

RAINBOW BEACH

TRAFFIC IMPACT STUDY



Luke & Company Pty Ltd
June 2010

TRAFFIC IMPACT STUDY

Prepared for:

**Part 3A Concept Plan – Rainbow Beach (MP 06_0085)
Part 3A Project Application – Rainbow Beach (MP
07_0001)**

**Part Lot 1232 DP 1142133, Lot 5 DP 25886 and
Lots 1,2,3 & 4 DP 1150758
Rainbow Beach, BONNY HILLS**

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For and on Behalf of St Vincent's Foundation Pty Ltd

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Appendix 2

SMEC - *Hastings Road and Traffic Study* – 2003

Appendix 3

Port Macquarie Hastings Council – *Section 94 Major Roads Contributions Plan Version 2.2* April 2006

Appendix 4

TTM Consulting – *Report on Access to Rainbow Beach Estate* May 2006

Appendix 5

Noise and Sound Services – *Road Traffic Noise Assessment* March 2006

Appendix 6

Noise and Sound Services – *Correspondence* October 2009

Appendix 7

Correspondence from Port Macquarie – Hastings Council dated 8 June 2010

1. Scope of Document

1.1 Scope of Document

This document is relevant to two applications pursuant to Part 3A of the Environmental Planning and Assessment Act 1979 as follows:

MP 06_0085	Rainbow Beach Concept Plan
MP 07_001	Open Space Corridor and Constructed Wetland, Rainbow Beach

1.2 Scope of Part 3A Applications

The Concept Plan application seeks consent for:

- The delineation of the limits of the residential subdivision;
- The location of the three adopted intersections with Ocean Drive;
- The location of an additional intersection with Ocean Drive currently under investigation by Council;
- The delineation of the future school sites;
- The delineation of the Greater Lake Cathie/Bonny Hills Village Centre;
- The delineation of the eco-tourist development site; and
- The delineation of the Open Space, Drainage and Wildlife Habitat Corridor.

The Project Application will seek consent for the following elements:

- Open space, drainage and wildlife habitat corridors;
- Earthworks required for constructed wetlands and to create filled reclaimed areas;
- Stormwater treatment and management; and
- District Sporting Fields.

Consent for the Project Application and the completion of the associated physical works therein, will advance the project to the point where:

- urban and residential development areas are reclaimed to inundation free levels and are appropriately protected and vegetated;
- the open space, habitat and drainage corridor areas of the site are rehabilitated with typical indigenous coastal habitats appropriate to the location and incorporating passive recreational facilities (eg pathways, cycleways, park seating, children's playgrounds and picnic areas);
- the District Sporting Fields are filled, vegetated and readied for transfer to Port Macquarie-Hastings Council.

Urban and residential development consistent with the Concept Plan will then be completed in a series of stages, each of which will be the subject of future applications.

1.3 Director General's Requirements addressed

The Director has issued Director General's Requirements (DGRs) for the Concept Plan (CP) Application and the Project Application (PA).

The following Concept Plan DGRs are addressed in this report:

- CP 1.3** *Consider the integration and compatibility of the proposed land uses (schools, retail / business centre, residential properties, tourist site) across the site with regard to access arrangements, traffic, environmental buffers, density controls and suitability of the landuse with surrounding development.*
- CP 5.1** *Prepare a concept 'Traffic Impact Study' in accordance with the RTA's Guide to Traffic Generating Developments, which addresses but is not limited to the following matters: The capacity of the road network to safely and efficiently cater for the additional traffic generated and, if necessary, mitigation measures required to ensure efficient functioning of the road network; Access to and within the site; and Servicing and parking arrangements.*
- CP 5.2** *Consider existing public transport to and from the site and additional demands for such transport.*
- CP 5.3** *Consider pedestrian and cycle access both to and within the site.*

The following Project Application DGRs are addressed in this report:

PA 8.1 *Propose measures for the provision of public access throughout the site, to proposed adjacent residential, retail, tourist and school sites and to Rainbow Beach.*

2. Background

The subject land is located at Rainbow Beach, approximately 18km south of Port Macquarie and is identified as Part Lot 1232 DP 1142133, Lots 1, 2, 3 & 4 DP 1150758 and Lot 5 DP 25886. The subject land is situated between the coastal villages of Lake Cathie to the north and Bonny Hills to the south. The land is used primarily for agricultural activities such as cattle grazing and contains two dwellings and associated farm sheds.

