capped Plover	Charadriidae	SDM
Chenonetta jubata	Australian Wood Duck	Anatidae	SDM
Cheramoeca leucosterna	White-backed Swallow	Hirundinidae	SDM
Chlidonias hybrida	Whiskered Tern	Laridae	SDM
Chroicocephalus novaehollandiae	Silver Gull	Laridae	SDM
Chthonicola sagittata	Speckled Warbler	Acanthizidae	points
Cincloramphus cruralis	Brown Songlark	Megaluridae	SDM
Cincloramphus mathewsi	Rufous Songlark	Megaluridae	SDM
Cinclosoma punctatum	Spotted Quail-thrush	Psophodidae	SDM
Circus approximans	Swamp Harrier	Accipitridae	SDM
Circus assimilis	Spotted Harrier	Accipitridae	SDM
Cisticola exilis	Golden-headed Cisticola	Cisticolidae	SDM
Climacteris erythrops	Red-browed Treecreeper	Climacteridae	SDM
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Climacteridae	points
Columba leucomela	White-headed Pigeon	Columbidae	SDM
Coracina lineata	Barred Cuckoo-shrike	Campephagidae	points
Coracina novaehollandiae	Black-faced Cuckoo-shrike	Campephagidae	SDM
Coracina papuensis	White-bellied Cuckoo-shrike	Campephagidae	SDM
Coracina tenuirostris	Cicadabird	Campephagidae	SDM
Corcorax melanorhamphos	White-winged Chough	Corcoracidae	SDM
Corvus orru	Torresian Crow	Corvidae	SDM
Corvus tasmanicus	Forest Raven	Corvidae	SDM
Coturnix pectoralis	Stubble Quail	Phasianidae	SDM
Coturnix ypsilophora	Brown Quail	Phasianidae	SDM
Cracticus nigrogularis	Pied Butcherbird	Artamidae	SDM
Cracticus torquatus	Grey Butcherbird	Artamidae	SDM
Cygnus atratus	Black Swan	Anatidae	SDM
Daphoenositta chrysoptera	Varied Sittella	Neosittidae	SDM
Dendrocygna arcuata	Wandering Whistling-Duck	Anatidae	SDM

Species	Common Name	Family	Data type
Dendrocygna eytoni	Plumed Whistling-Duck	Anatidae	SDM
Dicaeum hirundinaceum	Mistletoebird	Nectariniidae	SDM
Dicrurus bracteatus	Spangled Drongo	Dicruridae	SDM
Egretta garzetta	Little Egret	Ardeidae	SDM
Egretta novaehollandiae	White-faced Heron	Ardeidae	SDM
Egretta sacra	Eastern Reef Egret	Ardeidae	SDM
Elanus axillaris	Black-shouldered Kite	Accipitridae	SDM
Elseyornis melanops	Black-fronted Dotterel	Charadriidae	SDM
Entomyzon cyanotis	Blue-faced Honeyeater	Meliphagidae	SDM
Eolophus roseicapillus	Galah	Cacatuidae	SDM
Ephippiorhynchus asiaticus	Black-necked Stork	Ciconiidae	SDM
Epthianura albifrons	White-fronted Chat	Meliphagidae	SDM
Erythrogonys cinctus	Red-kneed Dotterel	Charadriidae	SDM
Esacus magnirostris	Beach Stone-curlew	Burhinidae	SDM
Eudynamys orientalis	Eastern Koel	Cuculidae	SDM
Eurostopodus mystacalis	White-throated Nightjar	Caprimulgidae	SDM
Eurystomus orientalis	Dollarbird	Coraciidae	SDM
Excalfactoria chinensis	King Quail	Phasianidae	SDM
Falco berigora	Brown Falcon	Falconidae	SDM
Falco cenchroides	Nankeen Kestrel	Falconidae	SDM
Falco longipennis	Australian Hobby	Falconidae	SDM
Falco peregrinus	Peregrine Falcon	Falconidae	SDM
Falcunculus frontatus frontatus	Eastern Shrike-tit	Pachycephalidae	SDM
Fulica atra	Eurasian Coot	Rallidae	SDM
Gallinago hardwickii	Latham's Snipe	Scolopacidae	SDM
Gallinula tenebrosa	Dusky Moorhen	Rallidae	SDM
Gallirallus philippensis	Buff-banded Rail	Rallidae	SDM
Gelochelidon nilotica	Gull-billed Tern	Laridae	SDM
Geopelia humeralis	Bar-shouldered Dove	Columbidae	SDM
Geopelia striata	Peaceful Dove	Columbidae	SDM
Gerygone albogularis	White-throated Gerygone	Acanthizidae	SDM
Gerygone levigaster	Mangrove Gerygone	Acanthizidae	SDM
Gerygone mouki	Brown Gerygone	Acanthizidae	SDM
Gliciphila melanops	Tawny-crowned Honeyeater	Meliphagidae	SDM
Glossopsitta concinna	Musk Lorikeet	Psittacidae	SDM
Glossopsitta pusilla	Little Lorikeet	Psittacidae	SDM
Grallina cyanoleuca	Magpie-lark	Monarchidae	SDM
Grus rubicunda	Brolga	Gruidae	points
Haematopus fuliginosus	Sooty Oystercatcher	Haematopodidae	SDM
Haematopus longirostris	Pied Oystercatcher	Haematopodidae	SDM
Haliaeetus leucogaster	White-bellied Sea-Eagle	Accipitridae	SDM
Haliastur indus	Brahminy Kite	Accipitridae	SDM
Haliastur sphenurus	Whistling Kite	Accipitridae	SDM
Hieraaetus morphnoides	Little Eagle	Accipitridae	SDM
Himantopus himantopus	Black-winged Stilt	Recurvirostridae	SDM

Species	Common Name	Family	Data type
Hirundapus caudacutus	White-throated Needletail	Apodidae	SDM
Hirundo neoxena	Welcome Swallow	Hirundinidae	SDM
Hydroprogne caspia	Caspian Tern	Laridae	SDM
Irediparra gallinacea	Comb-crested Jacana	Jacanidae	SDM
Ixobrychus dubius	Australian Little Bittern	Ardeidae	points
Ixobrychus flavicollis	Black Bittern	Ardeidae	SDM
Lalage leucomela	Varied Triller	Campephagidae	SDM
Lalage sueurii	White-winged Triller	Campephagidae	SDM
Lathamus discolor	Swift Parrot	Psittacidae	SDM
Leucosarcia picata	Wonga Pigeon	Columbidae	SDM
Lewinia pectoralis	Lewin's Rail	Rallidae	SDM
Lichenostomus fuscus	Fuscous Honeyeater	Meliphagidae	SDM
Lichenostomus leucotis	White-eared Honeyeater	Meliphagidae	SDM
Lichenostomus melanops	Yellow-tufted Honeyeater	Meliphagidae	SDM
Lichenostomus penicillatus	White-plumed Honeyeater	Meliphagidae	SDM
Lichmera indistincta	Brown Honeyeater	Meliphagidae	SDM
Limosa lapponica	Bar-tailed Godwit	Scolopacidae	SDM
Limosa limosa	Black-tailed Godwit	Scolopacidae	SDM
Lonchura castaneothorax	Chestnut-breasted Mannikin	Estrildidae	SDM
Lophoictinia isura	Square-tailed Kite	Accipitridae	SDM
Lopholaimus antarcticus	Topknot Pigeon	Columbidae	SDM
Macropygia amboinensis	Brown Cuckoo-Dove	Columbidae	SDM
Malacorhynchus membranaceus	Pink-eared Duck	Anatidae	SDM
Malurus lamberti	Variegated Fairy-wren	Maluridae	SDM
Malurus melanocephalus	Red-backed Fairy-wren	Maluridae	SDM
Manorina melanocephala	Noisy Miner	Meliphagidae	SDM
Manorina melanophrys	Bell Miner	Meliphagidae	SDM
Megalurus gramineus	Little Grassbird	Megaluridae	SDM
Megalurus timoriensis	Tawny Grassbird	Megaluridae	SDM
Meliphaga lewinii	Lewin's Honeyeater	Meliphagidae	SDM
Melithreptus brevirostris	Brown-headed Honeyeater	Meliphagidae	SDM
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Meliphagidae	points
Melithreptus lunatus	White-naped Honeyeater	Meliphagidae	SDM
Menura novaehollandiae	Superb Lyrebird	Menuridae	SDM
Merops ornatus	Rainbow Bee-eater	Meropidae	SDM
Microcarbo melanoleucos	Little Pied Cormorant	Phalacrocoracidae	SDM
Microeca fascinans	Jacky Winter	Petroicidae	SDM
Milvus migrans	Black Kite	Accipitridae	SDM
Monarcha melanopsis	Black-faced Monarch	Monarchidae	SDM
Myiagra cyanoleuca	Satin Flycatcher	Monarchidae	SDM
Myiagra inquieta	Restless Flycatcher	Monarchidae	SDM
Myiagra rubecula	Leaden Flycatcher	Monarchidae	SDM
Myzomela sanguinolenta	Scarlet Honeyeater	Meliphagidae	SDM
Neochmia temporalis	Red-browed Finch	Estrildidae	SDM

Species	Common Name	Family	Data type
Ninox connivens	Barking Owl	Strigidae	SDM
Ninox novaeseelandiae	Southern Boobook	Strigidae	SDM
Ninox strenua	Powerful Owl	Strigidae	SDM
Numenius madagascariensis	Eastern Curlew	Scolopacidae	SDM
Numenius minutus	Little Curlew	Scolopacidae	points
Numenius phaeopus	Whimbrel	Scolopacidae	SDM
Nycticorax caledonicus	Nankeen Night Heron	Ardeidae	SDM
Ocyphaps lophotes	Crested Pigeon	Columbidae	SDM
Oriolus sagittatus	Olive-backed Oriole	Oriolidae	SDM
Orthonyx temminckii	Logrunner	Orthonychidae	SDM
Oxyura australis	Blue-billed Duck	Anatidae	SDM
Pachycephala olivacea	Olive Whistler	Pachycephalidae	SDM
Pandion cristatus	Eastern Osprey	Accipitridae	SDM
Pardalotus striatus	Striated Pardalote	Pardalotidae	SDM
Pelecanus conspicillatus	Australian Pelican	Pelecanidae	SDM
Petrochelidon ariel	Fairy Martin	Hirundinidae	SDM
Petrochelidon nigricans	Tree Martin	Hirundinidae	SDM
Petroica boodang	Scarlet Robin	Petroicidae	SDM
Petroica phoenicea	Flame Robin	Petroicidae	SDM
Petroica rosea	Rose Robin	Petroicidae	SDM
Phalacrocorax carbo	Great Cormorant	Phalacrocoracidae	SDM
Phalacrocorax sulcirostris	Little Black Cormorant	Phalacrocoracidae	SDM
Phalacrocorax varius	Pied Cormorant	Phalacrocoracidae	SDM
Phaps chalcoptera	Common Bronzewing	Columbidae	SDM
Phaps elegans	Brush Bronzewing	Columbidae	SDM
Philemon citreogularis	Little Friarbird	Meliphagidae	SDM
Phylidonyris niger	White-cheeked Honeyeater	Meliphagidae	SDM
Phylidonyris novaehollandiae	New Holland Honeyeater	Meliphagidae	SDM
Pitta versicolor	Noisy Pitta	Pittidae	SDM
Platalea flavipes	Yellow-billed Spoonbill	Threskiornithidae	SDM
Platalea regia	Royal Spoonbill	Threskiornithidae	SDM
Platycercus elegans	Crimson Rosella	Psittacidae	SDM
Platycercus eximius	Eastern Rosella	Psittacidae	SDM
Plectorhyncha lanceolata	Striped Honeyeater	Meliphagidae	SDM
Pluvialis fulva	Pacific Golden Plover	Charadriidae	SDM
Pluvialis squatarola	Grey Plover	Charadriidae	SDM
Podargus strigoides	Tawny Frogmouth	Podargidae	SDM
Podiceps cristatus	Great Crested Grebe	Podicipedidae	SDM
Porphyrio porphyrio	Purple Swamphen	Rallidae	SDM
Porzana fluminea	Australian Spotted Crake	Rallidae	SDM
Porzana pusilla	Baillon's Crake	Rallidae	SDM
Porzana tabuensis	Spotless Crake	Rallidae	SDM
Psophodes olivaceus	Eastern Whipbird	Psophodidae	SDM
Ptilinopus magnificus	Wompoo Fruit-Dove	Columbidae	SDM
Ptilinopus regina	Rose-crowned Fruit-Dove	Columbidae	SDM

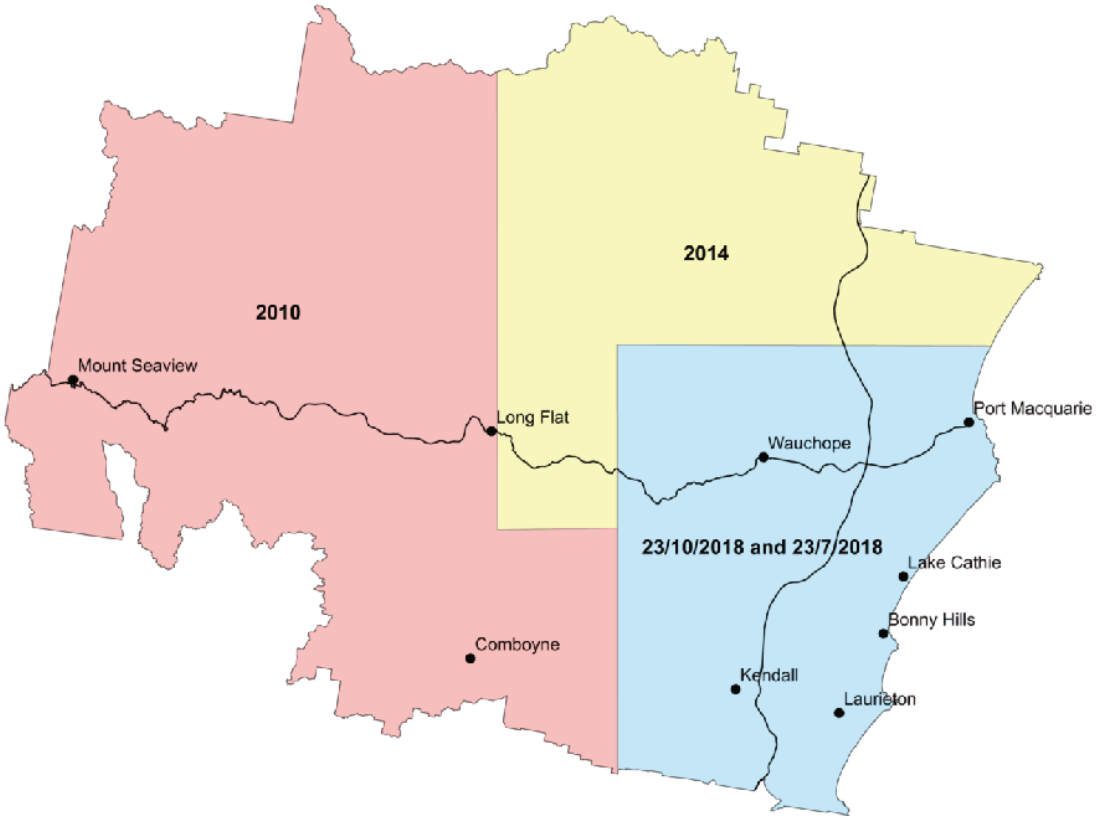
Species	Common Name	Family	Data type
Ptilinopus superbus	Superb Fruit-Dove	Columbidae	SDM
Ptilonorhynchus violaceus	Satin Bowerbird	Ptilonorhynchidae	SDM
Ptiloris paradiseus	Paradise Riflebird	Paradisaeidae	SDM
Rhipidura leucophrys	Willie Wagtail	Rhipiduridae	SDM
Rhipidura rufifrons	Rufous Fantail	Rhipiduridae	SDM
Scythrops novaehollandiae	Channel-billed Cuckoo	Cuculidae	SDM
Sericornis citreogularis	Yellow-throated Scrubwren	Acanthizidae	SDM
Sericornis frontalis	White-browed Scrubwren	Acanthizidae	SDM
Sericornis magnirostra	Large-billed Scrubwren	Acanthizidae	SDM
Sericulus chrysocephalus	Regent Bowerbird	Ptilonorhynchidae	SDM
Smicrornis brevirostris	Weebill	Acanthizidae	SDM
Sphecotheres vieilloti	Australasian Figbird	Oriolidae	SDM
Sterna hirundo	Common Tern	Laridae	SDM
Sterna striata	White-fronted Tern	Laridae	SDM
Sternula albifrons	Little Tern	Laridae	SDM
Stipiturus malachurus	Southern Emu-wren	Maluridae	SDM
Symposiachrus trivirgatus	Spectacled Monarch	Monarchidae	SDM
Tachybaptus novaehollandiae	Australasian Grebe	Podicipedidae	SDM
Tadorna tadornoides	Australian Shelduck	Anatidae	SDM
Taeniopygia bichenovii	Double-barred Finch	Estrildidae	SDM
Thalasseus bergii	Crested Tern	Laridae	SDM
Threskiornis molucca	Australian White Ibis	Threskiornithidae	SDM
Threskiornis spinicollis	Straw-necked Ibis	Threskiornithidae	SDM
Todiramphus macleayii	Forest Kingfisher	Alcedinidae	SDM
Todiramphus sanctus	Sacred Kingfisher	Alcedinidae	SDM
Tregellasia capito	Pale-yellow Robin	Petroicidae	SDM
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet	Psittacidae	SDM
Trichoglossus haematodus	Rainbow Lorikeet	Psittacidae	SDM
Tringa brevipes	Grey-tailed Tattler	Scolopacidae	SDM
Tringa incana	Wandering Tattler	Scolopacidae	points
Tringa nebularia	Common Greenshank	Scolopacidae	SDM
Tringa stagnatilis	Marsh Sandpiper	Scolopacidae	SDM
Turnix varius	Painted Button-quail	Turnicidae	SDM
Tyto javanica	Eastern Barn Owl	Tytonidae	SDM
Tyto longimembris	Eastern Grass Owl	Tytonidae	SDM
Tyto novaehollandiae	Masked Owl	Tytonidae	SDM
Tyto tenebricosa	Sooty Owl	Tytonidae	SDM
Vanellus miles	Masked Lapwing	Charadriidae	SDM
Vanellus tricolor	Banded Lapwing	Charadriidae	SDM
Xenus cinereus	Terek Sandpiper	Scolopacidae	SDM
Zoothera heinei	Russet-tailed Thrush	Turdidae	SDM
Zoothera lunulata	Bassian Thrush	Turdidae	SDM
Acrobates pygmaeus	Feathertail Glider	Acrobatidae	SDM
Aepyprymnus rufescens	Rufous Bettong	Potoroidae	SDM
Antechinus flavipes	Yellow-footed Antechinus	Dasyuridae	SDM

Species	Common Name	Family	Data type
Antechinus stuartii	Brown Antechinus	Dasyuridae	SDM
Antechinus swainsonii	Dusky Antechinus	Dasyuridae	SDM
Cercartetus nanus	Eastern Pygmy-possum	Burramyidae	SDM
Chalinolobus gouldii	Gould's Wattled Bat	Vespertilionidae	SDM
Chalinolobus morio	Chocolate Wattled Bat	Vespertilionidae	SDM
Dasyurus maculatus	Spotted-tailed Quoll	Dasyuridae	SDM
Falsistrellus tasmaniensis	Eastern No Pipistrelle	Vespertilionidae	SDM
Hydromys chrysogaster	Water-rat	Muridae	SDM
Isoodon macrourus	Northern Brown Bandicoot	Peramelidae	SDM
Kerivoula papuensis	Golden-tipped Bat	Vespertilionidae	SDM
Macropus giganteus	Eastern Grey Kangaroo	Macropodidae	SDM
Macropus parma	Parma Wallaby	Macropodidae	SDM
Macropus robustus	Common Wallaroo	Macropodidae	SDM
Macropus rufogriseus	Red-necked Wallaby	Macropodidae	SDM
Melomys burtoni	Grassland Melomys	Muridae	points
Melomys cervinipes	Fawn-footed Melomys	Muridae	SDM
Miniopterus australis	Little Bentwing-bat	Vespertilionidae	SDM
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Vespertilionidae	SDM
Mormopterus norfolkensis	Eastern Freetail-bat	Molossidae	SDM
Mormopterus planiceps	Little Mastiff-bat	Molossidae	SDM
Myotis macropus	Southern Myotis	Vespertilionidae	SDM
Nyctophilus geoffroyi	Lesser Long-eared Bat	Vespertilionidae	SDM
Nyctophilus gouldi	Gould's Long-eared Bat	Vespertilionidae	SDM
Ornithorhynchus anatinus	Platypus	Ornithorhynchidae	SDM
Perameles nasuta	Long-nosed Bandicoot	Peramelidae	SDM
Petauroides volans	Greater Glider	Pseudocheiridae	SDM
Petaurus australis	Yellow-bellied Glider	Petauridae	SDM
Petaurus breviceps	Sugar Glider	Petauridae	SDM
Petaurus norfolcensis	Squirrel Glider	Petauridae	SDM
Phascogale tapoatafa	Brush-tailed Phascogale	Dasyuridae	SDM
Phascolarctos cinereus	Koala	Phascolarctidae	SDM
Planigale maculata	Common Planigale	Dasyuridae	points
Potorous tridactylus	Long-nosed Potoroo	Potoroidae	SDM
Pseudocheirus peregrinus	Common Ringtail Possum	Pseudocheiridae	SDM
Pseudomys gracilicaudatus	Eastern Chestnut Mouse	Muridae	SDM
Pseudomys oralis	Hastings River Mouse	Muridae	SDM
Pteropus alecto	Black Flying-fox	Pteropodidae	points
Pteropus poliocephalus	Grey-headed Flying-fox	Pteropodidae	SDM
Pteropus scapulatus	Little Red Flying-fox	Pteropodidae	SDM
Rattus fuscipes	Bush Rat	Muridae	SDM
Rattus lutreolus	Swamp Rat	Muridae	SDM
Rhinolophus megaphyllus	Eastern Horseshoe-bat	Rhinolophidae	SDM
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Emballonuridae	SDM
Scoteanax rueppellii	Greater Broad-nosed Bat	Vespertilionidae	SDM
Scotorepens orion	Eastern Broad-nosed Bat	Vespertilionidae	SDM

Species	Common Name	Family	Data type
Scotorepens sp 1	Central-eastern Broad-nosed Bat	Vespertilionidae	points
Sminthopsis murina	Common Dunnart	Dasyuridae	SDM
Syconycteris australis	Common Blossom-bat	Pteropodidae	SDM
Tadarida australis	White-striped Freetail-bat	Molossidae	SDM
Thylogale stigmatica	Red-legged Pademelon	Macropodidae	SDM
Thylogale thetis	Red-necked Pademelon	Macropodidae	SDM
Trichosurus caninus	Short-eared Possum	Phalangeridae	SDM
Trichosurus vulpecula	Common Brushtail Possum	Phalangeridae	SDM
Vespadelus darlingtoni	Large Forest Bat	Vespertilionidae	SDM
Vespadelus pumilus	Eastern Forest Bat	Vespertilionidae	SDM
Vespadelus regulus	Southern Forest Bat	Vespertilionidae	SDM
Vespadelus troughtoni	Eastern Cave Bat	Vespertilionidae	SDM
Vespadelus vulturnus	Little Forest Bat	Vespertilionidae	SDM
Vombatus ursinus	Common Wombat	Vombatidae	SDM
Wallabia bicolor	Swamp Wallaby	Macropodidae	SDM
Acacia courtii	North Brother Wattle	Fabaceae (Mimosoideae)	SDM
Acronychia littoralis	Scented Acronychia	Rutaceae	points
Allocasuarina defungens	Dwarf Heath Casuarina	Casuarinaceae	SDM
Asperula asthenes	Trailing Woodruff	Rubiaceae	SDM
Chamaesyce psammogeton	Sand Spurge	Euphorbiaceae	points
Cynanchum elegans	White-flowered Wax Plant	Apocynaceae	SDM
Dracophyllum macranthum		Ericaceae	SDM
Hakea archaeoides	Big Nellie Hakea	Proteaceae	SDM
Haloragis exalata subsp. velutina	Tall Velvet Sea-berry	Haloragaceae	points
Hibbertia hexandra	Tree Guinea Flower	Dilleniaceae	points
Hibbertia superans		Dilleniaceae	points
Marsdenia longiloba	Slender Marsdenia	Apocynaceae	points
Maundia triglochinoides		Juncaginaceae	SDM
Melaleuca biconvexa	Biconvex Paperbark	Myrtaceae	SDM
Melaleuca groveana	Grove's Paperbark	Myrtaceae	SDM
Parsonsia dorrigoensis	Milky Silkpod	Apocynaceae	points
Senna acclinis	Rainforest Cassia	Fabaceae (Caesalpinioideae)	SDM
Sophora tomentosa	Silverbush	Fabaceae (Faboideae)	points
Thesium australe	Austral Toadflax	Santalaceae	points
Zieria lasiocaulis	Willi Willi Zieria	Rutaceae	points
Acanthophis antarcticus	Common Death Adder	Elapidae	SDM
Amphibolurus muricatus	Jacky Lizard	Agamidae	SDM
Bellatorias major	Land Mullet	Scincidae	SDM
Boiga irregularis	Brown Tree Snake	Colubridae	points
Cacophis krefftii	Southern Dwarf Crowned Snake	Elapidae	SDM
Cacophis squamulosus	Golden-crowned Snake	Elapidae	SDM
Calyptotis ruficauda	Red-tailed Calyptotis	Scincidae	SDM
Chelodina longicollis	Eastern Snake-necked Turtle	Chelidae	SDM
Cryptophis nigrescens	Eastern Small-eyed Snake	Elapidae	SDM

Species	Common Name	Family	Data type
Ctenotus robustus	Robust Ctenotus	Scincidae	SDM
Ctenotus taeniolatus	Copper-tailed Skink	Scincidae	SDM
Cyclodomorphus gerrardii	Pink-tongued Lizard	Scincidae	SDM
Demansia psammophis	Yellow-faced Whip Snake	Elapidae	SDM
Dendrelaphis punctulatus	Common Tree Snake	Colubridae	SDM
Drysdalia coronoides	White-lipped Snake	Elapidae	points
Egernia cunninghami	Cunningham's Skink	Scincidae	SDM
Egernia mcpheei	Eastern Crevice Skink	Scincidae	SDM
Egernia striolata	Tree Skink	Scincidae	SDM
Egernia whitii	White's Skink	Scincidae	SDM
Emydura macquarii	Macquarie Turtle	Chelidae	points
Eulamprus heatwolei	Yellow-bellied Water-skink	Scincidae	SDM
Eulamprus kosciuskoi	Alpine Water Skink	Scincidae	SDM
Eulamprus murrayi	Murray's Skink	Scincidae	SDM
Eulamprus quoyii	Eastern Water-skink	Scincidae	SDM
Eulamprus tenuis	Barred-sided Skink	Scincidae	SDM
Hemiaspis signata	Black-bellied Swamp Snake	Elapidae	SDM
Hoplocephalus stephensii	Stephens' Banded Snake	Elapidae	SDM
Hypsilurus spinipes	Southern Angle-headed Dragon	Agamidae	SDM
Lampropholis amicula	Friendly Sunskink	Scincidae	SDM
Lampropholis delicata	Dark-flecked Garden Sunskink	Scincidae	SDM
Lampropholis guichenoti	Pale-flecked Garden Sunskink	Scincidae	SDM
Lialis burtonis	Burton's Snake-lizard	Pygopodidae	points
Morelia spilota	Carpet & Diamond Pythons	Boidae	SDM
Notechis scutatus	Tiger Snake	Elapidae	SDM
Physignathus lesueurii	Eastern Water Dragon	Agamidae	SDM
Pogona barbata	Bearded Dragon	Agamidae	SDM
Pseudechis porphyriacus	Red-bellied Black Snake	Elapidae	SDM
Pseudonaja textilis	Eastern Brown Snake	Elapidae	SDM
Pygopus lepidopodus	Common Scaly-foot	Pygopodidae	SDM
Ramphotyphlops nigrescens	Blackish Blind Snake	Typhlopidae	SDM
Rankinia diemensis	Mountain Dragon	Agamidae	SDM
Saiphos equalis	Three-toed Skink	Scincidae	SDM
Saltuarius swaini	Southern Leaf-tailed Gecko	Gekkonidae	SDM
Saproscincus challengeri	Orange-tailed Shadeskink	Scincidae	SDM
Saproscincus mustelinus	Weasel Skink	Scincidae	SDM
Saproscincus rosei	Orange-tailed Shadeskink	Scincidae	SDM
Tiliqua scincoides	Eastern Blue-tongue	Scincidae	SDM
Tropidechis carinatus	Rough-scaled Snake	Elapidae	points
Varanus varius	Lace Monitor	Varanidae	SDM
Vermicella annulata	Bandy-bandy	Elapidae	points

Appendix F. Near Map extents



Appendix G. Vegetation types removed from GAP CLoSR woody vegetation model

GAP CLoSR software considers connectivity for species reliant on woody vegetation only, that is, **trees and shrubs**. As such, some vegetation communities were excluded from the Woody vegetation/No woody vegetation layer, either because they did not support large trees or shrubs, or because they did have trees or shrubs but had a very wet understorey impermeable to many terrestrial animals. This was done by overlaying the Woody vegetation/No woody vegetation layer with CRAFTI vegetation mapping and Port Macquarie Vegetation Communities and cutting some vegetation communities out.

The table below shows vegetation removed from the GAP CLoSR woody vegetation model. CRAFTI Vegetation Mapping was overlaid with the Woody vegetation/No woody vegetation layer and the following vegetation classes were removed.

Wetlands	'Baumea arthrophylla', 'Baumea articulata', 'Baumea articulata Typha ientalis', 'Baumea juncea', 'Baumea juncea Juncus kraussii ssp australiensis', 'Baumea juncea Phragmites australis', 'Baumea juncea Saltmarsh complex' 'Baumea rubiginosa'
	'Baumea rubiginosa Typha ientalis'
	'Blechnum indicum' 'Cladium procerum Baumea juncea' 'Eleocharis equisetina' 'Estuarine complex' 'FT231 Bog and Fen' 'Juncus kraussii ssp australiensis' 'Juncus kraussii ssp australiensis Phragmites australis' 'Lepironia articulata', 'Lepironia articulata Typha ientalis''Phragmites australis'
	'Sedgeland' 'Sedgeland ~ Natural Fest Stands'
Cleared land	'Beach sand, mobile sand'
Grasslands	'FT230 Natural Grassland', 'Headland complex', 'Foredune complex', 'Improved Pasture and Cropland' 'Natural Grassland' 'P Pasture non native species' 'Themeda australis'
Seagrass	'Halophila sp ', 'Zostera sp '
Water	'Open water'
Saltmarsh	'Saltbush' 'Saltmarsh Communities' 'Saltmarsh complex' 'Sarcocnia quinquefla ssp quinquefla-Spobolus virginicus' 'Sarcocnia quinquefla ssp quinquefla-Spobolus virginicus Juncus kraussii ssp australiensis' 'Sm Saltmarsh'

Appendix H. Examples of species and GAP CLoSR parameters

Species for which the model parameters generally work	
Common Death Adder	*Acanthophis antarcticus*
Southern Angle-headed Dragon	*Hypsilurus spinipes*
Varied Sittella	*Daphoenositta chrysoptera*
Common Ringtail Possum	*Pseudocheirus peregrinus*
Dusky Antechinus	*Antechinus swainsonii*
Grassland Melomys	*Melomys burtoni*
Long-nosed Potoroo	*Potorous tridactylus*
Squirrel Glider	*Petaurus norfolcensis*

Species for which the modelled patch size is too small (unless a compartment has multiple patches operating together to provide the species with sufficient home range area)	
Masked Owl	*Tyto novaehollandiae*
Powerful Owl	*Ninox strenua*
Sooty Owl	*Tyto tenebricosa*
Southern Boobook	*Ninox novaeseelandiae*
Brush-tailed Phascogale	*Phascogale tapoatafa*
Koala	*Phascolarctos cinereus*
Spotted-tailed Quoll	*Dasyurus maculatus*
Yellow-bellied Glider	*Petaurus australis*

Species for which the gap crossing distance is too large	
Orange-tailed Shadeskink	*Saproscincus rosei*
Three-toed Skink	*Saiphos equalis*
Southern Leaf-tailed Gecko	*Saltuarius swaini*
Pale-yellow Robin	*Tregellasia capito*
Logrunner	*Orthonyx temminckii*
Eastern Pygmy Possum	*Cercartetus nanus*
Feathertail Glider	*Acrobates pygmaeus*
Swamp Rat	*Rattus lutreolus*

Species for which the model is too restrictive (the landscape is more connected than indicated)	
Australian Hobby	*Falco longipennis*
Musk Lorikeet	*Glossopsitta concinna*
Spotted Harrier	*Circus assimilis*
Spangled Drongo	*Dicrurus bracteatus*
Channel-billed Cuckoo	*Scythrops novaehollandiae*
Wompoo Fruit-Dove	*Ptilinopus magnificus*
Chocolate Wattled Bat	*Chalinolobus morio*
Large Forest Bat	*Vespadelus darlingtoni*

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BIODIVERSITY MANAGEMENT STRATEGY

2019–2030

A strategy to conserve the biodiversity
of the Port Macquarie-Hastings LGA

PORT MACQUARIE
HASTINGS
COUNCIL

BIODIVERSITY STRATEGY 2017–2030

A strategy to conserve the biodiversity of the Port Macquarie-Hastings LGA

PORT MACQUARIE HASTINGS COUNCIL

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The information in this publication is primarily intended to direct strategic planning at the local government area scale and intended only as a broad guide for individual sites. Port Macquarie-Hastings Council takes no responsibility for decisions made by individuals based on the information contained in this report.

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Port Macquarie-Hastings Council acknowledges the Birpai People as the traditional custodians of the lands within its local government boundaries. The watersheds of the Manning River in the south, the Maria River in the north and the Apsley River in the west create the natural boundaries of the Birpai Nation. Council also acknowledges the Dunghutti People as the traditional custodians of land within the northern part of the local government boundary. The richly diverse landscapes of the region provide spiritual and physical resources such as food, shelter and other necessities of daily life, which allowed the community to thrive in harmony with the environment for many thousands of years prior to the arrival of Europeans. Port Macquarie-Hastings Council pay respect to Birpai and Dunghutti Elders both past and present. Port Macquarie-Hastings Council extend that respect to all other Aboriginal and Torres Strait Islander people present.

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A MESSAGE FROM THE MAYOR

It gives me great pleasure to introduce the Biodiversity Strategy 2017–2030 for the Port Macquarie-Hastings Local Government Area.

The Port Macquarie-Hastings is rich in biodiversity. The area's natural values are a major reason so many people enjoy living in and visiting the area. Council recognises that biodiversity is fundamental to the region. It contributes to the ecological balance necessary for successful functioning of our important agricultural and primary industries. The challenge is to protect these important natural biodiversity values for current and future generations while facilitating sustainable development and economic prosperity for the area.

This Biodiversity Strategy identifies the most important natural assets of the area, the threats to these assets and the actions that can be undertaken to manage these threats.

The Strategy is also a framework document that will help private individual land owners, community groups and Council have a better chance of accessing grant funding to undertake environmental works.

The Strategy builds on Council's strategic planning work, environmental modelling and natural resource projects undertaken. It uses the best possible current science to deliver its objectives. This Biodiversity Strategy is integral to delivering the goals of the *Towards 2030 Community Strategic Plan* and the *Urban Growth Management Strategy*.

Council looks forward to engaging with the community in order to responsibly deliver the Biodiversity Strategy over the coming years.

Peta Pinson

Mayor

DEFINITIONS AND ACRONYMS

Ecological resilience	In ecology, resilience is the capacity of an ecosystem to respond to a disturbance (or perturbation) by resisting damage and recovering quickly.
Ecological maintenance	A state in which the majority of layers of vegetation (i.e. strata) and species are present in an ecosystem (with few weeds) such that the site becomes resilient to future disturbances such as weed invasion.
Environmental weeds	Environmental weeds are plants that invade native ecosystems and adversely affect the survival of native flora and fauna. Environmental weeds can be foreign plants accidentally or intentionally introduced into Australia, or they can be native plants that have become weedy because they are outside of their normal range. In the Port Macquarie-Hastings area, for example, many plants from northern Queensland become weedy.
Biodiversity	Biodiversity is defined as the variety of living organisms on the planet. It includes terrestrial, aquatic and other ecosystems and the ecological complexes of which they are part. Biodiversity occurs at a variety of scales including genetic diversity, species diversity and ecosystem diversity. In this Strategy, biodiversity refers to plants and animals native to the Port Macquarie-Hastings Local Government Area.
Forestry Lands	For the purposes of this Strategy, 'Forestry Lands' are taken to be: • Areas with a private native forestry licence (as of October 2016) • Forestry Corporation NSW lands outside Protected Areas.
GAP CLoSR	General Approach to Planning Connectivity from Local Scales to Regional. A modelling tool which can be used to examine landscape connectivity and habitat fragmentation.
Habitat component	An area defined by GAP CLoSR wherein wildlife may move around within the component, but not out of the component, due to impermeable barriers or a lack of linking habitat. They are like 'islands' in the landscape that wildlife cannot move from.
Habitat linkage	An area defined by GAP CLoSR that effectively links two habitat patches together. These links may be narrow strips of vegetation or scattered paddock trees (which act like 'stepping stones' across the landscape). They are too small to be considered as a 'habitat patch' but play an important role in connectivity.
Habitat patch	A consolidated area of vegetation wherein wildlife has sufficient resources (food, shelter, mates) available for long-term survival.
Mesic	In ecology, a mesic habitat is a type of habitat with a moderate or well-balanced supply of moisture, e.g. a mesic forest.
National parks	This includes all parks and reserves in National Parks and Wildlife Service estate, including national parks, nature reserves, state conservation areas and historic sites.

Precautionary Principle	The precautionary principle states that when a human-induced activity raises a significant threat of harm to the environment or human health, then precautionary measures should be taken even if there is no scientific consensus regarding cause and effect. It is akin to 'better safe than sorry'. It is embedded in much national and international environmental legislation.
Protected Areas	For the purposes of this Strategy, 'Protected Areas' are taken to be: • National Parks and Wildlife Service estate (national parks, nature reserves, historic areas, state conservation areas) • Forestry Corporation lands dedicated under the Forest Management Zones 1 or 2 purely for biodiversity conservation • E2 Lands within Port Macquarie-Hastings Council's 'Managed Public Bushland' portfolio (as of June 2016).
Silviculture	Silviculture is the practice of controlling the establishment, growth, composition, health and quality of forests to meet diverse needs and values.
Threatened ecological community	An ecological community is a group of native plants, animals and other organisms that naturally occur together and interact in a unique habitat. A threatened ecological community is one that has limited geographic distribution and is therefore at risk of extinction. These communities may be protected under state and/or federal legislation.
Threatened species	Plant or animal species that are at risk of becoming extinct. These species may be protected under state and/or federal legislation.
Transforming weeds	Invasive plant species which have the capacity to undermine the ecological processes which maintain the health of native vegetation and hence the habitat of indigenous plants and animals. Many transforming weeds can change the ecosystem to benefit their species ahead of native species, such as through changing soil chemistry or fire regimes.
Zonation	Zonation is a modelling tool (developed by the University of Helsinki) which seeks to rank the landscape in terms of the relative importance of areas for supporting biodiversity values. 'High value' sites may support a high diversity or abundance of species, or may support just one species found nowhere else.
NC LLS	North Coast Local Land Services
PMHC LGA	Port Macquarie-Hastings Local Government Area
OEH	Office of Environment and Heritage
NPWS	National Parks and Wildlife Service
ARI	Average recurrence interval

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HOW TO READ/USE THIS STRATEGY

This Biodiversity Strategy is divided into five chapters.

Chapter 1 provides some context for the importance of biodiversity to the Port Macquarie-Hastings Local Government Area (LGA) and why a Biodiversity Strategy is required. It outlines the aims and objectives of the Strategy and the legislative context. It also outlines the various datasets that were used to conduct the modelling and mapping associated with this Biodiversity Strategy.

Chapter 2 identifies and maps the biological values of the Port Macquarie-Hastings LGA, such as landscape units, vegetation communities, important wetlands and threatened species. It outlines the program 'Zonation' which was used to compile various datasets and identify the most important areas for biodiversity in the LGA.

Chapter 3 examines the concepts of landscape connectivity and habitat fragmentation. It outlines the program 'GAP CLoSR' which was used to examine how well the Port Macquarie-Hastings LGA is 'connected' for wildlife and which areas may require some additional assistance to reconnect them or consolidate tenuous links. It also examines issues such as broader-scale wildlife corridors and the connectedness of wetland systems.

Chapter 4 uses the knowledge derived from Chapters 2 and 3 to derive a 'Priority Investment Layer'. These are the areas on private lands and land managed/owned by Council where strategic investment for biodiversity (such as through government funding streams or the biodiversity offset market) would be best spent. Helping to conserve these areas would be highly beneficial to protecting the biodiversity of the Port Macquarie-Hastings LGA.

Chapter 5 identifies threats to the biological assets of the LGA and considers the relative threats operating in different landscape units. It includes some quantitative analysis of the impacts of climate-induced sea-level rise on biological assets and the amount of land affected by private native forestry.

Chapter 6 outlines the four key themes that Council will use to identify actions in the annual operational plan which assist in delivering biodiversity conservation.

All scientific names for species mentioned are in Appendix A.

All technical terms are defined in the Definitions and Acronyms (at the front of the Strategy).

We hope you enjoy reading this Biodiversity Strategy and develop a new understanding of the valuable biological resources of the Port Macquarie-Hastings LGA, the threats that face these resources and the actions that are required to protect them for future generations.

SUMMARY

The Port Macquarie-Hastings Local Government Area (LGA) is a wonderfully biodiverse area and these biological assets are highly valued by the community. They contribute to the cultural, lifestyle, aesthetic and recreational identity of our LGA. The importance of biodiversity to the local economy (e.g. property sales, tourism, agriculture, silviculture) is also highly valued and recognised.

There are, however, untold challenges to the biodiversity of our LGA, including feral pest invasion, clearing for development and agriculture, and a rapidly changing climate.

The key messages from this Biodiversity Strategy are:

- We need to protect our most important biological assets to maximise biodiversity conservation.
- These important areas need to be ecologically connected so they can function properly.
- We need to manage the threats that undermine the resilience of these important areas.
- Everyone in the Port Macquarie-Hastings community has a role to play in protecting biodiversity.

This Biodiversity Strategy:

- Identifies the most important biological priority areas in our LGA (using Zonation and other software packages)
- Identifies islands/patches of contiguous vegetation and where the key habitat linkages and connections are between these patches (using GAP CLoSR)
- Identifies threats to biodiversity
- Identified four overarching themes, or programs, to generate annual biodiversity action plans.

