

Central
Coast
Council

LAKE MUNMORAH

GREATER

STRUCTURE PLAN

DRAFT

March 2019



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Executive Summary

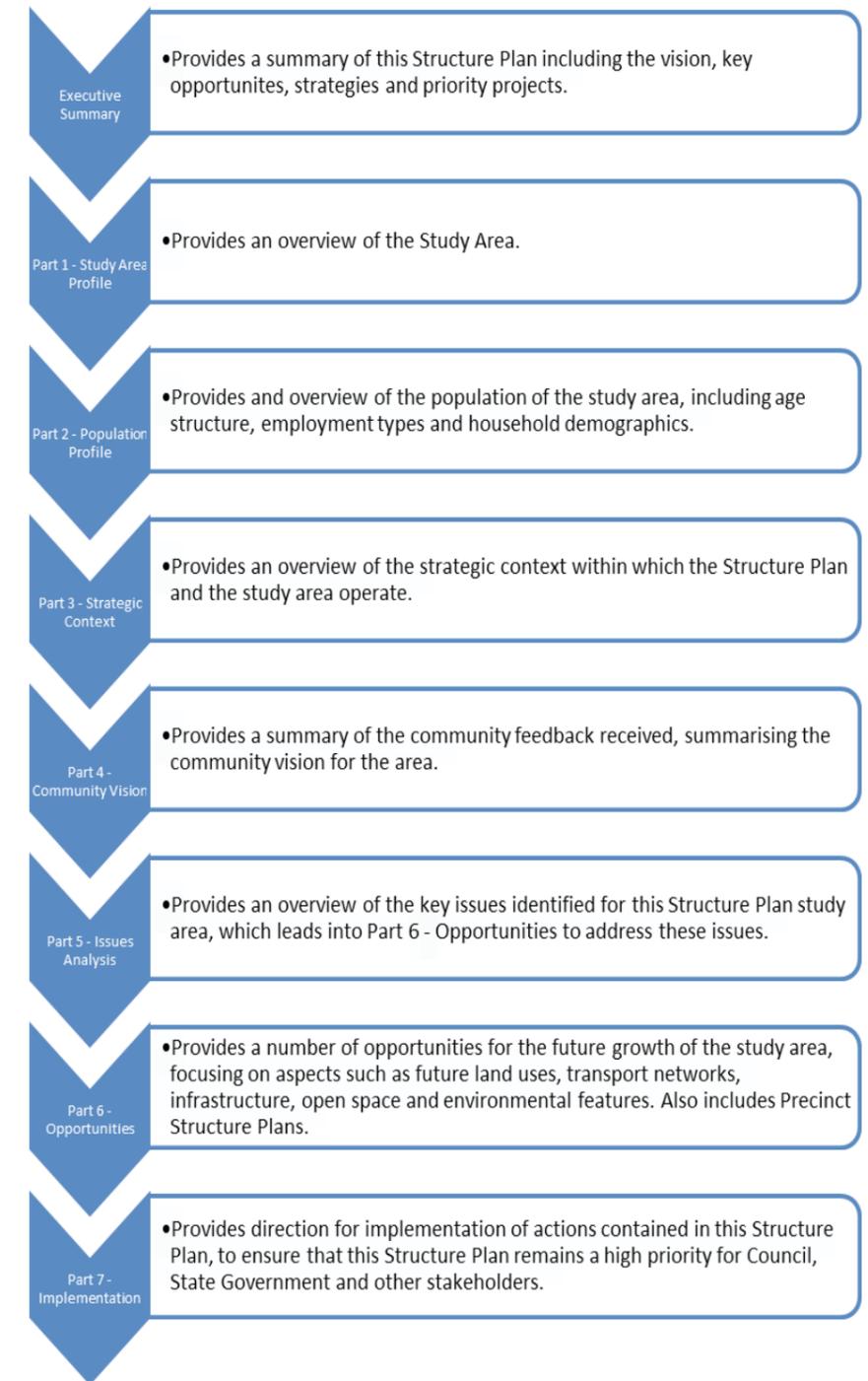
Executive Summary

Overview

The Greater Lake Munmorah Structure Plan establishes a framework to guide the future growth of the study area from approximately 8,500 people to approximately 13,500 people. It is guided by a vision that aims to support sustainable growth and has been developed through significant analysis and stakeholder engagement.

Structure Plan Components

The Greater Lake Munmorah Structure Plan is divided into five separate parts each with a distinct focus:



A profile of Greater Lake Munmorah

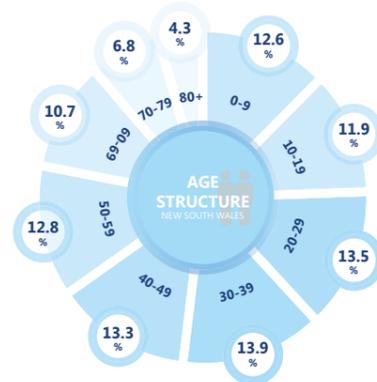
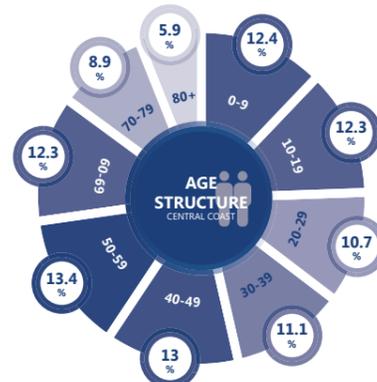
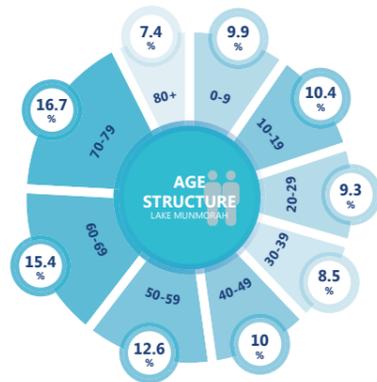
Parts 2 and 3 discuss the profile of the study area and the study areas population, respectively. The population profile includes age structure, employment types and household demographics.

Greater Lake Munmorah



Central Coast region

339,450 people live on the Central Coast



Qualification	Lake Munmorah (%)	Central Coast (%)	New South Wales (%)
Bachelor or higher degree	7.1	7.2	27.4
Advanced diploma or diploma	14	9.2	46.8
Vocational qualifications	23.4	24.4	41.8
No qualification	23.4	8.9	18.1
?	39.1	39.1	39.1



Community Vision

Provides a summary of the community feedback received, summarising the community vision for the area.

TO BE COMPLETED AFTER PUBLIC EXHIBITION PERIOD

Examples:

“Maintain the strong connection to the natural landscape of the bushland and Lakes.”

“Improve transport and pedestrian/cyclist connections”

“Provide housing choice for different life stages”

“Protect the natural environment for current and future generations to enjoy”

Northern Lakes, San Remo- Budgewoi & Toukley



Suburbs

Chain Valley Bay, Doyalson North, Frazer Park, Freemans, Gwandalan, Kingfisher Shores, Lake Munmorah, Mannering Park, Point Wolstoncroft, Summerland Point, Wybung, Blue Haven, Budgewoi, Budgewoi Peninsula, Buff Point, Colongra, Doyalson, Halekulani, San Remo, Canton Beach, Norah Head, Norville and Toukley.



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Figure 1: Community Strategic Plan results for the study area

Strengths and weaknesses - Setting the scene for Greater Lake Munmorah

Provides an overview of the key strengths and weaknesses identified for this Structure Plan study area, which leads into Part 6 - Opportunities to address these issues.

ENVIRONMENTAL

- No and/or limited visual connections to the lake foreshore.
- Cluttered visual landscape which can interfere with the natural beauty of the area.
- Presence of Ecologically Endangered Communities and threatened species.
- Requirement to define a biodiversity corridor.

HAZARDS

- Significant bushfire hazard.
- Significant flood hazard.
- Dispersive soils are prevalent in this area, particularly south of Karignan Creek
- Necessity to prepare for climate change impacts.

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 for certain precincts
- Easements – Significant TransGrid transmission line easement

TRANSPORT

- Pacific Highway cuts the study area into Northern and Southern areas.
- Carters Road intersection issues during peak school times.
- Limited access to public transport services.
- Limited physical connections to Lake Macquarie and Lake Munmorah foreshore.
- Discontinuous walking and cycling networks.
- Limited physical connections to Lake Foreshore.
- Discontinuous walking and cycling networks.

RECREATION

- Limited physical connections to Lake Foreshore.
- Discontinuous walking and cycling networks.
- Limited pedestrian access to playground facilities.
- Limited access to sportsground 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
- Tired Neighbourhood Centres that 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
- Large area of land zoned RU6 Transition causing uncertainty around future land uses.

CHARACTER

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

PRECINCTS

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



Opportunities

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 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 : 1-2 years Medium : 3-5 years Long : 6 years plus On-going : continual / as needs arise

Issue	Project	Responsibility	Timing
Environmental	Review land zoning within the biodiversity corridor, as part of precinct-based rezoning investigations.	Council	Ongoing.
	Pursue installation of biodiversity crossing structures and exclusion fencing across the Pacific Highway corridor, to reduce the barrier to fauna crossing the Pacific Highway, whilst reducing road-kill incidents.	Council / RMS	Medium
	Pursue a program of street tree plantings along the wider parts of the Pacific Highway median strip, which will assist in safe crossing opportunities for fauna.	Council / RMS	Medium
Hazards	Implement a street tree planting program	Council	Short
	Ensure that Water Sensitive Urban Design is integrated into new developments.	Council	Ongoing
	Overland flow paths to be retained wherever possible. Piping of flows is generally not supported.	Council	Ongoing
Servicing	Review the Development Servicing Plan for the study area.	Council	Short
	Prepare a hydraulic sewer model for sewer catchments to ensure a holistic capacity review and refine the Development Servicing Plan.	Council	Short-term
	Ensure that rezoning applications are not approved within the odour contour area, without a Voluntary Planning Agreement (or similar) committing to mitigating odours for future residents.	Council	Ongoing
	Ensure that no inappropriate development is permitted within the transmission line easements.	Council	Ongoing
Transport	Provide a connector road between Tall Timbers Road and Carters Road to service development Precinct 8.	Developer	Medium
	Provide a connector road between Rutleys Road and Tall Timbers Road to service the employment lands precinct.	Developer	Long
	Provide a connector road between Chain Valley Bay Road and Carters Road, subject to the approval of the rezoning of land owned by Darkinjung Local Aboriginal Lands Council.	Developer	Long
	Provide a signalised intersection, including pedestrian crossing, at the junction of Chain Valley Bay Road and Pacific Highway to service Precinct 7 and the proposed Darkinjung Local Aboriginal Lands Council development.	Developer / RMS	Long
	Provide a signalised intersection, including pedestrian crossing, along the Pacific Highway Corridor in the vicinity of the junction of Acacia Road and the new development Precinct 8.	Developer / RMS	Long
	Incorporate the necessary portion of funds required to construct these roads into a Section 94 Development Contributions Plan (if necessary).	Council	Medium
	Prepare a package of proposed improvements for the Pacific Highway corridor, for lodgement with the RMS: <ul style="list-style-type: none"> Improve lighting along the Pacific Highway between Carters Road and Tall Timbers Road to ensure that the safety and usability is improved for the community. Reduce maximum speed limit to 60km/hour at a minimum. Implement a program of street tree plantings, including median plantings, to provide shaded spaces and a small degree of buffering to the Pacific Highway for shared pathway users. Incorporate bus transport infrastructure along the Pacific Highway corridor. 	Council / RMS	Long
	Council to 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

Issue	Project	Responsibility	Timing	
Recreation	Ensure that: <ul style="list-style-type: none"> Walking and cycling networks are incorporated into subdivision design and constructed by developers as part of subdivision works. 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, neighbourhood centres, local centres, public transport interchanges and bus stops. Pedestrian and cycle crossings are provided at all relevant intersections and along key desire lines. 	Council	Ongoing	
	Require precinct based rezonings to incorporate playground/park space into concept plans.	Council	Ongoing	
	Embellish Colongra Bay Reserve playground – either replace old facilities or incorporate new facilities.	Council	Short	
	Liaise with NPWS to deliver a play-space at the Elizabeth Bay Drive reserve within Munmorah State Conservation Area.	Council	Medium	
	Investigate options for the reserve at the end of Greenacre Avenue to encourage more public use.	Council	Medium	
	Continue to coordinate the delivery of the play-space adjacent to Gumbuyah Reserve on Tall Timbers Road.	Council	Short	
	Coordinate the delivery of a new sports ground at Tall Timbers Road (north of Gumbuyah Oval) as follows: <ul style="list-style-type: none"> Site investigations to determine suitability for future Sports Ground. Undertake Planning Proposal to amend Central Coast LEP to rezone site to RE1 Public Open Space, and add site to Land Reservation Acquisition map. Purchase property. Construct sports ground complex. 	Council Council Council Council	Short Medium Long Long	
	Coordinate the embellishment of the basketball and tennis courts at Acacia Avenue, Lake Munmorah.	Council	Long	
	Community	Upgrade Lake Munmorah Colongra Bay Hall in accordance with the recommendation of the North Wyong Shire Community Facilities Plan 2015.	Council	Short
		Investigate a suitable location for the Multi-purpose community facility in proximity to the Lake Munmorah Local Centre.	Council	Short
Economy	Liaise with owners of the Lake Munmorah Local Centre to discuss options for developing the adjacent vacant land as a Town Centre to cater for the growing population.	Council	Short	
	Prepare a Master Plan for the Lake Munmorah Local Centre, in consultation with the landowner.	Council	Medium	
	Prepare a Public Domain Plan for the Lake Munmorah Neighbourhood Centre	Council	Short	
	Prepare a Public Domain Plan for the Chain Valley Bay Neighbourhood Centre	Council	Short	
	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	
	Employment land uses with a frontage to the Pacific Highway should incorporate significant levels of landscaping, locate parking to the rear of the building and provide screening of any loading or service areas.	Council	Short	
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 chapters of the future Central Coast DCP for the future development precincts, as necessary.	Council	Ongoing	
Precincts	Implement a staged program of Planning Proposals to ensure the study area is developed in a responsible and sustainable manner.	Council	Ongoing	

