

The background of the cover is a photograph of a suspension bridge with a wooden deck, crossing a body of water and surrounded by a dense forest of tall trees. The image is overlaid with a yellow-to-teal gradient and geometric shapes.

Central
Coast
Council

GREATER LAKE MUNMORAH

STRUCTURE PLAN

LAND USE STRATEGY: 2021 - 2041

APRIL 2022

DIRECTORATE: ENVIRONMENT & PLANNING

Central
Coast
Council

Executive Summary

GREATER LAKE MUNMORAH

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Overview

The Greater Lake Munmorah Structure Plan establishes a framework to guide the future growth of the study area from 8,407 people (ABS ERP 2016) to approximately 15,000 people, over a 20 year period. It is guided by a vision that aims to support sustainable growth and has been developed through significant analysis and stakeholder engagement.

The Structure Plan sets a 20-year local land use framework that:

- Addresses housing and employment land supply, infrastructure provision, ecology, traffic and transport;
- Enhances the existing public domain via identifying opportunities for Public Domain Plans and urban design guidelines;
- Enhances social interaction through careful placement of community and recreational facilities and infrastructure;
- Promotes significant natural features, including waterfront areas, public reserves, and biodiversity linkages;
- Provides greater certainty to land owners, the community, and industry groups with regard to land use options and the location of future development and conservation areas within the study area.

Structure Plan Components

The Greater Lake Munmorah Structure Plan is divided into 2 separate parts, with Part 1 establishing the current conditions within the study area, and Part 2 identifying the way forward.



The Study Area

The study area is an extensive area that covers the suburbs of Lake Munmorah, Kingfisher Shores, Doyalson North, Chain Valley Bay and a small area of Crangan Bay. The Structure Plan has been named "Greater Lake Munmorah" due to the suburb of Lake Munmorah being the largest and most prominent within the study area.

The large study area has been selected in order to ensure that this Structure Plan further refines future land uses in this area, as identified at a high-level by the NSW Government's North Wyong Shire Structure Plan (NWSSP). Therefore, the entire area identified within the NWSSP for future employment and residential land use along this portion of the Pacific Highway, as well as the area identified as a future biodiversity corridor, is included in the study area.



FIGURE 1: THE STUDY AREA

Profile of Greater Lake Munmorah

Part 1, Section 3.0 profiles the study area and the people that live within the study area. The population profile includes age structure, employment types and household demographics.

Note: Unless otherwise stated, data has been sourced from Australian Bureau of Statistics, Census of Population and Housing 2016. Compiled by .id, the population experts.

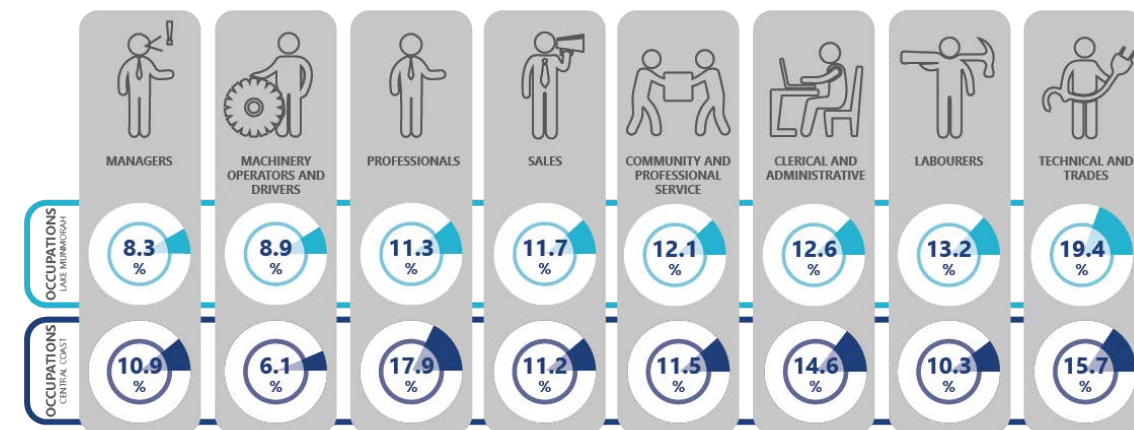


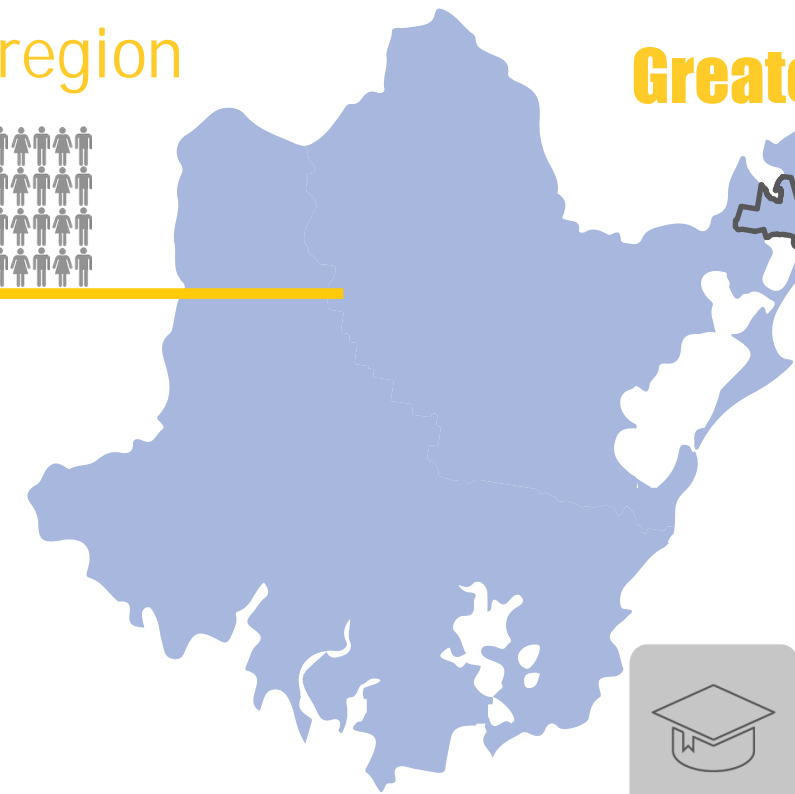
FIGURE 2: OCCUPATIONS

Central Coast region



336,611
people live on
the Central Coast
(ABS ERP 2016)

Greater Lake Munmorah



2.5%

8,407

people live within
the Greater Lake
Munmorah study area
(ABS ERP 2016)

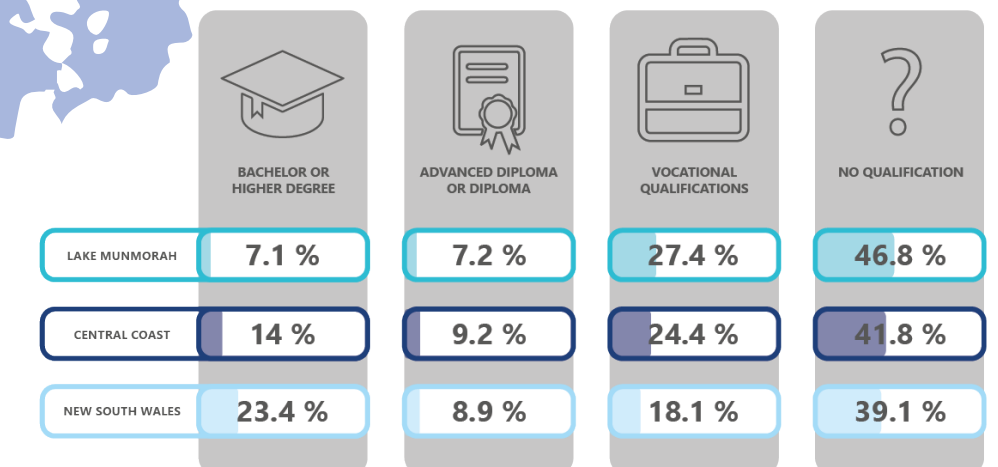


FIGURE 5: EDUCATIONAL QUALIFICATIONS

FIGURE 3: AGE STRUCTURE

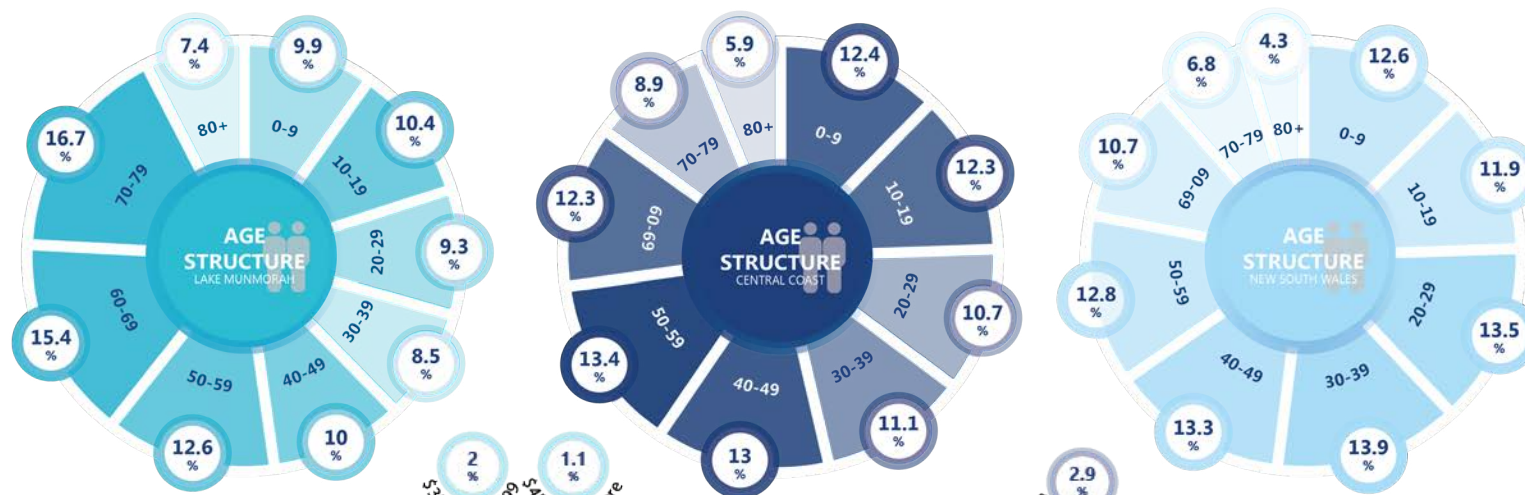


FIGURE 4: HOUSEHOLD INCOMES

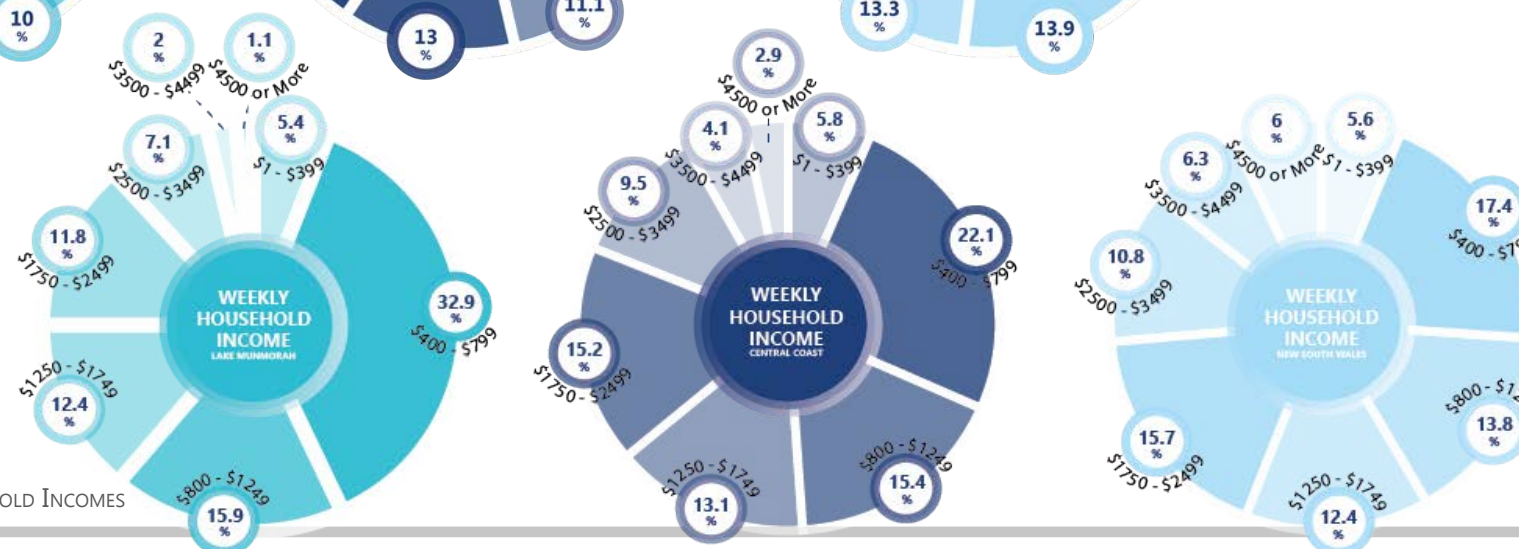


FIGURE 6: HOUSEHOLD TYPES





Existing Conditions - Setting the scene for Greater Lake Munmorah

Part 1, Section 4.0 provides an overview of the key strengths and weaknesses identified for this Structure Plan study area, which leads into Part 2, Section 7.0 - Opportunities to address these issues.

ENVIRONMENTAL

- Limited visual connection to foreshore.
- Cluttered visual landscape which often interferes with the natural beauty of the area.
- Presence of Ecologically Endangered Communities and threatened species.
- The need to define biodiversity corridors.

HAZARDS

- Significant bushfire hazard.
- Potential land contamination.
- Prevalence of dispersive soils.
- Significant flood hazard.
- The need to prepare for impacts of climate change.

SERVICING

- Sequencing of development – Development out-of-sync with NWSSP staging can add significant cost.
- Funding – Who pays for lead-in infrastructure?

- Sewer Servicing – Capacity constraints.
- Sewerage Treatment Plant – Potential odour issues.
- Easements – Significant electricity transmission line easements.

TRANSPORT

- Pacific Highway cuts the study area into two parts - Northern and Southern areas.
- Carters Road intersection issues during peak school times.
- Limited access to public transport services.

RECREATION

- Limited physical connections to Lake Foreshore.
- Discontinuous walking and cycling networks.
- Limited pedestrian access to playground facilities.
- Limited access to Sporting field facilities.

COMMUNITY

- Many residents are isolated from services and facilities.
- Ageing population with areas of socio-economic disadvantage.
- Existing community facilities limited in use and functionality.

ECONOMY

- No single Town Centre to act as a community hub.
- Neighbourhood Centres lack aesthetic amenity and character.
- Limited access to local employment.

LAND USE CONFLICTS

- Underground mining, resource land and surface development restrictions.
- Current rezoning proposals out-of-sync with NWSSP development timeframes

CHARACTER

- Limited defined character due to haphazard development patterns.

PRECINCTS

- Further refinement of the NWSSP precincts, and staging of development, is required.





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WE ACKNOWLEDGE OUR SHARED RESPONSIBILITY TO CARE FOR COUNTRY

The Precincts

Part 1, Section 5.0 identifies the 10 distinct precincts within the Study Area.
Part 2, Section 8 includes a detailed plan for each precinct.

LEGEND

Study Area Boundary	
Precinct 1- Biodiversity Corridor	
Precinct 2- Employment Lands	
Precinct 3- Kingfisher Shores	
Precinct 4- Sporting field	
Precinct 5- Saliena Avenue	
Precinct 6- Kamilaroo Avenue	
Precinct 7- Chain Valley Bay	
Precinct 8- Northern Lake Munmorah	
Precinct 9- Southern Lake Munmorah	
Precinct 10- Carters Road School Precinct	

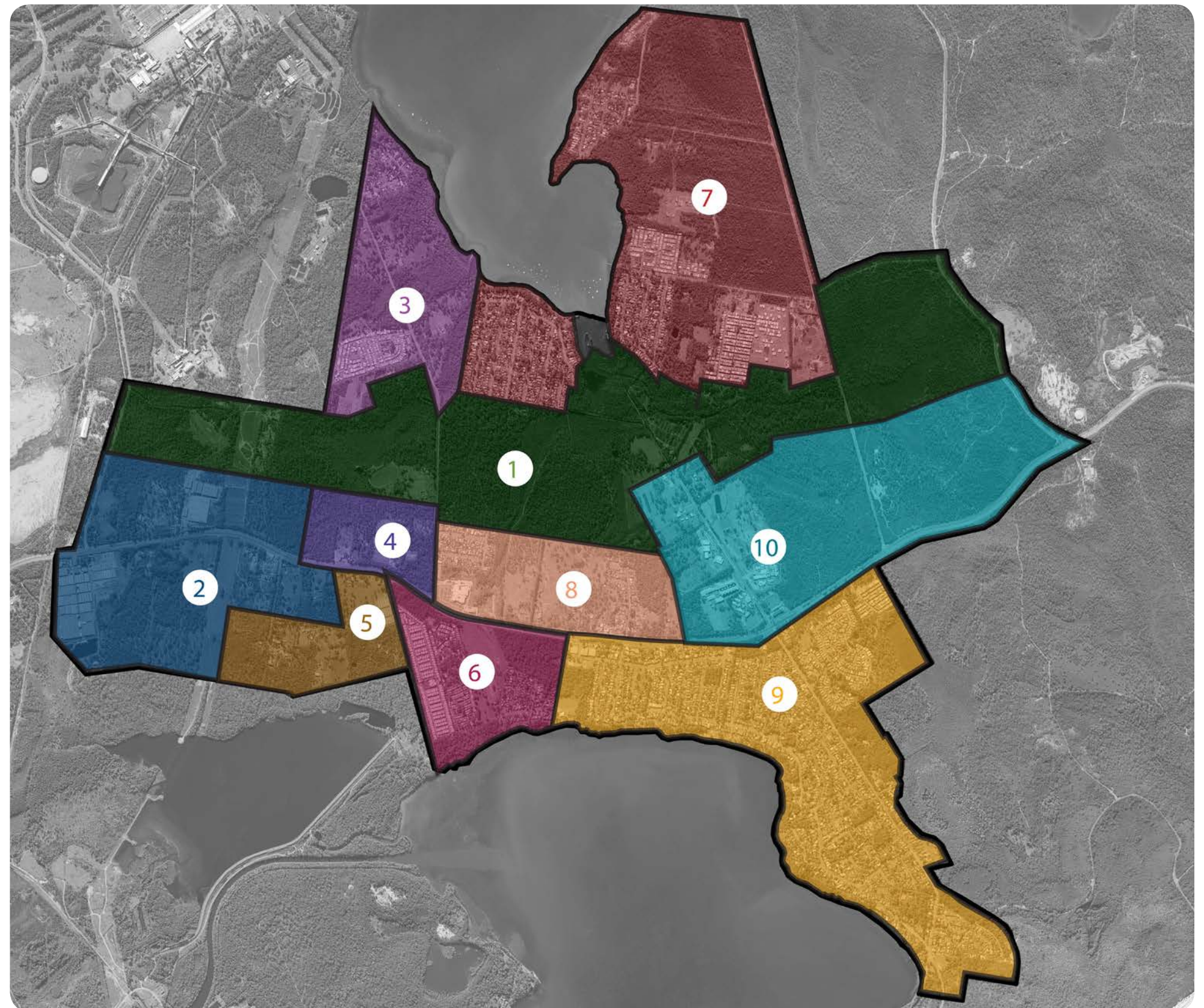


FIGURE 7: STUDY AREA PRECINCTS



Community Vision

The engagement period for the Greater Lake Munmorah Structure Plan ran for 60 days between March-May 2019. During this time, 48 formal submissions were received, and 214 pins dropped on the Social Pinpoint interactive map of the area. Council staff were available for a 5-hour period and 3-hour period over 2 separate days at Lake Munmorah Bowling Club, during which time 168 people participated face to face with Council staff.

Drop-in Sessions / Social Pinpoint

The majority of comments received at both the drop-in information sessions, and the Social Pinpoint interactive mapping program were in relation to :

- Recreation – Need for improved quality/options (31)
- Roads - Safety/Capacity (27)
- Recreation - Shared pathways (24)
- Environment (22)
- Roads - Condition (20)
- Water quality of Lake Munmorah / Lake Budgewoi (17)
- Flood mapping (7)

Written submissions

The majority of written submissions were in relation to:

- Environment (12)
- Roads - Safety/Capacity (12)
- Public transport (8)
- Economy (8)
- Recreation - Shared pathways (6)
- Redundant electricity easement - Carters Road (6)

Therefore, it can be seen that the 3 main issues of concerns to the Greater Lake Munmorah community are:

- Adequate provision and quality of recreation facilities, including shared pathways
- Improved road maintenance and infrastructure
- Ensuring the protection of the areas unique environmental attributes

These results generally align with the results of the Community Strategic

Plan engagement period for the Northern Lakes area, with the 3 major areas identified for improvement being:

- Improved road maintenance and infrastructure
- Improved drainage / kerb and guttering
- Improved footpaths

The Structure Plan aims to improve the key issues of transport, recreation, and environment. Other issues, such as lake quality and kerb and guttering, are beyond the scope of this study.

Our Engagement Program....



48 formal submissions were received



214 pins dropped on social pinpoint



168 people participated face-to-face at 2 drop-in sessions



3,000 social media users reached

What the community said....



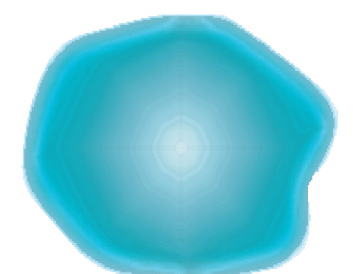
Maintain environmental quality



Improved recreation options



Better road infrastructure



Better lake quality

Opportunities

Part 2, Section 7 provides a number of opportunities for the future growth of the study area, focusing on aspects such as future land uses, transport networks, infrastructure, open space and environmental features. The following table is a consolidated action plan for implementing the Structure Plan, incorporating the opportunities discussed in the Structure Plan. The following timelines apply to the priorities:

Short : 0 - 5 years Medium : 5 - 15 years Long : 15 years + On-going : continual / as needs arise

ISSUE	ACTION	RESPONSIBILITY	TIMING
ENVIRONMENTAL	As part of precinct-based rezoning investigations, review land zoning within the biodiversity corridor taking into account the vision and objectives of the Structure Plan.	Council	Ongoing
	Advocate for installation of biodiversity crossing structures and exclusion fencing across the Pacific Highway corridor, to reduce both fauna crossing barriers and road-kill incidents.	Council / TfNSW	Medium term
	Advocate for a program of street tree plantings along the wider parts of the Pacific Highway median strip, to provide safer crossing opportunities for avian and glider species.	Council / TfNSW	Medium term
	Advocate for regeneration of natural bushland to the north of the ash dam, and stringent management requirements as part of any future redevelopment plans for the Power Station site.	Council / Landowner	Long Term
	Undertake a sign audit and remove old and/or redundant signs, replace with new or consolidated signs where possible, and provide a consistent style.	Council	Medium
	Encourage the under-grounding of existing electricity supply infrastructure in high profile locations. New electricity supply infrastructure must be provided underground, where possible.	Council	Ongoing
	As part of a new Greater Lake Munmorah DCP Chapter, require a vegetated landscape treatment be provided to the Pacific Highway, to provide a buffer for residents and to improve visual amenity of the area.	Developer	Ongoing
	In accordance with the relevant DCP Chapter, ensure that new developments do not increase nutrient and sediment loads and water flows above their natural levels, and are undertaken using best practice for stormwater or urban water quality design.	Council	Ongoing
HAZARDS	As part of a new Greater Lake Munmorah DCP Chapter, require geotechnical studies be prepared as part of development proposals on sites subject to dispersive soils.	Developer/ Council	Ongoing
	As part of a new Greater Lake Munmorah DCP Chapter, require new development incorporates roads as buffers between private properties and vegetation in the biodiversity corridor.	Developer/ Council	Ongoing
	As part of a new Greater Lake Munmorah DCP Chapter, require retention of overland flow paths in most instances. Piping of flows is generally not supported.	Developer / Council	Ongoing
	In accordance with the relevant DCP Chapter, ensure development on flood prone land is assessed on its merits, while ensuring the impacts of flooding on the community are reduced using ecologically positive methods.	Developer / Council	Ongoing
	Implement a street tree planting program on the following streets: 1. Tall Timbers Road 3. Elizabeth Bay Drive 2. Carters Road 4. Chain Valley Bay Road	Council / Developer	Long-Term
	In accordance with the relevant DCP Chapter, ensure that Water Sensitive Urban Design is integrated into new development.	Council / Developer	Ongoing
SERVICING	Review the Development Servicing Plan for the study area.	Council	Short Term
	Prepare a hydraulic sewer model for sewer catchments to ensure a holistic capacity review and refine Development Servicing Plan.	Council	Short Term
	As part of a new Greater Lake Munmorah DCP Chapter, ensure that rezoning applications are not approved within the odour contour area, without a Planning Agreement (or similar) committing to mitigating odours for future residents.	Developer	Ongoing
	As part of a new Greater Lake Munmorah DCP Chapter, ensure that no inappropriate development is permitted within electrical transmission line easements.	Council	Ongoing
TRANSPORT	Provide a connector road between Tall Timbers Road and Carters Road to service Precinct 8. (Road 1)	Developer	Short Term
	Provide a connector road between Rutleys Road and Tall Timbers Road to service the future employment precinct. (Road 2)	Developer	Long Term
	Provide a connector road between Saliena Avenue and Basford Road to service Precinct 5. (Road 3)	Developer	Long Term
	Provide a connector road between Chain Valley Bay Road and Carters Road to service Precinct 10. (Road 4)	Developer	Short Term
	Investigate provision of a connector road between Saliena Avenue and Kamilaroo Avenue. (Road 5)	Council	Long Term
	Liaise with NSW National Parks and Wildlife regarding the potential for construction of a connector road between Chain Valley Bay Road and Kanangra Drive. (Road 6)	Council	Long Term
	Provide a signalised intersection, including pedestrian crossing, at the junction of Chain Valley Bay Road/Pacific Highway to service Precinct 7 and 10.	Developer/ TfNSW	Short Term
	Incorporate road, drainage and pathway costs into an updated Northern Districts Chapter of the Section 7.11 Development Contributions Plan (where appropriate).	Council	Short Term

Issue	Action	Responsibility	Timing
TRANSPORT (CTD)	As part of a new Greater Lake Munmorah DCP Chapter, encourage access to public transport services by ensuring that: <ul style="list-style-type: none">Housing and subdivision designs are to integrate with land use, transport and access, both pedestrian and vehicular.Walking and cycling networks are aligned with public transport routes to improve accessibility to public transport.Bus stops are provided in locations as nominated by the relevant authority.A bus interchange is provided as part of the Lake Munmorah Local Centre expansion.	Council	Ongoing
	Prepare a package of proposed improvements for the Pacific Highway corridor, for lodgement with the TfNSW (note: TfNSW has final decision-making authority): <ul style="list-style-type: none">Improve lighting along the Pacific Highway between Carters Road and Chain Valley Bay Road to ensure safety and usability is improved for the community.Reduce maximum speed limit to 60km/hour at a minimum, and Incorporate more pedestrian crossings.Implement a program of street tree plantings, including median plantings, to provide shaded spaces and buffering to the Pacific Highway for shared pathway users.	Council/ TfNSW	Medium Term
	As part of a new Greater Lake Munmorah DCP Chapter, require Safe System Assessments for any new rezoning proposals.	Developer	Ongoing
RECREATION	As part of a new Greater Lake Munmorah DCP Chapter, Council can improve walking/cycling networks in the study area by ensuring: <ul style="list-style-type: none">Walking and cycling networks are incorporated into subdivision design and construction.Walking and cycling networks must be designed to ensure safe, amenable and convenient pedestrian and cycle connections.Footpath and cycle path widths are increased in areas expecting higher usage such as near schools, community centres, local centres, public transport interchanges/bus stops.Pedestrian and cycle crossings are provided at all relevant intersections and along key desire lines.	Council / Developer	Ongoing
	Investigate options for the following recreation facilities: <ul style="list-style-type: none">Colongra Bay Reserve playground – either replace old facilities or incorporate new facilities.Liaise with NPWS to coordinate delivery of a play-space at Elizabeth Bay Dr (Munmorah State Conservation Area).Consider opportunities to encourage more public use for the reserve at the end of Greenacre Avenue.Continue to coordinate the delivery of the play-space adjacent to Gumbuyah Reserve on Tall Timbers Road.	Council	Medium Term
	As part of a new Greater Lake Munmorah DCP Chapter, require rezonings incorporate playground/park space into concept plans where relevant.	Developer	Ongoing
	Coordinate the delivery of a new sports field at Tall Timbers Road (north of Gumbuyah Oval).	Council	Long Term
	Coordinate the embellishment of the basketball and tennis courts at Acacia Avenue, Lake Munmorah.	Council	Medium
COMMUNITY	Upgrade/embellish Lake Munmorah Colongra Bay Hall to increase functionality and meet community needs	Council	Short Term
	Investigate the need and possible locations for a multi-purpose community facility in proximity to Lake Munmorah Local Centre	Council	Medium
ECONOMY	Liaise with owners of the Lake Munmorah Local Centre site to discuss options for developing the adjacent vacant land as a Town Centre to cater for the growing population.	Council	Short Term
	Prepare a Place Plan for the Lake Munmorah Local Centre, in consultation with the landowner and incorporate outcomes into the site specific DCP chapter.	Council	Medium
	Prepare a Public Domain Plan for the Chain Valley Bay Neighbourhood Centre	Council	Medium
	Prepare a Public Domain Plan for the Lake Munmorah Neighbourhood Centre	Council	Medium
	Undertake a review and update of the Northern Districts Section 7.11 Development Contributions Plan	Council	Short Term
	Rezoning of land for employment uses to be identified as long term, in order to ensure take-up of the WEZ lands is not discouraged.	Council	Long Term
	As part of a new Greater Lake Munmorah DCP Chapter, employment land fronting the Pacific Highway to incorporate significant landscaping, locate parking to the rear of the building and screen service areas.	Developer	Ongoing
LAND USE CONFLICTS	Implement a staged program of Planning Proposals to ensure the study area is developed in a responsible and sustainable manner.	Council	Ongoing
CHARACTER	Prepare an overarching Greater Lake Munmorah chapter of the Central Coast Development Control Plan (DCP) to guide development of the study area.	Council	Short Term
	Prepare a site-specific section of the Greater Lake Munmorah DCP chapter to further refine development precincts as necessary. These provisions will be progressively compiled into one DCP chapter.	Council	Ongoing

The Structure

Part 2, Section 3.0 and 4.0 is the culmination of the investigations described in the previous parts of this document.

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	

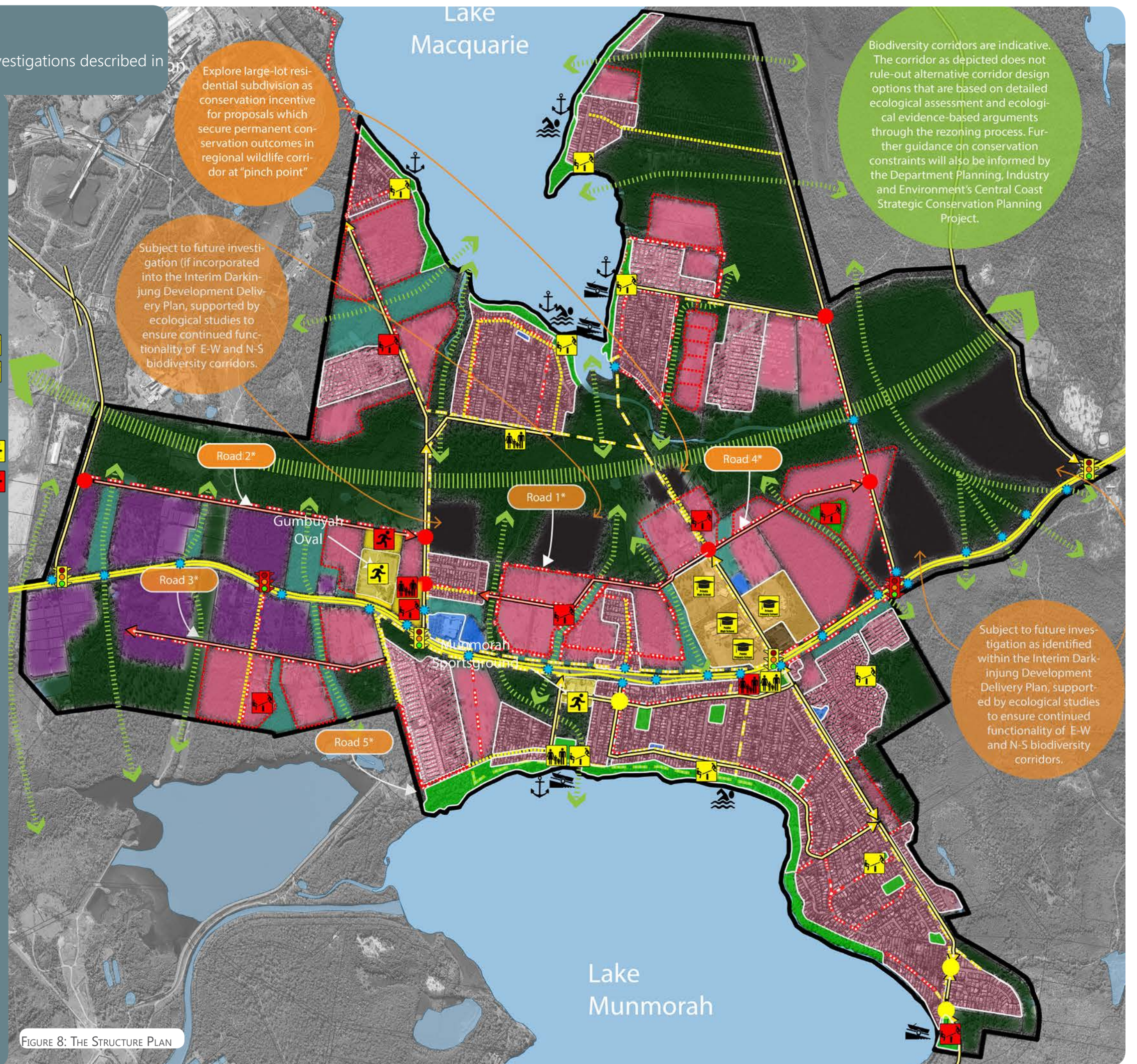


FIGURE 8: THE STRUCTURE PLAN



The Figures

The Greater Lake Munmorah Structure Plan identifies opportunities for approximately:

- 3,206 additional residential dwellings
- 7,309 additional residents, and
- 1,794 additional jobs.

SIZE OF STUDY AREA	1,524 ha
POPULATION	
Current Population (ABS ERP 2016)	8,407
Future Additional Population based on Greater Lake Munmorah Structure Plan single dwellings x 2.28	7,309
Future Additional Population based on Forecast ID projections	6,921
Future Additional Population based on NWSSP x 2.28	6,010
DWELLINGS	
Current Dwellings (ABS, 2016)	3,844
Future Additional Dwellings based on Greater Lake Munmorah Structure Plan single dwellings	3,206
Future Additional Dwellings based on Forecast ID projections	3,386
Future Additional Dwellings based on NWSSP projections	2,636
JOBS	
Current Jobs (2017)	1,737 *
Future Additional Jobs based on Greater Lake Munmorah Structure Plan Employment Lands **	1,794
Future Additional Jobs based on NWSSP Employment Lands (Precinct 16) **	1,890

* Includes suburb of Mannering Park (outside Greater Lake Munmorah Structure Plan study area) - Sourced from economy.id.com.au based on ABS statistics.

** Based on 20 jobs / hectare.



Implementation

Implementation Plan

Part 2, Section 10.0 is the implementation component of the Structure Plan. The Implementation Plan identifies the key actions arising from the plan, as well as the organisation with the main responsibility for the action. Maintaining a strict approach to implementing the actions of this plan will ensure that the Greater Lake Munmorah area remains a priority for the Central Coast Council organisation.

Precinct Planning

This Structure Plan is a high level framework that is not intended to resolve all issues associated with the study area. Current planning controls such as zoning, minimum lot sizes and building heights constrain the proposed development identified in this Structure Plan and will need to be amended to enable development. This Structure Plan does not amend these controls. Instead, it is anticipated that the outcomes of this Structure Plan will be implemented through local planning proposals, prepared by land owners to amend the zoning and/or planning controls that apply to their land.

Potential development precincts have been further divided into smaller precincts, based on land ownership, topographic features and location. Rezoning proponents will be required to group rezoning proposals together by the relevant precinct. It is anticipated that this refinement of precincts will enable more positive development outcomes for the area, enabling Council to more holistically assess development proposals.

This Structure Plan identifies a staging plan for these refined precincts, shown in Figure 9. Planning Proposals should be staged in accordance with the staging plan.

Supporting Documents

A development control plan chapter, Place Plans and a public domain strategy will also be developed to guide the future development of the study area.

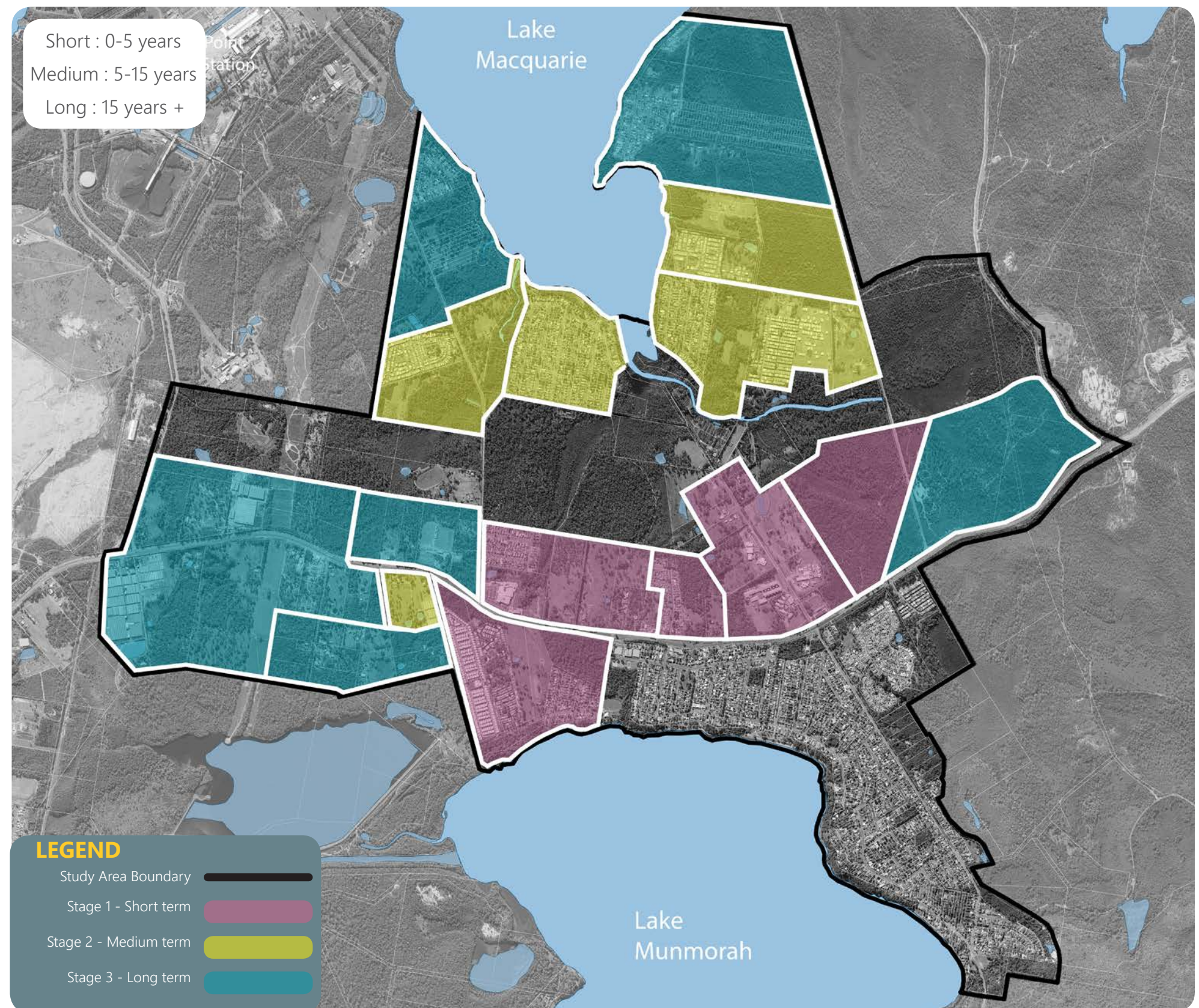


FIGURE 9: STAGING PLAN

The background of the cover is a photograph of a suspension bridge with a wooden deck, crossing a body of water and surrounded by a dense forest of tall trees. The image is overlaid with a yellow-to-teal gradient and geometric shapes.

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GREATER LAKE MUNMORAH

STRUCTURE PLAN

LAND USE STRATEGY: 2021 - 2041

APRIL 2022

DIRECTORATE: ENVIRONMENT & PLANNING

PART 1. BACKGROUND AND CONTEXT

1.0 INTRODUCTION

- 1.1 Acknowledgment
- 1.2 Why a Structure Plan?
- 1.3 The Study Area
- 1.4 Regional Context
- 1.5 Purpose of the Structure Plan
- 1.6 Structure Plan objectives

2.0 STRATEGIC CONTEXT

- 2.1 Central Coast Regional Plan
- 2.2 North Wyong Shire Structure Plan
- 2.3 One Central Coast
- 2.4 Local Strategic Planning Statement
- 2.5 State Environmental Planning Policy (Aboriginal Land (2019))
- 2.6 Wyong Local Environmental Plan, 2013
- 2.7 NSW Long Term Transport Master Plan
- 2.8 Central Coast Regional Transport Plan
- 2.9 Employment Lands Study
- 2.10 Retail Centres Strategy
- 2.11 Settlement Strategy

3.0 GREATER LAKE MUNMORAH NOW

- 3.1 Study Area Profile
- 3.2 Population Profile
- 3.3 Existing Conditions



4.0

EXISTING CONDITIONS

- 4.1 Environment
- 4.2 Hazards
- 4.3 Servicing
- 4.4 Transport
- 4.5 Recreation
- 4.6 Community
- 4.7 Economy
- 4.8 Land Use Conflicts
- 4.9 Character

5.0

THE PRECINCTS

- 5.1 Precinct 1: Biodiversity Corridor
- 5.2 Precinct 2: Employment Lands
- 5.3 Precinct 3: Kingfisher Shores
- 5.4 Precinct 4: Sporting field
- 5.5 Precinct 5: Saliena Avenue
- 5.6 Precinct 6: Kamilaroo Avenue
- 5.7 Precinct 7: Chain Valley Bay
- 5.8 Precinct 8: Northern Lake Munmorah
- 5.9 Precinct 9: Southern Lake Munmorah
- 5.10 Precinct 10: Education Precinct



PART 1.

1.0 INTRODUCTION





1.1 Acknowledgment of Country

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1.2 Why A Structure Plan?

The Greater Lake Munmorah Structure Plan Action (this Structure Plan) has commenced as a result of an identified need to accommodate population growth in the north-east of the Central Coast LGA. The State Government's North Wyong Shire Structure Plan (2012) identifies a large area of land within the study area for long-term regional greenfield residential and employment land. The North Wyong Shire Structure Plan (2012) identifies the following timeframes for staging of development in this area:

- Short - Land already zoned and serviced
- Medium - Land that is expected to be rezoned in the next 15 years (from 2012)
- Long - Land this is not expected to be rezoned in the next 15 years (from 2012).

This area has historically been identified for longer-term development due to surface development restrictions related to underground mining within the area. However, these surface development restrictions over a large part of the study area have now been relaxed by Subsidence Advisory NSW. The development of the Lake Munmorah Shopping Centre on Tall Timbers Road has also provided stimulus for development within the area. A number of stimulus developments are also in the planning stages, including:

- 4 significant rezoning applications lodged, including a 150ha parcel in Chain Valley Bay.
- 2 significant recreation facilities (Skate Park and Regional Play-space) proposed for the area.

Therefore an opportunity exists to consider bringing development forward, and consider the study area in its entirety to ensure best outcomes for the current and future residents.

Council recognises the importance of developing a vision for the future development of the Lake Munmorah area, to ensure that development of this area occurs in an orderly and desirable manner. A detailed Structure Plan of the broader Lake Munmorah area is therefore required, prepared in consultation with the community and other stakeholders.

1.3 Purpose

This Structure Plan will set a coherent framework for development, facilitating the future growth and prosperity of the area, and will identify:

- Appropriate development footprints for new residential and employment land, and any relevant staging requirements; and
- Appropriate transport, environmental and open space networks to cater for expected population growth.

This Structure Plan will set the direction for detailed planning instruments, including Local Environmental Plans (LEPs) and Development Control Plans (DCPs), as well as higher level planning tools such as Place Plans and Public Domain Plans.



1.4 Objectives

The Structure Plan will set a local land use framework that:

- Addresses issues such as housing and employment land supply, infrastructure provision, environmental values, housing diversity, connectivity, traffic and transport, community infrastructure and the like.
- Accommodates a long term vision for the area over the next 30 years, by facilitating growth within the study area for the short, medium and long term – whilst still ensuring the orderly development of land.
- Enhances the existing public domain via identifying opportunities for Public Domain Plans and urban design guidelines, potential linkages and improvements to public spaces and street-scapes. This will include strengthening north-south connections between the existing residential area and green-field precincts.
- Enhances social interaction through careful placement of community and recreational facilities and infrastructure
- Promotes significant natural features, including waterfront areas and public reserves.
- Considers potential biodiversity corridors and linkages within the study area.
- Reviews the appropriateness of existing zones adopted under the Wyong Local Environmental Plan 2013 (WLEP 2013), guiding future LEP amendments.
- Provides the next iteration of planning to further resolve ideas within the NWSSP.
- Provides greater certainty to land owners, the community, and industry groups with regard to land use options and the location of future development and conservation areas within the study area.



FIGURE 1: BUSHLAND IN CHAIN VALLEY BAY



1.5 Regional Context

The Greater Lake Munmorah area is located in the north-east of the Central Coast Council LGA and is bounded by Lake Macquarie and Munmorah State Conservation Areas to the east, Lake Macquarie to the north, Lake Munmorah to the south, and Doyalson to the west. It is one of two northern gateways of Central Coast Local Government Area (LGA) and the main gateway into eastern Lake Macquarie LGA. The Pacific Highway runs in an east-west direction through the study area and is a major traffic corridor connecting the northern half of the LGA to Lake Macquarie east, and further north to Newcastle City. The study area is moderately isolated from the major residential areas to the south, with the closest major shopping centre located 10km to the south at Lake Haven.

The M1 Motorway is located approximately 12km to the west, Wyee train station is located 9km to the north-west and Warnervale train station 15km south-west. The area is serviced by a recently constructed supermarket located in the B2 Local Centre zone at Tall Timbers Road, Lake Munmorah, as well as 2 neighbourhood centres at Anita Avenue, Lake Munmorah and Lloyd Avenue, Chain Valley Bay.

1.6 The Study Area

The study area is depicted in Figure 4.

The study area is an extensive area that covers the suburbs of Lake Munmorah, Kingfisher Shores, Doyalson North, Chain Valley Bay and a small area of Crangan Bay.

The large study area has been selected in order to ensure that this Structure Plan further refines future land uses in this area, as identified at a high-level by the NSW Government's North Wyong Shire Structure Plan (NWSSP). Therefore, the entire area identified within the NWSSP for future employment and residential land use along this portion of the Pacific Highway, as well as the area identified as a future biodiversity corridor, is included in the study area.

The study area is characterised to the south and north by low density residential areas skirting Lake Munmorah and Lake Macquarie water bodies respectively, to the east by conservation reserves of high ecological value, and in the centre of the study area and to the west by more rural activities and rural residential development. There are two power stations nearby including the now decommissioned Munmorah Power Station at Colongra to the southwest, and Vales Point Power Station to the north-west, which remains operational.



FIGURE 2: CHAIN VALLEY BAY



FIGURE 3: LAKE MUNMORAH FORESHORE

PART 1.