A major focus of the Biodiversity Strategy has been to use the best available information and science to identify the areas that are most valuable for biodiversity in the Port Macquarie-Hastings LGA. This work has allowed us to create a Priority Investment Layer that can be used to assist landholders to direct biodiversity offset schemes and apply for funding to protect key biological assets.

The Port Macquarie-Hastings LGA has an educated and inspired community, with some amazing examples of community-led initiatives that support biodiversity conservation. Port Macquarie-Hastings Council can play a key role in bringing together different stakeholders (government, education, private individuals, community groups etc.) to attract funding and deliver projects to make a difference.

This Biodiversity Strategy provides many spatially explicit outputs (using tools such as Zonation, GAP CLoSR, climate change modelling, species distribution models) that can inform future strategic planning and conservation initiatives. Possessing such models, and using these to justify projects, will greatly increase the chances of receiving funding for projects in the LGA. These spatially explicit models can also help guide biodiversity regulation in the LGA, particularly in a time where environmental legislation is undergoing a radical overhaul.

Many of the challenges to biodiversity are not easy to solve, but they do present exciting opportunities along the way. The challenges are certainly worth the knowledge that we stand our children in better stead to inherit a world still rich in natural wonders and capable of supporting the full range of ecosystem services we all rely on.

1. INTRODUCTION

1.1 PORT MACQUARIE-HASTINGS LOCAL GOVERNMENT AREA

The Port Macquarie-Hastings Local Government Area (LGA) (Figure 1) is an area rich in biodiversity supporting a diverse and significant assemblage of both terrestrial and aquatic plants and animals. Situated in the Macleay–McPherson overlap, the area contains elements of both tropical and temperate biota. The LGA also spans a wide range of altitudes — from the high plateaus of Werrikimbe National Park through to the coastal plains. For many species, the Port Macquarie-Hastings area is a stronghold for the population (such as the Koala or the White-flowered Wax Plant), while for others it is an area where the species is at the edge of either their southern or northern geographical distribution (such as the Lesser Swamp-orchid and Coastal Pandanus). Conserving the altitudinal and latitudinal ranges of species is important given impending changes to climate. Some species, such as the North Brother Wattle and the Big Nellie Hakea, are found virtually nowhere else in the world.

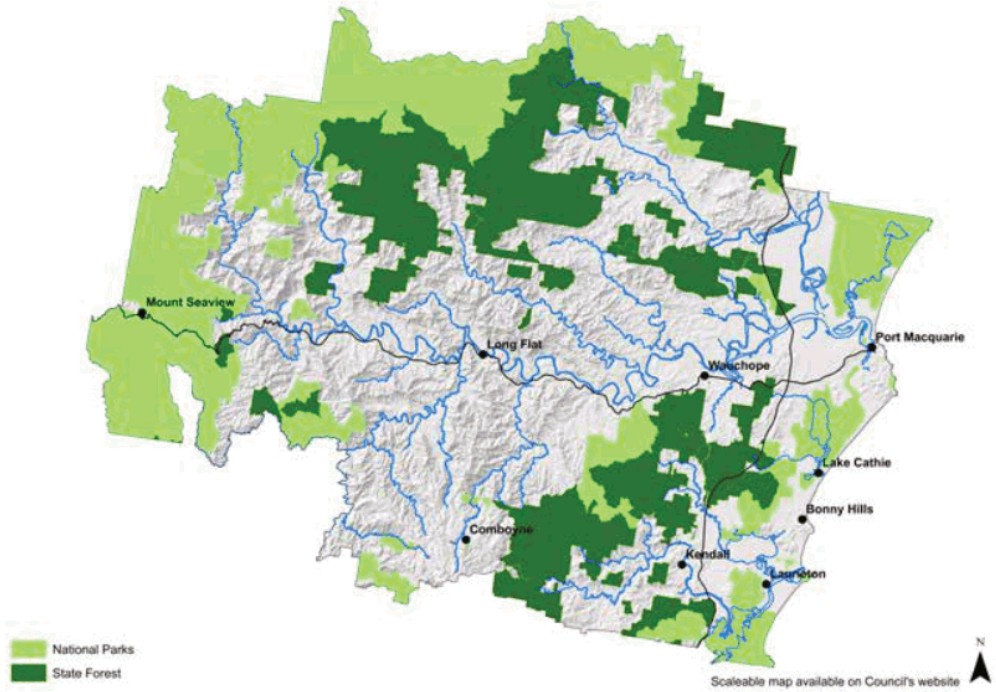
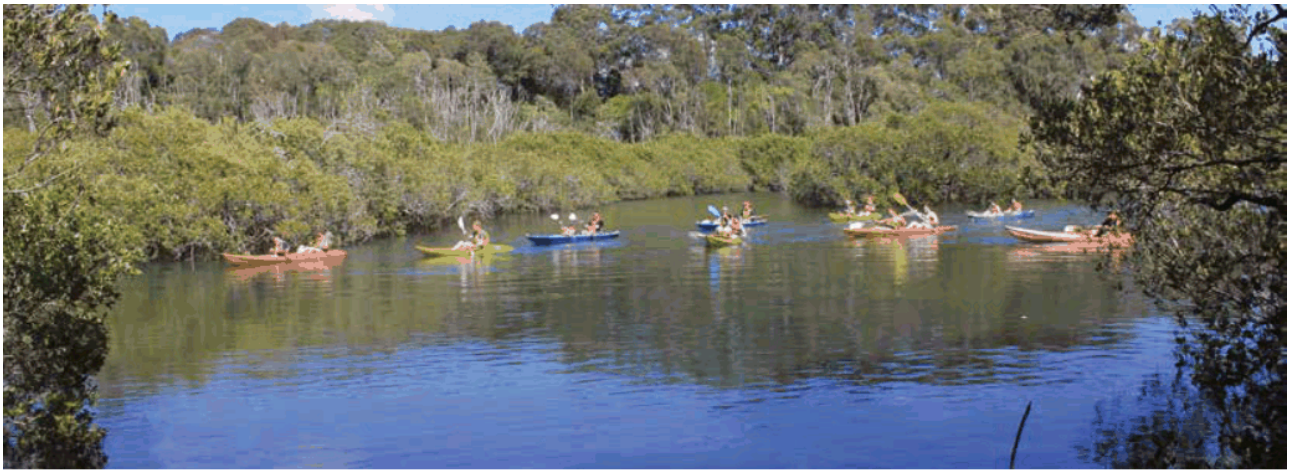


Figure 1. Port Macquarie-Hastings Local Government Area

The LGA also includes specific areas of biological importance. For example, Limeburners Creek Nature Reserve is one of only two coastal wilderness areas in NSW. Lake Innes Nature Reserve is considered the 'engine room' for Koala populations in the LGA and contains a 'nationally significant population' (as defined by federal government criteria). Sea Acres Nature Reserve and adjoining Council land are some of the largest remaining patches of littoral rainforest, particularly outside far-northern Queensland. And the mighty Antarctic Beech forests of Werrikimbe National Park (with Gondwanan origins) are of great significance. The estuaries and foreshores of the Camden Haven area as well as those around Pelican Point, including Woregore Nature Reserve,



are of immense importance for migratory shorebirds listed under international conventions and agreements. Clearly we live in an area with nationally and internationally important biological values.

The identity and economy of the Port Macquarie-Hastings LGA is strongly tied to its rich biological values, with many people attracted to live, work or play in the area because of these values. A community research survey undertaken in 2008 identified that the natural environment/beauty of the area was the item that 21% of residents valued most about living in the LGA. Residents were also asked to rate the importance of specific criteria in regards to planning of the LGA in the next 10 years. The items considered to be of highest importance (across all criteria) were:

- 'That water is conserved' and
- 'That bushland, open spaces and natural habitats are protected.

Furthermore, Environmental Monitoring and Protection was ranked of higher importance than Managing Commercial Development, or Managing Residential Development (importance scores of 4.43, 4.01 and 4.24 respectively). A similar study of Port Macquarie residents in 2015 showed that:

- 98% of residents surveyed 'believed that looking after the biodiversity value of Port Macquarie's green spaces is important'
- 95% of residents agreed that removing weeds from bushland reserves is important
- virtually all (99%) residents agreed that the bushland corridors are important for wildlife
- the vast majority (89%) of people believed that the bushland reserves are important for views
- 97% of residents stated that they liked living in a place near wildlife
- more than 93% of residents stated that they were attracted to live at their residence because of proximity to/views of the bush.

Numerous studies around the world have shown that proximity to/views of green spaces can increase the value of urban dwellings.

Port Macquarie-Hastings LGA prides itself in having the largest remaining coastal population of Koalas, and many people view this species as a 'cultural icon' for the area. Cultural or historical ties to forestry, fishing and farming across the LGA ensure that some people feel passionate about, for example, the long-term conservation of ecologically functional forest and marine ecosystems. The Birpai and Dunghutti People of this area also have strong cultural ties to the biodiversity of the area and a strong interest in the protection of the area's biological values. Of particular importance are the seven Birpai animal dreaming totems, several of which have declined in extent in our LGA and elsewhere, including pademelons (species uncertain) and the Australian Bass.

While the Port Macquarie-Hastings LGA has numerous national parks and nature reserves with undoubted high biological importance, the majority of these reserves are located in areas historically not suitable for housing development, forestry or agriculture, such as swamps and steep ridges. Thus, while such reserved areas capture some of the biological values of the area, they are not fully comprehensive or representative of the LGA's biodiversity. Land outside the formal protected area network therefore has an important role to play in protecting the full range of biodiversity found within our local government area.

The Port Macquarie-Hastings LGA is undergoing rapid economic expansion and development. For example, from 2011 to 2016, the average number of development applications received each month has increased by 63% and the population of Port Macquarie is expected to increase by 30% to 103,000 in the next 20 years. Port Macquarie-Hastings Council faces the challenge of trying to preserve its biological values, while simultaneously accommodating such economic opportunities.

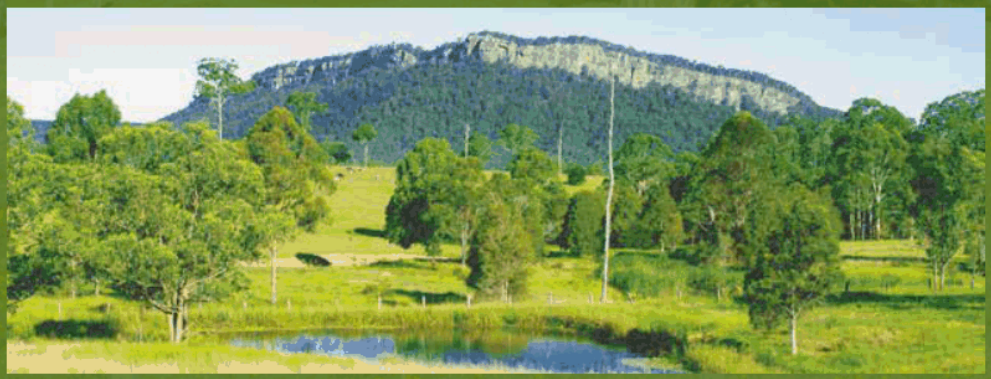
BOX 1. BIODIVERSITY IS PART OF US

The Port Macquarie-Hastings Local Government Area has magnificent natural values. Our spectacular sweeping beaches and fertile coastal plains are backed by the spectacular hinterland with the distinctive Three Brothers and the Bago Bluff mountains. Beyond this, the landscape rises to the heights of the escarpments of Mount Seaview and Werrikimbe National Park. Our landscape is diverse and as such it supports a diversity of plants and animals. Both tropical and temperate plants and animals abound in the Port Macquarie-Hastings, with many species occurring at the edge of their range.

The region's identity is strongly tied to its natural values and the way people connect with them. Our biodiversity is part of our existence, our lifestyle and collective memories. Our legendary Koala populations, the region's strong history with the forestry industry, childhood reminiscences of summertime Christmas Bells on the Christmas Bells Plains, the dawn bird chorus and evening frog call cacophony, the spectacular backdrop of littoral rainforest along Shelly Beach, enjoying our beautiful rainforests on a hot summer's day, or appreciating in our coastal lakes and rivers.

Henry Kendall (*The Song of the Shingle-splitters*), writing during his time in the state forests of this area, captures this sense of our biodiversity being with us wherever we go.

In dark wild woods, where the lone owl broods
And the dingoes nightly yell
Where the curlew's cry goes floating by,
We splitters of shingles dwell.
And all day through, from the time of the dew
To the hour when the mopoke calls,
Our mallets ring where the woodbirds sing
Sweet hymns by the waterfalls.



1.2 THE IMPORTANCE OF BIODIVERSITY

Biodiversity is defined as the variety of life, or the variability of living organisms on the planet. It includes terrestrial, aquatic and other ecosystems and the ecological complexes of which they are part. Biodiversity occurs at a variety of scales including genetic diversity, species diversity and ecosystem diversity. Biodiversity is recognised as an important feature of healthy natural assets and increases flexibility and resilience in the face of change (i.e. resilience from natural disasters including floods, droughts and fires). The more healthy and diverse a system is, the more able the system as a whole is able to absorb stresses and compensate for damage or loss that may occur in one part of the system.

Conserving biodiversity is an essential part of safeguarding the biological life support systems on Earth. All living creatures, including humans, depend on and contribute to these life support systems for the necessities of life. For example, we need oxygen to breathe, clean water to drink, fertile soil for food production, and physical materials for shelter and fuel. These necessities can be described collectively as 'ecosystem services'. Ecosystem services are provided by healthy ecosystems. These functions are supported by biodiversity and its attributes, including the number of different species in an area, the number of individuals of each species (i.e. their abundance), the composition or mix of species in any particular area, and the interactions between these species. Ecosystem services can be divided into four groups:

1. provisioning services (e.g. food, fibre, fuel, fresh water)
2. cultural services (e.g. spiritual values, recreation and aesthetic values, knowledge systems)
3. supporting services (e.g. primary production, habitat provision, nutrient cycling, atmospheric oxygen production, soil formation and retention)
4. regulating services (e.g. pollination, seed dispersal, climate regulation, pest and disease regulation, water purification).

The resilience of ecosystems in Australia and around the world is currently being reduced by a number of threats, including habitat loss and consequent loss of species, degradation and fragmentation, invasive species, unsustainable use and management of natural resources, changes to the aquatic environment and water flows, changing fire regimes and climate change. For ecosystems to be resilient to these and other threats, they need a healthy diversity of individuals, species and populations.

We live in a time of increasing change, with a future of unprecedented challenges for humanity and our environment. We understand, at a global and national level, that issues such as food, water and energy security and human health and welfare are inextricably linked to biodiversity. Yet in many areas, degradation of our environment continues. Climate change will further magnify the impact of threats to our biodiversity and directly threaten some species and ecological communities. To help species survive we need to reduce the impacts of existing threats now, and respond to new threats as they emerge. We need to ensure that species have large areas of linked, connected habitat in many different environments across all landscapes, along the coasts and in the oceans. It is a big task and we all have a role to play.

We all know the phrase 'think global, act local'. This Biodiversity Strategy provides a framework for actions to protect our local biodiversity in the Port Macquarie-Hastings LGA and preserve these values for the wellbeing of future generations. As *Australia's Biodiversity Conservation Strategy 2010–2030* states, 'business as usual is no longer an option' if ongoing damage to biodiversity is to be prevented.

Throughout this Strategy, the term '**biodiversity**' means the biodiversity that is native to the Port Macquarie-Hastings LGA.

A major focus of the Strategy has been terrestrial biodiversity; an element over which local government has jurisdiction (compared with marine diversity for which Council has no jurisdiction). The Strategy uses the best available information and focuses on the species that have a good amount of information available. Therefore, animals such as invertebrates, although highly important, are largely not considered due to a lack of information on their occurrence and requirements.

BOX 2. BIODIVERSITY: AT THE HEART OF EVERYTHING WE DO

Who wouldn't want to live in a region with beautiful beaches, waterways, nature reserves and over 40,000 hectares of national park and state forest? Talk to any local and they will tell you that life in the Port Macquarie Hastings region is enriched by our natural environment. It's our biodiversity which sets us apart, allowing our unique waterways, flora and fauna to thrive. But it's more than just lifestyle. Our local economy is supported by agriculture, aquaculture, forestry and fishing sectors which sell more than $100 million worth of goods out of our region each year. All of these industries are reliant on our natural resources and biodiversity conservation.

Our tourism sector is also heavily dependent on our biodiversity assets. Some of the most popular tourist activities in the Port Macquarie area are nature based. Visitors flock to our region to enjoy our beaches, coastal walks, national parks and wildlife — Koalas being the clear favourite with our international visitors. Locals and visitors alike are increasingly taking an interest in where their food comes from (choosing food sources which have a 'clean and green' image or other sustainable credentials) and emerging farm-gate experiences are adding to the range of ways which we can enjoy our natural environments. Tourism Research Australia recently confirmed that the 'unprecedented numbers of domestic travellers pursuing outdoor nature-based and cultural activities' has underpinned the strong growth in holiday-based travel.

Our region's biological resources are precious. As a community, we are all stewards of our local environment and we need to take responsibility for using and sharing it in a responsible and sustainable way.

1.3 PRINCIPLES AND OBJECTIVES OF THE BIODIVERSITY STRATEGY

Principles

Australia's Biodiversity Conservation Strategy 2010–2030 (Natural Resource Management Ministerial Council, Commonwealth of Australia, 2010) outlines a number of principles, including:

- We share the Earth with many other life forms that have intrinsic value and warrant our respect.
- All Australians benefit from biodiversity; all Australians can and should contribute to its wellbeing.
- Biodiversity is best conserved by protecting existing natural habitats.
- Effective conservation of biodiversity operates at the landscape scale across public and private tenures.
- Natural ecosystems are dynamic but have a finite capacity to recover from external impacts.
- Building resilience (see Box 3) recognises the critical links between ecological and social systems.
- Knowing that our knowledge is limited, we should apply the 'precautionary principle' while employing adaptive management approaches using new science and practical experience. The precautionary principle is that the lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there is a risk of serious environmental damage.

The principles have been taken into account while developing this Strategy. These principles are commensurate with the objectives also outlined in the Port Macquarie-Hastings Council's *Towards 2030 Community Strategic Plan* (discussed in further detail below).

Objectives

This Strategy is a local response to *Australia's Biodiversity Conservation Strategy*, the *Draft New South Wales Biodiversity Strategy 2010–2015*, the *Northern Rivers Regional Biodiversity Management Plan* (the Port Macquarie-Hastings LGA is part of the Northern Rivers region) and the *Draft Mid North Coast Regional Conservation Plan*.

The Objectives of this Strategy are in accordance with these broader guiding documents and are to:

1. Maintain and improve biodiversity and ecological processes by protecting, rehabilitating and managing native vegetation across all land tenures, particularly those areas with high biological values.
2. Promote landscape connectivity to help biodiversity conservation and reduce climate change impacts (such as rising sea levels, increased drought, fire, flood events).
3. Contribute to identifying and mitigating threats acting on biodiversity values.
4. Provide targeted actions to protect and assist the recovery of biodiversity across all ecosystems.
5. Improve awareness of the importance of biodiversity conservation and ways this can be achieved.
6. Work cooperatively with regional, state and federal stakeholders on biodiversity conservation initiatives.

While Port Macquarie-Hastings Council will work towards these Objectives, it is important to remember that many of the impacts on biodiversity in the region are beyond the control of Council, either because of the scale at which they operate (e.g. climate change, although Council is required by the State to consider and plan for climate change impacts), because the power of jurisdiction rests at the state or federal level or with private individuals, or because Council simply does not have the financial resources to address the issue. There are also 'lag' effects from historical disturbances which are not readily reversible. For example, the full loss of biodiversity from clearing and/or habitat fragmentation is often only observed years after the clearing event. However, the knowledge gained from this Biodiversity Strategy will greatly aid the community in its ability to lobby other sectors and stakeholders as well as to empower and educate the community, even for issues over which Council has no direct control.

This Biodiversity Strategy also seeks to guide delivery of key goals outlined in the *Towards 2030 Community Strategic Plan*, including:

- Goal 4.6 Restore and Protect Natural Areas
- Goal 4.3 Facilitate development that is compatible with the natural and built environment
- Goal 4.8 Increase awareness of issues affecting our environment including preservation of flora and fauna.

BOX 3. BUILDING ECOSYSTEM RESILIENCE: THE IMPORTANCE OF BUSHLAND RESTORATION

Objective 1 of this Strategy is to 'Maintain and improve biodiversity and ecological processes by protecting, rehabilitating and managing native vegetation across all land tenures, particularly those areas with high biological values'.

Since 2006, Port Macquarie-Hastings Council has taken a pro-active approach in the management of 5000 hectares of native bushland under its jurisdiction through its *Strategic Bushland Reform Program*. Much of this vegetation is one of a number of listed threatened ecological communities and supports a wide range of threatened plant and animal species.

A six-person Bushland Management Team, alongside community volunteers such as Landcare, works hard to remove weeds and rubbish from urban community bushland and restore the biological values and ecological functioning of these important areas. The aim is to bring these sites to 'ecological maintenance' — that is, a state in which the majority of the strata (or layers of vegetation) and species are present in the ecosystem, such that the site becomes resilient to future disturbances such as weed invasion.

Weed invasion has a major impact on the resilience of vegetation. Weedy areas do not support the full range of potential species that should occur there, are visually unappealing and often have a higher fire risk due to exotic annual grasses and vine weeds. Conversely, when the full complement of native species is present in the ground layer there are no available spaces for weed species to germinate and colonise the site. These sites are more resilient and are closer to the ideal 'ecological maintenance' state.

Monitoring of sites in the LGA has demonstrated the success of our collective bushland management program.

Port Macquarie Landcare members in a rehabilitated area.

1.4 THE ROLE OF LOCAL GOVERNMENT IN BIODIVERSITY CONSERVATION

Local government is a key player in the conservation and management of terrestrial biodiversity and threatened species in an area. As land-use planners, local government has legislative responsibilities for planning and regulating many activities which may impact biodiversity and threatened species. Councils must therefore consider such activities against numerous pieces of state and federal legislation governing biodiversity conservation. Councils also manage large areas of public land, much of which contain important biodiversity values.

Local government regularly considers biodiversity in its day-to-day operations including:

- strategic land use
- assessing development applications
- managing public operational land (e.g. sewage plants, water tower reserves, drainage areas)
- managing public bushland
- supporting landholders
- planning and constructing infrastructure
- ensuring that Council operations do not adversely impact the environment
- acting as the local control authority for biosecurity issues.

Port Macquarie-Hastings Council has recognised the importance of the preservation of the biological values of the LGA in a number of policy and planning documents. The *Towards 2030 Community Strategic Plan* states that:

> We understand and manage the impact that the community has on the natural environment. We protect the environment now and in the future (Focus Area 4).

The *Port Macquarie-Hastings Urban Growth Management Strategy* states that we will work:

> To maintain and improve existing environmental values in the Port Macquarie-Hastings LGA (Key Natural Environment Strategy).

The *Port Macquarie-Hastings Council Operational Plan* (2016–2017) states that we will:

> Prepare a draft biodiversity strategy to determine environmental priorities for conservation and restoration (Action 4.7.1.2). This Biodiversity Strategy ultimately fulfils that aim.

Many existing Council programs are outlined in Appendix G.

1.5 KNOWLEDGE IS KEY

The knowledge delivered by this Strategy will help Council to meet planning obligations under the North Coast Regional Plan 2036: Implementation Plan 2017–2019, Action 2.1 which states:

> Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value.

Good knowledge is fundamental to local government when making decisions which protect biodiversity and when providing high quality advice. This includes knowledge on where the most important areas for biodiversity are, the regional patterns and drivers in the distribution of biodiversity, knowledge on which species are threatened, and key threats to species. These areas of knowledge form the basis for this Biodiversity Strategy, which seeks to:

1. identify areas of high biological importance in the LGA (see Section 2 and Section 4)
2. identify patterns in landscape connectivity (see Section 3)
3. identify threats to key biological values in the LGA (see Section 5)
4. provide a framework to develop annual action plans (see Section 6).

This Biodiversity Strategy aims to deliver this information in a spatially explicit (i.e. mapped) manner wherever possible. Most importantly, this knowledge has been delivered at a scale appropriate to the Port Macquarie-Hastings LGA. While the *Northern Rivers Regional Biodiversity Management Plan* (DECCW 2010) similarly identified areas of biological importance and threats to biodiversity, it is of too coarse a scale to be of practical assistance for many areas considered by Council. The knowledge delivered by this Strategy will greatly aid strategic planning. It will assist Council, private landholders and other parties to gain grant funding to protect important biological areas. It will help inform the biodiversity offset market (see Box 4). For offset works to be appropriate, Council must understand areas that represent 'like-for-like'. The relative biological values of an area must also be understood spatially and temporally across all species to uphold the 'maintain or improve' concept of offsetting.

BOX 4. BIODIVERSITY OFFSETTING: AN EXAMPLE

A development company, Prosperity Enterprises, buys a property for a housing development. They draw up full plans (a substantial investment) and then engage an ecological consultant to assess the impact. The consultant finds that there are Squirrel Gliders on site. Squirrel Gliders are a threatened species under NSW legislation. Some Squirrel Glider habitat will be lost if the housing development proceeds.

The ecological consultant concludes that there is no point trying to plant trees for Squirrel Gliders on the site as it is not large enough (so would not support a sustainable population) and the housing development will allow dogs and cats (which are key threats to the gliders). Furthermore, the land surrounding the site is also scheduled for future developments and any plantings on the site would therefore effectively become an 'island' in a sea of suburbia within the next 5 years. The Bushfire Consultant concludes that the proposed development is in a bushfire prone zone and any tree planting would contravene asset protection zone requirements. The development cannot, however, proceed without mitigating the impacts to Squirrel Gliders.

Port Macquarie Hastings Council agrees that the development can proceed **if** the developer can 'offset' the impacts by improving Squirrel Glider habitat elsewhere in the LGA. Modelling associated with this Biodiversity Strategy has shown that Farmer Smith's property nearby has good potential for Squirrel Gliders. An ecological consultant surveys the site and determines that, while a small colony of Squirrel Gliders is present, the population is not at its full potential due to the presence of foxes and a depauperate (i.e. not diverse) mid-storey vegetation layer. If foxes were controlled and wattles planted, the population would increase. Farmer Smith is very happy to get some money to do fox control on his farm and plant some wattles. Prosperity Enterprises pays Farmer Smith to manage his farm for Squirrel Gliders for a number of years and a biodiversity offset has occurred. The development proceeds

1.6 DATASETS USED IN THIS BIODIVERSITY STRATEGY

Port Macquarie-Hastings Council has been active in preparing and compiling datasets for informing the Strategy. In addition, a range of freely available datasets have been utilised. The datasets used are outlined in Table 1 (see Appendix B for a detailed description of these datasets).

Table 1. Datasets used to inform the Biodiversity Strategy

Dataset	Brief description
Port Macquarie-Hastings Council vegetation community mapping	Maps patches of vegetation existing in 2009 outside of national parks and state forests. Maps developed using aerial photographs and field surveys.
CRAFTI vegetation mapping	Comprehensive Regional Assessment Forestry Type Inventory mapping of national parks and state forests across New South Wales. Created in the mid-1990s. Less accurate than PMHC vegetation mapping.
Koala habitat mapping	Maps different classes of Koala habitat across the LGA. Maps developed in 2013.
Threatened ecological community (TEC) mapping	Maps created using PMHC vegetation community mapping plus other datasets of geomorphic features (e.g. elevation and soil type).
BioNet	Publicly available NSW Government database of plant and animal records in the State. Formerly the Atlas of NSW Wildlife.
Atlas of Living Australia	Publicly available information on Australia's biodiversity (including records, calls, images).
BirdLife Australia Birdata	Comprehensive database administered by Birdlife Australia. Data was purchased for use in species distribution modelling.
Climate change scenarios	Estuarine and coastal inundation maps of Hastings, Lake Cathie/Lake Innes and Camden Haven developed as part of PMHC Sea Level Rise Mapping Project (data and report available from Council upon request).
ANUCLIM	Bioclimatic data (e.g. rainfall, altitude, aspect) from ANUCLIM was used by the University of Melbourne for species distribution modelling.

This Biodiversity Strategy has been prepared using the best available datasets and methodology available at the time of preparation. Nonetheless, no mapping or modelling process is ever 100% accurate due to issues with scale, on-ground disturbances and input data (see Box 5). Therefore, due to limitations with both the available datasets and the modelling processes used, on-ground verification will always be required to determine the accuracy of the mapping. The information is primarily intended to direct strategic planning at the local government area scale and intended only as a broad guide for individual sites. Individual landholders should seek professional advice to verify the data at the site level prior to any decision-making processes.

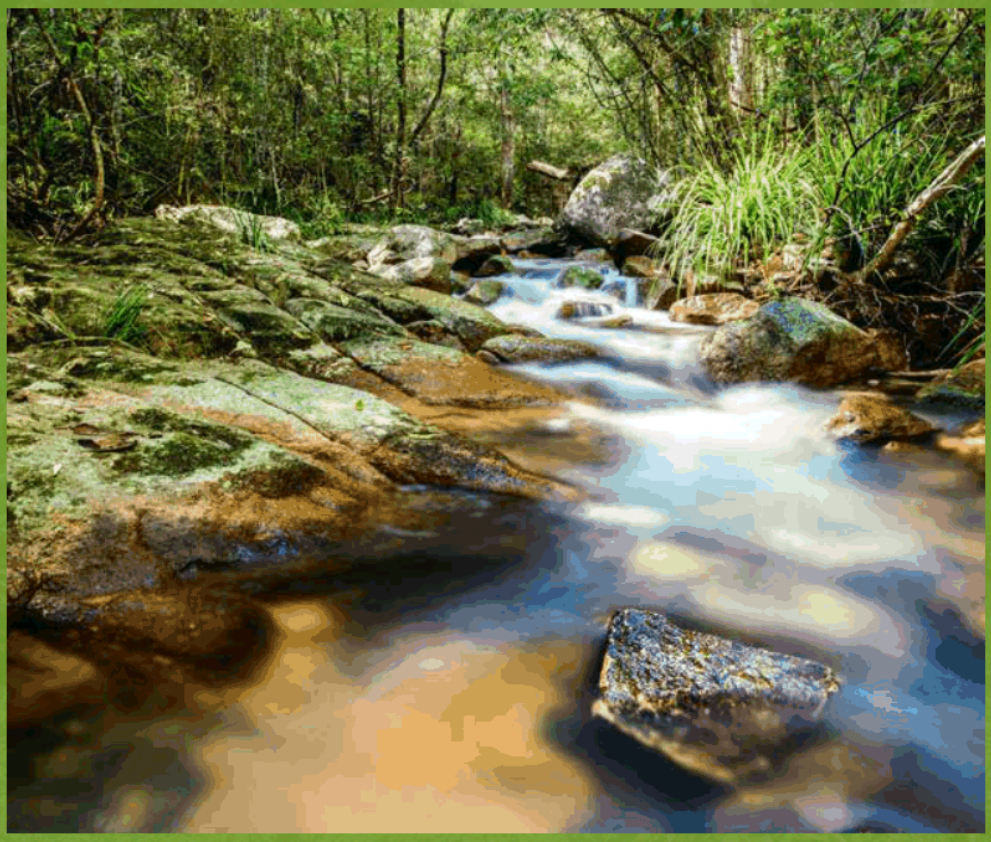
The Biodiversity Strategy should also be viewed as constantly evolving. For example, priority species identified in this Strategy may be downgraded in the future should a new, larger threat emerge. Conversely, the relative value of an area may be upgraded if other similar areas were to be progressively cleared over time.

Due to such limitations and the ever-changing world in which we live, it is proposed that the Biodiversity Strategy be reviewed in 2022 (i.e. five years after publication).

BOX 5. A WORD OR TWO ON MODELLING

The American statistician, George Box, once stated that 'All models are wrong but some are useful'. Similarly, the statisticians, Burnham and Anderson, noted 'A model is a simplification or approximation of reality and hence will not reflect all of reality'.

A good model can be compared to a good map – it will never replicate each and every intricacy of reality, but it will give good direction (and is certainly better than no map at all when navigating unclear terrain!). Similarly, the models and mapping produced by this report provide an approximation of reality. They will always require ground validation and checking.



2. BIOLOGICAL VALUES OF THE LGA

2.1 FLORA AND FAUNA IN THE LGA

The Port Macquarie-Hastings LGA is a biodiverse area supporting a varied and important assemblage of terrestrial and aquatic plants and animals across approximately 368,000 hectares. Situated in the Macleay-McPherson overlap (i.e. the overlap between tropical and temperate bioregions), the area contains a mix of both tropical and temperate species. The LGA also spans a wide range of altitudes – from the high altitude plateaus of Werrikimbe National Park (1266 metres above sea level) through to the low coastal plains and beaches.

The Port Macquarie-Hastings LGA can be broadly divided into four **landscapes**: Coastal Plains, Midland Hills, Escarpment Ranges and Tablelands (see Figure 2). Each of these different landscape units has different biophysical factors (e.g. geology and climate) and therefore supports a different assemblage, or mix, of plants and animals. Each of these landscape units also experiences different levels of environmental protection. For instance, while close to 100% of the Tablelands Landscape is protected in national parks, only 10% of the Midland Hills Landscape is similarly protected. This means that species typical of the Midland Hills are currently poorly represented in the formal reserve network in the Port Macquarie-Hastings LGA. Each landscape unit also experiences different levels of development, grazing and tree cover.

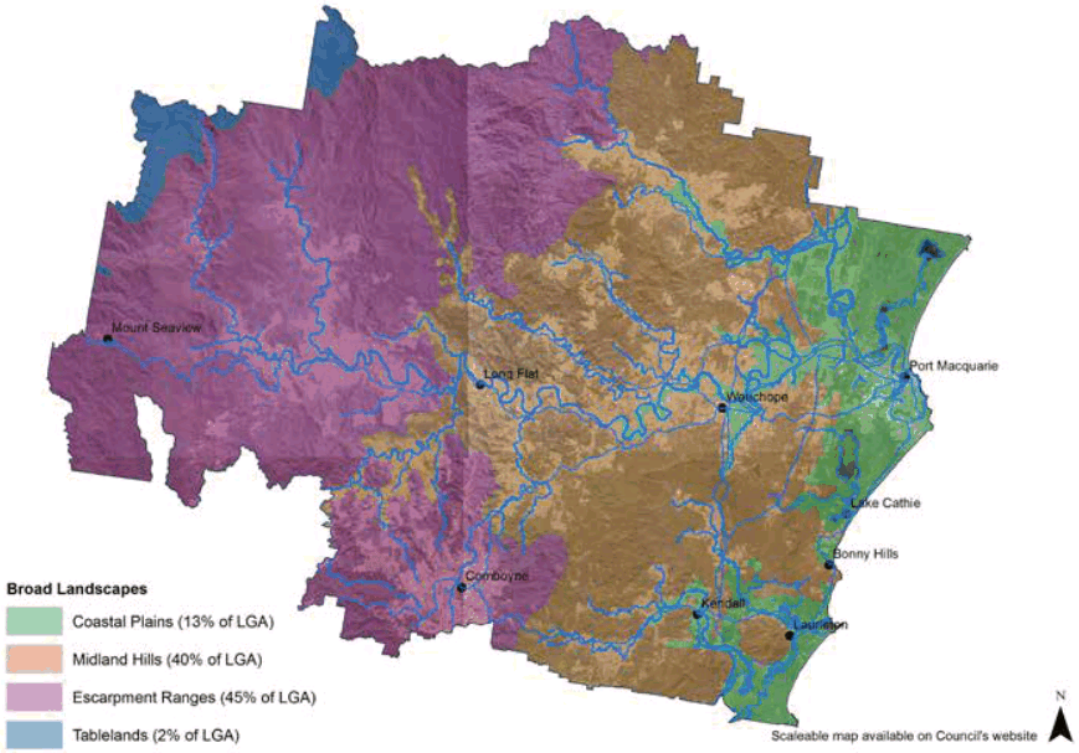


Figure 2. Landscape units in the Port Macquarie-Hastings LGA

Each landscape unit has different biological values and supports different assemblages of plants and animals.

Compared to many other local government areas, the Port Macquarie-Hastings LGA still has a good coverage of **remaining native vegetation** at the LGA-wide scale, with around 283,000 hectares (76%) remaining (including for the purposes of this Biodiversity Strategy, native grasslands and wetland vegetation). Nonetheless, the amount of remnant vegetation does not occur equally between the four landscape units. The very small area of Tablelands Landscape in the LGA is entirely vegetated (being national park and state forest) and the Escarpment Ranges retain 86% of their vegetation. At the other end of the scale, and not surprisingly with its many current and historical developments, the Coastal Plains Landscape has undergone the heaviest clearing and has 56% remaining vegetation. The Midland Hills, with its predominantly agricultural land uses, is still 72% vegetated. However, much forested land has been, or is, subject to timber harvesting. Much of the vegetation is therefore 'regrowth' of varying ages and does not support trees of large diameter, stately formation and hollow-bearing characteristics as in old-growth forest. Old-growth forest is highly important to a wide range of animals, particularly hollow-dependent species (such as gliders and large forest owls). Such forests only now occur in limited extent in the Port Macquarie-Hastings LGA and elsewhere.

A wide range of **broad vegetation formations** are represented in the LGA (Table 2). Of these broad types, Wet Sclerophyll Forests are the predominant forest type and occur on all landscapes and account for over half of the vegetation types of the Port Macquarie-Hastings LGA (~187,500 hectares or 66%). Rainforests are another dominant vegetation type and account for 58,744 hectares or 20% of the total native woody vegetation in the LGA. Grassy Woodlands are rare across the LGA, occupying only 1,340 hectares (0.5%). Figure 3 shows the broad vegetation formations in the LGA.

Table 2. Native vegetation formations by area and percentage of total

Formation	Area (ha)	% of total
Wet Sclerophyll Forests (Grassy)	99,408	33.9
Wet Sclerophyll Forests (Shrubby)	88,143	30.9
Rainforests	58,744	20.6
Dry Sclerophyll Forests (Shrubby)	11,100	3.9
Dry Sclerophyll Forests (Grassy)	7,141	2.5
Forested Wetlands	7,132	2.5
Heathlands	5,958	2.1
Freshwater Wetlands	2,250	0.8
Saline Wetlands	1,954	0.7
Grassy Woodlands	1,340	0.5
TOTAL	**283,169**	

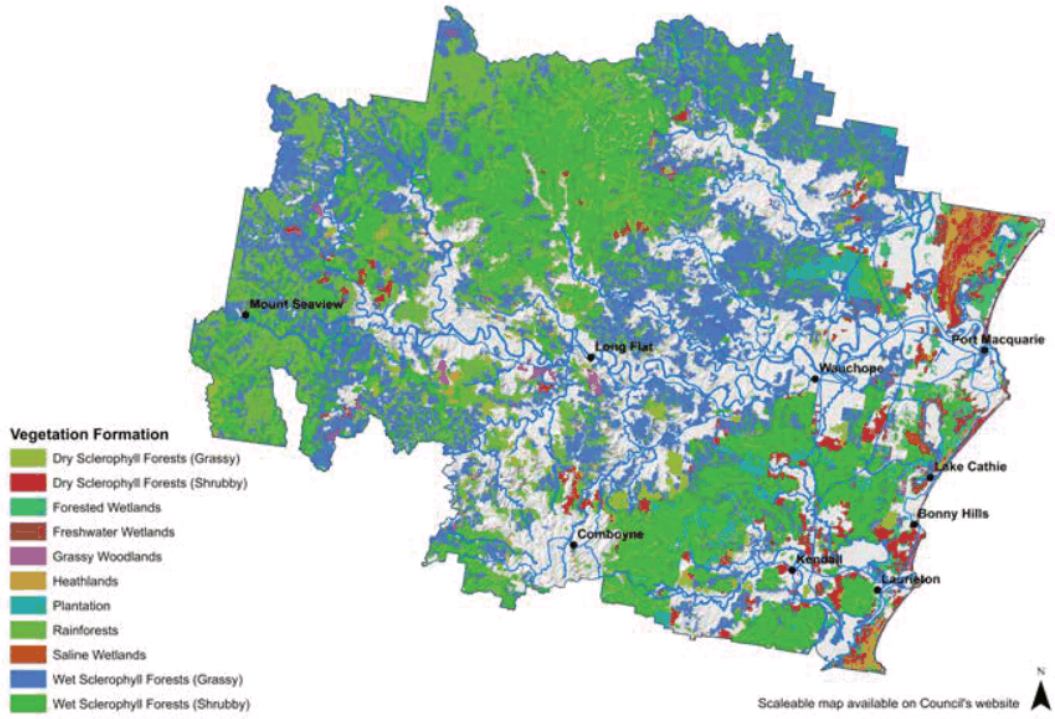


Figure 3. Broad Vegetation Formations across the LGA

It should be noted that while some vegetation formations are widespread, others are limited in spatial extent and/or are restricted to one landscape unit.

Separate to the broad vegetation formation maps, Port Macquarie-Hastings Council has completed very detailed **vegetation community** mapping of all remnants outside state forests and national parks across the LGA (see Box 6). In the LGA, 83 vegetation communities are described in detail and mapped at a very fine scale. The communities are too detailed to illustrate in this Strategy, however, an example of an area is included in Box 7, and the maps are available from Council upon request. The mapping has identified that while some vegetation communities are widespread (e.g. Grey Gum - Tallowwood - White Mahogany Grassy Forest), others are very limited in their extent (such as Themeda Headland Grassland). Council's mapping work also revealed an entirely new vegetation community, Lighthouse Gully Subtropical Rainforest, which is currently only known to occur in the Port Macquarie LGA.

The Port Macquarie-Hastings LGA supports an amazing array of species with some 1890 native plant species and 621 native animal species recorded for the LGA. Among these, there are around 140 threatened animals, 50 threatened plants and 9 threatened ecological communities as listed under New South Wales and/or federal legislation. These numbers are given as estimates only as the official list of threatened species changes frequently and knowledge on which species occur in the LGA is imperfect. Most of the ecological communities listed as threatened occur in the flattest, most fertile parts of the landscape where clearing has affected the largest area. For individual species, mammals, birds and plants together make up the bulk of the threatened species. Each of these animals and plants has different habitat requirements and life cycles. Some of the animals move widely around the landscape to satisfy feeding and breeding requirements (and thus require a 'whole of landscape' approach to conservation), while others are quite sedentary and may be highly reliant on one small area for their survival. Some of our threatened species are found nowhere else in the world, such as the North

BOX 6. VEGETATION CLASSIFICATION

A classification is any ordered grouping of objects. Vegetation in Australia is 'classified' using a range of features such as vegetation structure, physiognomy (i.e. physical appearance or features), and species composition (i.e. the mix of different plants). Classifying vegetation helps us to simplify and distil the complex patterns of vegetation that occur across the landscape. These classifications are also used to create maps and systems which are valuable tools for communicating fundamental information about the environment.