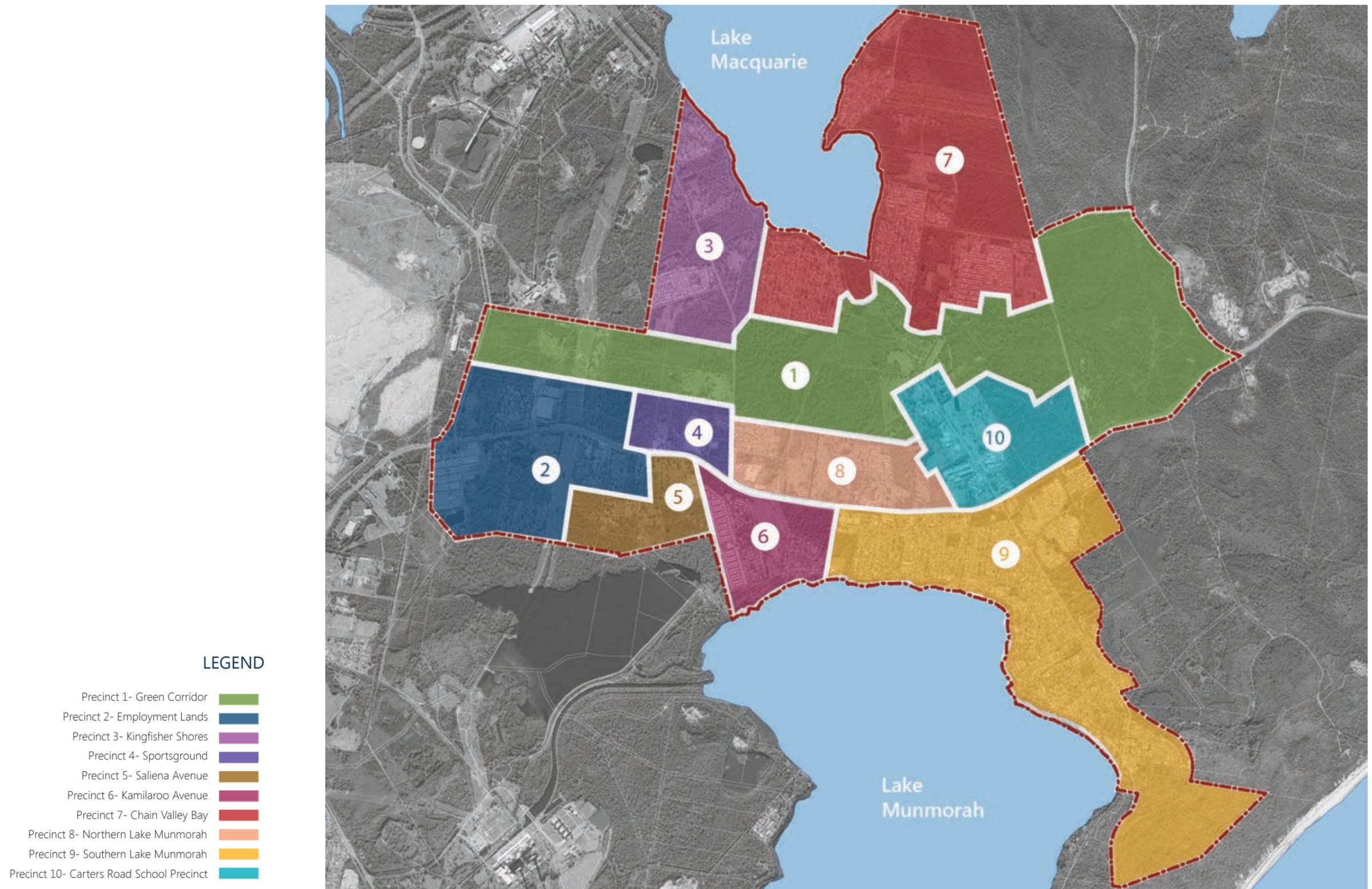


Figure 2: Study Area Precincts

----- Study Area Boundary

- LEGEND**
- Residential Land- Proposed Low Density
 - Residential Land- Proposed Low/ Medium Density
 - Residential Land- Managed Conservation Site- Proposed
 - Commercial Land- Existing
 - Commercial Land- Proposed
 - Employment Land- Proposed
 - Education Land- Existing
 - Recreation Land: Sports Ground- Existing
 - Recreation Land: Sports Ground- Proposed
 - Environmental Land (Biodiversity Corridor)
 - Environmental Land (Proposed Green Corridor/ Drainage Corridor)
 - Recreation Land: Passive Recreation- Proposed
 - Recreation Land: Passive Recreation- Existing
 - Major Road (Pacific Highway)- Existing
 - Main Road (Higher Traffic Volume)- Existing
 - Minor Road (High Traffic Volume)- Existing
 - Main Road (Higher Traffic Volume)- Proposed
 - Minor Road (High Traffic Volume)- Proposed
 - Shared Pathways- Existing
 - Shared Pathways- Proposed (by Structure Plan)
 - Signalised Intersection - Existing
 - Signalised Intersection - Proposed
 - Roundabout- Existing
 - Roundabout/ Other Intersection Treatment- Proposed
 - Recreation Land: Play Space- Existing
 - Recreation Land: Play Space- Proposed
 - Community Infrastructure- Existing
 - Community Infrastructure- Proposed/ Opportunity
 - Swimming Area
 - Boat Ramp (Council)- Existing
 - Jetty (Council)

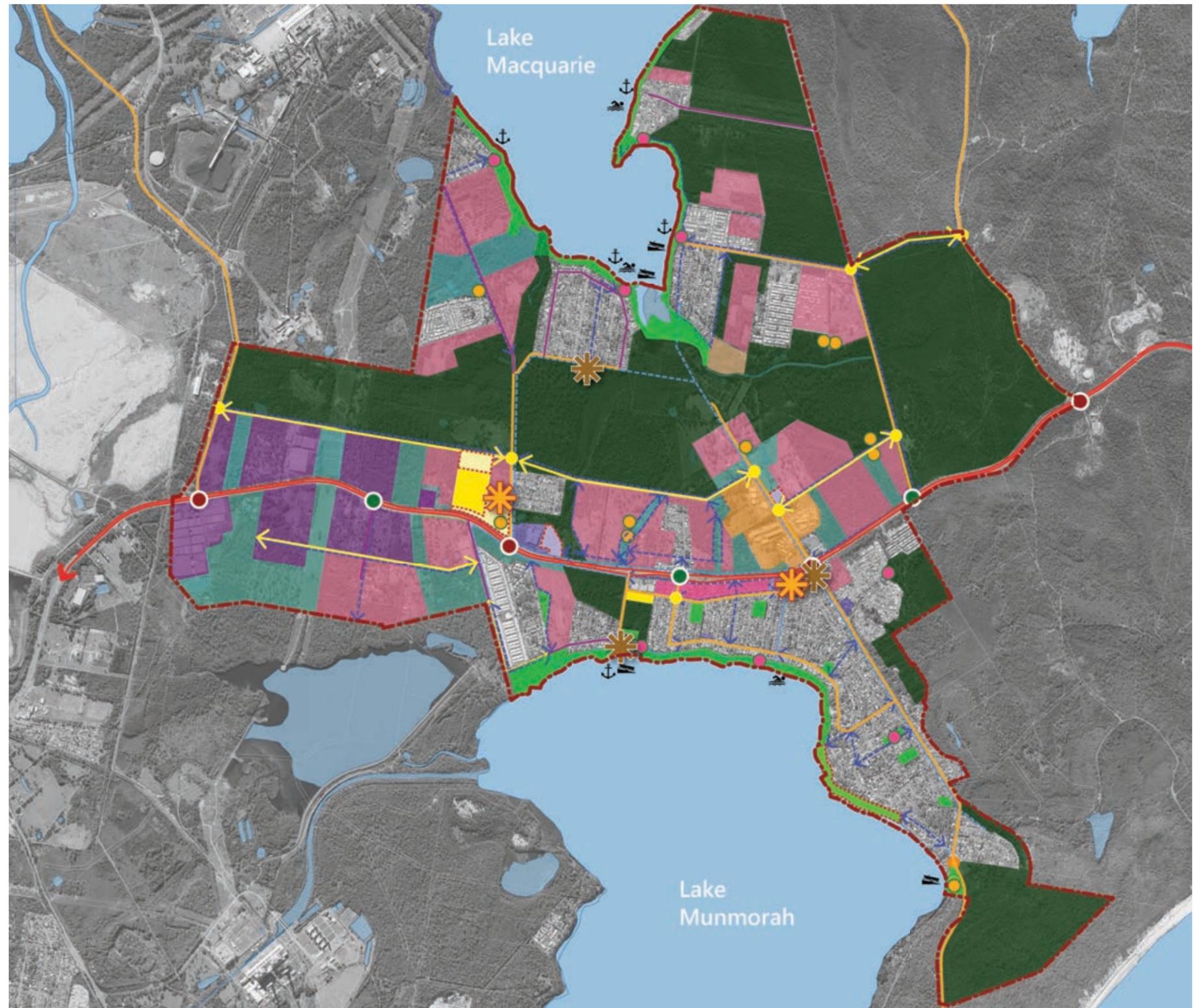


Figure 3: Composite Structure Plan

Study Area Boundary

Implementation

Action Plan

Once endorsed by the Council, the Implementation Plan for the Greater Lake Munmorah Structure Plan will be activated. The Implementation Plan identifies the key actions arising from the plan, as well as the organisation with the main responsibility for the action. The Implementation Plan also identifies a staged approach for the key actions, to ensure that project funding and resources can be appropriately managed. 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

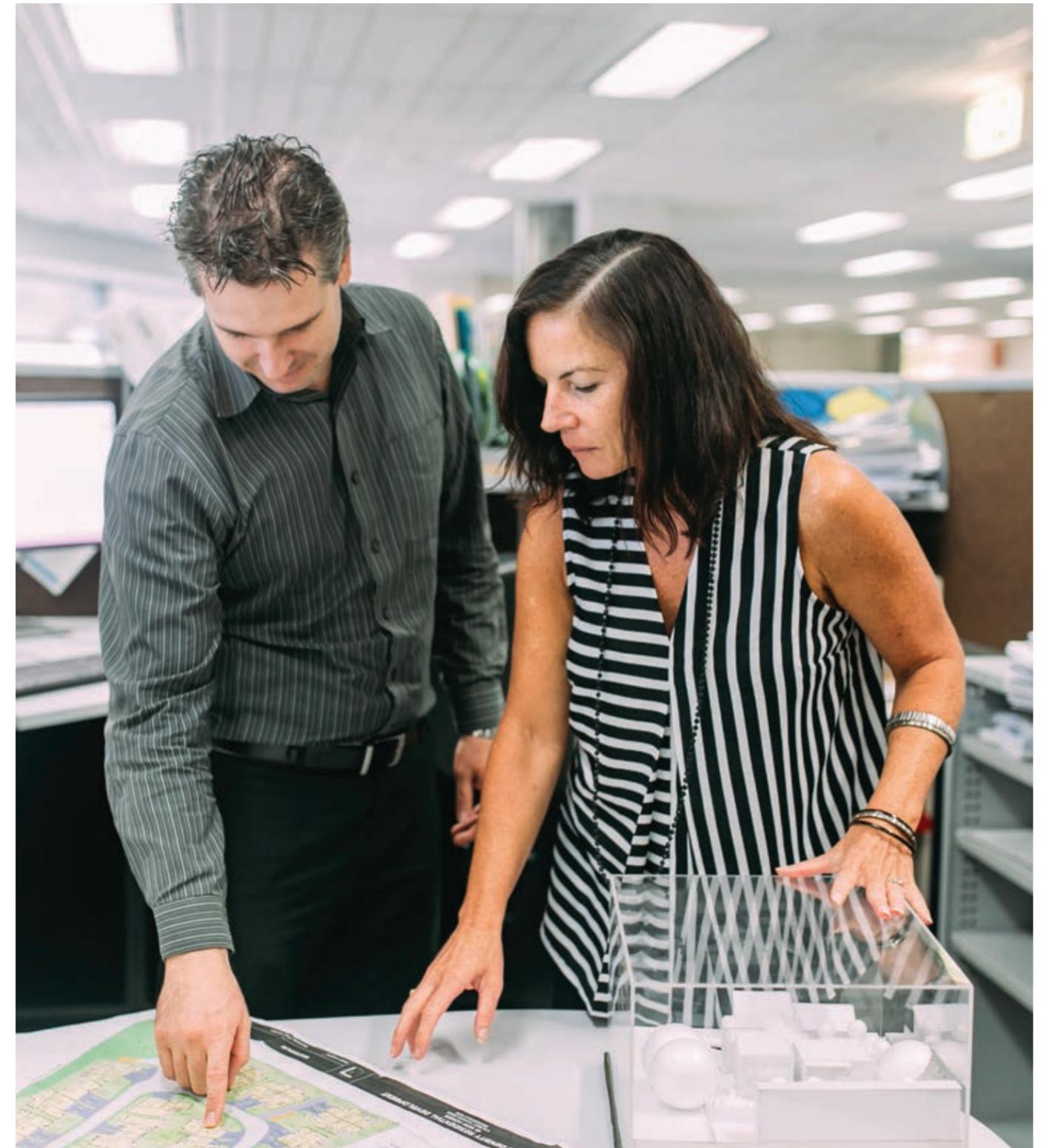
This Structure Plan seeks to inform the community of the future direction and vision for the study area over the next 30 years. It is a high level framework that is not intended to resolve all issues associated with the study area. Current planning controls such as zoning, minimum lot sizes and building 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 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. 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 reme

Supporting Documents

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



Acronyms

ABS	Australian Bureau of Statistics
APZ	Asset Protection Zone
CBD	Central Business District
CCL	Consolidated Coal Lease
CCRP	Central Coast Regional Plan
COSS	Coastal Open Space System
DCP	Development Control Plan
DLALC	Darkinjung Local Aboriginal Land Council
DPE	Department of Planning & Environment
DSP	Development Servicing Plan
EEC	Endangered Ecological Community
ELS	Employment Lands Strategy
LEP	Local Environmental Plan
LGA	Local Government Area
MHE	Manufactured Housing Estate
NDA	Net Developable Area
NPWS	National Parks & Wildlife Service
NWSSP	North Wyong Shire Structure Plan
OEH	Office of Environment & Heritage
PMF	Probable Maximum Flood
RCS	Retail Centres Strategy
RDS	Residential Development Strategy
RFS	Rural Fire Service
RMS	Roads and Maritime Services
SCA	State Conservation Area
SEPP	State Environmental Planning Policy
SPS	Sewage Pumping Station
STP	Sewage Treatment Plant
TL	Transmission Line
VPA	Voluntary Planning Agreement
WEZ	Wyong Employment Zone
WLEP	Wyong Local Environmental Plan 2013
WSUD	Water Sensitive Urban Design





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Study Area Profile



Regional Context

The coastal village of Lake Munmorah is located in the north-east of the Central Coast Council LGA and is bounded by Munmorah State Conservation Area to the east, Chain Valley Bay to the north, Lake Munmorah to the south, and Doyalson North 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. 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 South.