Port Macquarie-Hastings Council adopted a Structure Plan in July 2004 to facilitate residential development in the Lake Cathie / Bonny Hills area to cater for the growing demand for urban land. The area is identified as Area 14 and includes land identified for future residential, commercial and light industrial development. The subject land is already zoned residential, however forms part of Area 14 and requires statutory certainty with respect to the adopted Area 14 Structure Plan.

The Structure Plan identified the location of the proposed residential precincts, village centre, community facilities, schools, playing fields and the major road network to service development within Area 14. The structure plan identified and adopted three intersections along Ocean Drive. The Concept Plan proposed by the applicant is in accordance with the Structure Plan.

Development of the subject land will generate additional volumes of vehicular, bicycle and pedestrian traffic both within the development and to and from adjoining residential areas and towns. An efficient internal road and pathway network will be required to facilitate safe movement to and from the development, as well as safe movement within the development.

The cost of the provision of intersections along Ocean Drive will be apportioned to those

developments that require the works and Council are currently preparing a Section 94 Roads Contribution plan for all Ocean Drive intersections in the area. In addition Council has recently foreshadowed one possible future intersection with Ocean Drive. The Concept, as proposed, allows for this intersection if finally adopted by Council.

3. Scope of Report

This traffic impact study, as per the Road & Traffic Authority's guide – *Guide to Traffic Generating Developments 1993*, provides detail regarding traffic movements generated by the proposed development.

It should be noted that the Concept Plan application (MP 06_0085) seeks approval for the location of the three intersections with Ocean Drive only, and the identification of a possible additional intersection identified by Council, as per Figure 1. The internal road network will be the subject of future applications.

4. Existing Conditions

4.1 Site Location

The subject land is part Lot 1232 DP 1142133, Lots 1, 2, 3 & 4 DP 1150758 and Lot 5 DP 25886. The land has an area of approximately 177.4 hectares and is mostly cleared and has been used primarily for cattle grazing for many years.

The subject land is bounded on the north and west by Ocean Drive, on the south by existing residential development and on the east by vacant land (but proposed for future urban development by others) and the Lake Cathie / Bonny Hills Sewerage Treatment Plant. The site location plan is shown in Figure 2.

4.2 Existing Traffic Conditions

Ocean Drive is the major road traversing Area 14 and is the major link road from the

Camden Haven area to the south and Port Macquarie to the north (via Lake Cathie village). Ocean Drive is classified as an arterial road.

Houston Mitchell Drive intersects with Ocean Drive adjacent to the subject land and provides a secondary link to Port Macquarie via the Pacific and Oxley Highways.

The subject land has extensive frontage (approximately 3.14kms) to Ocean Drive. As the subject land is only used for agricultural purposes at this time, there are no local road networks within the site.

The existing Local Road Network is shown in Figure 3 which also indicates that Ocean Drive and Houston Mitchell Drive are the only local collector roads in the locality.

4.3 Existing Traffic Flows

Ocean Drive and Houston Mitchell Drive currently provide the only arterial/collector roads in the area. Both roads are currently of a “two lane rural” standard and are in varying condition.

The current speed limit on Ocean Drive adjoining the subject land varies from 90 km/h to 70 km/h, whilst on Houston Mitchell Drive it is 80 km/h. Figure 4 outlines the RTA's speed zones for Ocean Drive, showing the two speed zones where Ocean Drive borders the site.

Ocean Drive is a regional road and therefore all speed zonings are determined by the RTA and not Council. The RTA sets speed zones according to existing road conditions and traffic volumes and not on future predicted volumes or trends.

4.4 Existing Parking Arrangements

As there are currently no significant traffic generating developments on the property there is currently no provision for parking.

4.5 Existing Public Transport Services

Public transport services are currently provided along Ocean Drive. The service is primarily for school children with a limited inter-town service provided between the Camden Haven area to the south and Port Macquarie to the north. There are currently two bus stops on Ocean Drive adjacent to the subject land. These serve the existing residential areas on the southern fringe of the Lake Cathie village.

4.6 Existing Pedestrian Network

There is currently minimal pedestrian traffic along Ocean Drive due to the mainly rural nature of the adjoining lands. Other than a short length of footpath providing access from Abel Tasman Drive to the bus stop on Ocean Drive there are no pedestrian facilities.

4.7 Existing Cycle Network

Ocean Drive from Lake Cathie to Houston Mitchell Drive has recently been reconstructed with sealed shoulders to facilitate bicycle usage. Ocean Drive south of Houston Mitchell Drive has no provision for cyclists. There are no “off road” cycleways or shared pedestrian/cycle paths in the vicinity.