In New South Wales, the adopted standards follow the hierarchical classification system which is outlined in the book ***Ocean Shores to Desert Dunes*** by David Keith (2004). At the highest level, vegetation is assigned to a **vegetation formation**. These broad groups tend to be based on structural features, for example Rainforest, Grasslands or Heathlands, but may also be based on locations where they are found, for example Saline Wetlands or Alpine Complexes.

At the next level, the vegetation is assigned to a **vegetation class**. These groups are defined mainly by overall floristic (species) similarities, although they may also share structural and habitat characteristics. So for instance, nested within the Rainforest vegetation formation are Subtropical Rainforests and Cool Temperate Rainforests vegetation classes. A Subtropical Rainforest would be readily identifiable from a Cool Temperate Rainforest by the species present, with the former likely to support Rosewoods, Moreton Bay Figs, Red Cedars, and Booyongs and the latter readily identifiable by species such as Antarctic Beech and Mountain Laurel. Unfortunately, species patterns are highly complex due to geographic variation and other factors such as disturbance history.

Vegetation is then assigned to a **plant community**. These are assemblages of plant species that live together, generally at the same time. They are usually the features found in vegetation maps. They also frequently share structural similarities, although these vary based on the condition of the vegetation.

Changes in vegetation species are frequently representative of changes in other biodiversity as well, with some species, for instance, only occurring in one vegetation class. Some species may be so specific they only occur in one plant community type.

Box 6 continued

Within the Port Macquarie-Hastings LGA, vegetation mapping revealed 83 different plant communities, including 'derived' or 'novel' vegetation communities (e.g. Camphor Laurel Forest). These are referred to as Port Macquarie-Hastings Vegetation Communities.

Vegetation formation

Rainforest

↓

Vegetation class

Littoral rainforest

↓

Plant community type

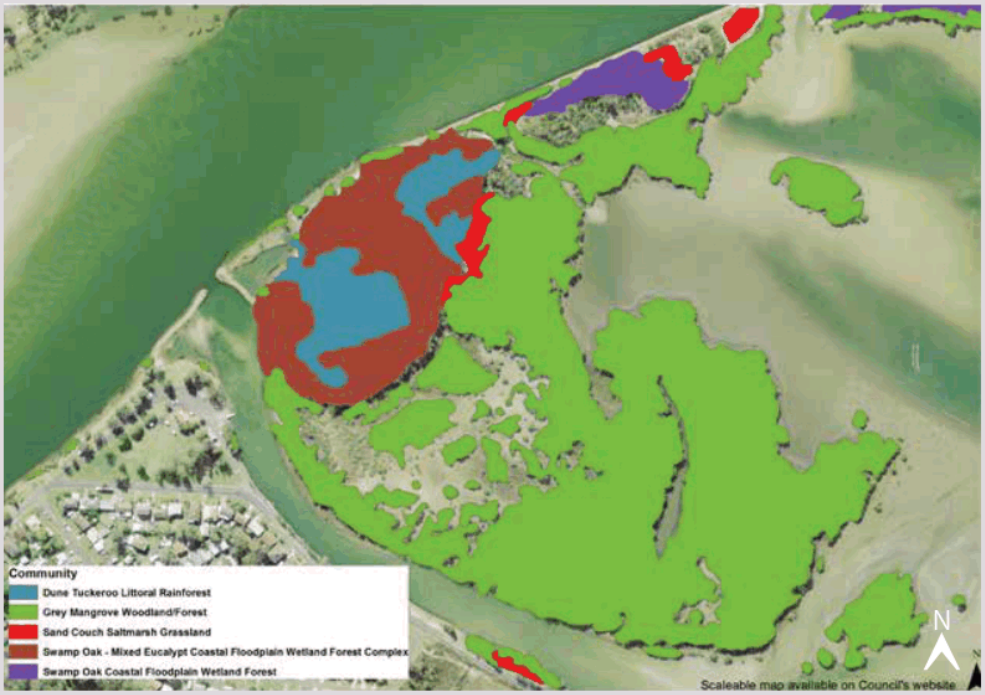
Brushbox headland littoral rainforest, NSW North Coast Bioregion and Southern Eastern Queensland Bioregion

Within New South Wales, a great deal of work is currently being undertaken to conduct comprehensive analysis of ***plant community types*** and associated mapping. Port Macquarie-Hastings Council is currently working with the Office of Environment and Heritage to align the Port Macquarie Vegetation Communities with the plant community types used under the Biodiversity Conservation Act.

The Biodiversity Conservation Act dictates that environmental impacts be calculated relative to these plant community types. At the local level, councils may wish to conduct their own vegetation community mapping, which further splits NSW plant community types into locally recognised discrete communities. Mapping plant community types is not easy because areas frequently include components of two community types — this is particularly true where the communities occur adjacent to each other (in what are called ecotones).

BOX 7. VEGETATION COMMUNITIES

As described above, vegetation communities are much more finely detailed than vegetation classes or formations, and at the local level, even more detailed than plant community types. An example of the diversity of plant community types that can be found in a small local area is shown in the figure for Googleys Island below. The area (or spatial extent) of some communities also varies over time. For instance, work by the Port Macquarie Hastings Council's Bushland Management Team has shown the recovery and increase in the spatial extent of the Littoral Rainforest on this island over time.



Brother Wattle (see Box 8). The habitat of some animals is principally found on private land (for instance 80% of primary Koala habitat in the LGA is on private land), and for other species, national parks and state forests provide important habitat. It is therefore clear that all stakeholders within the Port Macquarie-Hastings LGA (government agencies like Forestry Corporation of NSW and National Parks and Wildlife Service, private landholders, the community and Council) have a role to play in protecting threatened species and other plants and animals that are native to the LGA.

Having a large number of threatened species can be considered both a blessing and a curse. While it is a good thing that these species are still present and utilising habitat in the LGA, it is still unfortunate that their long-term persistence in the wild across the full extent of their range is not secure. A large number of threatened species in the LGA therefore represents an opportunity to help reverse their decline while there is still time and in a place where there is still hope. The new NSW *Biodiversity Conservation Act 2016* fully recognises that such opportunities be followed through with funding under Biodiversity Stewardship arrangements for private landholders.

BOX 8. NORTH BROTHER WATTLES

The North Brother Wattle is found only in the Laurieton district, occurring on North Brother, Middle Brother and South Brother mountains. It is not known from anywhere else in the world. North Brother Wattle usually grows on steep, dry, rocky slopes and in mixed dry forest on shallow soils, often under a canopy of White Mahogany and Grey Gum.

It is a tall shrub or weeping tree 7–20 metres high. The bark is smooth and grey when young and later becomes black and furrowed. Small branches are a maroon-brown colour. The leaves are dull green and narrow, up to 18 centimetres long, and have a small gland on the leaf edge just above the stem. From late spring to mid-summer, spikes of pale yellow globular flowers are produced followed by straight or curved, narrow woody pods up to 18 centimetres long.

It is at risk of extinction due to the low numbers of individuals known to exist, and it is threatened by inappropriate disturbance regimes, particularly fire but also road construction and Lantana encroaching habitat and preventing germination. The conservation of this species within its natural range in the Port Macquarie-Hastings Council LGA is therefore of high significance.

North Brother Wattle in flower. Photo © Louisa Billeter - https://www.flickr.com/photos/louisa_catlover/8165797045/

2.2 BIOLOGICALLY SIGNIFICANT AREAS IN THE LGA

2.2.1 OVERVIEW

While the Port Macquarie-Hastings LGA is undoubtedly important for biodiversity, not all areas have equal importance. For strategic planning purposes at the LGA scale, it is very important to understand the *relative* biological significance of a particular parcel of land or location compared with other locations. This is because examining locations in isolation reveals very little about their importance for the long-term conservation of biodiversity (or of a particular species) in the LGA as a whole. For instance, if a site supported only one species it may be concluded that this site was of low biological diversity and therefore of low importance. It might be concluded that this site had few ecological constraints for development and that the site was of low value for environmental funding opportunities. If the species was, for example, an Australian Raven which is widely distributed and very common, this would be an accurate conclusion ... But what if the one species on the site occurred nowhere else in the LGA? Clearly the goalposts have shifted entirely.

The Port Macquarie-Hastings LGA supports more than 2500 native plant and animal species. Therefore, the 'one species' example above is simplistic and the reality of conservation planning across the LGA is extremely complex. The large number of species in the LGA coupled with the fact that most species are not just limited to one easily identified site make strategic planning very complex. This is compounded by the lack of information on where species are distributed across the LGA, as not all areas have been surveyed.

A basic principle of biodiversity conservation is to ensure that species that are native to an area do not go extinct. Ultimately, the goal of biodiversity conservation is to conserve as much habitat as possible for as many locally native species as possible. In practice, this goal must be balanced against many competing land uses. For the Port Macquarie-Hastings LGA we used **Zonation**, a spatial prioritisation modelling software package, to identify which areas of land will work together to best conserve the habitats of *all* species that are native to the LGA. Zonation uses species distribution models as a fundamental input to the modelling process. These models show the location of the species' **predicted habitat** in the LGA.

Protection of habitat for species of limited spatial extent (i.e. species that only occur in a small area) is prioritised first and foremost to ensure their conservation. The modelling identifies the minimal area of land that will make the biggest contribution to biodiversity conservation. So, for instance, the best 20% of lands might represent habitat for 70% of species, whereas the best 80% of lands might still only represent habitat for 80% of species. The process of 'prioritising' land identified as having high biological importance does not, however, automatically ensure species conservation because:

- the mapping only identifies priority areas — it does not change planning rules or dictate what activities may or may not be appropriate
- no model is ever perfect and field verification is always required
- the model does not examine threats to species (such as predation from foxes or disease) in reserved lands
- the model does not examine minimum patch sizes or connectivity, both of which are fundamental to long-term species persistence (and hence the use of the GAP CLoSR analysis).

Nonetheless, spatial prioritisation models are of great value for strategic planning, particularly in examining landscape patterns and allowing all stakeholders to know the likely value of a parcel of land for biodiversity conservation.

Port Macquarie-Hastings Council contracted experts from the University of Melbourne in 2015 to undertake spatial prioritisation modelling to prioritise areas within the Port Macquarie-Hastings LGA based on their importance for representing the LGA's biodiversity. The assessment aimed to ensure that the best data and science is used to inform strategic planning and biodiversity investment in the LGA. The full report prepared by the university is available from Council on request. The work was done in conjunction with an analysis undertaken for the Upper Hunter group of Councils.

2.2.2 SPECIES DISTRIBUTION MODELS

For the Biodiversity Strategy, Zonation used the species distribution models that were developed for the broader Upper Hunter assessment, restricted to the Port Macquarie-Hastings LGA. This increased the statistical power of the analysis for the Port Macquarie-Hastings LGA and allowed for consideration of the full range of natural environments that various species are found in.

Two different types of models were used as inputs to Zonation:

- species distribution models which are based on available records (i.e. locations where the species is known to occur) and other environmental datasets (e.g. vegetation and soil)
- species presence–absence models which are based on available records only.

Information on where each species was known to occur was obtained from online public databases, such as BioNet, and from records held by Council. MaxEnt, a freely available software package, was used to construct the species distribution models.

Species distribution models were developed for 404 species for which there was sufficient data (i.e. at least 20 records). This included a range of native fauna and threatened plants (not all plants could be included and the available datasets were quite biased, e.g. there were a very large number of orchid records).

Species distribution models show the likelihood of finding a species in each 'pixel' (i.e. each 100x100 metre grid cell in the LGA) given the environmental conditions that exist in that pixel relative to the environmental conditions in pixels where that species is known to occur. See Figure 4. The environmental conditions were assessed using (one or more of) 18 ecologically relevant environmental variables to predict the distribution of species. These included variables describing the climate, vegetation, topography and soils (the full list of variables is shown in Appendix C). So for instance, if a species is known to occur in an area with vegetation type X, topography A, soil type B and climatic conditions C, D, E, other areas with these characteristics (X, A, B, C, D, E) would be predicted to have a high likelihood of supporting that species as well.

The vegetation variables included both CRAFTI mapping and the Port Macquarie Vegetation Communities mapping (see Table 1). The models considered the vegetation occurring in the 100x100 metre grid cell as well as the vegetation context of the area (e.g. how much rainforest, wet sclerophyll or dry sclerophyll forest a grid cell had around it). Where more than one of these environmental variables was significantly correlated (or strongly linked) to the known locations for a species, only the one with the highest explanatory power was retained in the model outputs. For example, the records for a species may all occur in a vegetation community that is restricted to only one soil type, but soil type is the more strongly linked variable so the final model only used soil type, not vegetation.

An important step was to account for observer bias. Publicly held species records such as BioNet are incredibly useful, however, they are strongly biased towards the areas that people visit regularly or areas that have been surveyed. In our LGA, this includes national parks and state forests, locations along the coast and the more populated areas of the LGA. Failure to correct for such geographic biases can produce models that reflect the levels of visitation or survey effort rather than true species distribution. Sampling bias grids were introduced into the modelling process to remove observer biases and ensure all areas were treated more equally. Average model performance was around 80% which indicates a robust model.

The species distribution model for one species, the Burton's Snake-lizard, was identified as being poorly modelled by MaxEnt. The species had only 63 records so it was converted to a presence–absence model. This resulted in 403 species distribution models being available for the analysis.

Species presence–absence models were developed for 32 species with less than 20 records in the LGA. To do this, the point locations were overlain with a 100x100 metre grid cell to indicate their known locations.

In total, 435 models were developed: 403 species distribution models and 32 presence–absence models. See Table 3 for a taxonomic breakdown and Appendix D for the list of species.

Table 3. Taxonomic breakdown of the 435 species models

Taxonomic group	Number of species
Frogs	37
Reptiles	50
Birds	265
Mammals	63
Threatened Plants	20
TOTAL	**435**

While species distribution models give an excellent oversight into potential habitat for a species, there may be a mismatch between the species' actual, current distribution and their predicted distribution. For example,

a species may be absent from a site that is predicted to be suitable habitat. There are various reasons why this may occur, for example:

- other species may be competitively excluding the species
- the species may have a low dispersal ability that prevents it from colonising the site
- there may be historic factors that have excluded the species from a previously occupied site (e.g. land use practices may have changed the habitat).

However, while these areas may not currently be occupied, they are likely to represent potentially suitable habitat for the species concerned and may still be important for conservation purposes. The models may also predict a species absence, when in fact it is present or visa versa. Field surveys are therefore always required to validate the models.

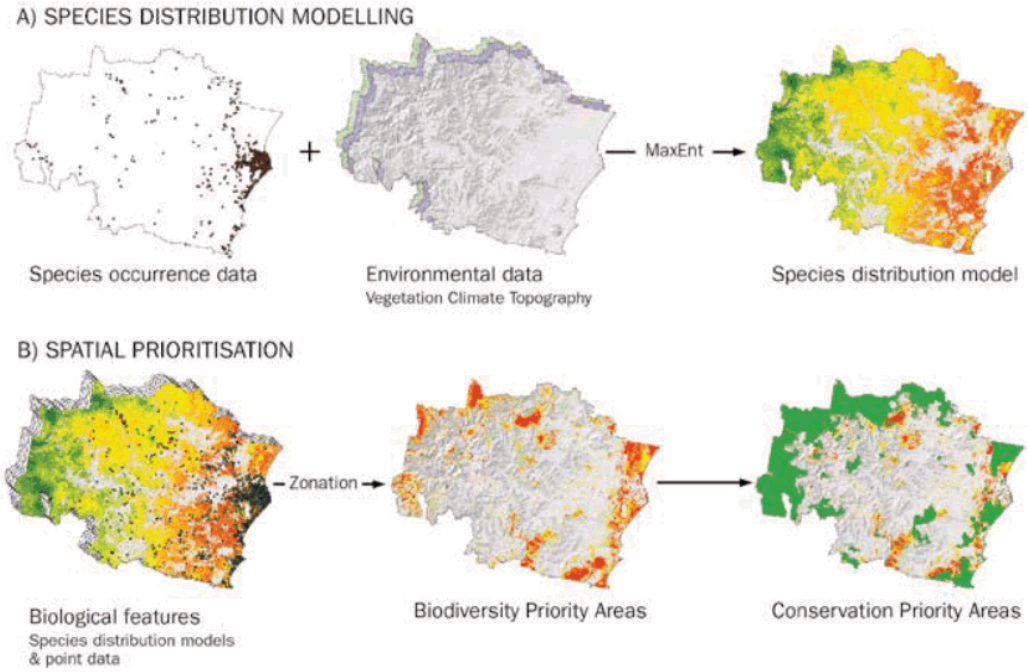


Figure 4. Schematic diagram representing the two-step modelling process used to generate the biodiversity prioritisation

a) Species records (occurrence data) were combined with environmental data to produce species distribution models.

b) These models were clipped to the PMHC area and combined with additional biodiversity features (i.e. point data for species for which there was too little data to complete formal modelling) in the spatial conservation prioritisation software, Zonation, to identify priority areas for biodiversity. We identified the top 30% of the landscape as conservation priorities ('Biodiversity Priority Areas'). By accounting for how well species are already conserved in currently 'Protected Areas' in the LGA (dark green areas on map), we can then identify priorities outside current Protected Areas for potential biodiversity investment ('Conservation Priority Areas').

2.2.3 ZONATION

Zonation conservation planning software: what it is and what it can do

'Zonation' was used to identify areas of high biodiversity value in the Port Macquarie-Hastings LGA. Zonation is a publicly available conservation planning software program, and a framework for conservation prioritisation and large-scale spatial conservation planning. It identifies areas, or landscapes, that are important for retaining habitat quality and connectivity simultaneously for multiple species (or any other biodiversity features). As such it provides a quantitative method for enhancing persistence of biodiversity in the long term. Zonation uses information about biodiversity features — such as species, their relative occurrences and biological needs — to create a hierarchical ranking of sites across any given landscape. See Figure 4.

The hierarchical ranking of sites is created through a 'removal' process where the software starts by assuming that all sites (i.e. 100x100 metre grid cells) in the landscape are to be protected. It then proceeds by removing the grid cells that cause the smallest marginal loss in conservation value (in terms of species abundance and diversity). This is repeated until all cells have been removed. The least valuable cells are removed first and the most valuable cells are retained until the very end. The order in which cells are removed produces a ranking, or priority value, for each cell. These can be grouped into classes (e.g. to identify the highest ranking areas). In this way, landscapes can be mapped according to their *potential* for biodiversity conservation.

The purpose is not to produce a detailed conservation plan for a large region, but to identify priority areas of the landscape that could be subjected to more detailed analysis and planning that accounts for other land-use pressures. It helps to identify the least important parts of the landscape, that is, those areas where human activity would cause the least harm to biodiversity value, as well as those areas that have high biological values and should be targeted for biodiversity protection and investment. The output of Zonation should be seen as an analysis of conservation value which feeds into a broader land-use planning framework where planning and political decisions are made and where other constraints and opportunities are considered.

Analysis for the Biodiversity Strategy

In this Strategy, priority areas are the 30% of sites which together best captured the biodiversity of the Port Macquarie-Hastings LGA. Thirty percent was chosen as the target for priority areas for several reasons, notably:

- Many studies (e.g. Walpole 1999; Doerr et al. 2013) have shown that landscapes where native vegetation cover falls below 30% experience rapid declines in biodiversity conservation and ecological services (a 'threshold' effect).
- Examination of the Zonation outputs for Port Macquarie-Hastings LGA showed that the amount of predicted habitat captured under various percentages increased most markedly up to 30% (and indeed, probably beyond). The top 30% of priorities encompassed, on average, 40% of species' predicted habitat.
- It is unlikely that even 30% of lands outside existing conservation reserve networks can all be subject to biodiversity investment works, either because of a lack of landholder desire/willingness, or a lack of available funds. A target of 30% is therefore likely to pick up sufficient lands to enable choice among species, locations and landholder wishes while still clearly identifying the 'most important' areas.

For each of the 435 species that were modelled (see Section 2.2.2 and Appendix D), an individual map showing the species' predicted distribution within the LGA (as produced by the species modelling) was used as input data for spatial prioritisation. Each model was 'clipped' to the Port Macquarie-Hastings LGA. All input layers were also restricted to areas of remnant native vegetation within the LGA. All species were assigned equal importance (i.e. not weighted). While there may be some merit to assigning threatened species a higher conservation weighting, if they are naturally rare in the landscape they will automatically be assigned a higher ranking by virtue of the way that Zonation operates.

Zonation was used in three stages. The first stage was to run a 'Tenure-Blind Analysis'. This tenure blind analysis identified the relative value of all areas for biodiversity across the entire LGA. Cells which were identified as '**Biodiversity Priority Areas**' in this analysis (i.e. the top ranked 30%) are of paramount importance for biodiversity conservation. They are likely to have values which are irreplaceable and should be protected wherever possible.

The second stage was to assume that lands within 'Protected Areas' were secure. The ranking process was then re-run to show the highest priority areas outside Protected Areas. These areas are referred to as **'Conservation Priority Areas'.**

Protected Areas include:

- National Parks and Wildlife Service estate (national parks, nature reserves, historic areas, state conservation areas)
- Forestry Corporation lands dedicated under the Forest Management Zones 1 or 2 purely for biodiversity conservation
- E2 Lands within Port Macquarie-Hastings Council's 'Managed Public Bushland' portfolio.

This analysis identified which lands outside formal conservation reserves could best complement the Protected Areas to ensure that the maximum amount of species habitat is protected.

The third stage was to remove Forestry Lands (i.e. areas with a private native forestry licence as of October 2016 and Forestry Corporation lands outside Protected Areas) from the Conservation Priority Areas layer to create **'Priority Action Areas'.** These areas comprised community land (i.e. Crown land managed by Council and Council-owned land) and private lands. These Priority Action Areas fed into the Priority Investment Layer and form priorities for funding (see Section 4).

These three analyses are explained in further detail below.

Analysis 1: Tenure-blind results – Biodiversity Priority Areas

In the first step, Zonation was run 'tenure-blind' to examine the relative biodiversity value of ALL lands across the LGA irrespective of their tenure. The results are shown in Figure 5 (in 10% priority classes). The highest ranked 30% of lands are referred to as 'Biodiversity Priority Areas'. These Biodiversity Priority Areas are likely to represent lands with values which cannot easily be replaced. For instance, they may support rare species that only occur in a single location or only a few locations in the LGA, or they may support a high diversity and abundance of native species.

The results showed that many of the Biodiversity Priority Areas were within existing Protected Areas (see Table 4). Werrikimbe National Park; the cross-section of Kippara and Mount Boss State Forest and Willi National Park; Limeburners Creek and Lake Innes nature reserves; the combined area of Dooragan, Crowdy Bay and Middle Brother national parks and Middle Brother State Forest; and along Comboyne, Upsalls Creek and Kerewong state forests were areas of high biological importance.

Concentrations of Biodiversity Priority Areas outside Protected Areas were found mostly along the coastal region near Camden Haven River in Kew and Rossglen; along Maria River at Torrens Island and Blackmans Point; and in several other locations such as Fernbank Creek, Riverside, North Shore and Thrumster East. More isolated areas of high priority were also present in Birdwood, around Koorebang Nature Reserve and along the Hastings and Forbes rivers.

The area of predicted habitat for each species encompassed by the Biodiversity Priority Areas varied greatly – from 22% to 100% – and averaged 47% for all species modelled. The amount of predicted habitat encompassed within these priority areas also varied between species guilds. For instance, shorebirds were the best represented guild with about 81.2% of species distributions within Biodiversity Priority Areas. On the other hand, frugivorous birds, cave-roosting bats and the group 'phalangers, phascogales and their predators' had the lowest relative representation, with only on average 36%, 37% and 34% of predicted habitat encompassed respectively. This is approaching the minimum 30% threshold below which significant declines are likely. These results are not surprising as shorebirds are found only at a few sites, which are quickly captured by the iterative process, whereas frugivorous birds are widely distributed across many sites in the LGA (and indeed require many dispersed areas to satisfy their requirements).

The amount of different land tenures that was encompassed within the Biodiversity Priority Areas is shown in Table 4.

Table 4. Biodiversity Priority Areas in different land tenures

Tenure	% of total Biodiversity Priority Areas
Protected Areas	50%
Forestry lands	24%
Community/Private lands	26%

The analysis shows that only half (50%) of Biodiversity Priority Areas are protected (see Protected Areas definition), the rest of these vitally important areas are not formally protected.

While some species have relatively large areas of predicted habitat occurring within Protected Areas, others do not, such that on average across all species Protected Areas only encompassed 36% of predicted habitat. Eight species occurred completely **outside** Protected Areas, namely: White-eared Monarch, Speckled Warbler, Brown Treecreeper, Brown Tree Frog, Black-chinned Honeyeater, Central-eastern Broad-nosed Bat, Rough-scaled Snake and Tyler's Toadlet. It should, however, be noted that many of these species were rare and/or under-surveyed in the study area indicating further work is required. Four of these species are listed as vulnerable under NSW legislation. Of specific 'guilds' of conservation interest (with the exception of shore birds the habitat of which were well-represented in Protected Areas), most averaged just over 30% of predicted habitat occurring within Protected Areas (again representing a minimum threshold). The above analysis shows that the most preferred habitat for numerous species does not align with existing Protected Areas. The best conservation opportunities for these species must therefore be sought outside these Protected Areas, necessitating additional prioritisation analysis.

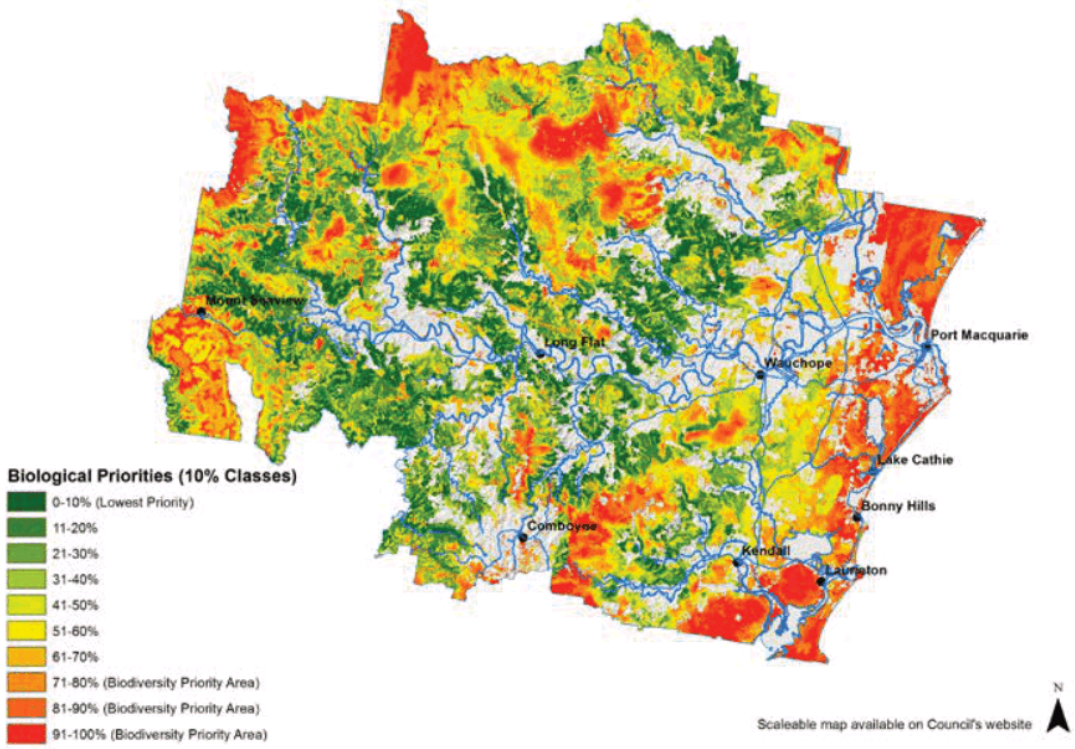


Figure 5. Biological priorities in the Port Macquarie-Hastings LGA, including Biodiversity Priority Areas

The figure shows areas of least biological importance (green) through to areas of highest biological importance (red). The top 30% are the 'Biodiversity Priority Areas'.

Analysis 2: Priorities outside of Protected Areas – Conservation Priority Areas

In the second step, Zonation was used to rank priorities on lands outside of Protected Areas (as described above). Zonation includes these Protected Areas in the top biodiversity priorities regardless of their actual predicted biodiversity value. This analysis allowed identification of areas that would best complement existing Protected Areas and therefore most effectively increase their representativeness in terms of local biodiversity in the Port Macquarie-Hastings LGA.

The highest ranked 30% are called 'Conservation Priority Areas' and are shown in Figure 6. Conservation Priority Areas were evenly divided between Forestry Corporation lands (50%, see Figure 7) and Community/Private lands (50%).

Conservation Priority Areas were found across the LGA with particular concentrations in the Kippara/Bril Bril, Kerewong/Swans Crossing, Batar Creek/Ross Glen, Bonny Hills-Lake Cathie, Dunbogan, Lake Innes, Upper Pappinbarra, Thrumster/Sancrox and Comboyne localities.

Analysis revealed that protection of all the Conservation Priority Areas (i.e. the top 30%) could increase the average coverage of species distributions from the 36% currently protected, to 73%. Even just securing the top 5% would increase the average coverage to 47% of species distributions. More importantly, securing this top 5% would ensure that no species would be left without protection and that all species would have a least 25% of their distribution protected within the Port Macquarie-Hastings LGA.

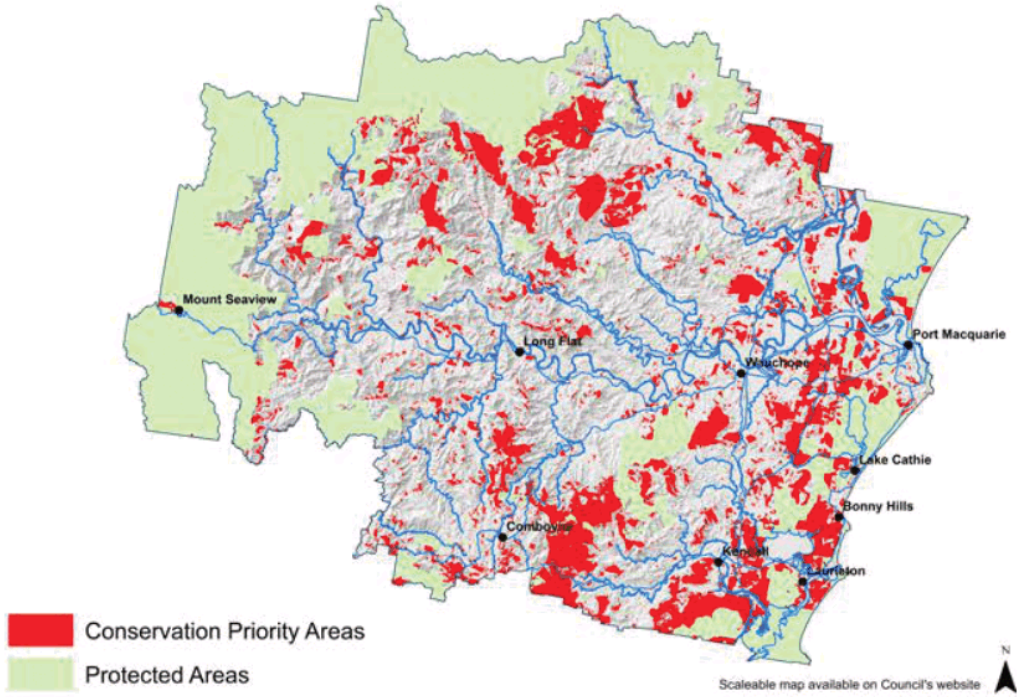


Figure 6. Conservation Priority Areas in the Port Macquarie-Hastings LGA

These areas, if protected, provide the maximum benefit to help ensure the conservation of all species distributions across the LGA (it is assumed that species habitats within Protected Areas are secure). It should be noted that other sites may be suitable for incentive funding or works for an individual species (the species distribution models can help to identify such sites).

Analysis 3: Priority Action Areas

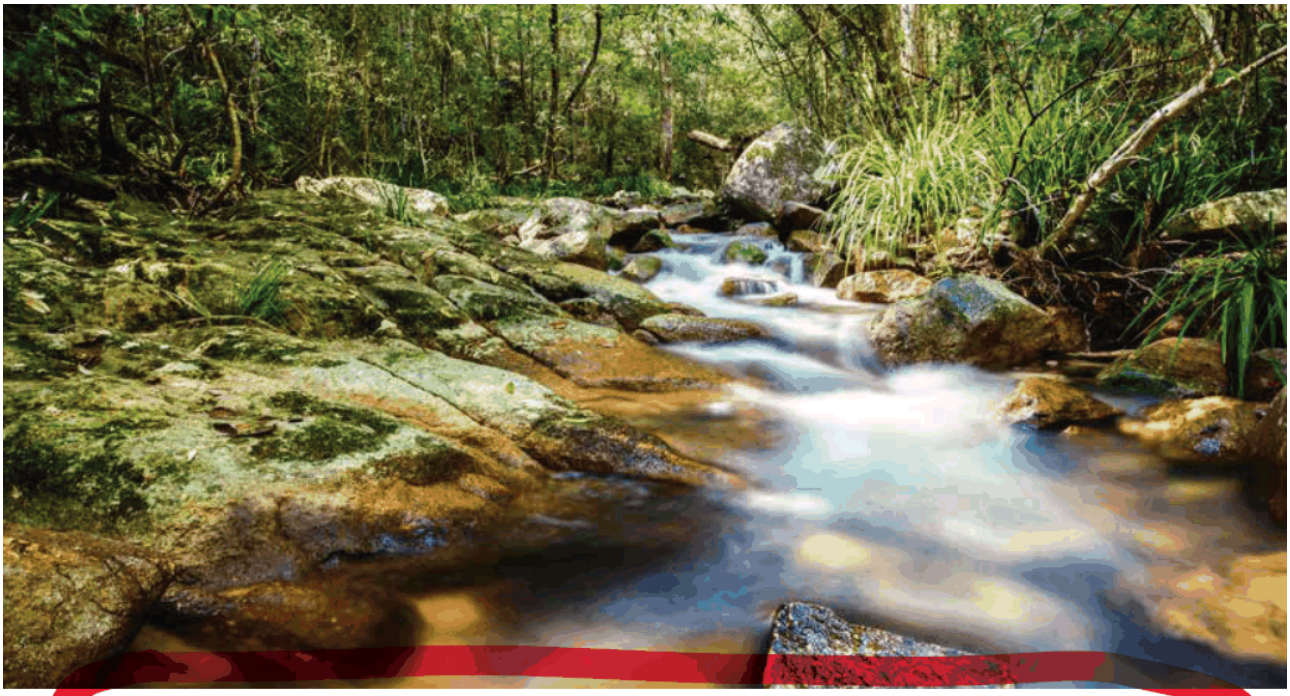
The final analysis was to identify 'Priority Action Areas' in the LGA.

For this analysis, Forestry Corporation lands were simply deleted from the Conservation Priority Areas layer. Forestry Corporation lands are areas with a private native forestry licence as of October 2016 and Forestry Corporation lands outside Protected Areas. As such, the Priority Action Areas are either community lands (i.e. Crown land managed by Council and Council-owned land) or private lands. They do not include 'protected' Council Lands which are part of Council's Bushland Management Program and already managed for conservation outcomes.

To ensure maximum interpretation of the Zonation model outputs and to ensure that the model was contemporary, additional mapping work was then performed. This included the following:

a) Removing all areas which have been cleared since publication of the aerial imagery which underpinned the Zonation model (i.e. the 2010–2012 imagery). This was performed using the latest Near Map imagery for any area as shown in "Appendix H. Near Map Extents" on page 129.

b) Working to identify which natural feature(s) the Zonation raster (gridded cell) 'polygons' indicated. This was done by examining all natural features in an area (aspect, slope, vegetation communities, riparian features, the underlying species distribution models and a knowledge of such species' biology) and then mapping those local features which best matched the Zonation model output.



c) Removing isolated individual grid cells, unless they were part of a 'chain' of natural features (as commonly occurred along ridge tops or drainage lines for example). A buffering tool was used to help inform whether cells were isolated or part of a chain.

The final Priority Action Areas Layer contained slightly more areas than captured by the Conservation Priority Layer. This is because either:

- no natural features differentiated the area identified by the raster polygon from surrounding features, or
- at a fine scale, there were a multitude of single raster polygons scattered through a locality and thus that whole locality was picked up using natural features.

These Priority Action Areas are a major component of the Priority Investment Layer (see Section 4). Port Macquarie-Hastings Council can direct biodiversity investment funds towards priority areas on Council land and similarly can work with interested private landholders, Crown Lands and other stakeholders to help them prioritise and direct biodiversity actions in areas where the most benefit can be gained. Council can also work with such individuals to help secure conservation funding opportunities.

Two percent (837 hectares) of Priority Action Areas are on land owned or managed by Council. The remaining 98% are on private lands. A total of 47,418 hectares of land are identified as Priority Action Areas, providing ample opportunities for works through the life of this Biodiversity Strategy.

On Council lands, three particularly large and consolidated areas of importance were identified by Zonation:

1. The area of bushland around the MotoCross Track. This land contains the unique Narrow-leaved Red Gum – Orange Gum Swamp Woodland and important Koala habitat.
2. The area of bushland around the Port Macquarie Airport (currently part of a Biocertification process which will protect key areas of the Airport lands in perpetuity). This area contains unique wetland vegetation communities and numerous threatened flora and fauna species, including important populations of the Wallum Froglet.
3. Areas around Kew, including lands associated with the new Kew Waste Transfer Station and associated environmental offset lands, and the Kew sewerage treatment works.

The latter example illustrates the importance of having models such as Zonation for strategic planning purposes. Zonation was not available at the time of this development, although the biological importance of the land was recognised and offset works conducted. Another relatively large area of biological importance on Council land was also found at the western end of Rosendahl Reservoir. This area is managed for weeds and vertebrate pests, and Koala stiles have been installed to allow Koalas and other arboreal marsupials to access this area. Having such areas highlighted as Priority Action Areas can help inform future planning decisions.

Examining Priority Action Areas on lands owned or managed by Council can help inform Council's bushland management priorities and indeed, since the Zonation

analysis was completed, some such areas have been added to the Bushland Management Portfolio using specific grant funding (e.g. the links running from Dooragan National Park to the estuaries using the Estuarine Lakeside Linkages project funding). The importance of these links was previously recognised by Council staff anecdotally and Zonation gave quantitative evidence to further support works programs.

On private lands, Priority Action Areas are quite widely distributed across the LGA. Localities with higher concentrations of Priority Action Areas included Thrumster/Sancrox, Lake Innes, North Shore, Lake Cathie, Bonny Hills, Grants Beach, Dunbogan, Kew, Comboyne, Byabarra, Ellenborough, Lakewood and Kippara. Consolidated areas of importance were also found on the North Shore and around the Maria River. One of these properties has subsequently been incorporated into Limeburners Creek Nature Reserve while another was purchased by the Koala Hospital for conservation opportunities.

Figure 8 shows the location of Priority Action Areas on Council owned/managed land across the LGA and Figure 9 shows the location of Priority Action Areas on private lands. It is important to note that, in recognition of their high biological values, many Priority Action Areas mapped using Zonation have already been incorporated into NSW regulatory mapping layers, such as the Biodiversity Values layer under the Biodiversity Conservation Act, the Coastal Wetlands layer under the Coastal Management Act and the Sensitive and Vunerable lands layers under the Local Land Services Act.

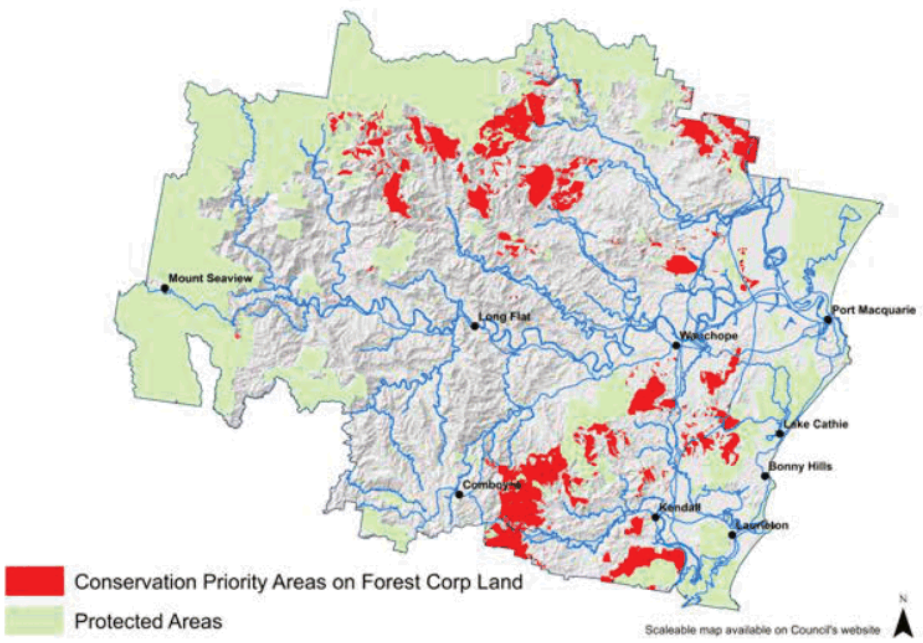


Figure 7. Conservation Priority Areas (as identified by Zonation) on Forestry Corporation lands in the Port Macquarie-Hastings LGA

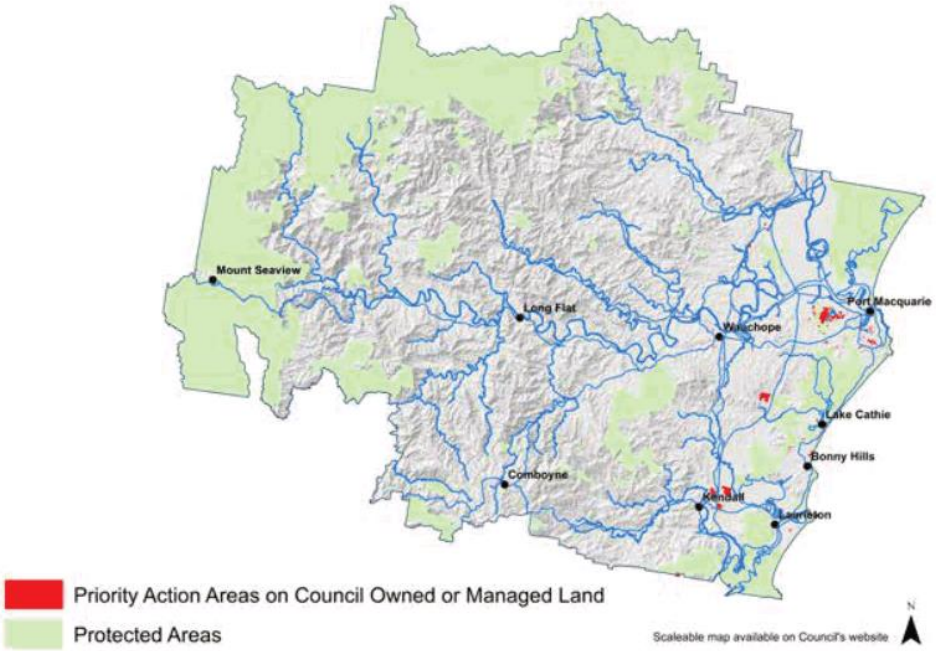


Figure 8. Priority Action Areas on Council-owned or -managed land in the Port Macquarie-Hastings LGA

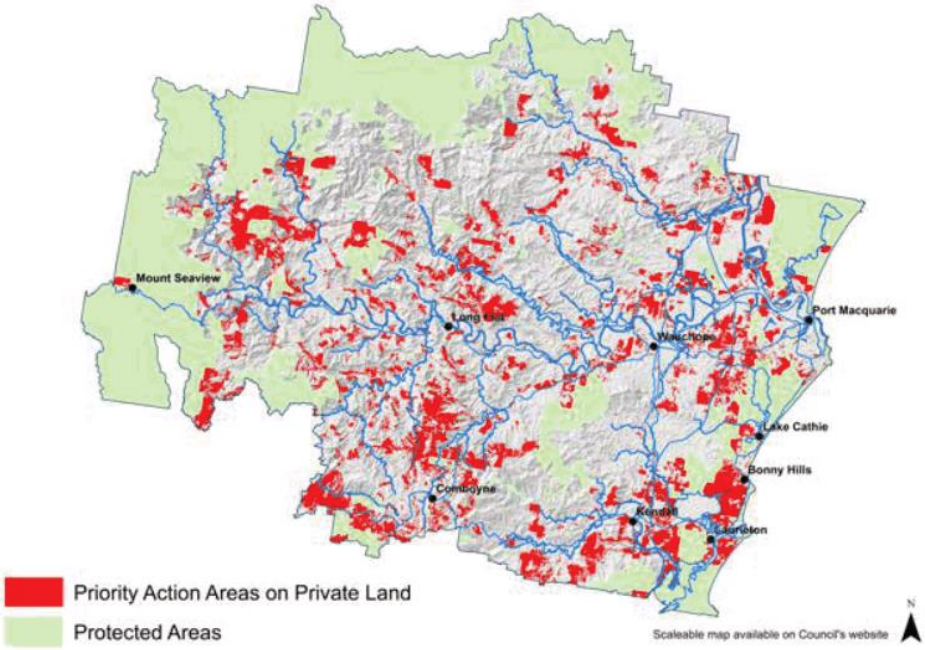


Figure 9. Priority Action Areas on private land in the Port Macquarie-Hastings LGA

The sites indicated show those areas where Council can work with interested landholders to better conserve biodiversity, such as through targeted investment schemes.