LEGEND

- Study Area Boundary
- Central Coast LGA Boundary

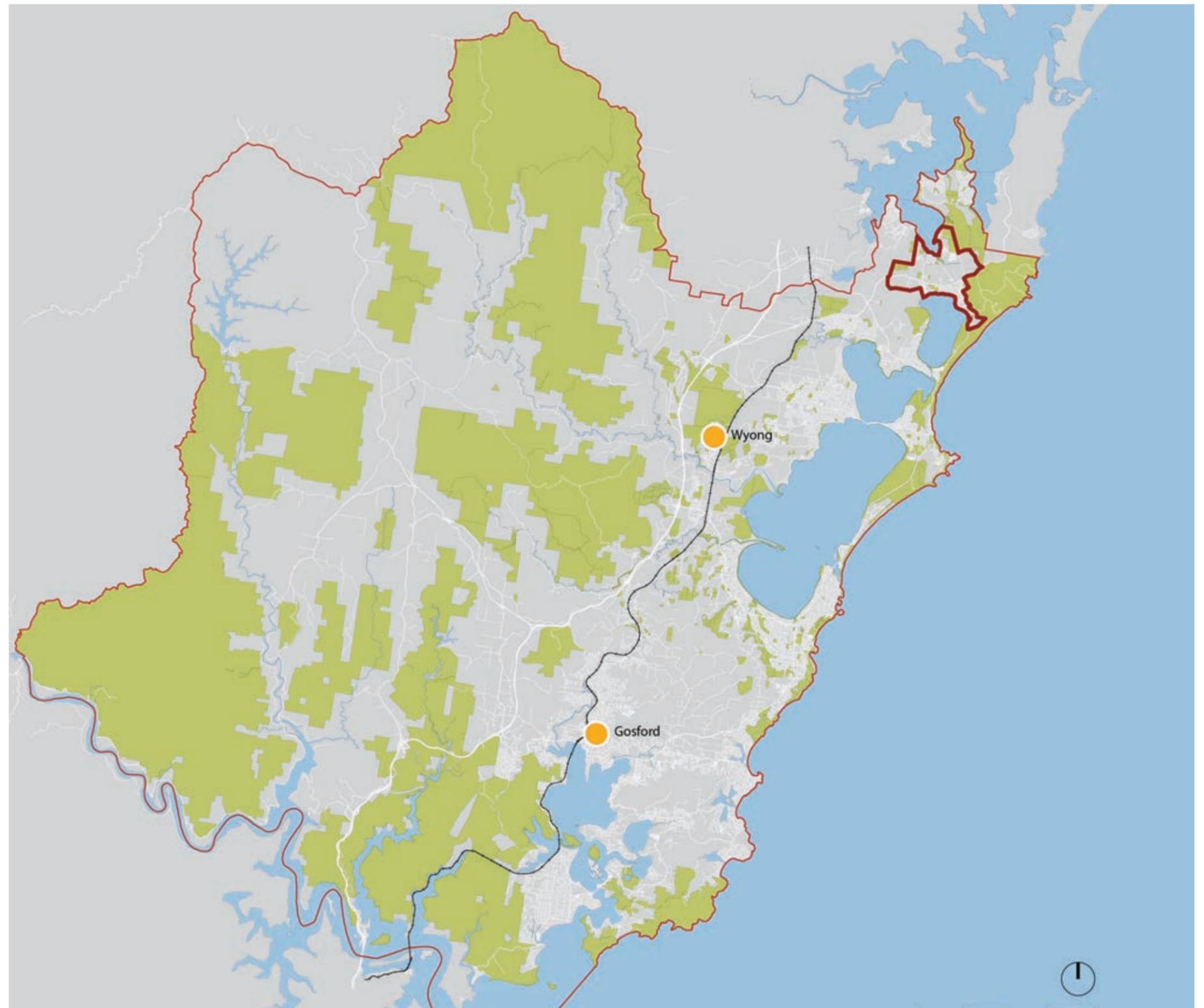


Figure 4: Study Area within the context of the Central Coast

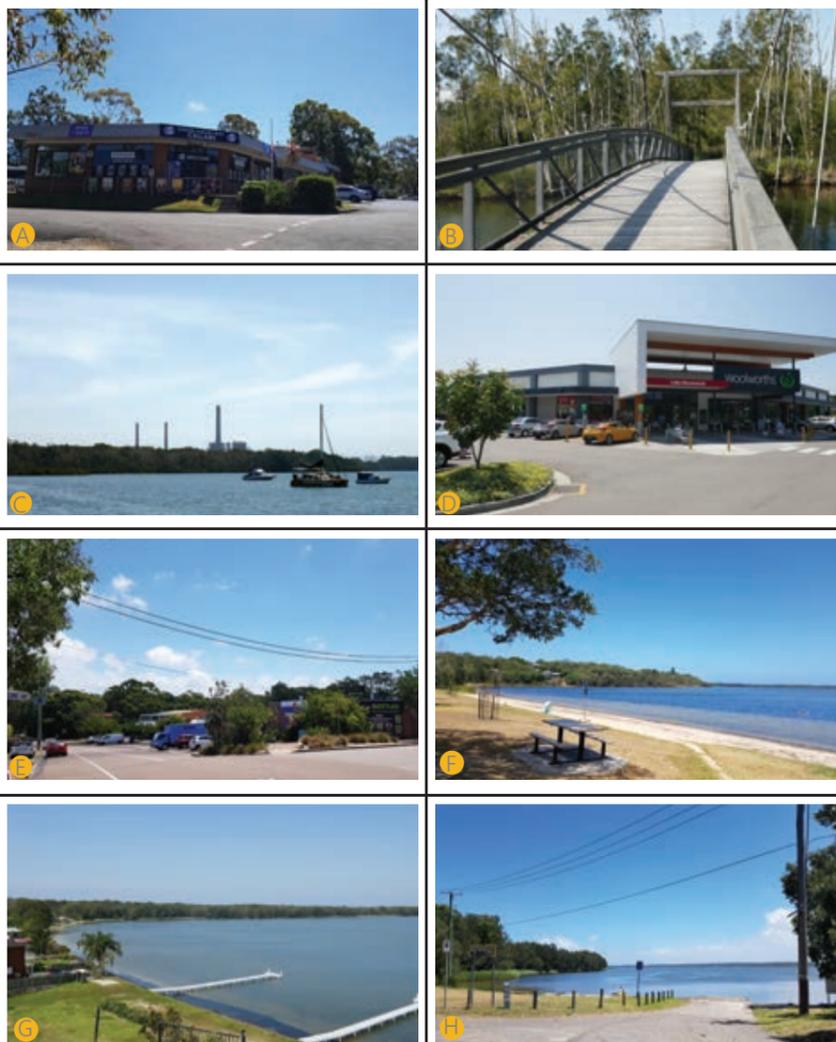
The Study Area

The study area is depicted in Figure 2, left. The study area is an extensive area that covers the suburbs of Lake Munmorah, Doyalson North, Chain Valley Bay and a small area of Crangan Bay. This area has been selected in order to ensure that an outcome of this Structure Plan is the resolution of issues in relation to future land use in this area. Therefore, the entire area identified 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 5: Study Area



Why Is A Structure Plan Required?

The Greater Lake Munmorah Structure Plan project (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 mooted 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. A number of stimulus developments are also in the planning stages, including:

- 2 significant rezoning applications lodged, including Darkinjung Local Aboriginal Land Council's 150ha parcel.
- 2 significant recreation facilities (Skate Park and Regional Play-space) proposed for the area.

Therefore an opportunity exists to consider bringing development forward in the medium term, 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.

Purpose Of The Structure Plan

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 Masterplans and Public Domain Plans.

Structure Plan Objectives

The objectives of the Structure Plan area to develop a local land use framework that:

- Addresses relevant issues such as supply and demand factors, servicing and infrastructure provision, environmental values, housing diversity & ageing in place, connectivity, traffic and parking, safety, community infrastructure and the like.
- Accommodates a longer term vision for the area over the next 30 years, by facilitating growth within Lake Munmorah for the short, medium and long term – whilst still ensuring the orderly development of land.
- Enhances the existing public domain through the development of a Public Domain Plan and urban design guidelines, identifying opportunities for potential linkages and improvements to public spaces and streetscapes. This will include strengthening north-south connections between the existing residential area and green-field precincts.
- Enhances social interaction through careful placement of social facilities and infrastructure.
- Promotes significant natural features, including waterfront areas and public reserves and identify potential linkages between these areas and the village centre.
- 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).
- Provides greater certainty to land owners, the community, and industry groups with

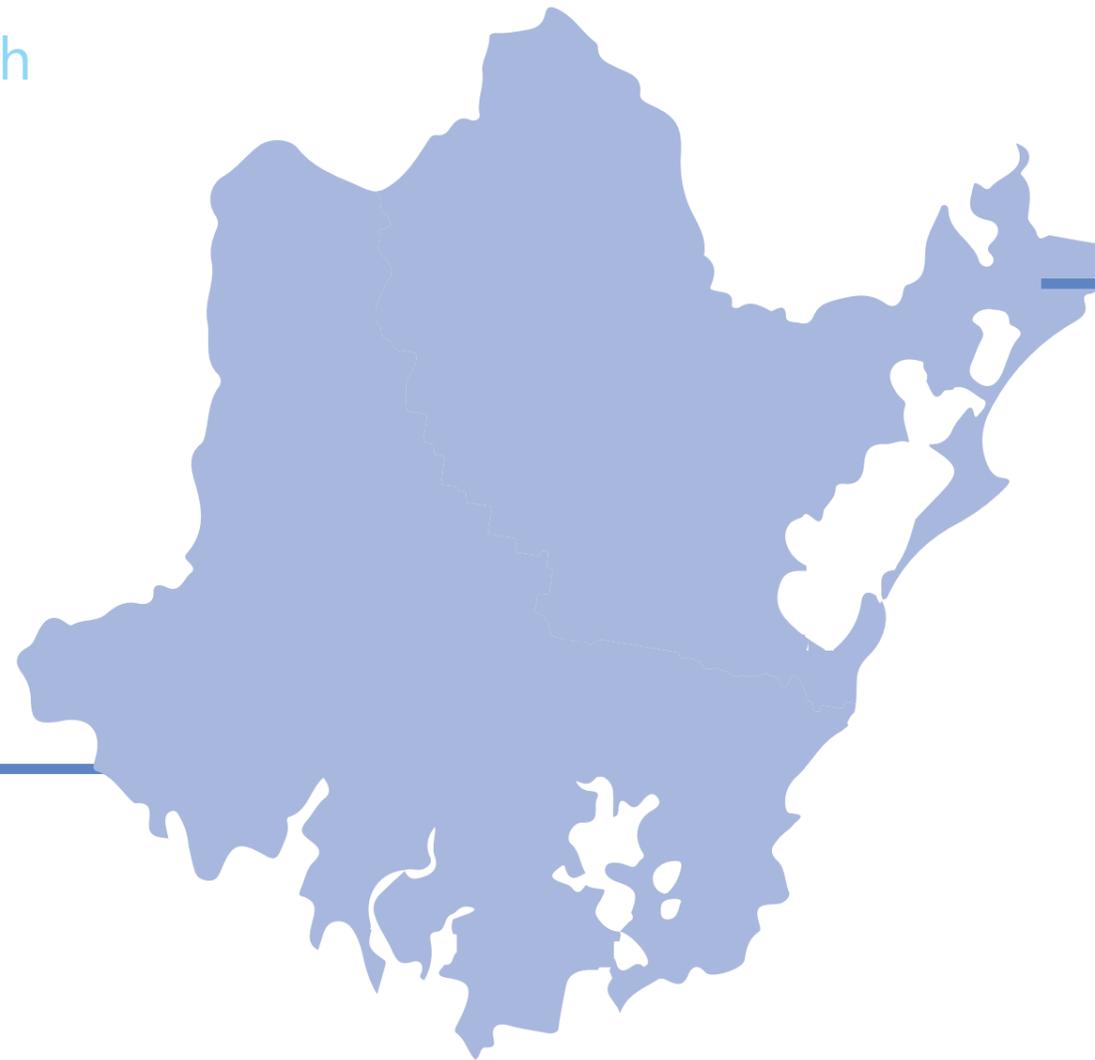


Population Profile



A profile of Greater Lake Munmorah

The population of the study area was 8,449 people in 2017 (ABS ERP 2017). Between 2011 and 2016, the population increased by 506 people.



2.5%

8,449 live within the Greater Lake Munmorah study area



Greater Lake Munmorah

Central Coast region

339,450 people living on the Central Coast



AGE STRUCTURE

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 nesters 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) – J 309 people
- Young workers (25-34) – J 108 people
- Older workers and pre-retirees (50-59) – J106 people
- Parents and homebuilders (35-49) – K 95 people.

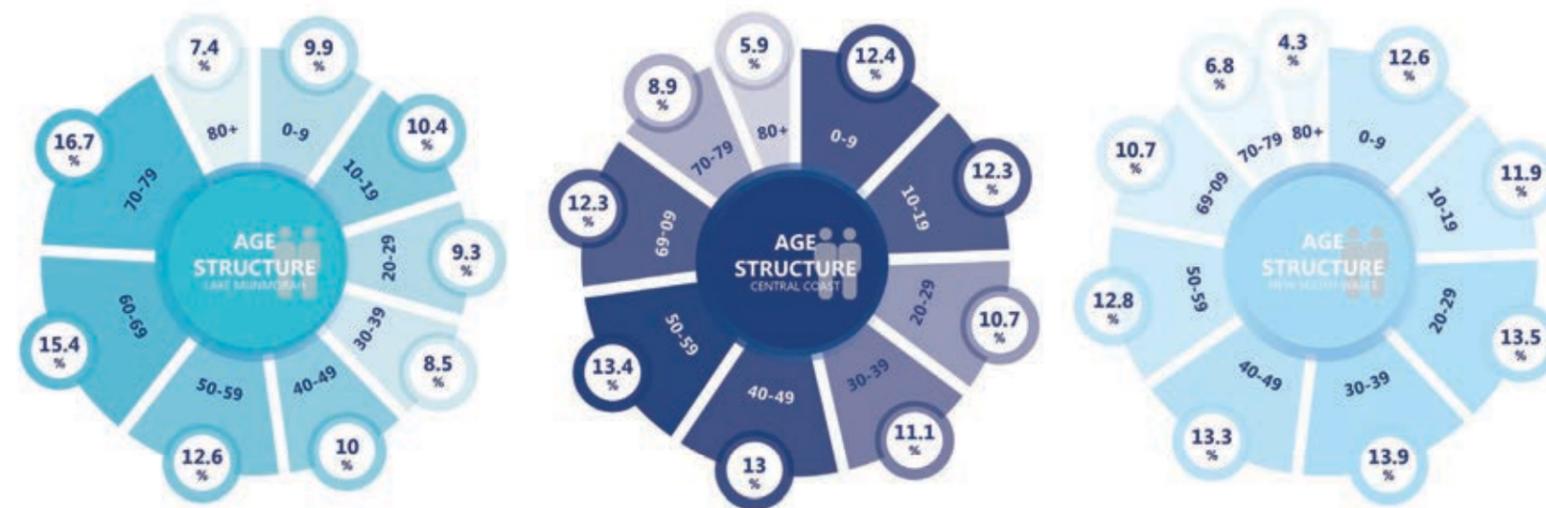


Figure 6: Population Age Structure

Population Profile

DWELLINGS

In 2016, the total number of dwellings in the study area was 3,838. Between 2011 and 2016 the total number of dwellings in the study area increased by 243 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, and 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).

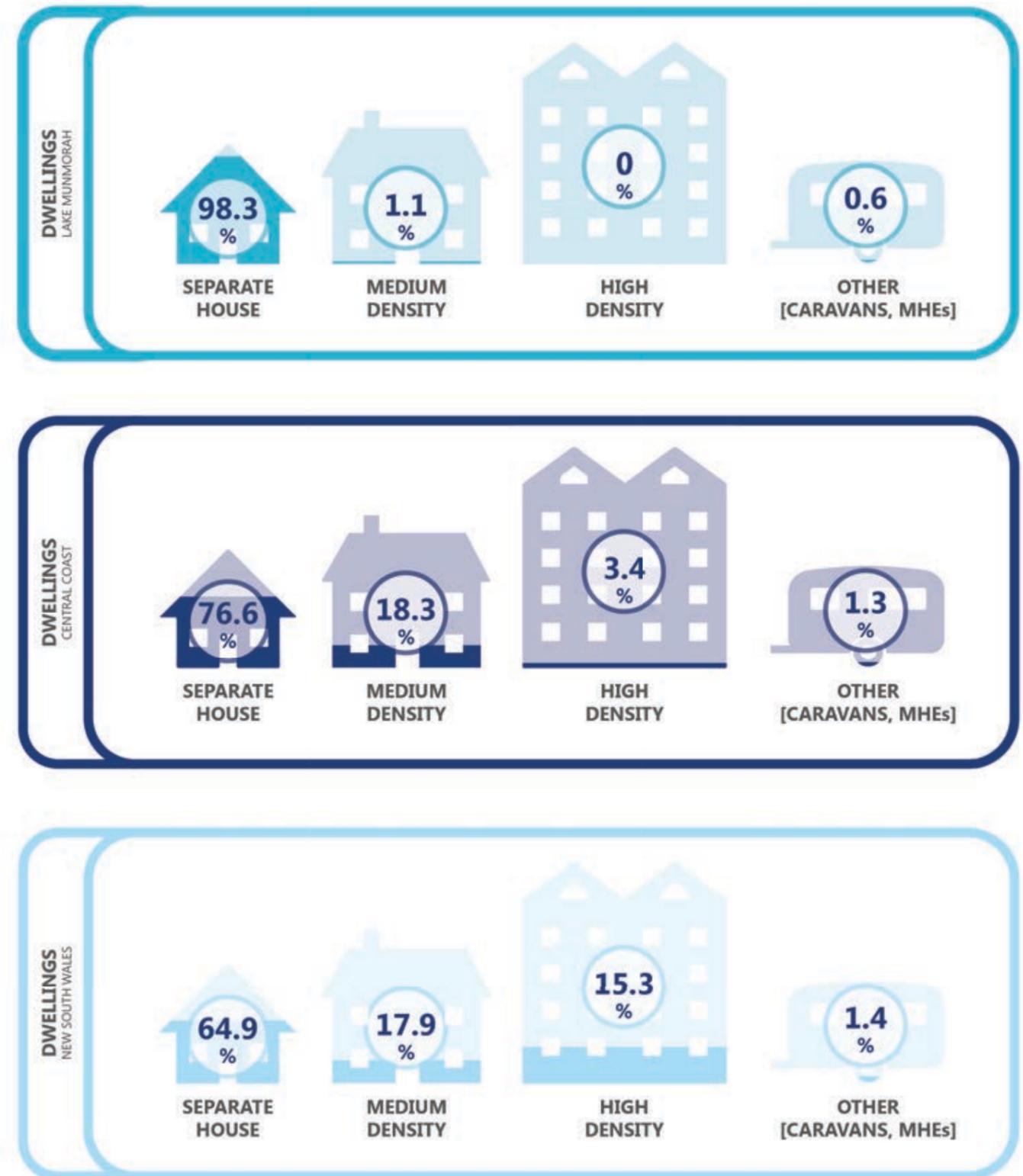


Figure 7: Dwelling Typology

Population Profile (continued)

CULTURAL DIVERSITY

In 2016:

- 4% of the study area population were Indigenous Australians. Between 2011 and 2016, the Indigenous population increased by 0.9%.
- 82.1% of the study area population was born in Australia. This compares to 78.8% for the Central Coast LGA. Overall, 10.7% of the population was born overseas, and 2.2% were from a non-English speaking background, compared with 14.6% and 6.2% respectively for the Central Coast LGA.
- 2% of the study area population spoke a language other than English at home, compared to 5.9% for the Central Coast LGA.
- Between 2011 and 2016, the number of people born overseas decreased by 74 people, and the number of people from a non-English speaking background stayed the same (168 people).