2.0 STRATEGIC CONTEXT







2.1 Central Coast Regional Plan (2016)

The State Government's Central Coast Regional Plan (CCRP) is the blueprint for the next 20 years, and identifies that 41,500 new dwellings and 24,674 new jobs will be required by 2036, to accommodate up to 75,500 more people on the Central Coast. The CCRP sets 4 goals, as follows:

A prosperous Central Coast with more jobs close to home

- Grow Gosford City Centre as the region's capital
- Focus economic development in the Southern and Northern Growth Corridors
- Support priority economic sectors
- Strengthen inter/intra-regional connections for business
- Support new and expanded industrial activity
- Strengthen the economic self-determination of Aboriginal communities
- Increase job containment in the region

Protect the natural environment and manage the use of agricultural and resource lands

- Recognise the cultural landscape of the Central Coast
- Protect and enhance productive agricultural land
- Secure the productivity and capacity of resource lands
- Sustain / balance productive landscapes west of the M1
- Protect and manage environmental values
- Sustain water quality and security
- Protect the coast and manage natural hazards and climate change

Well-connected communities and attractive lifestyles

- Create a well-planned, compact settlement pattern
- Grow investment opportunities in the region's centres
- Align land use and infrastructure planning
- Create places that are inclusive, well-designed and offer attractive lifestyles

A variety of housing choice to suit needs and lifestyles

- Accelerate housing supply and improve housing choice
- Grow housing choice in and around local centres
- Provide housing choice to meet community needs
- Deliver housing in new release areas that are best suited to building new communities
- Manage rural lifestyles

In the CCRP, Lake Munmorah is identified as an 'Other Centre'. The closest Strategic Centre is the proposed Warnervale Town Centre, followed by Wyong and Tuggerah. Gosford is identified as the Regional City for the Central Coast. This Structure Plan will need to be consistent with the CCRP.

Aboriginal Self-Determination

Direction 6 of the CCRP is relevant to the study area:

Strengthen the economic self-determination of Aboriginal communities.

This includes Action 6.1 - Collaborate with the Central Coast Council and the Darkinjung Local Aboriginal Land Council (DLALC) to strategically assess the Land Council's landholdings and identify priority sites to create a pipeline of projects. DLALC own a number of strategic sites within the study area, and this is recognised by this Structure Plan.



FIGURE 5: LAKE MUNMORAH FORESHORE

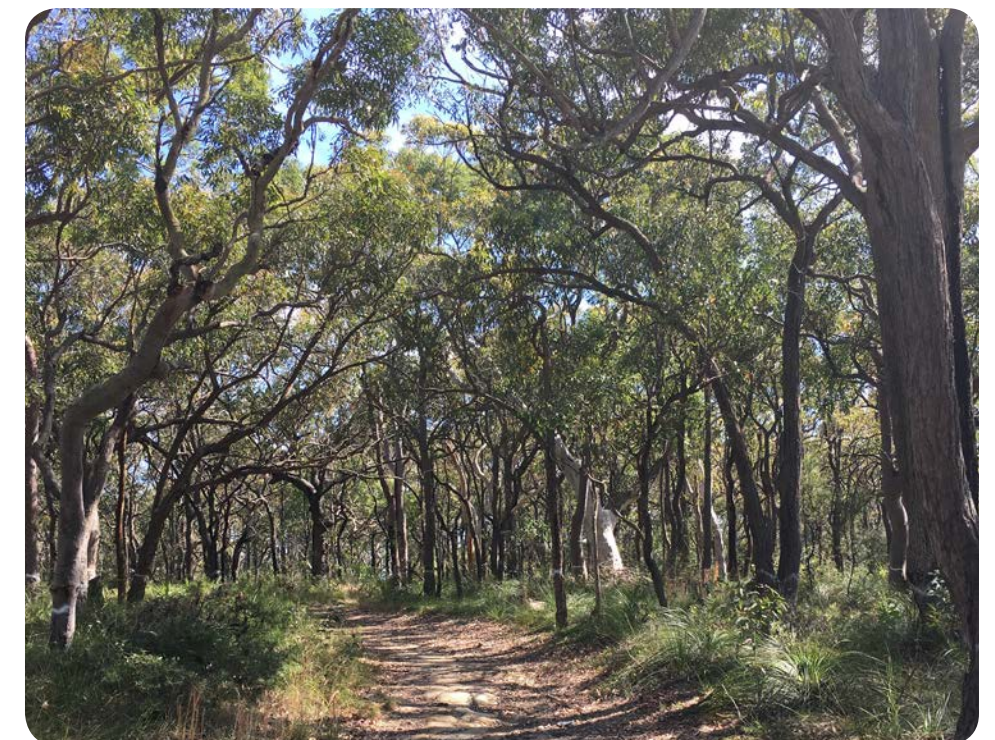


FIGURE 6: LOCAL BUSHLAND

Figure 3: Central Coast 2036

- Regional City
- Strategic Centre
- Railway
- Inter-regional Road and Interchange
- Major Road
- Regional Gateway
- Inter-regional Connection
- Regional Growth Corridor
- Warnervale Wadilba Land Release Area
- Transit Corridor
- New Road Link
- Gosford and Wyong Hospitals
- Urban Area
- Natural Assets, Productive Lands and Rural Lifestyles
- Biodiversity Corridor
- National Park and Reserve/State Forest
- Waterway

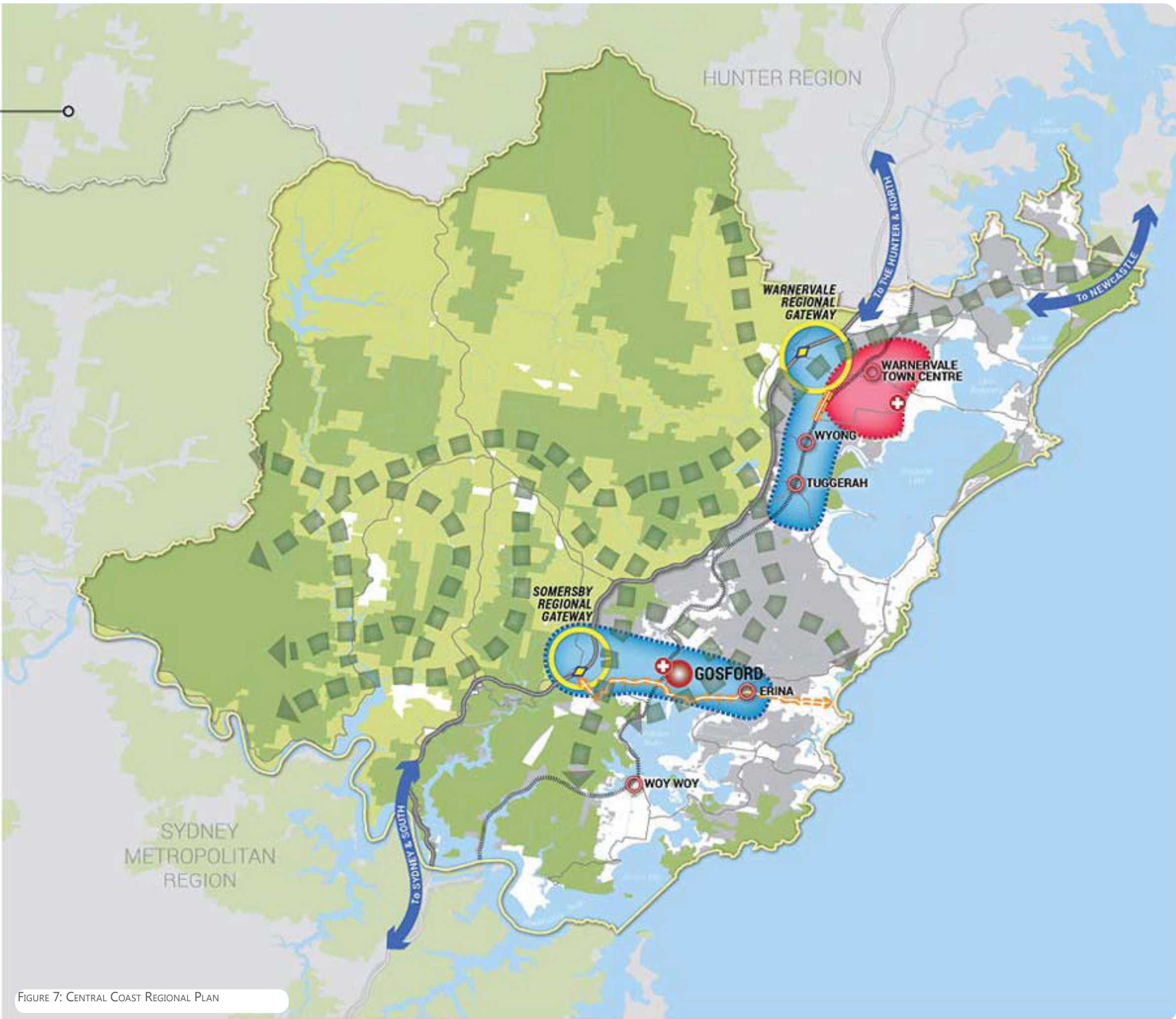


FIGURE 7: CENTRAL COAST REGIONAL PLAN



2.2 Wyong Local Environmental Plan, 2013

A Local Environmental Plan (LEP) is the primary legal planning document, or Environmental Planning Instrument (EPI), for guiding land use and planning decisions made by Council. Wyong LEP 2013 is the current EPI that applies to the study area of Greater Lake Munmorah.

Wyong LEP 2013 describes what can be undertaken on land and is supported by mapping, including land use zones, minimum lot sizes and height of buildings. Through zoning and development controls, Wyong LEP 2013 allows Council to manage the way in which land is used. It is also a way of reflecting strategic land use planning undertaken by Councils - for example, by providing an adequate supply of land for housing and employment.

Sites nominated as future development precincts within this Structure Plan are identified based on a high level assessment. The Structure Plan will not result in any immediate changes to the Wyong LEP 2013, and Wyong LEP 2013 zoning and minimum lot size controls will continue to constrain these development precincts. The outcomes of this Structure Plan will be required to be implemented by way of precinct-based planning proposals to amend these planning controls.

As a result, comprehensive site-specific investigations on ecology and biodiversity, servicing, flooding and so on will be required to be undertaken for Planning Proposals. These studies will allow for finer scale assessment of issues which will enable the extent of development footprints to be determined and as such may differ from those in the Structure Plan.

NOTE: Due to the amalgamation of the former Wyong Shire Council and Gosford City Council in 2016, Council has been preparing a draft Central Coast Local Environmental Plan (CCLEP) and draft Central Coast Development Control Plan (CCDCP), to consolidate existing EPIs into one plan. The CCLEP and CCDCP will provide a consistent approach to planning decisions across the whole of the Central Coast LGA. At the time of writing, these documents have been exhibited, but not yet adopted.

2.3 North Wyong Shire Structure Plan (2012)

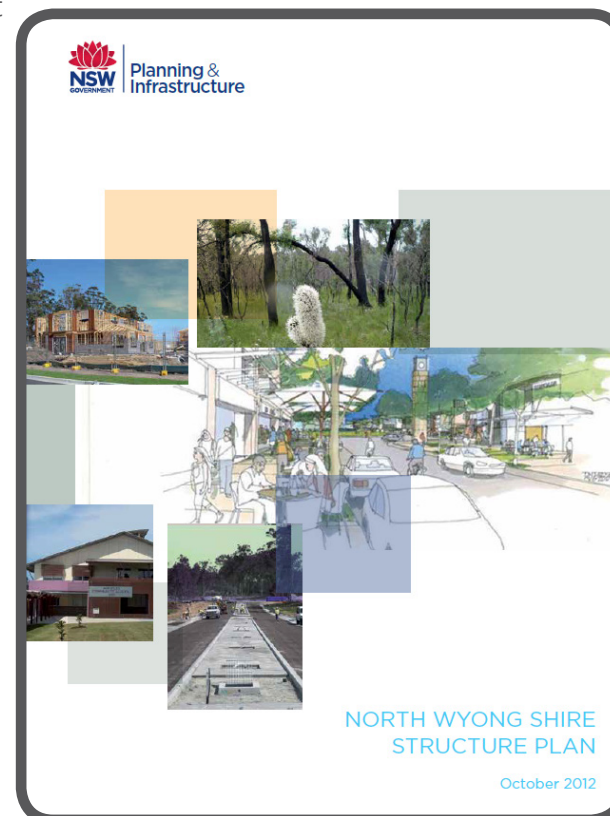
The study area is affected by the State Government's North Wyong Shire Structure Plan (NWSSP) which identifies future residential and employment precincts as well as areas that may be suitable for inclusion in a regional biodiversity corridor.

Residential and Employment land

The NWSSP identifies residential development precincts within the study area that have the capacity to provide approximately 2,636 new dwellings. Land within the west of the study area is also identified as a long term employment precinct. In 2013, Council prepared an Employment Lands Study (ELS), which found that there is currently sufficient employment lands in the former Wyong LGA. This land is likely to be exhausted by 2036 and new employment land will need to be activated by this time. The ELS notes that only 1/4 - 1/3 of future jobs are likely to be in broad hectare employment lands.

Timeframes

The NWSSP pre-dates the establishment of the Lake Munmorah Local Centre on the corner of the Pacific Highway and Tall Timbers Road. This centre has resulted in a growing interest from land owners and the community for continued growth in the medium term (within the next 10 years). The proposed development timeframes found within the NWSSP therefore should also be reviewed as part of this Structure Plan.



Biodiversity Corridors

The NWSSP identifies a regional biodiversity corridor which extends from Kiar and Bushells Ridge in the west to Wybung and Freemans in the east. The corridor aims to link the mountain areas in the west to the ocean fore-shore in the east. This corridor provides a system of corridor and habitat networks for flora and fauna. The biodiversity corridor will also reinforce the landscape and visual setting for urban development within Wyong LGA.

It is important that this Structure Plan:

- Reviews the current residential and employment lands precinct boundaries and determines the staging of Residential and Employment land release, and the likelihood of Employment Lands take-up. This analysis may result in a recommendation that the area of future employment land is reduced and the area of future residential land is increased. Consideration of potential issues that may arise if residential development is proposed within the current Employment Lands Precinct will also be required.
- Reviews the biodiversity corridors and strategically located, constrained sites. The NWSSP defines these sites as "Strategically located, constrained sites subject to further investigation and offset strategies to define conservation requirements and development potential".
- Biodiversity Corridors will need to balance the biodiversity objectives of the corridor with the vision, objectives and goals of this Structure Plan.

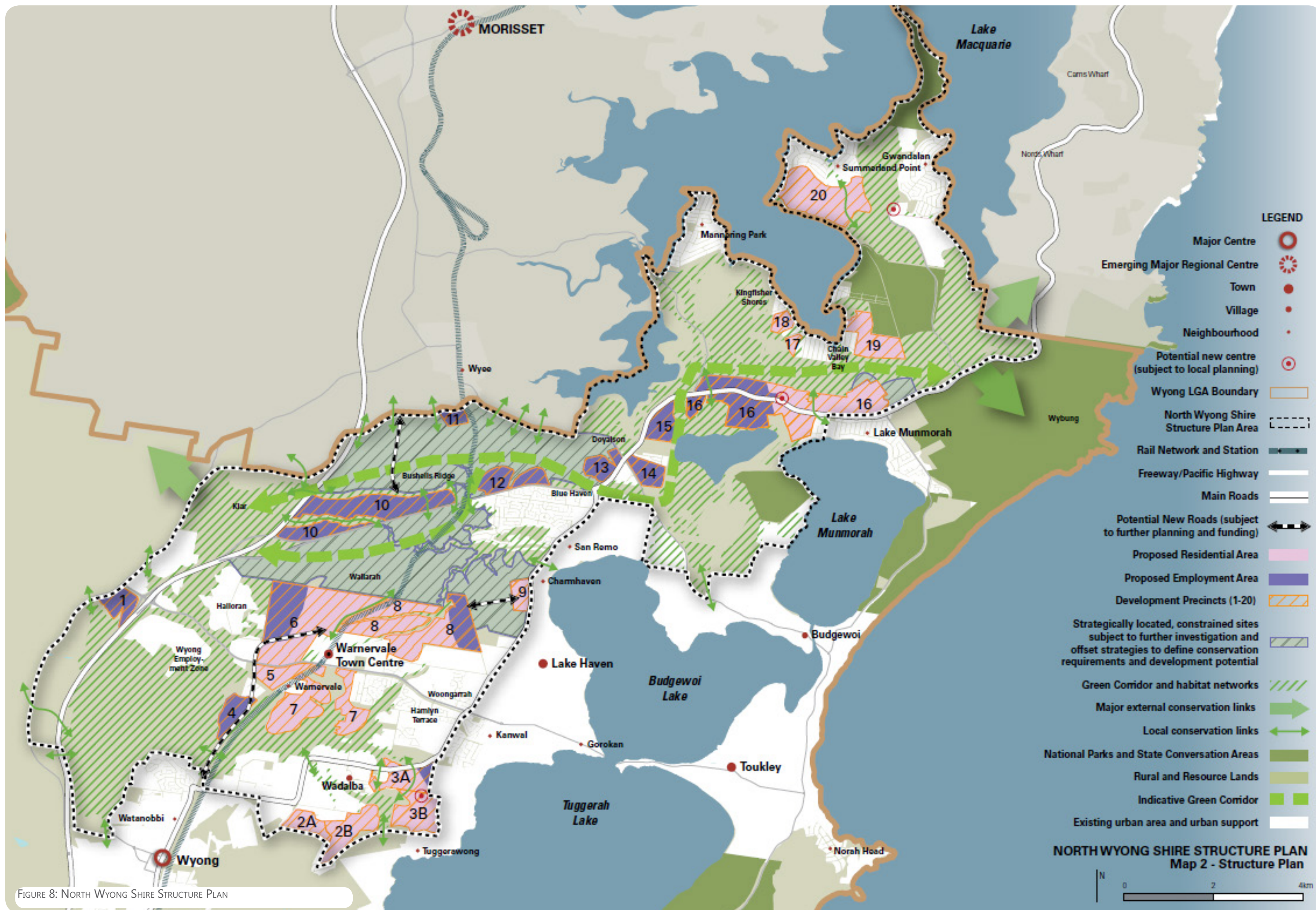


FIGURE 8: NORTH WYONG SHIRE STRUCTURE PLAN

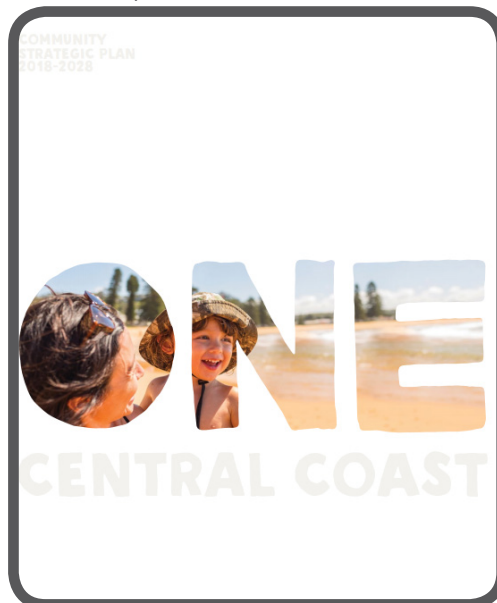


2.4 One Central Coast

Council's Community Strategic Plan (2018) identifies the Central Coast community's five priority focus areas to create the best quality of life for residents, as follows: Belonging, Smart, Green, Responsible, Liveable.

This Structure Plan will need to be consistent with these objectives, in particular the following objectives:

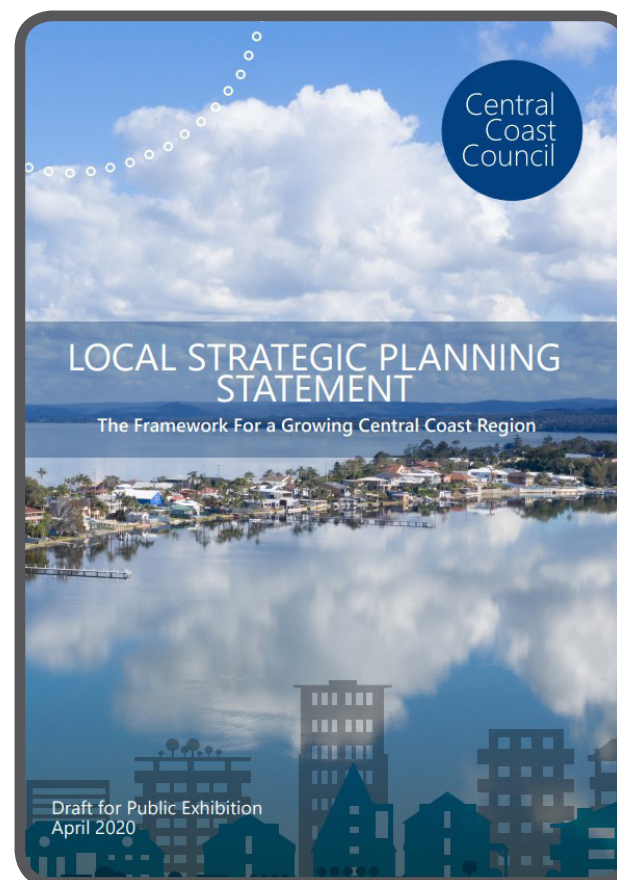
- B4 Activate spaces and places to complement activity around town centres, foreshores, lakes and green spaces for families, community and visitors
- C3 Facilitate economic development to increase local employment opportunities
- F1 Protect our rich environmental heritage by conserving beaches, waterways, bushland, wildlife corridors and inland areas and the diversity of local native species
- F2 Promote greening and ensure the well-being of communities through the protection of local bushland, urban trees, tree canopies and expansion of the Coastal Open Space System (COSS)
- H2 Improve pedestrian movement safety, speed and vehicle congestion around schools, town centres, neighbourhoods, and community facilities
- H4 Plan for adequate and sustainable infrastructure to meet future demand for transport, energy, telecommunications and a secure supply of drinking water
- I1 Preserve local character and protect our drinking water catchments, heritage and rural areas by concentrating development along transport corridors and town centres east of the M1
- I2 Ensure all new developments are well planned with good access to public transport, green space and community facilities and support active transport
- I3 Ensure land use planning and development is sustainable and environmentally sound and considers the importance of local habitat, biodiversity corridors, energy efficiency and stormwater management
- I4 Provide a range of housing options to meet the diverse and changing needs of the community including adequate affordable housing.



2.5 Local Strategic Planning Statement

The LSPS provides a long-term vision and land use planning priorities in the region over the next 20 years and aligns both the state planning goals provided in the CCRP, and local strategic planning goals and directions of One Central Coast Community Strategic Plan 2018.

The LSPS aims to balance the social, environmental and economic outcomes for the region over the next 20 years by directing our growth to existing centres, along growth corridors and within planned precincts. An interim LSPS was endorsed by Council on 29 June 2020.



2.6 State Environmental Planning Policy (Aboriginal Land) (2019)

In 2019, a suite of planning measures known as the Darkinjung Delivery Framework was introduced by the NSW Government. The objective of the framework was to bring greater self-determination for the Darkinjung Local Aboriginal Land Council (DLALC) community, and encourage better social and economic results from its land.

The framework includes the State Environmental Planning Policy (Aboriginal Land) 2019 (SEPP), a Ministerial Direction 5.11, an Interim Darkinjung Development Delivery Plan (DDDP), and a Memorandum of Understanding (MOU) outlining how the NSW Government and Darkinjung will work together.

The Interim DDDP is a strategic plan of identified DLALC priority sites for development. Ministerial Direction 5.11 requires the consideration of the Interim DDDP when planning proposals are prepared by a planning proposal authority.

These measures will assist in implementing Direction 6 of the CCRP 2036:

"to strengthen the economic self-determination of Aboriginal communities".

This framework applies to land owned by the DLALC throughout the Central Coast Local Government Area.

The Structure Plan can be reviewed if/as further land is added to DLALC ownership.

Interim Darkinjung Development Delivery Plan

February 2019

Local Aboriginal Land Council
DARKINJUNG



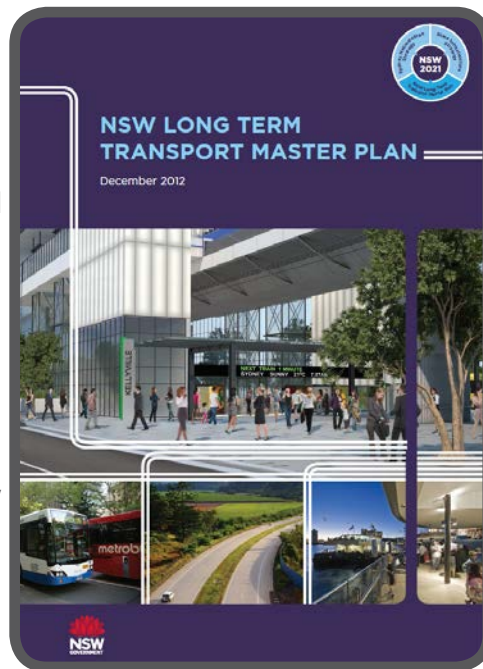


2.7 NSW Long Term Transport Master Plan

This plan identifies specific actions for the wider Central Coast region, including the following that are of particular relevance to the study area:

- Deliver new arterial roads and upgrades to meet growth in the Hunter, Central Coast and Illawarra.
- Improve regional road safety as part of the new Road Safety Strategy for NSW.
- Introduce innovative regional bus services that are responsive to specific customer needs.
- Improve and strengthen community transport in regional areas.
- Investigate flexible or on-demand transport solutions for regional NSW.
- Invest in local cycleways in partnership with local councils.
- Invest in regional footpaths in partnership with local councils.

The Central Coast is very constrained geographically and the state road network is critical. Investment in the road network will reduce congestion, improve travel time reliability and facilitate enhanced bus operations. This investment will focus on the Pacific Highway, Central Coast Highway, Wyong Road, and Sparks Road.



2.8 Central Coast Regional Transport Plan (2013)

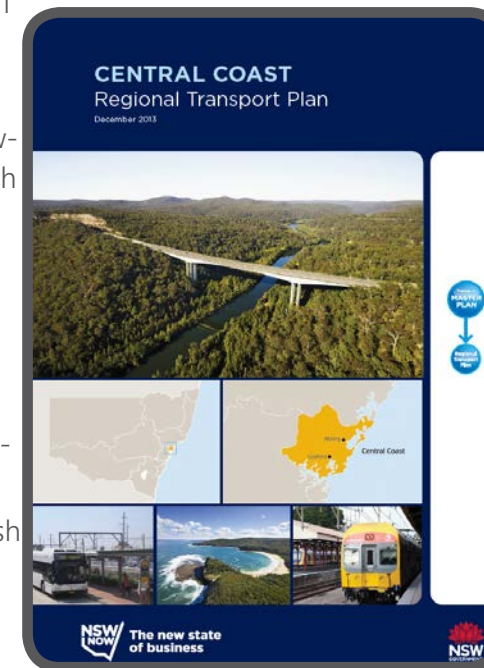
The Central Coast Regional Transport Plan (CC RTP) provides a blueprint for the future and a strategic direction for the delivery of major projects over the next 20 years. The CC RTP outlines specific actions to address challenges

within the area. The plan considers the expected population increase projected over the next 20 years, and considers the impact of major developments.

The plan puts a priority on improving transport connections within the region and reducing travel times to key employment centres in Sydney and the Hunter by improving train services and the region's road network, including the Pacific Highway and M1 Pacific Motorway.

This plan does not include any actions relevant to the study area. However over time the population growth within the study area will require investment to:

- Improve road safety
- Manage demand and deliver arterial road upgrades
- Deliver public transport improvements
- Support local councils to establish park and ride facilities



2.9 Employment Lands Study

The Employment Land Study (ELS) identified the following timeframes for the proposed employment lands within the study area:

- Doyalson South West and Doyalson North East – Land required >2025.
- Doyalson West, Doyalson East and Lake Munmorah – Land required >2036.

The ELS projected that there will be demand for approximately 695,000m² of additional employment land floorspace across the former Wyong LGA by 2036. Since there is currently approximately 1.12 million m² of additional floorspace capacity, there is sufficient supply across existing precincts, with spare capacity of around 425,000m². Therefore, prior to 2036 there will be

no need to rezone additional areas to industrial. However, Council needs to monitor demand, and manage the zoning and servicing of its employment land stock to accommodate possible changes to the local economy which lead to increased demand for land.

The ELS cautions that proposals for new employment areas should be tempered by realism in terms of future take up possibilities and infrastructure and servicing costs. A coordinated approach to employment land release ultimately represents the most efficient and cost sensible way to manage supply responses to demand.

2.10 Retail Centres Strategy

The Retail Centres Strategy (RCS) considers opportunities for the renewal of existing centres within the former Wyong LGA and establishes requirements for the development of new centres, having regard to future population growth. The RCS identifies Tuggerah as the former LGA's Major Centre, and Wyong, Bateau Bay, The Entrance, Lake Haven, Toukley and the proposed Warnervale Town Centre as Town Centres.

The RCS identified the 5,500m² Centre at Tall Timbers Road, Lake Munmorah as a Local Centre (the destination for convenience shopping for the surrounding local community). The RCS also estimated that, taking into account available expenditure from catchment households and the potential to attract some trade from beyond the catchment, the centre currently needs to attract around 35% of available retail expenditure from catchment households. Opportunities to expand should be restricted until there is significant population growth in the catchment. This Structure Plan will take into account these recommendations.

The study area also has 2 Neighbourhood Centres - a 705m² Centre at Anita Avenue, Lake Munmorah and a 449m² Centre at Lloyd Avenue, Chain Valley Bay, discussed further in "Issues" section of this structure plan.



2.11 Settlement Strategy

The former Wyong Shire Council's Settlement Strategy was developed to provide a blueprint for the growth of the former Wyong LGA with accessible and reliable transport, a strong regional economy, a vibrant community and a healthy natural environment. The Settlement Strategy provides an analysis of demand, supply and nature of land and identifies where additional land may need to be set aside for residential, business and commercial development while retaining the natural environment.

The former Wyong Shire Council's Residential Development Strategy (RDS) was superseded by the Settlement Strategy. The Settlement Strategy recommends that Precinct 2 of the RDS be retained for consideration as a long term development site, in spite of this land being identified as potential biodiversity corridor. This Structure Plan gives consideration to these issues and supersedes any conflicting information found within the Settlement Strategy.

2.12 Hierarchy of Strategies

Figure 10 establishes the land use planning framework for Central Coast Council, and defines each strategic and land use planning documentation within the planning hierarchy, inclusive of any nexus or interrelationships between land use planning documents.

The Framework within this document establishes a local land use planning hierarchy to support the implementation of the Premier's Priorities, DP&E's regional priorities and directions, as well as supporting the implementation of Council's Community Strategic Plan (CSP): One – Central Coast.

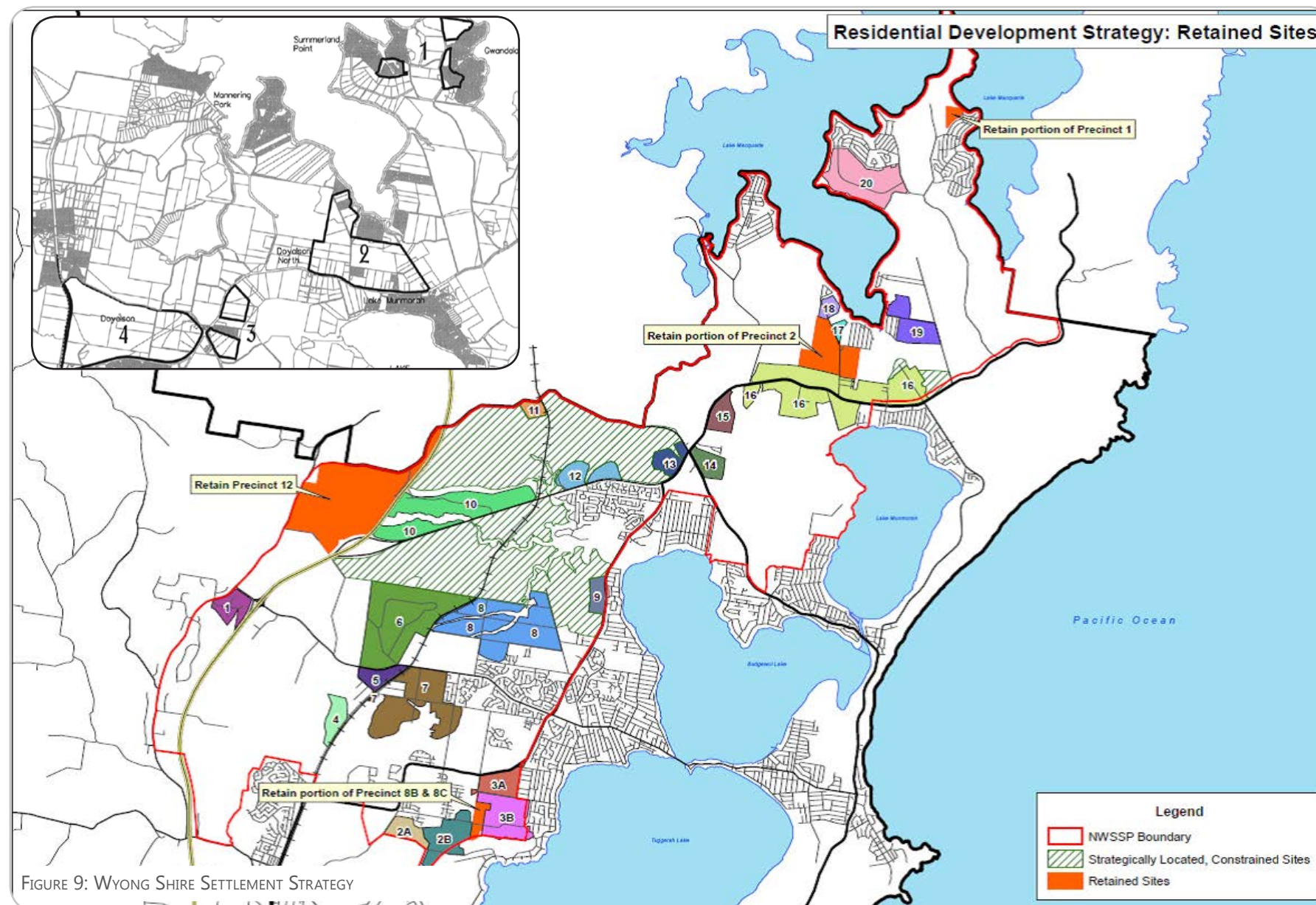


FIGURE 9: WYONG SHIRE SETTLEMENT STRATEGY

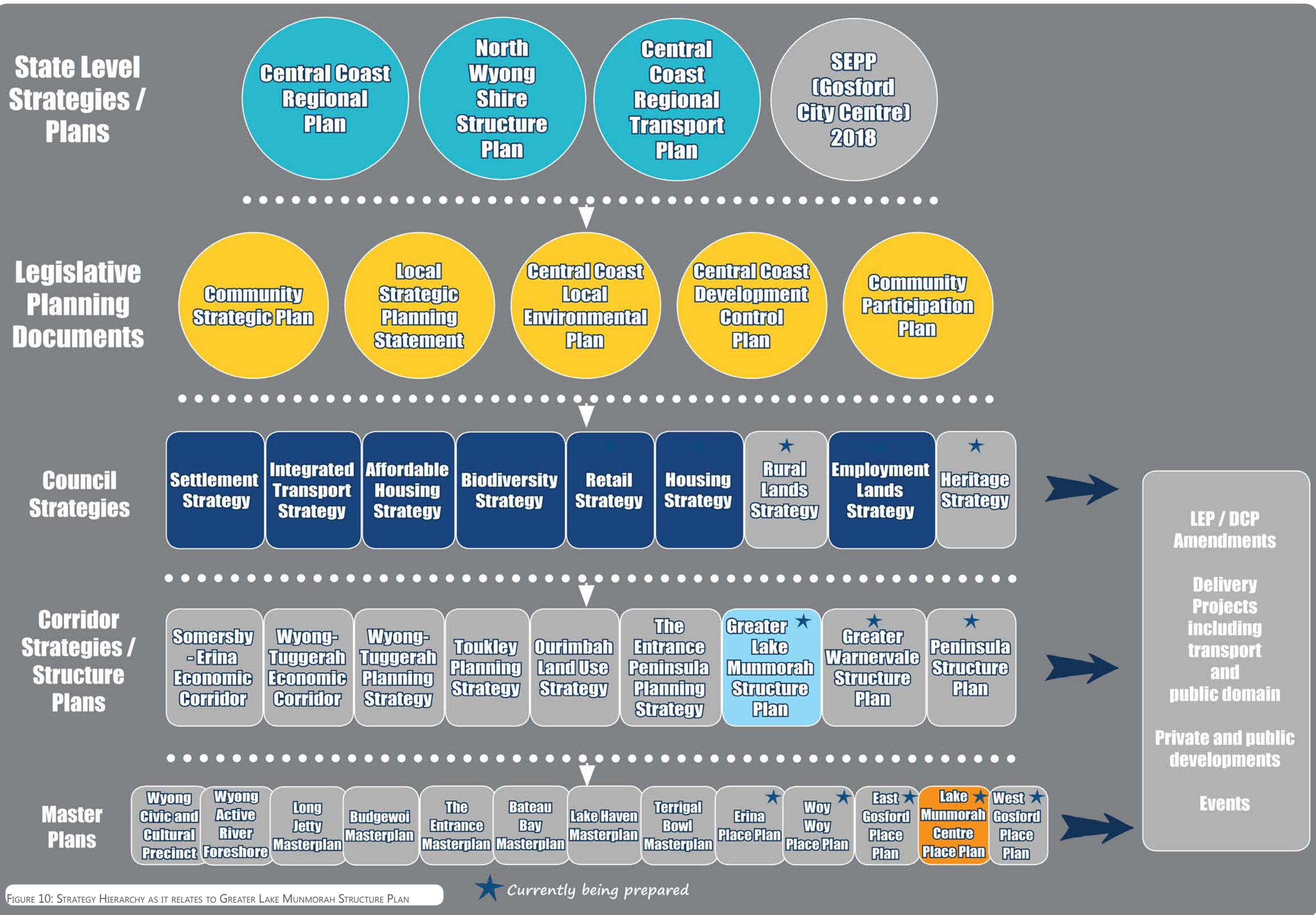


FIGURE 10: STRATEGY HIERARCHY AS IT RELATES TO GREATER LAKE MUNMORAH STRUCTURE PLAN



PART 1.

3.0 GREATER LAKE MUNNMORAH NOW





3.1 Age Profile

The population of the study area was 8,407 people in 2016 (ABS ERP 2016). Between 2011 and 2016, the population increased by ~600 people.

In 2016, 20.3% of the study area's population was aged between 0 and 19, and 39.5% were aged 60 years and over, compared with 24.7% and 27.1% respectively for the Central Coast LGA. The major differences between the age structure of the study area, and the Central Coast LGA were:

- A larger percentage of seniors (70-84)
- A larger percentage of empty nester's and retirees (60-69)
- A smaller percentage of parents and homebuilders (35-49)
- A smaller percentage of young workers (25-34).

Between 2011-2016, the largest changes in age structure were in the following groups:

- Seniors (70-84) – ▲ 309 people
- Young workers (25-34) – ▲ 108 people
- Older workers and pre-retirees (50-59) – ▲ 106 people
- Parents and homebuilders (35-49) – ▼ 95 people.

3.2 Population Profile

The demographic makeup of the study area provides insights into the kinds of challenges the area faces as well as opportunities in the future.

Cultural diversity

In 2016:

- 3.9% of the study area population were Indigenous Australians. Between 2011 and 2016, the Indigenous population increased by 93 people.
- 80.9% of the study area population was born in Australia. This compares to 78.8% for the Central Coast LGA. Overall, 12.1% of the population was born overseas, compared with 14.6% for the Central Coast LGA.
- 2.6% of the study area population spoke a language other than English at home, compared to 5.8% for the Central Coast LGA.
- Between 2011 and 2016, the number of people born overseas increased by 47 people, and the number of people from a non-English speaking background increased by 80 people.

Socio-economic Disadvantage

The SEIFA Index of Disadvantage measures the relative level of socio-economic disadvantage based on a range of Census characteristics. A higher score on the index means a lower level of disadvantage. A lower score on the index means a higher level of disadvantage

In 2016, Lake Munmorah-Mannering Park scored 955 on the SEIFA index of disadvantage. This compares to a score of 989 for the wider Central Coast LGA.

3.3 Population Projection

By 2036, the study area population is forecast to grow to 15,328, with an increase of 3,386 dwellings (Forecast .id, 2021). This growth is primarily due to in-migration; however natural increase/decrease is also included in this figure. This data is based on .id the population experts forecasting, and has been further refined by this Structure Plan. For more information, see Part 2, Section 2 - Opportunities.

NOTE: UNLESS OTHERWISE STATED, DATA HAS BEEN SOURCED FROM AUSTRALIAN BUREAU OF STATISTICS, CENSUS OF POPULATION AND HOUSING 2016. COMPILED BY .ID, THE POPULATION EXPERTS.

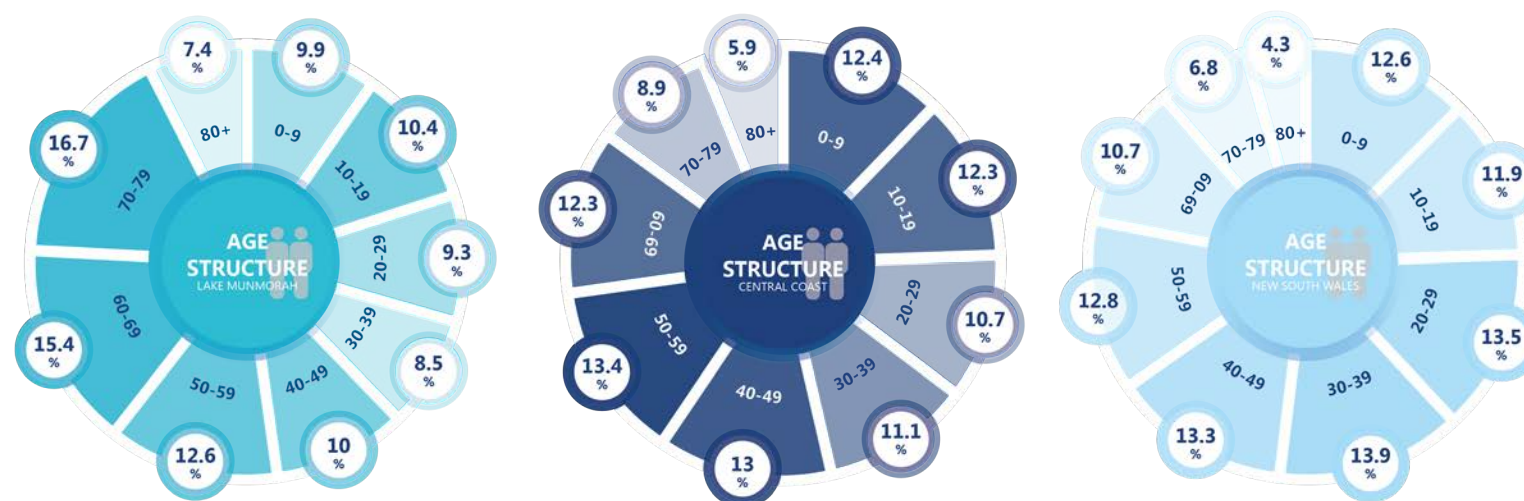
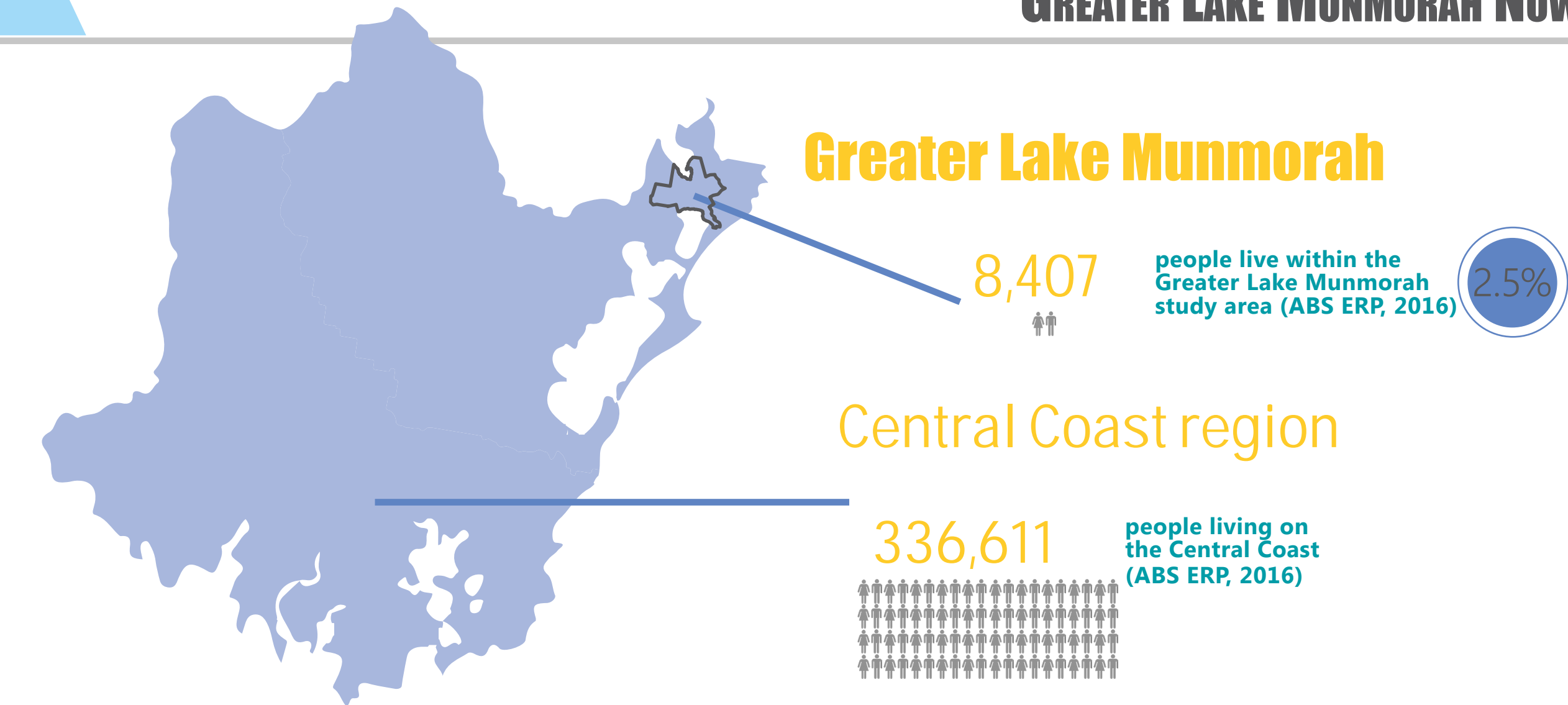


FIGURE 11: POPULATION AGE STRUCTURE

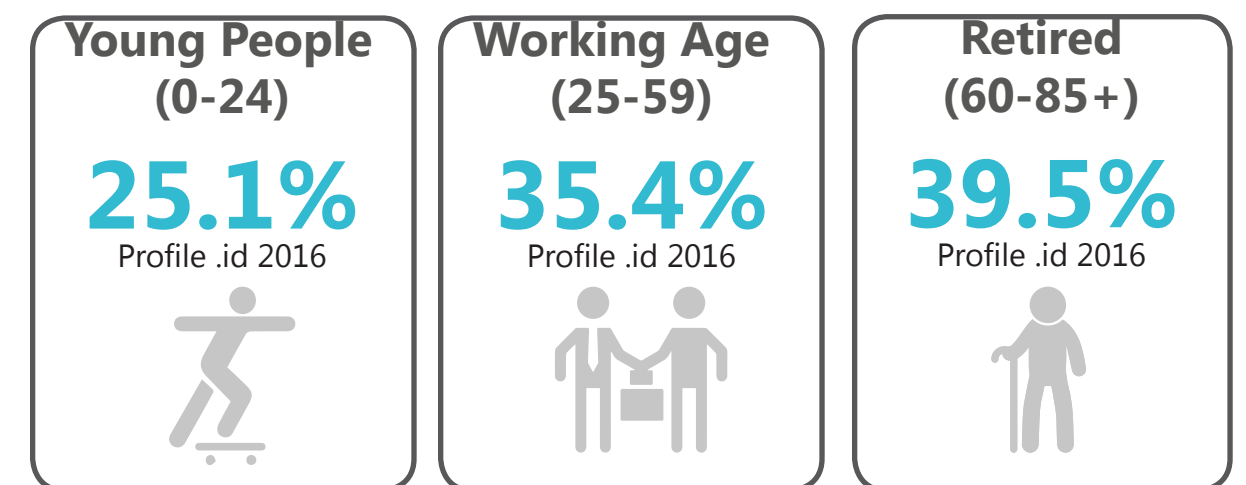


FIGURE 12: DOMINANT AGE GROUPS WITHIN THE STUDY AREA



3.4 Household Profile

In 2016, residents of the study area lived in 3,844 dwellings with an average household size of 2.28

Dwellings

In 2016, the total number of dwellings in the study area was 3,844. Between 2011 and 2016 the total number of dwellings in the study area increased by 253 dwellings. Of these dwellings, 98.3% were separate dwellings. The remaining dwellings were made up of medium density dwellings (1.1%) and caravans and/or relocatable homes (0.6%). Comparatively, in the wider Central Coast LGA, 76.6% of dwellings were separate dwellings, and 18.3% medium density dwellings.