2.2.4 SUMMARY OF BIODIVERSITY PRIORITISATION ANALYSIS

The results of the analysis revealed three major findings.

The first was that the current Protected Areas within the Port Macquarie-Hastings LGA encompass or represent the distribution of species relatively well. Across all species and nominated guilds of conservation interest, the average proportion of predicted habitat within Protected Areas was 36%. However, there is notable variation among species: some species have their entire distribution within Protected Areas but others have none of their distribution within Protected Areas. Therefore, clear opportunities exist to improve biodiversity conservation within currently unprotected areas of the Port Macquarie-Hastings LGA.

The second point is that if additional relatively small, but well prioritised, areas were to be managed for conservation, all species could be adequately protected in the LGA (i.e. could have more than 30% of their predicted distribution being managed for conservation). Even just managing the top 5% of the identified Conservation Priority Areas for conservation would increase the average percent of predicted habitat to 47% and, most importantly, would ensure that all species have at least 25% of their predicted habitat being managed for conservation.

The third point is that community and, in particular, private lands can play a big role in biodiversity conservation with 25% of the Biodiversity Priority Areas occurring on these lands. When Protected Areas are excluded from the analysis, Zonation showed that 49% of the most important Conservation Priority Areas (or just over 28,000 hectares) are on private land.

It should be noted that this work is not 'static'. It represents a snapshot in time. If some areas of habitat/vegetation, particularly within high priority areas, are lost through clearing or other land use changes as a result of natural impacts such as fire or climate change this rapidly results in other areas automatically assuming a higher importance. For this reason, some areas that are not currently Priority Action Areas may emerge as being important priority areas in the future because they possess values being lost elsewhere in the landscape. Some areas may be so unique (again, particularly high priority areas) that they simply cannot be replicated or protected/represented elsewhere in the landscape (such as through biodiversity offset schemes).

Finally, it should be mentioned that like all data modelling exercises this work has unavoidable uncertainties. Nonetheless, the final models were statistically robust and therefore provide a significant improvement to our understanding of biodiversity patterns within the Port Macquarie-Hastings LGA and the relative value that any one area of land plays in the protection of species' habitat at the LGA scale (see Box 9). The work will have many applications, including:

- informing landholders about the value of their land for biodiversity
- informing prospective developers about the likely ecological constraints they may face on a parcel of land prior to purchase
- informing those interested in entering the rapidly burgeoning biodiversity offset market about where the best opportunities exist
- providing much-needed knowledge for those community members interested in applying for land management or biodiversity conservation grants (allowing them for the first time to express the importance of their grant in a broader context — a necessity in this increasingly competitive grant funding environment).

2.3 IMPORTANT WETLANDS AND COASTAL LAKES

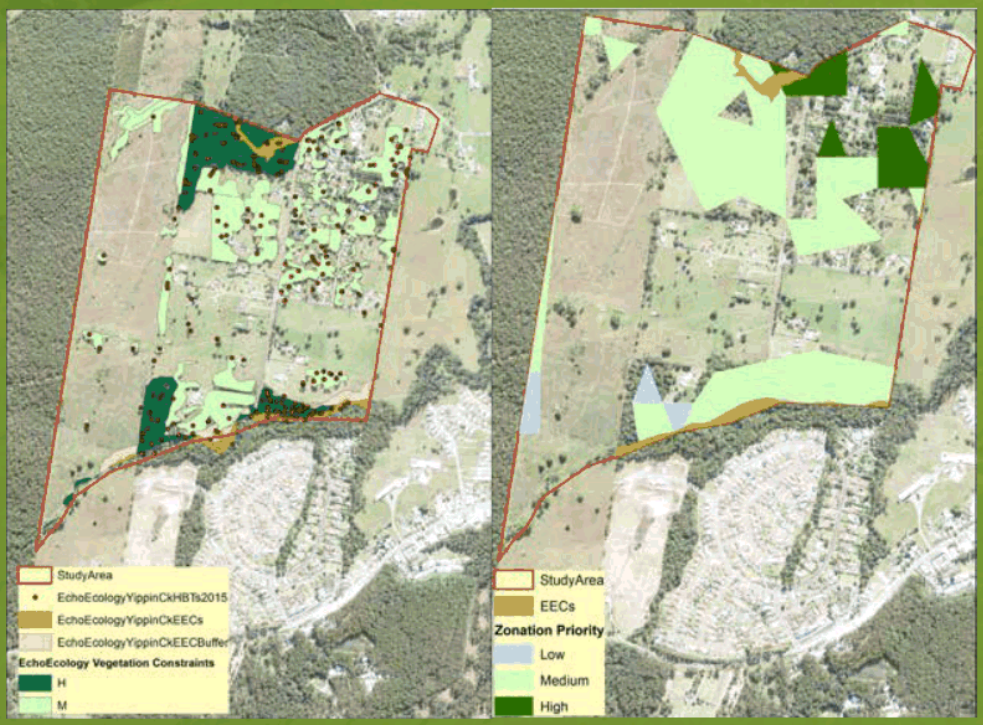
Estuarine wetlands, coastal floodplain wetlands and coastal lakes are ecologically, socially and economically important. They provide many ecosystem functions, ecosystem services (see Section 1.2) and habitats for a wide range of animals (e.g. waterbirds, fish, frogs and invertebrates) and water-dependent plants (e.g. sedges, rushes and various tree species), including many threatened species and ecosystems. Estuarine and coastal wetlands and coastal lakes also provide shelter, breeding grounds and nurseries for a variety of fauna, particularly insects, fish, frogs and waterbirds, including migratory birds listed under various international agreements including the Bonn Convention and the bilateral migratory bird agreements with Japan, China and the Republic of Korea.

The Port Macquarie-Hastings LGA has some very significant estuarine and coastal wetlands and coastal lakes located along its coastal strip. These include wetlands within Limeburners Creek Nature Reserve (listed on the *Directory of Important Wetlands in Australia*),

BOX 9. HOW DOES ZONATION COMPARE AGAINST ON-GROUND ECOLOGICAL ASSESSMENTS?

In 2015, Port Macquarie-Hastings Council contracted Echo Ecology to do a comprehensive on-ground ecological assessment of the biological values on an area of land near Wauchope (Yippin Creek) to determine areas of low, medium and high ecological constraints which could influence a proposed housing development on the site. The study examined a broad range of taxa, including mammals, plants, birds, amphibians and micro-chiropteran bats. The study also identified areas of threatened ecological communities. The results are shown in the figures below.

The results of this survey were compared against the tenure-blind outputs of Zonation because they provide an idea of the importance of a site relative to the whole LGA. Zonation has correctly identified that the majority of the land is of moderate biological value. It also identified that there is an area of higher biological value in the northern section of the site, but under-predicted the spatial extent of this. Zonation also ranked an area in the southern section of the site as 'moderate' that was identified by Echo Ecology as 'high' value. It ranked a few areas in the eastern section of the site 'high' which were identified by Echo Ecology as 'moderate' but which also supported numerous large hollow-bearing trees. Overall the results of Zonation should be considered as a good overall guide to the likely biological constraints operating in the area. The Zonation output also relates to a tenure-blind analysis of the LGA. Areas may have been ranked higher if using the priorities focusing on areas outside reserve networks.



Partridge Creek, Lake Innes, Saltwater Lake, Lake Cathie, Googleys Lagoon (Watson-Taylor Lake) and Queens Lake. Such areas are highly valued by the community and biodiversity alike. Saltwater Lake is considered to be in 'near pristine condition' (as per 'EcoHealth' Assessments undertaken by the University of New England). The location of these important biological assets (as identified and classified by the *Northern Rivers Biodiversity Management Plan*) is shown in Figure 10.

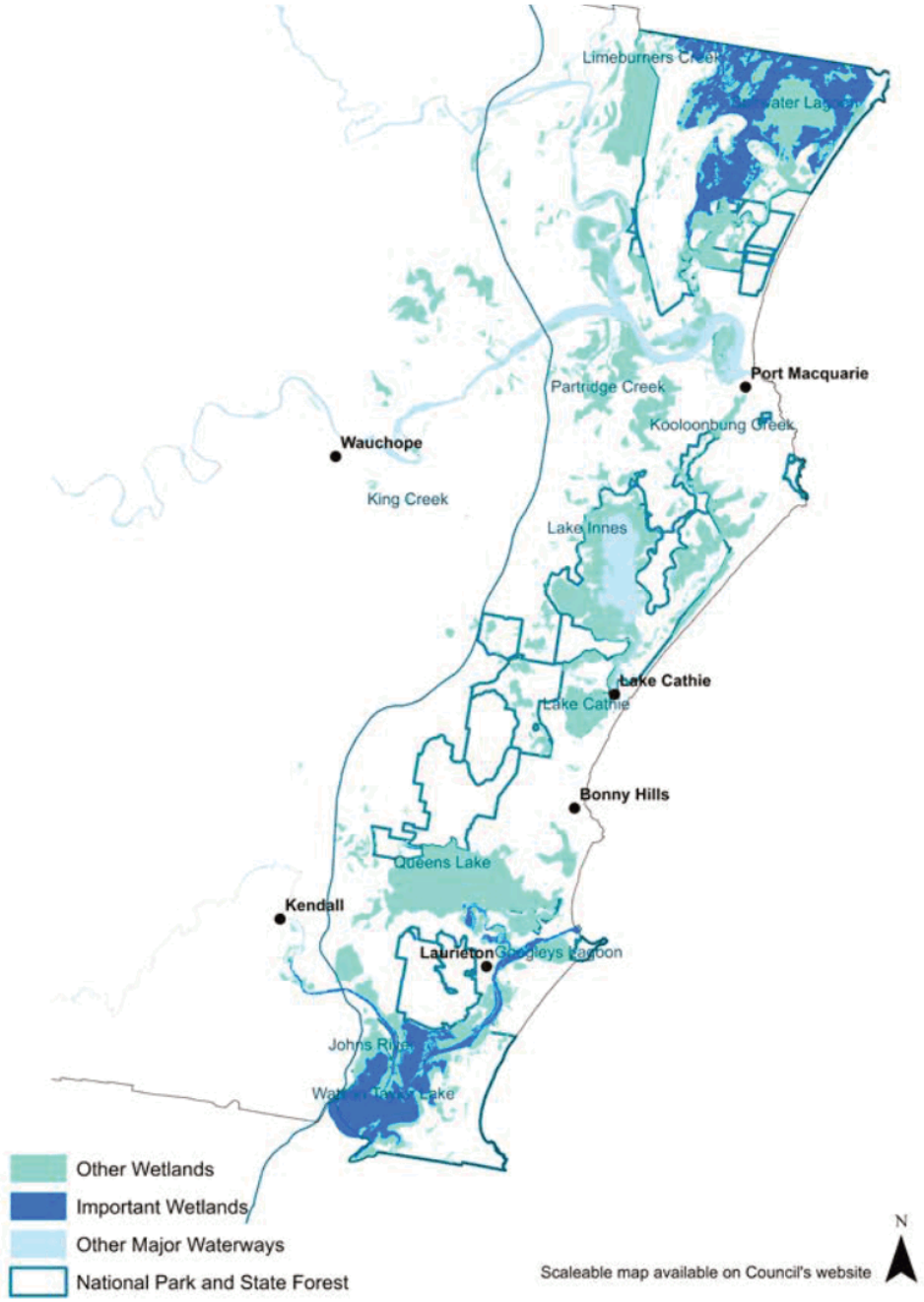


Figure 10. Location of coastal and estuarine wetlands and lakes

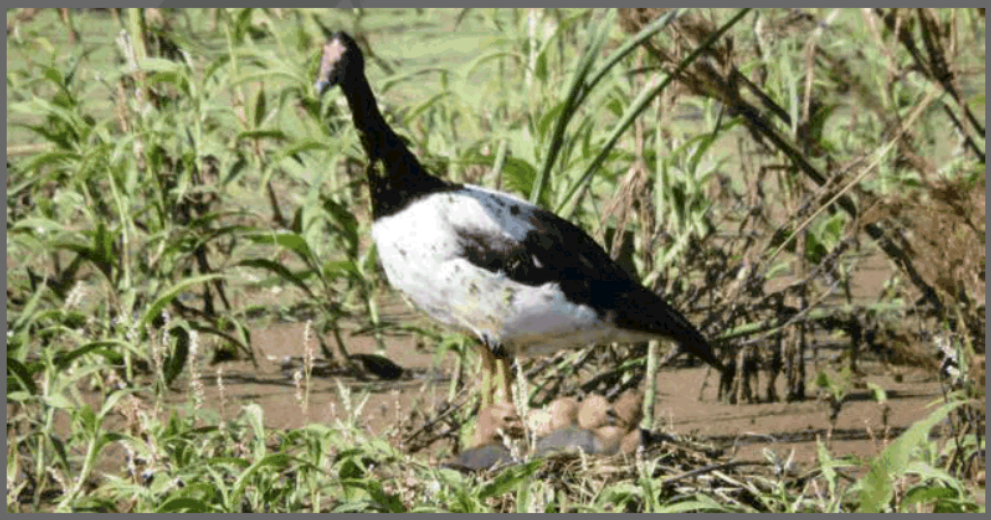
BOX 10. AN UNLIKELY PLACE TO START A FAMILY?

Magpie Geese are listed as a threatened species in New South Wales as they disappeared from south-east Australia by 1920 due to draining and overgrazing of their breeding habitat. Since the 1980s there have been an increasing number of records from central and north New South Wales. The only record of a breeding pair in southern Australia (until 2015!) was of introduced birds at the Shortland Wetlands near Newcastle.

Imagine the surprise when, in 2015, staff of Port Macquarie-Hastings Council not only saw three of these birds (one male and two females) inhabiting overflow ponds associated with the Port Macquarie sewage treatment plant, but then saw them building a nest! They quickly contacted Council's ecologist, who recommended that scheduled cleaning works of the ponds be delayed until the chicks could be fledged. The example shows that humans and biodiversity can at times happily co-exist, even somewhere as unlikely as a sewage treatment plant!

Magpie Geese are medium-sized waterbirds standing about 90 centimetres high and with a wingspan of up to 1.8 metres. With a black head, a distinctive knob on the crown (larger in males) which increases in size with age, and a hooked bill, they are quite unmistakable. Unlike other waterfowl, the Magpie Goose has half-webbed feet. The call is a resonant honk. Magpie Geese are mainly found in shallow water such as large wetlands and dams, especially with dense growth of rushes or sedges and with permanent lagoons and grasslands nearby. The Magpie Goose is a specialised feeder with wild rice, Oryza, some grasses and spike-rush forming the bulk of its diet.

During the breeding season Magpie Geese build nests in secluded places, usually close to wetlands (and sometimes in sewage treatment plants!). The nest is almost single-handedly constructed by the male. It usually consists of a simple unlined cup placed either in a floating platform of trampled reeds or built in tree-tops. Pairs of geese mate for life, but a male may have two females. Two females may occasionally use the same nest to lay the large, oval, off-white coloured eggs. All adults share incubation and care for the young.



Magpie Geese and young at the STP. Photo by Lark Whittingham.

The coastal lakes and wetlands of the Port Macquarie-Hastings area support numerous threatened species. In particular, some areas such as Partridge Creek and Lake Innes support notable populations of Black Bittern and Wallum Froglet. Black-necked Stork intermittently utilise many of the wetlands across the Port Macquarie-Hastings landscape, which is encouraging as the species has declined across the southern part of its range. The threatened Giant Dragonfly, one of the largest dragonflies in the world, is also known from wetlands within the Port Macquarie-Hastings LGA. Areas of Queens Lake are important roosting grounds for wading birds and shorebirds (many threatened) and indeed the Port Macquarie-Hastings area is included among the Key Biodiversity Areas of Australia (as recognised by BirdLife International), in part for its shorebirds, particularly the Sharp-tailed Sandpiper as well as wading birds such as the Australasian Bittern.

Even relatively small wetlands on private property, such as around King Creek, can be important. For instance, properties in this area are known to support Comb-crested Jacanas, which is unusual as the species is usually found only north of Grafton. Magpie Geese, now threatened in New South Wales and largely absent from southern Australia since the 1920s, have also been sighted in wetlands of the Port Macquarie area. Some even bred in the 'wetlands' of the Port Macquarie sewage treatments works! (See Box 10.)

2.4 THREATENED ECOLOGICAL COMMUNITIES

Ecological communities are groups of plants and animals that occur together in a particular area. This area is characterised by a set of environmental conditions which define suitable habitats, for example, soil types, landforms and climatic conditions. As a result, an ecological community may be distinguished from others by its characteristic species and the area in which it occurs (for example, a wetland on the coastal floodplain on alluvial soils). Ecological communities are complex, so correct identification often requires specialist advice.

Some ecological communities are threatened with extinction, either because their distribution has been significantly reduced by clearing (this is particularly true for those communities that occur on fertile land favoured for housing or agriculture), or because their distribution is naturally restricted which means that the whole community is susceptible to significant threats. Ecological communities may also be threatened if the ecological function of that community is undergoing a significant decline. For instance, a community may be particularly prone to invasion of a feral species resulting in a change in the structure and composition of the community and resulting in its fragmentation and degradation. Some communities are also threatened because they only occur under a narrow set of climatic conditions (e.g. alpine bogs). Ecological communities can be listed under state or federal legislation as critically endangered, endangered or vulnerable, depending on their risk of extinction.

With its coastal location and long history of agriculture and housing development on the rich coastal floodplains, the Port Macquarie-Hastings LGA supports numerous threatened ecological communities. The LGA is an important stronghold for many types, such as Littoral Rainforest, Lowland Rainforest, coastal floodplain forest communities and various wetland communities. Figure 11 shows the location of these important biological assets. The report outlining the methodology for mapping these threatened ecological communities is listed in Table 1 and available from Council upon request.

In addition to communities listed under state or federal legislation, an area may support 'novel' communities that have not yet been fully described or subject to the formal listing process. This is certainly the case in the Port Macquarie-Hastings LGA, where Council's vegetation community mapping has identified the presence of three ecological communities which are of particular interest because they:

1. have a narrow spatial distribution
2. largely occur outside formal conservation reserve networks
3. are experiencing significant declines in ecological function due to a range of external threatening processes.

These three communities are the Orange Gum – Swamp Gum Woodland (see Box 11), Serpentinite Grasstrees Woodland and the Lighthouse Gully Subtropical Lowland Rainforest. These areas require additional work to help secure their protection and to gain additional funding for works to reverse declines in their condition. Port Macquarie-Hastings Council are working closely with the NSW Office of Environment and Heritage to better determine other locally significant plant communities.

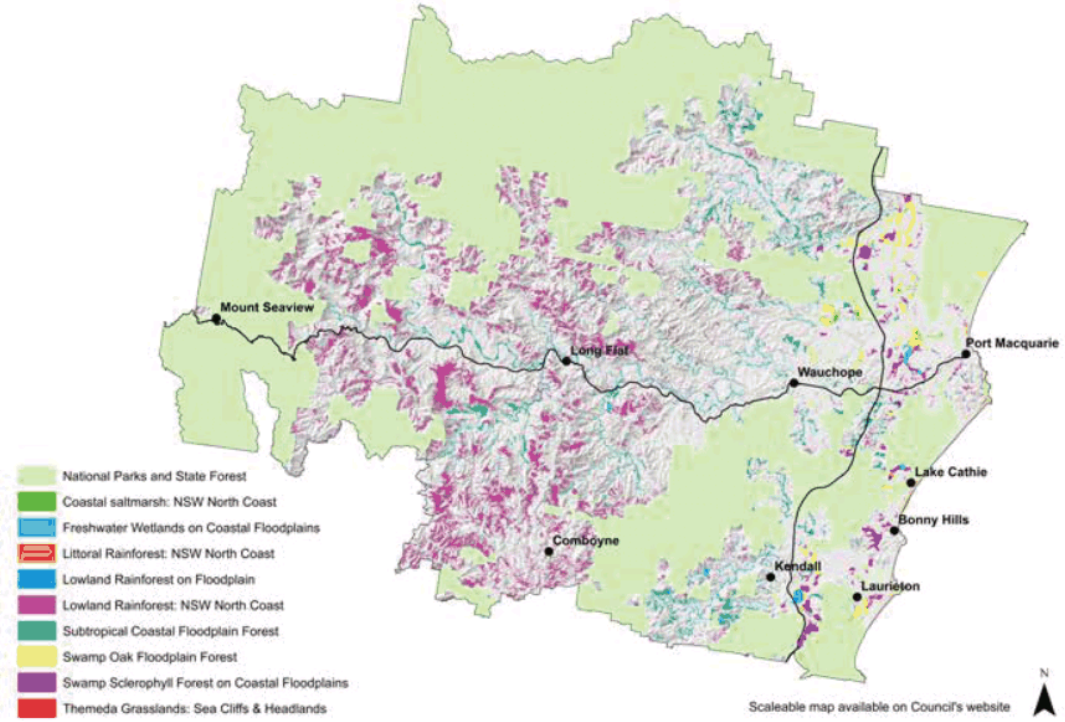


Figure 11. Location of threatened ecological communities within the LGA outside Forestry Lands or Protected Lands.

Some additional threatened ecological communities are likely to occur in the LGA, particularly in Protected Areas, such as Werrikimbe National Park, high in the Escarpment (e.g. Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions). Knowledge of their spatial extent is poor.

2.5 HIGH VALUE FOREST AREAS

The Port Macquarie-Hastings LGA has always been an important area for the timber harvesting industry. Cedar cutters moved into the area in the 1830s following establishment of the penal settlement in Port Macquarie in 1823.

Logging did not take place evenly across the landscape. Certain species with superior timber qualities and occurring in particular vegetation communities were selected and felled first and in higher quantities than other less desirable species.

The rush for 'red gold' saw the near extermination of Red Cedar from many rainforests in the region. Tallowwood, Blackbutt and various ironbarks were also heavily targeted for bridge timbers, railway sleepers, power poles and building timber. Large trees were also preferentially felled. Trees of large dimensions are known to offer superior habitat opportunities for many animals (see Box 12). Trees in flatter, more accessible areas were also preferentially logged for logistical and operational reasons. However, these trees on flat, more fertile country are also superior habitat for a range of animals, including Koalas and Swift Parrots, compared to trees on steeper, rocky country.

Learning from the loss of the valuable Red Cedar industry, from 1871 the NSW Government declared some areas to be 'forest reserves' (now called state forests). While some of these forests are still within Forestry Corporation of NSW estate, others have been reserved as national parks in recognition of their natural values and are

BOX 11. ORANGE GUM WOODLAND ON SERPENTINITE: A UNIQUE VEGETATION COMMUNITY WORTHY OF PROTECTION

Vegetation mapping by the Northern Rivers Catchment Management Authority revealed a spatially restricted vegetation community found only in the Port Macquarie-Hastings LGA. The community has no known equivalents in New South Wales or the Northern Rivers region. The community was classified as 'NR 222 Orange Gum woodland on serpentinite in the Burrawan – Cowarra area, NSW North Coast Bioregion'. More recent vegetation mapping by Biolink (2012) for Port Macquarie-Hastings Council confirmed the presence and floristic composition of this community and found that only 212 hectares of this community existed outside state forests or national parks (areas which were not mapped by Biolink).

This vegetation community is found only on serpentinite soils, which are known to give rise to unique assemblages of plants. The majority of serpentinite communities occur on dry rocky outcrops and are made up of native grasses and a diversity of forbs (herbaceous plants) and grasstrees. They tend to be treeless. The Orange Gum Woodland on Serpentinite community is unique for serpentinite in the area because it is dominated by a tree, the Orange Gum, which reaches around 10 metres high in this community. The area where the community occurs is also much moister than other areas supporting serpentinite vegetation communities.

The mid-high to tall woodland is dominated by Orange Gum and also includes Red Mahogany, Narrow-leaved Red Gum, Turpentine, Tallowwood and White Stringybark. Orange Gum, Narrow-leaved Red Gum and Tallowwood are important Koala food trees and therefore the Orange Gum Woodland on Serpentinite community is important Koala habitat. The mid-storey and understorey reflect the moist ground layer and include a variety of paperbarks, Swamp Oaks, tea-tree and Willow Bottlebrush. The groundcover is a mid-high sedgeland; again typical of wetter environments and not typical of serpentinite communities.

The term 'serpentine' refers to magnesium- and iron-rich rocks, principally serpentinite and peridotite, and the soils derived from them. Serpentine is a harsh environment for plants because of its low nutrient levels, high levels of metal (causing metal toxicity) and, in some cases, poor water-holding capacity. Throughout the world, vegetation on serpentine is more sparse, stunted and drier (xeromorphic) than the vegetation of most other soils. Distinctive vegetation communities and plants occur on serpentine, both because it excludes many plant species from the surrounding communities, and because it often supports specialist species ('serpentine endemics'). Many ecologists have noted that serpentine endemic flora provides excellent examples of the linkage between adaptation and speciation.

Vegetation communities on serpentinite often support a high abundance of wildflowers. Many plants have even developed specialised adaptations to exist on serpentine soils and such plants have been used to treat environmental problems by taking up certain heavy metals from polluted soil.

The NSW Threatened Species Scientific Committee Guidelines considers the geographic extent of vegetation communities and the number of locations in its consideration to list an ecological community as 'threatened' or 'endangered'. The narrow geographic extent of this community, as well as the threats to it from potential mining and inappropriate recreational uses as well as weed incursion, certainly would make this unique and restricted vegetation community a candidate. Port Macquarie-Hastings Council will continue to work with the NSW Office of Environment and Heritage to protect this community.

now managed by NSW National Parks and Wildlife Service (NPWS).

We are fortunate in our LGA to have outstanding examples of old-growth forests in national parks and state forests, such as Willi Willi National Park (formerly the Wilson River Primitive Reserve) and Middle Brother National Park. Other precious pockets of old-growth forest remain on private properties, scattered across the LGA, even in coastal areas, however the extent of these is quite limited and generally little understood. In the Coffs Harbour LGA, a study revealed that old-growth forests comprise less than 1% of all forests on private land (therefore a very small percentage of all freehold land in total). It is likely that a similar pattern occurs in the Port Macquarie-Hastings LGA due to similar land-use histories and landscapes. It is important that private landholders understand the supreme importance of such areas for biodiversity and receive appropriate advice and assistance to aid their long-term protection.

In the Port Macquarie-Hastings LGA we do not know where the older-growth forests, called 'high value arboreal forests' in the Coffs study, occur. This presents problems with working with appropriate stakeholders to aid its protection. It should be remembered that many of the remaining hollow-bearing trees we see before us date to the time of the convicts and earlier! The Coffs Harbour study indicated that the majority of trees within their LGA are at least 50–300 years away from developing hollows. This again indicates the importance of retaining large, old eucalypts within the landscape wherever possible, particularly in the context of a healthy, forested environment that offers fauna a full range of resources.

2.6 LOCAL PRIORITY AREAS, COMMUNITIES AND SPECIES

This Biodiversity Strategy was formulated with the assistance of an **Expert Panel** (comprised of members of NSW Government agencies from the North Coast and local practicing ecologists), and a **Community Panel** (comprised of a diversity of various stakeholders in the community, including those with a good deal of knowledge about biodiversity in the local area). Members of both the Expert Panel and the Community Panel were asked to identify local priority areas, communities and/or species.

The Expert Panel identified areas they believed were important for different species (see Figure 12). These areas were largely within Biodiversity Priority Areas identified by Zonation in the tenure-blind analysis (see Section 2.2.3). In a few instances, the areas depicted by the Expert Panel gave a bit more emphasis to an area than did Zonation. The values of the areas are listed in Table 5. In addition, the Expert Panel identified a number of vegetation communities they believed were of importance (see Figure 12).

BOX 12. OLD TREES: THERE'S NOTHING QUITE LIKE 'EM

Large eucalypts have undergone serious declines as a result of selective logging practices. The mighty eucalypts once seen regularly by timber-getters are now scarce to non-existent. Many of the largest 'giants' felled in the days of cross-saws and bullocks would have been 500 years or older when felled, and it takes many eucalypts more than 100 years to attain stately proportions and basic hollows.

The loss of large eucalypts has had serious consequences for wildlife. This is because large eucalypts offer superior habitat opportunities.

Old trees support **more hollows** as well as **different types of hollows** (e.g. hollows of different sizes, shapes, volumes and positions in the tree). Animals require this diversity of hollows in the landscape because each species has different hollow requirements. An abundance of hollows is also required, not only to support a good abundance of animals, but because many animals require more than one hollow to call home. Swapping hollows prevents the build-up of parasites, keeps would-be predators guessing and assists with moving in response to seasonal requirements.

Old trees also support the highest volumes of **loose and shedding bark** (also called 'decorticating' bark). This bark is home to a vast variety of invertebrates (e.g. spiders, bugs and insects) which are important prey items for many vertebrate animals. Some animals also like to roost under the flaking bark layers, notably geckoes and micro-chiropteran bats such as the Eastern Freetail-bat.

Large, old trees also support the highest amounts of **eucalypt blossom and nectar** flow. A study by the NSW Department of Primary Industries found that mature forest produces almost 10 times more sugar per hectare than recently logged forest. This resource is extremely important for birds such as honeyeaters, as well as mammals such as possums and gliders.

Large, old trees also have **better perching sites** for animals due to the size and diversity of branches. They also often support **epiphytes** (e.g. orchids, ferns, mosses and lichens) and **mistletoes** which are important food resource.

Clearly, old trees are vastly important resources in the landscape and every remaining one in the LGA is precious. Unfortunately nest boxes are a poor substitute for the real thing, require maintenance and tend only to attract common species. The loss of any remaining large eucalypts cannot be 'offset' in our lifetime, or our children's lifetime, or their children's lifetime, or their grandchildren's lifetime....

Photo © Bernard Dupont - https://www.flickr.com/photos/berniedup/10559975966/

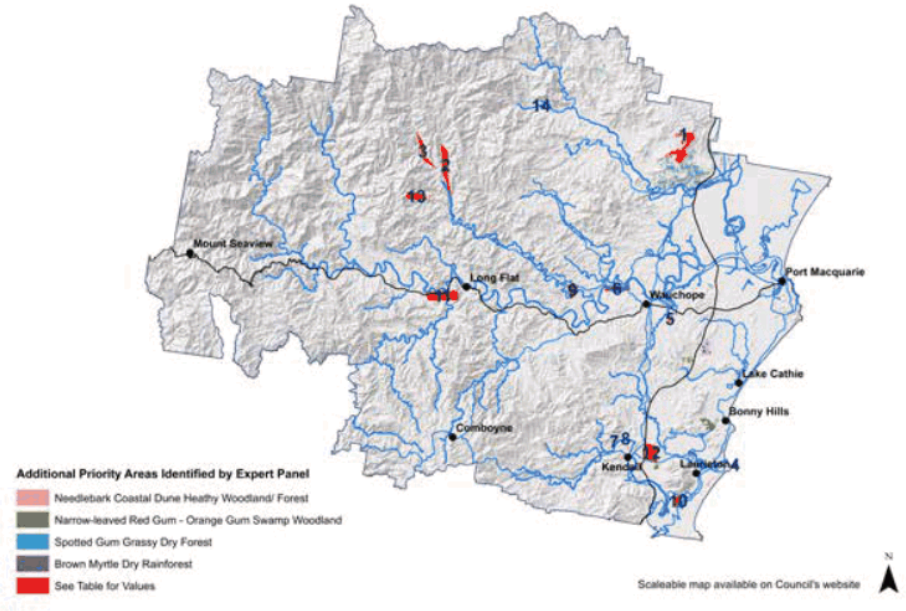


Figure 12. Priority areas identified by the Biodiversity Strategy Expert Panel

These areas are known by the Panel to support important biological assets, including healthy populations of threatened species (see key in Table 5), and rare vegetation communities (see map legend).

Table 5. Key to Expert Panel priority areas

Number	Broad location	Biological assets identified by Expert Panel
1	Red Hill	Red Hill Basalt. Complex vegetation assemblages, important populations of frugivorous birds and Pacific Bazas.
2	Pappinbarra Right Arm	Diverse and abundant fauna populations including many threatened species (e.g. Giant Barred Frog, Red-legged Pademelon).
3	Pappinbarra Left Arm	Diverse and abundant fauna populations including many threatened species (e.g. Giant Barred Frog, Red-legged Pademelon).
4	Diamond Head	Southern Limit of Coastal Pandanus.
5	King Creek	King Creek wetlands. Good populations of waterbirds including Comb-Crested Jacanas.
6	Hastings River	Important Rainbow Bee-eater nesting habitat on banks of Hastings River near Beechwood.
7	Logans Crossing	Flying-fox camp (first area), mostly Grey-headed Flying-foxes.
8	Logans Crossing	Flying-fox camp (second area), mostly Grey-headed Flying-foxes.
9	Brombin	Range extension of *Eucalyptus nobilis*.
10	Crowdy Bay	Substantial area of Needlebark Stringybark in Crowdy Bay National Park.
11	Long Flat to Ellenborough	Range extension of Drooping Ironbark.
12	East Kew	Important populations of arboreal marsupials (Yellow-belled Glider, Squirrel Glider, Brush-tailed Phascogale) and Wallum Froglets.
13	Cooks Trail	Sphagnum Frog at low elevations (and buried sphagnum).
14	Upper Rollands Plains	Maternal colony of Southern Myotis.

In contrast, the Community Panel predominantly identified species and ecological communities they felt were 'iconic' to the Port Macquarie-Hastings LGA. Those species/ communities that fell within the scope of this report (i.e. terrestrial biota) are listed below. In addition, both groups identified the limestone caves in the Toms Creek area and old mining shafts in the Kippara area to be critical habitat for cave-roosting bats. These have not been spatially depicted.

Important biological areas and species of interest:

Mammals

- Platypus
- Koala
- Brush-tailed Phascogale
- Red-legged Pademelon
- Red-necked Pademelon
- Long-nosed Potoroo
- Grey-headed Flying-fox
- Black Flying-fox
- Little Red Flying-fox
- Spotted-tailed Quoll
- Dingoes
- Hastings River Mouse (identified by Expert Panel)

Frogs

- Green-thighed Frog (Expert Panel)
- Green and Golden Bell-frog
- Giant-barred Frog

Birds

- shorebirds
- Eastern Curlew
- Glossy Black-cockatoo
- Rose-crowned Fruit-dove
- forest owls (Expert Panel)
- Brolgas and Black-necked Storks (Hastings River Drive)

Plants

- Antarctic Beech
- *Melaleuca biconvexa*
- Christmas Bells
- Orange Gum
- plants at northern and southern end of their range (e.g. Coastal Pandanus, Lesser Swamp-orchid, Silver Bush)

Invertebrates

- Spiny Crayfish (*Eustacus* spp.)
- native bees
- Fritillary Butterfly (Expert Panel)

Communities

- Serpentinite Grass Tree Woodland
- littoral rainforest
- wetlands
- alluvial terraces
- mangroves and sea grass
- hardwood forests
- Swamp Mahogany/ Forest Red Gum Associations for Swift Parrots

3. CONNECTING THE DOTS: LANDSCAPE CONNECTIVITY IN THE LGA

3.1 INTRODUCTION

A significant consequence of increased human activity and development is the loss of habitat, most generally caused by habitat clearing and destruction. When habitat is lost, the original contiguous natural landscapes become subdivided (fragmented) into a mosaic of remnant habitats surrounded by the 'landscape matrix'. This process is known as **habitat fragmentation**; and habitat fragmentation reduces **habitat connectivity**.

The **landscape matrix** which surrounds remnant habitat will exist in different configurations and be comprised of different elements depending on the land-use history of an area. For example, the landscape matrix may be predominantly built elements such as buildings and urban areas, industrial areas, and highways and roads. Or it may be comprised of unbuilt elements such as rural landscapes with native grasses, paddocks and scattered trees. In the case of Port Macquarie-Hastings LGA, the landscape matrix surrounding remnant vegetation is a mix of built and unbuilt elements.

Some parts of the landscape matrix will be more 'permeable' (i.e. able to be crossed by species) and therefore provide greater connectivity. Rural landscapes with native grasslands and scattered paddock trees are a good example of what a '**permeable matrix**' is for many species. On the other hand, an industrial estate with a busy four-lane highway would be a relatively '**impermeable matrix**' for many species.

3.1.1 HABITAT FRAGMENTATION

Habitat fragmentation is a serious threat to wildlife because many of the habitat patches that remain are too small to support viable populations of biota in the longer term. Also, habitat fragmentation directly influences the ability of wildlife to move about the landscape to breed and feed. Specific issues are discussed here.

Reduced genetic exchange

Habitat fragmentation reduces genetic flow between populations and therefore reduces genetic vigour and the resilience of the population to disturbances, such as disease and climatic variability. Isolated habitat patches may be restricted from any genetic exchanges, resulting in in-breeding depression.

Reduced patch size

The net effect of sustained habitat fragmentation is a reduction in the average size of remaining habitat patches, such that they no longer provide the resources necessary for an animal's long-term survival. Some animals have very large home ranges (for instance a Spotted-tailed Quoll requires several hundred hectares) and small patches cannot cater to their long-term existence. Exceptions occur when animals may satisfy some or all of their life-history requirements by, for example:

- using different elements of the landscape matrix (e.g. mobile species using scattered paddock trees for shelter or feeding, or honeyeaters using urban gardens)
- by occupying multiple *connected* habitat patches (e.g. several small habitat patches that occur in close proximity separated by a 'permeable' matrix).

Increased edge effects

Smaller habitat patches tend to have an increased edge:area ratio. Larger, more blocky shaped patches have a lower edge:area ratio than long, narrow patches of vegetation. Edges of habitat patches offer less intact habitat for flora and fauna, and often have higher weed loads, and suffer from wind effects and sunlight.

Increased susceptibility to disturbance events

Habitat fragmentation often results in a steady reduction in populations of species across the landscape because individual populations in isolated patches are easily lost as a result of random (i.e. stochastic) disturbance events, such as wildfire and drought. This is because animals are unable to leave the 'habitat island' or if they do, they are quickly lost in an inhospitable matrix. Such patches cannot then be recolonised as they are isolated from any other populations.

Inability to perform seasonal movements

Many animals move in response to the seasons. Such animals include 'latitudinal migrants' (for example, the Swift Parrot moves from Tasmania as far as south-eastern Queensland each year) and 'altitudinal migrants' (for example, the Noisy Pitta moves from rainforests high in the hinterland to the coastal floodplain each winter). Many other species are 'locally nomadic', moving about widely between habitat patches to find sufficient resources (fruit-doves and honeyeaters are classic examples). During the breeding season, some animals such as the male Koala will move widely to find mates. Many animals will also move to drought refuges in response to drier periods. All of these animals require their multiple habitat patches to be connected at various scales, or at least be within a permeable matrix, for them to perform these important seasonal movements.

3.1.2 HABITAT CONNECTIVITY

Connectivity can be defined as the extent to which a landscape facilitates the movements of organisms and their genes. Connectivity operates at multiple scales relative to individual species' movement abilities. What is therefore connected habitat for a small, mouse-sized Brown Antechinus is very different to what is connected for a highly mobile Black-necked Stork. Different species are also able to move through different types of 'landscape matrix' with various levels of success. Some landscape matrixes will be more permeable to some species than others. For example, a Noisy Miner readily moves through and occupies a range of highly modified habitats, whereas a Paradise Riflebird is highly restricted to high quality consolidated habitat. These different abilities and tolerances for modified landscapes mean that each species views the relative habitat connectivity of the same landscape differently.

Connectivity is built around core habitats (also known as refugia) including areas protected in formal reserves and areas of private land. These core habitats are linked across different land uses by patches of remnant vegetation, corridors and 'stepping stones'. So connectivity is not just about corridors — it includes core habitats, small and large patches of vegetation, stepping stones, areas managed for conservation, and remnant vegetation such as scattered trees and narrow corridors along roadsides or riparian areas (see Figure 13).