POPULATION PROJECTION

By 2036, the study area population is forecast to grow from 8,449 to 15,328. This is based predominantly on net migration; however natural increase/decrease is also included in this figure. This is based on an increase of over 3,347 dwellings during the period. This data is based on .id the population experts forecasting. The likelihood of achieving this figure by 2036 is discussed in more detail in Part 6 – Key Issues and Opportunities.

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-Manning Park scored 955 on the SEIFA index of disadvantage. This compares to a score of 989 for the wider Central Coast LGA, and represents a small improvement from the 2011 SEIFA score of 952.6 for the Lake Munmorah study area.

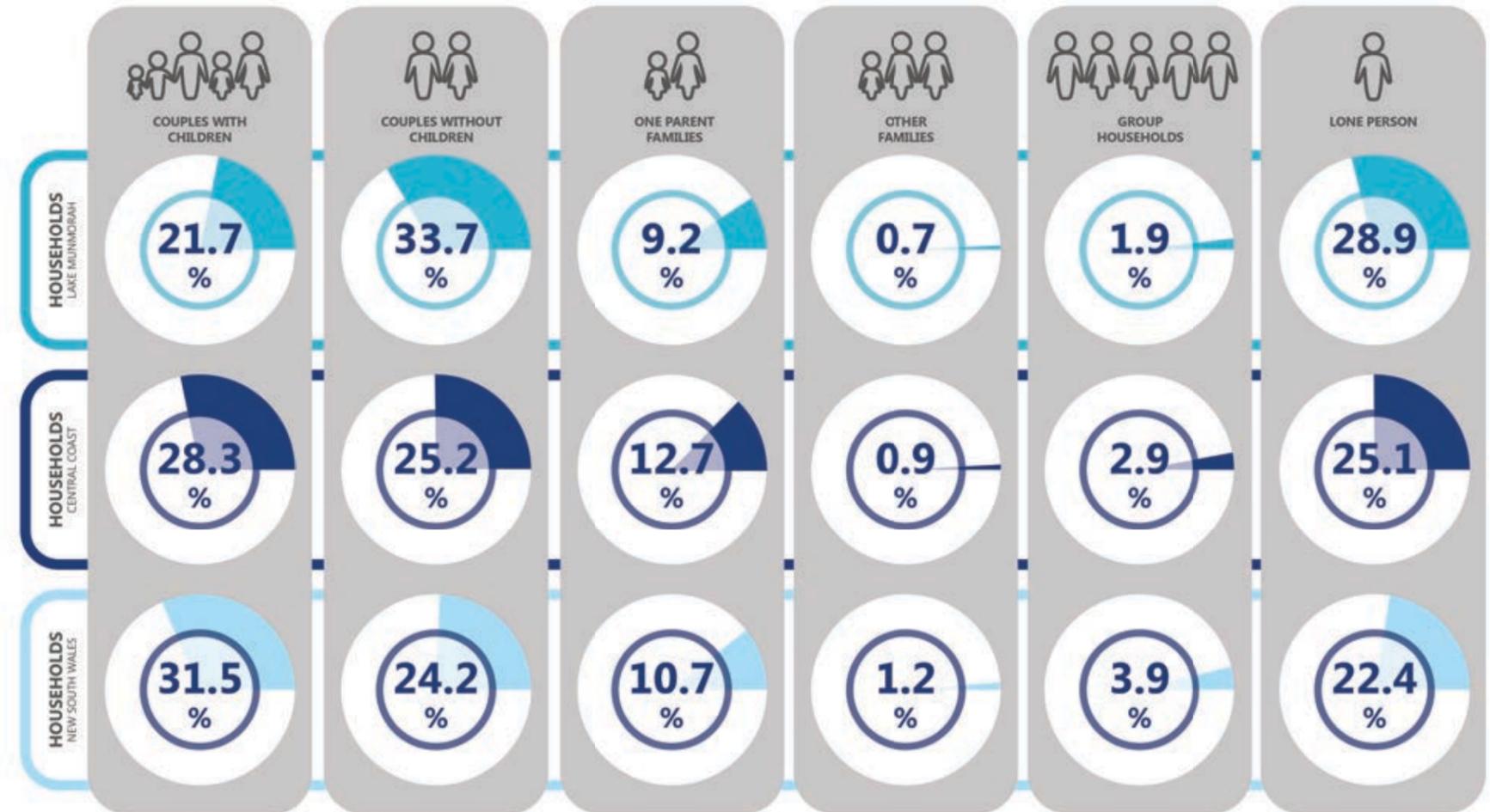


Figure 8: Household Types

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 (38.3% compared to 27.9%)
- Less households had an income of more than \$2,500 (10.2% compared to 16.5%).

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 wider 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 of the population with Vocational qualifications (27.4% compared to 24.4%)
- Less of the population with Bachelor or Higher degrees (7.1% compared to 14%)
- Less of the population with no formal qualifications (46.8% compared to 41.8%).

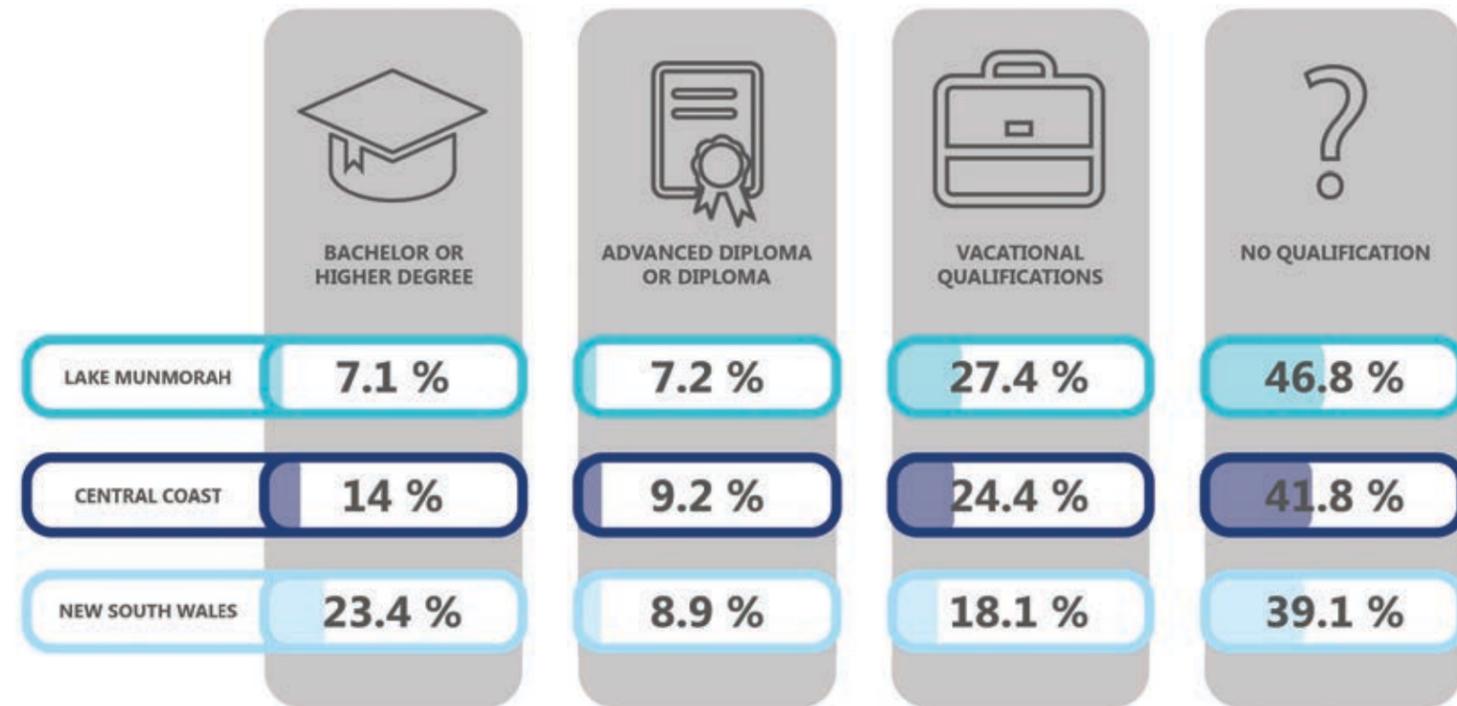


Figure 9: Educational Qualifications



Figure 10: Household Incomes

Economic Profile (continued)

EMPLOYMENT SECTORS

Most people in the study area are employed in the retail trade (14%), health care & social assistance (14.4%) and construction sectors (16.1%). In combination, these three sectors employed 1,057 people in total or 39.7% of the total employed population.

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

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



Figure 11: Employment Sectors

Economic Profile (continued)

OCCUPATIONS

In 2016, the three most popular occupations were:

- Technicians and Trades Workers (18.4%)
- Community and personal service workers (13.8%)
- Clerical and Administrative Workers (13.6%)

In combination, these three occupations accounted for 1,325 people in total or 45.8% of the employed resident population. In comparison, the Central Coast LGA employed 15.5% in Technicians and Trades Workers; 12.4% in Labourers; and 13.7% in Clerical and Administrative Workers. The major differences between the jobs held by the population of the study area, and Central Coast LGA were:

- More people employed as Technicians/Trades Workers (18.4% compared to 15.5%)
- More people employed as Community/Personal Service Workers (13.8% compared to 12.4%)
- More people employed as Labourers (12.1% compared to 10.4%)
- Less people employed as Professionals (12.4% compared to 18.6%)
- Less people employed as Managers (8.1% compared to 11.2%).

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 12: Occupations: CENTRAL COAST



Figure 13: Occupations: CENTRAL COAST

3

Strategic Context



Central Coast Regional Plan

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

A prosperous Central Coast with more jobs close to home

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

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

1. Recognise the cultural landscape of the Central Coast
2. Protect and enhance productive agricultural land
3. Secure the productivity and capacity of resource lands
4. Sustain / balance productive landscapes west of the M1
5. Protect and manage environmental values
6. Sustain water quality and security
7. Protect the coast and manage natural hazards and climate change

Well-connected communities and attractive lifestyles

1. Create a well-planned, compact settlement pattern
2. Grow investment opportunities in the region's centres
3. Align land use and infrastructure planning
4. 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

5. Grow housing choice in and around local centres
6. Provide housing choice to meet community needs
7. Deliver housing in new release areas that are best suited to building new communities
8. 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.

Figure 3: Central Coast 2036

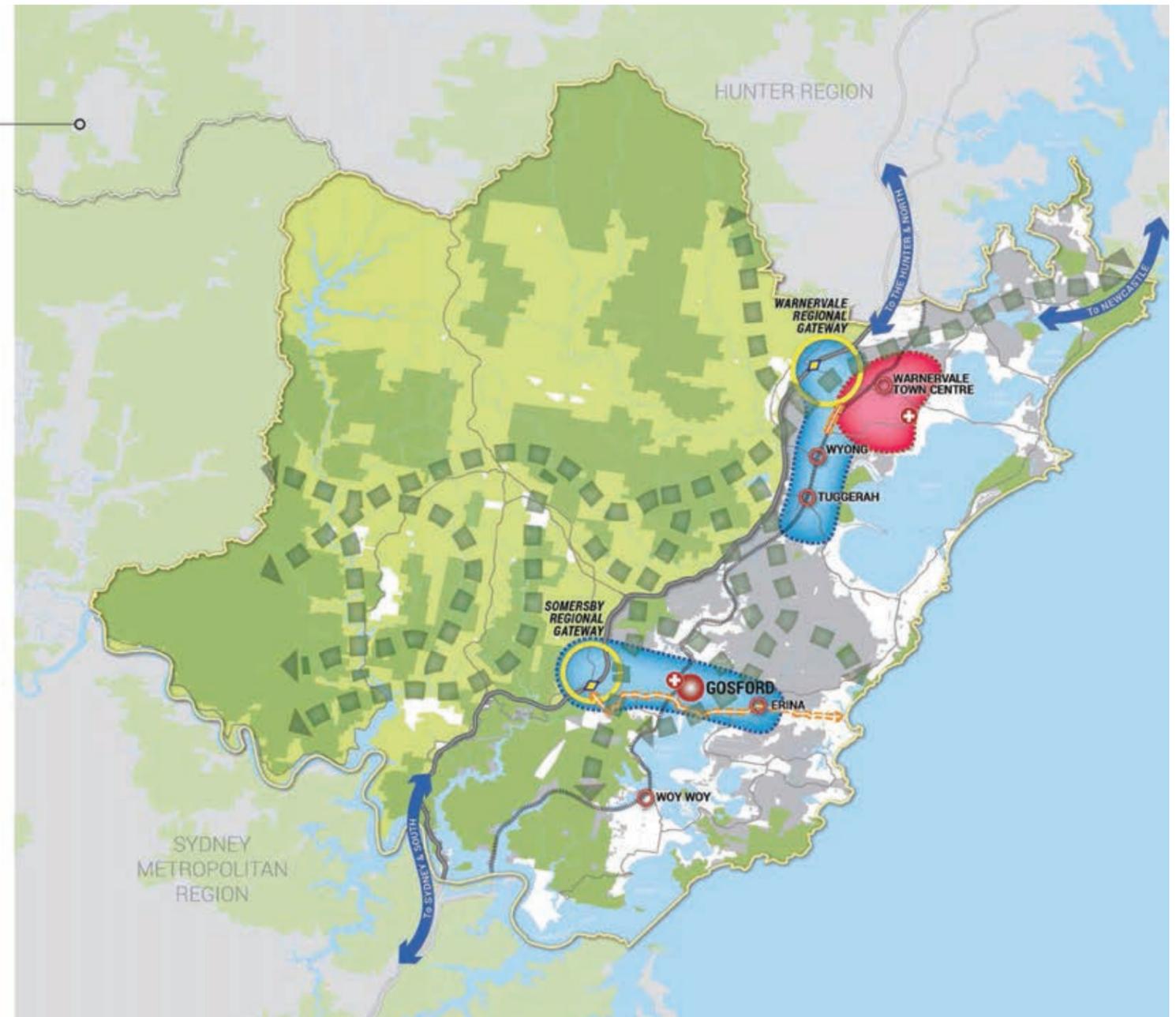


Figure 14: Central Coast Regional Plan - Central Coast 2036

North Wyong Shire Structure Plan

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 predates 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 foreshore in the east. This corridor provides a system of corridor and habitat networks for flora and fauna. The green 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".

