

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. A total of 13 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.



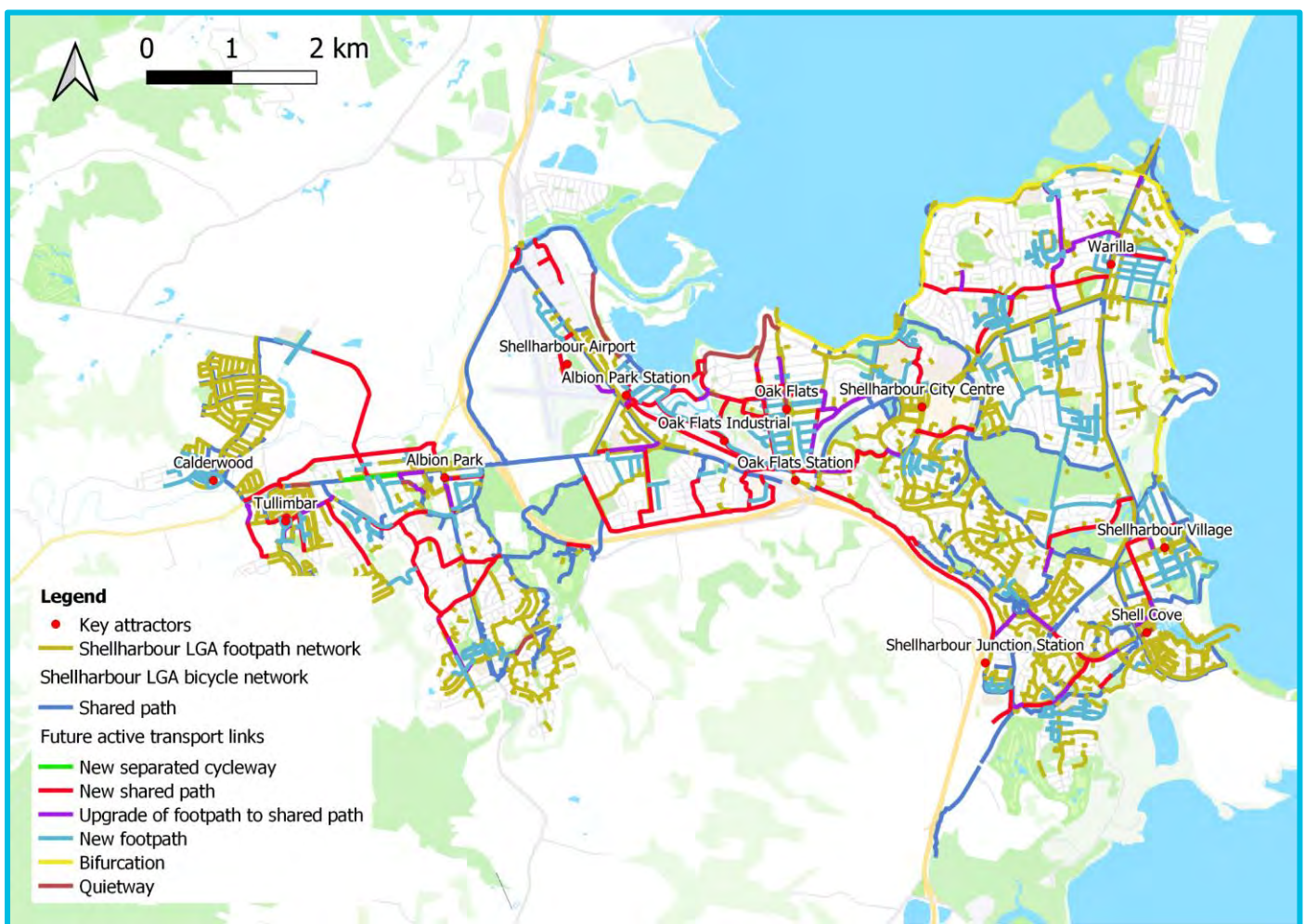
Summary of proposed improvements

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 by utilising existing infrastructure and providing new footpaths and shared 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 paths connecting these centres across Shellharbour LGA.

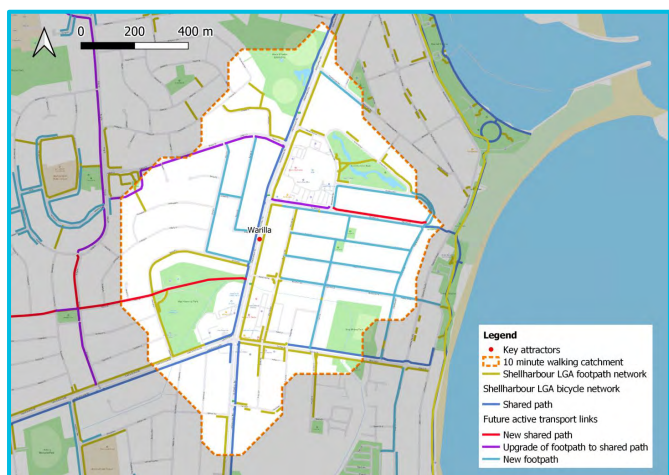


▲ Current and future Shellharbour LGA pedestrian network

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.



▲ Oak Flats open spaces footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software

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

Cycling network

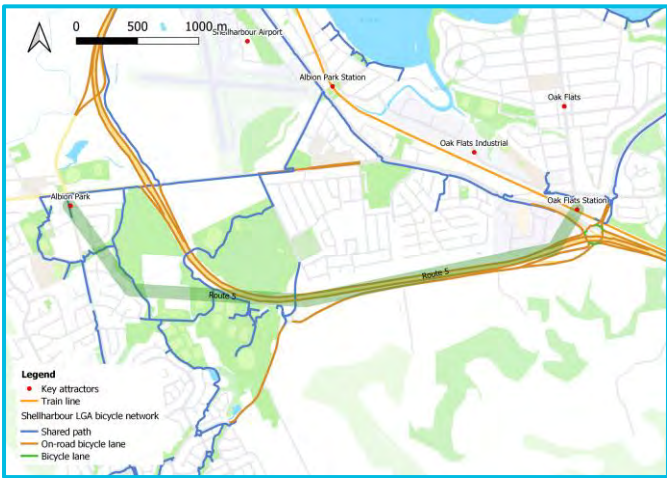
Considering the principles for active transport infrastructure, cycling links between key attractors will assist active travel throughout Shellharbour LGA. Cycling links are typically shared paths due to lower cycling and pedestrian volumes. These paths do not require on-street parking removal, with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

A total of 15 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 5

Source: Mapbox, Esri QGIS Mapping Software



▲ Route 5 - Future active transport facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 5 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared path	O’Gorman Street (south side)	Primary
2	Upgrade of footpath to shared path	Terry Street (east side)	Secondary
3	New shared path	Cawdell Drive (south side)	Secondary
4	New shared path	Outside Shellharbour City Stadium (south side)	Primary
5	New shared path	Greville Street (west side and park area north of Princes Motorway)	Primary
6	New shared path	Jarrah Way (west side)	Secondary
7	New shared path	Shandan Circuit (west side) and Colden Drive (east side)	Primary
8	New shared path	Princes Highway across train line	Primary



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, Durgadin Drive, Veronica Street and Commerce Drive.



▲ Durgadin 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.

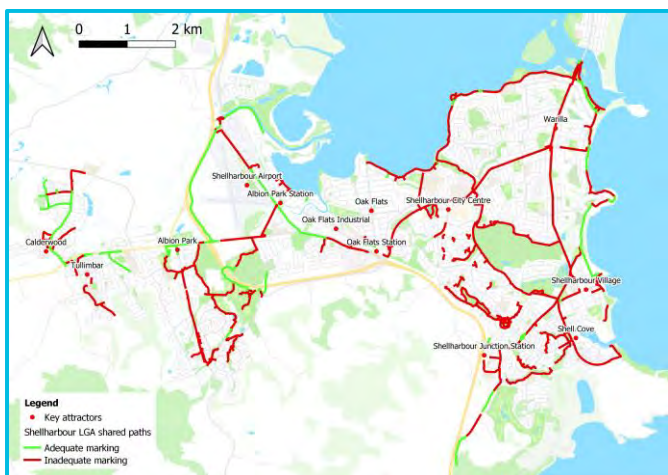


▲ Locations of bicycle storage facilities

Source: Mapbox, Esri QGIS Mapping Software

Clear path markings

A large portion of existing 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 path markings – as of September 2022

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 improve safety and connectivity.



▲ Locations of crossing facilities

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 – western locations

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 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 the design and construction of Cycling Route 2 – Shellharbour Airport to Shellharbour Village	High	Short term
4	Pursue funding for the design and construction of Cycling Route 4 – Macquarie Rivulet to Windang Bridge	High	Short term
5	Pursue funding for the design and construction of Cycling Route 5 – Albion Park to Oak Flats Station	High	Short term
6	Review shared path markings to ensure compliance with TfNSW standards	High	Short term
7	Pursue funding for the 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	Develop a wayfinding schedule aligned with the Active Transport Strategy	High	On-going
9	Pursue funding for the design and construction of Cycling Route 1 – Calderwood to Oak Flats Station	Medium	Medium term

10	Pursue funding for the design and construction of Cycling Route 6 – Oak Flats waterfront to Oak Flats Station	Medium	Medium term
11	Pursue funding for the design and construction of Cycling Route 7 – Shellharbour Junction Station to Shellharbour Village (via Shell Cove)	Medium	Medium term
12	Pursue funding for the design and construction of Cycling Route 9 – Oak Flats Station to Warilla	Medium	Medium term
13	Pursue funding for the design and construction of Cycling Route 13 – Macquarie Rivulet to Southern Albion Park	Medium	Medium term
14	Pursue funding for the design and construction of Cycling Route 15 – Windang Bridge to Shellharbour Village (via waterfront)	Medium	Medium term
15	Pursue funding for the design and construction of a new shared path at Ocean Beach Drive	Medium	Medium term
16	Pursue funding for the 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
17	Investigate with TfNSW the feasibility of signalisation at the Lakewood Boulevard / Shellharbour Road intersection	Medium	Medium term
18	Investigate with TfNSW the feasibility of an alternative intersection treatment at the Terry Street / Burdekin Drive intersection	Medium	Medium term
19	Review and upgrade kerb rams at other intersections	Medium	Medium-term
20	Implement education and awareness programs and initiatives	Low	Ongoing
21	Introduction of bicycle racks at locations identified	Low	Long term
22	Continue delivery of footpath works as incorporated into PAMP	Low	Long term
23	Pursue funding opportunities for the design and construction 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. The Strategy will be a long-term (10-year) plan that sets the vision, objectives and priorities for investment in active transport infrastructure to facilitate sustainable travel through active modes of transport such as walking and cycling.

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.



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)

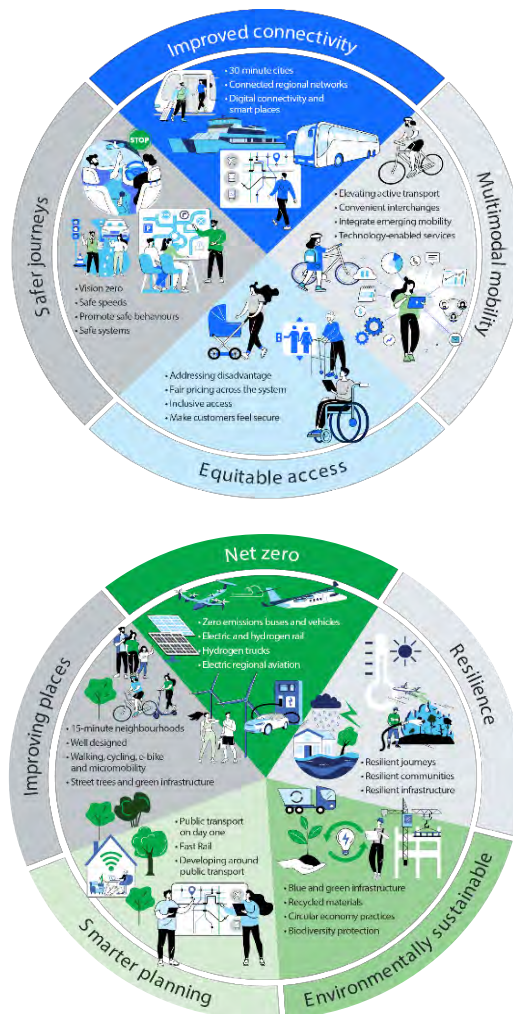
Future Transport sets the vision and direction for the planning and management of the NSW transport system (network and services). There is a focus on improved mobility, connecting centres, investing in infrastructure, creating better places, and seeking behavioural change to achieve a more sustainable 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.



▲ 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 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.

Zero Emissions Shellharbour Strategy 2022-2050 (SCC, 2022)

Council's Zero Emissions Shellharbour Strategy and Sustainability Policy commits Council to reach net zero community emissions by 2050. The strategy commits to building resilience across Shellharbour LGA for current and future generations in the face of a changing climate. This includes the support of sustainable travel by reducing reliance on private vehicle use and the provision of more walking, bicycle riding, public transport and ride share facilities and zero emissions transport.

This Active Transport Strategy supports Council's zero emissions commitment through the proposed infrastructure upgrades and initiatives which would encourage more active transport and contribute to national emissions reductions targets.

Shared Use Path Strategy (SCC, 2010)

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

Some of the planned routes include off-road shared 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-shel-letschatshellharbour-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
- 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 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

Cycle Network

Shellharbour village offers a limited cycle network with a series of future proposed works. These connect existing off road shared use paths along the foreshore to surrounding

beaches and to the west along Addison Street and Shellharbour road. At present proposed links between the west and the foreshore are not direct and inefficient creating awkward road crossings.

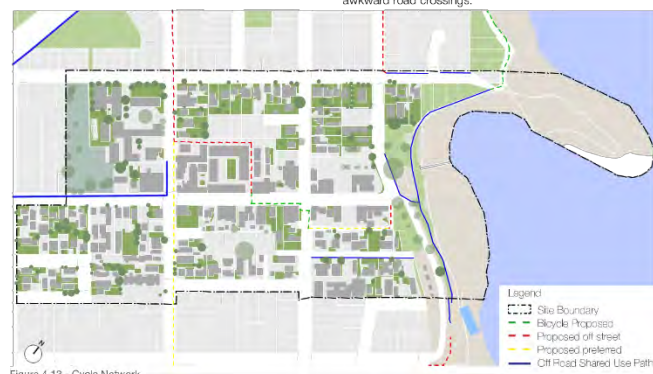


Figure 4.13 - Cycle Network

▲ Proposed Shellharbour Village cycle 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.

Cycle Network

The Warilla Town Centres have limited existing and proposed cycle connections with one shared path to the west along Shellharbour Road which connects to the town centres.

No direct routes between the town centres have been proposed, but there are proposed off street share paths linking both centres to the coast.



Figure 4.13 - Cycle Network

▲ Proposed Warilla town centre cycle 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	<p>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.</p>	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.
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.
Warilla	<p>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.</p>	Identified as a <i>Local Centre</i> in the Illawarra-Shoalhaven Regional Transport Plan.
Oak Flats	<p>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.</p>	Identified as a <i>Strategic Centre</i> in the Illawarra-Shoalhaven Regional Transport Plan.
Oak Flats Industrial	<p>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.</p>	Identified as a <i>Town Centre</i> in the Illawarra-Shoalhaven Regional Transport Plan.
Albion Park	<p>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.</p>	Identified as a <i>Town Centre</i> in the Illawarra-Shoalhaven Regional Transport Plan.

Location	Description	Relevant document
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.
Calderwood	Calderwood is a growing semi-rural suburb located inland, with a number of parks and nature reserves offering a range of nearby recreational opportunities such as the Calderwood District Park and wetlands.	Identified as a <i>Town Centre</i> in the Illawarra-Shoalhaven Regional Transport Plan.
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.
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

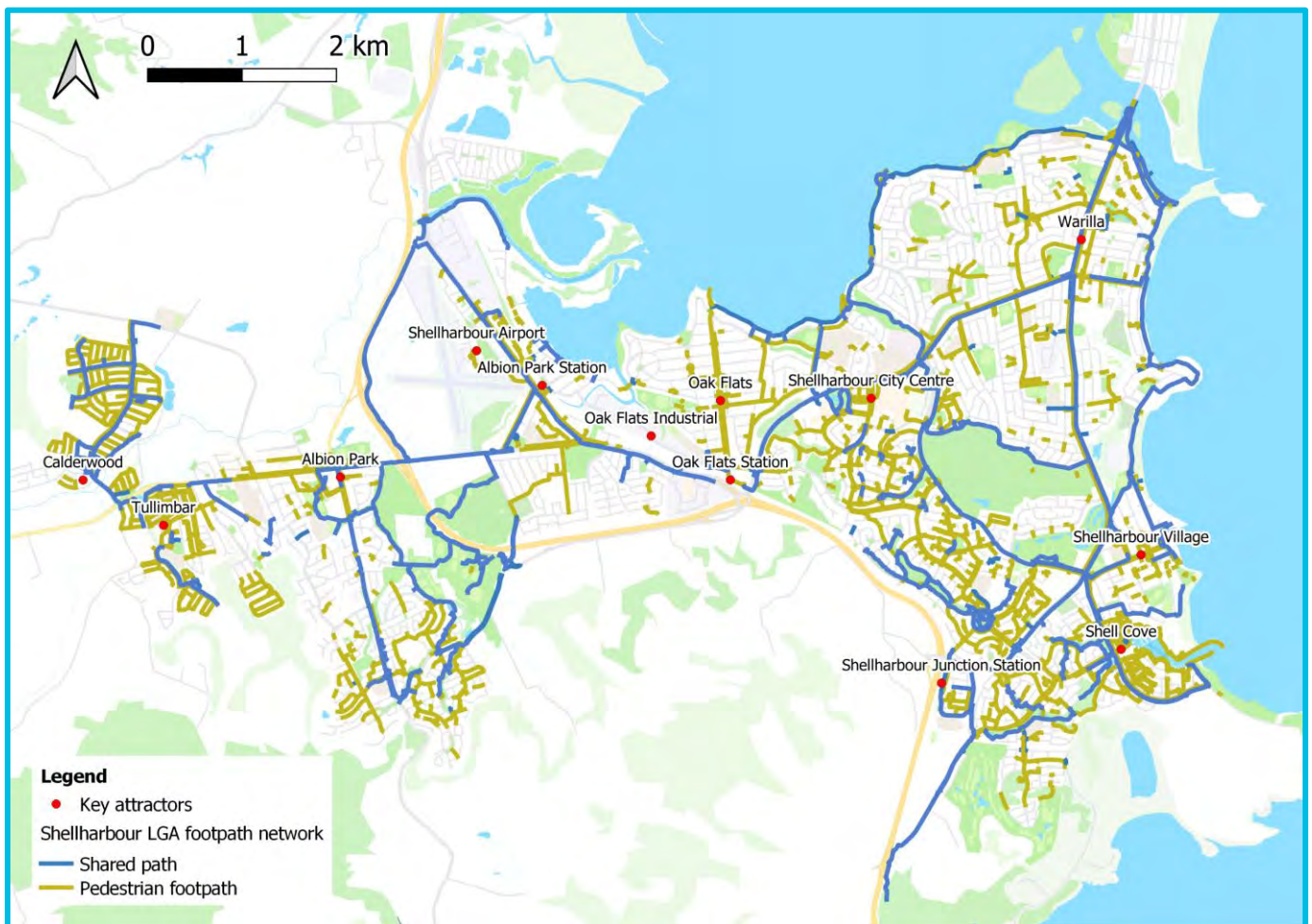
Existing active transport network

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 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 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 safe 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 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 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

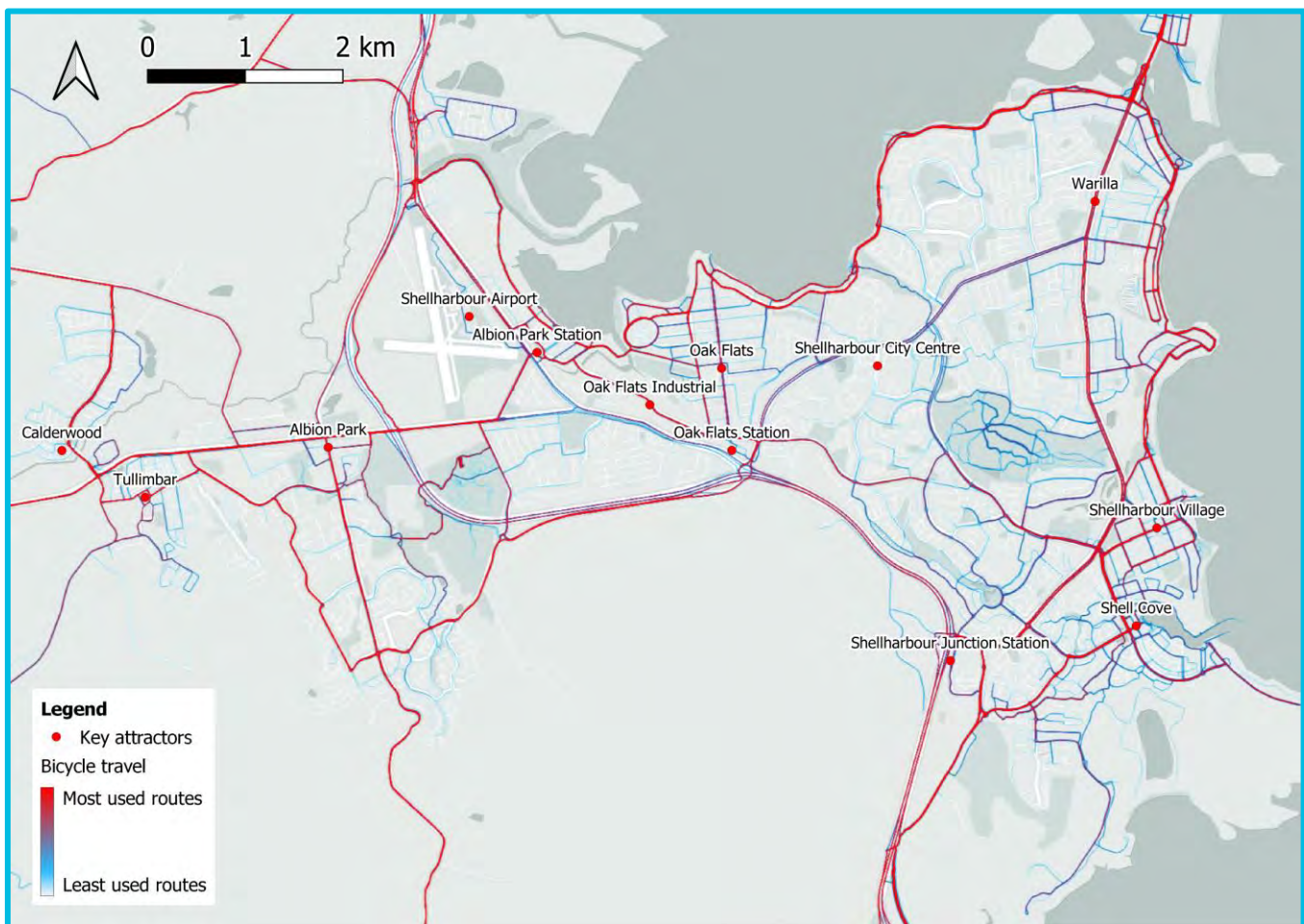
Transport network users

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 area 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

