

Active Transport Strategy

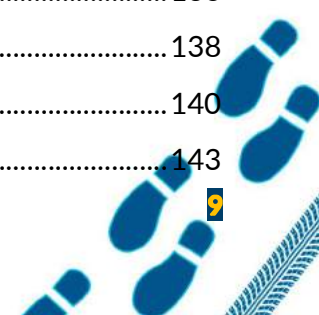


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Executive Summary

Background

Shellharbour City Council has developed an Active Transport Strategy that will provide a long-term strategy and action plan for pedestrian and cycling infrastructure within the Shellharbour LGA. The Strategy will create a more sustainable, healthy, and liveable Shellharbour community by reducing car dependency and promoting physical activity.

The Strategy focuses on main town centres with links to town/village centres, and considers connectivity to schools, aged care facilities, community facilities, shops and the public transport network. Thirteen key centres have been identified within the Shellharbour LGA that have the potential to attract walking and cycling trips. These centres are also included in both state and local government planning documents and form the focus of this Strategy.



▲ Map of key attractors in the Shellharbour LGA

Source: Mapbox, Esri QGIS Mapping Software

Strategy principles

To address gaps in walking and cycling infrastructure, a targeted approach has been adopted to identify locations and prioritise implementation in a financially sustainable manner. This will assist investments to fit within budgets and aid in future planning. The Strategy is underpinned by four guiding principles that have been used to identify and prioritise infrastructure.

Facilities to provide improved access to areas of high active transport activity

Areas with high population and employment density in Shellharbour, such as town centres, station precincts, schools, and open spaces, have diverse pedestrian and cyclist movements. However, these movements may clash with vehicle movements on busy streets, making it crucial to provide facilities that prioritise walking and cycling, including safe crossing opportunities.

Active transport infrastructure to support the patronage of public transport

As most journeys start and end with a walking or cycling trip, improving connections to active transport infrastructure supports safe and convenient access to and from the public transport system. This can encourage more people to use public transport, reducing the number of single-occupancy vehicles on the roads and easing traffic congestion.

Consistency with the Shellharbour Open Space and Recreation Needs Study benchmarks

The Shellharbour Open Space and Recreation Needs Study (2020) assessed current open spaces and recreational infrastructure in Shellharbour, while considering community expectations. This involved mapping available infrastructure, analysing population trends and community feedback, and considering relevant policy information.

The study established the following benchmarks:

- Local Parks: open space areas that serve a neighbourhood, located close to or within residential areas for informal and play activities with basic facilities.
 - 80% of residents have access to a local park within 400m or a 5-minute safe walking distance, 100% of residents have access within 500m.
- District Parks: open space areas that serve multiple neighbourhoods including larger areas that include both passive and active recreation opportunities and may contain sports fields or courts.
 - 80% of residents have access within 800m safe walking distance, 100% of residents have access within 1500m.
- Citywide Parks: open space areas that serve an entire LGA, or multiple LGAs. Importantly, these areas are not always larger than other parks, but instead offer a wider range of uses, have higher visitation rates, and attract a wider range of users.
 - 100% of residents can access. Should be accessible by public transport.

Develop a network that is suitable for users of all ages and abilities

An active transport network that is suitable for users of all ages and abilities is important because it promotes inclusivity, accessibility, and safety for all members of the community. Providing a safe and convenient network of walking and cycling paths can encourage more people to engage in active transport, regardless of their age or physical ability, leading to a more active and healthier community.

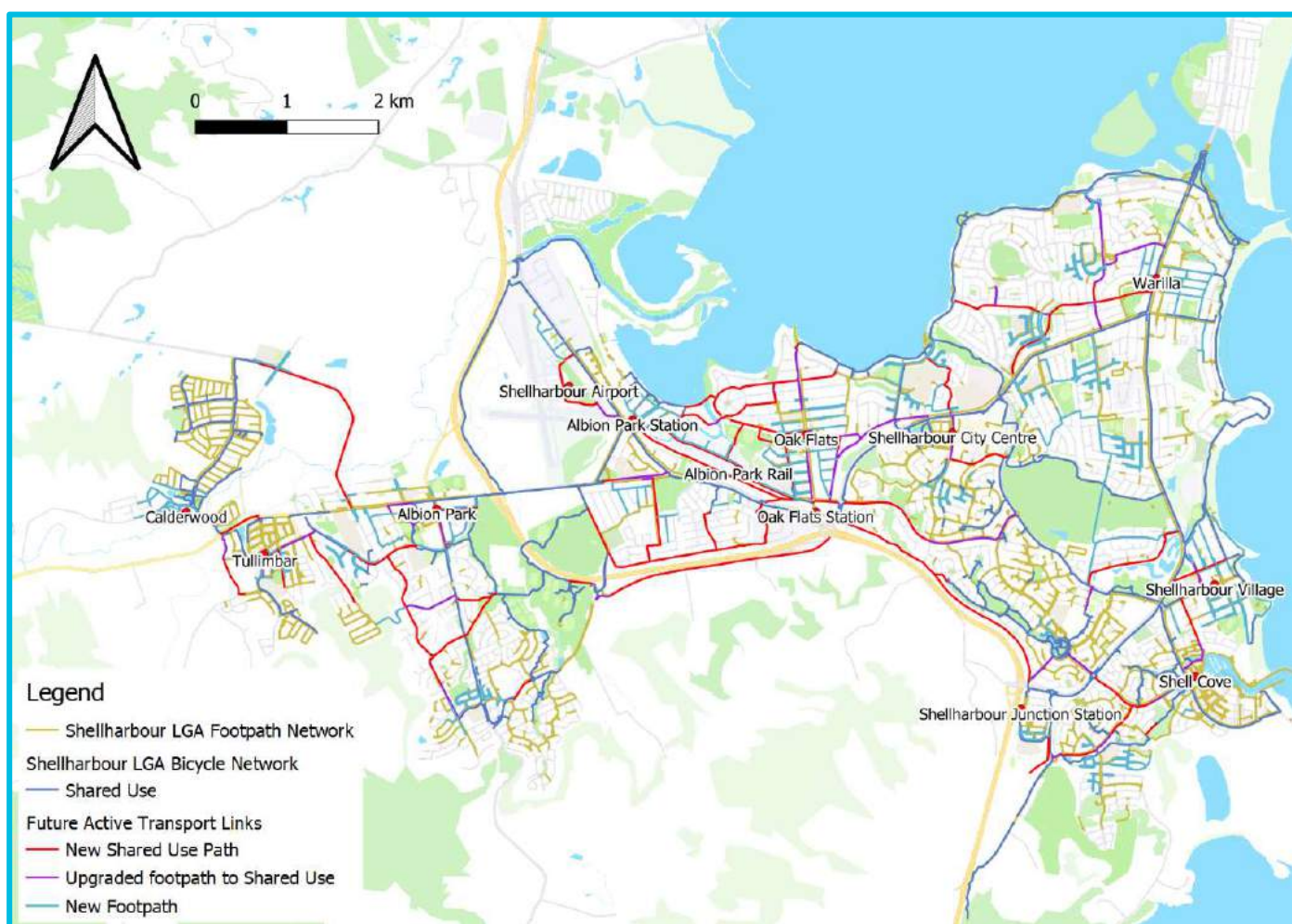
Summary of proposed improvements

Pedestrian network

Derived from the principles outlined, new or upgraded pedestrian links will connect residents to the following points of interest, with attention focused on increased walkability within catchments:

- Town centres – 10 minutes
- Public transport – 10 minutes
- Open spaces – 400 metres, in line with the Shellharbour Open Space and Recreation Needs Study
- Schools – 5 minutes

Servicing these points of interest with new footpaths and shared use paths will ensure that residents are provided with good access to public spaces. New footpaths will assist access within the vicinity of centres, with shared use paths connecting these centres across Shellharbour LGA.



▲ Current and future Shellharbour LGA pedestrian network

Source: Mapbox, Esri QGIS Mapping Software

Access to town centres and public transport

At the 13 key attractors, a 10-minute walking catchment was created around town centres and public transport to highlight areas of poor footpath coverage. Provision of new footpaths will improve residential access to the town centre and key transport nodes by foot.



▲ Warilla town centre footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software

Access to open spaces

As part of Shellharbour City Council’s Open Space and Recreation Needs Study, a spatial analysis was conducted to identify "walkable catchments" around passive (i.e. open spaces not used for sportsgrounds) and environmental open spaces across the Shellharbour LGA.

From this analysis, areas outside the 400m walkable catchment that were lacking footpaths were identified, with new footpaths proposed to address these gaps.



Safe access to schools

Safe access to schools has been discussed by stakeholders as a highest priority area.

Guidelines for implementing new infrastructure include:

- Ensuring that every street within a 5-minute walking distance of a school's entrance has footpaths on both sides.
- Implementing traffic calming measures for schools located on busy roads.
- Installing zebra crossings in areas with high pedestrian activity and signalisation on roads with high traffic volume.



▲ South-eastern Shellharbour LGA schools and pedestrian facilities within 5-minute walking catchments

Source: Mapbox, Esri QGIS Mapping Software



▲ Mount Warrigal Public School locations of safety improvement measures.

Source: Metromap

Cycling network

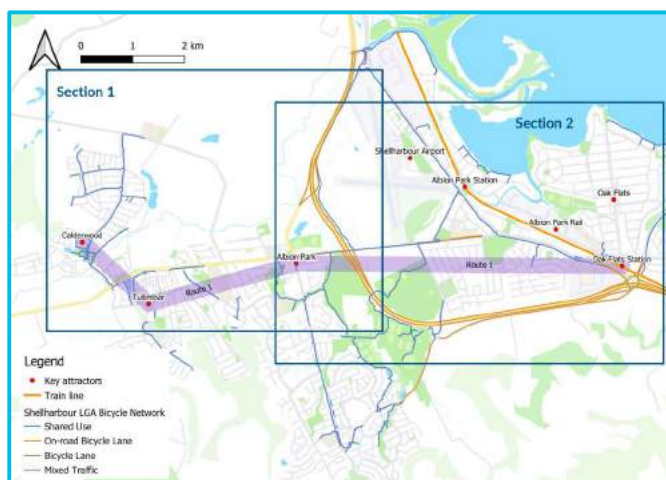
Considering the principles for active transport infrastructure, cycling links between key attractors will assist active travel throughout Shellharbour LGA. Cycling links are typically shared use paths due to lower cycling and pedestrian volumes. These paths do not require on-street parking removal, with the potential to accommodate future increases in traffic as the area develops.

Fifteen strategic cycling routes for Shellharbour LGA have been developed, with a focus on creating hubs around town centres and public transport, from Calderwood to Shell Cove. For each route, differing cycling infrastructure connects each centre. The proposed upgrades have been classified as primary and secondary.



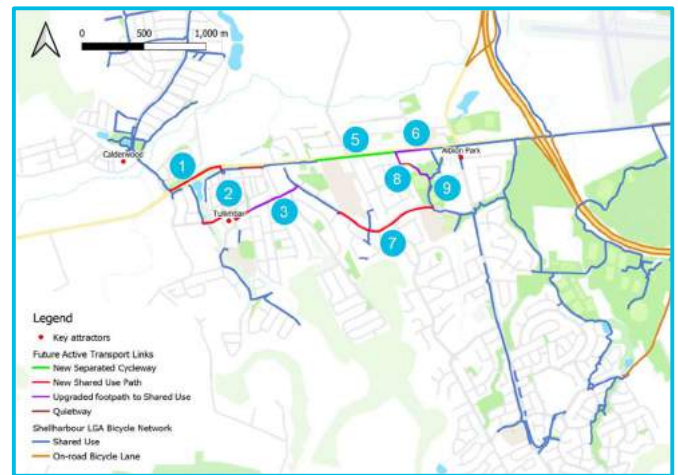
▲ Shellharbour LGA strategic cycling routes

Source: Mapbox, Esri QGIS Mapping Software



▲ Strategic Cycling Route 1

Source: Mapbox, Esri QGIS Mapping Software



▲ Route 1 - Future Active Transport Facilities (Section 1)

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 1 potential active transport infrastructure (Section 1)

No.	Type	Location	Classification
1	New shared use path	Illawarra Highway (north side)	Primary
2	New shared use path	Wongawilli Street (south side), Broughton Avenue (west side), Berrima Street (south side)	Secondary
3	Upgraded footpath to shared use	Berrima Street (south side)	Secondary
4	Quietway	Tallowa Street	Primary
5	New on-road cycleway	Illawarra Highway (south side)	Primary
6	Upgraded footpath to shared use	Tongarra Road (south side), alleyway to Beveridge Street	Primary
7	New shared use path	Church Street (south side)	Secondary
8	Upgraded footpath to shared use	Path between Tongarra Road and Beveridge Street	Secondary
9	Quietway / upgraded footpath to shared use	Beveridge Street and park path to current shared use path at Con O'Keefe Oval	Secondary

Wayfinding

As some routes have a variety of potential corridors with different cycling paths, the links classified as primary have been selected for cycle route numbering and branding. The objective of assigning colours to routes is to visually indicate the most efficient path through various segments of the cycling network.



▲ Cycling wayfinding identified by routes

Source: Mapbox, Esri QGIS Mapping Software

Signage is typically required before and at route junctions, as well as at remote points along long routes to provide reassurance. These points are the guiding locations for determining the placement of signage.

▼ Route junctions and reassurance locations

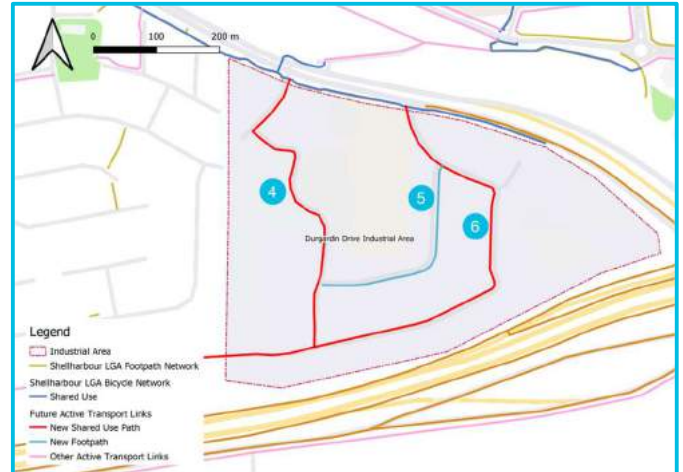
Source: Mapbox, Esri QGIS Mapping Software



Access to industry

Several cycling links have also been considered outside of the route framework that connect corridors and other important areas.

This includes access to industrial areas such as Miall Way, Durgardin Drive and Warilla Grove.



▲ Durgardin Drive Industrial Area

Source: Mapbox, Esri QGIS Mapping Software

Network supporting infrastructure

Bicycle storage

Storage facilities will help to increase the usage of bicycles by ensuring greater safety against theft and damage at transport hubs and commercial areas.



▲ Locations of bicycle storage facilities

Source: Mapbox, Esri QGIS Mapping Software

Clear path markings

A large portion of shared use paths have faded or unclear markings, creating a safety concern for cyclists and pedestrians. Additional line marking will effectively communicate shared use conditions to active transport users.



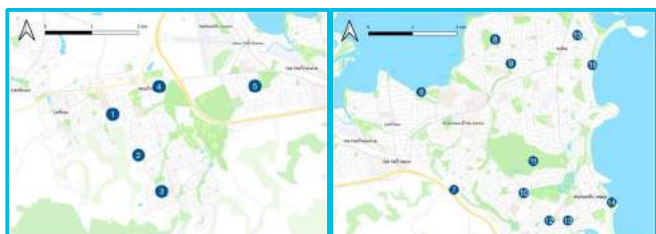
▲ Shellharbour LGA Shared Use Path markings – as of September 2022

Source: Mapbox, Esri QGIS Mapping Software

Rest facilities

Pedestrian rest facilities are areas that provide a safe and comfortable environment to rest. The following criteria has been used to determine where new rest opportunities could benefit pedestrians:

- Long routes without active land uses between origins and destinations
- Routes more likely to be frequented by the elderly and young children
- Areas of high amenity/points of interest



▲ Rest facilities

Source: Mapbox, Esri QGIS Mapping Software

Crossing facilities

In addition to crossing infrastructure identified for school safety improvements, new and upgraded

crossing facilities have been identified at the following locations to address safety issues.



▲ Locations of crossing facilities

Source: Mapbox, Esri QGIS Mapping Software

Weighted Scoring Criteria

To prioritise the delivery of walking and cycling infrastructure over the next 10-20 years, the following criteria were created to form an overall prioritisation assessment:

- Safety improvement: This focuses on reducing the risk of harm to active transport users.
- Equity to vulnerable users: This aims to support individuals such as students, the elderly, disabled individuals, and those from socio-economically disadvantaged backgrounds, ensuring their inclusion in the transport network.
- Strategic importance: This emphasises connecting key attractors and population centres to other active transport links and modes of transportation, thereby enhancing the overall network.
- Comfort and quality: This assesses the level of user experience for pedestrians and cyclists, taking into account factors such as convenience and overall satisfaction.

Following consultation with key stakeholders at Council workshops, it was determined to assign a greater weighting to the safety improvement criterion, with a double weighting applied to the overall score.

Action Plan

The following Action Plan has been developed to enable Shellharbour City Council to prioritise and carefully plan for the future active transport network to meet the needs of the community and improve the overall liveability and vitality of the Shellharbour LGA.

No.	Actions	Priority	Timeframe*
1	Undertake development of a Council-wide Pedestrian Access and Mobility Plan (PAMP) to further develop footpath works with the following destinations of highest priority: <ul style="list-style-type: none"> • Oak Flats Station • Corpus Christi Catholic High School • Oak Flats High School • Oak Flats Public School • St Joseph's Catholic High School • Open space at Shellharbour town centre • Shellharbour Village town centre • Oak Flats town centre 	High	Short term
2	Advocate to TfNSW for TfNSW bicycle sheds at the following locations: <ul style="list-style-type: none"> • Albion Park Station • Oak Flats Station • Shellharbour Junction Station 	High	Short term
3	Pursue funding for concept design of Cycling Route 2 – Shellharbour Airport to Shellharbour Village	High	Short term
4	Pursue funding for concept design of Cycling Route 4 – Macquarie Rivulet to Windang Bridge	High	Short term
5	Pursue funding for concept design of Cycling Route 5 – Albion Park to Oak Flats Station	High	Short term
6	Review shared use path markings to ensure compliance with TfNSW standards	High	Short term
7	Pursue funding for implementation of school safety measures with the following at highest priority: <ul style="list-style-type: none"> • Amity College, Illawarra Campus • Lake Illawarra High School 	High	Short term
8	Pursue funding for raised crossings at Central Avenue / Fisher Street intersection	High	Short term
9	Pursue funding for concept design of Cycling Route 1 – Calderwood to Oak Flats Station	Medium	Medium term
10	Pursue funding for concept design of Cycling Route 6 – Oak Flats waterfront to Oak Flats Station	Medium	Medium term

11	Pursue funding for concept design of Cycling Route 9 – Oak Flats Station to Warilla	Medium	Medium term
12	Pursue funding for concept design of Cycling Route 13 – Macquarie Rivulet to Southern Albion Park	Medium	Medium term
13	Pursue funding for concept design of new shared use path at Ocean Beach Drive	Medium	Medium term
14	Pursue funding for implementation of school safety measures at the following: <ul style="list-style-type: none"> • Mount Warrigal Public School • Albion Park High School • Corpus Christi Catholic High School • Flinders Primary School 	Medium	Medium term
15	Investigate with TfNSW the feasibility of signalisation at Lakewood Boulevard / Shellharbour Road intersection	Medium	Medium term
16	Investigate with TfNSW the feasibility of signalisation at Terry Street / Burdekin Drive intersection	Medium	Medium term
17	Introduction of bicycle racks at locations identified	Low	Long term
18	Develop a wayfinding schedule aligned with the Active Transport Strategy	Low	Long term
19	Continue delivery of footpath works as incorporated into PAMP	Low	Long term
20	Pursue funding opportunities for concept design and delivery of other cycling links scoring High in Weighted Scoring Criteria	Low	Long term

*short-term: 0-3 years, medium term: 3-8 years, long term: 8-15 years

1 Introduction

The purpose of the Shellharbour Active Transport Strategy is to provide a safe and convenient active transport network throughout Shellharbour LGA, including bike lanes, pedestrian crossings, pathways, and supporting infrastructure.

Our cityscape encompasses vibrant town centres, offering a unique blend of historical charm and modern allure. These centres are woven into the rich tapestry of our community, where residents and visitors alike can immerse themselves in cultural gems and relish the coastal backdrop of the ocean and Lake Illawarra.

This network will enhance accessibility for residents, support local businesses, and make it easier for visitors to explore our city by walking and cycling. This shift towards active transportation is expected to reduce traffic congestion, noise, and improve air quality, contributing to the overall sustainability and liveability for our city's residents.



▲ Source: visitshellharbour.com.au/explore/

Abbreviations

Abbreviation	Meaning
HPAA	High Pedestrian Activity Area
LGA	Local Government Area
NSW	New South Wales
PAMP	Pedestrian Access and Mobility Plan
PBN	Principal Bicycle Network
RMS	Roads and Maritime Services
RTA	Roads and Traffic Authority (NSW)
TfNSW	Transport for NSW
SCC	Shellharbour City Council

2 Existing strategic direction

This Strategy is underpinned by a suite of plans from the State Government and Shellharbour City Council (SCC) that provide the future vision for land use and transport in Shellharbour. The plans aim to increase the proportion of trips undertaken using sustainable transport such as active transport modes (e.g. walking and cycling) and modes of public transport (e.g. train and bus). This section provides a summary of the information in these plans that are relevant to the Strategy.

State Government Plans

Future Transport Strategy: Our vision for transport in NSW (TfNSW, 2022)

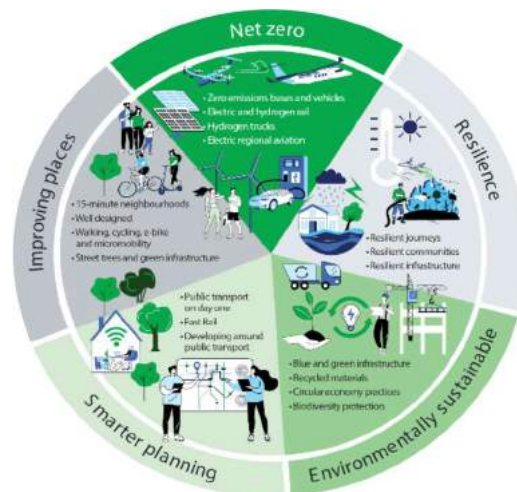
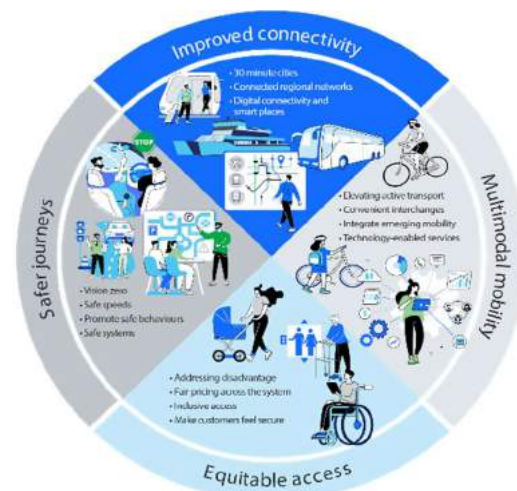
Future Transport sets the vision and direction for the planning and management of the NSW transport system (network and services). There is a focus on improved mobility, connecting centres, investing in infrastructure, creating better places, and seeking behavioural change to achieve a more sustainable transport system. Achieving these changes would lead to greater productivity, healthier and happier residents, workers and visitors.

The vision of Future Transport is:

Our transport system will help to make NSW the most liveable state in the world, an economic powerhouse filled with vibrant, sustainable communities where citizens have choice and opportunity.

The mobility and place objectives of Future Transport relevant to this Strategy include:

- Elevating active transport
- Addressing disadvantage
- Make customers feel secure
- Safe speeds
- Resilient infrastructure
- Blue and green infrastructure
- 15-minute neighbourhoods
- Walking, cycling, e-bike and micro mobility



▲ The mobility and place objectives of Future Transport

Source: 'Future Transport Strategy: Our vision for transport in NSW', Transport for NSW, 2022. Figure 1 on page 3 and Figure 2 on page 4, https://www.future.transport.nsw.gov.au/sites/default/files/2022-09/Future_Transport_Strategy_lowres_2.pdf

Shellharbour is identified as a 'Regional city' in Future Transport, with Wollongong identified as a 'Metropolitan city' and Oak Flats, Warrawong, Dapto, Corrimal, Kiama and Gerringong all identified as 'Strategic centres'. In developing the Shellharbour Active Transport Strategy, it is important to ensure that these significant places are well connected in the future with sustainable transport infrastructure.



KEY

Hubs	Existing Operational infrastructure and services	Future Non-operational infrastructure and services include committed, funded and visionary
Metropolitan centre	Ferry	Future Fast Rail routes
Metropolitan city	Light rail	Light rail
Metropolitan cluster	Rapid Bus	Rapid Bus
Regional city	Rail	Rail
Strategic centre	Rail freight (dedicated line)	Rail freight
International freight port	Road	Road
International airport		

▲ Six Cities Region showing existing and future transport network

Source: 'Future Transport Strategy: Our vision for transport in NSW', Transport for NSW, 2022. Extract from Figure 11 on page 26; https://www.future.transport.nsw.gov.au/sites/default/files/2022-09/Future_Transport_Strategy_lowres_2.pdf

Future Transport is framed by transport outcomes that the State Government is seeking to achieve, led by 14 strategic directions. Each strategic direction contains 'responses' or 'actions' that will enable the realisation of these outcomes. Eight of the 14 strategic directions consider active transport and promoting greater connectivity within and between cities and centres.



Outcome: Connecting our customers' whole lives

Strategic Direction C2: Multimodal mobility supports end-to-end journeys

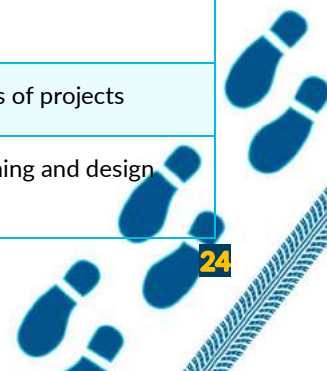
C2.1	Support car-free, active, sustainable transport options
C2.1b	Develop Strategic Cycleway Corridors for each of the six cities to provide the foundation for safe, convenient and well-connected cycleways and support councils' local cycling networks
C2.1f	Integrate safe and separate, first and last mile walking and cycling connections and trip facilities into plans and projects to promote active transport for all travel purposes for people of all ages and abilities
C2.3	Integrate emerging mobility choices
C2.3a	Support the integration of emerging modes through trials (such as the e-scooter trials), partnerships, collaboration, and a fit-for-purpose regulatory framework
C2.4	Facilitate efficient freight connectivity and access
C2.4a	Integrate the freight task into all transport planning to help future connectivity and efficiency

Strategic Direction C3: Equitable, accessible and secure transport for all

C3.2	Develop an inclusive transport system enabling access to services and places for all
C3.2b	Establish a standard for accessibility and inclusion that considers the needs of all customers across the end-to-end customer journey
C3.2c	Continue to invest in our transport facilities to meet a high standard for inclusion, beyond the minimum standards established in legislation
C3.3	Make customers feel secure travelling day and night
C3.3e	Work with the community, councils, NSW Police and landowners on a range of measures to improve security to and from transport facilities
C3.3g	Embrace crime prevention through environmental design (CPTED) principles to improve the design and layout of transport infrastructure

Strategic Direction C4: Our transport networks are safe

C4.1	Deliver strategies to achieve ambitious safety targets
C4.1a	Deliver zero trauma on our road network by 2050 and our waterways by 2056
C4.1d	Set targets for key performance measures across transport modes and regularly monitor progress
C4.4	Integrate a Safe Systems approach
C4.4a	Integrate Safe Systems assessment checks at feasibility, functional design and detailed design stages of projects
C4.4b	Embed Safe Systems infrastructure and design principles as default safety requirements in the planning and design stages of all transport projects



C4.5	Improve the safety of people walking and cycling
C4.5a	Deliver reduced speeds and speed limits in urban places and local streets
C4.5b	Deliver infrastructure safety treatments, including through the Towards Zero Safer Roads Program
C4.5c	Continue investing in pedestrian crossings, refuge islands and traffic-calming measures
C4.5e	Ensure micro-mobility devices are embedded safely within networks

Outcome: Successful places for communities

Strategic Direction P2: Transport infrastructure makes a tangible improvement to places

P2.1	Support thriving and healthy 15-minute neighbourhoods
P2.1a	Partner with councils, Local Aboriginal Land Councils and other NSW Government agencies to support 15-minute neighbourhoods
P2.1g	Partner with the Department of Education and key stakeholders to improve safe walking, cycling and public transport access to schools
P2.1h	Improve priority for walking trips in centres, towns and villages, such as reallocating road space to wider footpaths and providing more frequent and longer duration pedestrian crossing phases at traffic signals
P2.1i	Plan and design at all scales early in projects to understand impacts and opportunities
P2.3	Incorporate green, blue and ochre infrastructure
P2.3a	Incorporate green infrastructure into urban projects and assets
P2.3d	Incorporate the need for trees into urban street design and speed zoning guidance
P2.4	Build well-designed transport infrastructure that makes places more liveable and successful
P2.4i	Apply the Movement and Place Framework to all aspects of street and roads in our operations

Strategic Direction P4: Transport minimises environmental impacts

P4.3	Use space and assets more sustainably
P4.3a	Prioritise the reallocation of road space to more efficient and sustainable transport modes

Outcome: Enabling economic activity

Strategic Direction E1: Freight networks and supply chains are efficient and reliable

E1.5	Improve the efficiency of freight in centres and neighbourhoods
E1.5b	Facilitate freight industry adoption of e-bikes and other clean technologies

Strategic Direction E2: Existing infrastructure is optimised

E2.3	Improve the use and efficiency of our roads through road space allocation
E2.3a	Apply road user space allocation principles in partnership with relevant stakeholders
Strategic Direction E3: Transport supports the visitor economy	
E3.1	Improve access and experiences
E3.1a	Consider the visitor as a customer in the design of precincts and journeys
E3.1b	Support the provision of consistent wayfinding
E3.2	Deliver networks, services and technologies that support visitor access across the whole State
E3.2f	Improve car-free access to national parks and other natural assets

Illawarra-Shoalhaven Regional Transport Plan (TfNSW, 2022)

The Illawarra-Shoalhaven Regional Transport Plan (IS RTP) was developed by TfNSW to identify actions to be taken locally to support the demands of the growing population on regional transport services and infrastructure.

A primary objective of the IS RTP that is relevant to the Strategy is:

Driving the regional transition towards a low emissions future through increasing the number of trips made by walking, cycling and public transport.

Within the plan, Shellharbour City Centre is nominated as a regionally significant centre, earmarking it for further housing and job growth. This will be a key regional destination for employment, education, retail and services.

As noted in the primary objective above, active transport is considered a vital part of the region’s transport future. In this plan, TfNSW states the desire to work with Wollongong City Council and Shellharbour City Council to develop a Principal Bicycle Network (PBN) for the Wollongong and Shellharbour LGAs to ensure a seamless cycle network regardless of the asset owner.

Illawarra-Shoalhaven Regional Plan 2041 (NSW DPIE, 2021)

The Illawarra-Shoalhaven Regional Plan was developed by DPIE as a strategic framework to inform land use planning and infrastructure development, and communicate to private entities and the wider community the Government’s vision of creating a connected, sustainable and innovative region.

The plan outlines multiple objectives that require the strategic implementation of active transport. These include:

- Creating a diverse visitor economy through a focus on active transport modes to connect visitors to key destinations.
- Prepare for mobility changes that improve connectivity and sustainability through considering opportunities to foster the uptake of electric forms of micro mobility.
- Ensuring new communities are being designed to be healthy, vibrant and sustainable with active and passive open space accessible by walkways, cycleways and public transport.

Local Government Plans

Shellharbour Local Strategic Planning Statement (SCC, 2022)

The Local Strategic Planning Statement (LSPS) for Shellharbour City LGA provides a 20-year land use vision based on economic, social, and environmental needs. The plan builds on the community's aspirations identified in the Community Strategic Plan 2022-2032 and aligns with the NSW Government's Illawarra-Shoalhaven Regional Plan 2041. The LSPS prioritises jobs, homes, services, and community infrastructure, with specific actions outlined to deliver the vision. The plan aims to create a desirable future for the community and visitors while addressing changes that will shape Shellharbour City's future.

The transport planning vision was identified with community input and aligned with existing Council policies, plans and strategies. Council wants to respond to the community feedback, which was to achieve:

- A city that is walkable, connected with public transport and easily accessible.
- Connectivity of new residential areas with existing facilities to improve liveability.
- To achieve this vision, Council have highlighted the following actions:
- Updates to Council's Shared Use Path Masterplan to prioritise footpaths and cycleways across the LGA to encourage active transport.
- Develop strategies to improve transport connectivity across the City.
- Liaise with neighbouring councils to improve open space and transport connections.
- Contribute to a City that is accessible and inclusive for people with a disability.
- Review Council's planning controls to ensure that accessibility and inclusion is promoted throughout our built environment.
- Develop and implement a Transport Strategy for Shellharbour City to identify and prioritise the existing and future transport infrastructure needs, and public and active transport connections required across the LGA.

Shared Use Path Strategy (SCC, 2010)

A Shared Use Path Strategy was developed by Shellharbour City Council in 2010. This strategy outlined current shared use paths and on-road bicycle facilities in addition to proposed routes.

Some of the planned routes include off-road shared use paths, while others are subject to detailed design. Routes are typically strategic in nature, signifying a potential alignment desired by Council.

It is important to note that the significant age of this Strategy necessitates a comprehensive review of its contents in consultation with key stakeholders. Most of the links and routes proposed in this strategy are still yet to be developed, and the strategy does not feature new housing developments in areas such as Calderwood and Tullimbar. This Active Transport Strategy responds to the need to update the Shared Use Path Strategy.

Shellharbour Local Government Area Shared Use Path Strategy 2010

This strategy is the overarching tool & guide for the detailed design & implementation of the facilities described in the legend & aerial photo plan. Facilities identified in this strategy are subject to funding over an indefinite time. These facilities will be designed & constructed according to the (Crime Prevention Through Environmental Design (CPTED), Risk Management, Road Safety & Disability Access) principles shown to the sides and bottom of the map. The notes below must be considered during detailed design & construction.



▲ Shared Use Path Strategy (2010) map and notes

Source: Shellharbour LGA Shared Use Path Strategy, Shellharbour City Council 2010. Attachment to Planning Services Item no. 12.3.1.; https://hdp-au-prod-app-shell-ltschatshellharbour-files.s3.ap-southeast-2.amazonaws.com/2815/5373/0622/ECM_9412443_v1_Shellharbour_LGA_Shared_Use_Path_Strategy_2010_pdf.pdf

Town Centre Plans (SCC, 2014-2015)

Shellharbour City Council commissioned town and village centre plans for four of the main business areas (Albion Park, Oak Flats, Shellharbour Village and Warilla) within the LGA between 2014 and 2015. These plans were created to guide local urban planning in order to develop vibrant, inclusive, convenient and accessible town centres.

The plans highlight in “Principle 3: Access & Movement” the overarching strategy to achieve the specified goals through effective transport planning. The transport planning principles adopted are:

- A network of pedestrian accessible routes to encourage walking as a viable mode of transportation.
- Good public transport links to reduce vehicular use and promote walking and cycling.

These principles are reflected in the targeted strategies for each of the town and village centres which respond to the local environmental and urban context.

Albion Park (McGregor Coxall, 2014)

Key strategies proposed for Albion Park relating to active transport include:

- Defining the town centre by pedestrian friendly streets and earmarking Russell Lane as a shared street
- Limiting vehicle access to the town centre
- Providing ample bike parking, public street furniture, and consistent pavement treatment and planting schemes to provide spatial division, enclosure, and shading
- Spatial provision for alternative transport such as cycling
- Shared streets integrating pedestrians, cyclists and vehicles in a slow environment



- Legend
- Site Boundary
 - Proposed link subject to detailed design
 - Proposed off street
 - Proposed preferred
 - On Road Bicycle Lane
 - Off Road Shared Use Path
 - Bicycle Storage

▲ Proposed Albion Park cycle network

Source: Albion Park town centre plan, McGregor Coxall, 2014. Figure 4.15, page 33.
https://cdn.shellharbour.nsw.gov.au/sites/default/files/Policies/Albion_Park_Town_Centre_Plan.pdf

Oak Flats (McGregor Coxall, 2015)

Key strategies proposed for Oak Flats relating to active transport include:

- Use of laneways in town to create cycle links within the town centre
- Investigations into improving pedestrian priority at all intersections
- Improved pedestrian crossing points across Central Avenue between Fisher and Hopetoun Streets
- Widening of footpaths along the eastern edge of Central Avenue
- Consideration of scooter parking infrastructure
- Restricting on-street car parking
- Increased planting to road edges at intersections to narrow road widths and increase pedestrian safety

Cycle Network

Oak Flats has limited existing and proposed cycle connections with one shared path to the west along Moore Street which connects to the town centre via Fisher Street. Street but terminates at Central Avenue. No direct routes between the town centre and the Railway Station have been proposed.



- Legend
- Site Boundary
 - Bicycle Proposed
 - Proposed off street

▲ Proposed Oak Flats cycle network

Source: Oak Flats Town Centre Plan, McGregor Coxall, 2015 Figure 4.13 on page 31,
https://cdn.shellharbour.nsw.gov.au/sites/default/files/Policies/oak-flats-town-centre-plan_10.pdf

Shellharbour Village (McGregor Coxall, 2014)

Key strategies proposed for Shellharbour Village relating to active transport include:

- Widening of footpaths along Addison Street to improve walkability
- Improved pedestrian crossing points at the Mary, Wentworth and Addison Street intersections
- Extending the foreshore walk through to Shell Cove to allow a walkable link between the two centres
- Linking walking paths to surrounding beaches and headlands on the Harbour Foreshore



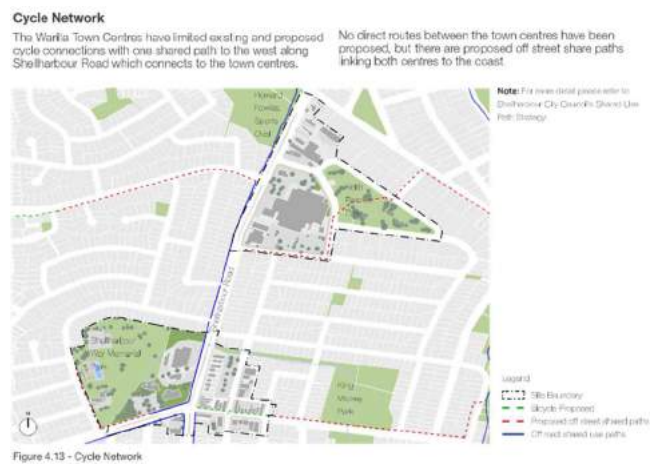
▲ Proposed Shellharbour Village bicycle network

Source: Shellharbour Village Town Centre Plan, McGregor Coxall, 2014. Figure 4.13 on page 31, https://cdn.shellharbour.nsw.gov.au/sites/default/files/Policies/web-final-shellharbour-villagecentreplanincapp_10.pdf

Warilla (McGregor Coxall, 2014)

Key strategies proposed for Warilla Town Centre relating to active transport include:

- Increase facilities for bicycle parking in the town centre
- Establish cycle links to the coastal cycle network and local parks
- Ensure cycle paths and parking are integrated into Keith Fletcher Park and Shellharbour War Memorial Park
- Establish cycle links between existing business centres including Beverly Avenue, Shellharbour Road, George Street and Queen Street.



▲ Proposed Warilla town centre bicycle network

Source: Warilla Town Centre Plan, McGregor Coxall, 2014. Figure 4.13 on page 31, https://cdn.shellharbour.nsw.gov.au/sites/default/files/Policies/web-finalwarillatcmp-reportrevd_10.pdf

3 Key Attractors, Existing Active Transport Network

This section identifies key trip attractors such as public transport nodes and shopping centres, provides an overview of the existing active transport network (updated using recent satellite imagery and on-site observations), and presents a general overview of existing transport network users.

Key Attractors

For the purpose of this Active Transport Strategy, 13 main active transport destinations have

been identified. These destinations have been chosen based on their potential to attract walking and cycling trips, as well as their inclusion in both state and local government planning documents.

This Strategy aims to promote and facilitate active transport to, between and within these destinations, which are considered important for accommodating the region's development and growth.



▲ Map of key attractors in the Shellharbour LGA

Source: Mapbox, Esri QGIS Mapping Software

▼ Key attractors in the Shellharbour LGA

Location	Description	Relevant document
Shellharbour City Centre	<p>Shellharbour City Centre is a commercial and cultural hub, home to a diverse mix of shops, ranging from big-box stores and national chains to independent boutiques and specialty shops.</p> <p>The centre is also home to a range of cultural and entertainment venues, including a cinema, performing arts centre, and art galleries. It hosts several events throughout the year, including music festivals, markets, and community celebrations.</p>	Identified as a <i>Regional City</i> in the Illawarra-Shoalhaven Regional Transport Plan.
Shell Cove	Shell Cove is a coastal suburb characterised by its modern and sustainable design, featuring a mix of residential, commercial, and recreational areas. It is home to a range of modern facilities, including a marina, golf course, and a variety of parks and nature reserves, making it a popular destination for locals and visitors alike.	Identified as a <i>Local Centre</i> in the Illawarra-Shoalhaven Regional Transport Plan and a <i>Regionally Significant Employment Land</i> in the Illawarra-Shoalhaven Regional Plan.
Warilla	Warilla is a coastal suburb featuring a mix of residential and commercial areas, as well as a range of parks and nature reserves. The suburb is also home to a range of shops, cafes, and restaurants, in addition to several community facilities, including a library, community centre and sports complex.	Identified as a <i>Local Centre</i> in the Illawarra-Shoalhaven Regional Transport Plan.
Oak Flats	Oak Flats is home to a range of shops, restaurants, and cafes. Visitors can explore the nearby Lake Illawarra, which offers fishing, boating and other water-based activities.	Identified as a <i>Strategic Centre</i> in the Illawarra-Shoalhaven Regional Transport Plan.
Shellharbour Village	<p>Shellharbour Village is a historic coastal village characterised by its quaint streetscape, featuring historic buildings, colonial-era architecture, and a range of boutique shops, cafes, and restaurants.</p> <p>The village is also popular for its coastal location, with visitors able to enjoy swimming, surfing, and fishing at nearby beaches such as Shellharbour Beach and Little Lake.</p>	Identified as a <i>Town Centre</i> in the Illawarra-Shoalhaven Regional Transport Plan.
Albion Park	Albion Park is surrounded by beautiful natural scenery, with a number of parks and nature reserves offering a range of recreational opportunities. Visitors can also sample local produce at the regular Albion Park Community Hub Market.	
Oak Flats Industrial	Oak Flats Industrial is a centre of employment, home to a light industrial precinct. The suburb also features several parks and nature reserves offering a range of recreational opportunities. It is in a similar location as Albion Park Rail in the Illawarra-Shoalhaven Regional Transport Plan.	
Calderwood	Calderwood is a growing semi-rural suburb located inland, with a number of parks and nature reserves offering a range of nearby	

Location	Description	Relevant document
	recreational opportunities such as the Calderwood District Park and wetlands.	
Shellharbour Airport	Shellharbour Airport, also known as the Illawarra Regional Airport, is serviced by a number of regional airlines and offers flights to a range of destinations throughout Australia. It also offers a range of aviation services, including aircraft maintenance, charter services and flight training.	Identified as a <i>Regionally Significant Employment Land</i> in the Illawarra-Shoalhaven Regional Plan.
Tullimbar	The future town centre is within the Tullimbar growth area, featuring schools, parks and recreational facilities. This new centre will feature a commercial precinct immediately to the south-west of the Broughton Avenue/Wongawilli Street intersection.	Identified by Shellharbour City Council as a significant future growth area.
Albion Park Station	The Station is situated on the South Coast Line and serviced by NSW TrainLink, which provides services between Sydney and the South Coast. Albion Park Station is conveniently located near a range of local attractions and amenities, and provides access to the nearby Shellharbour Airport.	The primary objective of the Illawarra-Shoalhaven Regional Plan identifies the increased use of public transport and active transport
Oak Flats Station	The Station is situated on the South Coast Line and serviced by NSW TrainLink. It is located near a range of local amenities, including shops, cafes and restaurants.	
Shellharbour Junction Station	The Station is situated on the South Coast Line and serviced by NSW TrainLink. It is located adjacent to new housing development lots, supporting future population growth.	

“Hub and Spoke” Network

Within the Illawarra-Shoalhaven Regional Transport Plan (2022), eight of the 13 key attractors are identified as part of the “Hub and Spoke” Network for the Illawarra-Shoalhaven region. These hubs attract trips within the Shellharbour LGA in addition to movement to and from neighbouring areas.



▲ Shellharbour Insert - "Hub and Spoke" Transport Network for Illawarra-Shoalhaven

Source: Illawarra-Shoalhaven Regional Transport Plan, Transport for NSW, 2022. Excerpt from Figure 6, page 24, https://www.future.transport.nsw.gov.au/sites/default/files/2022-06/illawarra_shoalhaven_regional_transport_plan.pdf

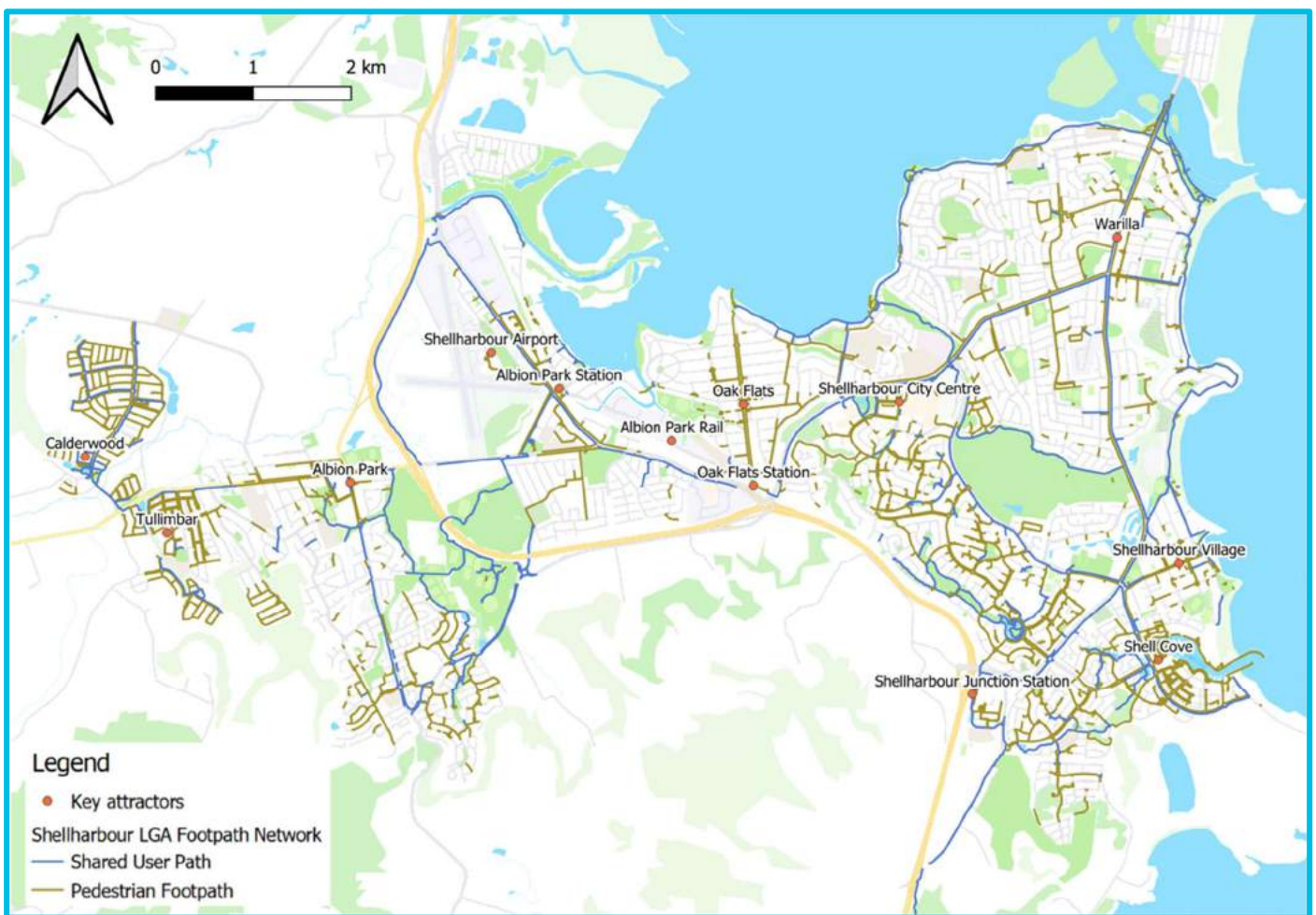
Existing active transport network

Pedestrian network

The pedestrian network aims to facilitate easy movement within centres, including train stations, commercial areas, and residential neighbourhoods.

The map shows various paths that allow pedestrians to travel safely and efficiently within these destinations and to nearby residential areas. The network primarily consists of footpaths, with some shared use paths for both cyclists and pedestrians.

The pedestrian network is limited within several suburban areas such as Albion Park, Albion Park Rail, Oak Flats and Warilla. In these areas, many roads do not have footpaths or have a with footpath on one side only. Where possible, provision of footpaths on both sides of the road would enhance pedestrian safety and accessibility. By providing separate spaces for pedestrians to walk and reducing the need for frequent road crossings, a more convenient and efficient pedestrian experience is created.



▲ Existing footpath network

Source: Mapbox Esri QGIS Mapping Software, Shellharbour City Council

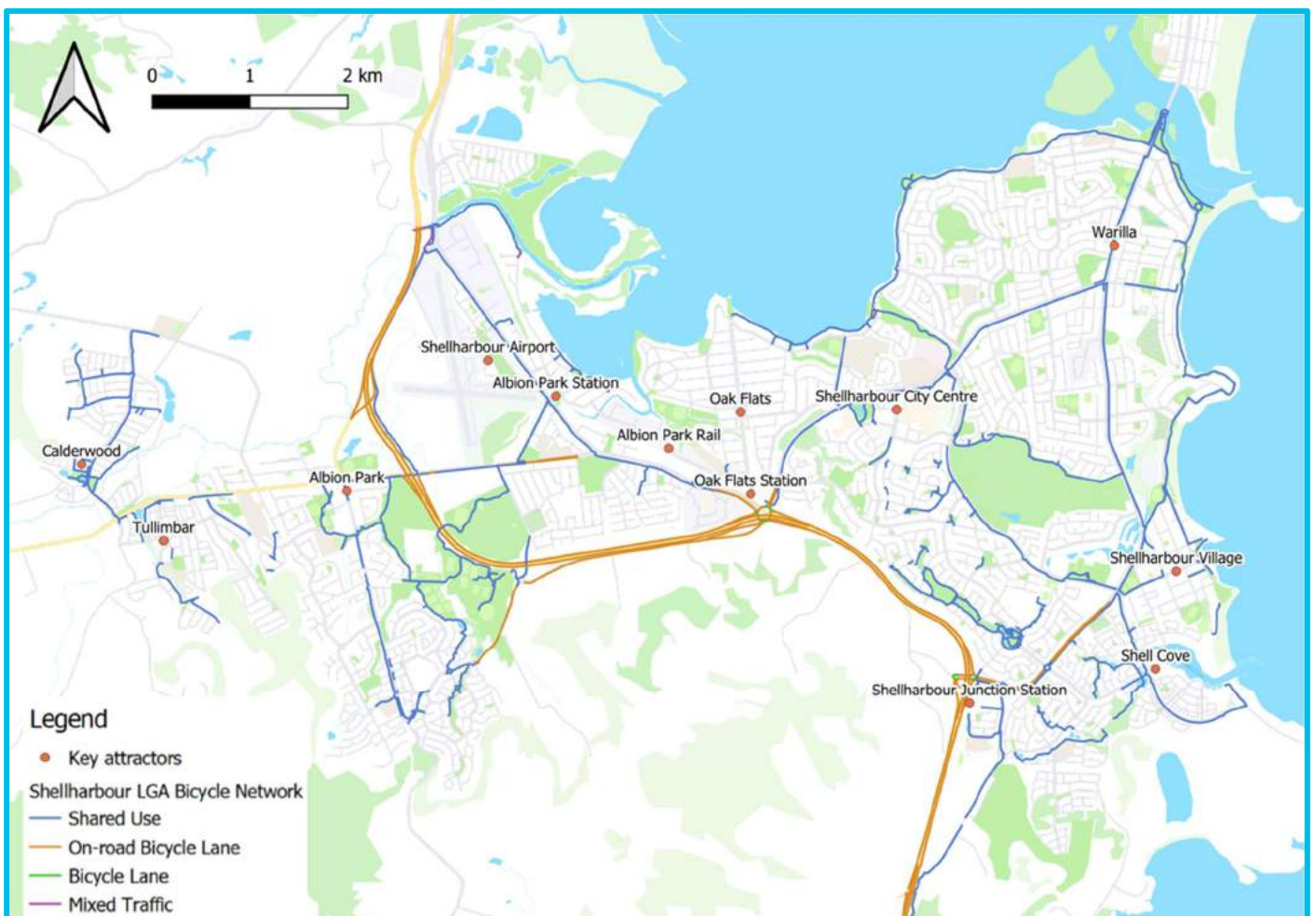
Bicycle network

The routes and pathways on the existing bicycle network are designed to accommodate safe and efficient travel for cyclists.