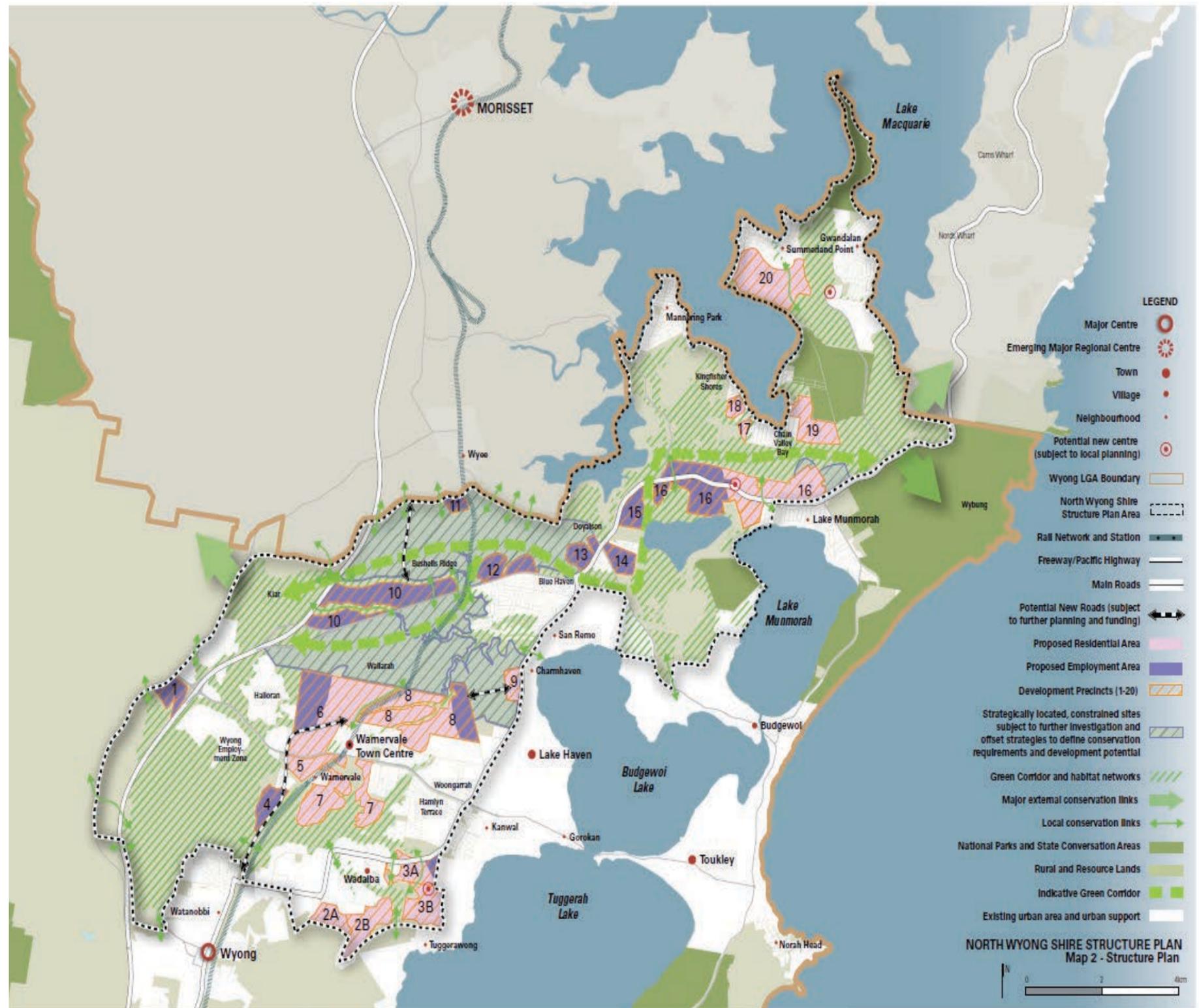


Figure 15: North Wyong Shire Structure Plan

Wyong Shire 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) has been 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 will give consideration to appropriate zones within this area, in particular in relation to the Biodiversity Corridor.

Employment Land Study & Industrial Land Audit

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. The conclusion is therefore that 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 always 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.

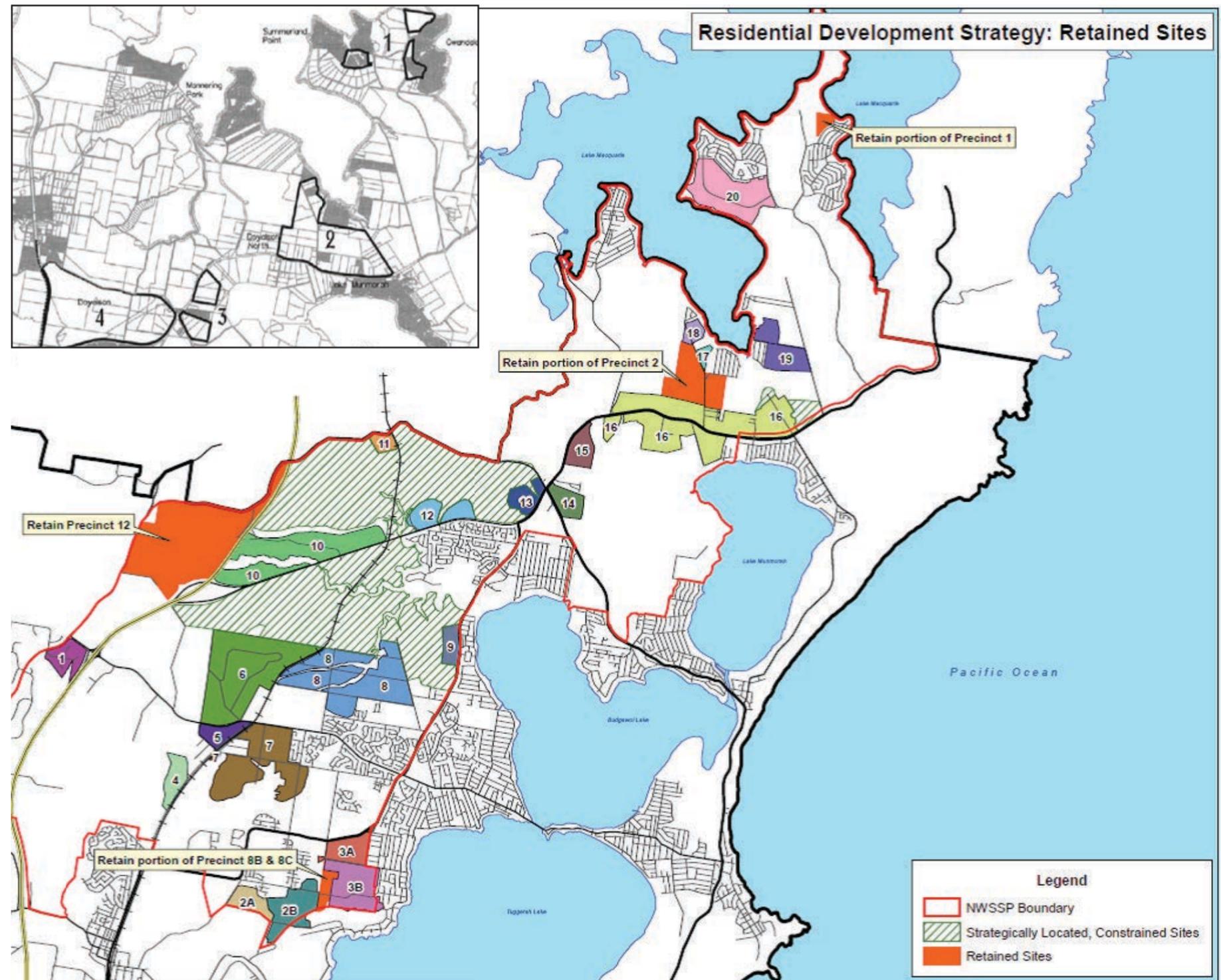


Figure 16: Settlement Strategy (Inset - Residential Development Strategy)

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.

One - Central Coast

The Central Coast Council Community Strategic Plan 2018 is a document which identifies the Central Coast community's five priority focus areas to create the best possible quality of life for residents, as follows:

1. Belonging
2. Smart
3. Green
4. Responsible
5. Liveable

This Structure Plan will need to be consistent with these objectives. Of particular relevance to this Structure Plan are the following objectives:

- B4 Activate spaces and places to complement activity around town centres, foreshores, lakes and green spaces for families, community and visitors
- C1 Target economic development in growth areas and major centres and provide incentives to attract businesses to the Central Coast
- C3 Facilitate economic development to increase local employment opportunities and provide a range of jobs
- 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 wellbeing of communities through the protection of local bushland, urban trees, tree canopies and expansion of the Coastal Open Space System (COSS)
- H1 Solve road and drainage problem areas and partner with State Government to improve road conditions
- 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.



Figure 17: Existing Retail Centre at Tall Timbers Road, Lake Munmorah



Figure 18: Existing Neighbourhood Centre at Lake Munmorah

4

Community Vision



TO BE COMPLETED AFTER PUBLIC EXHIBITION PERIOD

Examples:

"Provide housing choice for different life stages"

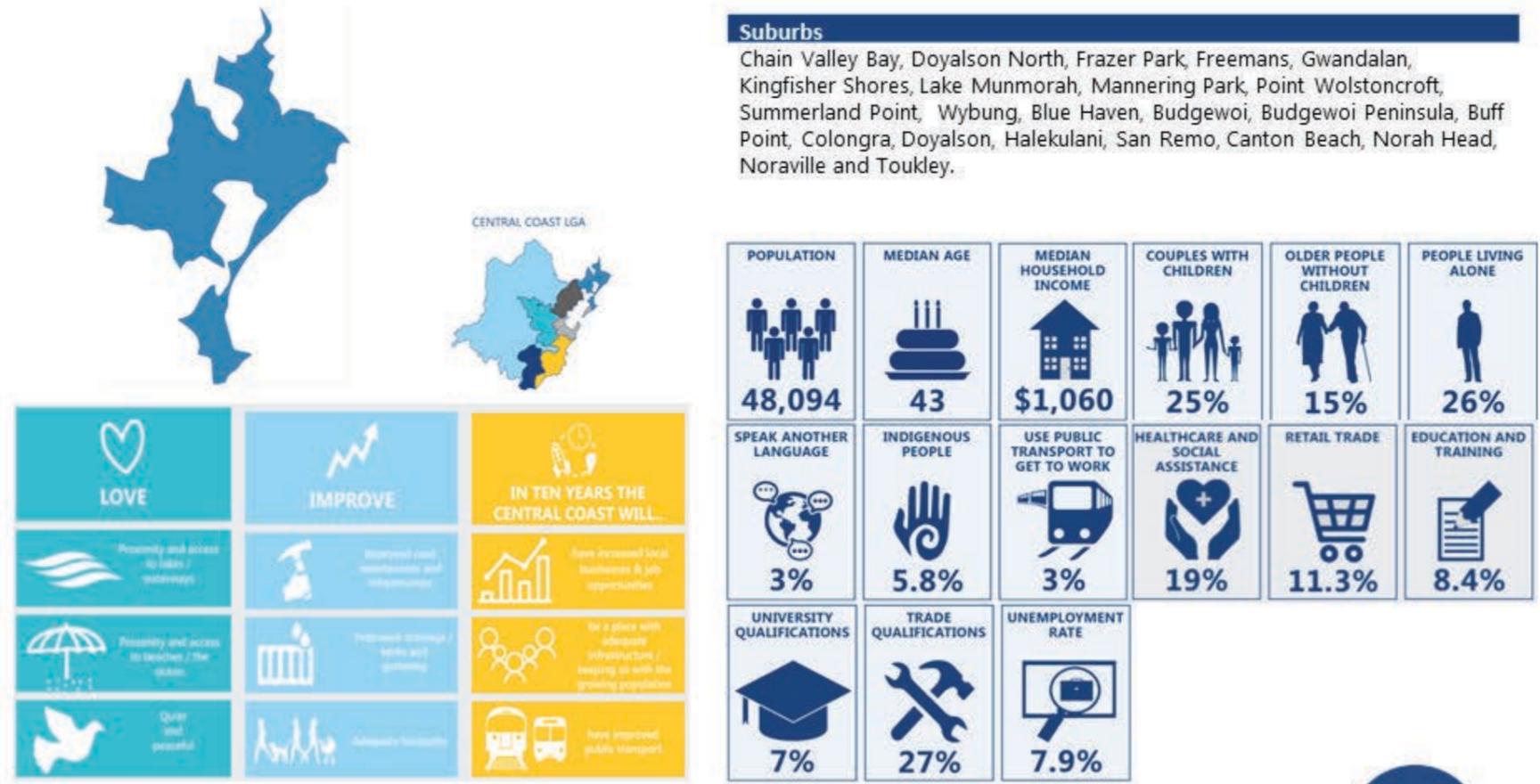
"Improve transport and pedestrian/cyclist connections"

"Improve provision of recreation facilities"

"Maintain the strong connection to the natural landscape of the bushland and Lakes."

"Protect the natural environment for current and future generations to enjoy"

Northern Lakes, San Remo-Budgewoi & Toukley



centralcoast.nsw.gov.au



Figure 19: Community Strategic Plan results for the study area



5

Existing Conditions



Topography

The study area is depicted in Figure 2, left. The study area is an extensive area that covers the suburbs of Lake Munmorah, Doyalson North, Chain Valley Bay and a small area of Crangan Bay. This area has been selected in order to ensure that an outcome of this Structure Plan is the resolution of issues in relation to future land use in this area. Therefore, the entire area identified 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 will remain operational until 2028.



Figure 20: Topography

Study Area Boundary

LEGEND

10m Contours

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 foreshore in the east. This corridor provides a system of corridor and habitat networks for flora and fauna. The green 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.

LEGEND

Environmental Land (Biodiversity Corridor) 



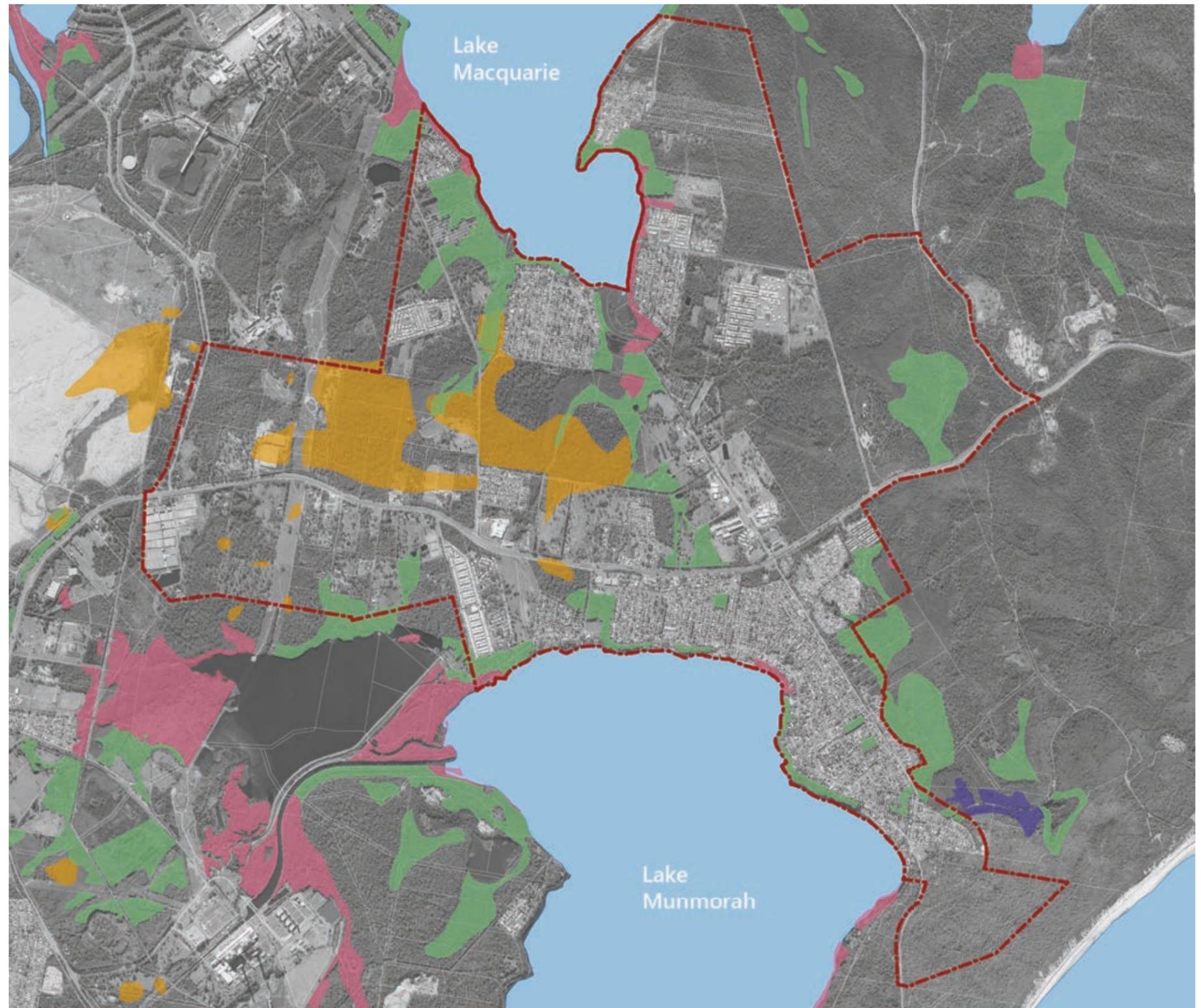
Figure 21: Biodiversity Corridor

 Study Area Boundary

Endangered Ecological Communities

The study area is subject to a number of environmental constraints. Figure 8 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. 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.