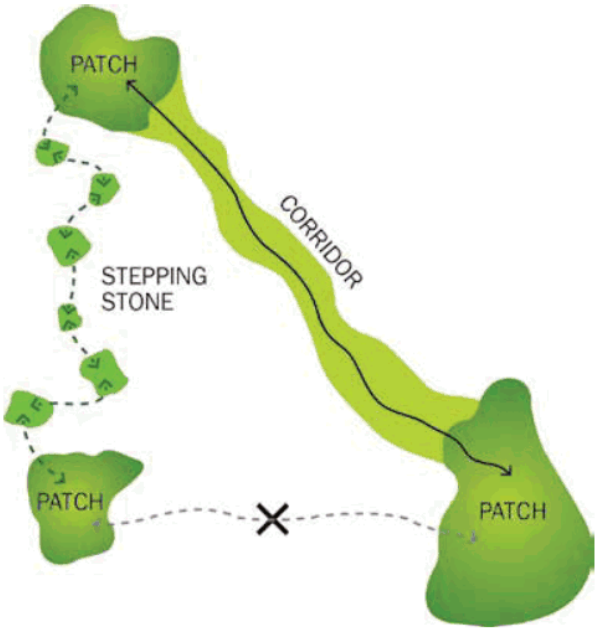


Figure 13. Examples of habitat patches and various kinds of connectivity within the landscape matrix.

In this example, some animals are able to cross from patch to patch using the corridor or the 'stepping stones', but are unable to cross the open ground to move directly between the two lower patches.

Wildlife corridors are typically thought of as vegetated (i.e. woody, treed) areas stretching across the landscape and linking up areas of more consolidated **patches** of habitat. In fact, **corridors** come in all shapes, sizes and types. For example, some species disperse across suitable grasslands, while others move from rocky outcrop to rocky outcrop.

Corridors also exist at different scales, from continental to local. For instance, The Great Eastern Ranges Corridor extends 3600 kilometres from the Victorian Alps to the Atherton Tablelands in Far North Queensland. The Great Eastern Ranges Corridor contains Australia's longest and most unfragmented north–south mountainous landscapes and habitats.

Within the North Coast Bioregion, wildlife corridors have also been identified at the regional and subregional scale (see Figure 14 and refer to Scotts, D (2003), Key Habitats and Corridors for Forest Fauna. Occasional Paper 32. NSW

NPWS for more information on how these were derived). These broad-scale corridors help to identify major woody-vegetated areas forming natural corridors (e.g. along river systems) and in so doing identify important pathways for altitudinal and latitudinal migrants and areas that link key populations. Nonetheless, they are restricted to identifying broad patterns and are limited in number. Such broad-scale corridors alone do not provide the full range of connectivity required for effective conservation.

Every day, all around us, there is a flow of biota and associated genetic material between parcels of habitat. Such flow does not always occur along lines of woody vegetation or mapped corridors, and in many cases the distances travelled between habitat is small. For short distances, animals are able to cross open space, or use stepping stones such as isolated paddock trees. Seeds may even wash across open ground from one habitat patch to another. Increasingly, empirical studies are revealing that the dispersal movements of animals in fragmented landscapes depend on very fine-resolution elements of structural (woody) connectivity, such as roadside corridors, scattered paddock trees or small patches. These short distance **connections** are numerous, and represent the reality of how the landscape is actually working every day. Some such links are more important than others, representing the 'vital link' in the chain of habitat.

Empirical studies also highlight the importance of **habitat patches** along linkages (e.g. vegetated corridors or stepping stones, such as scattered trees). Just as we need regular pit-stops for food and rest while driving along the highway, so too dispersing biota need regular access to patches of habitat to survive. Studies of dispersing woodland birds have shown that they will only move from a habitat patch along a linkage for about 1.1 kilometres. If no habitat patch is encountered at this distance, they will return to the original habitat patch. The spatial distribution of habitat patches is therefore fundamental to species' survival and ability to move through the landscape. Traditional corridor models fail to highlight their importance.

New modelling approaches such as 'GAP CLoSR' (The General Approach to Planning Connectivity from Local Scales to Regional — see below) are seeking to model these finer-scale connectivity features at the landscape or regional scale. These new approaches consider a number of these factors, such as:

- biota will cross 'gaps' in the landscape only for finite distances
- different elements of the 'landscape matrix' have different crossing costs, with some simply being impassable
- biota can only move along links for finite distances unless patches are encountered
- fine-scale elements, such as scattered trees, are an essential part of landscape connectivity.

The underlying data is empirical based on expert opinion.

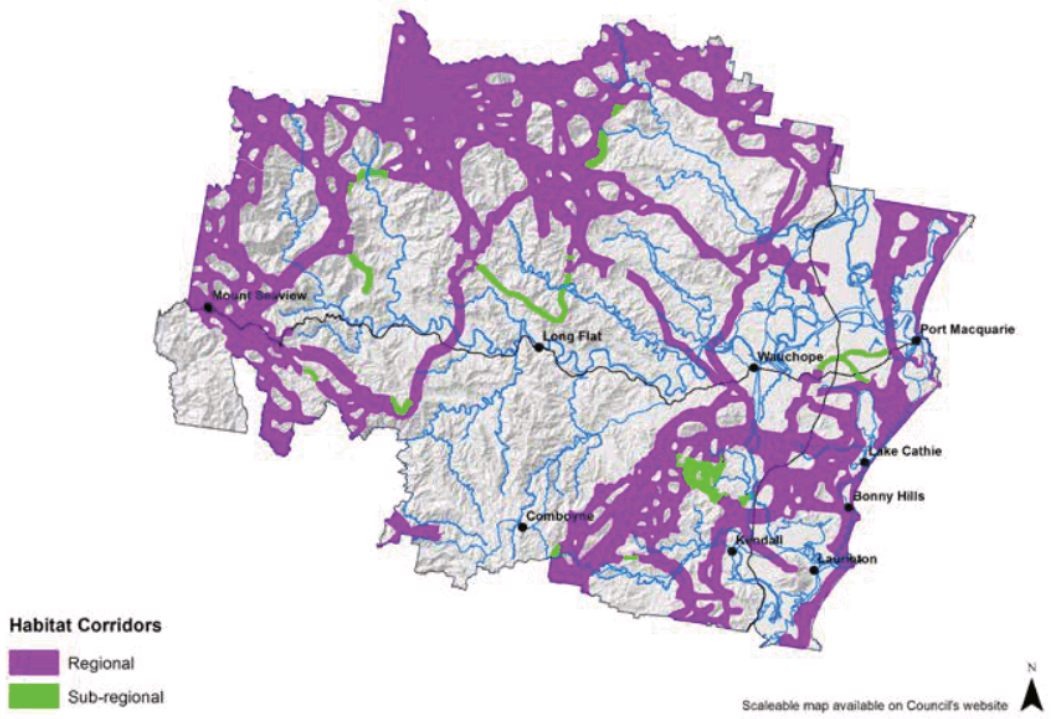


Figure 14. Regional and subregional corridors in the Port Macquarie-Hastings LGA (as identified in the Northern Rivers Biodiversity Management Strategy)

Source: Scotts, D (2003), Key Habitats and Corridors for Forest Fauna. Occasional Paper 32. NSW NPWS

3.2 MAPPING CONNECTIVITY IN THE LGA

3.2.1 AN INTRODUCTION TO GAP CLOSR

As habitats become increasingly fragmented, smaller landscape features such as paddock trees and narrow strips of roadside vegetation become more important. These features can act as stepping stones to connect larger patches of vegetation.

GAP CLoSR (The General Approach to Planning Connectivity from Local Scales to Regional) is a software package that is able to pick up these small-scale features at a regional level.

> GAP CLoSR identifies the most important patches and appropriate locations for wildlife connectivity based on the habitat and dispersal requirements of target species.
>
> (Lechner & Lefroy 2014)

The software uses high resolution spatial data (aerial imagery) to examine the environments encountered by species in the landscape and considers these against the actual movement patterns of species, groups of species, or 'biodiversity' as a whole. For instance, will a species cross open ground and, if so, for what distance? How big does a habitat patch need to be to sustain a population of that species? If moving through stepping stones, such

as isolated paddock trees, how far would it use these stepping stones before giving up?

GAP CLoSR is a free software modelling program developed by the University of Tasmania (Lechner & Lefroy 2013), and has previously been used to aid strategic planning by local councils, such as through the Upper Hunter.

3.2.2 INPUTS TO GAP CLOSR

GAP CLoSR uses a number of inputs to map the important patches and locations for wildlife connectivity — referred to as the **connectivity map** in this strategy. The fundamental layer that drives the analysis is a map of woody vegetation. Other inputs represent the habitat and dispersal requirements of target species (the target species may be a single species, or in the case of this Biodiversity Strategy, multiple species which are all encapsulated under the habitat and dispersal parameters set). The model also uses a land surface crossing costs layer. These inputs are discussed here.

Woody vegetation layer

A 'Woody vegetation/No woody vegetation' layer was derived as an input to GAP CLoSR. This was based on the latest aerial imagery available for any given area of the LGA (ranging from 2013 for the Camden Haven area to 2010 for the western hinterland areas). The aerial imagery was converted to a grid (raster) layer using 5 metre pixels (i.e. 5x5 metre grid cells) in ArcGIS software. Reflectivity (colour-matching) software was used to accurately pick woody vegetation from non-woody vegetation across the LGA. Given that most trees within the LGA easily have canopies equal to, or larger than, the pixel size used, any grid cell accurately predicted whether it was occupied by a tree or not.

The resultant layers were then visually checked by Council staff to find and remove any errors across the LGA (for instance, the verdant green of sewage treatment ponds often reflected as vegetation). Areas known to have been cleared since the aerial imagery was taken were also manually removed, as were areas where clearing will take place in the near future (for instance because of approved developments). Some vegetation was also added into the vegetation layer, for instance, areas which are known to have been (or will be) planted since the aerial imagery was captured.

GAP CLoSR software considers connectivity for species reliant on woody vegetation only, that is, **trees and shrubs**. As such, some vegetation communities were excluded from the Woody vegetation/No woody vegetation layer, either because they did not support large trees or shrubs, or because they did have trees or shrubs but had a very wet understorey impermeable to many terrestrial animals. This was done by overlaying the Woody vegetation/No woody vegetation layer with CRAFTI vegetation mapping and Port Macquarie Vegetation Communities and cutting some vegetation communities out. The list of vegetation communities removed from the vegetation layer is provided in Appendix E. Species whose dispersal is reliant on different habitat, for instance, hill-tops (e.g. butterflies), wetlands (e.g. frogs) or grassslands are therefore not appropriately considered by this model as their key habitat has not been modelled.

Biodiversity habitat and dispersal requirements

Before running GAP CLoSR, the Expert Panel met to discuss the input parameters to represent the habitat and dispersal requirements of biodiversity in the LGA. The Expert Panel included people with diverse areas of interest (plants, mammals, birds, reptiles), and individuals provided advice/input based on their areas of expertise while also considering published literature.

As mentioned previously, connectivity works at multiple scales and, unlike other regional corridors models, the GAP CLoSR model is able to pick up very fine-scale habitat elements such as scattered paddock trees. The challenge for the Expert Panel was to determine the best parameters to use to derive a connectivity map suitable for 'biodiversity' at the scale of the Port Macquarie-Hastings LGA. The model parameters had to represent the requirements of as many species as possible. Following discussion, it was felt that many species in our LGA would be captured by a model which incorporated the following parameters:

- **A 'gap-crossing distance' of 60 metres**. Most species could cross open ground (i.e. no trees or shrubs) for 60 metres. As examples, many small birds can easily disperse from tree to tree over this distance, while a Squirrel Glider can glide 50 metres on average (but up to 100 metres depending on the terrain).

- **A patch size of 10 hectares**. Populations of many species in the LGA would survive in patches that were 10 hectares or larger.
- **An 'inter-patch distance' of 550 metres**. Most species would continue to use stepping stones for 550 metres before 'giving up' and returning to their original patch, or before encountering an unfortunate end, such as predation.

The Expert Panel considered that these biodiversity requirements represented a range of species across taxonomic groups (mammals, reptiles, birds) native to the LGA. The Common Ringtail Possum (see picture) is just one example of a species for which the GAP CLoSR model is likely to be appropriate.

As a result of this rule set, the model may fail to identify or explain the appropriate connectivity for small or sedentary species (such as the Eastern Pygmy Possum or Yellow-throated Scrubwren) that are unable or unwilling to cross open ground for 60 metres. Neither would it provide for species which require consolidated habitat patches much larger than 10 hectares for their survival (for instance, the Spotted-tailed Quoll).

For some highly mobile species, such as larger birds like the Powerful Owl and Black-necked Stork, the model may be overly constrained, showing a fragmented landscape when in fact these species could easily cross the landscape. Similarly, the model may be overly pessimistic for species that have small home ranges and can have large, sustainable populations existing in a 10 hectare patch (for instance Delicate Skinks). A future application of GAP CLoSR is running models for key species such as the Koala.

A list of species likely, and not likely, to be represented by this model is contained at Appendix F.

GAP CLoSR trials were also undertaken using different metrics to consider the performance of the model and the results discussed with the Expert Panel. For instance, while it may be intuitive to make patch sizes bigger (to ensure that they are large enough to cater for the long-term persistence of a broader range of species), the trials revealed that locally known important patches in the landscape were not detected (because they were smaller than the patch size used in the trial). Similarly, reducing the gap-crossing distance to 40 metres frequently caused 'breaks' in connectivity when the Expert Panel believed that the area probably was connected for most species. Often this was a result of the 'pixel shading' in the underlying maps, something which seemed to be largely overcome when the gap-crossing distance was increased to 60 metres.

The Common Ringtail Possum is an example of an animal covered by the GAP CLoSR parameters.

The Eastern Pygmy Possum is an example of a species which requires finer-scale connectivity than provided by the GAP CLoSR modelling. It has a predicted inter-patch crossing distance of only 200 metres.

Land surface crossing costs

The other input required for the GAP CLoSR model was a layer showing land surface crossing costs. This provides a mapped representation of the matrix referred to above (and how permeable or impermeable) it is in the LGA. This input considers the different 'land surfaces' through which biodiversity of the LGA would have to cross. A land surface layer was derived for the LGA using maps including the Local Environmental Plan, land information mapping (e.g. for roads and streams), forestry maps and private native forestry maps.

Each of the different land surfaces was assigned a nominal/relative 'crossing cost' as shown in Table 6. The costs are based on the principle that it is harder

for an animal (or it is less likely that the animal will be successful) to move through an industrial estate than it is for them to move through a grassy paddock. Some land surfaces are so difficult for an animal to cross that the crossing cost must be considered as 'infinite'. An infinite cost was defined by the Expert Panel as presenting a barrier to an animal wherein it would be unable to either cross this surface at all, or cross this surface repeatedly and still live out its natural lifespan. For instance, the Pacific Highway was defined as a barrier with infinite crossing cost due to the paucity of crossing places suitable for a wide range of biodiversity, the associated fencing and the large volume of traffic. These crossing costs are consistent with those used for similar surfaces in previous GAP CLoSR models.

Table 6. Crossing costs for biodiversity though various land surfaces (least cost to infinite cost)

Category	Crossing cost
Environment (land managed for this purpose)	10
Native vegetation on rural land (not PNF)	10
Streams of order 1–3 (highest in catchment)	10
Environmental management Areas (E3 and E4 lands)	20
Parks and fields	20
Forestry – Operational Forestry Corporation lands	20
Forestry – private native forestry	20
Sub-arterial roads	20
Streams of order 4–6 (e.g. mid-lower Pappinbarra River)	20
Hardwood plantation	20
Rural land (paddocks etc.)	20
Other arterial roads	30
Developed areas	40
Streams of order 7 and above (e.g. Hastings River)	40
Pacific Highway	Infinite
Oxley Highway (to Huntingdon)	Infinite
Hastings River Drive	Infinite
Ocean Drive	Infinite
Lake Road	Infinite
John Oxley Drive	Infinite
North Coast Railway	Infinite

3.2.3 OUTPUTS OF GAP CLOSR

The GAP CLoSR software applies the parameters for biodiversity requirements and the crossing costs layer rule sets to the woody vegetation layer to map 'components' and 'habitat linkages'.

Components

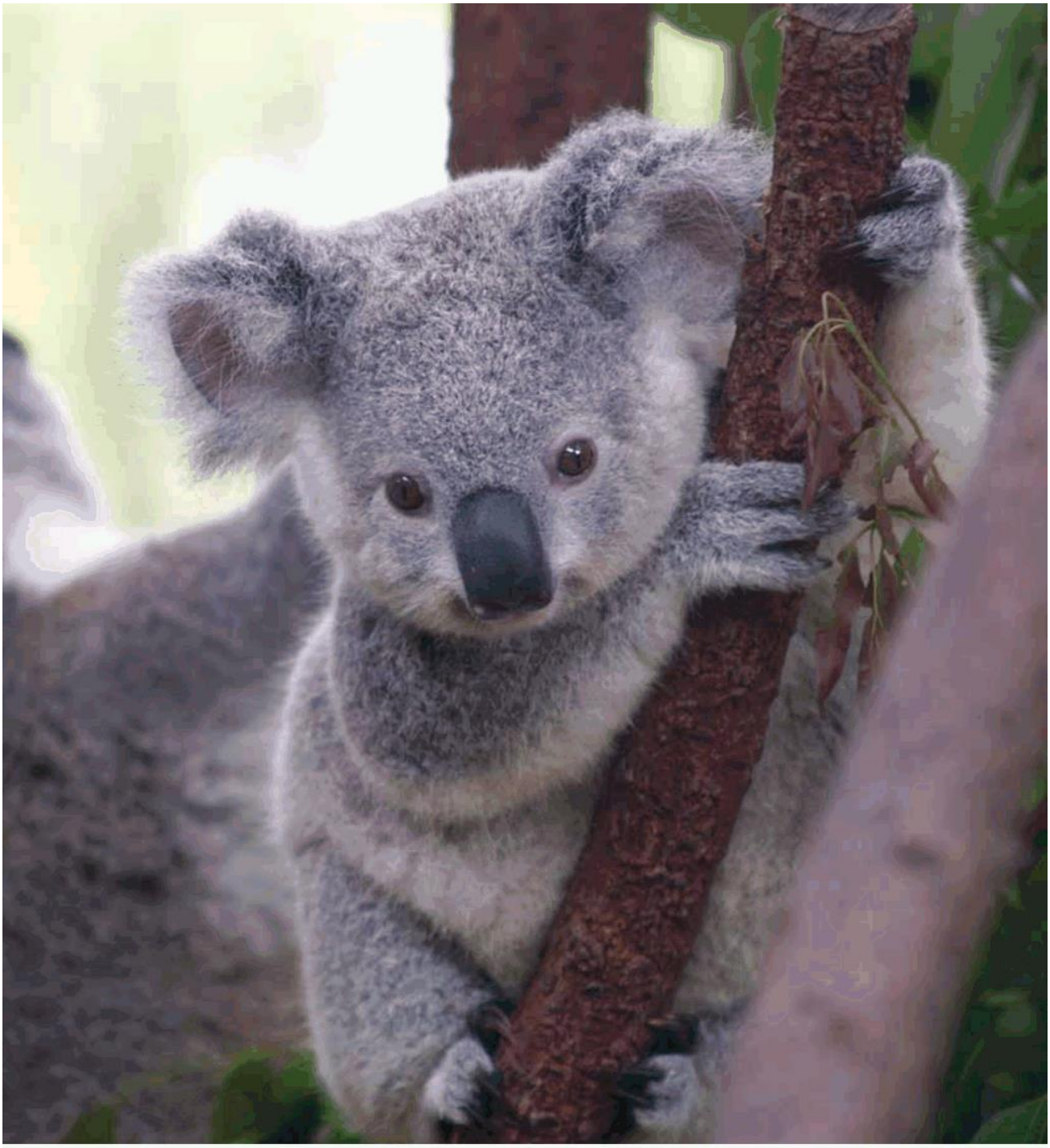
Components represent **islands** in the landscape. Components encompass areas of woody and non-woody vegetation. The woody vegetation in a component may be present as consolidated habitat patches (shown by the coloured patches) or as unconsolidated habitat patches (i.e. those that are too small or fragmented to meet the 10 hectare minimum patch size — see Section 3.2.2).

Biodiversity can survive and move around within components, but is unable to move beyond them because the component is not connected by woody vegetation to the adjacent component, or there is a hard barrier (such as a river or a highway) which animals cannot cross.

If habitat is scant within a component, it may be insufficient to sustain a local population of a particular species in the longer term. In these areas, intervention is needed to link adjoining components through plantings or other works (such as fauna road crossings) to create a bigger component with sufficient habitat. If large consolidated areas of habitat are present and connected within a component, its isolation from other areas will not be an issue for the long-term survival of many wildlife populations.

Habitat linkages

Habitat linkages are areas where biodiversity moves through existing vegetation, that is not part of a patch, to get from habitat patch to habitat patch. These areas may be corridors of vegetation or scattered trees which act as 'stepping stones'.



This vegetation may be roadside vegetation, a narrow planting in an otherwise cleared paddock, small clumps of isolated paddock trees or native trees in people's backyards. While such vegetation may not look to be important upon field inspection, the results of GAP CLoSR can reveal its true importance in helping to link potentially highly important habitat patches.

The presence of habitat linkages within a component is significant because the GAP CLoSR model does not 'split' a larger component into smaller components where there are sufficient linkages to enable adequate connectivity within the component.

As such, the habitat linkages mapped by GAP CLoSR are vitally important connectivity links. Such links need to be strengthened where possible, such as through widening the corridor and undertaking strategic planting programs to slowly replace weedy species with native species.

3.2.4 GAP CLOSR MODEL RESULTS: THE PORT MACQUARIE-HASTING CONNECTIVITY MAP

Woody vegetation model

The GAP CLoSR connectivity map for Port Macquarie-Hastings LGA is shown in Figure 15.

Components (shown outlined in red) are those 'islands' in the landscape where target species can move around within the area, but not out of the area, given the parameters (60 metre gap-crossing distance, 550 metre inter-patch crossing distance, 10 hectare minimum patch size) and land costs adopted. Habitat linkages (shown as purple dots) represent the vital links within the components. Areas with many small components represent parts of the landscape that are less connected than areas with larger components.

Overall, the results showed that with current levels of woody vegetation the Port Macquarie-Hastings LGA has generally **good levels of connectivity**. The largest 'component' encompasses the area west of the Pacific Highway (heading north from Johns River) to Herons Creek, then to Wauchope, Telegraph Point then following the Pacific Highway north. This represents the most connected part of the LGA. The most fragmented areas (small components) of the LGA occur along the Hastings River floodplain and north of the Hastings River in areas near the Pacific Highway. The immediate environs of Port Macquarie are also, not surprisingly quite fragmented, but closer inspection also reveals that the habitat linkages in Port Macquarie's urban areas (Sea Acres, Wrights and Yarranabee creeks and Kooloonbung Creek) are fundamental to the ecological connectivity and health of the coast and urban areas.

The results strongly showed that within the Port Macquarie-Hastings LGA, the **coastal corridor** is an amazingly connected resource, particularly for north–south migrants. This can be seen in the large components to the north and south of Port Macquarie. (Collaborative work with Kempsey Shire Council showed that this corridor extends north beyond the Port Macquarie-Hastings LGA, revealing its true magnitude and significance.)

Unfortunately, the results also showed that the **Pacific Highway** and **North Coast Railway line represent serious barriers** to species movement and therefore ecological connectivity in the LGA. The Oxley Highway also represents a barrier to movements which will no doubt increase over time as the road becomes busier. The results also showed that some areas along the Hastings River floodplain, particularly where they occur near the highway, are quite fragmented and do not currently support sufficient habitat for the long-term survival of many species.

The results showed that **some areas are at risk of becoming seriously fragmented**, such as the Comboyne Plateau. The reason why GAP CLoSR did not map Comboyne Plateau as a separate component is the presence of many stepping stones. Unfortunately, many of these are narrow, tenuous links comprised of thickets of Privet along fence lines. Work to control these Privet thickets in otherwise open landscapes may have both positive and negative ecological outcomes.

A similar example, which highlights the important of stepping stones is the area around Hyndmans Creek. A snapshot is discussed in Box 13.

Figure 15 also shows the different habitat patches within the LGA that are greater than 10 hectares (as set in the species movement ruleset). The largest is 164,000 hectares and includes adjoining large areas of national parks and state forests, as well as private lands. The smaller patches are approaching the lower end of what is sufficient habitat for many species. Examining the smaller patches in this way reveals places where any further clearing, or habitat fragmentation, would effectively render an existing patch 'ecologically redundant' for many species. Examples are found on the Hastings River floodplain.

If habitat is scant within a component, it may be insufficient to sustain a local population of a particular species in the longer term. There are several areas along the Hastings River floodplain dissected by the Pacific Highway which illustrate this concept.

Importantly, members of the Expert Panel and Community Panel all felt that the results of the GAP CLoSR modelling were an appropriate reflection of important links and habitat patches in the LGA and supported previous decision-making by Port Macquarie-Hastings Council regarding areas important for connectivity (see Box 15).

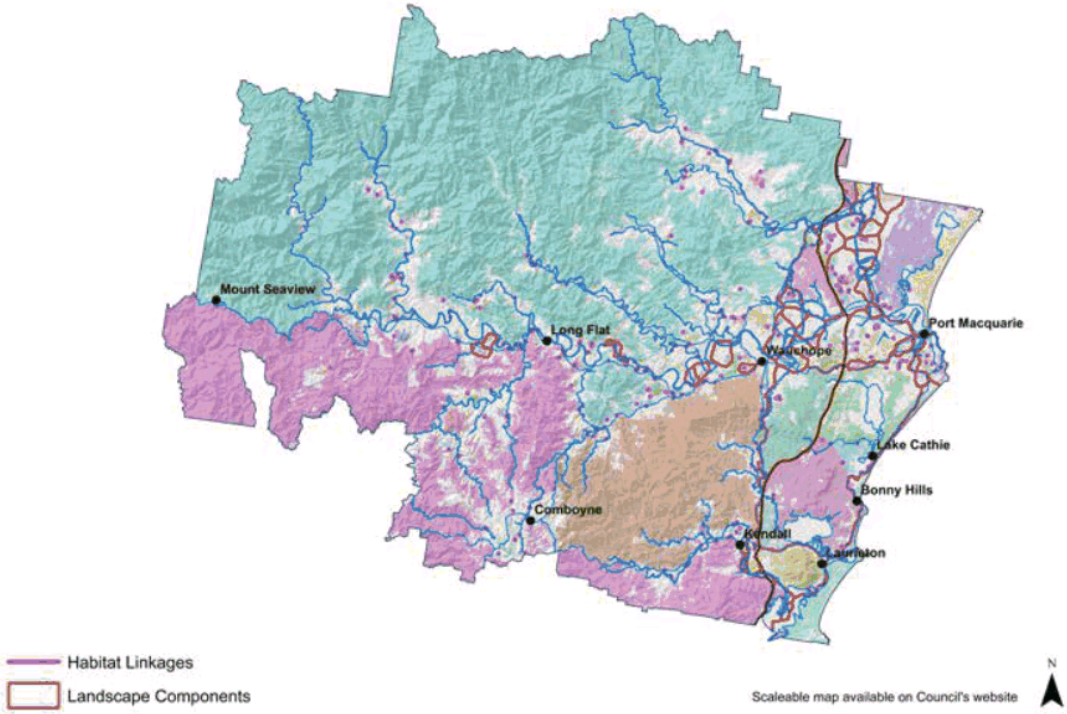


Figure 15. Habitat components and linkages in the Port Macquarie-Hastings LGA

BOX 13. THE IMPORTANCE OF HABITAT LINKAGES

The Hastings River floodplain supports rich alluvial soil, much prized for agriculture. As a result, it has been largely cleared. This cleared swathe on both sides of the river, together with the river itself, therefore presents a barrier for many species as they attempt to make north–south movements across otherwise quite consolidated areas of bushland. The figure below shows how seemingly small and insignificant strips of vegetation that run from ridges down to and across the Hastings River floodplain can play a key role as habitat linkages preventing landscape fragmentation.

BOX 14. CONNECTIVITY IN PORT MACQUARIE-HASTINGS LGA

The GAP CLoSR modelling showed that the LGA has generally good levels of connectivity.

Green ribbons of Port Macquarie's urban areas (Sea Acres, Wrights and Yarranabee creeks and Kooloonbung Creek) are fundamental to the ecological connectivity and health of the coast and urban areas.

Within the Port Macquarie-Hastings LGA and stretching north into Kempsey Shire, the coastal corridor is an amazingly connected resource, particularly for north–south migrants.

The Pacific Highway and North Coast Rail lines represent serious barriers to species movement and therefore ecological connectivity in the LGA. The Oxley Highway and Ocean Drive also represent barriers to movements which will no doubt increase over time as the roads become busier.

Some areas along the Hastings River floodplain, particularly where they occur near the highway are quite fragmented and do not support sufficient habitat for the long-term survival of many species.

Some areas, such as the Comboyne Plateau, are at the edge of becoming seriously compartmentalised, only still working in a connected fashion courtesy of many narrow, tenuous 'links'. Unfortunately, many of these links are actually thickets of Privet along fence lines, indicating that work to control such Privet thickets in otherwise open landscapes may have both positive and negative ecological outcomes.

The GAP CLoSR results matched with local Expert knowledge about important areas for connectivity.

A tranquil area within Kooloonbung Creek Nature Reserve: an important area for ecological connectivity.

BOX 15. A REAL-WORLD TEST CASE FOR GAP CLOSR

During the development of the Waverley Glade Estate at Shelly Beach, Port Macquarie, it was argued that the vegetation on the site was part of an important wildlife corridor, linking the World Heritage–listed Sea Acres National Park with the Wrights Creek system and beyond. The development was allowed to proceed and, with support of the developer, the southernmost portion of the site was retained to facilitate at least some remaining connectivity (see picture on the right). This area was placed under a vegetation management plan to protect this important area and increase the biological functioning of this narrow strip of vegetation.

The aerial imagery used in the GAP CLoSR connectivity pre-dated the Waverley Glade development and the whole site was identified by GAP CLoSR as being a significant link in the landscape that facilitated connectivity (see picture on the left). The modelling outputs validates the planning process and will help to identify other areas in the LGA where protective measures may be needed to maintain connectivity and improve biodiversity values.

During the development of the Waverley Glade Estate at Shelly Beach, Port Macquarie, it was argued that the vegetation on the site was part of an important wildlife corridor, linking the World Heritage Listed Sea Acres National Park with the Wrights Creek system and beyond. The development was allowed to proceed, and the southern-most portion of the site was retained to facilitate at least some remaining connectivity (see picture of the right). This area was placed under a Vegetation Management Plan to increase the biological functioning of this narrow strip. The aerial imagery used in the GAP CLoSR connectivity predated the Waverley Glade development and the whole site was identified by GAP CLoSR as being a significant link in the landscape facilitating connectivity (see picture on the left). This modelling validates this process.

Wet sclerophyll and rainforest only model

The Port Macquarie-Hastings LGA has numerous significant stands of rainforest and wet sclerophyll forest. Many species are restricted to these habitats and yet must move around widely between these habitat patches to satisfy life-history requirements. Particular examples are frugivorous birds, such as the Rose-crowned Fruit-dove and Wompoo Fruit-dove (both of which are threatened species in New South Wales). To illustrate the different ways that species view the environment, habitat patches and connectivity, a GAP CLoSR model was constructed to consider only rainforest and wet sclerophyll forest.

The Expert Panel agreed that the inter-patch crossing distance and patch size should remain the same as in the general model (i.e. at 550 metres and 10 hectares respectively). However, the 'gap-crossing' distance was reduced from 60 metres to 40 metres, given that the species of interest inhabit finely textured, dense habitat, rather than the more open woodlands and dry sclerophyll forest environments. The results (see Figure 16) show that for species reliant on more mesic forests, the landscape is much more fragmented. Of note are fragmented areas that are of known importance for rainforest-dwelling species, such as the Comboyne Plateau and littoral rainforests along the coastal strip. The results also show a different set of strategic links between habitat patches. Careful attention is required to ensure these habitats are not further fragmented.

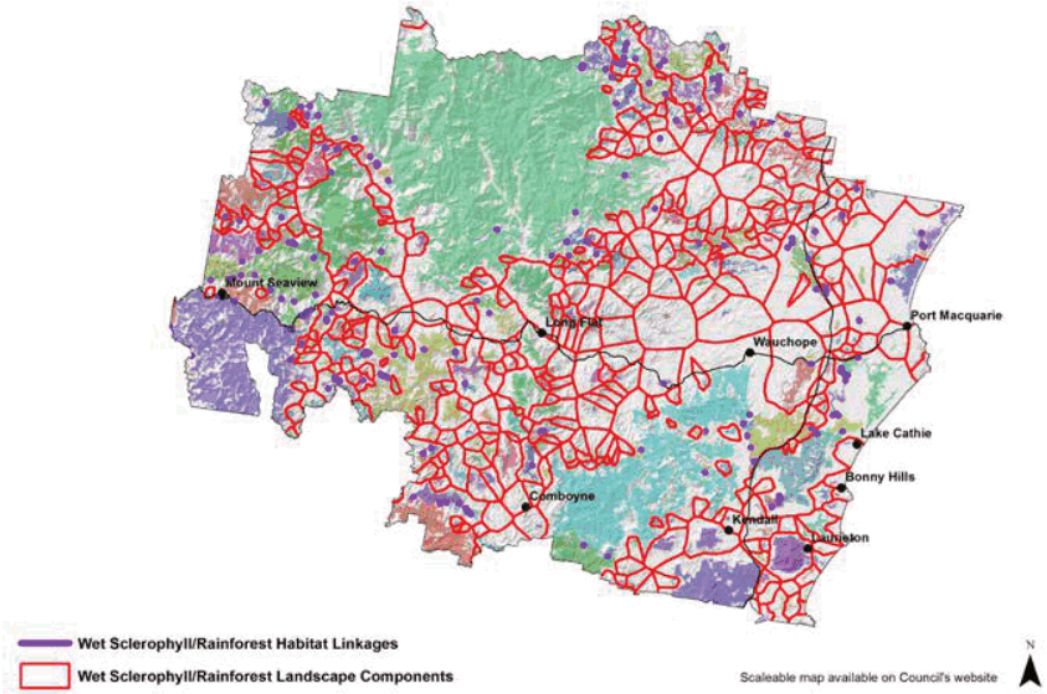


Figure 16. Wet sclerophyll and rainforest model for the Port Macquarie-Hastings LGA

Protected Areas only model

It is often argued that there is sufficient habitat available within national parks and other protected areas for the adequate protection of species. As a purely informative exercise, a GAP CLoSR model was run which assumed that the only available habitat in the LGA existed in 'Protected Areas' (see definition in Zonation discussion above, Section 2.2.3). The results (see Figure 17) show a landscape much more fragmented (i.e. with many more island 'components') than the general woody vegetation model. This shows the incredibly important role that private lands play in ensuring that the landscape is connected to an appropriate level for effective ecological functioning, particularly in the highly fertile landscapes so valued by many species.

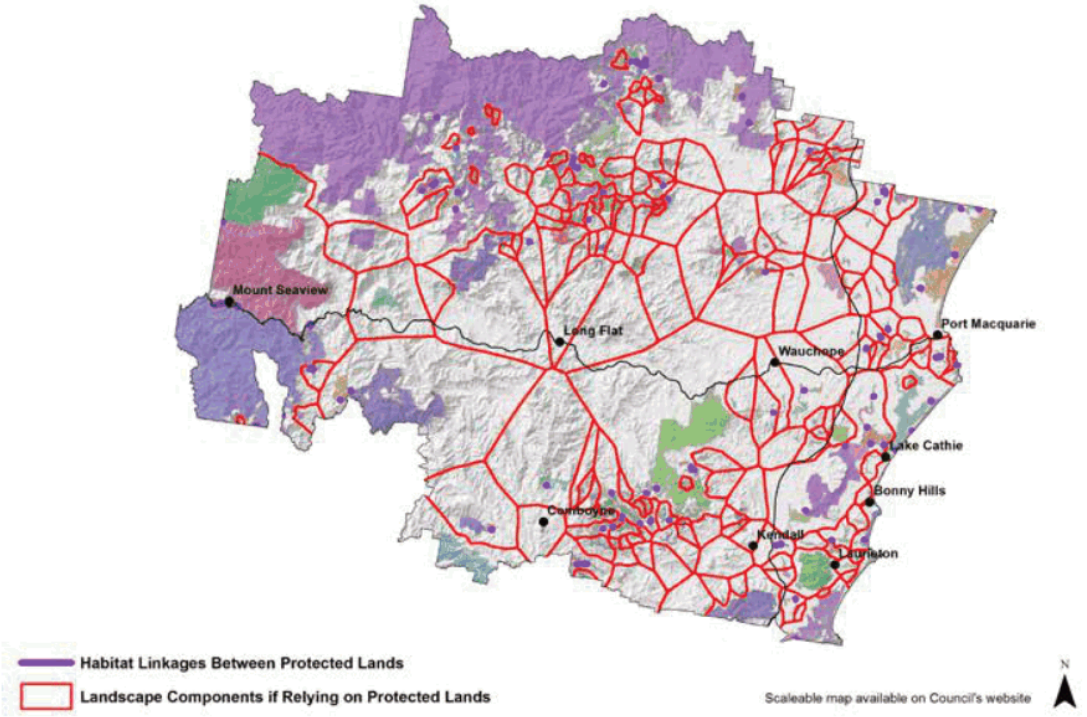


Figure 17. 'Protected Areas only' scenario
The results show extreme fragmentation in many areas.

3.2.5 THE FUTURE WITH GAP CLOSR

The importance of any given link, component or patch can be further interrogated using GraphAb software which accompanies the GAP CLoSR software. Another program, CircuitScape, is also available to help best plan the location of replanting efforts which seek to reconnect isolated components or identify connectivity bottlenecks that require embellishing. This information can be later used to assist with strategic planning and biodiversity incentive delivery schemes.

3.3 WETLAND CONNECTIVITY

As outlined in Section 2.3, Port Macquarie-Hastings Council has numerous important coastal wetlands, notably Lake Innes, Queens Lake, Watson-Taylor Lake (Googleys Lagoon), Partridge Creek, and significant areas of coastal wetland on the North Shore adjoining Limeburners Creek Nature Reserve. Traditionally, these locations have been shown on maps as open bodies of water, with little reference/acknowledgement of the fringing vegetation which is habitat to so many wetland-dependent species,

in particular amphibians, wading and waterbirds and even insects such as the threatened Giant Dragonfly.

In recognition of the importance of this fringing vegetation, maps were constructed which showed the vegetation formations (see Section 2.1 for more information on vegetation formations) that are associated with these open water wetlands. Formations included were Forested Wetlands, Freshwater Wetlands and Saline Wetlands (see Figure 3). Maps were produced showing vegetation classes encompassed by these broad vegetation formations. Two vegetation mapping sets were used (CRAFTI and Port Macquarie Vegetation Communities mapping – see Table 1 and Section 2.1).

Adjoining (continuous) patches of the different vegetation communities were then mapped to examine the connectivity of wetland vegetation in the LGA. See Figure 18. Some of these wetland 'patches' are quite large (e.g. the Lake Innes/Lake Cathie complex), and individual wetlands (e.g. Queens Lake and Watson-Taylor Lake) appear to be operating ecologically as one entity. Other systems such as 'Partridge Creek' are genuinely a unique wetland system and indeed, Council's vegetation mapping revealed unique vegetation communities in this area which are now under further investigation by OEH.

The mapping also shows that Kooloonbung Creek is connected to much larger areas of wetland, such as Lake Innes. The strategic importance, particularly of Kooloonbung Creek Nature Reserve but also of Partridge Creek, in facilitating connectivity for wetland-dependent species north and south of the Hastings River is apparent.

The wetland patch map provides a reference point should works become required to better link wetland habitat into the future, and show where wetlands might naturally expand as a result of climate change–induced sea-leave rise. It also shows where narrow links of wetland associated vegetation (riparian strips) can link to much larger areas of wetland habitat. The importance of such small areas may not be fully appreciated when otherwise examining them in isolation.

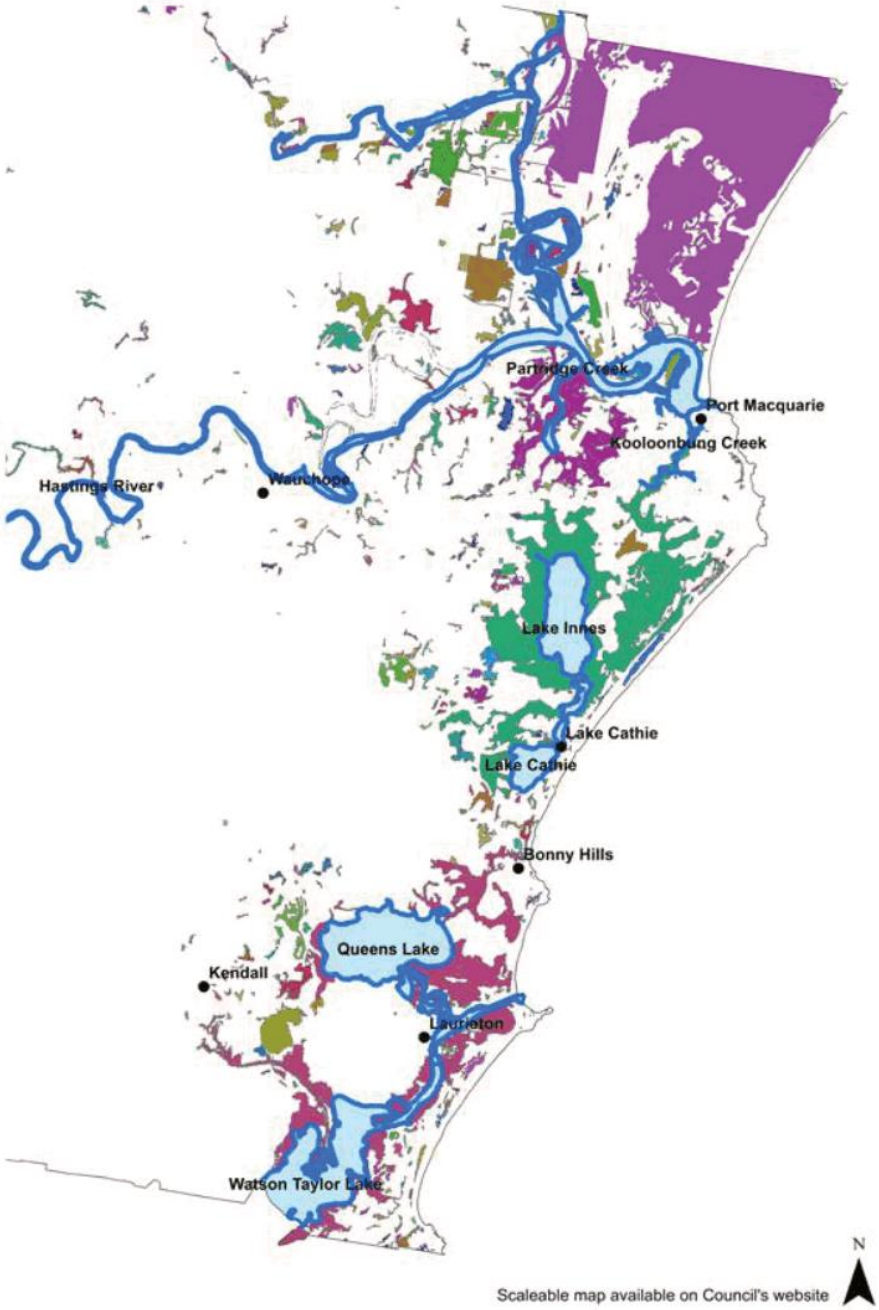


Figure 18. Important wetlands and areas of wetland vegetation

The different colours show different wetland patches (i.e. contiguous areas of wetland vegetation).