The 2016 figure relating to caravans and/or relocatable homes may not be accurate. During the 2006 ABS Census, 813 households were permanently residing in 7 MHE's and caravan parks across the study area. Due to the historic permissibility of manufactured housing estate's (MHE)/caravan parks within the 7(b) (Scenic Protection Zone) under Wyong LEP 1991, this land use proliferated within the study area. There is a mixture of de facto retirement village-style MHE communities and older/lower amenity caravan parks and MHEs. Whilst this housing product is required for low and very low income households in particular circumstances, this use has often been viewed negatively in the past as it reflects quite a high density residential use often located in isolated areas where access to essential services is limited.

An estimate of the number of households permanently residing in MHE's and caravan parks in 2018, is 1,500. Therefore, the percentage of residents living in this type of dwelling within the study area, will be closer to 40%. This more accurately reflects the importance of this form of housing within the study area.

Households

In 2016, the study area had a lower proportion of couple families with child(ren), and one parent families, compared to the Central Coast LGA. Overall, 21.7% of families were couple families with child(ren), and 9.2% were one-parent families, compared with 28.3% and 12.7% respectively for the Central

Coast. There was also a higher proportion of lone person households and a higher proportion of couples without children. Overall, the proportion of lone person households was 28.9% compared to 25.1% in the Central Coast LGA while the proportion of couples without children was 33.7% compared to 25.2% in the Central Coast LGA.

In 2016, households within the study area were smaller compared to the remainder of the Central Coast LGA, with 2.28 residents/dwelling compared to 2.49 residents/dwelling for the wider Central Coast LGA. Between 2011 and 2016, the largest changes in family/household types in the study area were:

- Couples with child(ren) (+ 75 households)
- Couples without child(ren) (+ 67 households)
- Lone person (+ 45 households)
- One parent families (- 39 households).

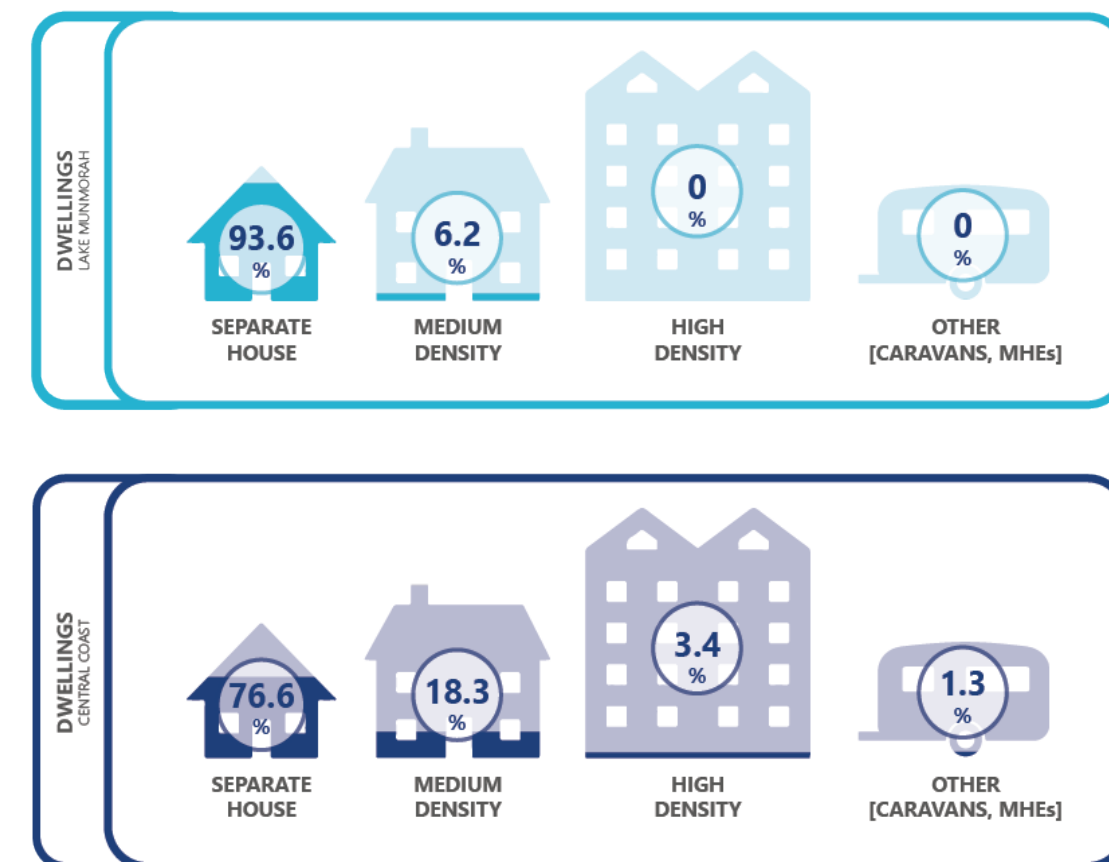


FIGURE 13: DWELLING TYPES



FIGURE 14: HOUSEHOLD TYPES



3.5 Economic Profile

Household Income

In 2016, the major differences between weekly household incomes of the study area population, and the Central Coast LGA are:

- More households had an income of less than \$800; and
- Less households had an income of more than \$1,750.

Employment Rates

Employment characteristics of the population are an important indicator of the socio-economic status of an area. It shows the share of the population that is employed full-time, part-time or unemployed, as well as changes over time in the labour force.

In 2016, the size of the study area's labour force was 2,884 persons. The labour force participation rate refers to the proportion of the population over 15 years of age that are employed or actively looking for work. In 2016, analysis of the labour force participation rate of the population in the study area shows that there was a smaller proportion in the labour force (44%) compared with the wider Central Coast LGA (56%), which can be explained by the older age profile. In 2016:

- 93% of the labour force was employed, compared with 93.3% for the Central Coast LGA
- 37.1% of the labour force was employed on a part-time basis, and 54.8% were employed full-time.

Education

In 2016, the major differences between qualifications held by the study area population, and the Central Coast LGA are:

- More Vocational qualifications (27.4% compared to 24.4%)
- Fewer Bachelor or Higher degrees (7.1% compared to 14%)
- Fewer with no formal qualifications (46.8% compared to 41.8%).

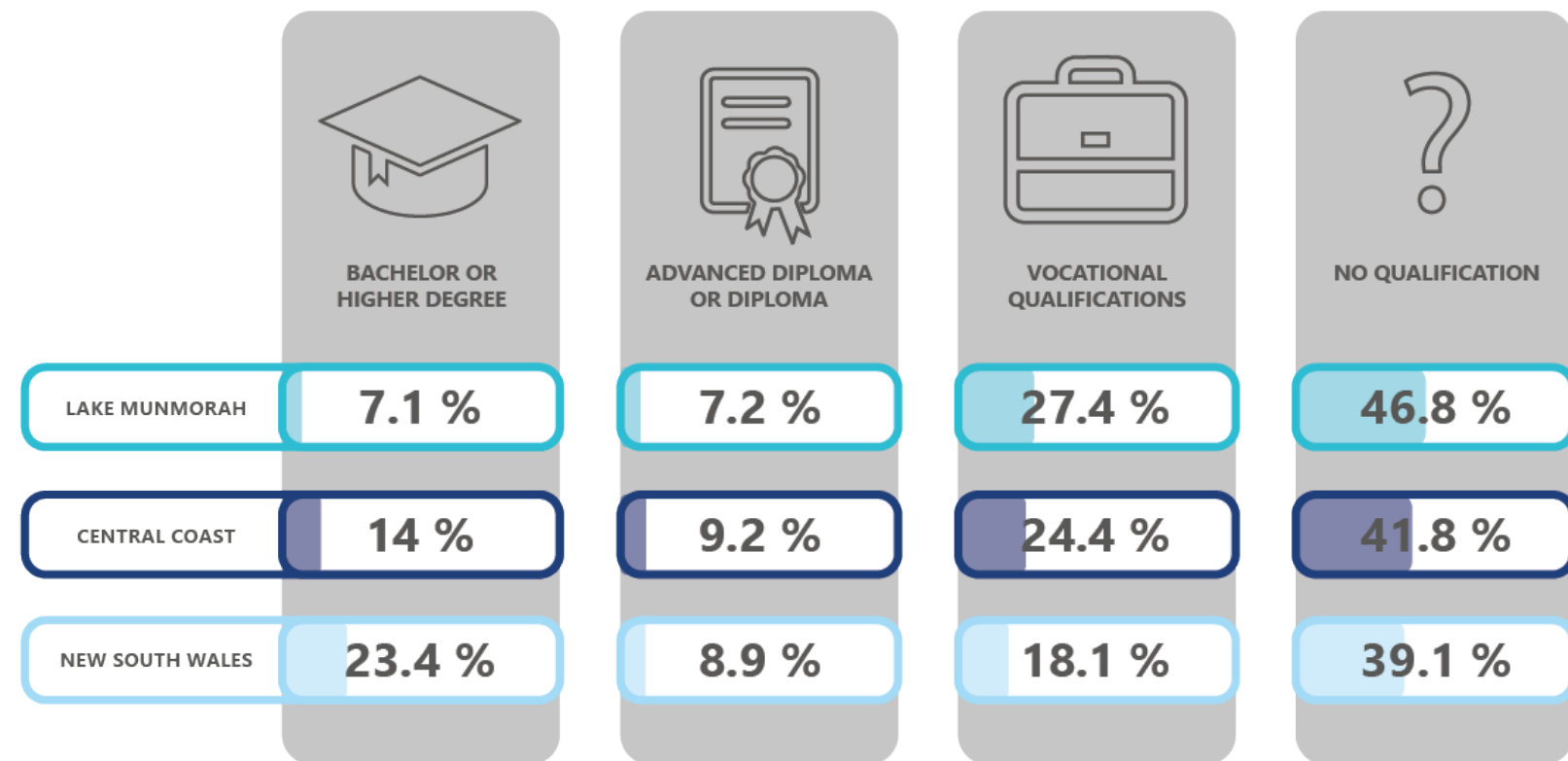


FIGURE 15: EDUCATIONAL QUALIFICATIONS



FIGURE 16: HOUSEHOLD INCOMES



3.5 Economic Profile

Employment Sectors

Most people in the study area are employed in the retail trade (11.8%), health care & social assistance (14.4%) and construction sectors (16.1%). In total, these three sectors employed 1,203 representing 42.3% of total employment

In 2016, the major differences between the jobs held by the study area's labour force and the Central Coast LGA were:

- More construction workers (16.1% compared to 11.3%)
- More mining workers (2.2% compared to 0.5%)
- Less professional, scientific and technical services workers (4.0% compared to 5.4%).

Occupations

In 2016, technicians and trades workers, community and personal service workers, and clerical and administrative workers accounted for 1,325 people (44.1%) of the employed resident population. The major differences between the jobs held by the population of the study area, and Central Coast LGA were:

- More Technicians/Trades Workers (19.4% compared to 15.7%)
- More Community/Personal Service Workers (12.1% compared to 11.5%)
- More Labourers (13.2% compared to 10.3%)
- Less Professionals (11.3% compared to 17.9%)
- Less Managers (8.3% compared to 10.9%).

Method of travel to work

In 2016, fewer study area residents travelled to work by public transport, compared to the wider Central Coast LGA (2.7% compared to 8.8%). This is likely a result of the relative isolation of this area and the subsequent limited access to public transport.

In 2016, 25.3% of workers (more than 35,287 people) travelled out of the LGA for work each day. Increasing local jobs both within the study area and the wider Central Coast LGA will reduce this number.



FIGURE 17: OCCUPATIONS

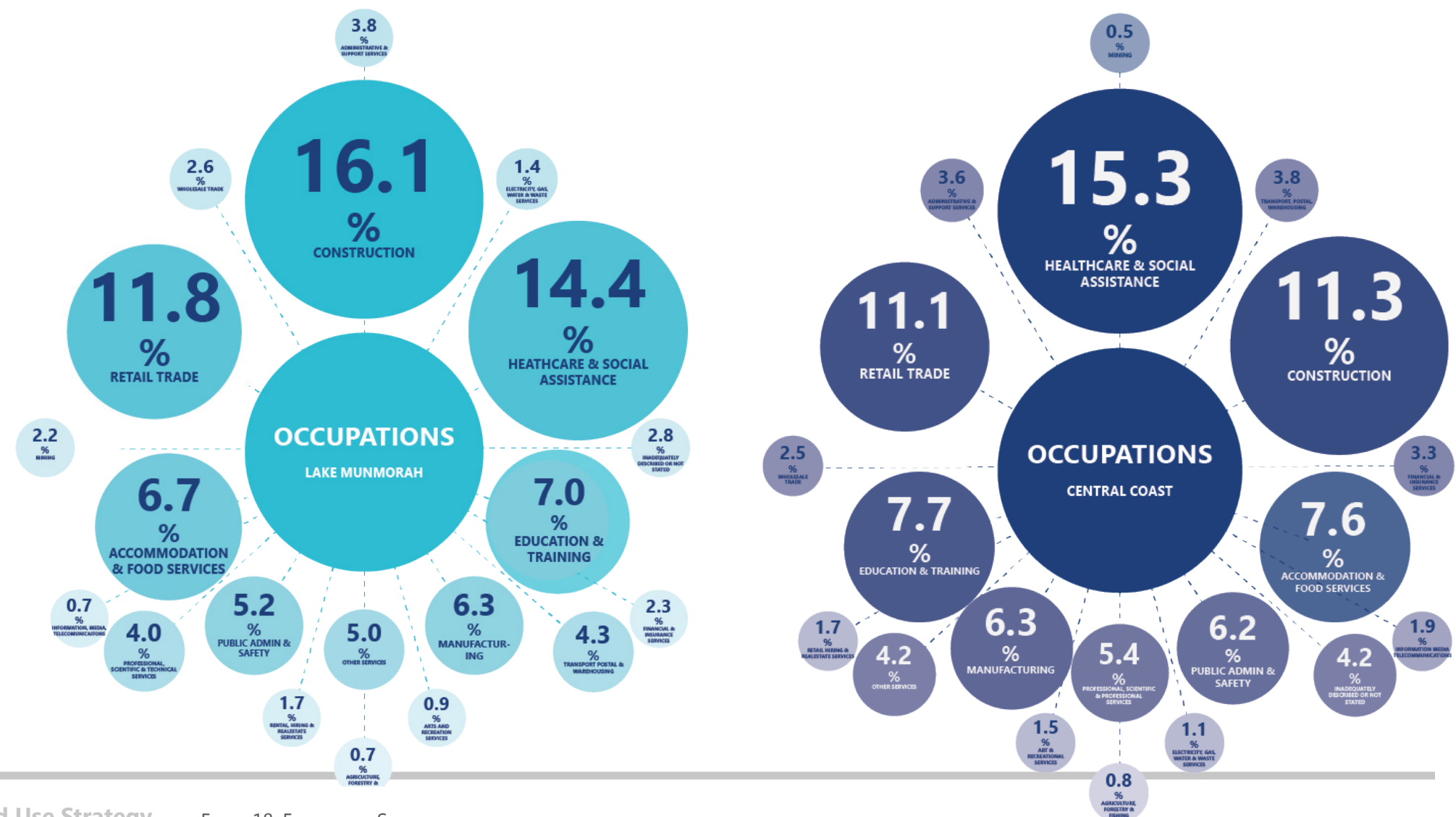


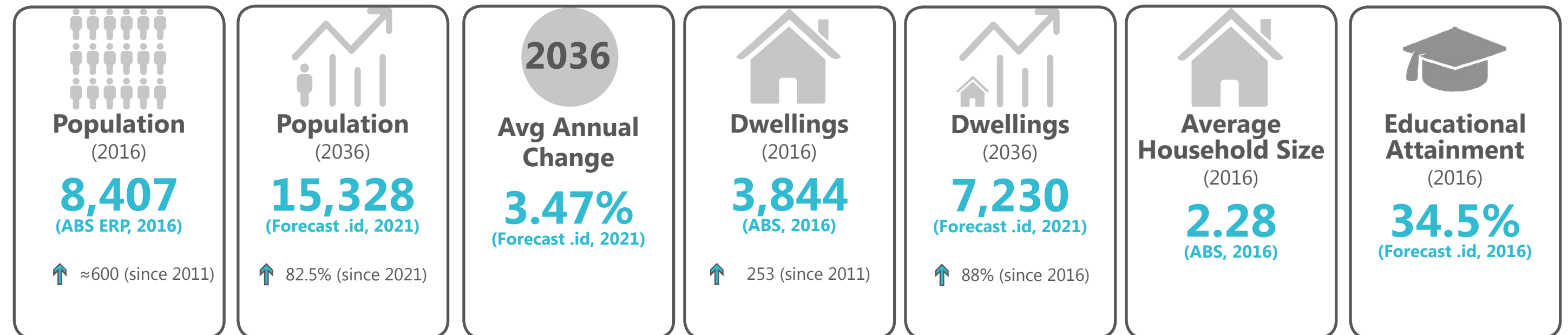
FIGURE 18: EMPLOYMENT SECTORS



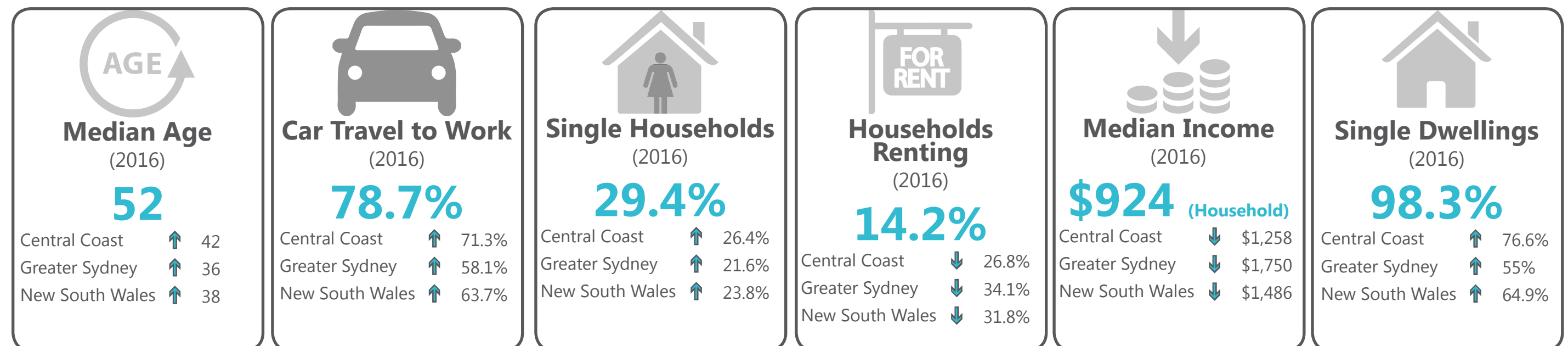
3.6 Summary

The demographic makeup of Greater Lake Munmorah has a number of points of difference when compared with Greater Sydney and the Central Coast as a whole. This information provides insights into the kinds of challenges the area faces as well as opportunities in the future.

Profile Summary



Points of Difference





PART 1.

4.0 EXISTING CONDITIONS





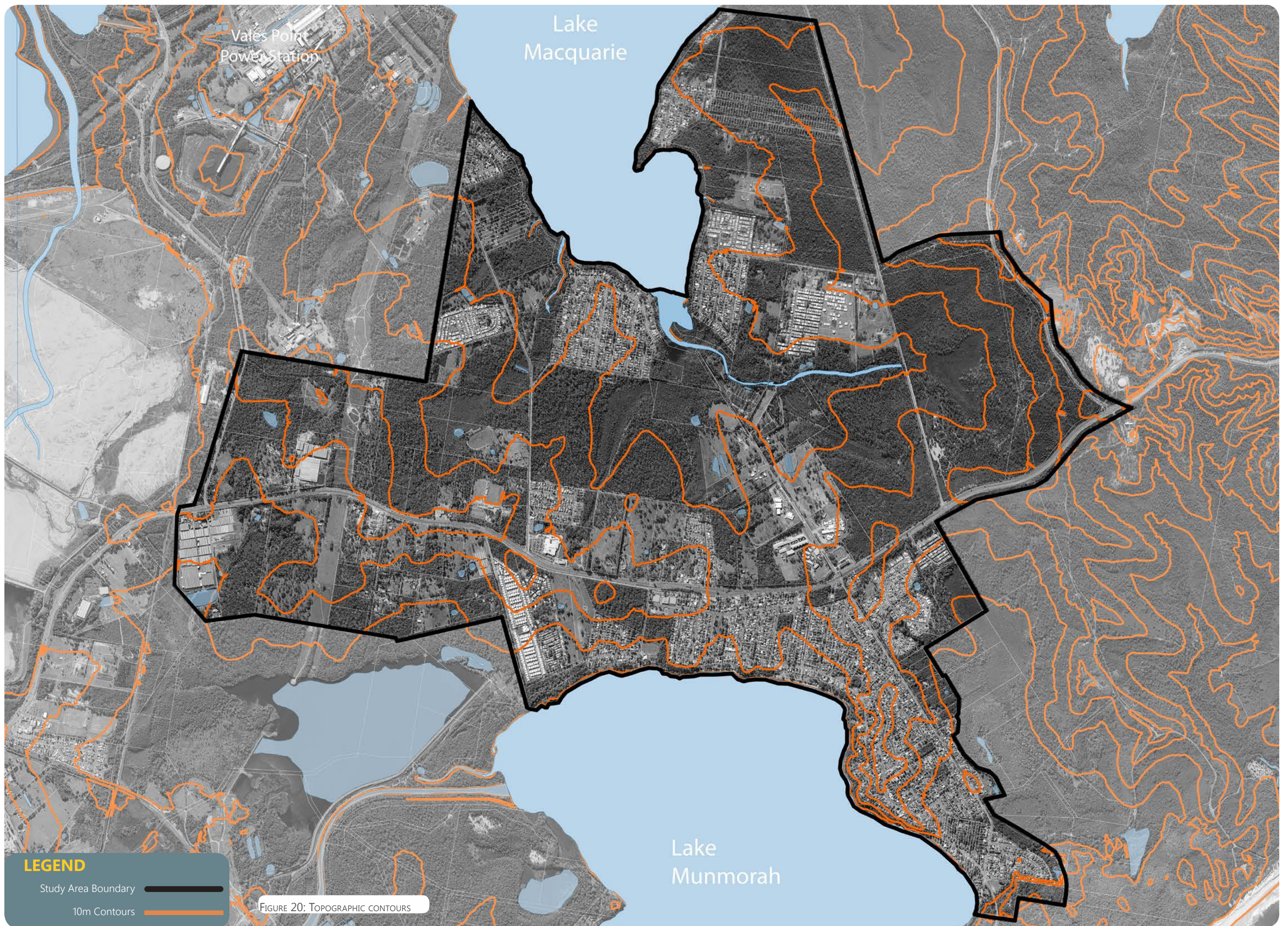
4.1 Environment

4.1.1 Topography

The study area is not significantly affected by topography issues, with gentle undulations from sea level at Lake Munmorah in the south, and Lake Macquarie in the north, to high points of 40m AHD within the Biodiversity Corridor in the west of the study area and in the Lake Macquarie State Conservation Area in the north-east of the study area. Generally, the centre of the study area is the higher point, with the slope of the land gently falling towards the Lakes in the north and south of the study area.



FIGURE 19: CARTERS ROAD, LAKE MUNMORAH



Lake
Macquarie

Lake
Munmorah

LEGEND

- Study Area Boundary ———
- 10m Contours ———

FIGURE 20: TOPOGRAPHIC CONTOURS



4.1 Environment

4.1.2 Biodiversity Corridors

Regional

The NWSSP identifies a regional biodiversity corridor which extends from Kiar and Bushells Ridge in the west to Wybung and Freemans in the east. The corridor aims to link the mountain areas in the west to the ocean fore-shore in the east. This corridor provides a system of corridor and habitat networks for flora and fauna. The biodiversity corridor will also reinforce the landscape and visual setting for urban development within Wyong LGA.

The width of a regional corridor is a significant influence on the overall effectiveness of a biodiversity corridor. Increased width is vital due to edge effects, including changes in light and wind, increased predation and increased degradation on the edges. The continued functionality of the Munmorah corridor network therefore depends on both the structural integrity of the habitat patches and the strength of connectivity between the patches.

Local

The NWSSP also identifies a local biodiversity corridor that extends from the northern side of the Pacific Highway, adjacent to the Lake Munmorah Local Centre, across the Pacific Highway, proceeding in a south-easterly direction towards the Lake Munmorah waterbody. The Pacific Highway corridor is approximately 50m wide at this point, representing a significant barrier to crossing for a large proportion of fauna. This Structure Plan will have regard for these biodiversity corridors and ensure that these areas are protected, and improved, in perpetuity. BioBanking opportunities will be investigated where appropriate.



FIGURE 21: BUSHLAND WITHIN BIODIVERSITY CORRIDOR



FIGURE 22: INTERFACE OF BIODIVERSITY CORRIDOR AND RESIDENTIAL AREA

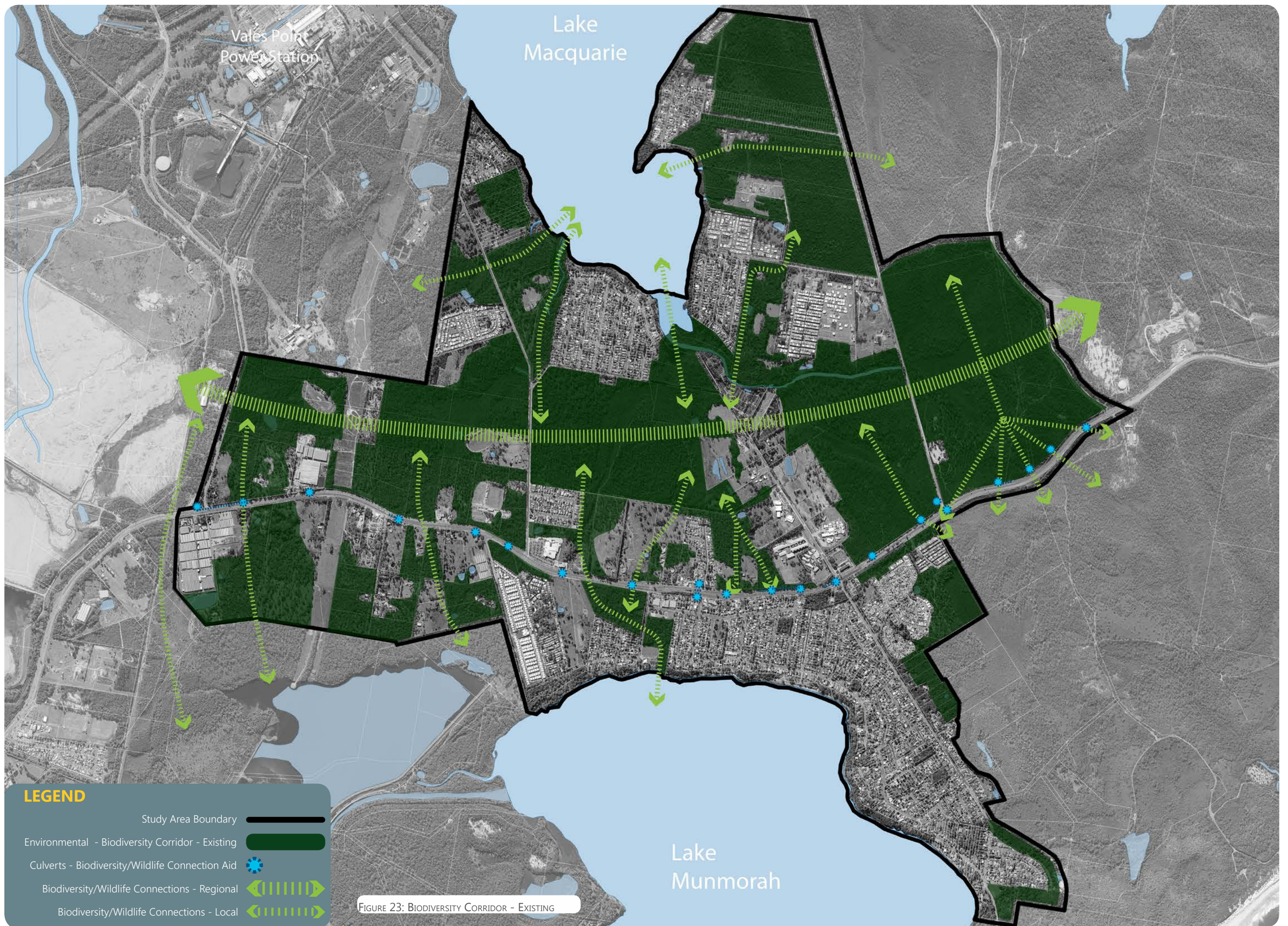


FIGURE 23: BIODIVERSITY CORRIDOR - EXISTING



4.1 Environment

4.1.3 Endangered Ecological Communities / Threatened Species

The study area is subject to a number of environmental constraints. Figure 26 depicts in orange the extent of the study area that has been found to have a high level of *Angophora inopina* (Charmhaven Apple) specimens. This species is endemic to the Central Coast LGA and is listed as a 'vulnerable' species under the Environment Protection and Biodiversity Conservation Act 1999.

In terms of Endangered Ecological Communities (EECs), small pockets of Swamp Sclerophyll Forest on Coastal Floodplain and Swamp Oak Floodplain Forest communities are found in the eastern part of the study area. State Environmental Planning Policy (Coastal Management) 2018 also applies to this part of the study area. Figure 26 depicts the anticipated physical location of these EECs.

This Structure Plan will take into account the significant environmental constraints within these parts of the study area. Long term protection of these environmental assets will be considered a priority.



FIGURE 24: SOUTHERN LAKE MUNMORAH - SWAMP OAK FLOODPLAIN FOREST



FIGURE 25: SOUTHERN LAKE MUNMORAH - SWAMP OAK FLOODPLAIN FOREST

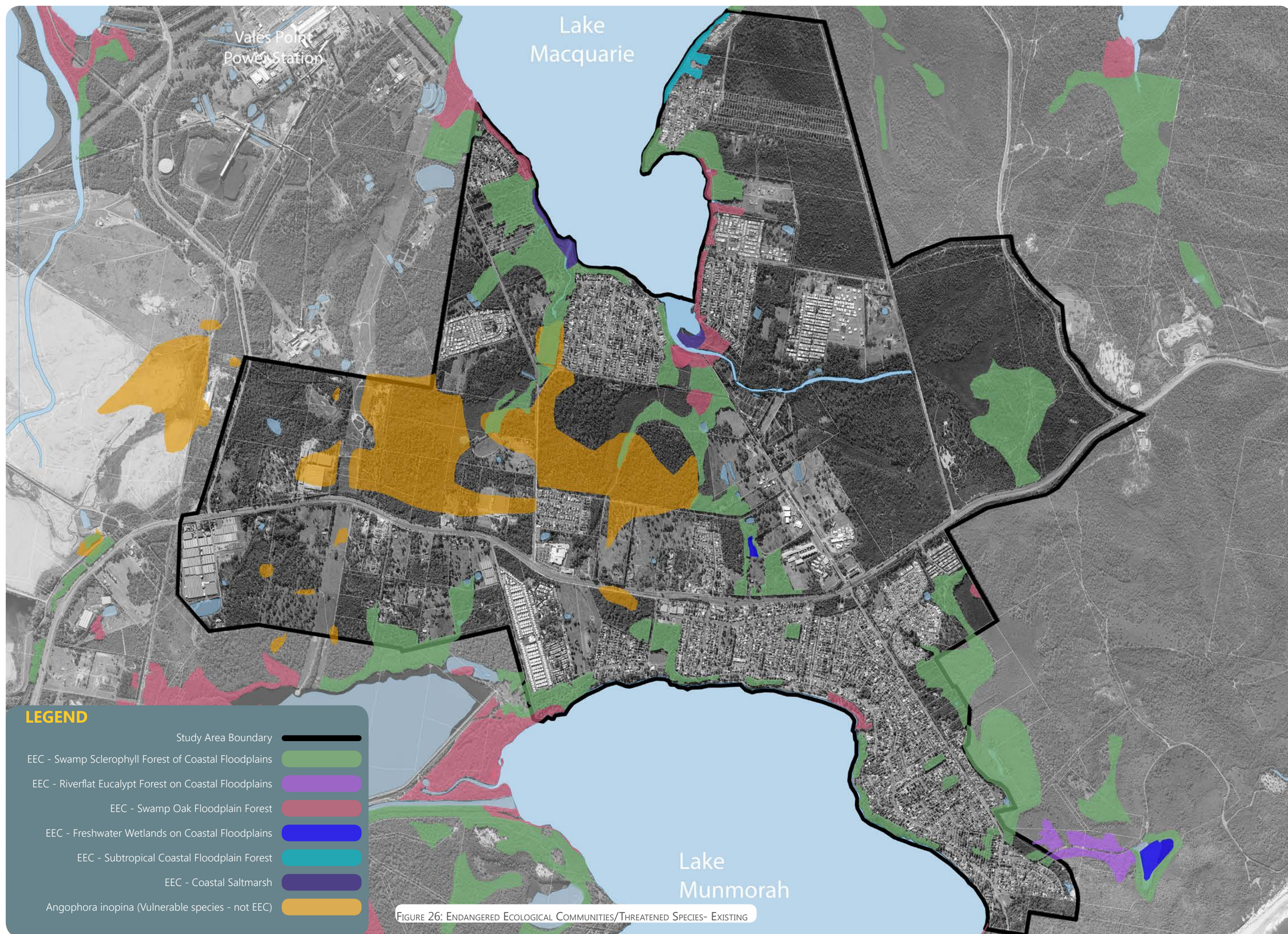


FIGURE 26: ENDANGERED ECOLOGICAL COMMUNITIES/THREATENED SPECIES- EXISTING



4.1 Environment

4.1.4 Heritage

European Heritage

The study area has one listed heritage item, listed under Wyong LEP 2013 as an item of local significance. This site is a farm complex at 89 Carters Road, Lake Munmorah, the location of which is shown in Figure 28. Built in 1915, the Wyong Heritage Inventory (2014) describes the reason for its significance as follows:

'An aesthetically significant intact orchard and farmhouse, with outbuildings, unique in the area. The group reflects the early pattern of permanent settlement and agriculture in the area.'

This Structure Plan is to have regard for this locally significant heritage item.



FIGURE 27: ABORIGINAL MIDDEN, SANDY BEACH NSW (PIP WILSON)

Aboriginal Heritage - Overview of the Darkinyung People

People have inhabited this landscape since time immemorial. This region is home to the Darkinyung (aka Darkinjung) people whose range extended from Awaba (the traditional name for Lake Macquarie) in the north to Deerubbin (the traditional name for the Hawkesbury River) in the south.

The Darkinyung people were fishers, hunters and gatherers of plants and animals of the land, rivers, estuaries and sea. These places including the hills, valleys, creeks, wetlands, lakes and coastline, provided food, medicines, and raw material for tools, weapons, shelter and decoration. These environments and landforms also provided the basis for spiritual and cultural life and are of value and significance to the local Aboriginal community now as they were then.

There is evidence of the use and occupation of this landscape in the numerous Aboriginal sites. These include sites such as rock engravings in the numerous sandstone platforms across the region, axe grinding grooves, engravings and paintings in caves, shell middens, culturally modified trees, stone tools, and the numerous sites of cultural and spiritual significance.

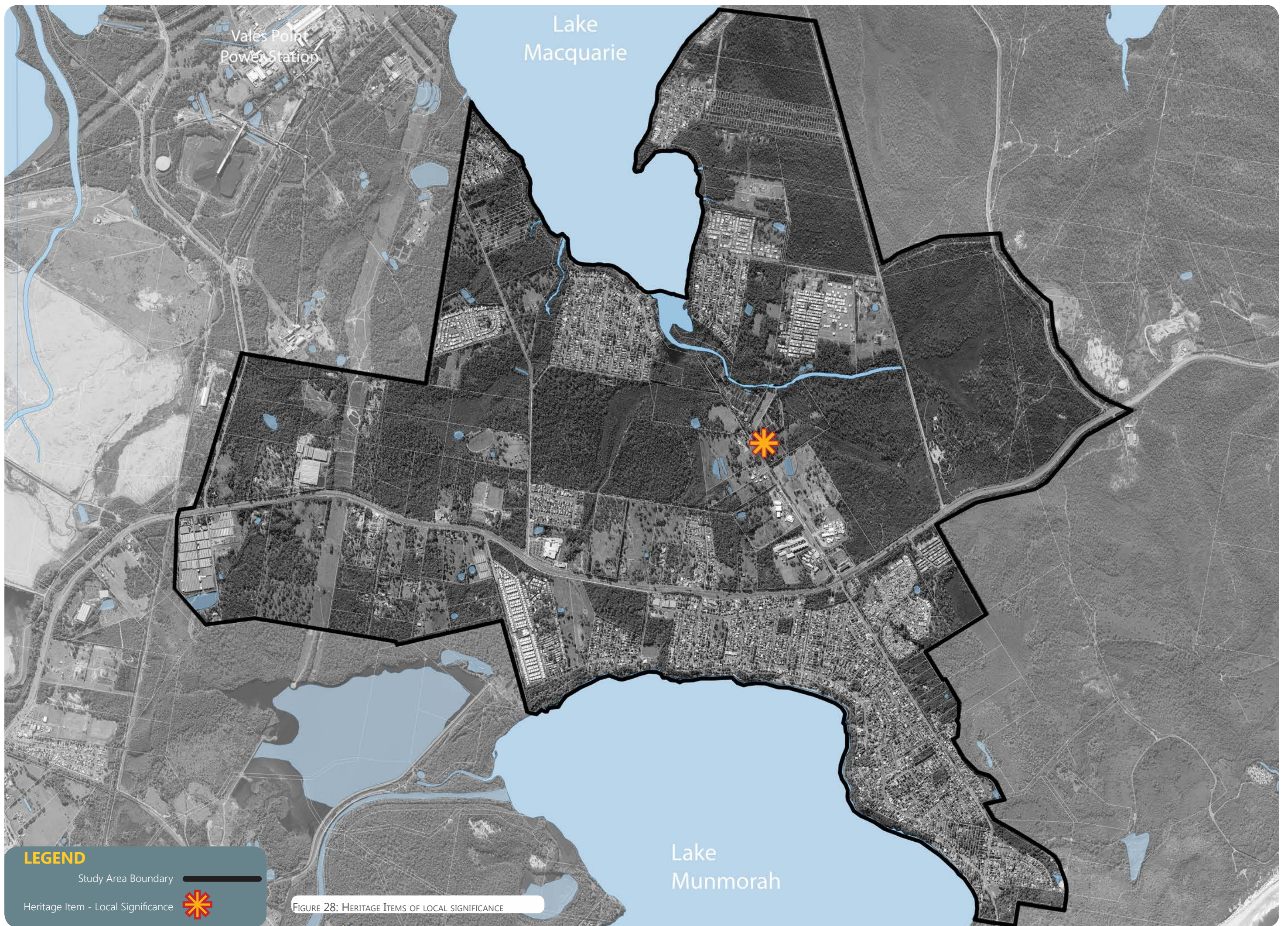
Evidence for Aboriginal habitation, includes middens, which consist of shell, bone, charcoal, tools and sometimes burials. A midden is likely to contain only a selection of shell fish species available in the local environment. It may contain a high proportion of individuals of an edible size, stone artefacts, charcoal from camp fires, pumice, coral, faunal bone and also human burials. Other evidence in the landscape of Aboriginal land use and occupation includes: fish traps and stone arrangements, deposits in sandstone shelters, including artefact, charcoal, shell and bone remains, rock engravings and pigment art. Additional forms of Aboriginal cultural evidence can consist of abraded channels, grooves and grinding stones, axe grinding grooves, culturally modified trees, water holes, quarry sites, camp sites, stone artefact scatters, graves, earth mound, walking trails along trading routes, mythological and ceremonial sites.

In some cases landscape modification can provide evidence of Aboriginal people's occupation. The Central Coast is part of an intricate network of Aboriginal Cultural Heritage sites and places, connected by Aboriginal walking trails, routes and dreaming tracks which have been utilised over hundreds and thousands of years. These sites are connected and form part of a complex Aboriginal cultural landscape.

For many of the Aboriginal groups in NSW including the Darkinyung, Baiame is one of the main Creators in the dreaming. Daramulan (often depicted with one leg) is the son of Baiame and his emu-wife. Ceremonial sites with engraved or pigment art of anthropomorphic like figures which represent Baiame or Daramulan are considered to have very high culture heritage significance.

Whilst we know about a range of culturally significant sites within the area of the Greater Lake Munmorah Structure Plan, the absence of previous detailed archaeological surveying at a sub-regional level leaves us without knowledge of the full extent of Aboriginal cultural heritage in the area. To better understand the story of Aboriginal land use and occupation/habitation in Lake Munmorah and the surrounds, important regional archaeological investigation and site-specific Aboriginal due diligence assessments need to be undertaken to ensure that Aboriginal Cultural Heritage is not only identified, but preserved and protected, now and into the future.

Each development proposal will be required to prepare Aboriginal Heritage surveys and/or studies to ensure that any heritage is identified and protected.



LEGEND

Study Area Boundary

Heritage Item - Local Significance



FIGURE 28: HERITAGE ITEMS OF LOCAL SIGNIFICANCE



4.1 Environment

4.1.5 Scenic Amenity

Lake Munmorah and Lake Macquarie provides a scenic backdrop to the Study Area. However, there are limited visual connections to these lakes due to the relatively flat topography of the area, as well as the presence of private dwellings lining the majority of the foreshore area. Figure 31 identifies key view corridors.

Colongra Bay Road has been identified as the street with the best visual connection to the foreshore area, given the topography of the street and the sight-line being uninterrupted by the built environment. However, this could be improved further. Other streets in the area have limited vistas to the foreshore area due to private dwellings along the foreshore.

Urban development in the study area will significantly affect the scenic amenity of the study area. As many parts of the study area currently have very low levels of urban development, future development will obviously create a more urban landscape. Development within the future employment lands in the western part of the study area will also have a visual impact.

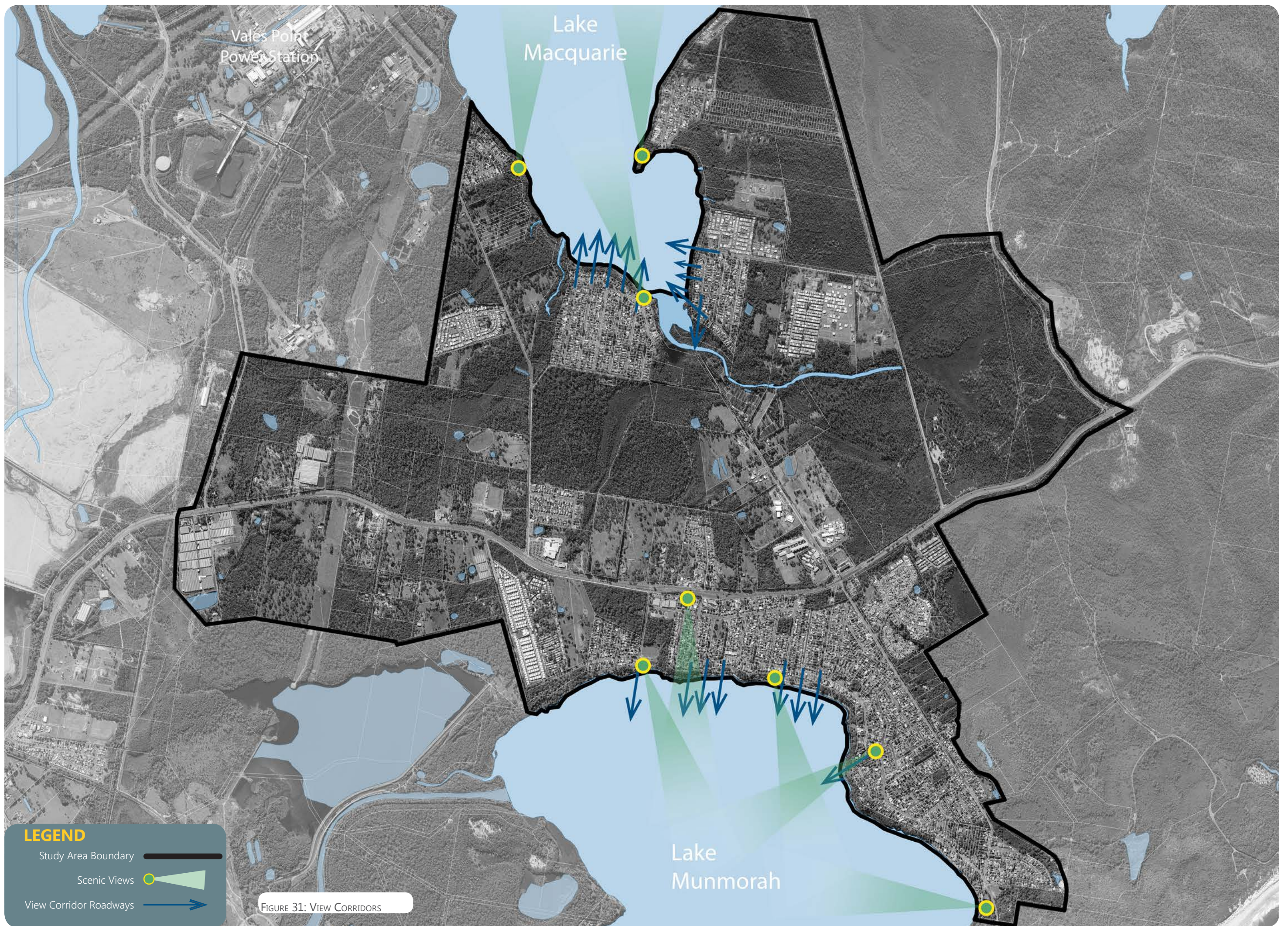
This Structure Plan is to have regard for these potential visual impacts as part of future developments.



FIGURE 29: TYPICAL LAKE ACCESS POINT, CHAIN VALLEY BAY



FIGURE 30: TYPICAL LAKE ACCESS POINT, LAKE MUNMORAH



LEGEND

Study Area Boundary

Scenic Views

View Corridor Roadways

FIGURE 31: VIEW CORRIDORS



4.1 Environment

4.1.6 Coastal Protection Zone

State Environmental Planning Policy (Coastal Management) 2018 applies to a number of locations within the study area.

Coastal Wetlands

This SEPP identifies State significant Coastal Wetlands in the centre-north of the study area at Chain Valley Bay, and in the north-east of the study area at Chain Valley Bay. These wetlands coincide with areas of “Swamp Sclerophyll Forest on Coastal Floodplain” EECs.

Coastal Protection Zone

Approximately half of the study area is within the Coastal Protection Zone under the State Environmental Planning Policy (Coastal Management) 2018 (see Figure 34).

The SEPP specifies the development controls which will apply to particular forms of development or within particular coastal management areas. The SEPP also specifies the consent requirements for public authorities and private individuals who propose to construct coastal protection works. This Structure Plan is to have regard for the provisions under this SEPP.