LEGEND

- Swamp Sclerophyll Forest on Coastal Floodplains EEC ■
- Swamp Oak Floodplain Forrest ■
- Angophora Inopina ■
- Coastal Saltmarsh ■

Figure 22: Endangered Ecological Communities

----- Study Area Boundary

Heritage

The study area has one 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. 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.



LEGEND

Heritage Item- Local Significance 

Figure 23: Heritage Items

 Study Area Boundary

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. Colongra Bay Road has been identified as the street with the best visual connection to the foreshore area, 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.

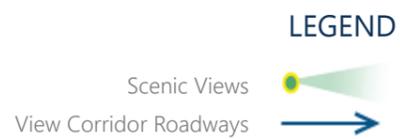


Figure 24: Scenic Viewpoints and Sightlines

 Study Area Boundary

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 9).

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.

LEGEND

- Coastal Zone- SEPP Coastal Management (2018)
- Coastal Wetlands- SEPP Coastal Management (2018)

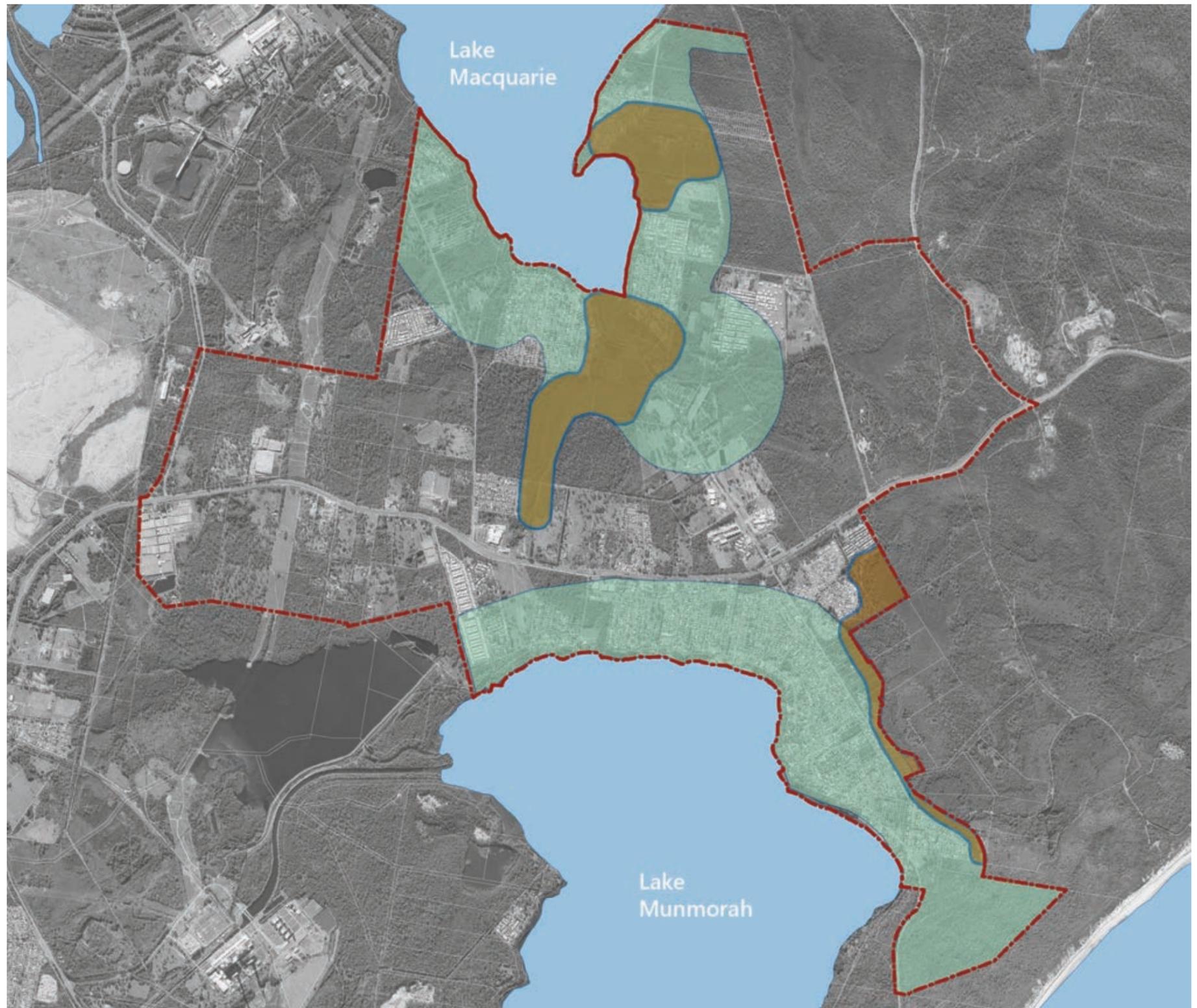


Figure 25: Coastal Protection Area

----- Study Area Boundary

Overland Flow Paths / Drainage

Drainage

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

1. North of the Pacific Highway which drains into Lake Macquarie; and
2. 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 on the adjoining Figure.

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.



LEGEND

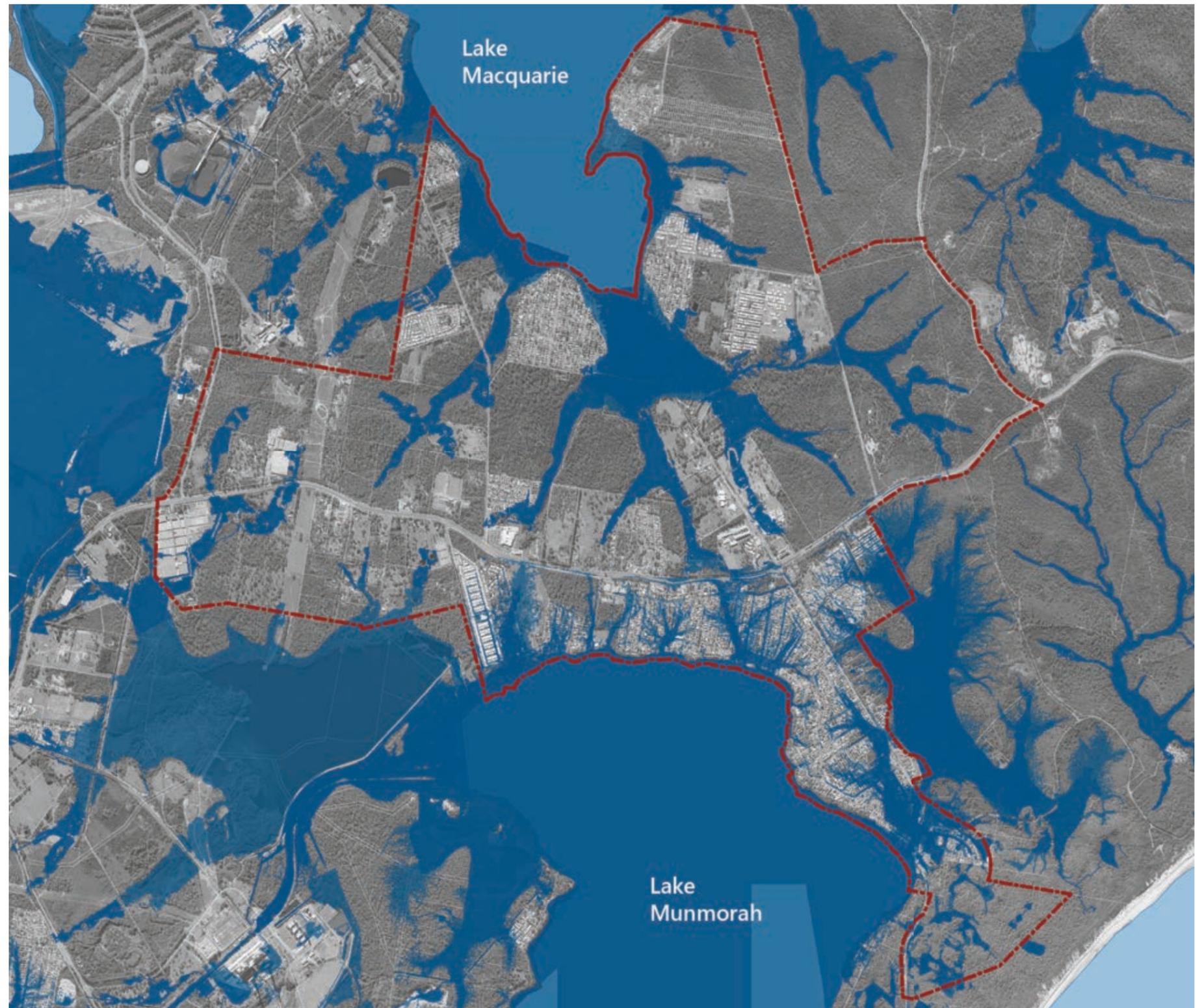
Storm Water Drainage Path

Figure 26: Storm Water Drainage

Study Area Boundary

Flooding

The study area is significantly affected by flooding concerns (see Figure). 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 this hazard when identifying future uses or embellishments to the open space area along the foreshore, as part of this Structure Plan.



LEGEND
Extent of Extreme Flood

Figure 27: Extreme Flood Extent

Study Area Boundary

Contaminated Land

Approximately seven properties are identified within Council's contaminated land register as potentially subject to contamination (see Figure 13). 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.

Soils

Dispersive soils are known to be prevalent particularly on the land claimed by the Darkinjung Local Aboriginal Land Council east of Carters Road. 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.

LEGEND

Potentially Contaminated Land 

Dispersive Soils Area 

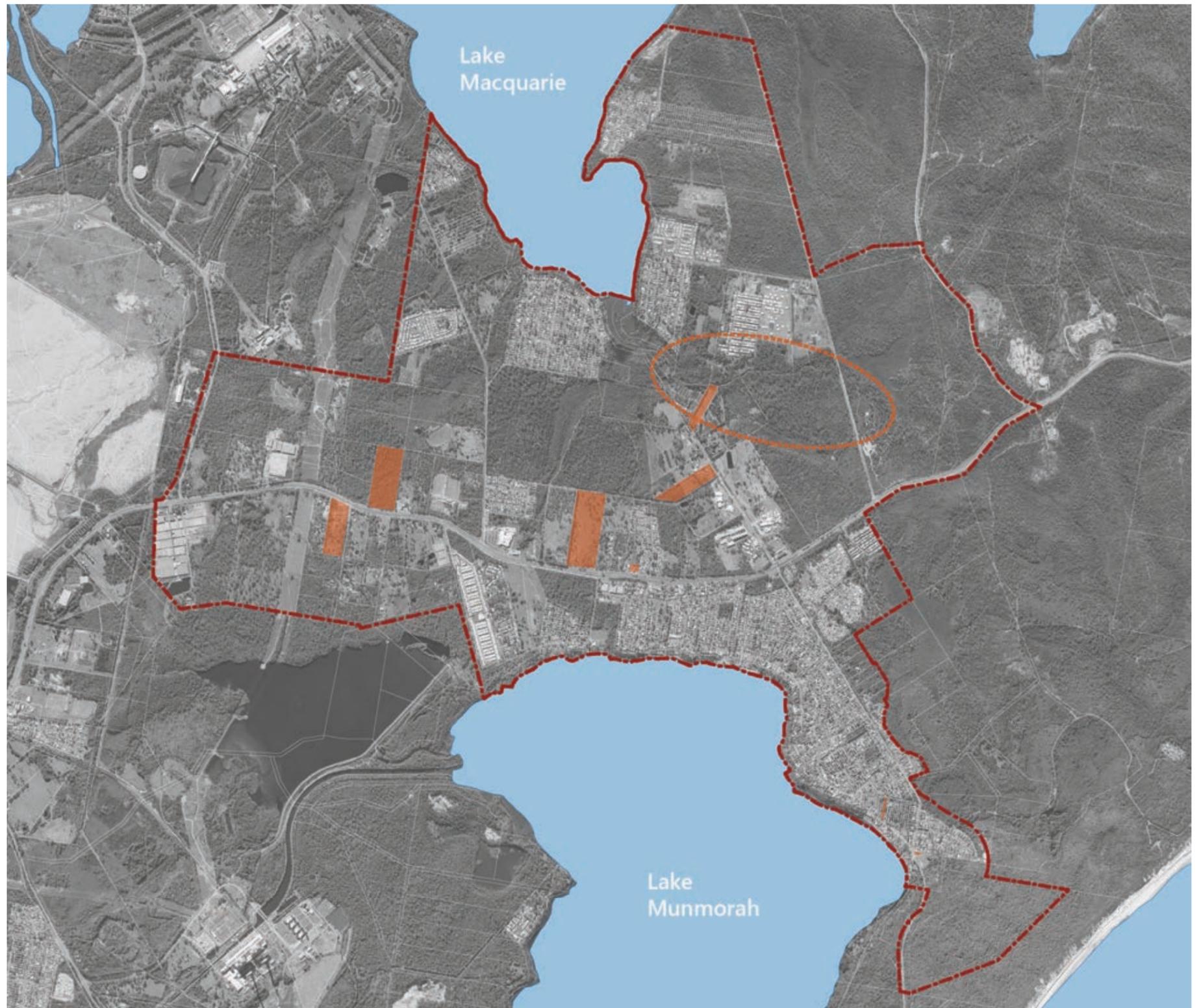


Figure 28: Potentially Contaminated Land

 Study Area Boundary

Bushfire

The study area is subject to significant bushfire hazard due to the presence of natural vegetated areas.

Bushfire prone areas are subject to planning controls designed to improve the bushfire safety of structures that face greater risk of bushfire threat. 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 Bushfire Safety (2018).

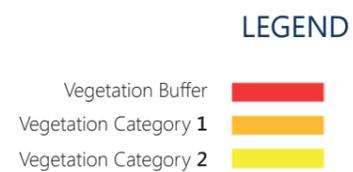


Figure 29: Bushfire

----- Study Area Boundary

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	Standard trunk mains / Reticulation mains
Brownfield Sewer Pump Stations (SPS)	Greenfield Sewer Pump Stations
Sewage Treatment Plant (STP) upgrades	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 Darkinjung Local Aboriginal Land Council development to the east of Carters Road School Precinct. A servicing strategy is currently being developed for this site, in consultation with Council.



Figure 30: Mannering Park STP

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 upgrades required as part of certain developments. An overview of existing water mains within the study area is provided in Figure ??.

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 the adjoining Figure. 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.

The existing sewer infrastructure is illustrated in the adjoining Figure.



Figure 31: Mardi Intake Tower

Service Infrastructure (Ctd)

Electricity

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 22). 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 for this area.