The bicycle network aims to connect key attractors within the area, including train stations, commercial areas and residential neighbourhoods. The map displays various routes and paths that enable cyclists to travel safely and efficiently between these different destinations. The network consists primarily of shared use paths and on-road bicycle lanes.

The existing bicycle network is well connected, with many key attractors linked by a network of paths and routes. However, there are still some unlinked shared use paths which can make it challenging for cyclists to travel safely between different locations.

The accessibility of the bicycle network also varies, with many of the routes and paths located near residential areas. Some areas lack adequate infrastructure, making it challenging for cyclists to access the network.



▲ Existing bicycle network

Source: Mapbox Esri QGIS Mapping Software, TfNSW Cycleway Finder, MetroMap Shellharbour City Council

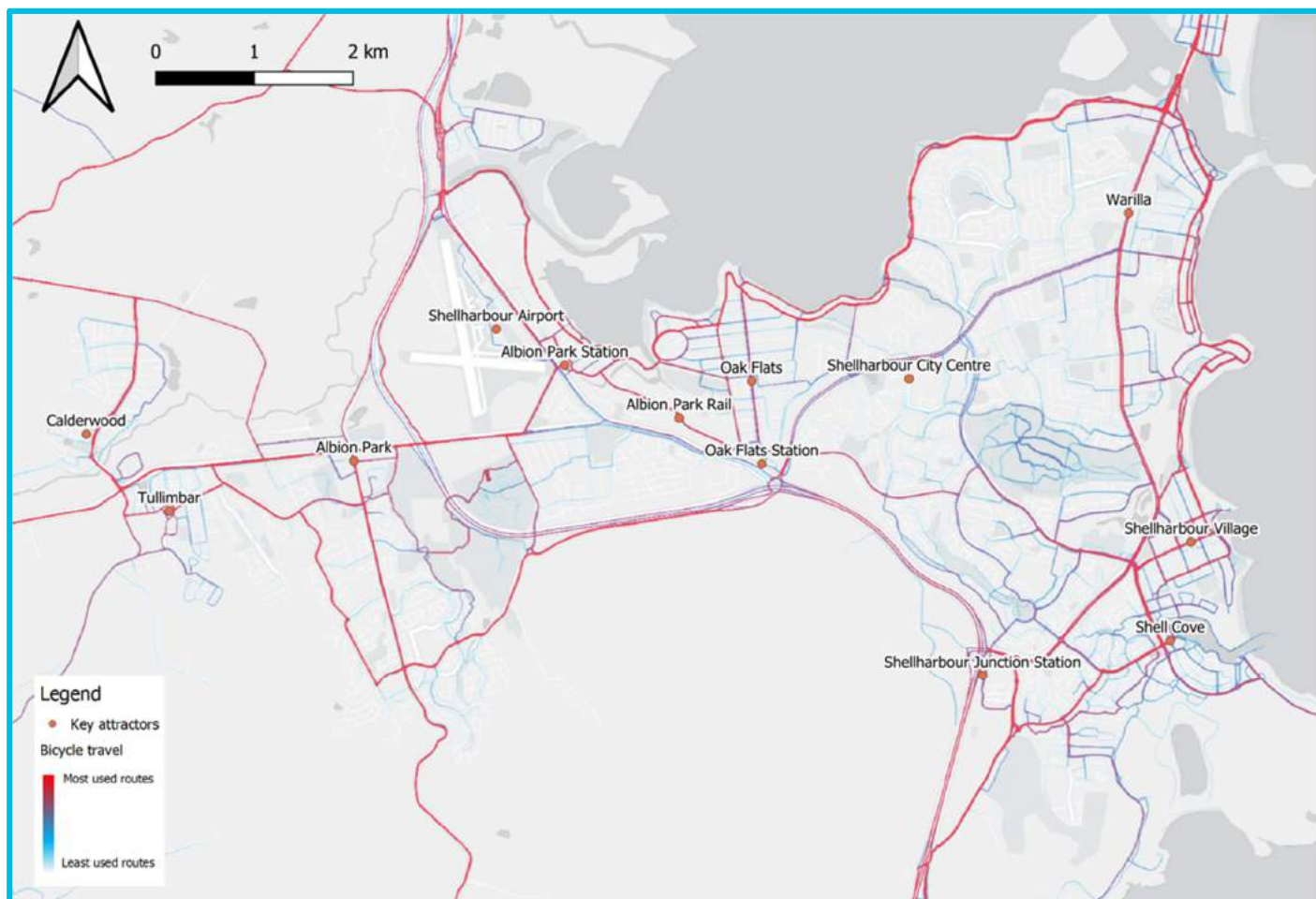
Transport network users

Current active transport users include both recreational and commuter cyclists. The range of confidence levels varies between recreational cyclists, from very confident road cyclists to children riding with their parents. This dictates a need for a variety of facility types.

The Strava heatmap shows that the coastal route is particularly popular, with high usage along the coast from Shellharbour Village to Warilla. This suggests that many cyclists in the area engage in recreational cycling, taking advantage of the coastline.

The Strava heatmap also shows usage along key arterial roads connecting Warilla, Oak Flats and Albion Park. These routes are likely to be used by commuter cyclists who are travelling to and from work or other destinations.

The high usage of these routes suggests that cycling is being used not just for recreational purposes but also as a practical mode of transportation. This highlights the importance of providing safe and accessible cycling infrastructure along key routes to facilitate and encourage active travel for a variety of purposes.



▲ Cycling heatmap

Source: Strava, Mapbox, Esri QGIS Mapping Software

4 Transport and Land Use Context

This section identifies surrounding land uses and provides an overview of the existing transport context and infrastructure with the Shellharbour LGA.

Transport Context

Pedestrian infrastructure

Pedestrian infrastructure refers to the network of infrastructure elements that are designed to cater for the needs of pedestrians. This infrastructure assists development of safe and accessible urban

environments, improving mobility for pedestrians, and reducing the risk of pedestrian-related crashes.

The infrastructure detailed in this section includes signalised intersections, zebra crossings or raised (wombat) crossings, and two-stage crossings. Two-stage crossings improve pedestrian safety by providing a waiting in the middle of the road for pedestrians to pause and assess traffic conditions before proceeding. These crossings can include pedestrian refuges, splitter islands and medians.



▲ Median, pedestrian refuge and splitter island

Sources: Pedestrian refuge: Safety Town, <https://www.safetytown.com.au/plugins/gallery/50018/>
Splitter island: US Federal Highway Administration, <https://highways.dot.gov/public-roads/novemberdecember-2012/theyre-small-powerful> Median: MetroMap

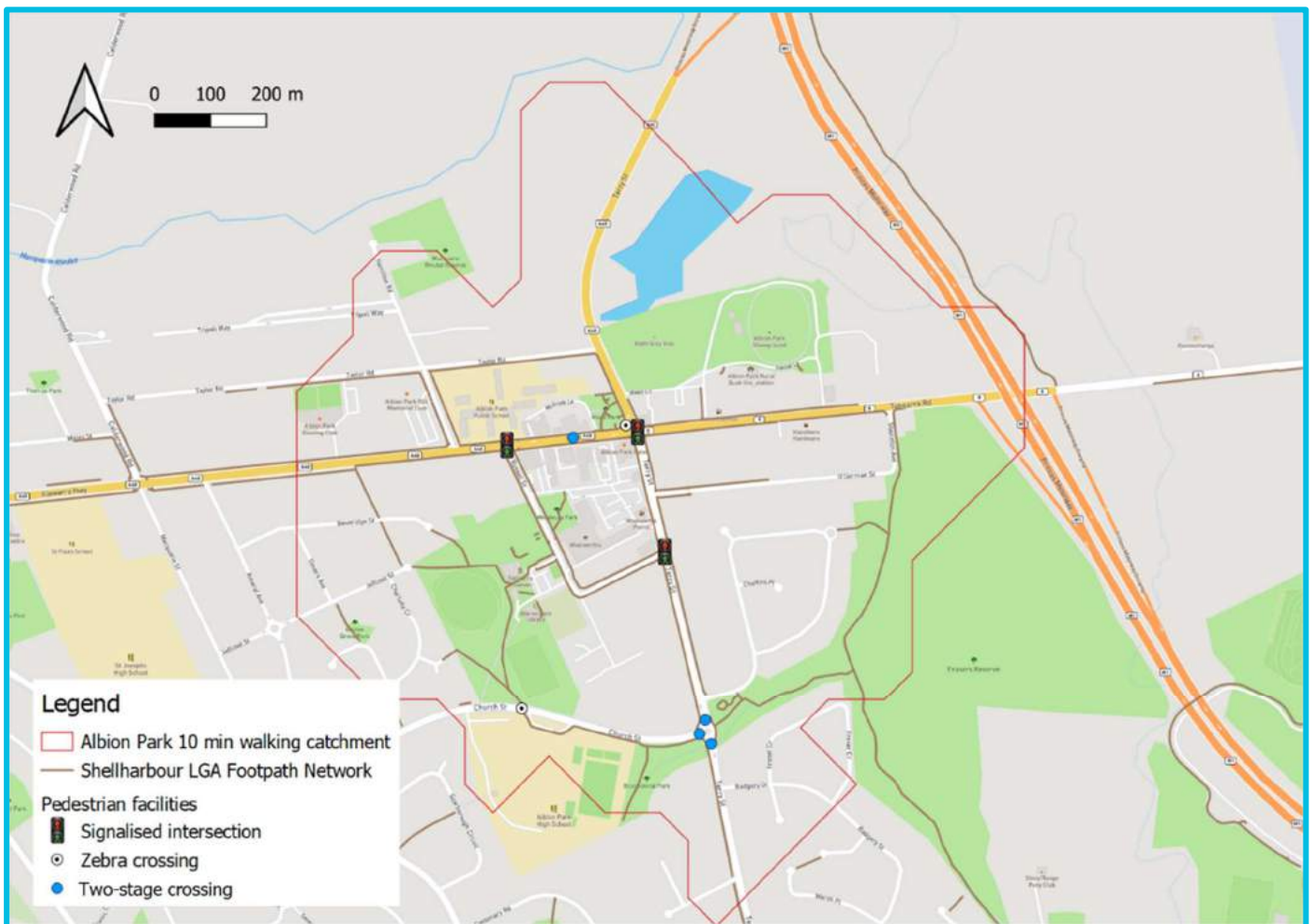
Albion Park

The approximate 10-minute walking catchment around Albion Park town centre features pedestrian facilities concentrated along Tongarra Road and Terry Street in areas of higher foot traffic. Additionally, a zebra crossing is located on Church Street to the north of Albion Park High School, providing pedestrian connectivity between the school, Di Gorman Oval, Con O’Keefe Oval and the community and recreational facilities near Russell Street.



▲ Albion Park town centre

Source: Albion Park Hotel,
<https://www.albionparkhotel.com.au/>



▲ Approximate 10-minute walking catchment - Albion Park centre

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

Calderwood

The approximate 10-minute walking catchment around the centre of the Calderwood residential area features two-stage crossing facilities clustered around roundabouts, primarily on the main north-south roads of Escarpment Drive and Brotheridge Avenue. These crossing facilities offer a safe place for pedestrians to cross the road, however do not give priority to pedestrians. These facilities are typically provided on streets with lower traffic volumes.



▲ Calderwood town centre

Source: Landscape Solutions,;
<https://landscapesolutions.com.au/construction-projects/calderwood-estate/>



▲ Approximate 10-minute walking catchment - Calderwood centre

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

Shellharbour Airport

The approximate 10-minute Shellharbour Airport walking catchment area has two signalised intersections on Pacific Highway and a zebra crossing on Airport Drive to cater for pedestrians in the airport employment precinct. A two-stage crossing is located on the Princes Highway north of Mallee Street, providing a safe pedestrian crossing point on the highway, in addition to a second two-stage crossing in an area not well frequented by pedestrians on Boomerang Avenue.



▲ Shellharbour Airport

Source: Hutchinson Builders, <https://www.hutchinsonbuilders.com.au/projects/civil-and-infrastructure/shellharbour-airport-terminal>



▲ Approximate 10-minute walking catchment – Shellharbour Airport

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

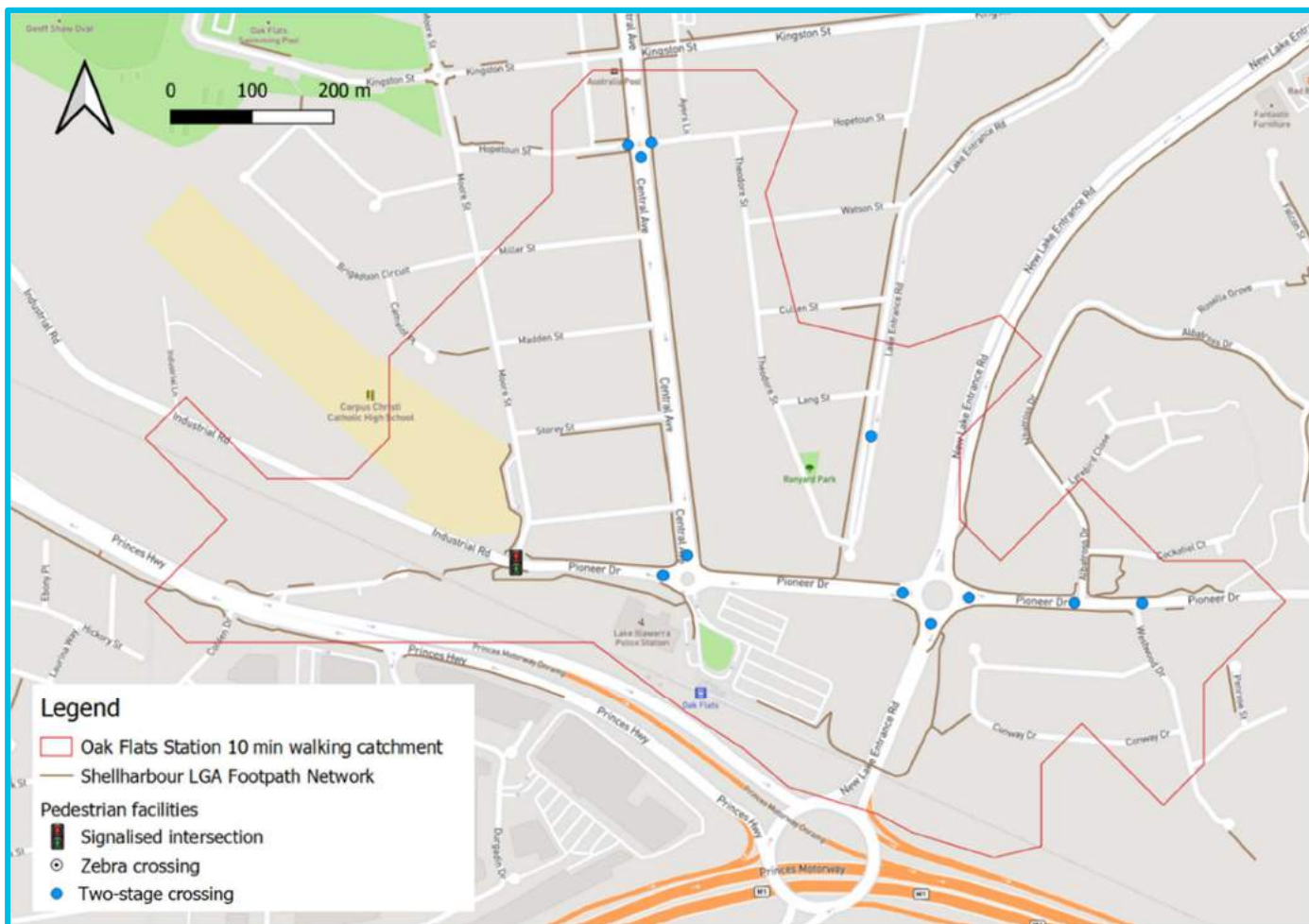
Oak Flats Station

Oak Flats Station has a 10-minute walking catchment area primarily to the north due to the challenge of crossing the Princes Highway. The area features one signalised intersection at Industrial Road/Moore Street and two-stage crossings along Pioneer Drive and Central Avenue.



▲ Oak Flats Station

Source: Academic Dictionaries and Encyclopedias, <https://en-academic.com/dic.nsf/enwiki/11840637>



▲ Approximate 10-minute walking catchment - Oak Flats station

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

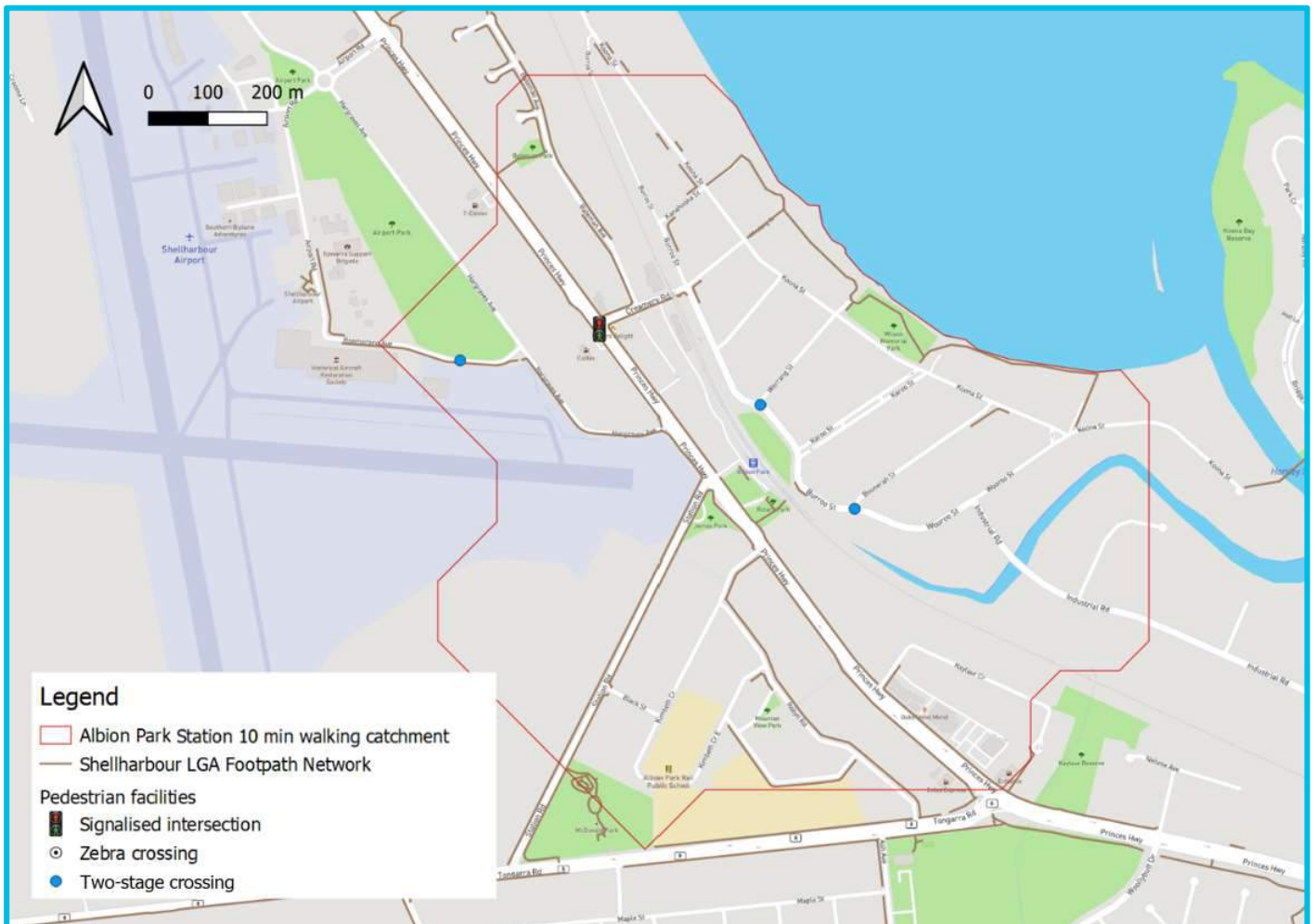
Albion Park Station

Albion Park Station has limited crossing facilities within its approximate 10-minute walking catchment area. There is one signalised intersection to the northwest on the Princes Highway, and two-stage crossings on Boomerang Avenue, Airport Drive and Burroo Street.



▲ Albion Park Station

Source: Google Maps,



▲ Approximate 10-minute walking catchment – Albion Park station

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

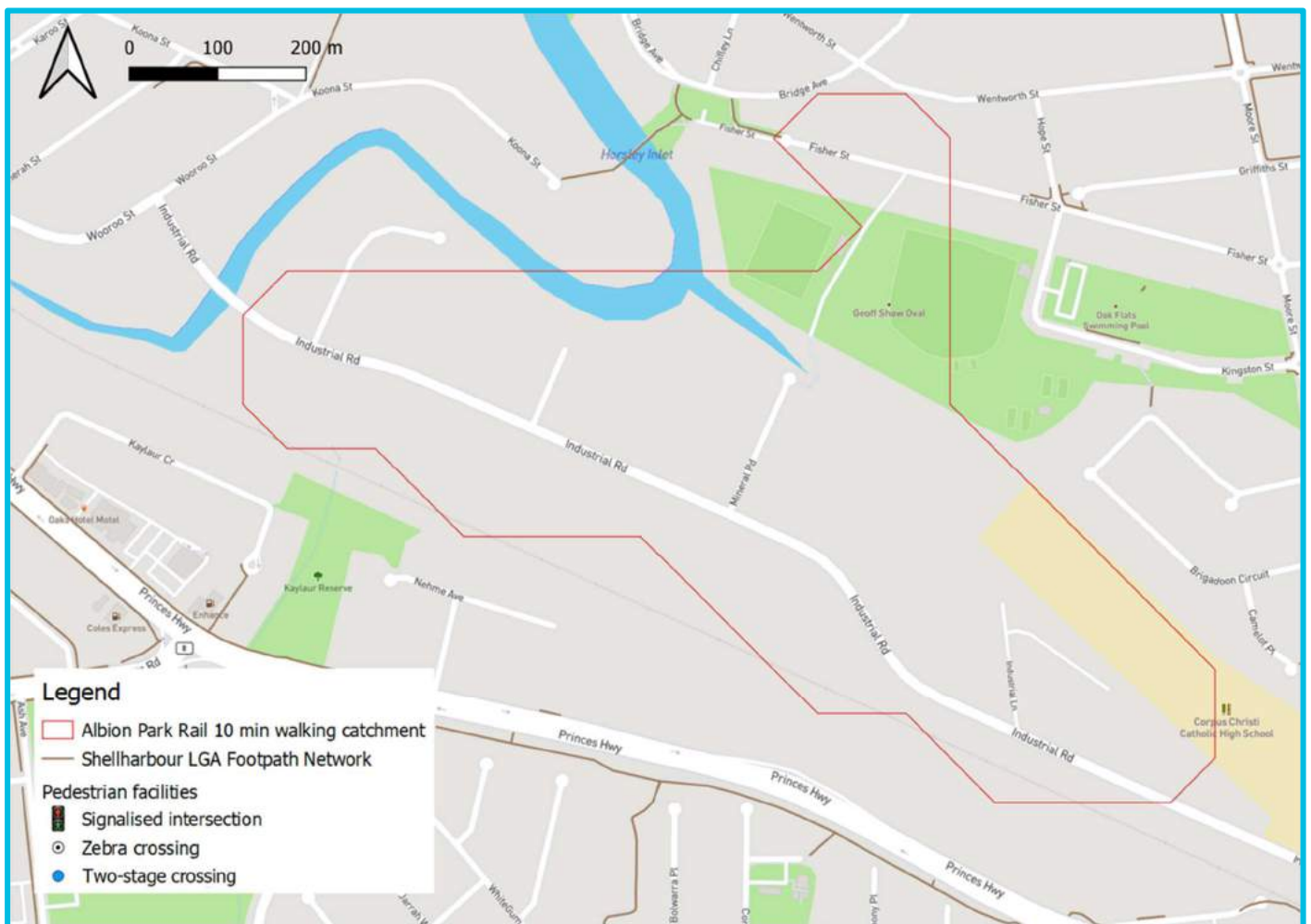
Oak Flats Industrial

The Oak Flats Industrial area has no pedestrian facilities within its 10-minute walking catchment area, making it difficult for pedestrians to access the businesses in the vicinity. The minimal crossing facilities or footpaths may lead to pedestrians undertaking unsafe movements.



▲ Industrial Road, Oak Flats

Source: Google Maps



▲ Approximate 10-minute walking catchment – Oak Flats Industrial

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

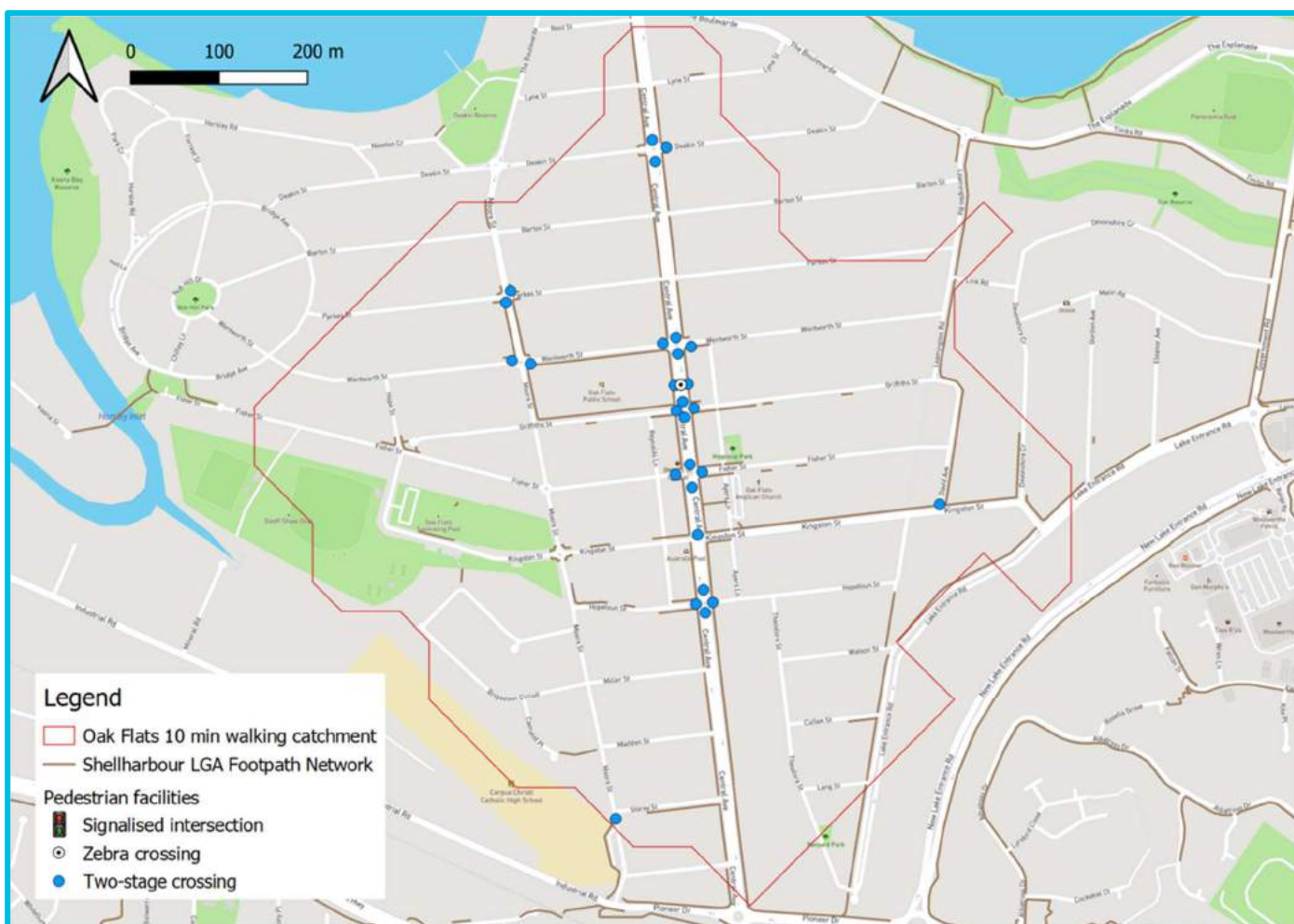
Oak Flats

Within the approximate 10-minute walking catchment, Oak Flats has a substantial number of two-stage crossings along Central Avenue, with some also provided on Moore Street. The area along Central Avenue is designated as a 40km/h High Pedestrian Activity Area (HPAA), with retail areas being the primary trip attractor. Central Avenue is a critical connection to the waterfront to the north and Oak Flats station to the south, highlighting the significance of pedestrian infrastructure in this area.



▲ Central Avenue, Oak Flats

Source: Real Commercial,
<https://www.realcommercial.com.au/sold/property-64-central-avenue-oak-flats-nsw-2529-500768711>



▲ Approximate 10-minute walking catchment – Oak Flats town centre

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

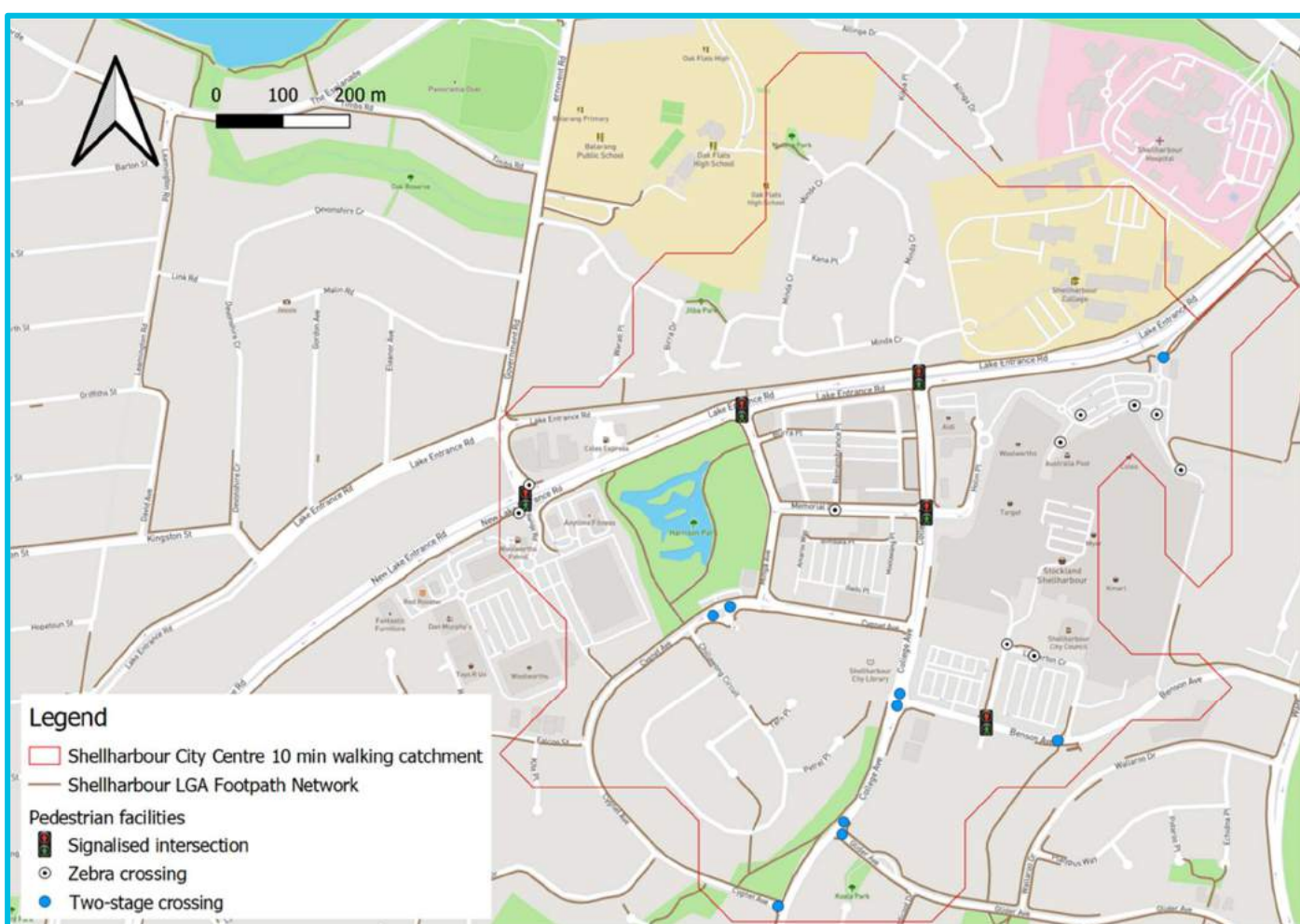
Shellharbour City Centre

The approximate Shellharbour City Centre 10-minute walking catchment features several signalised intersections to manage the high traffic volumes on Lake Entrance Road and College Avenue. Some two-stage crossings are provided along College Avenue, while a signalised crossing is located on Benson Avenue near the highly utilised off-street carparks. Zebra crossings are prevalent in the carparks, providing safe pedestrian access to the amenities in the town centre.



▲ Shellharbour Civic Centre

Source: Shellharbour City Council,
<https://www.shellharbourciviccentre.com.au/about/>



▲ Approximate 10-minute walking catchment – Shellharbour City Centre

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

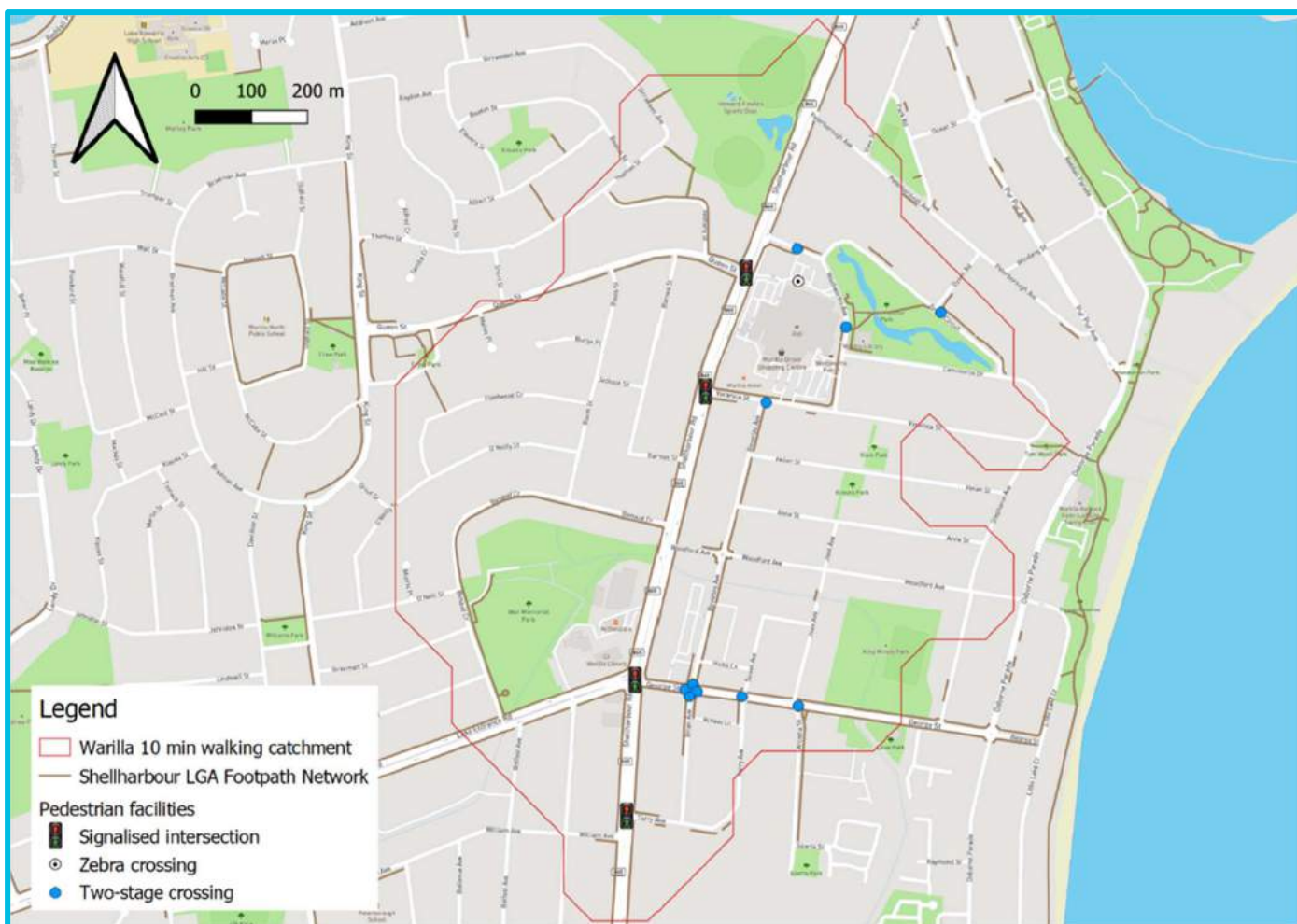
Warilla

Warilla's approximate 10-minute walking catchment features signalised intersections on Shellharbour Road to manage the high traffic volumes. Two-stage crossings and a zebra crossing are present around Warilla Grove Shopping Centre, which experiences high pedestrian activity. George Street, which accommodates moderate traffic volumes, also has two-stage crossings to improve pedestrian safety and accessibility.



▲ Warilla Beach

Source: VisitNSW,
<https://www.visitnsw.com/destinations/south-coast/shellharbour-area/shellharbour/destination-information/warilla>



▲ Approximate 10-minute walking catchment - Warilla

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

Shellharbour Village

Shellharbour Village's 10-minute walking catchment area includes two signalised intersections on Shellharbour Road to manage high traffic volumes. Multiple two-stage crossings are present along Addison Street, Wentworth Street, and Towns Street, which experience moderate pedestrian activity. Three zebra crossings are also located on Mary Street and Addison Street, providing safe crossing points for pedestrians and improving pedestrian accessibility in the area.



▲ Addison Road, Shellharbour Village



▲ Approximate 10-minute walking catchment – Shellharbour Village

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

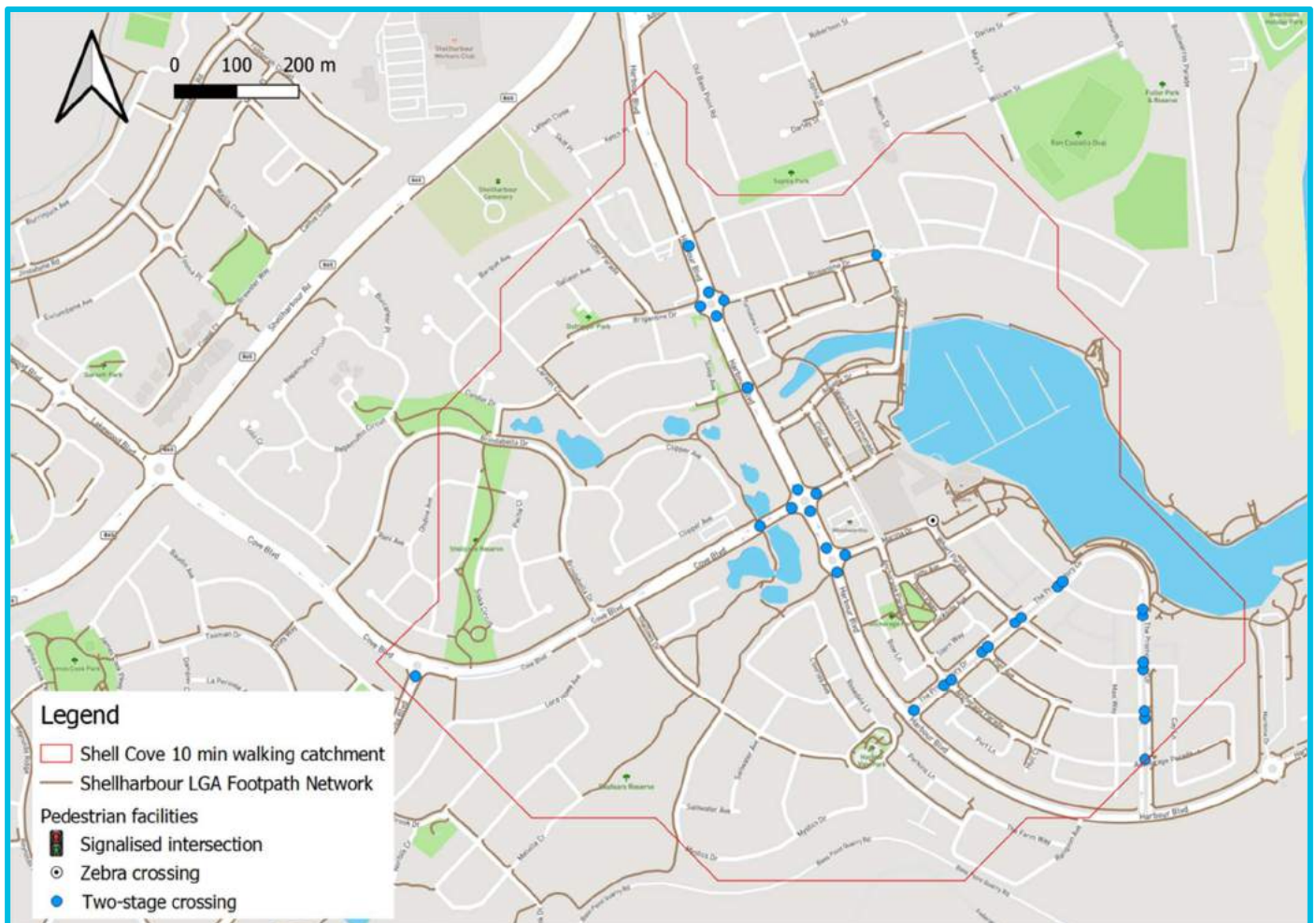
Shell Cove

Shell Cove's 10-minute walking catchment area features multiple two-stage crossings adjacent to the Warrigal Aged Care facilities on Harbour Boulevard, particularly at the roundabouts. The newly developed areas on The Promontory Drive leading to the waterfront also include two-stage crossings.



▲ Shell Cove Marina

Source: VisitNSW,;
<https://www.visitnsw.com/destinations/south-coast/shellharbour-area/shellharbour/attractions/the-waterfront-shell-cove>



▲ Approximate 10-minute walking catchment – Shell Cove town centre

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

Tullimbar

The approximate 10-minute walking catchment area around Tullimbar's future town centre has limited pedestrian facilities. This is limited to two-stage crossings commonly located at roundabouts. There are no signalised intersections or zebra crossings.



▲ Broughton Avenue, Tullimbar

Source: Google Maps,



▲ Approximate 10-minute walking catchment – Tullimbar town centre

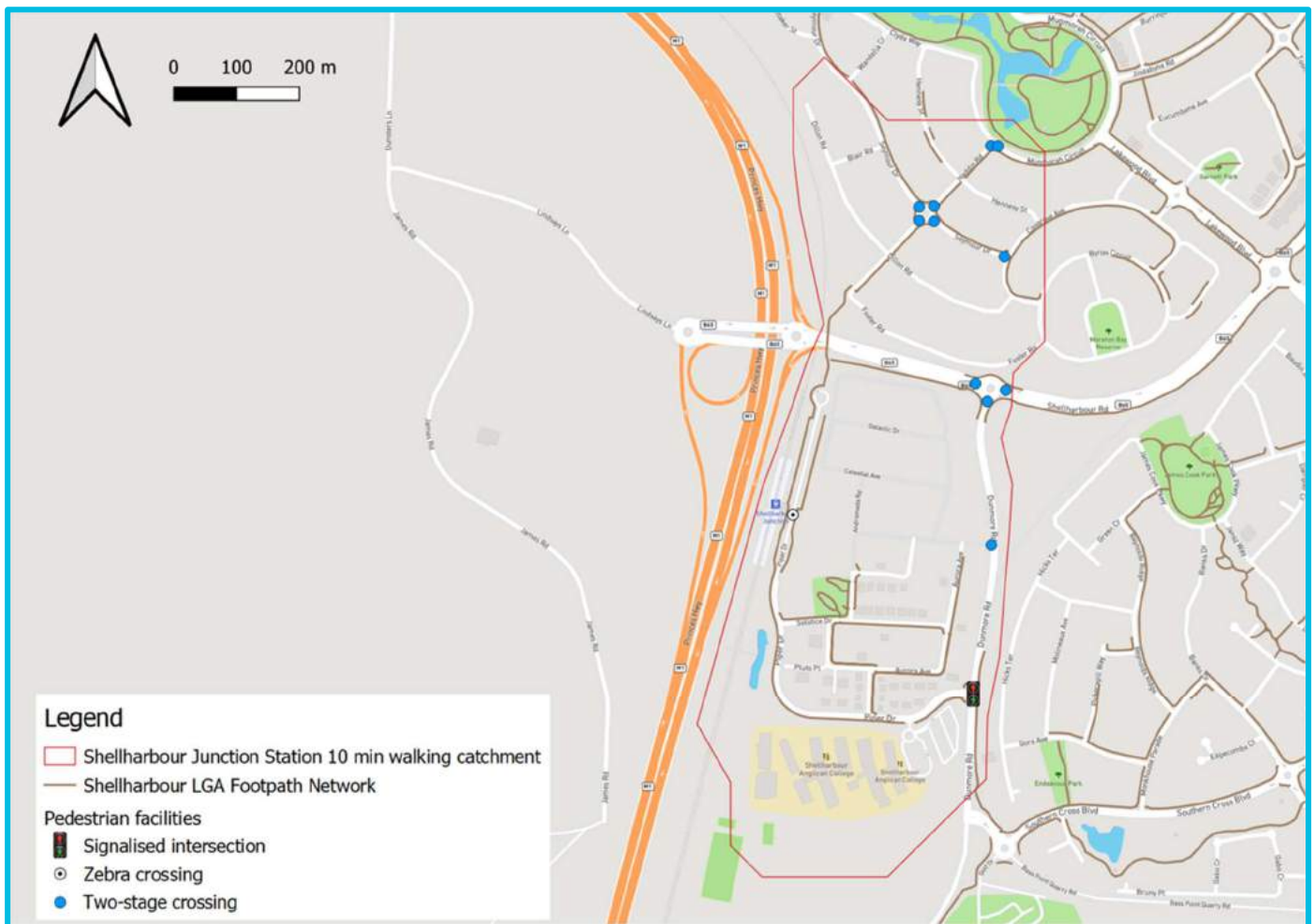
Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

Shellharbour Junction Station

Shellharbour Junction Station's approximate 10-minute walking catchment area only features pedestrian facilities to the east, with the Princes Motorway presenting a barrier to pedestrian movement towards the west. The catchment area includes Dunmore Road, which has one signalised intersection with Piper Street, near Shellharbour Anglican College.



▲ Shellharbour Junction Station



▲ Approximate 10-minute walking catchment - Shellharbour Junction station

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

Modal choice

Within the Shellharbour LGA, the largest share of modal travel to work was undertaken by car. According to 2016 census data, 92.4% of trips were undertaken in a car as either a driver or passenger. In terms of active transport, walking and cycling represented 1.93% and 0.3% of total work trips, respectively. This shows the overwhelming preference for private car usage within the area.

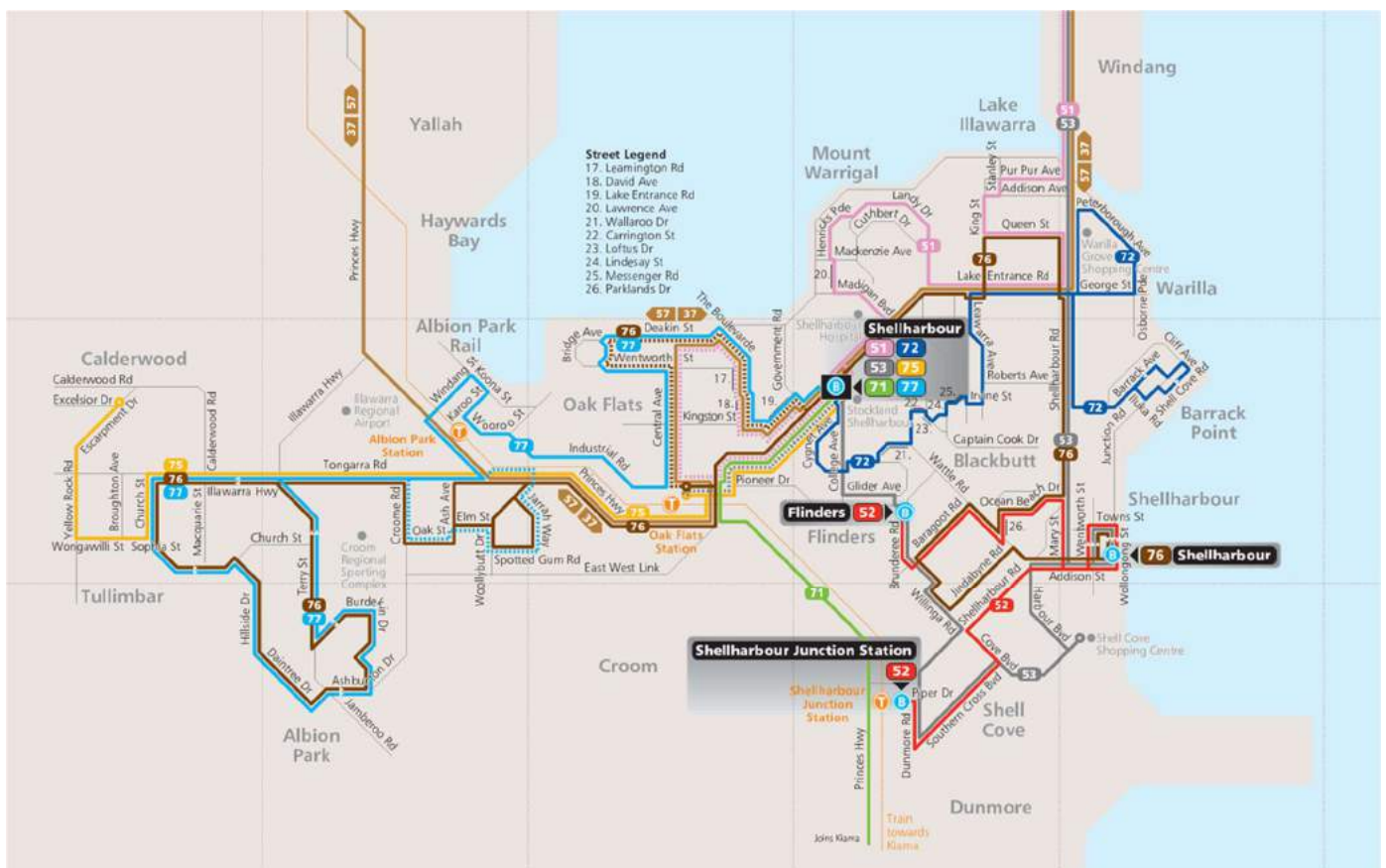
▼ Mode of travel to work (Source: 2016 ABS Census)

Mode of travel	Modal share
Car	92.40%
Train	1.93%
Walking	1.53%
Truck	1.24%
Bus	1.12%
Motorbike/scooter	0.43%
Taxi	0.41%
Bicycle	0.30%
Other	0.60%

Public transport

The Shellharbour public transport map highlights the network of bus routes operating within the area, in addition to the train line and three train stations (Albion Park, Oak Flats and Shellharbour Junction) that serve the area. Shellharbour City Centre is a major transportation hub, connecting multiple bus routes. There are limited bus services to the north towards Wollongong and south towards Kiama, with trains the predominant mode of transport for travel outside of the LGA.