Land Mullet: Photo © $Mathe94$ www.commons.wikimedia.org/wiki/File:Land_Mullet_6.jpg

3.4 SOME FINAL WORDS ON CONNECTIVITY

Connectivity is vital to the effective functioning of ecosystems and ensuring species long-term persistence in the landscape. The work here has shown that landscape connectivity is *everyone's business*. Traditional corridor mapping approaches run over relatively few parcels of land, leaving people in those areas wondering how this will affect their rights and responsibilities. While these larger-scale corridors are undoubtedly important, the reality is that day-to-day connectivity occurs all around us at much finer scales and it is only when the patches are dissected and eroded, and the links between the patches lost, that fragmentation occurs.

Whether an urban landholder, or a rural farmer on large acreage, we can all play a role in helping the landscape to be more 'permeable' to wildlife so animals can move through the landscape easily with relatively little crossing cost and ensuring that all areas offer some habitat. These initiatives include planting endemic trees in our gardens and streetscapes, reducing roadkill, controlling weeds and reducing the incident of predation of native animals, including predation/harm by companion animals in the urban landscape.

The work here has shown some strategic areas for investment to improve landscape connectivity. Examples are:

- widening and strengthening habitat linkages (links need to be at least 50 metres wide to be truly effective and ideally comprised of native species)
- decreasing landscape fragmentation (i.e. the number of components) by adding new strategic links through native vegetation plantings
- ensuring that remaining patches are of a suitable size for the long-term persistence of species (or creating patches of suitable size in key locations)
- installing infrastructure (i.e. technical solutions such as road underpasses, overpasses, glider poles and crossings and stiles, which enable animals to cross otherwise impermeable fences) (see Box 16).

In some cases, these strategic areas of investment can even have a win-win approach for farmers and conservation (see Box 17).

Unfortunately connectivity also brings with it threats, for instance, connected land may be more susceptible to feral animals (who can also now travel to the habitat patch), weeds and bushfire. Connected lands therefore need to be appropriately managed to reduce such threats (also see Section 4).

BOX 16. A TECHNOLOGICAL FIX: INCREASING CONNECTIVITY WITH WILDLIFE STILES

In 2016, Port Macquarie Landcare received funding under the federal government's Work for the Dole scheme to work with the young participants and install Koala stiles in key locations around the urban areas of Port Macquarie. Working with the Bushland Management Team of Port Macquarie-Hastings Council, these stiles were placed over barbwire-topped chain-mesh fences to better facilitate crossing of these otherwise impassable barriers around areas of key habitat. The stiles were principally installed for Koalas, but will be used by a number of arboreal marsupials, such as possums and gliders, as well as other species. This 'infrastructure solution' has greatly helped to increase landscape connectivity in an otherwise fragmented area.

Landcarers installing koala stiles.

BOX 17. WIN-WIN: GOOD FOR THE FARMER AND GOOD FOR ECOLOGICAL CONNECTIVITY

The Comboyne Plateau is an amazingly fertile agricultural area in the Port Macquarie-Hastings LGA and of great economic importance. The climate is subtropical, though at an elevation of 705 metres, it is cooler than nearby coastal areas. The Comboyne Plateau has always been famous for its rich dairy industry, but these days the deep red basalt loams, high rainfall and variety of terrains ensures that avocadoes are a booming industry along with kiwifruits, blueberries, macadamias and potatoes.

Previously, the area was covered extensively in subtropical rainforest which was almost all cleared by the early 20th century. The early explorers originally sought the valuable timber of the Australian Red Cedar. Pockets of cool temperate rainforest also exist on the Comboyne Plateau. Today, remaining pockets of vegetation are truly hidden 'gems' and support important populations of threatened species, many of which are found nowhere else in the LGA. Factoring ecological connectivity into this highly cleared agricultural landscape is therefore important and many landholders are keen to participate, having previously been involved in conservation projects on the plateau.

The GAP CLoSR analysis revealed that connectivity in the Comboyne Plateau largely continues courtesy of narrow strips of vegetation along fencelines. These strips are often comprised of Privet. Nonetheless, many species, such as the Wompoo Fruit-Dove have been seen moving through and using these resources.

In this elevated, exposed plateau, wind chill and wind throw is a real threat for farmers and numerous quick-growing (and often short-lived) windrows have been planted. Traditionally exotic bamboo has been used. A prime opportunity exists for government funding to be made available to farmers to plant appropriate locally endemic quick-growing species behind, or in conjunction with, existing windrows. This will ensure that the windrows will be longer lasting, pose less weed threat to remaining pockets of bush, be of greater ecological value to the species in the local area, and will improve the overall connectivity of the Comboyne area.

4. PRIORITY INVESTMENT LAYER

4.1 WHAT IS A PRIORITY INVESTMENT LAYER?

The Priority Investment Layer uses the maps and models on individual biodiversity assets described above.

This layer effectively identifies the **priority areas for biodiversity investment in the LGA**, or in other words, those areas which if protected would best help to conserve the area's native flora and fauna. It does not include those important biological areas within Protected Areas (it is assumed that they are already managed appropriately) or on operational Forestry Lands.

The vast majority of lands within this layer are on private properties, however, a smaller amount are on Council-owned or managed land. Council is not considering back-zoning areas of private land for environmental protection. Rather, we will work positively and pro-actively with landholders to seek funding opportunities to enable them to protect biodiversity priorities in the LGA, such as through funding bids and the burgeoning biodiversity offset market. Similarly, Council will work proactively to ensure that its own operations do not impact these important biological areas and will seek funding to better aid their protection, such as through bushland management works to reduce weeds and rubbish and increase ecological functioning.

The areas in the Priority Investment Layer are those that represent the best 'bang for your buck' in relation to conservation incentive programs. Formally identifying these priority areas puts Council and landowners in a strong position to bid for government funding. The likelihood of receiving government funding will further increase when there is strong support from landholders working together in a local landscape.

The Priority Investment Layer is a 'snapshot in time'. Other priorities may emerge over time, and lands within this layer may also be subject to private native forestry arrangements. Following forestry operations, the intrinsic values of these areas (i.e. older-growth forest and associated flora and fauna habitats) are likely to be reduced, which in turn may greatly reduce the likelihood of receiving funding or offset opportunities.

All areas identified in the Priority Investment Layer require on-ground assessment to validate the presence of modelled/mapped values prior to the delivery of investment schemes, particularly the offset market. Nonetheless, the layer forms a valuable starting point for negotiations with landholders having lands with particular biodiversity values and for identifying strategic landscape-scale patterns and associated projects.

The Priority Investment Layer greatly enables identification of potential local offsets thereby helping to ensure offsets stay in the LGA and that there is not a net loss of local biodiversity. For individual species requiring offsetting, the underlying species distribution models can be re-examined to determine all offset locations. However, wherever these species occur in lands identified in the Priority Investment Layer, these areas would be preferred as offset sites. This is because conservation of these areas is more likely to protect numerous species (the 'offset' species effectively acting as an 'umbrella species' to protect many others).

The Priority Investment Layer is also likely to stimulate a market for people wishing to purchase lands of a high biodiversity value. Such people may be attracted to these lands for altruistic reasons, for the enjoyment of living with abundant flora and fauna or for financial reasons (i.e. rural land that comes with an income stream in perpetuity when a biodiversity offset is achieved). There has been a growing interest in property marketed for its biodiversity values as evidenced by businesses such as the Nature Conservation Trust. Private conservancy groups, such as the Australian Wildlife Conservancy, Bush Heritage Australia and other charitable trusts, also purchase lands of high conservation values.

The Priority Investment Layer is not a legal document and does not affect existing property owner's existing legislative rights or requirements. Participating in any biodiversity incentive schemes is voluntary and the decision of the land owner.

4.2 WHAT LANDS DOES THE PRIORITY INVESTMENT LAYER INCLUDE?

The Priority Investment Layer is shown two parts in Figure 19 and Figure 20.

Figure 19 focuses on **protecting and restoring existing bushland** areas of high biodiversity values outside Protected Areas and Forestry Lands. Example works in these areas could include supplementary plantings, vertebrate pest control, nest box installation, control of invasive weeds, riparian works, ecological monitoring and cessation of clearing. It includes:

- The Priority Action Areas identified using Zonation (from Figure 7 – priority areas on Council owned/ manage lands and Figure 8 – private land priority areas).
- Threatened ecological communities (from Figure 11).
- Coastal and estuarine wetlands and lakes and associated areas of wetland vegetation (from Figure 10). However, all of these areas were either already captured by the Priority Action Areas or, in the case of a small area immediately to the north-east edge of Queens Lake, already captured by the threatened ecological community layer.
- Additional priority areas identified by the Expert Panel (from Figure 12).

It does not include core Koala habitat as an explicit overlay as this is the focus of a Koala Plan of Management (in prep.), however, Koalas were one of the modelled species determining priority areas and therefore received equal consideration with a number of other fauna species.

Figure 20 focuses on **enhancing landscape connectivity**. It shows those areas that require additional native vegetation plantings, and associated invasive weed control to increase connectivity. It includes:

- Habitat linkages identified using GAP CLoSR (from Figure 15) — these are areas that currently comprise only narrow strips of trees or isolated trees.
- Key planting connections (digitised by hand), including:
  - ◊ areas that would reconnect small components identified by the woody vegetation model of GAP CLoSR (see Figure 15).
  - ◊ areas where Northern Rivers habitat corridors (regional and subregional as shown in Figure 14) currently cross open, predominantly cleared land.
- Areas requiring 'technical solutions' for connectivity. Such solutions typically include road underpasses, overpasses, glider poles, Koala stiles or other initiatives to reduce the incidence of roadkill. These areas were identified through discussion with the Expert Panel (who know where the 'road-kill' black-spots occur) and through examination of the woody vegetation model of GAP CLoSR which showed where either small components occurred because of major roads or where two larger components were separated only by virtue of a road.
- The 'Comboyne Corridors for Conservation' area. The plateau is more than 80% cleared (see EcoLogical Australia 2007), has unique and diverse biological values found nowhere else in the LGA, and currently has connectivity only by virtue of small linear strips mostly comprising introduced species. This area requires substantial investment, such as the creation of a *Comboyne Corridors for Conservation* project. If done in close consultation with landholders, this could result in wins for the farming industry and wins for biodiversity.

4.3 WORKING WITH THE PRIORITY INVESTMENT LAYER

The Priority Investment Layer should be considered a 'guide' only to the biological values of the LGA. It does not guarantee funding. Other sites outside these areas are likely to be worthy of biodiversity investment. All of the areas identified require on-ground verification of potential values. In some instances, for example projects seeking to improve landscape connectivity, the willing participation of multiple landholders may be required for a project to be of benefit and worthy of funding. The Priority Investment Layer will require updating every 5 years to ensure it reflects current knowledge.

Port Macquarie-Hastings Council is happy to work with landholders to discuss the potential biological values of their land. The Priority Investment Layer and maps of various biological values will be made freely available to the public.

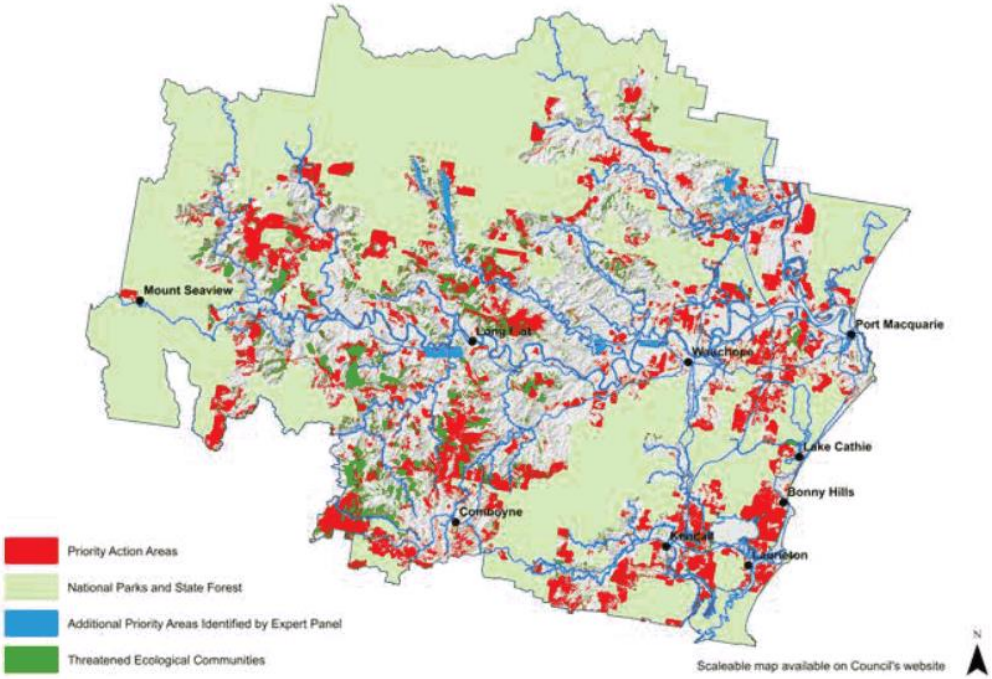


Figure 19. Priority Investment Layer for works aiming to protect and restore existing bushland

There are a large number of opportunities and avenues for landholders interested in biodiversity to participate, and often receive funds for, work to protect and restore the biological values of their lands.

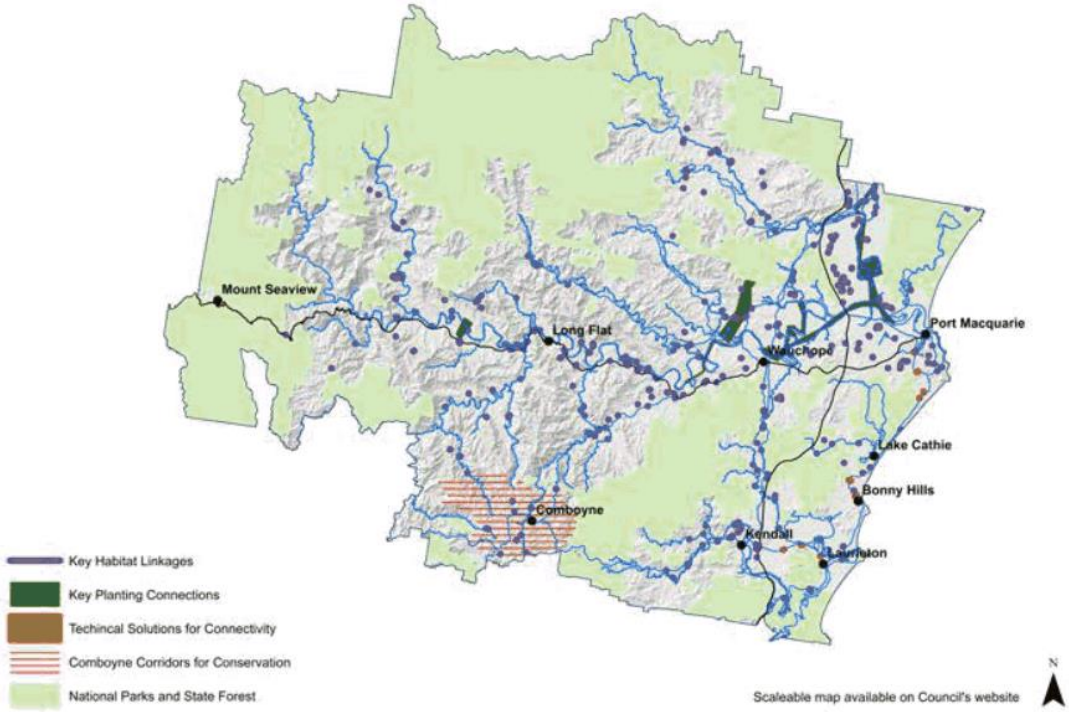


Figure 20. Priority Investment Layer for works aiming to enhance landscape connectivity

5. THREATS TO BIOLOGICAL VALUES IN THE LGA

5.1 INTRODUCTION

Around the world, biodiversity is being lost every day. Many species are lost before they have even been scientifically described. It is estimated that over 40% of the world's species are at risk of extinction.

Australia is one of the most biologically diverse countries in the world. We have 10% of the world's species, most of which occur nowhere else, in under 6% of the earth's land surface. And while we pride ourselves on our unique wildlife, by virtually every measure our record of biodiversity loss is the worst in modern times. More than 14% of our vertebrate animals and 12% of our plants are threatened; a substantially higher percentage than the next two worst performing countries, USA and Mexico. Of nearly 80 mammal extinctions recorded globally since the 1600s and the Age of Exploration, about 20 were lost from Australia during the last 220 years. Today, many hundreds of species are listed as threatened within Australia at the federal and/or state levels.

While the Port Macquarie-Hastings LGA has fared better than many other parts of Australia in protecting diversity, the loss to biodiversity is still apparent, with many old-timers having stories to tell of the 'old days' and 'how you just don't see them like to used to'. Central in many people's minds is the Koala and how abundant they used to be relative to today. Today, there are approximately 190 species and 10 ecological communities listed as threatened at either the state and/or federal level that occur within the Port Macquarie-Hastings LGA, and this list grows every day. For instance, recent evidence has shown that populations of the White-bellied Sea-Eagle are declining, with many individuals failing to rear chicks. The NSW Threatened Species Committee has recently added the eagle to the list of threatened species.

So why is biodiversity declining? The answer is really quite simple: at the heart of biodiversity decline and species extinction is the **loss of habitat**. Habitat can be lost through clearing, fragmentation, degradation (e.g. incursion of feral plant and animal species) and modification (e.g. through inappropriate fire regimes, rising sea-levels causing increased inundation). The impacts can occur immediately after the change, or can be delayed. This is referred to as an extinction 'debt', wherein the species' fate is already sealed following previous impacts but the effects take time to become apparent.

The impacts of habitat loss can act directly on species, for example, vegetation clearing can lead to a lack of food resources or hollows. Or the impacts can act indirectly on a species. For instance, increasing urbanisation may allow Common Mynahs to inhabit an area which was previously unsuitable. The Mynahs then displace native hollow-dwelling species. Another indirect impact of habitat loss is that it may cause animals to become stressed which leaves them vulnerable to disease.

Seemingly small changes and actions can result in 'ecosystem unravelling' when species that provide fundamental services in the ecosystem are lost. This in turn affects other species in that ecosystem. For example, a parcel of bush may be 'underscrubbed' in a rural-residential development removing shrubs and understorey species. This is important habitat for small bush birds (e.g. wrens and scrub birds). Noisy Miners, preferring more open understories, invade the site and drive away other birds. A reduction in insectivorous birds allows insect populations to become locally abundant. An increase in some foliage-eating insects then drives dieback in the eucalypt canopy, which in turn further renders the habitat unsuitable for insectivorous birds and other species dependent on canopy attributes. And a downward spiral begins.

5.2 THREATS ACROSS THE PORT MACQUARIE-HASTINGS LGA

The NSW Office of Environment and Heritage prepared a report listing the major threats, and their impact level, for the different landscape units (see Figure 2) present in the Port Macquarie-Hastings LGA. A short summary for each of the different landscape units is presented below.

Coastal plains

The coastal plains, covering 13% of the LGA, provide an attractive 'sea change' lifestyle for many people seeking to move out of capital cities. This shift in demographics is placing a vastly increased pressure on the natural environment, leading to further clearing and fragmentation of existing vegetation and habitats to satisfy an increased demand for urban and rural-residential land, infrastructure and services. As well, there are increased risks of fires, weed invasion, pollution and predation on wildlife by domestic cats and dogs. As a result, the coastal plains, in comparison to the three other landscapes, has the highest overall number of threat activities and the most number of threats unique to a landscape.

Threats include:

- clearing and disturbance of vegetation for urban, rural-residential and industrial development (including setbacks for fire protection)
- invasion by introduced plant species
- the establishment and spread of Bitou Bush and Lantana
- competition and predation by the European Red Fox
- inappropriate fire regimes in some locations.

Competition, predation and disease by feral cats is also of high concern within this landscape. While Cane Toads are presently not established in the LGA, they are a potential threat. Feral deer are having large impacts throughout the coastal floodplains. Their browsing is causing a lack of regeneration in some vegetation communities, including littoral rainforest, and evidence of their trampling and rubbing is also widely evident. The role that they play in disease transmission is yet unknown, but is of major concern.

Additionally, there are a number of significant future threats unique to the coastal plains landscape, such as sea-level rise, storm surge and possible increased storm events due to the impacts associated with climate change. Inundation of low-lying areas may fundamentally change the character of the coastline and estuaries, displacing important habitats for shorebirds, estuarine species and littoral rainforest. The ecology of freshwater wetlands is also likely to change dramatically as saltwater incursions increase. Increasing stochastic events such as cyclones, storms and floods may alter or destroy important coastal habitats.

Due to their location in the landscape, riparian areas within the coastal plains are constantly reinvaded by weeds carried downstream during floods. Floods also increase erosion of degraded stream banks and, following heavy rain, low-lying swampy areas that have been drained can discharge acidic waters that result in fish kills.

Waterways in the coastal plains are also impacted by stormwater run-off and pollution from the urban and industrial developments near estuaries and rivers. The expanding population and urban areas also increase pressures on the natural environment from recreational activities such as boating and fishing.

Many habitats in the coastal plains are highly disturbed and fragmented and major roads such as the Pacific Highway cause significant barriers to the movement of species. This causes genetic isolation of populations and an inability for species to recolonise areas after local extinctions. Flying-fox camps on the coastal plains are often within or adjoining urban areas, making them vulnerable to disturbances and habitat loss.

The coastal Koala population is under significant levels of threats from cars, dogs, fragmented habitat and potential wildfire. Disease is also an ongoing problem. The potential for wildfire in the coastal national parks which support key Koala populations is a significant risk.

Midland hills

The midland hills landscape covers 40% of the LGA and, in comparison to the coastal plains, has less overall threat activities reflecting the relatively lower population density. The diversity of land uses is less and they are mainly associated with agricultural activities, primarily cattle grazing. Forestry is also widespread on both private land and Forestry Corporation of NSW lands. The main threats include:

- clearing and disturbance of vegetation for agriculture, invasion from introduced plant species
- the establishment and spread Lantana
- competition and predation by the European Red Fox, feral deer and feral pigs
- inappropriate fire regimes in some locations.

Competition, predation and disease by feral cats is also of high concern within this landscape. While Cane Toads are presently not established in the LGA, they are a potential threat. Some areas are also subject to urban, rural-

residential and industrial development (including clearing setbacks for fire protection).

The impacts associated with climate change are likely to be less in the midland hills than in the coastal plains landscape. There may however be impacts from increased wildfire potential and the invasion of new weeds and pests such as the Cane Toad may occur. Some plant species and the floristics of some vegetation communities may also change as a result of changes in the current range and distribution of temperature and rainfall. Increasing stochastic events such as cyclones, storms and floods may also alter or impact on important habitats.

Some habitats in the midland hills are highly disturbed and fragmented and/or have roads or cleared lands that cause significant barriers to the movement of species. This can cause genetic isolation of populations and an inability for species to recolonise areas after local extinctions.

Escarpment ranges

The escarpment ranges (45% of the LGA) is a dramatically different landscape to the other landscapes in the region due largely to the steep, rugged landforms. These have precluded, in many areas, the extensive development of land uses that are major threats to biodiversity in the other landscapes. There are low levels of human settlement, less agriculture than the coastal plains and midland hills due to the difficulty of the steep terrain, and a relatively large areas of national park and state forest.

Threats to this landscape, although much reduced compared to other land uses, are still present and include inappropriate fire regimes as a result of wildfires. These can result in the burning of large inaccessible areas, including rainforest, under extreme conditions. Inappropriate fire regimes encompass those that are too frequent, or not frequent enough, dependent on the ecosystem. Predation from foxes, and feral cats and dogs can also occur throughout these areas, predominantly in disturbed forest areas, along forest edges and in the rural agricultural lands. Feral goats and deer may be an emerging issue. Forestry is a major industry in the escarpment ranges. It occurs on both state forests and private land, with potential threats including loss of hollow-bearing trees, increased erosion, inappropriate fire regimes, Bell Miner associated dieback, firewood collection, increased predation and human interference.

Overall the escarpment ranges landscape is likely to be more resilient to the potential impacts of climate change because of the highly variable topography and the mosaic of generally well-connected vegetation communities. Nevertheless, restricted vegetation communities such as upland wetlands, rocky outcrops, dry rainforest and cool temperate rainforest are vulnerable to the catastrophic consequences of climate change as a result of extended dry periods, increased fire and/or storm intensities. Bell Miner associated dieback may be an emerging threat to the escarpment ranges. Chytrid fungus is a serious threat to the many frogs that inhabit the streams and moist forests and may be an emerging threat in the escarpment ranges. Weed invasion in disturbed areas may be a problem.

Tablelands

The small area of tablelands landscape (2% of the LGA) comprises all public land (national parks). Threats are generally much lower than in the other landscapes and relate mainly to wildfire, weed invasion and feral animals.

5.3 SPECIFIC THREATS TO THE LGA: DISCUSSIONS WITH THE EXPERT AND COMMUNITY PANELS

The Biodiversity Strategy Expert and Community Panels read the OEH Report as described above and met to discuss specific threats they felt had high levels of impact on the biodiversity of the Port Macquarie-Hastings LGA. These threats included:

- impacts from feral pest animals, most notably foxes, cats, rabbits, Common Mynahs and deer, with specific concern expressed over the impact of deer browsing on littoral rainforests (and also the impact of domestic pets, notably cats and dogs, on wildlife)
- development and associated clearing and habitat fragmentation
- agricultural enterprises which result in further clearing, particularly in sensitive and already over-cleared landscapes, such as the Comboyne Plateau
- weed invasion (with a particular emphasis on riparian community weeds)
- forestry (including private native forestry)
- road kills
- inappropriate fire regimes

- shorebird declines as a result of recreational activities (including jet skis, boats and sea planes) causing wash into important roosting and nesting areas, most notably Pelican Island, Queens Lake and Watson-Taylor Lake and recreational four-wheel driving impacting shorebird habitat and nesting environments (and generally the North Shore's environment)
- alteration to the natural flow regimes of rivers, streams and wetlands from habitat modification and degradation.
- overly-intenstive domestic livestock grazing, trampling and competition
- mining in headwaters
- climate change.

5.4 SIGNIFICANT THREATS IN THE LGA

The Panels felt that it was important for this Biodiversity Strategy to explicitly consider habitat losses which may occur as a result of development, climate change and private native forestry. The following sections, developed by Council, discuss these significant threats.

5.4.1 LOSS TO DEVELOPMENT

The coastal floodplain, with its temperate climate, coastal lifestyle and proximity to the beach and major urban centres such as Port Macquarie, is a highly desirable place for urban development. Unfortunately, this area also has some of the most fertile soils, best fauna habitat, largest hollow-bearing trees and remaining patches of many threatened ecological communities, such as Littoral Rainforest. The coastal floodplain also has the most important Koala habitat, and indeed Port Macquarie's Koala population is of national significance. It is fundamentally important to understand that these biological assets are not distributed evenly throughout the LGA, and impacts on the coastal floodplain are likely to further result in key habitat loss and fragmentation in this already fragmented and over-cleared landscape unit.

While all developments must undergo ecological assessments, the challenge is that any individual development may not cause a 'significant impact on a local population or community', and therefore is allowed to proceed. However, it is the cumulative impacts of many such individual developments that cause significant losses to biodiversity and the ancillary impacts that follow developments (such as increasing weed encroachment from urban landscapes, road strikes and influence of predation from companion animals), that cause the long-term damage and such impacts are much harder to regulate and control. Thus, both the immediate threats to biodiversity from development and the ongoing threats require consideration. This has been an increasing focus of Port Macquarie-Hastings Council to:

1. separate critical biodiversity conservation issues from urban areas so as to avoid conflicts which will result in further biodiversity losses. For instance, using consolidated off-site offsets rather than trying to retain small parcels of habitat on the development site which will only be a 'population sink' due to factors such as road strike, predation and weed incursion. Experience has also shown that retaining trees in the urban landscape is fraught with difficulties as such trees or habitat parcels are often lost in time to vandalism or removed for safety considerations.
2. find ways that biodiversity losses can be, in the first place avoided, but failing that, minimised and offset elsewhere
3. improve strategic planning by considering all available biological data (particularly that now provided by this Biodiversity Strategy) and the cumulative impacts.

The population of Port Macquarie is expected to increase by 30% to 103,000 in the next 20 years. The Urban Growth Management Strategy outlines where this development may take place. That Strategy has been developed with consideration of work from the Biodiversity Strategy, particularly Zonation and GAP CLoSR. The key outcomes of the Urban Growth Management Strategy as they relate to biodiversity are summarised in Box 18.

BOX 18. THE URBAN GROWTH MANAGEMENT STRATEGY AND ITS RELATIONSHIP TO BIODIVERSITY

The purpose of the Urban Growth Management Strategy is to provide a sound strategic planning framework for residential, rural-residential, retail, industrial and tourism development in the Port Macquarie-Hastings Local Government Area to 2036.

The Urban Growth Management Strategy achieves Council's vision of 'A sustainable high quality of life for all' by identifying land-use management strategies to maintain and enhance the quality of life for everyone in the community in a balanced way for current and future generations. A 'balanced way' means that social, economic and ecological objectives are balanced with none being more important than the others.

Our population is anticipated to grow, on average, by more than 1000 people per year over the next 20 years. This equates to more than 500 new dwellings a year on average, or nearly 50 hectares of cleared land needed every year if all of this development is accommodated in new housing estates. Allowing urban development while simultaneously protecting our natural environment presents significant challenges for the Urban Growth Management Strategy.

Council's ecological data, including outputs from Zonation and GAP CLoSR, has helped to create a map of high environmental values for the LGA. This mapping is the fundamental basis for selection of areas for potential urban development. Land free of environmental values is rare, particularly in our highly desirable coastal area east of the Pacific Highway. Our policy to facilitate a compact urban form by encouraging growth around our centres and encouraging more efficient use of land for development is reinforced by our environmental values mapping.

5.4.2 LOSSES TO SEA-LEVEL RISE

Climate change and sea-level rise have the potential to impact private and public land and assets, including biodiversity, within the Port Macquarie-Hastings LGA as well as other coastal areas around New South Wales and Australia. BMT WBM was commissioned by Council in 2013 to undertake an estuary and coastline inundation mapping study to assist in the assessment of areas at risk from sea-level rise. The aim of the study was to determine the estuarine and coastal inundation extent for a range of 'design events' as outlined in Table 7.

Table 7. Design events for climate changes

Design event	Comment
Spring tide	This represents a typical tidal case as would be observed many times each month.
King tide	This represents a less typical tidal case as would only be observed several times each year.
1 year ARI	This peak tidal level is expected on average to be exceeded once each year and would occur due to a minor storm event.
50 year ARI	This peak tidal level is expected on average to be exceeded once every 50 years and would occur due to a major storm event. Alternatively, this peak water level event only has a 2% chance of occurring in a given year.
100 year ARI	This peak tidal level is expected on average to be exceeded once every 100 years and would occur due to a major storm event. Alternatively, this peak water level event only has a 1% chance of occurring in a given year.

ARI = average recurrence interval

The three timeframes and associated mean sea levels included in the study were:

- Current; mean sea level = 0.0 metre AHD (Australian height datum)
- 2050; mean sea level = 0.4 metre AHD
- 2100; mean sea level = 0.9 metre AHD.

These levels are based on the previous NSW Government planning benchmarks which are a projected rise in sea level (relative to the 1990 mean sea level) of 0.4 metres by 2050 and 0.9 metres by 2100 (DECCW 2009). The best available estimates of sea-level rise projections indicate that these increases in mean sea level will occur by the year 2050 and 2100 as presented in the former NSW Planning Guidelines and adopted by Council (along with many other coastal councils in NSW). High quality mapping of the inundation extents for the estuaries and coastal areas was undertaken using LiDAR ground elevation data collected for Council in October 2005. The report is available from Council.

While temporary inundation, as may be experienced with a 1:100 year flood event or even a king tide, may have little ecological impact on the biodiversity of an area, repeated inundation over a month (as occurs in the spring tide scenario) would almost certainly impact the biota on a site. Many plants would not only be unable to cope with the waterlogged conditions, but more importantly would not be able to survive in the increasingly saline conditions. Such saline conditions greatly reduce the ability of a plant to uptake nutrients, thus affecting their flowering, fruiting and survival. Leaf chemistry would also be altered, which is of great concern for folivores, such as the Koala (which are notoriously fussy eaters). In the case of saltmarshes, the repeated inundation and *reduced* hyper-saline conditions (through regular tidal flushing) is likely to transform these communities into Grey Mangrove woodlands/forests.

For the purposes of this Biodiversity Strategy, the sea-level rise scenarios for the three mean sea levels were compared against spatial data for threatened ecological communities (outside state forests and NPWS estate) and Swamp Sclerophyll Forests (Keith Formation, tenure blind analysis). This community occupies low-lying parts of the landscape and is therefore at risk from inundation. Wallum Froglet and Black Bittern also occupy low-lying areas on the coastal floodplain and thus inundation of their prime habitat (the top 30% of predicted habitat from their individual MaxEnt models used in Zonation) was also examined. The scenarios examined the amount of these lands which experience inundation under spring tides currently, and compared this against likely inundation scenarios for a spring tide in 50 and 100 years' time.

The results show that while many vegetation communities will not be affected, several already threatened ecological communities will experience substantially increased inundation within 50 and 100 years, most likely resulting in major modification (see Figure 21 and Figure 22). Of particular note are the following wetland and floodplain

threatened ecological communities: Coastal Saltmarsh, Freshwater Wetlands on Coastal Floodplains, Swamp Oak Floodplain Forest, and Swamp Sclerophyll Forest on Coastal Floodplains.

Indeed, there will be a 20-fold increase in the area of wetland and floodplain threatened ecological communities experiencing spring tide inundation in 100 years. The modelling indicates that **all** Coastal Saltmarsh is likely to be inundated by 2103.

The results showed that Swamp Sclerophyll Forests (both the recognised threatened ecological community on coastal floodplain soils and the broader ecological formation, see Figure 23) will experience high levels of spring tide inundation. These communities represent some of the most Preferred Koala Habitat in the region, for their combination of primary food trees, such as Swamp Mahogany and Broad-leaved Paperbark (a tree offering food and shelter). They are also important habitat for other threatened animals such as the Swift Parrot and Wallum Froglet and threatened plants such as *Maundia triglochinoides* and the Lesser Swamp-orchid.

As a quantitative example, specific modelling of the best Wallum Froglet habitat showed that 16% of this will experience regular spring tide inundation within 100 years (see Figure 24). Wallum Froglets are highly sensitive to changes in water quality, pH and water levels. Modelling of additional species will be completed in line with this Biodiversity Strategy to examine potential climate change refuge areas that will have a disproportionate importance in time.

The results show the importance of considering the impacts of climate-mediated sea-level rise on vegetation in strategic planning. For example, 'offset' sites should remain free of such impacts (see Box 19). The results also show that 'marginal areas' of species habitat, particularly for wetland-associated species, may become fundamentally more important over time when other areas are inundated. For example, the Black Bittern, a threatened species, inhabits coastal wetlands and is well known from the Partridge Creek area, which will experience much greater inundation within 50 years (also see Box 20).

It is often argued that the impacts of climate-induced sea-level rise will be marginal because species will simply 'migrate' up topographic gradients. While the idea has merit, this is unlikely to occur in many areas of the LGA due to urban development immediately adjoining existing vegetation and also the time scales at which these changes may operate (particularly given storm surges and so forth). There is a growing recognition that future strategic planning must allow for buffers around areas which may experience more inundation as a result of climate-induced sea-level rise.

BOX 19. CONSIDERING CLIMATE CHANGE WHEN PREPARING BIODIVERSITY OFFSET SITES

Establishing sites that seek to 'offset' the environmental impacts of development is increasingly becoming common place. Many such sites involve planting replacement habitat trees, such as Koala food trees, in larger ratios than they were removed. Such offsets take time to function ecologically. For instance, a Koala food tree typically takes a minimum of 5 years to be used, with many species not reaching full functionality until about 20 years. Trees planted for hollow-dependent species may take 100 or more years to begin offering the full suite of habitat requirements.

Planning for offsets therefore needs to consider many long-term issues, such as:

- Will the area become geographically isolated in time due to surrounding clearing?
- Will the area have major roads nearby that could result in road-strike?
- Will the area experience more frequent inundation (sea-level or overland flow) in the future?
- Will the area experience more severe fires in the future?

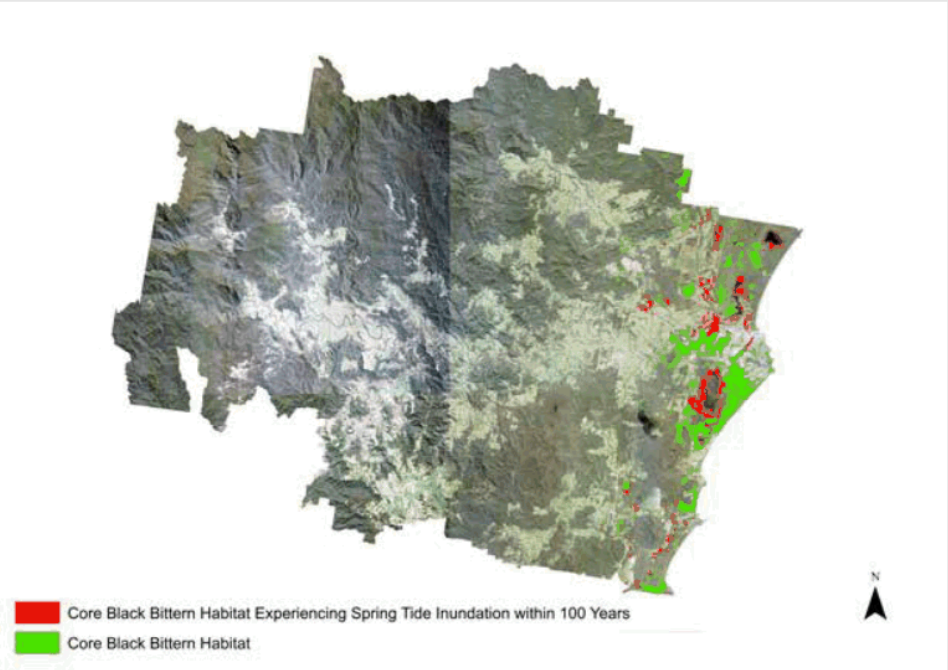
Within the Port Macquarie-Hastings Council area, a development was required to find an 'offset' site on which to plant Koala food trees. A parcel of land, supporting fringing Primary Koala Habitat (Swamp Sclerophyll Forest on the Coastal Floodplain) was located by the developer and submitted to Council for approval. While all looked appropriate by today's standards, modelling associated with this Biodiversity Strategy revealed that Koala habitat in this area is predicted to regularly experience tidal inundation within 50 years. This is highly likely to have an impact on eucalypt survival and browse palatability and nutritional content. The developer was required to find a more suitable offset site.

When planting offset sites, it is important to consider what that site may be like in the fullness of time, and particularly the impacts of climate change, to ensure that such areas will not be seasonally or permanently inundated.

BOX 20. CONSIDERING CLIMATE CHANGE WHEN PREPARING BIODIVERSITY OFFSET SITES

The Black Bittern is a sooty black or dark brown wading bird with a yellow patch on the sides of the neck, extending from the throat to the wing. The feathers on the crown and lower neck are almost plumes. Black Bitterns live in tree-lined wetlands and mangroves. There they forage among the shallow water by slowly stalking prey, such as fish and frogs, or by standing and waiting for prey to emerge. Sometimes they may plunge at prey from a perch, stabbing it with their sharp bills. They forage in both daylight and darkness but by day they are usually quite secretive, skulking among areas of short marshy vegetation. Unlike many other wading birds, Black Bitterns are mainly sedentary throughout the year, therefore being strongly tied to a particular wetland. They nest on platforms built in trees overhanging water. Damage to wetlands, upon which this species is so reliant, has resulted in the Black Bittern being declared a threatened species in New South Wales.

Climate change will result in large changes to water levels and water quality of key Black Bittern habitat. Such changes will have flow-on effects for the availability and composition of their prey items as well as areas of suitable habitat for daytime refuges, perching and nesting opportunities, as many such areas will be 'drowned' by rising water levels. An examination of current core Black Bittern habitat against spring tide inundation in 100 years, showed that 25% of core Black Bittern habitat is likely to experience regular spring tide inundation, which is 8.75 times higher than the levels of habitat currently affected. Areas outside the zones of inundation (areas shown in green below) are therefore of key importance.



Areas of core Black Bittern habitat that are likely to be inundated during spring tides within 100 years.