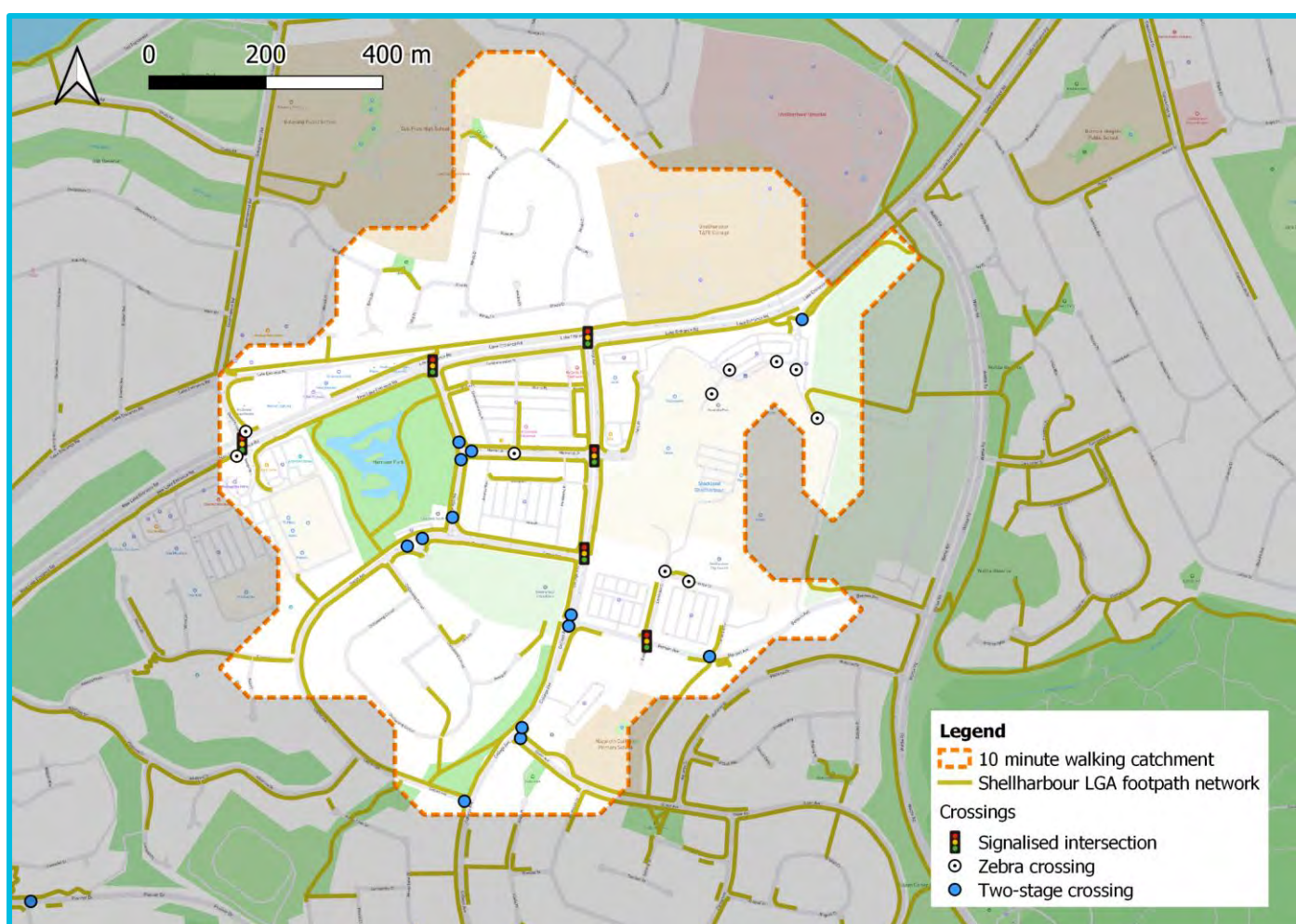
Shellharbour City Centre

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. Two-stage crossings are provided along College Avenue, Benson Avenue, Cygnet Avenue and Minga Avenue. A signalised crossing is also located on Benson Avenue near the highly utilised off-street carparks. Zebra crossings are prevalent in the carparks, providing 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

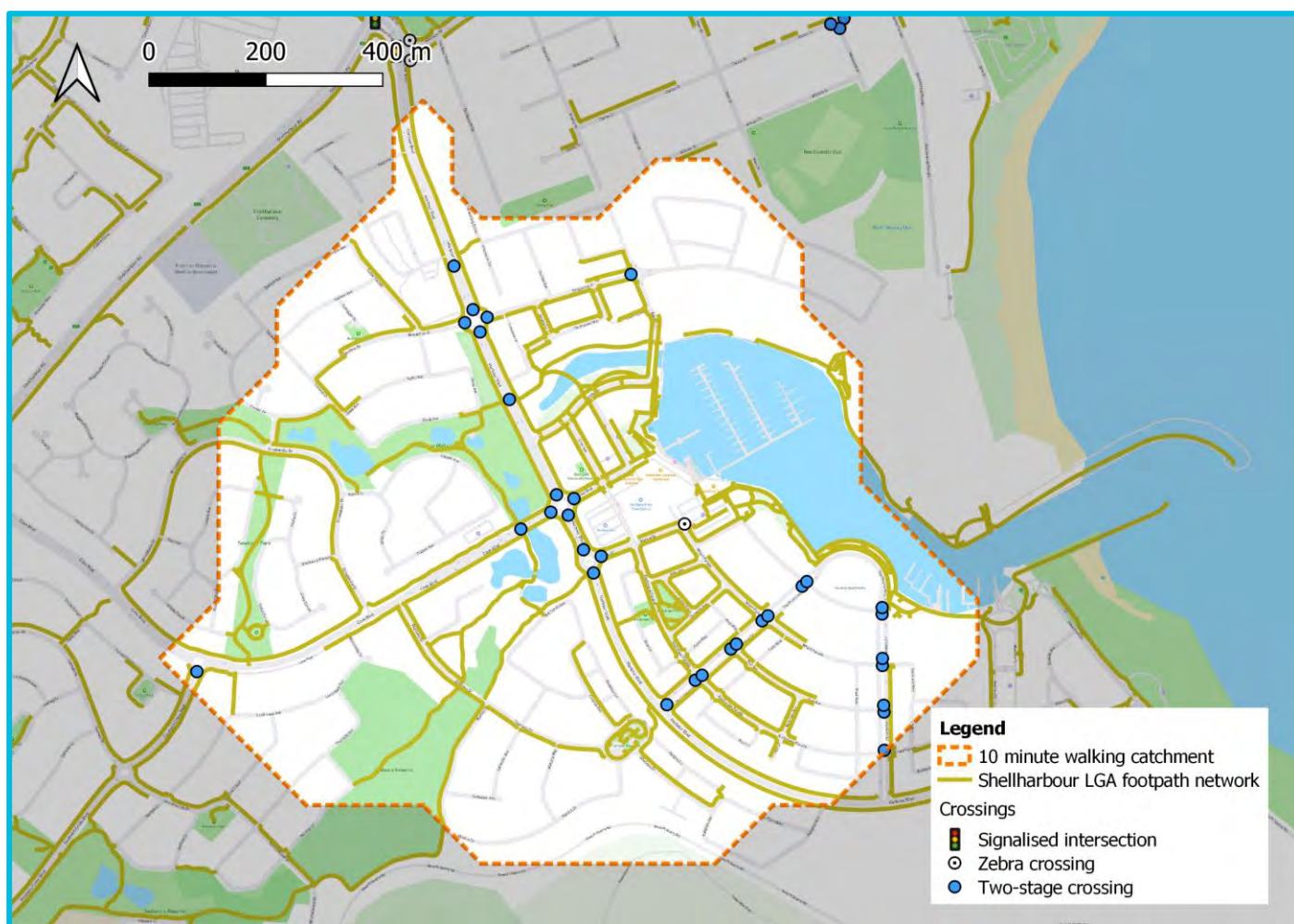
Shell Cove

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

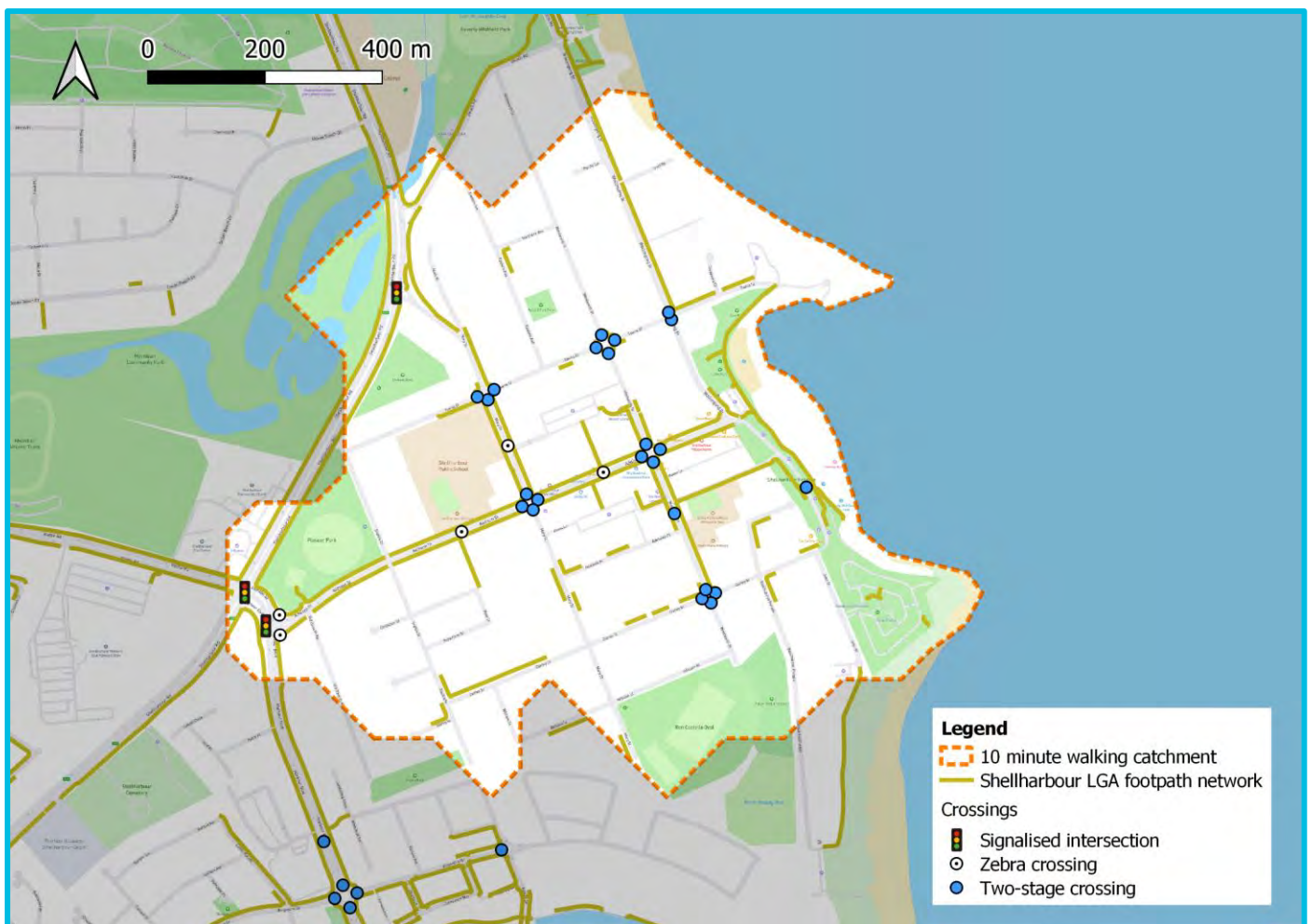
Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

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. Five 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