5 Proposed Development

5.1 Development Concept

The proposed development is shown in Figure 5, and includes the delineation of areas identified as residential precincts, a village centre, community facilities, schools, district playing fields and a site for eco-tourist development. It is anticipated that the residential precinct will provide approximately 900 residential dwellings. The development will feature large areas of open space, drainage and habitat corridors. The proposed development is generally in accordance with the adopted Area 14 Structure Plan.

5.2 Traffic Modelling

Port Macquarie – Hastings Council engaged Roadnet Pty Ltd to undertake a report with the principle objective to provide sufficient modeling which would enable Council to plan

future road networks within Area 14.

The modeling established existing scenarios as at 2009 and also models predicted traffic for two planning periods to 2019 and 2029. In addition the modeling tests various designs with a range of intersection options and two scenarios (planned and additional) for the road network. Council has confirmed the results of the Roadnet Pty Ltd work in their letter dated 8 June 2010 and included in the Appendices section of this report.

The Concept Plan application (MP 06_0085) seeks approval for the location of the three intersections (as adopted by Council) with Ocean Drive as per Figure 5. In addition an additional intersection foreshadowed by Council, but not yet adopted, has been allowed for.

5.3 Primary Road Access Points

Port Macquarie – Hastings Council has determined, by adopting the Area 14 Structure Plan that access to the subject land from Ocean Drive will be at three intersection points. There will be no direct access from individual properties onto Ocean Drive. The three intersection points are shown in figure 1 and described as follows:

- Intersection Point 1 – Houston Mitchell Drive & Ocean Drive

The Area 14 Structure Plan proposes a major intersection and Council has advised that this intersection is to be a signalized intersection with two through lanes along Ocean Drive. This arrangement will provide access into the northwestern part of the property and has been shown as INTERSECTION POINT 1 in Figure 1. It is anticipated that provision of this intersection will be included in a review of the current S94 Roads Plan.

- Intersection Point 2 – Village Centre Intersection

A second intersection on Ocean Drive is proposed in the Area 14 Structure Plan at the “Greater Lake Cathie and Bonny Hills Village Centre” marked INTERSECTION POINT 2 in Figure 1. The Structure Plan has determined that this intersection will provide the primary access to the proposed development area north of Ocean

Drive and will ultimately be a signalised intersection. It is anticipated that provision of this intersection will be included in a review of the current S94 Roads Plan.

- Intersection Point 3 – Abel Tasman Drive and Ocean Drive

A further intersection is proposed in the Concept Plan at the northeastern part of the property at the existing Ocean Drive/Abel Tasman Drive intersection marked INTERSECTION POINT 3 in Figure 1. This intersection will also provide access to the adjoining property to the east. TTM previously modeled this as a two-lane rural roundabout, however additional modeling co-ordinated by Council, indicates that a signalized intersection is more appropriate in this location given the anticipated pedestrian traffic in this location. It is anticipated that provision of this intersection will be included in a review of the current S94 Roads Plan.

These three intersections are the principal traffic related elements for which approval is sought under the provisions of the Concept Plan and Project Applications.

In addition Council has foreshadowed an additional intersection. This 'intermediate' intersection, between the Village Centre and Abel Tasman Drive is to service properties to the north of Ocean Drive. This possible additional intersection has been foreshadowed by Council but is yet to be formally adopted. The Concept Plan has made provision for this additional intersection.

5.4 Internal Road Network

No approval for an internal road network is sought. A preliminary concept has been completed for clarity. This is as shown in Figure 1.

The current concept for an internal road network is characterised by an east-west collector road that traverses the residential area providing for access from Intersection Point 3 through to Intersection Point 1. This collector road is also to be utilised by the proposed "development by others" adjoining to the east. Perimeter roads will branch off the collector road providing access to residential precincts. This is in accordance with the Area 14 Structure Plan.

Another north-south collector road will extend from the proposed Intersection Point 2 with Ocean Drive through the Village Centre to connect with the east-west collector road and also the perimeter roads.

The east-west collector road will provide a bus route as an alternative to Ocean Drive. Bus stops will be provided in accordance with Port Macquarie – Hastings Council's requirements and will be addressed in more detail in future applications.

Port Macquarie – Hastings Council is developing a series of typical road cross sections for the various classes of road which will be included in a Development Control Plan (DCP) for the area. Road widths and other design parameters will be in accordance with the DCP requirements and will be detailed in future applications.