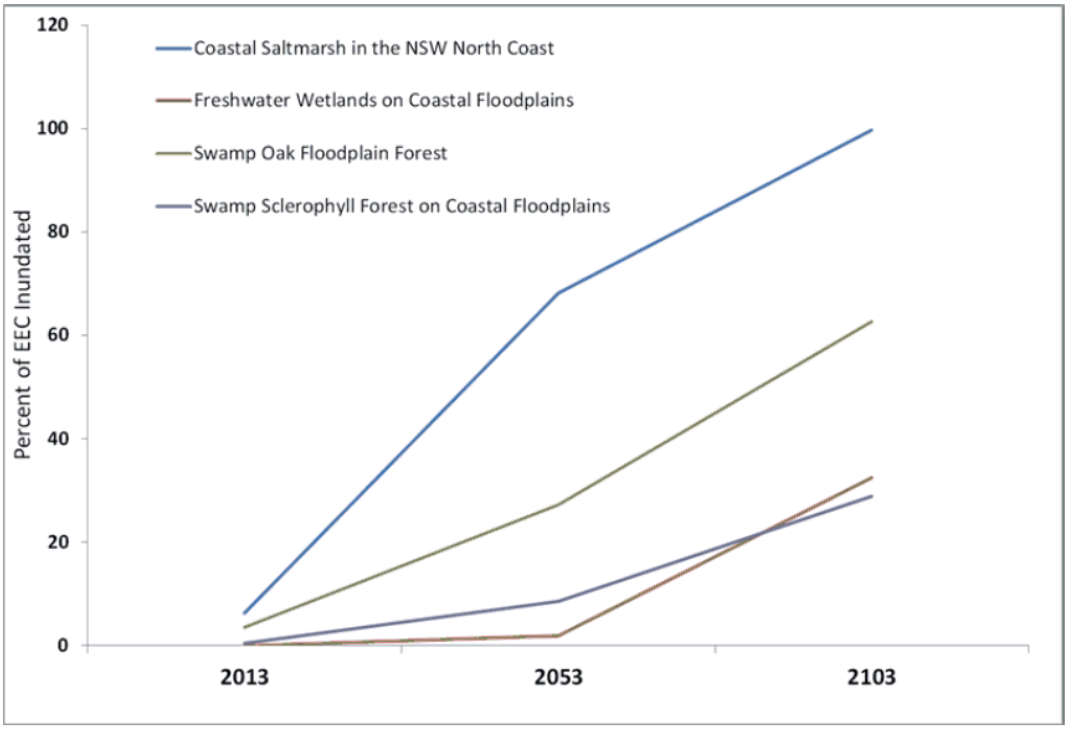


Figure 21. Percentages of most affected threatened ecological communities which will experience significantly more inundation (even under spring tide scenarios) with increasing sea-level rise

Note: this analysis does not include areas within State Forests or NPWS as this data was not available. It is the percentage that exists on private, Council or Crown land that will be affected.

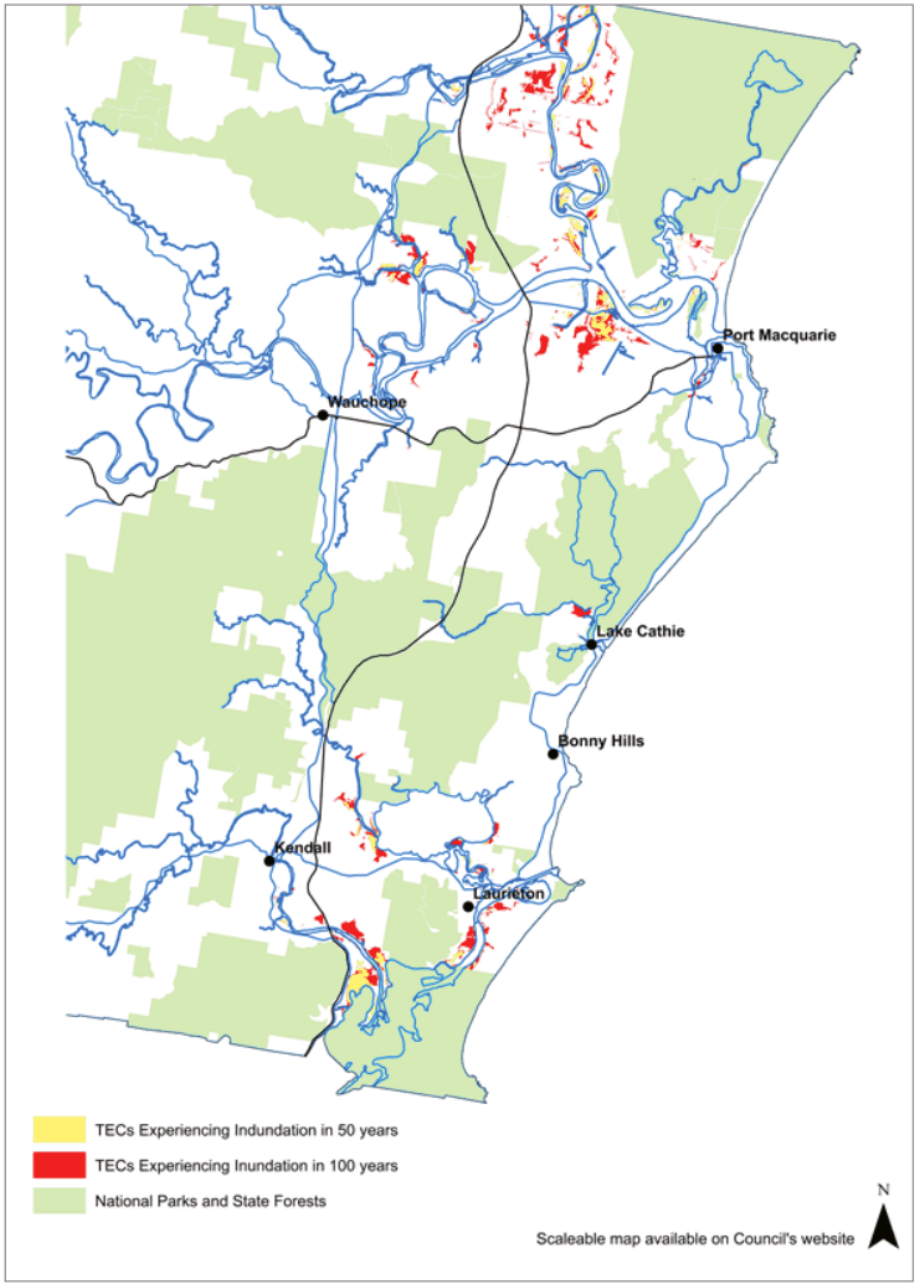


Figure 22. Threatened ecological communities (TECs) (outside Protected Areas and Forestry Lands) which will undergo significant modification through tidal inundation within 50 and 100 years with spring tides.

There will be a 20-fold increase in areas inundated. While the area of affected TECs within national parks and state forests is not shown, a similar quantity of TECs is likely to be impacted in these areas, particularly in low-lying areas such as Lake Innes.

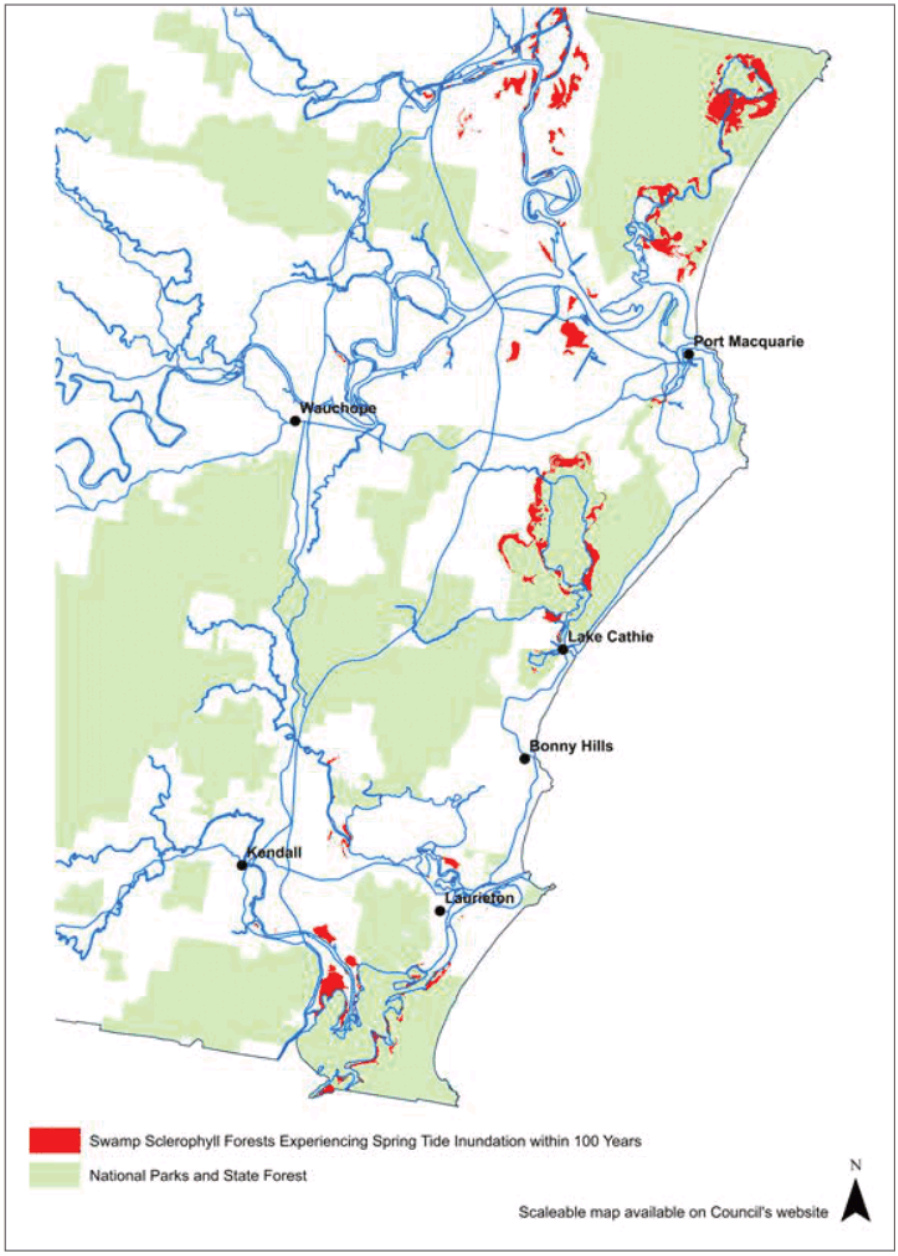


Figure 23. Areas of swamp sclerophyll forest (Keith Formation) which will experience increased inundation under spring tide scenarios with climate-induced sea-level rise.

Approximately 30% of swamp sclerophyll forest will experience regular inundation with spring tides. Increased inundation is likely to affect the ability of plants to uptake nutrients, which affect their survival and palatability for folivores, such as the Koala, for which this ecological community is among its most preferred habitat on the coastal floodplain.

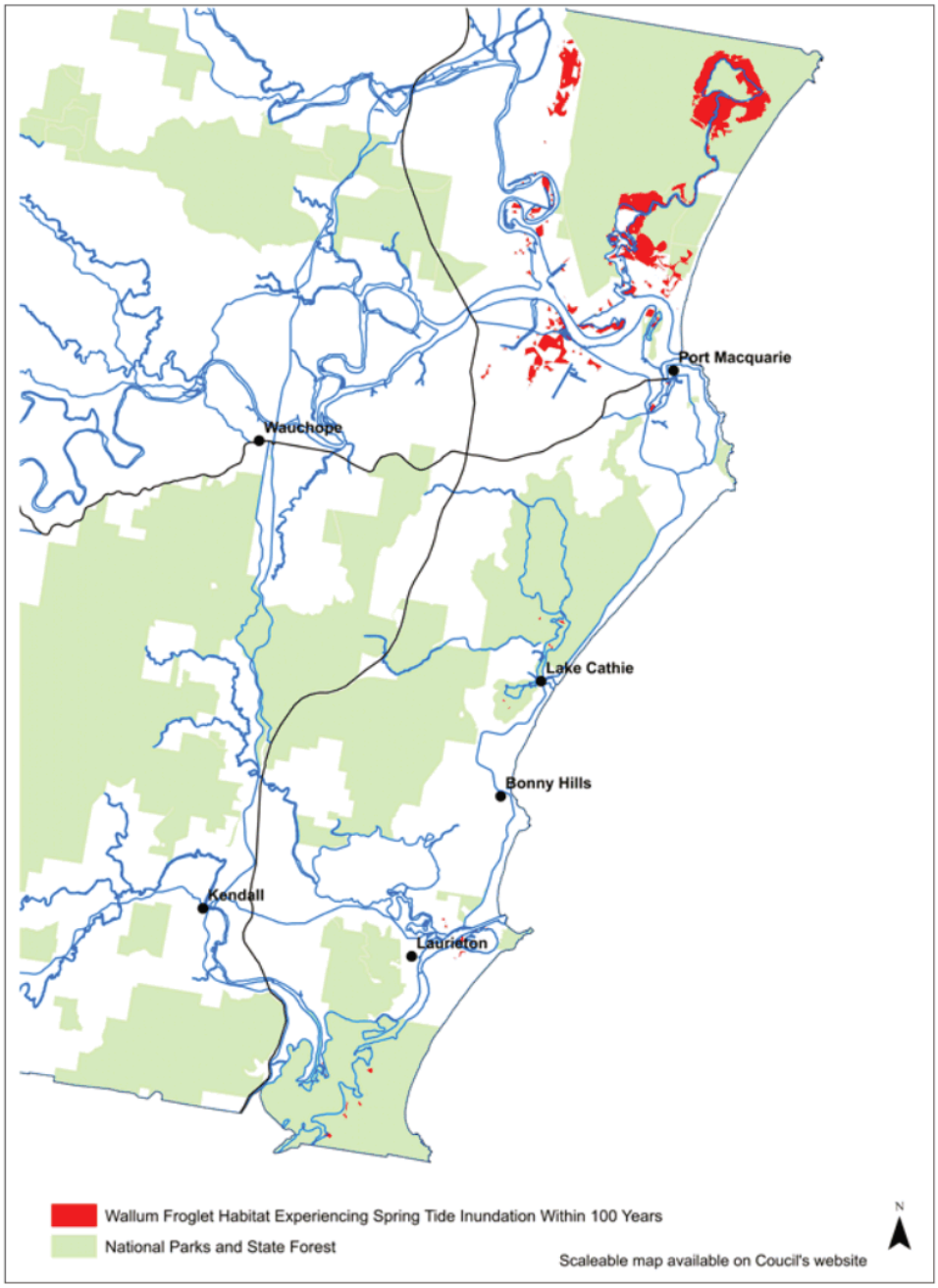


Figure 24. Areas of Wallum Froglet habitat which will experience increased inundation under spring tide scenarios with climate-induced sea-level rise.

Approximately 16% of predicted habitat will experience regular inundation with spring tides which is likely to have consequences for species survival.

5.4.3 PRIVATE NATIVE FORESTRY

While Port Macquarie-Hastings Council is not the regulatory authority on private native forestry, the industry is a large one within the LGA. Because of this, the Expert and Community Panels requested that this industry be further examined here. An examination of available data revealed:

- As of October 2016, there was 17,799 hectares of land subject to private native forestry agreements within the Port Macquarie-Hastings LGA.
- From 2015–2016 an average of two private native forestry licences were granted each month in the LGA.
- 15,330 hectares of the private native forestry licences issued were located on Preferred Koala Habitat. Indeed, 16% of Primary Koala Habitat (outside of national parks and state forests) was covered by a private native forestry licence. Any significant loss of Primary Koala Habitat is likely to have an impact on Koala ecology and survival.
- Some ecological communities are likely to be more affected than others (see Table 8). For instance, 100% of Coachwood – Black Booyong Warm Temperate Rainforest, 77.8% of Narrow-leaved Red Gum – Orange Gum Swamp Woodland and 77.6% of Spotted Gum Grassy Dry Forest (outside national parks and state forests) has a private native forestry licence over it as of Oct 2016. The two latter vegetation communities were specifically identified as being of biological significance by the Expert Panel. Another significant vegetation community identified by the Expert Panel was the Brown Myrtle Dry Rainforest on the western shores of Lake Innes. Parts of this community also have a private native forestry licence over them as of October 2016. It should be noted that while licences have seemingly been issued over some such areas due to discrepancies in vegetation mapping datasets, the Code explicitly excludes logging operations within all areas of mapped rainforest, old-growth forest and threatened ecological communities identified on the ground, and sets prescriptions regarding logging operations within proximity of these areas and other key habitat areas. areas.

Table 8. Percentage of vegetation communities (outside State Forests or NPWS Estate) with a private native forestry licence as of October 2016 as revealed by the PMHC Vegetation Mapping Dataset.
It should be noted that the Code precludes logging within rainforest and other Threatened Ecological Communities.

Port Macquarie Vegetation Community	% of community (outside national parks and state forests) under a PNF Licence*
Coachwood - Black Booyong Warm Temperate Rainforest	100
Narrow-leaved Red Gum - Orange Gum Swamp Woodland	77.82
Spotted Gum Grassy Dry Forest	76.63
Blackbutt Shrubby Moist Forest	64.68
Blackbutt Grassy Forest	58.23
Grey Gum - Grey Ironbark Moist Forest	57.17
Grey Ironbark Grassy Forests	56.68
Brushbox - Blue Gum Moist Riparian Forest	49.24
Grey Gum - Tallowwood - White Mahogany Grassy Forest	48.57
Mountain Grey Gum - Broad-leaved Mahogany Grassy Dry Forest	41.99
Swamp Mahogany Forest	41.37
Sydney Blue Gum - Tallowwood +/- Brush Box White Mahogany Moist Forest	38.30
Flooded Gum Moist Riparian and Gully Forest	37.36
Black Booyong Subtropical Rainforest	35.76
Native Tamarind - Brush Box - Bangalow Palm Gully Subtropical Rainforest	35.57
Blackbutt Coastal Dune Satinwood Forest	29.58
Brown Myrtle Dry Rainforest	27.56
White Stringybark - Tallowwood - Grey Gum Dry Forest	27.10
Shatterwood Dry Rainforest	26.71
Wattle Scrub (Dist)	26.10

* It is important to note that some communities are not likely to be found in large quantities in national parks or state forests.

5.5 INAPPROPRIATE BURNING REGIMES

Bushfire is part of the Australian landscape. While some species require fire on a semi-regular basis — for instance the Eastern Chestnut Mouse requires a fire interval of approximately 4 years to ensure appropriate habitat — other species or communities, such as Littoral Rainforest, are extremely fire intolerant. Conducting planned hazard reduction burns at appropriate fire intervals across the landscape to minimise the risk of unplanned wildfires in areas supporting species or communities intolerant of fires, and as a means of minimising the risk of 'catastrophic fires', is highly important. Planned 'ecological burns' are also important to retain some ecological communities in the landscape, such as Themeda Headland Grassland (see Box 21).

The threat of unplanned, inappropriate burns to biodiversity can be greatly improved by increased spatial knowledge depicting key biological assets such as where fire should be avoided, and areas where fire would be beneficial (and at what intervals). Such information can then be shared with key stakeholders, such as the Rural Fire Service, the NPWS and landholders. The threat of inappropriate fire regimes can also be reduced by having appropriate personnel to assist in hazard reduction burns and fire control activities.

Some areas of the Port Macquarie-Hastings LGA currently are at risk from bushfires. For instance, the Christmas Bells Plains area supports key Koala habitat, and patches of Littoral Rainforest (not mapped in SEPP 26 legislation). These assets both occur amid an area of heath which is highly prone to intense fire and indeed requires fire for proper ecological functioning.

Rainforest environments do not respond well to fire, with most rainforest species suffering when burnt. Figure 25 shows that many rainforest patches have likely burned in the last 15 years.

One of the Actions arising from this Strategy will be to work with a Fire and Biodiversity Consortium for the Port Macquarie-Hastings LGA. This will share knowledge and improve strategic fire management amongst land management and fire agencies.

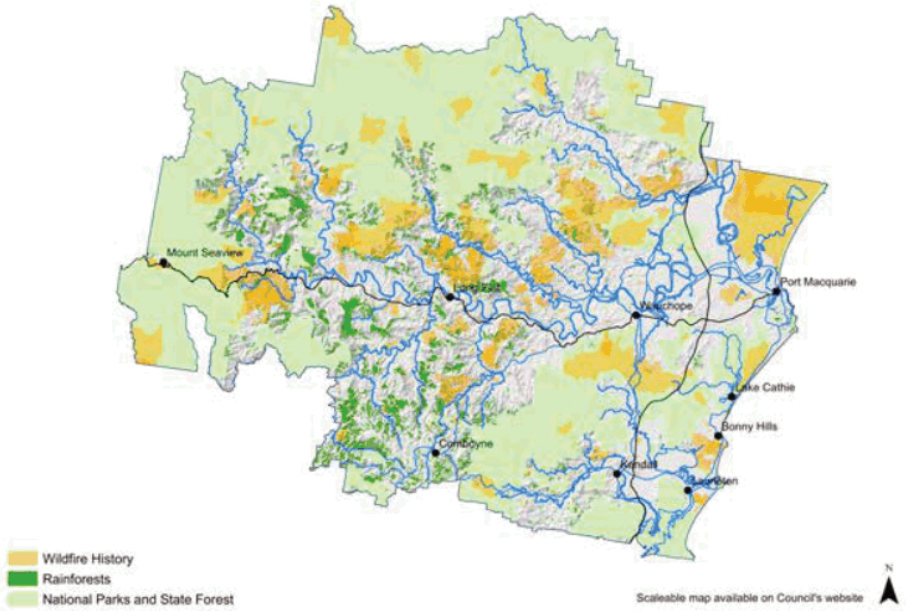


Figure 25. Wildfire history (2000–2015)

While the fire mapping extent is 'broad-brush' and may not have affected every patch of rainforest, the data still reveals the need for better understanding of biological assets that may be at risk from wildfire and actions to protect them.

BOX 21. THEMEDA HEADLAND GRASSLAND AND THE NEED FOR ECOLOGICAL BURNS

Themeda Grassland on Seacliffs and Coastal Headlands in NSW is a threatened ecological community. It occurs in several areas in the Port Macquarie-Hastings LGA, with perhaps the most accessible examples at Gaol and Tacking points. The community contains a rich diversity of small forbs, grasses and shrubs as well as unique micro-organisms, fungi and cryptogamic plants, such as lichens, mosses and ferns. The exact composition of species varies from one site to another, illustrating their spatial isolation, independent evolution, and the importance of protecting all sites in order to conserve the full range of biodiversity found in this community. Individual stands of the community are often very small, a few square metres, but some sites may be several hectares in size.

Many of the plants in this community have developed unique growth habits and forms to deal with the highly exposed conditions. For instance, the *Themeda* grass (also called Kangaroo Grass) in this community is prostrate (i.e. lying flat on the ground) with glaucous leaves (covered with a whitish bloom which reflects the harsh sunlight). These features are retained when the plant is cultivated/propagated and this particular form of the grass is believed to be genetically distinct from Themeda grass in other situations.

Many shrubs in the community also have a prostrate, matted form, which provides important habitat for many animals, such as skinks, which live under the layered branches. Themeda Headland Grasslands are important for other fauna species as well. For example, raptors such as Nankeen Kestrels hunt over the open ground, nectarivorous birds feed on the shrubs and invertebrates are associated with the grasses and groundcovers. For instance, Kangaroo Grass is a food source for the caterpillars of the moth species *Pterolocera amplicornis*. The genetic diversity and uniqueness of these sites and their importance for a wide range of species is therefore high.

Themeda Headland Grassland is believed to be a 'derived ecological community'. That is, the community arose as a result of traditional Aboriginal burning regimes. It is believed these areas were burnt regularly for communication between people positioned on different headlands and to help with fishing (burning improved ocean views) and hunting (kangaroos were attracted to the fresh green pick and the headland formation enabled 'herding'). They were also important sites for rituals and gatherings. There has been some evidence that cessation of strategic burning in these areas has led to invasion of both native and exotic shrubs, such as wattles and banksias. While this is a 'natural process', it may deplete genetic diversity over time as species strictly associated with these communities are lost.

Unfortunately, the high pedestrian and car traffic in areas dominated by Themeda Headland Grassland also leaves them prone to weed invasion. Being 'grassland', it is more difficult to control invasive grasses without 'off-target' damage to the native grasses, which are often intergrown. Many studies have shown that strategic use of fire (i.e. ecological burns) can stimulate the native grasses and forbs while decreasing the weed load. Strategic use of fire may also 'open up' the grassland thereby allowing better spot-spraying of weeds with less off-target damage. Studies have shown that in contrast, unburnt headlands continue to deteriorate, with ongoing senescence of Kangaroo Grass and continued invasion of exotic plants. Nonetheless, moderation is key because too frequent burning can reduce the abundance of prostrate shrubs, which are functionally important.

Coordinating strategic burns of small sites in the urban context for ecological reasons can be a challenging task. But initiatives arising with this Biodiversity Strategy, such as the commencement of a Fire and Biodiversity Consortium for the Port Macquarie-Hastings LGA, will facilitate such works.

Rose-crowned Fruit-Dove: Photo © Bjorn Christian Torrissen https://en.wikipedia.org/wiki/Rose-crowned_fruit_dove#/media/File:Rose-Crowned_Fruit_Dove.jpg

5.6 SO WHAT DO WE DO?

Considering all of the above threats can seem somewhat overwhelming, particularly when many are beyond the control of an individual, or even a regulatory authority such as local government.

The simple answer is that we can all make local ecosystems as resilient as possible and thereby assist biodiversity conservation. Ecosystem resilience refers to the capacity of an ecosystem to recover from disturbance or withstand ongoing pressures. It can be achieved by ensuring that ecosystems have:

- good levels of habitat (and particularly conserving the 'best bits' first)
- habitats that are well connected
- have the appropriate species composition for that ecological community
- have the appropriate 'ecosystem services' species and processes present
- are weed and pest animal free (thus enabling the persistence of the appropriate species).

Within the Port Macquarie-Hastings LGA we can all play a role in this by undertaking specific actions. Each year Council will list out actions they can take to fulfill the essence of this document. This information will be contained in the annual operational plan.

6. ACTIONS REQUIRED TO REVERSE THREATS AND PROTECT BIODIVERSITY

The Biodiversity Strategy will be implemented through four key themes (identified by the Community and Expert Panels) to assist in delivering biodiversity conservation. These themes effectively overarch the specific threats listed by the Office of Environment and Heritage's analysis of the Port Macquarie-Hastings Local Government Area. Each year a series of actions generated from the Biodiversity Strategy will be implemented. Factors such as external funding opportunities, internal resourcing requirements, Council's priorities and biological priorities will be considered when determining which actions are undertaken each year. A full list of actions will be included in the PMHC annual operational plan.

The four key themes/programs are:

Community Engagement/Education Program

Actions in this theme will centre around increasing the community's awareness and knowledge of biodiversity in the LGA, whilst improving and building the capacity of individuals and community groups by reducing impact and increasing environmental works.

Operational Programs

This theme will focus on ensuring the ongoing on-ground work including:

a) Biosecurity works through the control of invasive weeds and vertebrate pest control.
b) Biodiversity and fire management
c) Delivery of actions within the Koala Recovery Strategy
d) Biodiversity and Indigenous Lands program
e) Riparian Biodiversity Program.

Biodiversity Offsetting and Investment Opportunities Program

It is recognised that Council has a role in helping to find appropriate offset sites within the LGA. This role is seen as an opportunity to assist in both management and procurement of offset sites for Council requirements but also to assist local residents to navigate this topic.

Biodiversity Guidance/Standards

Opportunities for improving guidance, processes and standards will always be an ongoing management action. Changes in biodiversity conservation legislation, new research and innovations will continuously create pressure for Council to operate effectively and remain in line with best practice management and the latest developments in this sector. Therefore, actions in this theme will focus on creating continuous improvements.

Reminiscence

I was born into a coloured country;
spider-webs in dew on feathered grass,
mountains blue as wrens,
valleys cupping sky in like a cradle,
christmas-beetles winged with buzzing opal;
finches, robins, gang-gangs, pardalotes
tossed the blossom in its red-streaked trees.

My father had a tale of an old neighbour,
the kind of reminiscence one inherits.
Asked for difficult detail in stories
at those bygone ample crowded teas,
(cup and saucer balanced on his knees):
'Madam, you might as well
ask me to enumerate the parrots.'

Hundreds, thousands, birds uncountable
babbling, shrieking, swirling all around –
skiesful, treesful: lorikeets, rosellas,
lorilets and cockatiels and lowries,

Red-backed, Ring-necked, Orange-breasted,
Turquoise,
Purple-crowned, Red-collared, Rainbow,
Varied,
Scarlet-chested, Blue-browned,
Scalybreasted,
Swift and Night and Paradise and Crimson,
Twenty-eight and Red-capped, Musk and
Elegant-
I give up. But see him
sitting stiffly in a basket-chair
circled by their millions, formally
stirring three of sugar in his tea
in an afternoon I never knew
making conversation with the ladies.

Not a flock of parrots left to number.
Just a picture, fifty years behind,
left embroidered on my childish mind.
Parrots! They were something to remember.

Judith Wright

Appendix A. Scientific names for species mentioned in this strategy

Common name	Scientific name
PLANTS	
No common name	*Melaleuca biconvexa*
Antarctic Beech	*Nothofagus moorei*
Big Nellie Hakea	*Hakea archaeoides*
Blackbutt	*Eucalyptus pilularis*
Christmas Bells	*Blandfordia grandiflora*
Coastal Pandanus	*Pandanus tectorius*
Drooping Ironbark	*Eucalyptus caleyi*
Forest Red Gum	*Eucalyptus tereticornis*
Small-fruited Grey Gum	*Eucalyptus propinqua*
Kangaroo Grass	*Themeda triandra*
Lesser Swamp-orchid	*Phaius australis*
Narrow-leaved Red Gum	*Eucalyptus seeana*
Needlebark Stringybark	*Eucalyptus planchoniana*
North Brother Wattle	*Acacia courtii*
Orange Gum	*Eucalyptus bancroftii*
Privet	*Ligustrum* spp.
Red Cedar	*Toona ciliata*
Red Mahogany	*Eucalyptus resinifera*
Screw Pine	*Pandanus tectorius*
Silver Bush	*Sophora tomentosa*
Spike-rush	*Eleocharis* spp.
Swamp Mahogany	*Eucalyptus robusta*
Swamp Oak	*Casuarina glauca*
Tallowood	*Eucalyptus microcorys*
Turpentine	*Syncarpia glomulifera*
White Mahogany	*Eucalyptus acmenoides*
White Stringybark	*Eucalyptus globoidea*
White-flowered Wax Plant	*Cynanchum elegans*
Wild Rice	*Oryza* spp.
Willow Bottlebrush	*Callistemon salignus*
INVERTEBRATES	
Fritillary Butterfly	*Argyreus hyperbius inconstans*
Giant Dragonfly	*Petalura gigantea*
Spiny Crayfish	*Eustacus* spp.
FISH	
Australian Bass	*Macquaria novemaculeata*
FROGS	
Giant-barred Frog	*Mixophyes iteratus*
Green and Golden Bell-frog	*Litoria aurea*
Green-thighed Frog	*Litoria brevipalmata*
Wallum Froglet	*Crinia tinnula*

Common name	Scientific name
REPTILES	
Delicate Skink	*Lampropholis delicata*
BIRDS	
Australasian Bittern	*Botaurus poiciloptilus*
Australian Raven	*Corvus coronoides*
Black Bittern	*Ixobrychus flavicollis*
Black-necked Stork	*Ephippiorhynchus asiaticus*
Brolga	*Grus rubicunda*
Eastern Yellow Robin	*Eopsaltria australis*
Eastern Curlew	*Numenius madagascariensis*
Glossy Black-cockatoo	*Calyptorhynchus lathami*
Ground Parrot	*Pezoporus wallicus*
Magpie Goose	*Anseranas semipalmata*
Nankeen Kestrel	*Falco cenchroides*
Noisy Miner	*Manorina melanocephala*
Noisy Pitta	*Pitta versicolor*
Paradise Riflebird	*Ptiloris paradiseus*
Pied Oystercatcher	*Haematopus longirostris*
Rose-crowned Fruit-dove	*Ptilinopus regina*
Sharp-tailed Sandpiper	*Calidris acuminata*
Sooty Oystercatcher	*Haematopus fuliginosus*
Swift Parrot	*Lathamus discolor*
Yellow-throated Scrubwren	*Sericornis citreogularis*
MAMMALS	
Black Flying-fox	*Pteropus alecto*
Brown Antechinus	*Antechinus stuartii*
Brush-tailed Phascogale	*Phascogale tapoatafa*
Common Ringtail Possum	*Pseudocheirus peregrinus*
Dingo	*Canis dingo*
Eastern Freetail-bat	*Mormopterus norfolkensis*
Eastern Pygmy Possum	*Cercartetus nanus*
Grey-headed Flying-fox	*Pteropus poliocephalus*
Hastings River Mouse	*Pseudomys oralis*
Koala	*Phascolarctos cinereus*
Little Red Flying-fox	*Pteropus scapulatus*
Long-nosed Potoroo	*Potorous tridactylus*
Red-legged Pademelon	*Thylogale stigmatica*
Red-necked Pademelon	*Thylogale thetis*
Spotted-tailed Quoll	*Dasyurus maculatus*
Squirrel Glider	*Petaurus norfolcensis*

Appendix B. Datasets used in the Biodiversity Strategy

Dataset and description	Reference
PMHC Vegetation Community Mapping Maps all extant vegetation remaining as of 2009 in patches greater than 0.25 ha (0.1 ha for Littoral Rainforest) outside National Parks and State Forest lands and assigns the patch to one of c. 90 vegetation communities defined for our LGA. Patches were assigned based on a combination of aerial imagery analysis and field assessment. The methods adhered to the NSW Government's Native Vegetation Type Standard.	Vegetation of the Port Macquarie-Hastings Local Government Area, BioLink Ecological Consultants April 2013. Available from PMHC upon request.
CRAFTI Vegetation Mapping Comprehensive Regional Assessment Forestry Type Inventory (CRAFTI) vegetation mapping was used to identify vegetation on State Forest and National Parks land and for tenure-blind analyses undertaken. It is coarser and less-accurate than the PMHC Vegetation Community Mapping but is commonly used across NSW.	Resource and Conservation Division (1997). CRAFTI Aerial Photographic Interpretation Manual. Unpublished report. Department of Urban Affairs and Planning.
Koala Habitat Mapping Maps 'Primary', 'Secondary (A)', 'Secondary (B)', 'Secondary (C)' koala habitat across the LGA. Each of these habitat classes contains quantities of trees known to be browsed by koalas in the LGA (Koala Food Trees). 'Primary Koala Habitat' is the most important of these. The mapping also identifies 'Other Koala Habitat'. This habitat is not known to support significant numbers of koala food trees, but may still be important for connecting key areas of habitat etc.	Port Macquarie-Hastings Koala Habitat & Population Assessment. Final Report to Port Macquarie-Hastings Council, June 2013. BioLink Ecological Consultants. Available from PMHC upon request.
Threatened ecological community (TEC) mapping The Scientific Committee Final Determinations and NSW Land and Environment Court case precedents illustrate that TECs are defined by more than the vegetation composition. This is particularly true for the coastal floodplain TECs in the bioregion which must occur on alluvial topographic formations to qualify. This mapping revises BioLink's vegetation mapping to identify those vegetation communities which satisfy both the floristic and geomorphic criteria of coastal floodplain TECs specified in the Final Determinations.	PMHC Vegetation Community Mapping: Coastal Floodplain EEC Mapping Review. DarkHeart Eco-Consultancy, February 2014. Available from PMHC upon request.
BioNet BioNet is a portal for accessing government-held information about plants and animals in NSW. Records in the Atlas come from a variety of sources, including from members of the public and scientific surveys. An Atlas search will retrieve species records from across the entire Atlas database. Anyone can use the BioNet database to search for records, but registered users (as per PMHC) can access more spatially-explicit information for some species.	See: http://www.bionet.nsw.gov.au/

Dataset and description	Reference
The Atlas of Living Australia (ALA) The Atlas is a free online resource, which provides access to a wealth of information about Australia's biodiversity. The type of information available includes species occurrence records (based on field observations, specimens from biological collections, and surveys), photographs, sound recordings, maps, molecular data, and links to additional literature. Powerful mapping tools allow users to explore and analyse this information in a myriad of ways. The ALA is used for research, environmental monitoring, conservation planning and management, education, Citizen Science, and biosecurity activities.	See: http://www.ala.org.au/
BirdLife Australia BirdData This comprehensive database is administered by BirdLife Australia. Records are from BirdLife Australia members, many of whom regularly contribute using standardised surveys. Data was purchased by PMHC for use in Species Distribution Modelling to ensure the maximum number of records and increase model robustness.	See: http://birdata.com.au/homecontent.do
Climate Change Scenarios BMT WBM was commissioned by Port Macquarie-Hastings Council (PHMC) to undertake an estuary and coastline inundation mapping study to assist in the assessment of areas at risk from sea level rise. The aim of the study is to determine the estuarine and coastal inundation extent for a range of design ocean events including: spring tide, king tide; 1 year Average Recurrence Interval (ARI), 50 year ARI, and 100 year ARI. The three epochs and associated mean sea levels (MSL) included in the study are: Current (MSL = 0.0 m AHD), 2050 (MSL = 0.4 m AHD), and 2100 (MSL = 0.9 m AHD). These levels are based on the previous NSW Government planning benchmarks which are a projected rise in sea level (relative to the 1990 mean sea level) of 0.4 metres by 2050 and 0.9 metres by 2100 (DECCW, 2009). It is important to note that due to the inherent difficulty in forecasting actual rates of sea level rise (SLR) the mapping in this study shows the impact of 0, 0.4 and 0.9 m of SLR but does not specify the timing of these changes to mean sea level. The study uses three numerical models of the major estuaries in the LGA including: the Hastings, Lake Cathie/Lake Innes, and Camden Haven. High quality mapping of the inundation extents for the estuaries and coastal areas was undertaken using LiDAR ground elevation data collected for Council in October 2005.	Port Macquarie - Hastings Council Sea level Rise Mapping Project. BMT WBM Consulting. Final Report to PMHC, June 2013.
ANUCLIM Bio-climatic data were sourced from ANUCLIM for the PMHC LGA by the University of Melbourne for use in species distribution modelling. A range of climatic and geographic variables were included (e.g. rainfall, altitude, aspect, soil type).	See: http://fennerschool.anu.edu.au/research/products/anuclim-vrsn-61

Appendix C. Abbreviated names and definitions of mapped environmental data used as candidate predictor variables for inclusion in species distribution models.

All environmental data were available in raster format with a resolution of 100m.

