

NORTH WEST LAKE MACQUARIE CATALYST AREA

**Background report
Towards 2044**

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1. Catalyst Area growth potential

1.1 Projected growth rate

The projected growth rates assume a ‘business as usual’ outcome with no interventions to change planning controls or delivery of critical infrastructure.

Table 1 provides a snapshot of current and projected growth for the Hunter Region, Lake Macquarie and catalyst area.

Table 1: Projected population and housing growth. Source: REMPLAN, 2022

Current 2022	Population	Av. Growth rate per cent	Dwellings	Jobs	Economic output
Hunter Region	786,241	-	339,122	343,206	\$143b
Lake Macquarie	216,428	-	90,360	73,233	\$26b
2022 catalyst area	17, 063	-	7,300	14,175	\$5.3b
Projected 2042					
2042 Hunter Region	949,850	1 per cent	440,922 (+101,800)	+58,181	+\$20b
2042 Lake Macquarie	252,791 (+38,824)	0.8 per cent	108,992 (+18,632)	+21,396	+\$3b
2042 Catalyst Area	20,902 (+3,031)	0.85 per cent	8,963 (+1,250)	+2,005	+\$256m

Overall, the projected growth rate towards 2042 for Lake Macquarie and the catalyst area is aligned at 0.8 per cent. It is anticipated that the Cockle Creek Precinct will account for the highest growth rate within the catalyst area with an additional population of 1512 people and 666 additional dwellings from 2021 to 2042.

Figures 1 – 3 illustrate the projected age groups by population, births and deaths, and net migration within the catalyst area.

A significant jump in age groups 40 – 59 and 65 – 89 is projected by 2041. This reflects the wider trend projected across the Lake Macquarie local government area. An ageing population places greater pressure on health care and social assistance services, transport systems and everyday services. It also requires more adaptable and accessible building stock for people to age in place, and more seniors housing for those who require care. Attracting and retaining younger age groups (20 – 39 years) will be important to ensure services and economic output can be maintained.

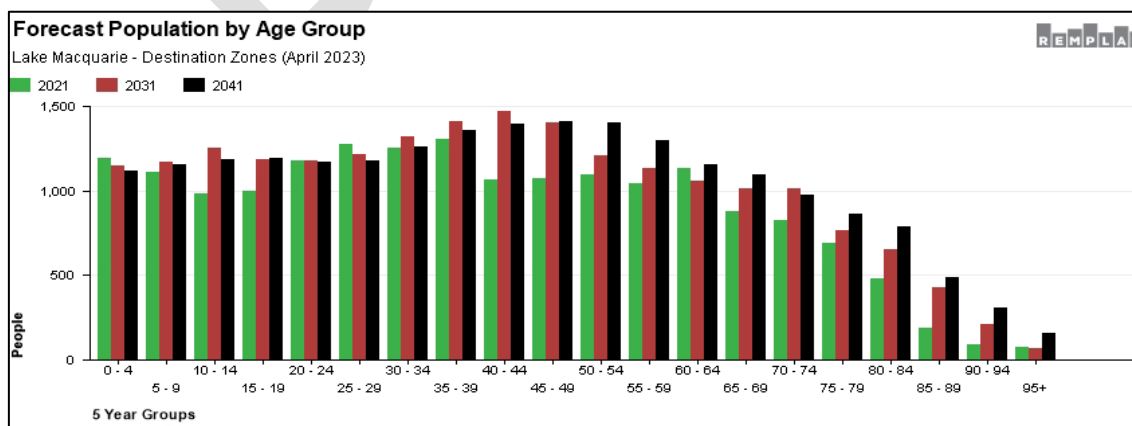


Figure 1: Forecast population by age group

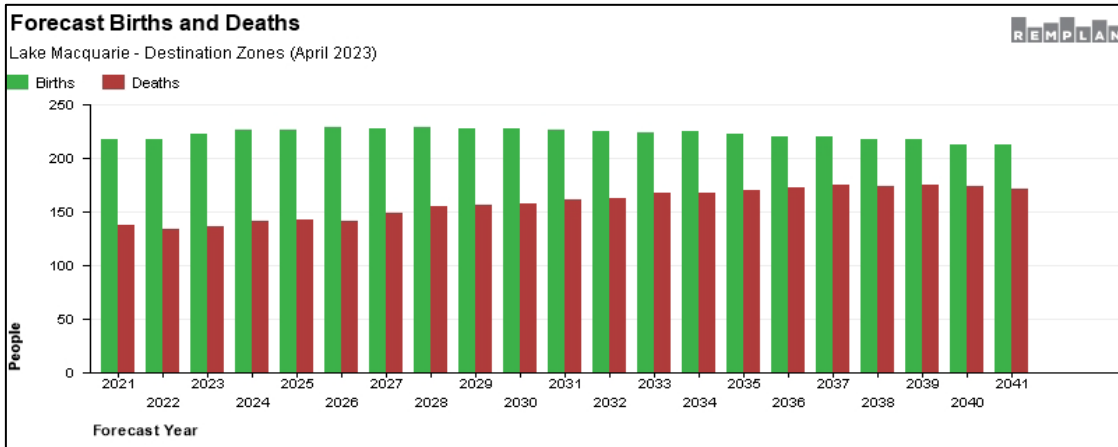


Figure 2: Forecast births and death

Figure 3 shows projected net migration for the catalyst area. Net migration is projected to decline towards 2041, mainly due to the availability of land supply and its ability to produce housing in the long-term. This is difficult to forecast due to uncertainties in the process to rezone land.

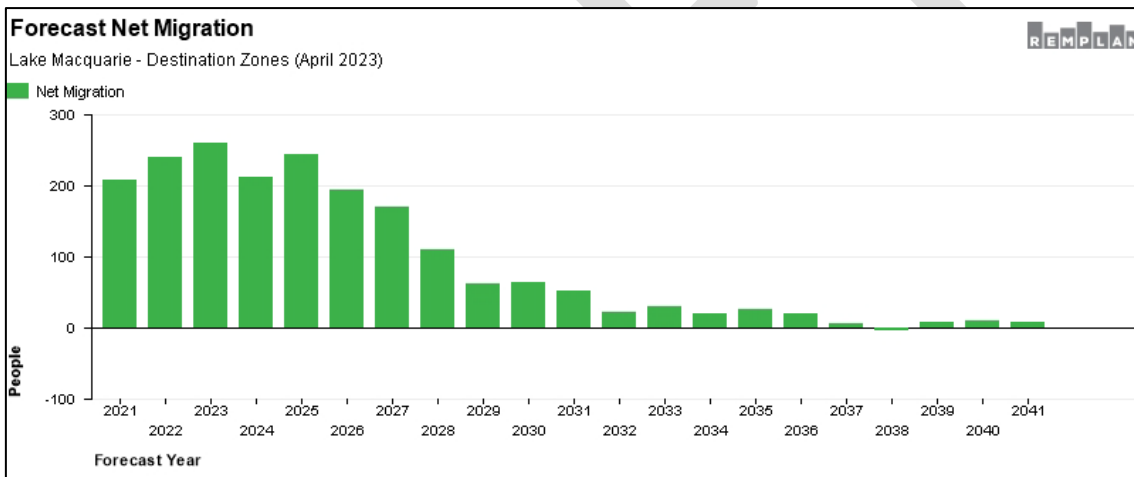


Figure 3: Forecast net migration

1.2 Conceptual high growth scenario

The high growth conceptual scenario shows the potential growth with full take up of developable land within the catalyst area (Figure 4). It assumes interventions have occurred, including the delivery of key infrastructure to facilitate infill development, redevelopment of brownfield sites and development of key opportunity sites.

This scenario shows the potential growth rate of the catalyst area could increase to 3.4 per cent delivering around 3045 additional jobs and 5466 homes.

Table 2: Conceptual population and housing growth.

2022	Population	Av. Growth rate 22-42 per cent	Dwellings	Jobs	Economic output
Hunter Region	786,241	-	339,122	343,206	\$143b
Lake Macquarie	216,428	-	90,360	73,233	\$26b
2022 catalyst area	17,063	-	7,300	14,175	\$5.3b
Conceptual High Growth Scenario					
2042 catalyst area	30,073 (+13,010)	3.5 per cent	12,766 (+5,466)	+3,045	+\$1b

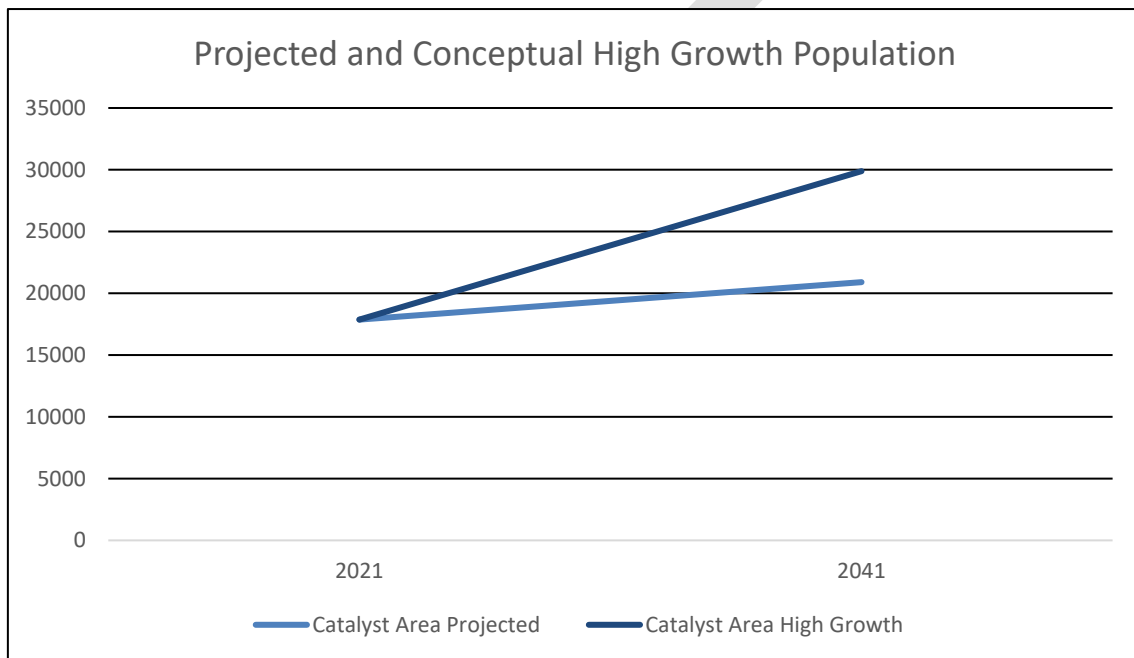


Figure 4: Projected and conceptual high growth population

1.3 Methodology

The high growth scenario is a theoretical population capacity assessment that considers the full uptake of available ‘developable land’ within the catalyst area. The scenario prescribes a net dwelling per hectare¹ range based on:

- current medium density development across the city
- optimum density ranges within the Hunter Regional Plan 2041
- estimated dwelling potential under the *Housing Supply Potentials in Lake Macquarie City 2018*² and *Landcom Residential Density*³.

¹ Net residential density means the ratio obtained by dividing the number of dwelling units on a lot(s) by the area (excluding infrastructure roads, and site coverage requirements etc.).

² Housing Supply Potentials in Lake Macquarie City, 2018. Lake Macquarie City Council.

³ Residential density guide, 2011. Landcom. Source: <https://www.landcom.com.au/assets/Publications/Statement-of-Corporate-Intent/8477325cc1/Density-Guide-Book.pdf>

The methodology has defined 'developable land' as the land area of a site minus the average site coverage and setback provisions under LMDCP 2014. Land excluded as developable land includes:

- environmentally constrained land (high-risk flood prone land, heavily vegetated land, steeply sloped topography)
- land containing heritage items or in a heritage conservation area
- land used for infrastructure
- land owned by government agencies, with exception of NSW Housing and Land Corporation
- land that containing relatively new development because it is unlikely these sites would be redeveloped within the timeframe of the strategy.

The methodology also changes the net dwelling per hectare range between precincts due to the mixture of land use zones, constraints and character. For example, the analysis for the Cardiff-Mixed Use Precinct assumes conversion of older 1-2 storey commercial premises and detached dwellings to shop-top housing, mixed-use and medium density developments of 6+ storeys. These taller buildings are consistent with the analysis undertaken in the Cardiff Town Centre Area Plan. The dwellings per hectare range is higher because of the possible number of storeys, while the average persons per dwelling is adjusted to be consistent with the type of dwelling being constructed.

In contrast, the Teralba local centre currently comprises 1-2 storey commercial premises and detached dwellings and would likely include new development up to two storeys to reflect the heritage value of the area. The lower height reduces the overall net dwelling per hectare range.

1.4 Limitations

Many factors will influence the actual growth rates in the catalyst area. These include:

- market demand and supply
- development feasibility of achieving certain densities and heights
- fragmented landownership and ability to assemble feasible development parcels
- feasibility of remediating contaminated and mine subsidence lands
- delivery of critical infrastructure to keep pace with development.

2. Catalyst Area Vision and structure plan

The catalyst area vision:

The hub for State-significant economic growth in regional NSW.

North West Lake Macquarie Catalyst Area is a place of regional significance. It's central location, efficient transport network and lifestyle advantages attract major private and public investment, and a diversity of people. It is a network of vibrant, liveable hubs framed by unique landscapes and natural environments. It is the largest, most diverse and innovative employment generating catchment in the region with a variety of affordable housing and transport options. With easy access to jobs, education, shops, services, parks and recreation spaces it is the regional location of choice.

2.1 Structure Plan

The Structure Plan map (Figure 5) illustrates the land use potential to achieve the vision, principles and objectives. The structure plan has been developed with consideration of various state and local policies, government agency and industry engagement, environmental constraints, socio-economic considerations and infrastructure provision.