▼ Public transport map – Shellharbour LGA Source: Wollongong and Shellharbour bus network map, 2023, <http://www.premierillawarra.com.au/pdf/guides/networkmap.pdf>



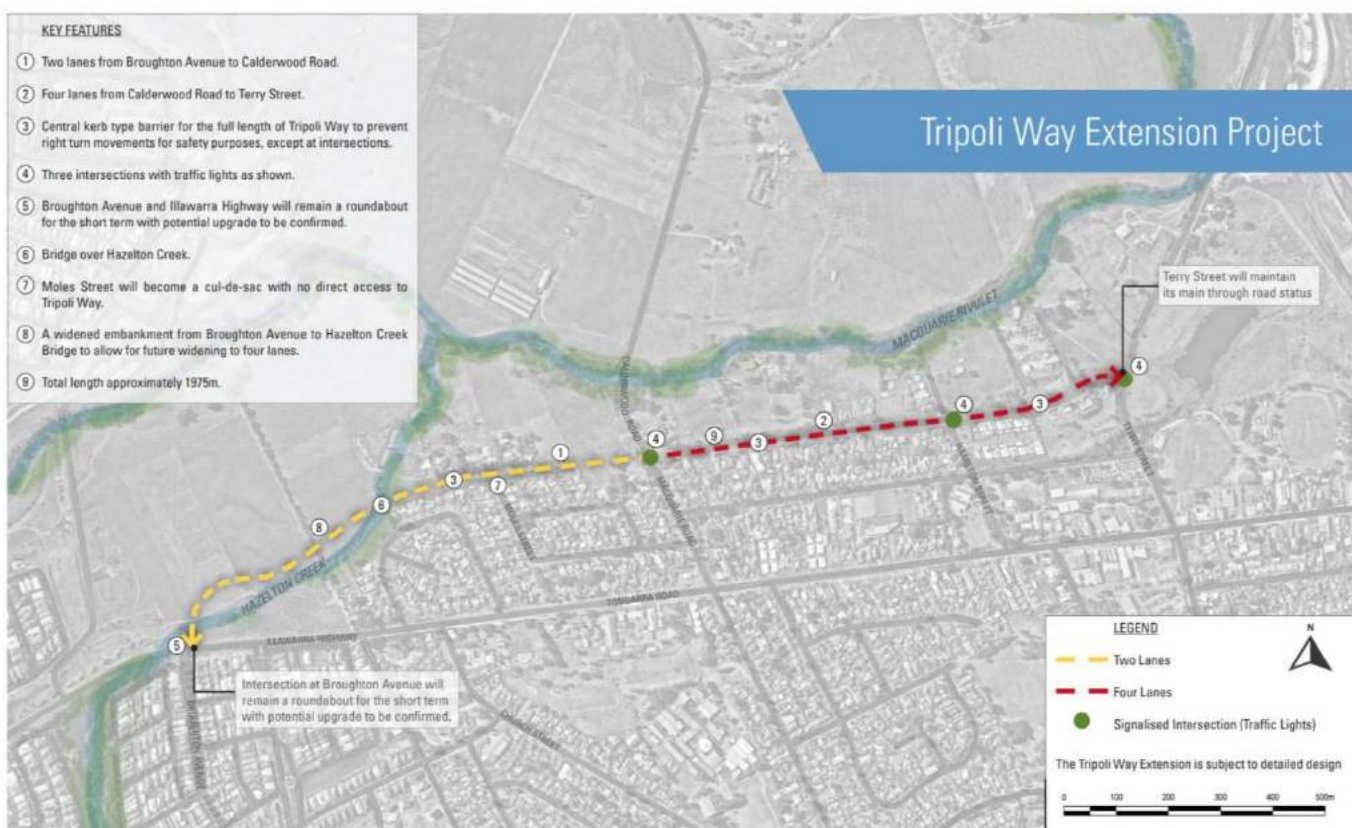
Future road projects

Tripoli Way (Albion Park bypass)

The proposed Tripoli Way Extension, also known as the Albion Park bypass, aims to reduce congestion in the town centre and improve place outcomes. The project involves extending, widening and upgrading the existing Tripoli Way and The Expressway to create a continuous travel route between Broughton Avenue in the west and Terry Street in the east, bypassing the Albion Park Town Centre. This strategic plan was identified by Council in 1961 as a means of managing future growth in the Calderwood and Tullimbar areas.

▼ Tripoli Way, Albion Park

Source: Wollongong and Shellharbour bus network map, <https://letschatshellharbour.com/tripoli-way-extension-project>



▲ Tripoli extension project location and features.

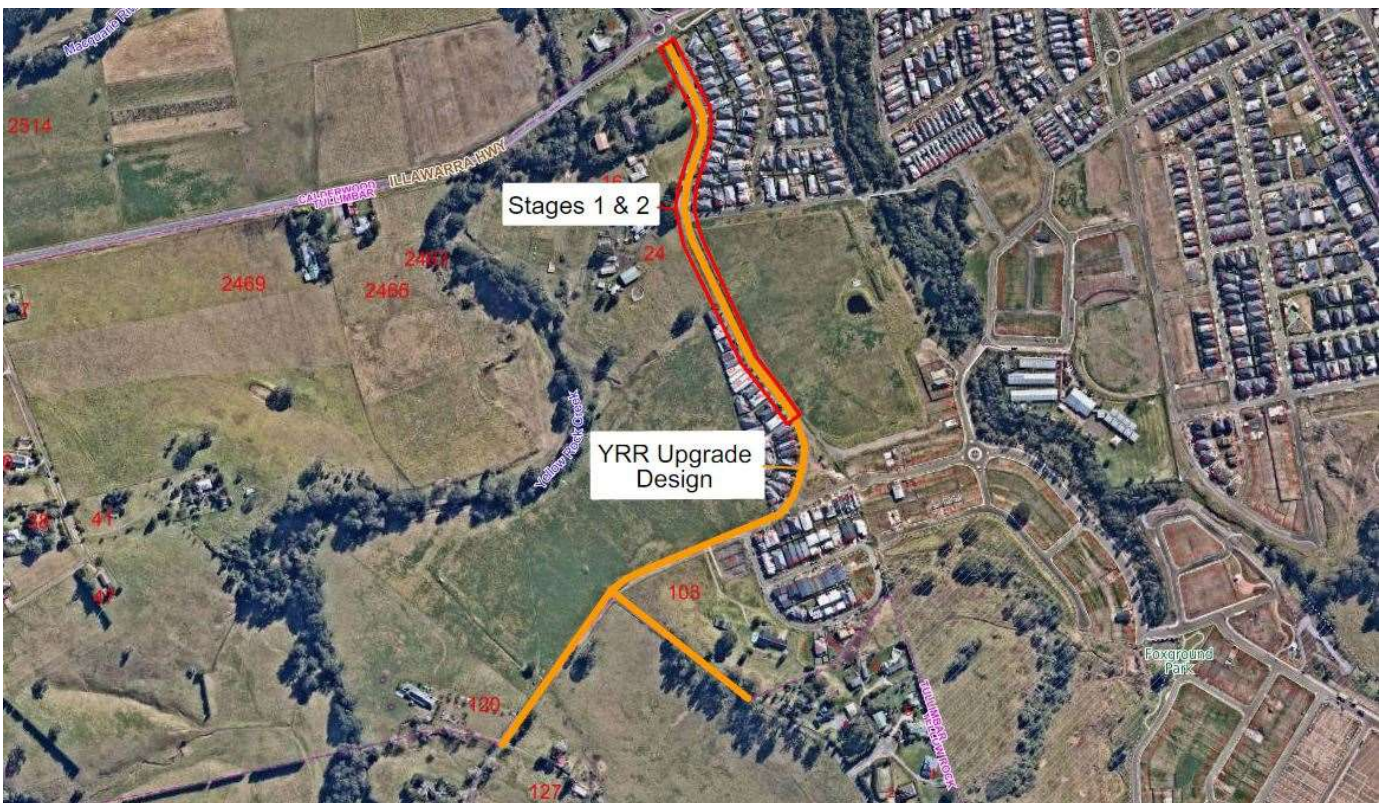
Source: Tripoli Way Extension Project, Let's Chat Shellharbour, Shellharbour City Council, <https://letschatshellharbour.com/tripoli-way-extension-project>

Yellow Rock Road

Yellow Rock Road (YRR), situated west of Albion Park and accessed via the Illawarra Highway, facilitates entry to numerous residences in the suburbs of Tullimbar and Yellow Rock. Originally constructed as a rural road to serve the rural properties in the area, YRR now requires an upgrade to meet the needs of the developing Tullimbar and its surroundings. To achieve this upgrade, YRR will be transformed into a collector

road that can cater to potential future development scenarios. The scope of the design covers the existing urban development and incorporates features such as:

- Upgraded travel lanes
- Improved on-street parking
- Shared path connections and crossing facilities
- Intersection upgrades
- Kerb and gutter stormwater drainage
- Line marking and signposting



▲ Proposed Yellow Rock Road upgrade location

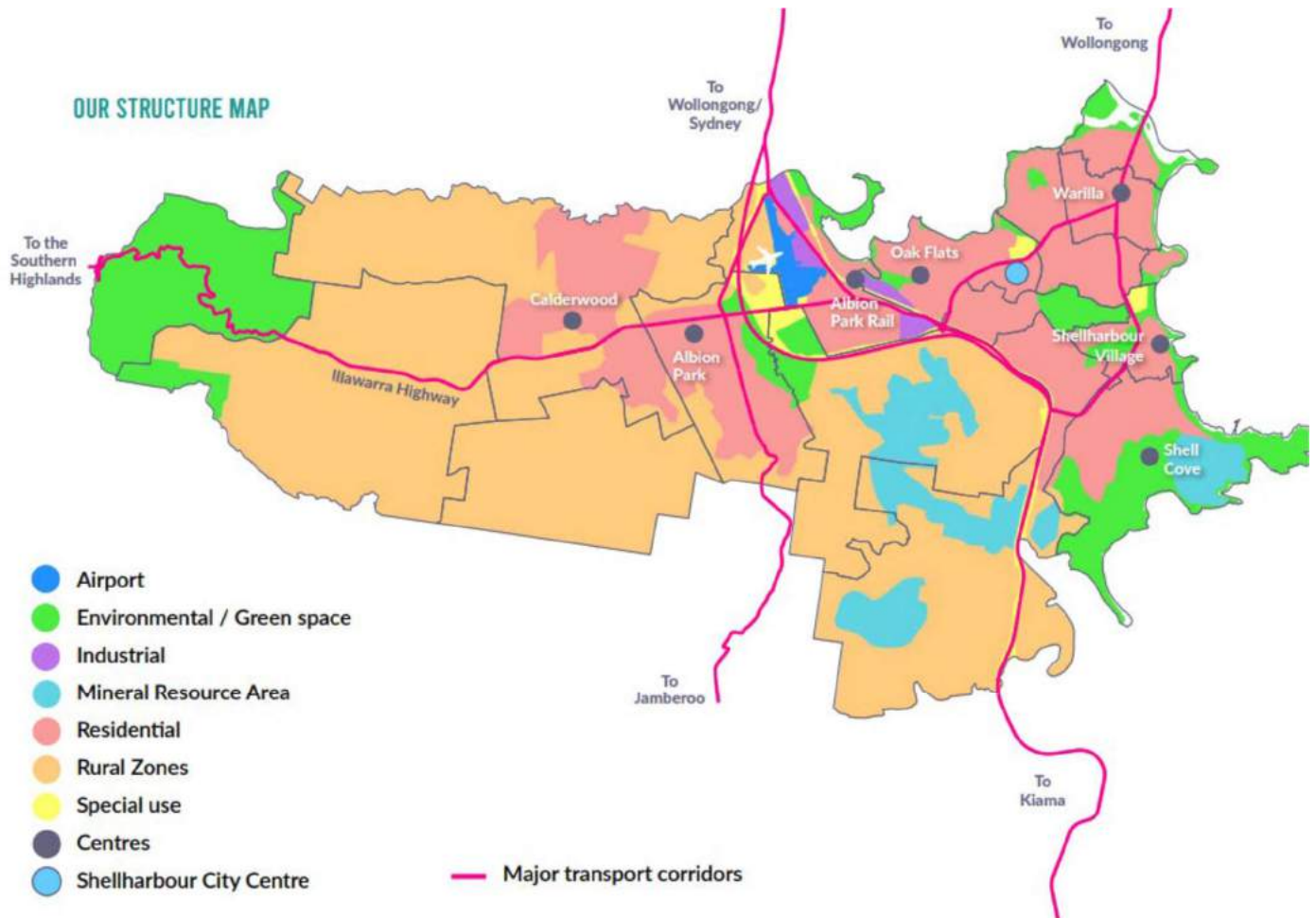
Source: Yellow Rock Road, Let's Chat Shellharbour, Shellharbour City Council, <https://letschatshellharbour.com/yellow-rock-road>

Land Use Context

The Shellharbour City Local Strategic Planning Statement (2022) highlights the variety of land uses within the LGA.

Residential areas are primarily located in the east and north, with a mix of detached and semi-detached dwellings, as well as some apartments. Rural areas are predominant around Albion Park, Calderwood, and the southern part of

the LGA. Mineral resource areas are located between Jamberoo Road and the M1, and around Shell Cove. Shellharbour Airport is situated in the northern part of the LGA. The western parts of the LGA are mainly reserved for environmental purposes and rural lands. The east includes waterfront areas, with the Croom Regional Sporting Complex situated centrally in the LGA.

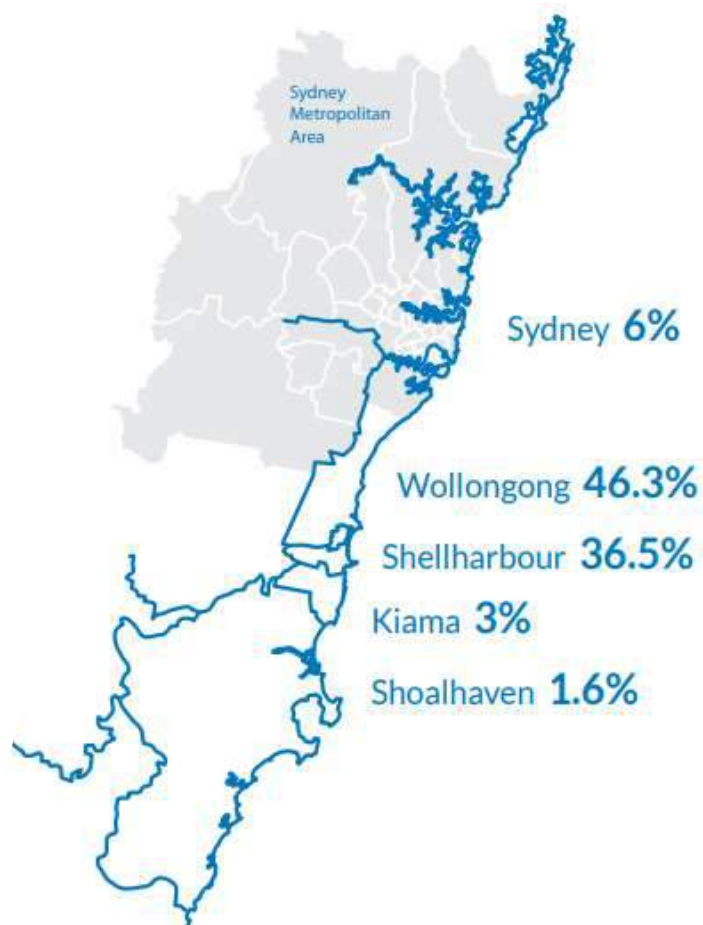


▲ Shellharbour Local Government Area land uses

Source: Shellharbour City LSPS, Shellharbour City Council 2022. Page 16, https://cdn.shellharbour.nsw.gov.au/sites/default/files/Plan_and_build_documents/Adopted_Local_Strategic_Planning_Statement_June_2022.pdf

Employment

According to the Shellharbour City Local Strategic Planning Statement (2022), the location of employment for Shellharbour residents is primarily in the Wollongong LGA (46.3% of workers) or Shellharbour LGA (36.5% of workers). The high proportion of work trips outside of Shellharbour shows that active transport alone would be infeasible for work-related travel, with the greater distance of movement between LGAs difficult for walking and cycling. This demonstrates the importance of good active transport connections to public transport such as the rail network as a means of increasing the mode share of sustainable transport.



▲ Share of employment location for Shellharbour LGA residents

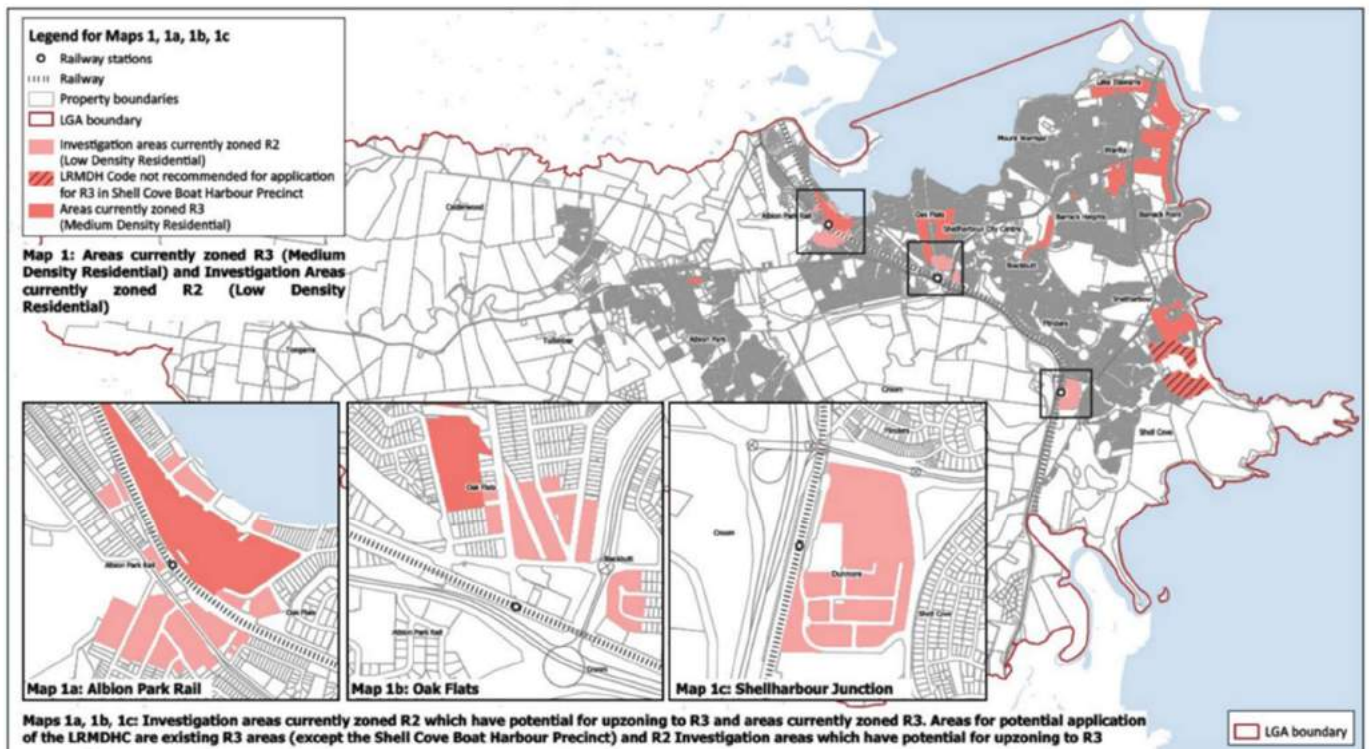
Source: Shellharbour City LSPS, Shellharbour City Council 2022. Figure 6, page 66, https://cdn.shellharbour.nsw.gov.au/sites/default/files/Plan_and_build_documents/Adopted_Local_Strategic_Planning_Statement_June_2022.pdf

Future growth

The Shellharbour City Local Strategic Planning Statement (2022) highlights areas for potential upzoning and development within the LGA. It identifies investigation areas currently zoned R2 (low density residential) in Albion Park Rail, Oak Flats and Dunmore, indicating potential for higher density development in these areas. The map also shows opportunities for development along the rail corridor adjacent to the three train stations (Albion

Park, Oak Flats and Shellharbour Junction), encouraging transit-oriented development. Additionally, areas currently zoned R3 (medium density development) along the coast at Warilla and in town centres such as Oak Flats and Albion Park Rail are identified as suitable for further development. The map does not include future developments in Calderwood and Tullimbar, as these areas are designated for new development rather than upzoning to higher density residential.

Figure 2 - Areas for potential upzoning*



4 PSA Consulting (2019) Shellharbour City Local Housing Strategy

▲ Areas for potential upzoning Source: Shellharbour Local Strategic Planning Statement

Source: Shellharbour City LSPS, Shellharbour City Council 2022. Figure 2 page 27, https://cdn.shellharbour.nsw.gov.au/sites/default/files/Plan_and_build_documents/Adopted_Local_Strategic_Planning_Statement_June_2022.pdf

5 Understanding the relationship between road safety and active transport in Shellharbour

Active transport users are often referred to as 'vulnerable' road users. This is because they have little protection, particularly in the event that they are involved in a crash with motorised forms of transport. This section identifies high risk locations for active transport users across Shellharbour, through an analysis of crash statistics, general vehicle speed limits and the behavioural characteristics of active transport users.

Crash statistics

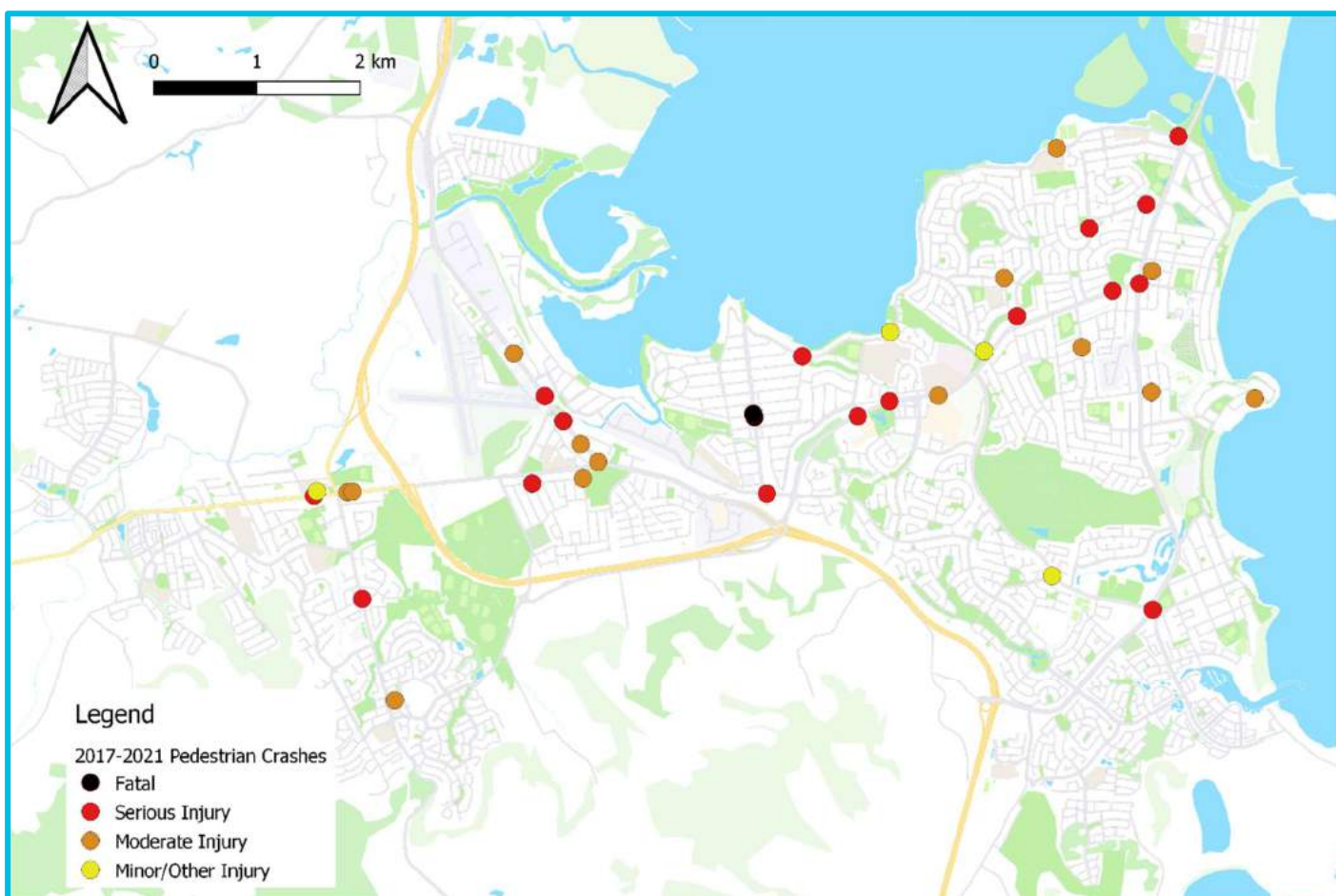
Pedestrian crashes

The map below shows the location and severity of pedestrian crashes that occurred between 2017 and 2021. During this period, there were two fatal pedestrian crashes, 16 serious pedestrian crashes, 14 moderate pedestrian crashes, and three minor or other injury pedestrian crashes.

The two pedestrian fatalities occurred in the Oak Flats town centre, highlighting the need for improved safety measures in this area. The map also reveals clusters of pedestrian injuries along Tongarra Road at Albion Park and Princes Highway at Albion Park Rail. These clusters suggest that certain areas of the LGA are more prone to pedestrian crashes and may require additional safety measures to reduce the risk of future incidents.

The severity of crashes varied, with the majority of crashes resulting in moderate or minor injuries. However, the number of serious and fatal crashes emphasises the need for improved safety measures for pedestrians in the LGA.

▼ 2017-2021 Shellharbour Pedestrian Crashes
Source: TfNSW Centre for Road Safety



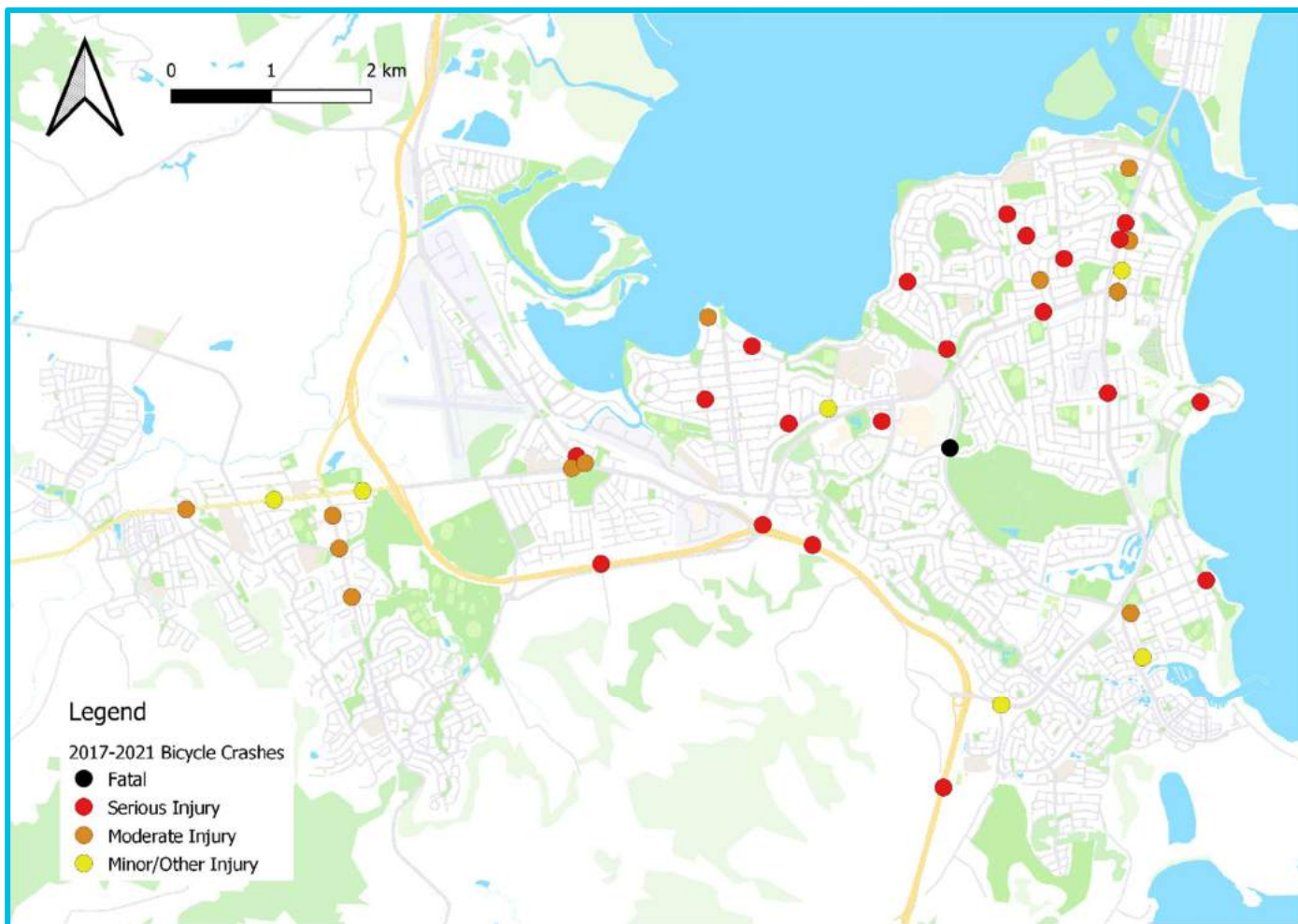
Bicycle crashes

The map below shows the location and severity of bicycle crashes that occurred between 2017 and 2021. The map indicates one fatal bicycle crash near Wattle Road. Additionally, there were 20 serious crashes, 12 moderate crashes, and six minor or other injury crashes during this period.

Compared to pedestrian crashes, the map shows that there were similar locations for crashes, such

as in Albion Park Rail and Albion Park, but a higher density of bicycle crashes in the Warilla area.

The severity of the bicycle crashes varied, with the majority of crashes resulting in serious or moderate injuries. Similar to pedestrian crashes, the number of serious bicycle crashes highlights the need for investigation into the benefits of improved safety measures for cyclists in the LGA.



▲ 2017-2021 Shellharbour Bicycle Crashes

Source: TfNSW Centre for Road Safety

Motor vehicle speed limits

The majority of suburban streets in the LGA have a speed limit of 50 km/h, indicating that these roads are primarily designed to accommodate local traffic and ensure the safety of pedestrians and cyclists.

However, some roads linking key attractors in the LGA have higher speed limits of 60 or 70 km/h, such as Lake Entrance Road, Wattle Road and Shellharbour Road through Warilla. These roads are designed to provide a connection between different destinations in the area and accommodate higher traffic volumes. While the speed limits are higher, it is important to note that these roads may still have pedestrian crossings and

cycle lanes, so drivers would need to exercise caution.

The Princes Motorway and some arterial roads such as Shellharbour Road near Shellharbour Village have a speed limit of 80 to 100 km/h. These roads are designed to provide a connection between different regions and are typically located away from residential areas.

The 10 to 40 km/h speed limits are typically found in HPAs such as Oak Flats town centre, Shellharbour Village town centre and waterfront areas along Lake Illawarra such as The Esplanade adjacent to Panorama Oval and Oak Flats High School.



▲ Speed limits within the Shellharbour LGA

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

Behavioural characteristics of active transport users

Barriers to active transport

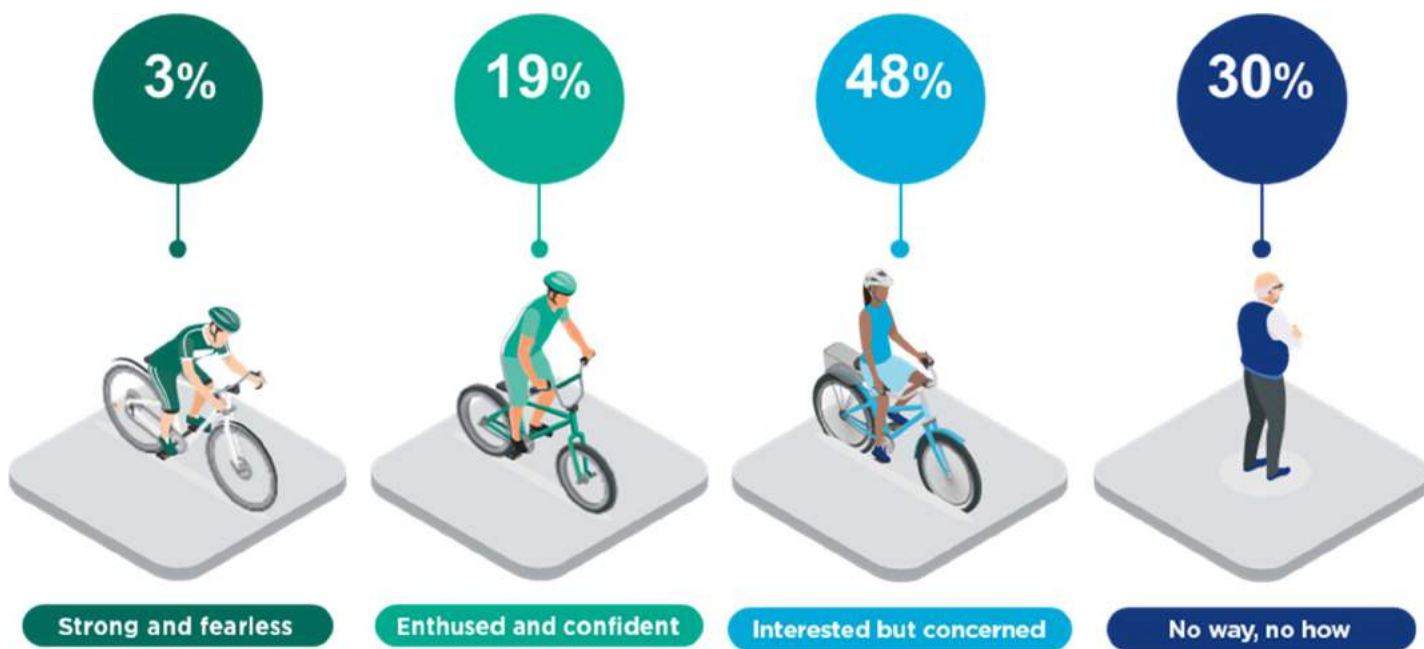
Research and user preference surveys conducted in NSW highlight fear around safety and vulnerability as one of the most common reasons why people avoid active transport.

Research findings show that the perception of safety varies considerably by the type of facility. In general, the higher the level of separation from motorists and other road users, the safer active transport users will feel when using the facility.

The Shellharbour Active Transport Strategy aims to overcome these barriers by introducing strategies and actions to encourage more people in the Shellharbour LGA to walk, ride, or scoot for multiple journey purposes.

In Shellharbour, the bicycle network is largely comprised of shared use paths and some road shoulder lanes. These facilities require cyclists to share space with pedestrians, as well as traffic and parked cars. The existing facilities that are located alongside traffic lanes would only appeal to confident cyclists, whilst shared use paths are not appropriate where there is a high level of friction with pedestrians and other path users.

The primary community of riders comprises individuals who identify as “interested but concerned.” This group constitutes approximately 48 percent of the general population and represents individuals who have the potential to increase their cycling frequency.



▲ Categories of cyclists

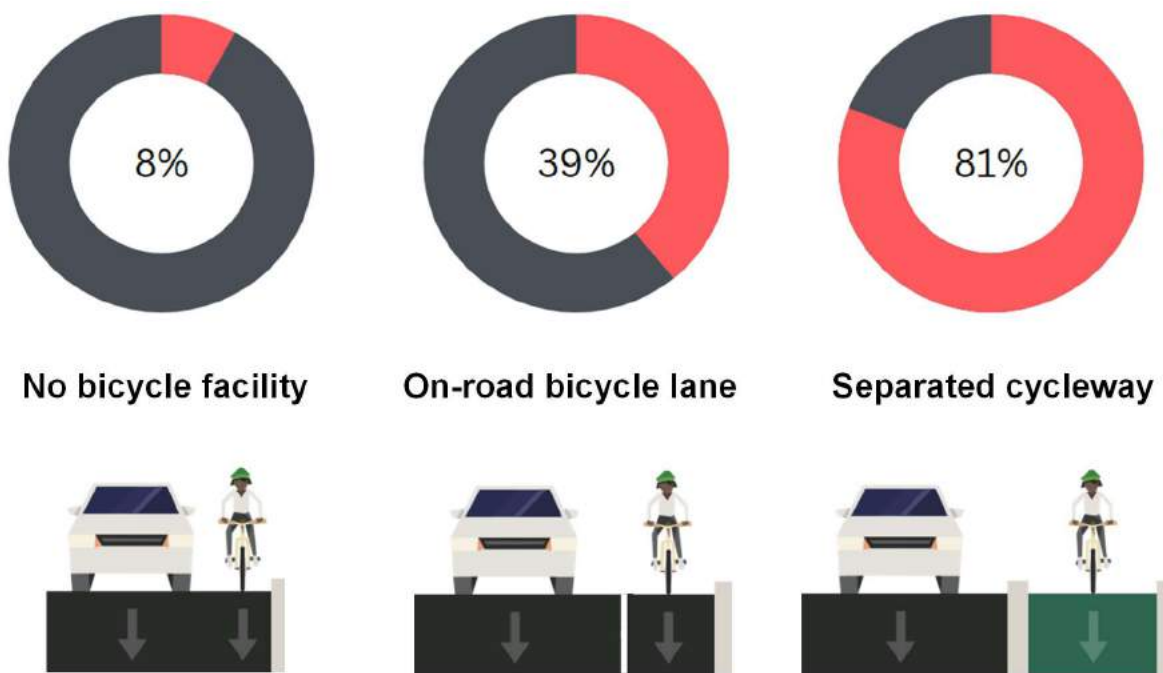
Source: Extracted from the Cycleway Design Toolbox, TfNSW



The willingness of this group to engage in cycling is primarily influenced by the quality of the available bicycle facilities and the perceived level of personal safety associated with them. The percentage of “interested but concerned” who are comfortable with cycling dramatically increases in line with separation from vehicles.

To tackle this issue, Council proposes to invest more in making Shellharbour’s streets safe and

attractive for people walking and riding. This includes introducing separated bicycle facilities and improving existing infrastructure to reduce conflicts. By addressing the barriers to cycling, Council will create a more bike-friendly environment within Shellharbour and increase the number of people who choose to ride for their daily travel needs.



▲ Levels of cycling comfort by infrastructure of the “interested but concerned”

Source: Data from NACTO (2016), graphics from Canva and Streetmix

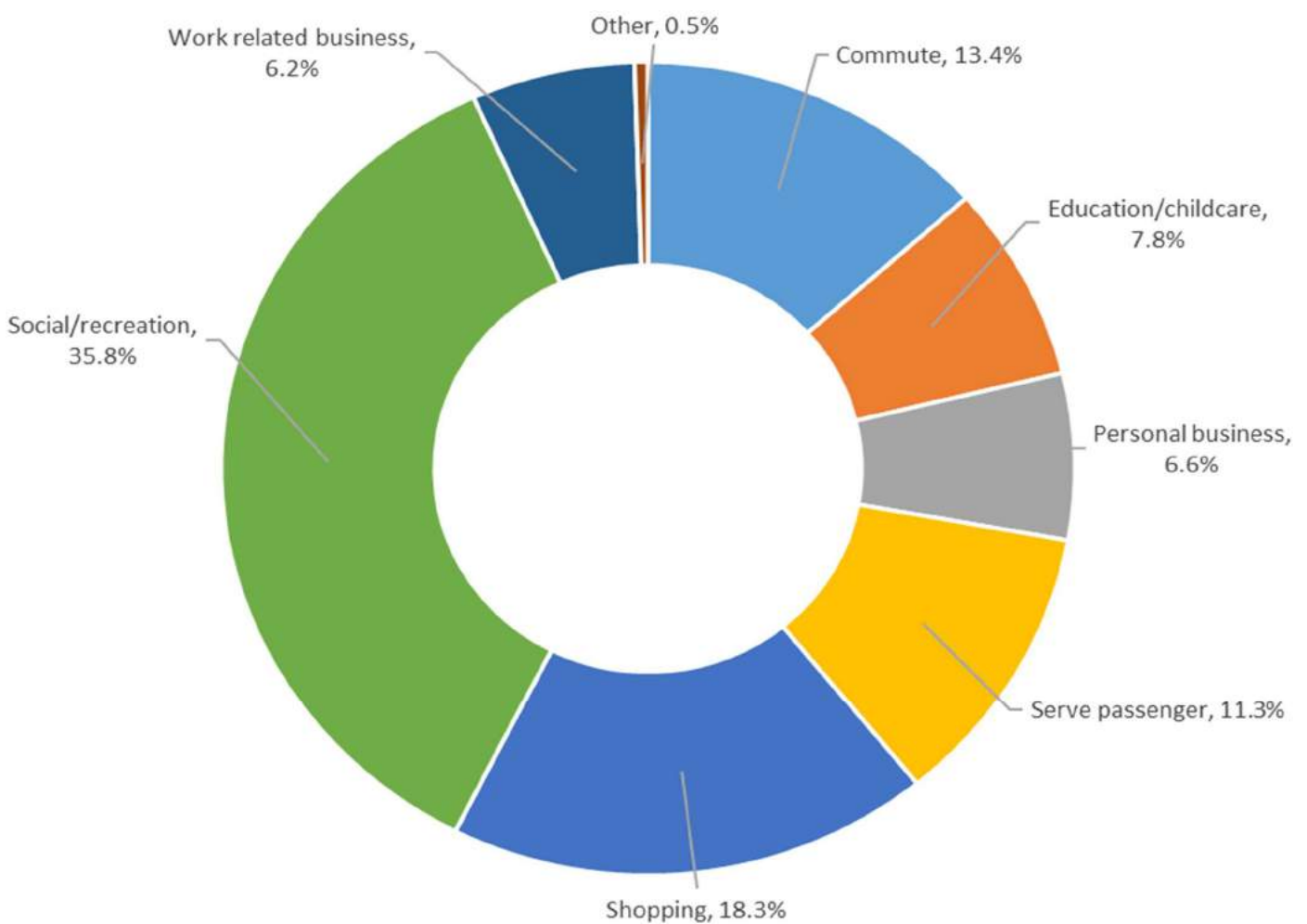


Potential for growth in active transport use

The Shellharbour LGA has multiple centres located throughout the region. These centres offer various local amenities, such as shops, cafes, community centres and parks. The presence of these centres and their proximity to residential areas presents an opportunity to connect people to these amenities through shorter trips.

The two largest trip purposes within Shellharbour are social/recreation and shopping. These activities are typically undertaken in local centres.

The COVID-19 pandemic has brought significant changes to the way people work and shop. With more people working from home, there has been a significant reduction in commuter trips to city centres such as Wollongong and Sydney. As a result, local shopping centres have experienced increased foot traffic as residents look for convenient options closer to home.



▲ Share of total trips by different purposes of travel within Shellharbour LGA 2019/20

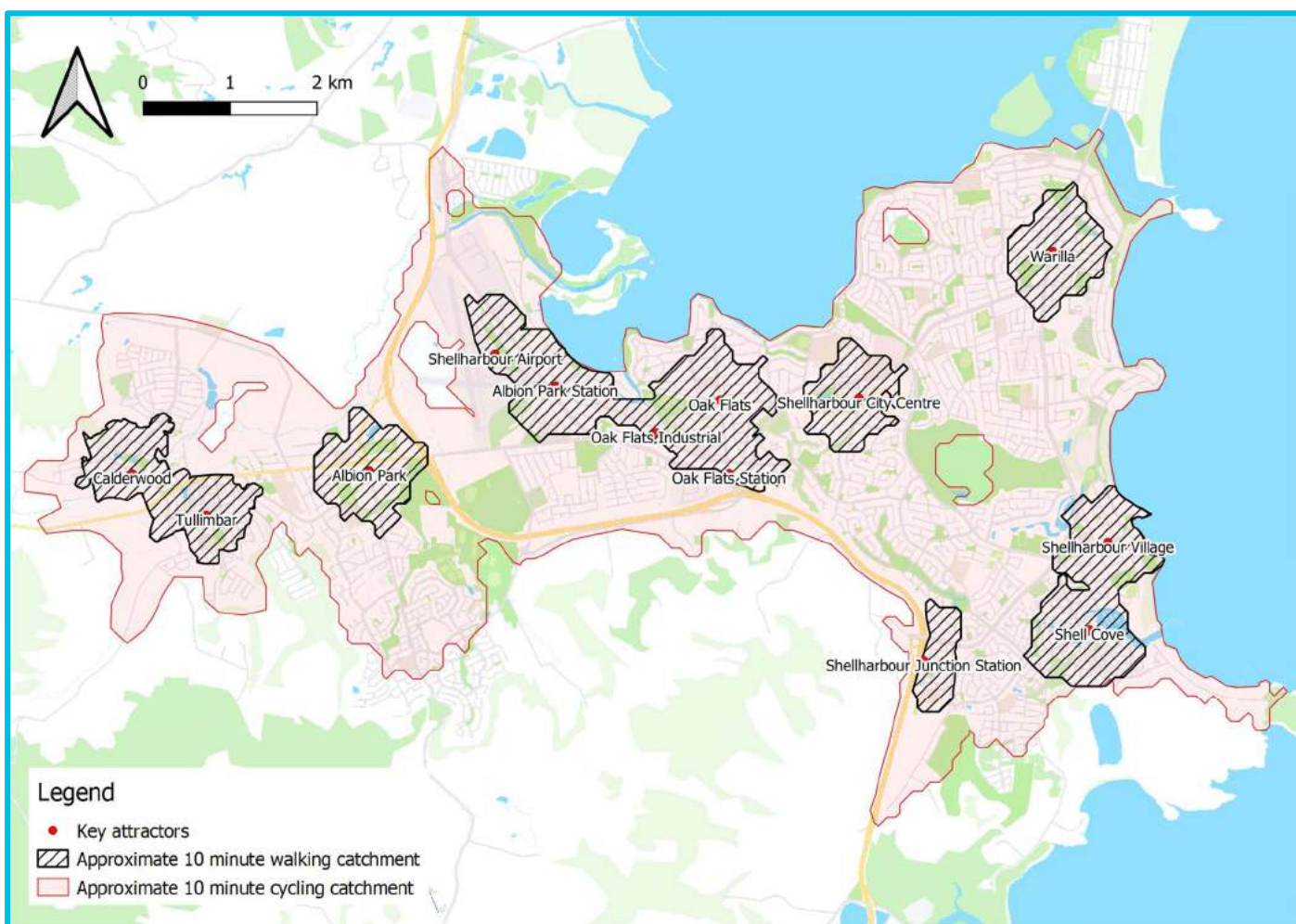
Source: NSW Household Travel Survey – Data by LGA (2016/17 – 2019/20)

Promoting active transport for these shorter trips can reduce the reliance on private cars and encourage the use of sustainable transportation modes such as walking and cycling. This approach would facilitate a reduction in traffic congestion, improve air quality and create a more vibrant and active community.

There are significant size differences in the 10-minute catchments for walking and cycling in the LGA. The proportion of residential areas covered by these catchments is important as it indicates

where cycling is a more efficient mode of active transport (compared to walking) for accessing destinations. Cycling can be an effective way for residents to connect to shopping and social/recreation trips as these destinations can often be located outside of the smaller walking catchments.

By investing in infrastructure and policies that support active transport, particularly cycling, more people will be able to make use of active transport by expanding the size of such catchments.



▲ 10-minute active transport travel areas

Source: Mapbox, Esri QGIS Mapping Software, TravelTime Platform (QGIS Plugin)



6 Deficiencies across the active transport network

This section outlines the current deficiencies in the active transport network, gathered through consultation with user groups, government and other stakeholders. The deficiencies are not presented in a particular order and are prioritised later in the strategy.

Poor standard of kerb ramps

The quality of kerb ramps was identified by user groups as a cause for concern. According to Australian Standards, kerb ramps should be 2m wide and 1m deep, ensuring safe and efficient access for everyone.

Several kerb ramps in Shellharbour LGA do not meet this standard, which poses a risk for people with mobility impairments. Some ramps are too narrow or too steep, making it difficult for users to access the path safely.

Poor Shared Use Path markings

A large portion of shared use paths have poor markings that present a safety risk for cyclists and pedestrians. The map below shows the locations where pavement markings are inadequate within the LGA.



▲ Koono Street at Karoo Street, Albion Park Rail

Source: MetroMap



▲ Corner of George Street and Osborne Parade, Warilla

Source: MetroMap



▲ Shellharbour LGA Shared Use Paths

Source: Mapbox, Esri QGIS Mapping Software, MetroMap

At some locations, pavement markings on the are either faded, damaged, or non-existent. This may create confusion among users, increase safety risk, or deter some users from using the paths. Adequate markings should be clear, durable and visible to all users.



Lane colouring (Dunmore Road, Dunmore)



Delineated right of way (Croome Road, Croom)



Signage (Escarpment Drive and Oak Farm Road, Calderwood)



Regular path markings (Junction Road, Shellharbour)

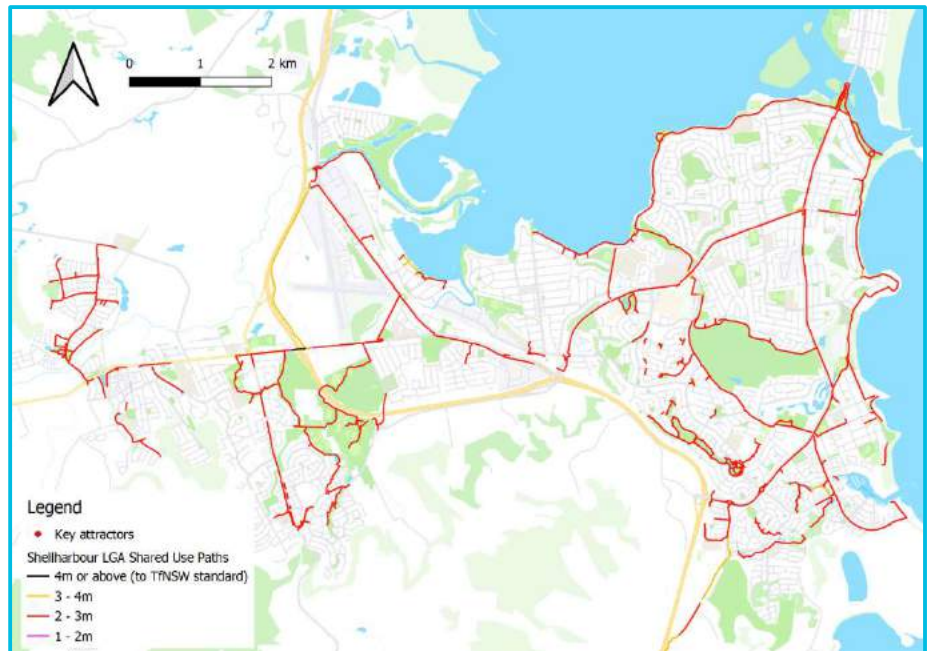
▲ Shellharbour LGA shared use paths marking and signage

Source: MetroMap



Inconsistency with TfNSW guidelines

According to the TfNSW Cycleway Design Toolbox, a minimum 4m width is recommended for shared use paths. However, most shared use paths within the Shellharbour LGA are only 2-3m wide. Although few paths meet these guidelines, the low volume of users on these links may negate the need for 4m of width on the majority of these paths. The current width of paths can be attributed to a variety of factors such as verge widths and adjacent greenery.



▲ Shellharbour LGA shared use path widths

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council, MetroMap

Areas Lacking Footpaths

Some areas within the Shellharbour LGA have limited footpath facilities, particularly in Albion Park, Albion Park Rail and Warilla. At these locations, some roads do not have footpaths or only have a footpath on one side of the road, which can pose challenges for pedestrians, especially those with mobility issues or those traveling with children.



▲ Shellharbour Footpath Network in Albion Park, Albion Park Rail and Warilla

Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

Missing link in the 'around the lake' cycleway

As outlined in community consultation, connections to Wollongong LGA are desired in the future network. A part of this integration includes a potential "around the lake" cycleway, driving connections for travel to the east at Windang Bridge and west across the Macquarie Rivulet.

Shared paths along the waterfront at Albion Park Rail are currently disconnected to Oak Flats and the Macquarie Rivulet. This hinders the cycleway that would connect to Wollongong LGA in the east and west.



▲ Shellharbour LGA Bicycle Network Missing Link around the Bay

Source: Mapbox, Esri QGIS Mapping Software'

Poor Infrastructure on Shellharbour Road

Poor infrastructure on Shellharbour Road makes it challenging for cyclists to navigate the area safely. The northbound bicycle shoulder lane suddenly ends and becomes an 80km/h vehicle lane before the Wattle Road intersection to the north, forcing cyclists to merge with high-speed traffic.



▲ Inadequate markings on the shared use path and drop of cycle shoulder

Source: MetroMap

On-road cycle markings on the shoulder are also faded, which can be confusing for both cyclists and drivers, leading to a potential increase in safety risks for all road users.



▲ Old road markings on shoulder are fading

Source: MetroMap

Inadequate road shoulders on Jamberoo Road

Jamberoo Road presents a problem for cyclists due to its inadequate road shoulders. The road is inconsistent in width, with some sections having only a narrow strip of pavement between the edge of the travel lane and the roadside table drain. This reduces the available space for cyclists to ride and may result in a smaller gap between cyclists and vehicles travelling on the road.