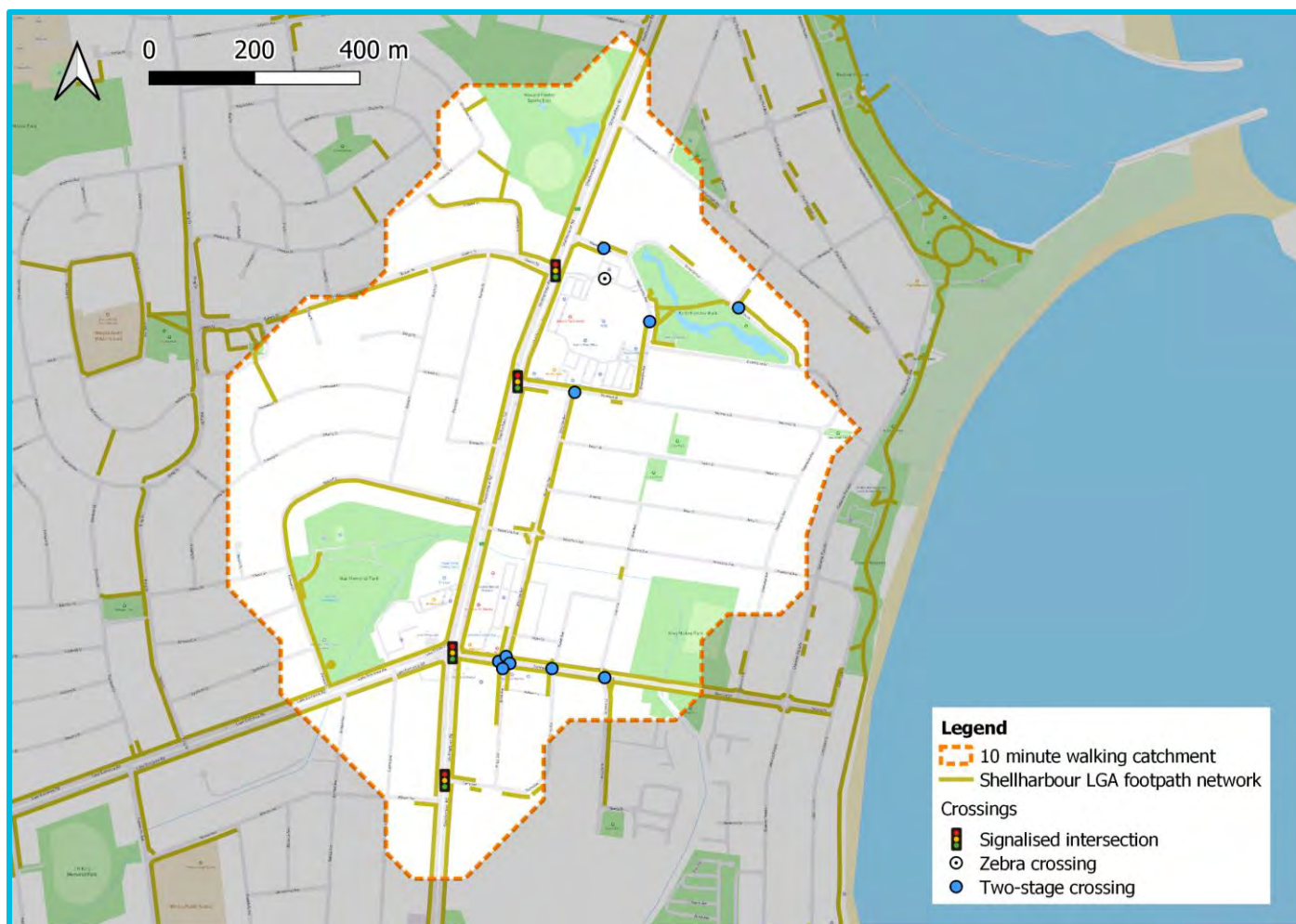
Warilla

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

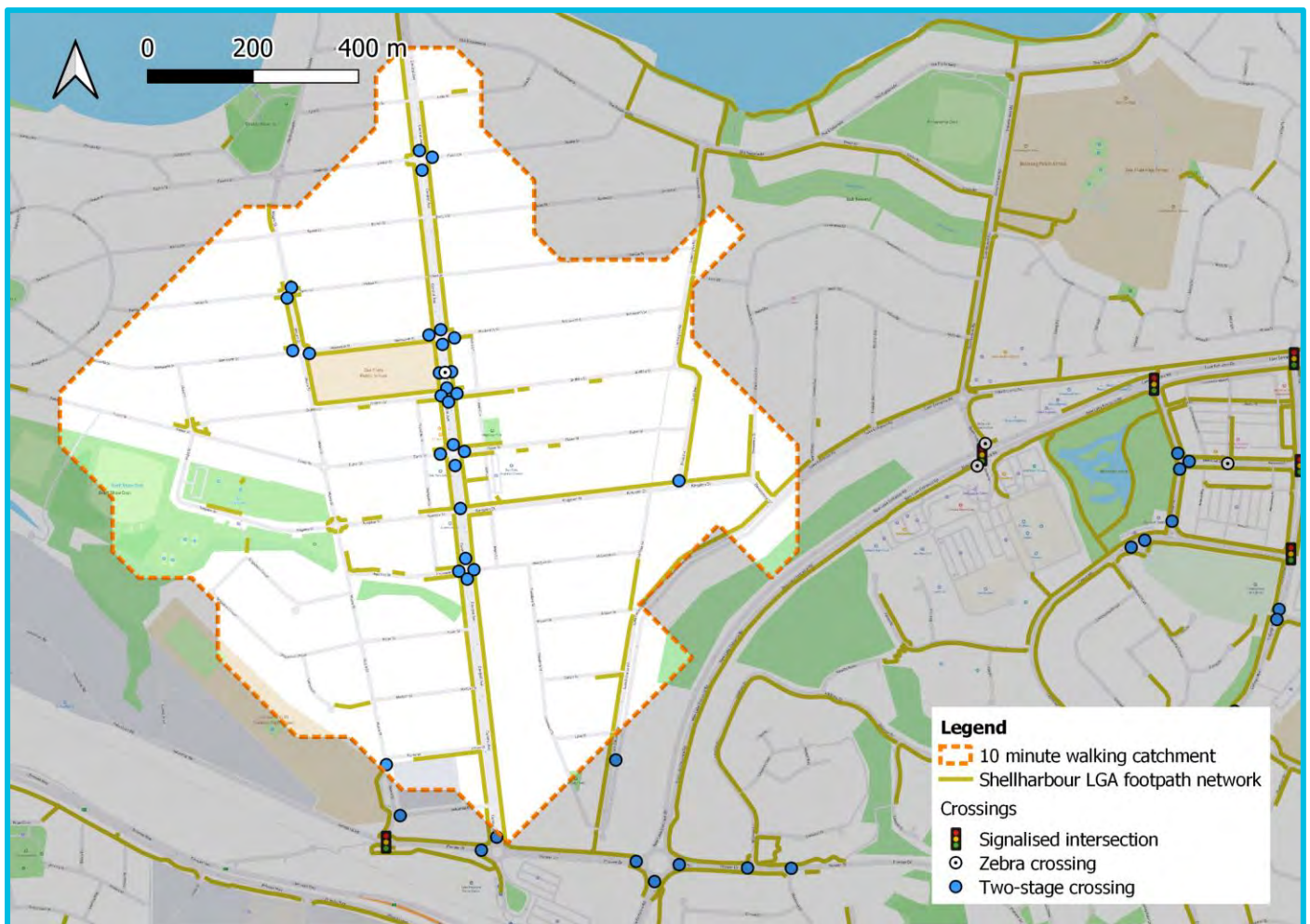
Oak Flats

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

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

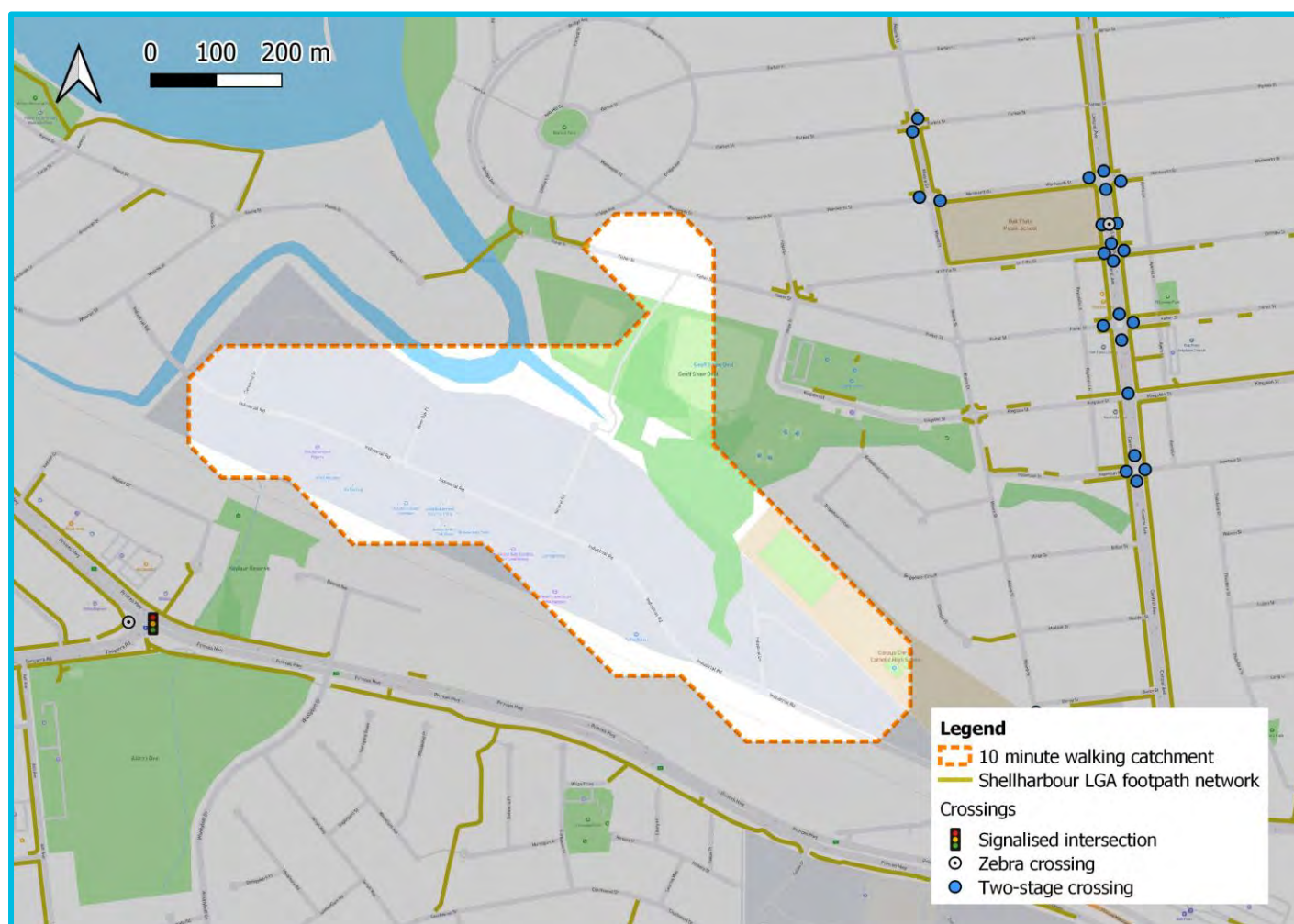
Oak Flats Industrial

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

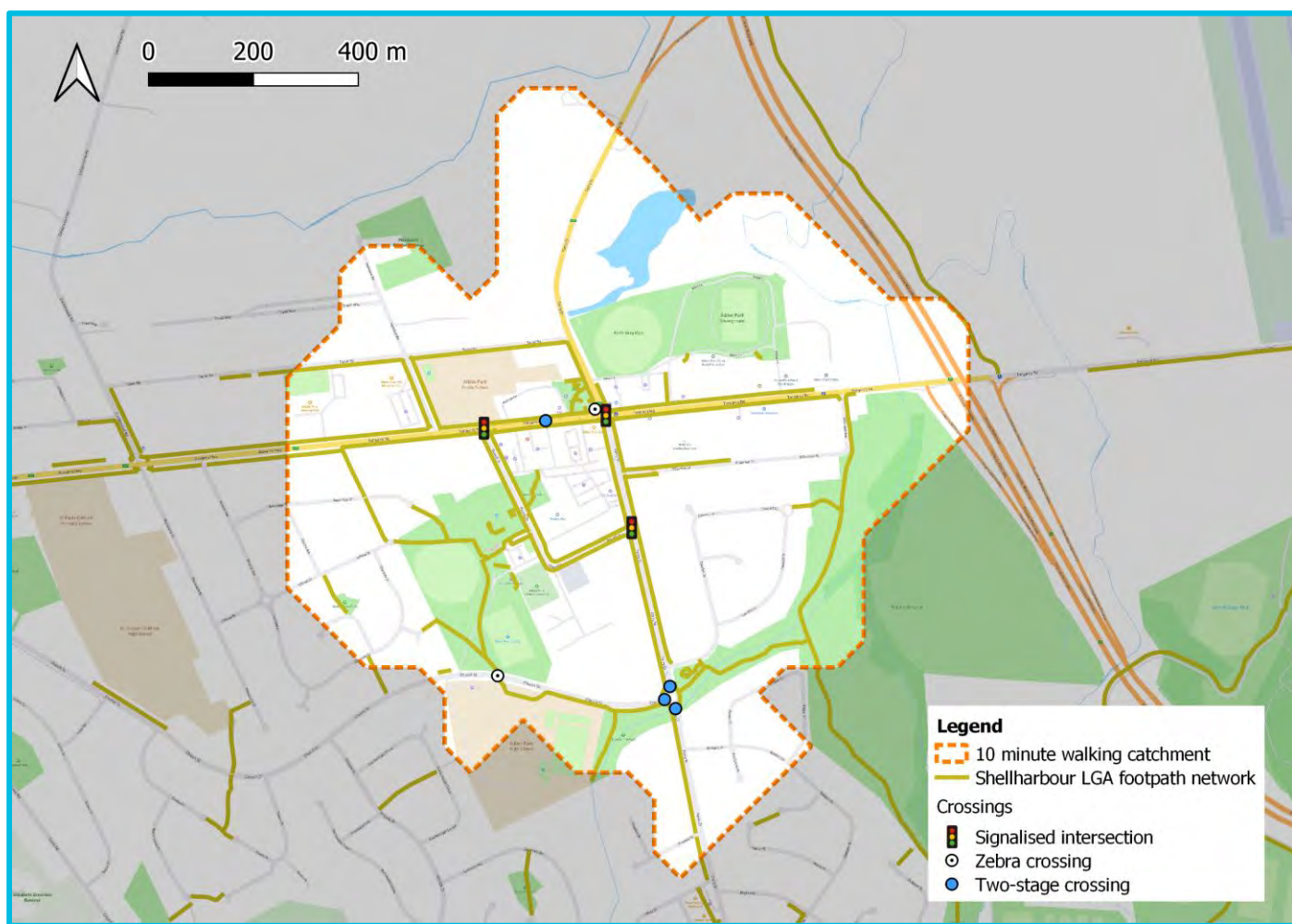
Albion Park

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

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

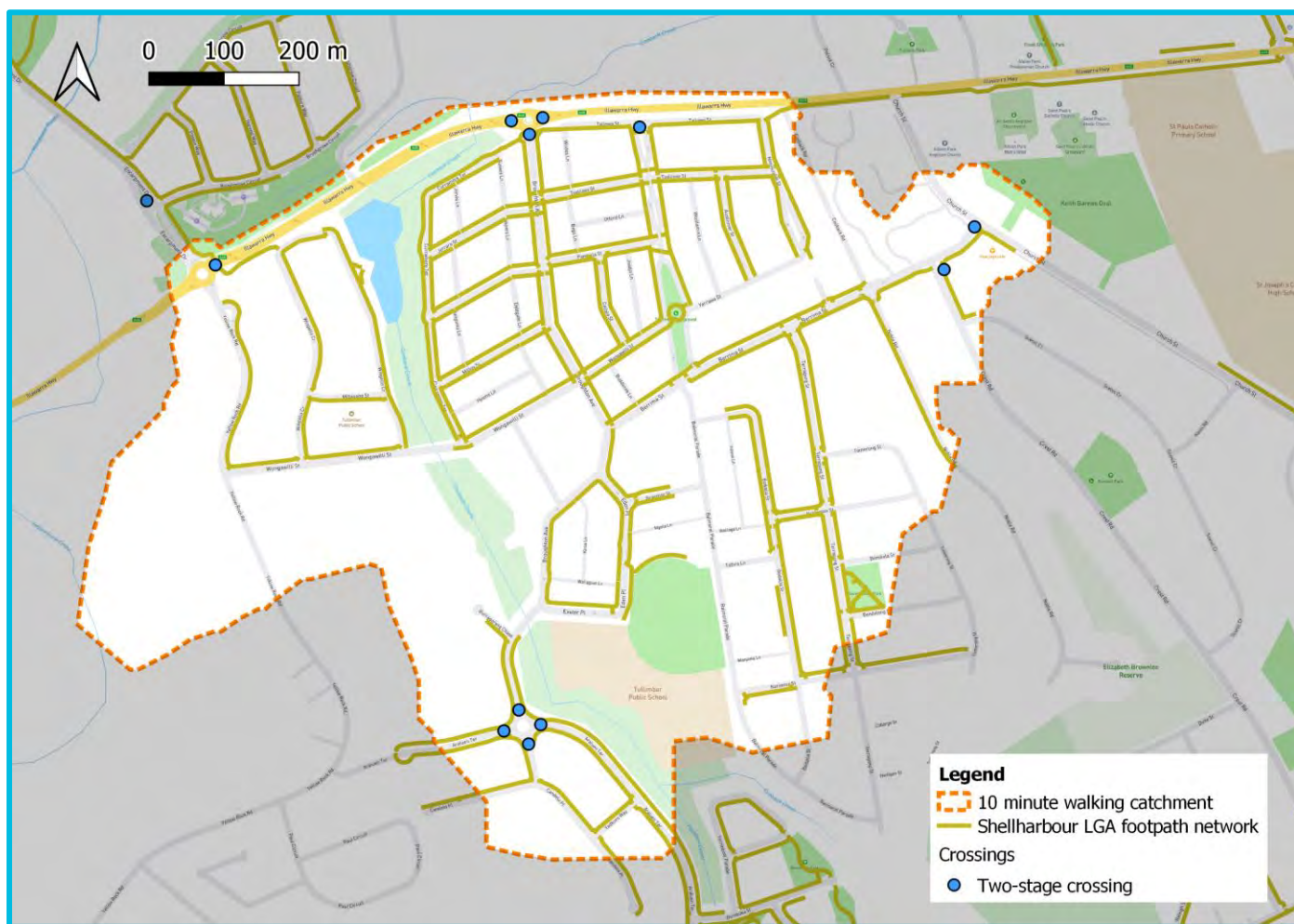
Tullimbar

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

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

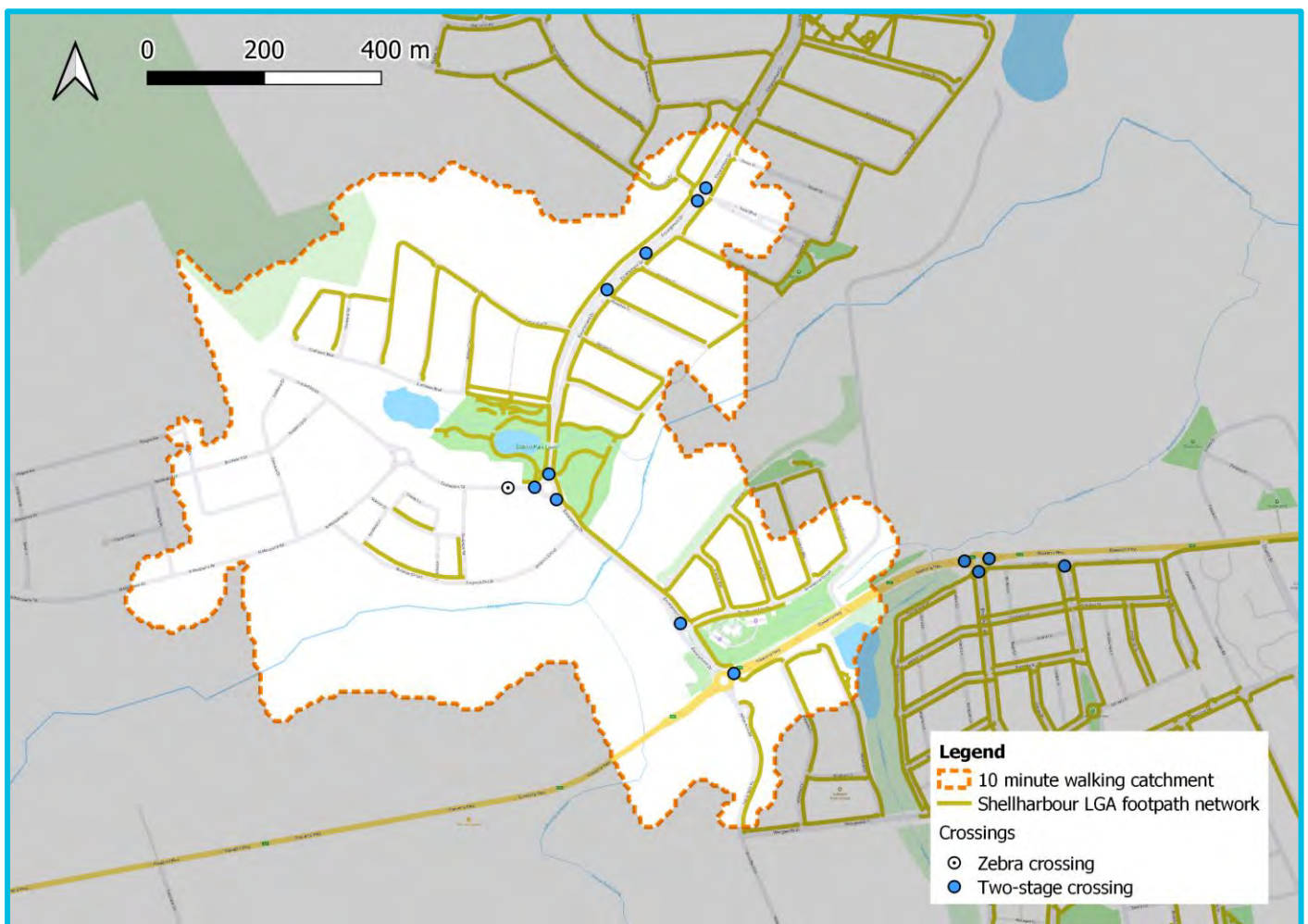
Calderwood

The approximate 10-minute walking catchment around the Calderwood town centre primarily features two-stage crossing facilities along Escarpment Drive and the Illawarra Highway. There is also a zebra crossing on Connection Road west of Escarpment Drive. The current development of Calderwood Village, located south of Connection Road will include additional crossing infrastructure to serve the additional pedestrian activity anticipated in the area.



▲ Calderwood town centre

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



▲ Approximate 10-minute walking catchment – Calderwood

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 Road 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

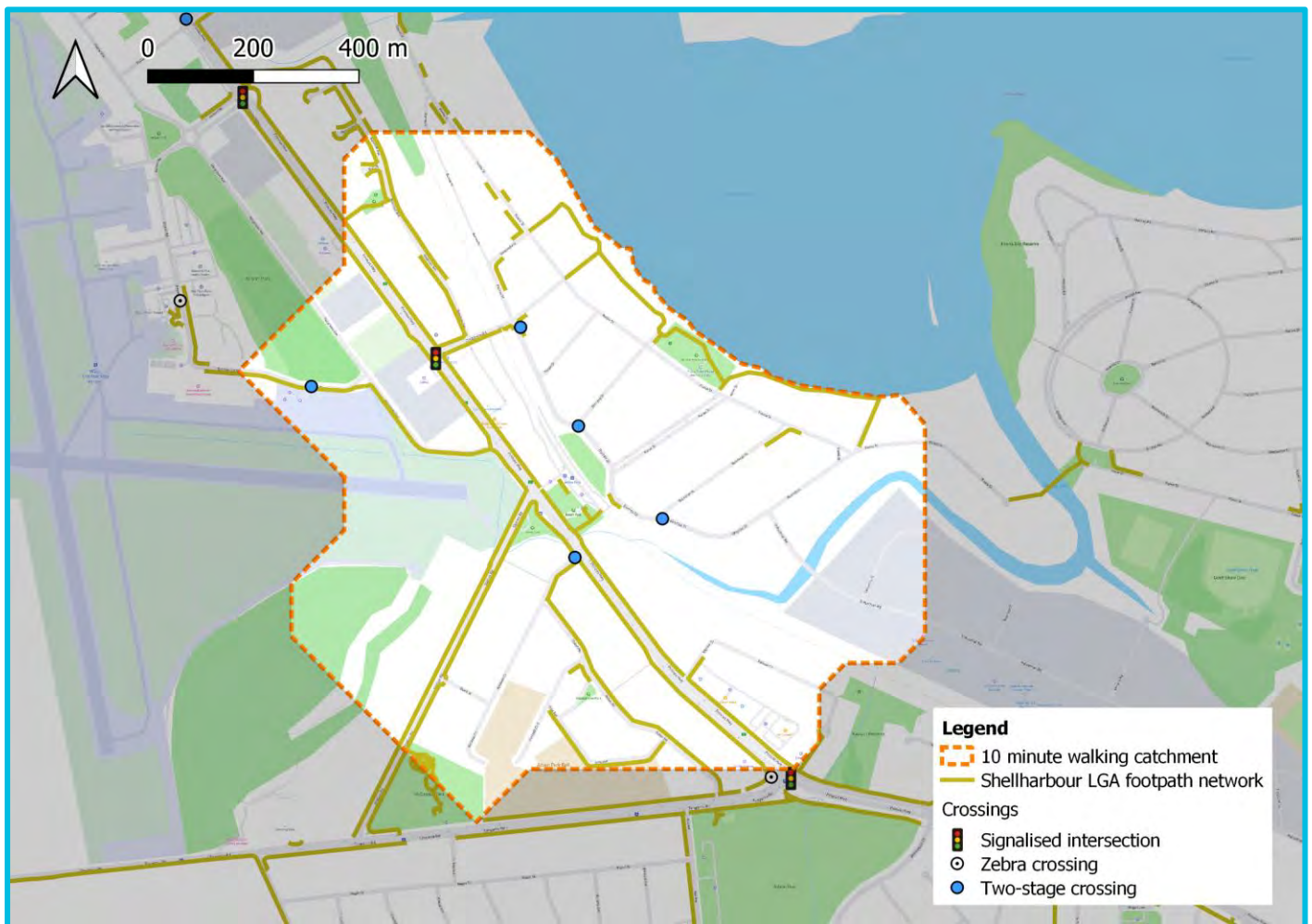
Albion Park Station

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, Kimbeth Crescent 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

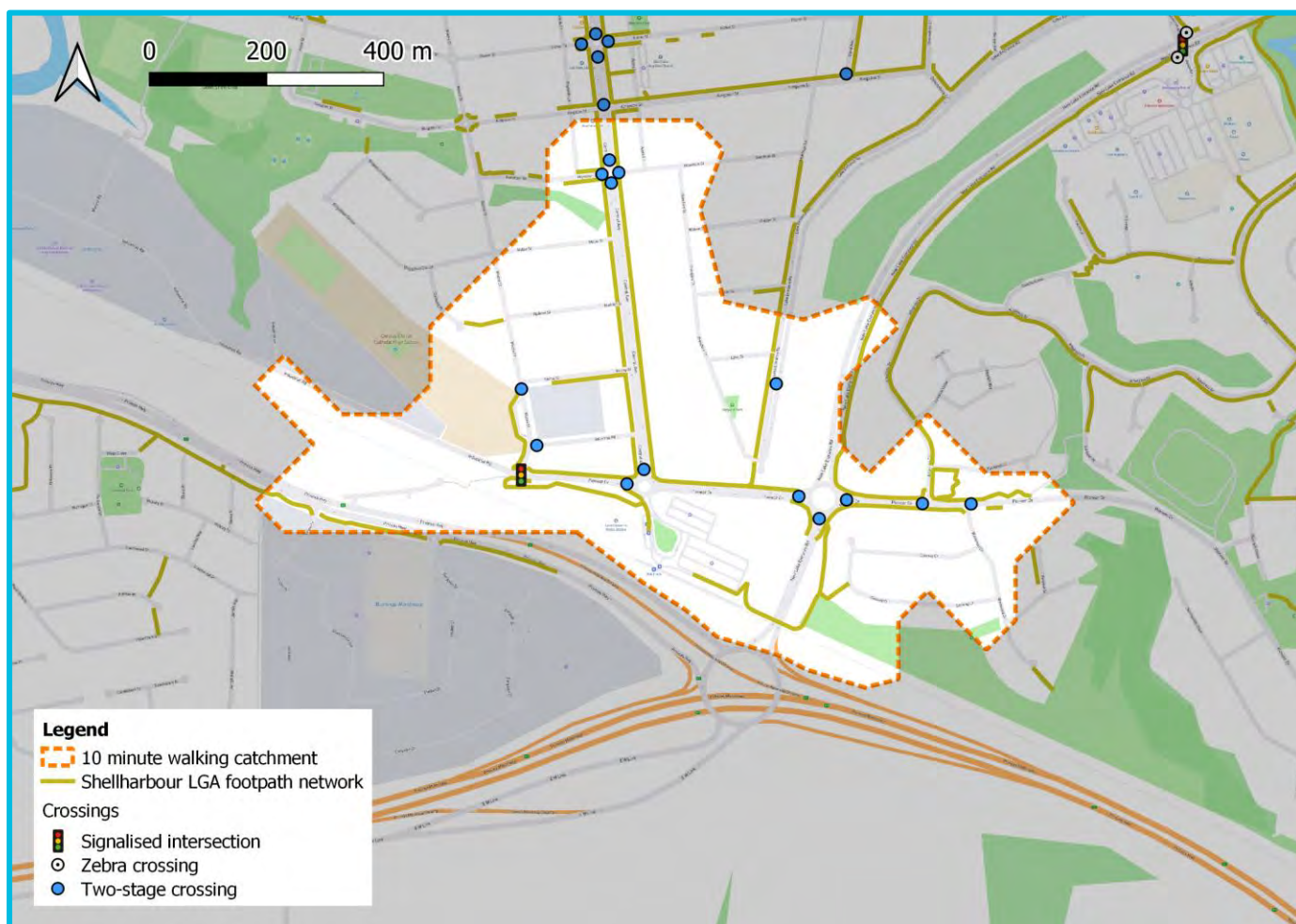
Oak Flats Station

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, Moore Street 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