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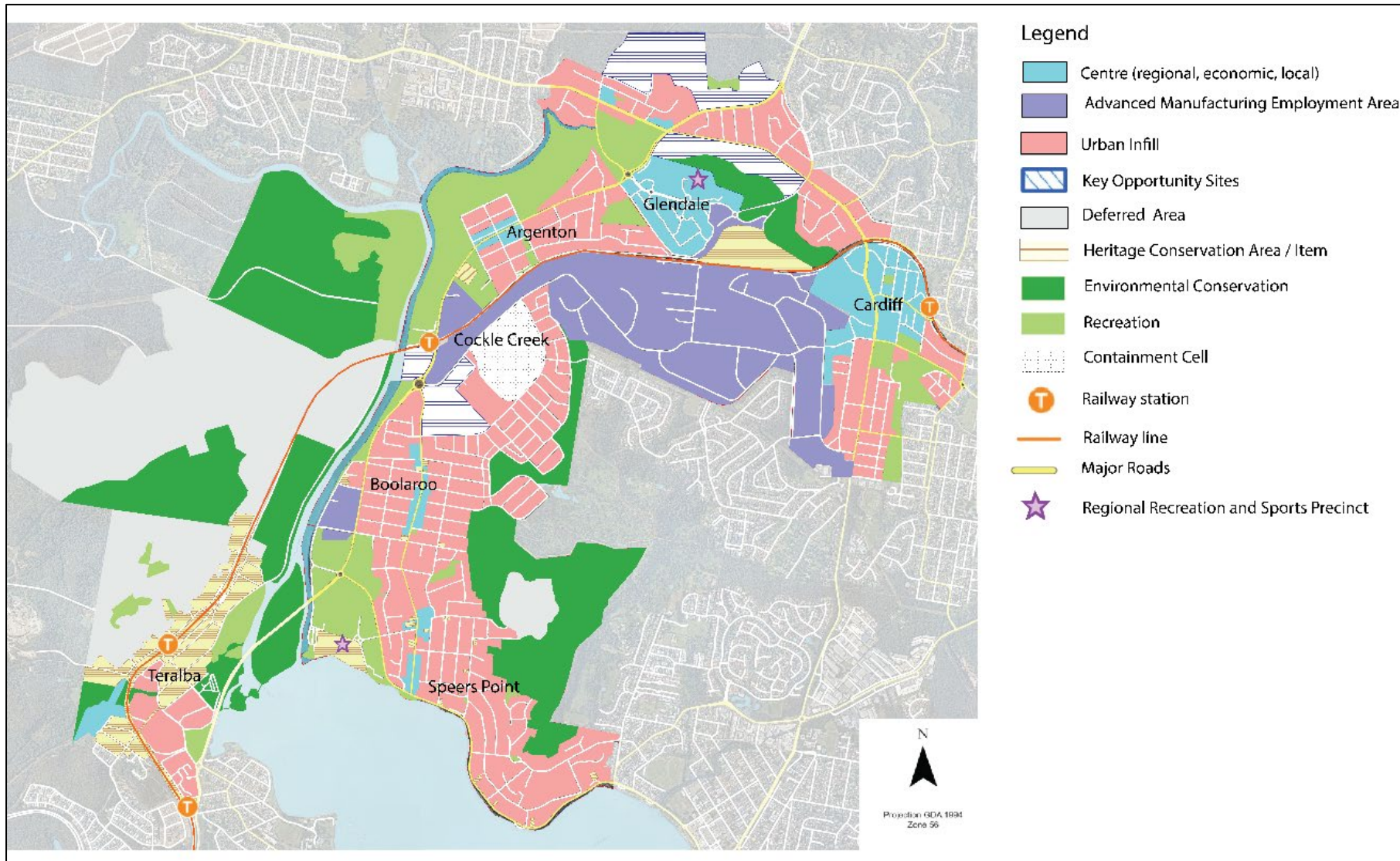


Figure 5: Structure Plan map

3. Principles

To achieve this vision, future development and infrastructure will be guided by the following principles:

The Place Strategy identifies precinct objectives to guide planning and infrastructure delivery. Changes to planning controls such as zones or building heights will be undertaken through planning proposals. Specific actions to meet the objectives will be identified through Council's four-year Delivery Program and one-year Operational Plan.

This approach enables plans and infrastructure to be programmed in alignment with Council's strategic priorities and funding availability.

3.1 Economic Resilience

Improve economic resilience, access to local jobs and facilitate growth of globally competitive enterprises by building on the area's strategic connection to the national transport and high-speed data network.

3.1.1 Future trends, industry change and projected jobs

Several current and future trends will transform and transition the jobs market and role of economic centres. These include⁴:

- **An ageing population:** jobs for the senior population to support financial independence. Ensuring centres cater for population needs including access and provision of appropriate services such as medical care, social services, recreation and shopping.
- **Regional migration:** increasing property prices, the high cost of living in metropolitan cities and the Covid-19 pandemic (e.g. Greater Sydney recorded a net population loss of over 8,000 people⁵ in the March 2021 quarter), has seen a spike in outward migration to the regions. This increase places greater pressure on regional housing, infrastructure and centres to adequately provide services and facilities.
- **Changes to workplaces and practices:** The Covid-19 pandemic has accelerated demand for flexible work arrangements and digital connectivity. This flexibility to work remotely will impact on the role of centres, potentially with more leisure, retail and service industries. Digital infrastructure in economic centres will need to be of a high standard to remain competitive.
- **Promoting and supporting small and medium enterprises:** Small and medium enterprises form a large proportion of businesses within the catalyst area. A high standard for digital technology and a diversity of workplace types and sizes will be important. Partnerships with Council and State government will also help these enterprises grow and leverage national and international markets.
- **Changing retail environment and decline of the high street:** Average online shopping industry growth is estimated at 14.3 per cent between 2014 and 2019 with department and variety stores recording the highest online sales. At the same time, traditional bricks and mortar stores experienced the largest decrease in demand from customers. Large regional shopping centres will continue to be attractors because of the multiple services and specialised retail. Regional

⁴ SES Economics, 2020. 'Lake Macquarie City Centre Research Project', p.77. Source: Lake Macquarie City Council.

⁵ ABS, 2021. *Regional internal migration estimates, provisional*. Source:

<https://www.abs.gov.au/statistics/people/population/regional-internal-migration-estimates-provisional/latest-release>

shopping centres have been diversifying with new uses including entertainment, coworking spaces and residential units. To ensure economic viability of traditional high street centres, investment will be needed to improve streetscape amenity, promote the small-scale specialised retail to recognise each centre as a unique destination.

- **Importance of employment zone land:** Retaining and enhancing employment zone land close to population density and major transport connections is important for freight and logistics purposes based on the rise of online retailing, automatic delivery services and knowledge-based industries. It is also critical to support the growth of advanced manufacturing of small to medium size enterprises and to build partnerships with tertiary education providers.

It is projected that employment growth by industry for the greater Lake Macquarie and Newcastle areas will primarily be in health care and social services, construction, and education sectors (Figure 6).

This growth will complement the existing industry base, as these sectors are the largest employers within the catalyst area (Figure 7). A large portion of the estimated 3045 future jobs is projected to be distributed between industries including:

- medical services across all precincts
- retail in the Cardiff Mixed Use, Cockle Creek and Glendale Retail and Sports precincts
- construction-manufacturing within the Cardiff Advanced Industry precinct.

The catalyst area is in a strong position to capitalise on the future projected industry and employment growth. However, it is essential the catalyst area is supported by appropriate infrastructure, improved amenity and flexible and adaptive landuse controls.

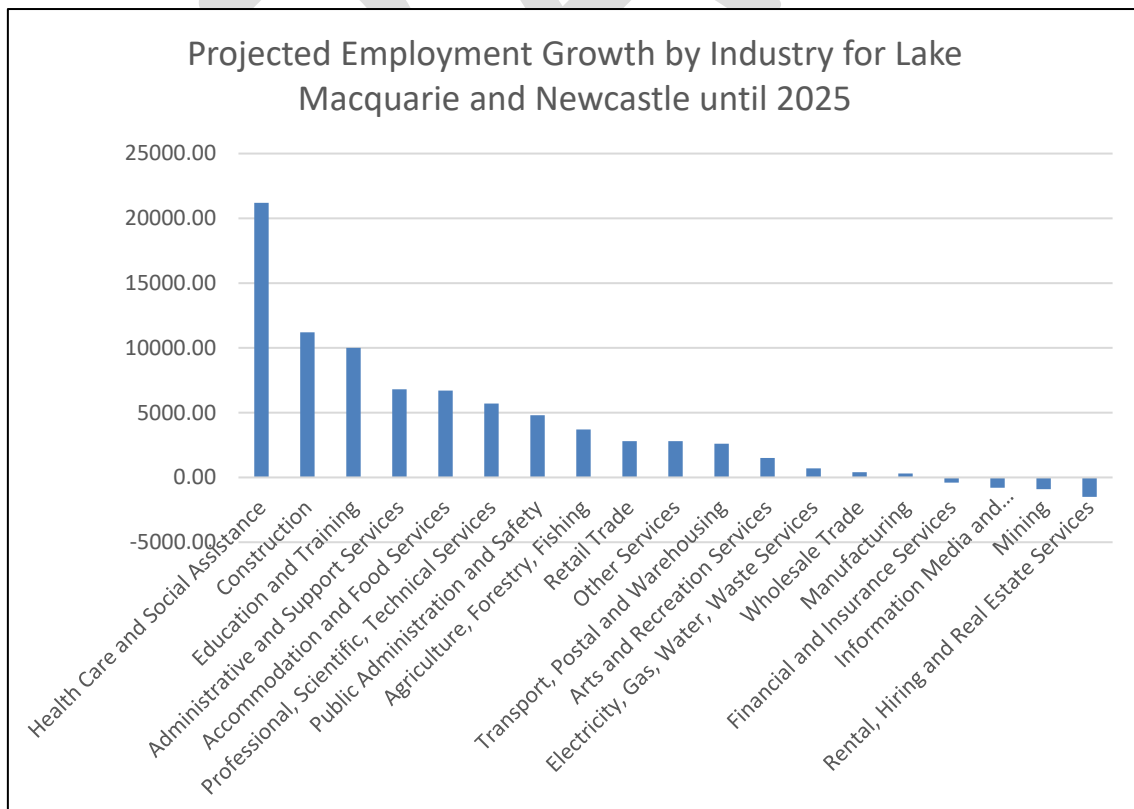


Figure 6: Projected Employment Growth by Industry for Lake Macquarie and Newcastle until 2025. Source: National Skills Commission, 2020 Employment Projections, five years to November 2025.

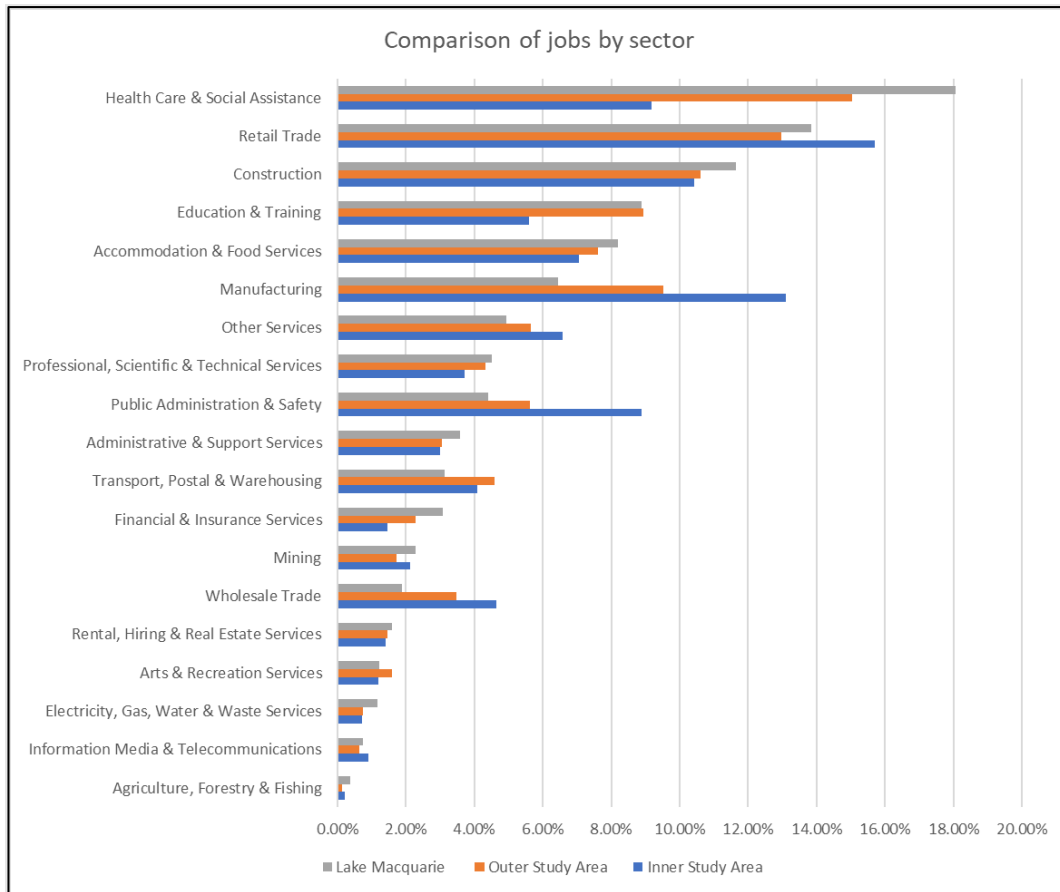


Figure 7: Comparison of jobs by sector/industry in 2020. Source: Remplan Economic, 2020.

Table 3 shows the projected total floor space needs (m²) for each economic centre and employment zone in the catalyst area. The catalyst area is projected to support more than 3045 jobs and contribute 193,838m² of the required floor space.

Table 3: Projected employment floor space. Source: REMPLAN, 2022

Precinct	Zone	Floor Space (m ²)
Boolaroo Local Centre	E1	2,660
Speers Point Local Centre	E1	2,400
Costco	E3	13,788
Pasminco Business Park	E3 / MU1	56,000
Boolaroo Industrial	E4	3,407
Pasminco Industrial	E4	24,838
Teralba Local Centre	E1	2,125
Teralba Industrial	E4	3,100
Glendale MU1	MU1	40,000
Glendale E3	E3	14,645
Cardiff Centre	MU1	12,000
Cardiff Industrial	IN2	11,500
Council Admin	E1	1,500
Argenton Local Centre	MU1	625
Argenton Industrial	E5	500
		187,963

3.1.2 Supporting employment lands and centres via land use

A key policy tool to ensure the enhancement of industry and economic centres is the planning system such as land use controls and land zones. Flexible and adaptable land use controls ensure that business and industry are capable to change business operations or expand as future trends emerge.

Local government plays a key role in determining the size, hierarchy and permissible uses contained within economic centres through its implementation of Local Environmental Plans. Key policy tools Council can utilise via *Lake Macquarie Local Environmental Plan 2014* to ensure the future enhancement of centres, which contributes to job creation, is provided below.

Expanding employment zones

Expanding employment zones within existing centres can create future opportunity for centre growth and enables new businesses to enter the area. When expanding employment zones three key considerations are required⁶:

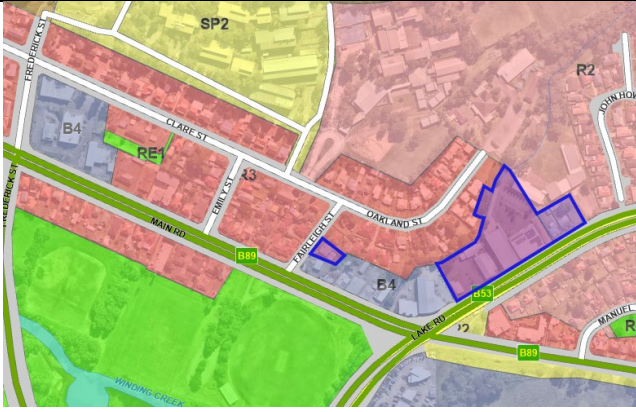


1. Is the centre adequately serviced by infrastructure and in direct access to transportation networks and transport services?
2. Can the expansion in the centre be supported by current and future growth rates in population and dwellings?
3. Will expanding the centre negatively impact on surrounding existing centres?

Key findings:

- the existing catalyst area centres are well serviced by infrastructure and transport networks and services
- the future growth rate will be steady and is projected at to be an increase of 15,549 people by 2050
- existing centres are well positioned to continue sustained growth and will not compete against each other due to the differing roles and services they provide
- although constrained by environmental factors and/or fragmented land ownership, there is adequate surplus of undeveloped employment land e.g. Glendale E2 Commercial Centre zone and Cardiff MU1 Mixed Use zone
- in 2021, there were 104 vacant commercial premises within the catalyst area, which contribute to projected future commercial supply.
- several centres contain single detached dwellings that can contribute to commercial floor space supply through a change of use or redevelopment
- several centres could benefit from small employment zone expansions where commercial uses currently exist within a residential zone, or to provide a link for separated employment zone areas. These include options in Table 4.