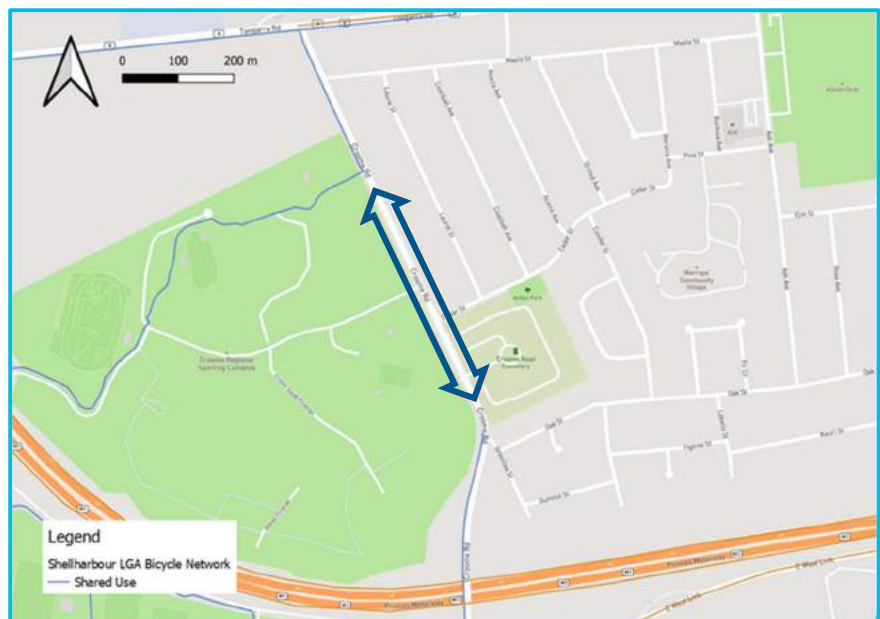


▲ Jamberoo Road aerial shot and road perspective

Source: MetroMap

Incomplete bicycle path along Croome Road

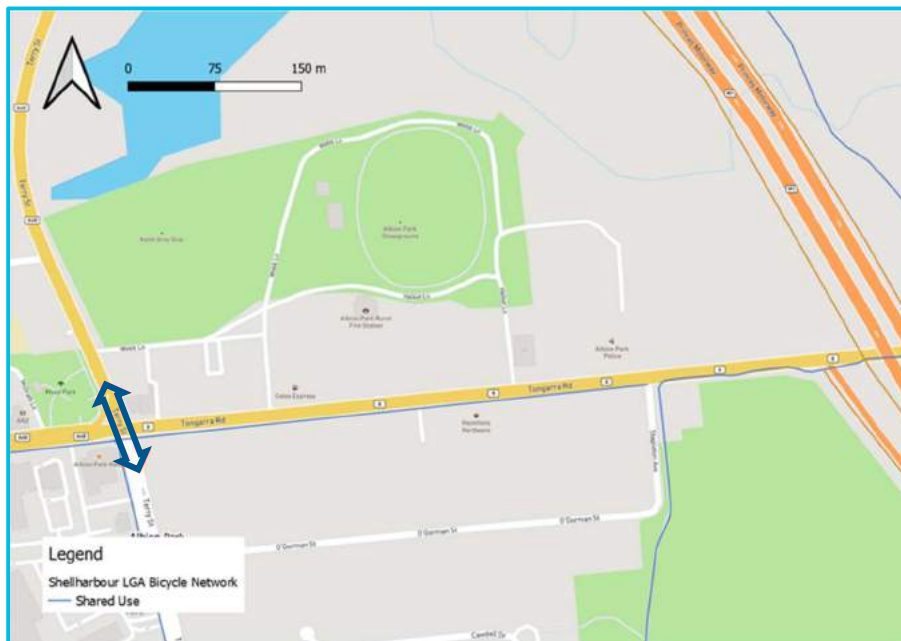
The incomplete bicycle path along Croome Road prevents safe and easy access for those travelling between Albion Park and the Croom Regional Sporting Complex, located south of the Princes Motorway. Safety risks would increase on Croome Road where cyclists are required to mix with general traffic.



▲ Incomplete Bicycle Path along Croome Road

Missing shared path link along the north side of Tongarra Road to Albion Park Showground

The missing link of a shared path along the north side of Tongarra Road to Albion Park Showground poses north-south accessibility issues. With the existing shared use path located on the south side of Tongarra Road, users may find it challenging to access the showground from the north. Currently, the Tongarra Road/Terry Street intersection provides the only available north-south crossing point in the vicinity.



▲ Missing Link of shared use path along the north side of Tongarra Road to Albion Park Showground

Source: Mapbox, Esri QGIS Mapping Software

No access on Hargraves Avenue



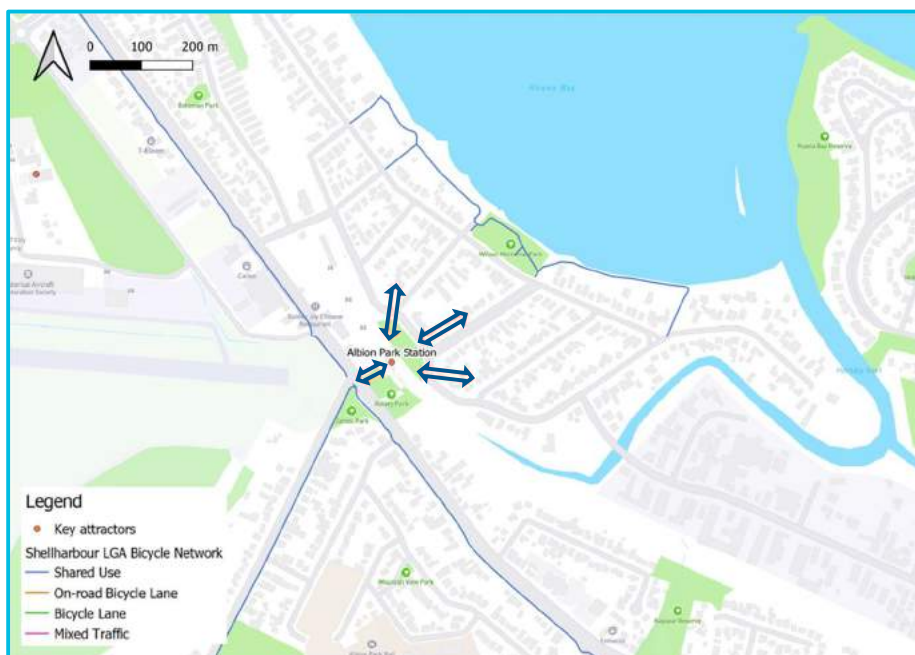
▲ No access to Princes Highway from Hargraves Avenue

Source: MetroMap

Cyclists travelling southbound using Poplar Avenue and then Hargraves Avenue to avoid the Princes Highway are unable to rejoin the network further south due to the one-way road. The footpath to the south of Hargraves Avenue is not wide enough to accommodate both pedestrians and cyclists.

Inadequate access to Albion Park Station

Albion Park Station is currently disconnected to shared use paths, which may make it difficult for pedestrians and cyclists to travel to and from the station safely. Access issues are more pronounced to north of the station where provision of pedestrian and cyclist infrastructure is limited.



▲ Inadequate access to Albion Park station

Source: Mapbox, Esri QGIS Mapping Software

Inadequate safe bicycle access to Shellharbour City Centre

Although the network has shared use paths to the north and east, these paths do not connect through the centre, which may increase safety risks for cyclists wishing to travel to or from the city centre.



▲ Inadequate safe bicycle access to Shellharbour City Centre

Source: Mapbox, Esri QGIS Mapping Software,

No path between Killalea Reserve and Buckleys Road

Killalea Reserve, a popular destination for outdoor activities, is located south of Shell Cove and has limited access for active transport. The absence of dedicated paths connecting the reserve to nearby areas makes it difficult for visitors to access the reserve without a vehicle, reducing accessibility of the area. Additionally, shared paths to the north of the reserve have limited connectivity.



▲ No paths between Killalea Reserve and Buckleys Road

Source: Mapbox, Esri QGIS Mapping Software

No safe bicycle connection between Mornington Circuit and Dunmore Road



▲ No bicycle safe connection between Mornington Circuit and Dunmore Road

Source: Mapbox, Esri QGIS Mapping Software

Although shared use paths exist on both Dunmore Road and Mornington Circuit, the paths on each road end 135m apart, resulting in cyclists requiring to mix with vehicles on the road to continue their journey, increasing potential safety risks.

Narrow Shared Use Path between Windang Bridge and Reddall Parade

The narrow shared use path between Windang Bridge and Reddall Parade in Lake Illawarra is a significant issue for cyclists using the 'around the lake' route. In particular, the section of the path under Windang Bridge is adjacent to a retaining wall and the water's edge, which can be challenging for cyclists, especially during peak times when foot traffic is high.

Cyclists may have to navigate around pedestrians or other obstacles. Improving the width of the shared use path and creating more forgiving conditions would not only enhance safety but also improve the overall cycling experience for commuters and recreational riders using the coastal route.



▲ Narrow shared use path between Windang Bridge and Reddall Parade

Source: MetroMap

Narrow Shared Use Path from Bucknell Street to Elliott Lake Bridge

This path is a popular waterfront route, with higher pedestrian and cyclist volumes creating a greater need for space. The currently limited space may lead to potential safety risks. The 2.5m width of the path is below the recommended standard of the TfNSW Cycleway Design Toolbox for busy paths. The narrow width may result in collisions and near misses between cyclists and pedestrians.



▲ Narrow shared use path from Bucknell Street to Elliott Lake Bridge

Source: MetroMap

Hindering of cycle access along shared use paths

Access to shared use paths is hindered in some locations by barriers. An example of this is at Terry Reserve, where U-rails hinder bicycle access. This may lead to safety issues for both cyclists and pedestrians and can be particularly challenging for those with mobility issues.

To address this issue, appropriate signage could be implemented to ensure that cyclists are aware of the need to dismount and adjust their behaviour accordingly. Additionally, a bend before the obstacle could be introduced to slow down speeds prior to the roadway that is being approached to avoid potential collisions. The latter would negate the need for the U-rails to be present.

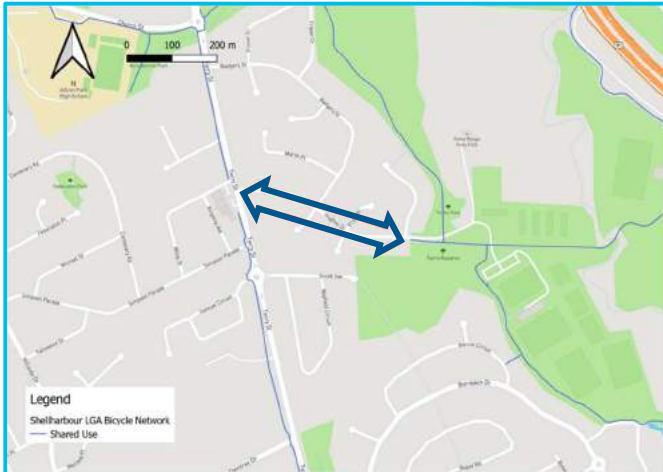


▲ Hindering of cycle access along shared use paths

Source: MetroMap

Missing link to Terry Street at Hughes Drive

Hughes Drive in Albion Park is located between the Terry Street to the west and Terry Reserve to the east. A shared use path on Hughes Drive would enable a connection between Albion Park and the Croom Regional Sporting Complex.



▲ Gap in the bicycle network at Hughes Drive, Albion Park

Source: Esri QGIS Mapping Software

Safety risk at Jones Avenue near Mount Warrigal Primary School

Land use adjacent to Jones Avenue in Mount Warrigal consists of Mount Warrigal Primary School and a retail area on the western side and Jones Park on the eastern side. These land uses generate significant pedestrian activity, however walking infrastructure is minimal.



▲ Jones Avenue adjacent to Jones Park, with additional pedestrian trip attractors

Source: MetroMap

Gap in access along Terry Street

The major north-south sub-arterial road of Terry Street in Albion Park has a missing section of shared use path from the Woolworths to Church Street. While there are adjacent routes via Tongarra Museum and Frasers Reserve, use of these routes would require a significant detour, which may discourage bicycle trips.



▲ Missing section of shared use path along Terry Street, Albion Park

Source: Mapbox, Esri QGIS Mapping Software

Street designs prioritise car use

A large proportion of streets within the Shellharbour LGA prioritise car use by limiting the space provided for active transport use. An example of this is at Koono Street in Albion Park Rail where the lack of bicycle facilities and footpaths on both sides of the road discourage pedestrian and cyclist trips. Additionally, the shoulder lanes are used for on-street parking.



▲ Car-centric design of Koono Street, Albion Park Rail

Slaters Bridge prohibits bicycle use

Slaters Bridge, across Horsley Inlet, currently prohibits bicycle use. This is due to the narrow width of the bridge, at approximately 2m. However, as a popular cycle route along the waterfront, the sign is often ignored by cyclists, which would increase safety risks between cyclists and pedestrians. This is an important issue that will become more prevalent as part of any expanded “around the lake” cycleway.



▲ Sign on western side of Horsley Inlet prohibiting bicycle use across Slaters Bridge

Poor access and storage at train stations

Albion Park Station, Oak Flats Station and Shellharbour Junction Station have limited bicycle storage facilities. Additional storage facilities at these stations would encourage more active travel, with the facility type depending on capacity requirements and user needs.



▲ Bike racks, Redfern NSW



▲ TfNSW Bike shed, Hornsby NSW



▲ TfNSW Bike locker, Hornsby NSW

Large off-street car parks are currently provided at the train stations within the LGA, inducing car travel to stations. Without facilities for cyclists, bicycles are at risk of damage and/or theft. With many residential areas located outside of the train station walking catchment, a car or bicycle would be the most convenient way to access a station. Hence, improved bicycle infrastructure and facilities at these stations would induce travel via bicycle.

This is evident at Oak Flats Station where there is a large portion of land dedicated to car parking and a lack of basic bicycle storage facilities such as bike racks.

As these train stations are operated by the State Government, it is the responsibility of TfNSW to implement these facilities.



▲ Oak Flats Station

Source: MetroMap



▲ Oak Flats Station

Source: MetroMap



7 Prioritisation of deficiencies

When prioritising deficiencies, the Eisenhower Matrix was used to indicate the deficiencies that were the most urgent and important.



▲ Eisenhower Matrix

Qualitatively analysing the potential benefits to active transport in Shellharbour through the Eisenhower matrix, the deficiencies were classified as Urgent and important (Highest priority) and Important and non-urgent (Approach next). This exercise was undertaken on 9th March 2023 during a Council workshop at Shellharbour Civic Centre attended by representatives from Turnbull, Shellharbour City Council, TfNSW, Kiama Bicycle User Group, Healthy Cities Illawarra, Warrigal Care and Shellharbour Village action group.

These deficiencies were refined following preparation of a weighted scoring criteria and further workshopping undertaken on 19th May 2023 during a second Council workshop at Shellharbour Civic Centre, attended by similar representatives.

Urgent and important (Highest priority)	Important and non-urgent (Approach next)
Poor standard of kerb ramps	Inconsistency with TfNSW guidelines
Poor shared use path markings	Poor north-south connectivity
Missing link in the 'around the lake' cycleway	Areas lacking footpaths
Incomplete bicycle path along Croome Road	Poor infrastructure on Shellharbour Road
No access on Hargraves Avenue	Inadequate road shoulders on Jamberoo Road
Inadequate access to Albion Park Station	Missing shared path link along the north side of Tongarra Road to Albion Park Showground
Inadequate safe bicycle access to Shellharbour City Centre	No path between Killalea Reserve and Buckleys Road
No safe bicycle connection between Mornington Circuit and Dunmore Road	Narrow shared use path between Windang Bridge and Reddall Parade
Narrow shared use path from Bucknell Street to Elliott Lake Bridge	Hindering of cycle access along shared use paths
Safety risk at Jones Avenue near Mount Warrigal Primary School	Missing link to Terry Street at Hughes Drive
Slaters Bridge prohibits bicycle use	Gap in access along Terry Street
Poor access and storage at train stations	Street designs prioritise car use

8 Qualitative assessment of lighting quality

A qualitative assessment of lighting quality was undertaken on key strategic cycling and pedestrian routes. Quality was classified as High, Medium or Low based on situations similar to the examples below. A 'None' classification was also given if no lighting was present. The lighting quality of active

transport facilities varies throughout Shellharbour LGA. Lighting quality is generally superior along main roads such as Shellharbour Road, New Lake Entrance Road and Harbour Boulevard, relative to more minor roads and park areas.

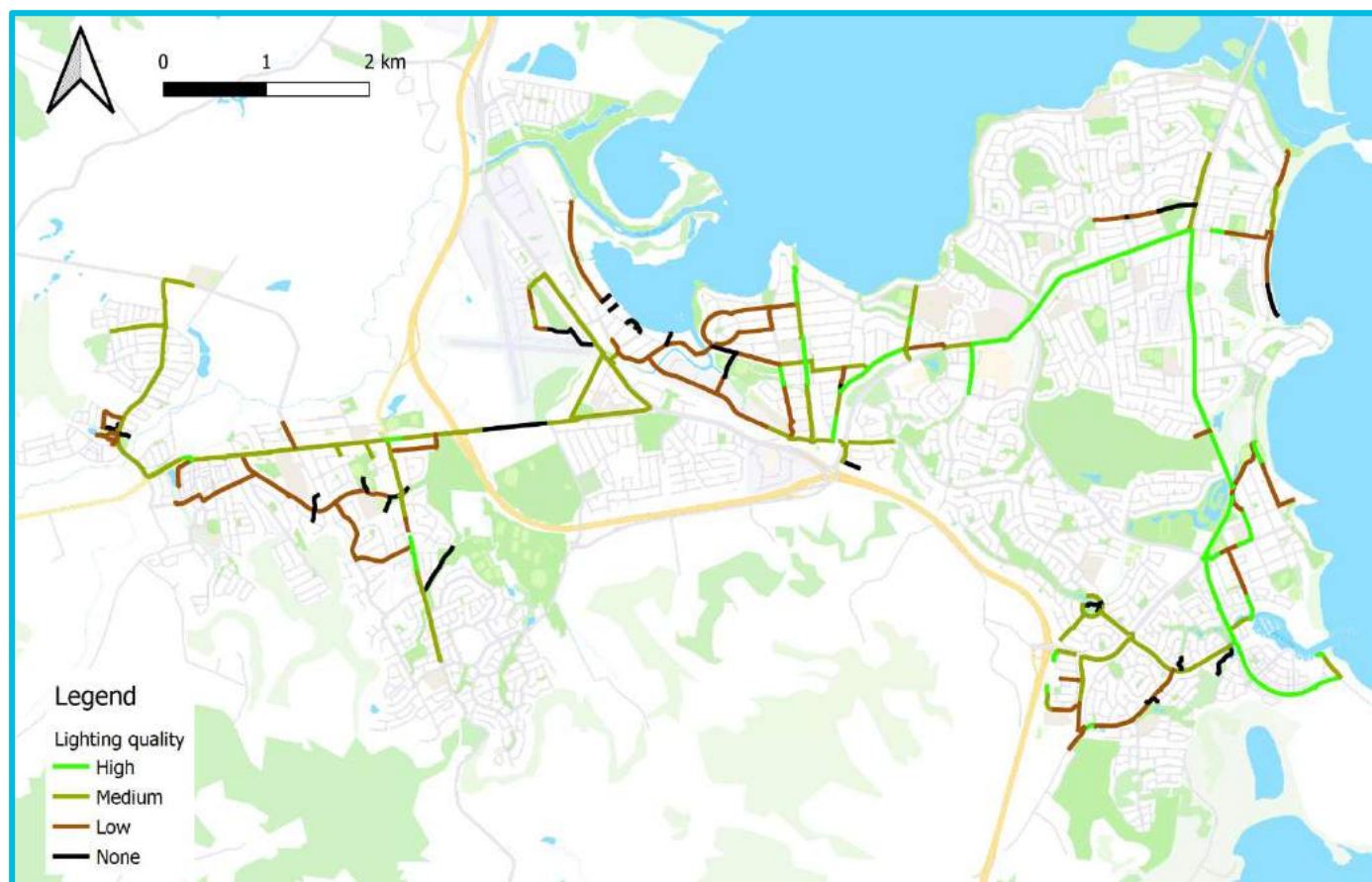


▲ Lighting quality assessment criteria; High, Medium and Low lighting levels

Sources: High: Magik Lighting, Street lighting solutions: Illuminate the way to lesser casualties (magiklights.com) Medium: Cree Lighting, Municipal Lighting - City & Street Light Fixtures | Cree Lighting Low: Jude Law Offices, Common Dangers of Bad Street Lighting that Result in Car Accidents (jvidenlaw.com)

▼ Lighting quality along Active Transport links within Shellharbour LGA

Source: Mapbox, Esri QGIS Mapping Software



The following locations were identified as having no ('None') or low lighting levels.

▼ Location of active transport links classified as None or Low lighting level

Location	Lighting level	Link(s)
Calderwood	None	<ul style="list-style-type: none"> • District Park Lower (east of Escarpment Drive) • Sunflower Boulevard
	Low	<ul style="list-style-type: none"> • Lomandra Crescent • District Park Lower (west of Escarpment Drive)
Albion Park	None	<ul style="list-style-type: none"> • North-south pathway crossing Church Street west of Severn Place • North-south pathway between Church Street and Charlotte Crescent • Bicentennial Park • Frasers Reserve
	Low	<ul style="list-style-type: none"> • Illawarra Highway between Escarpment Drive and Cooback Creek • Curamore Terrace • Wongawilli Street, Broughton Avenue and Berrima Street • Church Street • Hillside Drive between Church Street and Daintree Drive • Terry Street between Propane Street and Hughes Drive • O'Gorman Street, Stapleton Avenue
Albion Park Rail	None	<ul style="list-style-type: none"> • Tongarra Road between M1 and Croome Road • Boomerang Avenue and Hargraves Street • Pathways connecting Koonaa Street to lake waterfront
	Low	<ul style="list-style-type: none"> • Sections of Airport Road • Koonaa Street between Macquarie Rivulet and Kanahooka Street • Burroo Street, Wooroo Street between Oak Flats Station and Horsley Inlet • Industrial Road west of Corpus Christi Catholic High School • Mineral Road
Oak Flats	None	<ul style="list-style-type: none"> • Fisher Street west of Geoff Shaw Oval • Geoff Shaw Oval • Watson Street / Hopetoun Lane intersection
	Low	<ul style="list-style-type: none"> • Bridge Avenue • Deakin Street • Parkes Street • Moore Street between Deakin Street and Parkes Road, and between Brigadoon Circuit and Industrial Road • Fisher Street between Geoff Shaw Oval and Moore Street • Hopetoun Lane between Kingston Street and Hopetoun Street • Lake Entrance Road west of Government Road
Blackbutt	None	<ul style="list-style-type: none"> • Path under New Lake Entrance Road
Flinders	None	<ul style="list-style-type: none"> • Village Green
Warilla	None	<ul style="list-style-type: none"> • Williams Park • War Memorial Park • Ocean waterfront south of Osborne Parade
	Low	<ul style="list-style-type: none"> • Johnston Street • O'Neill Street

Location	Lighting level	Link(s)
		<ul style="list-style-type: none"> Osborne Parade between Reddal Reserve and Lorna Shacklock Grove George Street east of Stephanie Avenue Little Lake Crescent between George Street and Bucknell Street
Shellharbour Village	Low	<ul style="list-style-type: none"> Ocean Beach Drive west of Sherwood Place Beach Road Wollongong Street north of Towns Street Towns Street east of Wollongong Street Mary Street North of Towns Street Sophia Street / Addison Street intersection Sophia Street between Addison Street and Whimbrel Terrace
Dunmore	None	<ul style="list-style-type: none"> New Shellharbour Hospital location
	Low	<ul style="list-style-type: none"> Universal Drive Piper Drive Dunmore Road between Piper Drive and Archerfield Drive
Shell Cove	None	<ul style="list-style-type: none"> Shell Cove ponds Seascape Park Snake Head Park
	Low	<ul style="list-style-type: none"> Brindabella Wetlands Southern Cross Boulevard excluding intersection with Buckleys Road

9 Future Active Transport Network

This section sets the principles of future active transport and outlines future pathways. This considers access to town centres, public transport, open spaces, schools and industry.

Principles

To address gaps in walking and cycling infrastructure, a targeted approach will help identify locations and prioritise implementation in a financially sustainable manner. The following guiding principles have been used to identify and prioritise infrastructure in this manner.

Facilities to provide improved access to areas of high active transport activity

Areas with high population and employment density in Shellharbour, such as town centres, station precincts, schools, and open spaces, have diverse pedestrian and cyclist movements. However, these movements may clash with vehicle movements on busy streets, making it crucial to provide facilities that prioritise walking and cycling, including safe crossing opportunities.

Active transport infrastructure to support the patronage of public transport

As most journeys start and end with a walking or cycling trip, improving connections to active transport infrastructure supports safe and convenient access to and from the public transport system. This can encourage more people to use public transport, reducing the number of single-occupancy vehicles on the roads and easing traffic congestion.

Consistency with the Shellharbour Open Space and Recreation Needs Study benchmarks

The Shellharbour Open Space and Recreation Needs Study (2020) assessed current open spaces and recreational infrastructure in Shellharbour, while considering community expectations. This involved mapping available infrastructure,

analysing population trends and community feedback, and considering relevant policy information.

The study established the following benchmarks:

- Local Parks: open space areas that serve a neighbourhood, located close to or within residential areas for informal and play activities with basic facilities.
 - 80% of residents have access to a local park within 400m or a 5-minute safe walking distance, 100% of residents have access within 500m.
- District Parks: open space areas that serve multiple neighbourhoods including larger areas that include both passive and active recreation opportunities and may contain sports fields or courts.
 - 80% of residents have access within 800m safe walking distance, 100% of residents have access within 1500m.
- Citywide Parks: open space areas that serve an entire LGA, or multiple LGAs. Importantly, these areas are not always larger than other parks, but instead offer a wider range of uses, have higher visitation rates, and attract a wider range of users.
 - 100% of residents can access. Should be accessible by public transport.

Develop a network that is suitable for users of all ages and abilities

An active transport network that is suitable for users of all ages and abilities is important because it promotes inclusivity, accessibility, and safety for all members of the community. Providing a safe and convenient network can encourage more people to engage in active transport, regardless of their age or physical ability, leading to a more active and healthier community.

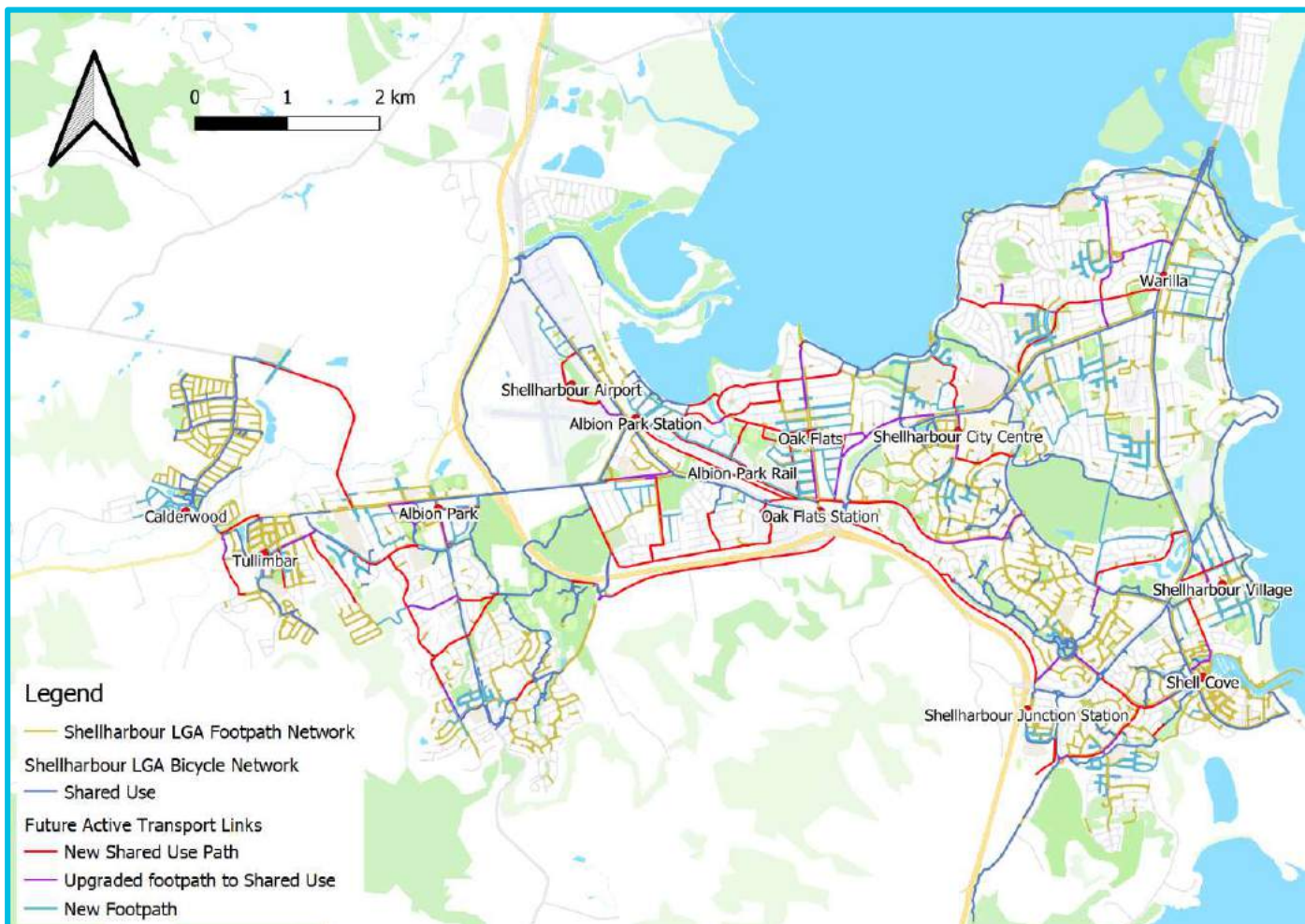
Future network links

Walking

Derived from the principles outlined, new or upgraded pedestrian links will connect residents to the following points of interest:

- Town centres
- Public transport
- Open spaces

This will include new footpaths and shared use paths.



▲ Current and future Shellharbour LGA pedestrian network

Source: Mapbox, Esri QGIS Mapping Software

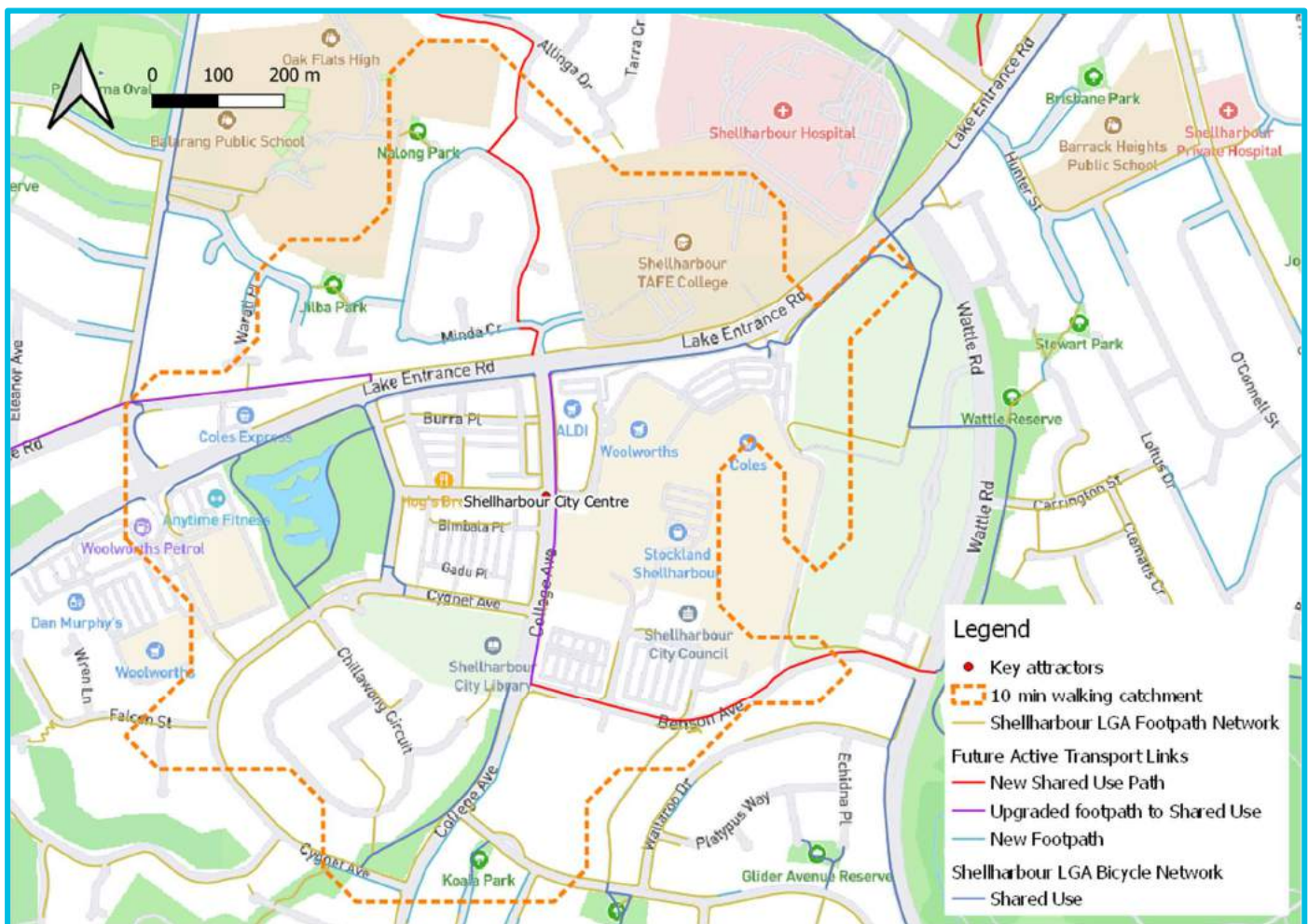
Access to town centres

Shellharbour City Centre

Shellharbour City Centre is currently well-served by pedestrian facilities to the south of Lake Entrance Road, with an additional link from College Avenue to Wattle Road connecting to Blackbutt Reserve. However, the northern side of Lake Entrance Road currently lacks facilities. Additional pathways along Minda Crescent will connect the waterfront at Oak Flats as well as support additional facilities at Balarang Public School and Oak Flats High School.

The following new pedestrian links within the 10-minute walking catchment of Shellharbour City Centre will improve town centre access:

- New footpath – Minda Crescent (outer side)
- New footpath – College Avenue (both sides, north of Lake Entrance Road)
- New footpath – College Avenue (east side, south of Lake Entrance Road)
- New footpath – Jilba Place (north side)
- New footpath – Birra Drive (north and east side)
- New footpath – Cygnet Avenue (south side)
- New footpath – Bandicoot Drive (both sides)



▲ Shellharbour City Centre town centre access footpath improvements

Source: Mapbox, Esri QGIS Mapping Software

Shell Cove

Shell Cove's current pedestrian links are quite extensive relative to access to town centres, and only a minor adjustment will significantly grow the pedestrian network.

The following new pedestrian links within the 10-minute walking catchment of Shell Cove will improve town centre access:

- New footpath – Boston Way (east side)
- New footpath – Red Sands Avenue (south side)



▲ Shell Cove town centre footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software

Warilla

Warilla's current pedestrian facilities are primarily located along main roads including Shellharbour Road and Lake Entrance Road. New footpaths will provide greater access to the town centre from the west and east.

The following new pedestrian links within the 10-minute walking catchment of Warilla will improve town centre access:

- New footpath – Booth Street (east side)
- New footpath – Benaud Crescent (south side)
- New footpath – Jackson Street (north side)
- New footpath – Barnes Street (east side)
- New footpath – Veronica Street (south side)
- New footpath – Helen Street (south side)
- New footpath – Anne Street (north side)
- New footpath – Woodford Avenue (north side)
- New footpath – Klein Park
- New footpath – Elloura Park
- New footpath – Joan Avenue (west side)
- New footpath – Stephanie Avenue (west side)



▲ Warilla town centre footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software

Oak Flats

Like Warilla, Oak Flats' current footpath network is predominantly centralised on the main road of Central Avenue. New footpaths on east-west roads will help connect pedestrians to shops and other amenities on Central Avenue.

The following new pedestrian links within the 10-minute walking catchment of Oak Flats will improve town centre access:

- New footpath – Parkes Street (both sides)
- New footpath – Wentworth Street (both sides)
- New footpath – Griffiths Street (both sides)
- New footpath – Fisher Street (both sides)
- New footpath – Kingston Street (both sides)
- New footpath – Hopetoun Street (south side)
- New footpath – Miller Street (both sides)
- New footpath – Watson Street (south side)
- New footpath – Madden Street (both sides)
- New footpath – Cullen Street (south side)
- New footpath – Storey Street (both sides)
- New footpath – Lang Street (south side)
- New footpath – Brigadoon Circuit (both sides)
- New footpath – Moore Street (east side)
- New footpath – Theodore Street (west side)



▲ Oak Flats town centre footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software

Shellharbour Village

Shellharbour Village's footpath network is currently distributed along Addison Street, the major road running in an east-west direction. Additionally, this main footpath provides connection to both Shellharbour Public School and Stella Maris Catholic Primary School. Addressing the lack of footpaths north and south of the town centre will assist access within the village.

The following new pedestrian links within the 10-minute walking catchment of Shellharbour Village will improve town centre access:

- New footpath – Beach Road (south side)
- New footpath – Towns Street (south side)
- New footpath – Adelaide Place (both sides)
- New footpath – Wilson Street (north side)
- New footpath – Darley Street (both sides)
- New footpath – William Street (both sides)
- New footpath – Mary Street (both sides)
- New footpath – Eastern Avenue (both sides)
- New footpath – Wentworth Street (both sides)
- New footpath – Wollongong Street (east side)
- New footpath – Boollwarroo Parade (both sides)
- New footpath – Shellharbour Beachside Holiday Park surrounding precinct



▲ Shellharbour Village town centre footpath access improvements

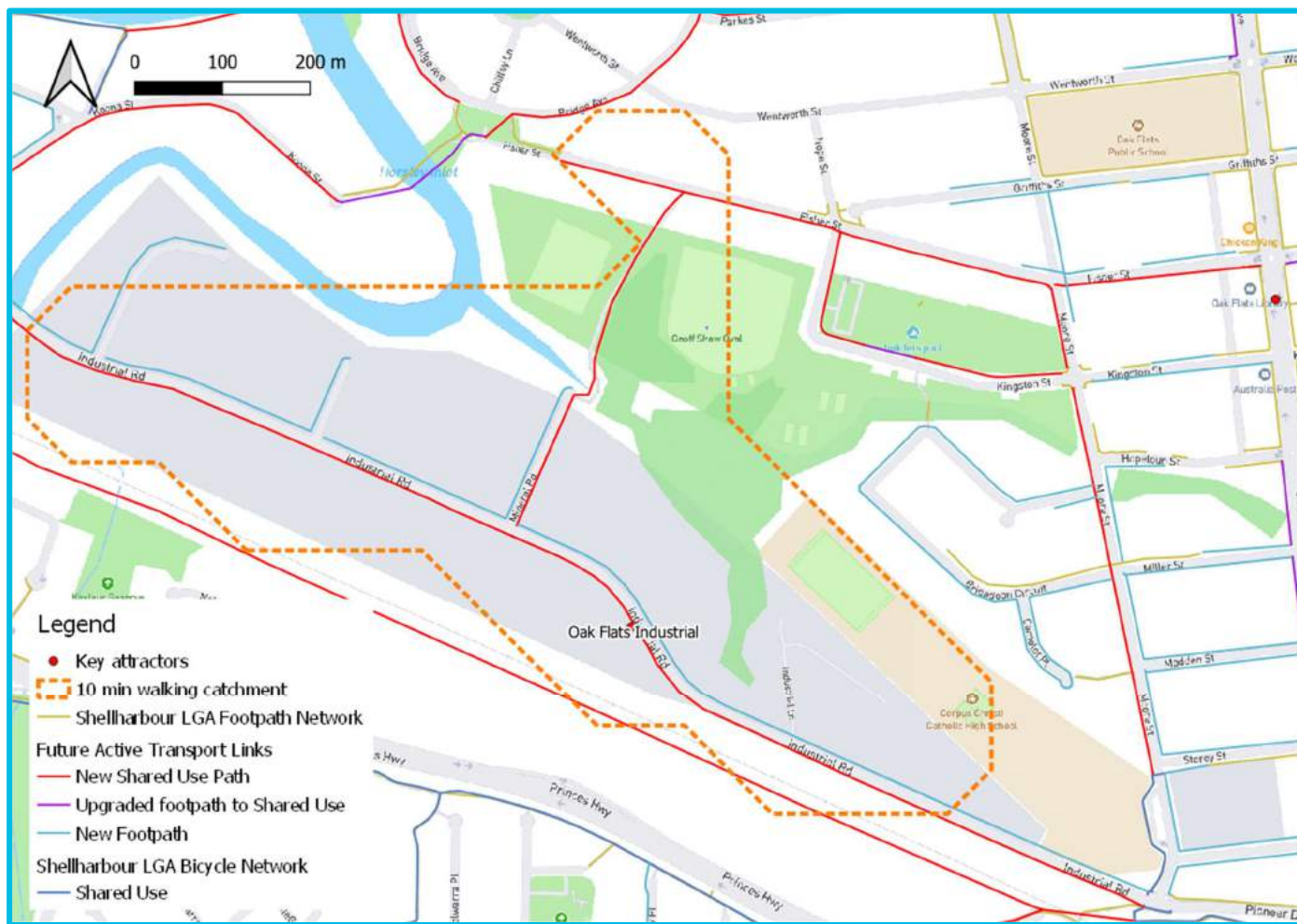
Source: Mapbox, Esri QGIS Mapping Software

Oak Flats Industrial

There are currently no existing footpaths within the 10-minute walking catchment for Oak Flats Industrial area. Footpaths along the main road (Industrial Road) will connect commercial areas to local roads leading to other areas within Oak Flats.

The following new pedestrian links within the 10-minute walking catchment of Oak Flats Industrial will improve town centre access:

- New footpath – Industrial Road (north side)
- New footpath – Casuarina Street (west side)
- New footpath – River Oak Place (west side)
- New footpath – Mineral Road (west side)



▲ Oak Flats Industrial area footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software



Calderwood

Calderwood has an extensive existing footpath network for both the north and east of the town centre. However, extending these footpath access routes to the west and surrounding the main town centre will enhance ease of access. All roads within the residential precinct currently have at least one footpath on either side, and Calderwood Village, located south of Connection Road, is under development.

The following new pedestrian links within the 10-minute walking catchment of Calderwood will improve town centre access:

- New footpath – Sunflower Boulevard (north side)
- New footpath – Connection Road (both sides)
- New footpath – North Macquarie Road (both sides)
- New footpath – Borjeson Circuit (north side)
- New footpath – Bristlebird Drive (south side)
- New footpath – Cockatoo Crescent (west side)
- New footpath – Cloudy Lane (north side)
- New footpath – Scanlon Street (south side)
- New footpath – Stockman Road (both sides)
- New footpath – Escarpment Drive (west side)
- New footpath – Bartlett Crescent (south side)



Source: Mapbox, Esri QGIS Mapping Software

Tullimbar

Tullimbar has an extensive existing footpath network, with at least one footpath on either side of all roads within the residential precinct. New footpaths to the south and east will further enhance access to developing areas.

The following new pedestrian links within the 10-minute walking catchment of Tullimbar will improve town centre access:

- New footpath – Berrima Street (north side)
- New footpath – Exeter Place (south side)
- New footpath – Braemar Street (both sides)
- New footpath – Tathra Lane (both sides)
- New footpath – Cleveland Parade (both sides)
- New footpath – Broughton Avenue (both sides)
- New footpath – Burragorang Chase (east side)
- New footpath – Balmoral Parade (east side)
- New footpath – Bodalla Street (both sides)
- New footpath – Crest Road (west side)



▲ Tullimbar town centre footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software



Access to transport nodes

Shellharbour Airport

It is important to provide active transport access to airports for employees of the precinct and residents surrounding Shellharbour Airport. Currently, the main footpath network is located northwest of the airport, with additional footpaths to north of the airport facilitating greater access.

The following new pedestrian links within the 10-minute walking catchment of Shellharbour Airport will improve access to the transport network:

- New footpath – Rosewood Street (north side)
- New footpath – Mallee Street (north side)
- New footpath – Poplar Avenue (west side)



▲ Shellharbour Airport transport nodes footpath access improvements

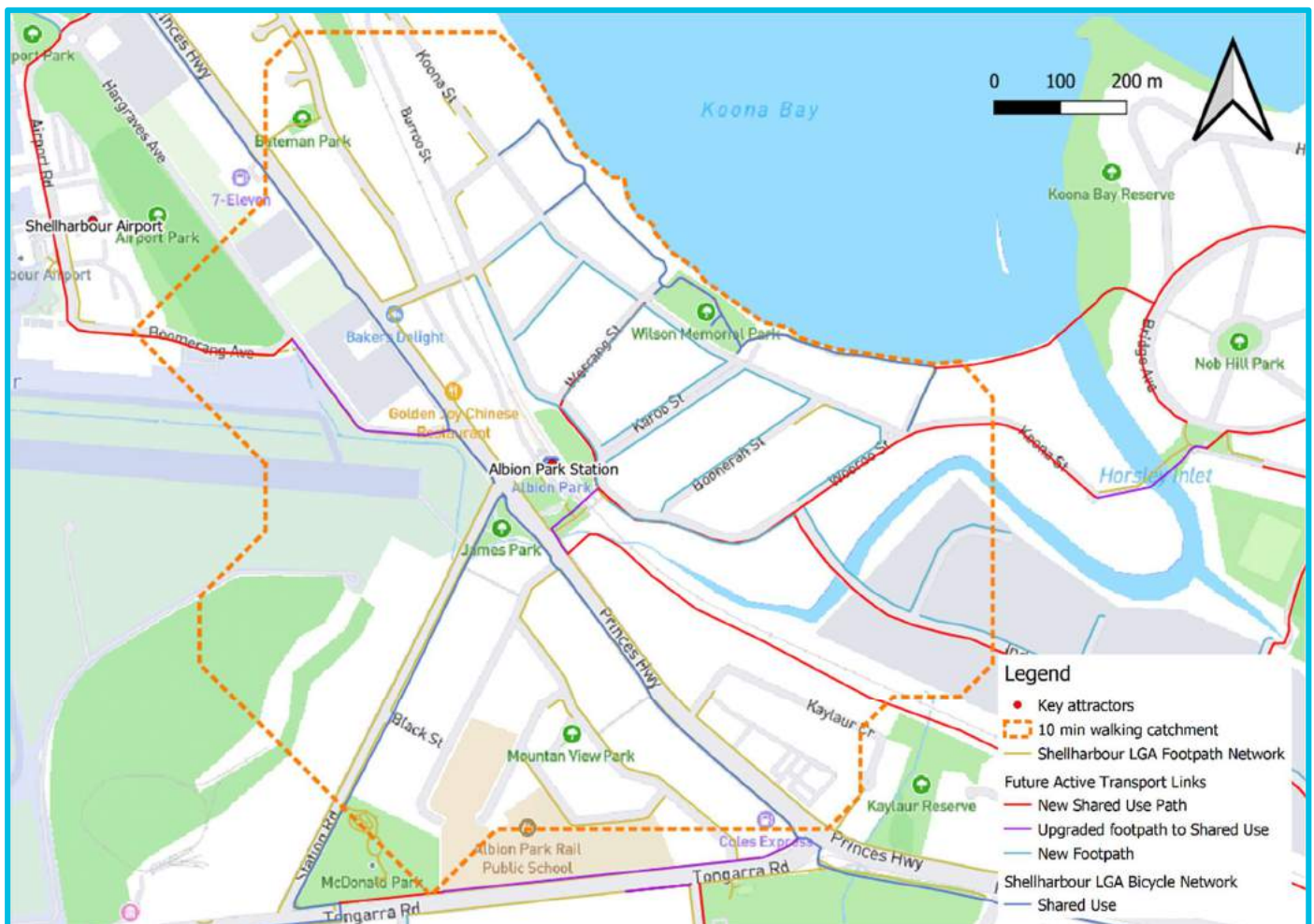
Source: Mapbox, Esri QGIS Mapping Software

Albion Park Station

Albion Park Station has an existing footpath southeast of the station, providing easy access to James Park, Mountain View Park, and Albion Park Rail Public School. New pedestrian links will improve residential access to the northwest of the station.

The following new pedestrian links within the 10-minute walking catchment of Albion Park Station will improve access to the transport network:

- New footpath – Windang Street (south side)
- New footpath – Koona Street (west and south side)
- New footpath – Burroo Street (outer side)
- New footpath – Yallah Street (east side)
- New footpath – Werrang Street (east side)
- New footpath – Karoo Street (both sides)
- New footpath – Boonerah Street (north side)
- New footpath – Industrial Road (north side)
- New footpath – Casuarina Street (west side)
- New footpath – Wooroo Street (both sides)



▲ Albion Park Station transport nodes footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software

Oak Flats Station

Oak Flats Station has several overlapping streets within the Oak Flats 10-minute town centre precinct and its current footpath network is primarily centred around Central Avenue. New footpaths connecting to this road will facilitate pedestrian trips to and from the station.

The following new pedestrian links within the 10-minute walking catchment of Oak Flats Station will improve access to the transport network:

- New footpath – Hopetoun Street (south side)
- New footpath – Miller Street (both sides)
- New footpath – Watson Street (south side)
- New footpath – Madden Street (both sides)
- New footpath – Cullen Street (south side)
- New footpath – Camelot Place (both sides)
- New footpath – Storey Street (both sides)
- New footpath – Lang Street (south side)
- New footpath – Industrial Road (north side)
- New footpath – Moore Street (east side)
- New footpath – Theodore Street (west side)



▲ Oak Flats Station transport nodes footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software

Shellharbour Junction Station

The existing footpath network of Shellharbour Junction Station is located outside the station and to the southeast, connecting Shell Heights Park with Shellharbour Anglican College. Expanding these footpaths will improve accessibility to the station.

The following new pedestrian links within the 10-minute walking catchment of Shellharbour Junction Station will improve access to the transport network:

- New footpath – Aurora Avenue (west and south side)
- New footpath – Venus Road (west side)
- New footpath – Pluto Place (both sides)
- New footpath – Piper Drive (north side)



▲ Shellharbour Junction Station transport nodes footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software

Albion Park

The dwellings outside the 400m walkable catchment (red zone) are primarily located in the northwest of the Albion Park precinct. New footpaths will provide improved access routes for passive and environmental open spaces to these dwellings.

The following new footpaths to link areas outside of the current 400m walking catchment of Albion Park will improve access to passive and environmental open spaces:

- New footpath – Taylor Road (north side)
- New footpath – Amaral Avenue (east side)
- New footpath – Beveridge Street (north side)
- New footpath – Charlotte Crescent (south side)
- New footpath – Uphill Road (south side)
- New footpath – Pleasant View Close (west side)



▲ Albion Park open spaces footpath access improvements

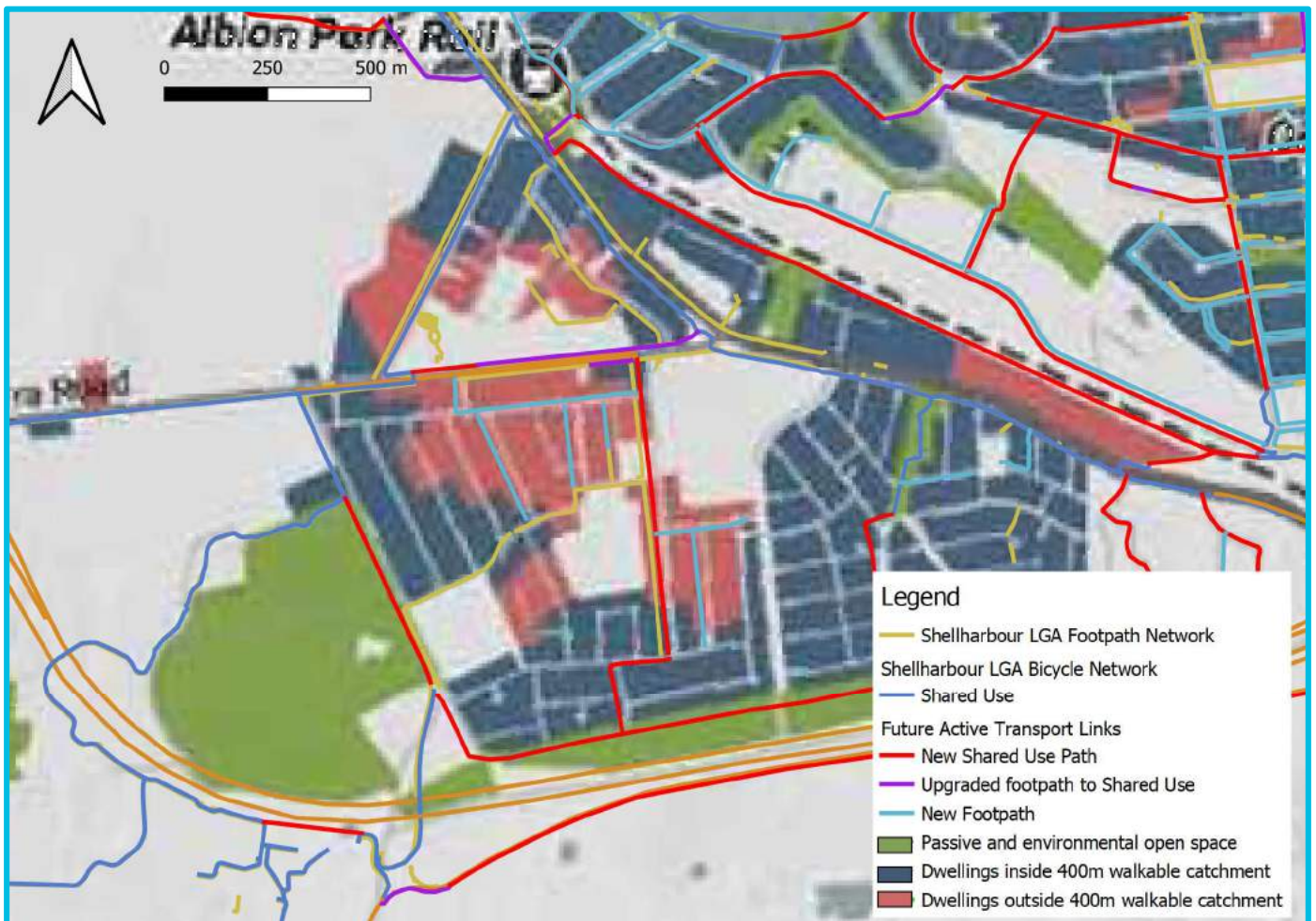
Source: Shellharbour City Council, Esri QGIS Mapping Software

Albion Park Rail

The dwellings outside the 400m walkable catchment (red zone) are primarily located in the southeast of the Albion Park Rail precinct. New footpaths will provide improved access routes to passive and environmental open spaces in these areas.