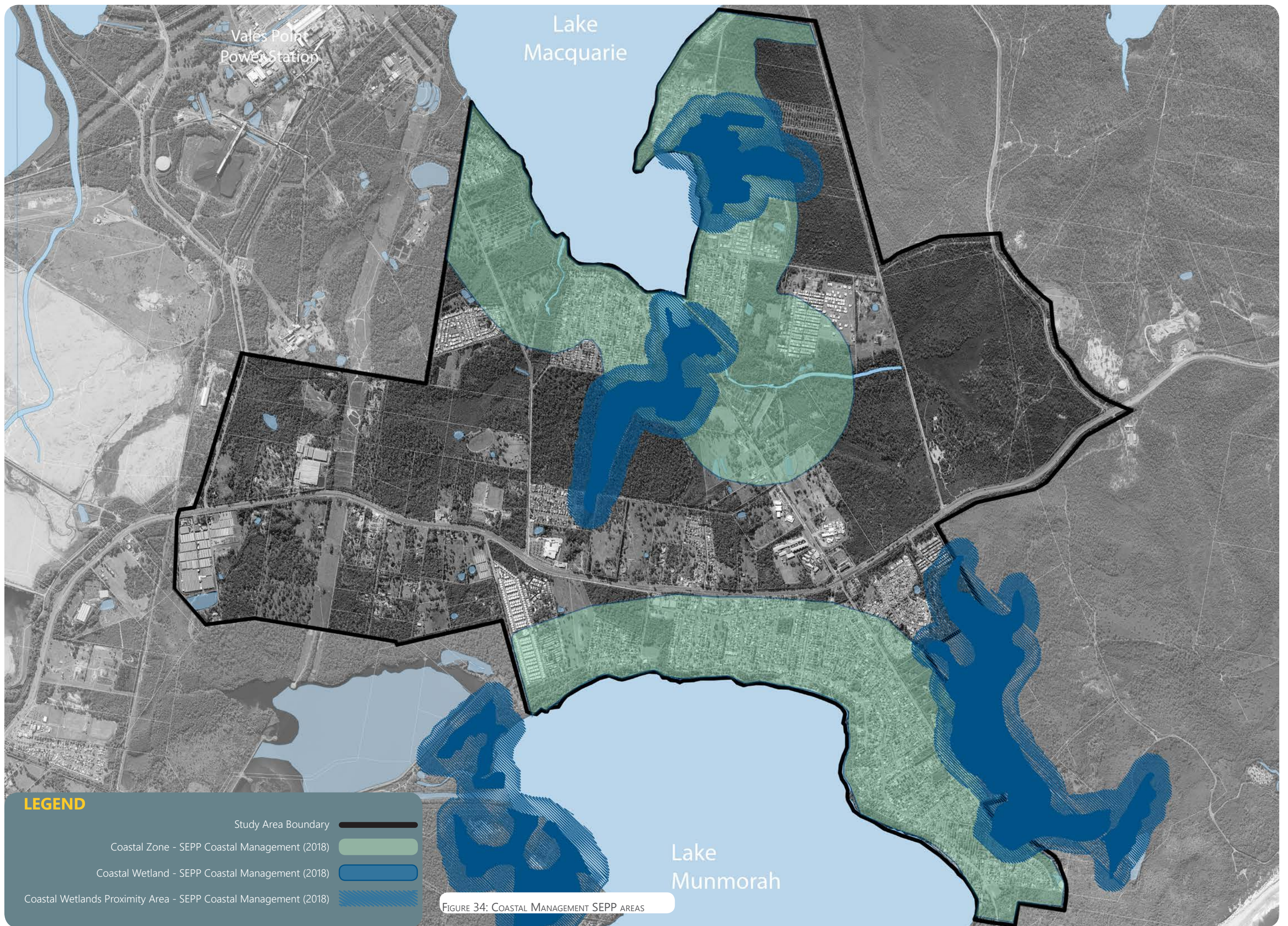
The Structure Plan is to have regard for the provisions under State Environmental Planning Policy (Coastal Management) 2018.



FIGURE 32: LOOKING SOUTH ON LAKE MUNMORAH



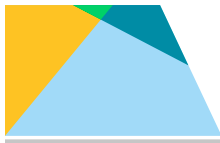
FIGURE 33: CHAIN VALLEY BAY FORESHORE



LEGEND

- Study Area Boundary —————
- Coastal Zone - SEPP Coastal Management (2018) [light green box]
- Coastal Wetland - SEPP Coastal Management (2018) [solid blue box]
- Coastal Wetlands Proximity Area - SEPP Coastal Management (2018) [blue hatched box]

FIGURE 34: COASTAL MANAGEMENT SEPP AREAS



4.2 Hazards

4.2.1 Drainage

Drainage

There are two main stormwater catchments that cover the study area:

- North of the Pacific Highway which drains into Lake Macquarie; and
- South of the Pacific Highway which drains into Lake Munmorah.

There is also a catchment that drains from the area adjacent to Elizabeth Bay Drive into the Munmorah State Conservation Area. The catchments and the 1 in 100 year flood level associated with Lake Munmorah and Lake Macquarie are indicated in Figure 36.

Riparian Land

Riparian land represents the interface between land and a river or stream. Karignan Creek, in the centre-north of the study area, represents the main riparian land within the study area.

A minimum core riparian zone of 40m either side of the waterbody should generally be preserved to ensure urban development does not compromise the protection of riparian land and waterbodies. The core riparian zone is to be verified for each rezoning or development proposal. With the potential impact of humans and the pressures of development, core riparian zones may also require a vegetated buffer to limit access to riparian areas and filter and improve the water quality of the water entering the waterbodies.

This Structure Plan is to have regard to riparian land protection measures.

4.2.2 Flooding

A key principle in land use planning is to avoid intensifying land use within areas that could be at risk from increased flooding. Within the study area there are areas affected by flood hazard (see Figure 36). Council has recently undertaken an overland flow flood study for the Lake Macquarie catchment, and this has resulted in a large part of the study area being identified as potentially subject to the Probably Maximum Flood (PMF) extent. Whilst a large area of the land subject to the PMF is located within the regional or local biodiversity corridors, a significant area of land identified for future residential or employment lands development is also affected by this PMF extent.

This could have an impact on development opportunities, and add to costs involved in provision of infrastructure. Consideration will need to be given to the flooding hazard when identifying future uses or embellishments to the open space area along the foreshore, as part of this Structure Plan.

Overland flow & local catchment flooding can also have a significant impact on development opportunities, and significantly add to costs involved in provision of infrastructure. Consideration will need to be given to this hazard when identifying future land uses as part of this Structure Plan.

Detailed flooding investigations will be required as part of local planning to support changes to land use. Catchment wide studies have been undertaken or updated in the past five years and this information will inform detailed flooding investigations.

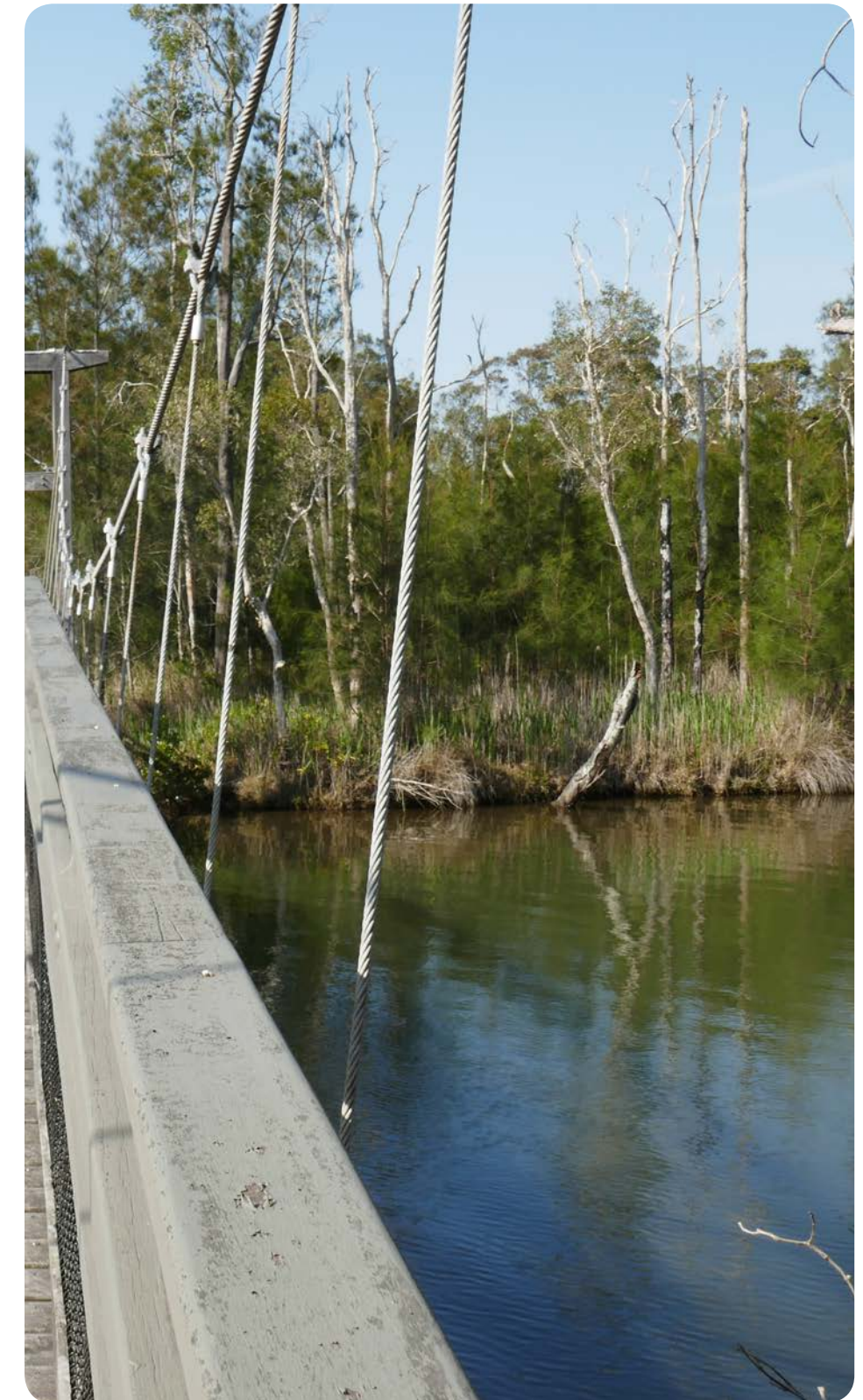
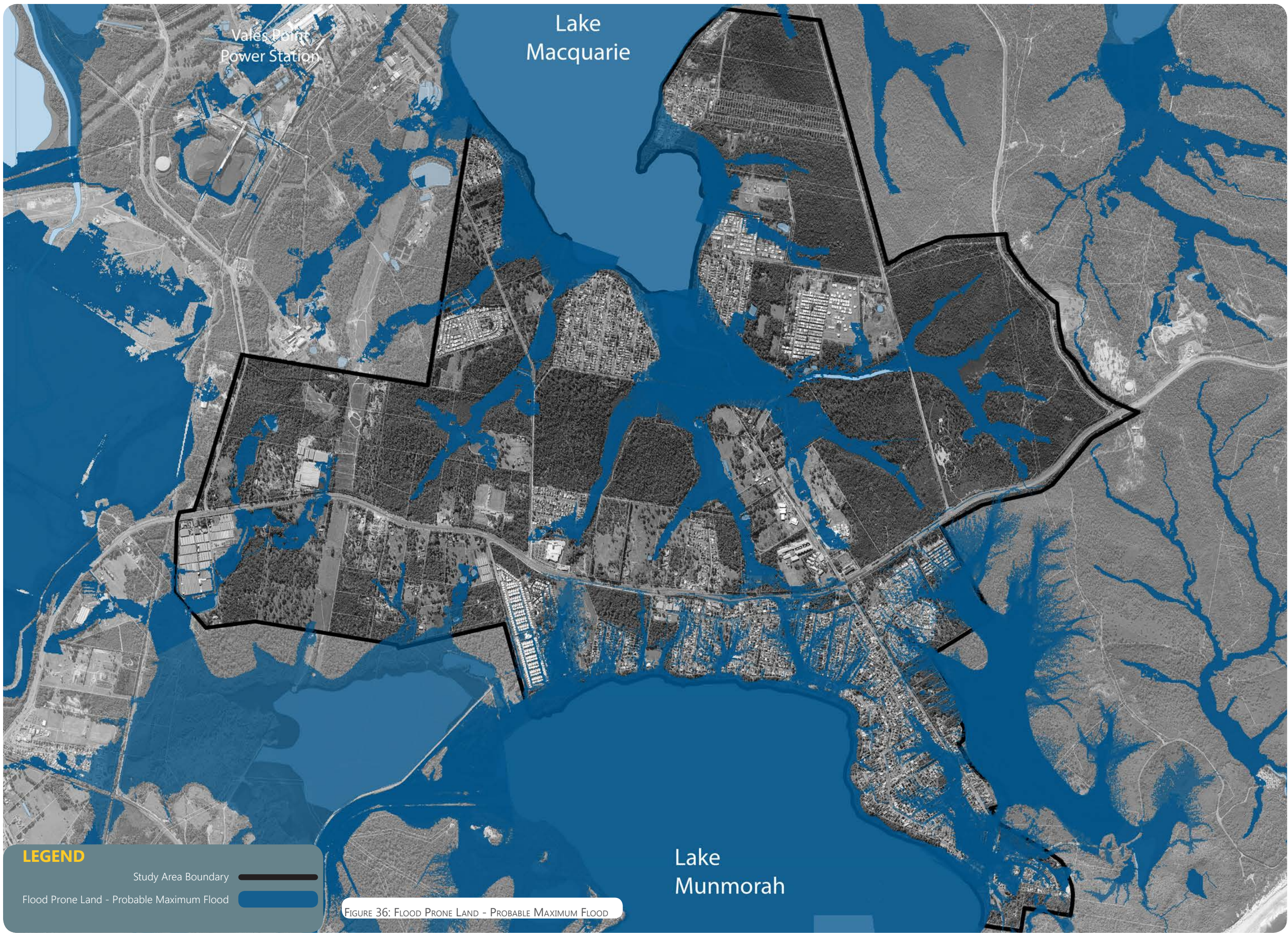


FIGURE 35: FOOTBRIDGE, CHAIN VALLEY BAY





4.2 Hazards

4.2.3 Contaminated Land

A large number of properties within the study area (50+) are identified on Council's contaminated land register as potentially being subject to contamination (see Figure 38). This potential contamination is based on factors largely surrounding past land uses on these sites. Contamination studies may need to be carried out for certain sites proposed for residential or certain business uses as part of this Structure Plan, however it is likely that these studies will not be required until the Planning Proposal stage.

However – note that a large number of these sites are already rezoned and subdivided for residential uses. Therefore contamination studies would already have been carried out for these sites, and the sites deemed to be suitable for residential use.

4.2.4 Dispersive Soils

Dispersive soils are known to be prevalent in the area adjacent to Karignan Creek (see Figure 38). These soils erode easily and lead to sedimentation concerns in Lake Macquarie. This may also be a problem elsewhere in the study area and a geotechnical study may be necessary to develop on these sites.

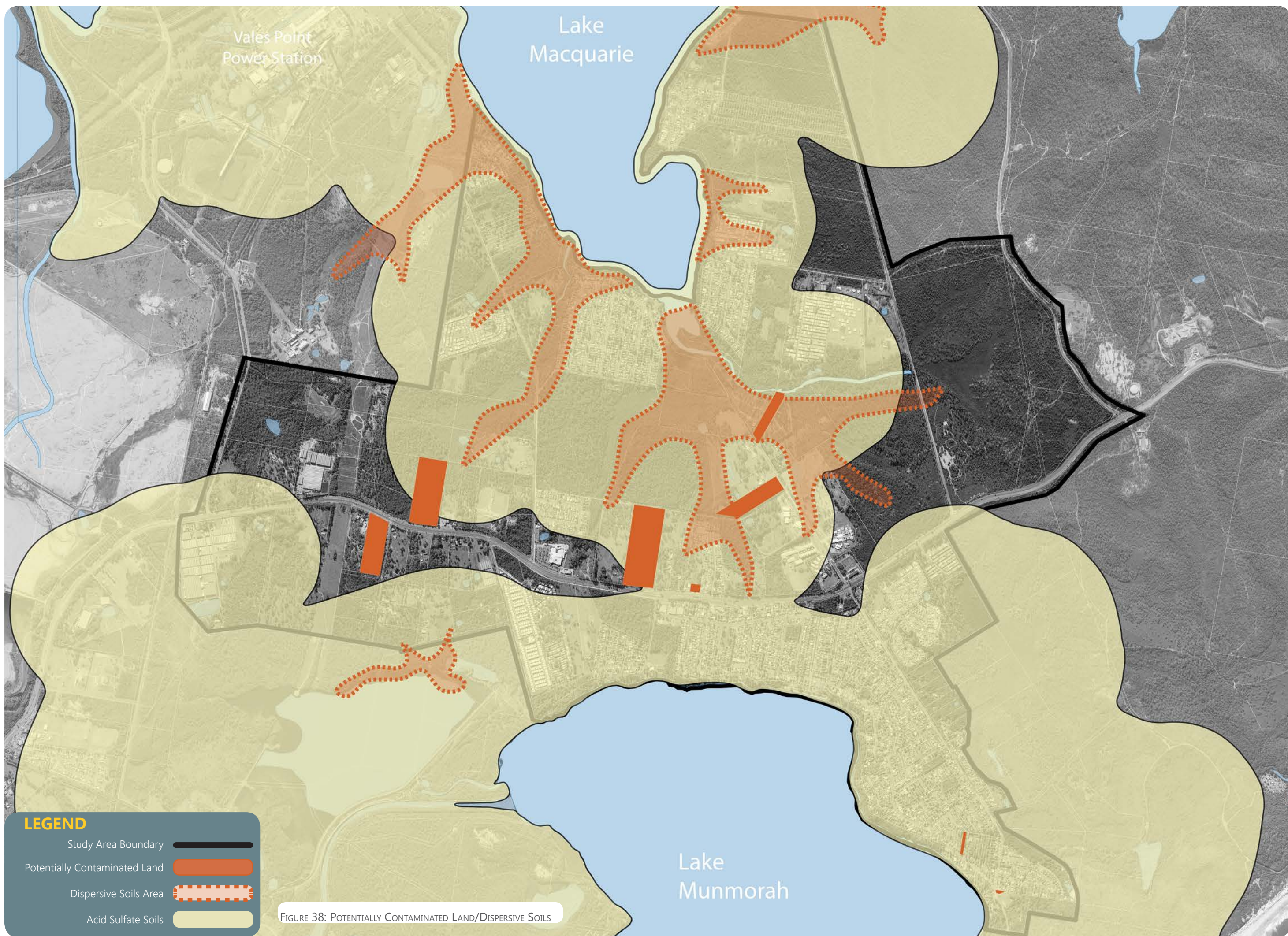
4.2.5 Acid Sulphate Soils

Acid sulphate soils are natural sediments that contain iron sulphides. They are common along the NSW coast. When disturbed or exposed to air these soils can release acid, damaging built structures and harming or killing animals and plants (NSW Department of Planning, Industry and Environment, 2019).

The impacts of disturbing acid sulphate soils are severe, including fish kills, damage to infrastructure, and adverse impacts on soil quality. Disturbance of acid sulphate soils needs to be carefully managed, and will be assessed at Development Application stage.



FIGURE 37: LAKE MACQUARIE



LEGEND

- Study Area Boundary 
- Potentially Contaminated Land 
- Dispersive Soils Area 
- Acid Sulfate Soils 

FIGURE 38: POTENTIALLY CONTAMINATED LAND/DISPERSIVE SOILS



4.2 Hazards

4.2.6 Bushfire

The study area is subject to significant bushfire hazard due to the presence of natural vegetated areas (see Figure 40). Bushfire prone areas are those areas that are likely to be exposed to a bushfire attack.

Bushfire prone land is separated into two categories (indicated in orange and yellow) with an accompanying buffer zone (indicated in red) and is based on the vegetation type, fuel loads and potential risk. Vegetation category 1 has the highest combustibility and likelihood of forming fully developed fires and represents the highest risk for bushfire. Vegetation category 2 has lower combustibility and/or limited potential fire size due to the vegetation area shape and size, land geography and management practices.

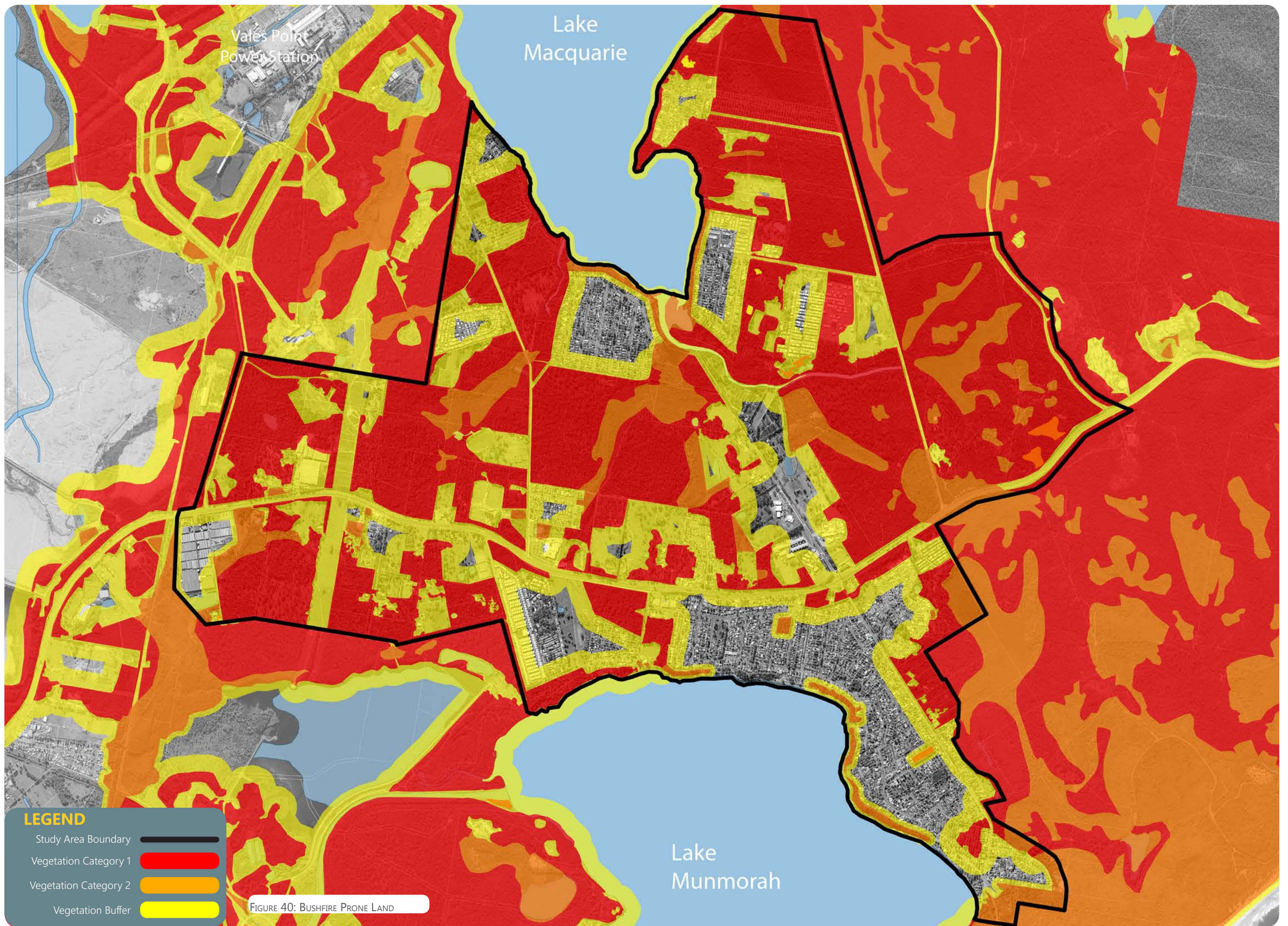
Bushfire prone areas are subject to planning controls designed to improve the bushfire safety of structures that face greater risk of bushfire threat. Protection measures are typically governed by the degree of the threat posed to a development, and Council is required to ensure that occupants of any building have adequate protection from exposure to a bush fire. When rezoning land for the purpose of urban development, Council is required to consider the ability to provide adequate Asset Protection Zones (APZ), fire fighting facilities and access for fire fighting equipment.

Residential development must comply with the provisions of Planning for Bush Fire Protection ("PfBP"). The PfBP provides the necessary planning considerations when developing areas for residential use when development sites are in close proximity to areas likely to be affected by bushfire events.

The Structure Plan will have regard for the provisions of Planning for Bush-fire Safety (2018).



FIGURE 39: VEGETATION, LAKE MUNMORAH



Vales Point
Power Station

Lake
Macquarie

Lake
Munmorah

LEGEND

Study Area Boundary

Vegetation Category 1

Vegetation Category 2

Vegetation Buffer

FIGURE 40: BUSHFIRE PRONE LAND



4.3 Servicing

4.3.1 Service Infrastructure

Water

An existing trunk water main runs along the length of the Pacific Highway, providing sufficient bulk water to service proposed development within the area. The associated distribution mains which then convey water to individual properties can be staged with construction, with potential minor up-grades required as part of certain developments.

Sewer

The topography of the study area divides the area into 11 sewer catchments and several SPS catchments. Each of these catchments discharges to the Mannering Park STP, which for some catchments needs to be transferred to SPS via pressure mains due to topography. There are capacity constraints within the majority of these catchments.

In terms of odour impacts from the Mannering Park STP, an Odour Assessment Report was prepared in 2015, which provides an assessment of odour impacts of the STP, based on odour emission rates, and establishes an appropriate buffer zone, provided in Figure 41. This may constrain development within Precinct 3 - Kingfisher Shores. The STP has a current capacity of 12,000 EP, with the next planned upgrade being a capacity increase to 18,000 EP within 20 years, depending on population growth.

The report assessed odour emissions from the current configuration of the STP – therefore the diagram does NOT include anticipated odour impacts once the STP capacity is increased to 18,000 EP. The white line on the diagram depicts the average odour impacts across all 4 seasons, and is the threshold that is used to restrict development within this contour. There may be limited opportunities to undertake additional capital works at the plant to minimise the extent of the estimated two odour unit contour, however the funding of any potential works would be the responsibility of the developer and would require additional odour modelling to assess the likely effectiveness of potential options. It is not considered likely that an economic level of capital upgrades could be undertaken to eliminate the potential for odour impacts on the entirety of this precinct.

4.3.2 Service Infrastructure- Delivery

Water, sewer and drainage infrastructure can be provided in various ways, as delivery is shared between different State Government agencies, Council, developers, and private sector investors. Generally, water and sewer assets are provided as follows:

Council (as Water Authority)	Private
Regional trunk mains Brownfield Sewer Pump Stations (SPS) Sewage Treatment Plant (STP) up-grades	Standard trunk mains / Reticulation mains Greenfield Sewer Pump Stations WICA Schemes

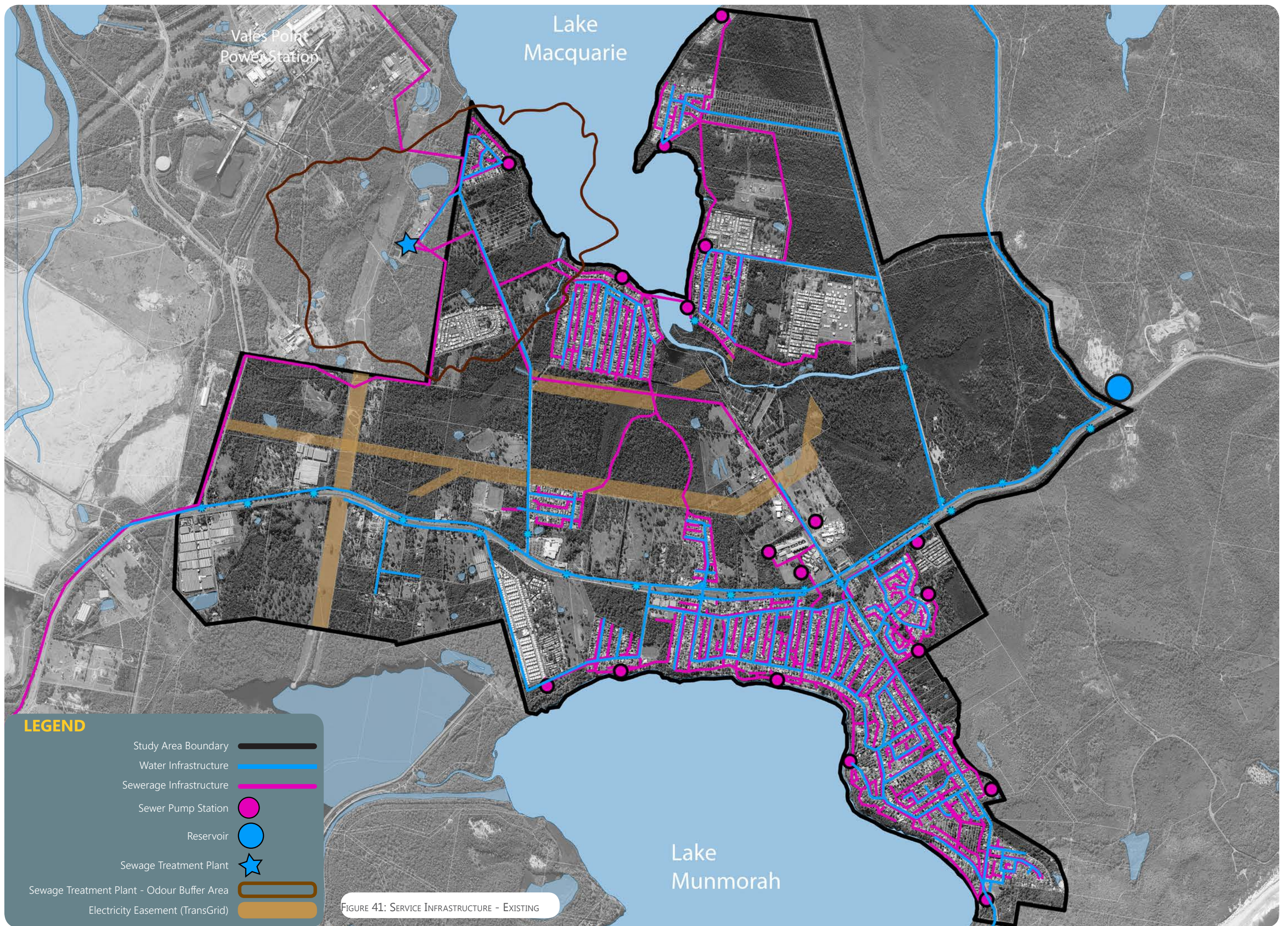
Council’s Development Servicing Plan (DSP) 2014 provides for the long term servicing of development precincts within the NWSSP areas and existing residential areas in anticipation of expected growth in the area. Proposals outside of the NWSSP area, or significantly outside the NWSSP recommended development timeframes, will need to take into account required infrastructure provision, such as water, sewer, electricity and gas, to meet projected demand. This will need to be informed by projected growth figures in a high-level supply and demand analysis. In particular, Council’s existing Water Supply and Sewerage DSP does not include the following precincts:

- Employment Lands Precinct, with the area likely requiring three sewage pumping stations and a rising main to Mannering Park STP to minimise impact on existing Mannering Park catchment infrastructure.
- The proposed 150ha development to the east of Carters Road School Precinct. A servicing strategy is currently being developed for this site, in consultation with Council.

4.3.3 Electricity Infrastructure

Electricity supply is readily available in the study area, due to its close proximity to Vales Point power station, substation and high voltage transmission lines. The substation, located on Carters Road, Lake Munmorah, is part of the 132kV network that distributes power to the surrounding suburbs via the smaller network of 11 kV lines.

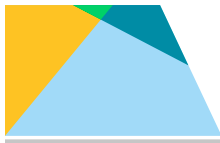
A significant 100m wide TransGrid transmission line (TL) easement runs through part of the study area (see Figure 41). TransGrid easements provide adequate clearance along the route of a TL for construction and maintenance work. Very limited construction works or other activity can be undertaken under or near a TL, in order to protect human life as well as ensure the security of the TL or associated infrastructure. Therefore, the presence of such an easement will significantly limit the development potential of the affected properties. For example, the construction of houses, buildings or other substantial structures is prohibited within a TL easement. This restriction will need to be incorporated into this Structure Plan.



LEGEND

- Study Area Boundary
- Water Infrastructure
- Sewerage Infrastructure
- Sewer Pump Station
- Reservoir
- Sewage Treatment Plant
- Sewage Treatment Plant - Odour Buffer Area
- Electricity Easement (TransGrid)

FIGURE 41: SERVICE INFRASTRUCTURE - EXISTING



4.4 Transport

4.4.1 Existing Road Network

The Pacific Highway

The Pacific Highway is the predominant road corridor within the study area, with a number of secondary roads serving the suburbs of Lake Munmorah (Elizabeth Bay Drive), Doyalson North, Kingfisher Shores and Chain Valley Bay South (Tall Timbers Road) and Chain Valley Bay North (Chain Valley Bay Road).

The Pacific Highway has significant capacity for future growth and can accommodate 1,800 vehicles per lane/per hour. Generally there are no concerns with traffic flows however the Carters Road / Pacific Highway / Elizabeth Bay Drive intersection (school precinct) has been identified as a problem area in terms of traffic congestion during peak school pick-up and drop-off periods.

The Pacific Highway acts as a significant severance between the north and south of the study area, making vehicular and pedestrian connectivity difficult. The average speed on the Highway is often in excess of the posted speed limit of 80km/h. Where travel speed exceeds 80km/h, vehicle speed / distance perception in road environments is very difficult to judge. This creates significant pedestrian safety issues associated with crossing the highway. An overhead pedestrian crossing, located at the major intersection of the Pacific Highway and Carters Rd, assists in ensuring safe passage across the highway. However, the only other pedestrian crossing is located 1.9km to the west at the intersection of Tall Timbers Rd.

The proposed population growth within the study area may present an opportunity to shift the purpose of the Pacific Highway from a movement focus to a place focus. This Structure Plan will identify opportunities to enact this shift.

Carters Road School precinct

The Carters Road / Pacific Highway / Elizabeth Bay Drive intersection has been identified as a problem area in terms of traffic congestion during peak school pick-up and drop-off periods. The Structure Plan will aim to identify measures to improve traffic congestion.

Future Road Improvements

The proposed population growth within the study area will result in increased traffic. This Structure Plan will consider the need for additional road networks based on future residential and employment growth within the study area.

A transport specialist has been separately engaged to undertake simulated modelling of key intersections along the Pacific Highway, including analysis of overall network performance. The analysis includes five scenarios as follows:

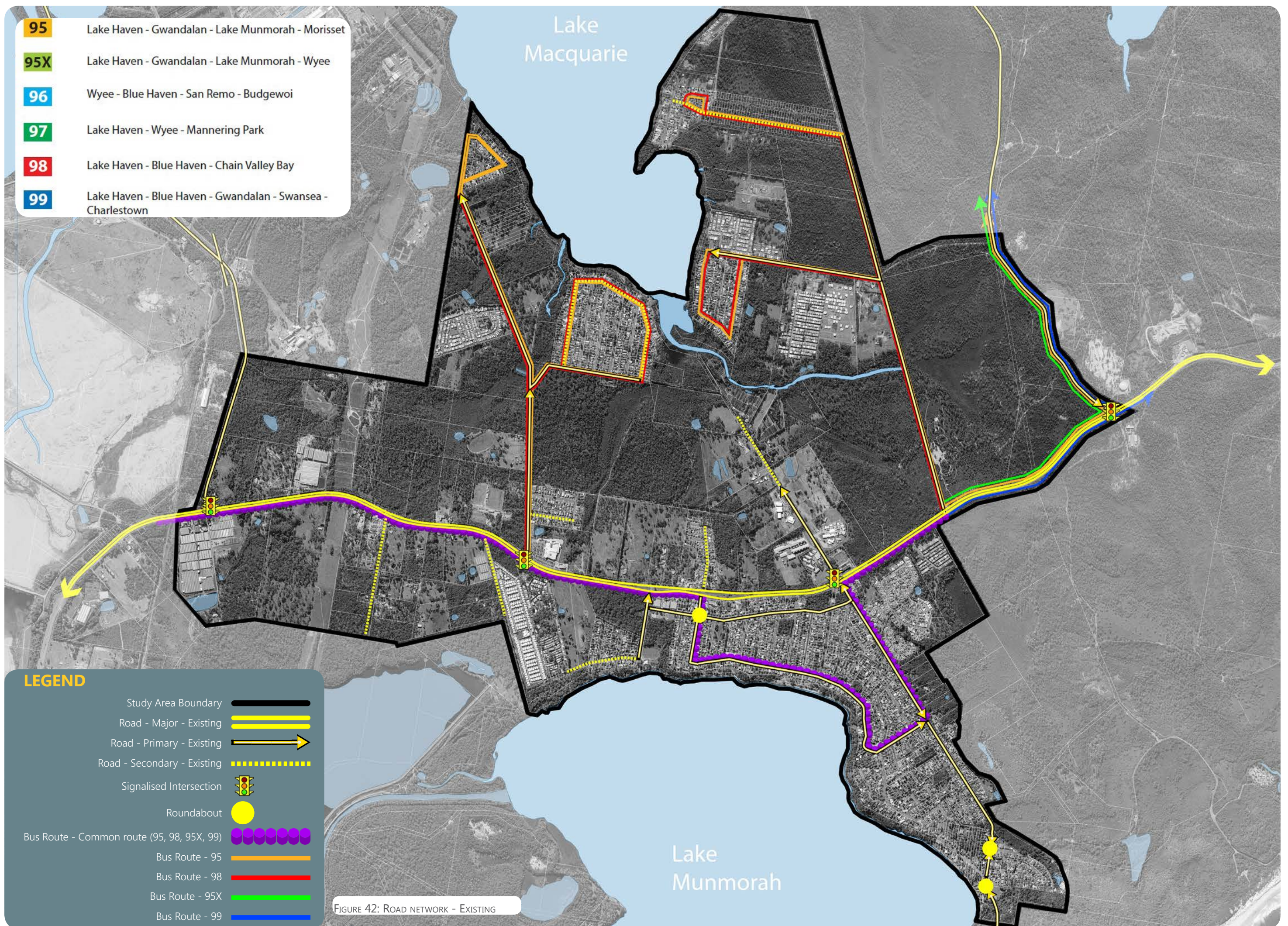
- **Existing conditions**
- **Background growth:** To assess how the current network performs with background population / traffic growth, without the introduction of mitigation measures.
- **Background Growth + Development Scenarios:** To assess how the current network performed with background population / traffic growth + development scenarios, AND without the introduction of mitigation measures.
- **Background Growth + Development Scenarios + Pacific Highway and Wyee Road Intersection Upgrades:** To assess how the current network performed with background population / traffic growth + development scenarios, AND the potential upgrade at Pacific Highway and Wyee Road intersection, and the extent of mitigation it alone would provide to the entire network.
- **Background Growth + Development Scenarios + Pacific Highway and Wyee Road Intersection Upgrades + Structure Plan Road Development:** To assess how the current network performed with background population / traffic growth + development scenarios, AND the potential upgrade at Pacific Highway and Wyee Road intersection, AND the internal road connections as proposed within the Structure Plan.

4.4.2 Public Transport

Public transport is crucial in ensuring access to jobs, healthcare, education, open space and other community services. Busways operate bus services within the study area. Bus stops are provided at key locations within the study area and schools are well serviced with bus stops. Inter-regional access to other local centres is provided, although journeys can be lengthy and difficult to plan, in particular due to the circuitous nature of the settlement/road patterns within the study area, requiring additional travel time. This makes the bus service less attractive as a choice of transport mode.

There is very little use of public transport within this area. The 2016 census found that only 2.7% of residents used public transport to travel to work, compared to 8.8% for the Central Coast LGA and 16% for NSW. This is likely a result of the relative isolation of this area and the subsequent limited access to public transport.

This is due in large part to the inadequate provision of public transport to this area, making public transport use both time and cost prohibitive. The Structure Plan will aim to align walking and cycling networks with public transport routes to improve accessibility to public transport.





4.5 Recreation

4.5.1 Pathway Network

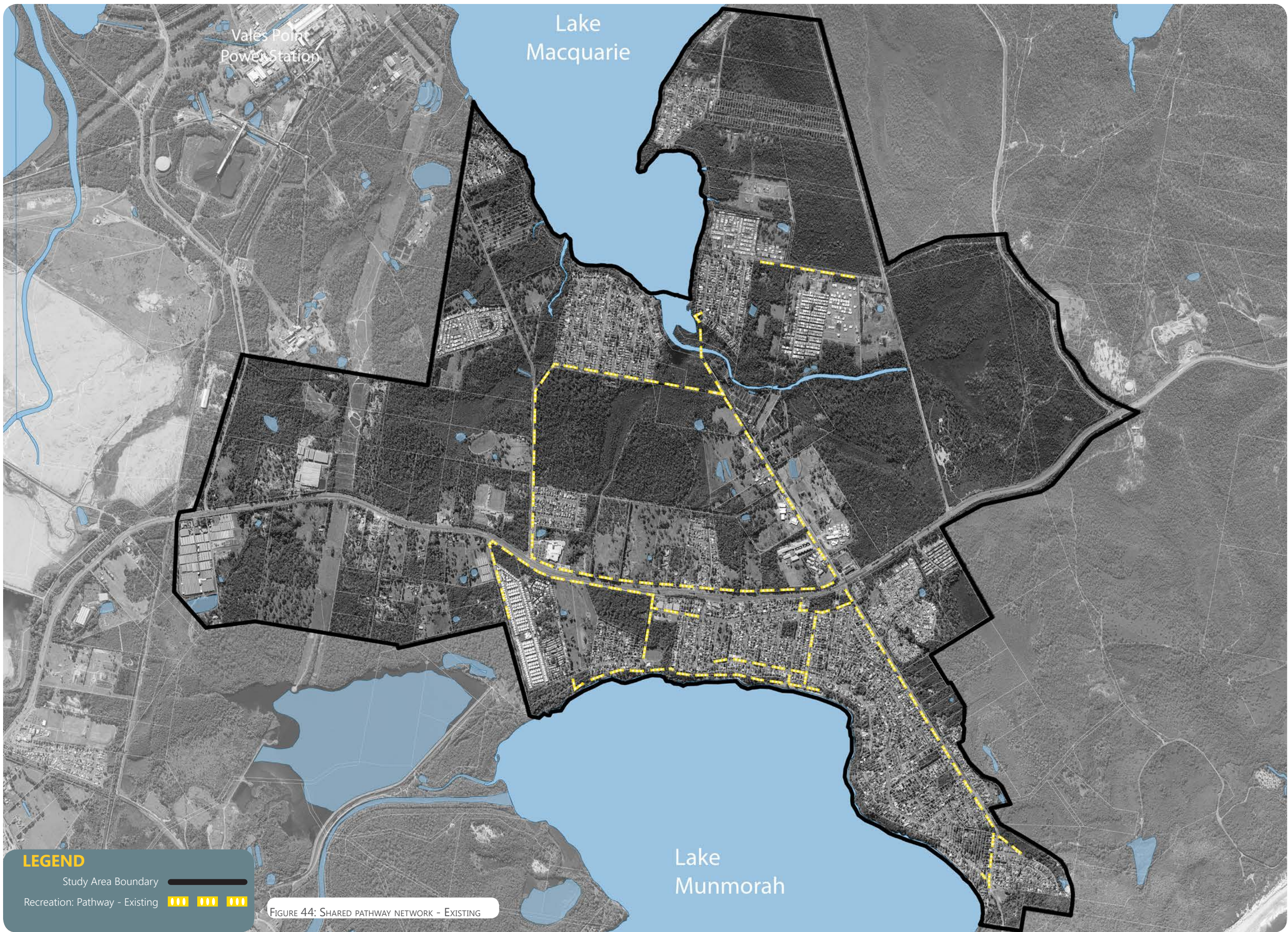
Walking and cycling are a vital component of the local transportation network and help to ease transport congestion and build a healthier, more active community. An important consideration for the live-ability of the study area is the network of shared pathways. Shared pathways can be used by both pedestrians and cyclists, whilst bicycle lanes are on road facilities on the side of the road usually marked by painted white lines and bicycle symbols. Shared pathways enable pedestrian or cycle access to, and appreciation of, the natural environment and scenic landscapes, as well as more practical access to other places of interest such as commercial areas. This is an essential way to support community activity, interaction, health and well-being.

Figure 44 depicts existing footpaths and/or shared pathways within the study area. The Pacific Highway is a major barrier for pedestrian and cyclist connectivity between the northern and southern segments of the study area. This Structure Plan presents an opportunity to identify additional shared pathway connections to ensure that the network is functional and encourages active lifestyles. These connections will be safe, accessible, and cater for the needs of all pedestrians in a way that takes advantage of the centre's unique natural features.

**** THE EXISTING SHARED PATHWAY NETWORK IS ALREADY BEING IMPROVED AS PART OF THE FORMER WYONG LGA'S ON-ROAD BICYCLE AND SHARED PATHWAY STRATEGY (2010). THIS IS A 10-YEAR PLAN TO ACHIEVE AN IMPROVED ON-ROAD CYCLING AND SHARED PATHWAY NETWORK. THIS STRATEGY IDENTIFIES PROJECTS WITHIN THE STUDY AREA, WHICH HAVE BEEN INCORPORATED INTO THIS STRUCTURE PLAN.**



FIGURE 43: SHARED PATHWAY, CHAIN VALLEY BAY





4.5 Recreation

4.5.2 Parks and Playgrounds

Small Parks

Small parks, or neighbourhood parks, provide for regular use by local residents. The study area is well represented in terms of small parks, with a large number of small parks that are well located within the residential areas to enable most residents to be located within 400m of a small park. However, only the following small parks contain play equipment for children:

- Sunset Parade Playground
- Sunset Parade, Chain Valley Bay
- Patrick Kelly Reserve
- Clarence Street, Lake Munmorah
- Kingfisher Reserve
- Lakeshore Avenue, Kingfisher Shores

Large Parks

Large parks cater to the needs of a broader population and therefore attract usage from a wider catchment than small parks. The study area boasts four large parks which cater to the needs of a broader population:

- **Tom Burke Reserve: Anita Avenue, Lake Munmorah**

Facilities - This park is considered significant due to the combination of a playground, swimming beach, accessible BBQ and toilet, mini bus parking.

- **Mulloy Reserve: Mulloy Road, Chain Valley Bay**

Facilities - This park is considered significant due to the combination of a boat ramp, jetty and playground.

- **Colongra Bay Reserve: Colongra Bay Road, Lake Munmorah**

Facilities - This park is considered significant due to the co-location of the community hall, shared pathways, public toilets, BBQ facilities, playground and fitness equipment.

- **Joshua Porter Reserve: Lloyd Avenue, Chain Valley Bay**

Facilities - This park is considered significant for local and regional visitors due to the playground, BBQ, public toilets and boat ramp.

- **Future Large Parks**

A large park is also proposed for the land adjacent to Gumbayah Oval on Tall Timbers Road, however plans for this park are currently on hold until the a current Aboriginal land claim is assessed by the NSW Government.

Semi-Natural Reserves

Semi-natural reserves can include bushland, foreshore areas and nature reserves with a primary purpose of wildlife conservation and biodiversity. These semi-natural open space areas can frequently be found within, or adjacent to other open space types, and may provide some limited recreation opportunities, such as picnicking and bush-walking. These reserves are also known as passive recreation areas.

The study area boasts large areas of semi-natural reserves along the Lake Munmorah and Lake Macquarie foreshore's. These reserves provide extensive connections to recreation, community and retail attractors, however do not provide any facilities other than those noted below:

- Lake Munmorah Reserve (adjacent to the lake foreshore on Colongra Bay Road): This is currently a designated dog exercise off-leash area.
- Teragalin Reserve (Teragalin Drive, Chain Valley Bay): No facilities
- Elizabeth Bay: Public toilet facilities but the playground was removed when the National Parks & Wildlife Service (NPWS) took over the site. It is well located as a local open space area.
- McCollock Reserve (Anita Avenue, Lake Munmorah): No facilities
- RFS Park (Acacia Avenue, Lake Munmorah): No facilities
- Rosemount Avenue, Lake Munmorah): No facilities
- Rodney Close/Elizabeth Bay Drive, Lake Munmorah: No facilities. Drainage reserve.
- Hartog Avenue, Lake Munmorah: No facilities.
- Bodalla Road, Lake Munmorah: No facilities.
- Acacia Avenue, Lake Munmorah: Senior Citizens Centre.
- Munmorah Reserve (Colongra Bay Road, Lake Munmorah): No facilities
- Kemira Road, Lake Munmorah: No facilities. Drainage reserve.
- Chain Valley Bay Foreshore Reserve (Kingfisher Shores - Chain Valley Bay): No facilities. Foreshore reserve.
- Lake Munmorah Foreshore Reserve: No facilities. Foreshore reserve. Utilised extensively at the western side but underutilised at the eastern extent accessible from Greenacre Avenue.

4.5.3 Sporting Fields

Existing sporting field infrastructure is depicted in Figure 45.