⁶ Department of Urban Affairs and Planning, 2001. *Integrating Land Use and Transport The Right Place for Business and Services – Planning Policy*. Source: NSW Government.

Table 4: Potential employment land zone extensions to improve zone consistency and connection

328 – 350 Lake Road, Glendale	
	<ul style="list-style-type: none"> Potentially extend MU1 Mixed Use zone to reflect and be consistent with current uses of a medical centre and religious establishment.
69 – 83 Robert Street, Argenton	
	<ul style="list-style-type: none"> Potentially extend the MU1 Mixed Use zone to enable a consistent zone layout for the Robert and Lake Road block, which would reduce any administrative complexities during development assessment across to separate zones.
150-158 Main Road, Speers Point	
	<ul style="list-style-type: none"> Potentially extend E1 Local Centre to 158 Main Road to connect Speers Point local centre with Council operational land and administration centre. 150-156 Main Road is a Council operational landholding and it is proposed to be an investigation area. This will require further investigation and stakeholder engagement. Possible desired land use to be a mixed-use area that supports co-work spaces and residential accommodation.

3.1.3 Development feasibility for employment uses


Development feasibility refers to the ability to develop the land for less than the potential return. Development is generally considered feasible if the finished development will achieve sales returns at least 16-20 per cent more than it costs to undertake the development. Many factors contribute to the cost of development, including environmental constraints, government and banking fees, land value, allowable density, building controls and construction costs.

To identify the optimal commercial building height, high level development feasibility analysis was undertaken for three sites as shown in Table 5. The feasibility analysis assumed mixed use development or shop top housing over both commercial and residential zones. Incorporating residential units with 1-2 storeys of commercial floor space generally provides a more reliable return due to more reliable sales of housing compared with the medium-term cyclical turnover of commercial tenants (refer Site 3 in Table 5).

Findings:

- mixed use development and/or shop top housing with ground floor commercial is the more feasible development type within economic centres
- 4-6 storey buildings provide the optimal height for centres to achieve development feasibility+
- current supply chain shortages and disruptions, along with increased demand for construction products has escalated the construction costs for all developments resulting in reduced profit margins, which will improve feasibility once construction costs stabilise and construction projects decrease due to rising interest rates.

Table 5: Commercial development feasibility examples

Site 1 – 24 Main Rd, Boolaroo				Area: 2,300m ² Estimated land value \$2.1m		
				Assumptions:		
				<ul style="list-style-type: none"> • All parking is at grade or on a podium 		
Height	Dwellings	Commercial floor space	Carparking	Cost	Sale	Profit
13m (3 storeys)	1br – 2 2br – 12 3br – 4	925m ²	50	\$15.66m	\$13.48m	-\$2.18m (-13.9 per cent)
22m (6 storeys)	1br – 0 2br – 24 3br – 16	672m ²	84	\$25.82m	\$27.06m	\$1.23m (4.8 per cent)
28m (8 Storeys)	1br – 2 2br – 35 3br – 20	505m ²	105	\$32.81m	\$36.66m	\$3.85m (11.7 per cent)
Site 2 – 523 & 525 Main Rd, 75 & 77 Robert St, Argenton				Area: 2,993m ² Estimated land value \$2.8m		



Assumptions:

- All parking is at grade or on a podium

Height	Dwellings	Commercial floor space	Carparking	Cost	Sale	Profit
13m (3 storeys)	1br – 2 2br – 15 3br – 8	837m ²	59	\$20.18m	\$17.70m	-\$2.48m (-12.3 per cent)
22m (6 storeys)	1br – 0 2br – 20 3br – 28	732m ²	108	\$32.31m	\$33.04m	\$0.73m (2.3 per cent)
28m (8 Storeys)	1br – 0 2br – 32 3br – 35	627m ²	135	\$40.87m	\$44.56m	\$3.69m (9.0 per cent)

Site 3 – 357-361 Main Rd, Cardiff Area: 2,230m²
Estimated land value \$3.2m



Assumptions:

- demolition and site preparation costs were halved as there were no structures on the site.

Height	Dwellings	Commercial floor space	Carparking	Cost	Sale	Profit
13m (3 storeys)	1br – 3 2br – 7 3br – 7	655m ²	35	\$14.37m	\$12.21m	-\$2.17m (-15.1 per cent)
22m (6 storeys)	1br – 2 2br – 33 3br – 16	721m ²	74	\$32.51m	\$33.41m	\$0.90m (2.8 per cent)
28m (8 Storeys)	1br – 2 2br – 47 3br – 22	852m ²	98	\$43.15m	\$46.15m	\$2.99m (6.9 per cent)
28m (8-storeys)	Nil	8-storeys commercial	Feasibility is -43 per cent (\$19m loss)			

3.1.4 Innovation precincts and smart cities

The NSW and local governments seek to build business environments that are conducive to economic growth and social prosperity. The *NSW Industry Development Framework* identifies targeted government interventions to improve the business

environment or shift the structure of economic activity towards sectors or technologies that offer better prospects for economic growth⁷.

The Framework identifies supply-side interventions, such as:

- Special Activation Precincts (SAPs), which plan and deliver industrial and commercial infrastructure in dedicated areas in regional NSW. The initiative brings together planning and investment support services to deliver more jobs and economic outcomes in regional areas.
- Supporting industrial zones, governments can provide necessary infrastructure and signalling to encourage firms to locate in these zones.
- Infrastructure development and provision, which involves government support of key basic infrastructure, such as ICT-related infrastructure, shared facilities and water supply or transport network upgrades, in key locations.

In the catalyst area, Council and the NSW Government will promote the Cardiff Advanced Industry Precinct as the primary employment zone for growth as an advanced and knowledge-sharing industry precinct. The precinct already contains a clustered environment of inter-related firms providing productivity benefits, while managing negative spill over from their combined operational impacts. The precinct is also in a strong position to attract advanced manufacturing, knowledge-based and smart technology businesses due to digital connectivity and flexible land use zoning.

3.1.5 Night time economy

There are many opportunities within the centres and public spaces across the catalyst area to facilitate night time economy activities. Speers Point Park is the existing premier destination for a range of night time activities including markets, festivals, cultural events and music. However, most other public spaces and centres within the catalyst area have great potential to expand night time economic activities beyond food and beverage venues.

Council will continue to implement its *Lake Macquarie Night Time Economy Action Plan* within the catalyst area. This may include:

- activating public spaces via placemaking such as creative lighting
- night-time food markets, night-time cinema and family-friendly events in parks and public spaces
- 'pop-up' dining and 'food truck' events with music in centres
- supporting the expansion of an entertainment and food precinct within the Glendale shopping centre.

3.2 Housing

Support delivery of more diverse and affordable housing reflecting the desired character of each precinct.

Demand for more diverse housing to meet a variety of people's needs will continue to grow. The catalyst area has limited undeveloped greenfield⁸ land, so most of the projected housing growth will occur through infill development and redevelopment of

⁷ Centre for Economic and Regional Development, 2022. *The NSW Industry Development Framework*. Source: NSW Government.

⁸ Greenfield housing is new housing in an area not previously used for urban purposes.

brownfield⁹ sites. This is consistent with the Hunter Regional Plan 2041 benchmark for 80 per cent of new housing in the Greater Newcastle area to be provided as infill development.

3.2.1 Optimum housing density

The Lake Macquarie Housing Strategy and Hunter Regional Plan aim to facilitate the delivery of more diverse forms of housing that meet the needs of people across all age groups. The Hunter Regional Plan 2041 identifies optimal densities for urban areas (Table 6), to make better use of existing infrastructure and enable people to live close to shops and services that cater to daily needs.

The Hunter Regional Plan 2041 seeks a mix of densities in terms of the urban and suburban contexts and has proposed minimum and desired dwelling density targets within urban and suburban contexts, as shown in Table 6.

Table 6: Hunter Regional Plan 2041 – Optimum urban densities

Desired dwellings per hectare	Category	Comment
30	General Suburban	30 suburban dwellings per ha, unless within 800 m of strategic centres and public transport corridors, which should achieve minimum 50 dwellings per ha
40	Inner Suburban	40 dwellings per ha, unless within 800 m of strategic centres and public transport corridors, which should achieve minimum 75 dwellings per ha
50	General Urban	50 dwellings per ha, unless within 800 m of strategic centres and public transport corridors, which should achieve minimum 75 dwellings per ha
75	Urban Core	

Optimal density targets for the catalyst area are provided in Table 7. The targets have regard to the Hunter Regional Plan 2041 targets, some targets have been modified to better reflect the desired future character of each precinct.

⁹ Brownfield development is development on land that has previously been built upon.

Table 7: Optimum density outcomes for the catalyst area

Precinct and zone	Desired future housing types	Optimum density target
All precincts R2 zone 'Urban Infill Areas'	A more restricted zone which recognises environmental constraints such as topography etc. and sizable distance from centres (>1km) or transit corridors. Housing type: detached dwellings, secondary dwellings, dual occupancy, small lot housing and multi-dwelling housing	15-20 dwellings per ha
All precincts R3 zone	Supports more medium density development in proximity (<1km) or adjacent to centres or transit corridors. Housing type: residential flat buildings.	35 dwelling/ha
All precinct E1/MU1 zone	Supports a mixed-use area either adjacent to centres or are centres. Housing type: Residential flat buildings, shop top housing, mixed use development.	50-75 dwelling/ha
Cardiff strategic centre MU1 zone	This centre supports a larger height of building outcome due to minimal mine subsidence and its sitting within a valley that reduces the visual impact of height from surrounding ridgelines. There are multiple services which can be expanded with additional population density. Housing type: Residential flat buildings, shop top housing, mixed use development.	75-85 dwelling/ha
Main Road Glendale R3 zone	These areas contain mine subsidence constraints and could potentially result in reduced heights to 3-storeys. Housing type: multi-dwelling housing, residential flat buildings.	25 dwelling/ha
Teralba local centre E1 / R3 zone 'Teralba Heritage Conservation Area'	This area is applied with a Heritage Conservation Area. To protect the heritage aesthetic, 2-storey building heights reduce the overall density outcome. Housing type to be symetheitic with heritage aesthetic: multi-dwelling housing, residential flat buildings, shop top housing.	30 dwelling/ha

3.2.2 Urban development program (UDP) and urban release areas

Council maintains an urban development program database identifying future residential land supply. UDP data is incorporated into the demographic projections. Key findings from analysis of Council's UDP include:

- there is sufficient existing residential zoned land supply to cater for the projected growth
- current residential zoned land within the catalyst area is high in landholder fragmentation which increases the costs for infill development due to the need to negotiate with multiple landowners to buy and amalgamate lots
- the major residential brownfield land area is located within the Cockle Creek Precinct and is estimated to be developed over a 5 – 10 year period.

Notable large sites of residential land supply within the catalyst area are provided in Table 8 below.

Table 8: Large residential development proposals

Site	Zone	Type	Estimated timeframe
Boolaroo – Speers Point Precinct			
1A Raymond Street, SPEERS POINT	E4 Environmental Living	Greenfield – residential subdivision	5 years to dwelling completion
26 Seventh Street, BOOLAROO	R2 Low Density Residential	Infill – townhouses	1-2 years to dwelling completion
45 Pendlebury Road, CARDIFF	MU1 Mixed Use	Infill – residential flat building	Complete

7 Sturt Road, CARDIFF	MU1 Mixed Use	Infill – seniors housing	Complete
2 Sturt Road CARDIFF	MU1 Mixed Use	Infill –residential flat building	Unknown
14 Sturt Street CARDIFF	MU1 Mixed Use	Infill – mixed use development	5 – 10 years for dwelling completion
Cockle Creek Precinct			
128 Munibung Road, BOOLAROO	R2 Low Density Residential	Infill – residential subdivision and mixed use development	1 – 2 years for dwelling completion
Glendale-Argenton Renewal Precinct			
402 Main Road, CARDIFF	R3 Medium Density Residential	Infill – Affordable housing townhouses	2-5 years for dwelling completion
Teralba Precinct			
Pitt Street TERALBA	R2 Low Density Residential	Greenfield – Residential subdivision	1 -2 years for dwelling completion
1 -12 William Street TERALBA	R2 Low Density Residential	Infill – Residential subdivision	2 – 5 years for dwelling completion
4 Watkins Lane, TERALBA	R2 Low Density Residential	Greenfield – Residential subdivision	10 – 15 years for dwelling completion
Victoria Street, TERALBA	R2 Low Density Residential	Infill – Residential subdivision	> 15 years for dwelling completion
30 Quarry Road, TERALBA	R2 Low Density Residential	Infill – Residential subdivision	10 – 15 years for dwelling completion

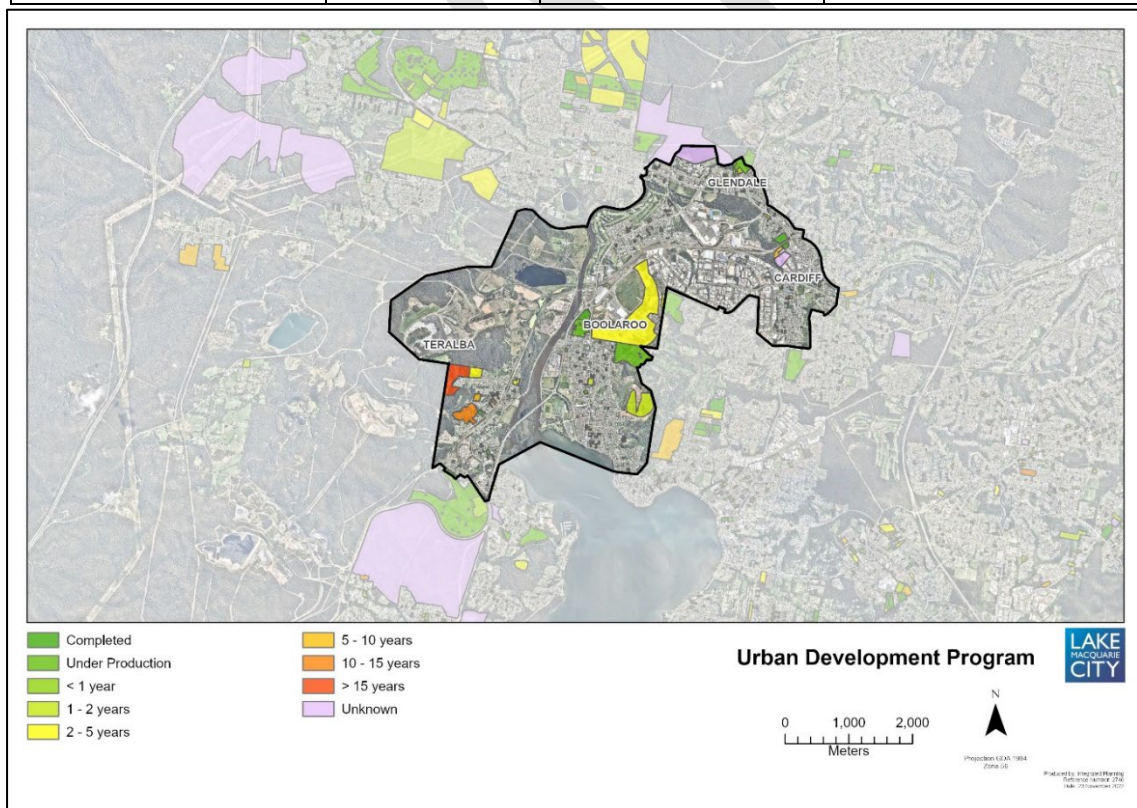


Figure 8: Urban Development Program – Residential

3.2.3 Land potential for low rise (up to 3 storeys) medium density development

Residential lot sizes vary throughout the catalyst area ranging 280m² to over 1,000m². The variety in lot size provides opportunities for a mix of residential densities and building types. Figure 9 shows land suitability for various residential buildings under the current land use zone provisions. The map uses the following definitions:

- No opportunities:** Lots are not suitable for commercial or medium density development unless adjoining lots are amalgamated.
- Class 1:** Lots suitable for dual occupancy with a minimum 12m road frontage width and minimum 500m² lot size.
- Class 2:** Lots suitable of multi-dwellings with a minimum 18m road frontage width and minimum lot size of 750m².
- Class 3:** Lots suitable for residential flat buildings and shop top housing with a minimum 20m road frontage width and a minimum lot size of 800m².