The following new footpaths to link areas outside of the current 400m walking catchment of Albion Park Rail will improve access to passive and environmental open spaces:

- New footpath – Ti Tree Avenue (east side)
- New footpath – Maple Street (north side)
- New footpath – Banksia Avenue (east side)
- New footpath – Boronia Avenue (east side)
- New footpath – Orchid Avenue (east side)
- New footpath – Elm Street (south side)
- New footpath – Rose Avenue (east side)
- New footpath – Koda Road (south side)



▲ Albion Park Rail open spaces footpath access improvements

Source: Shellharbour City Council, Esri QGIS Mapping Software

Oak Flats

The dwellings outside the 400m walkable catchment (red zone) are primarily located in the town centre of the Oak Flats precinct. New pathways will improve access routes to passive and environmental open spaces in these areas.

The following new footpaths to link areas outside of the current 400m walking catchment of Oak Flats will improve access to passive and environmental open spaces:

- New footpath – Parkes Street (both sides)
- New footpath – Wentworth Street (both sides)
- New footpath – Griffiths Street (both sides)
- New footpath – Fisher Street (both sides)



▲ Oak Flats open spaces footpath access improvements

Source: Shellharbour City Council, Esri QGIS Mapping Software

Shellharbour City Centre

The dwellings outside the 400m walkable catchment (red zone) are primarily located north of the Shellharbour City Centre precinct. New footpaths will improve access routes to passive and environmental open spaces in these areas.

The following new footpaths to link areas outside of the current 400m walking catchment of Shellharbour City Centre will improve access to passive and environmental open spaces:

- New footpath – Minda Crescent (outer side)
- New footpath – Jilba Place (north side)
- New footpath – Birra Drive (north and east side)



▲ Shellharbour City Centre open spaces footpath access improvements

Source: Shellharbour City Council, Esri QGIS Mapping Software

Barrack Heights

The dwellings outside the 400m walkable catchment (red zone) are spread throughout the Barrack Heights precinct. New footpaths will improve access routes to passive and environmental open spaces in these areas.

The following new footpaths to link areas outside of the current 400m walking catchment of Barrack Heights will improve access to passive and environmental open spaces:

- New footpath – Phillip Crescent (south side)
- New footpath – Gipps Crescent (west and south side)

- New footpath – The Kingsway (both sides)
- New footpath – Pleasant Avenue (both sides)
- New footpath – William Avenue (north side)
- New footpath – Ulster Avenue (both sides)
- New footpath – Captain Cook Drive (west side)
- New footpath – O’Connell Street (both sides)
- New footpath – Leawarra Avenue (east side)
- New footpath – Daphne Street (both sides)
- New footpath – Bluebell Road (both sides)
- New footpath – Abelia Street (both sides)
- New footpath – Cassia Street (both sides)
- New footpath – Sammat Avenue (both sides)
- New footpath – Strata Avenue (both sides)



▲ Barrack Heights open spaces footpath access improvements

Source: Shellharbour City Council, Esri QGIS Mapping Software

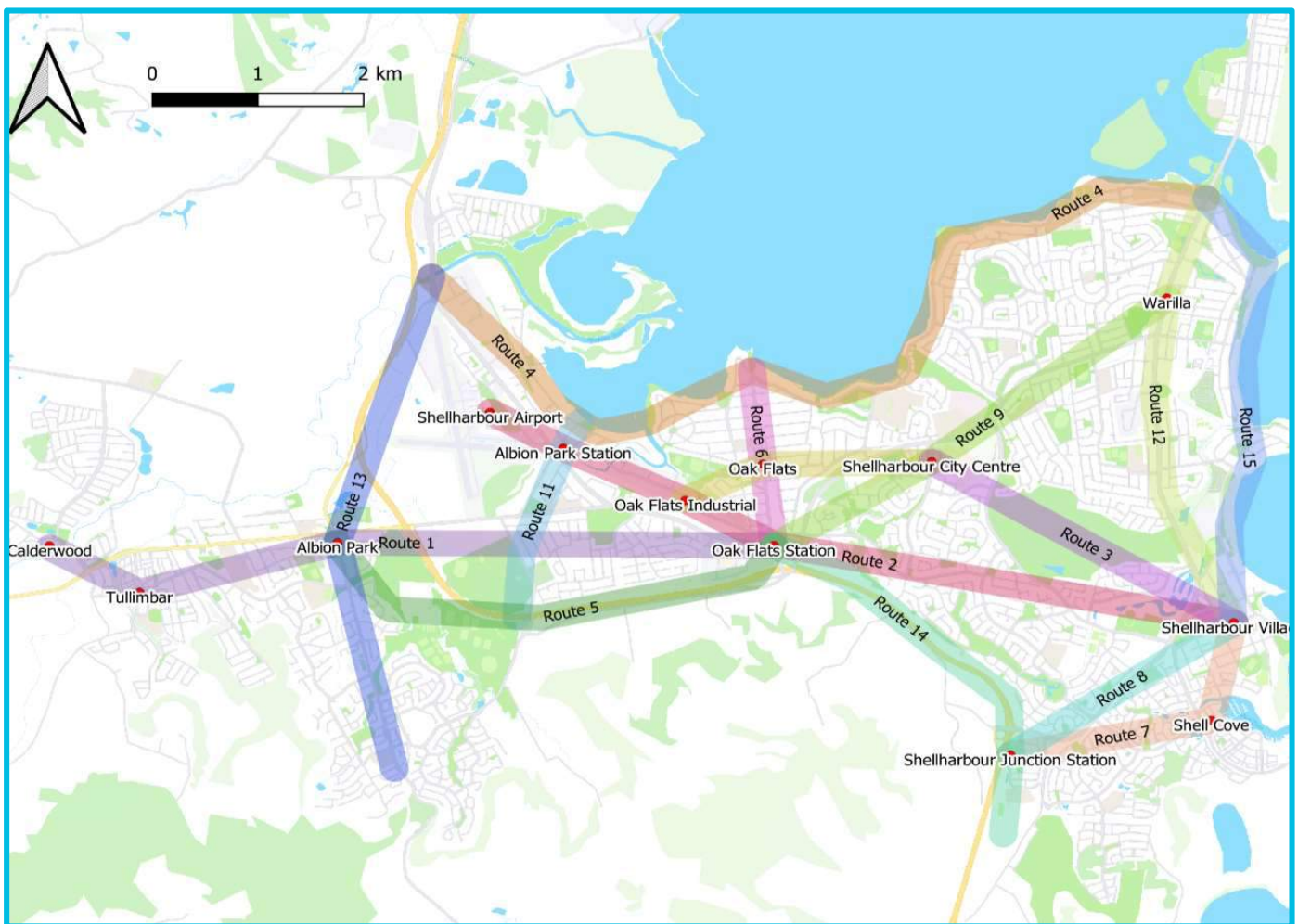


Cycling

Considering the principles for active transport infrastructure, cycling links between key attractors will assist active travel throughout Shellharbour LGA. Cycling links are typically shared use paths due to lower cycling and pedestrian volumes. These paths do not require on-street parking removal and provide a safer environment for active transport, with the potential to accommodate future increases in traffic as the area develops and the population grows. On-road bicycle lanes work

well in areas with high cycling and traffic demand to safely separate cyclists from pedestrians, but are costly and may be less appropriate for the Shellharbour LGA.

Fifteen strategic cycling routes for the Shellharbour LGA have been developed, with a focus on creating hubs around town centres such as Shellharbour City Centre and Shellharbour Village, as well as additional infrastructure along important corridors such as Tongarra Road, Lake Entrance Road and waterfront spaces.



▲ Shellharbour LGA strategic cycling routes

Source: Mapbox, Esri QGIS Mapping Software

▼ Strategic cycling routes

Route No.	Origin	Destination	Current infrastructure
1	Calderwood	Oak Flats Station	Shared use path: <ul style="list-style-type: none"> • Escarpment Drive • Sections of Tongarra Road • Sections of Church Street • Princes Highway
2	Shellharbour Airport	Shellharbour Village	Shared use path: <ul style="list-style-type: none"> • Princes Highway • Section of Pioneer Drive • Wattle Road • Sections of Addison Street
3	Shellharbour City Centre	Shellharbour Village	Shared use path: <ul style="list-style-type: none"> • Wattle Road • Blackbutt Forest Reserve
4	Macquarie Rivulet	Windang Bridge	Shared use path: <ul style="list-style-type: none"> • Macquarie Rivulet • Albion Park Rail waterfront • Oak Flats Rivulet, past Windang Bridge along waterfront at Barrack Point
5	Albion Park	Oak Flats Station	Shared use path: <ul style="list-style-type: none"> • Frasers Reserve • Terry Reserve • Croom Regional Sporting Complex Road shoulder: <ul style="list-style-type: none"> • East-west link
6	Oak Flats waterfront	Oak Flats Station	Nil
7	Shellharbour Junction Station	Shellharbour Village (via Shell Cove)	Shared use path: <ul style="list-style-type: none"> • Shellharbour Road • Addison Street • Shell Cove Reserve • Harbour Boulevard • Addison Street Road shoulder: <ul style="list-style-type: none"> • Shellharbour Road
8	Shellharbour Junction Station	Shellharbour Village (via Flinders)	Shared use path: <ul style="list-style-type: none"> • Shellharbour Road • Addison Street

Route No.	Origin	Destination	Current infrastructure
			Road shoulder: <ul style="list-style-type: none"> • Shellharbour Road
9	Oak Flats Station	Warilla	Shared use path: <ul style="list-style-type: none"> • Lake Entrance Road • Harrison Park
10	Albion Park Rail	Shellharbour City Centre	Shared use path: <ul style="list-style-type: none"> • Lake Entrance Road • Harrison Park
11	Albion Park Rail waterfront	Croom	Shared use path: <ul style="list-style-type: none"> • Station Road • Sections of Croome Road • Sections of Croom Regional Sporting Complex
12	Windang Bridge	Shellharbour Village (via Shellharbour Road)	Shared use path: <ul style="list-style-type: none"> • Shellharbour Road • Section of Mary Street
13	Macquarie Rivulet	Southern Albion Park	Shared use path: <ul style="list-style-type: none"> • Terry Street • Tongarra Road • Adjacent to M1 Princes Motorway
14	Oak Flats Station	New Shellharbour Hospital	Shared use path: <ul style="list-style-type: none"> • Piper Drive Road shoulder: <ul style="list-style-type: none"> • M1 Princes Motorway Bicycle lane: <ul style="list-style-type: none"> • At Princes Highway (M1) on and off ramp roundabouts
15	Windang Bridge	Shellharbour Village (via waterfront)	Shared use path: <ul style="list-style-type: none"> • Oak Flats Rivulet, past Windang Bridge along waterfront at Barrack Point

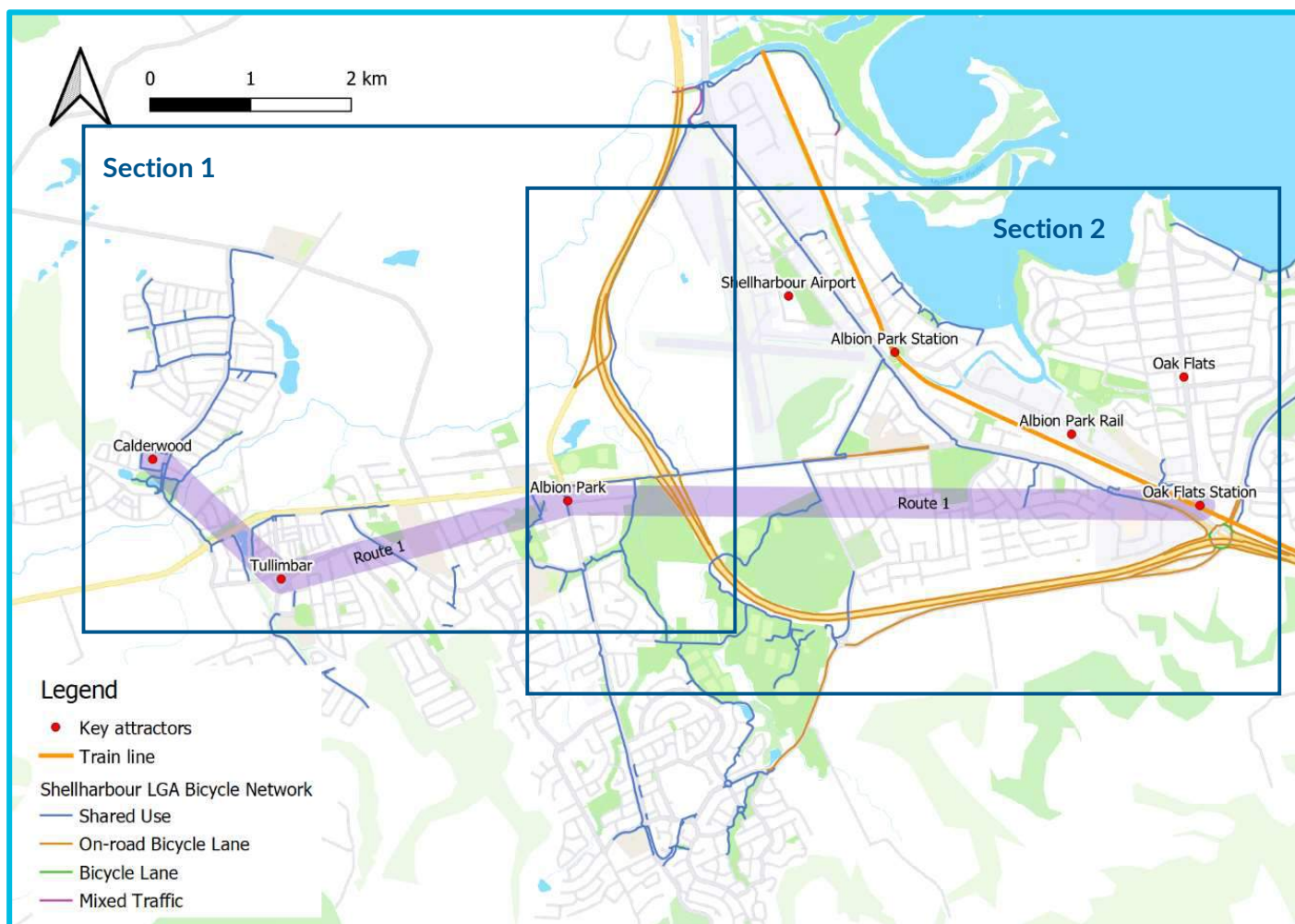
Specific network improvements were determined by assessing the strengths, opportunities, weaknesses and barriers for each strategic cycling route. These improvements have been classified as primary and secondary, to assist with wayfinding purposes.

Route 1 – Calderwood to Oak Flats Station

Route 1 is an east-west route connecting Calderwood to Oak Flats Station via Tullimbar and Albion Park. Calderwood is currently connected to Tongarra Road by a shared use path. However, the new Tullimbar town centre is isolated from the main road due to a lack of facilities. This route would utilise the Princes Highway shared use path.

▼ Analysis of Strategic Cycling Route 1

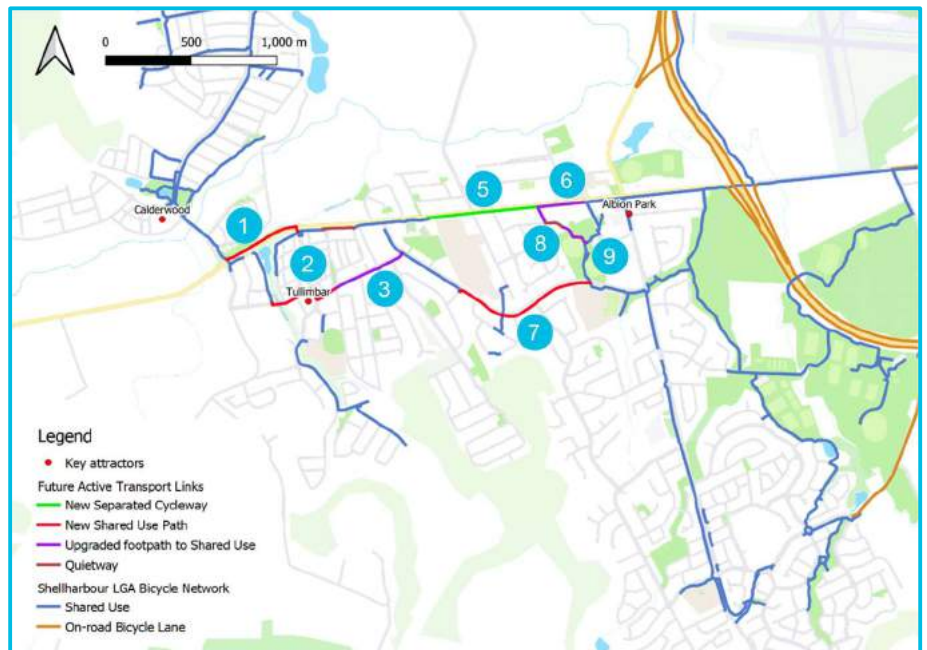
Strengths and Opportunities	Barriers and Weaknesses
Connection of Calderwood to Tongarra Road	Inconsistent pathways along Tongarra Road
Future Albion Park bypass will reduce traffic volumes on Tongarra Road	Train line disconnecting route from Oak Flats
Existing shared use paths south of Tongarra Road	
Existing shared use path on the southern side of Princes Highway	



▲ Strategic Cycling Route 1

Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 1 corridor includes a separated cycleway, new shared use paths, upgraded footpaths to shared use and quietways.



▲ Route 1 - Future Active Transport Facilities (Section 1)

Source: Mapbox, Esri QGIS Mapping Software



▲ Route 1 - Future Active Transport Facilities (Section 2)

Source: Mapbox, Esri QGIS Mapping Software



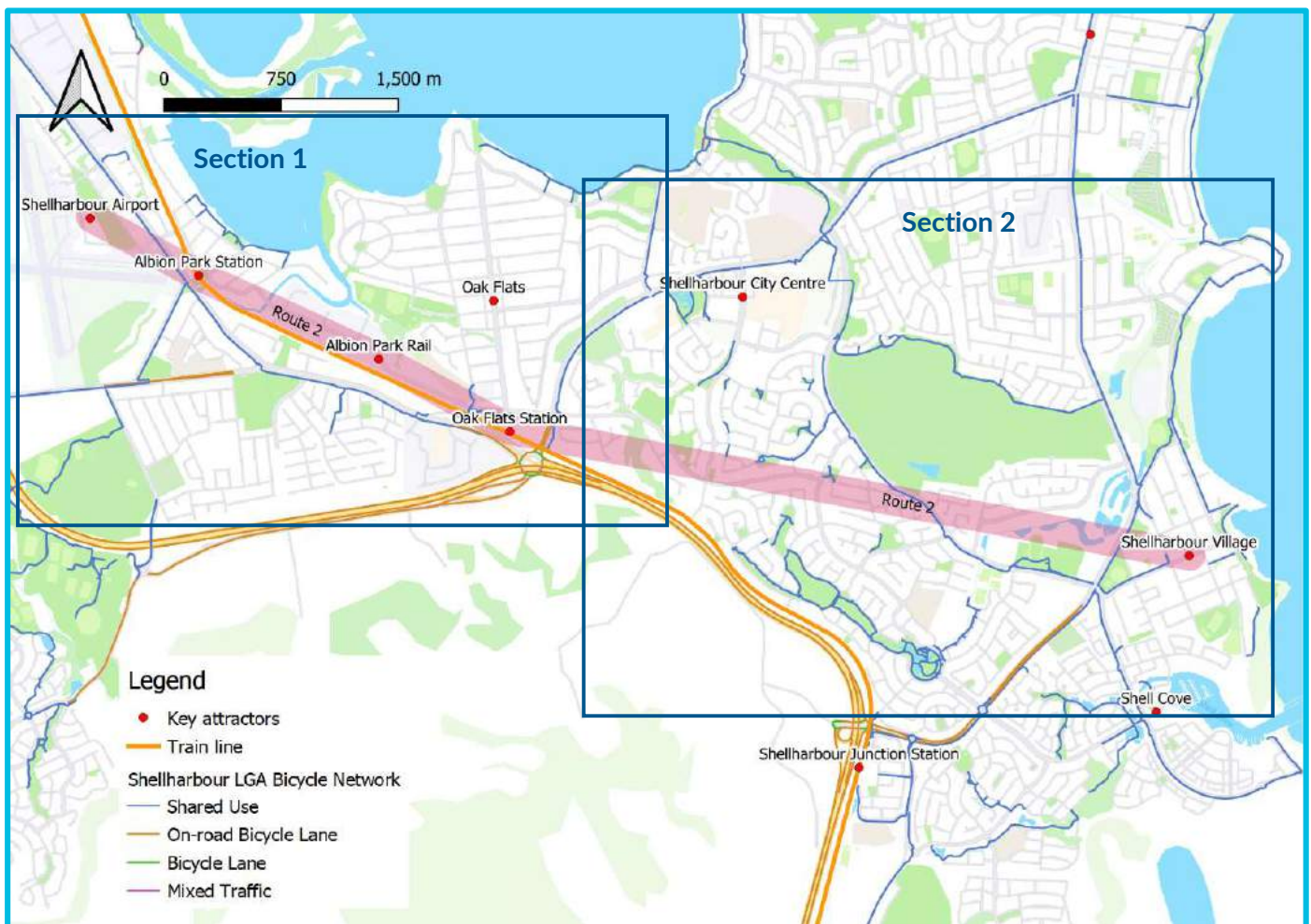
▼ Route 1 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared use path	Illawarra Highway (north side)	Primary
2	New shared use path	Wongawilli Street (south side), Broughton Avenue (west side), Berrima Street (south side)	Secondary
3	Upgraded footpath to shared use	Berrima Street (south side)	Secondary
4	Quietway	Tallowa Street	Primary
5	New on-road cycleway	Illawarra Highway (south side)	Primary
6	Upgraded footpath to shared use	Tongarra Road (south side), alleyway to Beveridge Street	Primary
7	New shared use path	Church Street (south side)	Secondary
8	Upgraded footpath to shared use	Path between Tongarra Road and Beveridge Street	Secondary
9	Quietway / upgraded footpath to shared use	Beveridge Street and park path to current shared use path at Con O'Keefe Oval	Secondary
10	New shared use path	Tongarra Road (north side)	Primary
11	Upgraded footpath to shared use	Tongarra Road (north side)	Primary
12	New shared use path	Princes Highway crossing at train line	Primary

Route 2 – Shellharbour Airport to Shellharbour Village

Route 2 is an east-west route connecting Shellharbour Airport to Shellharbour Village via Albion Park Station, Oak Flats Industrial and Oak Flats Station. The analysis focuses on the routes from Albion Park Station to Oak Flats Station through Oak Flats town centre. Shellharbour Airport is located to the west of the train line and most of the route follows the east side of the corridor towards Oak Flats Station. However, there are challenges in connecting to Shellharbour Village due to the hilly terrain in the Flinders and Blackbutt areas.

Strengths and Opportunities	Barriers and Weaknesses
Rail line crossing at Albion Park and Oak Flats Stations	No cycling facilities along Industrial Road, Oak Flats
Shared use path on Wattle Road	Hilly terrain near Flinders
Albion Park is connected to Oak Flats via Princes Highway	No active transport connection between Oak Flats and Wattle Road
Rail line crossing at College Avenue	No cycling facilities connecting Shellharbour Airport



▲ Strategic Cycling Route 2

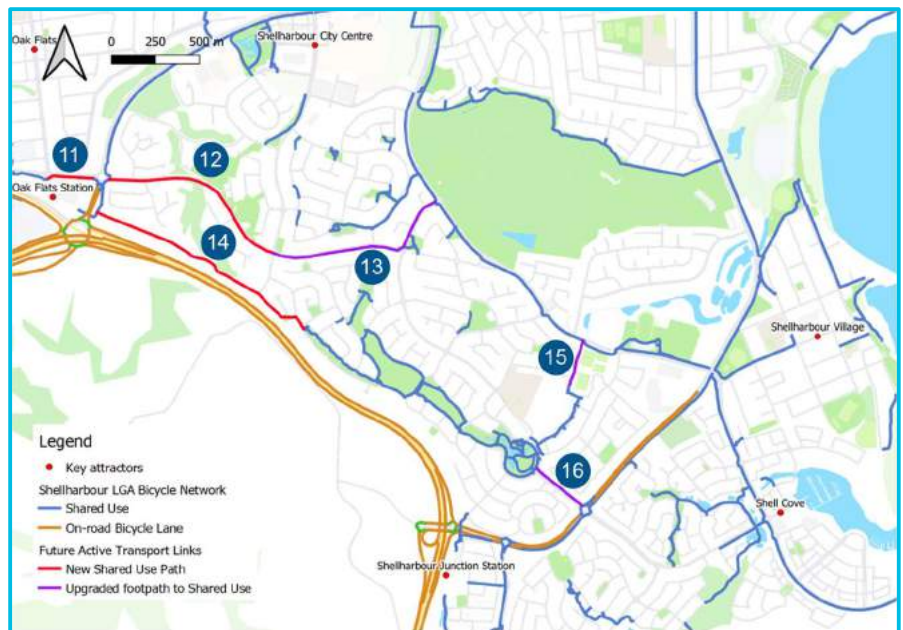
Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 2 corridor includes new shared use paths, upgraded footpaths to shared use and a quietway.



▲ Route 2 - Future Active Transport Facilities (Section 1)

Source: Mapbox, Esri QGIS Mapping Software



▲ Route 2 - Future Active Transport Facilities (Section 2)

Source: Mapbox, Esri QGIS Mapping Software

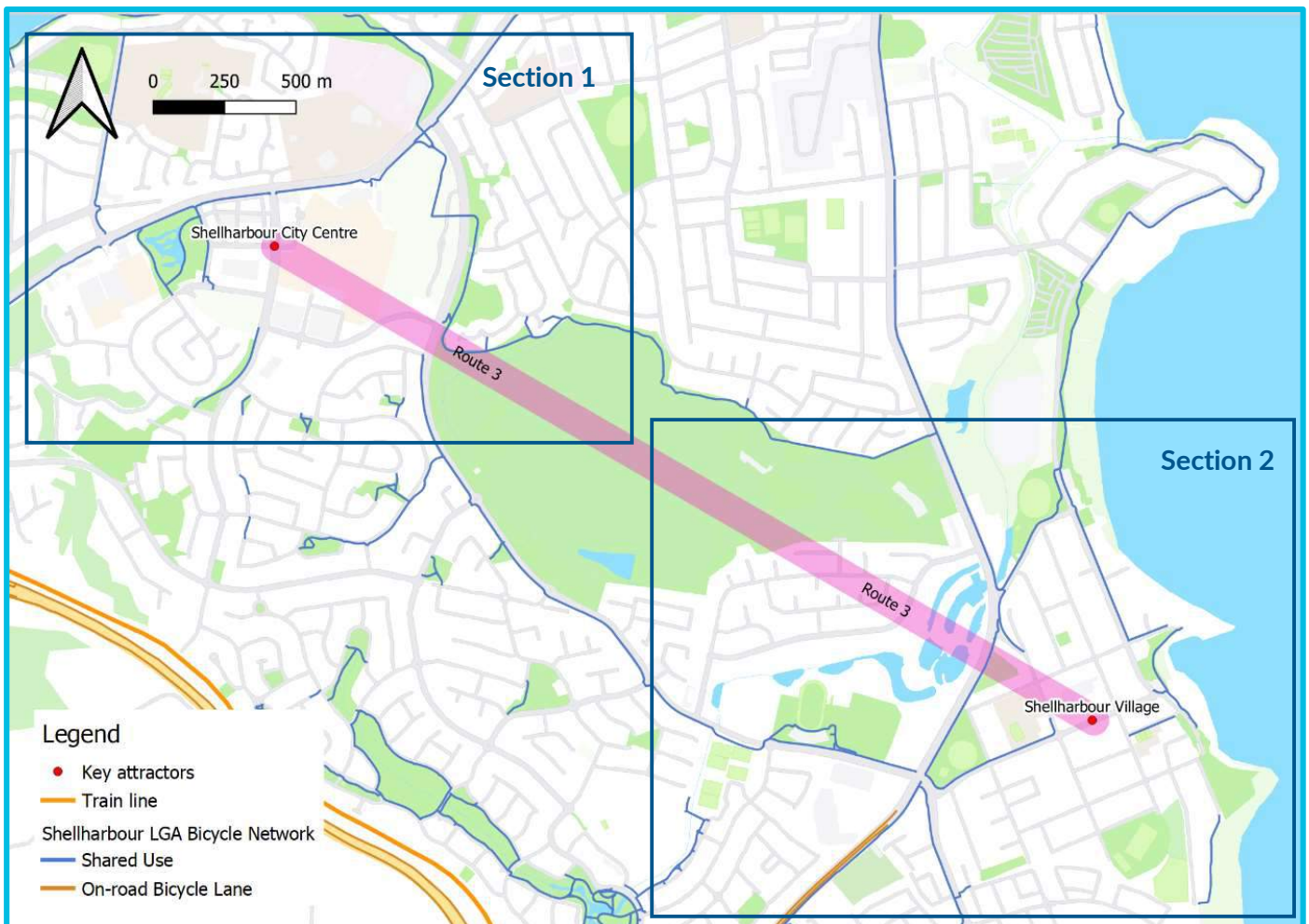
▼ Route 2 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared use path	Boomerang Avenue (south side) and Airport Road (west side)	Primary
2	Upgraded footpath to shared use	Hargraves Avenue (south side)	Primary
3	Upgraded footpath to shared use	Rotary Park and rail line crossing	Primary
4	New shared use path	South side of rail line	Secondary
5	New shared use path	Industrial Road (south side)	Primary
6	New shared use path	Wooroo Street and Koono Street (south side)	Secondary
7	Upgraded footpath to shared use	Horsley Inlet pedestrian bridge	Secondary
8	Quietway and new shared use path	Fisher Street (south side)	Secondary
9	New shared use path and upgraded footpath to shared use	Geoff Shaw Oval	Secondary
10	Upgraded footpath to shared use	Moore Street (west side)	Secondary
11	New shared use path	Pioneer Drive (south side) west of Lake Entrance Road	Primary
12	New shared use path	Pioneer Drive (south side) east of Lake Entrance Road	Secondary
13	Upgraded footpath to shared use	Pioneer Drive (south side), Bunderee Road (west side)	Secondary
14	New shared use path	North of rail line, Jemima Reserve, Whittaker Street (south side)	Primary
15	Upgraded footpath to shared use	Footpath between Wattle Road and Burrinjuck Avenue	Secondary
16	Upgraded footpath to shared use	Lakewood Boulevard (north side)	Primary

Route 3 – Shellharbour City Centre to Shellharbour Village

Route 3 is an east-west route connecting Shellharbour City Centre to Shellharbour Village. The existing infrastructure includes shared use paths around the north and south of Blackbutt Forest Reserve. However, there are challenges for active transport in Shellharbour City Centre due to its elevated location on a hill. Currently, there are connecting shared use paths on the periphery along Lake Entrance Road and Wattle Road. Shellharbour Village has existing shared use paths on Mary Street and Addison Street.

Strengths and Opportunities	Barriers and Weaknesses
Shared use path to the north of Blackbutt Forest Reserve	Shellharbour City Centre poor connectivity
Shared use path on Wattle Road	Shellharbour City Centre lack of active transport facilities
Shellharbour Village connectivity through Mary Street and Addison Street	Steep gradient on Wattle Road



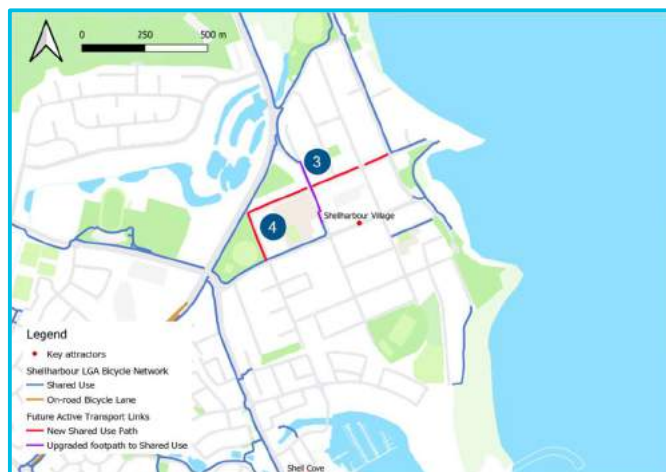
▲ Strategic Cycling Route 3

Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 3 corridor includes new shared use paths and upgraded footpaths to shared use.

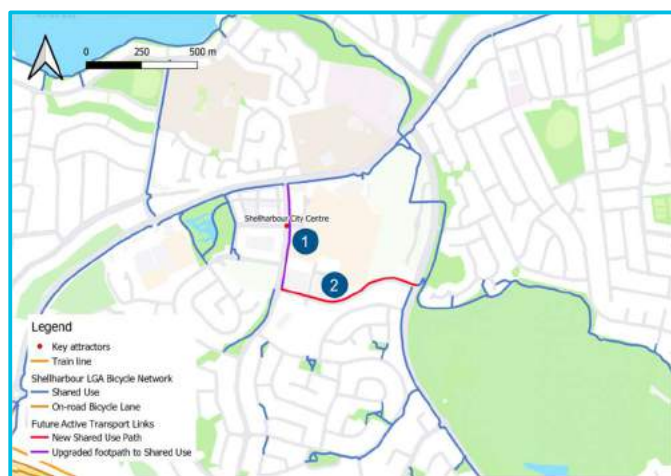
▼ Route 3 potential active transport infrastructure

No.	Type	Location	Classification
1	Upgraded footpath to shared use	College Avenue (east side)	Primary
2	New shared use path	Benson Avenue (north side)	Primary
3	Upgraded footpath to shared use	Mary Street (east side north of pedestrian crossing, west south of crossing)	Secondary
4	New shared use path	Towns Stret (north side) and Sophia Street (west side)	Secondary



▲ Route 3 - Future Active Transport Facilities (Section 2)

Source: Mapbox, Esri QGIS Mapping Software



▲ Route 3 - Future Active Transport Facilities (Section 1)

Source: Mapbox, Esri QGIS Mapping Software

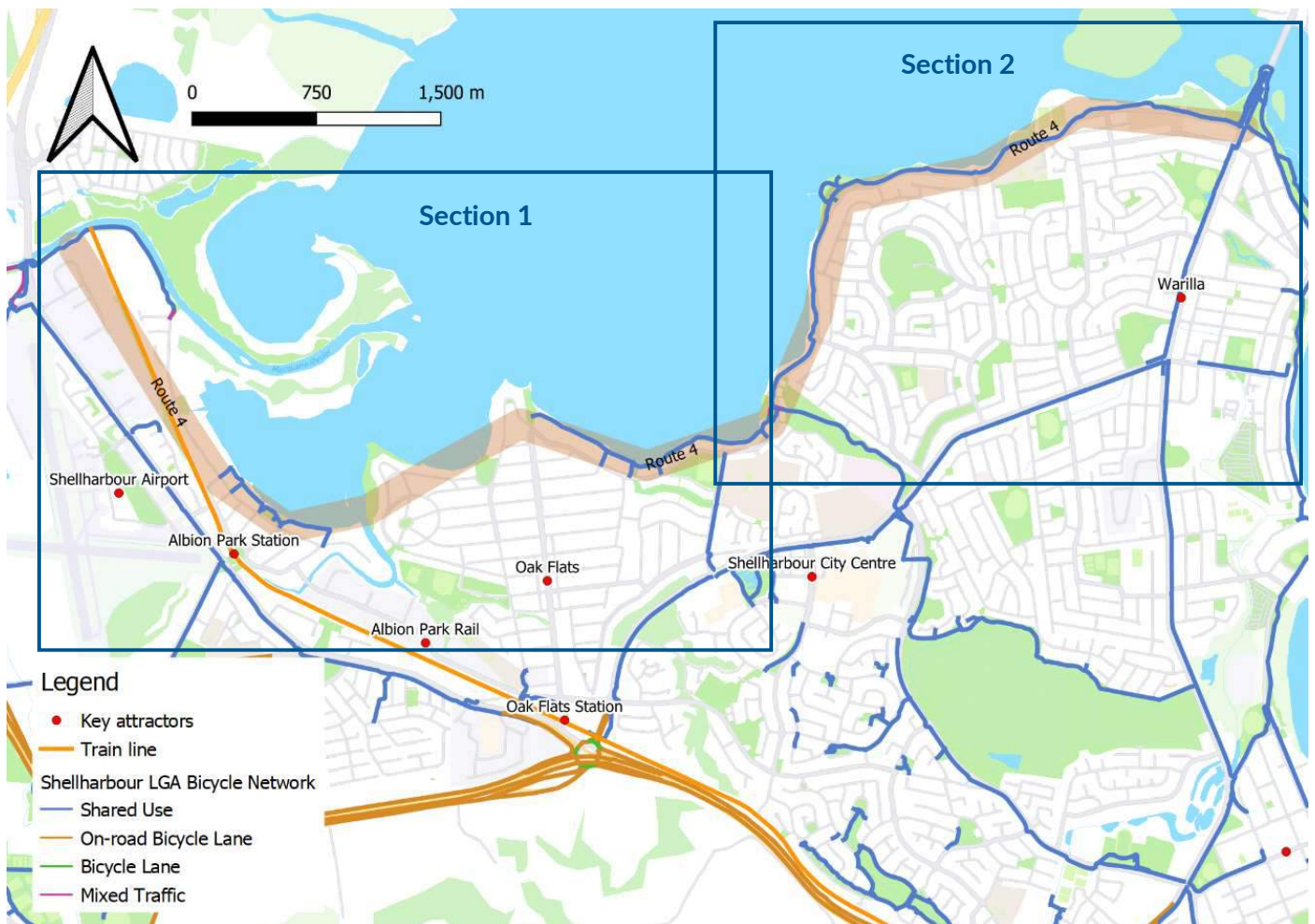


Route 4 – Macquarie Rivulet to Windang Bridge

Route 4 is the “around the lake” route connecting Macquarie Rivulet to Windang Bridge via the lake waterfront. Current infrastructure includes shared use paths along sections of the waterfront with notable gaps at Oak Flats and Albion Park Rail. This route is more typically used by recreational active transport users, with conflicts between pedestrians and cyclists at some locations.

▼ Analysis of Strategic Cycling Route 4

Strengths and Opportunities	Barriers and Weaknesses
Scenic route incentivises pedestrian and bicycle users	Gaps in network hinder active transport use
Current shared use path to the north of Oak Flats	Poor infrastructure at Windang Bridge
Supports connections to Wollongong LGA	High pedestrian and cyclist patronage can create conflicts
Flat terrain incentivises active transport	



▲ Strategic Cycling Route 4

Source: Mapbox, Esri QGIS Mapping Software

The potential for conflicts along the waterfront can be attributed to the limited space for pathways along waterfront locations, an issue which was raised during community consultation and included in the deficiencies assessment. Bifurcation, which separates walking and cycling paths, has been successful on various waterfront routes. An example of this is the Iron Cove Bay Walking Trail in Sydney.

This route will require a cycling permissible crossing at Horsley Inlet, as the current Slaters Bridge prohibits bicycle use. Two possible options have been considered:

- Upgrading of Slaters Bridge through demolition and reconstruction to meet the TfNSW recommended 4m minimum width of a shared use path.
- A new cycling bridge over Horsley Inlet, connecting Koono Bay Reserve to the Albion Park Rail waterfront north of the current pedestrian-only Slaters Bridge. This option is consistent with the Shared Use Path Strategy (Shellharbour Council, 2010) and has been assumed as the preferred option to inform the later aspects of this Strategy such as wayfinding and cost estimation.



▲ Bifurcation on Iron Cove Bay Walking Trail, Sydney

Potential active transport infrastructure on the Route 4 corridor includes bifurcation, new shared use paths, upgraded footpaths to shared use and a quietway.

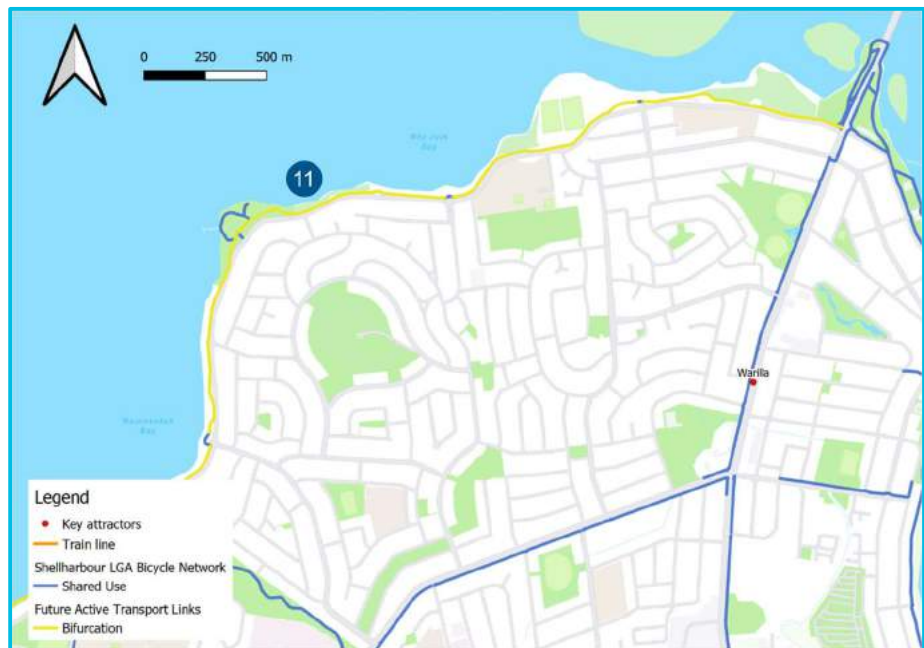
► Route 4 - Future Active Transport Facilities (Section 1)

Source: Mapbox, Esri QGIS Mapping Software



► Route 4 - Future Active Transport Facilities (Section 2)

Source: Mapbox, Esri QGIS Mapping Software



▼ Route 4 potential active transport infrastructure

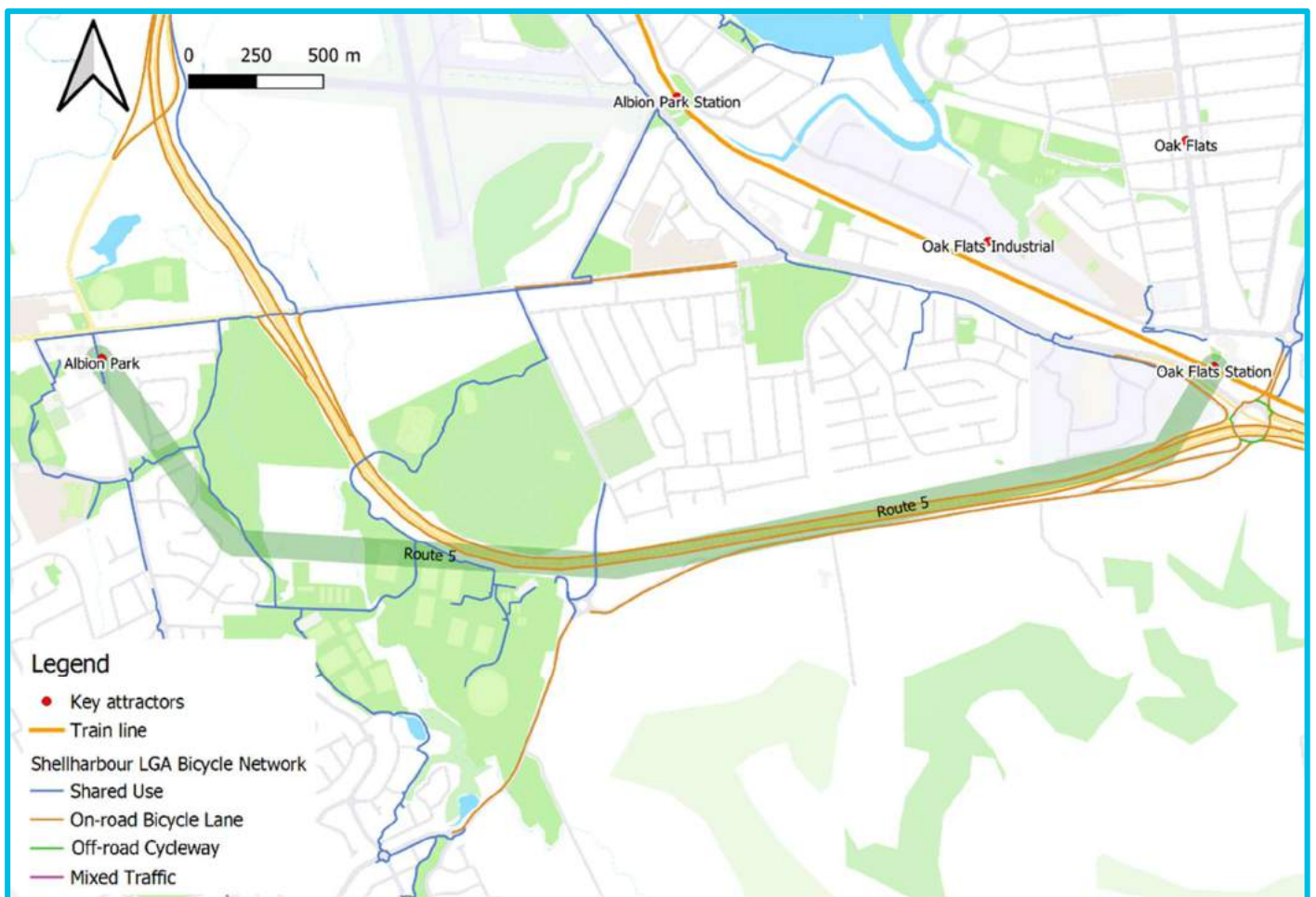
No.	Type	Location	Classification
1	Quietway	Shearwater Boulevard	Primary
2	New shared use path	Koona Street (south side)	Secondary
3	Upgraded footpath to shared use	Bridge Option 1: New Slaters Bridge	Secondary
4	New shared use path	Bridge Option 2: New bridge to Koona Bay Reserve	Primary
5	New shared use path	Bridge Avenue (north side)	Primary
6	New shared use path	Bridge Avenue (south side) and Parkes Street (north side)	Secondary
7	New shared use path / upgraded footpath	Moore Street (west side), upgraded section north of Barton Street	Secondary
8	New shared use path	Deakin Street (south side)	Primary
9	Upgraded footpath to shared use	Central Avenue (west side)	Primary
10	New shared use path	Central Park	Secondary
11	Bifurcation	Lake waterfront	Primary

Route 5 – Albion Park to Oak Flats Station

Route 5 is an east-west route connecting Albion Park to Oak Flats Station via Croom and southern Albion Park. Current infrastructure includes on-road bicycle lanes and high-quality shared use paths through Croom Regional Sporting Complex.

▼ Analysis of Strategic Cycling Route 5

Strengths and Opportunities	Barriers and Weaknesses
On-road bicycle lane on Princes Motorway	Network gaps on Terry Street
On-road bicycle lane on east-west link	Large gradient on east-west link
High quality shared use paths at Croom Regional Sporting Complex	



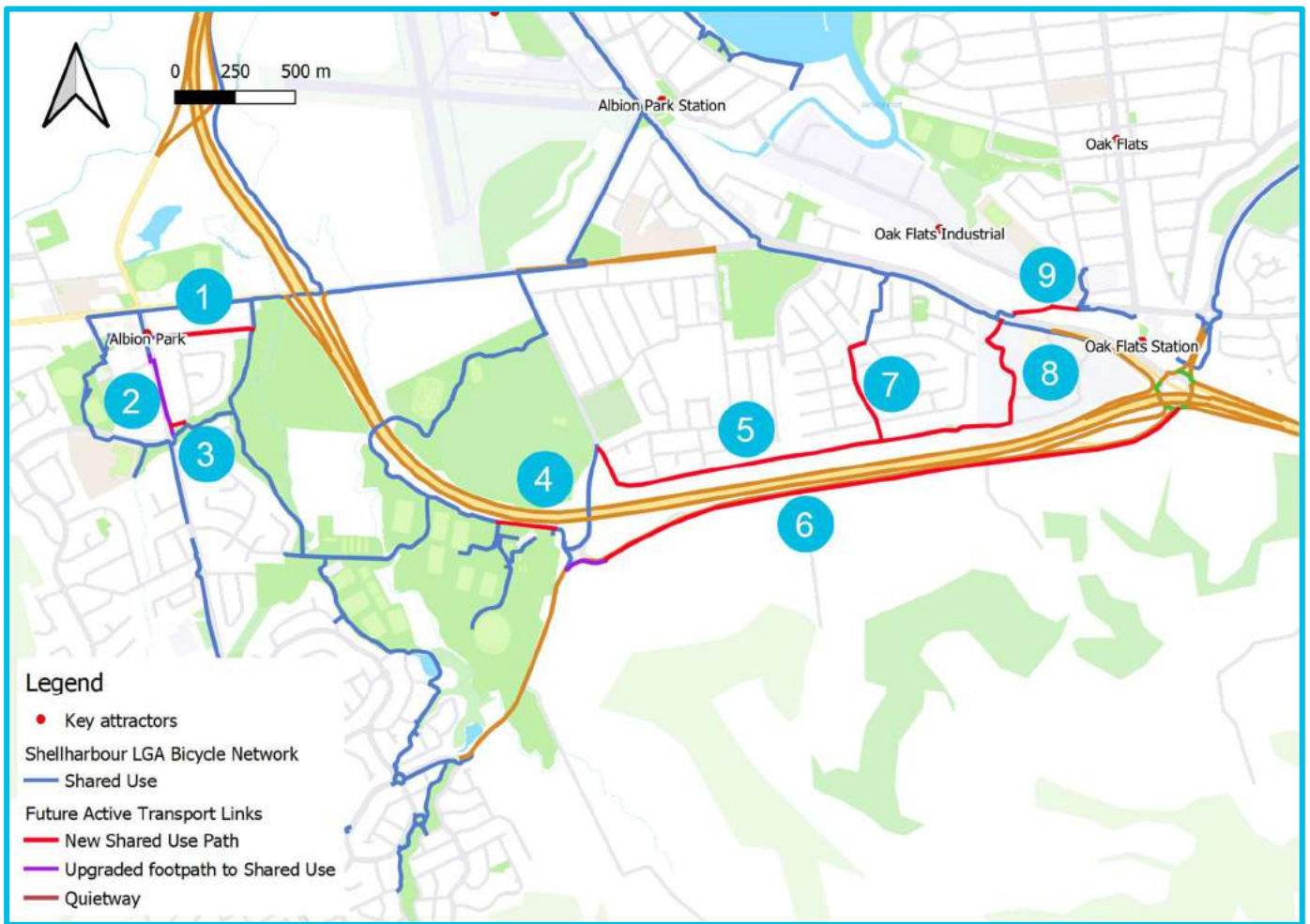
▲ Strategic Cycling Route 5

Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 5 corridor includes new shared use paths and upgraded footpaths to shared use.

▼ Route 5 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared use path / upgraded footpath	O’Gorman Street (south side)	Primary
2	Upgraded footpath to shared use	Terry Street (west side north of Russell Street, east side south of Russell Street)	Secondary
3	New shared use path	Cawdell Drive (south side)	Secondary
4	New shared use path	Outside Shellharbour City Stadium (south side)	Primary
5	Upgraded footpath to shared use	East-west link / Croome Road intersection (southwest side)	Secondary
6	Upgraded footpath to shared use / new shared use path	Park area north of Princes Highway	Primary
7	New shared use path	East-west link (south side)	Secondary
8	New shared use path	Jarrah Way (west side)	Primary
9	New shared use path	Shandan Circuit (west side), Colden Drive (east side)	Secondary
10	New shared use path	Princes Highway either side of train line	Secondary



▲ Route 5 - Future Active Transport Facilities

Source: Mapbox, Esri QGIS Mapping Software

Route 6 – Oak Flats waterfront to Oak Flats Station

Route 6 is a north-south route connecting the Lake Illawarra waterfront to Oak Flats Station via Central Avenue. Current infrastructure includes shared use paths along sections of the waterfront, with no north-south links. This route faces challenges in finding adequate space for cyclists in the Oak Flats town centre.