LEGEND

- Sewerage Infrastructure- Rising Mains
- Water Infrastructure- Water Mains
- Sewerage Infrastructure- Sewer Pumping Station
- Water Infrastructure- Reservoir
- Mannering Park Sewage Treatment Plant Odour Area
- Transgrid Electricity Easement

Figure 32: Existing Service Infrastructure

Study Area Boundary

Existing Road Network

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), Chain Valley Bay South (Tall Timbers Road) and Chain Valley Bay North (Chain Valley Bay Road). The Pacific Highway corridor serves to separate the northern and southern parts of the study area, making vehicular and pedestrian connectivity difficult. The average speed on the Highway is 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 Pacific Highway through Lake Munmorah has significant capacity for future growth and can accommodate 1800 vehicles per lane per hour. Generally there are no concerns with traffic flows however the Carters Road school precinct has been identified as a problem area in terms of traffic congestion during peak pick-up and drop-off periods.

The former Wyong Shire Council's funding lobbying tool, 'Transforming the NSW Central Coast', identified the need for the following road improvements within Lake Munmorah:

- Link road from Chain Valley Bay Rd to Kanangra Dr: A 700m long gravel road linking Chain Valley Bay North to Gwandalan/Summerland Point. Council requested the land be transferred to create a public road reserve, as well as funding for necessary upgrades.
- Carters Rd – Extend to Scaysbrook Ave, Chain Valley Bay South: This will reduce traffic on the Carters Rd/Pacific Hwy intersection, and provide an alternative access to Chain Valley Bay South.
- Carters Rd – Extend to Teragalin Dr, Chain Valley Bay North: This will reduce traffic on the Carters Rd/Pacific Hwy intersection, and provide an alternative access to Chain Valley Bay North which is currently restricted to one access.

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 will be separately engaged for this purpose upon adoption of this Structure Plan and will undertake a macro-simulation focussed on key intersections along the Pacific Hwy, and will comprise up to three traffic scenarios as follows:

- A 'base case' modelled on existing development and road networks
- Additional development precincts utilising the existing road network
- Additional development precincts utilising existing and additional road networks if necessary.

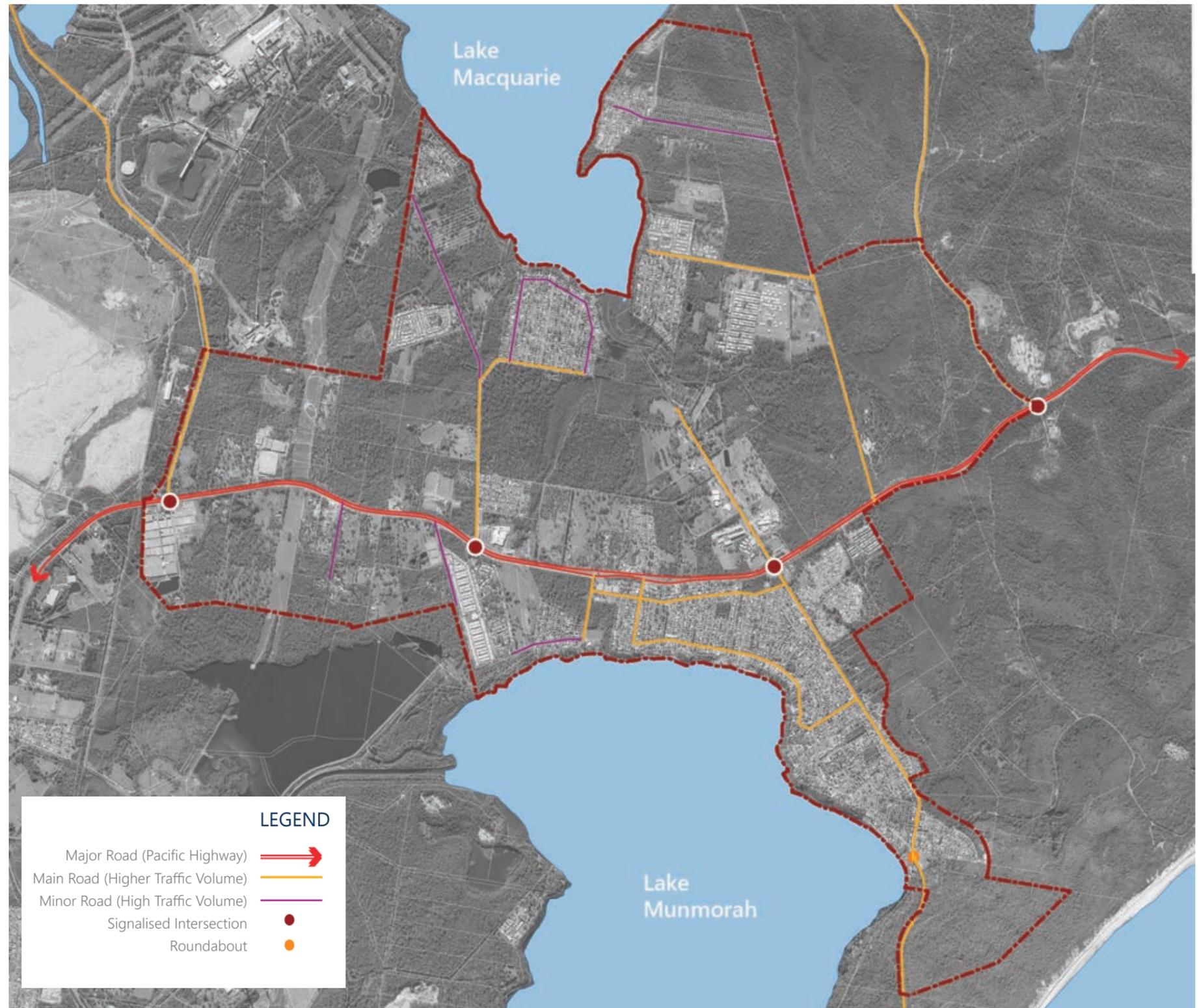


Figure 33: Existing Major Road Network

--- Study Area Boundary

Public Transport

Busways and Red Bus Service operate bus services within the study area. There is very little use of public transport within this area, with only 2.7% of residents using public transport to travel to work (ABS Census, 2016). This is largely due to the inadequate provision of public transport to this area, making public transport use both time and cost prohibitive. This Structure Plan should align walking and cycling networks with public transport routes to improve accessibility to public transport.

Existing Shared Pathway Network

An important consideration for the liveability 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 wellbeing. The Pacific Highway is a major barrier for pedestrian and cyclist connectivity between the northern and southern segments of the study area.

The figure below depicts existing footpaths and/or shared pathways within 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.

*** 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 one priority project within the study area, to connect the Lake Munmorah foreshore to the Pacific Highway / Elizabeth Bay Drive intersection, via Agatha Avenue. This was the missing link to connect the shared pathway from Chain Valley Bay North to Lake Munmorah foreshore. ***

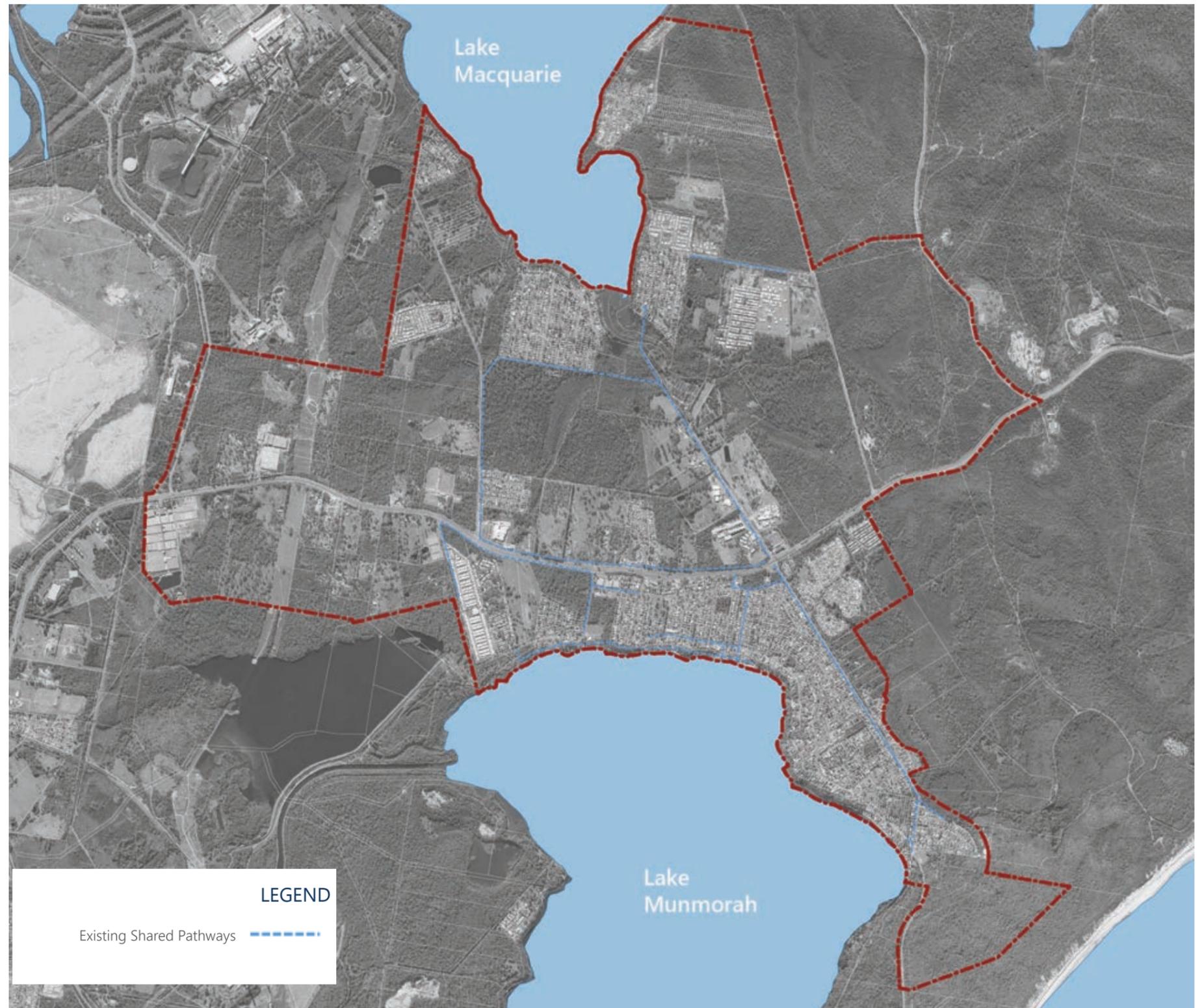


Figure 34: Existing Shared Pathway Network

--- Study Area Boundary

Recreation Facilities – Parks and Playgrounds

Small Parks

Small parks, or neighbourhood parks, provide for regular use by local residents. The study area boasts a large number of small parks within the residential areas and lake foreshore. However, only the following small parks contain play equipment for children:

1. **Sunset Parade Playground**

Sunset Parade, Chain Valley Bay

2. **Patrick Kelly Reserve**

Clarence Street, Lake Munmorah

3. **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:

1. **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.

2. **Mulloway Reserve: Mulloway Road, Chain Valley Bay**

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

3. **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.

4. **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.



Figure 35: Sunset Parade Playground



Figure 36: Patrick Kelly Reserve



Figure 38: Kingfisher Reserve



Figure 37: Tom Burke Reserve



Figure 39: Mulloway Reserve



Figure 40: Joshua Porter Reserve

Recreation Facilities – Sportsfields/ Courts and Natural Reserves

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:

1. Gumbuyah 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.
2. 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.

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 foreshores. 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.
- Teraglin Reserve (Teraglin 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.



Figure 41: Gumbuyah Oval



Figure 42: Acacia Avenue Tennis and Basketball

Recreation Facilities – Accessibility/ Functionality

Accessibility

The following figure 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.

Functionality

Many of the recreation reserves pictured in the previous figure 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, the lack of playground facilities within the study area becomes more apparent. 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 shall be 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.



LEGEND

- Distance to Recreation Facility- Play Space 400m 
- Distance to Recreation Facility- Sportsground 1km 

Figure 43: Accessibility to Existing Playground/ Sportsground Facilities

 Study Area Boundary

Recreation Facilities - Aquatic

The study area is heavily utilised for aquatic recreation due to its location adjacent to both Lake Munmorah and Lake Macquarie water bodies. The figure below 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.

Recreation Facilities - Conclusion

With continued growth, the Structure Plan 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 94, Council revenue, State and Federal government funding, through to commercial opportunities.

The Structure Plan shall 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.



Figure 44: Aquatic Recreation Facilities

----- Study Area Boundary

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:

1. Colongra Bay Community Centre
2. Lake Munmorah and District Senior Citizens Centre
3. 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
- Ageing 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 45: Chain Valley Bay Community Centre



Figure 47: Lake Munmorah Senior Citizens Centre



Figure 46: Lake Munmorah Community Hall

Education Facilities

The Structure Plan area includes a range of public and private 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.

TAFE NSW has no plans to develop tertiary education within the northern part of the LGA at present.

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. 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.



Figure 48: Lake Munmorah High School



Figure 49: St Brigids Catholic College

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.



Figure 50: Walkability to Existing Local and Neighbourhood Centres

--- Study Area Boundary

LEGEND

Distance to Commercial Centres- 400m



Distance to Commercial Centres-1km



Potential for a new Commercial Centre

There is a general lack of walkability to the existing commercial centres for the bulk of the study area. Figure 29 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 walkable 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 51: Lake Munmorah Local Centre at Tall Timbers Road

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 52: Lake Munmorah Neighbourhood Centre

Employment Land

The Department of Planning 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	<ul style="list-style-type: none"> • Pacific Highway corridor connecting Wyong with Newcastle. • Linkages to the M1 Pacific Motorway via the Pacific Highway
Weakness	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Future development or redevelopment of power stations or the need for additional expansion of mining assets



Figure 53: Vacant future employment Lands

Current Development Activity

Current Development Activity within Study Area

A number of land owners in the area have expressed an interest in developing land for residential purposes in the area OR have submitted a planning proposal as follows:

1. **Darkinjung Proposal:** A Gateway Determination for a Planning Proposal was issued on 12 January 2015. The draft concept provides for 600 lots.
2. **Pacific Highway Proposal:** The landowner is seeking rezoning of this Precinct as a residential release area. The owner has also advanced servicing investigations for the site.
3. **Carters Road Proposal:** Representations have been made on behalf of the owners of 78 – 92 Carters Road, Lake Munmorah to rezone the subject land from E3 Environmental Management to RU6 Transition. The site is located at a critical point within the biodiversity corridor, rezoning of this site would effectively sever this regional corridor and as a result Council does not support the rezoning.
4. **Mulloway Road Proposal:** A Gateway Determination was issued on 16 June 2017. The draft concept provides for approximately 100 residential lots.