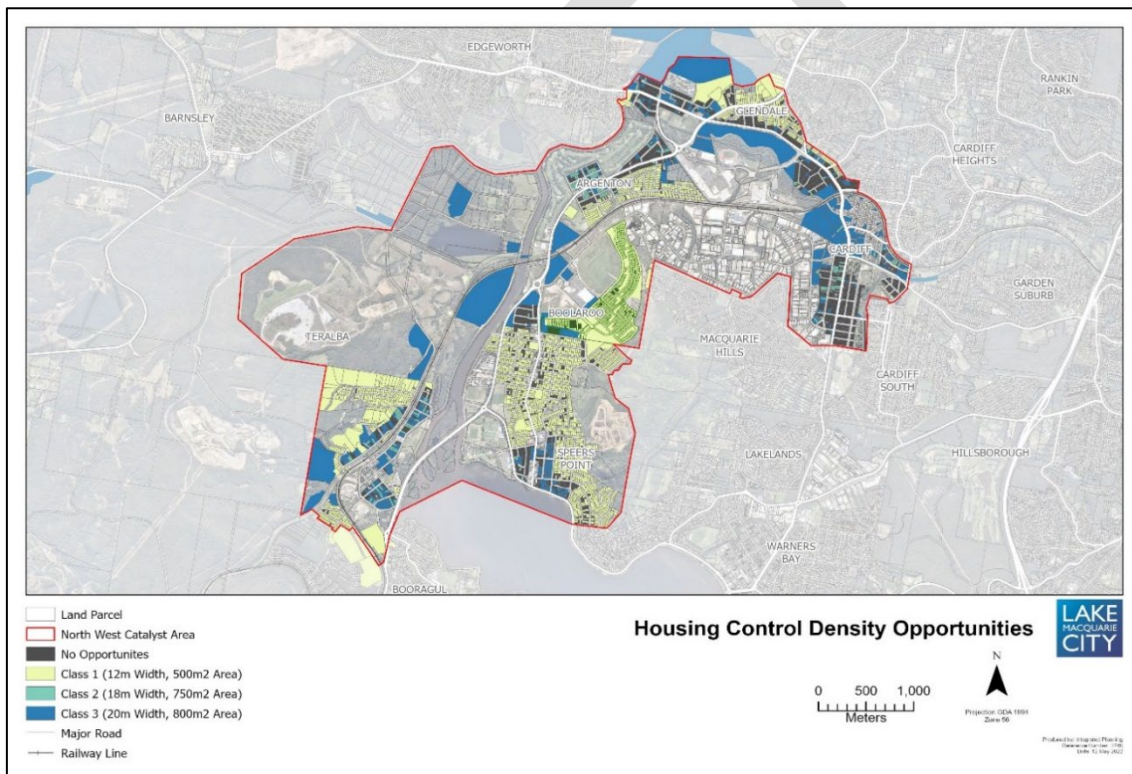


Figure 9: Housing density opportunities with existing land use zones and development standards

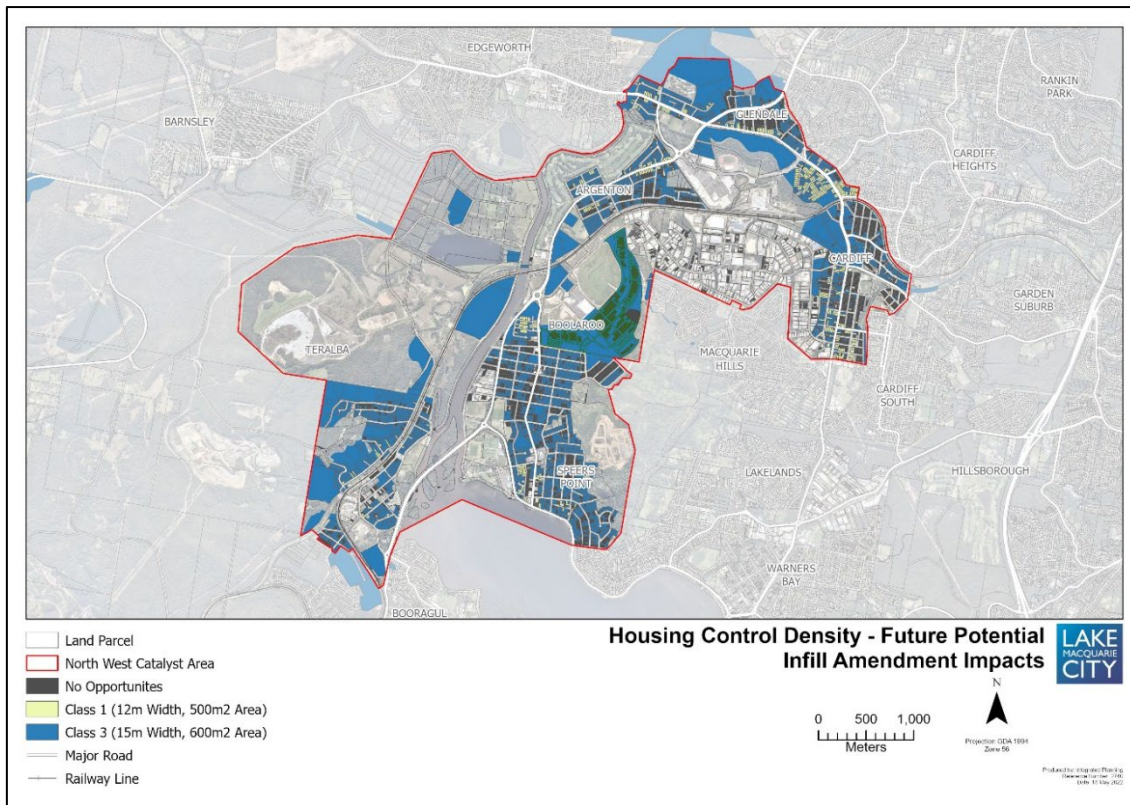


Figure 10: Future Potential for Housing Density

3.2.4 Current proposals to support low-rise (up to three storeys) medium density housing

Figure 10 shows housing density opportunities where changes are made to land use zones (e.g. rezone land to R3 Medium Density Residential zone) or the range of permitted dwelling types in the R2 Low Density Residential Zone is broadened. It also considers the current draft changes to planning controls to facilitate infill housing development that will:

- allow dual occupancies in the R3 Medium Residential Zone in certain areas
- reduce the multi-dwelling provisions to a minimum lot area of 600m² and lot width of 15m
- reduce the residential flat building provisions to a minimum lot area of 600m² and lot width of 15m.

Council is progressing amendments to planning controls to better facilitate low rise medium density residential opportunities across the local government area. These are:



- **Facilitating Infill Housing** - the intent of the changes is to unlock and facilitate further opportunities for infill housing in residential zones close to economic centres. The focus is on amending controls that unintentionally limit infill housing on land zoned for medium density residential purposes and situated close to business zones. This will assist in increasing the supply and diversity of housing close to centres to include some smaller dwelling types.
- **Housing Diversity** – the intent of the changes is to increase the supply and diversity of housing types in residential zones by permitting all forms of residential housing in the R2 Low Density Residential zone and the R3 Medium Density Residential zone.

3.2.5 Development feasibility of residential buildings

Development feasibility refers to the ability to develop the land for less than the potential return. Development is generally considered feasible if the finished development will achieve sales returns at least 16-20 per cent more than it costs to undertake the development. Many factors contribute to the cost of development, including environmental constraints, government and banking fees, land value, allowable density, building controls and construction costs¹⁰.

To identify the optimal residential building height, high level development feasibility analysis was undertaken for five sites as shown in Table 9. The feasibility analysis assumed car parking for both the podium (defined as parking within the ground and first storey of a building) and underground car parking.

Table 9: Residential development feasibility examples

Site 1 – 24 Main Rd, Boolaroo				Area: 2,300m ² Estimated land value \$2.1m		
				Assumptions: <ul style="list-style-type: none"> All parking is at grade or on a podium 		
				Height	Dwellings	Commercial floor space
13m (3 storeys)	1br – 2 2br – 12 3br – 4	925m ²	50	\$15.66m	\$13.48m	-\$2.18m (-13.9 per cent)
22m (6 storeys)	1br – 0 2br – 24 3br – 16	672m ²	84	\$25.82m	\$27.06m	\$1.23m (4.8 per cent)
28m (8 Storeys)	1br – 2 2br – 35 3br – 20	505m ²	105	\$32.81m	\$36.66m	\$3.85m (11.7 per cent)
Site 2 – 26-28 Park St, Argenton				Area: 1,500m ² Estimated land value \$1.4m		
				Assumptions: <ul style="list-style-type: none"> All parking is at grade or on a podium 		
				Height	Dwellings	Commercial floor space
16m (4 storeys)	1br – 4 2br – 17	nil	43	\$17.35m	\$16.59m	-\$0.76m (-4.4 per cent)

¹⁰ Feasibility Guide for Town Planners, 2020. C.K. Murray, Henry Halloran Trust – University of Sydney.

	3br – 7					cent)
22m (6 storeys)	1br – 5 2br – 23 3br – 11	nil	60	\$23.43m	\$23.30m	-\$0.13m (-0.6 per cent)
28m (8 Storeys)	1br – 5 2br – 29 3br – 15	nil	76	\$28.95m	\$29.56m	\$0.61m (2.1 per cent)
28m (8 storeys) Podium parking	1br – 0 2br – 20 3br – 13	nil	53	\$18.66m	\$20.64m	\$1.98m (10.6 per cent)

**Site 3 – 523 & 525 Main Rd, 75 & 77
Robert St, Argenton**

Area: 2,993m²
Estimated land value \$2.8m



Assumptions:

- All parking is at grade or on a podium

Height	Dwellings	Commercial floor space	Carparking	Cost	Sale	Profit
13m (3 storeys)	1br – 2 2br – 15 3br – 8	837m ²	59	\$20.18m	\$17.70m	-\$2.48m (-12.3 per cent)
22m (6 storeys)	1br – 0 2br – 20 3br – 28	732m ²	108	\$32.31m	\$33.04m	\$0.73m (2.3 per cent)
28m (8 Storeys)	1br – 0 2br – 32 3br – 35	627m ²	135	\$40.87m	\$44.56m	\$3.69m (9.0 per cent)

Site 4 - 14-16 Brown St, Cardiff

Area: 1,157m²
Estimated land value \$1.46m



Assumptions:

- All parking is at grade or on a podium

Height	Dwellings	Commercial floor space	Carparking	Cost	Sale	Profit
16m (4 storeys)	1br – 2 2br – 10 3br – 6	nil	29	\$12.62m	\$10.88m	-\$1.74m (-13.8 per cent)
22m (6 storeys)	1br – 2 2br – 13	nil	36	\$14.98m	\$14.01m	\$0.97m (-6.5 per cent)

	3br –8					cent)
28m (8 Storeys)	1br – 5 2br – 13 3br – 12	nil	46	\$16.78m	\$16.28m	-\$0.70m (-4.1 per cent)
28m (8 storeys) Podium parking	1br – 2 2br – 9 3br – 10	nil	36	\$13.02m	\$13.01m	-\$0.01 (-0.1 per cent)

Site 5 - 104-106 Lakeview Street, Speers Point

Area: 1,600m²
Estimated land value \$2.0m



Assumptions:

- All parking is at grade or on a podium

Height	Dwellings	Commercial floor space	Carparking	Cost	Sale	Profit
16m (4 storeys)	1br – 5 2br – 7 3br –15	nil	50	\$18.72m	\$16.58m	-\$2.14m (-11.4 per cent)
22m (6 storeys)	1br – 5 2br – 7 3br –25	nil	71	\$25.20m	\$23.38m	-\$1.82m (-7.2 per cent)
28m (8 Storeys)	1br – 4 2br – 7 3br – 35	nil	94	\$31.54m	\$29.73m	-\$1.81m (-5.7 per cent)
28m (8 storeys) Podium parking	1br – 3 2br – 3 3br – 26	nil	66	\$20.37m	\$20.80m	\$0.43 (2.1 per cent)

Findings:

- Current supply chain shortages and disruptions, along with increased demand for construction products has escalated the construction costs for all developments resulting in reduced profit margins. Feasibility will improve once construction costs stabilise and construction projects decrease due to rising interest rates.
- six-eight storey buildings are the most feasible development heights for mixed use or residential flat buildings.
- supply of infill residential development over the past five years has mostly been two-storey multi-dwelling and dual occupancy housing. This type of housing is a well-tested development model which achieves economic return at minimal building costs i.e. no need for elevators or fire safety systems.

3.2.6 Affordable, social and seniors housing

As the price of housing rises, more affordable and social housing is needed.

Council has a limited role in the supply of social and affordable housing. The Lake Macquarie Local Housing Strategy identifies opportunities to support affordable housing including establishing mechanisms for affordable housing contributions. *State Environmental Planning Policy (Housing)* applies to the Lake Macquarie local government area and this provides height and density bonuses for developments that include affordable housing.

It is projected that the catalyst area will continue to see an increasing aging population, requiring housing types that meet the needs of the community.

As of 2022, three development approvals for senior housing and one development approval for a residential aged care facility within the catalyst area. This has created over 126 dwellings for seniors within the Boolaroo-Speers Point, Cardiff Mixed Use and Glendale-Argenton Renewal Precincts. *State Environmental Planning Policy (Housing)* provides opportunities for seniors housing development on suitable land across the catalyst area.

3.3 Environment

Protect and enhance our waterways, conservation areas and biodiversity corridors.

Green spaces and waterways will be protected and enhanced to ensure our biophysical, hydrological, resilience to risk and provision of open space and recreation is improving.

3.3.1 Native vegetation corridors, flora and fauna

Native vegetation corridors in the catalyst area have been highly fragmented by clearing and development over time. Some native vegetation corridors are also riparian corridors along watercourses and wetlands. Most require some form of rehabilitation to improve connectivity and the range of species that can use them.

Retention and enhancement of remnant native vegetation and the links that connect these areas is important for the survival and movement of native fauna populations and ongoing ecological processes including plant pollination. The *Biodiversity Conservation Act 2016* applies across the Lake Macquarie local government area. The purpose of the Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development.