▲ Strategic Cycling Route 6

Source: Mapbox, Esri QGIS Mapping Software

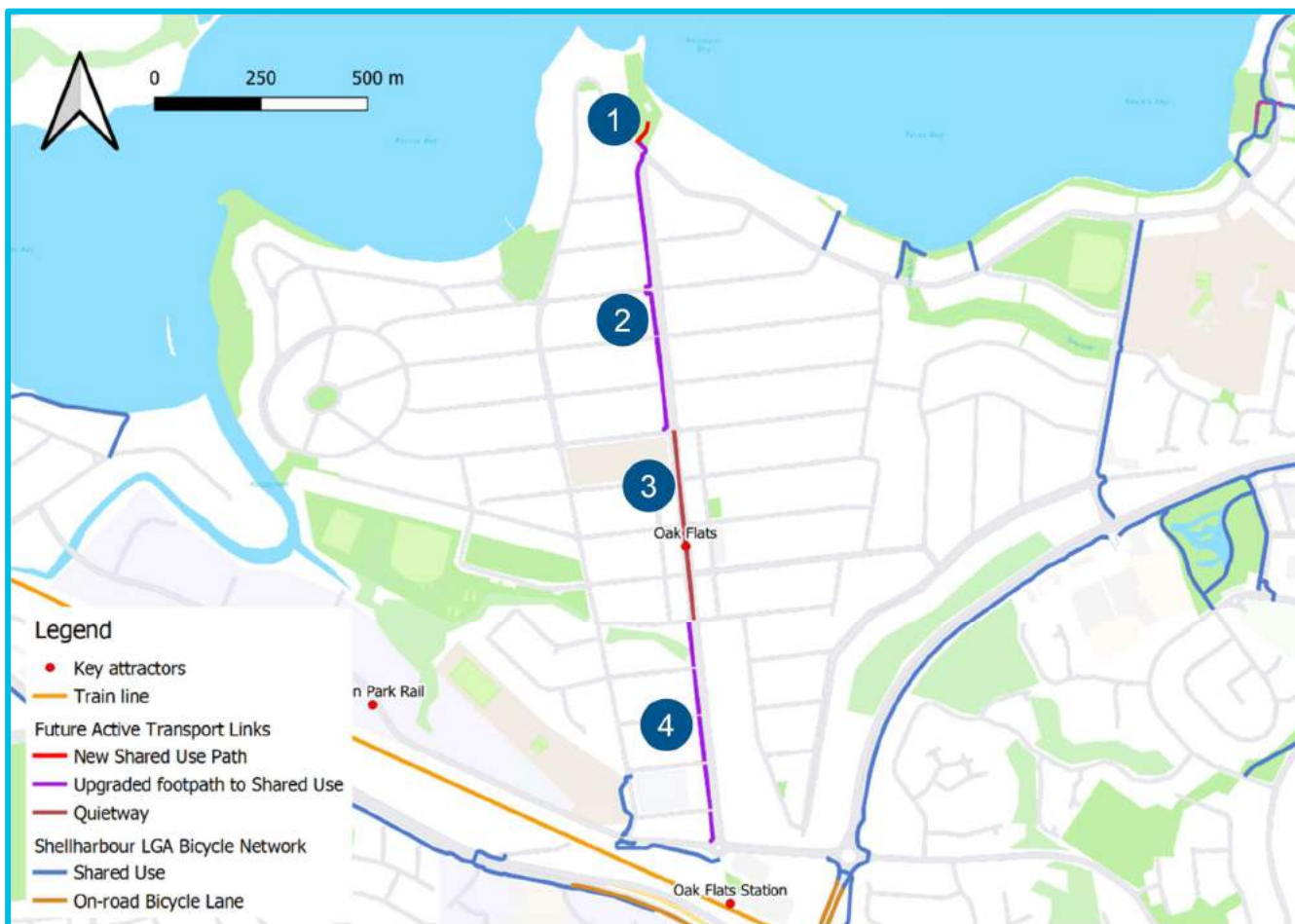
▼ Analysis of Strategic Cycling Route 6

Strengths and Opportunities	Barriers and Weaknesses
Connection to Oak Flats station and waterfront	No north-south cycling facilities
Shopping precinct along Central Avenue	Slight gradient on Central Avenue
	Limited road space on Central Avenue at town centre

To address the space constraints in the Oak Flats town centre, a 30 km/h speed zone is to be established along the route of the Central Avenue quietway. This slow street environment is designed to allow cyclists

to safely share the road space with vehicles. At the Oak Flats / Central Avenue intersection, a raised intersection is to be established, detailed later in this Strategy.

Potential active transport infrastructure on the Route 6 corridor includes a new shared use paths, upgraded footpaths to shared use and a quietway.



▲ Route 6 - Future Active Transport Facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 6 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared use path	Central Park	Primary
2	Upgraded footpath to shared use	Central Avenue (west side)	Primary
3	Quietway	Central Avenue (east side)	Primary
4	Upgraded footpath to shared use	Central Avenue (west side)	Primary



Route 7 – Shellharbour Junction Station to Shellharbour Village (via Shell Cove)

Route 7 is an east-west route connecting Shellharbour Village to Shellharbour Junction Station via Shell Cove. Current infrastructure includes shared use paths along Shellharbour Road and public transport infrastructure at Shellharbour Junction. There are other shared use paths to the south of Shellharbour Road, albeit disconnected from the network. This route is more typically used by commuters travelling to and from public transport or commercial areas.



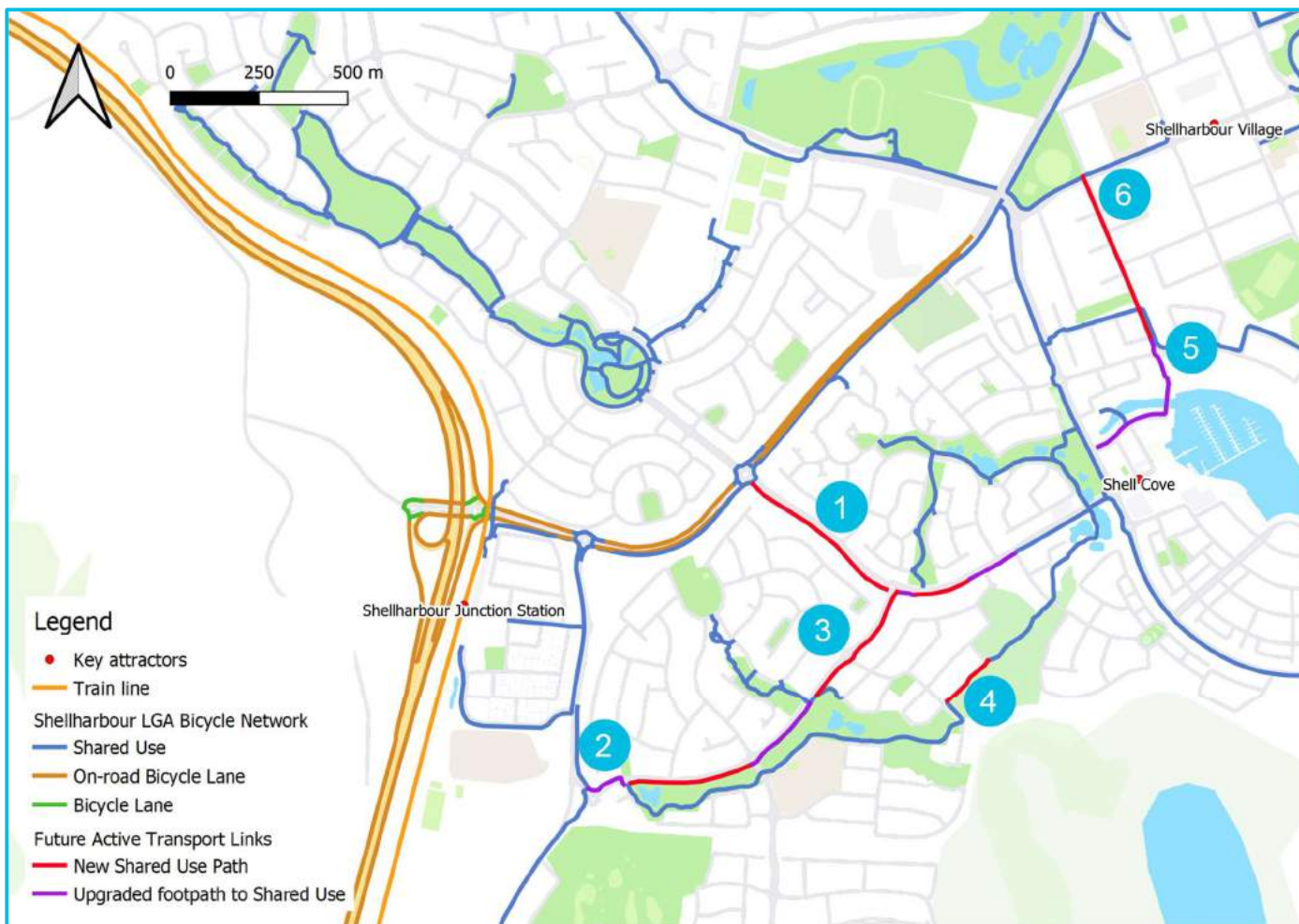
▲ Strategic Cycling Route 7

Source: Mapbox, Esri QGIS Mapping Software

▼ Analysis of Strategic Cycling Route 7

Strengths and Opportunities	Barriers and Weaknesses
Shared use path along Shellharbour Road	Lack of facilities on Cove Boulevard
Connects future housing development to public transport	Slight gradient along Cove Boulevard

Potential active transport infrastructure on the Route 7 corridor includes new shared use paths and upgraded footpaths to shared use.



▲ Route 7 - Future Active Transport Facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 7 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared use path / upgraded footpath	Cove Boulevard (south side)	Secondary
2	Upgraded footpath to shared use	Southern Cross Boulevard (north side)	Primary
3	New shared use path / upgraded footpath	Southern Cross Boulevard (south side)	Secondary
4	New shared use path	Melville Crescent (south side)	Primary
5	Upgraded footpath to shared use	Aquatic Drive (west side)	Primary
6	New shared use path	Whimbrel Terrace, Sophia Street (west side)	Secondary

Route 8 – Shellharbour Junction Station to Shellharbour Village (via Flinders)

Route 8 is an east-west route connecting Shellharbour Village directly to Shellharbour Junction Station. Current infrastructure includes shared use paths along sections of the route with new shared use paths at Sophia Street and Towns Street. This route is more typically used by recreational active transport users, with conflicts between pedestrians and cyclists at some locations.



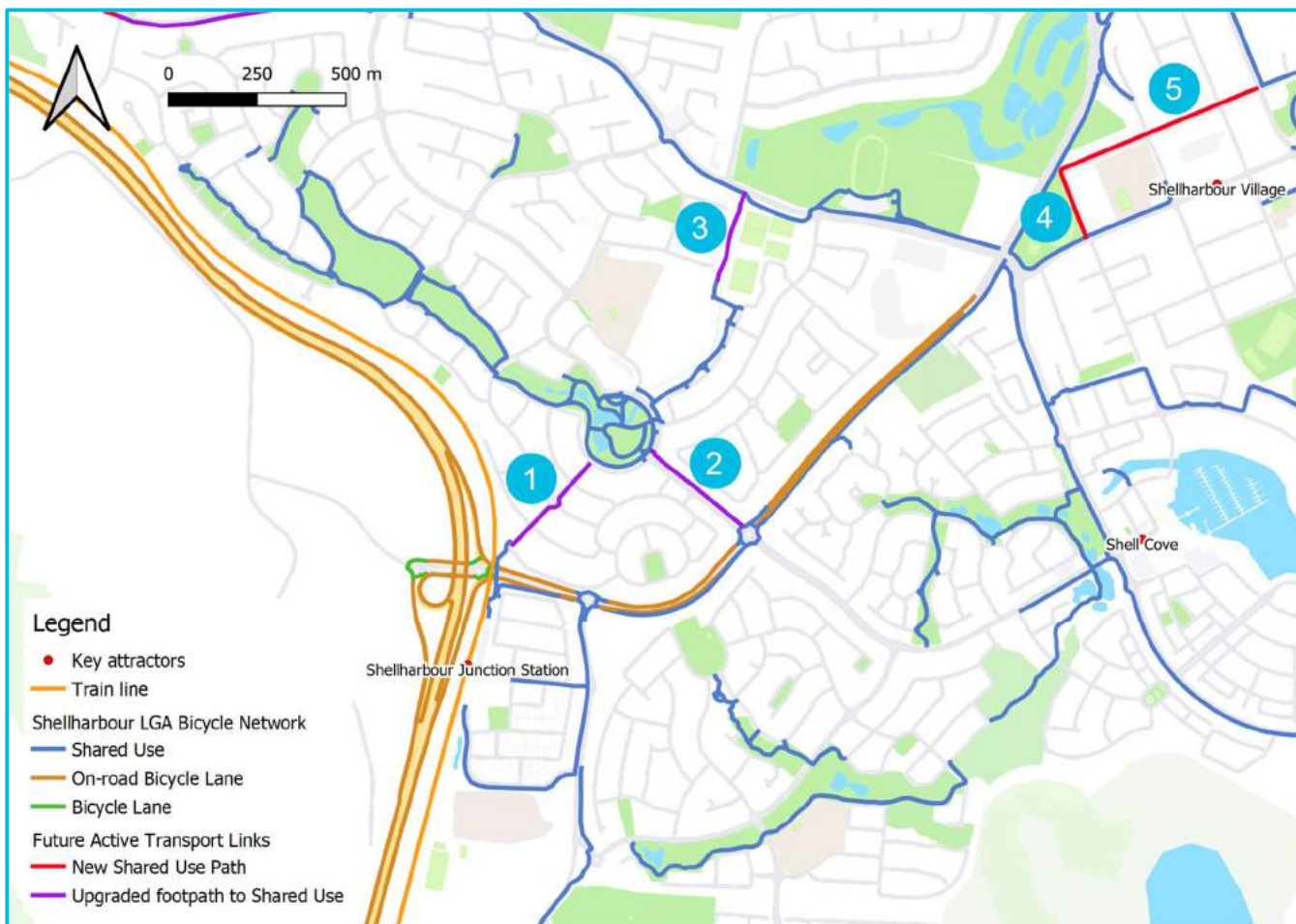
▲ Strategic Cycling Route 8

Source: Mapbox, Esri QGIS Mapping Software

▼ Analysis of Strategic Cycling Route 8

Strengths and Opportunities	Barriers and Weaknesses
Shared use path along Shellharbour Road	Lack of sun protection on Shellharbour Road
Connects waterfront destination to public transport	On-road bicycle lane stops short of intersection with Harbour Boulevard

Potential active transport infrastructure on the Route 8 corridor includes new shared use paths and upgraded footpaths to shared use.



▲ Route 8 - Future Active Transport Facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 8 potential active transport infrastructure

No.	Type	Location	Classification
1	Upgraded footpath to shared use	Haddin Road (south side)	Secondary
2	Upgraded footpath to shared use	Lakewood Boulevard (north side)	Secondary
3	Upgraded footpath to shared use	Pathway between Burrinjuck Avenue and Wattle Road	Secondary
4	New shared use path	Sophia Street (west side)	Secondary
5	New shared use path	Towns Street (north side)	Secondary

Route 9 – Oak Flats Station to Warilla

Route 9 is an east-west route connecting Warilla to Oak Flats Station via Shellharbour City Centre. Current infrastructure includes shared use paths along sections of Lake Entrance Road and New Lake Entrance Road.



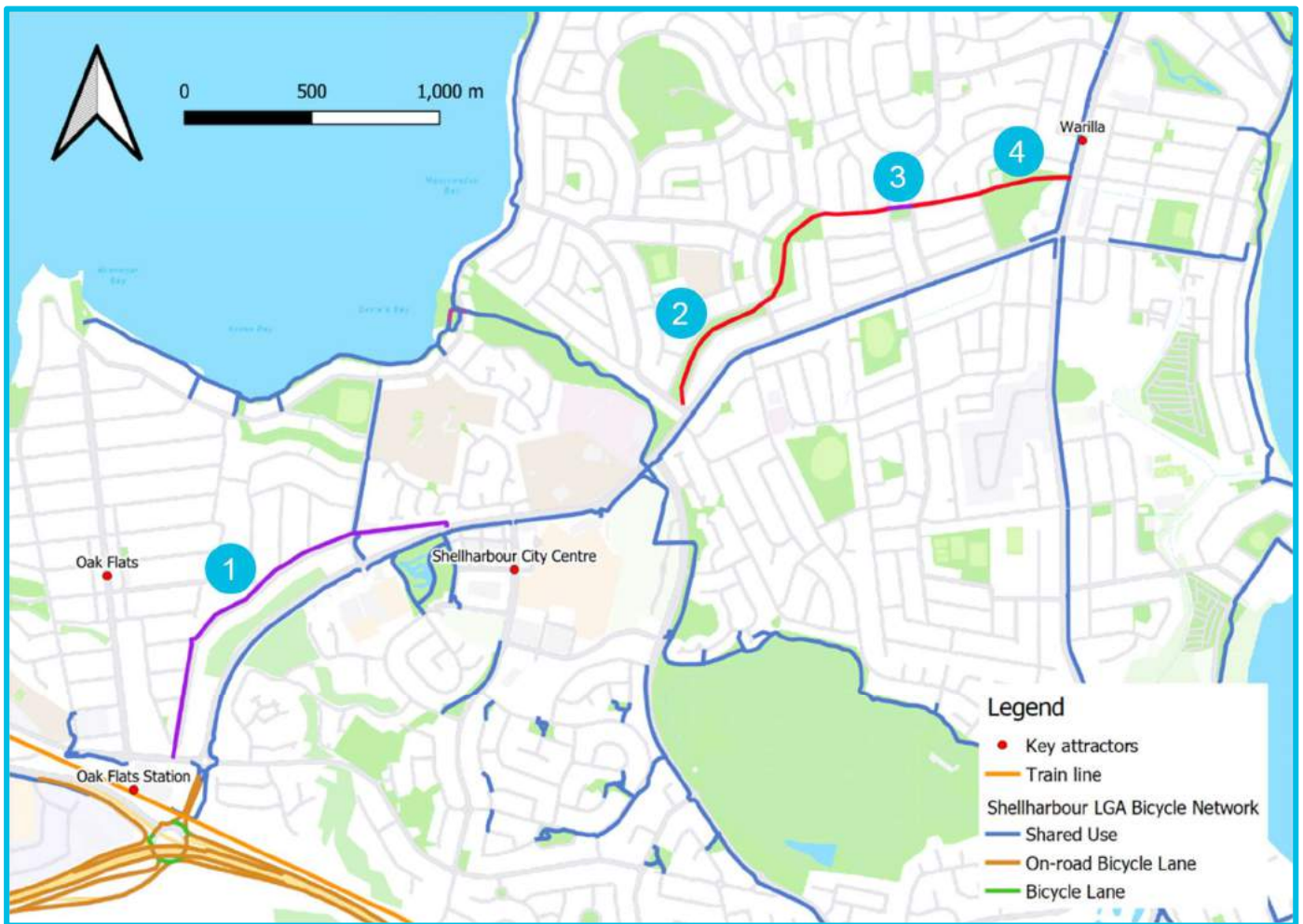
▲ Strategic Cycling Route 9

Source: Mapbox, Esri QGIS Mapping Software

▼ Analysis of Strategic Cycling Route 9

Strengths and Opportunities	Barriers and Weaknesses
Connects public transport with a large shopping precinct and isolated town centre	Slight gradient on Lake Entrance Road
Current shared use paths on Lake Entrance Road and Shellharbour Road	Large gradient at Shellharbour City Centre

Potential active transport infrastructure on the Route 9 corridor includes new shared use paths and upgraded footpaths to shared use.



▲ Route 9 – Future Active Transport Facilities

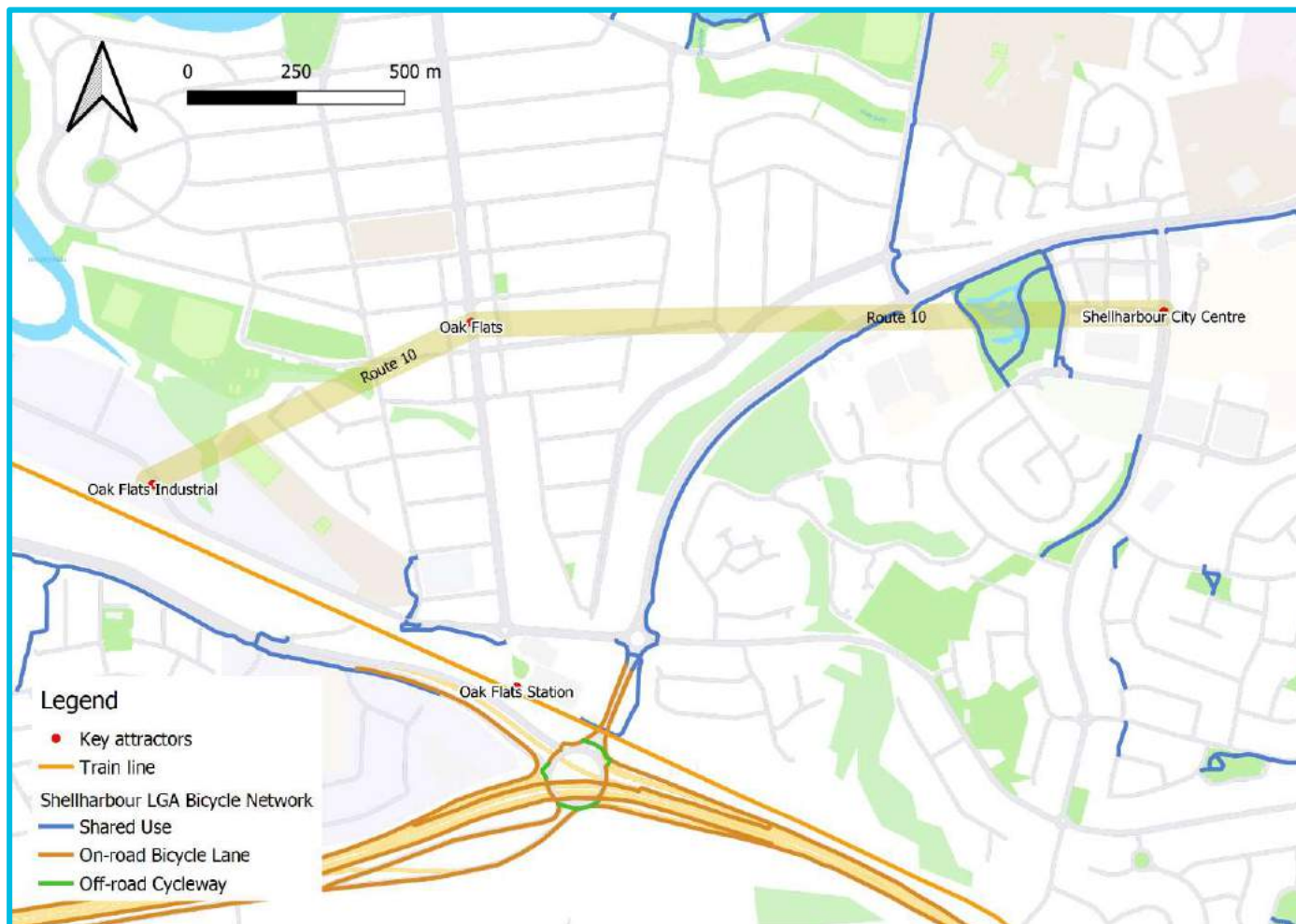
Source: Mapbox, Esri QGIS Mapping Software

▼ Route 9 potential active transport infrastructure

No.	Type	Location	Classification
1	Upgraded footpath to shared use	Lake Entrance Road (north side)	Primary
2	New shared use path	Garrad Reserve, Andrew Park, Johnston Street (north side)	Primary
3	Upgraded footpath to shared use	Pathway on the north side of Williams Park	Primary
4	New shared use path	O'Neill Street (north side), War Memorial Park	Primary

Route 10 – Oak Flats Industrial to Shellharbour City Centre

Route 10 is an east-west route connecting Shellharbour City Centre to Oak Flats Industrial via Oak Flats. Current infrastructure includes shared use paths along Pioneer Drive and future shared use paths to fill in the gaps along the route. The shared use path goes through Geoff Shaw Oval, located west of Central Avenue. Furthermore, Corpus Christi Catholic High School is situated near the route, indicating potential significant usage by students and for school-related activities.



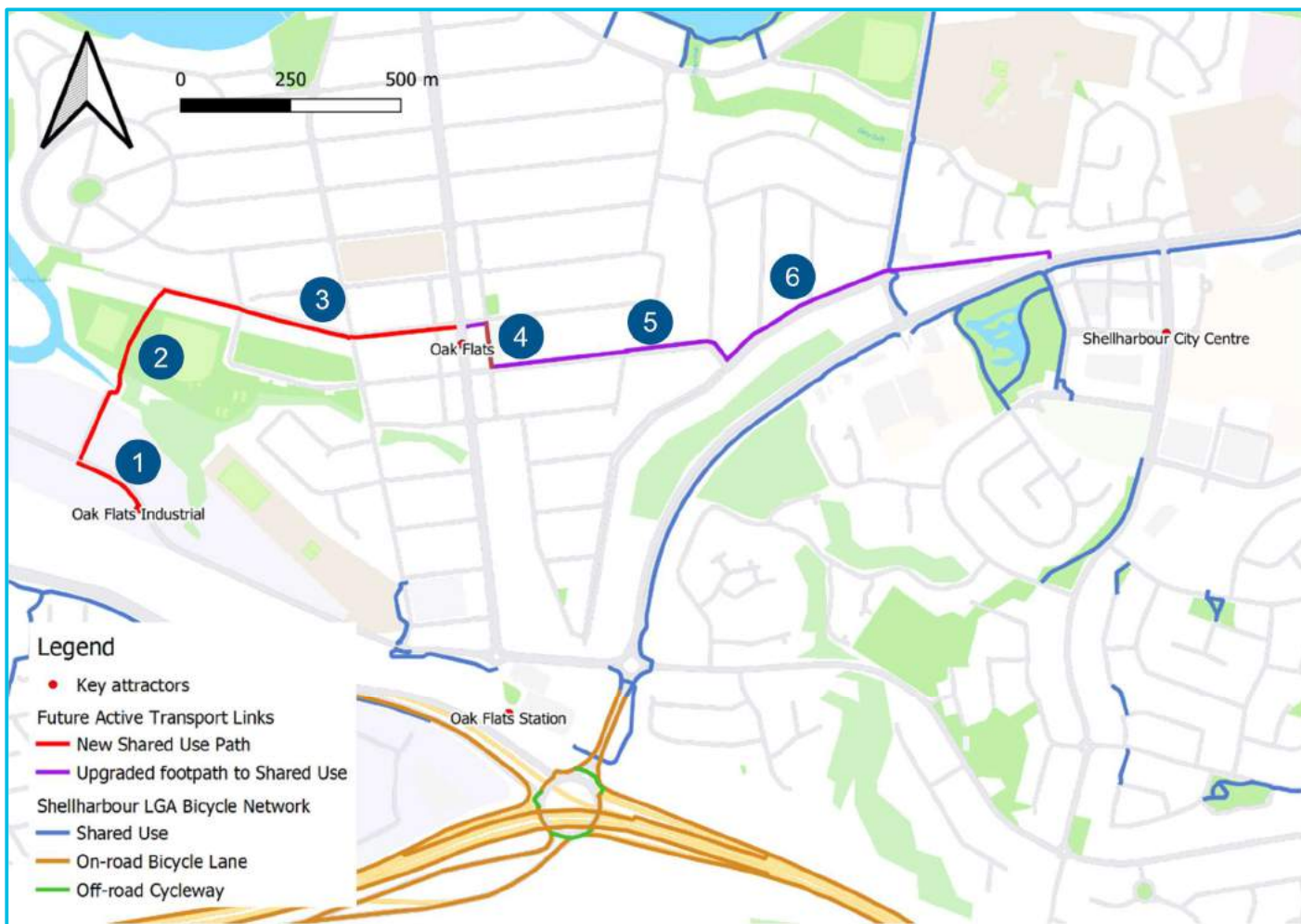
▲ Strategic Cycling Route 10

Source: Mapbox, Esri QGIS Mapping Software

▼ Analysis of Strategic Cycling Route 10

Strengths and Opportunities	Barriers and Weaknesses
Connects public transport with a large chopping precinct and isolated centre	Slight gradient on Lake Entrance Road
Many east-west roads within Oak Flats	Limited active transport facilities through Oak Flats

Potential active transport infrastructure on the Route 10 corridor includes new shared use paths, upgraded footpaths to shared use and a quietway.



▲ Route 10 - Future Active Transport Facilities

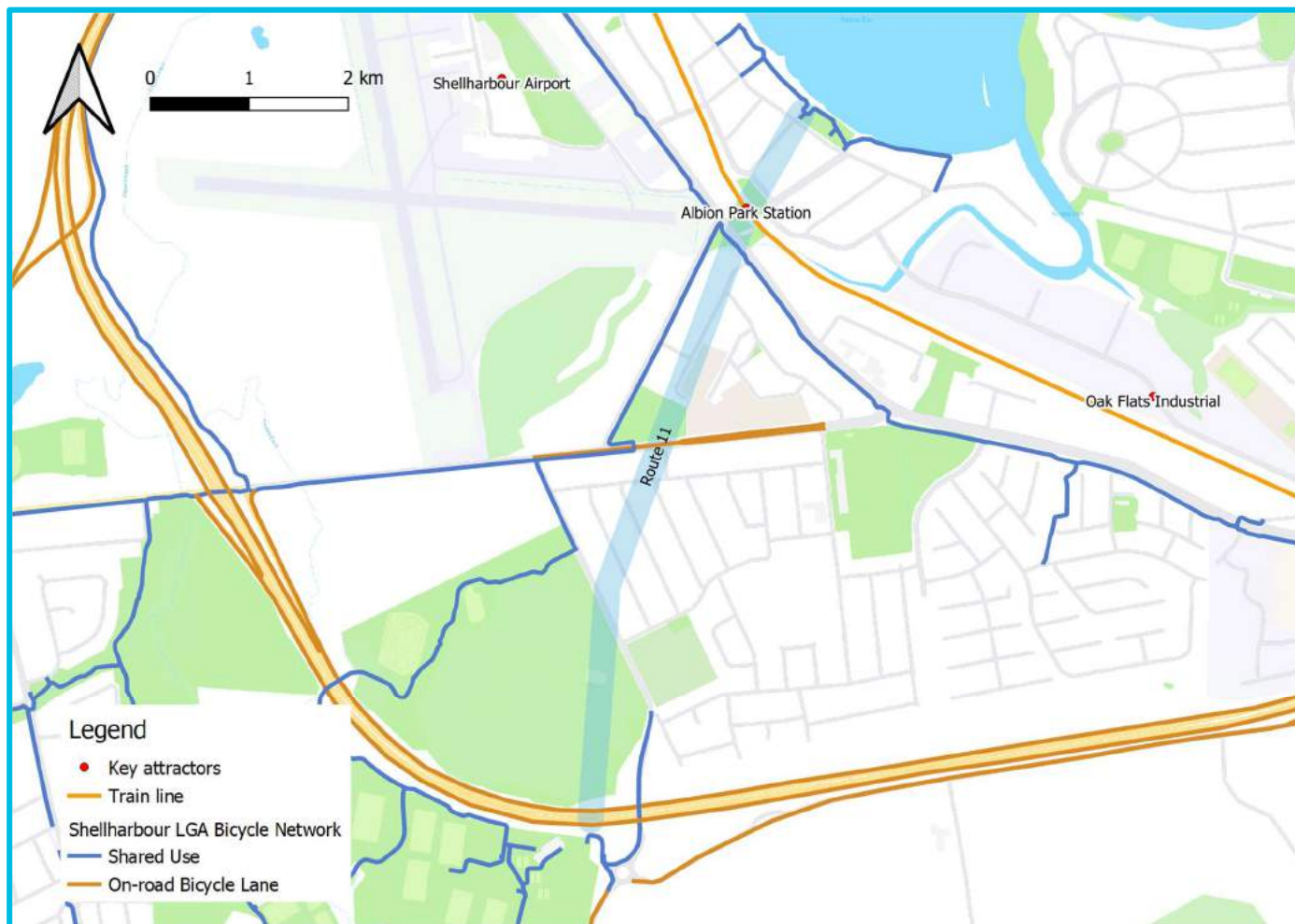
Source: Mapbox, Esri QGIS Mapping Software

▼ Route 10 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared use path	Industrial Road (south side)	Secondary
2	New shared use path	Mineral Road (east side), Geoff Shaw Oval	Primary
3	New shared use path	Fisher Street (south side)	Primary
4	Quietway	Ayers Lane	Primary
5	Upgraded footpath to shared use	Kingston Street (north side)	Primary
6	Upgraded footpath to shared use	Lake Entrance Road (west side)	Secondary
7	New shared use path	Pioneer Drive (south side)	Secondary

Route 11 – Albion Park Rail waterfront to Croom

Route 11 is a north-south route connecting the waterfront to Princess Motorway via Albion Park Station. Current infrastructure includes shared use paths along sections of the route, with notable gaps at Werrang Street and Croome Road where new shared use paths will be developed. This route is within proximity to Albion Park Rail Public School and will be typically used by recreational active transport users, with conflicts between pedestrians and cyclists at some locations.



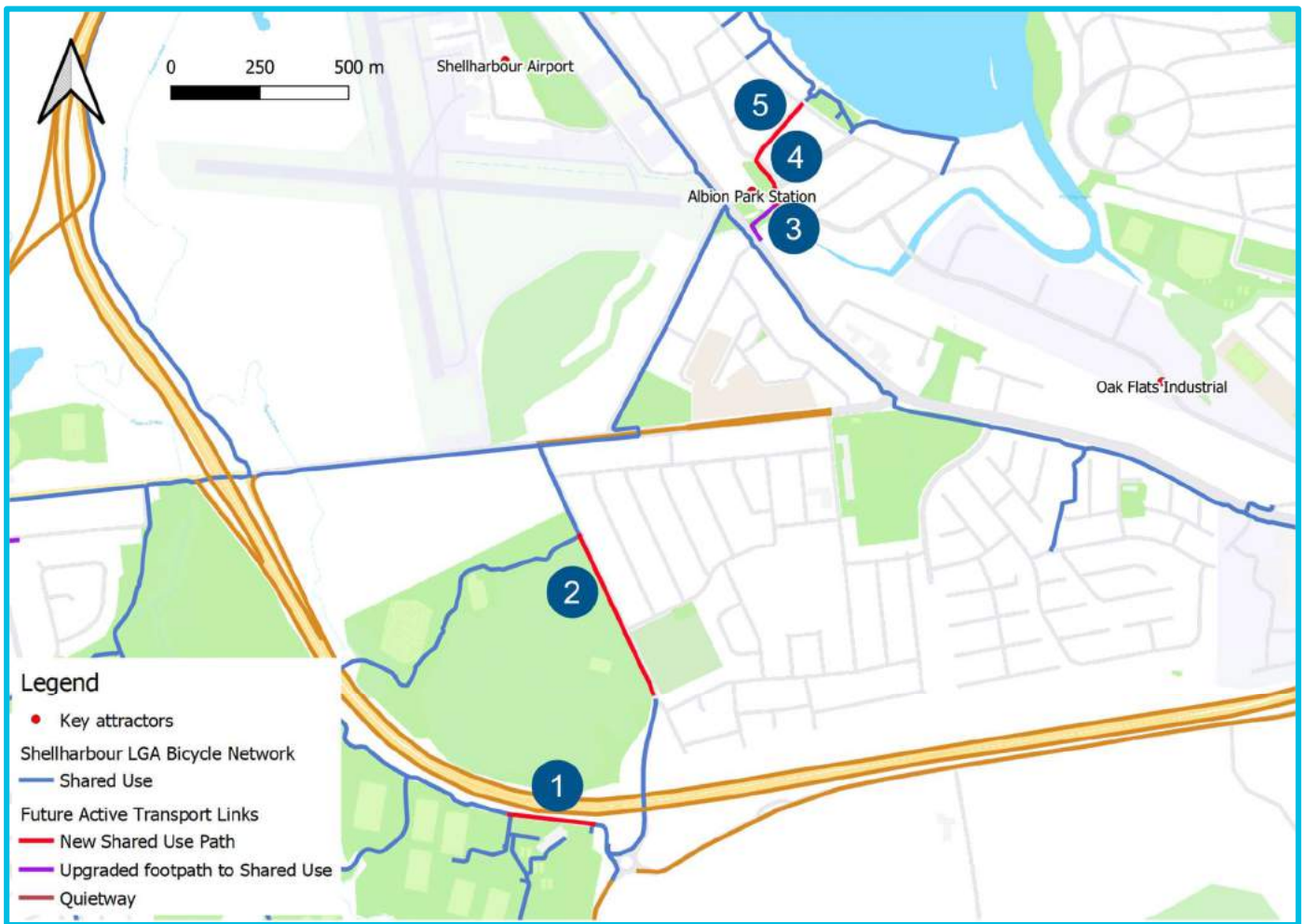
▲ Strategic Cycling Route 11

Source: Mapbox, Esri QGIS Mapping Software

▼ Analysis of Strategic Cycling Route 11

Strengths and Opportunities	Barriers and Weaknesses
Connects public transport with recreational centres along the waterfront and Croom Regional Sporting Complex	Gap in Croome Road missing more direct north-south connection
Current shared use paths through Croom Regional Sporting Complex	Limited opportunities to cross Princes Highway

Potential active transport infrastructure on the Route 11 corridor includes new shared use paths and an upgraded footpath to shared use.



▲ Route 11 - Future Active Transport Facilities

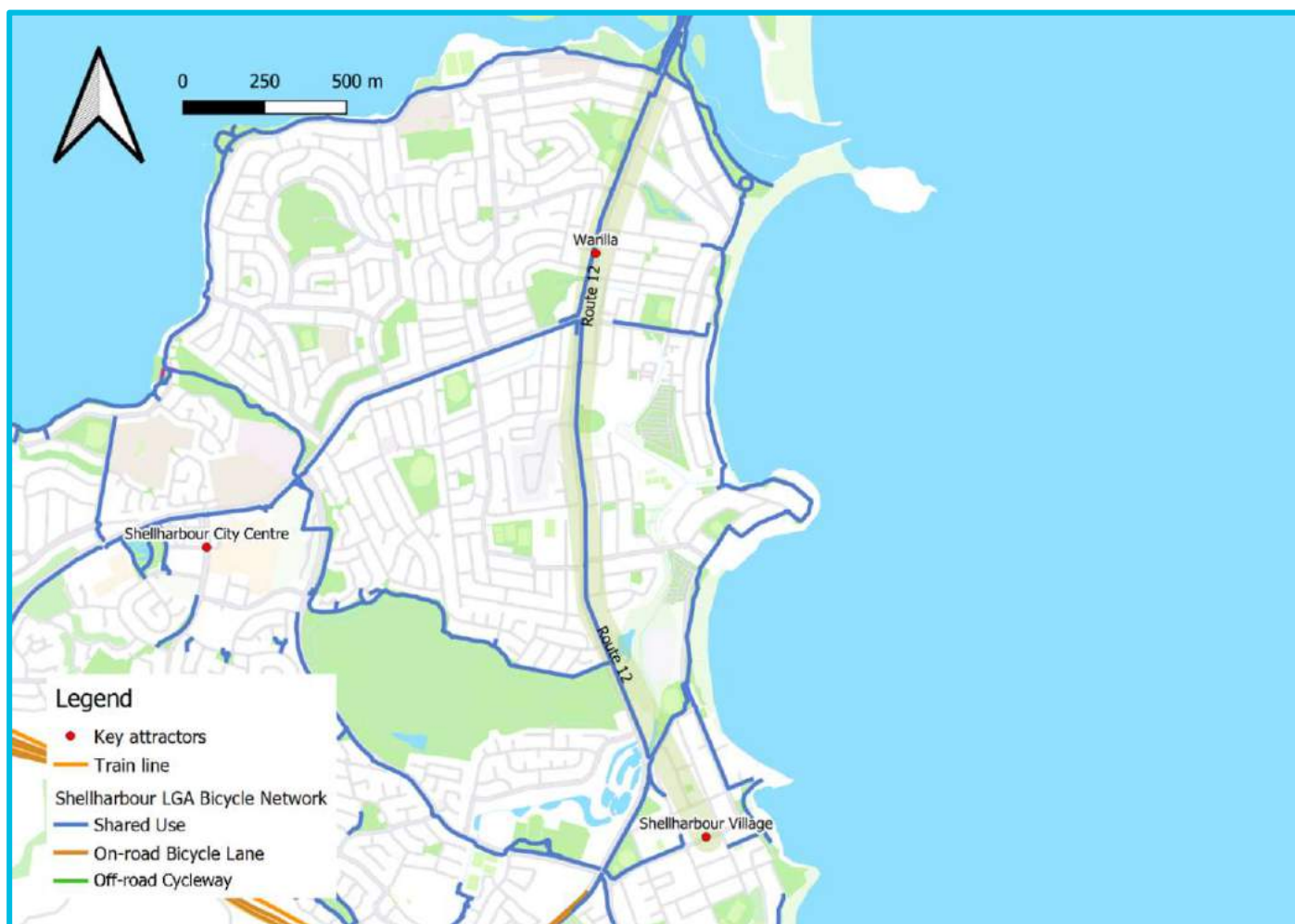
Source: Mapbox, Esri QGIS Mapping Software

▼ Route 11 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared use path	Outside Shellharbour City Stadium (south side)	Primary
2	New shared use path	Croome Road (west side)	Primary
3	Upgraded footpath to shared use path	Rotary Park crossing train line	Primary
4	New shared use path	Werrang Street (west side)	Primary
5	New shared use path	Burroo Street (west side)	Primary

Route 12 – Windang Bridge to Shellharbour Village (via Shellharbour Road)

Route 12 is a north-south route connecting the waterfront at Warilla to Shellharbour Village via Shellharbour Road. Current infrastructure includes shared use paths along majority of the route, with a future shared use path on Mary Street near Shellharbour Village.

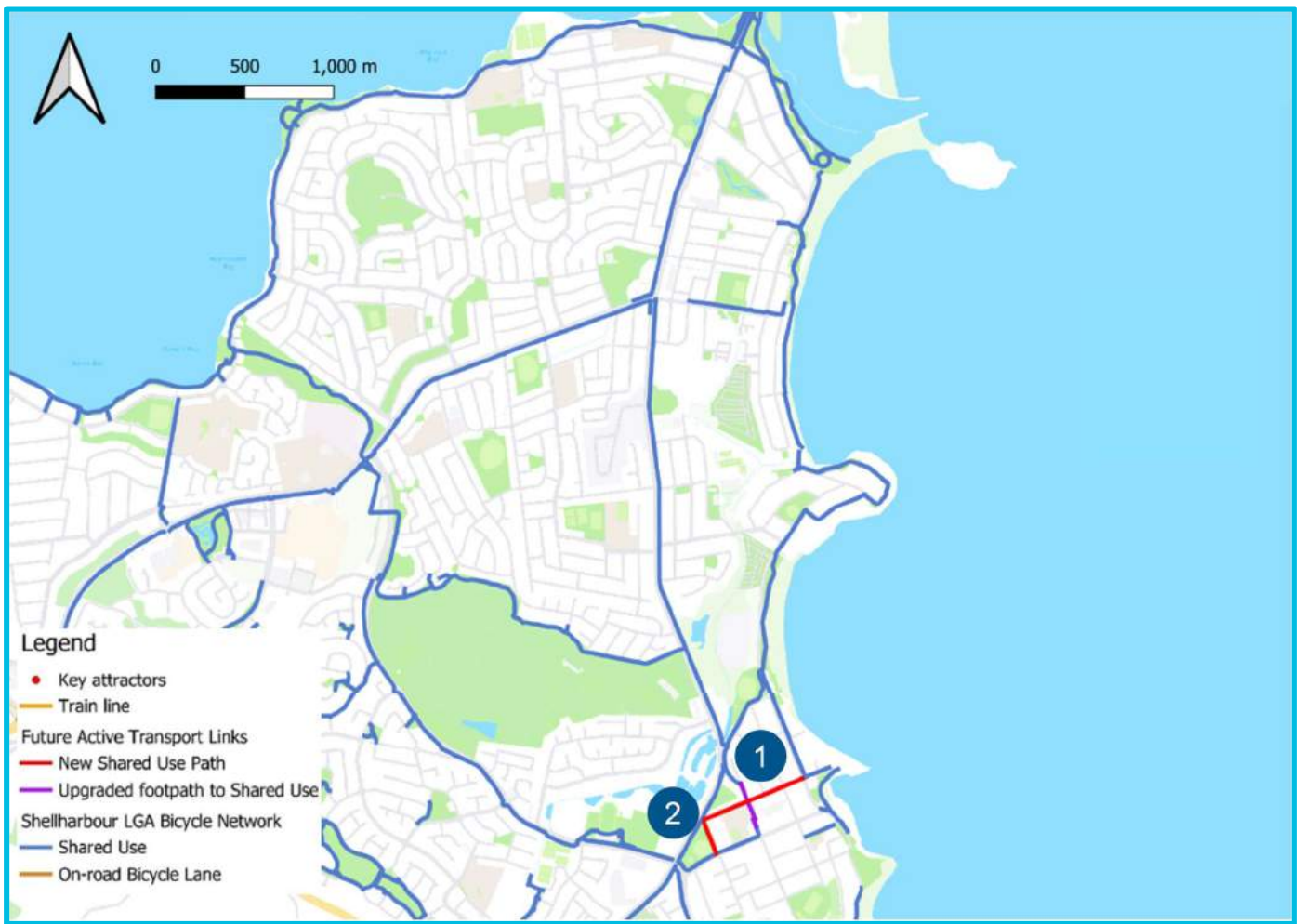


▲ Strategic Cycling Route 12

▼ Analysis of Strategic Cycling Route 12

Strengths and Opportunities	Barriers and Weaknesses
Current shared use path along Shellharbour Road	Cycling route has no opportunities for shortcuts through recreational areas
Connects commercial areas through a relative direct route	Steep gradient to the north of Shellharbour Village

Potential active transport infrastructure on the Route 12 corridor includes a new shared use path and an upgraded footpath to shared use.



▲ Route 12 - Future Active Transport Facilities

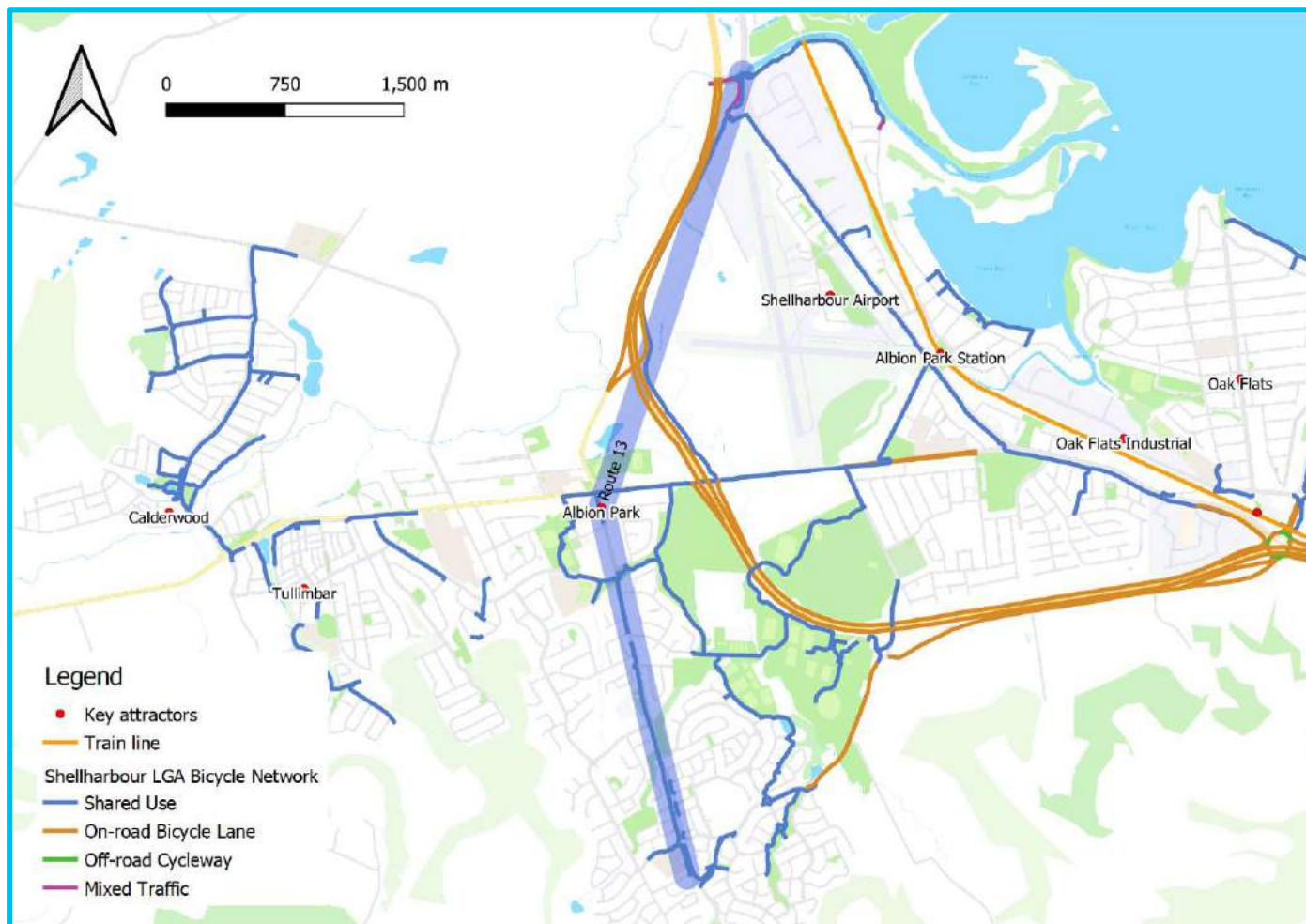
Source: Mapbox, Esri QGIS Mapping Software

▼ Route 12 potential active transport infrastructure

No.	Type	Location	Classification
1	Upgraded footpath to shared use	Mary Street (east side north of pedestrian crossing, west south of crossing)	Primary
2	New shared use path	Sophia Street (west side), Town Street (north side)	Secondary

Route 13 – Macquarie Rivulet to Southern Albion Park

Route 13 is a north-south route connecting Albion Park to Macquarie Rivulet. Current infrastructure includes shared use paths along sections of Terry Street. However, there are noticeable gaps to the west of this route that do not connect to the existing shared use paths to the east. This route is primarily used by recreational active transport users, with conflicts between pedestrians and cyclists at some locations.



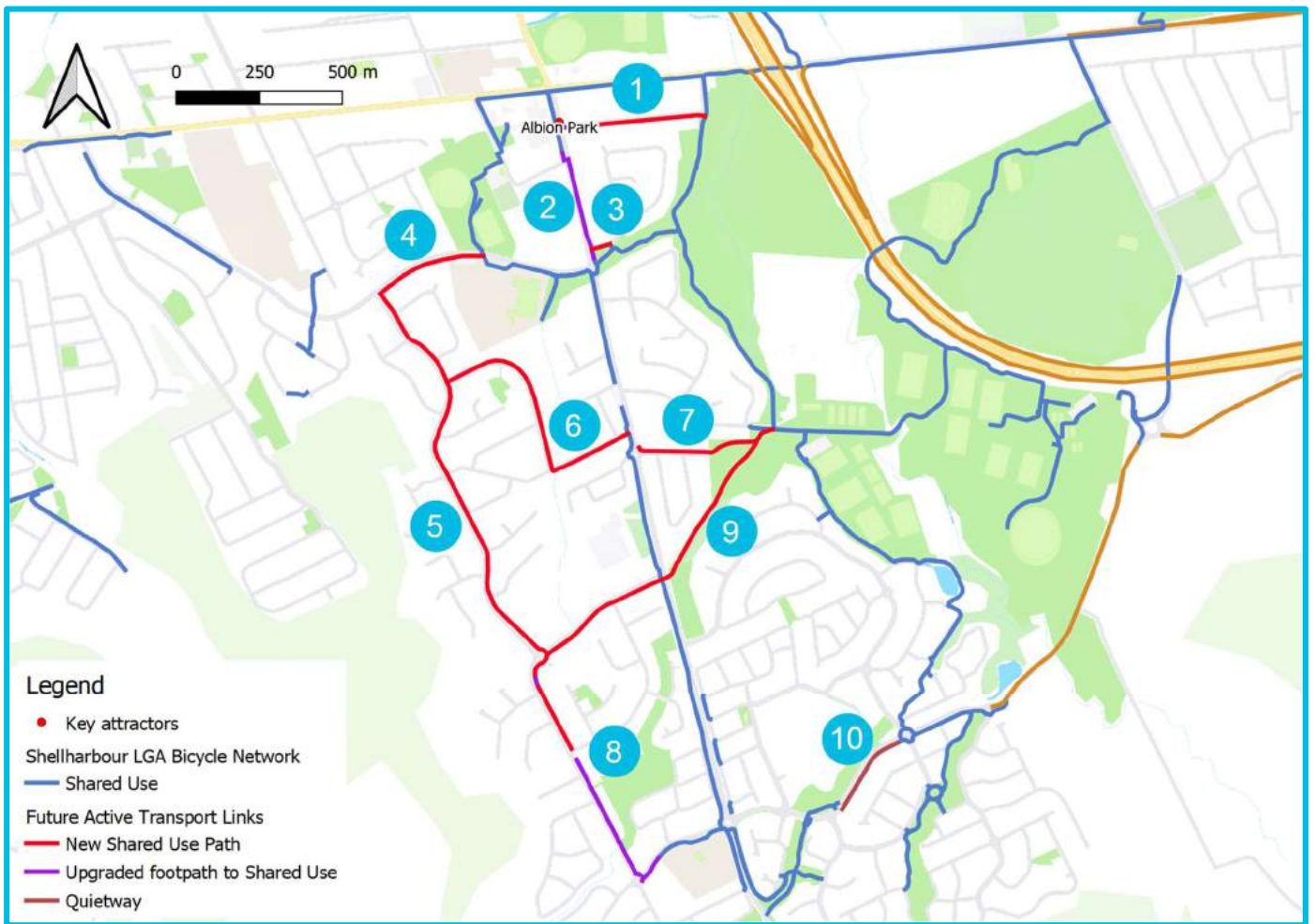
▲ Strategic Cycling Route 13

Source: Mapbox, Esri QGIS Mapping Software

▼ Analysis of Strategic Cycling Route 13

Strengths and Opportunities	Barriers and Weaknesses
Current shared use path along sections of Terry Street	Cycling route has alternate recreational routes to the east
Most of the Albion Park population is within a short distance of the Terry Street corridor	Shared use path has breaks along Terry Street
Shared use path along the M1 alignment as part of the Albion Park Rail bypass project	

Potential active transport infrastructure on the Route 13 corridor includes new shared use paths, upgraded footpaths to shared use and a quietway.