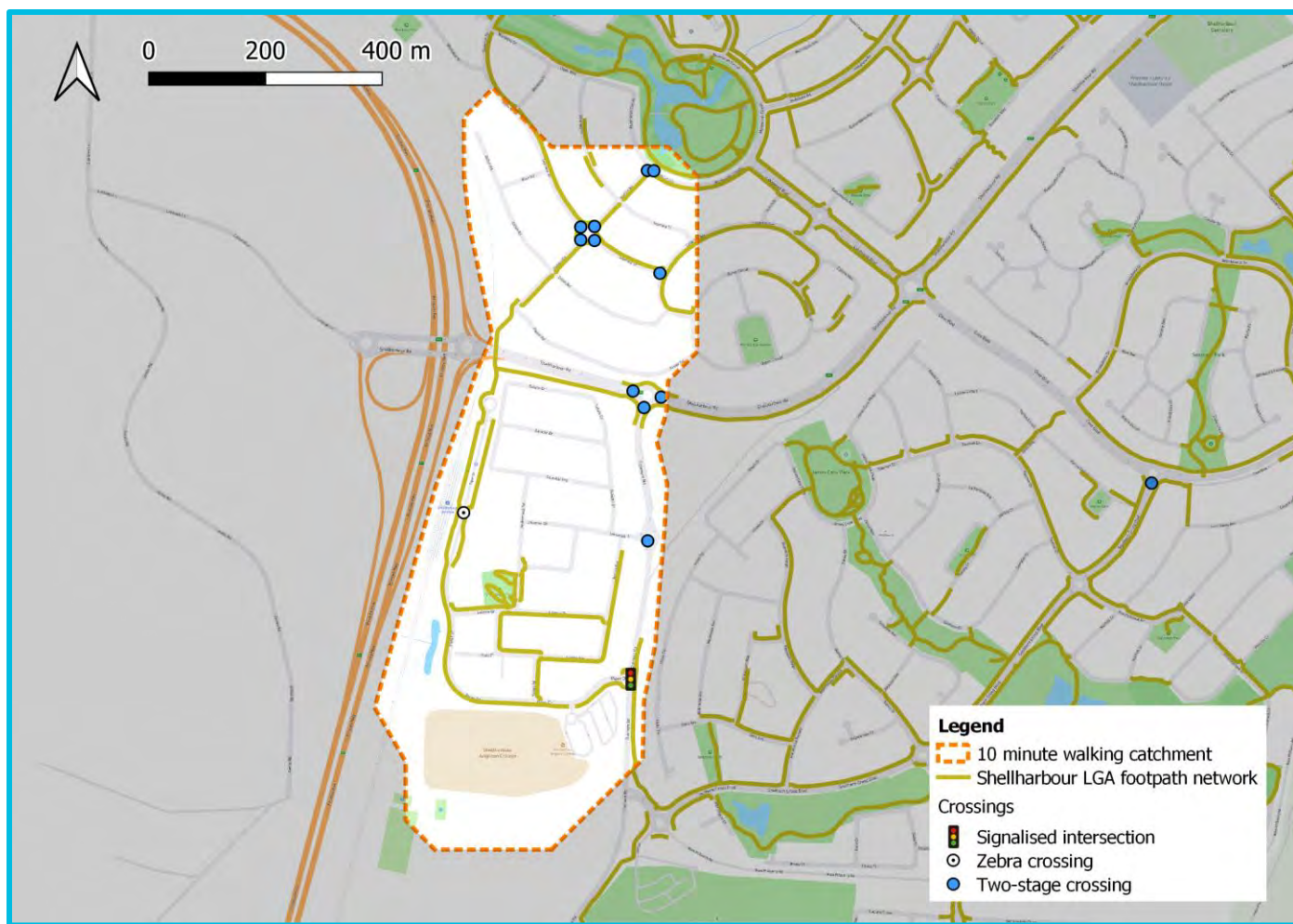
Source: Mapbox, Esri QGIS Mapping Software, Shellharbour City Council

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

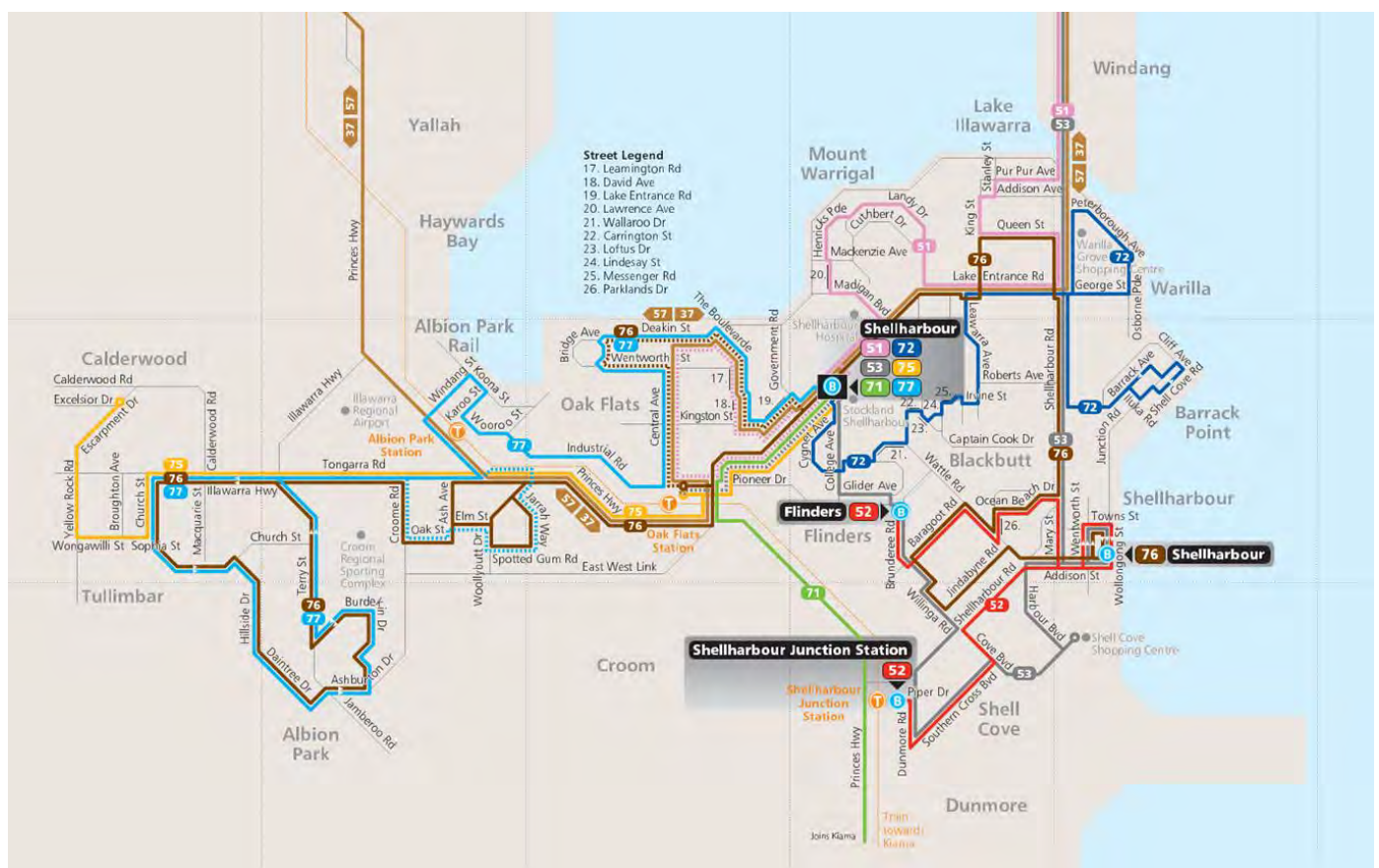
Within the Shellharbour LGA, the largest share of modal travel to work was undertaken by car. According to 2016 census data, 92.4% of trips were undertaken in a car as either a driver or passenger. In terms of active transport, walking and cycling represented 1.93% and 0.3% of total work trips, respectively.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

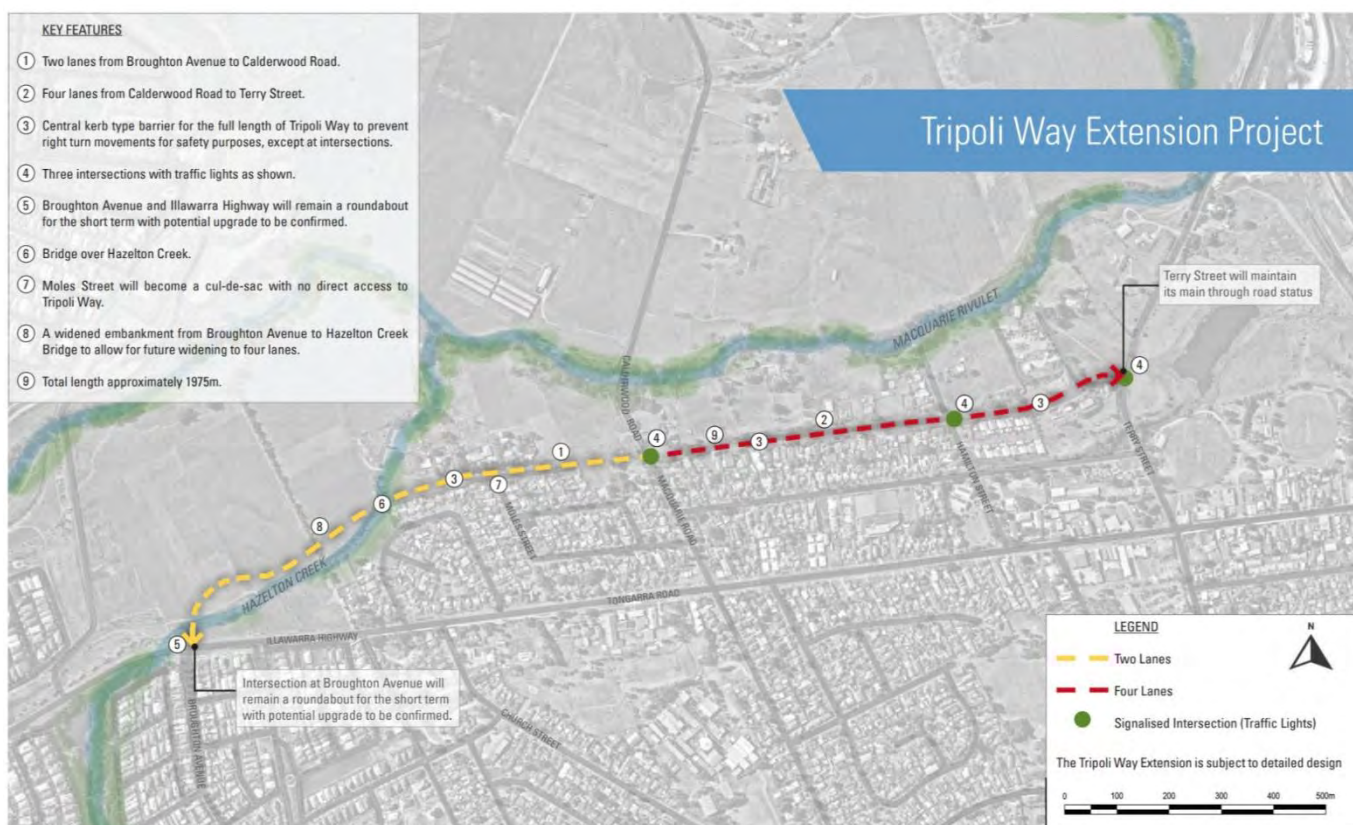
Tripoli Way (Albion Park bypass)

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 area 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

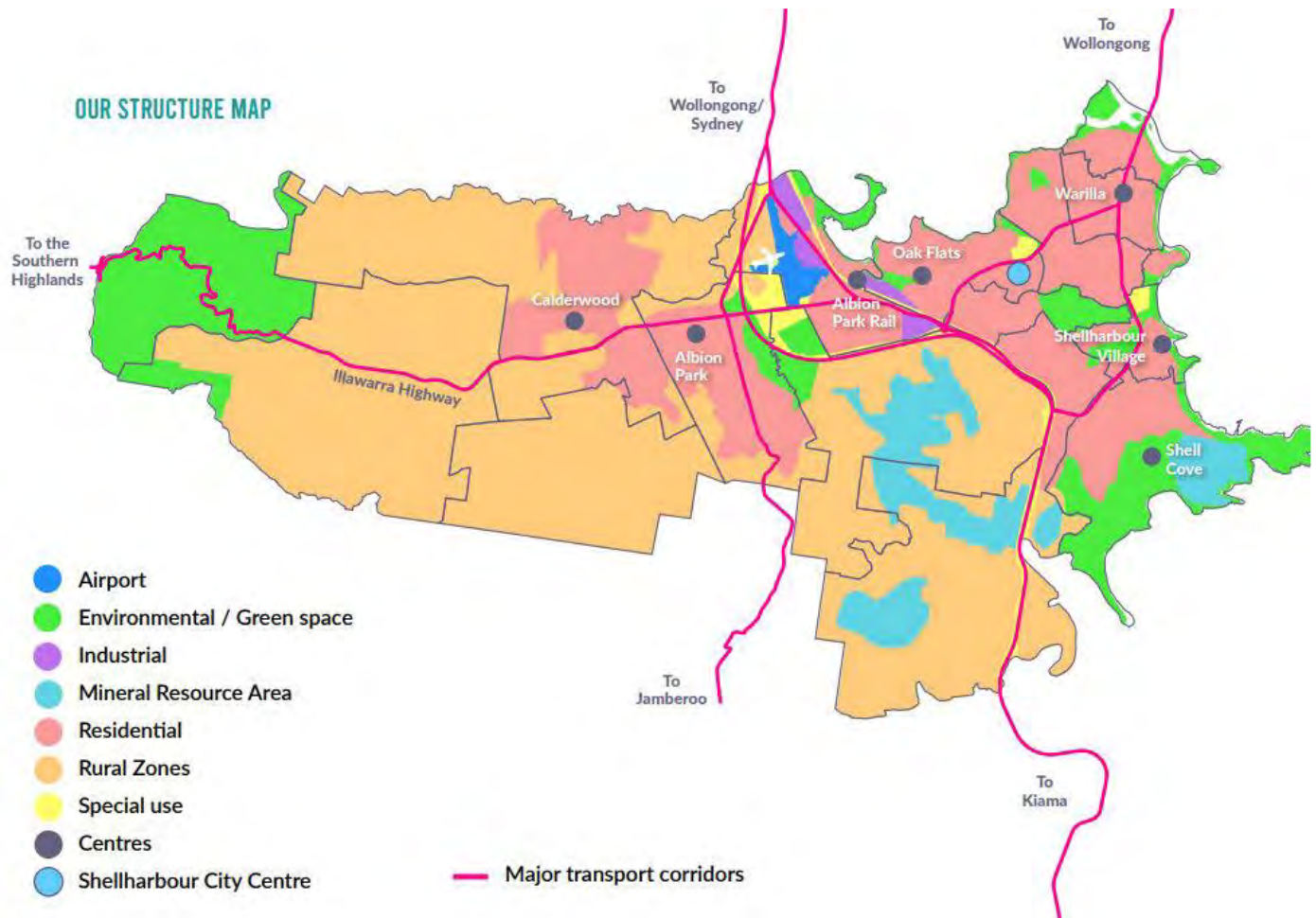
Source: Yellow Rock Road, Let's Chat Shellharbour, Shellharbour City Council, <https://letschatshellharbour.com/yellow-rock-road>

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.

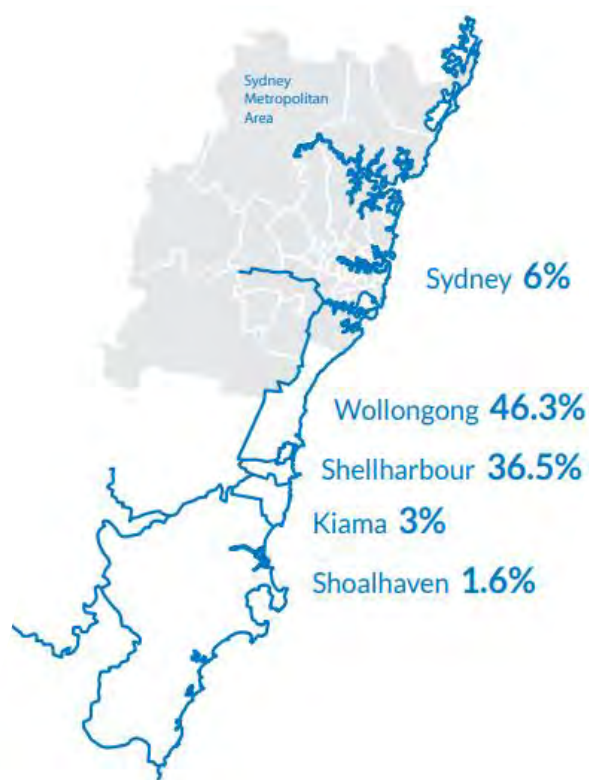


▲ Shellharbour LGA land uses

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.



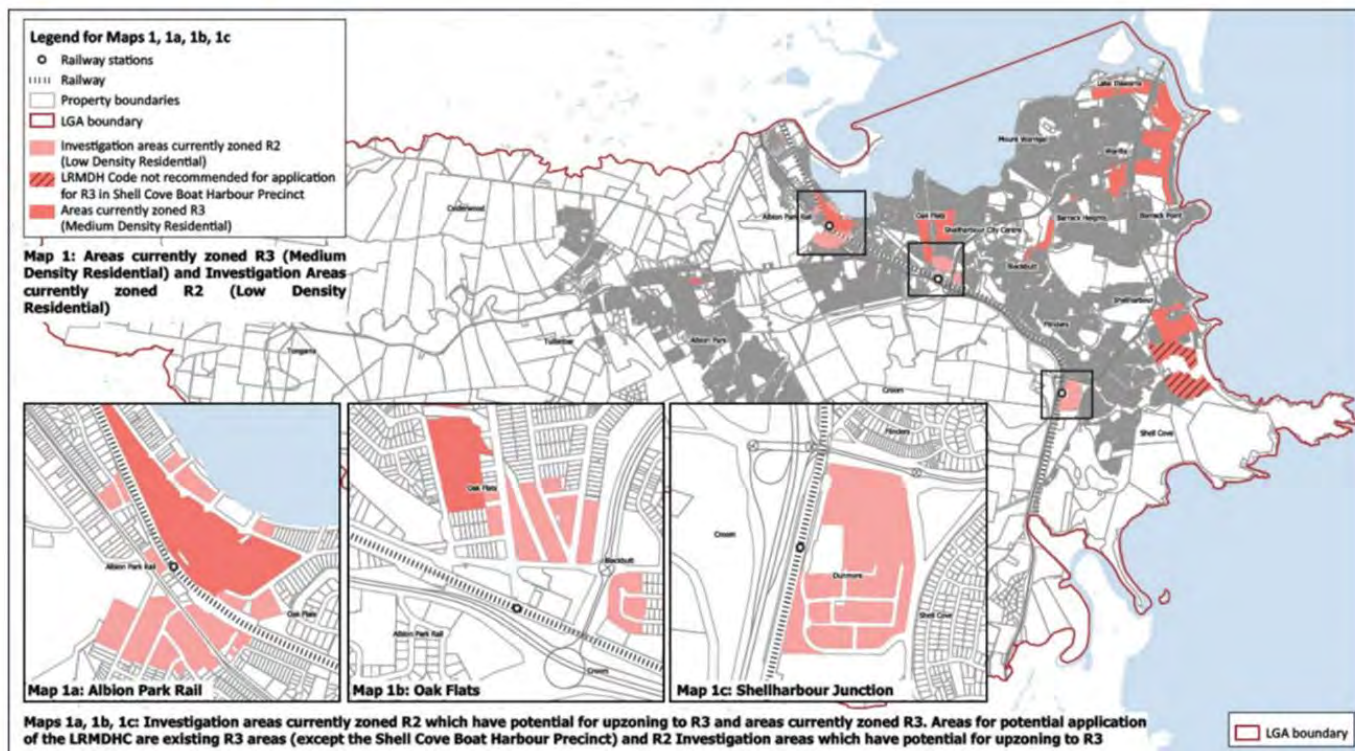
▲ Share of employment location for Shellharbour LGA residents

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 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.

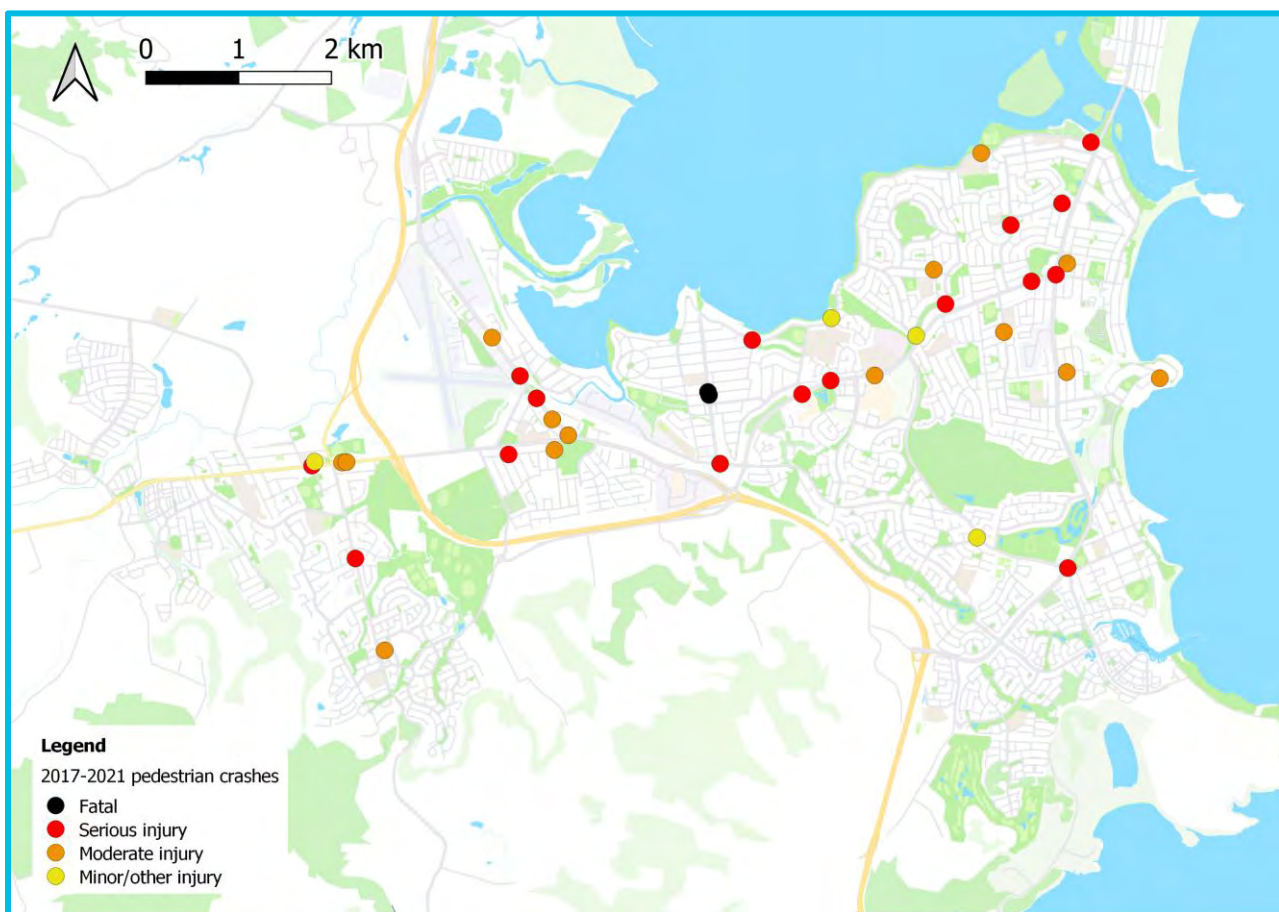
Crash statistics

Pedestrian crashes

The map below shows the location and severity of pedestrian crashes that occurred between 2017 and 2021. During this period, there were 2 fatal pedestrian crashes, 16 serious pedestrian crashes,