3.3.2 Water quality

The water quality in Cockle and Brush Creeks has deteriorated in response to development over the past decade higher in the catchment. Clearing and reshaping of large areas for urban development has had an impact on the lower reaches of these creeks and on north Lake Macquarie.

Council is currently preparing a Coastal Management Program for the Lake Macquarie estuary, coastline and Swansea Channel. This program sets the strategic direction for the management of the coastal zone and includes many strategies and actions related to water quality and aquatic ecosystem health. This plan highlights the need for the effective application of Water Sensitive Urban Design (WSUD) principles, especially in sensitive catchments such as Cockle, Winding and Brush Creeks.

To restore water quality to the Cockle Creek, Brush Creek and Lake, future low-medium density development (i.e. multi-dwelling housing and other higher density housing forms) should apply the NSW Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions at the strategic and precinct planning stage, and will require individual Water Cycle Management Plans at the site planning stage, which describe how WSUD principles are being applied to the development.

Council's Environmental Sustainability Strategy and Action Plan includes an action target that the condition of Lake Macquarie continues to improve against indicators of ecosystem health and targets within 20 per cent increase in lake and waterway health compared to the 2007 baseline.

Council will also consider whether a strategic stormwater management strategy is required for the catalyst area. This may provide a comprehensive water quality framework to provide improved drainage towards waterways, wetlands, the lake and ocean by managing stormwater run-off associated with infrastructure and infill development based on growth projections.

3.4 Transport

Expand transport choice and improve road safety through improved infrastructure that facilitates access to everyday services by focusing on housing in and around existing centres.

3.4.1 State transport

Transport for NSW has undertaken analysis of transport needs in the north west of Lake Macquarie (including areas outside of the catalyst area) to identify options for multimodal transport improvements. This information has been considered in identifying key state infrastructure in the Place Strategy. The key infrastructure identified in the Place Strategy has not been committed to or funded by the NSW Government. Detailed analysis and planning will need to be undertaken by the NSW Government to determine optimum solutions and allocation of funding. Council will continue to advocate to state government to prioritise and fund infrastructure in the catalyst area.

3.4.2 Rail network

The Australian and NSW Government has committed \$1 billion to the development of a fast rail network to improve travel times for passenger rail services between Newcastle and Sydney as a first phase of a greater NSW network¹¹.

The network will be delivered in stages as outlined in the *Fast Rail Network Strategy 2019*.¹²:

¹¹ NSW Government, 2022. 'Fast rail on track to transform NSW'. Source: <https://www.nsw.gov.au/media-releases/fast-rail>

¹² NSW Government, 2021. *Fast Rail Network Strategy*. Source: <https://www.nsw.gov.au/sites/default/files/2020-11/a-fast-rail-future-for-nsw.pdf>

Short to medium term	<p>Upgrades and optimisation of existing rail routes and new fleet, with services of at least 200 km/h. This would reduce travel times from Newcastle to Sydney by 35 minutes.</p> <p>Dedicated track improvements on existing routes will enable faster journey speeds, improve reliability and enhance comfort. These track improvements could include junction rearrangements, curve easing, deviations, passing loops and level crossing removals.</p> <p>There are also opportunities for new technology and train options that may reduce journey times.</p>
Medium to long-term	<p>Dedicated high-speed rail, with new lines and routes, and possible speeds of over 250 km/h. This would reduce travel times by 1 hour and 50 minutes.</p> <p>A high-speed rail network would require a new dedicated and purpose-built line, and new rolling stock</p>

The NSW Government will begin to upgrade the existing rail line from Sydney to Central Coast as a first stage, with future planning to occur to upgrade the line from Central Coast to the catalyst area. Ultimately, a fast rail service will require a dedicated rail corridor with stations.

Improved journey times for the catalyst area may vary, depending on the location and number of stations identified to support fast rail services. If the catalyst area is not included as a fast rail stop, fast rail will still benefit the area via connecting train services.

It is unclear if the proposed Lower Hunter Freight Corridor is required to achieve faster rail. The draft strategic environmental assessment exhibited July 2021 notes that the freight corridor will allow for “increased capacity” of passenger services¹³.

For the 2021-22 state budget, the NSW Government also announced funding for planning additional commuter car parking spaces at Cardiff and Fassifern. It is expected these funds will inform a feasibility analysis/business case and preferred location of additional car parking spaces.

3.4.3 Bus network

Transport for NSW has begun to prepare a public transport vision document for the Hunter Region, which will be accompanied by a 10-year internal (i.e. private) public transport plan to guide routes and travel times in alignment with the movement and place framework.

Council is responsible for bus stop upgrades and maintenance, though has no authority in where they are located, which is determined by the bus provider. Nevertheless, based on limited available data, most bus stops within the catalyst area do not meet disability accessibility standards. Council will undertake an audit to identify the extent of works required to upgrade bus stops to accessible standard.

3.4.4 Road network

In 2021, the Hunter and Central Coast Development Corporation in partnership with Lake Macquarie City Council engaged TTPP to prepare a Cockle Creek and Boolaroo Transport Study. The study looked at the current and future impacts on the Cockle Creek and Boolaroo-Speers Point local and State road network from ongoing major development within the Cockle Creek Precinct.

The study modelled both state and local traffic movement, peak demand and impact at a detailed level. Impacts were focused on current and future developments within

¹³ NSW Government, 2021. *Protection of the Lower Hunter Freight Corridor – Explanation of Intended Effects on the amendment to State Environmental Planning Policy (Major Infrastructure Corridors) 2020*

the Cockle Creek Precinct and its flow on impact within the Boolaroo-Speers Point Precinct. The traffic modelling undertook five future scenarios on the state and local transport network.

Due to the high traffic volumes, significant queuing and rat running from the combined scenarios, the recommended road network upgrade opportunities include:

1. improve intersection capacity at Munibung Road, T.C. Frith Avenue and Lake Road Intersection
2. improve intersection capacity at Munibung Road and Fotheringham Road
3. improve intersection capacity at T.C Frith Avenue and Seventh Street
4. improve intersection capacity at Main Road and Fotheringham Road
5. priority give-way at Cockle Creek industrial lot 2001 and 2002
6. traffic calming measures to disincentivise rat-running on Fotheringham Road, Main Road and through Macquarie Hills.

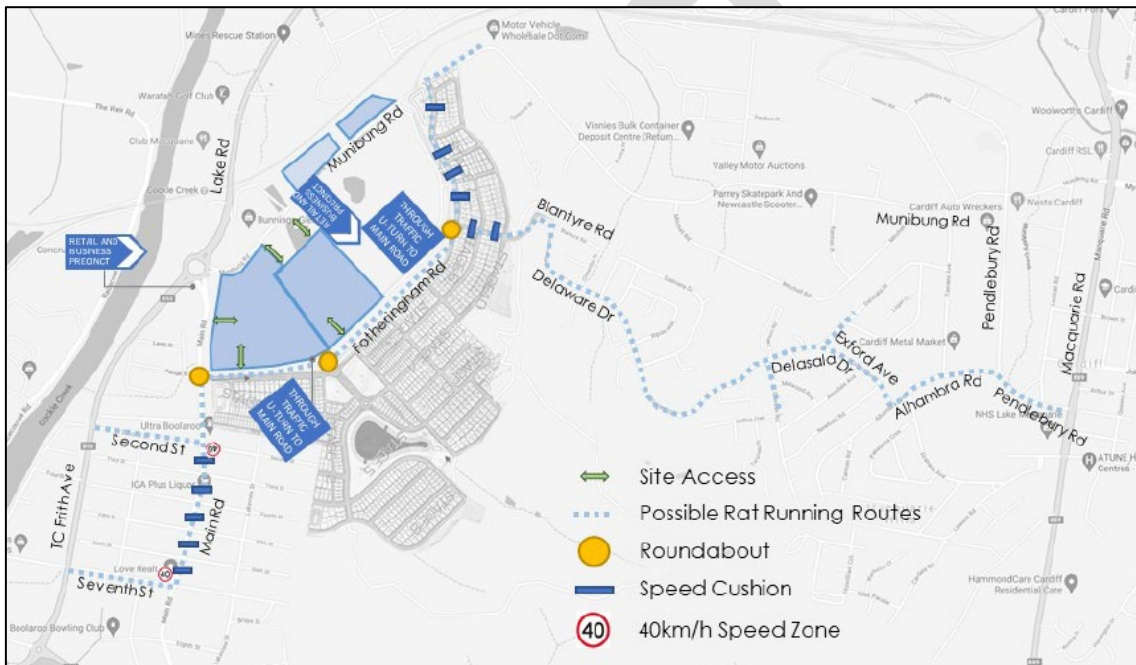


Figure 11: Recommended traffic calming measures. Source: LMCC

Additional planned and proposed upgrades to the local road network are shown in Figure 12. Local road upgrades are either funded under resource management plans, development contributions or government grant funding.

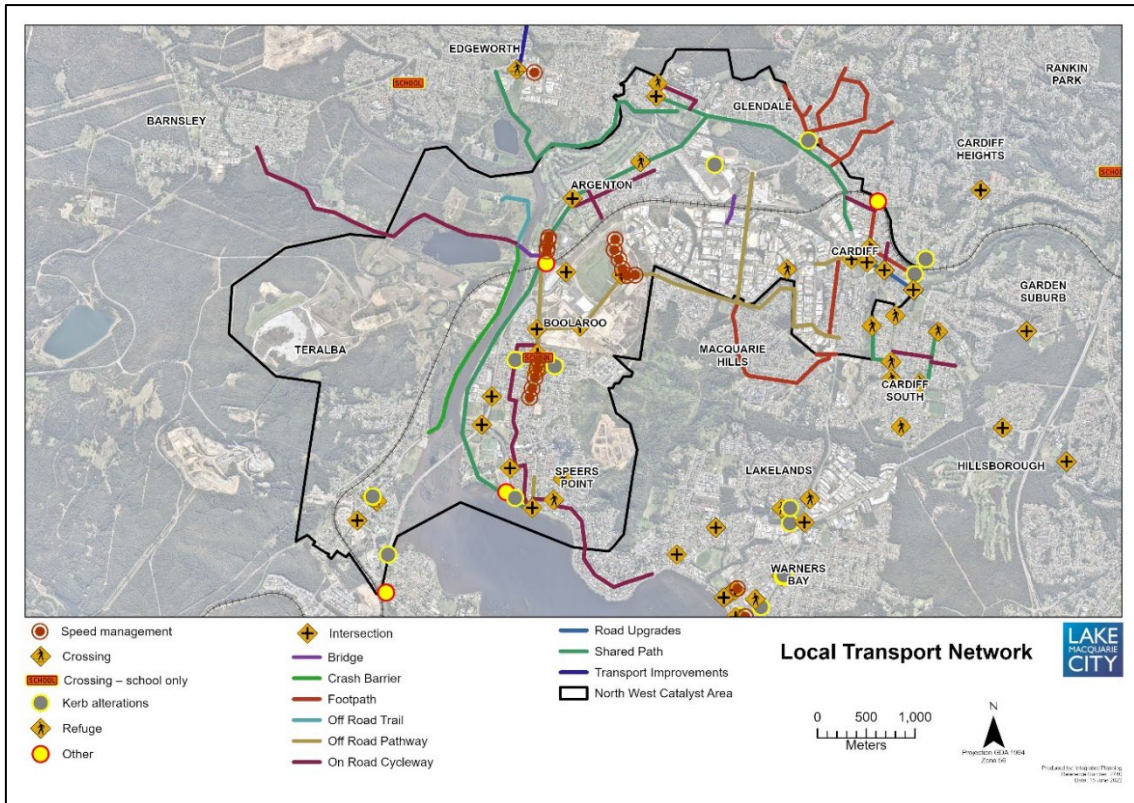


Figure 12: Local road network proposed upgrades

3.4.5 Active transport network

Council plans, delivers and maintains the active transport network on local roads, while the state government is responsible for those on state roads. Council will prioritise gaps within the principle pedestrian and bicycle network (refer to Figure 13 and 14) in accordance with the *Lake Macquarie Walking, Cycling and Better Streets Strategy*.¹⁴

Key priority areas for the principle bicycle network include (refer to Figure 14):

- Main Road Glendale-Cardiff
- Lake Road Cardiff and connection into Stockland shopping centre
- Main Road Boolaroo
- bush and electric easement corridor adjacent Munibung Road within the Cardiff Advanced Industry Precinct
- Macquarie Road Cardiff and Cardiff South.

¹⁴ Lake Macquarie City Council, 2021. *Lake Macquarie Walking, Cycling and Better Streets Strategy*. Source: LMCC.