▲ Route 13 - Future Active Transport Facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 13 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared use path / upgraded footpath to shared use	O’Gorman Street (south side)	Primary
2	Upgraded footpath to shared use	Terry Street (east side north of Russell Street)	Primary
3	Upgraded footpath to shared use	Cawdell Drive (south side)	Primary
4	New shared use path	Church Street between Hillside Drive and Terry Street (south side)	Secondary
5	New shared use path	Hillside Drive (east side)	Secondary

No.	Type	Location	Classification
6	New shared use path	Centenary Road (north side), Simpson Parade (south side)	Secondary
7	New shared use path	Smith Avenue (north side), Terry Reserve	Secondary
8	New shared use path / upgraded footpath to shared use	Daintree Drive (east side)	Secondary
9	New shared use path	Via Terry Reserve	Secondary
10	Quietway	Ashburton Drive laneway	Primary

Route 14 – Oak Flats Station to New Shellharbour Hospital

Route 14 is a north-south connection from Oak Flats Station to the new Shellharbour Hospital. The existing infrastructure includes shared use paths that link to Oak Flats Station. There is an advantage of flatter terrain along the train and freeway corridor, but there are noticeable gaps in the shared use paths to the northeast of this route.



▲ Strategic Cycling Route 14

Source: Mapbox, Esri QGIS Mapping Software

▼ Analysis of Strategic Cycling Route 14

Strengths and Opportunities	Barriers and Weaknesses
Flatter terrain along the train and freeway corridor	Cycling route has alternative modes of transport
Connects to schools and future hospital precinct development	Difficult to build new pathways along rail corridor

Potential active transport infrastructure on the Route 14 corridor includes new shared use paths and an upgraded footpath to shared use.



▲ Route 14 - Future Active Transport Facilities

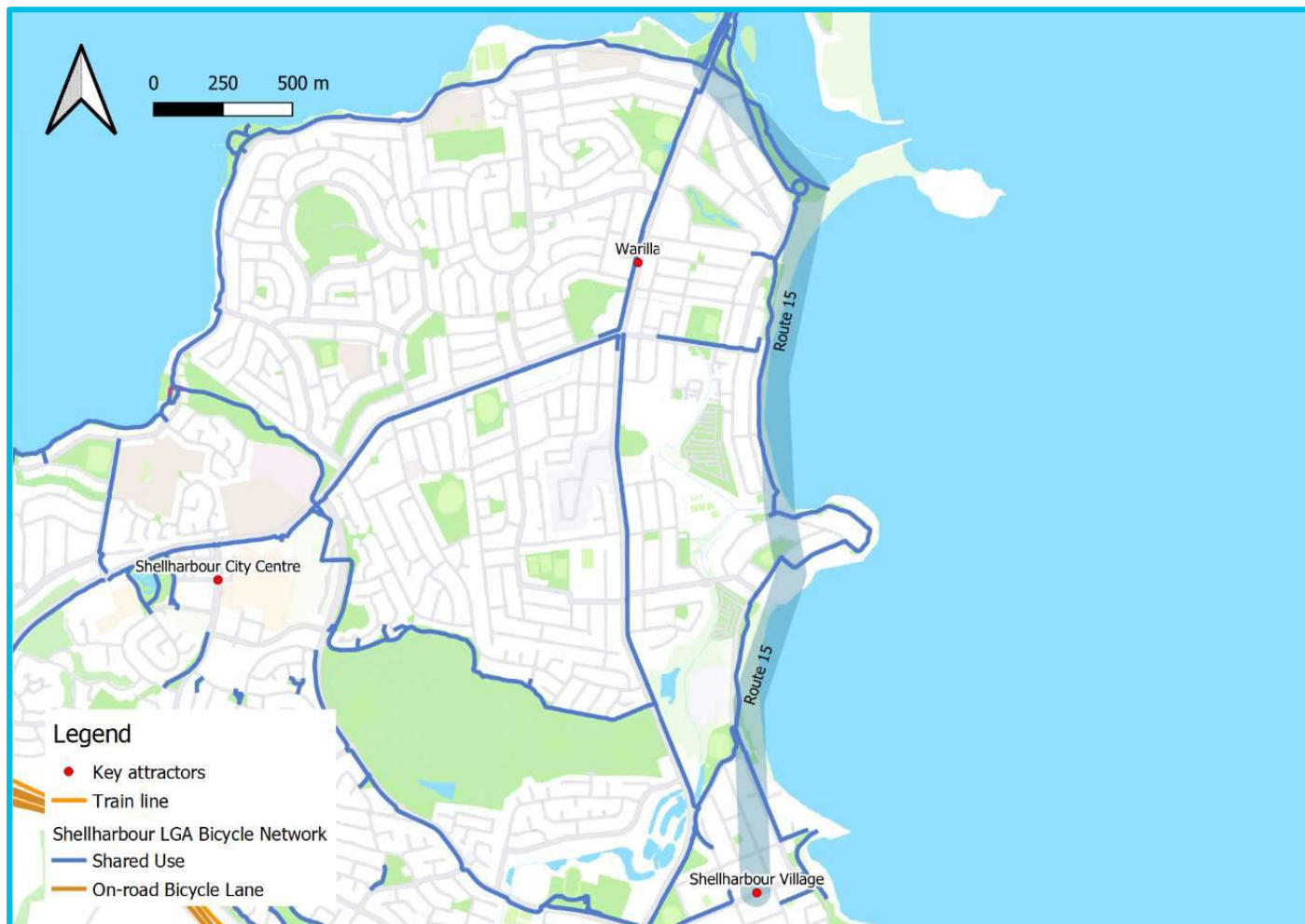
Source: Mapbox, Esri QGIS Mapping Software

▼: Route 14 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared use path	North of rail line, Jemima Reserve, Whittaker Street (south side)	Primary
2	New shared use path	North of rail line	Primary
3	Upgraded footpath to shared use	Haddin Road (south side)	Secondary
4	New shared use path	Dunmore Road (west side), connecting to the new Hospital precinct	Primary

Route 15 – Windang Bridge to Shellharbour Village (via waterfront)

Route 15 is a north-south connection from Windang Bridge to Shellharbour Village via the lake waterfront. Current infrastructure includes shared use paths along sections of the waterfront. This route is primarily used by recreational active transport users, with conflicts between pedestrians and cyclists at some locations.



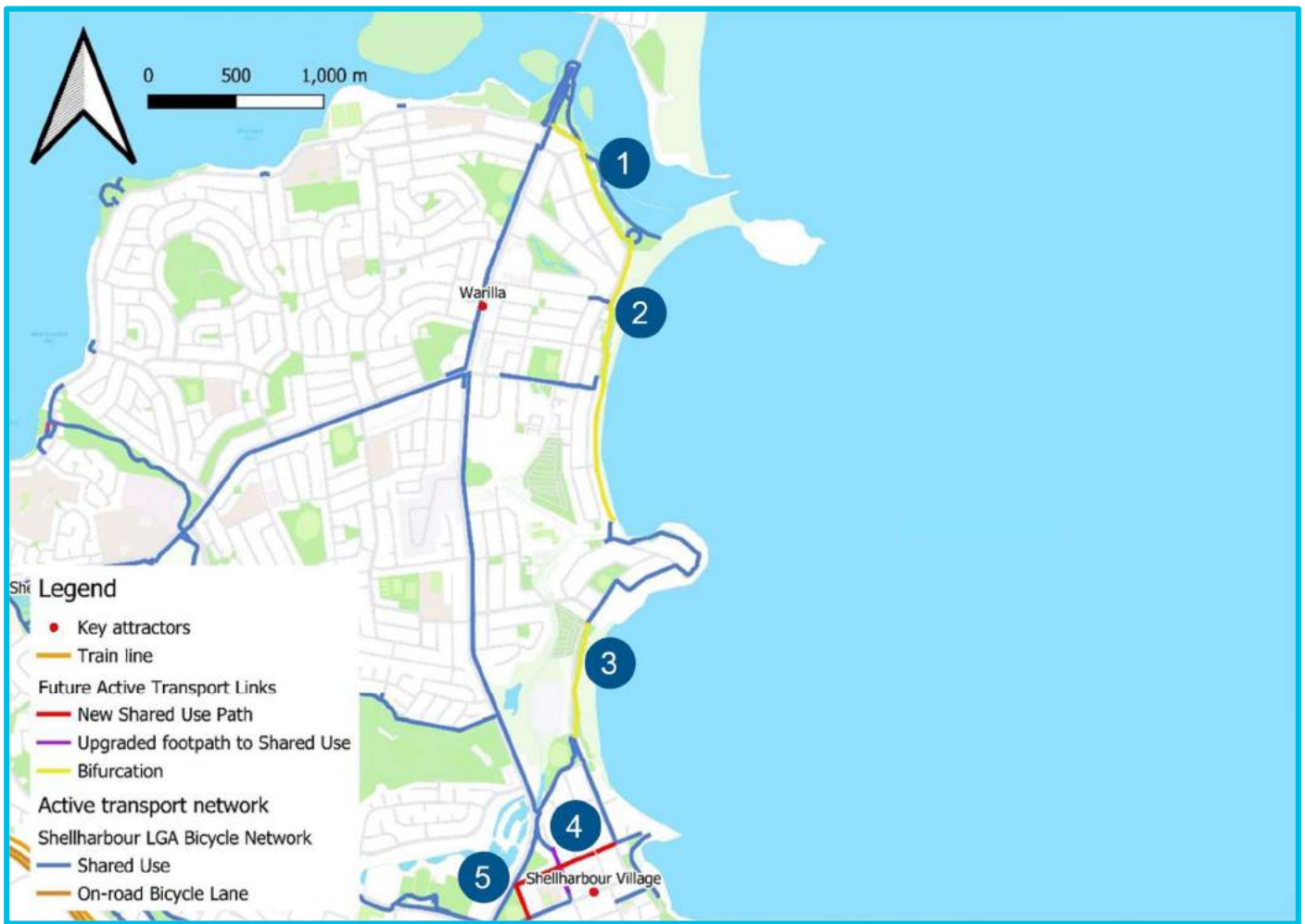
▲ Strategic Cycling Route 15

Source: Mapbox, Esri QGIS Mapping Software

▼ Analysis of Strategic Cycling Route 15

Strengths and Opportunities	Barriers and Weaknesses
Shared use path along waterfront	Contested space between cyclists and pedestrians
Waterfront location popular for recreation	Indirect route around Barrack Point

Potential active transport infrastructure on the Route 15 corridor includes bifurcation, a new shared use path and an upgraded footpath to shared use.



▲ Route 15 - Future Active Transport Facilities

Source: Mapbox, Esri QGIS Mapping Software

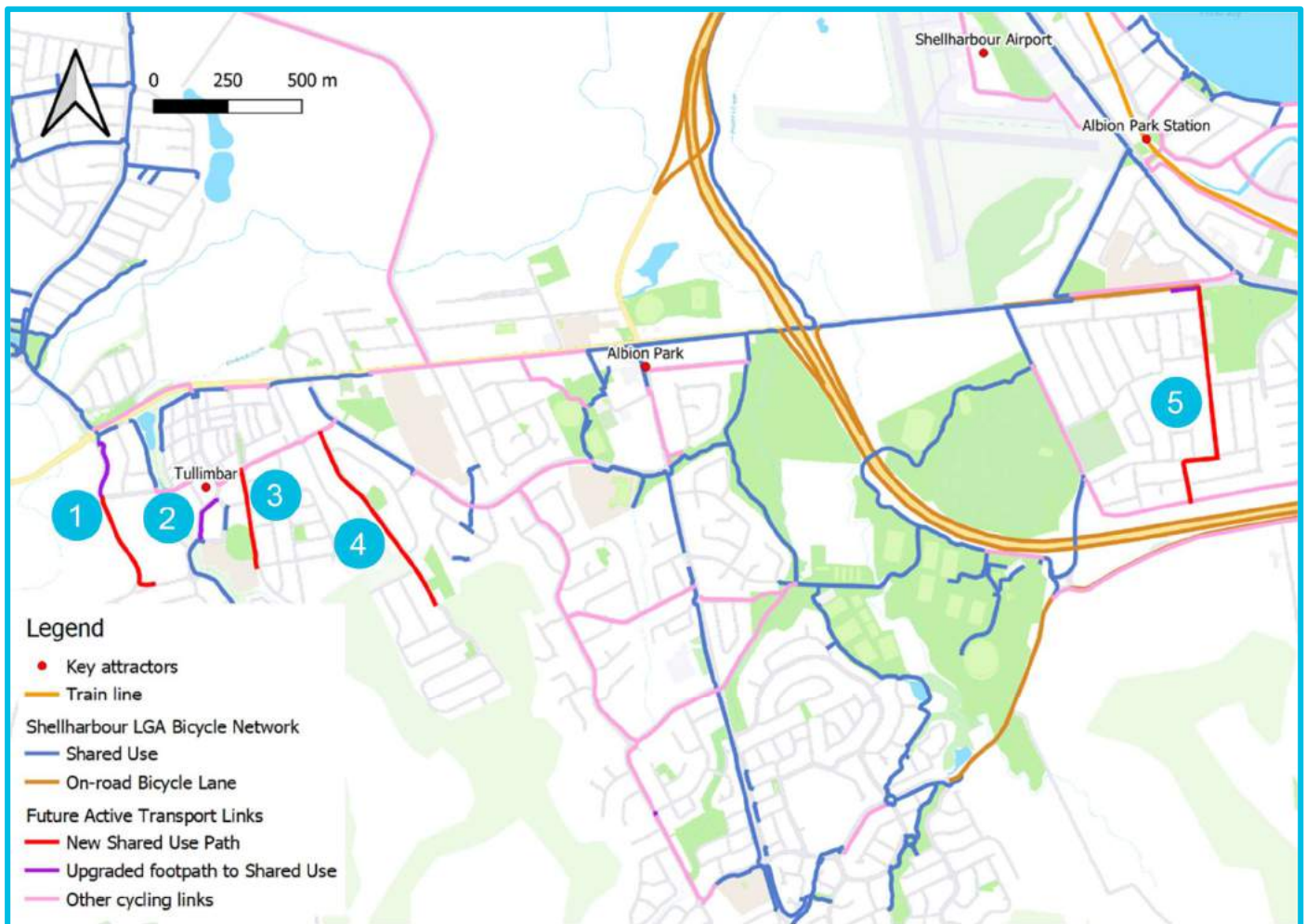
▼ Route 15 potential active transport infrastructure

No.	Type	Location	Classification
1	Bifurcation	Reddall Parade (north side)	Primary
2	Bifurcation	Henderson Park, Strong Reserve, waterfront	Primary
3	Bifurcation	Eric Cleary Park	Primary
4	Upgraded footpath to shared use	Mary Street (east side north of pedestrian crossing, west south of crossing)	Secondary
5	New shared use path	Sophia Street (west side), Towns Street (north side)	Primary

Links connecting corridors

Additional cycling links beyond the primary routes have been investigated to connect residential and commercial areas to the primary cycling links discussed earlier, forming the core framework of the future network.

This primarily includes new shared use paths and upgraded footpaths to shared use.



▲ Additional cycling links connecting corridors - Tullimbar and Albion Park Rail

Source: Mapbox, Esri QGIS Mapping Software

► Additional cycling links connecting corridors - Oak Flats, Shellharbour City Centre, and Warilla

Source: Mapbox, Esri QGIS Mapping Software



► Additional cycling links connecting corridors – Shellharbour

Source: Mapbox, Esri QGIS Mapping Software



▼ Potential additional cycling links connecting corridors

No.	Type	Location	Connecting
1	Upgraded footpath to shared use / new shared use path	Yellow Rock Road (east side)	Illawarra Highway to new residential developments in western Tullimbar
2	Upgraded footpath to shared use	Broughton Avenue (east side)	New commercial area at Tullimbar town centre to shared use path on Araluen Terrace
3	New shared use path	Balmoral Parade (west side)	Tullimbar Public School to sports oval and Route 1 on Berrima Street
4	New shared use path	Crest Road (west side)	New medium density housing in western Albion Park to Route 1 on Sophia Street
5	New shared use path	Lobella Street, Oak Street and Ash Avenue (east side)	Route 1 on Tongarra Road to Route 5 in southern Albion Park Rail
6	Upgraded footpath to shared use / new shared use path	Laneway, Hopetoun Lane (east side)	Route 9 on New Lake Entrance Road to Route 10 on Kingston Street
7	New shared use path	Minda Crescent (east side), Kilpa Place, Allinga Drive (west side)	Shellharbour City Centre to Route 4 on the lake waterfront
8	New shared use path	Madigan Boulevard and Morgan Avenue (north side)	Route 3 on the lake waterfront to Route 9 at Andrew Park
9	Upgraded footpath to shared use	Cuthbert Drive (west side)	Morgan Avenue to Alex Hoffman Park
10	Upgraded footpath to shared use / new shared use path	King Street (west side)	Route 3 on the lake waterfront to Route 9 at Williams Park
11	Upgraded footpath to shared use	Harvey Street, Queen Street (south side)	King Street to Route 12 on Shellharbour Road
12	New shared use path	Ocean Beach Drive, south of houses	Route 3 to Route 12

Safe access to schools

Throughout the formation of this Active Transport Strategy, safe access to schools has been discussed by stakeholders as a highest priority area. This can be supported through the implementation of additional footpaths and other infrastructure.

Guidelines for implementing new infrastructure include:

- Ensuring that every street within a 5-minute walking distance of a school's entrance has footpaths on both sides.
- Implementing traffic calming measures for schools located on busy roads.
- Installing zebra crossings in areas with high pedestrian activity and signalisation on roads with high traffic volume.

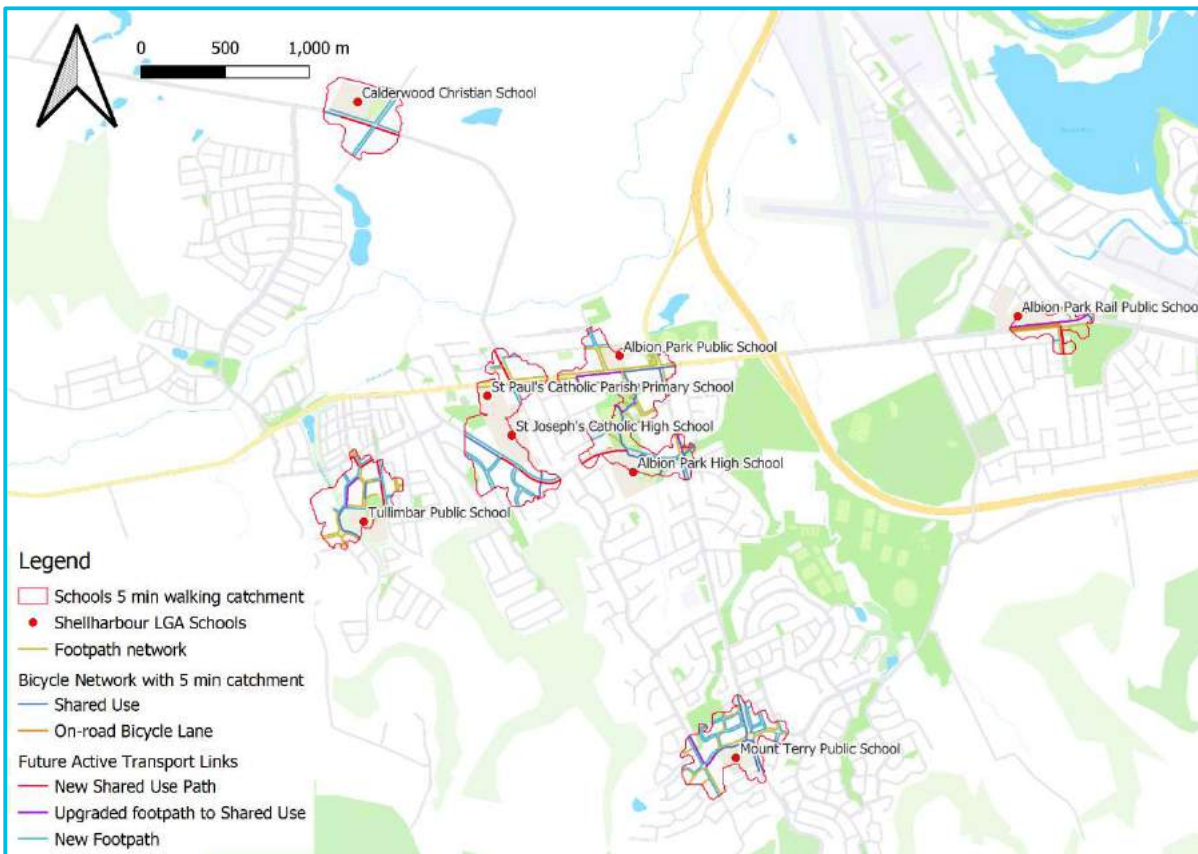
5-minute walking catchments

Safe school access is of paramount importance for the well-being and safety of students. With accessible footpaths, students can navigate their way to and from school without encountering potential hazards such as traffic accidents or other dangers.

To prioritise pedestrian activity within a 5-minute walking catchment of the following schools, establishment and maintenance of footpaths on both sides of the road will safeguard the welfare of

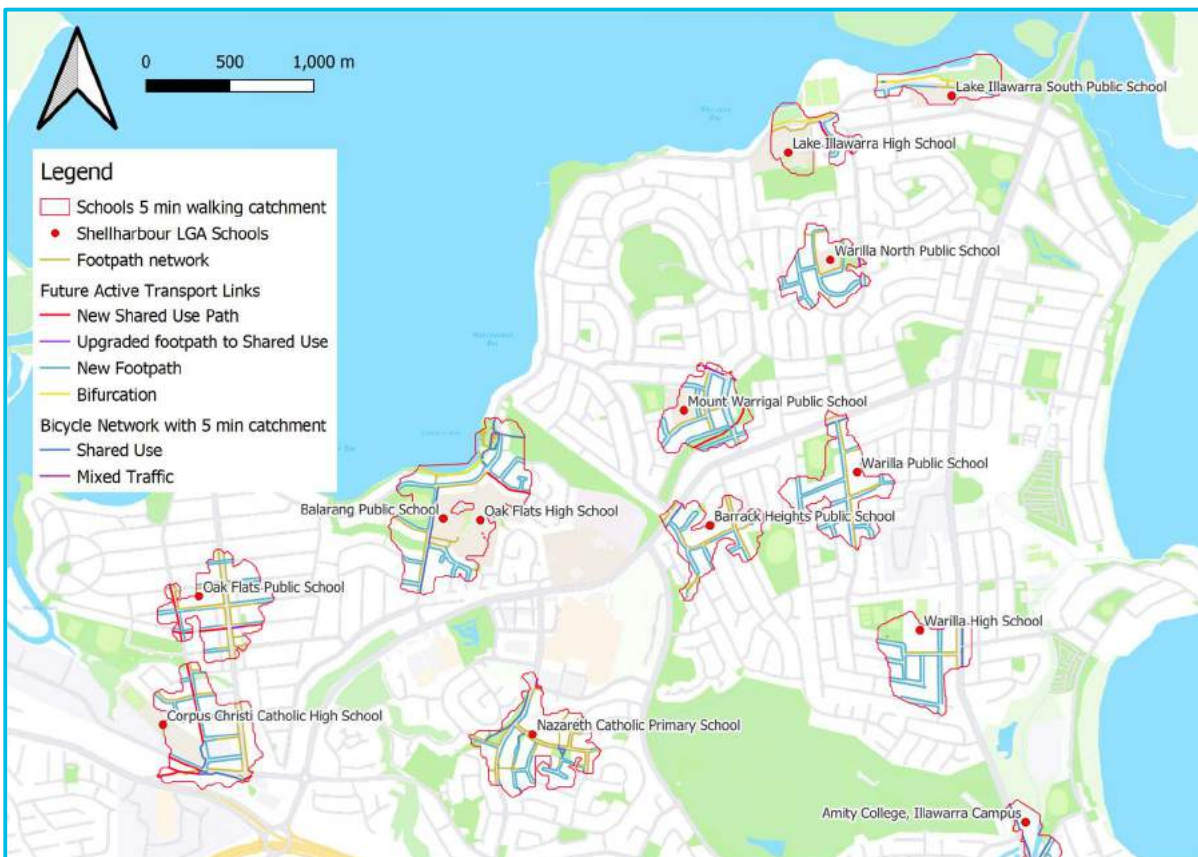
students and promote their overall health and safety. Schools within the Shellharbour LGA include:

- Albion Park High School
- Albion Park Public School
- Albion Park Rail Public School
- Amity College, Illawarra Campus
- Balarang Public School
- Barrack Heights Public School
- Calderwood Christian School
- Corpus Christi Catholic High School
- Flinders Public School
- Lake Illawarra High School
- Lake Illawarra South Public School
- Mount Terry Public School
- Mount Warrigal Public School
- Nazareth Catholic Primary School
- Oak Flats High School
- Oak Flats Public School
- Shell Cove Public School
- Shellharbour Anglican College
- St Paul's Catholic Parish Primary School
- Shellharbour Public School
- Stella Maris Catholic Primary School
- St Joseph's Catholic high School
- Tullimbar Public School
- Warilla High School
- Warilla North Public School
- Warilla Public School



▲ Western Shellharbour LGA schools and pedestrian facilities within 5-minute walking catchments

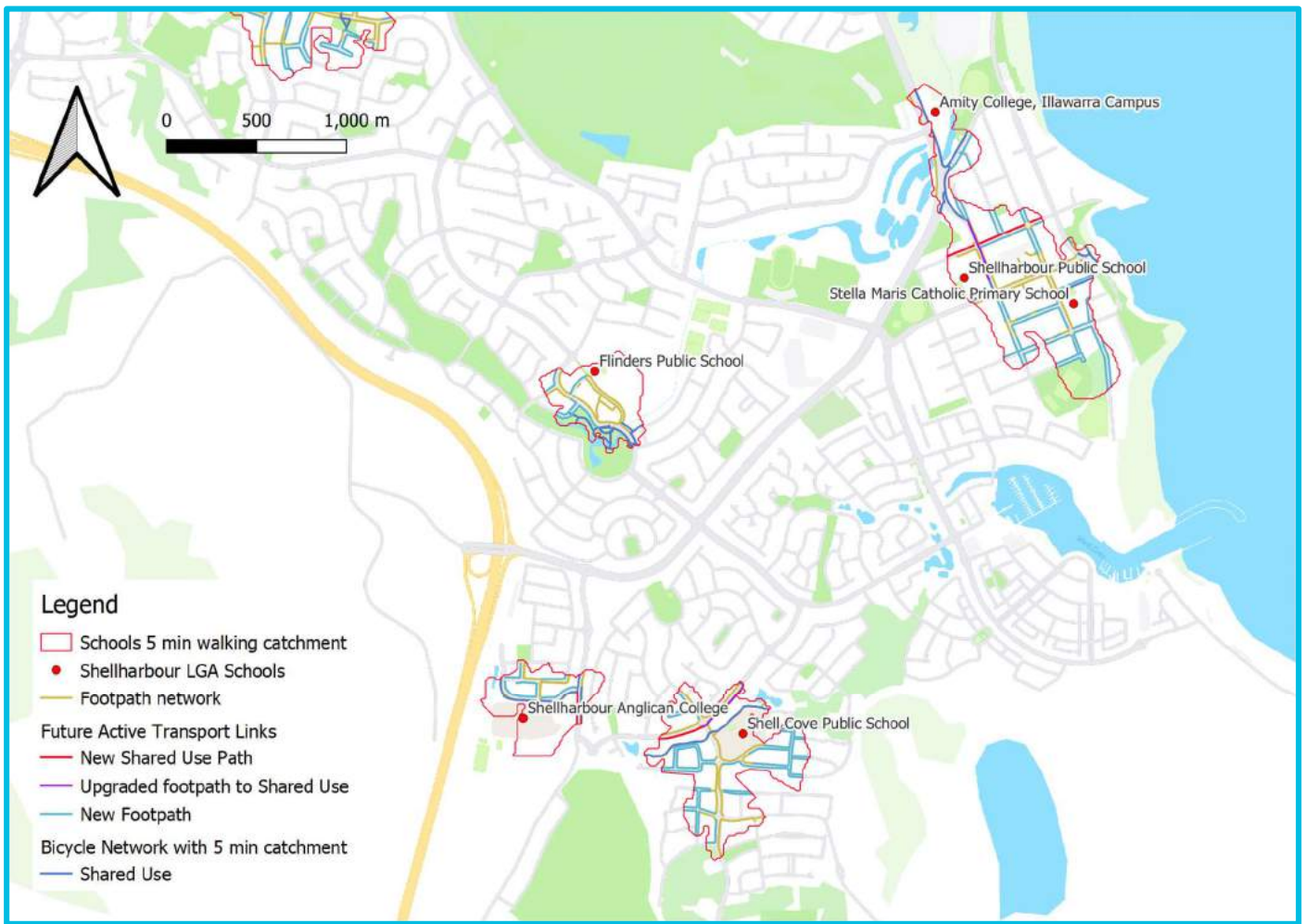
Source: Mapbox, Esri QGIS Mapping Software



▲ North-eastern Shellharbour LGA schools and pedestrian facilities within 5-minute walking catchments

Source: Mapbox, Esri QGIS Mapping Software





▲ South-eastern Shellharbour LGA schools and pedestrian facilities within 5-minute walking catchments

Source: Mapbox, Esri QGIS Mapping Software

These network links aim to connect the schools to the surrounding residences and broader active transport network within a walking catchment. These links will be supported by an upgrade to crossing and traffic management infrastructure.

Calderwood Christian School

Due to the school's isolation from transport infrastructure, a shared use path along the northern side of Calderwood Road will link the school to Albion Park.

This link will also serve the future commercial growth of the area north of Calderwood via Calderwood Road.



▲ Calderwood Shared use paths

Source: Mapbox, Esri QGIS Mapping Software

Improved access to industry

In addition to Oak Flats Industrial Area, the following industrial areas have been identified as having limited active transport access:

- Warilla Grove Light Industrial Area
- Durgardin Drive Industrial Area, Albion Park
- Miall Way Industrial Area, Albion Park Rail

The lack of active transport infrastructure at these locations limits workers' and visitors' accessibility to motorised transport. To address this issue, a mix of shared use paths and footpaths will provide alternative options for all road users.

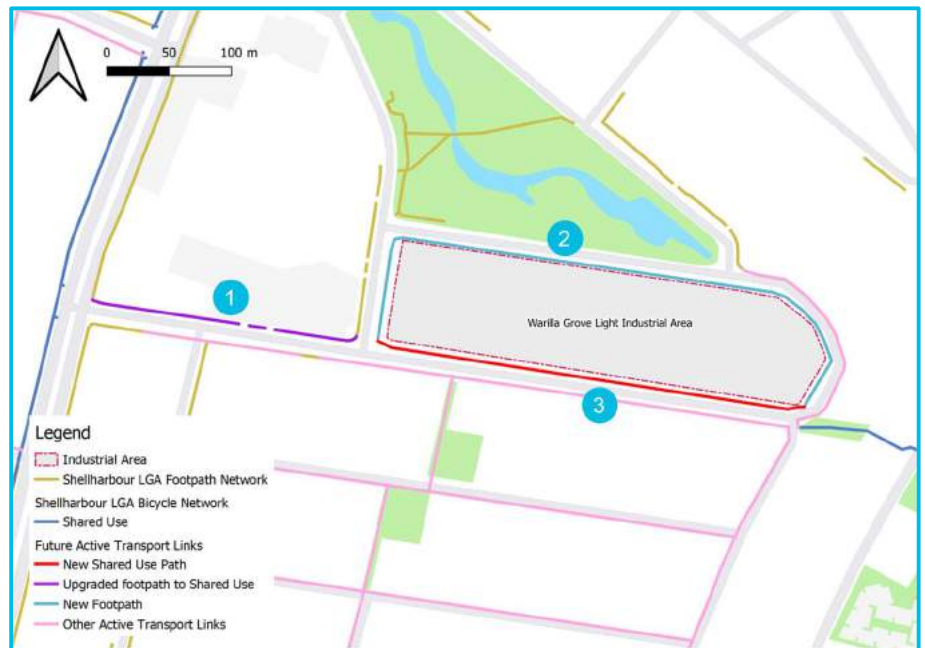


▲ Industrial areas requiring improved active transport access

Source: Mapbox, Esri QGIS Mapping Software

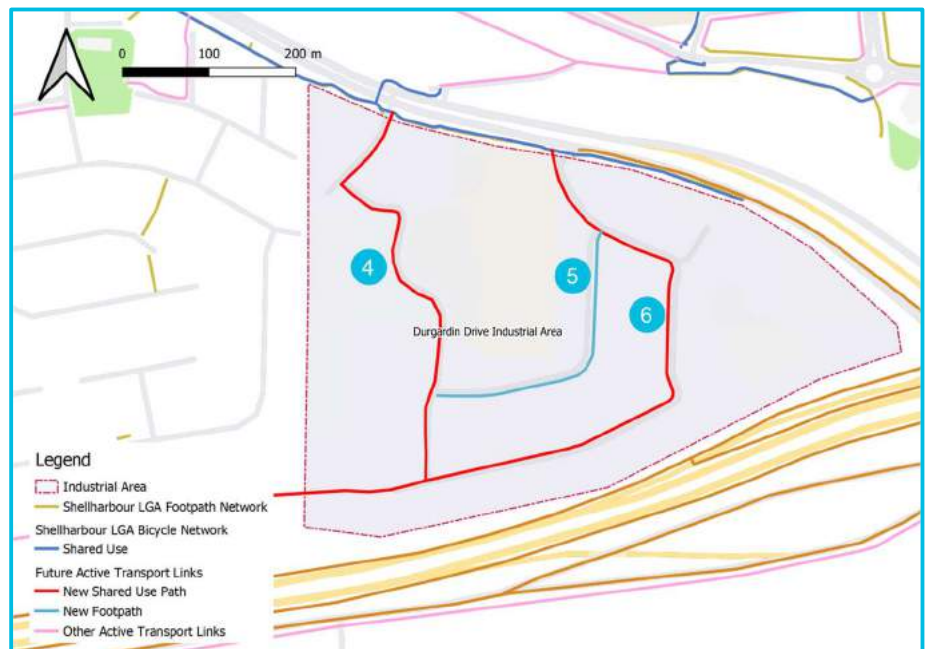
► Warilla Grove Light Industrial Area

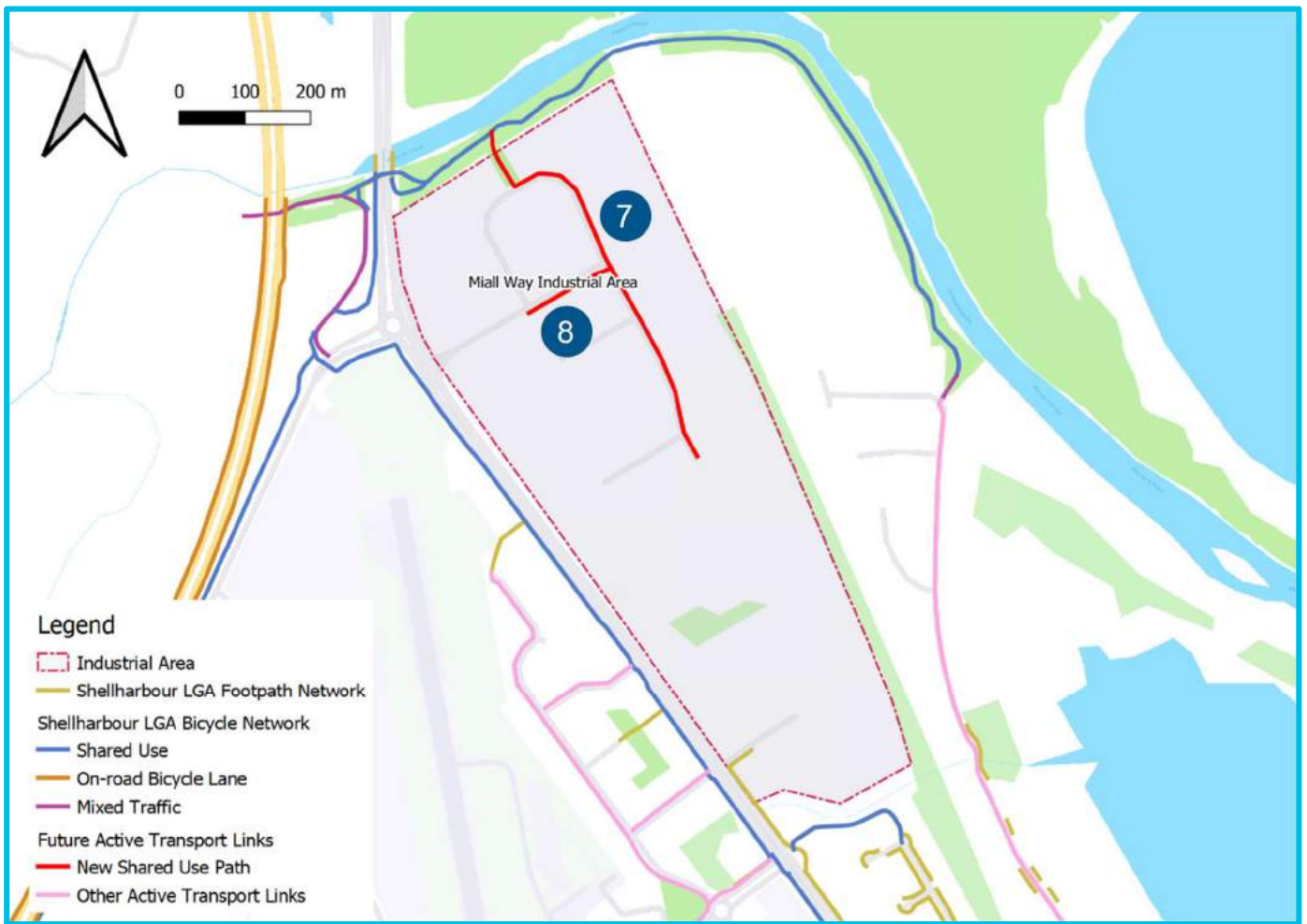
Source: Mapbox, Esri QGIS Mapping Software



► Durgardin Drive Industrial Area

Source: Mapbox, Esri QGIS Mapping Software





▲ Miall Way Industrial Area

▼ Improved access to industry links

No.	Type	Location
1	Upgraded footpath to shared use	Veronica Street west of Woolworths Avenue (south side)
2	New footpath	Woolworths Avenue (east side) and Commerce Drive (south side)
3	New shared use path	Veronica Street west of Woolworths Avenue (south side)
4	New shared use path	Shandan Circuit (west side) and Colden Drive (east side)
5	New footpath	Shaban Street (east side)
6	New shared use path	Durgadin Drive (west side)
7	New shared use path	Rivulet Circuit (east side)
8	New shared use path	Miall way between Rivulet Circuit (north side)

10 Network-supporting infrastructure

Bicycle storage facilities

Methodology for storage facilities

To ensure the security, protection, and safety of both the user and the bicycle, it is important for a facility to meet the following criteria:

- The facility must offer adequate security measures by providing lockable options for both the bike frame and wheels. This ensures that the bike can be securely fastened and reduces the risk of theft.
- Appropriate protection for the bicycle from traffic or other dangers should prevent any potential damage to the bike, such as scratches, dents, or other forms of harm.
- The location of the facility be in an area where users feel comfortable. This can contribute to the overall safety and peace of mind for individuals using the facility.

By incorporating these elements, a facility can effectively provide security, protection, and safety for both the user and their bicycle.

Different types of storage facilities

Bicycle parking facilities are commonly categorised into different types based on the level of security they offer. These security levels are determined according to criteria established by Austroads.

▼ Bicycle parking security levels

Security level	Style	Suitability
A	Bicycle Locker	Long-term parking that includes overnight storage.
B	Bicycle Cage	Day parking for staff, students and public transport users. Some overnight parking in residential buildings.
C	Bicycle Rack	Short-term parking such as visitor or customer parking.

Source: Austroads Standards AS 2890.3:2015

Bicycle Lockers – Security Level A

Bicycle storage facilities with Security Level A typically consist of opaque storage spaces with high security locking mechanisms used to store a single bicycle.

Bicycle lockers are currently provided at Oak Flats Station and Shellharbour Junction Station. These lockers take up a smaller footprint than sheds however are ‘user paid’ and low capacity.



▲ TfNSW Bike Locker, Hornsby Station

These facilities are most suited to locations with low passive surveillance and long-term parking such as private residential complexes. While bicycle lockers provide the highest level of security, they have not been considered further in this Strategy due to the following disadvantages:

- Lockers occupy a large amount of space per unit
- Each locker serves only one person and remains inaccessible to others
- Lockers are sometimes used for storing personal items other than bicycles
- Paid service will result in a limited uptake.

Bicycle Cages a.k.a. Bicycle Sheds – Security Level B

These facilities commonly comprise a secure room, cage, or similar structure designed to accommodate multiple bicycle users. They often

integrate security elements like self-closing and self-locking gates, which necessitate security access devices (e.g., keys, codes, swipe cards) for entry. Such facilities are well-suited for locations that require a higher level of security compared to public bicycle rails and where greater capacity is required compared to individual bicycle lockers.

Typically, these facilities cater to commuter trips, with bicycles being stored within them during the day, such as bicycle sheds in NSW. Bicycle sheds are secure bicycle parking facilities operated by TfNSW. These sheds provide commuters with a safe and secure place to store their bicycle within large cages.



▲ TfNSW Bicycle Shed, Hornsby Station

TfNSW operates bicycle sheds at several locations throughout NSW, including major train stations and interchanges. Commuters can use these facilities by linking their Opal card for free, which grants them access to the CCTV monitored storage areas.

Bicycle Racks – Security Level C

These facilities generally consist of a designated area for bicycle parking, where users can securely fasten the bicycle frame and both wheels to a

bicycle parking device like bicycle racks. They are typically intended for short-term parking purposes, often found in easily accessible public locations, such as retail destinations.



▲ Bike rack located at a commercial area, Redfern

It is important to note that there are various types of racks available in the market. When implemented at locations within Shellharbour, the following criteria will be considered:

- Capable of securely accommodating the bicycle frame and both wheels.
- Spacing and accessibility to the racks comply with the dimensional requirements specified in the current AS 2890.3:2015 standard such as:
 - 1.0m side-by-side and 1.8m nose-to-tail spacing
 - Accessible from a road, driveway or footpath via a bicycle-friendly access path, away from the desired walking line of pedestrians and as close as possible to the cyclist's destination
- The racks are durable, rigid and suitable for fixed or mounted installation.

New facilities

Storage facilities will help to increase the usage of bicycles by ensuring greater safety against theft and damage at transport hubs and commercial areas. The following facilities will suit the needs of the specific areas:

- Bicycle sheds at Albion Park Station, Oak Flats Station and Shellharbour Junction Station - TfNSW
- Bicycle racks at town centres that currently lack bicycle parking facilities – Shellharbour City Council
 - Shellharbour City Centre - Entrance to Stockland Shellharbour, College Avenue
 - Oak Flats – Intersection of Central Avenue and Fisher Street
 - Shellharbour Village – Intersection of Wentworth Street and Addison Street
 - Albion Park – Tongarra Road (south side) between Russell Street and Terry Street
 - Warilla – Intersection of George Street and Beverley Avenue
 - Calderwood – At the new retail development
 - Tullimbar – At the new retail development



▲ Locations of bicycle storage facilities

Source: Mapbox, Esri QGIS Mapping Software

Clear path markings

Within the network, a large portion of shared use paths have faded or unclear markings that may increase safety risks for pedestrians and cyclists.

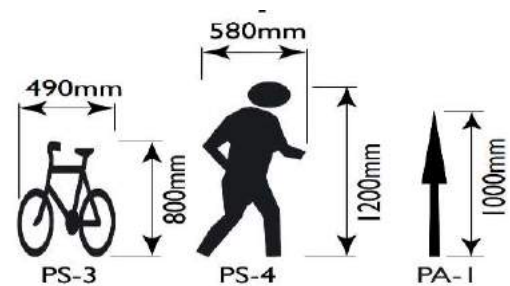


▲ Shellharbour LGA Shared Use Path markings – as of September 2022

Source: Mapbox, Esri QGIS Mapping Software

To ensure the future network meets relevant standards, additional line marking will effectively communicate shared use conditions to active transport users.

NSW Bicycle Guidelines (RTA, 2005) indicates PS-3, PS-4 and PA-1 markings are to be used in an advisory capacity at 75m (maximum 200m) intervals or adjacent to intersecting paths/streets to indicate travel direction.



▲ Pavement symbols for Shared User Paths



▲ Shared Use Path markings, Junction Road

Source: MetroMap

VicRoads indicates in the Supplement to Australian Standard AS 1742.9:2000 (2015) that any point where a shared use path crosses a road used by vehicles should be indicated by using an R8-2 sign with a supplementary END sign at the end of a route (R7-4), or a regulatory sign indicating other conditions apply on the path (R8-1 or R8-3). This is further detailed in the Wayfinding Strategy.

Rest facilities

Pedestrian rest facilities are designated areas or structures that provide amenities and services to pedestrians, offering them a safe and comfortable environment to rest, relax and engage in various activities. These facilities are typically located along pedestrian routes, pavements, or in public spaces and are designed to enhance the pedestrian experience in urban areas.



▲ Bench seat - Central Avenue, Oak Flats

Source: Google Maps

Current rest facilities within Shellharbour are limited to bench facilities concentrated in the HPAs of Oak Flats, Warilla, Shellharbour Village and Shell Cove.



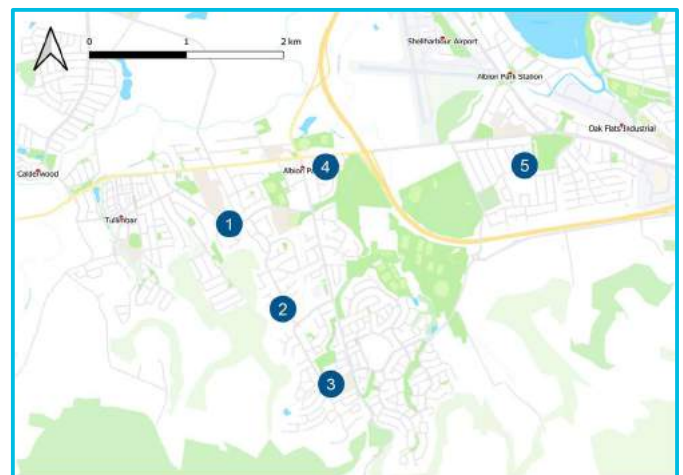
▲ Bench seats in Shellharbour LGA

Source: Shellharbour City Council, Mapbox, Esri QGIS Mapping Software

The following criteria has been applied to determine where new rest opportunities would most benefit footpath users:

- Long routes without active land uses between origins and destinations
- Routes more likely to be frequented by the elderly and young children
- Areas of high amenity such as waterfront locations, shade and lookout points.

Applying these criteria to the Shellharbour LGA, the following locations have been identified as having high potential for rest facilities.



▲ Rest facilities - western locations

Source: Mapbox, Esri QGIS Mapping Software



▲ Rest facilities - eastern locations

Source: Mapbox, Esri QGIS Mapping Software

▼ Location of pedestrian rest facilities

No.	Location	Criteria addressed
1	Church Street (south side)	Long route without active land uses between origins and destinations
2	Hillside Drive (east side)	Long route without active land uses between origins and destinations
3	Ashburton Drive (south side)	Route more likely to be frequented by the elderly and young children
4	O’Gorman Street (north side)	Route more likely to be frequented by the elderly
5	Pine Street (south side)	Route more likely to be frequented by the elderly
6	Lake waterfront	Area of high amenity

No.	Location	Criteria addressed
7	Route north of rail corridor	Long route without active land uses between origins and destinations
8	Rowland Avenue (south side)	Route more likely to be frequented by the elderly
9	Andrew Park	Long route without active land uses between origins and destinations
10	Wattle Road (south side)	Long route without active land uses between origins and destinations
11	Blackbutt Forest Reserve	Area of high amenity
12	Shellharbour Road (south side)	Long route without active land uses between origins and destinations
13	Harbour Boulevard (west side)	Route more likely to be frequented by the elderly
14	Shellharbour Reserve waterfront	Area of high amenity
15	Keith Fletcher Park	Route more likely to be frequented by the elderly
16	Warilla Beach	Area of high amenity



School safety improvements

The schools identified in this section front busy roads and potentially require upgraded crossing infrastructure and traffic calming measures to improve safety. The physical measures proposed will alter driver behaviour and improve the road conditions around the Shellharbour LGA school precinct. These include but are not limited to:

- Achieving slower speeds for vehicles
- Reducing collision frequency and severity
- Increasing safety and the perception of safety for pedestrians and bicyclists
- Promoting greater on-road visibility and awareness to road users.

Overall, basic traffic calming solutions have been recommended given the scope of the budget and suitability to the needs of the Shellharbour LGA.

Mount Warrigal Public School





The main entrance to Mount Warrigal Public School is on the north side of Hogarth Avenue and the road is relatively narrow, as there is no enforced time limit for parking on the south side of the street. This causes congestion along the street and adjacent streets, however the safety of people travelling to and from the school is of higher priority. The proposed measures are based on maintaining or improving the safety of the community travelling on the road network within the vicinity of Mount Warrigal Public School.



▲ Mount Warrigal Public School Locations of safety improvement measures

Source: Metromap


▼ Mount Warrigal Public School safety improvement measures.

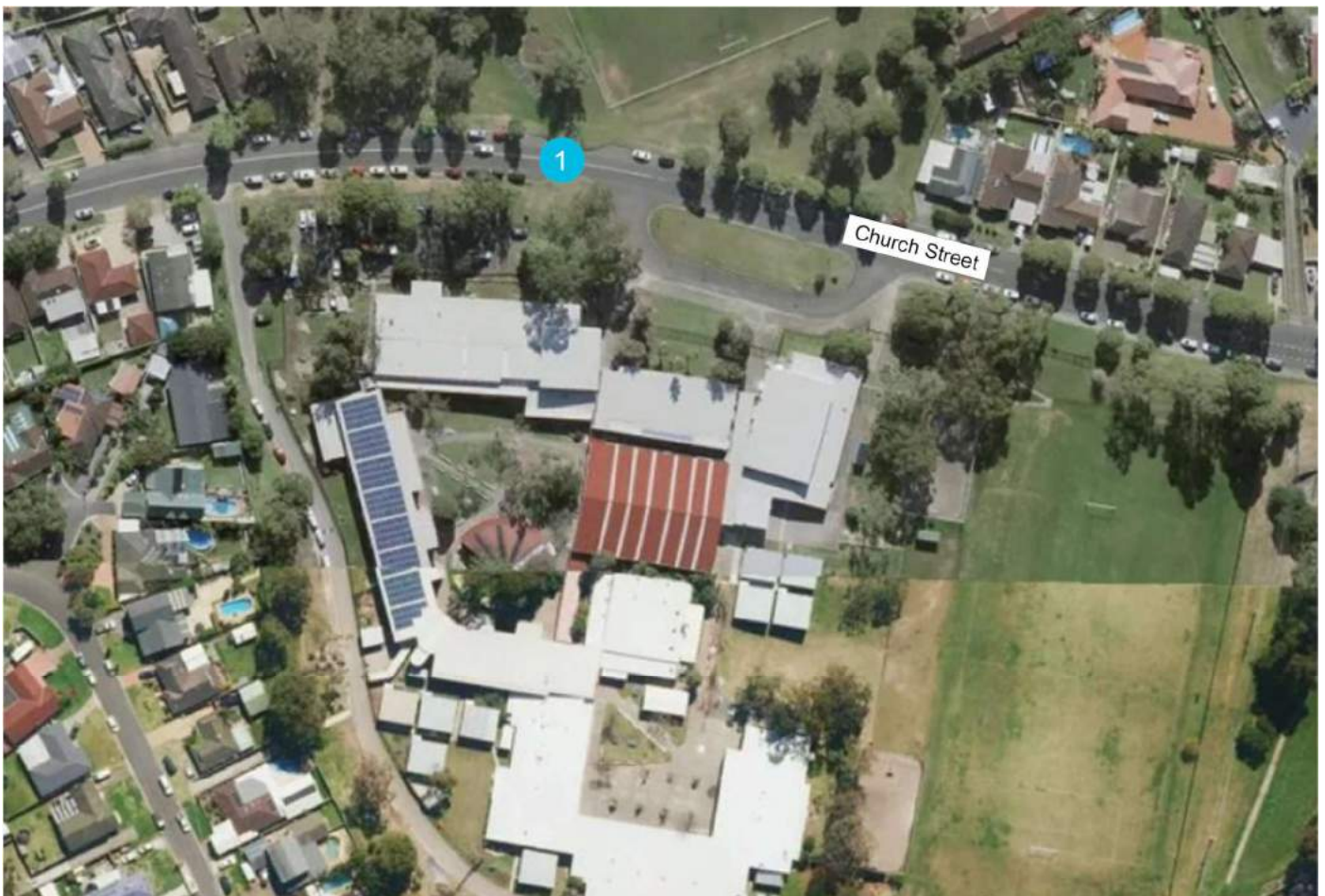
No.	Location	Improvement Measure	Purpose of Implementation
1	Jones Avenue	Upgrading to pedestrian (zebra) crossing with small kerb extension 	This will provide a crossing facility for students on Jones Avenue, providing protection from the higher traffic volumes generated by the commercial area to the north
2	Hogarth Avenue	Upgrading of speed hump to raised pedestrian (wombat) crossing 	Improves pedestrian connectivity and safety on Hogarth Avenue
3	Hogarth Avenue	Speed Hump 	An additional speed hump on Hogarth Avenue between Davies Crescent and the main entrance (location of current speed hump) for road users travelling eastbound due to lack of visibility in the road bend.
4	Roycroft Avenue	Speed Hump 	A speed hump on Roycroft Avenue to the east of the northern entrance for road users travelling westbound due to lack of visibility in the road bend.