All internal roads will be the subject of future applications and the layout shown is both provisional and conceptual to the extent that it indicates a layout that is in accordance with the Structure Plan and proves that the 3 intersection points are appropriate.

Council's modeling has indicated an acceptable level of service for the proposed development density will be achieved based on the conceptual road network identified in the Concept Plan.

5.5 New and Existing Road Network Integration

The three proposed intersections with Ocean Drive are in locations with good sight distance satisfying Austroads requirements having regard to the likely future road speed on Ocean Drive. The RTA has undertaken to review the current speed limits particularly with regard to the Village Centre intersection and the speed zone review for Ocean Drive was placed on public exhibition in December 2009. Figure 4 indicates the proposed speed zone settings for Ocean Drive where it borders the site.

All intersections will be designed to accommodate service vehicles and buses. The Village Centre itself will be designed to allow service vehicles access to commercial premises. Detailed design will be addressed in future applications for the Village Centre.

5.6 Internal Parking

Each landuse component within the Concept Plan area will be required to provide parking in accordance with Port Macquarie – Hastings Council's Development Control Plan No. 18 Off-street Parking Code.

The Concept Plan delineates each landuse and identifies major intersection points with Ocean Drive. There is no internal parking demand specified with respect to the Concept Plan application and subsequent development applications will address this issue.

The Project Application includes the identification of the district playing fields. This landuse will generate a demand for parking, however the final development of the site for playing fields will again be subject to a future application.

Details of internal parking for all other developments, such as the Village Centre, Schools, etc will also be provided in subsequent applications.

5.7 Public Transport

A public transport (bus service) route will be available by utilising the east-west collector road as outlined previously. Regular bus bays/stops will be provided in accordance with Port Macquarie – Hastings Council's Auspec Design Specifications. This will include a bus terminal immediately adjacent to the Village Centre to facilitate access to commercial and community facilities. Again, detail is to be provided in subsequent applications.

5.8 Pedestrian Network

Pedestrians will be accommodated by a network of paved footpaths and shared cycleway paths throughout the subject land. Pathways will provide safe access to the Village Centre, schools, community facilities and bus stops as well as recreational pathways within the open space corridor. The existing beach access will be maintained and enhanced and this particular component is detailed in the Project Application Environmental Assessment.

A co-ordinated pedestrian and cycle network has previously been provided to Port Macquarie – Hastings Council following consultation with the adjoining landowners to the north and the local Progress Associations. This is shown in Figure 6.

5.9 Cycle Network

Cyclists will be accommodated by both “on road” cycle lanes along Ocean Drive and a network of shared cycleways within the open space corridor. A significant link from north to south will connect Lake Cathie to Bonny Hills and form part of the NSW Coastline Cycleway. Discussions with local user groups are continuing with respect to the integration of cyclepaths into the greater network.

As noted above, a co-ordinated pedestrian and cycleway network has previously been provided to Port Macquarie – Hastings Council following consultation with the adjoining landowners to the north and the local Progress Associations.

5.10 Access and Land Use Compatibilities

The proposed network provides for convenient traffic movements within the subject land to the Village Centre, northern school site and residential areas. The need for a future road connection to the southern school site has been identified and would need to be addressed in future applications.

Access to Rainbow Beach will be restricted to the existing access point and no new beach access paths are required. The existing walking track will be enhanced with a timber board and chain arrangement to current standards so as to formalise and control the track and its environs.

Vehicular access to the beach entry point will be via the adjoining property and this has been coordinated with the adjoining landowners as the most appropriate place for vehicular access.

Access to residential areas south of the development will be via a network of shared pedestrian and cycle paths around and across the open space and wetlands corridor. This will be an extension of the existing network.

Internal roads will be designed with a hierarchy of use that will allow safe travel by cyclists and pedestrians in the quiet residential streets and via a network of shared “off road” pathways adjacent to the collector road. There will also be an extensive network of recreational pathways allowing access to open space areas.

Apart from the location of the three intersection points with Ocean Drive, all detailed arrangements will be the subject of future applications.

In addition the intermediate intersection point, under consideration by Port Macquarie – Hastings Council will, if adopted, be part of a future development application.

6 Development Impacts

6.1 Additional Traffic Volume

SMEC's Traffic Study for the Port Macquarie – Hastings Council's Section 94 Roads Plan, took account of traffic expected to be generated from this development. The major effect is on Ocean Drive, Houston Mitchell Drive and the proposed intersections along Ocean Drive.