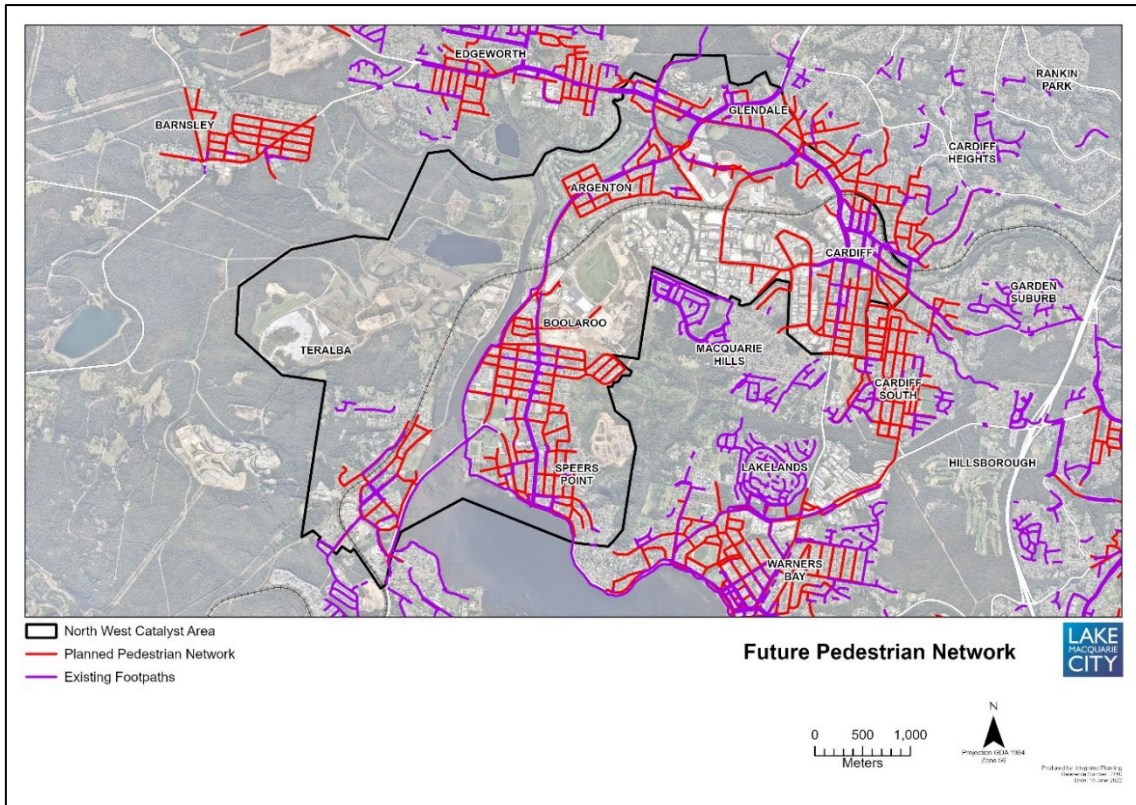


Figure 13: Proposed upgrades of the principle pedestrian network

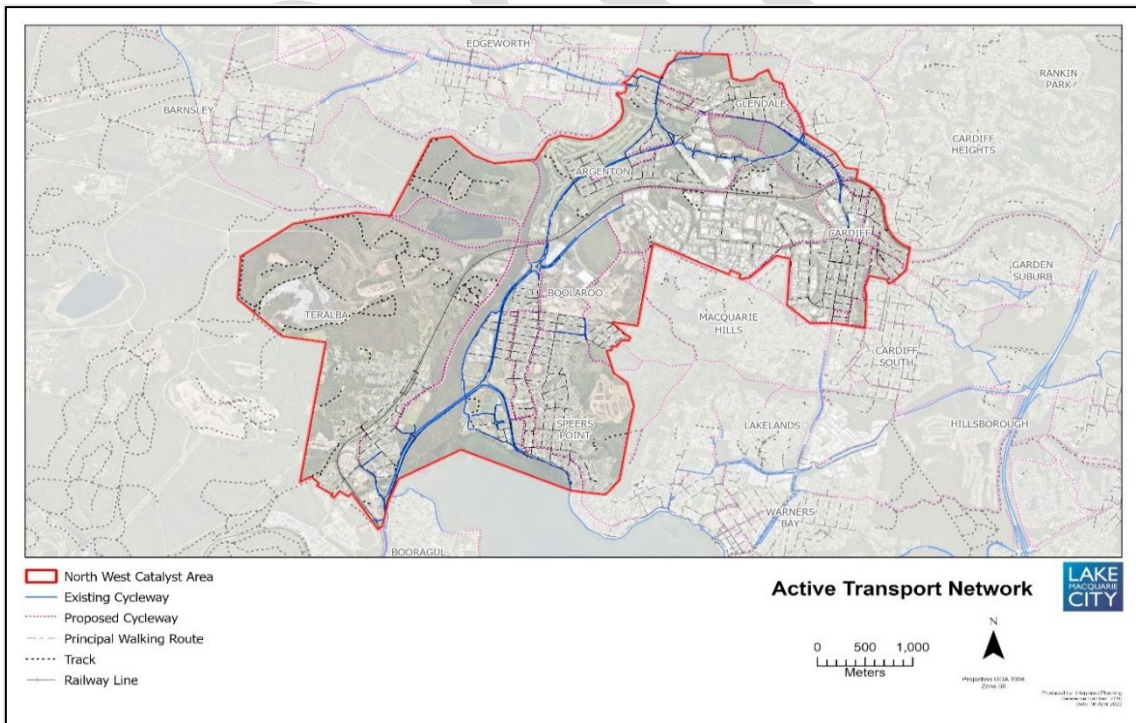


Figure 14: Proposed upgrades to the principle bicycle network

3.4.6 Future catalyst transport infrastructure

There are several future transport infrastructure projects with the potential to significantly transform the north-west of Lake Macquarie, while reinforcing the regional importance of the catalyst area. These include the below projects.

- **Lower Hunter Freight Bypass Corridor**

The proposal seeks to connect the Main Northern Rail Line at Fassifern and the Hunter Valley Rail Network at Hexham, bypassing urban areas within the Lake Macquarie and Newcastle local government areas, while separating passenger and freight rail services through the Greater Newcastle rail network. The proposal will cater to rising demand on the regional freight rail network, which is anticipated to grow by 25 per cent over the next 40 years.

- **Cockle Creek Transport Interchange**

Council owns land immediately to the South of Cockle Creek Rail Station which may be suitable for a multi-model transport interchange with public space and commercial-mixed use development. This station may improve access and transport integration to the emerging Cockle Creek Precinct.

- **Australian National Very Fast Rail Corridor**

Several Australian High Speed Rail Studies have been undertaken to determine the high-level feasibility of preserving a very high speed rail corridor along the east coast of Australia. The *High Speed Rail Study Phase 2 Report 2013* outlined a conceptual corridor to the west of Lake Macquarie with a station located at West Wallsend. This conceptual corridor may be further reviewed with the planned NSW Government Fast Rail upgrades, however any development of a rail corridor with a station at West Wallsend would fundamentally change the role and function of the North West Growth Area. Further assessment will be undertaken during more detailed investigation into the Cockle Creek West Precinct.

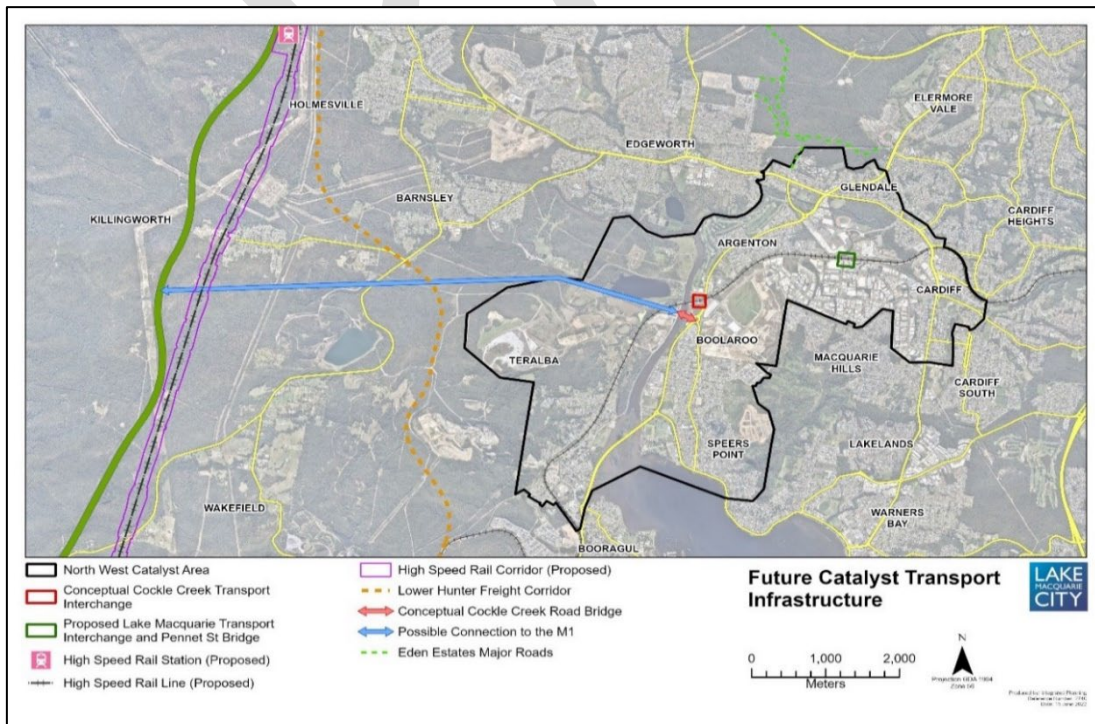


Figure 15: Future Catalyst Transport Infrastructure

3.5 Regenerative built environments

Enable well designed regenerative built environments, targeting net zero carbon emissions and reduction in urban heat effects.

3.5.1 Climate change

Global and national climate change assessments use an RCP rating known as ‘Representative Concentration Pathway’. The RCP rating enables scientists and policy makers to understand how climate may change in the future and to predict how society will behave. An ‘RCP8.5’ rating has been applied to the Greater Newcastle and Central Coast Region. An RCP8.5 is a ‘business as usual’ worst-case scenario where carbon concentration has not been reduced¹⁵. This scenario would witness a global temperature increase of 3.7 degrees Celsius creating extreme and consistent weather events and 0.63m sea level rise by 2100 (Figure 16).

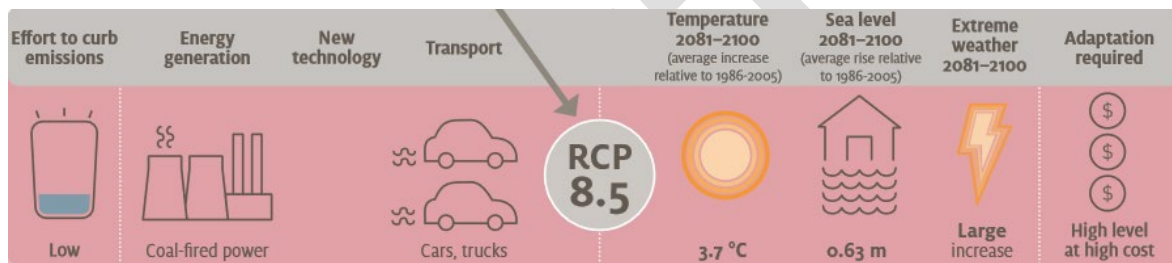


Figure 16: RCP8.5 Rating. Source: Australian Government

The Boolaroo-Speers Point and Teralba Precincts are exposed to average and elevated risk levels of vulnerability to natural hazards due to climate change, mainly due to flooding and lake level rise impacts¹⁶. While Cockle Creek, Glendale-Argentton Renewal, Glendale Retail and Sports and Cardiff Mixed use are exposed to average to elevated risk levels of vulnerability to natural hazards risk, mainly from urban heat and flooding impacts.

To ensure the future community is resilient to these future climate risks, Council is undertaking climate change risk reduction strategies for 100 per cent of the City’s extreme and high-risk areas. In addition, a Local Climate Resilience Plan is being prepared for the 5 Bays area, which includes the Teralba Precinct.

3.5.2 Urban heat and street trees

The Lake Macquarie Urban Heat Strategy establishes a low to high risk matrix of areas that are vulnerable to heat events and urban heat island affect. The catalyst area scores an average moderately-high risk due to its existing urban environment. Areas of the highest risk include the Boolaroo local centre, Stockland shopping centre in Glendale and Cardiff Strategic Centre.

Council aims to reduce the urban heat effect by implementing the Lake Macquarie Urban Heat Strategy and the Urban Greening Strategy. For the catalyst area these strategies identify the following targets:

1. Achieve a 10 per cent increase in tree canopy cover in suburbs vulnerable to urban heat by 2030. This includes the Cockle Creek Precinct, Boolaroo local

¹⁵ Department of the Environment and Energy, 2019. What is RCP?. Source: www.coastadapt.com.au

¹⁶ Analysis and Mapping of Community Vulnerability to Natural Disasters in Lake Macquarie, Wyong and Gosford Council Areas report. AECOM, 2014

centre, Argenton, Glendale Retail and Sports Precinct and Cardiff Mixed Use Precinct.

2. Aim for 30 per cent tree canopy cover in all residential zones, 25 per cent in all business zones and 15 per cent in all industrial zones towards 2032.
3. Aim to register 1000 community planted street trees per year for the next 10 years.
4. Prepare planning controls for urban heat reduction for the built environment within *Lake Macquarie Local Environmental Plan 2014* and Development Control Plan 2014.

3.5.3 Mine subsidence

The catalyst area is located within the Lake Macquarie and Killingworth-West Wallsend Mine Districts. The scale of subsidence is determined on a site-by-site basis via NSW Subsidence Advisory. Council will continue to advocate for the expansion of the Mine Grout Fund for the catalyst area in to support infill development opportunities.

3.5.4 Contamination

The catalyst area contains varying degrees of contamination due to its industrial and mining history. Infill development will require assessment on a site-by-site basis to determine the extent of contamination impact. Contamination may impact feasibility development feasibility in the catalyst area.

3.5.5 Flooding

Parts of the catalyst area are identified as flood-prone land. Sea and lake level rise and increased rainfall due to climate change will likely see more frequent flooding events. The Cardiff strategic centre, Boolaroo-Speers Point and Glendale-Argenton Renewal Precincts are the most affected areas. Identification as flood-prone land does not preclude all infill development, however, development potential will depend on site specific flood risk. Any planning proposal that seeks residential zoning will need to be consistent against the Section 9.1 Ministerial Direction (4.1 Flooding)¹⁷.

3.5.6 Bushfire

Parts of the catalyst area are identified as bushfire-prone land. Precincts with the highest bushfire risk are Teralba Precinct and areas of the Glendale Sports and Retail Precinct around Winding Creek. This does not prevent infill development, however, development must be designed and assessed in accordance with *Planning for Bushfire Protection 2019*¹⁸ This includes designing development with appropriately sized asset protection zones, and evacuation routes, and use of building materials appropriate to the level of risk.

3.5.7 Built environment

The built environment has a significant global environmental impact and is a contributor to climate change. Buildings are responsible for 40 per cent of the world's carbon emissions and use approximately 40 per cent of the world's energy and 30 per cent of the world's available drinking water¹⁹. Initiatives to improve the efficiency and resilience of the built environment will be needed.

¹⁷ NSW Department of Planning and Environment, 2022. Section 9.1 Ministerial Directions (4.1 Flooding) of the Environmental Planning and Assessment Act 1979. Source: <https://www.planning.nsw.gov.au/-/media/Files/DPE/Directions/Ministerial-Directions-commenced-on-1-March-2022.pdf?la=en>

¹⁸ NSW Rural Fire Service, 2019. *Planning for Bushfire Protection*. Source: https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0005/130667/Planning-for-Bush-Fire-Protection-2019.pdf.

¹⁹ NABERS, 2022. *What is NABERS*, Source: <https://www.nabers.gov.au/about/what-nabers>

The Federal and NSW governments will implement a range of policies to achieve its net zero carbon emission target by 2050²⁰. For the built environment to achieve net zero carbon emissions, energy efficiency targets will be the primary policy tool. Ongoing revisions to improve sustainability targets are the responsibility of both the Federal and NSW governments.

Council will continue to implement policies, work with Australian and NSW government, the community and the development industry to facilitate design for innovation and sustainability in residential, commercial and industrial development.

3.5.8 Creating circular economies within the built environment

The NSW Circular Economy Policy Statement defines a circular economy as:

“A circular economy values resources by keeping products and materials in use for as long as possible. Maximising the use and value of resources brings major economic, social and environmental benefits. It contributes to innovation, growth and job creation, while reducing our impact on the environment. The circular economy is about changing the way we produce, assemble, sell and use products to minimise waste and to reduce our environmental impact. The circular economy can also be great for business; by maximising the use of our valuable resources, and by contributing to innovation, growth and job creation”²¹.

Council will continue to implement its *Lake Macquarie Circular Economy Policy and Circular Economy Framework*²², which seeks to establish a circular economy structure for Council values, processes and operations. This will achieve the circular principles of keeping materials in use at their highest value, designing out waste and pollution and regenerating natural systems.

In the catalyst area, the policy and framework will focus on ‘Circular Infrastructure’ into the future and will trial pilot processes and projects where:

- infrastructure is designed and constructed with circular economy principles, such as modularity, adaptability and material reuse
- City assets (including buildings and infrastructure) are collaboratively managed to maximise synergies between different assets
- infrastructure is in place to enable digital connectivity
- increase the scale of renewable energy in the city.

There is opportunity for Council to partner with businesses within the Boolaroo-Speers Point, Cardiff Advanced Industry and Teralba Precincts to create circular infrastructure materials, while providing greater exposure and education to industry of the circular economy principles.

Council will also begin to implement circular economy principles into asset and capital works projects. For example, Council in conjunction with Hunter Water, Edge Environment and Sustainability Advantage are undertaking a low carbon road project to explore different materials to use in local roads.

²⁰ Commonwealth of Australia, 2021. *Australia’s Long-Term Emissions Reduction Plan*. Source: Australian Government.