Albion Park High School

The main entrance to Albion Park High School is on the south side of Church Street and the road is relatively wide. There is also no enforced time limit for parking on either side of the road. Currently, there is a kerb extension at the location of the crossing which has helped slow traffic and improve both pedestrian and cyclist safety. However, greater safety can be achieved by upgrading to a formalised crossing facility.

▼ Albion Park High School safety improvement measures.

No.	Location	Improvement Measure	Purpose of Implementation
1	Church Street	Upgrading of pedestrian (zebra) crossing to raised (wombat) pedestrian crossing 	A raised crossing near the school due to lack of visibility in the road bend.



▲ Albion Park High School Location of safety improvement measure.

Source: Metromap

Corpus Christi Catholic High School

The main entrance to Corpus Christi Catholic High School is located on the west side of Moore Street, which has been narrowed due to a median. There is no available parking space on either side of the road.

▼ Corpus Christi Catholic High School safety improvement measures.

No.	Location	Improvement Measure	Purpose of Implementation
1	Moore Street	Upgrading from splitter island to raised pedestrian (wombat) crossing 	At the location of the current splitter island, pedestrian crossing facilities can be introduced as a traffic safety measure. A raised facility can be implemented for traffic calming.




▲ Corpus Christi Catholic High School Location of safety improvement measure.

Source: Metromap

Flinders Primary School

The main entrance to Flinders Primary School is located on the east side of Willinga Road, with enforced timed-parking zones on both sides of the road. To enhance safety, the raised pedestrian crossing at Willinga Road gives a space for students to cross Willinga Road safely.

▼ Flinders Primary School safety improvement measures.

No.	Location	Improvement Measure	Purpose of Implementation
1	Willinga Road east of intersection with Woodburn Terrace	Introduction of raised pedestrian (wombat) crossing 	A raised crossing on Willinga Road due to lack of visibility in the road bend. This crossing follows the desire line of pedestrians travelling from the school gate to Shellharbour Junction Station in the south-west



▲ Flinders Primary School location of safety improvement measure.



Source: Metromap



Amity College, Illawarra Campus

The main entrance to Amity College, Illawarra Campus is on Shellharbour Road. Currently, there are no pedestrian crossings for easy access to the school. To improve pedestrian safety and access, a signalised intersection will help protect school students by providing a formalised crossing facility.

▼ Amity College, Illawarra Campus safety improvement measures.

No.	Location	Improvement Measure	Purpose of Implementation
1	Shellharbour Road and Ocean Beach Drive Intersection	Introduction of signalised intersection 	Entrance to Amity College is on Shellharbour Road (east side) and currently lacks access from the west side. This will also provide safe access to the Ocean Beach Drive shared use path.
2 and 3	Shellharbour Road and Beach Drive intersection	Pedestrian (zebra) crossings 	Pedestrian crossings either side of the island located at the intersection with Beach Drive to demarcate pedestrian priority at both the approach and exit to Beach Drive.

▼ Amity College, Illawarra Campus
Locations of safety improvement measures
Source: Metromap



Lake Illawarra High School




The main entrance to Lake Illawarra High School is just past the island south of Reddall Parade with timed bus zones and no stopping signage. Pedestrian (zebra) crossings outside the school will address the lack of safe passage across Reddall Parade that provide access to and from the school's main entrance.



▲ Lake Illawarra High School Locations of safety improvement measures

Source: Metromap

▼ Lake Illawarra High School safety improvement measures.

No.	Location	Improvement Measure	Purpose of Implementation
1	School entrance, between main entrance gate and Island	Pedestrian (zebra) crossing 	To assist safe crossing across school service road.
2	Reddall Parade, between shared use path and island	Pedestrian (zebra) crossing 	To assist safe crossing across Reddall Parade, with kerb extensions slowing traffic and providing a shorter crossing distance for pedestrians.
3	Reddall Parade	Speed hump 	An additional speed hump for road users travelling eastbound due to lack of visibility in the road bend.

Crossing facilities

In addition to crossing infrastructure identified for school safety improvements, new and upgraded crossing facilities have been identified at the following locations.



▲ Locations of crossing facilities

Source: Mapbox, Esri QGIS Mapping Software

Lakewood Boulevard / Shellharbour Road intersection

This intersection is a four-way, two lane roundabout, connecting Flinders to the north-west and Shell Cove to the south-east.

Active transport safety risks are present at road crossing points, with high traffic volumes creating safety issues during crossing. The existing two-stage crossings do not provide adequate protection for pedestrians and cyclists. Upgrade of the roundabout to a signalised intersection will provide prioritise crossing point for those on foot or riding a bicycle.



▲ Lakewood Boulevard / Shellharbour Road intersection

Source: Metromap

Central Avenue / Fisher Street intersection

This intersection in Oak Flats town centre experienced two fatal pedestrian crashes between 2017-2021. Both crashes occurred from pedestrians being hit by a car travelling north-south along Central Avenue.



▲ Central Avenue / Fisher Street intersection

Source: Metromap

As a traffic calming measure along Central Avenue, raised pedestrian (wombat) crossings will create greater pedestrian safety on all approaches to the intersection. This will protect pedestrians at the intersection, with cyclists travelling on-road under quietway conditions as part of Route 6 and the potential shared use path along Fisher Street as part of Route 10.



▲ Conceptual design of a raised intersection

Source: Shellharbour City Council

Terry Street / Burdekin Drive intersection

Terry Street is the major north-south arterial road through Albion Park, connecting Albion Park town centre in the north to Mount Terry and Jamberoo. This road does not have adequate crossing facilities for active transport users, with a large portion identified in southern Albion Park between Daintree Drive and Ashburton Drive. There is no crossing point for 1.11km between the two intersections,



▲ Terry Street, Southern Albion Park

Source: Metromap

To assist active transport users intending to cross this section of road, the introduction of traffic signals at the Terry Street / Burdekin Drive intersection will provide dedicated time for the pedestrians to cross, linking the east and west of Albion Park at this location.



▲ Location of upgrade to signalisation at Terry Street / Burdekin Drive intersection

Source: Metromap

11 Wayfinding strategy

Overview

The Active Transport Strategy's wayfinding strategy will provide cyclists with travel options while avoiding excessive signposts and visual noise on the network. It will establish the practical basis for pedestrian and cyclist wayfinding in the Shellharbour City Council, encompassing the following:

- Identifying and adapting intuitive wayfinding and line marking elements from contemporary guidelines for use in Shellharbour, including but not limited to:
 - NSW Bicycle Guidelines (RTA, 2005)
 - Research Report AP-R492-15 Bicycle Wayfinding (Austroads, 2015)
- Providing generic principles for an overall wayfinding and identification signage system.
- Identifying principles to plan a logical sequence of directional signs and information – recognising and planning decision points and the hierarchy of messages.
- Preparing a standard signage template for bicycle directional signage in the LGA.
- Providing clear guidelines and criteria for placing signs at key decision points.
- Graphic design - use of type, colour and other graphics that assist wayfinding.
- Identifying distances on signs to enable users to plan their journey with confidence.

Signage Principles

A consistent approach to sign design and placement is necessary, with bike routes appropriately marked according to regulations.



▲ Regulatory signage for general on and off-road bicycle facilities

Source: 'NSW Bicycle Guidelines', RTA, 2005, Figure 9.1 on page 70, <https://bicycleinfrastructuremanuals.com/manuals3/NSW%20bicycle%20guidelines.pdf>

▼ Summary of NSW Bicycle Guidelines (RTA, 2005)

Issue	Guideline
Sign design	
Sign base colour	White Retroreflective
Lettering colour	Dark (royal) blue AS2700 B12
Typeface	AS1744 Modified
Letter height	65mm
Size variations	No sizing variations
Numerals	Whole numbers above and below 10km
Route types signed	Regional
Sign families	Regional route network only
Branding / Numbering	
Route branding	Not specified
Route numbering	Not specified
Route naming	Yes

Source: 'NSW bicycle guidelines, RTA 2005, AP-R492-15_Bicycle_Wayfinding.pdf | Austroads

To communicate information effectively to network users, simplified wayfinding should be employed. This objective is accomplished by maintaining a straightforward, recognisable, and consistent signage approach across the cycling network. Effective signage includes symbols and graphics to transmit messages to cyclists.

Consistency is critical in the placement of directional signage throughout the cycling network to guide cyclists accurately at all relevant intersections. It's important to ensure that signage

placement is strategically analysed to prevent bicycle directional signs from being lost in a sea of other signs or causing confusion among vehicular traffic, particularly when used for on-road routes.

A hybrid of both guidelines will result in the best all-round results for signage. RTA standards are

most appropriate for the labelling of bicycle facilities and Austroads standards for route labelling. The signage presented in the Austroads Research Report has a greater range of sign types incorporating a clearer typeface that is easier to read for slower-moving cyclists and retro-reflective lettering that is more visible in low light conditions.



▲ Example types for cycleway directional signage

Source: 'Research Report AP-R492-15 Bicycle Wayfinding', Austroads, 2015, Figure 3.8 page 18, https://austroads.com.au/publications/active-travel/ap-r492-15/media/AP-R492-15_Bicycle_Wayfinding.pdf

Signage Types

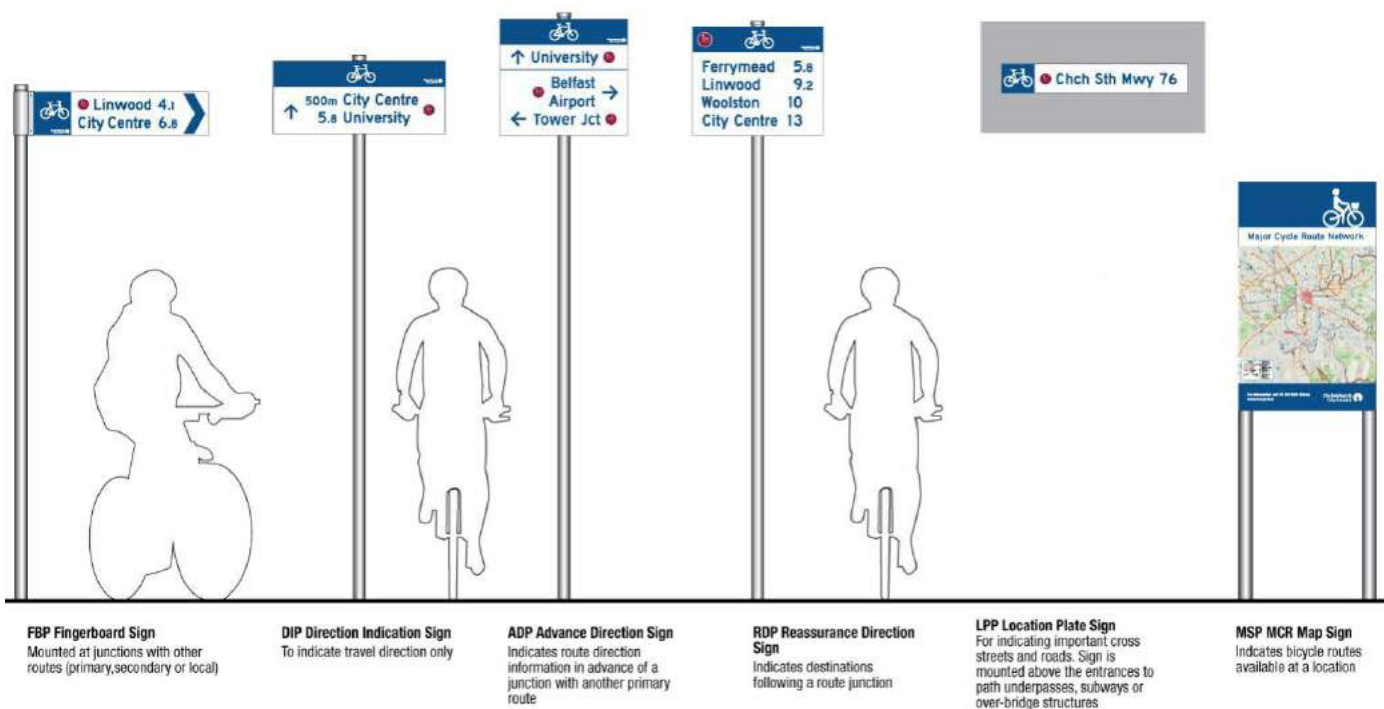
Signage is divided into various categories to designate where a particular sign is applicable and what message it is intended to convey. For instance, reassurance signs are a category of signage that informs riders that they are still on the same bike route. They are best suited for use in sections where the distance between changes in direction is significant.

To limit the amount of clutter along the cycling network, these signs are most appropriate for primary cycling routes. Austroads has classified different sign types and provided guidance on their appropriateness for various situations.

▼ Cycle routes and sign types

Sign Types	Route Types				
	Veloway	Primary	Local	Tourist/ Recreational	Detour
Route type description	High-speed, limited-access routes usually paralleling major arterial roads or motorways	The main arterial routes of urban cycle transport networks	Shorter routes connecting primary routes to local destinations	Off-road, shared path and tourist / recreational routes	Long-term detour routes for veloways, primary or tourist / recreational routes.
Fingerboards	Yes, at junctions with other routes and where the route changes direction	Yes, at junctions with other routes and where the route changes direction	Yes, integrated with street signs	Yes	Yes
Direction indication signs	Yes, at junctions with other routes and where the route changes direction	Yes, at junctions with other routes and where the route changes direction	No, use markers instead	No, use markers instead	Yes
Advance direction signs	Yes, before route junctions with veloways or primary routes	Yes, before route junctions	No, use markers instead	No, use markers instead	No
Reassurance signs with distances	Yes, after route junctions with other veloways or primary routes	Only on lengthy remote routes for reassurance	No, use markers instead	No, use markers instead	No
Route markers	No, use direction indication signs	No, use direction indication signs	Yes	Yes	No, use direction indication signs
Route numbering	Yes	Yes	No	Yes	Yes, if route replaced by detour is already numbered
Route branding	Yes	Yes	No	Yes	No
Street signs	Yes, if none exist	Yes, if none exist	Yes, if none exist	Yes, if none exist	Yes, if none exist

Source: 'Research Report AP-R492-15 Bicycle Wayfinding', Austroads, 2015, Table B.4 page 53, https://austroads.com.au/publications/active-travel/ap-r492-15/media/AP-R492-15_Bicycle_Wayfinding.pdf



▲ Types of signs used on cycle routes

Source: 'Research Report AP-R492-15 Bicycle Wayfinding', Austroads, 2015, Figure B.11 page 54, https://austrroads.com.au/publications/active-travel/ap-r492-15/media/AP-R492-15_Bicycle_Wayfinding.pdf

Wayfinding Methodology

This methodology aims to develop a directional signage strategy for the Shellharbour cycling network. The first step involves identifying and numbering the strategic routes, followed by the identification of intersections at points of interest along these routes.

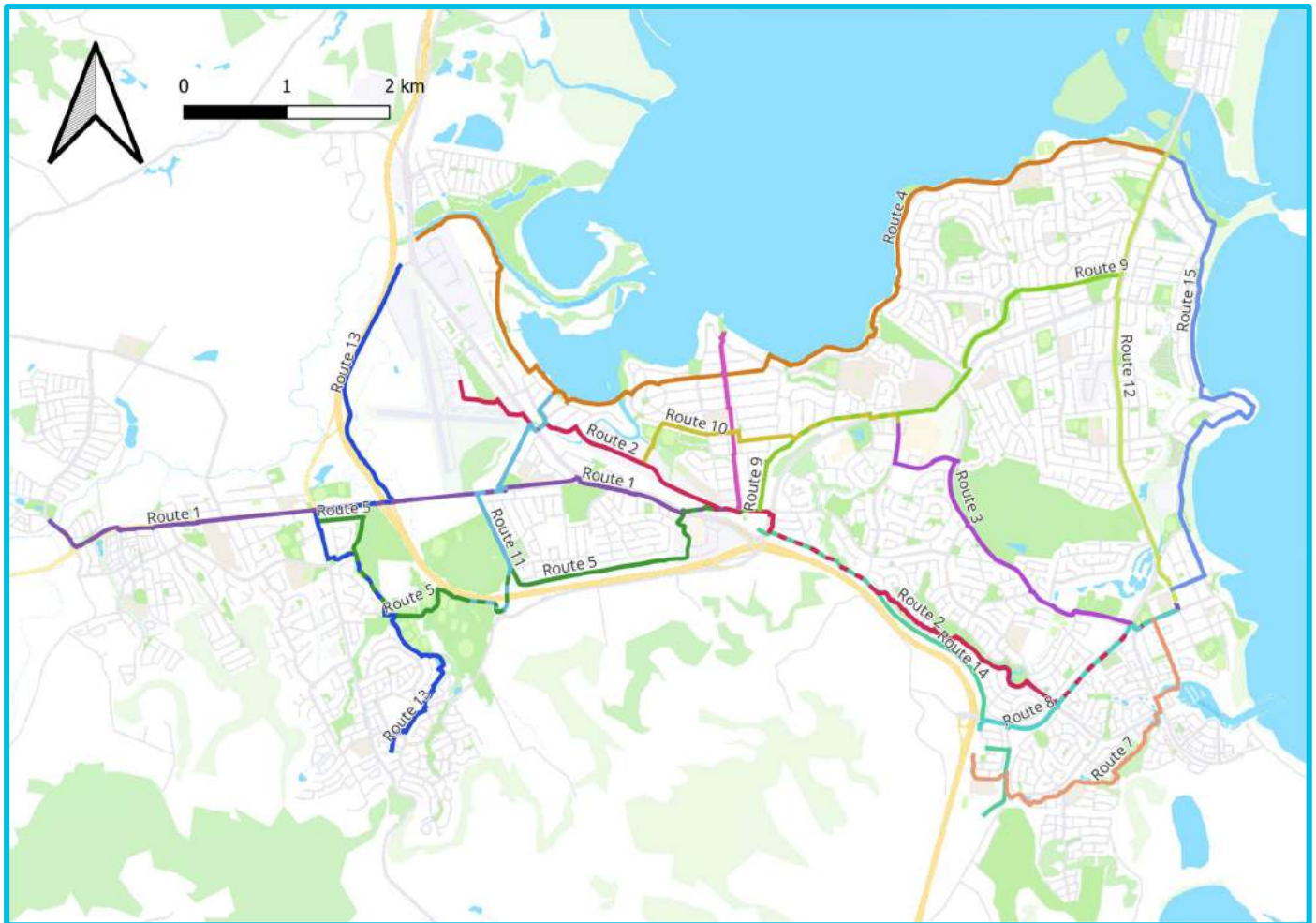
Identify cycle routes

To assist recognition of cycling corridors, the following routes within Shellharbour LGA have been numbered and coloured as follows:

- Route 1: Calderwood to Oak Flats Station – Medium shade purple (colour code: 8454AD)
- Route 2: Shellharbour Airport to Shellharbour Village – Medium-dark shared red (D02757)
- Route 3: Shellharbour City Centre to Shellharbour Village – Saturated purple (AF49D1)
- Route 4: Macquarie Rivulet to Windang Bridge – Orange-brown (D47E21)
- Route 5: Albion Park to Oak Flats Station – Forest green (3B9832)
- Route 6: Oak Flats waterfront to Oak Flats Station – Intense pink (D752BF)
- Route 7: Shellharbour Junction Station to Shellharbour Village (via Shell Cove) – Medium-light orange (EB9B76)
- Route 8: Shellharbour Junction Station to Shellharbour Village (via Flinders) – Aqua (4ED2CB)
- Route 9: Oak Flats Station to Warilla – Yellow-green (87CF28)
- Route 10: Oak Flats Industrial to Shellharbour City Centre – Golden yellow (CDC031)
- Route 11: Albion Park waterfront to Croom – Sky blue (67BBE2)
- Route 12: Windang Bridge to Shellharbour Village (via Shellharbour Road) – Spring Green (C5E266)
- Route 13: Macquarie Rivulet to Southern Albion Park - Indigo (254ADC)
- Route 14: Oak Flats Station to New Shellharbour Hospital – Mint green (56D09B)
- Route 15: Windang Bridge to Shellharbour Village (via waterfront) – Light blue-purple (6D94EF)

As some routes have a variety of potential corridors with different cycling paths, the links classified as primary have been selected for cycle route numbering and branding. The objective of assigning colours to routes is to visually indicate the most efficient path through various segments

of the cycling network. At street level, these colours will promptly inform cyclists that they are traveling on a strategic route. In cases where paths involve multiple routes, both numbering and branding will be displayed.



▲ Cycling wayfinding identified by routes

Source: Mapbox, Esri QGIS Mapping Software

Determine locations of signage

Signage is typically required before and at route junctions, as well as at remote points along long routes to provide reassurance. These points are the guiding locations for determining the placement of signage.

► Route junctions and reassurance locations

Source: Mapbox, Esri QGIS Mapping Software



12 Weighted scoring criteria

To prioritise the delivery of walking and cycling infrastructure over the next 10-20 years, it is crucial to strategically assess and prioritise improvements based on the principles outlined in this Strategy. The following criteria options were created to form an overall prioritisation assessment:

- **Safety improvement:** This criterion focuses on reducing the risk of harm to active transport users.
- **Equity to vulnerable users:** This criterion aims to support individuals such as students, the elderly, disabled individuals, and those from socio-economically disadvantaged backgrounds, ensuring their inclusion in the transport network.
- **Strategic importance:** This criterion emphasises connecting key attractors and population centres to other active transport links and modes of transportation, thereby enhancing the overall network.

- **Comfort and quality:** This criterion assesses the level of user experience for pedestrians and cyclists, taking into account factors such as convenience and overall satisfaction.

Following consultation with key stakeholders at Council workshops, it was determined to assign a greater weighting to the safety improvement criterion. Hence, the four criteria listed above were weighted equally, with the exception of safety improvement which was afforded a double weighting.

The overall scores are a sum of these values and classified as:

- Low: 0-3
- Medium: 4-7
- High: 8-11
- Very High: 12-15

▼ Scoring matrix by criteria, total sum of values to give overall score

Level of assessment	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality
Low	0	0	0	0
Medium	2	1	1	1
High	4	2	2	2
Very High	6	3	3	3

Infrastructure rated as High or Very High is listed below. Other infrastructure evaluated as Medium or Low is included in the full Weighted Scoring Criteria provided in Appendix A.

▼ High and Very High scoring infrastructure

Infrastructure	Overall
New pedestrian links to town centres	
<p>Shellharbour Village town centre</p> <ul style="list-style-type: none"> • New footpath – Minda Crescent (outer side) • New footpath – College Avenue (both sides, north of Lake Entrance Road) • New footpath – College Avenue (east side, south of Lake Entrance Road) • New footpath – Jilba Place (north side) • New footpath – Birra Drive (north and east side) • New footpath – Cygnet Avenue (south side) • New footpath – Bandicoot Drive (both sides) 	Very High
<p>Oak Flats town centre</p> <ul style="list-style-type: none"> • New footpath – Parkes Street (both sides) • New footpath – Wentworth Street (both sides) • New footpath – Griffiths Street (both sides) • New footpath – Fisher Street (both sides) • New footpath – Kingston Street (both sides) • New footpath – Hopetoun Street (south side) • New footpath – Miller Street (both sides) • New footpath – Watson Street (south side) • New footpath – Madden Street (both sides) • New footpath – Cullen Street (south side) • New footpath – Storey Street (both sides) • New footpath – Lang Street (south side) • New footpath – Brigadoon Circuit (both sides) • New footpath – Moore Street (east side) • New footpath – Theodore Street (west side) 	Very High
<p>Albion Park town centre</p> <ul style="list-style-type: none"> • New footpath – Taylor Road (north side) • New footpath – O’Gorman Street (north side) • New footpath – Beveridge Street (north side) • New footpath – Church Street (north side) • New footpath – Cawdell Drive (outer side) • New footpath – Hamilton Road (both sides) • New footpath – Terry Street (east side, north of Tongarra Road) • New footpath – Stapleton Avenue (west side) • New footpath – Terry Street (east side, south of Tongarra Road) 	High
<p>Oak Flats Industrial town centre</p> <ul style="list-style-type: none"> • New footpath – Industrial Road (north side) • New footpath – Casuarina Street (west side) 	High

<ul style="list-style-type: none"> • New footpath – River Oak Place (west side) • New footpath – Mineral Road (west side) 	
<p>Calderwood town centre</p> <ul style="list-style-type: none"> • New footpath – Sunflower Boulevard (north side) • New footpath – Connection Road (both sides) • New footpath – North Macquarie Road (both sides) • New footpath – Borjeson Circuit (north side) • New footpath – Bristlebird Drive (south side) • New footpath – Cockatoo Crescent (west side) • New footpath – Cloudy Lane (north side) • New footpath – Scanlon Street (south side) • New footpath – Stockman Road (both sides) • New footpath – Escarpment Drive (west side) • New footpath – Bartlett Crescent (south side) 	High
<p>Tullimbar town centre</p> <ul style="list-style-type: none"> • New footpath – Berrima Street (north side) • New footpath – Exeter Place (south side) • New footpath – Braemar Street (both sides) • New footpath – Tathra Lane (both sides) • New footpath – Cleveland Parade (both sides) • New footpath – Broughton Avenue (both sides) • New footpath – Burraborang Chase (east side) • New footpath – Balmoral Parade (east side) • New footpath – Bodalla Street (both sides) • New footpath – Crest Road (west side) 	High
New pedestrian links to transport nodes (10-minute walking catchment)	
<p>Shellharbour Airport</p> <ul style="list-style-type: none"> • New footpath – Rosewood Street (north side) • New footpath – Mallee Street (north side) • New footpath – Poplar Avenue (west side) 	High
<p>Albion Park Station</p> <ul style="list-style-type: none"> • New footpath – Windang Street (south side) • New footpath – Koonah Street (west and south side) • New footpath – Burroo Street (outer side) • New footpath – Yallah Street (east side) • New footpath – Werrang Street (east side) • New footpath – Karoo Street (both sides) • New footpath – Boonerah Street (north side) • New footpath – Industrial Road (north side) • New footpath – Casuarina Street (west side) • New footpath – Wooroo Street (both sides) 	High
<p>Oak Flats Station</p>	Very High

<ul style="list-style-type: none"> • New footpath – Hopetoun Street (south side) • New footpath – Miller Street (both sides) • New footpath – Watson Street (south side) • New footpath – Madden Street (both sides) • New footpath – Cullen Street (south side) • New footpath – Camelot Place (both sides) • New footpath – Storey Street (both sides) • New footpath – Lang Street (south side) • New footpath – Industrial Road (north side) • New footpath – Moore Street (east side) • New footpath – Theodore Street (west side) 	
<p>Shellharbour Junction Station</p> <ul style="list-style-type: none"> • New footpath – Aurora Avenue (west and south side) • New footpath – Venus Road (west side) • New footpath – Pluto Place (both sides) • New footpath – Piper Drive (north side) 	High
<p>New pedestrian links to open spaces</p>	
<p>Albion Park open space</p> <ul style="list-style-type: none"> • New footpath – Taylor Road (north side) • New footpath – Amaral Avenue (east side) • New footpath – Beveridge Street (north side) • New footpath – Charlotte Crescent (south side) • New footpath – Uphill Road (south side) • New footpath – Pleasant View Close (west side) 	High
<p>Albion Park Rail open space</p> <ul style="list-style-type: none"> • New footpath – Ti Tree Avenue (east side) • New footpath – Maple Street (north side) • New footpath – Banksia Avenue (east side) • New footpath – Boronia Avenue (east side) • New footpath – Orchid Avenue (east side) • New footpath – Elm Street (south side) • New footpath – Rose Avenue (east side) • New footpath – Koda Road (south side) 	High
<p>Oak Flats open space</p> <ul style="list-style-type: none"> • New footpath – Parkes Street (both sides) • New footpath – Wentworth Street (both sides) • New footpath – Griffiths Street (both sides) • New footpath – Fisher Street (both sides) 	High
<p>Shellharbour City Centre open space</p> <ul style="list-style-type: none"> • New footpath – Minda Crescent (outer side) • New footpath – Jilba Place (north side) • New footpath – Birra Drive (north and east side) 	Very High

New pedestrian links to schools (5-minute walking catchment)

Balarang Public School

- New footpath – Timbs Road (both sides)
- New footpath – Devonshire Crescent (both sides)
- New footpath – Malin Road (both sides)
- New footpath – Government Road (both sides)
- New footpath – Birra Drive (both sides)
- New footpath – The Esplanade (both sides)

High

Barrack Heights Public School

- New footpath – Hunter Street (both sides)
- New footpath – Brisbane Place (both sides)
- New footpath – Denison Avenue (both sides)
- New footpath – Gipps Crescent (both sides)

High

Corpus Christi Catholic High School

- New footpath – Moore Street (both sides)
- New footpath – Brigadoon Crescent (both sides)
- New footpath – Madden Street (both sides)
- New footpath – Industrial Road (both sides)
- New footpath – Hopetoun Street (both sides)

Very High

Mount Terry Public School

- New footpath – Ashburton Drive (both sides)
- New footpath – The Billabong (both sides)
- New footpath – Diamantia Circuit (both sides)
- New footpath – Tomlin Street (both sides)
- New footpath – Moruya Link (both sides)
- New footpath – Daintree Drive (both sides)
- New footpath – Fields Drive (both sides)
- New footpath – Gayscoyne Street (both sides)

High

Mount Warrigal Public School

- New footpath – Hogarth Avenue (both sides)
- New footpath – Davies Crescent (both sides)
- New footpath – Jones Avenue (both sides)
- New footpath – Landy Drive (both sides)
- New footpath – Garrard Avenue (both sides)
- New footpath – Harradin Lane (both sides)
- New footpath – Morgan Avenue (both sides)

High

Oak Flats High School

- New footpath – The Esplanade (both sides)
- New footpath – Allinga Drive (both sides)
- New footpath – Tarra Crescent (both sides)

Very High

<p>Tullimbar Public School</p> <ul style="list-style-type: none"> • New footpath – Broughton Avenue (both sides) • New footpath – Exeter Parade (both sides) • New footpath - Balmoral Parade (both sides) • New footpath - Berrima Street (both sides) • New footpath – Tahra Lane (both sides) 	High
<p>Lake Illawarra South Public School</p> <ul style="list-style-type: none"> • New footpath – Reddall Parade (both sides) 	High
<p>Oak Flats Public School</p> <ul style="list-style-type: none"> • New footpath - Wentworth Street (both sides) • New footpath – Griffiths Street (both sides) • New footpath – Fisher Street (both sides) • New footpath - Kingston Street (both sides) • New footpath – Parkes Street (both sides) 	Very High
<p>St Joseph’s Catholic High School</p> <ul style="list-style-type: none"> • New footpath – Church Street (both sides) • New footpath – Kevin Road (both sides) • New footpath – Scenic Crescent (both sides) • New footpath – Abercrombie Crescent (both sides) • New footpath – Tuross Street (both sides) 	Very High
<p>Warilla Public School</p> <ul style="list-style-type: none"> • New footpath – The Kingsway (both sides) • New footpath – Pleasant Avenue (both sides) • New footpath – Leawarra Avenue (both sides) • New footpath – Gipps Crescent (both sides) • New footpath – Ulster Avenue (both sides) 	High
<p>New cycling network links</p>	
<p>Route 1 – Calderwood to Oak Flats Station primary links</p> <ul style="list-style-type: none"> • New shared use path – Illawarra Highway (north side) • Quietway – Tallowa Street • New on-road cycleway – Illawarra Highway (south side) • Upgraded footpath to shared use – Path between Tongarra Road and Beveridge Street • New shared use path – Tongarra Road (north side) • Upgraded footpath to shared use – Tongarra Road (north side) • New shared use path – Princes Highway crossing at train line 	High
<p>Route 1 – Calderwood to Oak Flats Station secondary links</p> <ul style="list-style-type: none"> • New shared use path - Wongawilli Street (south side), Broughton Avenue (west side), Berrima Street (south side) • Upgraded footpath to shared use - Berrima Street (south side) 	High

<ul style="list-style-type: none"> • New shared use path - Church Street (south side) • Upgraded footpath to shared use - Path between Tongarra Road and Beveridge Street • Quietway / upgraded footpath to shared use - Beveridge Street and park path to current shared use path at Con O'Keefe Oval 	
<p>Route 2 – Shellharbour Airport to Shellharbour Village primary links</p> <ul style="list-style-type: none"> • New shared use path - Boomerang Avenue (south side) and Airport Road (west side) • Upgraded footpath to shared use - Hargraves Avenue (south side) • Upgraded footpath to shared use - Rotary Park and rail line crossing • New shared use path - Industrial Road (south side) • New shared use path - Pioneer Drive (south side) west of Lake Entrance Road • New shared use path - North of the rail line, Jemima Reserve, Whittaker Street (south side) • Upgraded footpath to shared use - Lakewood Boulevard (north side) 	Very High
<p>Route 2 – Shellharbour Airport to Shellharbour Village secondary links</p> <ul style="list-style-type: none"> • New shared use path - South side of the rail line • New shared use path - Wooroo Street and Koono Street (south side) • Upgraded footpath to shared use - Horsley Inlet pedestrian bridge • Quietway and new shared use path - Fisher Street (south side) • New shared use path and upgraded footpath to shared use - Geoff Shaw Oval • Upgraded footpath to shared use - Moore Street (west side) • New shared use path - Pioneer Drive (south side) east of Lake Entrance Road • Upgraded footpath to shared use - Pioneer Drive (south side), Bunderee Road (west side) • Upgraded footpath to shared use - Footpath between Wattle Road and Burrinjuck Avenue 	High
<p>Route 3 – Shellharbour City Centre to Shellharbour Village secondary links</p> <ul style="list-style-type: none"> • Upgraded footpath to shared use - Mary Street (east side north of pedestrian crossing, west south of crossing) • New shared use path - Towns Street (north side) and Sophia Street (west side) 	High
<p>Route 4 – Macquarie Rivulet to Windang Bridge primary links</p> <ul style="list-style-type: none"> • Quietway - Shearwater Boulevard • New shared use path - Bridge Option 2: New bridge to Koono Bay Reserve • New shared use path - Bridge Avenue (north side) • New shared use path - Deakin Street (south side) • Upgraded footpath to shared use - Central Avenue (west side) • Bifurcation - Lake waterfront 	Very High
<p>Route 5 – Albion Park to Oak Flats Station primary links</p> <ul style="list-style-type: none"> • New shared use path / upgraded footpath - O'Gorman Street (south side) • New shared use path - Outside Shellharbour City Stadium (south side) • Upgraded footpath to shared use / new shared use path - Park area north of Princes Highway • New shared use path - Jarrah Way (west side) 	Very High
<p>Route 6 – Oak Flats waterfront to Oak Flats Station primary links</p> <ul style="list-style-type: none"> • New shared use path - Central Park • Upgraded footpath to shared use - Central Avenue (west side) • Quietway - Central Avenue (east side) 	High

<ul style="list-style-type: none"> Upgraded footpath to shared use - Central Avenue (west side) 	
<p>Route 7 – Shellharbour Junction Station to Shellharbour Village (via Shell Cove) primary links</p> <ul style="list-style-type: none"> Upgraded footpath to shared use - Southern Cross Boulevard (north side) New shared use path - Melville Crescent (south side) Upgraded footpath to shared use - Aquatic Drive (west side) 	High
<p>Route 9 – Oak Flats Station to Warilla primary links</p> <ul style="list-style-type: none"> Upgraded footpath to shared use - Lake Entrance Road (north side) New shared use path - Garrad Reserve, Andrew Park, Johnston Street (north side) Upgraded footpath to shared use - Pathway on the north side of Williams Park New shared use path - O’Neill Street (north side), War Memorial Park 	High
<p>Route 10 – Oak Flats Industrial to Shellharbour City Centre primary links</p> <ul style="list-style-type: none"> New shared use path - Mineral Road (east side), Geoff Shaw Oval New shared use path - Fisher Street (south side) Quietway - Ayers Lane Upgraded footpath to shared use - Kingston Street (north side) 	High
<p>Route 11 – Albion Park Rail waterfront to Croom primary links</p> <ul style="list-style-type: none"> New shared use path - Outside Shellharbour City Stadium (south side) New shared use path - Croome Road (west side) Upgraded footpath to shared use path - Rotary Park crossing train line New shared use path - Werrang Street (west side) New shared use path - Burroo Street (west side) 	High
<p>Route 12 – Windang Bridge to Shellharbour Village (via Shellharbour Road) primary links</p> <ul style="list-style-type: none"> Upgraded footpath to shared use - Mary Street (east side north of pedestrian crossing, west south of crossing) 	High
<p>Route 13 – Macquarie Rivulet to Southern Albion Park primary links</p> <ul style="list-style-type: none"> New shared use path / upgraded footpath to shared use - O’Gorman Street (south side) Upgraded footpath to shared use - Terry Street (east side north of Russell Street) Upgraded footpath to shared use - Cawdell Drive (south side) Quietway - Ashburton Drive laneway 	High
<p>Route 15 – Windang Bridge to Shellharbour Village (via waterfront) primary links</p> <ul style="list-style-type: none"> Bifurcation - Reddall Parade (north side) Bifurcation - Henderson Park, Strong Reserve, waterfront Bifurcation - Eric Cleary Park New shared use path - Sophia Street (west side), Towns Street (north side) 	High
<p>New shared use path at Minda Crescent (east side), Kilpa Place, Allinga Drive</p>	High
<p>Upgraded footpath to shared use / new shared use path at King Street</p>	High

New shared use path at Ocean Beach Drive	High
Network supporting infrastructure	
Bicycle shed at Albion Park Station	Very High
Bicycle shed at Oak Flats Station	Very High
Bicycle shed at Shellharbour Junction Station	Very High
Bicycle racks at Calderwood	High
Bicycle racks at Tullimbar	High
Bicycle racks at Albion Park	High
Bicycle racks at Oak Flats	High
Bicycle racks at Shellharbour City Centre	High
Bicycle racks at Warilla	High
Bicycle racks at Shellharbour Village	High
Upgrading of path markings	Very High
School safety improvement at Mount Warrigal Public School <ul style="list-style-type: none"> Jones Avenue - Upgrading to pedestrian (zebra) crossing with small kerb extension Hogarth Avenue - Upgrading of speed hump to raised pedestrian (wombat) crossing 	High
School safety improvement at Albion Park High School <ul style="list-style-type: none"> Church Street - Upgrading of pedestrian (zebra) crossing to raised (wombat) pedestrian crossing 	High
School safety improvement at Corpus Christi Catholic High School <ul style="list-style-type: none"> Moore Street - Upgrading from splitter island to raised pedestrian (wombat) crossing 	High
School safety improvement at Flinders Primary School <ul style="list-style-type: none"> Willinga Road east of the intersection with Woodburn Terrace - Introduction of raised pedestrian (wombat) crossing 	High
School safety improvement at Amity College, Illawarra Campus <ul style="list-style-type: none"> Shellharbour Road and Ocean Beach Drive Intersection - Introduction of signalised intersection Shellharbour Road and Beach Drive Intersection - Pedestrian (zebra) crossings 	Very High

<p>School safety improvement at Lake Illawarra High School</p> <ul style="list-style-type: none"> • School entrance, between the main entrance gate and Island - Pedestrian (zebra) crossing • Reddall Parade, between the shared use path and island - Pedestrian (zebra) crossing 	<p>Very High</p>
<p>Upgraded crossing facilities to signalised intersection at Lakewood Boulevard / Shellharbour Road intersection</p>	<p>High</p>
<p>Upgraded crossing facilities to raised intersection at Central Avenue / Fisher Street intersection</p>	<p>Very High</p>
<p>Pursue funding for signalisation of Terry Street / Burdekin Drive intersection</p>	<p>High</p>

13 Strategic costings

High-level strategic costings for infrastructure included within the Active Transport Strategy have been estimated for the Shellharbour LGA as of June 2023.

Infrastructure	Unit	Low Estimation	Contingency	High Estimation
Active Transport Links				
Footpath (2.0m wide)	Per km	\$605,111	30%	\$786,644
On-road cycleway (3.5m wide)	Per km	\$2,121,108	30%	\$2,757,441
Shared use path (3.5m wide)	Per km	\$1,183,430	30%	\$1,538,459
Active transport bridge over Horsley Inlet (46m long, 5.9m wide)	-	\$4,444,000	60%	\$7,220,400
Bicycle Storage				
Bicycle rack	Each	\$849	30%	\$1,103
Bicycle shed	Each	\$173,680	40%	\$243,152
Crossing and Traffic Calming Facilities				
Raised pedestrian (wombat) crossing	Each	\$35,721	50%	\$53,582
Signalised crossing	Each	\$111,493	50%	\$167,239
Kerb extension	Each	\$34,134	50%	\$51,201
Zebra crossings	Each	\$14,274	50%	\$21,411
Pedestrian refuges	Each	\$14,519	50%	\$21,779
Speed hump	Each	\$28,236	50%	\$42,354
Speed Cushion	Each	\$12,226	50%	\$18,339

14 Implementation action plan

Based on the Weighted Scoring Criteria, actions have been ordered by priority and timeframe, with the following timeframe as follows:

Short term: 0-3 years

Medium term: 3-8 years

Long term: 8-15 years

No.	Actions	Priority	Timeframe
1	Undertake development of a Council-wide Pedestrian Access and Mobility Plan (PAMP) to further develop footpath works with the following destinations of highest priority: <ul style="list-style-type: none"> • Oak Flats Station • Corpus Christi Catholic High School • Oak Flats High School • Oak Flats Public School • St Joseph's Catholic High School • Open space at Shellharbour town centre • Shellharbour Village town centre • Oak Flats town centre 	High	Short term
2	Advocate to TfNSW for bicycle sheds at the following locations: <ul style="list-style-type: none"> • Albion Park Station • Oak Flats Station • Shellharbour Junction Station 	High	Short term
3	Pursue funding for concept design of Cycling Route 2 – Shellharbour Airport to Shellharbour Village	High	Short term
4	Pursue funding for concept design of Cycling Route 4 – Macquarie Rivulet to Windang Bridge	High	Short term
5	Pursue funding for concept design of Cycling Route 5 – Albion Park to Oak Flats Station	High	Short term
6	Review shared use path markings to ensure compliance with TfNSW standards	High	Short term
7	Pursue funding for implementation of school safety measures with the following at highest priority: <ul style="list-style-type: none"> • Amity College, Illawarra Campus • Lake Illawarra High School 	High	Short term
8	Pursue funding for raised crossings at Central Avenue / Fisher Street intersection	High	Short term
9	Pursue funding for concept design of Cycling Route 1 – Calderwood to Oak Flats Station	Medium	Medium term

10	Pursue funding for concept design of Cycling Route 6 – Oak Flats waterfront to Oak Flats Station	Medium	Medium term
11	Pursue funding for concept design of Cycling Route 9 – Oak Flats Station to Warilla	Medium	Medium term
12	Pursue funding for concept design of Cycling Route 13 – Macquarie Rivulet to Southern Albion Park	Medium	Medium term
13	Pursue funding for concept design of new shared use path at Ocean Beach Drive	Medium	Medium term
14	Pursue funding for implementation of school safety measures at the following: <ul style="list-style-type: none"> • Mount Warrigal Public School • Albion Park High School • Corpus Christi Catholic High School • Flinders Primary School 	Medium	Medium term
15	Investigate with TfNSW the feasibility of signalisation at Lakewood Boulevard / Shellharbour Road intersection	Medium	Medium term
16	Investigate with TfNSW the feasibility of signalisation at Terry Street / Burdekin Drive intersection	Medium	Medium term
17	Introduction of bicycle racks at locations identified	Low	Long term
18	Develop a wayfinding schedule aligned with the Active Transport Strategy	Low	Long term
19	Continue delivery of footpath works as incorporated into PAMP	Low	Long term
20	Pursue funding opportunities for concept design and delivery of other cycling links scoring High in Weighted Scoring Criteria	Low	Long term

Appendix A Full weighted scoring criteria

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
New pedestrian links to town centres (10-minute walking catchment)					
Shellharbour City Centre	Medium	Medium	High	High	Medium
Shell Cove town centre	Low	Low	Low	Medium	Low
Warilla town centre	Medium	Medium	Medium	Medium	Medium
Shellharbour Village town centre	High	High	Very High	Very High	Very High
Oak Flats town centre	Very High	High	Very High	High	Very High
Albion Park town centre	High	High	High	Medium	High
Oak Flats Industrial town centre	High	High	High	High	High
Calderwood town centre	Medium	High	Very High	High	High
Tullimbar town centre	High	Very High	High	High	High
New pedestrian links to transport nodes (10-minute walking catchment)					
Shellharbour Airport	High	Very High	Medium	Very High	High
Albion Park Station	High	High	Very High	High	High
Oak Flats Station	Very High	High	Very High	Very High	Very High

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Shellharbour Junction Station	High	High	Very High	High	High
New pedestrian links to open spaces					
Albion Park open space	High	Medium	Medium	High	High
Albion Park Rail open space	High	High	High	High	High
Oak Flats open space	High	High	High	Very High	High
Shellharbour City Centre open space	High	High	Very High	Very High	Very High
Barrack Heights open space	Medium	High	Medium	High	Medium
New pedestrian links to schools (5-minute walking catchment)					
Albion Park High School	Medium	Medium	High	Medium	Medium
Albion Park Public School	Medium	Medium	Medium	High	Medium
Albion Park Rail Public School	Low	Medium	High	High	Medium
Amity College, Illawarra Campus	Medium	Low	Low	Medium	Low
Balarang Public School	High	High	High	Medium	High

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Barrack Heights Public School	High	High	High	High	High
Calderwood Christian School	Medium	Low	Medium	Low	Low
Corpus Christi Catholic High School	Very High	Very High	Very High	Very High	Very High
Flinders Public School	Low	Low	Low	Medium	Low
Lake Illawarra High School	Low	Medium	Low	Low	Low
Mount Terry Public School	High	Very High	High	High	High
Mount Warrigal Public School	Medium	High	Very High	Very High	High
Nazareth Catholic Primary School	Medium	High	High	Medium	Medium
Oak Flats High School	Very High	Very High	High	High	Very High
Tullimbar Public School	Medium	High	High	High	High
Lake Illawarra South Public School	High	High	Medium	Medium	High
Oak Flats Public School	High	Very High	High	Very High	Very High
Shell Cove Public School	Medium	Medium	Medium	High	Medium

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Shellharbour Anglican School	Medium	Medium	High	Medium	Medium
Shellharbour Public School	Medium	Medium	Medium	High	Medium
Stella Maris Catholic Primary School	Medium	Medium	High	Medium	Medium
St Joseph's Catholic High School	High	High	Very High	Very High	Very High
St Paul's Catholic Parish Primary School	Medium	Medium	High	Medium	Medium
Warilla High School	Medium	Medium	Medium	Medium	Medium
Warilla North Public School	Medium	High	Medium	Medium	Medium
Warilla Public School	High	High	High	Medium	High
New cycling network links					
Route 1 – Calderwood to Oak Flats Station primary links	Very High	Medium	Very High	Medium	High
Route 1 – Calderwood to Oak Flats Station secondary links	High	Medium	High	High	High

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Route 2 – Shellharbour Airport to Shellharbour Village primary links	Very High	Medium	Very High	High	Very High
Route 2 – Shellharbour Airport to Shellharbour Village secondary links	Very High	Medium	High	High	High
Route 3 – Shellharbour City Centre to Shellharbour Village primary links	High	Low	High	Low	Medium
Route 3 – Shellharbour City Centre to Shellharbour Village secondary links	High	High	Very High	High	High
Route 4 – Macquarie Rivulet to Windang Bridge primary links	High	High	Very High	Very High	Very High
Route 4 – Macquarie Rivulet to Windang Bridge secondary links	Medium	Medium	Medium	High	Medium
Route 5 – Albion Park to Oak Flats Station primary links	Very High	Medium	High	Very High	Very High

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Route 5 – Albion Park to Oak Flats Station secondary links	Medium	Low	Medium	Low	Low
Route 6 – Oak Flats waterfront to Oak Flats Station primary links	Very High	High	High	Medium	High
Route 7 – Shellharbour Junction Station to Shellharbour Village (via Shell Cove) primary links	High	Medium	Medium	High	High
Route 7 – Shellharbour Junction Station to Shellharbour Village (via Shell Cove) secondary links	High	Medium	Medium	Low	Medium
Route 8 – Shellharbour Junction Station to Shellharbour Village (via Flinders) secondary links	High	Medium	Medium	Medium	Medium
Route 9 – Oak Flats Station to Warilla primary links	High	High	High	Very High	High
Route 10 – Oak Flats Industrial to Shellharbour City Centre primary links	High	High	Medium	High	High

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Route 10 – Oak Flats Industrial to Shellharbour City Centre secondary links	High	Medium	Medium	Medium	Medium
Route 11 – Albion Park Rail waterfront to Croom primary links	High	Medium	High	Medium	High
Route 12 – Windang Bridge to Shellharbour Village (via Shellharbour Road) primary links	Medium	High	High	High	High
Route 12 – Windang Bridge to Shellharbour Village (via Shellharbour Road) secondary links	Medium	High	Medium	High	Medium
Route 13 – Macquarie Rivulet to Southern Albion Park primary links	Very High	Medium	High	High	High
Route 13 – Macquarie Rivulet to Southern Albion Park secondary links	High	Medium	Medium	Medium	Medium
Route 14 – Oak Flats Station to New Shellharbour Hospital primary links	Medium	Medium	High	High	Medium

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Route 14 – Oak Flats Station to New Shellharbour Hospital secondary links	Medium	Medium	Medium	High	Medium
Route 15 – Windang Bridge to Shellharbour Village (via waterfront) primary links	Medium	Medium	Very High	Very High	High
Route 15 – Windang Bridge to Shellharbour Village (via waterfront) secondary links	Medium	High	Medium	High	Medium
Upgraded Footpath to Shared Use / New Shared Use Path at Yellow Rock Road	Medium	Low	High	Medium	Medium
Upgraded Footpath to Shared Use at Broughton Avenue	Medium	Medium	Medium	Medium	Medium
New Shared Use Path at Balmoral Parade	Medium	Medium	Low	Medium	Medium
New Shared Use Path at Crest Road	Low	Medium	Medium	Medium	Low

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
New Shared Use Path at Lobella Street, Oak Street and Ash Avenue	Medium	Very High	Low	Medium	Medium
Upgraded Footpath to Shared Use / New Shared Use Path at Laneway, Hopetoun Lane	Low	Low	High	High	Medium
New Shared Use Path at Minda Crescent (east side), Kilpa Place, Allinga Drive	High	High	High	Medium	High
New Shared Use Path at Madigan Boulevard and Morgan Avenue	High	Medium	Medium	Medium	Medium
Upgraded Footpath to Shared Use Path at Cuthbert Drive	Medium	Medium	Low	Low	Low
Upgraded Footpath to Shared Use / New Shared Use Path at King Street	High	High	High	Medium	High
Upgraded Footpath to Shared Use Path at Harvey Street and Queen Street	Medium	Medium	High	Medium	Medium

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
New Shared Use Path at Ocean Beach Drive	High	High	High	Very High	High
Improved access to industry					
Warilla Grove Light Industrial Area links	Medium	High	High	Medium	Medium
Durgardin Drive Industrial Area links	Medium	High	High	Medium	Medium
Miall Way Industrial Area links	Medium	Medium	Low	Low	Low
Network supporting infrastructure					
Bicycle shed at Albion Park Station	Very High	Medium	Very High	Very High	Very High
Bicycle shed at Oak Flats Station	Very High	Medium	Very High	Very High	Very High
Bicycle shed at Shellharbour Junction Station	Very High	Medium	Very High	Very High	Very High
Bicycle racks at Calderwood	High	Medium	High	High	High
Bicycle racks at Tullimbar	High	Medium	High	High	High
Bicycle racks at Albion Park	High	Medium	High	High	High

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Bicycle racks at Oak Flats	High	Medium	High	High	High
Bicycle racks at Shellharbour City Centre	High	Medium	High	High	High
Bicycle racks at Warilla	High	Medium	High	High	High
Bicycle racks at Shellharbour Village	High	Medium	High	High	High
Upgrading of path markings	Very High	High	Very High	Very High	Very High
Pedestrian rest facilities	Low	Very High	Medium	Very High	Medium
School safety improvement at Mount Warrigal Public School	Very High	High	Medium	High	High
School safety improvement at Albion Park High School	Very High	Medium	Medium	High	High
School safety improvement at Corpus Christi Catholic High School	Very High	High	High	Medium	High
School safety improvement at Flinders Primary School	Very High	High	High	Medium	High

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
School safety improvement at Amity College, Illawarra Campus	Very High	Very High	Very High	Very High	Very High
School safety improvement at Lake Illawarra High School	Very High	Very High	Very High	Very High	Very High
Upgraded crossing facilities to signalised intersection at Lakewood Boulevard / Shellharbour Road intersection	Very High	High	Medium	High	High
Upgraded crossing facilities to raised intersection at Central Avenue / Fisher Street intersection	Very High	High	High	Very High	Very High
Upgraded crossing facilities to signalised intersection at Terry Street / Burdekin Drive intersection	Very High	High	Medium	High	High