LEGEND

Planning Proposals within Study Area



1. Darkinjung Local Aboriginal Land Council Proposal
2. Pacific Highway Project
3. Carters Road Proposal
4. Mulloway Road Proposal

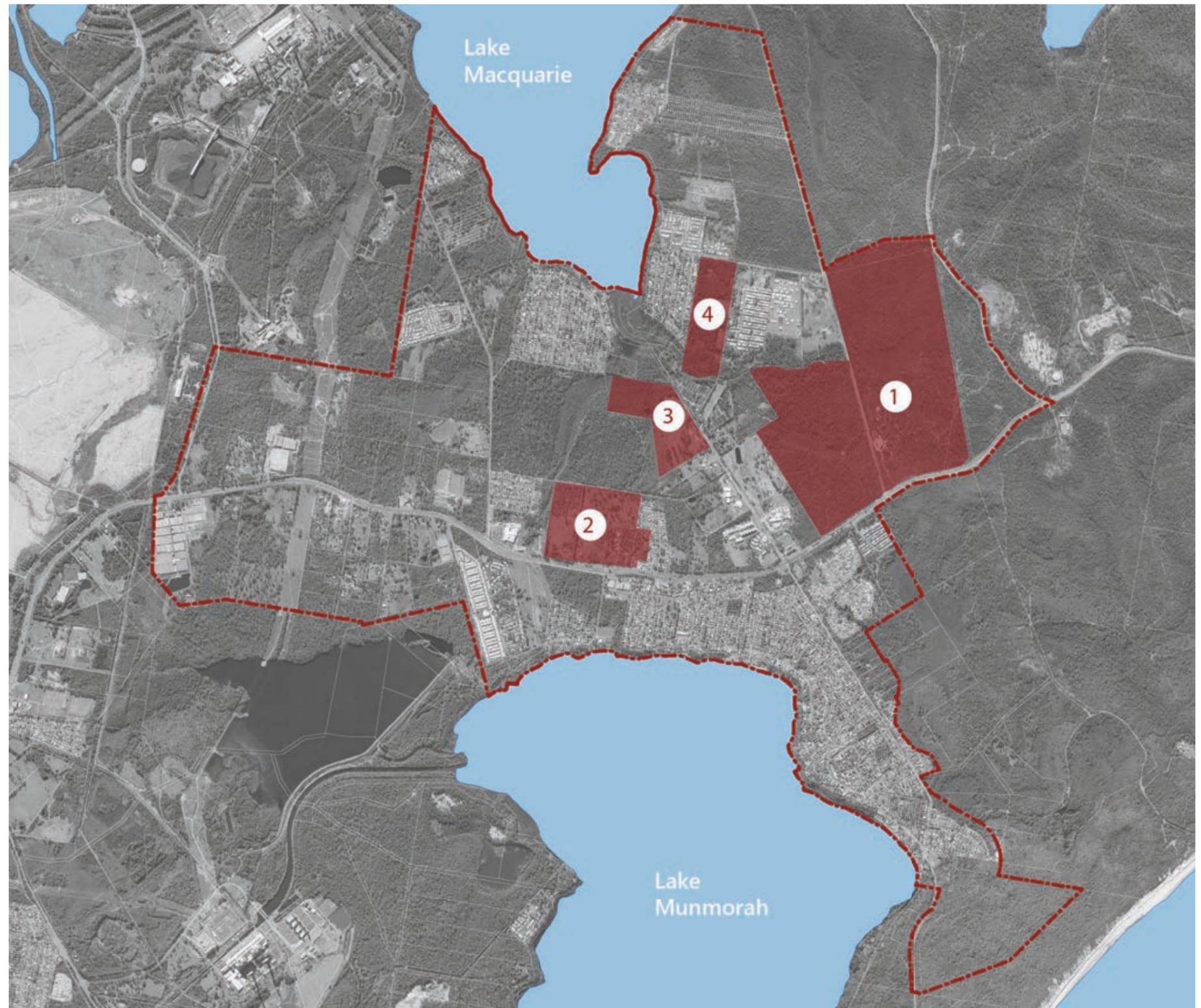


Figure 54: Planning Proposals within Study Area

Study Area Boundary

Current Development Activity (Ctd)

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:

1. **Gwandalan South:** 623 dwellings comprising 387 residential dwellings contained in individual lots and 199 seniors living dwelling units.
2. **Gwandalan North:** 187 residential dwellings contained in individual lots.
3. **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.
4. **Wyee:** Yield analysis conducted for the Wyee Local Environmental Study estimates a yield of 1,350 residential dwellings in individual lots.
5. **Catherine Hill Bay:** 548 residential lot subdivision has been approved, and development has commenced.

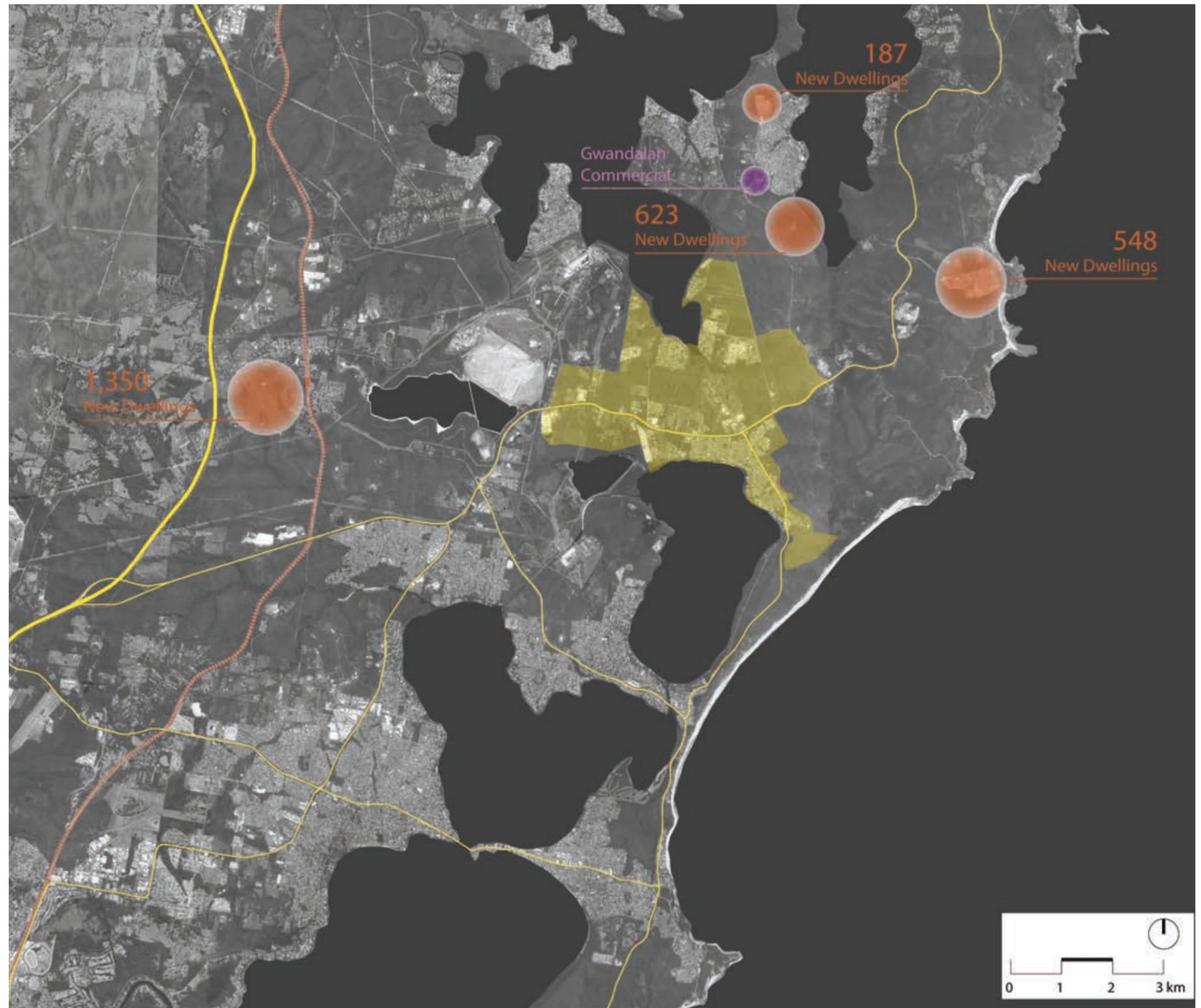


Figure 55: Current Development Activity outside Study Area

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 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. If granted, this change in ownership may have significant repercussions for the study area, particularly in terms of biodiversity conservation.

In particular, the 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 is will remain active until 2028. These sites will require separate Structure Plans/Masterplans due to the complexity of issues related to these sites.

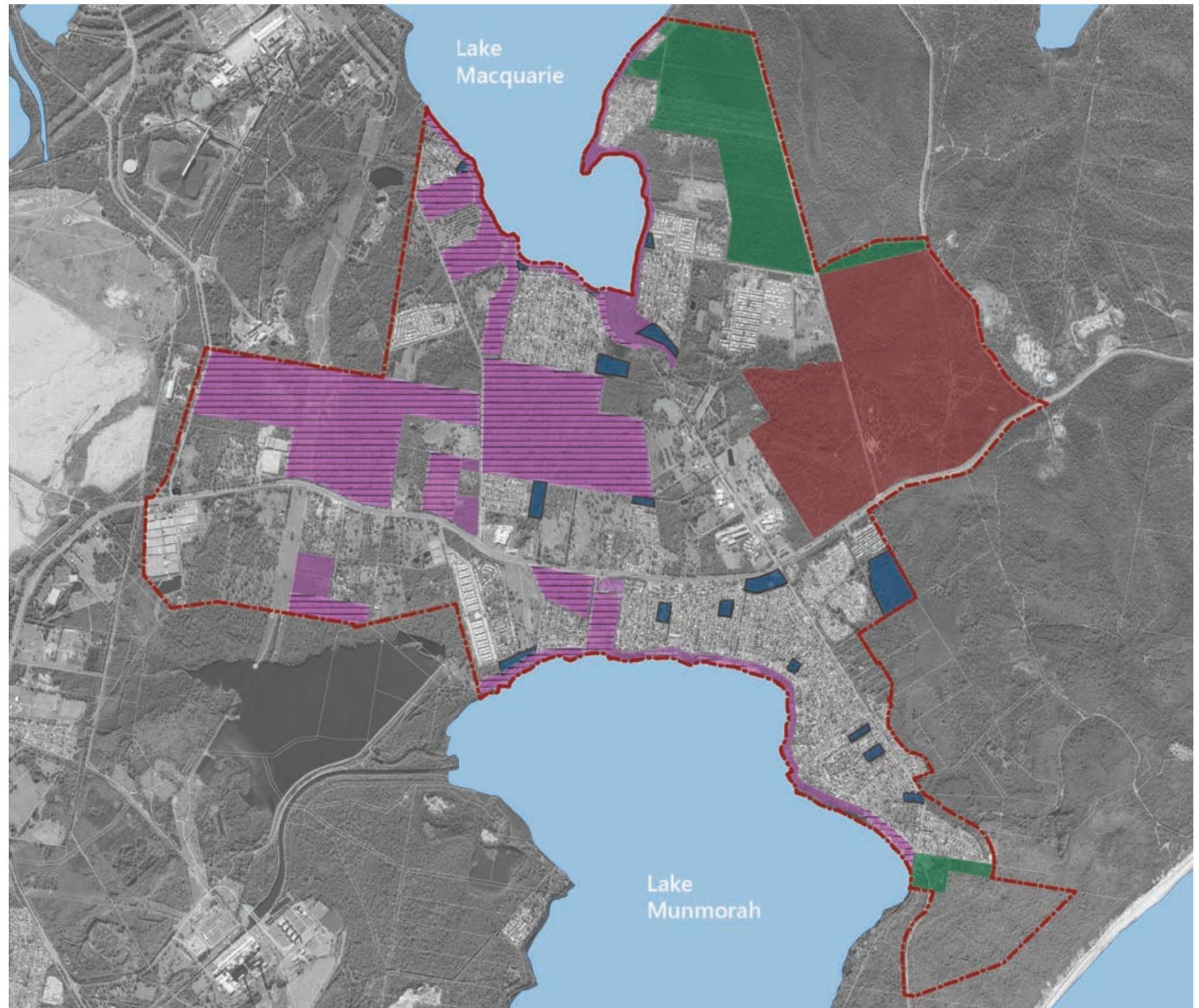


Figure 56: Significant Landholdings within Study Area

 Study Area Boundary

Mining and Resource Areas

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, with extraction not expected to occur before 2023. 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 below). Areas outside this area will continue to have surface development restrictions in place.

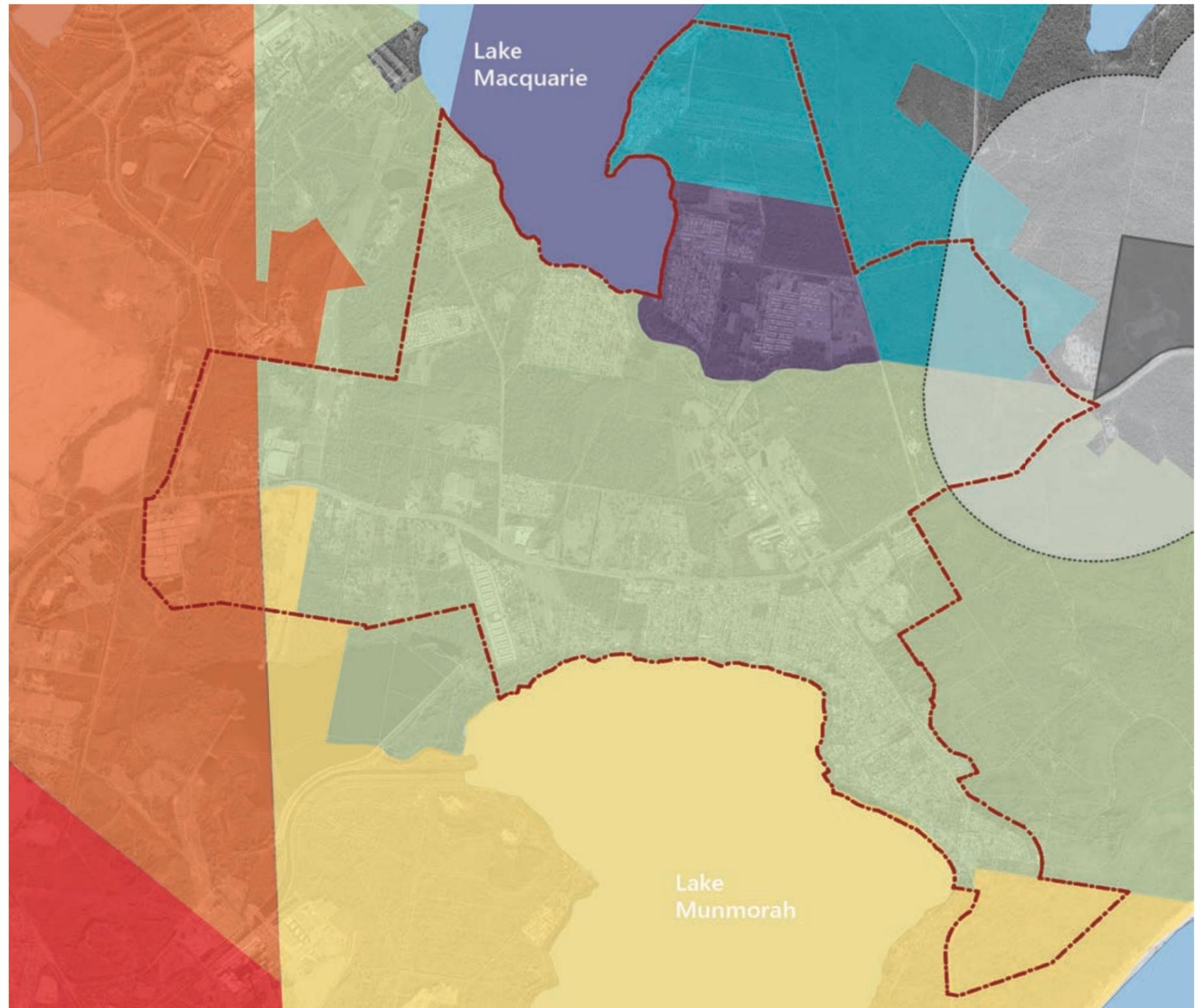
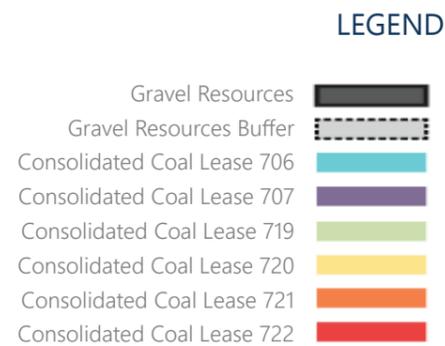


Figure 57: Resource Extraction Areas

 Study Area Boundary

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.

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 streetscape 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 58: Example Built Form in Existing Residential Area



Figure 59: Example Built Form in Existing Residential Area