Sporting Fields / Courts

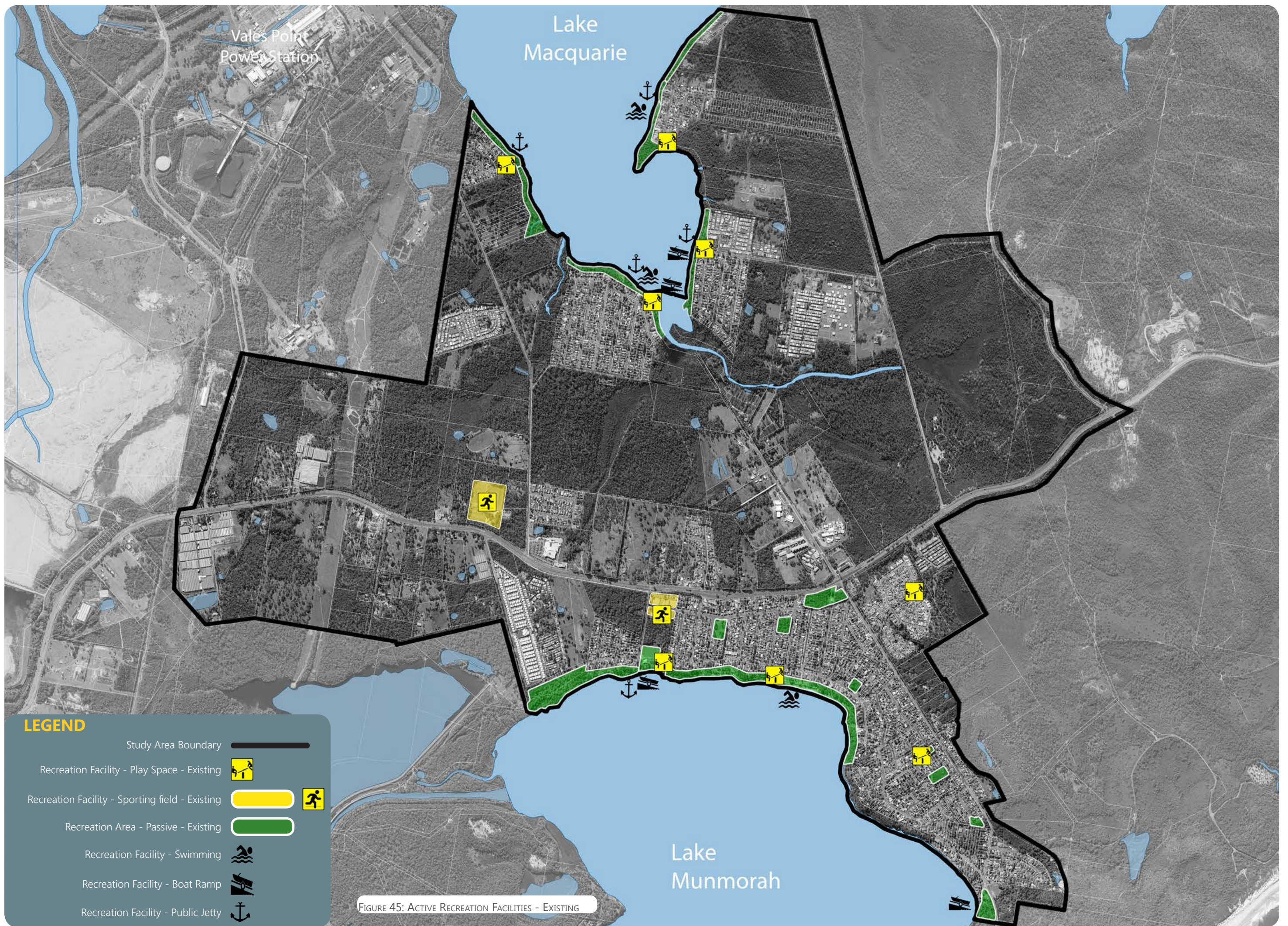
The study area is under-provided with respect to sporting fields and courts. The study area has the following sporting fields and/or courts:

- **Gumbayah Oval (corner of the Pacific Highway and Tall Timbers Road):**

This is the only sporting field in the study area, currently leased exclusively by the Crown to the Northern Lakes Warriors Rugby League Football Club.

- **Lake Munmorah Tennis/Netball/Skate Park (Acacia Avenue, Lake Munmorah):**

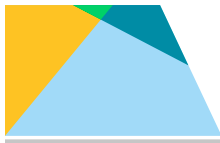
Basketball, Netball, Tennis courts. Clubhouse / Amenities Block, Car Parking, Floodlights, Grassed Area, Park Furniture, Skate Park.



LEGEND

- Study Area Boundary
- Recreation Facility - Play Space - Existing
- Recreation Facility - Sporting field - Existing
- Recreation Area - Passive - Existing
- Recreation Facility - Swimming
- Recreation Facility - Boat Ramp
- Recreation Facility - Public Jetty

FIGURE 45: ACTIVE RECREATION FACILITIES - EXISTING



4.5 Recreation

4.5.4 Parks and Playgrounds - Accessibility

Figure 46 identifies a 1km radius around the 2 major recreation reserves, as well as the smaller recreation reserves with a 400m radius. The figure shows how accessible this open space is to pedestrians. As evidenced by this figure, the location of the existing recreation reserves is suitable to provide adequate small scale recreation facilities within 400m to most existing residences. However, in terms of the major recreation reserves, large areas of the existing residences are located outside the 1km radius.

4.5.5 Parks and Playgrounds - Functionality

Many of the recreation reserves in the study area have no playground facilities, or any other facilities such as picnic areas and BBQs. Once the recreation reserves without such facilities are removed from the image, it becomes apparent that there is a lack of playground facilities within the study area. Council will consider the embellishment of a number of existing passive reserves in order to improve pedestrian access to playground facilities for the community. This will increase quality of life for the residents within the study area.

This Structure Plan shall review the role of each site within a broader recreation hierarchy and identify areas where new recreation reserves are required to cater for future residential population growth, particularly in the north-east of the study area. Each site will also be considered for its potential to provide multi-use facilities. There are recognised benefits of co-location near schools, community facilities, commercial areas and good public and private transport links. Joint development with public facilities and in association with compatible private development is also of benefit.

4.5.6 Sporting Fields - Accessibility

Figure 46 identifies the 2 sporting field reserves in the study area. The circles represent a 1km radius to the surrounding areas. As evidenced by this figure, the location of the existing sporting field reserves is generally not suitable to provide adequate recreation facilities within 1km to existing residences.

The Structure Plan shall review the role of each site within a broader recreation hierarchy and identify areas where new sporting field reserves shall be required to cater for future residential population growth, particularly in the south of the study area. Each site will also be considered for its potential to provide multi-use facilities. There are recognised benefits of co-location near schools, community facilities, commercial areas and public transport links. Joint development with public facilities and in association with compatible private development is also of benefit.

4.5.7 Aquatic Recreation Facilities

The study area is heavily utilised for aquatic recreation due to its location adjacent to both Lake Munmorah and Lake Macquarie water bodies. Figure 45 depicts the location of aquatic infrastructure within and around the study area. Swimming areas are located at Tom Burke Reserve, Lake Munmorah and Joshua Porter Reserve, Chain Valley Bay South. Boat ramps are also located in Lake Munmorah and Chain Valley Bay South. The role of the marine industry may be important to the future economy of this area and will be reviewed.

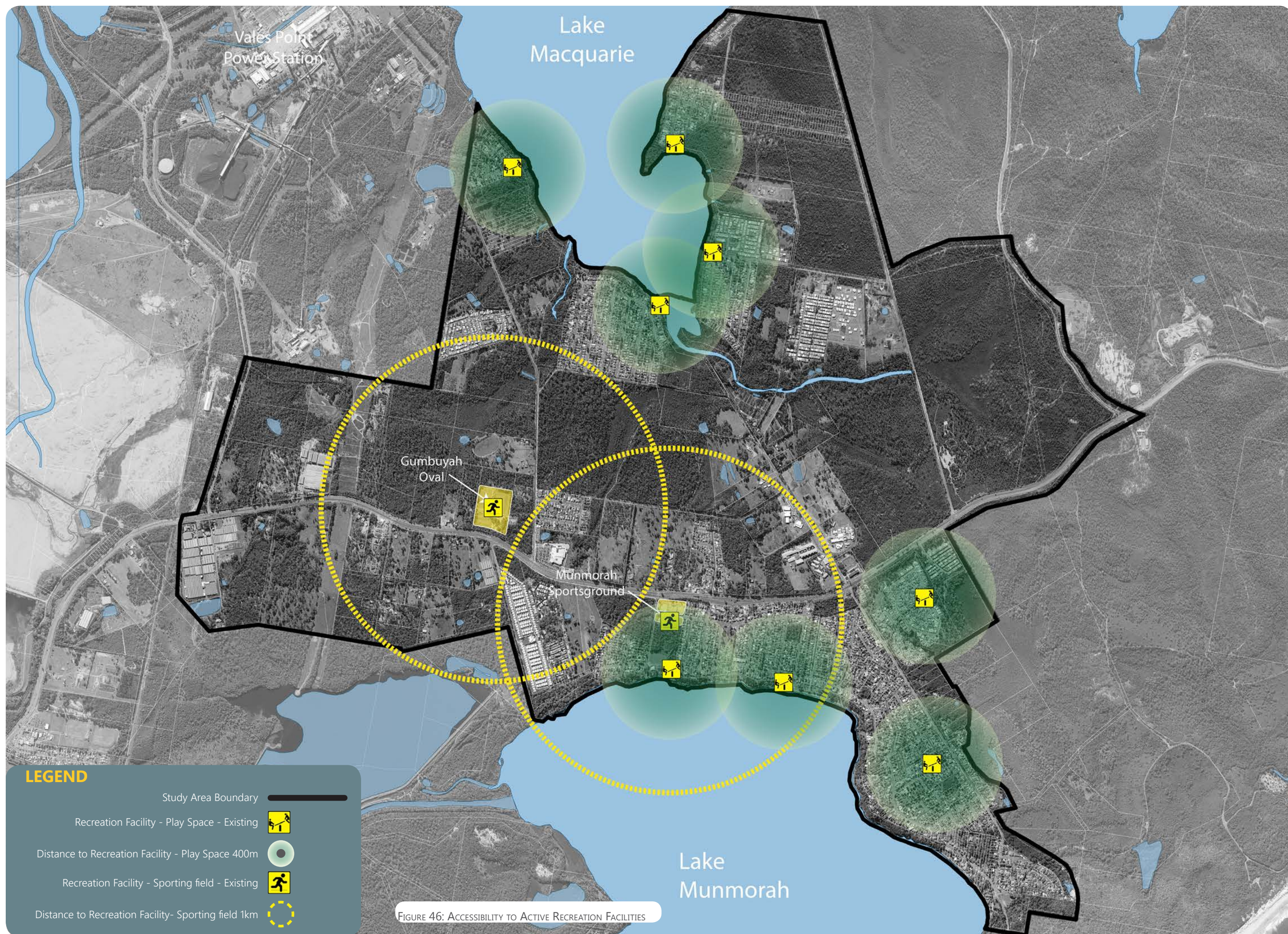
4.5.8 Conclusion

With continued growth, the study area will continue to build on the diverse network of public and private open spaces and related recreation opportunities, leveraging in part off the conservation of extensive vegetation and wetland communities and existing recreational facilities. To accommodate this, recreation planning will need to consider:

- The characteristics of the precinct
- The vision for the future urbanisation of the precinct
- The nature and extent of existing recreation and open space facilities
- The projected demand for recreation and open space facilities to service the proposed new community
- The means of addressing the demand having regard to the environmental context
- The underpinning design philosophy
- The implementation principles.

As with provision of community facilities discussed above, Council will need to explore a range of funding options for open space and recreation facilities ranging from Section 7.11 Development Contributions, Council revenue, State and Federal government funding, through to commercial opportunities.

The Structure Plan will review the role of each site within a broader recreation hierarchy and identify areas where new recreation reserves shall be required to cater for future residential population growth, particularly in the north-east of the study area. Each site should also be considered for its potential to provide multi-use facilities.





4.6 Community

4.6.1 Community Facilities

Community facilities make a fundamental contribution to our community by providing spaces for people to come together to socialise and learn, building a sense of community, connections, and participation and reducing social isolation. The study area is located within the Northern Lakes social planning district. This district, and Warnervale/Wadalba social planning district, will continue to be the focus of the majority of new residential development and population growth occurring in the Central Coast LGA. Providing spaces for the community assists in the delivery of services, programs and activities to meet social needs, the future growing population and build community capacity.

Council currently provides three community facilities in the study area:

- Colongra Bay Community Centre
- Lake Munmorah and District Senior Citizens Centre
- Chain Valley Bay Community Hall

These facilities are currently well utilised, however there are some issues:

- Limited functionality / not suited to the needs of the local community
- Aging facilities in varying condition that require regular maintenance
- Vandalism and Graffiti
- Lack of use by wider community (exclusive use)
- Lack of connection with surrounding open spaces/ parks/ playgrounds

There are also a number of non-council facilities available that have space available for the wider community to hire, however these are predominantly school halls. Most are permanently occupied for after-school activities by private dance groups/ martial arts groups and have very limited additional capacity. This use is obviously meeting a strong demand in the area, but also restricts use by other types of groups.

Lake Munmorah Bowling Club is also available for public hire for functions, with a function area that can be divided into smaller spaces. Traditionally these facilities have provided an option for sporting and larger group activities and private one-off functions but do not meet the demand for flexible multi-use community spaces.



FIGURE 47: CHAIN VALLEY BAY COMMUNITY CENTRE



FIGURE 48: LAKE MUNMORAH SENIOR CITIZENS CENTRE



FIGURE 49: LAKE MUNMORAH COMMUNITY HALL



Vales Point
Power Station

Lake
Macquarie

A



B



C



Lake
Munmorah

LEGEND

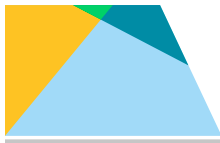
Study Area Boundary



Community Facility - Existing



FIGURE 50: COMMUNITY FACILITIES - EXISTING



4.6 Community

4.6.2 Education Facilities

The study area has 4 primary and secondary schools:

- Lake Munmorah High School - Year 7 to Year 12
- Lake Munmorah Public School - Kindergarten to Year 6
- St Brigid's Catholic College - Year 7 to Year 12
- St Brendan's Lake Munmorah - Kindergarten to Year 6

Demand for new schools will occur as various precincts grow. Local planning will need to accommodate potential new public school sites in consultation with the Department of Education, however there is likely to be enough capacity within the above four schools to accommodate future population growth in the area.

The former Wyong Shire Council's 'Transforming the NSW Central Coast' was used as a key lobbying tool in the lead up to the 2015 State Election, and identified the need for Structure Planning the northern growth areas of the former Wyong LGA, and in particular the greater Lake Munmorah area. 'Transforming the NSW Central Coast' states the following:

'The northern part of Wyong Shire has been earmarked (by the NSW State Government) in the Central Coast Regional Development Strategy 2008 and the North Wyong Shire Structure Plan 2012 for high population growth, with 17,000 additional dwellings and 37,400 new residents expected by 2031. Greater Lake Munmorah is central to this area of the Shire and a series of new, critical pieces of economic and social infrastructure are required, together with the careful planning of environmental areas to cater for this major growth corridor.'

This document addresses a number of issues in the study area, including:

New infrastructure for Lake Munmorah

To support future population growth in this area, Council has requested funding from the State Government to provide essential social and economic infrastructure. This infrastructure includes the Northern Community Hub, Northern Lakes Sporting facility, TAFE facility, Munmorah/Birdie Beach coastal facility, and the Mannering Park Rural Fire Service new facility/equipment.

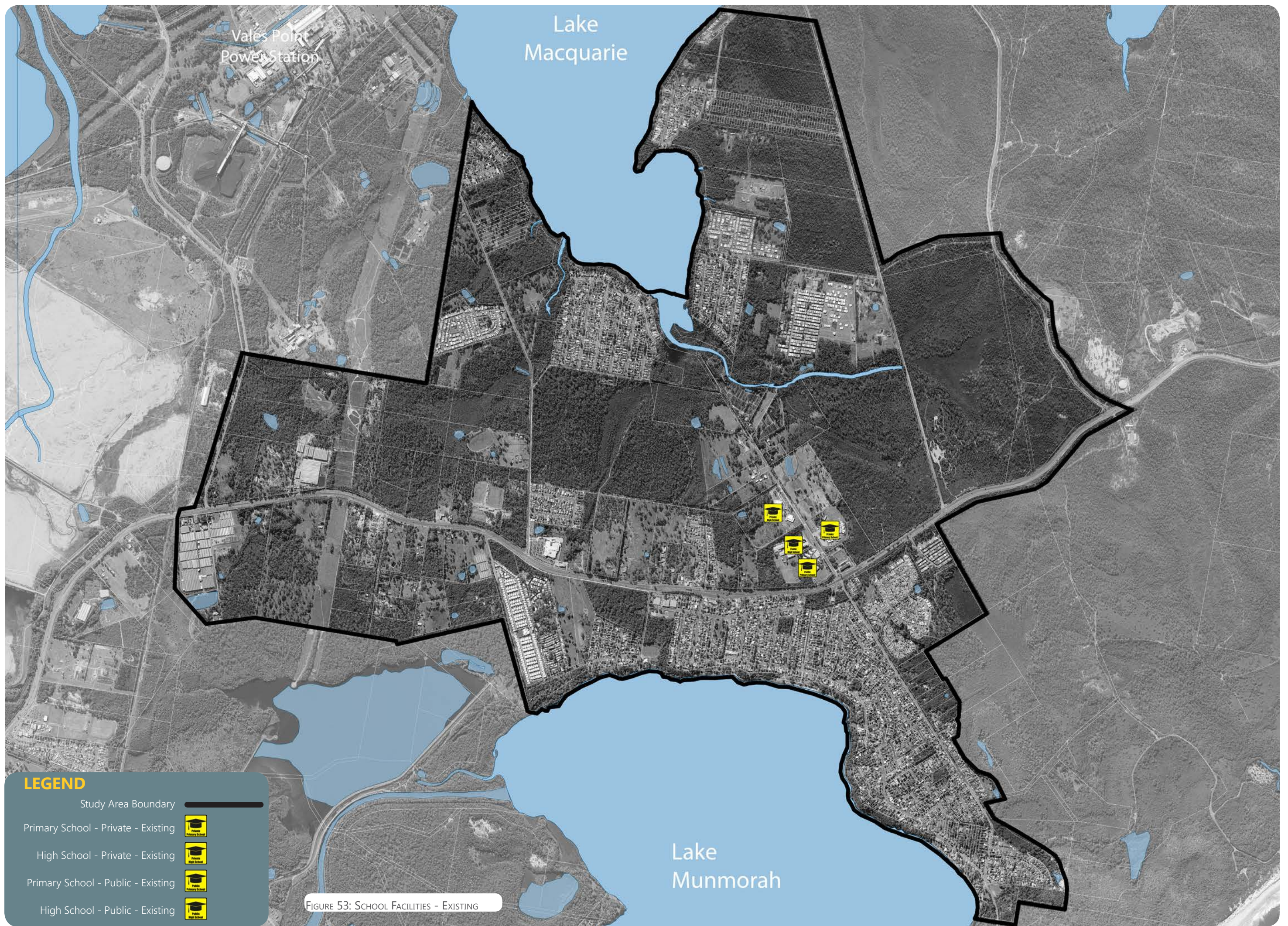
TAFE NSW has been consulted and has advised there are no plans to develop tertiary education within the northern part of the LGA at present.



FIGURE 51: LAKE MUNMORAH HIGH SCHOOL



FIGURE 52: ST BRENDAN'S CATHOLIC COLLEGE





4.7 Economy

4.7.1 Commercial Centres

The Wyong Retail Centres Strategy (2013) considered opportunities for the redevelopment and renewal of existing centres in the LGA as well as the distribution, function, broad land use and urban design criteria of centres. This strategy provides guidance for the Greater Lake Munmorah area:

- Lake Munmorah Local Centre at Tall Timbers Road, Lake Munmorah provides retail services to Lake Munmorah and surrounding localities and comprises 5,500m² of floorspace, including a 3,800m² supermarket; 1,200m² of specialty retail and a 500m² medical centre. Taking into account available expenditure from catchment households and the potential to attract some trade from beyond the catchment, it is estimated that the centre currently needs to attract around 35% of retail expenditure from catchment households. Opportunities to expand will be restricted until there is significant population growth in the catchment.
- Small neighbourhood centres are located at Anita Avenue and Elizabeth Bay Drive, Lake Munmorah, and Lloyd Avenue, Chain Valley Bay. Although neighbourhood centres within the catchment have likely experienced a downturn in sales since the opening of the Lake Munmorah Local Centre, there is sufficient expenditure available within the catchment to support these centres.

4.7.2 Potential New Commercial Centre

There is a general lack of walk-ability to the existing commercial centres for the bulk of the study area. Figure 56 depicts a 1km radius around the B2 Local Centre and 500m radius around the B1 Neighbourhood Centres. The majority of residents are therefore not considered to be within a walk-able distance to these centres. There is also no single commercial and/or civic centre that serves as a focus for the community, as neither the neighbourhood centres nor the local centre function as a community focal point at present, with limited retail choice and services.

A civic centre can contribute significantly to community connectedness. Functional outdoor civic spaces and passive open spaces provide community meeting points and event spaces, and make a centre attractive to visitors. This contributes to community building by encouraging active community participation, and can have positive flow on effects for the economic success of a civic centre. The role of a civic centre for the residents of the study area is currently met by Lake Haven centre, and this will likely continue in the short to medium term.

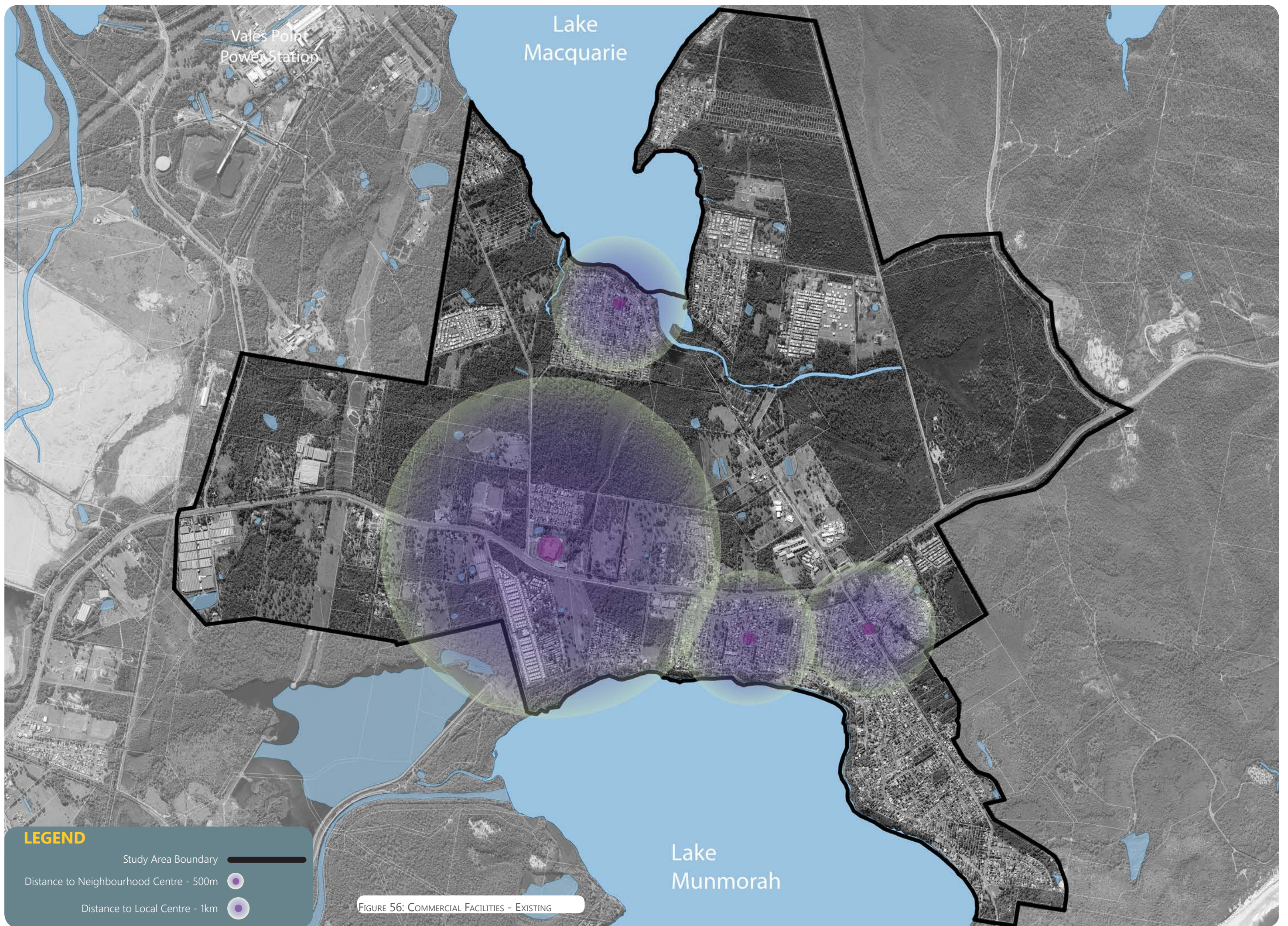
This Structure Plan will consider the appropriate location for a future Town Centre within the study area, and identify ways to attract a variety of uses to activate the site.



FIGURE 54: LAKE MUNMORAH LOCAL CENTRE AT TALL TIMBERS ROAD



FIGURE 55: LAKE MUNMORAH NEIGHBOURHOOD CENTRE



Vales Point
Power Station

Lake
Macquarie

Lake
Munmorah

LEGEND

Study Area Boundary

Distance to Neighbourhood Centre - 500m

Distance to Local Centre - 1km

FIGURE 56: COMMERCIAL FACILITIES - EXISTING



4.7 Economy

4.7.3 Employment Land

The Department of Planning, Industry and Environment defines employment lands as:

“Land zoned for industrial or similar purposes in planning instruments. They are generally lower density employment areas containing concentrations of businesses involved in: manufacturing; transport and warehousing; service and repair trades and industries; integrated enterprises with a mix of administration, production, warehousing, research and development; and urban services and utilities”.

At present there is little in the way of employment lands within the Study Area. With the exception of Vales Point power station (due to close in 2028), the predominant form of employment is services to support the local population including retail and education. Coal fired power is not a sustainable form of power generation in the long-term and thus unlikely to be a driver of future demand for employment land.

As part of this Structure Plan, Council engaged Hill PDA Consultants to prepare an Economic Feasibility Analysis for the study area. As part of this analysis, a strategic assessment of the key strengths and weaknesses for the study area’s economy is as follows:

STRENGTH	Pacific Highway corridor connecting Wyong with Newcastle. Linkages to the M1 Pacific Motorway via the Pacific Highway
WEAKNESS	Close proximity to power generation and transmission assets; bound by power transmission easements and transitional / environmental conservation zones (RU6 and E2); Limited access to ocean and lake; Commercial office and light industrial likely not in line with market requirements
OPPORTUNITY	Underlying land costs are somewhat lower than elsewhere in the region, which could mean lower cost dwelling product to help with more affordable and diverse housing options. Lake Munmorah Local Centre currently supports a catchment of around 10,000 people with additional land to the west to support long term expansion for retail or other services.
THREAT	Future development or redevelopment of power stations or the need for additional expansion of mining assets

The Economic Feasibility Analysis indicates that it is unlikely that future population growth within the Study Area will create demand for large areas of employment land in the short to medium term. In addition, the State Government has plans to investigate the former Munmorah Power Station site for a mix of heavy industrial and general industrial land uses.

Additionally, the study area is viewed to be marginal due to the lack of existing amenities such as a railway station or proximity to M1 Motorway. Employment lands development is more likely to occur in close proximity to larger population catchments and transport routes such as Gosford, Newcastle and Warnervale.

Further, additional development of industrial lands in the Study Area runs the risk of fragmenting the LGA’s existing employment areas, negatively impacting the performance of established centres and employment zones such as the Wyong Employment Zone (WEZ). The underlying mining issues within the study area’s future employment lands will also restrict development for some time.

This Structure Plan will consider ways to address these issues. This also provides an opportunity to identify additional land within the study area for residential development which will create additional housing options and help diversify the housing stock within the study area.

4.7.4 Employment Self-containment

There is little in the way of local employment within the study area. Retail opportunities exist at the Local and Neighbourhood Centres; Education opportunities within the Carters Road school precinct; and a small number of employment opportunities in agriculture as there are horticultural operations at Doyalson North within the western portion of the study area.

This Structure Plan will consider ways to increase employment self-containment for the study area.



FIGURE 57: VACANT FUTURE EMPLOYMENT LANDS - DOYALSON NORTH



4.8 Land Use Conflicts

4.8.1 Current Development Activity

Current Development Activity within Study Area

A number of landowners have expressed an interest in developing land for residential purposes in the area as follows:

- **Chain Valley Bay Proposal:** Planning Proposal initiated on 12 January 2015. The draft concept provides for 600 residential lots.
- **Pacific Highway Proposal:** The landowner is seeking rezoning for residential subdivision.
- **45 Mulloway Road Proposal:** The landowner is proposing to rezone to allow development of a Manufactured Home Estate.
- **15 Mulloway Road Proposal:** Planning Proposal initiated on 16 June 2017. The draft concept provides for approximately 100 residential lots.

Note: Further assessment of these Planning Proposals may result in variation to what is proposed for this Structure Plan.

Current Development Activity outside Study Area

There are additional approved residential land releases in the vicinity of the study area at Wyee, Gwandalan, and Catherine Hill Bay as shown on the map below:

- **Gwandalan South:** 623 dwellings comprising 387 residential dwellings contained in individual lots and 199 seniors living dwelling units.
- **Gwandalan North:** 187 residential dwellings contained in individual lots.
- **Gwandalan Commercial:** An application has been received which proposes the rezoning of the site from IN2 Light Industrial, RE1 Public Recreation, E2 Environmental Conservation to part B2 Local Centre, part R1 General Residential, and part R2 Low Density Residential. The proposed centre could potentially accommodate a supermarket, retail shops, medical centre, child care centre and other community commercial uses. This could have a significant impact on the viability of a new centre within the study area.
- **Wyee:** Yield analysis conducted for the Wyee Local Environmental Study estimates a yield of 1,350 residential dwellings in individual lots.
- **Catherine Hill Bay:** 548 residential lot subdivision has commenced development.

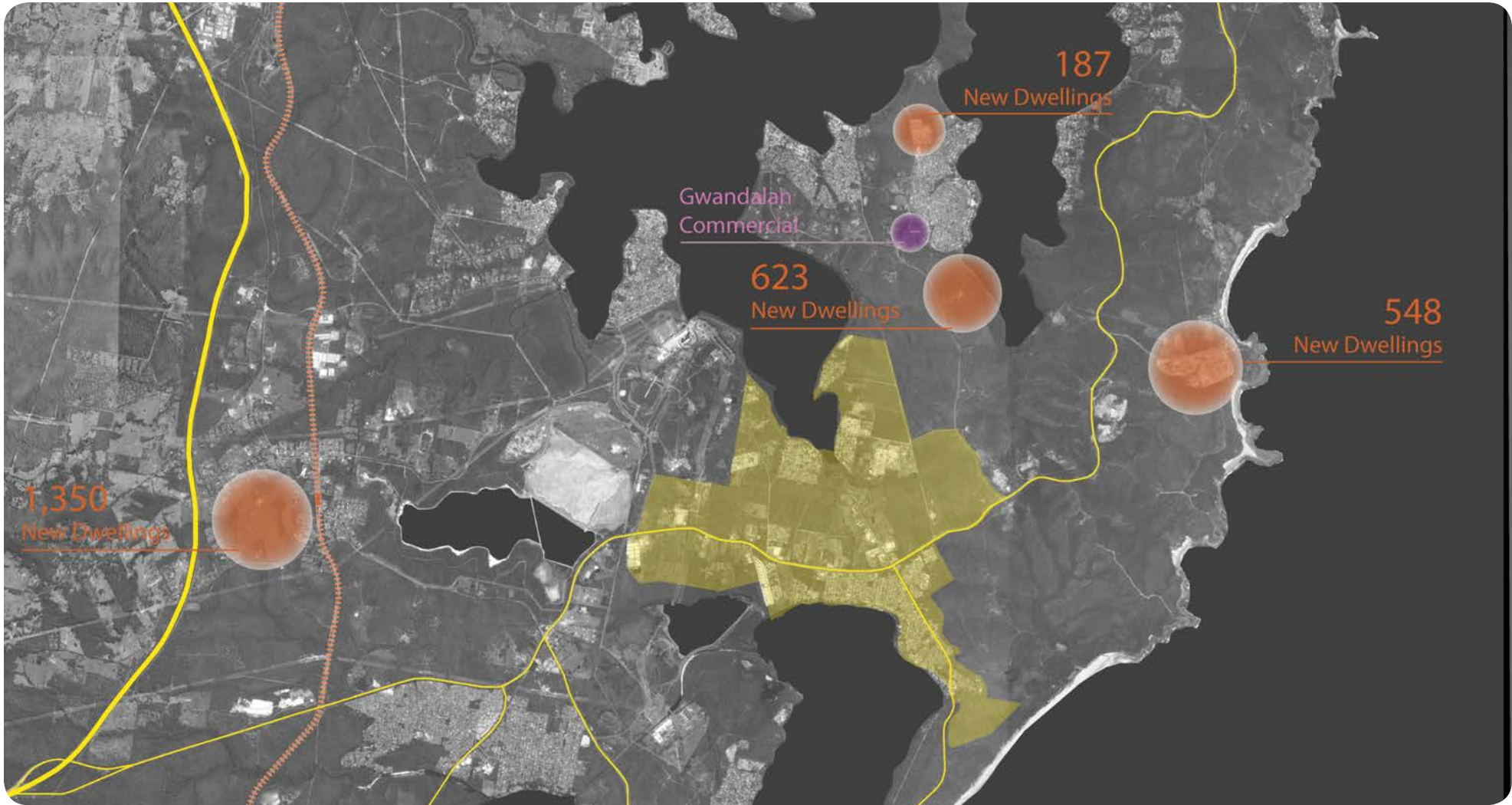
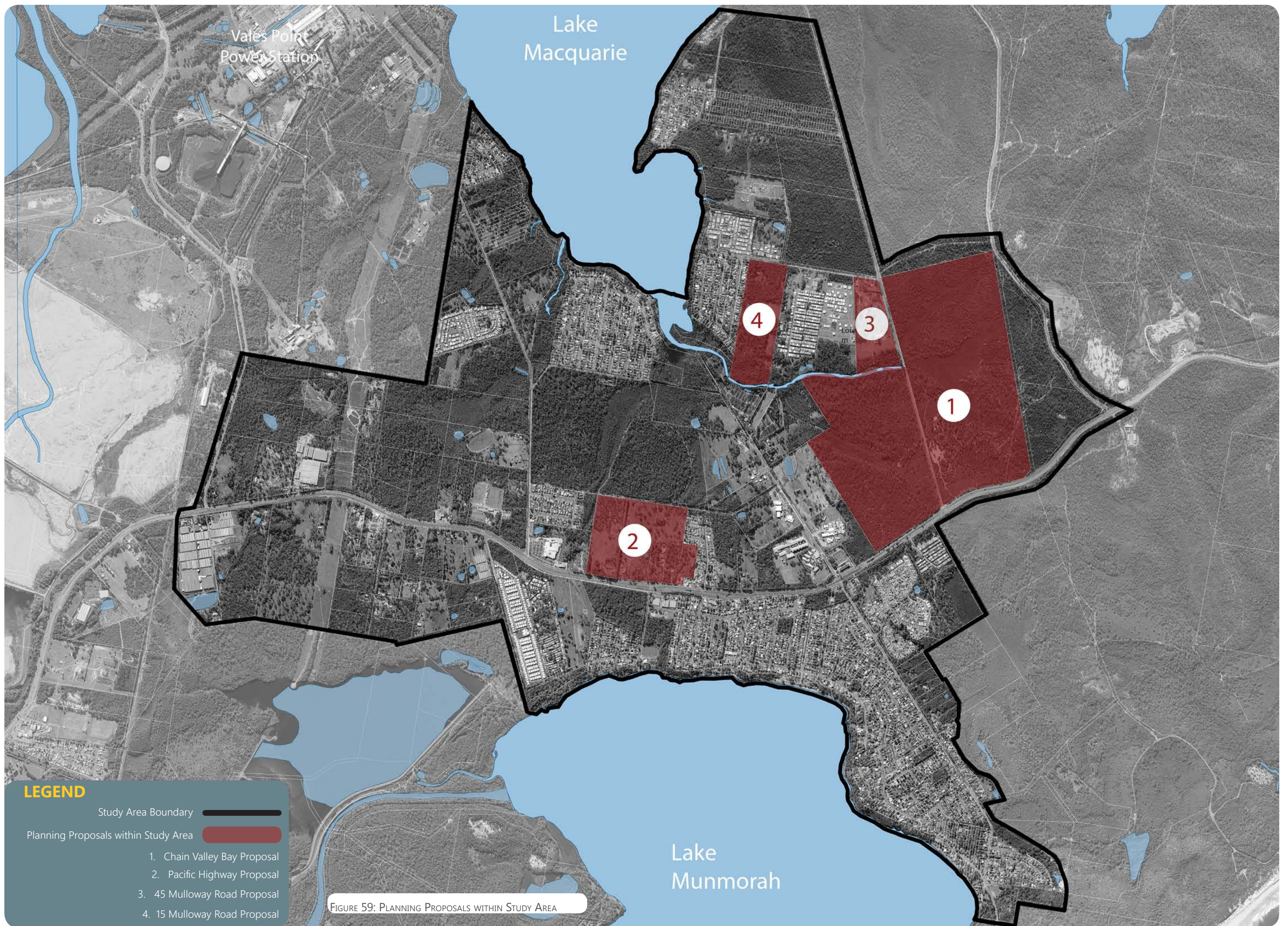


FIGURE 58: CURRENT DEVELOPMENT ACTIVITY OUTSIDE STUDY AREA



LEGEND

Study Area Boundary —

Planning Proposals within Study Area —

1. Chain Valley Bay Proposal
2. Pacific Highway Proposal
3. 45 Mulloway Road Proposal
4. 15 Mulloway Road Proposal

FIGURE 59: PLANNING PROPOSALS WITHIN STUDY AREA



4.8 Land Use Conflicts

4.8.2 Land Ownership

There are significant large landholdings within the study area. The Crown possesses the largest area of land within this area, followed by smaller landholdings by Darkinjung Local Aboriginal Land Council (DLALC) and Council. The remainder of the study area is in private ownership; however there are large parcels of privately owned land, particularly in the north of the study area. Note that the majority of Crown lands in this area have been claimed by the DLALC and these claims are currently being assessed by the State Government.

Crown landholdings may be significant in terms of establishing more permanent and legible connections (including biodiversity corridor connections) between the areas to the north and the south of the Pacific Highway. Council also has a number of strategically located landholdings that have the potential to contribute to these connections, as well as potential for future civic purposes. It is also worth mentioning that 2 very significant landholdings adjoin the study area – being Vales Point Power Station and Lake Munmorah Power Station. Demolition of Lake Munmorah Power Station has already commenced, however Vales Point will remain active until 2028. These sites will require separate Structure Plans/Place Plans due to the complexity of issues.



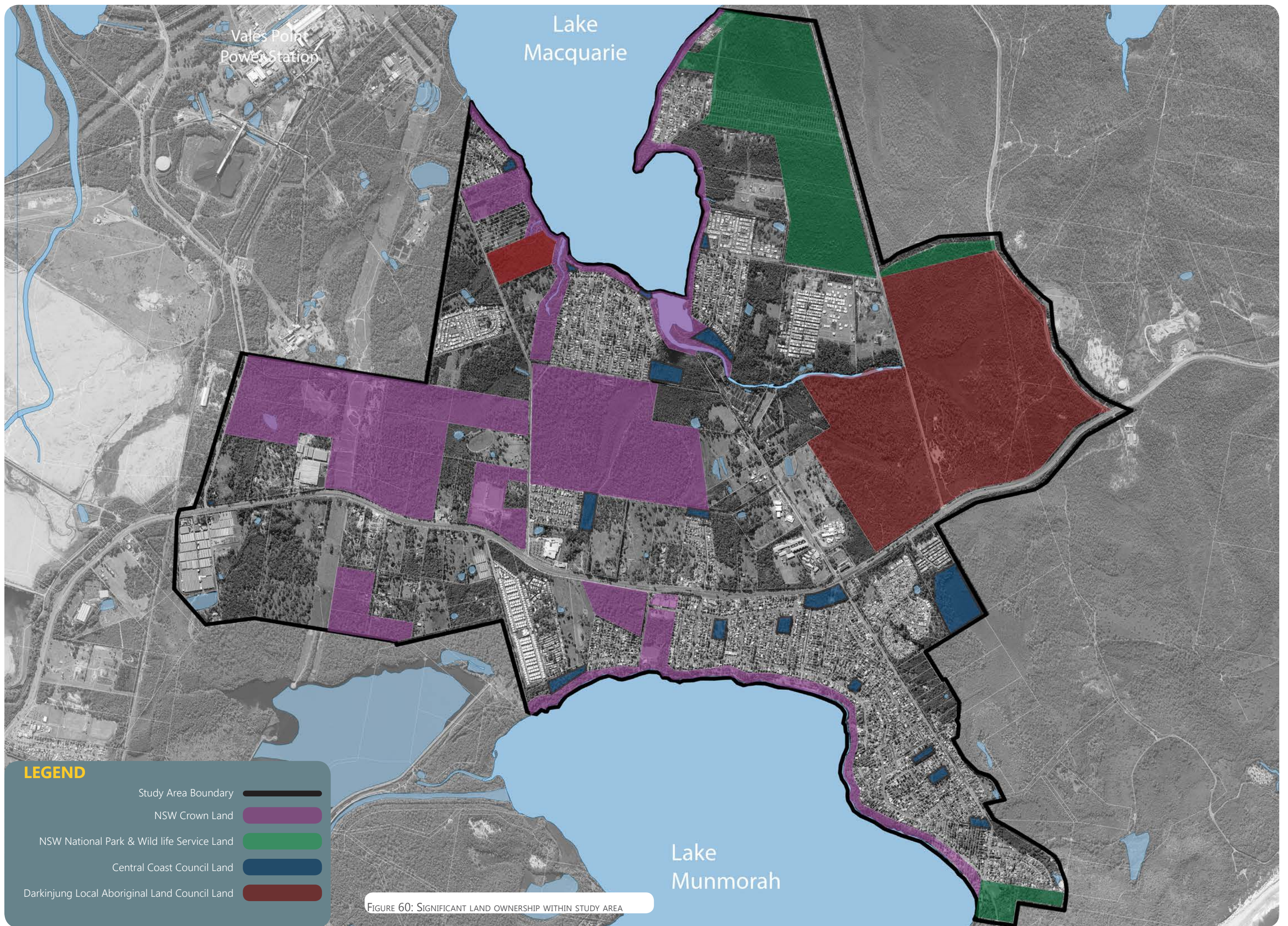


FIGURE 60: SIGNIFICANT LAND OWNERSHIP WITHIN STUDY AREA



4.8 Land Use Conflicts

4.8.3 Mining and Resource Activity

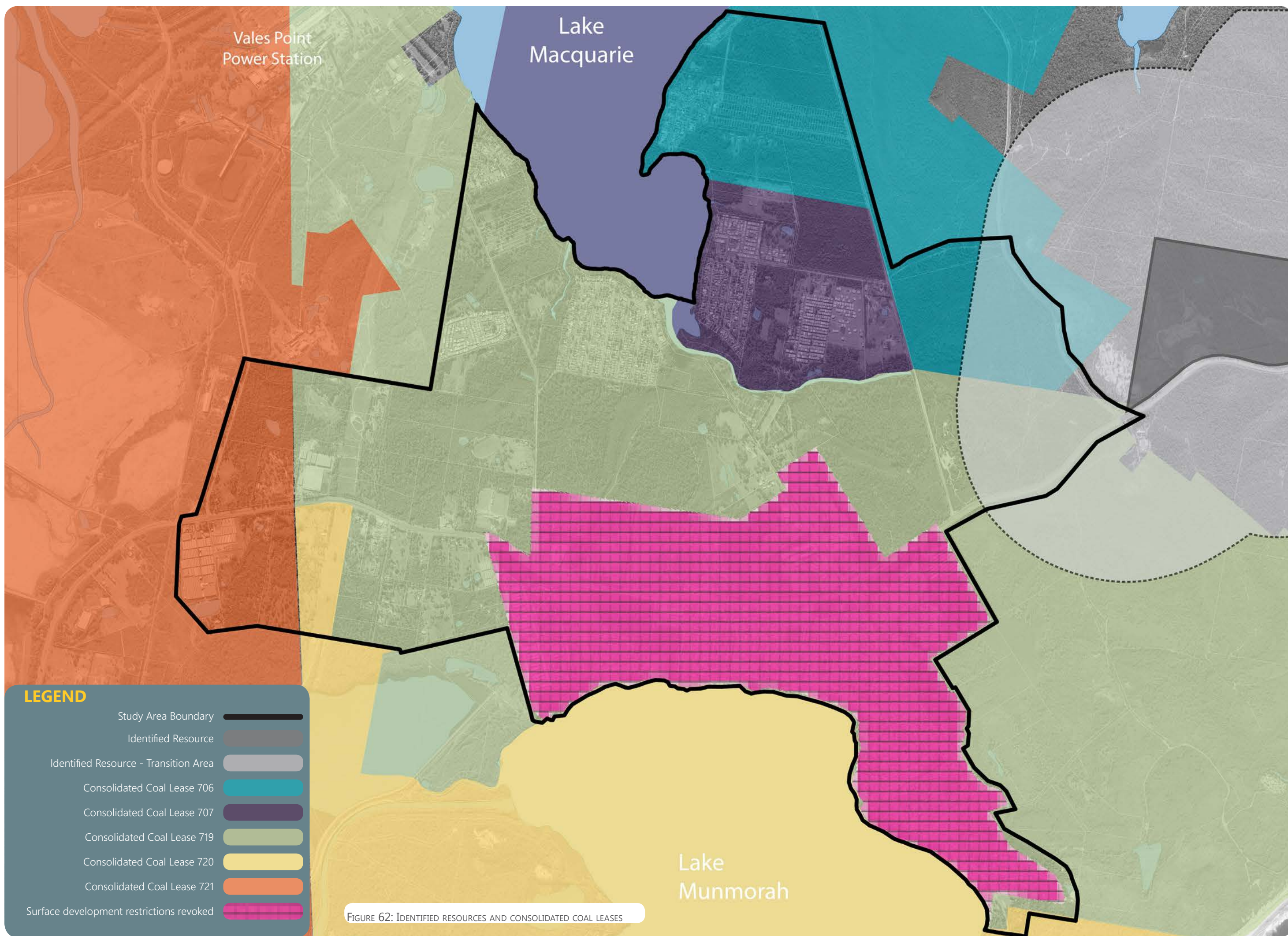
The study area is located within the Swansea North Entrance mine subsidence district. The study area is subject to active mining leases, in particular consolidated coal lease (CCL 719), administered by Centennial Mannering Coal Pty Ltd. Council is advised that plans have not yet been developed for CCL 719 and the resource is not a short or medium term priority. Centennial Mannering Pty Ltd has advised that the majority of the potential future extraction within CCL 719 will likely occur within the Munmorah State Conservation Area.

Development within these areas could be affected by both past and future resource development operations in the adjacent resource areas. Subsidence Advisory NSW applies Surface Development Guidelines to certain areas within Mine Subsidence Districts, to prevent or minimise damage to buildings should subsidence occur. Such properties within mine subsidence districts require special consideration of the likely subsidence issues prior to approval of development.

Consequently, land use recommendations in the study area will need to account for surface development restrictions and extraction potential on these sites. In 2014, the Mine Subsidence Board advised the former Wyong Shire Council that surface development restrictions had been revoked for an area of land located with this Study Area (see Figure 62). Areas outside this area will continue to have surface development restrictions in place, and be reviewed on a case-by-case basis.



FIGURE 61: BORAL CLAY MINE



LEGEND

- Study Area Boundary
- Identified Resource
- Identified Resource - Transition Area
- Consolidated Coal Lease 706
- Consolidated Coal Lease 707
- Consolidated Coal Lease 719
- Consolidated Coal Lease 720
- Consolidated Coal Lease 721
- Surface development restrictions revoked

FIGURE 62: IDENTIFIED RESOURCES AND CONSOLIDATED COAL LEASES



4.9 Character

4.9.1 Built Form

The built form within the study area is widely varied. The architectural character of the study area is generally mixed, with the residential area defined by low density dwellings constructed of varied materials, colours and textures, over a number of design styles. There are also a large number of manufactured home estates and caravan parks that tend to operate as separate residential enclaves, not integrated within the adjoining community. Commercial buildings within the Anita Avenue and Lloyd Avenue neighbourhood centres are modest low-rise structures, with no unifying colour or texture. The Lake Munmorah Local Centre on the Pacific Highway is consistent with contemporary supermarket and small specialty shop retail development.



FIGURE 63: EXAMPLE BUILT FORM IN EXISTING RESIDENTIAL AREA



4.9 Character

4.9.2 Public Domain

The Lake Munmorah Neighbourhood Centre and Chain Valley Bay Neighbourhood Centre are tired and in need of improvements. In particular:

- Due to level changes at the Lake Munmorah Neighbourhood Centre, access to individual shops is in need of improvement, as some shops rely on stairs for customers to gain access.
- The street-scape of these centres is drab and uninviting, with limited consistency and no defined character.
- Both centres are located in close proximity to their respective Lake foreshore areas, however due to private dwellings along the foreshore; these centres have no visual connectivity to the Lakes.
- There is no residential development within these centres, therefore no activity once shops close. Opportunities for improving the night economy will be investigated.