14 moderate pedestrian crashes, and 4 minor or other injury pedestrian crashes. The 2 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

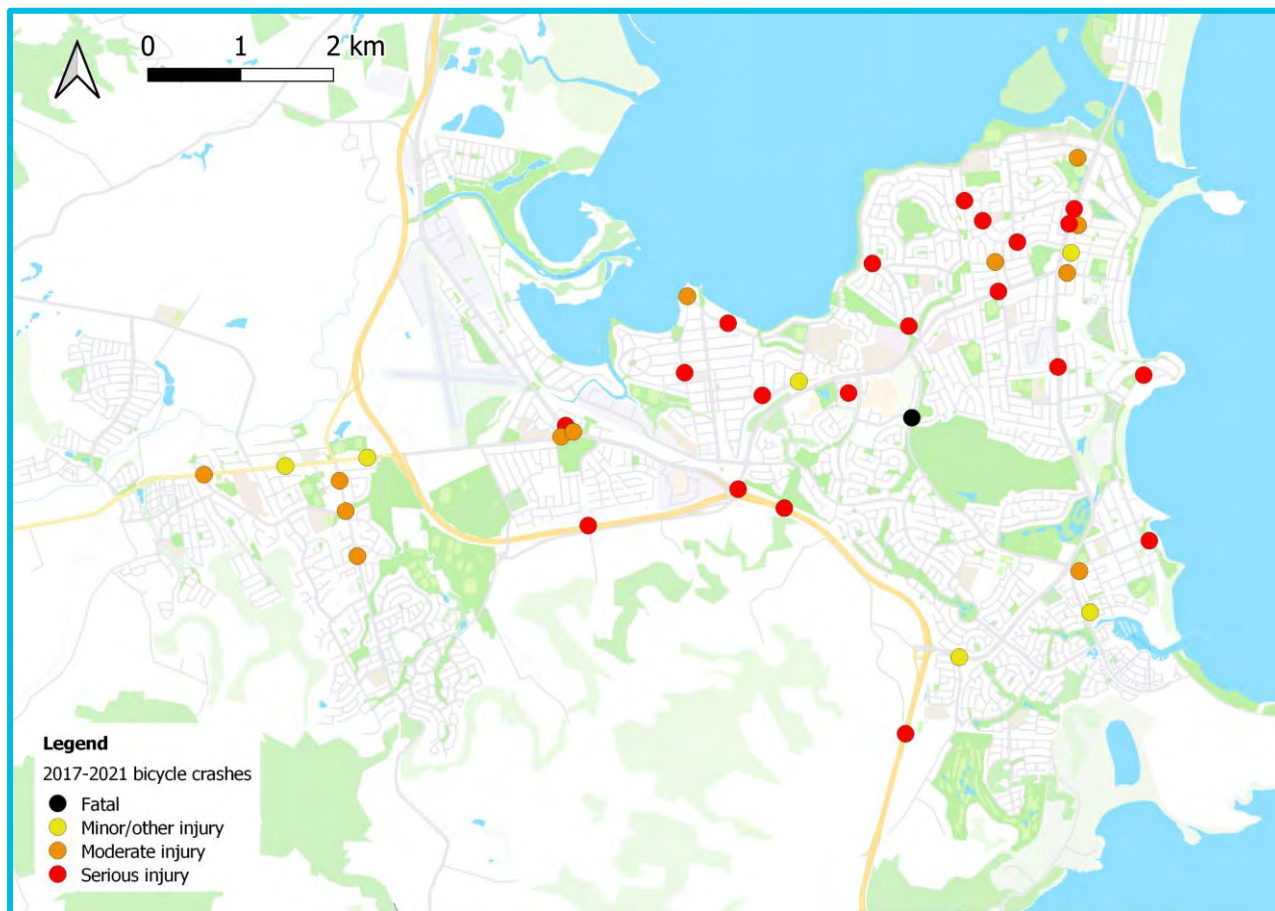
Bicycle crashes

The map below shows the location and severity of bicycle crashes that occurred between 2017 and 2021. The map indicates 1 fatal bicycle crash near Wattle Road. Additionally, there were 20 serious crashes, 12 moderate crashes, and 6 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

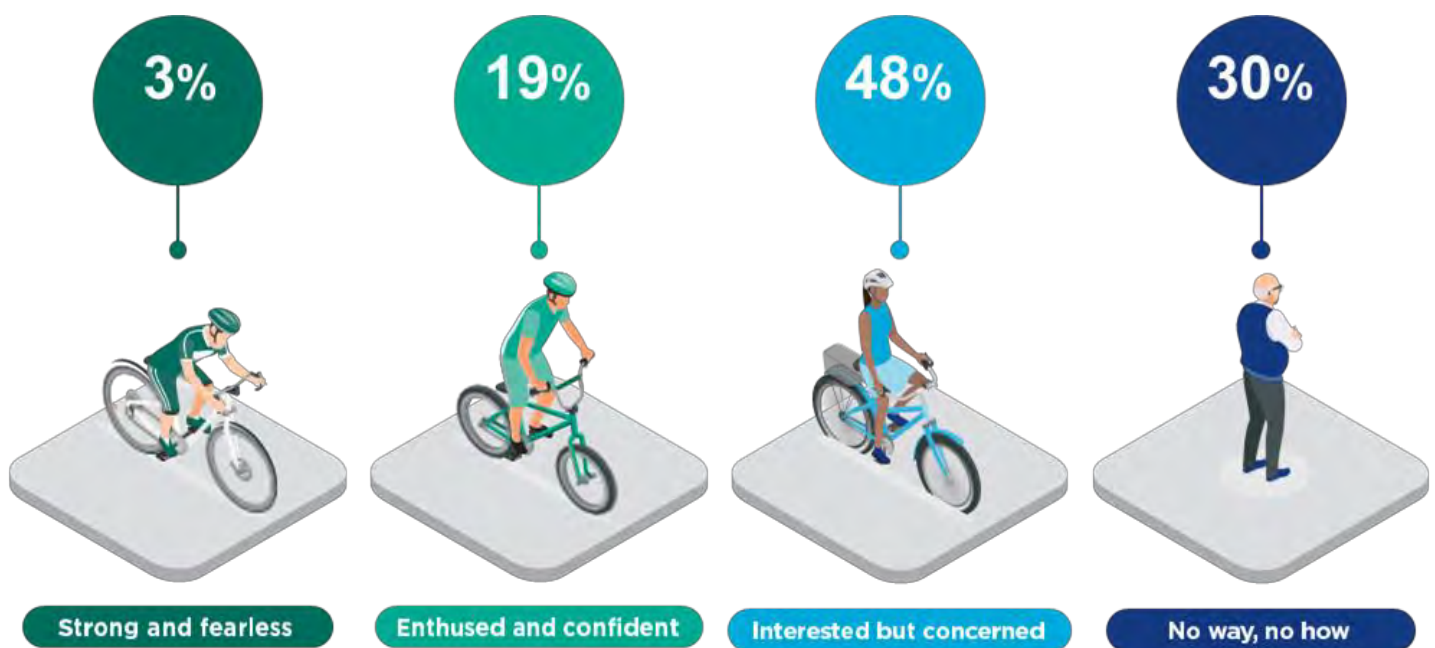
Research and user preference surveys conducted in NSW highlight fear around safety and vulnerability as one of the most common reasons why people avoid active transport.

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 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 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.



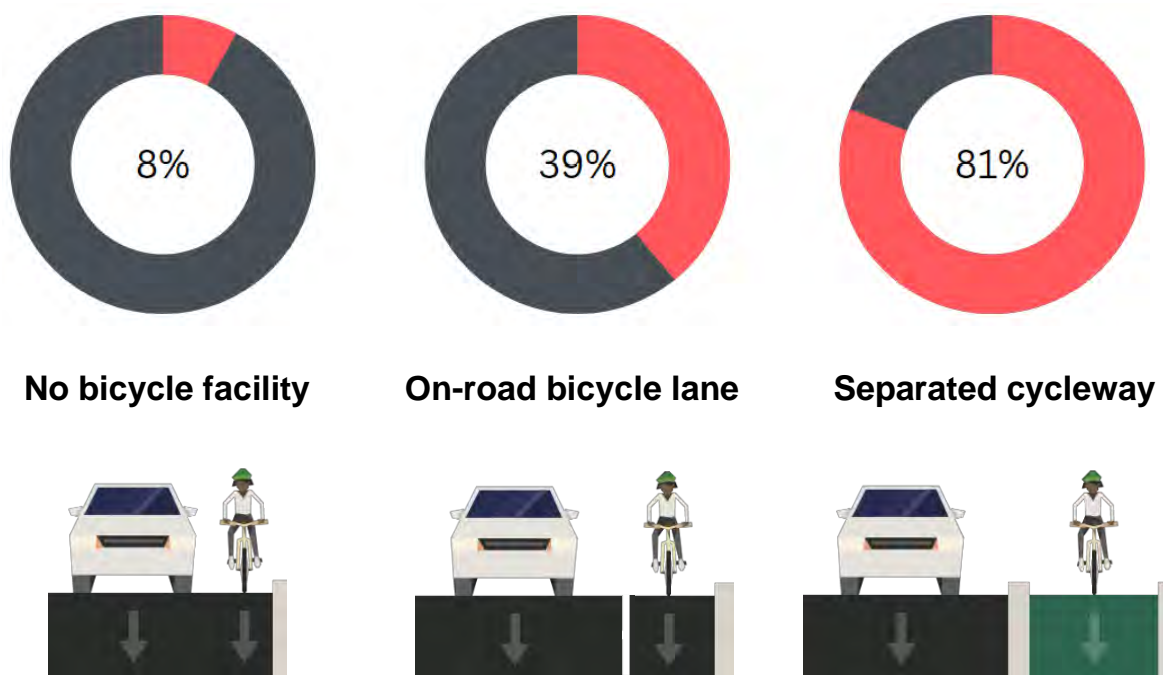
▲ Categories of cyclists

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”

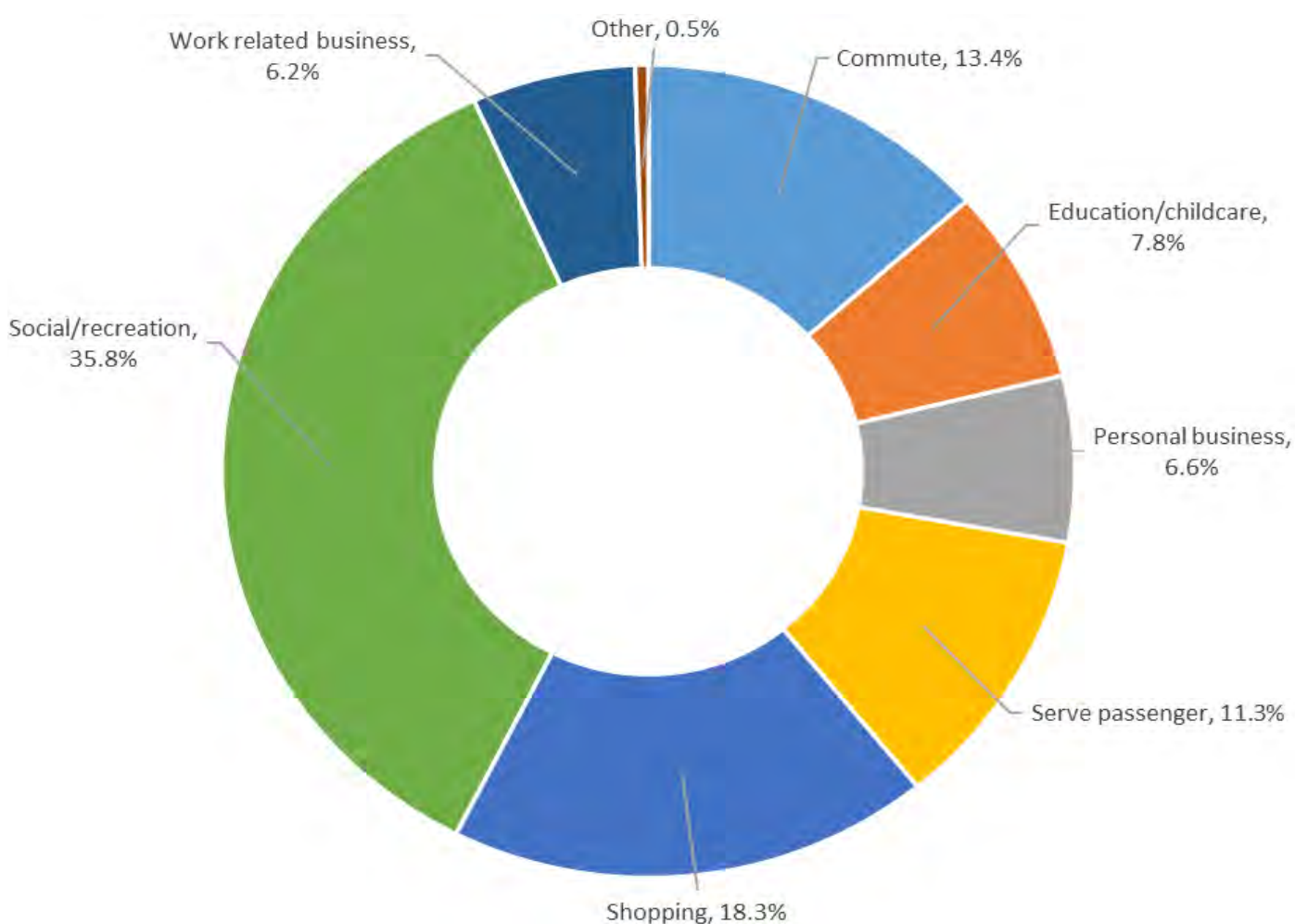
Source: Data from NACTO (2016), graphics from Canva and Streetmix

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

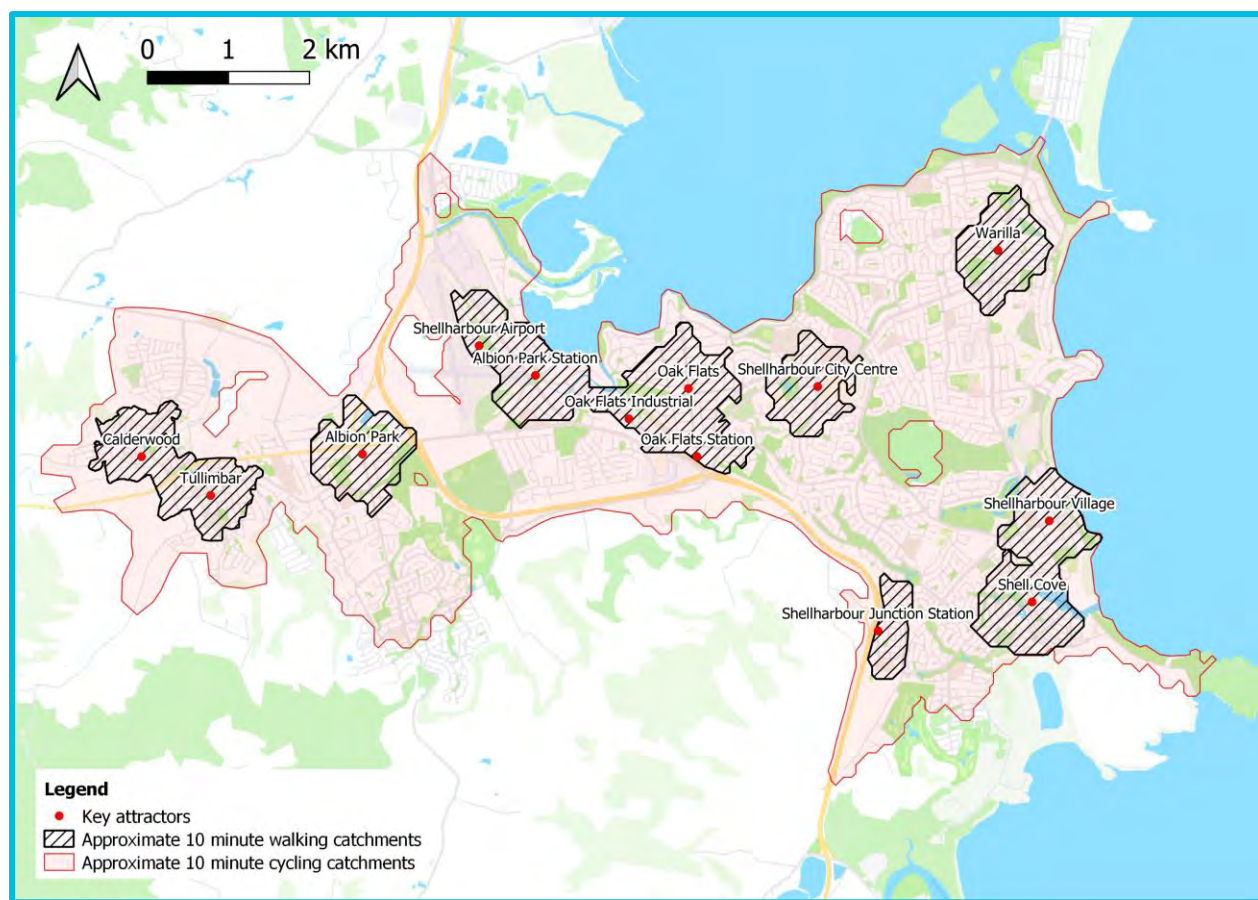
Source: NSW Household Travel Survey – Data by LGA (2016/17 – 2019/20)

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. Feedback was also received during community consultation via Council's Let's Chat Shellharbour page, in-person drop-in sessions and an installation at Shellharbour City Library. The community's suggestions and recommendations have been considered in this strategy and is summarised in Appendix A. 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.



▲ Koonah Street at Karoo Street, Albion Park Rail

Source: MetroMap



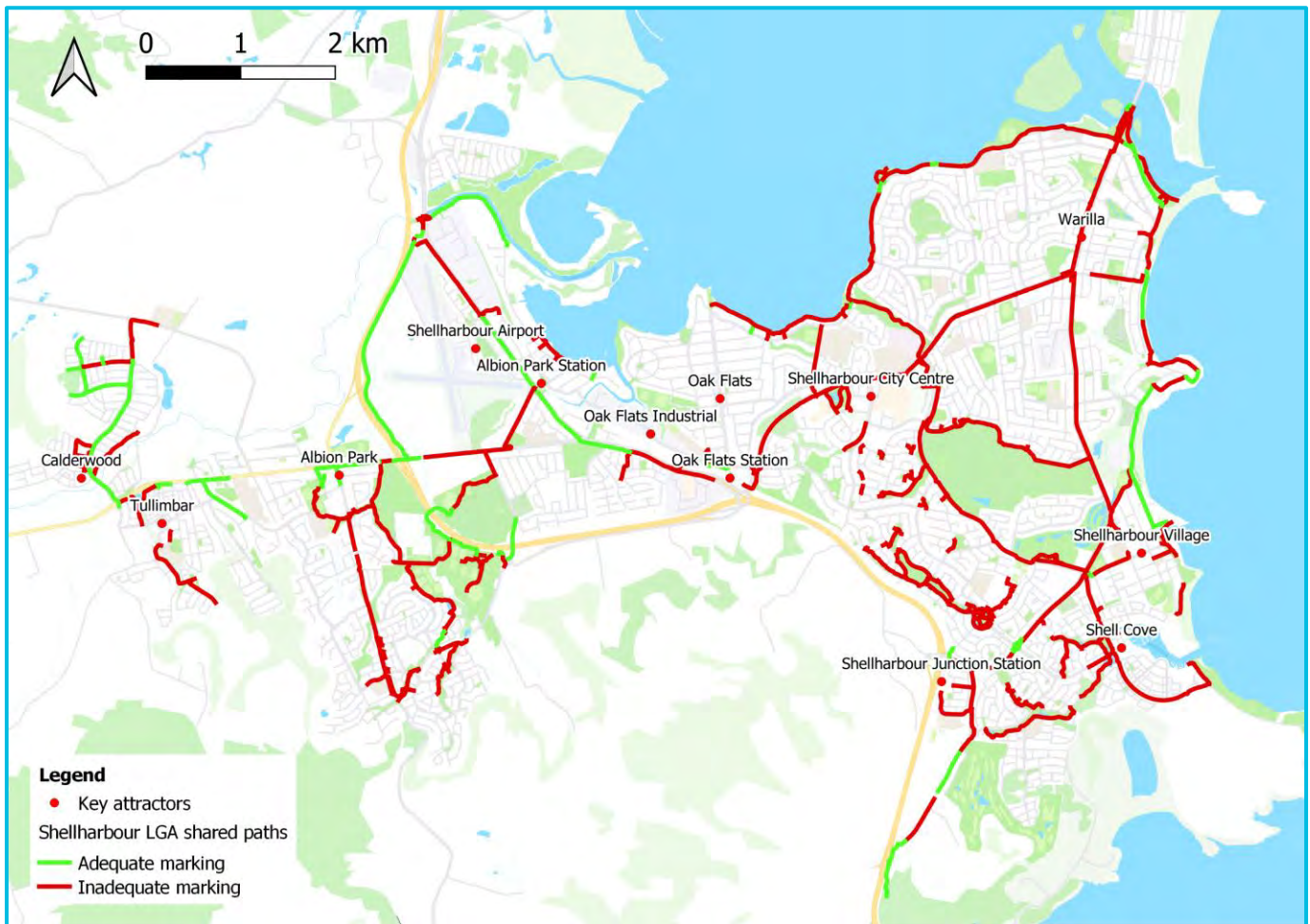
▲ Corner of George Street and Osborne Parade, Warilla

Source: MetroMap

Poor shared path markings

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





▲ Shellharbour LGA shared paths

Source: Mapbox, Esri QGIS Mapping Software, MetroMap

At some locations, pavement markings on existing paths 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)

Source: MetroMap



▲ Signage (Escarpment Drive and Oak Farm Road, Calderwood)

Source: MetroMap



▲ Delineated right of way (Croome Road, Croom)