²¹ NSW Government, 2019. *NSW Circular Economy Policy Statement*. Source: <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/recycling/19p1379-circular-economy-policy-final>

²² Lake Macquarie City Council, 2021. *Lake Macquarie Circular Economy Policy and Circular Economy Framework*. Source: lakemac.nsw.gov.au

3.6 Open space, recreation and community facilities

Ensure convenient, safe access to open space, recreation and community facilities.

3.6.1 Open space and recreation

Council will aim to address gaps in the open space and recreation network, ensuring 80 per cent of residents in urban areas have access within a 400m walk and 100 per cent within 800m walk of a park or place space. Figure 17 displays the current open space and recreation networks gaps when analysed under the 400 by 800m measure. Within the catalyst area, the most significant gaps include Cockle Creek Precinct and Cardiff Mixed Use Precinct.

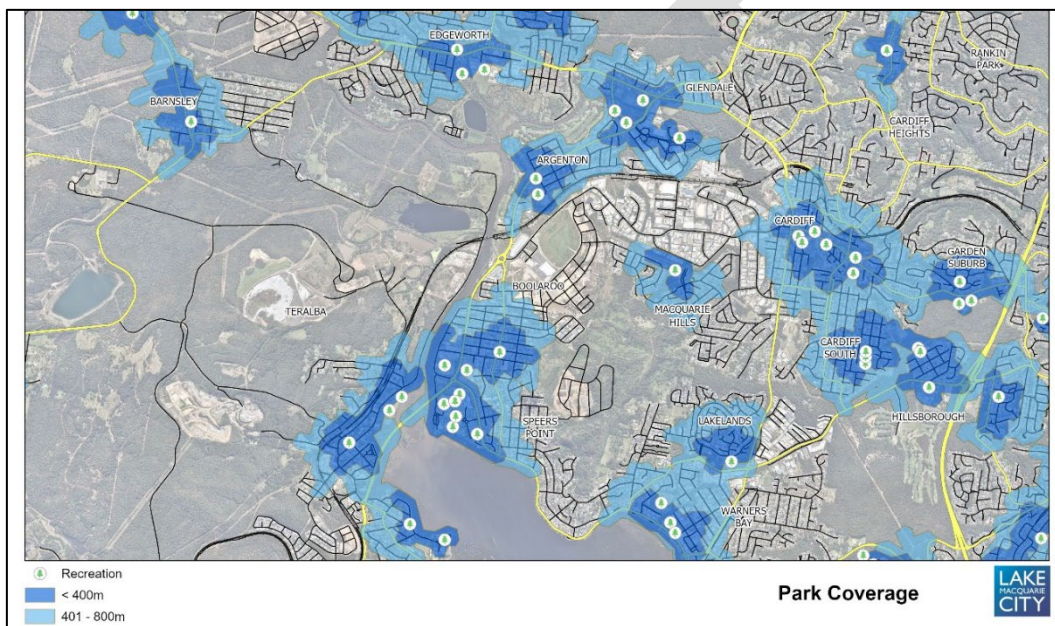


Figure 17: Open space and recreational network gap analysis

Several projects are identified for delivery across the catalyst area under the Glendale Contribution Plan and some additional works will be needed to meet the projected population growth. These include:

Existing projects	Potential projects
Boolaroo-Speers Point Precinct	
<ul style="list-style-type: none"> • Sports field – Speers Point – Macquarie Field – upgrade lighting • Speers Point Swim Centre upgrades • Additional Land Acquisition – Open Space Linkages – Boolaroo 	<ul style="list-style-type: none"> • Investigate feasibility to provide a new local recreation node and play space
Cardiff Mixed Use Precinct	
<ul style="list-style-type: none"> • Sports court – Cardiff Tennis – upgrade tennis car park – • Sports court – Cardiff Netball – Ken Booth/Nancy Dwyer – reconfigure 	<ul style="list-style-type: none"> • Acquire properties Plan and develop a new local park. • Acquire 2-3 residential lots on Fern Valley Road to improve visibility and

- netball, car park
- Sports court – Competition Netball Facility – new netball court, car park
- Park – Cardiff – Harry Ford Park – New Town Park
- Community garden – Cardiff – Fern Valley Rd
- upgrade to a district level park.
- If Urban Release Area (Cardiff Area 1) is developed, provide a new local park.
- Wilkinson Park, Cardiff South - upgrade to high level local park
- Neegulba Park, Cardiff South - upgrade to local park.

Cardiff Advanced Industry Precinct

- Dog exercise area – Cardiff – Mitchell Rd – new

Cockle Creek Precinct

- Park – Boolaroo – Cockle Creek – new local park

Glendale-Argenton Renewal Precinct

- Community garden – Glendale – Glendon Cres – new
- Kindyerra Reserve, Argenton - upgrade to local recreation park
- 32A Valley View Crescent, Glendale – upgrade to high level local park.
- 8A Karen Avenue, Glendale - new local recreation node and pathway linkages.

Glendale Retail and Sports Precinct

- Park – Glendale – Land east of Hunter Sports Centre – new civic park
- Skate park – Glendale – land east of Hunter Sports Centre

Teralba Precinct

- City Farm – Teralba – Griffen Road

3.6.2 Key open space and recreation upgrades

Hunter Sports Centre Upgrade and Trampoline Centre of Excellence

Throughout the next five years, Council will expand the Hunter Sports Centre to deliver a state-of-the-art sporting facility for the Hunter and Central Coast region. This professional-grade sporting facility will nurture the talents of athletes from regional Australia, empowering them to compete in national and international events. The project will be delivered in three parts:

- Stage 1: expanded sport and community centre
- Stage 2: warm-up facility and athlete testing building
- Stage 3: NSW Trampoline Centre of Excellence.

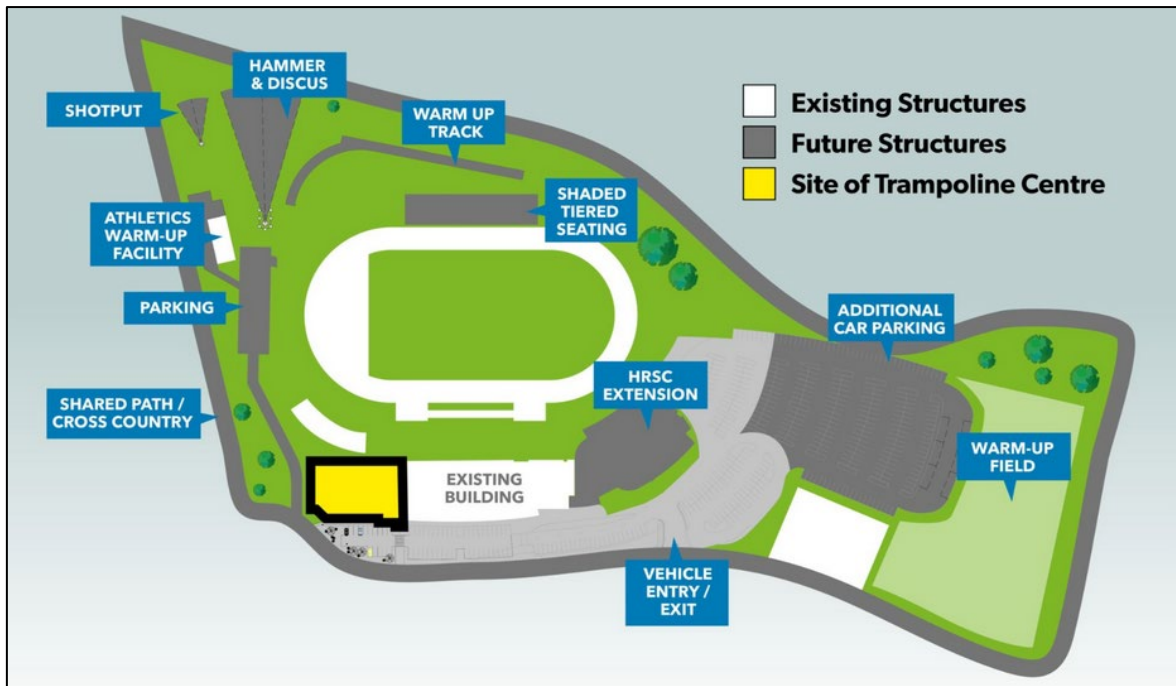


Figure 182: Concept site plan of Hunter Sports Centre upgrade

3.6.3 Lake Activation

Lake Macquarie, Cockle Creek and Cockle Bay are important places contributing to the social, amenity and economic output of the catalyst area.

Council's Lake Activation Strategy seeks to inspire the community to explore, connect, relax and be active on and around the lake. Guiding principles of the Strategy are formed around the four sustainability pillars of environmental, social, economic and governance to achieve the lake activation vision.

The Strategy uses a place-paced hierarchy to distinguish local, regional and district precincts. The Cockle Bay Precinct (Figure 19) is categorised as a Level 3 Place: Destination/Regional. This regional scale provides large, flexible and well-equipped spaces in interesting and special landscape contexts, suitable for innovative and creative waterfront attractions and events. The regional scale seeks to attract visitors from the broader region, metropolitan Sydney and beyond, while providing multi-use sites that meet multiple criteria at a high level and offer flexibility and diversity within one area.

This includes multiple visitor attractions, major scale events (<25,000 people), event infrastructure, co-located aquatic recreation enterprises, land to water transfer/access, performance activities and on-site food and beverages. Level 3 places may also support tourist accommodation, waterfront restaurants, on-water stages, events or more regular water transport bases.

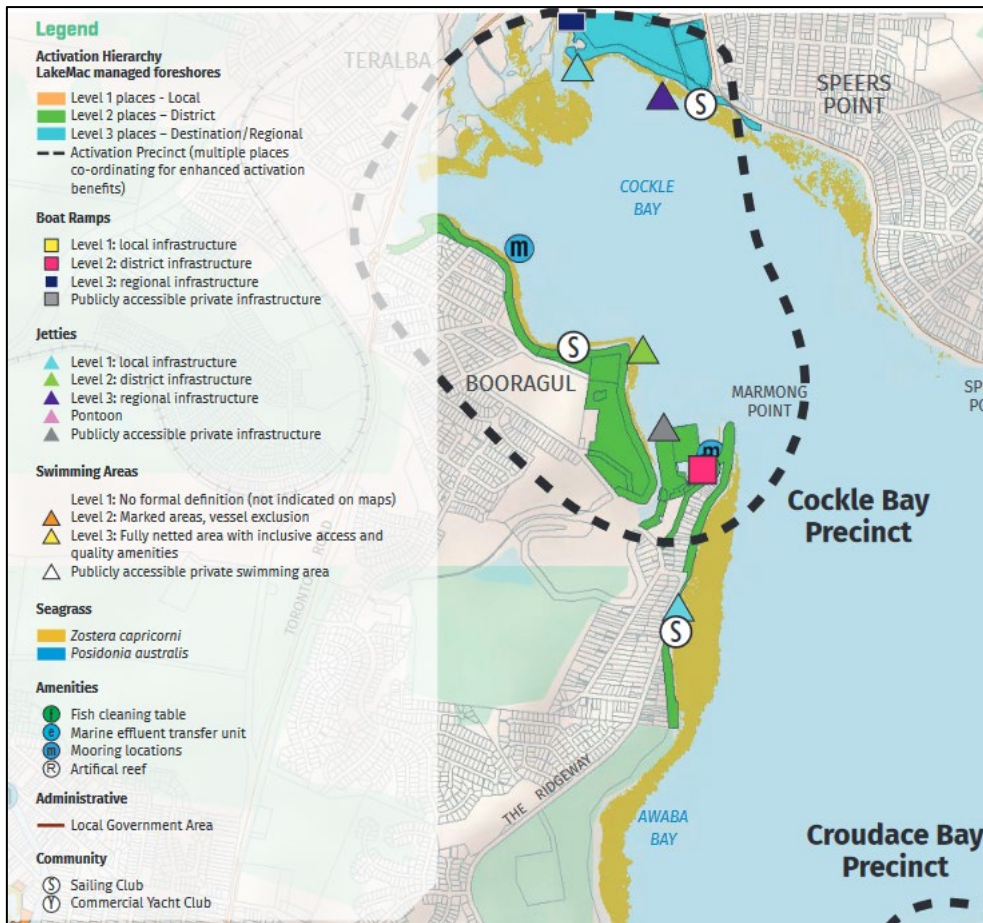


Figure 19: Cockle Bay Precinct. Source: Lake Activation Strategy

The Strategy identifies opportunities to enhance existing infrastructure and deliver new infrastructure such as jetties, swimming areas and boat ramps. No new infrastructure is proposed for the Cockle Bay Precinct.

3.6.4 Future Upgrade to Speers Point Swimming Facility

The Lake Macquarie Aquatic Facilities Strategy identifies Speers Point Swim Centre to be upgraded to a city-wide facility. A range of projects are identified to provide a contemporary swim centre that offers the full spectrum of wet and dry facilities (see Table 13).

Table 1: Key Facility Improvements for Speers Point Park Swimming Facility

FUNDING IDENTIFIED	FUNDING REQUIRED
High Priority	
Install fibreglass liner 50m (with wet deck), 25m pool	New swim wall to 50m pool*
Plant room replacement	New platform lift to 50m and 25m pool*
Redevelop grandstand	New indoor warm water program pool*
	Improved car park, access and drop off areas
	Transition to year round operation
Medium Priority	
Redevelop entry foyer, café, administration and retail area	Replace existing splash pad with larger water play
	New adventure water zone
	New health and fitness / wellness centre
Low Priority	
Redevelop changeroom and amenities	New indoor heated learn to swim pool
	Decommission 25m outdoor pool
Retain and Activate	
50m pool	

*Partial funding currently available through Development Contributions.

3.6.5 Community and cultural facilities

Provision of community facilities are identified within the Glendale Contribution Plan. Facilities are proposed within the Glendale Retail and Sports Precinct, including:

- provision of community space -Glendale – Hunter Sports Centre – Anticipated timeframe 2023-4
- provision of a men’s shed – Glendale Men’s Shed – Anticipated timeframe 2024.

Growth projections identified for the catalyst area do not require additional facilities.

The size and diversity of the creative sector is expected to steadily grow towards 2042 and this will require ongoing initiatives to grow and retain creative sector jobs. Council identifies a range of initiatives to support the growth in its *Lake Macquarie Arts, Heritage and Cultural Plan 2017 – 2027*,²³. This plan identifies built environment opportunities to improve access to arts and culture, including unified streetscapes, public artworks or features and enhancement of heritage areas or buildings²⁴.

The Boolaroo-Speers Point Precinct is a key creative sector hub centred on the Multi-Arts Pavilion within Speers Point Park. This facility is linked and supported by a creative sector network which includes Booragul’s Museum of Art and Culture and the Warners Bay Creative Arts Theatre. This can be further enhanced by extension of the creative lake art trail²⁵. This will connect artworks and heritage interpretation features from Speers Point Park through Boolaroo to the Cockle Creek heritage interpretation and public art network.