Candidate variable	Definition
mean_temp	Mean annual temperature (ANUCLIM)
cold_temp	Mean temperature of the coldest period (ANUCLIM)
hot_temp	Mean temperature of the hottest period (ANUCLIM)
mean_rain	Mean annual rainfall (ANUCLIM)
seasonal_rain	Mean annual temperature (ANUCLIM)
mean_solar	Mean annual solar radiation (ANUCLIM)
Altitude	The altitude of a cell (in metres) above sea level (25m DEM of Hunter Valley)
Slope	The slope of a cell (in degrees) (derived from Altitude)
Eastness	The degree to which the aspect of a cell is east (east = 1, west = -1) (derived from Altitude)
Northness	The degree to which the aspect of a cell is north (north = 1, south = -1) (derived from Altitude)
rugg1000	Topographic ruggedness (standard deviation in elevation) in a 1000m radius (derived from Altitude)
terr1000	Relative terrain position in a 1000m radius (derived from Altitude)
Wetness	Compound topographic index (derived from Altitude)
final_vegetation	Keith formation vegetation categories derived from PMH (Phillips et al. 2013), CRAFTI, the Parsons Brinkerhoff (Cockerill et al. 2013) and Greater Hunter (Sivertsen et al. 2011) vegetation mappings
Dry_sclerophyll_forests2000	The percentage of cells within a 2000m radius dominated by dry sclerophyll forest (derived from final_vegetation)
rainforests2000	The percentage of cells within a 2000m radius containing rainforest (derived from final_vegetation)
Wet_sclerophyll_forests2000	The percentage of cells within a 2000m radius dominated by wet sclerophyll forest (derived from final_vegetation)
Soils	Digital Atlas of Australian Soils (CSIRO 2014)

ANUCLIM: Fenner School of Environment and Society, Australian National University http://fennerschool.anu.edu.au/research/products/anuclim-vrsn-61

CRAFTI: Comprehensive Regional Assessment Aerial Photograph Interpretation – A vegetation mapping process undertaken as part of the north-east Regional Forestry Agreement

Appendix D. List of species modelled in Zonation

Note: Colour code indicates guilds to which species were assigned

Shore Birds	Water Birds	Nectarivorous Birds	Phalangers, Phascogales and their predators	Cave-Roosting Microbats	Amphibians	Frugivorous Birds

MNES= migratory and threatened

Red= Edge of range and limited records

Species	Common Name	Family	Data type
Adelotus brevis	Tusked Frog	Myobatrachidae	SDM
Crinia signifera	Common Eastern Froglet	Myobatrachidae	SDM
Crinia tinnula	Wallum Froglet	Myobatrachidae	SDM
Lechriodus fletcheri	Fletcher's Frog	Myobatrachidae	SDM
Limnodynastes dumerilii	Eastern Banjo Frog	Myobatrachidae	SDM
Limnodynastes peronii	Brown-striped Frog	Myobatrachidae	SDM
Limnodynastes tasmaniensis	Spotted Grass Frog	Myobatrachidae	SDM
Litoria aurea	Green and Golden Bell Frog	Hylidae	SDM
Litoria booroolongensis	Booroolong Frog	Hylidae	points
Litoria brevipalmata	Green-thighed Frog	Hylidae	SDM
Litoria caerulea	Green Tree Frog	Hylidae	SDM
Litoria chloris	Red-eyed Tree Frog	Hylidae	SDM
Litoria daviesae	Davies' Tree Frog	Hylidae	SDM
Litoria dentata	Bleating Tree Frog	Hylidae	SDM
Litoria ewingii	Brown Tree Frog	Hylidae	points
Litoria fallax	Eastern Dwarf Tree Frog	Hylidae	SDM
Litoria freycineti	Freycinet's Frog	Hylidae	SDM
Litoria gracilenta	Dainty Green Tree Frog	Hylidae	SDM
Litoria jervisiensis	Jervis Bay Tree Frog	Hylidae	SDM
Litoria latopalmata	Broad-palmed Frog	Hylidae	SDM
Litoria lesueuri	Lesueur's Frog	Hylidae	SDM
Litoria nasuta	Rocket Frog	Hylidae	SDM
Litoria pearsoniana	Pearson's Green Tree Frog	Hylidae	SDM
Litoria peronii	Peron's Tree Frog	Hylidae	SDM
Litoria phyllochroa	Leaf-green Tree Frog	Hylidae	SDM
Litoria revelata	Revealed Frog	Hylidae	SDM
Litoria subglandulosa	Glandular Frog	Hylidae	SDM
Litoria tyleri	Tyler's Tree Frog	Hylidae	SDM
Litoria verreauxii	Verreaux's Frog	Hylidae	SDM
Mixophyes fasciolatus	Great Barred Frog	Myobatrachidae	SDM
Paracrinia haswelli	Haswell's Froglet	Myobatrachidae	SDM
Philoria sphagnicolus	Sphagnum Frog	Myobatrachidae	SDM
Pseudophryne bibronii	Bibron's Toadlet	Myobatrachidae	SDM
Pseudophryne coriacea	Red-backed Toadlet	Myobatrachidae	SDM
Uperoleia fusca	Dusky Toadlet	Myobatrachidae	SDM
Uperoleia laevigata	Smooth Toadlet	Myobatrachidae	SDM
Uperoleia tyleri	Tyler's Toadlet	Myobatrachidae	points

Species	Common Name	Family	Data type
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	Acanthizidae	SDM
Acanthiza lineata	Striated Thornbill	Acanthizidae	SDM
Acanthiza nana	Yellow Thornbill	Acanthizidae	SDM
Acanthiza reguloides	Buff-rumped Thornbill	Acanthizidae	SDM
Acanthorhynchus tenuirostris	Eastern Spinebill	Meliphagidae	SDM
Accipiter cirrocephalus	Collared Sparrowhawk	Accipitridae	SDM
Accipiter fasciatus	Brown Goshawk	Accipitridae	SDM
Accipiter novaehollandiae	Grey Goshawk	Accipitridae	SDM
Acrocephalus australis	Australian Reed-Warbler	Acrocephalidae	SDM
Actitis hypoleucos	Common Sandpiper	Scolopacidae	SDM
Aegotheles cristatus	Australian Owlet-nightjar	Aegothelidae	SDM
Ailuroedus crassirostris	Green Catbird	Ptilonorhynchidae	SDM
Alectura lathami	Australian Brush-turkey	Megapodiidae	SDM
Anas castanea	Chestnut Teal	Anatidae	SDM
Anas gracilis	Grey Teal	Anatidae	SDM
Anas rhynchotis	Australasian Shoveler	Anatidae	SDM
Anas superciliosa	Pacific Black Duck	Anatidae	SDM
Anhinga novaehollandiae	Australasian Darter	Anhingidae	SDM
Anseranas semipalmata	Magpie Goose	Anseranatidae	SDM
Anthochaera carunculata	Red Wattlebird	Meliphagidae	SDM
Anthochaera chrysoptera	Little Wattlebird	Meliphagidae	SDM
Anthochaera phrygia	Regent Honeyeater	Meliphagidae	SDM
Anthus novaeseelandiae	Australian Pipit	Motacillidae	SDM
Apus pacificus	Fork-tailed Swift	Apodidae	SDM
Ardea ibis	Cattle Egret	Ardeidae	SDM
Ardea intermedia	Intermediate Egret	Ardeidae	SDM
Ardea modesta	Eastern Great Egret	Ardeidae	SDM
Ardea pacifica	White-necked Heron	Ardeidae	SDM
Arenaria interpres	Ruddy Turnstone	Scolopacidae	SDM
Artamus cyanopterus	Dusky Woodswallow	Artamidae	SDM
Artamus leucorynchus	White-breasted Woodswallow	Artamidae	SDM
Artamus personatus	Masked Woodswallow	Artamidae	SDM
Artamus superciliosus	White-browed Woodswallow	Artamidae	SDM
Atrichornis rufescens	Rufous Scrub-bird	Atrichornithidae	SDM
Aviceda subcristata	Pacific Baza	Accipitridae	SDM
Aythya australis	Hardhead	Anatidae	SDM
Biziura lobata	Musk Duck	Anatidae	SDM
Botaurus poiciloptilus	Australasian Bittern	Ardeidae	SDM
Burhinus grallarius	Bush Stone-curlew	Burhinidae	SDM
Butorides striatus	Striated Heron	Ardeidae	SDM
Cacatua sanguinea	Little Corella	Cacatuidae	SDM
Cacatua tenuirostris	Long-billed Corella	Cacatuidae	SDM
Cacomantis flabelliformis	Fan-tailed Cuckoo	Cuculidae	SDM
Cacomantis pallidus	Pallid Cuckoo	Cuculidae	SDM
Cacomantis variolosus	Brush Cuckoo	Cuculidae	SDM

Species	Common Name	Family	Data type
Calidris acuminata	Sharp-tailed Sandpiper	Scolopacidae	SDM
Calidris canutus	Red Knot	Scolopacidae	SDM
Calidris ferruginea	Curlew Sandpiper	Scolopacidae	SDM
Calidris ruficollis	Red-necked Stint	Scolopacidae	SDM
Calidris tenuirostris	Great Knot	Scolopacidae	SDM
Calyptorhynchus funereus	Yellow-tailed Black-Cockatoo	Cacatuidae	SDM
Calyptorhynchus lathami	Glossy Black-Cockatoo	Cacatuidae	SDM
Carterornis leucotis	White-eared Monarch	Monarchidae	points
Centropus phasianinus	Pheasant Coucal	Centropodidae	SDM
Ceyx azureus	Azure Kingfisher	Alcedinidae	SDM
Chalcites basalis	Horsfield's Bronze-Cuckoo	Cuculidae	SDM
Chalcites lucidus	Shining Bronze-Cuckoo	Cuculidae	SDM
Chalcophaps indica	Emerald Dove	Columbidae	SDM
Charadrius bicinctus	Double-banded Plover	Charadriidae	SDM
Charadrius mongolus	Lesser Sand-plover	Charadriidae	SDM
Charadrius ruficapillus	Red-capped Plover	Charadriidae	SDM
Chenonetta jubata	Australian Wood Duck	Anatidae	SDM
Cheramoeca leucosterna	White-backed Swallow	Hirundinidae	SDM
Chlidonias hybrida	Whiskered Tern	Laridae	SDM
Chroicocephalus novaehollandiae	Silver Gull	Laridae	SDM
Chthonicola sagittata	Speckled Warbler	Acanthizidae	points
Cincloramphus cruralis	Brown Songlark	Megaluridae	SDM
Cincloramphus mathewsi	Rufous Songlark	Megaluridae	SDM
Cinclosoma punctatum	Spotted Quail-thrush	Psophodidae	SDM
Circus approximans	Swamp Harrier	Accipitridae	SDM
Circus assimilis	Spotted Harrier	Accipitridae	SDM
Cisticola exilis	Golden-headed Cisticola	Cisticolidae	SDM
Climacteris erythrops	Red-browed Treecreeper	Climacteridae	SDM
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Climacteridae	points
Columba leucomela	White-headed Pigeon	Columbidae	SDM
Coracina lineata	Barred Cuckoo-shrike	Campephagidae	points
Coracina novaehollandiae	Black-faced Cuckoo-shrike	Campephagidae	SDM
Coracina papuensis	White-bellied Cuckoo-shrike	Campephagidae	SDM
Coracina tenuirostris	Cicadabird	Campephagidae	SDM
Corcorax melanorhamphos	White-winged Chough	Corcoracidae	SDM
Corvus orru	Torresian Crow	Corvidae	SDM
Corvus tasmanicus	Forest Raven	Corvidae	SDM
Coturnix pectoralis	Stubble Quail	Phasianidae	SDM
Coturnix ypsilophora	Brown Quail	Phasianidae	SDM
Cracticus nigrogularis	Pied Butcherbird	Artamidae	SDM
Cracticus torquatus	Grey Butcherbird	Artamidae	SDM
Cygnus atratus	Black Swan	Anatidae	SDM
Daphoenositta chrysoptera	Varied Sittella	Neosittidae	SDM
Dendrocygna arcuata	Wandering Whistling-Duck	Anatidae	SDM

Species	Common Name	Family	Data type
Dendrocygna eytoni	Plumed Whistling-Duck	Anatidae	SDM
Dicaeum hirundinaceum	Mistletoebird	Nectariniidae	SDM
Dicrurus bracteatus	Spangled Drongo	Dicruridae	SDM
Egretta garzetta	Little Egret	Ardeidae	SDM
Egretta novaehollandiae	White-faced Heron	Ardeidae	SDM
Egretta sacra	Eastern Reef Egret	Ardeidae	SDM
Elanus axillaris	Black-shouldered Kite	Accipitridae	SDM
Elseyornis melanops	Black-fronted Dotterel	Charadriidae	SDM
Entomyzon cyanotis	Blue-faced Honeyeater	Meliphagidae	SDM
Eolophus roseicapillus	Galah	Cacatuidae	SDM
Ephippiorhynchus asiaticus	Black-necked Stork	Ciconiidae	SDM
Epthianura albifrons	White-fronted Chat	Meliphagidae	SDM
Erythrogonys cinctus	Red-kneed Dotterel	Charadriidae	SDM
Esacus magnirostris	Beach Stone-curlew	Burhinidae	SDM
Eudynamys orientalis	Eastern Koel	Cuculidae	SDM
Eurostopodus mystacalis	White-throated Nightjar	Caprimulgidae	SDM
Eurystomus orientalis	Dollarbird	Coraciidae	SDM
Excalfactoria chinensis	King Quail	Phasianidae	SDM
Falco berigora	Brown Falcon	Falconidae	SDM
Falco cenchroides	Nankeen Kestrel	Falconidae	SDM
Falco longipennis	Australian Hobby	Falconidae	SDM
Falco peregrinus	Peregrine Falcon	Falconidae	SDM
Falcunculus frontatus frontatus	Eastern Shrike-tit	Pachycephalidae	SDM
Fulica atra	Eurasian Coot	Rallidae	SDM
Gallinago hardwickii	Latham's Snipe	Scolopacidae	SDM
Gallinula tenebrosa	Dusky Moorhen	Rallidae	SDM
Gallirallus philippensis	Buff-banded Rail	Rallidae	SDM
Gelochelidon nilotica	Gull-billed Tern	Laridae	SDM
Geopelia humeralis	Bar-shouldered Dove	Columbidae	SDM
Geopelia striata	Peaceful Dove	Columbidae	SDM
Gerygone albogularis	White-throated Gerygone	Acanthizidae	SDM
Gerygone levigaster	Mangrove Gerygone	Acanthizidae	SDM
Gerygone mouki	Brown Gerygone	Acanthizidae	SDM
Gliciphila melanops	Tawny-crowned Honeyeater	Meliphagidae	SDM
Glossopsitta concinna	Musk Lorikeet	Psittacidae	SDM
Glossopsitta pusilla	Little Lorikeet	Psittacidae	SDM
Grallina cyanoleuca	Magpie-lark	Monarchidae	SDM
Grus rubicunda	Brolga	Gruidae	points
Haematopus fuliginosus	Sooty Oystercatcher	Haematopodidae	SDM
Haematopus longirostris	Pied Oystercatcher	Haematopodidae	SDM
Haliaeetus leucogaster	White-bellied Sea-Eagle	Accipitridae	SDM
Haliastur indus	Brahminy Kite	Accipitridae	SDM
Haliastur sphenurus	Whistling Kite	Accipitridae	SDM
Hieraaetus morphnoides	Little Eagle	Accipitridae	SDM
Himantopus himantopus	Black-winged Stilt	Recurvirostridae	SDM

Species	Common Name	Family	Data type
Hirundapus caudacutus	White-throated Needletail	Apodidae	SDM
Hirundo neoxena	Welcome Swallow	Hirundinidae	SDM
Hydroprogne caspia	Caspian Tern	Laridae	SDM
Irediparra gallinacea	Comb-crested Jacana	Jacanidae	SDM
Ixobrychus dubius	Australian Little Bittern	Ardeidae	points
Ixobrychus flavicollis	Black Bittern	Ardeidae	SDM
Lalage leucomela	Varied Triller	Campephagidae	SDM
Lalage sueurii	White-winged Triller	Campephagidae	SDM
Lathamus discolor	Swift Parrot	Psittacidae	SDM
Leucosarcia picata	Wonga Pigeon	Columbidae	SDM
Lewinia pectoralis	Lewin's Rail	Rallidae	SDM
Lichenostomus fuscus	Fuscous Honeyeater	Meliphagidae	SDM
Lichenostomus leucotis	White-eared Honeyeater	Meliphagidae	SDM
Lichenostomus melanops	Yellow-tufted Honeyeater	Meliphagidae	SDM
Lichenostomus penicillatus	White-plumed Honeyeater	Meliphagidae	SDM
Lichmera indistincta	Brown Honeyeater	Meliphagidae	SDM
Limosa lapponica	Bar-tailed Godwit	Scolopacidae	SDM
Limosa limosa	Black-tailed Godwit	Scolopacidae	SDM
Lonchura castaneothorax	Chestnut-breasted Mannikin	Estrildidae	SDM
Lophoictinia isura	Square-tailed Kite	Accipitridae	SDM
Lopholaimus antarcticus	Topknot Pigeon	Columbidae	SDM
Macropygia amboinensis	Brown Cuckoo-Dove	Columbidae	SDM
Malacorhynchus membranaceus	Pink-eared Duck	Anatidae	SDM
Malurus lamberti	Variegated Fairy-wren	Maluridae	SDM
Malurus melanocephalus	Red-backed Fairy-wren	Maluridae	SDM
Manorina melanocephala	Noisy Miner	Meliphagidae	SDM
Manorina melanophrys	Bell Miner	Meliphagidae	SDM
Megalurus gramineus	Little Grassbird	Megaluridae	SDM
Megalurus timoriensis	Tawny Grassbird	Megaluridae	SDM
Meliphaga lewinii	Lewin's Honeyeater	Meliphagidae	SDM
Melithreptus brevirostris	Brown-headed Honeyeater	Meliphagidae	SDM
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Meliphagidae	points
Melithreptus lunatus	White-naped Honeyeater	Meliphagidae	SDM
Menura novaehollandiae	Superb Lyrebird	Menuridae	SDM
Merops ornatus	Rainbow Bee-eater	Meropidae	SDM
Microcarbo melanoleucos	Little Pied Cormorant	Phalacrocoracidae	SDM
Microeca fascinans	Jacky Winter	Petroicidae	SDM
Milvus migrans	Black Kite	Accipitridae	SDM
Monarcha melanopsis	Black-faced Monarch	Monarchidae	SDM
Myiagra cyanoleuca	Satin Flycatcher	Monarchidae	SDM
Myiagra inquieta	Restless Flycatcher	Monarchidae	SDM
Myiagra rubecula	Leaden Flycatcher	Monarchidae	SDM
Myzomela sanguinolenta	Scarlet Honeyeater	Meliphagidae	SDM
Neochmia temporalis	Red-browed Finch	Estrildidae	SDM

Species	Common Name	Family	Data type
Ninox connivens	Barking Owl	Strigidae	SDM
Ninox novaeseelandiae	Southern Boobook	Strigidae	SDM
Ninox strenua	Powerful Owl	Strigidae	SDM
Numenius madagascariensis	Eastern Curlew	Scolopacidae	SDM
Numenius minutus	Little Curlew	Scolopacidae	points
Numenius phaeopus	Whimbrel	Scolopacidae	SDM
Nycticorax caledonicus	Nankeen Night Heron	Ardeidae	SDM
Ocyphaps lophotes	Crested Pigeon	Columbidae	SDM
Oriolus sagittatus	Olive-backed Oriole	Oriolidae	SDM
Orthonyx temminckii	Logrunner	Orthonychidae	SDM
Oxyura australis	Blue-billed Duck	Anatidae	SDM
Pachycephala olivacea	Olive Whistler	Pachycephalidae	SDM
Pandion cristatus	Eastern Osprey	Accipitridae	SDM
Pardalotus striatus	Striated Pardalote	Pardalotidae	SDM
Pelecanus conspicillatus	Australian Pelican	Pelecanidae	SDM
Petrochelidon ariel	Fairy Martin	Hirundinidae	SDM
Petrochelidon nigricans	Tree Martin	Hirundinidae	SDM
Petroica boodang	Scarlet Robin	Petroicidae	SDM
Petroica phoenicea	Flame Robin	Petroicidae	SDM
Petroica rosea	Rose Robin	Petroicidae	SDM
Phalacrocorax carbo	Great Cormorant	Phalacrocoracidae	SDM
Phalacrocorax sulcirostris	Little Black Cormorant	Phalacrocoracidae	SDM
Phalacrocorax varius	Pied Cormorant	Phalacrocoracidae	SDM
Phaps chalcoptera	Common Bronzewing	Columbidae	SDM
Phaps elegans	Brush Bronzewing	Columbidae	SDM
Philemon citreogularis	Little Friarbird	Meliphagidae	SDM
Phylidonyris niger	White-cheeked Honeyeater	Meliphagidae	SDM
Phylidonyris novaehollandiae	New Holland Honeyeater	Meliphagidae	SDM
Pitta versicolor	Noisy Pitta	Pittidae	SDM
Platalea flavipes	Yellow-billed Spoonbill	Threskiornithidae	SDM
Platalea regia	Royal Spoonbill	Threskiornithidae	SDM
Platycercus elegans	Crimson Rosella	Psittacidae	SDM
Platycercus eximius	Eastern Rosella	Psittacidae	SDM
Plectorhyncha lanceolata	Striped Honeyeater	Meliphagidae	SDM
Pluvialis fulva	Pacific Golden Plover	Charadriidae	SDM
Pluvialis squatarola	Grey Plover	Charadriidae	SDM
Podargus strigoides	Tawny Frogmouth	Podargidae	SDM
Podiceps cristatus	Great Crested Grebe	Podicipedidae	SDM
Porphyrio porphyrio	Purple Swamphen	Rallidae	SDM
Porzana fluminea	Australian Spotted Crake	Rallidae	SDM
Porzana pusilla	Baillon's Crake	Rallidae	SDM
Porzana tabuensis	Spotless Crake	Rallidae	SDM
Psophodes olivaceus	Eastern Whipbird	Psophodidae	SDM
Ptilinopus magnificus	Wompoo Fruit-Dove	Columbidae	SDM
Ptilinopus regina	Rose-crowned Fruit-Dove	Columbidae	SDM

Species	Common Name	Family	Data type
Ptilinopus superbus	Superb Fruit-Dove	Columbidae	SDM
Ptilonorhynchus violaceus	Satin Bowerbird	Ptilonorhynchidae	SDM
Ptiloris paradiseus	Paradise Riflebird	Paradisaeidae	SDM
Rhipidura leucophrys	Willie Wagtail	Rhipiduridae	SDM
Rhipidura rufifrons	Rufous Fantail	Rhipiduridae	SDM
Scythrops novaehollandiae	Channel-billed Cuckoo	Cuculidae	SDM
Sericornis citreogularis	Yellow-throated Scrubwren	Acanthizidae	SDM
Sericornis frontalis	White-browed Scrubwren	Acanthizidae	SDM
Sericornis magnirostra	Large-billed Scrubwren	Acanthizidae	SDM
Sericulus chrysocephalus	Regent Bowerbird	Ptilonorhynchidae	SDM
Smicrornis brevirostris	Weebill	Acanthizidae	SDM
Sphecotheres vieilloti	Australasian Figbird	Oriolidae	SDM
Sterna hirundo	Common Tern	Laridae	SDM
Sterna striata	White-fronted Tern	Laridae	SDM
Sternula albifrons	Little Tern	Laridae	SDM
Stipiturus malachurus	Southern Emu-wren	Maluridae	SDM
Symposiachrus trivirgatus	Spectacled Monarch	Monarchidae	SDM
Tachybaptus novaehollandiae	Australasian Grebe	Podicipedidae	SDM
Tadorna tadornoides	Australian Shelduck	Anatidae	SDM
Taeniopygia bichenovii	Double-barred Finch	Estrildidae	SDM
Thalasseus bergii	Crested Tern	Laridae	SDM
Threskiornis molucca	Australian White Ibis	Threskiornithidae	SDM
Threskiornis spinicollis	Straw-necked Ibis	Threskiornithidae	SDM
Todiramphus macleayii	Forest Kingfisher	Alcedinidae	SDM
Todiramphus sanctus	Sacred Kingfisher	Alcedinidae	SDM
Tregellasia capito	Pale-yellow Robin	Petroicidae	SDM
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet	Psittacidae	SDM
Trichoglossus haematodus	Rainbow Lorikeet	Psittacidae	SDM
Tringa brevipes	Grey-tailed Tattler	Scolopacidae	SDM
Tringa incana	Wandering Tattler	Scolopacidae	points
Tringa nebularia	Common Greenshank	Scolopacidae	SDM
Tringa stagnatilis	Marsh Sandpiper	Scolopacidae	SDM
Turnix varius	Painted Button-quail	Turnicidae	SDM
Tyto javanica	Eastern Barn Owl	Tytonidae	SDM
Tyto longimembris	Eastern Grass Owl	Tytonidae	SDM
Tyto novaehollandiae	Masked Owl	Tytonidae	SDM
Tyto tenebricosa	Sooty Owl	Tytonidae	SDM
Vanellus miles	Masked Lapwing	Charadriidae	SDM
Vanellus tricolor	Banded Lapwing	Charadriidae	SDM
Xenus cinereus	Terek Sandpiper	Scolopacidae	SDM
Zoothera heinei	Russet-tailed Thrush	Turdidae	SDM
Zoothera lunulata	Bassian Thrush	Turdidae	SDM
Acrobates pygmaeus	Feathertail Glider	Acrobatidae	SDM
Aepyprymnus rufescens	Rufous Bettong	Potoroidae	SDM
Antechinus flavipes	Yellow-footed Antechinus	Dasyuridae	SDM

Species	Common Name	Family	Data type
Antechinus stuartii	Brown Antechinus	Dasyuridae	SDM
Antechinus swainsonii	Dusky Antechinus	Dasyuridae	SDM
Cercartetus nanus	Eastern Pygmy-possum	Burramyidae	SDM
Chalinolobus gouldii	Gould's Wattled Bat	Vespertilionidae	SDM
Chalinolobus morio	Chocolate Wattled Bat	Vespertilionidae	SDM
Dasyurus maculatus	Spotted-tailed Quoll	Dasyuridae	SDM
Falsistrellus tasmaniensis	Eastern No Pipistrelle	Vespertilionidae	SDM
Hydromys chrysogaster	Water-rat	Muridae	SDM
Isoodon macrourus	Northern Brown Bandicoot	Peramelidae	SDM
Kerivoula papuensis	Golden-tipped Bat	Vespertilionidae	SDM
Macropus giganteus	Eastern Grey Kangaroo	Macropodidae	SDM
Macropus parma	Parma Wallaby	Macropodidae	SDM
Macropus robustus	Common Wallaroo	Macropodidae	SDM
Macropus rufogriseus	Red-necked Wallaby	Macropodidae	SDM
Melomys burtoni	Grassland Melomys	Muridae	points
Melomys cervinipes	Fawn-footed Melomys	Muridae	SDM
Miniopterus australis	Little Bentwing-bat	Vespertilionidae	SDM
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Vespertilionidae	SDM
Mormopterus norfolkensis	Eastern Freetail-bat	Molossidae	SDM
Mormopterus planiceps	Little Mastiff-bat	Molossidae	SDM
Myotis macropus	Southern Myotis	Vespertilionidae	SDM
Nyctophilus geoffroyi	Lesser Long-eared Bat	Vespertilionidae	SDM
Nyctophilus gouldi	Gould's Long-eared Bat	Vespertilionidae	SDM
Ornithorhynchus anatinus	Platypus	Ornithorhynchidae	SDM
Perameles nasuta	Long-nosed Bandicoot	Peramelidae	SDM
Petauroides volans	Greater Glider	Pseudocheiridae	SDM
Petaurus australis	Yellow-bellied Glider	Petauridae	SDM
Petaurus breviceps	Sugar Glider	Petauridae	SDM
Petaurus norfolcensis	Squirrel Glider	Petauridae	SDM
Phascogale tapoatafa	Brush-tailed Phascogale	Dasyuridae	SDM
Phascolarctos cinereus	Koala	Phascolarctidae	SDM
Planigale maculata	Common Planigale	Dasyuridae	points
Potorous tridactylus	Long-nosed Potoroo	Potoroidae	SDM
Pseudocheirus peregrinus	Common Ringtail Possum	Pseudocheiridae	SDM
Pseudomys gracilicaudatus	Eastern Chestnut Mouse	Muridae	SDM
Pseudomys oralis	Hastings River Mouse	Muridae	SDM
Pteropus alecto	Black Flying-fox	Pteropodidae	points
Pteropus poliocephalus	Grey-headed Flying-fox	Pteropodidae	SDM
Pteropus scapulatus	Little Red Flying-fox	Pteropodidae	SDM
Rattus fuscipes	Bush Rat	Muridae	SDM
Rattus lutreolus	Swamp Rat	Muridae	SDM
Rhinolophus megaphyllus	Eastern Horseshoe-bat	Rhinolophidae	SDM
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Emballonuridae	SDM
Scoteanax rueppellii	Greater Broad-nosed Bat	Vespertilionidae	SDM
Scotorepens orion	Eastern Broad-nosed Bat	Vespertilionidae	SDM

Species	Common Name	Family	Data type
Scotorepens sp 1	Central-eastern Broad-nosed Bat	Vespertilionidae	points
Sminthopsis murina	Common Dunnart	Dasyuridae	SDM
Syconycteris australis	Common Blossom-bat	Pteropodidae	SDM
Tadarida australis	White-striped Freetail-bat	Molossidae	SDM
Thylogale stigmatica	Red-legged Pademelon	Macropodidae	SDM
Thylogale thetis	Red-necked Pademelon	Macropodidae	SDM
Trichosurus caninus	Short-eared Possum	Phalangeridae	SDM
Trichosurus vulpecula	Common Brushtail Possum	Phalangeridae	SDM
Vespadelus darlingtoni	Large Forest Bat	Vespertilionidae	SDM
Vespadelus pumilus	Eastern Forest Bat	Vespertilionidae	SDM
Vespadelus regulus	Southern Forest Bat	Vespertilionidae	SDM
Vespadelus troughtoni	Eastern Cave Bat	Vespertilionidae	SDM
Vespadelus vulturnus	Little Forest Bat	Vespertilionidae	SDM
Vombatus ursinus	Common Wombat	Vombatidae	SDM
Wallabia bicolor	Swamp Wallaby	Macropodidae	SDM
Acacia courtii	North Brother Wattle	Fabaceae (Mimosoideae)	SDM
Acronychia littoralis	Scented Acronychia	Rutaceae	points
Allocasuarina defungens	Dwarf Heath Casuarina	Casuarinaceae	SDM
Asperula asthenes	Trailing Woodruff	Rubiaceae	SDM
Chamaesyce psammogeton	Sand Spurge	Euphorbiaceae	points
Cynanchum elegans	White-flowered Wax Plant	Apocynaceae	SDM
Dracophyllum macranthum		Ericaceae	SDM
Hakea archaeoides	Big Nellie Hakea	Proteaceae	SDM
Haloragis exalata subsp. velutina	Tall Velvet Sea-berry	Haloragaceae	points
Hibbertia hexandra	Tree Guinea Flower	Dilleniaceae	points
Hibbertia superans		Dilleniaceae	points
Marsdenia longiloba	Slender Marsdenia	Apocynaceae	points
Maundia triglochinoides		Juncaginaceae	SDM
Melaleuca biconvexa	Biconvex Paperbark	Myrtaceae	SDM
Melaleuca groveana	Grove's Paperbark	Myrtaceae	SDM
Parsonsia dorrigoensis	Milky Silkpod	Apocynaceae	points
Senna acclinis	Rainforest Cassia	Fabaceae (Caesalpinioideae)	SDM
Sophora tomentosa	Silverbush	Fabaceae (Faboideae)	points
Thesium australe	Austral Toadflax	Santalaceae	points
Zieria lasiocaulis	Willi Willi Zieria	Rutaceae	points
Acanthophis antarcticus	Common Death Adder	Elapidae	SDM
Amphibolurus muricatus	Jacky Lizard	Agamidae	SDM
Bellatorias major	Land Mullet	Scincidae	SDM
Boiga irregularis	Brown Tree Snake	Colubridae	points
Cacophis krefftii	Southern Dwarf Crowned Snake	Elapidae	SDM
Cacophis squamulosus	Golden-crowned Snake	Elapidae	SDM
Calyptotis ruficauda	Red-tailed Calyptotis	Scincidae	SDM
Chelodina longicollis	Eastern Snake-necked Turtle	Chelidae	SDM
Cryptophis nigrescens	Eastern Small-eyed Snake	Elapidae	SDM

Species	Common Name	Family	Data type
Ctenotus robustus	Robust Ctenotus	Scincidae	SDM
Ctenotus taeniolatus	Copper-tailed Skink	Scincidae	SDM
Cyclodomorphus gerrardii	Pink-tongued Lizard	Scincidae	SDM
Demansia psammophis	Yellow-faced Whip Snake	Elapidae	SDM
Dendrelaphis punctulatus	Common Tree Snake	Colubridae	SDM
Drysdalia coronoides	White-lipped Snake	Elapidae	points
Egernia cunninghami	Cunningham's Skink	Scincidae	SDM
Egernia mcpheei	Eastern Crevice Skink	Scincidae	SDM
Egernia striolata	Tree Skink	Scincidae	SDM
Egernia whitii	White's Skink	Scincidae	SDM
Emydura macquarii	Macquarie Turtle	Chelidae	points
Eulamprus heatwolei	Yellow-bellied Water-skink	Scincidae	SDM
Eulamprus kosciuskoi	Alpine Water Skink	Scincidae	SDM
Eulamprus murrayi	Murray's Skink	Scincidae	SDM
Eulamprus quoyii	Eastern Water-skink	Scincidae	SDM
Eulamprus tenuis	Barred-sided Skink	Scincidae	SDM
Hemiaspis signata	Black-bellied Swamp Snake	Elapidae	SDM
Hoplocephalus stephensii	Stephens' Banded Snake	Elapidae	SDM
Hypsilurus spinipes	Southern Angle-headed Dragon	Agamidae	SDM
Lampropholis amicula	Friendly Sunskink	Scincidae	SDM
Lampropholis delicata	Dark-flecked Garden Sunskink	Scincidae	SDM
Lampropholis guichenoti	Pale-flecked Garden Sunskink	Scincidae	SDM
Lialis burtonis	Burton's Snake-lizard	Pygopodidae	points
Morelia spilota	Carpet & Diamond Pythons	Boidae	SDM
Notechis scutatus	Tiger Snake	Elapidae	SDM
Physignathus lesueurii	Eastern Water Dragon	Agamidae	SDM
Pogona barbata	Bearded Dragon	Agamidae	SDM
Pseudechis porphyriacus	Red-bellied Black Snake	Elapidae	SDM
Pseudonaja textilis	Eastern Brown Snake	Elapidae	SDM
Pygopus lepidopodus	Common Scaly-foot	Pygopodidae	SDM
Ramphotyphlops nigrescens	Blackish Blind Snake	Typhlopidae	SDM
Rankinia diemensis	Mountain Dragon	Agamidae	SDM
Saiphos equalis	Three-toed Skink	Scincidae	SDM
Saltuarius swaini	Southern Leaf-tailed Gecko	Gekkonidae	SDM
Saproscincus challengeri	Orange-tailed Shadeskink	Scincidae	SDM
Saproscincus mustelinus	Weasel Skink	Scincidae	SDM
Saproscincus rosei	Orange-tailed Shadeskink	Scincidae	SDM
Tiliqua scincoides	Eastern Blue-tongue	Scincidae	SDM
Tropidechis carinatus	Rough-scaled Snake	Elapidae	points
Varanus varius	Lace Monitor	Varanidae	SDM
Vermicella annulata	Bandy-bandy	Elapidae	points

Appendix E. Vegetation types removed from GAP CLoSR woody vegetation model

GAP CLoSR software considers connectivity for species reliant on woody vegetation only, that is, **trees and shrubs**. As such, some vegetation communities were excluded from the Woody vegetation/No woody vegetation layer, either because they did not support large trees or shrubs, or because they did have trees or shrubs but had a very wet understorey impermeable to many terrestrial animals. This was done by overlaying the Woody vegetation/No woody vegetation layer with CRAFTI vegetation mapping and Port Macquarie Vegetation Communities and cutting some vegetation communities out.

The table below shows vegetation removed from the GAP CLoSR woody vegetation model. CRAFTI Vegetation Mapping was overlaid with the Woody vegetation/No woody vegetation layer and the following vegetation classes were removed.

Wetlands	'Baumea arthrophylla', 'Baumea articulata', 'Baumea articulata Typha ientalis', 'Baumea juncea', 'Baumea juncea Juncus kraussii ssp australiensis', 'Baumea juncea Phragmites australis', 'Baumea juncea Saltmarsh complex' 'Baumea rubiginosa'
	'Baumea rubiginosa Typha ientalis'
	'Blechnum indicum' 'Cladium procerum Baumea juncea' 'Eleocharis equisetina' 'Estuarine complex' 'FT231 Bog and Fen' 'Juncus kraussii ssp australiensis' 'Juncus kraussii ssp australiensis Phragmites australis' 'Lepironia articulata', 'Lepironia articulata Typha ientalis''Phragmites australis'
	'Sedgeland' 'Sedgeland ~ Natural Fest Stands'
Cleared land	'Beach sand, mobile sand'
Grasslands	'FT230 Natural Grassland', 'Headland complex', 'Foredune complex', 'Improved Pasture and Cropland' 'Natural Grassland' 'P Pasture non native species' 'Themeda australis'
Seagrass	'Halophila sp ', 'Zostera sp '
Water	'Open water'
Saltmarsh	'Saltbush' 'Saltmarsh Communities' 'Saltmarsh complex' 'Sarcocnia quinquefla ssp quinquefla-Spobolus virginicus' 'Sarcocnia quinquefla ssp quinquefla-Spobolus virginicus Juncus kraussii ssp australiensis' 'Sm Saltmarsh'

Appendix F. Examples of species and GAP CLoSR parameters

Species for which the model parameters generally work	
Common Death Adder	*Acanthophis antarcticus*
Southern Angle-headed Dragon	*Hypsilurus spinipes*
Varied Sittella	*Daphoenositta chrysoptera*
Common Ringtail Possum	*Pseudocheirus peregrinus*
Dusky Antechinus	*Antechinus swainsonii*
Grassland Melomys	*Melomys burtoni*
Long-nosed Potoroo	*Potorous tridactylus*
Squirrel Glider	*Petaurus norfolcensis*

Species for which the modelled patch size is too small (unless a compartment has multiple patches operating together to provide the species with sufficient home range area)	
Masked Owl	*Tyto novaehollandiae*
Powerful Owl	*Ninox strenua*
Sooty Owl	*Tyto tenebricosa*
Southern Boobook	*Ninox novaeseelandiae*
Brush-tailed Phascogale	*Phascogale tapoatafa*
Koala	*Phascolarctos cinereus*
Spotted-tailed Quoll	*Dasyurus maculatus*
Yellow-bellied Glider	*Petaurus australis*

Species for which the gap crossing distance is too large	
Orange-tailed Shadeskink	*Saproscincus rosei*
Three-toed Skink	*Saiphos equalis*
Southern Leaf-tailed Gecko	*Saltuarius swaini*
Pale-yellow Robin	*Tregellasia capito*
Logrunner	*Orthonyx temminckii*
Eastern Pygmy Possum	*Cercartetus nanus*
Feathertail Glider	*Acrobates pygmaeus*
Swamp Rat	*Rattus lutreolus*

Species for which the model is too restrictive (the landscape is more connected than indicated)	
Australian Hobby	*Falco longipennis*
Musk Lorikeet	*Glossopsitta concinna*
Spotted Harrier	*Circus assimilis*
Spangled Drongo	*Dicrurus bracteatus*
Channel-billed Cuckoo	*Scythrops novaehollandiae*
Wompoo Fruit-Dove	*Ptilinopus magnificus*
Chocolate Wattled Bat	*Chalinolobus morio*
Large Forest Bat	*Vespadelus darlingtoni*

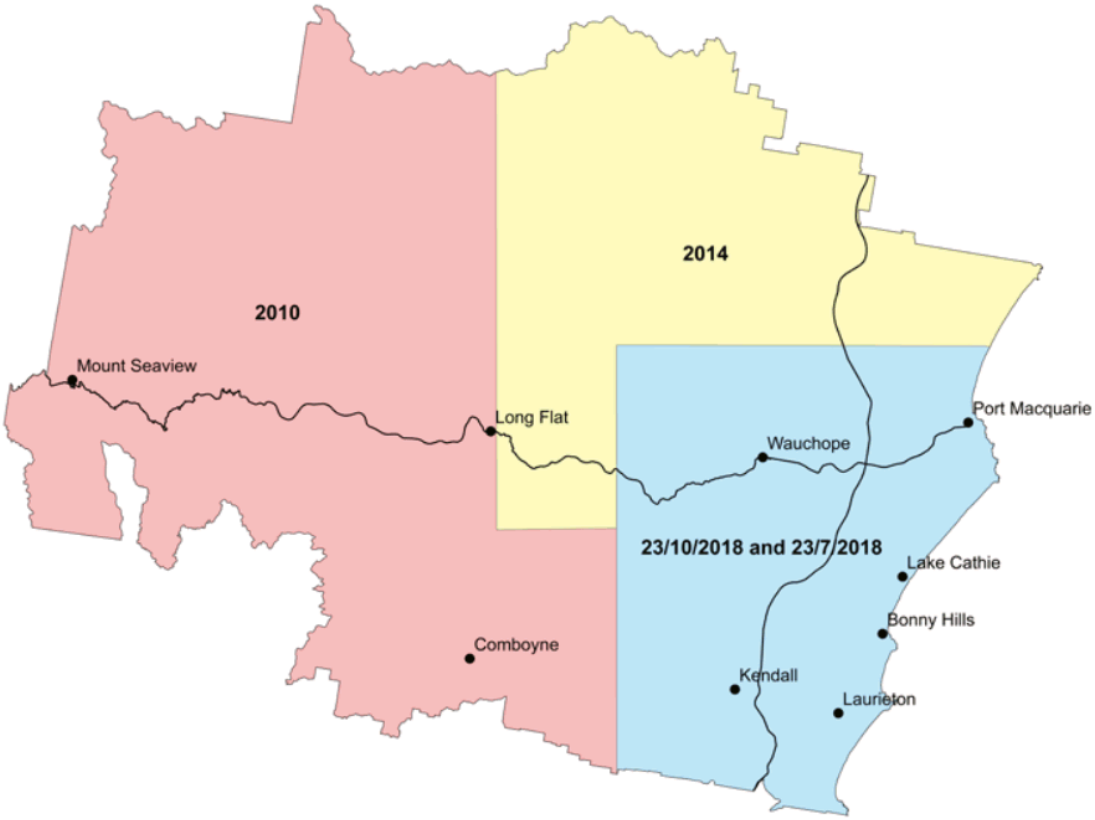
Appendix G. Existing and continuing initiatives in the Port Macquarie-Hastings LGA to protect biodiversity

Initiative	Partners
Increase ecological resilience of public bushland	
Active community involvement in public bushland management	PMHC, Port Macquarie Landcare, Friends of Kooloonbung, Friends of Mrs Yorks Garden, Camden Haven Landcare, Lake Cathie Landcare, Bonny Hills Landcare, Pappinbarra Landholders Conservation Management Network
Bushland Management Team working on 90 publicly owned bushland reserves using best practice methods	PMHC
Formalised Bushland Management Monitoring Program	PMHC
State of the art 'ArcCollector' reporting system for weed mapping (public lands, roadsides and rural lands)	PMHC
Tree planting and restoration initiatives (e.g. National Tree Day)	PMHC, Port Macquarie Landcare
PMHC successful recipient of numerous grants to implement the Bushland Management Program	PMHC, North Coast Local Land Services, Office of Environment and Heritage
Significant roadside vegetation and hollow-bearing trees mapped	PMHC
Active weed management	
Bushland Management Program (as described above)	PMHC
Annual urban weed tree removal works (street trees and trees in public bushland)	PMHC
Invasive Weeds Team reducing weeds in known incursion pathways, such as roadsides and waterways.	PMHC
Annual weed inspections and extension/education on rural properties	PMHC
Extension/education work on weed control and identification at field days etc.	PMHC, North Coast Local Land Services, Hastings Landcare
Supporting community groups such as the Pappinbarra Landholders Conservation Management Network	PMHC, Hastings Landcare
Protecting biodiversity on rural land	
Increasing soil fertility and productivity through natural processes (e.g. soil biota)	Hastings Landcare and North Coast Local Land Services
Extension/education work on weed control and identification at field days etc.	PMHC, North Coast Local Land Services, Hastings Landcare
Funding programs for riparian restoration and protection works	Hastings Landcare and North Coast Local Land Services
Comboyne Corridor Conservation and Remnant Rescue Program	Bolwarra Environmental Services, Hastings Landcare
Land for Wildlife Program	Community Environment Network (CEN) in partnership with the Office of Environment and Heritage (OEH) and locally run in conjunction with Hastings Landcare.

Initiative	Partners
Strategic planning and development controls	
Plan of Management for Kooloonbung Creek Nature Reserve Flying-fox colony (and monitoring of this colony four times per annum through the National Flying-fox Census)	PMHC
Koala Plan of Management (and close working relationship with Port Macquarie Koala Hospital)	PMHC
Vegetation community mapping for Port Macquarie-Hastings LGA	PMHC
Close liaison with Development Assessment Team and NRM staff	PMHC
Preparation of vegetation management plans to help ensure 'Avoid, Minimise, Offset' philosophy	PMHC and development industry
Use of endemic native species for planting on public lands, including urban street trees and roadside plantings	PMHC and development industry
Biodiversity controls articulated in DCP, including: • hollow-bearing tree protocol • buffers for threatened ecological communities, riparian areas etc. • Koala habitat trees offsets • an Indigenous street and open space planting list	PMHC
Bushfire management	
Consideration of how asset protection zone (APZ) works can benefit bushland reserves and minimise harm	PMHC
Involving stakeholders in inspecting areas before and after hazard reduction burns	PMHC, Koala Hospital, For Australian Wildlife Needing Aid (FAWNA)
Ensuring that APZs and fire trails/tracks are contained within the development proposal area	PMHC
Fire and Biodiversity Consortium for the Port Macquarie-Hastings LGA	PMHC, National Parks and Wildlife Service (NPWS), RFS, Forestry Corporation of NSW
Protecting waterways	
Active aquatic weed monitoring and control works (e.g. Salvinia)	PMHC
Ecohealth Monitoring Program	PMHC and UNSW
Riparian Vine Weeds Program	PMHC, Hastings Landcare
River restoration works	PMHC, Hastings Landcare
Riparian protection works to prevent stock trampling and reduce weed incursion	Hastings Landcare
Feral animal control	
Deer control in key areas (e.g. Port Dam, Thrumster)	Recreational Game Hunters, North Coast Local Land Services, NPWS, PMHC
Fox, cat and rabbit control in some coastal areas	PMHC (BioFund, Estuarine Lakeside Linkages Project with NCLLS and OEH), NPWS
Increasing landscape connectivity	
Installing Koala stiles to assist Koalas moving about the landscape	PMHC with Port Macquarie Landcare and Work for the Dole
Ensuring offsets and vegetation management plans increase landscape connectivity	PMHC

Initiative	Partners
Community extension/education	
Working with, and supporting, community stakeholders as requested	Koala Hospital, Schools, Landcare, Living Futures Hub, FAWNA, PMHC
Signage programs (and compliance as required) for illegal clearing for coastal view enhancement	PMHC
Work with community groups to facilitate improved data collection	PMHC with Hastings Birdwatchers, Koala Hospital and Landcare

Appendix H. Near Map Extents



BIODIVERSITY STRATEGY

2017–2030

A strategy to conserve the biodiversity
of the Port Macquarie-Hastings LGA

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