Source: MetroMap

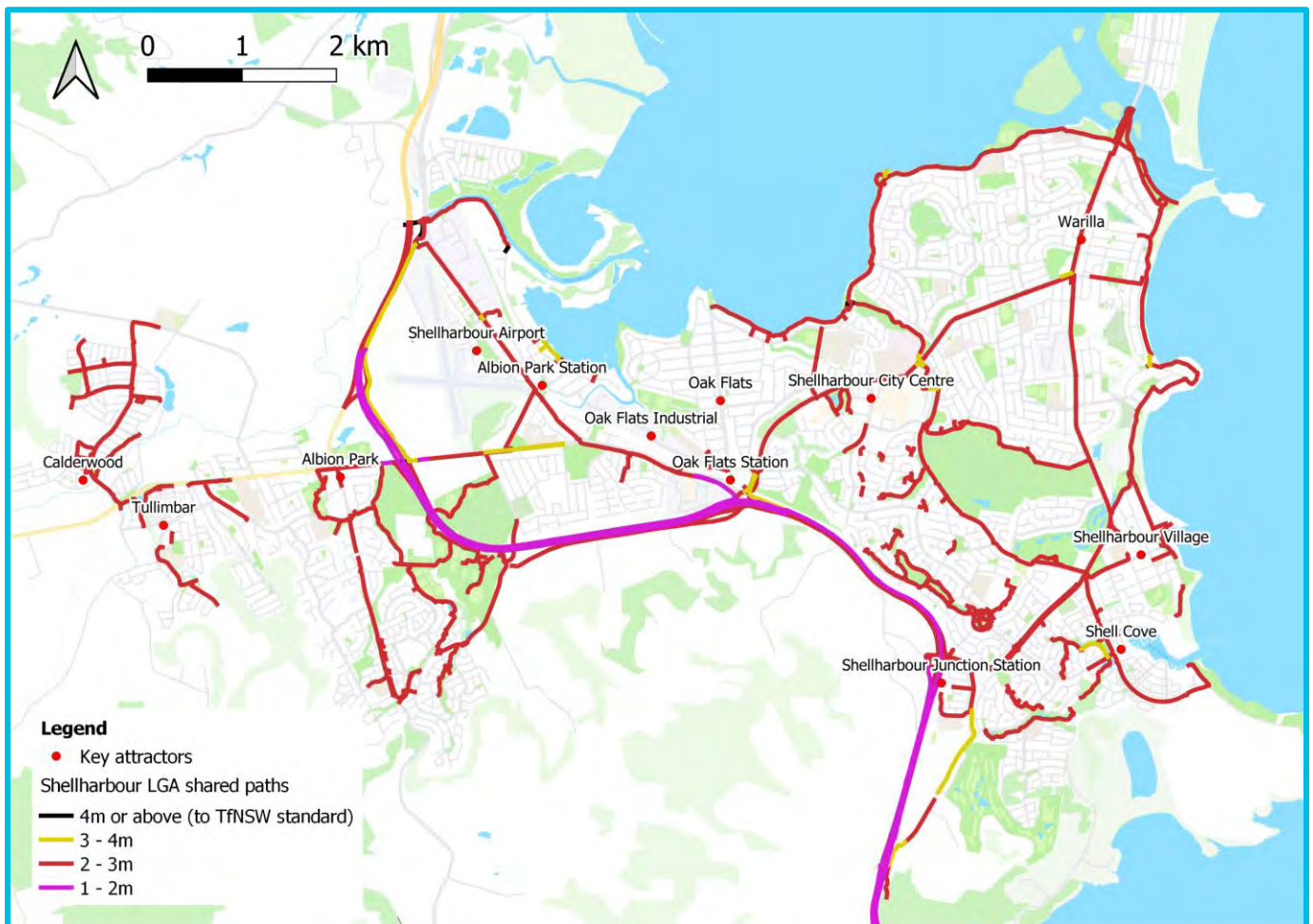


▲ Shared path markings (Junction Road, Shellharbour)

Source: MetroMap

Inconsistency with TfNSW guidelines

According to the TfNSW Cycleway Design Toolbox, a minimum 4m width is recommended for shared paths. However, most shared 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.

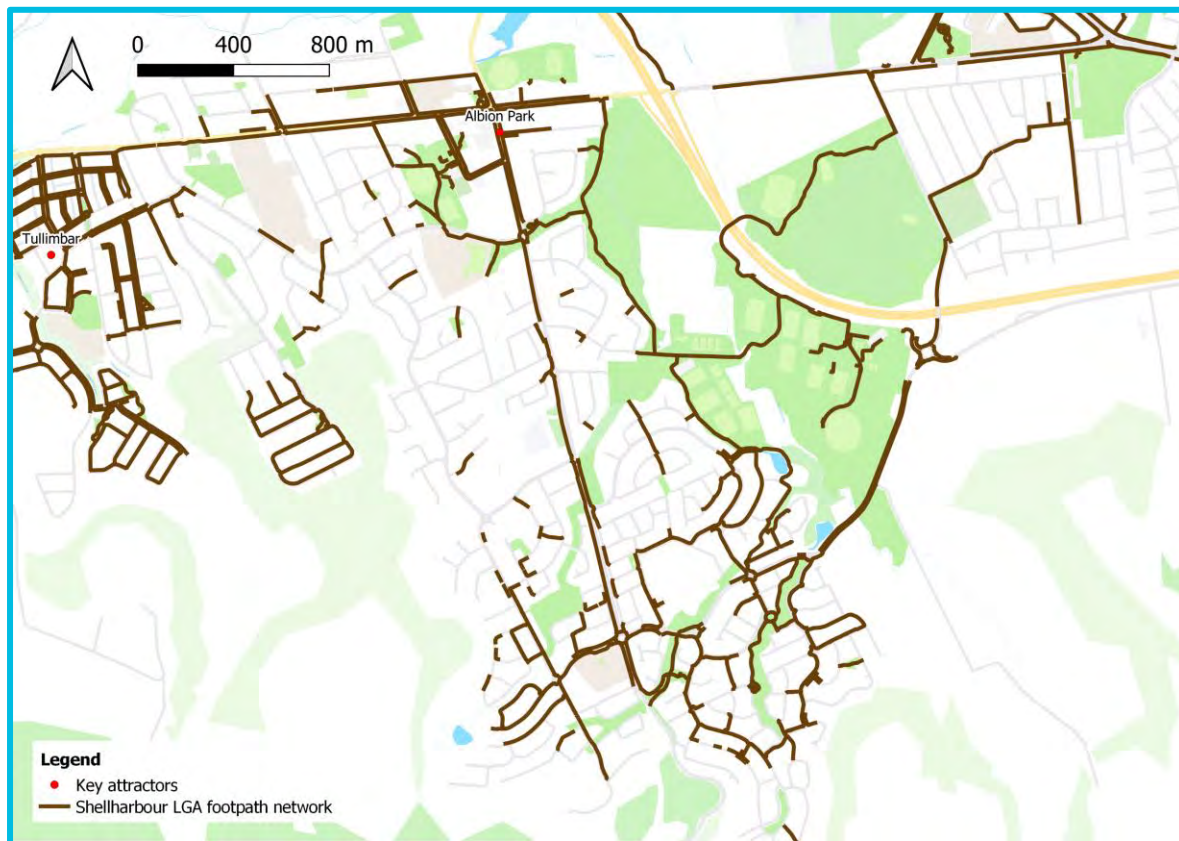


▲ Shellharbour LGA shared path widths

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.



▲ Footpath network in Albion Park

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



▲ Footpath network in Albion Park Rail

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



▲ Footpath network in 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 which would improve foreshore connectivity between Windang Bridge to the east and across Macquarie Rivulet to the west.

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.



▲ Missing link around the lake

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 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.

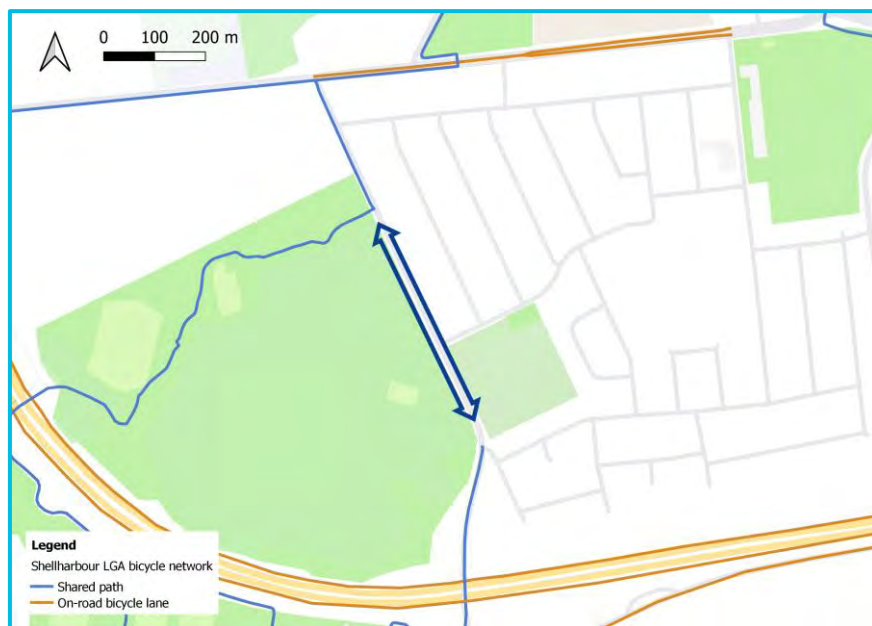


▲ Jamberoo Road aerial shot and road perspective

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

Source: Mapbox, Esri QGIS Mapping Software

No access on Hargraves Avenue

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.



▲ No access to Princes Highway from Hargraves Avenue

Source: MetroMap

Inadequate access to Albion Park Station

Albion Park Station is currently disconnected to shared 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.

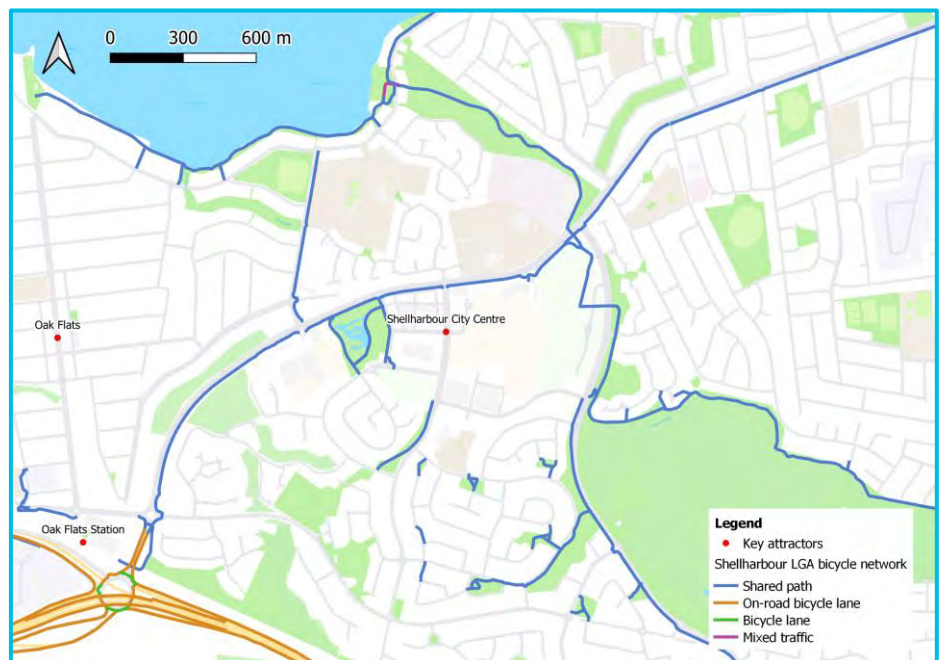


▲ Inadequate access to Albion Park station

Source: Mapbox, Esri QGIS Mapping Software

Inadequate safe bicycle access to Shellharbour City Centre

Although the network has shared paths to the north and east, these paths do not connect through the city centre, which may increase safety risks for cyclists wishing to travel to or from the city centre. Furthermore, steep grades on College Avenue make it undesirable to walk or cycle along this road towards the city centre.

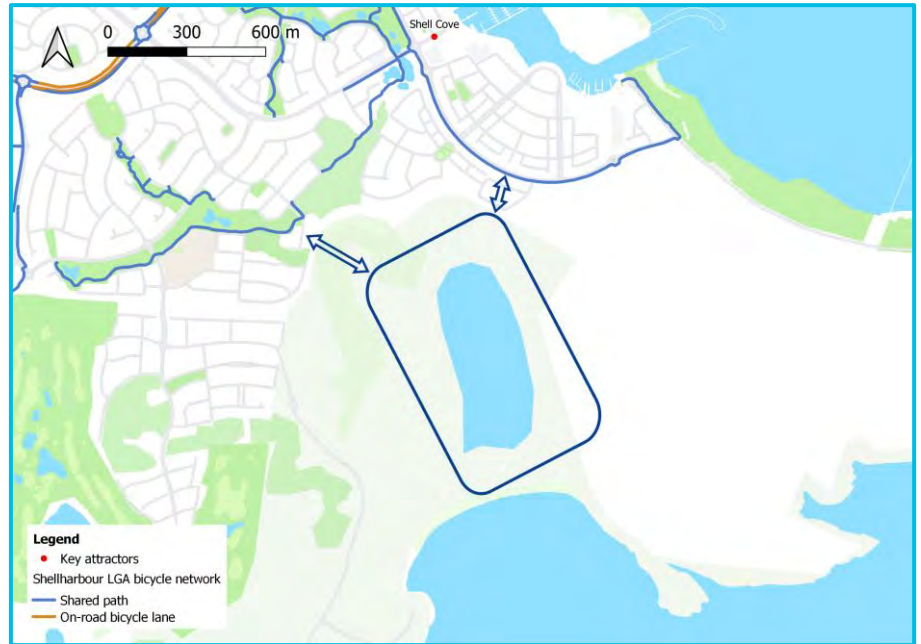


▲ Inadequate safe bicycle access to Shellharbour City Centre

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

Although shared 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. Furthermore, heavy vehicles often travel through the area to access the Bass Point Quarry via the Southern Cross Drive / Buckleys Road intersection.



▲ No bicycle safe connection between Mornington Circuit and Dunmore Road

Source: Mapbox, Esri QGIS Mapping Software

Narrow shared path between Windang Bridge and Reddall Parade

The narrow shared 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 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 path between Windang Bridge and Reddall Parade

Narrow shared 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 path from Bucknell Street to Elliott Lake Bridge

Source: MetroMap

Hindering of cycle access along shared paths

Access to shared 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.

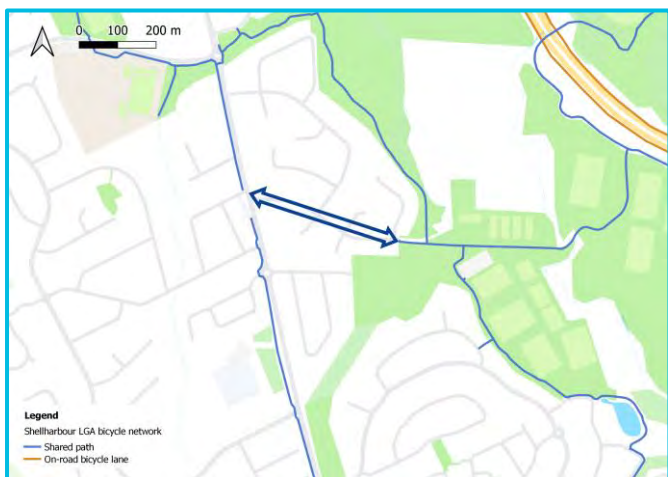


▲ Hindering of cycle access along shared paths

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 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, 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 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 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 Koon 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 Koon Street, Albion Park Rail

Slaters Bridge prohibits bicycle use

Slaters Bridge across Horsley Inlet requires cyclists to dismount. 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

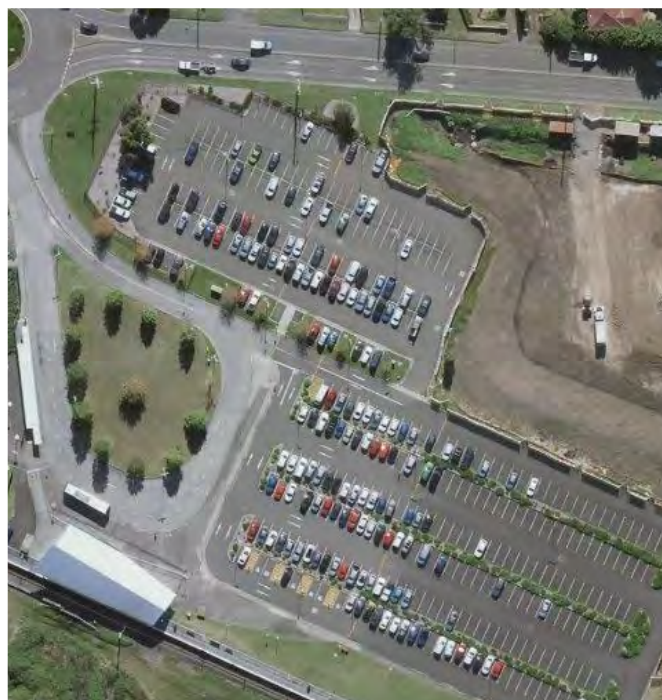


▲ TfNSW bike locker, Hornsby NSW

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 - aerial view of car park

Source: MetroMap



▲ Oak Flats Station car park

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.

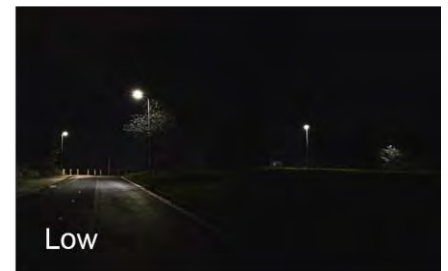
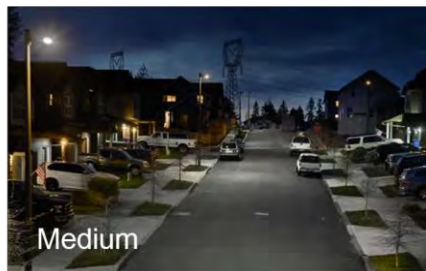
These deficiencies were refined following preparation of a weighted scoring criteria and further workshopping undertaken on 19th May 2023 during a second Council workshop at Shellharbour Civic Centre, attended by similar representatives.

Urgent and Important (Highest priority)	Important and Non-urgent (Approach next)
Poor standard of kerb ramps	Inconsistency with TfNSW guidelines
Poor shared 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 path between Windang Bridge and Reddall Parade
Narrow shared path from Bucknell Street to Elliott Lake Bridge	Hindering of cycle access along shared 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

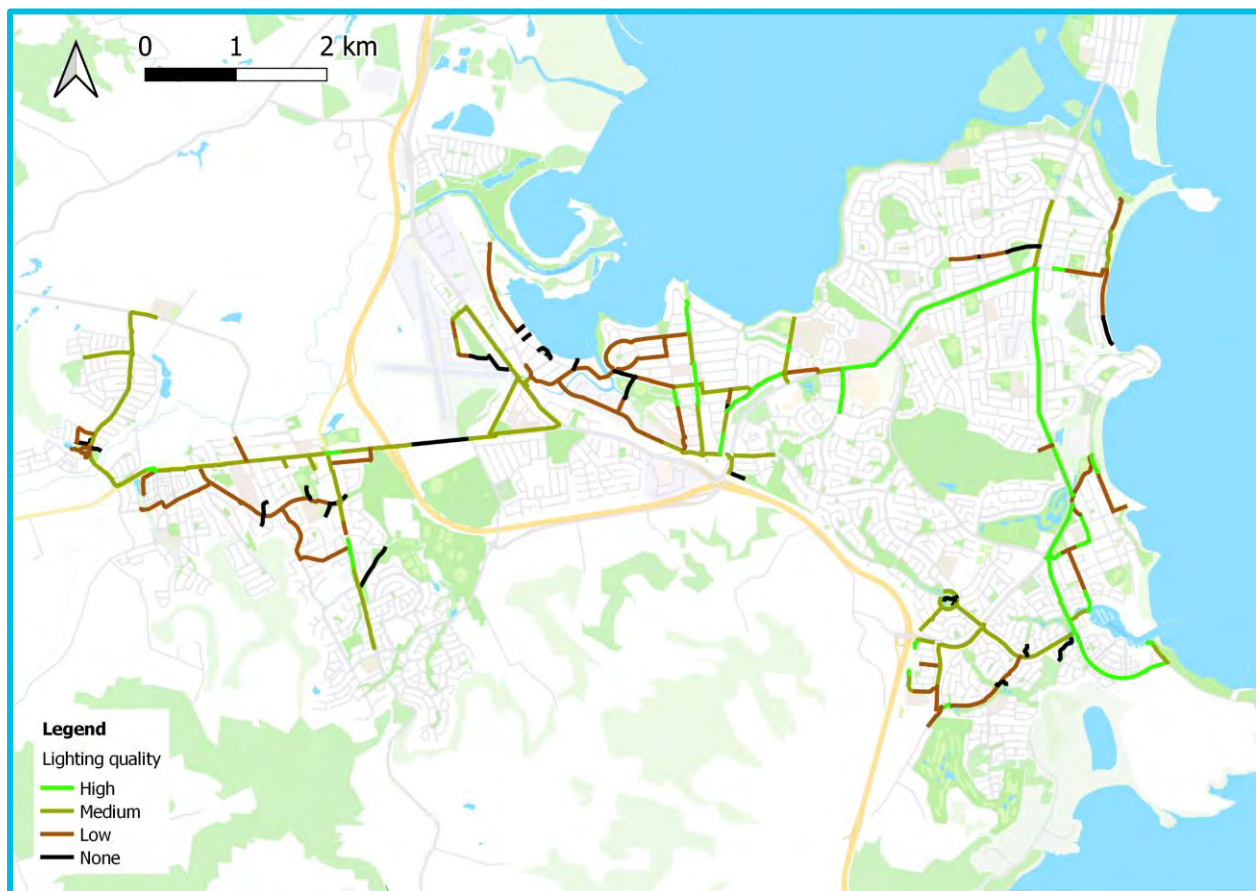
A qualitative assessment of lighting quality was undertaken on key strategic cycling and pedestrian routes. Quality was classified as High, Medium or Low based on situations similar to the examples below. A 'None' classification was also given if no lighting was present. The lighting quality of active

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, and Stapleton Avenue
Albion Park Rail	None	<ul style="list-style-type: none"> Tongarra Road between M1 and Croome Road Boomerang Avenue and Hargraves Avenue Pathways connecting Koona Street to lake waterfront
	Low	<ul style="list-style-type: none"> Sections of Airport Road Koona Street between Macquarie Rivulet and Kanahooka Street Burroo Street and 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 Street, 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 Reddall 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"> Seafarers Reserve 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.