²³ Lake Macquarie Arts, Heritage and Cultural Plan 2017 – 2027. Lake Macquarie City Council, p.22

²⁴ *ibid*, p.21

²⁵ Creative Lake Art Trail, 2022. Lake Macquarie City Council. Source: <https://www.lakemac.com.au/My-area/Public-art/Creative-Lake-art-trail>

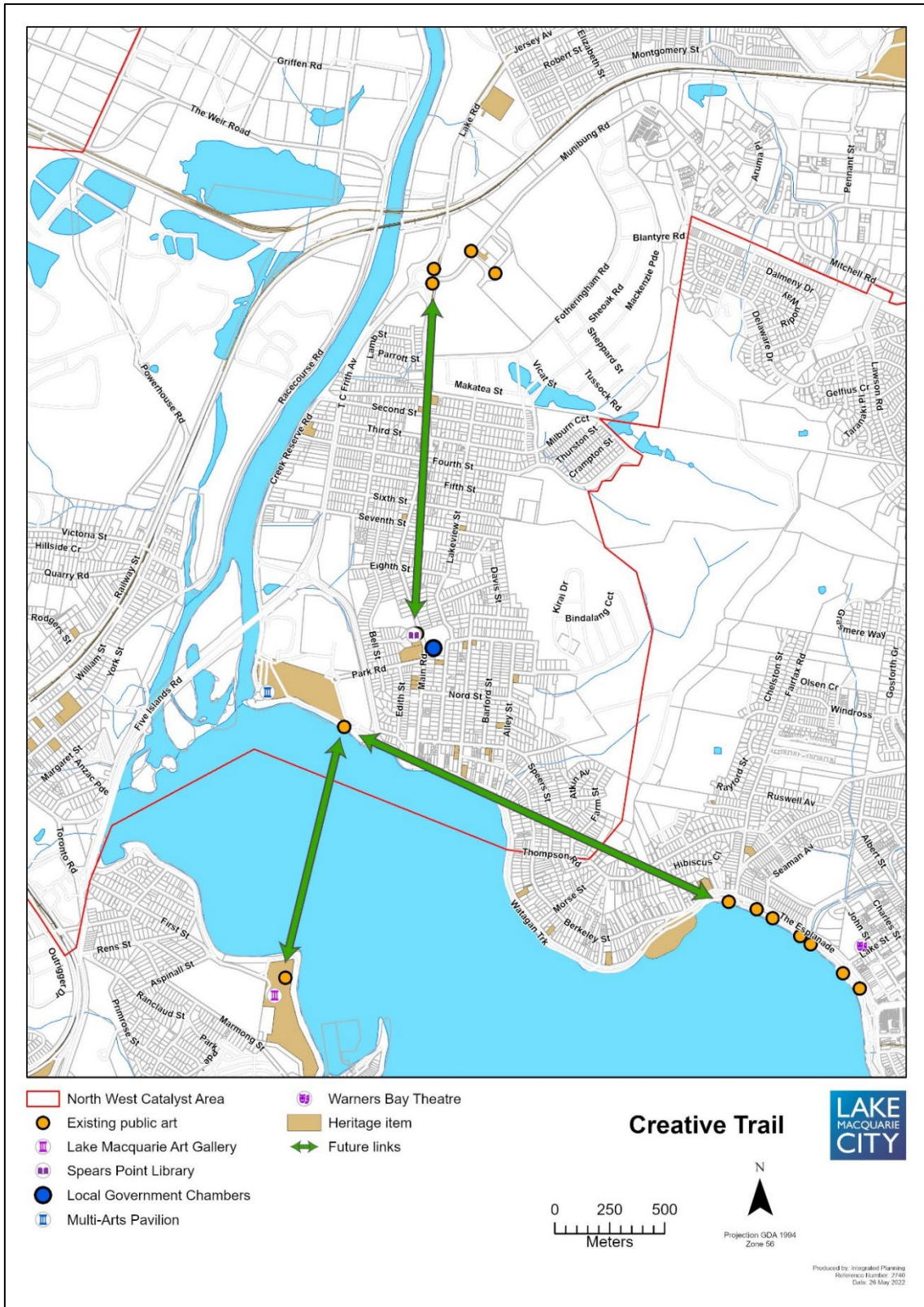


Figure 20: Conceptual creative trail

4. Precincts and place

4.1 Non-indigenous Heritage

4.1.1 Heritage items

Council will continue to protect and enhance the 47 listed heritage properties within the catalyst area and Teralba Heritage Conservation Area.

Listing new heritage property or building items is a lengthy process requiring supportive cooperation from landholders and the community. Achieving support can be challenging. Previous experiences have shown a low success rate with opposition to listing a property or building as a heritage item. New heritage listings will be facilitated by Council where landholders submit their interest to have their property or building listed as a heritage item.

4.1.2 Heritage Conservation areas

In 2023, Council finalised alterations to the boundary of the Teralba Heritage Conservation Area and introduced building height controls to ensure future development is consistent with the heritage character of the area.

The Lake Macquarie Development Control Plan (DCP) 2014 identifies part of Boolaroo as the 'Boolaroo Heritage Precinct' extending through the Local Centre from First Street to Eighth Street including the E1 Local Centre zone and R2 Low Density Residential zone. The DCP applies place specific character guidelines which aim to ensure new development complements the existing streetscape, local architectural style and does not dominate the natural and cultural landscapes of Munibung Hill. The DCP does not offer the statutory weight of a heritage conservation area listed in the Local Environmental Plan.

The Boolaroo Precinct and its boundary were established from the Main Street Heritage Study (1997). The Precinct boundaries were selected to be roughly reminiscent of the early layout of the town centre. The primary intent of this study was to improve the amenity and unique character of the public streetscape to ensure long-term economic viability as the historic Pasminco smelter began to end its operations. Much of the public streetscape design recommendations which were incorporated into the precinct are now outdated and do not comply with current Australian building and accessibility standards.

Council is currently undertaking heritage investigations to inform the preparation of an updated streetscape master plan. This will ensure future streetscape works retain and enhance the elements that contribute to the local heritage character.

It is also likely that the heritage precinct character guidelines will be removed from the DCP because they offer little weight in terms of heritage protection with state environmental planning policies taking precedence in assessing new development. Development that has occurred since the Main Street Heritage Study has further reduced the original heritage fabric of the centre's buildings, (e.g. shop top housing development on 27 Fifth Street).

The Boolaroo local centre will undergo a significant medium-term transition from the development growth expected within the Cockle Creek Precinct. Flexible and balanced controls are required to ensure the centre's optimal transition. The updated streetscape masterplan will be a more suitable way of revitalising the Main Road character, without constraining economic renewal of the centre catering to modern community needs.

4.2 Investment in centres

Centres are areas with a concentration of activity that tend to be characterised by greater density, highly diverse offerings (such as commercial, retail, civic and cultural functions) and economic output. Centres facilitate the exchange of ideas and information, support human interaction and creativity, build networks, and provide goods and services²⁶.

As megatrend changes continue to occur, several aspects of place need to be addressed to support the activity, longevity and vibrancy of centres²⁷. This includes the re-introduction of distinctive places and creation of a sense of place, the inclusion of different forms of creative industries to bring back vitality, understanding the balance between private and public activity in a centre and addressing losses to commercial and retail demand.

Many existing centres within the catalyst area have low levels of amenity and other constraints (e.g. environmental conditions, proximity to other centres) inhibiting the attraction of diverse business and industries. However, a key strength of Lake Macquarie centres, identified in the *Lake Macquarie City Centre Research Project*, is the diversity of the employment base. Improving connection and vibrancy of centres is recommended, rather than continued development of additional centres.

To ensure long-term economic viability and vibrancy of centres and place, there needs to be a commitment and effort by Council and government to improve existing centres²⁸. This can be achieved by:

- creating connected and walkable catchments
- improving streetscape amenity and comfort (e.g. provision of street trees and public space)
- promoting local attributes and population serving industries (e.g. retail and local commercial uses such as accountants and conveyancers etc.).

Funding challenges will need to be overcome by government and the private sector, through collaboration to ensure delays do not hinder progression and transition of places²⁹. Council will continue to advocate for grant funding for streetscape improvements in Boolaroo, Teralba and Argenton centres and work with landholders at the Stockland Shopping Centre to achieve amenity and connectivity improvements.

Council will also investigate the preparation of streetscape masterplan for the Boolaroo local centre, with provision of public art and heritage treatments, public open space and street trees, as it is the area of most significant change and transition in the near-term as the Cockle Creek Precinct.

4.3 New public spaces in centres

Public space is a critical built environment element within our centres and neighbourhoods because it brings people, customers and business together, while offering social, inclusive and vibrant spaces.

²⁶ SES Economics, 2020. 'Lake Macquarie City Centre Research Project'. Source: Lake Macquarie City Council.

²⁷ Giddings, B. 2018. 'The Future of the City Centre'. Source: <https://geographical.co.uk/opinion/item/2891-city-centre>

²⁸ SES Economics, 2020. 'Lake Macquarie City Centre Research Project'. Source: Lake Macquarie City Council, p.96.

²⁹ SES Economics, 2020. 'Lake Macquarie City Centre Research Project'. Source: Lake Macquarie City Council, p.96.

Council will continue to investigate, advocate and support the creation of temporary and permanent public spaces within the catalyst area. There are several locations in centres that may be suitable for new public spaces including:

- 24 Main Road Boolaroo - a highly exposed public space opportunity would complement the amenity and business activity of the Boolaroo Local Centre
- 65 Glendale Drive Glendale – public open space to support new medium density residential housing and commercial development
- 160 Munibung Road Boolaroo – public open space to support new businesses and high density housing.

Any future public space will require detailed investigation, feasibility analysis and the allocation of funding.

4.4 Neighbourhood walkability gap analysis

A pedestrian and cycle network gap analysis were undertaken in 2022 (Figures 13 and 14). This analysis looked at existing centres and identified homes that can access shops and centres within a 15 minute walk or bicycle ride. Network breaks and difficulties such as limited footpaths or steep topography were also considered.

The analysis shows that the Boolaroo-Speers Point, Argenton, Glendale, Cardiff and Teralba Precincts have many homes within a 15-minute walkable catchment to centres.

Homes in Cardiff South, Glendale Main Road, Speers Point and the Cockle Creek Precinct are generally not able to access centres within a 15 minute walk, increasing residents' dependence on using private cars to access day to day needs. The Cardiff Advanced Industry Precinct is also highly dependent on private cars because of the lack of footpaths or cycleways and it's disconnection from the Glendale Retail and Sports Precinct.

New footpaths and shared paths will be planned and constructed in accordance with the priorities list identified in the *Walking, Cycling and Better Streets Strategy 2031*.

Council will also investigate opportunities to facilitate growth around existing neighbourhood shops, creating neighbourhood centres that support day to day needs of surrounding residents. For example, neighbourhood shops in Cardiff South on Macquarie Road, Gertrude Road or Lake Avenue.

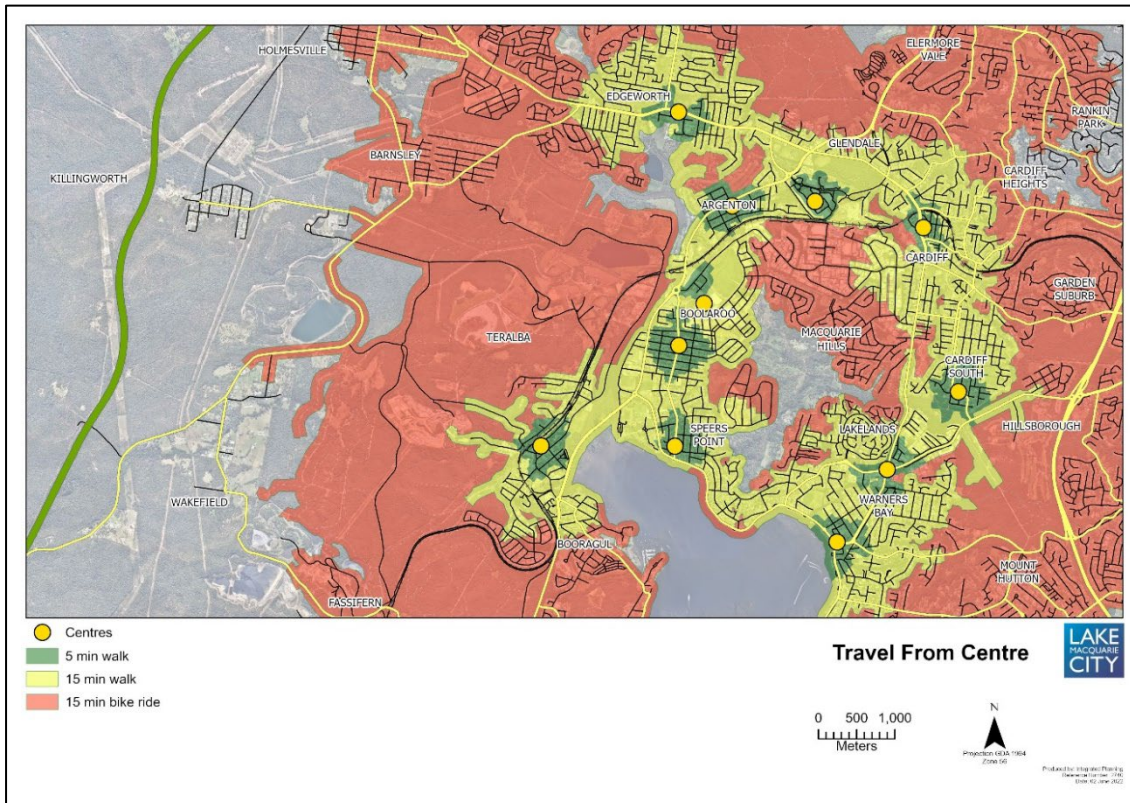


Figure 21: 15-minute neighbourhood catchment analysis

4.5 Key opportunity sites

4.5.1 Cockle Creek Precinct

Council owned land directly south of Cockle Creek station and the state government owned land at 160 Munibung Road Boolaroo provide opportunities to transform the Cockle Creek Precinct to become a regionally significant landmark highlighting the economic diversification of the region. Objectives for this area include:

- encourage diverse land uses that support the regional significance of the North West Lake Macquarie Catalyst Area, such as retail tourism and innovative and knowledge-based industries
- create high quality public spaces and a pedestrian network that connects key locations
- ensure building scale compliments the unique character of the site and the surrounding urban landscape
- ensure high quality and unique building design enhances the area as a city landmark.



Figure 22: Location of the Cockle Creek Precinct landmark site - 160 Munibung Road, Boolaroo

4.5.2 Glendale Retail and Sport Precinct

65 Glendale Drive Glendale is a large vacant parcel of land zoned MU1 Mixed Use in the heart of Glendale owned by the NSW government. The site offers significant potential to provide diverse new medium density housing, shops and services, while improving connectivity to the Glendale centre for residents north of Main Road. Development of the site would also include rehabilitation of the Winding Creek riparian area for use as a quality green space for residents. The desired character for this area is a mixed development incorporating retail, commercial and entertainment uses with a mix of terrace houses and residential apartments³⁰.

³⁰ Lake Macquarie City Council, 2015. *Glendale Regional Centre Area Plan, Lake Macquarie Development Control Plan 2014*.



Figure 23: Vacant land at 65 Glendale Drive, Glendale.

4.5.3 Glendale Argenton Renewal Precinct

The Hunter Regional Plan recognises the potential of the Glendale TAFE site seeking to *'plan for an accessible, mixed use education and innovation hub around Glendale TAFE.'* Glendale TAFE has direct access to the Glendale-Wallsend cycleway and its proximity to the Cardiff Advanced Industry Precinct provides opportunities to develop cross-institutional partnerships that support the transition to advanced manufacturing.