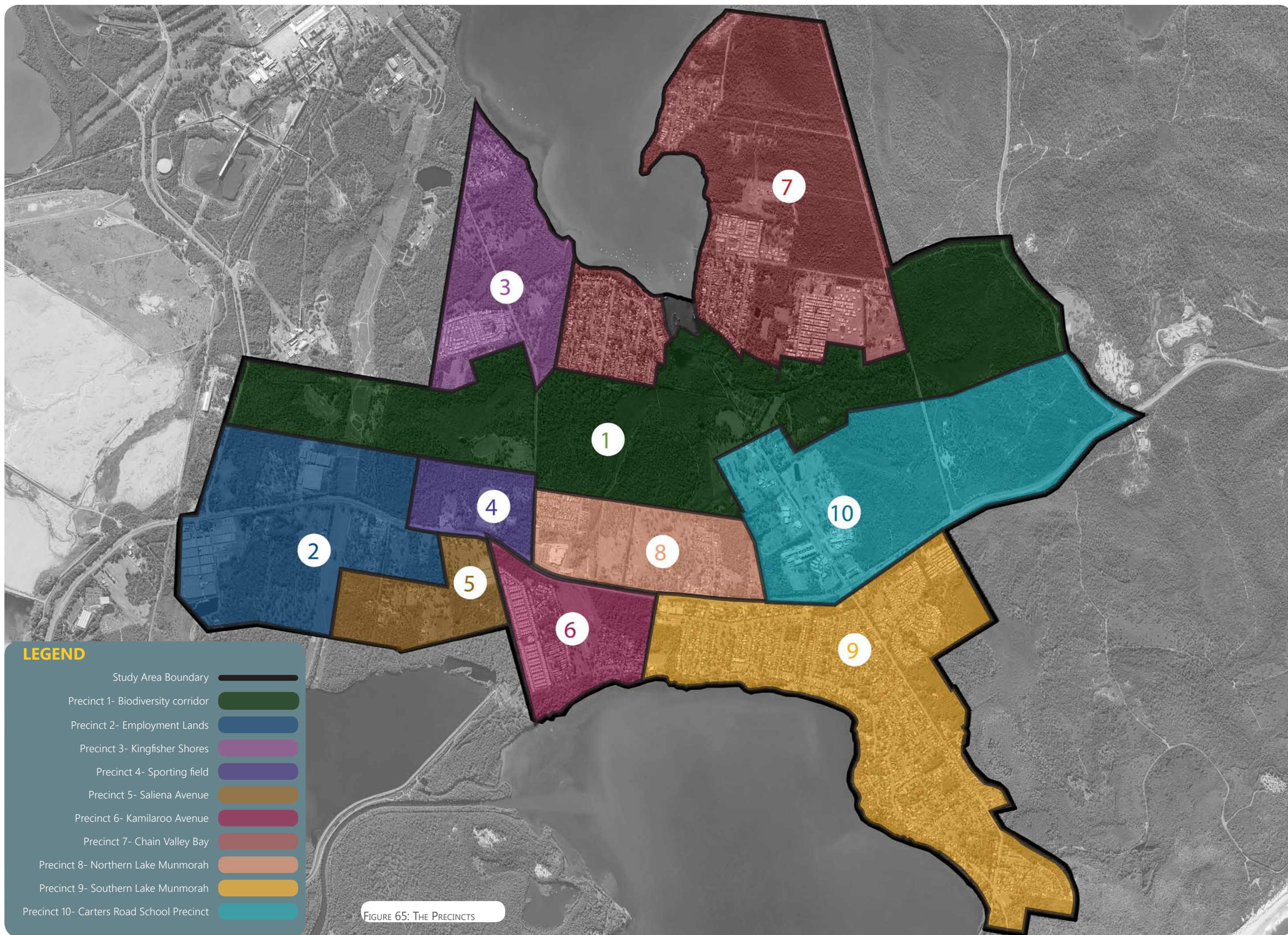
FIGURE 64: EXAMPLE BUILT FORM IN EXISTING COMMERCIAL AREAS



PART 1.

5.0 THE PRECINCTS





LEGEND

Study Area Boundary	
Precinct 1- Biodiversity corridor	
Precinct 2- Employment Lands	
Precinct 3- Kingfisher Shores	
Precinct 4- Sporting field	
Precinct 5- Saliena Avenue	
Precinct 6- Kamilaroo Avenue	
Precinct 7- Chain Valley Bay	
Precinct 8- Northern Lake Munmorah	
Precinct 9- Southern Lake Munmorah	
Precinct 10- Carters Road School Precinct	

FIGURE 65: THE PRECINCTS



The study area has 10 distinct precincts, identified based on existing and future predominant land use directions:

Precinct 1: Biodiversity Corridor

The biodiversity corridor is largely heavily vegetated land that is predominantly owned by the Crown, DLALC or Council. The majority of sites with an environmental zone are located in the northern portion of the study area, and within the Biodiversity Corridor. This Structure Plan will determine how the Biodiversity Corridor influences future land uses in this area.



FIGURE 66: NATIVE BUSHLAND WITHIN BIODIVERSITY CORRIDOR

Precinct 2: Employment Lands

Largely undeveloped land with areas of extensive vegetation. Utilised for agriculture on a larger scale than other precincts.

Precinct 3: Kingfisher Shores

Comprises largely undeveloped land with the exception of the small Kingfisher Shores residential area and a manufactured home estate. The land within this precinct is predominantly zoned RU6 Transition, utilised as a holding zone prior to investigations being carried out to determine suitability for future residential uses. The mining and resource restrictions in this area will also be addressed. This precinct also includes linear foreshore reserve along the Lake Macquarie foreshore area. This Structure Plan will review these areas and consider the role of each site within a broader recreation hierarchy for the study area.

Precinct 4: Sporting field

Includes the Crown-owned Gumbayah Oval Sporting field, and 3 privately-owned, moderately vegetated properties. Gumbayah Oval is the only Sporting field within the study area, and is in the care and control of Council. The land within this precinct is predominantly zoned RU6 Transition, utilised as a holding zone prior to investigations being carried out to determine suitability for future residential uses.

Precinct 5: Saliena Avenue

Largely undeveloped land with areas of extensive vegetation and a number of large allotments with single dwellings. The land within this precinct is zoned RU6 Transition, utilised as a holding zone prior to investigations

being carried out to determine suitability for future uses.

Precinct 6 – Kamilaroo Avenue

Comprised of 2 large manufactured home estates, 2 undeveloped parcels of land and an area of existing low density residential development. The undeveloped land within this precinct is zoned RU6 Transition, utilised as a holding zone prior to investigations being carried out to determine suitability for future residential uses.



FIGURE 67: KAMILAROO AVENUE, LAKE MUNMORAH



Precinct 7 – Chain Valley Bay

Low density settlement typified by a mix of one and two storey single dwellings in weatherboard, brick, and fibro-cement. Chain Valley Bay North comprises a large area of undeveloped land, and 2 manufactured housing estates. This precinct also includes linear foreshore reserve along the Lake Macquarie foreshore area. This Structure Plan will review these areas and consider the role of each site within a broader recreation hierarchy for the study area.

A neighbourhood centre is located at Lloyd Avenue, Chain Valley Bay South. This small centre comprises a café, local convenience store and bottle shop. Due to the close proximity of the neighbourhood centre to the Lake Macquarie foreshore, the centre may continue to attract 'top-up' trade from local residents and visitors using the lakes for recreational purposes. This Structure Plan will consider the long-term role and function of the neighbourhood centre. Opportunities may exist for a small leisure and dining precinct in this area with connections to the lake foreshore. This may serve as a point of difference to the Lake Munmorah Local Centre at Tall Timbers Road, and may improve long term viability.

Precinct 8 – Northern Lake Munmorah

Primarily contains single dwellings on large allotments; however 2 areas of existing low density residential development are also present. A large proportion of the precinct is zoned RU6 Transition, utilised as a holding zone prior to investigations being carried out to determine suitability for future uses.

The precinct also contains the Lake Munmorah Local Centre, the primary commercial centre for the study area, including a major supermarket. This site is zoned B2 Local Centre zone. This centre has become a key local retail centre for residents of the north-eastern Central Coast LGA and the south-east of Lake Macquarie LGA, providing both a supermarket and specialty shops. The zoning of this site enables further expansion of this centre to provide a wider range of services and facilities to cater for future population

and employment growth. This Structure Plan will consider how this centre will evolve over time, including suitable adjacent land uses.

The CCRP encourages concentrations of medium density residential living around commercial centres which provides retail, health, business and other services. This Structure Plan will review residential densities in order to facilitate aging in place and housing diversity.

Precinct 9 – Southern Lake Munmorah

Contains the major existing residential precinct within the study area, a low density settlement typified by a mix of one and two storey single dwellings in weatherboard, brick, and fibro-cement. This precinct includes the Lake Munmorah Reserve which adjoins the Lake Munmorah foreshore. This site is owned by Crown Lands, and is currently used only for passive recreation due to the gradient of the open space area being inappropriate for organised sports. This precinct also includes numerous small reserves within the residential areas and a linear reserve along the Lake Munmorah foreshore area. Visual and physical connection to the foreshore is limited. This Structure Plan will review these areas and consider the role of each site within a broader recreation hierarchy for the study area.

A neighbourhood centre is located at Anita Avenue, Lake Munmorah. This centre comprises retail and local business services. Due to the close proximity of the neighbourhood shops to the Lake Munmorah foreshore, the neighbourhood centre continues to attract 'top-up' trade from local residents and visitors using the lake for recreational purposes. This Structure Plan will consider the long-term role and function of the neighbourhood centre. Opportunities may exist for a small leisure and dining precinct in this area with connections to the lake foreshore. This may serve as a point of difference to the Lake Munmorah Local Centre at Tall Timbers Road, and may improve long term viability.

This Structure Plan will review opportunities for the provision of additional residential land within the precinct to allow for the short, medium and long term growth of the area.

Precinct 10: Carters Road School Precinct

There are four schools located within the study area that form a precinct at Carters Road:

- Lake Munmorah Primary School
- St Brendan's Catholic Primary School
- Lake Munmorah High School
- St Brigid's Catholic College.

These schools (with the exception of St Brigid's Catholic College) are currently zoned SP2 Educational Establishment. This zoning has been applied as the general approach taken for infrastructure such as education sites to be zoned to a special use zone. St Brigid's Catholic College is zoned RU6 Transition, reflecting its previous zoning of 10(a)(Investigation Precinct Zone).

The precinct also contains a number of large allotments with single dwellings. This precinct also includes a significant landholding by Darkinjung Local Aboriginal Land Council. The undeveloped land within this precinct is predominantly zoned RU6 Transition, utilised as a holding zone prior to investigations being carried out to determine suitability for future residential uses. The mining and resource restrictions in this area will also be addressed as part of this process.



FIGURE 68: CARTERS ROAD, LAKE MUNMORAH

Summary

Key outcomes of this Structure Plan will be:

- To review the current zoning within the study area and determine appropriate zone changes based on current environmental, economic and social characteristics and associated land use opportunities and constraints, with a view to facilitating growth, encouraging aging in place and retaining & enhancing the coastal village character
- The mining and resource restrictions in this area will also be addressed as part of this process.
- To identify appropriate staging of precincts and facilitate the orderly development of land within the study area.

*** PLEASE NOTE THAT IN ORDER TO KEEP THE NUMBER OF PRECINCTS TO A MANAGEABLE LEVEL, SOME AREAS OF CERTAIN PRECINCTS MAY NOT FIT THE DESCRIPTION OF THE PRECINCT. FOR EXAMPLE, LAND OWNED BY THE NATIONAL PARKS AND WILDLIFE SERVICE IS LOCATED WITHIN PRECINCT 7 - CHAIN VALLEY BAY. THIS IS NOT BE INTERPRETED THAT THIS AREA IS UNDER REVIEW FOR ANY PURPOSE OTHER THAN CONSERVATION LAND.**

PART 2. **THE WAY FORWARD**

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- 8.9 Southern Lake Munmorah
- 8.10 Carters Road School Precinct



9.0 THE STRUCTURE

9.1 The Structure Plan

10.0 IMPLEMENTATION

10.1 Precinct Planning + Staging

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10.4 Action Summary Table

10.5 Ongoing Actions and Advocacy



PART 2.

6.0 COMMUNITY VISION







6.1 Public Exhibition

The engagement period for the Greater Lake Munmorah Structure Plan ran for 60 days between March-May 2019. During this time, 48 formal submissions were received, and 214 pins dropped on the Social Pinpoint interactive map of the area.

Council staff were available for a 5-hour period and 3-hour period over 2 separate days at Lake Munmorah Bowling Club, during which time 168 people participated face to face with Council staff.

Drop-in Sessions / Social Pinpoint

The majority of comments received at both the drop-in information sessions, and Social Pinpoint interactive mapping were in relation to:

- Recreation – Need for improved quality/more options (31)
- Roads - Safety/Capacity (27)
- Recreation - Pathways (24)
- Environment (22)
- Roads - Condition (20)
- Water quality of Lake Munmorah / Lake Budgewoi (17)
- Flood mapping (7)

Written submissions

The majority of written submissions received were in relation to:

- Environment (12)
- Roads - Safety/Capacity (12)
- Public transport (8)
- Economy (8)
- Recreation - Pathways (6)
- Redundant electricity easement - Carters Road (6)

Our Engagement Program....



48 formal submissions were received



214 pins dropped on social pinpoint



168 people participated face-to-face at 2 drop-in sessions



3,000 social media users reached

What the community said....



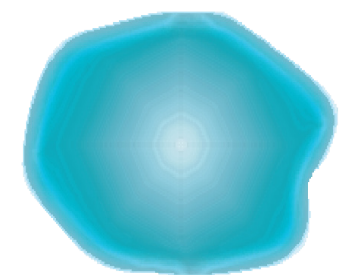
Maintain environmental quality



Improved recreation options



Better road infrastructure



Better lake quality



6.2 Community Feedback

Based on the community consultation, the 3 main issues of concerns to the Greater Lake Munmorah community are:

- Adequate provision and quality of recreation facilities, including pathways
- Improved road maintenance and infrastructure
- Ensuring the protection of the areas unique environmental attributes in perpetuity.

These results generally align with the results of the Community Strategic Plan engagement period for the Northern Lakes area, with the 3 major areas identified for improvement being:

- Improved road maintenance and infrastructure
- Improved drainage / kerb and guttering
- Improved pathways

The Structure Plan aims to improve the key issues of transport, recreation, and environment. Other issues, such as lake quality and kerb and guttering, are beyond the scope of this study.



FIGURE 69: COMMUNITY STRATEGIC PLAN RESULTS - NORTHERN LAKES



PART 2.

7.0 OPPORTUNITIES





7.1 Environment

7.1.1 Biodiversity Corridors

Principle:

Ensure future development is undertaken in a manner sensitive to the natural environment, and improves long term environmental outcomes.

ISSUES

- Ecologically Endangered Communities (EECs) and threatened species.
- Lack of clarity around purpose and boundary of regional biodiversity corridor.

OPPORTUNITIES

Biodiversity Corridor:

In 2002, Austeco Environmental Consultants (on behalf of the former Wyong Shire Council) prepared “Fauna Habitat Modelling and Wildlife Linkages in Wyong Shire”, which identified that a corridor width of 1600m is desirable for a regional corridor, to enable optimum movement of species.

This Structure Plan presents an opportunity to provide more guidance as to the regional biodiversity corridor boundaries. Due to existing land use patterns, the width of the regional biodiversity corridor is generally only 400-600 metres wide. There is one “pinch point” located at the end of Carters Road, where due to land clearing the effective width of the corridor reduces to 100-150 metres. However, the full width of the corridor in this location is between 340m-500m, in accordance with the NWSSP which advises that:

“The green corridor also includes areas that have been disturbed and degraded as a result of past landuse, however are also strategically located in terms of conservation connectivity and which can potentially be revegetated in the future.”

Whilst public land comprises the majority of the biodiversity corridor, there are also areas of privately owned land. Private landowners are encouraged to review NSW biodiversity conservation legislation, in order to learn more about agreements that landholders can enter to conserve biodiversity on their land. Landholders can receive payment for biodiversity credits and site management created under such agreements, which can be used to offset development impacts elsewhere as part of the Biodiversity Offsets Scheme.

EECs and threatened species:

It is recommended that Council pursue:

- Installation of wildlife connectivity structures at key locations across the Pacific Highway, which could include aerial crossings or underground crossings similar to drainage culverts which can be utilised by ground dwelling fauna. Wildlife connectivity structures minimise road-kill incidents, if utilised with exclusion fencing that direct fauna towards the structures.
- Street tree plantings along the wider parts of the median strip along the Pacific Highway corridor. This will assist in safe crossing opportunities for arboreal species.
- Regeneration of natural bushland to the north of the Vales Point Power Station ash dam, and stringent management requirements as part of any future redevelopment plans for the site. This will enable the regional corridor to maintain viability for movement and habitat purposes.
- Strategic land purchases within the biodiversity corridor as part of the Coastal Open Space System.

The following issues should be reviewed in conjunction with separate ecological studies, as part of precinct-based rezoning investigations:

- Consider the appropriateness of existing zones within the biodiversity corridor. It is noted that the RE1 Public Recreation zone over a large

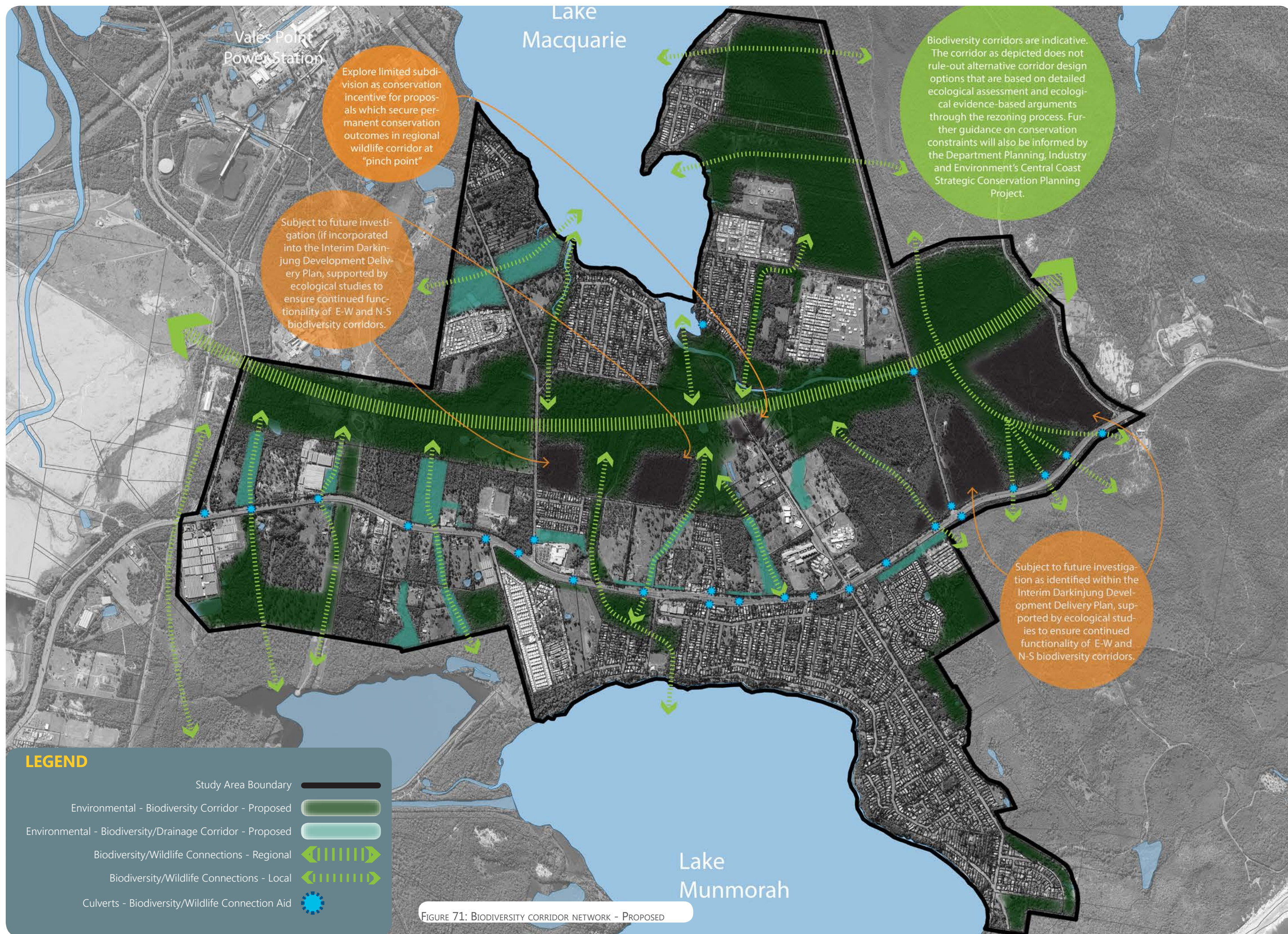


FIGURE 70: EXAMPLE AERIAL CONNECTIVITY STRUCTURE

area of the corridor is inappropriate and should be resolved as part of an amendment to the future Central Coast LEP.

- Identify appropriate zoning changes to introduce environmental zones based on environmental attributes and the need to define the biodiversity corridor.

ACTION	RESPONSIBILITY	TIMING
As part of precinct-based rezoning investigations, review land zoning within the biodiversity corridor taking into account the vision and objectives of the Structure Plan.	Council	Ongoing
Advocate for installation of biodiversity crossing structures and exclusion fencing across the Pacific Highway corridor, to reduce both fauna crossing barriers and road-kill incidents.	Council / TfNSW	Medium term
Advocate for a program of street tree plantings along the wider parts of the Pacific Highway median strip, to provide safer crossing opportunities for avian and glider species.	Council / TfNSW	Medium term
Advocate for regeneration of natural bushland to the north of the ash dam, and stringent management requirements as part of any future redevelopment plans for the Power Station site.	Council / Landowner	Long Term





7.1 Environment

7.1.2 Scenic Amenity

Principle:

Ensure future development is undertaken in a manner sensitive to, and enhances the natural attributes of the area.

ISSUES

- No and/or limited visual connections along public streets to the lake foreshore.
- Cluttered visual landscape which often interferes with the natural beauty of the area.

OPPORTUNITIES

- Enhance visual connection to the foreshore (in particular to Lake Munmorah Reserve) to improve amenity as well as passive surveillance. Council should retain and where possible, widen access to the foreshore to improve this visual connection to the foreshore and increase public amenity.
- Improve the quality of access paths to the Lakes by providing footpaths and beautification measures.
- Encourage the under-grounding of existing electricity supply infrastructure in high profile locations. All new electricity supply infrastructure must be provided underground, where possible.
- Undertake a sign audit and remove old and redundant signs, replace with new or consolidated signs where possible, and provide a consistent style. Limit the proliferation of signs to avoid visual clutter.
- Facilitate the provision of appropriately designed and sited way-finding signs, including consistent way-finding signage to improve visual con-

nections to the Lakes.

- Provision of green spaces, landscaped buffers and appropriate street planting will assist in softening the visual impacts associated with urban development in this area. As part of new developments, a vegetated reserve must be provided to the Pacific Highway, to provide a highway buffer for residents, as well as to improve visual amenity of the area.



FIGURE 72: TYPICAL ACCESS TO FORESHORE AT LAKE MUNMORAH



FIGURE 73: TYPICAL ACCESS TO FORESHORE AT CHAIN VALLEY BAY

ACTION	RESPONSIBILITY	TIMING
Undertake a sign audit and remove old and/or redundant signs, replace with new or consolidated signs where possible, and provide a consistent style.	Council	Medium
Encourage the under-grounding of existing electricity supply infrastructure in high profile locations. All new electricity supply infrastructure must be provided underground, where possible.	Council	Ongoing
As part of a new Greater Lake Munmorah DCP Chapter, require a vegetated landscape treatment be provided to the Pacific Highway, to provide a buffer for residents and to improve visual amenity of the area.	Developer	Ongoing



7.1 Environment

7.1.3 Coastal Protection

Principle:

Ensure future development does not reduce water quality and amenity of the Lake Munmorah waterbody

ISSUES

- Community perception of poor water quality and amenity issues within and adjacent to the Lake Munmorah waterbody.
- Increased sediment/nutrient loads to Lake Munmorah can cause algal blooms, poor water quality and damage to habitats like seagrass.
- Amenity issues associated with seagrass “wrack”. Too much wrack can produce odours and reduce amenity.

OPPORTUNITIES

- The design and construction of stormwater drainage systems is required to limit the flow of sediments and nutrients into the lakes from new developments.
- Ensure that new developments do not increase nutrient and sediment loads and water flows above their natural levels



FIGURE 74: LAKE MUNMORAH



FIGURE 75: BOAT RAMP, ELIZABETH BAY DRIVE

ACTION	RESPONSIBILITY	TIMING
In accordance with the relevant DCP Chapter, ensure that new developments do not increase nutrient and sediment loads and water flows above their natural levels, and are undertaken using best practice for stormwater or urban water quality design.	Council	Ongoing



7.2 Hazards

7.2.1 Bushfire, Contamination, Erosion

Principle:

Ensure future planning for this area is undertaken with appropriate mitigation of the natural hazards affecting the area.

ISSUES

- Significant bushfire hazard.
- Potential land contamination - Properties identified on Council's contaminated land register
- Prevalence of dispersive soils, particularly in vicinity of Karignan Creek.

OPPORTUNITIES

Bushfire

- Where possible, ensure future development areas are not situated within high hazard bushfire areas. New development will be directed into locations of lower bushfire risk and shall be designed and constructed to mitigate the risks from bushfire, for example by minimising the number of properties with direct exposure to biodiversity corridors. This can be done by ensuring that new residential subdivisions incorporate roads as buffers between private properties and the vegetation in the biodiversity corridor. This will ensure that bushfire protection measures such as Asset Protection Zones (APZs) do not require removal of significant vegetation and biodiverse habitats.
- This will also result in beneficial outcomes in relation to vegetation management, emergency service access and passive surveillance.

Contamination

- Mitigate risks associated with potential contamination issues. Be mindful of potential contamination issues on various identified sites when recommending rezoning of these sites. Contamination studies may need

to be carried out for certain sites proposed for residential or certain business uses, however it is likely that these studies will not be required until after the Gateway Determination stage.

Dispersive soils

- These soils erode easily and lead to sedimentation concerns in Lake Macquarie. This may also be a problem elsewhere in the study area and a geotechnical study may be necessary to develop on these sites, at Planning Proposal stage.



FIGURE 76: ASSET PROTECTION ZONE AT CHAIN VALLEY BAY



FIGURE 77: NATIVE VEGETATION, CHAIN VALLEY BAY

ACTION	RESPONSIBILITY	TIMING
As part of a new Greater Lake Munmorah DCP Chapter, require geotechnical studies be prepared as part of development proposals on sites subject to dispersive soils.	Developer/ Council	Ongoing
As part of a new Greater Lake Munmorah DCP Chapter, require new development incorporates roads as buffers between private properties and vegetation in the biodiversity corridor.	Developer/ Council	Ongoing



7.2 Hazards

7.2.2 Flooding

Principle:

Ensure future planning for this area is undertaken with appropriate mitigation of the natural hazards affecting the area.

ISSUES

- Significant flood hazard.

OPPORTUNITIES

Flooding and Drainage

- Ensure future development areas are not situated within high hazard flood prone areas. The future development precincts (subject to investigation) have been identified based on the flood constraints of the land.
- The Central Coast Local Environmental Plan and Central Coast Development Control Plan also contains measures to control what development is permitted on flood prone lands.
- In terms of stormwater flow, this Structure Plan recommends/requires that existing creeks, dams/water bodies and overland flow paths be retained as part of future developments and incorporated into the overall drainage strategy. This is the most cost efficient way of addressing stormwater overland flows, and also provides visually pleasing landscape features for the local neighbourhood and flora/fauna to enjoy.

- Reducing the direct connection of stormwater pipes to these Lake Munmorah and Lake Macquarie waterways, through the use of water sensitive urban design and the construction of wetlands/detention basins will be important techniques in reducing the overall stormwater load on our natural waterways.
- Any increased drainage load resulting from development will need to be accommodated in water sensitive design measures across the study area. Land development and roads will include swales, detention basins and other storm water infrastructure



FIGURE 78: FLOODED VEGETATION AT CHAIN VALLEY BAY



FIGURE 79: LAKE MUNMORAH FORESHORE

ACTION	RESPONSIBILITY	TIMING
As part of a new Greater Lake Munmorah DCP Chapter, require retention of overland flow paths in most instances. Piping of flows is generally not supported.	Developer / Council	Ongoing
In accordance with the relevant DCP Chapter, ensure development on flood prone land is assessed on its merits, while ensuring the impacts of flooding on the community are reduced using ecologically positive methods.	Developer / Council	Ongoing



7.2 Hazards

7.2.3 Climate Change

Principle:

Ensure future planning for this area is undertaken with appropriate mitigation of the natural hazards affecting the area.

ISSUES

- A changing climate that can cause more extreme weather events.

OPPORTUNITIES

Addressing Urban Heat

- Increase shade trees to roadways, pathways and parklands to increase comfort for pedestrians and cyclists, by implementing a street tree planting program on targeted streets. This Structure Plan proposes a street tree planting program on the following key road connections:
 - Pacific Highway (subject to TfNSW approval)
 - Tall Timbers Road
 - Carters Road
 - Elizabeth Bay Drive
 - Chain Valley Bay Road
- Carters Road in particular is an ideal location to implement a street tree planting project, given the proximity to 4 schools in this area. A tree-lined street would provide school children with shaded areas to walk, cycle or play.
- New road connections identified within this Structure Plan will also incorporate street tree plantings, in particular the roads that will connect Tall Timbers Road and Carters Road, and Carters Road and Chain Valley Bay Road.

Addressing more intense rain events

- Retrofit roadside kerb and gutter systems using water sensitive urban design.
- Require new developments to utilise water sensitive urban design for kerb and gutter systems, as well as the construction of wetlands/detention basins. These measures will be important techniques in reducing the overall stormwater load on our natural waterways.
- Overland flow paths need to be retained wherever possible. Council supports the retention of surface overland flow paths over the piping of flows underground. Overall this will support better outcomes for the community and provide increased habitat for flora and fauna within the study area.



FIGURE 80: SHADED LAKEFRONT RESERVE, CHAIN VALLEY BAY



FIGURE 81: SHADED STREET VERGE PROVIDING SHELTER FOR PEDESTRIANS

ACTION	RESPONSIBILITY	TIMING
Implement a street tree planting program on the following streets: 1. Tall Timbers Road 2. Carters Road 3. Elizabeth Bay Drive 4. Chain Valley Bay Road	Council / Developer	Long-Term
In accordance with the relevant DCP Chapter, ensure that Water Sensitive Urban Design is integrated into new development.	Council / Developer	Ongoing



7.3 Servicing

7.3.1 Infrastructure Sequencing

Principle:

Ensure future planning is undertaken in a sequence that minimises lead-infrastructure costs.

ISSUES

- Sequencing of development – Increased costs for development out-of-sync with NWSSP timeframes.
- Sequencing of development – Who is responsible for lead-in infrastructure?

OPPORTUNITIES

A development sequencing plan has been developed, based on a number of criteria, including the level of difficulty involved in the provision of water and sewer servicing. This issue was considered a major criterion, and the rankings were more heavily weighted towards precincts that were considered the most cost-effective to service. See the “Precincts” section of this chapter for more information.

Ensure future planning for this area is undertaken with a sound knowledge of the capacity of current and future servicing infrastructure within the area.

Infrastructure and services required to meet the needs of development within the study area include:

In order to ensure that lead-in and other essential infrastructure is not delayed unnecessarily, Council will review the Development Servicing Plan (DSP) for this area, and prepare a Development Control Plan (DCP) chapter for this area, taking into account this Structure Plan, and incorporating any parts of the study area that have previously not been included within the DSP.

INFRASTRUCTURE REQUIRED	FUNDING MECHANISM
Local roads including intersection and traffic management	Developers / TfNSW / Council
Local shared pathways	Developers / Planning Agreement / Council.
Local bus stop infrastructure	Developers / Planning Agreement / Council.
Landscaping of roadsides, including appropriate street trees.	Developers / Planning Agreement / Council.
Drainage infrastructure, including pipes and culverts.	Developers / Planning Agreement / Council.
Water and sewerage infrastructure, including any required works to STP to reduce odour.	Developers / Planning Agreement / Council.
Fencing	Developers
Electricity, gas, and telecommunications infrastructure.	Utility service providers.
Construction of/improvements to active/passive open space.	Developers / Planning Agreement / Council.



FIGURE 82: ELECTRICITY INFRASTRUCTURE



FIGURE 83: ELECTRICITY INFRASTRUCTURE

ACTION	RESPONSIBILITY	TIMING
Review the Development Servicing Plan for the study area.	Council	Short Term



7.3 Servicing

7.3.1 Infrastructure Sequencing (Continued)

Principle:

Ensure future planning is undertaken in a sequence that minimises lead-infrastructure costs.

ISSUES

- Sewer Servicing – Capacity constraints
- Sewage Treatment Plant – Odour issues for certain precincts
- Easements – Significant TransGrid transmission line easement within the study area.

OPPORTUNITIES

Sewer Servicing

- The topography of the study area divides the potential development precincts into several Sewage Pumping Station (SPS) catchments with capacity constraints within the majority of those catchments. This requires a combination of gravity main upgrades, sewage pumping station upgrades and rising main upgrades in addition to the construction of new sewage pumping stations/rising mains to service proposed developments. A hydraulic sewer model for these catchments will need to be prepared by Council, to undertake a holistic capacity review and refine the existing high level capacity assessments previously undertaken as part of Council's Development Servicing Plan.

Odour

- Council utilises a specific mapped odour contour to determine areas that are likely to be experience significant odour issues as a result of proximity to sewerage treatment plants (STPs). Development within this contour should be restricted to ensure that future residents are not subjected to odours that will interfere with quality of life. Precincts 17 and Precinct 18 are affected by this odour contour, and development should be precluded from these sites, unless odour mitigation measures can be identified, and implemented at the developer's expense, as a way to reduce odour impacts within this odour contour.

Electricity Easements

- Two significant transmission line (TL) easements, up to 100m in width, runs in an east-west and north-south direction through the study area. During the community engagement phase of this Structure Plan, TransGrid has advised Council that the unused easements east of Carters Road can be extinguished as TransGrid is unlikely to require transmission lines in this easterly direction in the future. The area previously sterilised from development can now be incorporated into the development areas for the study area. However, formal extinguishing of the easement is still required.
- This Structure Plan incorporates the transmission line easements, and ensures that no inappropriate development is proposed within the easement.

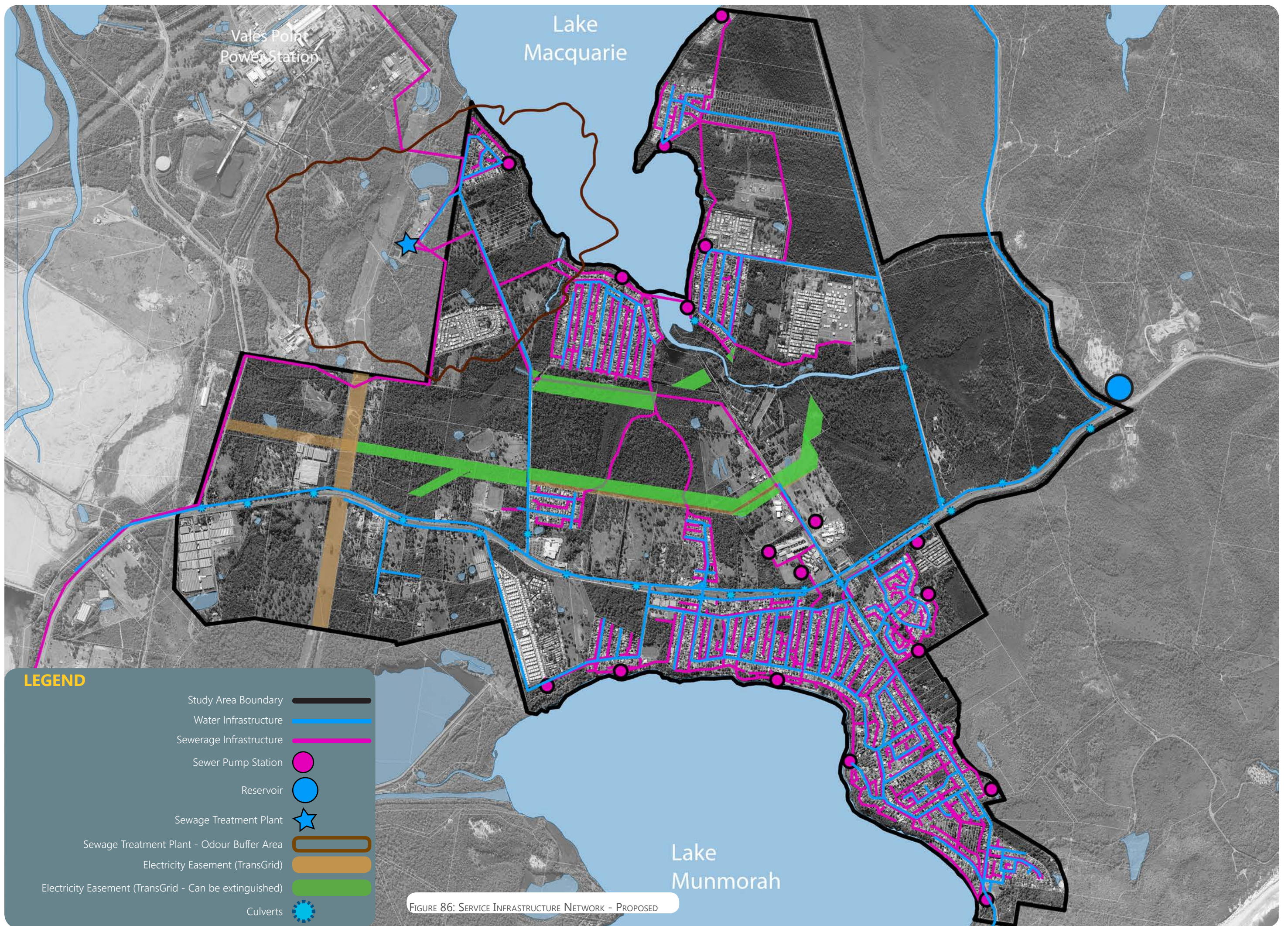


FIGURE 84: SEWAGE TREATMENT PLANT AT MANNERLING PARK



FIGURE 85: TRANSGRID ELECTRICAL EASEMENT, LAKE MUNMORAH

ACTION	RESPONSIBILITY	TIMING
Prepare a hydraulic sewer model for sewer catchments to ensure a holistic capacity review and refine Development Servicing Plan.	Council	Short Term
As part of a new Greater Lake Munmorah DCP Chapter, ensure that rezoning applications are not approved within the odour contour area, without a Planning Agreement (or similar) committing to mitigating odours for future residents.	Developer	Ongoing
As part of a new Greater Lake Munmorah DCP Chapter, ensure that no inappropriate development is permitted within electrical transmission line easements.	Council	Ongoing





7.4 Transport

7.4.1 Transport Links

Principle:

Improve transport links within the study area

ISSUES

- Transport issues associated with lack of connection between the north and south of the study area due to the Pacific Highway.
- Carters Road intersection issues during peak school times.

OPPORTUNITIES

Additional roads to meet employment growth

Provision of additional road connections and upgrades to the existing network is critical to facilitate future development. This Structure Plan identifies the approximate location for potential road connections, based on future residential and employment growth, as well as the impacts of this growth on the existing road network. The following road infrastructure is proposed, subject to further investigation:

- **Tall Timbers Road - Carters Road.** This road will be important for development of Precinct 8, as this precinct could exacerbate Carters Road intersection issues. Potential funding sources to pursue may be Federal Assistance Grants and Roads to Recovery.
- **Tall Timbers Road - Rutleys Road.** This road will become necessary only as the development of the employment lands proceed. This road will also be the location of an important shared pathway linking Mannering Park to Lake Munmorah, providing a safer pedestrian/cycle connection.
- **Saliena Avenue - Basford Road.** This road will be important for development of Precinct 5, as this precinct could exacerbate safety concerns at the Saliena Avenue intersection.
- **Chain Valley Bay Road - Carters Road.** This road will assist in alleviating the intersection delays currently experienced at Carters Road during peak school hours.
- **Signalised intersection - Chain Valley Bay Road/Pacific Highway junction.** Modelling of this intersection shows that right hand turn movements onto the Pacific Highway from Chain Valley Bay Road cur-

rently operate with unsatisfactory delays, and this intersection must be upgraded.

- **Signalised intersection - Basford Road/Pacific Highway junction.** This is a long-term proposal and will be dependent on development of Precinct 2 - Employment Lands.
- A connection between Chain Valley Bay Road - Kanangra Drive has been considered as part of this Structure Plan. Significant cost and land ownership difficulties would be involved in establishing a road through National Parks and Wildlife Service land. This connection will therefore be difficult to formalise, and has not been included as a future road connection for this reason.

Ongoing measures to ensure improved public and private transport links for the area include a requirement for subdivision staging to provide for the

timely connection of road links to the satisfaction of Council and Transport for NSW (TfNSW). For example, Precinct 8 should be required to complete construction of the road connection of Tall Timbers Road and Carters Road, to ensure that alternative ingress and egress to Carters Road is provided, to alleviate the peak-hour intersection delays currently experienced. These road connections can be subject to change if the performance and function of the road network is maintained or improved subject to the approval of the TfNSW.

Carters Road intersection

New roads linking Carters Road to Tall Timbers Road and Chain Valley Bay Road have been identified as possible connecting roads, supported by a strategic traffic study. Construction costs associated with the new road links will be significant and subject to land acquisitions, future development and potential grant funding. In the meantime, interim works on Carters Road are currently being developed by Council and include:

- Widening of the road pavement
- Kerb, gutter and footpath construction at St Brigid's College.
- Development of a new car park on the existing grassed area at the frontage to Lake Munmorah High School
- Improvements to the car park on the south western side of Pacific Highway and Elizabeth Bay Drive.

The aim of these interim works is to provide additional car parking opportunities, improved pedestrian access and improved traffic flow. The undertaking of these improvements are dependent upon costings and budget availability.

ACTION	RESPONSIBILITY	TIMING
Provide a connector road between Tall Timbers Road and Carters Road to service Precinct 8. (Road 1)	Developer	Short Term
Provide a connector road between Rutleys Road and Tall Timbers Road to service the future employment precinct. (Road 2)	Developer	Long Term
Provide a connector road between Saliena Avenue and Basford Road to service Precinct 5. (Road 3)	Developer	Long Term
Provide a connector road between Chain Valley Bay Road and Carters Road to service Precinct 10. (Road 4)	Developer	Short Term
Investigate provision of a connector road between Saliena Avenue and Kamilaroo Avenue. (Road 5)	Council	Long Term
Investigate options to improve the car park on the south western side of Pacific Highway and Elizabeth Bay Drive.	Council	Shprt Term
Provide a signalised intersection, including pedestrian crossing, at the junction of Chain Valley Bay Road/Pacific Highway to service Precinct 7 and 10.	Developer/ TfNSW	Short Term
Incorporate road, drainage and pathway costs into an updated Northern Districts Chapter of the Section 7.11 Development Contributions Plan (where appropriate).	Council	Short Term

ALL ROAD ALIGNMENTS ARE INDICATIVE.

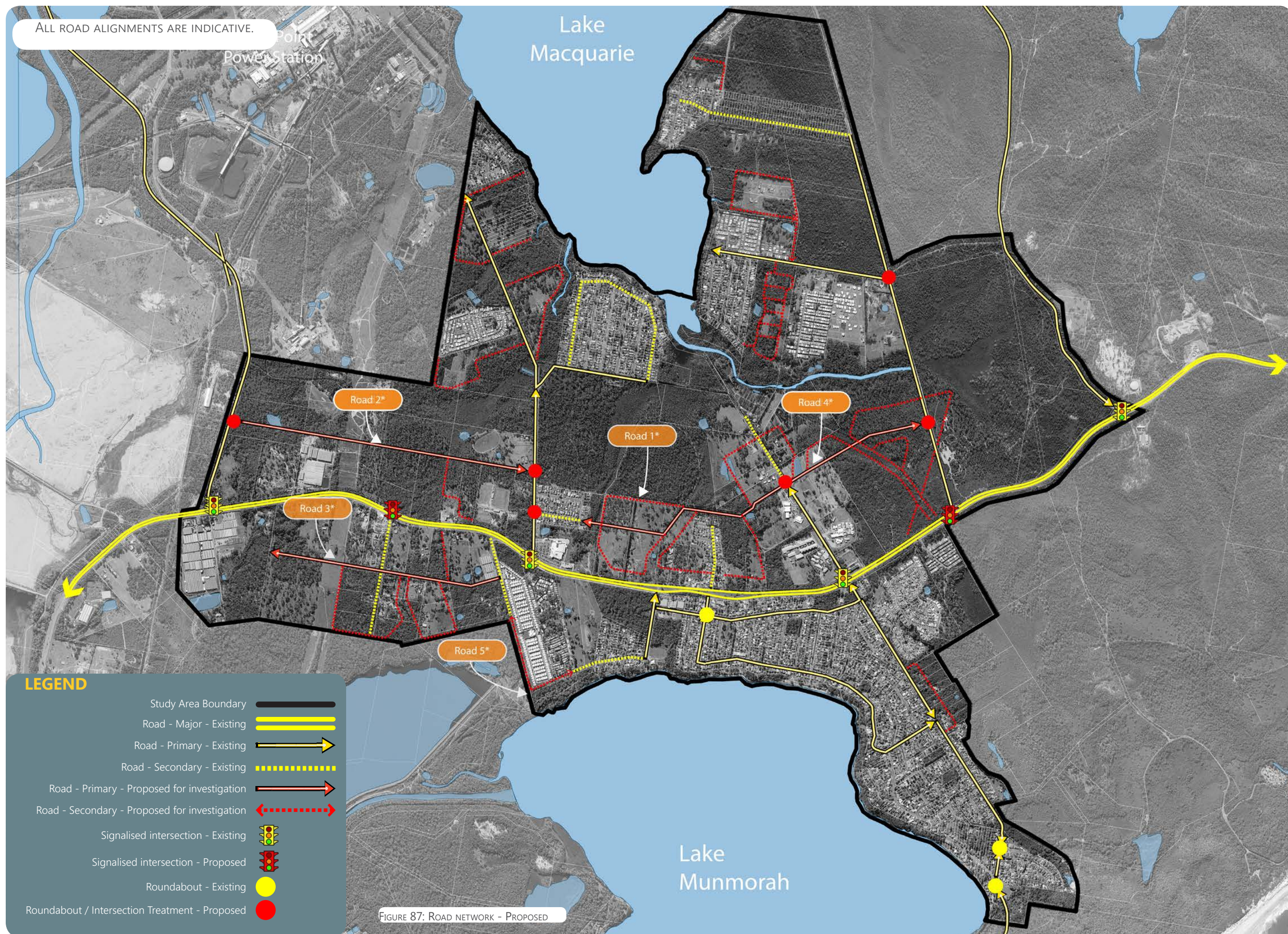


FIGURE 87: ROAD NETWORK - PROPOSED



7.4 Transport

7.4.2 Public Transport

Principle:

Improve public transport links, route directness and service frequency within the study area.

ISSUES

- Limited access to public transport services.

OPPORTUNITIES

Provision of Public Transport

Access to public transport needs to be enhanced, and improved provision of more frequent bus services to this area to encourage more public transport patronage. This will be partly achieved by the demands of increased population moving into the area as the precincts develop. However, Council can assist in achieving increased public transport usage by requiring that:

- Housing and subdivision designs are to integrate with land use, transport and access, both pedestrian and vehicular.
- Walking and cycling networks are aligned with public transport routes to improve accessibility to public transport.
- Bus stops are provided in locations as nominated by the relevant authority.
- A bus interchange is provided as part of the Lake Munmorah Local Centre expansion.

Parts of Precinct 16(a) and 16(b) are situated to benefit from proximity to the Lake Munmorah Local Centre, and as a result may be considered for medium density residential development. In particular, shop-top housing as part of the expansion of the Local Centre, as well as townhouse-style development in the above-mentioned precincts. This will ensure that any higher density of population is situated a short walk from the future bus interchange at the Lake Munmorah Local Centre.

In addition, discussion with Busways indicates that considerations relating to future road design in new development areas should consider the manoeuvrability requirements of buses to access areas, which will allow ease of serviceability for future bus route expansions.