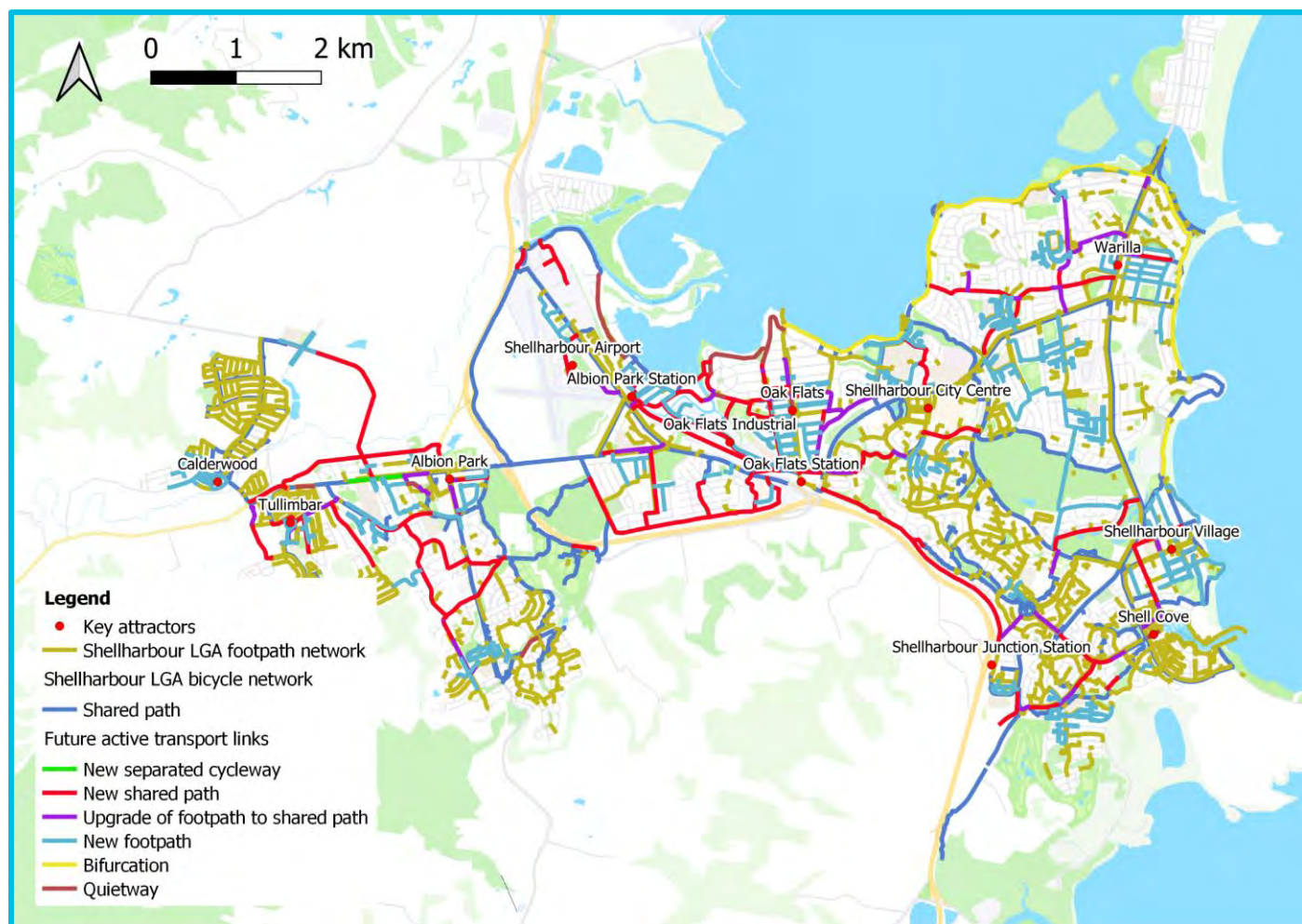
Future network links

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 paths.



▲ Current and future Shellharbour LGA pedestrian network

Source: Mapbox, Esri QGIS Mapping Software

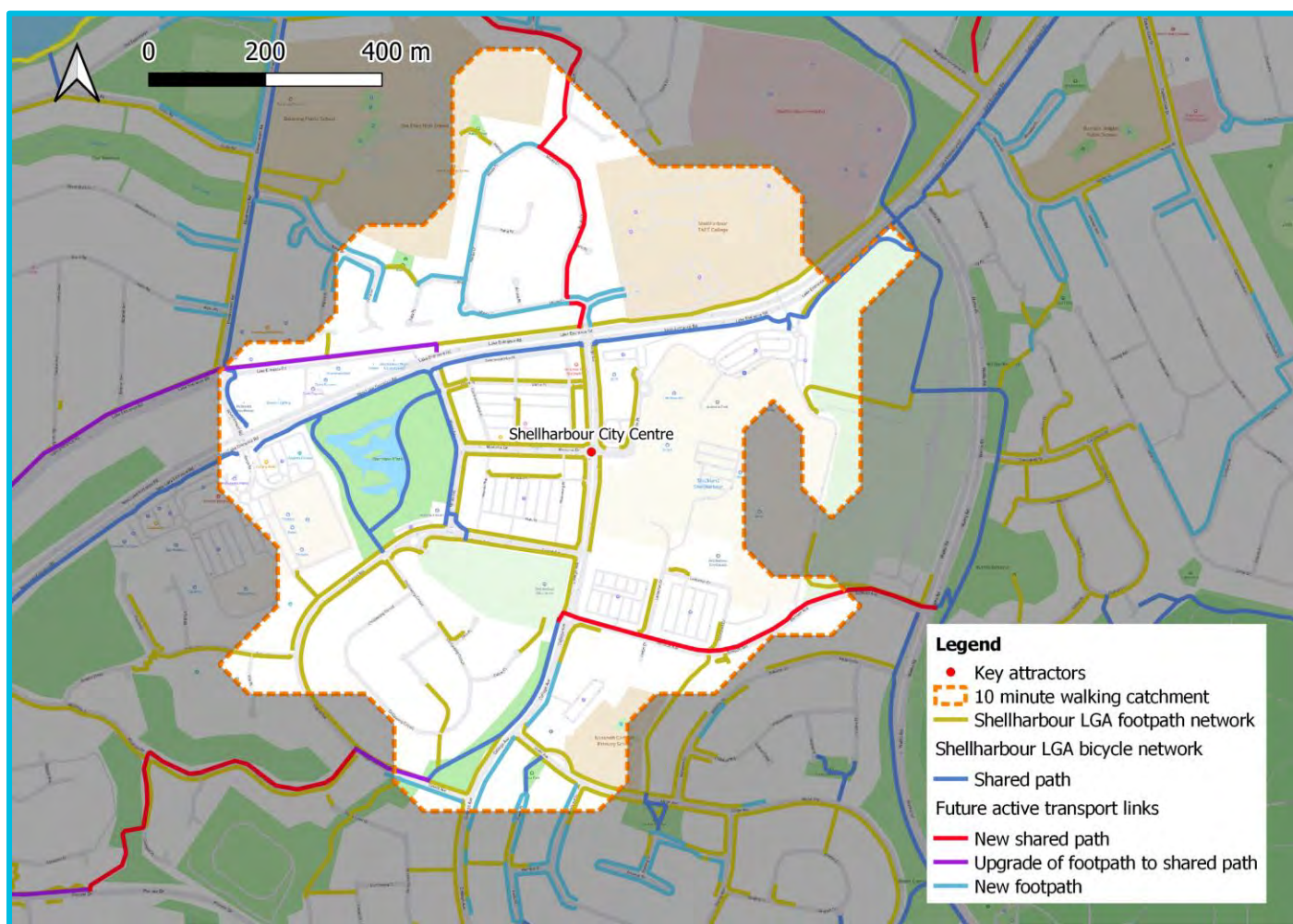
Access to town centres

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 Benson Avenue)
- New footpath – Jilba Place (north side)
- New footpath – Birra Drive (both sides)
- New footpath – Cygnet Avenue (south side)
- New footpath – Bandicoot Drive (both sides)



▲ Shellharbour City Centre footpath access improvements

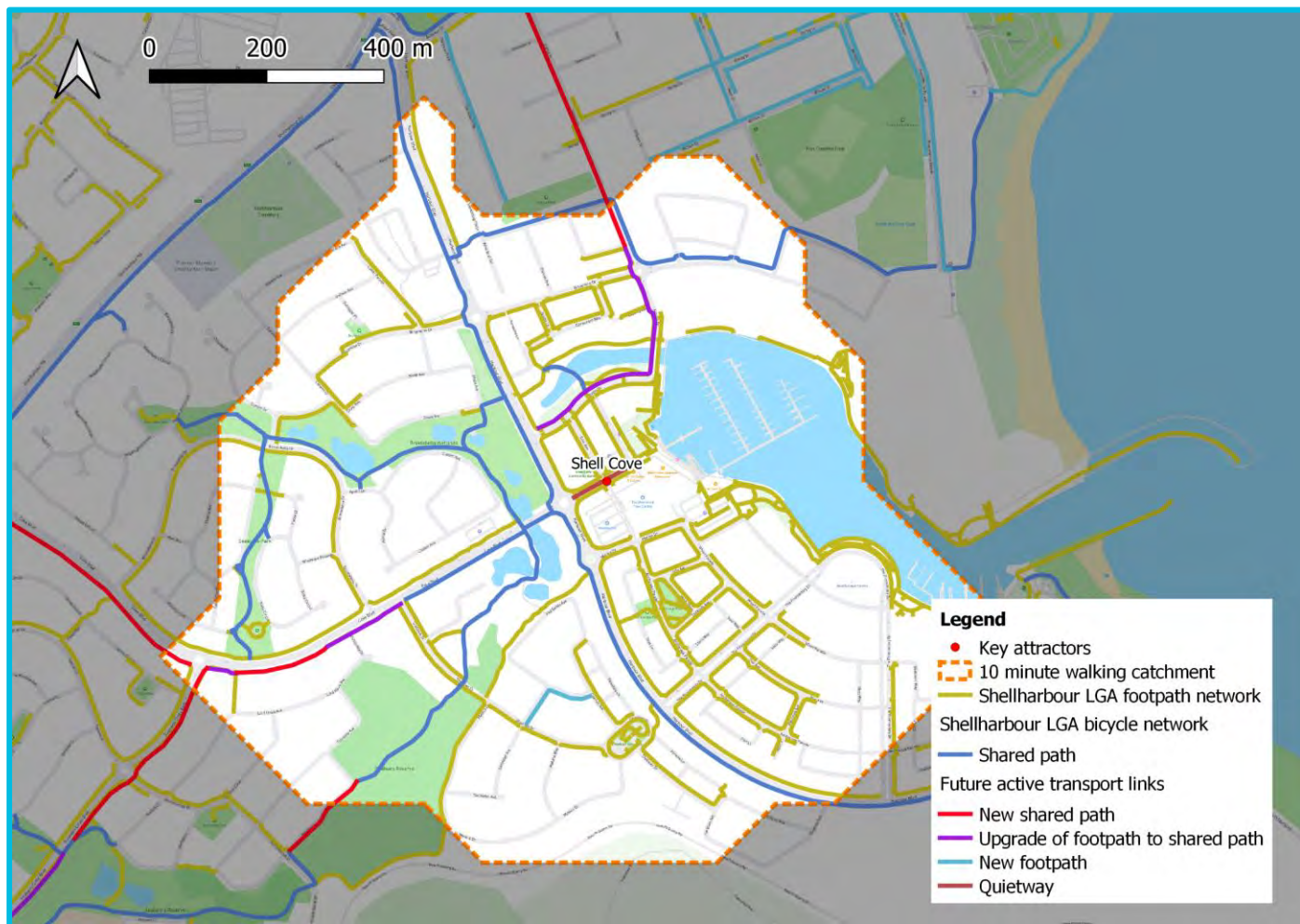
Source: Mapbox, Esri QGIS Mapping Software

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

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 improve 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 – Old Bass Point Road (east side)
- 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

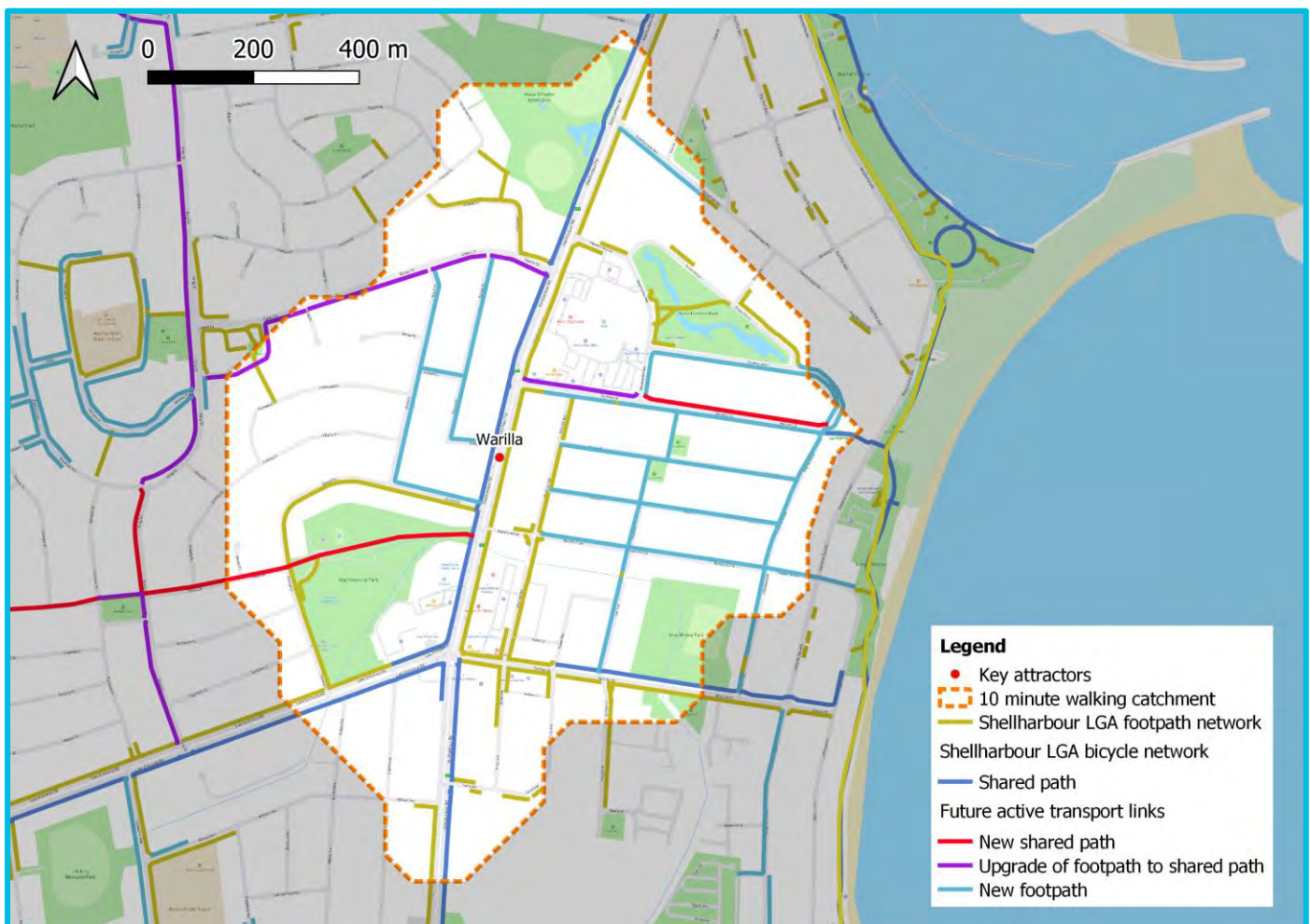
Source: Mapbox, Esri QGIS Mapping Software

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 (north 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 – Peterborough Avenue (south side)
- New footpath – Elloura Park
- New footpath – Woolworth Avenue (east side)
- New footpath – Commerce Drive (south side)
- New footpath – Joan Avenue (west side)
- New footpath – Stephanie Avenue (west side)



▲ Warilla town centre footpath access improvements

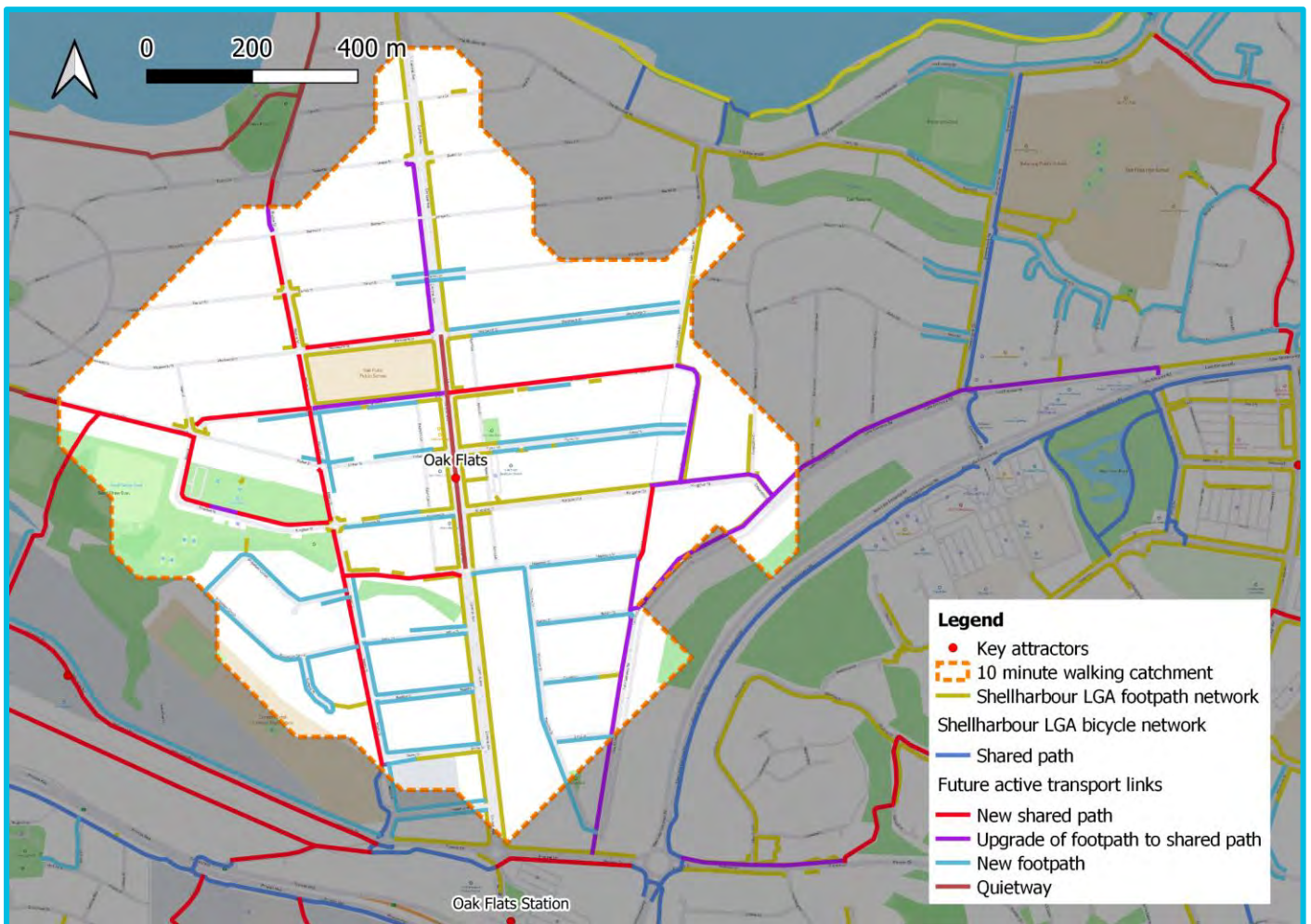
Source: Mapbox, Esri QGIS Mapping Software

Oak Flats

Similar to Warilla, Oak Flats' current footpath network is predominantly centralised on the main road of Central Avenue. New footpaths on east-west roads will 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 (south side)
- 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 (outer side)
- New footpath – Camelot Place (both sides)
- New footpath – Moore Street (east side)
- New footpath – Theodore Street (west side)



▲ Oak Flats town centre footpath access improvements

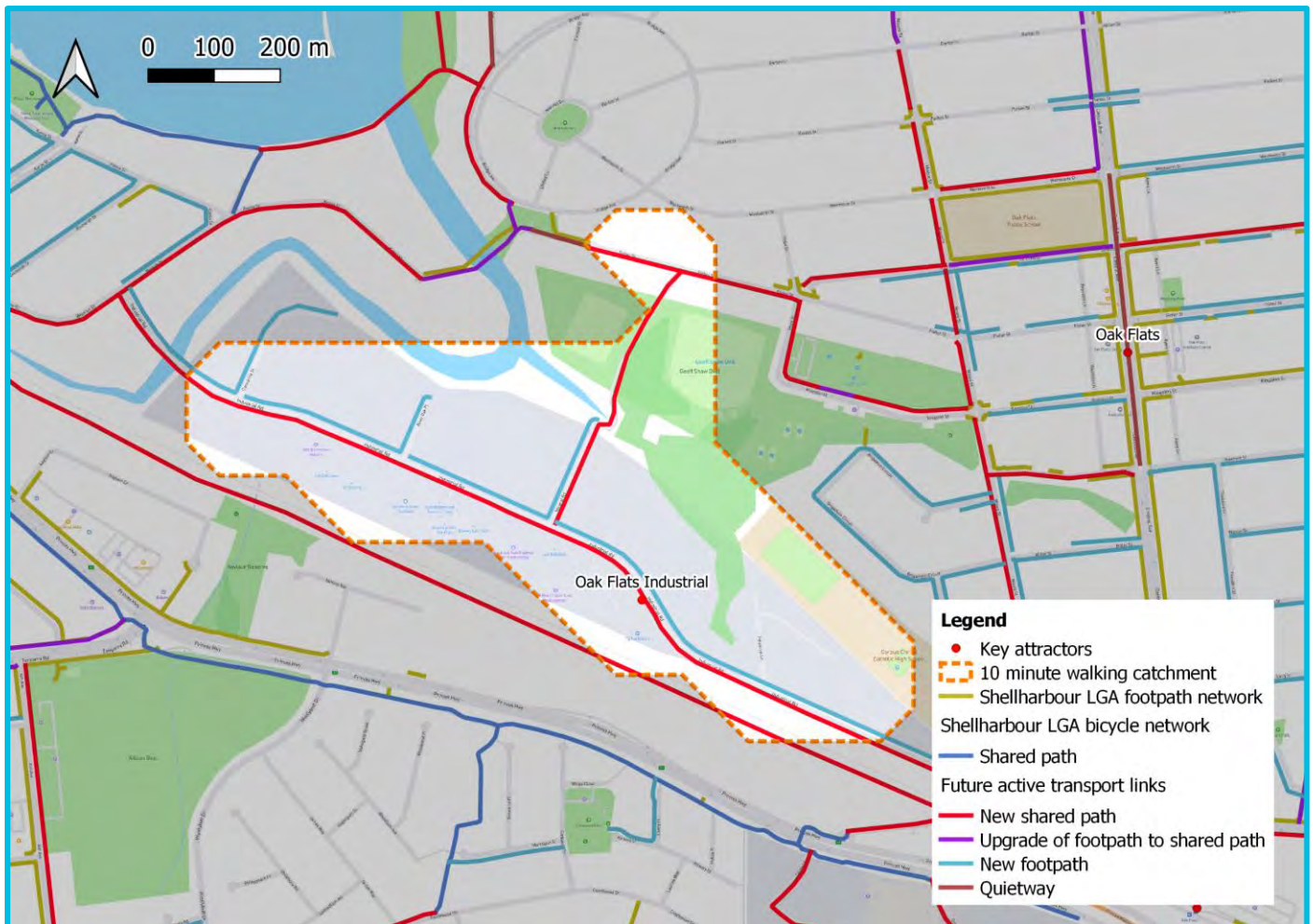
Source: Mapbox, Esri QGIS Mapping Software