Table 1: Estimated Future Volumes and Growth for Ocean Drive

Location	SMEC AADT's			2001 to 2011 growth (%) p.a.	2001 to 2021 growth (%) p.a.	2011 to 2021 growth (%) p.a.
	2001	2011	2021			
Ocean Drive, north of Lake Cathie	4100	5800	7300	3.5%	2.9%	2.3%
Ocean Drive, south of Bonny Hills	4700	8400	10800	6.0%	4.2%	2.5%

Source: *Area 14 Paramics Modelling Report, Roadnet Pty Ltd & Bitzios Consulting, December 2009, Table 3.1*

AADT = Average Annual Daily Traffic

The current Section 94 Roads Plan proposes upgrading of both Ocean Drive and Houston Mitchell Drive and the provision of a roundabout at the Ocean Drive/Houston Mitchell Drive intersection which is Intersection Point 1. However, it is expected that the current Section 94 Roads Plan be revised to reflect the recommendations of the Roadnet and Bitzios Consulting report.

It is expected that Intersection Points 2 & 3 will also be included in a revised local Section

94 Roads Plan or a revision of the current Section 94 Major Roads Plan and will be designed and constructed to accommodate the projected traffic volumes as recently modeled by Roadnet and Bitzios Consulting on behalf of Port Macquarie – Hastings Council.

6.2 Additional Traffic Noise

A Road Traffic Noise Assessment Study was undertaken by Noise and Sound Services to determine the need for traffic noise mitigation measures for residential development along Ocean Drive.

The assessment by Noise & Sound Services concluded that a setback of 10 metres to the existing Ocean Drive boundary was required and an earth mound or fencing of 1.8m high would be required to meet EPA traffic noise design criteria.

The Concept Plan allows for a 10 metre road widening to accommodate the recommended noise mitigation measures. This 10 metre setback is also in accordance with the Area 14 Structure Plan.

The specific detail of the measures proposed to mitigate noise will be addressed in future applications for development adjoining Ocean Drive. At this stage, the study has demonstrated that the traffic noise associated with Ocean Drive may be mitigated in order to allow residential and other urban development to occur on the subject land.

The report by Noise and Sound Services, along with an updated letter, is included in the Appendices to this report.

7. Conclusion

7.1 While the development of the subject land will generate additional traffic, the proposed concept for internal road and pathway networks will facilitate safe movement of vehicles, bicycles and pedestrians within the subject land, including the provision of links to the existing cycleway system on Ocean Drive.

7.2 The internal transport network, shown conceptually, demonstrates how the integration of landuses over the subject land may be achieved. In addition the

proposed landuses are able to be linked via pedestrian and cycle networks allowing access to schools and the retail and communities facilities located within the village centre.

- 7.3 The conceptual internal traffic network also provides for perimeter roads, which allows for the incorporation of bushfire setbacks and separates most residential lots from direct boundaries with environmental areas within the open space, drainage and habitat corridors.
- 7.4 Sections 6.1 and 6.2 of this report demonstrate how the integration of the proposed landuses has been considered across the subject land, including issues such as access arrangements, traffic and environmental buffers, as required by DGRs CP 1.3, CP 5.2 & 5.3 and PA 8.1.
- 7.5 The proposed inclusion of the future upgrade of Ocean Drive, Houston Mitchell Drive and the Ocean Drive intersections within a revised Section 94 Contribution Plan will ensure the provision of safe access and movement of vehicles to and from the site and adjoining areas is provided for as demand for the development arises. This addresses requirements of DGR CP 1.3 with regards to access arrangements, CP 5.1 with regard to the need to ensure the capacity of the road network and associated access is catered for within an efficiently functioning road network with safe access in and out of the subject land.
- 7.6 This traffic impact study has also considered public transport and beach access issues which also ensures the issues raised in the identified DGRs are addressed.
- 7.7 The traffic management components of the proposed Concept Plan are in accordance with the July 2004 Area 14 Structure Plan and are in effect the implementation of the Area 14 Structure Plan.
- 7.8 The proposed intersections (including the intermediate intersection point) and the internal road network has been modeled by Roadnet as part of a Greater Area 14 review commissioned by Port Macquarie – Hastings Council and the general layout provides acceptable levels of service.

- 7.9 All final internal road networks, cycleways and pathways will be the subject of future applications.
- 7.10 The three intersection points with Ocean Drive are the principal, traffic elements for which approval is sought.
- 7.11 Council has confirmed its approval of the traffic elements of the Concept Plan under letter dated 8 June 2010.