Bus services will also be improved once the internal road network develops further, with road connections from Ruttleys Road → Tall Timbers Road → Carters Road → Chain Valley Bay Road. These road connections will result in less "dead-ends" that require bus services to backtrack over the same routes, improving efficiency and travel times.

Encourage more public transport usage

Public transport usage in this area is very low. Improved usage rates could be encouraged by incorporating bus pick up and drop off locations along the Pacific Highway corridor, ideally coinciding with signalised intersections, to ensure that public transport patrons are able to safely cross the Pacific Highway to either board or alight from the public transport vehicle. Bus shelters should also be appropriately located along this corridor to reduce inconvenience and improve the desirability of travelling by public transport. Such bus infrastructure may need to be incorporated into the development contributions plan for the area, to ensure that funding is available.

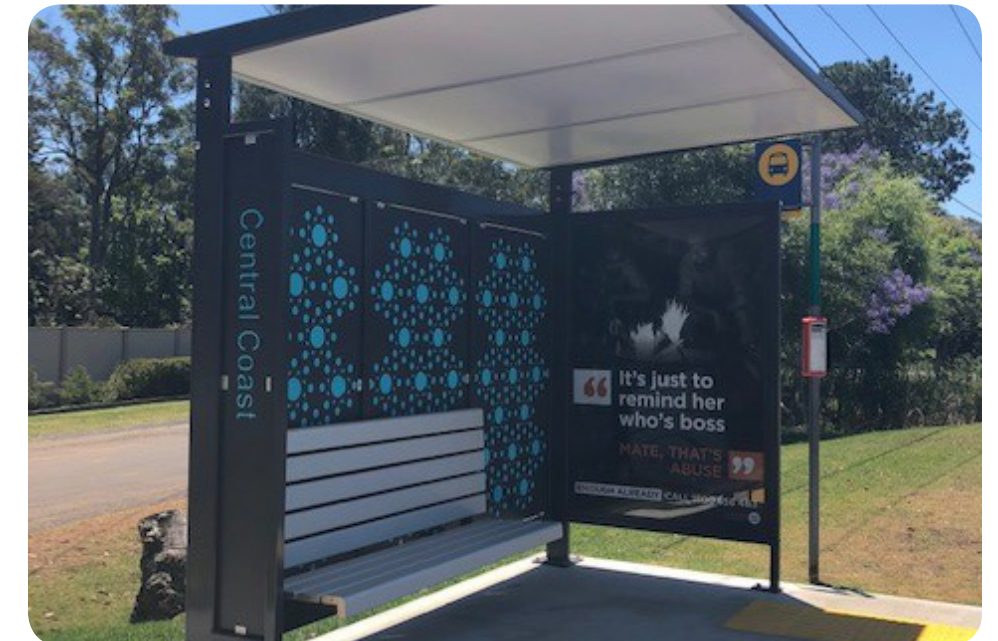


FIGURE 88: BUS INFRASTRUCTURE, LAKE MUNMORAH

ACTION	RESPONSIBILITY	TIMING
As part of a new Greater Lake Munmorah DCP Chapter, encourage access to public transport services by ensuring that: <ul style="list-style-type: none">• Housing and subdivision designs are to integrate with land use, transport and access, both pedestrian and vehicular.• Walking and cycling networks are aligned with public transport routes to improve accessibility to public transport.• Bus stops are provided in locations as nominated by the relevant authority.• A bus interchange is provided as part of the Lake Munmorah Local Centre expansion.	Council	Ongoing



7.4 Transport

7.4.3 Connectivity and Safety

Principle:

Close the gap between land to the north and south of the Pacific Highway

ISSUES

- The Pacific Highway acts as a significant severance between the areas to the north and south.

OPPORTUNITIES

Incorporate more pedestrian crossings

Within the study area, only 2 formal crossings exist on the Pacific Highway, at Tall Timbers Road and Carters Road, separated by 1.9km. This encourages informal crossing of the corridor which can be extremely dangerous due to the 80km/hr speed limit. By incorporating more pedestrian crossings, coinciding with new signalised intersections along the highway, safety and connectivity will be improved. This will also encourage more pedestrian and cyclist activity, rather than the community relying on vehicular travel.

Street tree planting

Improving the amenity of pedestrian facilities can encourage utilisation, with shade an important factor in increasing amenity for pedestrian and cyclists. An opportunity exists to improve utilisation rates for shared pathways adjacent to the Pacific Highway corridor, via a program of tree planting. Tree plantings will provide shade for pedestrians and cyclists, as well as a minor buffer to the Pacific Highway. Tree plantings could also occur in suitably wide locations within the median strip of the Pacific Highway, in order to create a treed boulevard along this corridor, improving visual amenity and also improving flora/fauna crossing opportunities between the north and south of the corridor. Approval of TfNSW will be required.

Lighting improvements

Improving lighting along the Pacific Highway between Tall Timbers Road and Chain Valley Bay Road will assist in improving connectivity and usability

for residents and visitors, as well as safety by ensuring that pedestrians and cyclists are visible to motorists

Maximum speed reduction

The maximum speed along the Pacific Highway corridor is 80km/hr, although vehicles routinely travel at higher speeds. This makes pedestrian and cycle activity dangerous and undesirable, and most residents instead rely on vehicular travel for local shopping trips and school drop-off/pick ups. Safety and usability can be improved by reducing the maximum speed limit. A reduced speed limit will also be more appropriate for the future development of this area as a major urban growth area. Council will pursue a speed limit reduction along the Pacific Highway within the study area, in consultation with TfNSW.

Safe Systems Principles

Council should promote the incorporation of Safe Systems principles within planning for delivery of development precincts.



FIGURE 89: PACIFIC HIGHWAY, LAKE MUNMORAH



FIGURE 90: PEDESTRIAN OVERPASS, LAKE MUNMORAH

ACTION	RESPONSIBILITY	TIMING
Prepare a package of proposed improvements for the Pacific Highway corridor, for lodgement with the TfNSW (note TfNSW has final decision-making authority): <ul style="list-style-type: none">Improve lighting along the Pacific Highway between Carters Road and Chain Valley Bay Road to ensure that safety and usability is improved for the community.Advocate for a review of the existing speed limit and pedestrian improvements in line with future development, should it be warranted.Advocate for and investigate a program of street tree plantings, including appropriate medium plantings, to provide shaded spaces and buffering to the Pacific Highway for shared pathway users.	Council/ TfNSW	Long-Term
As part of a new Greater Lake Munmorah DCP Chapter, require Safe System Assessments for any new rezoning proposals.	Developer	Ongoing



7.5 Recreation

7.5.1 Pedestrian Connections

Principle:

Ensure that the community has ease of access to both active and passive recreation opportunities

ISSUES

- Limited physical connections to Lake Macquarie and Lake Munmorah foreshore.
- Discontinuous walking and cycling networks.

OPPORTUNITIES

This Structure Plan recommends a number of new shared pathways, with the aim to improve pedestrian and cyclist connections between both existing and future residential areas and the main attractors in the study area. These proposed connections will be important components in ensuring that the growing community in the study area has ease of access to the local schools, local centre and neighbourhood centres, as well as sporting grounds and playgrounds. This will extend the network and strengthen the connection between the northern and southern areas of the study area. However, additional signalised intersections will improve the safety of this crossing and encourage increased usage by the community.

In addition, visual amenity and connection to open space opportunities is important to the success of shared pathway networks and therefore op-

portunities for new and improved networks incorporating these principles should also be identified in the future. There are limited opportunities to extend the shared pathway along the Lake Munmorah foreshore, due to topographic issues along the eastern foreshore, and land ownership issues along the site of the now decommissioned power station site on the western foreshore.

As a result, this Structure Plan does not propose any extension to the shared pathway along the Lake Munmorah foreshore. Council has proposed to construct a shared pathway along the Lake Macquarie foreshore to connect Mannering Park to Chain Valley Bay South and Chain Valley Bay North. This project is partially funded as part of the Section 7.12 Regional Plan. The project currently has a funding gap which will need to be resolved prior to the delivery of this connection.

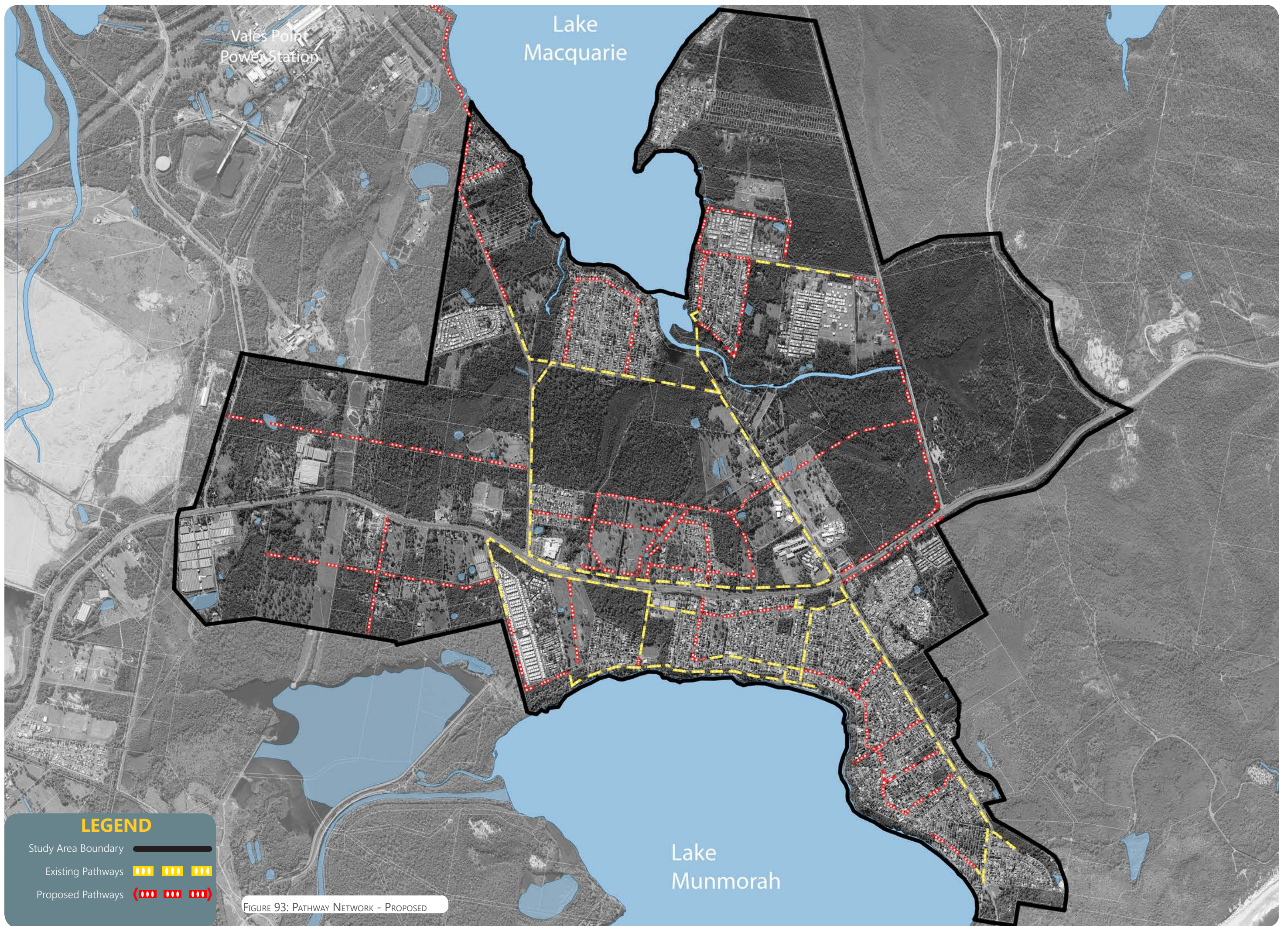


FIGURE 92: SHARED PATHWAY ADJACENT TO PACIFIC HIGHWAY, LAKE MUNMORAH



FIGURE 91: SHARED PATHWAY, CHAIN VALLEY BAY

ACTION	RESPONSIBILITY	TIMING
<p>As part of a new Greater Lake Munmorah DCP Chapter, Council can improve walking/cycling networks in the study area by ensuring:</p> <ul style="list-style-type: none">• Walking and cycling networks are incorporated into subdivision design and construction.• Walking and cycling networks must be designed to ensure safe, amenable and convenient pedestrian and cycle connections.• Footpath and cycle path widths are increased in areas expecting higher usage such as near schools, community centres, local centres, public transport interchanges/bus stops.• Pedestrian and cycle crossings are provided at all relevant intersections and along key desire lines.	Developer / Council	Ongoing



LEGEND

- Study Area Boundary
- Existing Pathways
- Proposed Pathways

FIGURE 93: PATHWAY NETWORK - PROPOSED



7.5 Recreation

7.5.2 Active Recreation Facilities

Principle:

Ensure that the community has ease of access to active recreation opportunities

ISSUES

- Limited pedestrian access to playground facilities.
- Limited access to sporting field facilities.

OPPORTUNITIES

Required Provision of Recreation Facilities

A general rate of 3 hectares per 1,000 residents is the standard approach to open space provision. Utilising this standard, the total developed open space required for the projected 7,309 additional residents generates demand for an additional 21.9 hectares of open space. This can be split into the following categories:

Parks and Semi-Natural Open Space:

- 6.58 hectares of small parks (30%);
- 4.39 hectares of large parks (20%);
- 2.19 hectares of semi-natural open space (10%)

Sporting fields:

- 6.58 hectares of sports field (a complex comparable to Hamlyn Terrace sports field) (30%);
- 2.19 hectares of playing courts (10%).

Parks and Semi-Natural Open Space

The projected population increase of 7,309 people will generate a demand for at least 13.2 hectares of parkland and semi-natural open space. This Structure Plan therefore identifies that a number of new parks will be required as part of future precinct based developments. Whilst the total area of these parks is yet to be determined, the figure will be in excess of 13.2 hectares, given that there are large areas identified as biodiversity/drainage corridors that will also have recreation functions in many cases. Council can ensure adequate provision within the study area by:

- Requiring precinct based rezonings to incorporate playgrounds into concept plans.
- Coordinating the embellishment of Colongra Bay Reserve playground. This may require either replacement of old equipment or incorporating new facilities.
- Liaising with the National Parks & Wildlife Service to deliver a play-space at Elizabeth Bay park. This park is well located, co-located with the foreshore/boat ramp.
- Investigate options for the reserve at the end of Greenacre Avenue to encourage more public use. This foreshore reserve is underutilised at present.
- Coordinating the delivery of a regional play-space adjacent to Gumbuyah Reserve.

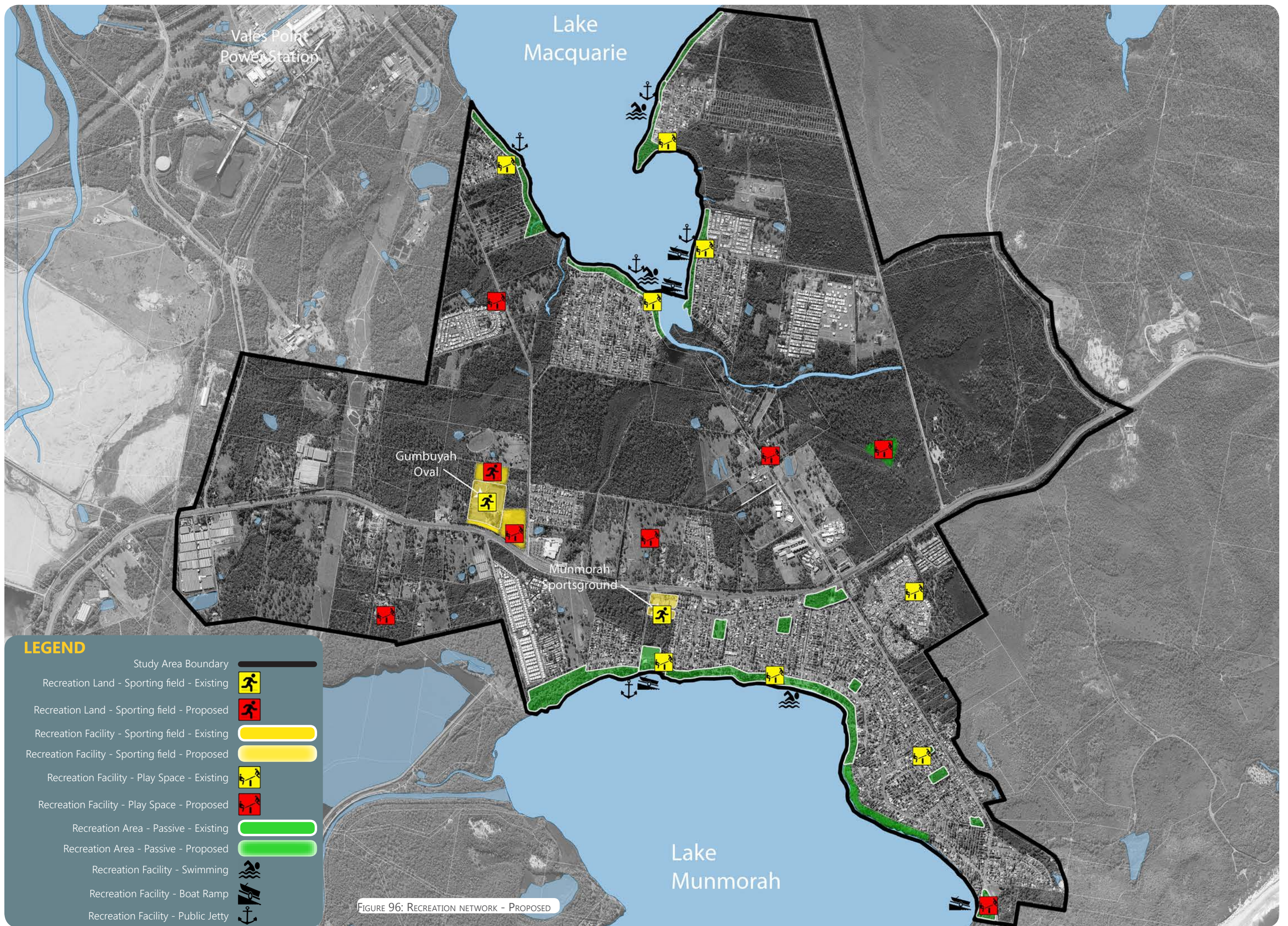


FIGURE 94: PLAYGROUND, LAKE MUNMORAH



FIGURE 95: PLAYGROUND, CHAIN VALLEY BAY

ACTION	RESPONSIBILITY	TIMING
<p>Investigate options for the following recreation facilities:</p> <ul style="list-style-type: none">• Colongra Bay Reserve playground – either replace old facilities or incorporate new facilities.• Liaise with NPWS to coordinate delivery of a play-space at Elizabeth Bay Dr (Munmorah State Conservation Area).• Consider opportunities to encourage more public use for the reserve at the end of Greenacre Avenue.• Continue to coordinate the delivery of the play-space adjacent to Gumbuyah Reserve on Tall Timbers Road.	Council	Medium Term



7.5 Recreation

7.5.2 Active Recreation Facilities (Continued)

Principle:

Ensure that the community has ease of access to active recreation opportunities

Sportsfields and Courts

Based on the projected population increase of 7,309 people, demand for at least 8.77 hectares of sportsfield and courts will be generated as a minimum requirement. This represents a sportsfield comparable to Hamlyn Terrace or Woongarrah. There are identified benefits to co-locating sportsfields near schools, community facilities and commercial areas, as well as suitable transport links. Council can ensure adequate provision of sportsfields within the study area by:

- Investigating the existing Gumbuyah Oval as the most desirable site for a future sports field expansion. This site is of a suitable size to accommodate a large sports field complex, and is also appropriately located in close proximity to the major attractors within the study area – the Local Centre and the future Skate Park and Play-space.
- Coordinating the embellishment of the basketball and tennis courts at Acacia Avenue, Lake Munmorah. This site is part of a significant recreation area, being co-located with the Lake Munmorah reserve on Colongra Bay Road and the Lake Munmorah Bowling Club. This facility is essential for the local community, however is tired and in need of a facelift. Improved landscaping and pathways would provide a more inviting, attractive and safe environment. Provision of other supporting infrastructure such as lighting, drinking water access and park furniture should also be reviewed.

Accessibility

This Structure Plan has identified the most suitable location for new and/or expanded sportsfields, based on proximity to existing and proposed residents. Council can ensure accessibility is maintained as part of the Planning Proposal process.

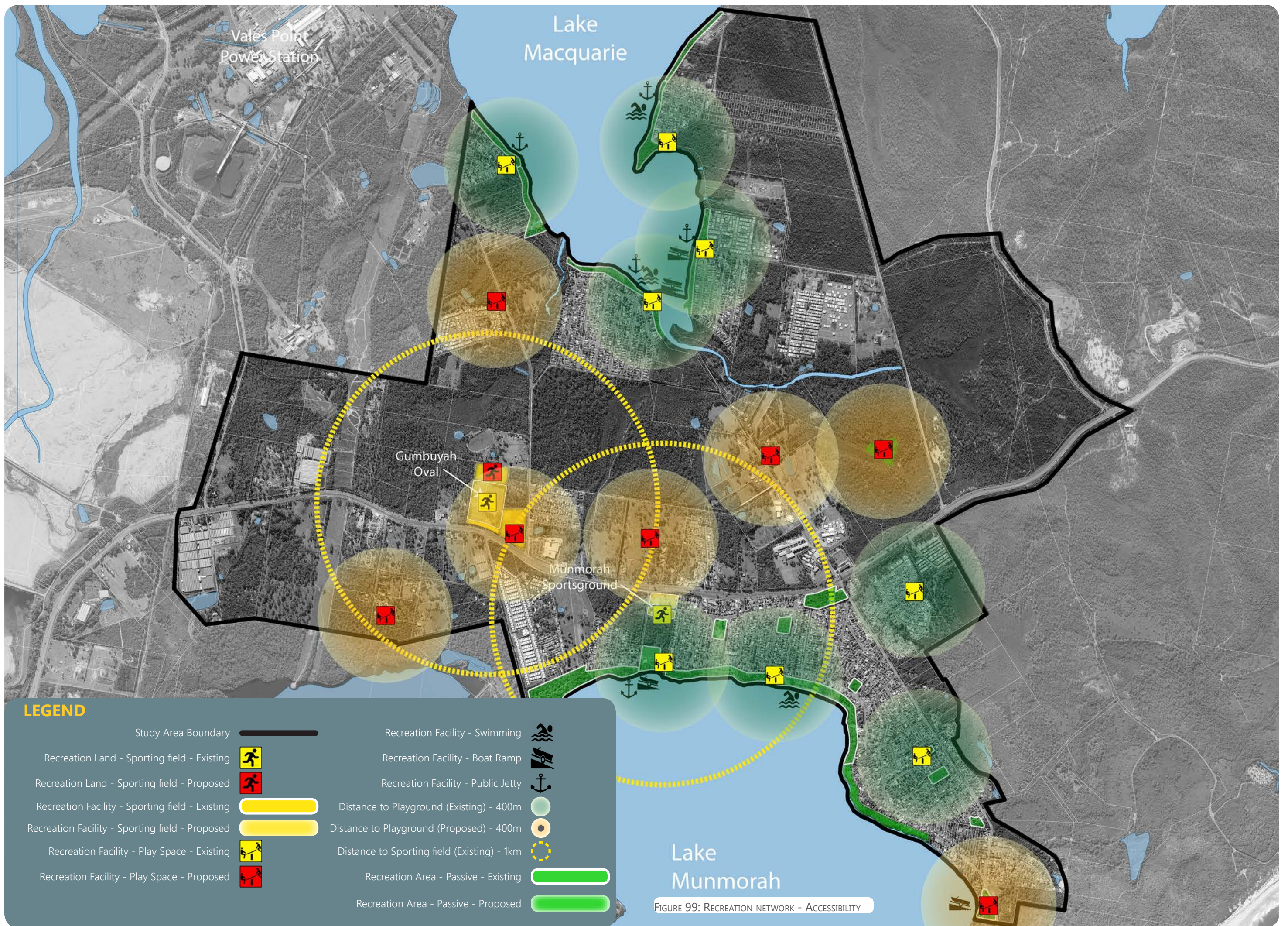


FIGURE 98: GUMBUYAH OVAL, LAKE MUNMORAH



FIGURE 97: LAKE MUNMORAH TENNIS AND BASKETBALL COURTS AND SKATE PARK

ACTION	RESPONSIBILITY	TIMING
As part of a new Greater Lake Munmorah DCP Chapter, require rezonings incorporate playground/park space into concept plans where relevant.	Developer	Ongoing
Coordinate the delivery of a new sports field at Tall Timbers Road (north of Gumbuyah Oval).	Council	Long Term
Coordinate the embellishment of the basketball and tennis courts at Acacia Avenue, Lake Munmorah.	Council	Medium Term



LEGEND

Study Area Boundary		Recreation Facility - Swimming	
Recreation Land - Sporting field - Existing		Recreation Facility - Boat Ramp	
Recreation Land - Sporting field - Proposed		Recreation Facility - Public Jetty	
Recreation Facility - Sporting field - Existing		Distance to Playground (Existing) - 400m	
Recreation Facility - Sporting field - Proposed		Distance to Playground (Proposed) - 400m	
Recreation Facility - Play Space - Existing		Distance to Sporting field (Existing) - 1km	
Recreation Facility - Play Space - Proposed		Recreation Area - Passive - Existing	
		Recreation Area - Passive - Proposed	

Lake
Munmorah

FIGURE 99: RECREATION NETWORK - ACCESSIBILITY



7.6 Community

7.6.1 Community Facilities

Principle:

Establish a Multi-Purpose Community Facility in proximity to Lake Munmorah Local Centre, creating a community hub

ISSUES

- Many residents are isolated from services and facilities
- Ageing population, with areas of socio-economic disadvantage
- Existing Community Facilities limited in use and functionality.
- Lack of modern, multi-purpose community centres to address community needs.

OPPORTUNITIES

New Multi-Purpose Community Facility

A new multi-purpose Community Centre will be required to cater for the anticipated population increase within the study area. This Community Centre shall incorporate a learning precinct and a senior's leisure/learning centre. The ideal location for this facility is co-located with the regional play-space and district skatepark, adjacent to Gumbayah Oval.

Shopping centres are key attractors where people prefer to congregate. Locating the Community Centre adjacent to the Lake Munmorah Local Centre will ensure that the facility can act as a community hub, activating the area and addressing community needs, enabling access to essential and higher order services and facilities. Co-location also has the benefit of convenience, increased safety and public transport accessibility.

Existing Facilities

Lake Munmorah Colongra Bay Hall

The site is scenically located on the shores of Lake Munmorah, which presents an opportunity to embellish this facility to target an identified niche market for weddings and other functions. Council plans to develop a café on site to service this market as well as the playground.

Lake Munmorah Senior Citizens Centre

Council plans to rationalise this site by incorporating centre functions as part of the proposed multi-purpose Lake Munmorah Community Centre. This is an important service for the local community and will be even more valuable as the population continues to age.

This rationalisation will present opportunities for future use of the current site of the Senior Citizens Centre, however no plans have been made at the time of writing.

Chain Valley Bay Community Centre

Retain centre as is. No improvements proposed at this time.



FIGURE 100: LAKE MUNMORAH COMMUNITY CENTRE

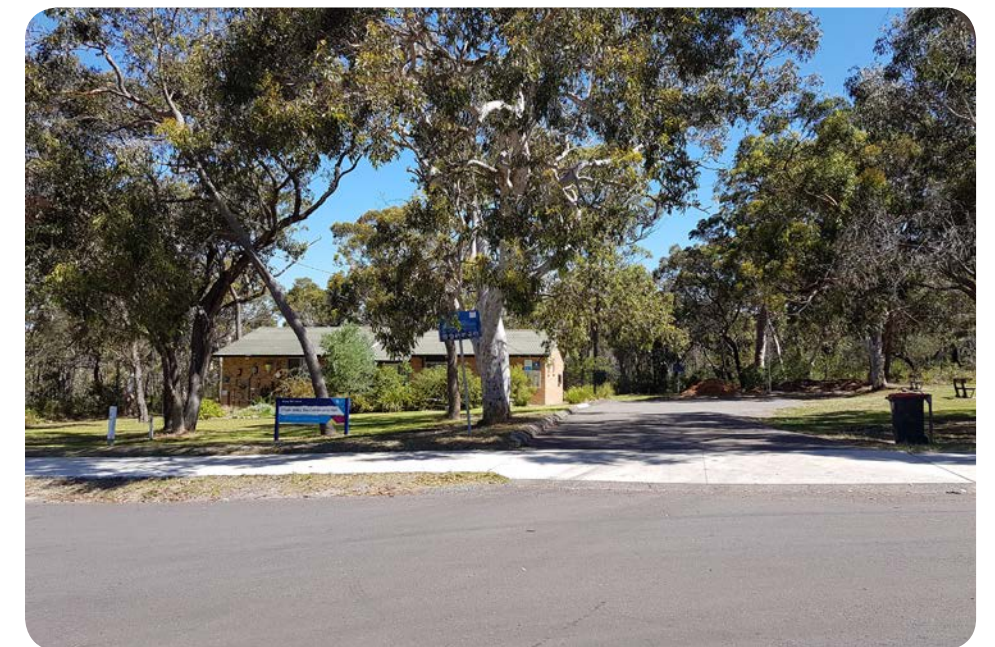
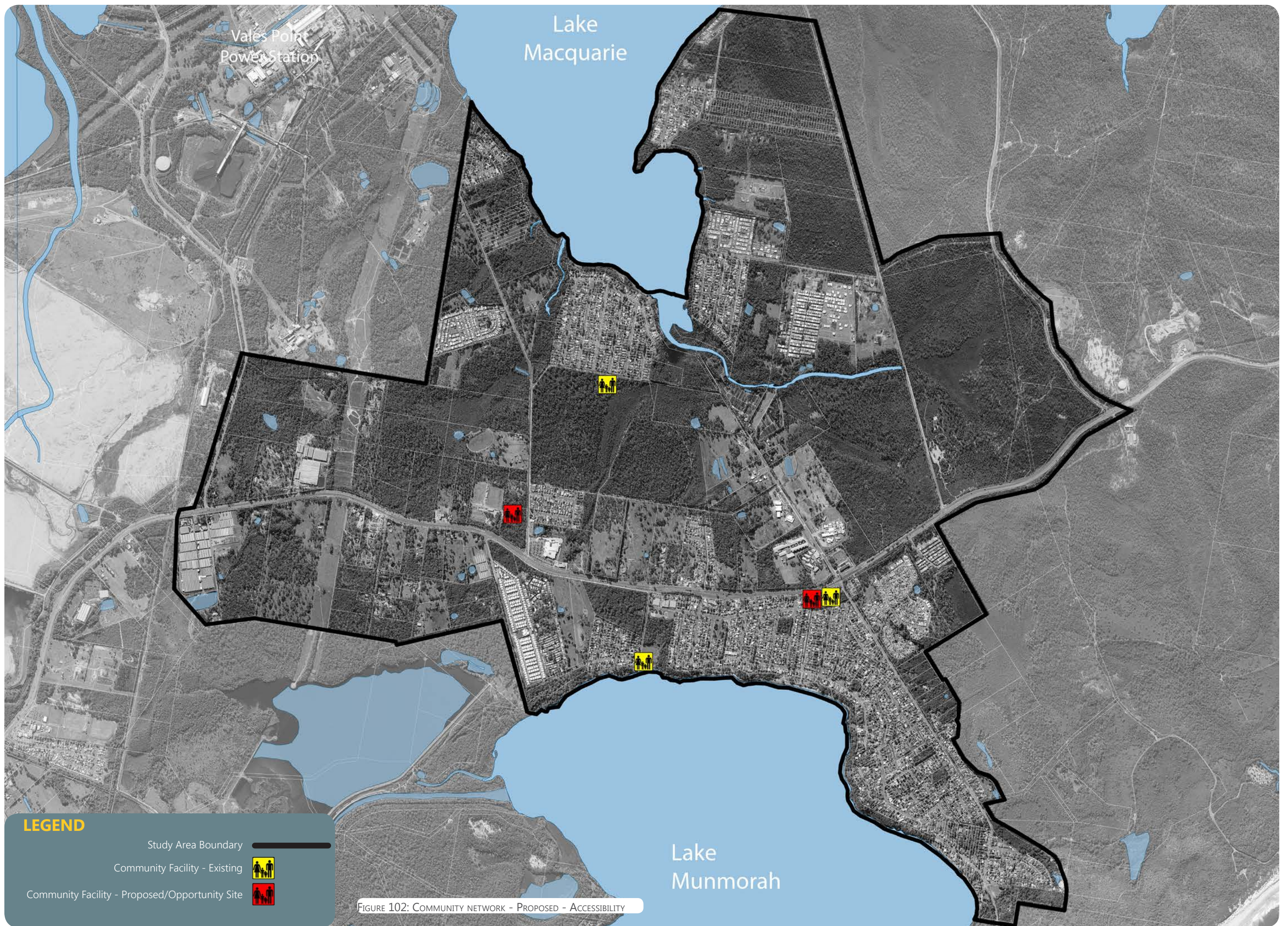


FIGURE 101: CHAIN VALLEY BAY COMMUNITY CENTRE

ACTION	RESPONSIBILITY	TIMING
Upgrade/embellish Lake Munmorah Colongra Bay Hall to increase functionality and meet community needs.	Council	Short Term
Investigate the need and possible locations for a multi-purpose community facility in proximity to Lake Munmorah Local Centre.	Council	Medium Term



LEGEND

Study Area Boundary

Community Facility - Existing

Community Facility - Proposed/Opportunity Site



FIGURE 102: COMMUNITY NETWORK - PROPOSED - ACCESSIBILITY



7.7 Economy

7.7.1 Commercial Facilities

Principle:

Provide a Town Centre that serves as a focus for the community.

ISSUES

No single Town Centre to act as a community hub.

OPPORTUNITIES

Potential for a New Town Centre

The study area lacks a single commercial/civic Town Centre that serves as a focus for the community. At present, none of the existing centres function as a community focal point. Four sites have been reviewed to determine the most appropriate location for a future single Town Centre that will serve as a civic centre to this growing area:

Pros	Cons
Single owner	Significant clearing required
Close to existing Neighbourhood centre	Endangered Ecological Communities (EEC) - limits expansion.
Waterfront access	Existing passive recreation area
Highest level of visual amenity	Needs to be rezoned to commercial

Option 1 - Munmorah Sporting field

Pros	Cons
Single owner	Drainage line
Highly accessible - Tall Timbers Rd	Proposed residential under NWSSP
Surrounded by development precincts under NWSSP	Angophora inopina (vulnerable species)
Opposite existing Lake Munmorah Local Centre	Existing active recreation area
	Needs to be rezoned to commercial

Option 2 - Gumbayah Oval

Pros	Cons
Single owner	Drainage line & Dam present
Cleared land with few improvements	Proposed residential under NWSSP
Close to schools – potential for community hub	110m wide TransGrid Easement through centre of site
	Limited exposure to Pacific Highway
	Traffic issues at intersection
	Needs to be rezoned to commercial

Option 3 - Land within Carters Road Education Precinct.

Pros	Cons
Single owner	Drainage line present on site
Highly accessible – Tall Timbers Rd	
Predominantly cleared land with few improvements	
Zoned for commercial development.	
Close to existing / future recreation uses	

Option 4 - Existing Lake Munmorah Local Centre

ACTION	RESPONSIBILITY	TIMING
Liaise with owners of the Lake Munmorah Local Centre site to discuss options for developing the adjacent vacant land as a Town Centre to cater for the growing population.	Council	Short Term
Prepare a Place Plan for the Lake Munmorah Local Centre, in consultation with the landowner and incorporate outcomes into the site specific DCP chapter.	Council	Medium Term

Conclusion

Whilst other options were deemed attractive in terms of location (Carters Road) or scenic amenity (Munmorah Sporting field), the existing Lake Munmorah Local Centre was determined the most appropriate location to encourage Town Centre development, due to:

- Existing 3ha of B2 Local Centre zoned land that is ready for development when the population expands.
- Appropriately located to serve the current/future population.
- Site expansion can be designed so that the centre has the amenity to attract residents and visitors in order to create a thriving town centre. The site is in single ownership and well placed to establish an attractive town centre community hub.
- The site can be connected to future residential areas via pedestrian and cyclist connections. There is also an opportunity to improve pedestrian connections between the commercial precinct and the Carters Road school precinct.
- The proposed location of the future skate park and playspace is adjacent to this site – co-location will attract visitors.
- Potential to incorporate residential development (shop-top housing) on this site, due to the site's strategic location.
- Potential for a new commercial centre also needs to be reviewed in the current and future economic context, including consideration of the existing commercial centres within the study area and future commercial centres in the vicinity of the study area. As a result, it is realistic to encourage town centre development at the existing Lake Munmorah Local Centre.
- This outcome is supported by an Economic Analysis prepared for Council by Hill PDA.
- Based on the preferred location, a Place Plan will be prepared for a Town Centre with public spaces and community facilities.





7.7 Economy

7.7.2 Employment Opportunities

Principle:

Re-invigorate neighbourhood centres to improve character and amenity to encourage more retail spending by community

ISSUES

- Tired Neighbourhood Centres that lack aesthetic amenity and character.

OPPORTUNITIES

Activate Existing Commercial Centres

Explore residential uses in the commercial centres to activate these centres both day and night:

- Mixed use development (shop top housing) is permissible in both the B1 Neighbourhood Centre and B2 Local Centre zones subject to the current Wyong LEP 2013, and subject to the draft Central Coast LEP.
- Shop-top housing should be encouraged at all centres as part of any redevelopment plans. Encouraging shop-top housing in commercial centres will increase passive surveillance and activity within the centre, particularly in the evening.
- Medium density residential development should be encouraged both within the expansion area of the Lake Munmorah Local Centre (in the form of shop top housing) as well as the areas surrounding the neighbourhood centres in the study area.
- Encourage provision of leisure and entertainment facilities within the retail centres, including cinemas, gymnasiums, clubs, and hotels. These uses support the viability of centres and extend hours of activity.
- Co-locate the Multi-Purpose Community Facility adjacent to the Lake Munmorah Local Centre to ensure that the facility activates the new Town Centre area. Co-location also has the benefit of increased safety, public transport accessibility, as well as convenience.

These provisions should be incorporated into future Place Plans for these centres.



FIGURE 104: LAKE MUNMORAH NEIGHBOURHOOD CENTRE



FIGURE 105: CHAIN VALLEY BAY NEIGHBOURHOOD CENTRE

ACTION	RESPONSIBILITY	TIMING
Prepare a Public Domain Plan for the Chain Valley Bay Neighbourhood Centre	Council	Medium Term
Prepare a Public Domain Plan for the Lake Munmorah Neighbourhood Centre	Council	Medium Term
Undertake a review and update of the Northern Districts Section 7.11 Development Contributions Plan	Council	Short Term



7.7 Economy

7.7.3 Employment Opportunities

Principle:

Facilitate employment generating development, to increase access to local employment opportunities.

ISSUES

- Limited access to local employment.

OPPORTUNITIES

The future employment land areas located within the study area will provide much needed employment opportunities within this growing area. However, an Economic Feasibility Analysis prepared as part of this Structure Plan indicates that it is unlikely that the Study Area's population growth will demonstrate demand for the large area of employment land proposed as part of the State Government's NWSSP. Successful employment land development is more likely to occur in close proximity to larger population catchments AND transport routes such as Somersby and Warnervale.

Further, additional development of industrial lands in the Study Area runs the risk of fragmenting the LGA's existing employment areas, negatively impacting the performance of employment zones such as the WEZ. There is not sufficient demand to rezone land for additional employment land anywhere in the LGA. The focus needs to be servicing and resolving biodiversity planning constraints which affect employment precincts outside the study area.

This provides an opportunity to identify additional residential land within the study area to enable additional housing options within the study area. This Structure Plan identifies land to the west of Saliena Avenue, Lake Munmorah for residential purposes, as opposed to the employment land uses proposed by the NWSSP.

It is considered that there remains sufficient lands set aside for future employment generating purposes to cater for improved local and regional employment outcomes, and this is supported by the Economic Feasibility Analysis.

Employment lands within the study area should:

- Focus on warehousing, logistics, food manufacturing and other innovative enterprises. In other words, uses that benefit from larger parcels.
- Capitalise on the current agricultural industries operating in the area and create a hub for agricultural development in this area.
- Not compete with the LGA's existing employment lands at Somersby or the WEZ. It is therefore important to delay rezonings until after significant take up of existing employment lands has occurred.
- To ensure the amenity of the area is retained, employment land uses with a frontage to the highway should incorporate significant levels of landscaping, locate parking to the rear of the building and provide screening of any service areas.



FIGURE 106: VIEW TO VALES POINT POWER STATION FROM CHAIN VALLEY BAY

ACTION	RESPONSIBILITY	TIMING
Rezoning of land for employment uses to be identified as long term, in order to ensure take-up of the WEZ lands is not discouraged.	Council	Long Term
As part of a new Greater Lake Munmorah DCP Chapter, employment land fronting the Pacific Highway to incorporate significant landscaping, locate parking to the rear of the building and screen service areas.	Developer	Ongoing



7.8 Land Use Conflicts

7.8.1 Staging

Principle:

Refine North Wyong Shire Structure Plan precincts to enable the area to develop in an orderly and positive manner.

ISSUES

- Further refinement is required for NWSSP precincts and staging of development.

OPPORTUNITIES

- The parts of the study area identified as potential development precincts within the NWSSP have been further divided into smaller precincts, based on land ownership, topographic features and location.
- Development proponents will be required to group rezoning proposals and subdivision applications together by the relevant refined precinct, however flexibility may be required based on the size and complexity of the development areas within this precinct.
- It is anticipated that this refinement of precincts will enable more positive development outcomes for the area, enabling Council to more holistically assess development proposals, rather than on a piecemeal basis which may have eventuated otherwise.
- These precincts have been ranked to ensure that the sequencing of development occurs in a way that is appropriate and cost effective in terms of provision of essential infrastructure.
- Controlling the sequencing of development has the following benefits:
 - Appropriate sequencing ensures that development occurs in a way that is appropriate and cost effective in terms of provision of essential infrastructure.
 - Appropriate sequencing ensures that development does not create circumstances in which residents will be unreasonably isolated from commercial, community or recreational facilities, or access to public transport for an extended time period.
 - Appropriate sequencing ensures that development is integrated with adjoining developments, including the timely provision of connecting streets and walking / cycling paths.
 - Appropriate sequencing will also maintain competition in the land market.
- A development sequencing plan has therefore been developed, based on the criteria as follows:

Major criteria

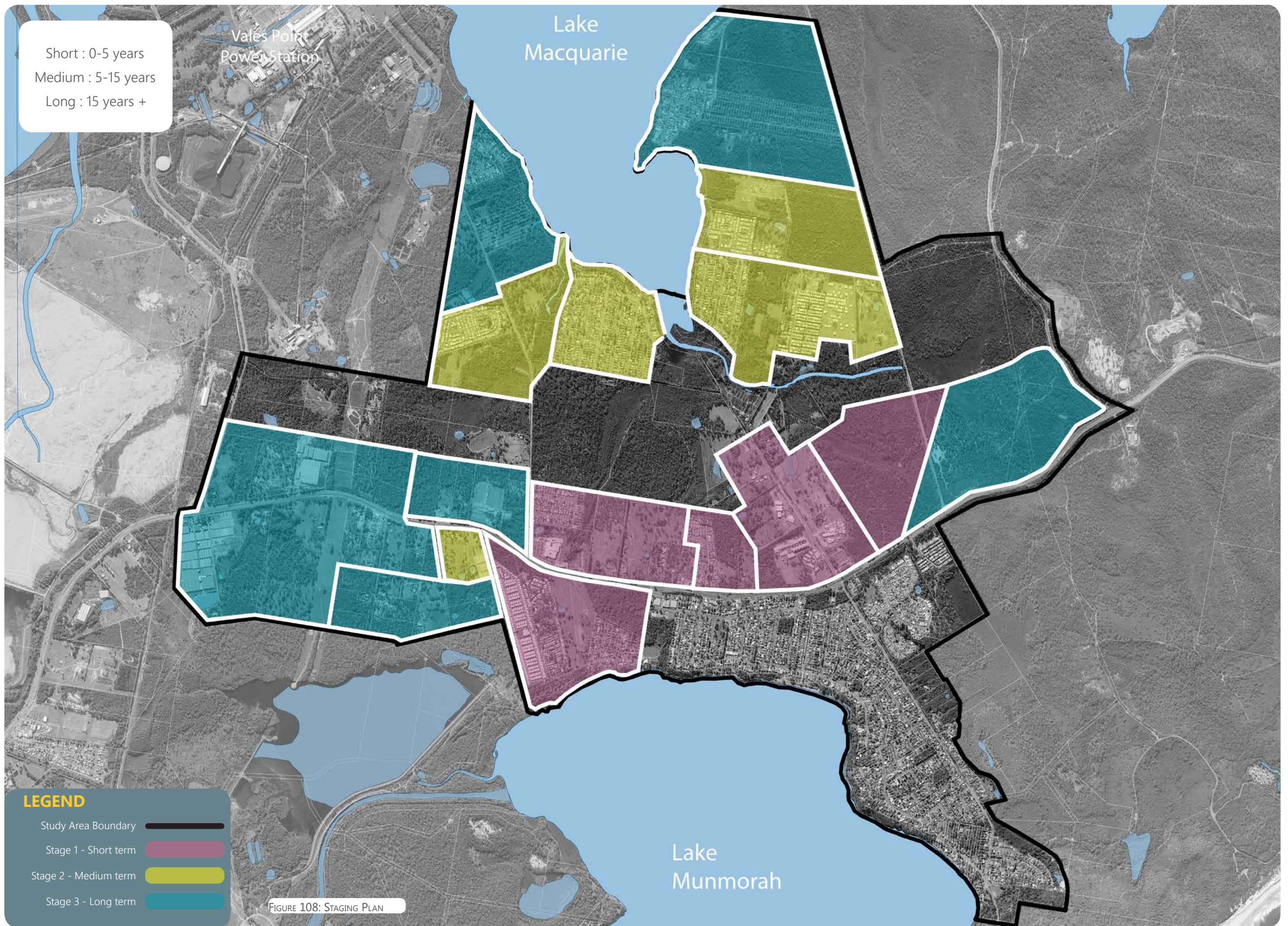
- Impact on existing roads/traffic – Minor, moderate or major.
- Vegetation clearing required – Minor, moderate or major.
- Surface development restrictions – Restrictions placed on the land by Subsidence NSW, to ensure that future development does not limit extraction potential for coal resources in the area.
- Sewer Servicing provision – Any sewer system for this area will need to be developed in consultation with Council with due consideration of the impacts on the adjoining systems that will be connected to. These may require further upgrading than identified in the DSP as they would not currently consider a load from these areas. This restriction will need to be incorporated into this Structure Plan for this area.

Minor criteria

- Land use conflict (e.g. Land claims, recreation uses, odour issues)
- Integration with current development patterns – 1km proximity to schools, local centre etc.
- Number of landowners – Fewer landowners generally results in fewer complexities in coordinating rezonings.
- Landholder readiness – Based on feedback received from landowners.

FIGURE 107: CRITERIA USED TO DETERMINE STAGING PLAN

ACTION	RESPONSIBILITY	TIMING
Implement a staged program of Planning Proposals to ensure the study area is developed in a responsible and sustainable manner.	Council	Ongoing





7.8 Land Use Conflicts

7.8.2 Resource Extraction

Principle:

Ensure that future development is orderly and does not interfere with resource extraction.

ISSUES

- Underground mining, resource land and surface development restrictions.
- Simultaneous proposals for rezoning, out-of-sync with development timeframes set by the NWSSP.

OPPORTUNITIES

Surface development restrictions

- This Structure Plan takes into account the surface development restrictions that affect certain land within the study area, as discussed in Part 1 – Existing Conditions. The sequencing plan reflects that certain precincts remain under these restrictions (longer term precincts), whilst other precincts are no longer subject to any surface restrictions (shorter term precincts).

Precinct Staging

- This Structure Plan addresses this issue by refining the NWSSP precincts into smaller precincts, based on land ownership, topographic features and location. The aim of this approach is to encourage landowners in particular precincts to join together to prepare a cohesive rezoning proposal, in accordance with this Structure Plan. Sequencing will also maintain competition in the land market.
- Staging of these precincts is essential. Staging is important so as not to create circumstances in which new residents will be isolated from commercial and community facilities or public transport for an extended time.
- Development staging also needs to be integrated with adjoining developments, including the timely provision of connecting streets and walking / cycling paths.
- This Structure Plan therefore assigns development timeframes to each

of these precincts, in an attempt to ensure that the study area is developed in an orderly manner.

RU6 Transition zoned land

- Land within the study area that is zoned RU6 Transition Zone has been zoned to the most appropriate “holding” zone under Wyong LEP 2013. This zone is the best fit for land that will be subject to further investigations to support a rezoning. Such investigations will need to include Ecological Reports, Traffic Studies, Bushfire Risk Assessments, Flooding and Stormwater Studies and so on. This is therefore beyond the scope of this Structure Plan, and can instead be reviewed as part of future rezoning investigations.



FIGURE 109: BORAL CLAY MINE, FORMER WYONG LGA.



7.9 Character

7.9.1 Improve local character

Principle:

Establish a defined character for the study area

ISSUES

- No defined character for this area due to haphazard development patterns

OPPORTUNITIES

- The public realm can be improved through a range of methods such as landscaping, paving and street furniture upgrades. A Public Domain Plan is the best method to identify appropriate upgrades for this area, and these should be prepared for Lake Munmorah Neighbourhood Centre and Chain Valley Bay Neighbourhood Centre. These plans shall identify ways to enhance the existing public domain and identify opportunities for improved connectivity, including stronger linkages to the foreshore and between areas to the north and the south of the Pacific Highway.
- The Public Domain Plans should include:
 - Urban design guidelines for improved building form and function.
 - Potential improvements that can be made to visually connect the 2 centres to their respective outlooks of Lake Munmorah (Lake Munmorah Neighbourhood Centre) and Lake Macquarie (Chain Valley Bay Neighbourhood Centre).
 - Suitable building heights taking into account this Structure Plan's recommendation to encourage shop-top housing in these locations.
 - Public domain improvements including seating, paving, lighting, shade structures, building façade treatments, and landscaping/ street planting design.
 - A preliminary cost estimate, including ongoing maintenance costs.
- As the Lake Munmorah Local Centre is pegged as the future Town Centre for this area, it is recommended that a Place Plan be prepared for this site, to provide guidance for the future expansion of this site. The Place Plan should identify:
 - Building bulk and heights.
 - Vehicular circulation – Including location for a bus interchange on this site.
 - Car parking requirements.
 - Pedestrian/cyclist connections – New or upgraded facilities.
 - Residential densities – The Place Plan may recommend higher densities in the Town Centre or suitable nearby locations.
- An overarching chapter of the Central Coast Development Control Plan (DCP) will be required to guide development of the study area.
- As the area develops, site-specific sections of this DCP chapter will be required to further refine development precincts as necessary. These provisions will be progressively compiled into one DCP chapter.



FIGURE 110: NEIGHBOURHOOD CENTRE, CHAIN VALLEY BAY

ACTION	RESPONSIBILITY	TIMING
Prepare an overarching Greater Lake Munmorah chapter of the Central Coast Development Control Plan (DCP) to guide development of the study area.	Council	Short Term
Prepare a site-specific section of the Greater Lake Munmorah DCP chapter to further refine development precincts as necessary. These provisions will be progressively compiled into one DCP chapter.	Council	Ongoing

PART 2.

8.0 PRECINCT PLANS

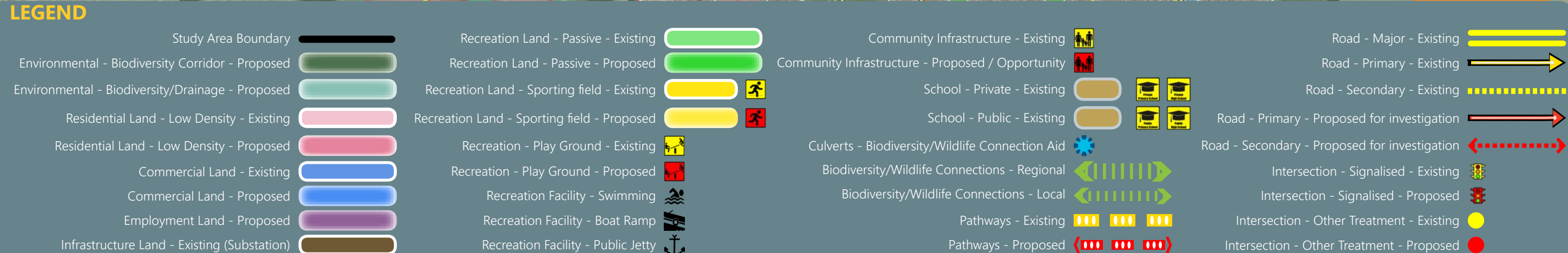


8.1 Precinct 1 - Biodiversity Corridor

AREA	474 hectares
ESTIMATED LOT YIELD	n/a
ESTIMATED POPULATION	n/a
ESTIMATED JOBS	n/a



FIGURE 111: PRECINCT 1



8.2 Precinct 2 - Employment Lands

AREA	171 hectares
GROSS DEVELOPABLE AREA	89.7 hectares
ESTIMATED LOT YIELD	n/a
ESTIMATED POPULATION	n/a
ESTIMATED JOBS	1,794 @ 20 jobs / ha *

* 20 jobs / hectare considered a conservative figure.

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	



8.3 Precinct 3 - Kingfisher Shores

AREA 91 hectares

GROSS DEVELOPABLE AREA 31.58 hectares

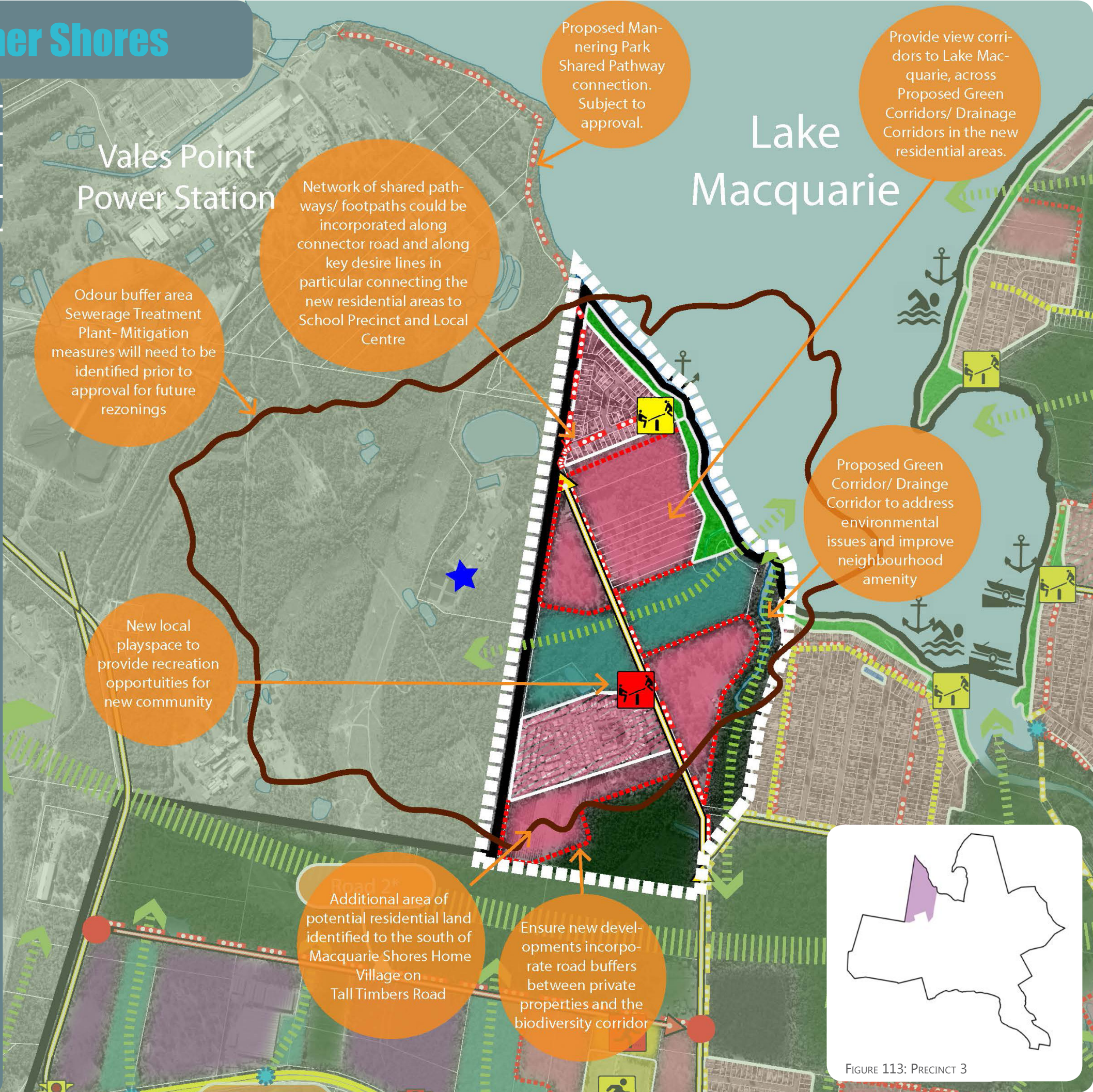
ESTIMATED LOT YIELD 474 lots @ 15 dwellings / ha

ESTIMATED POPULATION 1,080 @ 2.28 per dwelling

ESTIMATED JOBS n/a

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	



8.4 Precinct 4 - Sporting field

AREA 21.5 hectares

GROSS DEVELOPABLE AREA 8.91 hectares

ESTIMATED LOT YIELD 134 lots @ 15 dwellings / ha

ESTIMATED POPULATION 305 @ 2.28 per dwelling

ESTIMATED JOBS n/a

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	

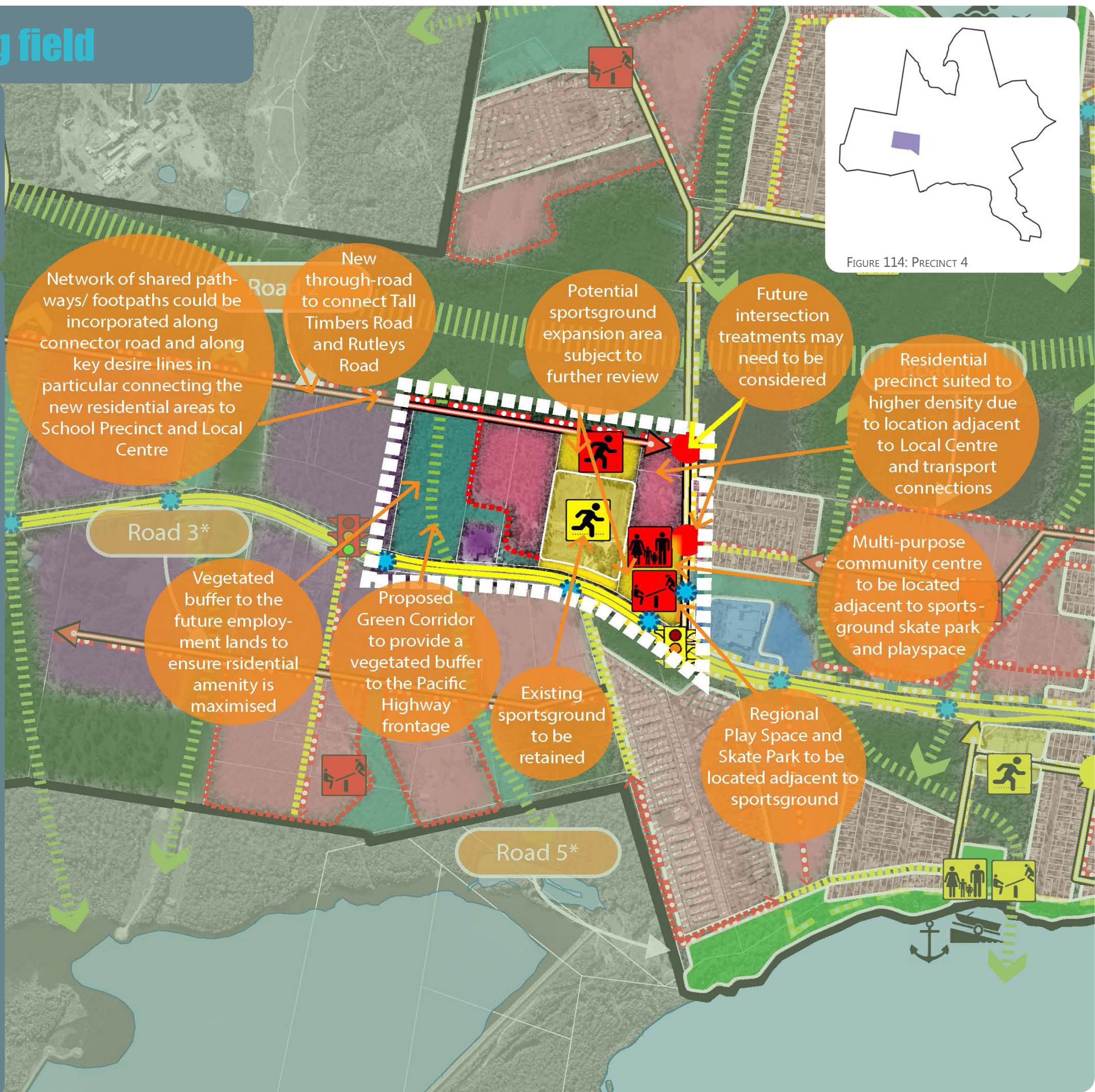


FIGURE 114: PRECINCT 4

8.5 Precinct 5 - Saliena Avenue

AREA 41 hectares

GROSS DEVELOPABLE AREA 29.45 hectares

ESTIMATED LOT YIELD * 442 lots @ 15 dwellings / ha

ESTIMATED POPULATION 1,007 @ 2.28 per dwelling

ESTIMATED JOBS n/a

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	



FIGURE 115: PRECINCT 5

8.6 Precinct 6 - Kamilaroo Avenue

AREA	54 hectares
GROSS DEVELOPABLE AREA	8.99 hectares
ESTIMATED LOT YIELD	67 lots @ 15 dwellings/ha 136 lots @ 30 dwellings/ha *
ESTIMATED POPULATION	463 @ 2.28 per dwelling
ESTIMATED JOBS	n/a

* Signifies Manufactured Housing Estate (MHE) expansion.

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	



8.7 Precinct 7 - Chain Valley Bay

AREA	279 hectares
GROSS DEVELOPABLE AREA	29.36 hectares
ESTIMATED LOT YIELD *	327 lots @ 15 dwellings / ha 249 lots @ 30 dwellings / ha *
ESTIMATED POPULATION	1,313 @ 2.28 per dwelling
ESTIMATED JOBS	n/a (with exception of potential for expansion of Neighbourhood Centre)

* Signifies Manufactured Housing Estate (MHE) expansion.

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	

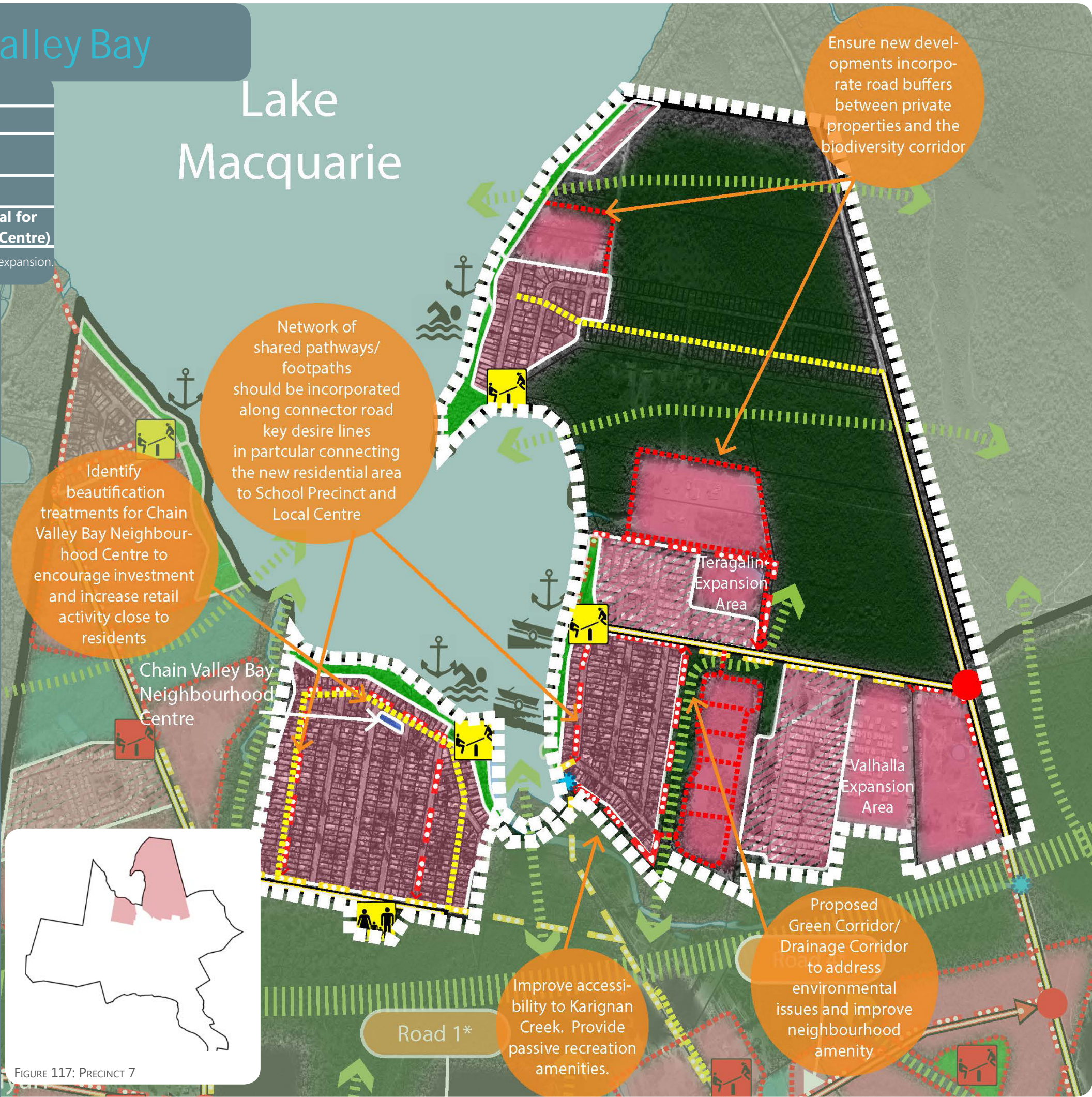


FIGURE 117: PRECINCT 7

8.8 Precinct 8 - Northern Lake Munmorah

AREA 63 hectares

GROSS DEVELOPABLE AREA 34.08 hectares

ESTIMATED LOT YIELD 511 lots @ 15 dwellings / ha

ESTIMATED POPULATION 1,165 @ 2.28 per dwelling

ESTIMATED JOBS Expansion of Local Centre

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	

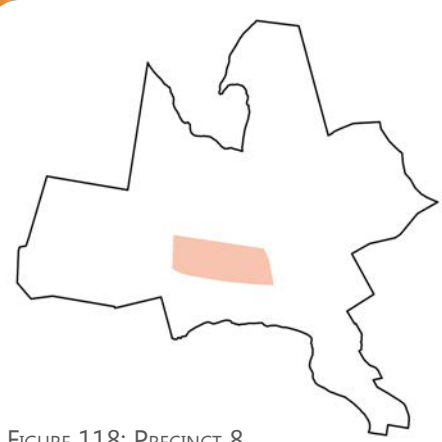
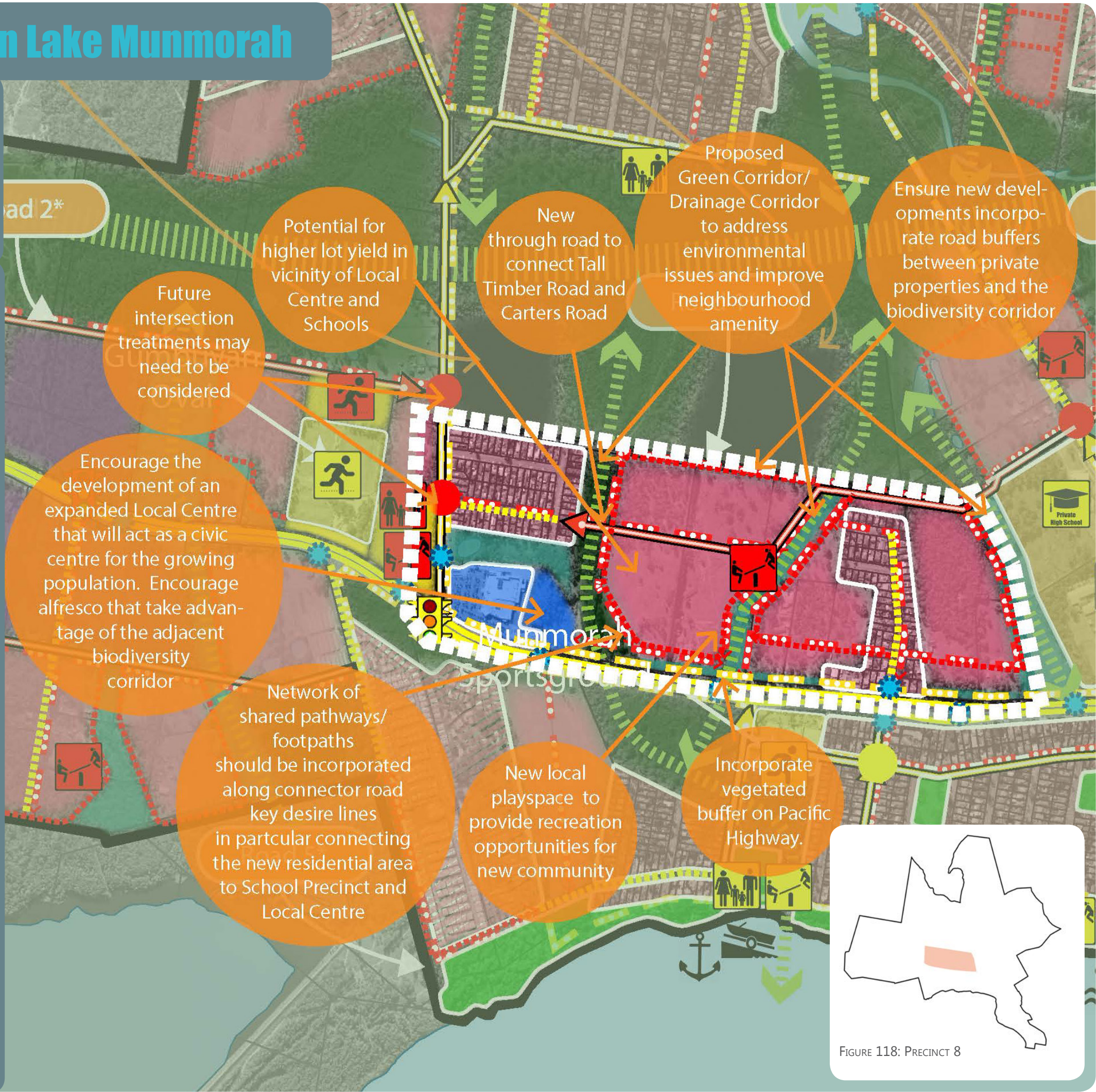


FIGURE 118: PRECINCT 8

8.9 Precinct 9 - Southern Lake Munmorah

AREA 252 hectares

GROSS DEVELOPABLE AREA 5.83 hectares

ESTIMATED LOT YIELD 87 lots @ 15 dwellings / ha

ESTIMATED POPULATION 199 @ 2.28 per dwelling

ESTIMATED JOBS n/a

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	

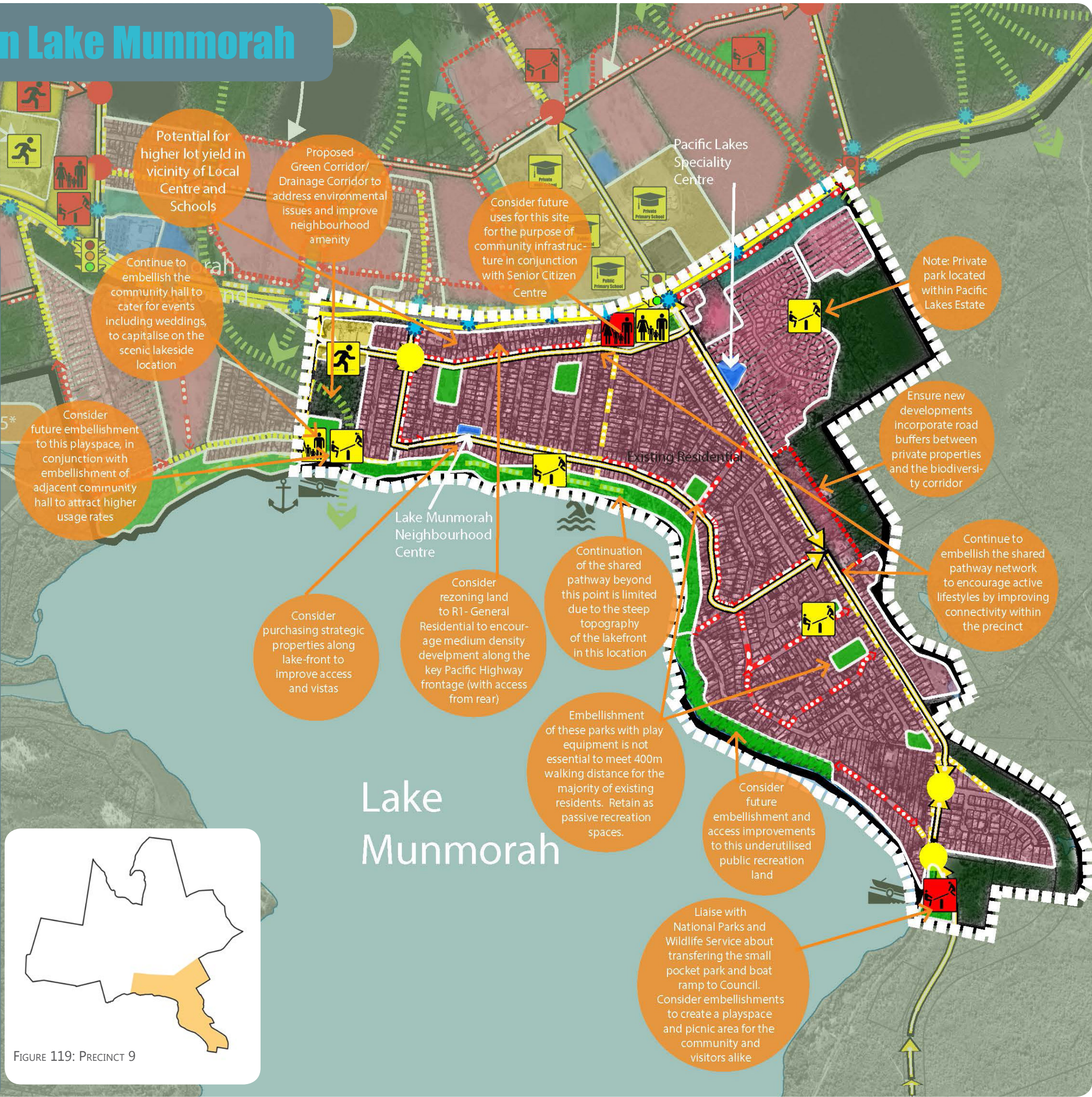


FIGURE 119: PRECINCT 9

8.10 Precinct 10 - Education

AREA 76 hectares

GROSS DEVELOPABLE AREA 51.96 hectares

ESTIMATED LOT YIELD 779 lots @ 15 dwellings / ha

ESTIMATED POPULATION 1,777 @ 2.28 per dwelling

ESTIMATED JOBS n/a (with exception of potential for expansion of Neighbourhood Centre)

* GDA estimate includes area of land subject to a Planning Proposal to the east of Carters Road. Actual GDA yet to be determined.

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	

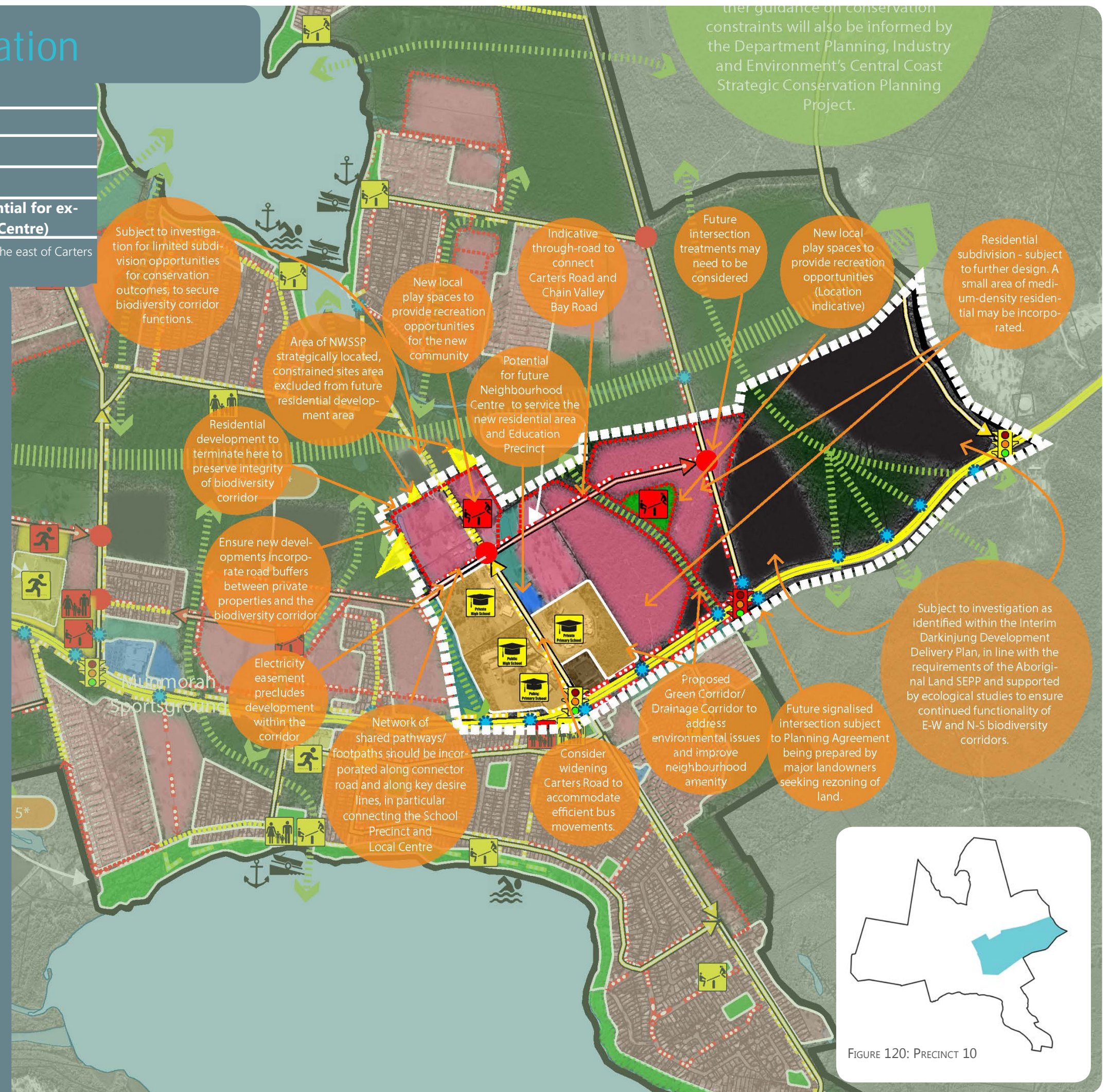


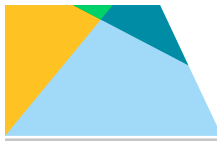
FIGURE 120: PRECINCT 10

PART 2

9.0 THE STRUCTURE PLAN







9.1 The Structure Plan

The composite structure plan is a consolidation of the key opportunities outlined in the previous sections of this report.

The Greater Lake Munmorah Structure Plan identifies opportunities for approximately:

- 3,206 additional residential dwellings
- 7,309 additional residents, and
- 1,794 additional jobs.

Size of Study Area		1,524 ha
Population		
Current Population (ABS ERP 2016)		8,407
Future Additional Population based on Greater Lake Munmorah Structure Plan single dwellings x 2.28		7,309
Future Additional Population based on Forecast ID projections		6,921
Future Additional Population based on NWSSP x 2.28		6,010
Dwellings		
Current Dwellings (ABS, 2016)		3,844
Future Additional Dwellings based on Greater Lake Munmorah Structure Plan single dwellings		3,206
Future Additional Dwellings based on Forecast ID projections		3,386
Future Additional Dwellings based on NWSSP projections		2,636
Jobs		
Current Jobs (2017)		1,737 *
Future Additional Jobs based on Greater Lake Munmorah Structure Plan Employment Lands **		1,794
Future Additional Jobs based on NWSSP Employment Lands (Precinct 16) **		1,890

* Includes suburb of Mannering Park (outside Greater Lake Munmorah Structure Plan study area) - Sourced from economy.id.com.au based on ABS statistics.

** Based on 20 jobs / hectare.

LEGEND

Study Area Boundary	
Environmental - Biodiversity Corridor - Proposed	
Environmental - Biodiversity/Drainage - Proposed	
Residential Land - Low Density - Existing	
Residential Land - Low Density - Proposed	
Commercial Land - Existing	
Commercial Land - Proposed	
Employment Land - Proposed	
School - Private - Existing	
School - Public - Existing	
Recreation Land - Passive - Existing	
Recreation Land - Passive - Proposed	
Recreation Land - Sporting field - Existing	
Recreation Land - Sporting field - Proposed	
Recreation - Play Ground - Existing	
Recreation - Play Ground - Proposed	
Recreation Facility - Swimming	
Recreation Facility - Boat Ramp	
Recreation Facility - Public Jetty	
Community Infrastructure - Existing	
Community Infrastructure - Proposed / Opportunity	
Infrastructure Land - Existing (Substation)	
Road - Major - Existing	
Road - Primary - Existing	
Road - Secondary - Existing	
Road - Primary - Proposed for investigation	
Road - Secondary - Proposed for investigation	
Intersection - Signalised - Existing	
Intersection - Signalised - Proposed	
Intersection - Other Treatment - Existing	
Intersection - Other Treatment - Proposed	
Pathways - Existing	
Pathways - Proposed	
Culverts - Biodiversity/Wildlife Connection Aid	
Biodiversity/Wildlife Connections - Regional	
Biodiversity/Wildlife Connections - Local	

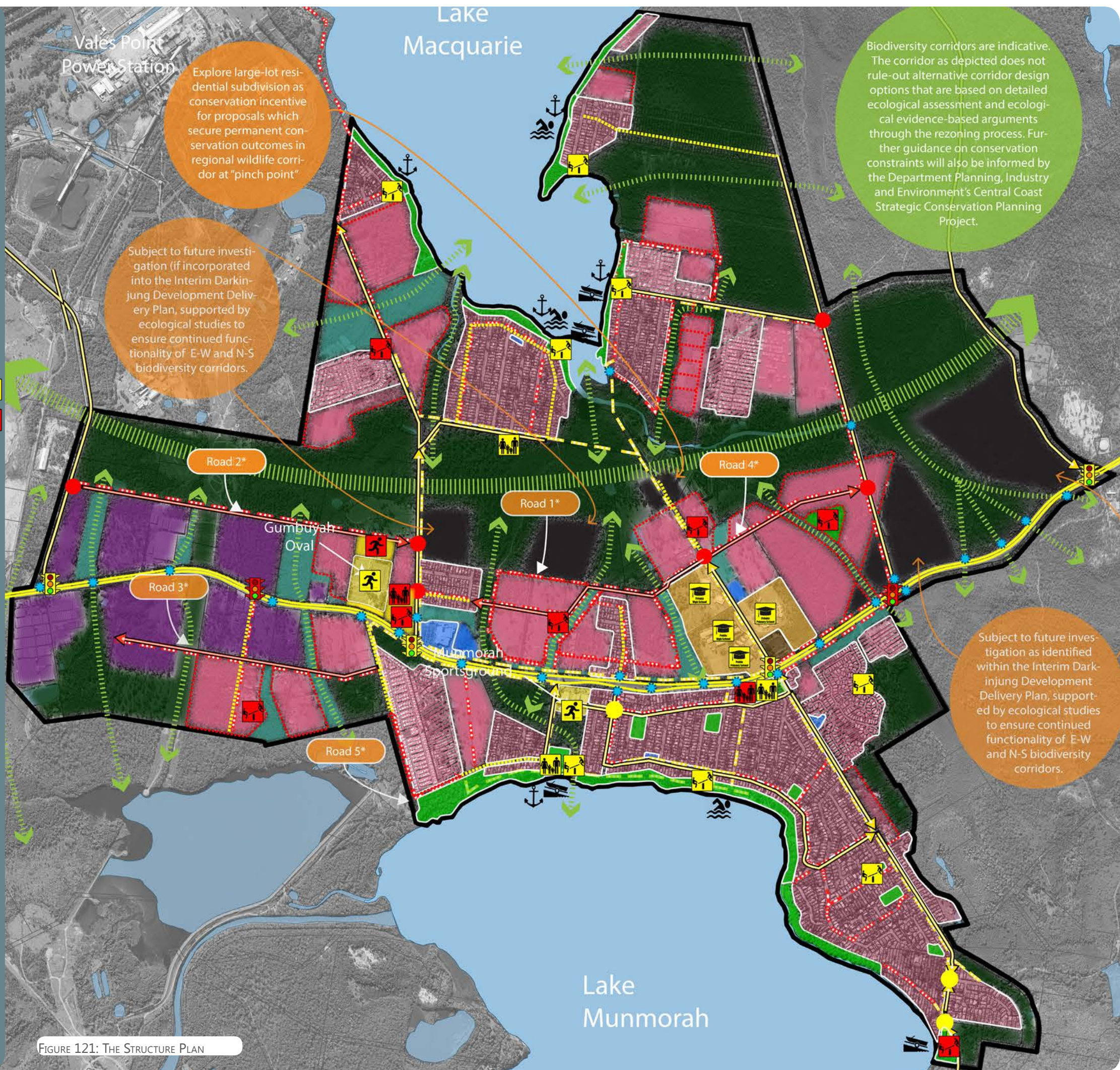


FIGURE 121: THE STRUCTURE PLAN

PART 2.

10.0 IMPLEMENTATION





10.1 Precinct Planning

This Structure Plan seeks to inform the community of the future direction and vision for the study area over the next 30 years. It is a high level framework that is not intended to resolve all issues associated with the study area. Current planning controls such as zoning, minimum lot sizes and building heights constrain the proposed development identified in this Structure Plan and will need to be amended to enable development. This Structure Plan does not amend these controls. Instead, it is anticipated that the outcomes of this Structure Plan will be implemented through local planning proposals, prepared by land owners to amend the zoning and/or planning controls that apply to their land.

The parts of the study area identified as potential development precincts have been further divided into smaller precincts, based on land ownership, topographic features and location. Development proponents will be required to group rezoning proposals and subdivision applications together by the relevant refined precinct. It is anticipated that this refinement of precincts will enable more positive development outcomes for the area, enabling Council to more holistically assess development proposals, rather than on a piecemeal basis which may have eventuated otherwise.

A number of technical studies will be required, relating to traffic and transport, flooding and drainage, contamination and remediation, hazards and risk, open space, social infrastructure, ecology, odour, infrastructure servicing and so on. The next steps will involve drafting new planning controls in response to the vision in the Land Use and Infrastructure Strategy and the outcome of the technical studies. Planning proposals will need to be generally consistent with this Structure Plan. However, it is recognised that additional studies undertaken may require this Structure plan to be varied. For example, a review of overland flow of stormwater may require larger or smaller drainage corridors than identified in this Structure Plan. This is acceptable provided it is justified.

10.2 Supporting Documents

A development control plan chapter, Place Plans and a public domain strategy will also be developed to guide the future development of the study area.

10.3 Next Steps

- Assess Planning Proposals as they are lodged.
- Liaise with significant landowners.
- Liaise with relevant Council staff.

10.4 Implementation Plan

The following tables present a consolidated action plan for implementing the Urban Design Framework, incorporating the objectives and actions discussed in the preceding chapters. The following timelines apply to the priorities:

- Short : 0-5 years
- Medium : 5-15 years
- Long : 15 years +
- On-going : Continual / As needs arise



10.5 Ongoing Actions and Advocacy

Short : 0 - 5 years

Medium : 5 - 15 years

Long : 15 years +

On-going : continual / as needs arise

ISSUE	ACTION	RESPONSIBILITY	TIMING
ENVIRONMENTAL	As part of precinct-based rezoning investigations, review land zoning within the biodiversity corridor taking into account the vision and objectives of the Structure Plan.	Council	Ongoing
	Advocate for installation of biodiversity crossing structures and exclusion fencing across the Pacific Highway corridor, to reduce both fauna crossing barriers and road-kill incidents.	Council / TfNSW	Medium term
	Advocate for a program of street tree plantings along the wider parts of the Pacific Highway median strip, to provide safer crossing opportunities for avian and glider species.	Council / TfNSW	Medium term
	Advocate for regeneration of natural bushland to the north of the ash dam, and stringent management requirements as part of any future redevelopment plans for the Power Station site.	Council / Landowner	Long Term
	Undertake a sign audit and remove old and/or redundant signs, replace with new or consolidated signs where possible, and provide a consistent style.	Council	Medium
	Encourage the under-grounding of existing electricity supply infrastructure in high profile locations. New electricity supply infrastructure must be provided underground, where possible.	Council	Ongoing
	As part of a new Greater Lake Munmorah DCP Chapter, require a vegetated landscape treatment be provided to the Pacific Highway, to provide a buffer for residents and to improve visual amenity of the area.	Developer	Ongoing
	In accordance with the relevant DCP Chapter, ensure that new developments do not increase nutrient and sediment loads and water flows above their natural levels, and are undertaken using best practice for stormwater or urban water quality design.	Council	Ongoing
HAZARDS	As part of a new Greater Lake Munmorah DCP Chapter, require geotechnical studies be prepared as part of development proposals on sites subject to dispersive soils.	Developer/ Council	Ongoing
	As part of a new Greater Lake Munmorah DCP Chapter, require new development incorporates roads as buffers between private properties and vegetation in the biodiversity corridor.	Developer/ Council	Ongoing
	As part of a new Greater Lake Munmorah DCP Chapter, require retention of overland flow paths in most instances. Piping of flows is generally not supported.	Developer / Council	Ongoing
	In accordance with the relevant DCP Chapter, ensure development on flood prone land is assessed on its merits, while ensuring the impacts of flooding on the community are reduced using ecologically positive methods.	Developer / Council	Ongoing
	Implement a street tree planting program on the following streets: 1. Tall Timbers Road 3. Elizabeth Bay Drive 2. Carters Road 4. Chain Valley Bay Road	Council / Developer	Long-Term
	In accordance with the relevant DCP Chapter, ensure that Water Sensitive Urban Design is integrated into new development.	Council / Developer	Ongoing
SERVICING	Review the Development Servicing Plan for the study area.	Council	Short Term
	Prepare a hydraulic sewer model for sewer catchments to ensure a holistic capacity review and refine Development Servicing Plan.	Council	Short Term
	As part of a new Greater Lake Munmorah DCP Chapter, ensure that rezoning applications are not approved within the odour contour area, without a Planning Agreement (or similar) committing to mitigating odours for future residents.	Developer	Ongoing
	As part of a new Greater Lake Munmorah DCP Chapter, ensure that no inappropriate development is permitted within electrical transmission line easements.	Council	Ongoing
TRANSPORT	Provide a connector road between Tall Timbers Road and Carters Road to service Precinct 8. (Road 1)	Developer	Short Term
	Provide a connector road between Rutleys Road and Tall Timbers Road to service the future employment precinct. (Road 2)	Developer	Long Term
	Provide a connector road between Saliena Avenue and Basford Road to service Precinct 5. (Road 3)	Developer	Long Term
	Provide a connector road between Chain Valley Bay Road and Carters Road to service Precinct 10. (Road 4)	Developer	Short Term
	Investigate provision of a connector road between Saliena Avenue and Kamilaroo Avenue. (Road 5)	Council	Long Term
	Liaise with NSW National Parks and Wildlife regarding the potential for construction of a connector road between Chain Valley Bay Road and Kanangra Drive. (Road 6)	Council	Long Term
	Provide a signalised intersection, including pedestrian crossing, at the junction of Chain Valley Bay Road/Pacific Highway to service Precinct 7 and 10.	Developer/ TfNSW	Short Term
	Incorporate road, drainage and pathway costs into an updated Northern Districts Chapter of the Section 7.11 Development Contributions Plan (where appropriate).	Council	Short Term

ISSUE	ACTION	RESPONSIBILITY	TIMING
TRANSPORT (CTD)	As part of a new Greater Lake Munmorah DCP Chapter, encourage access to public transport services by ensuring that: <ul style="list-style-type: none">Housing and subdivision designs are to integrate with land use, transport and access, both pedestrian and vehicular.Walking and cycling networks are aligned with public transport routes to improve accessibility to public transport.Bus stops are provided in locations as nominated by the relevant authority.A bus interchange is provided as part of the Lake Munmorah Local Centre expansion.	Council	Ongoing
	Prepare a package of proposed improvements for the Pacific Highway corridor, for lodgement with the TfNSW (note: TfNSW has final decision-making authority): <ul style="list-style-type: none">Improve lighting along the Pacific Highway between Carters Road and Chain Valley Bay Road to ensure safety and usability is improved for the community.Reduce maximum speed limit to 60km/hour at a minimum, and Incorporate more pedestrian crossings.Implement a program of street tree plantings, including median plantings, to provide shaded spaces and buffering to the Pacific Highway for shared pathway users.	Council/ TfNSW	Medium Term
	As part of a new Greater Lake Munmorah DCP Chapter, require Safe System Assessments for any new rezoning proposals.	Developer	Ongoing
RECREATION	As part of a new Greater Lake Munmorah DCP Chapter, Council can improve walking/cycling networks in the study area by ensuring: <ul style="list-style-type: none">Walking and cycling networks are incorporated into subdivision design and construction.Walking and cycling networks must be designed to ensure safe, amenable and convenient pedestrian and cycle connections.Footpath and cycle path widths are increased in areas expecting higher usage such as near schools, community centres, local centres, public transport interchanges/bus stops.Pedestrian and cycle crossings are provided at all relevant intersections and along key desire lines.	Council / Developer	Ongoing
	Investigate options for the following recreation facilities: <ul style="list-style-type: none">Colongra Bay Reserve playground – either replace old facilities or incorporate new facilities.Liaise with NPWS to coordinate delivery of a play-space at Elizabeth Bay Dr (Munmorah State Conservation Area).Consider opportunities to encourage more public use for the reserve at the end of Greenacre Avenue.Continue to coordinate the delivery of the play-space adjacent to Gumbuyah Reserve on Tall Timbers Road.	Council	Medium Term
	As part of a new Greater Lake Munmorah DCP Chapter, require rezonings incorporate playground/park space into concept plans where relevant.	Developer	Ongoing
	Coordinate the delivery of a new sports field at Tall Timbers Road (north of Gumbuyah Oval).	Council	Long Term
	Coordinate the embellishment of the basketball and tennis courts at Acacia Avenue, Lake Munmorah.	Council	Medium
COMMUNITY	Upgrade/embellish Lake Munmorah Colongra Bay Hall to increase functionality and meet community needs	Council	Short Term
	Investigate the need and possible locations for a multi-purpose community facility in proximity to Lake Munmorah Local Centre	Council	Medium
ECONOMY	Liaise with owners of the Lake Munmorah Local Centre site to discuss options for developing the adjacent vacant land as a Town Centre to cater for the growing population.	Council	Short Term
	Prepare a Place Plan for the Lake Munmorah Local Centre, in consultation with the landowner and incorporate outcomes into the site specific DCP chapter.	Council	Medium
	Prepare a Public Domain Plan for the Chain Valley Bay Neighbourhood Centre	Council	Medium
	Prepare a Public Domain Plan for the Lake Munmorah Neighbourhood Centre	Council	Medium
	Undertake a review and update of the Northern Districts Section 7.11 Development Contributions Plan	Council	Short Term
	Rezoning of land for employment uses to be identified as long term, in order to ensure take-up of the WEZ lands is not discouraged.	Council	Long Term
	As part of a new Greater Lake Munmorah DCP Chapter, employment land fronting the Pacific Highway to incorporate significant landscaping, locate parking to the rear of the building and screen service areas.	Developer	Ongoing
LAND USE CONFLICTS	Implement a staged program of Planning Proposals to ensure the study area is developed in a responsible and sustainable manner.	Council	Ongoing
CHARACTER	Prepare an overarching Greater Lake Munmorah chapter of the Central Coast Development Control Plan (DCP) to guide development of the study area.	Council	Short Term
	Prepare a site-specific section of the Greater Lake Munmorah DCP chapter to further refine development precincts as necessary. These provisions will be progressively compiled into one DCP chapter.	Council	Ongoing



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