Oak Flat 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 town centre footpath access improvements

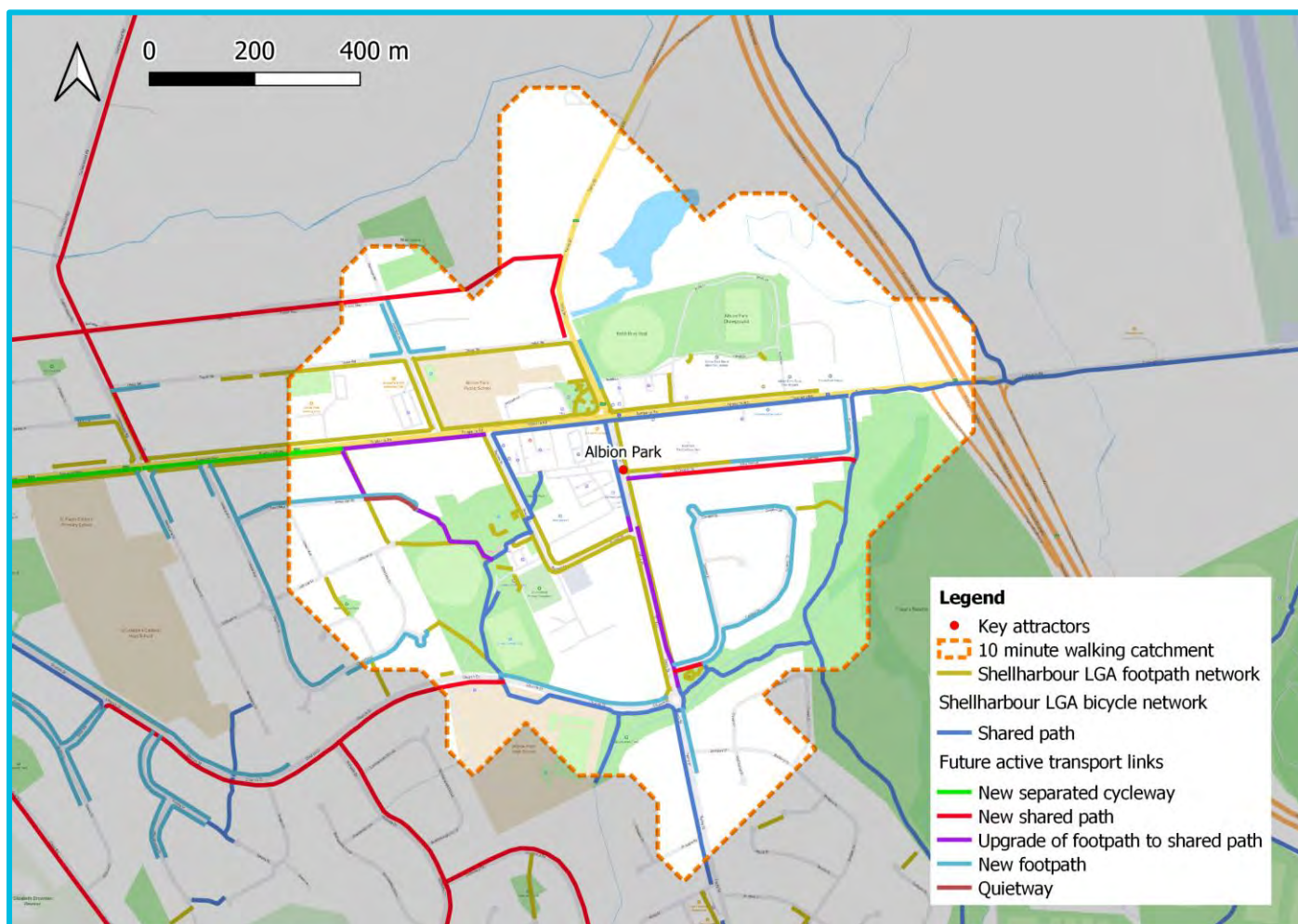
Source: Mapbox, Esri QGIS Mapping Software

Albion Park

Albion Park's current footpath network is well distributed and covers the main roads, including Tongarra Road and Terry Street. Extending these footpaths to the south and east will improve residential access to the town centre.

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

- 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 Church Street)
- New footpath – Charlotte Crescent (south side)



▲ Albion Park town centre footpath access improvements

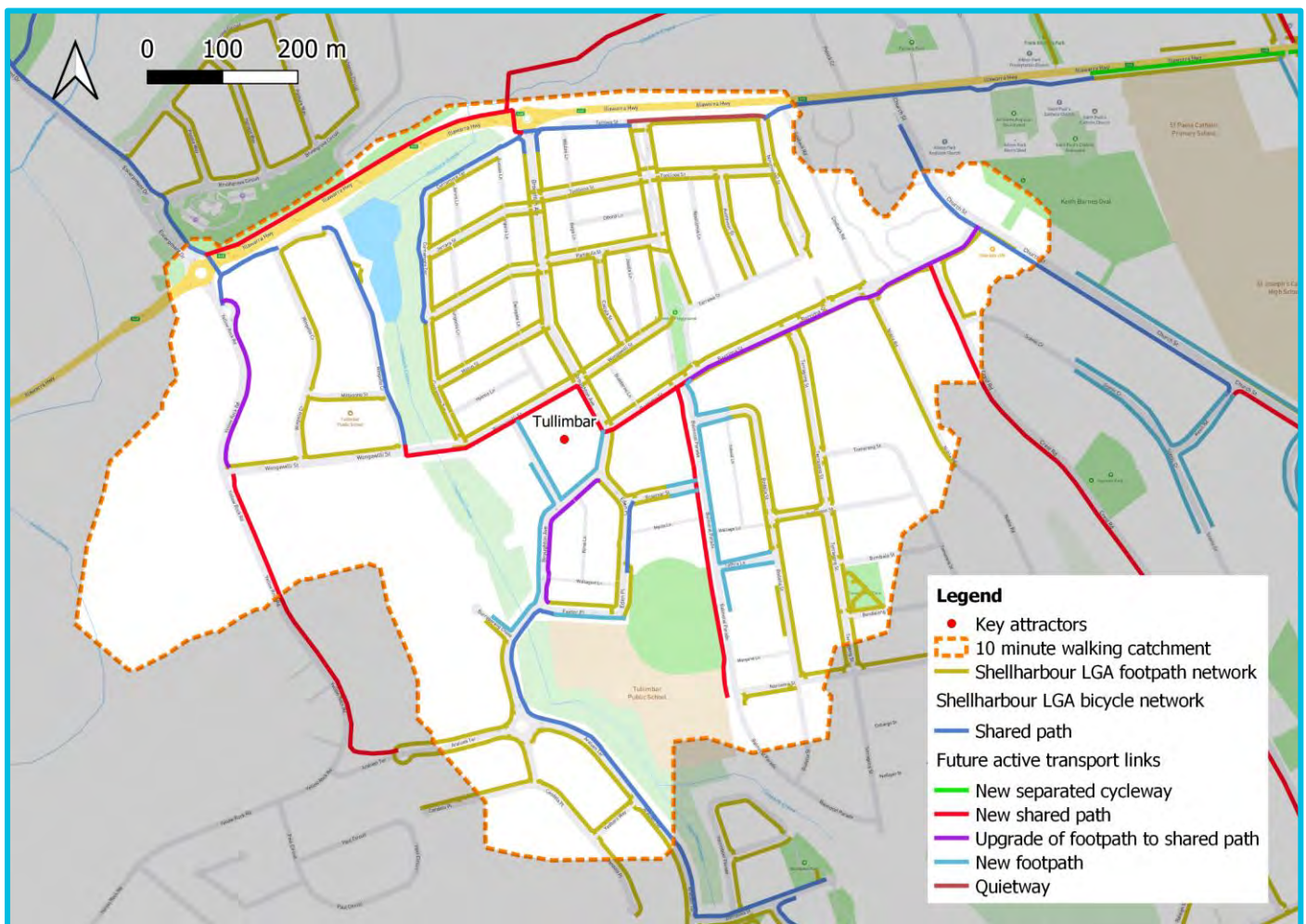
Source: Mapbox, Esri QGIS Mapping Software

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 – 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 (west side)
- New footpath – Burraborang Chase (north side)
- New footpath – Balmoral Parade (east side)
- New footpath – Bodalla Street (both sides)



▲ Tullimbar town centre footpath access improvements

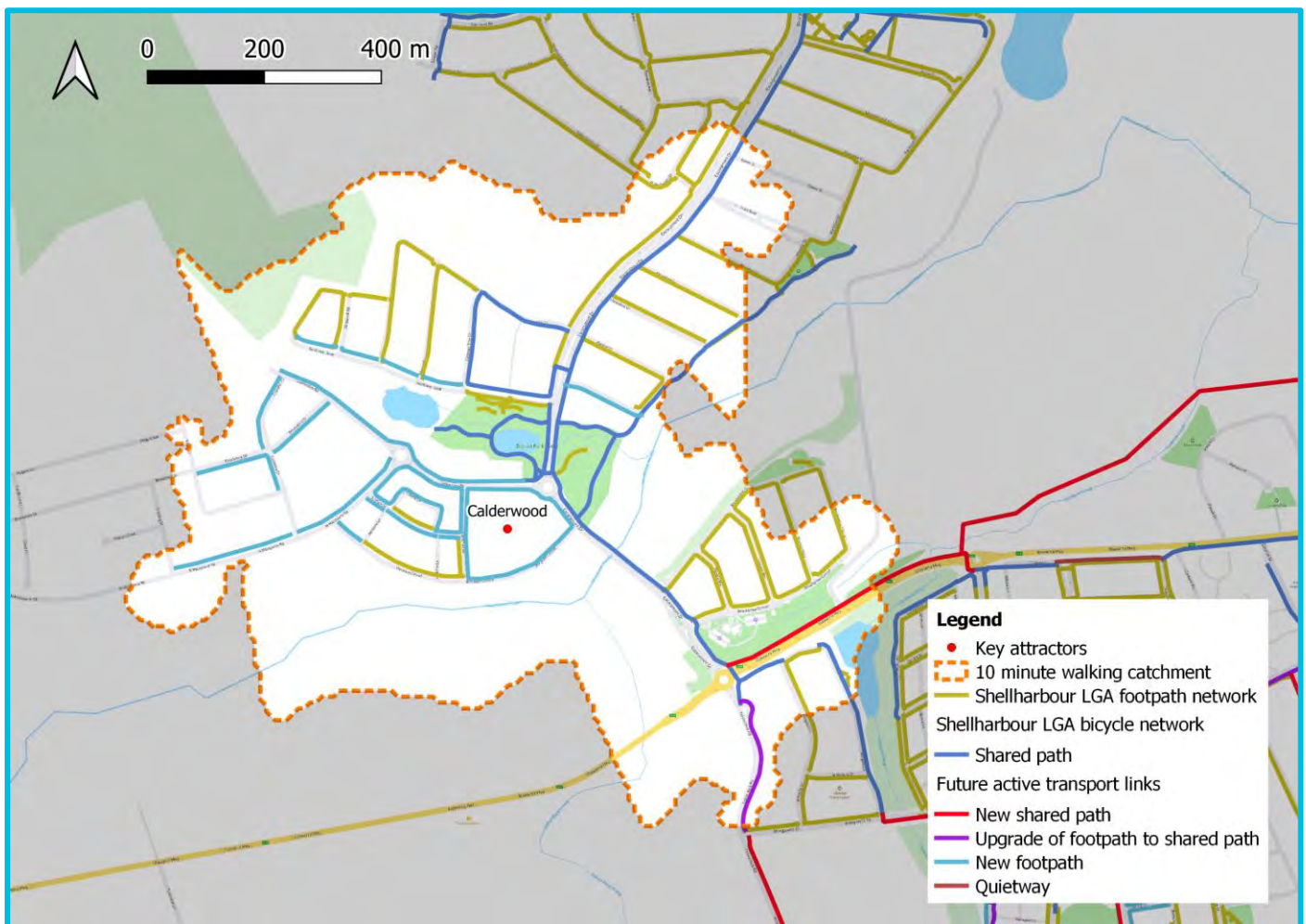
Source: Mapbox, Esri QGIS Mapping Software

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. Calderwood Village, located south of Connection Road, is currently under development and once complete, is anticipated to be a key destination for the suburb, generating additional pedestrian trips.

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 (outer side)
- New footpath – Scanlon Street (both sides)
- New footpath – Stockman Road (both sides)
- New footpath – Escarpment Drive (west side)
- New footpath – Bartlett Crescent (south side)



▲ Calderwood town centre footpath access improvements

Source: Mapbox, Esri QGIS Mapping Software

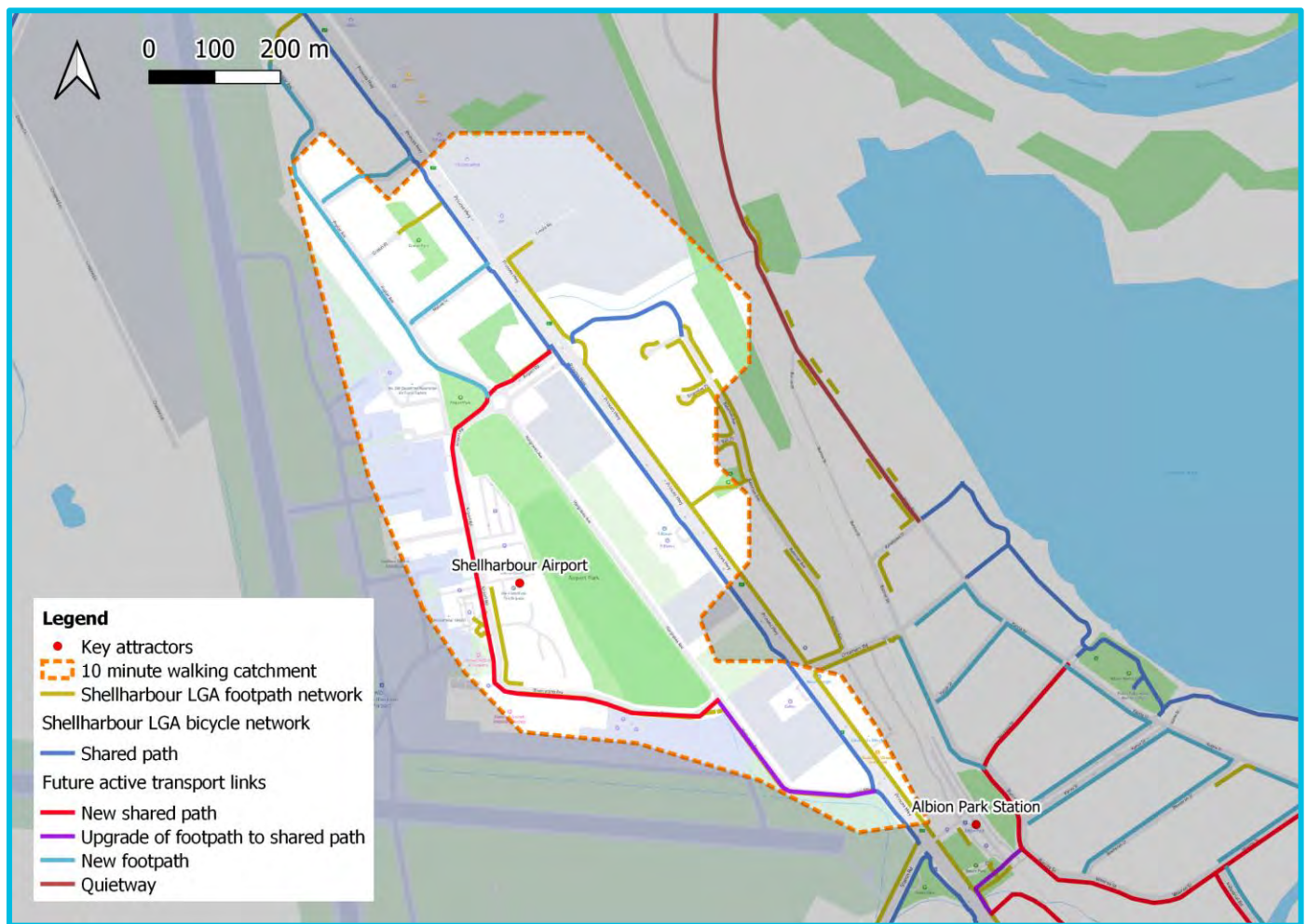
Access to transport nodes

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

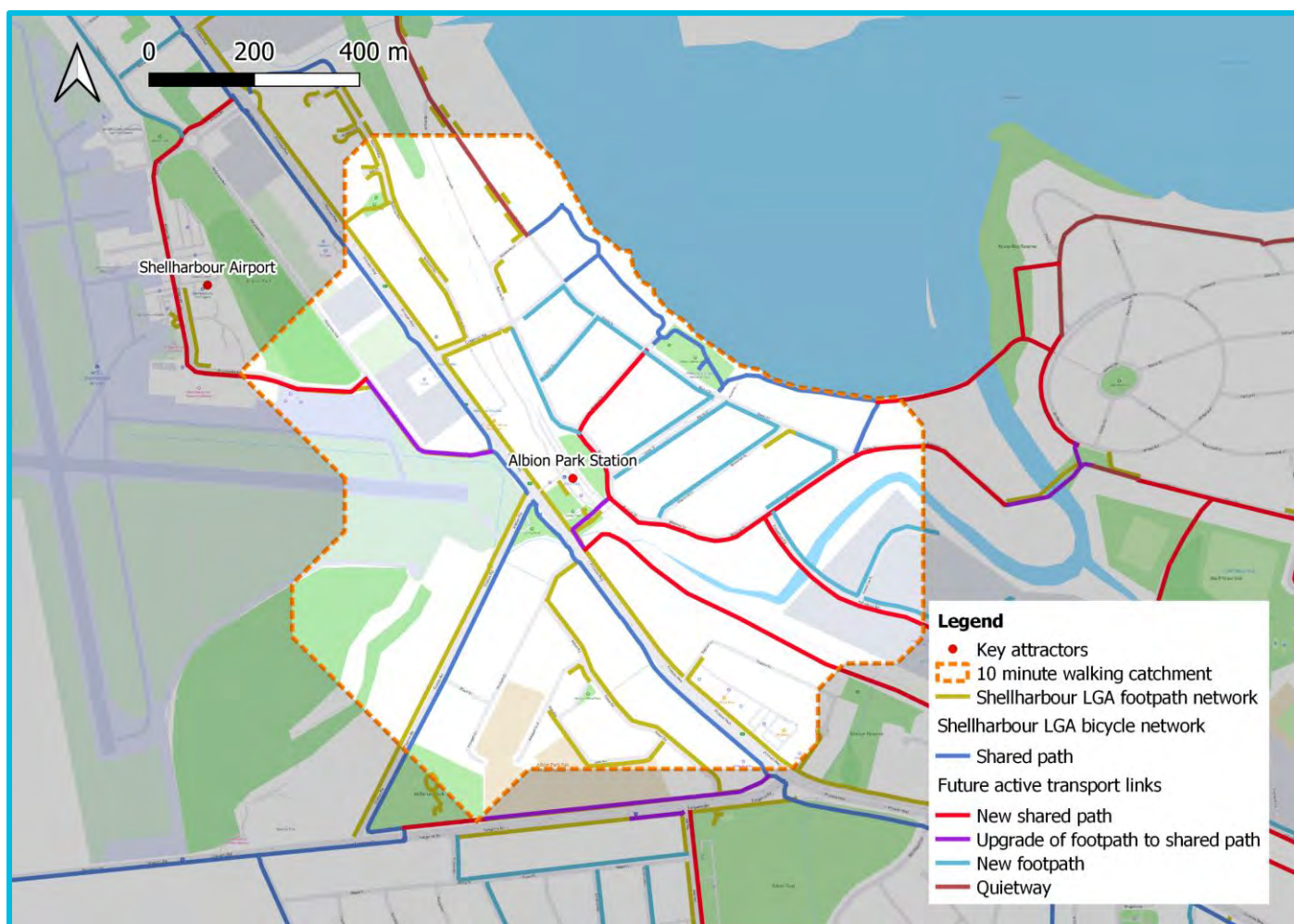
Source: Mapbox, Esri QGIS Mapping Software

Albion Park Station

Albion Park Station has an existing footpath network 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 north and east 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 (east side)
- New footpath – Koona Street (south side)
- New footpath – Burroo Street (west side)
- New footpath – Yallah Street (east side)
- New footpath – Karoo Street (both sides)
- New footpath – Boonerah Street (west side)
- New footpath – Industrial Road (north side)
- New footpath – Casuarina Street (west side)
- New footpath – Wooroo Street (west side)



▲ Albion Park Station transport nodes footpath access improvements

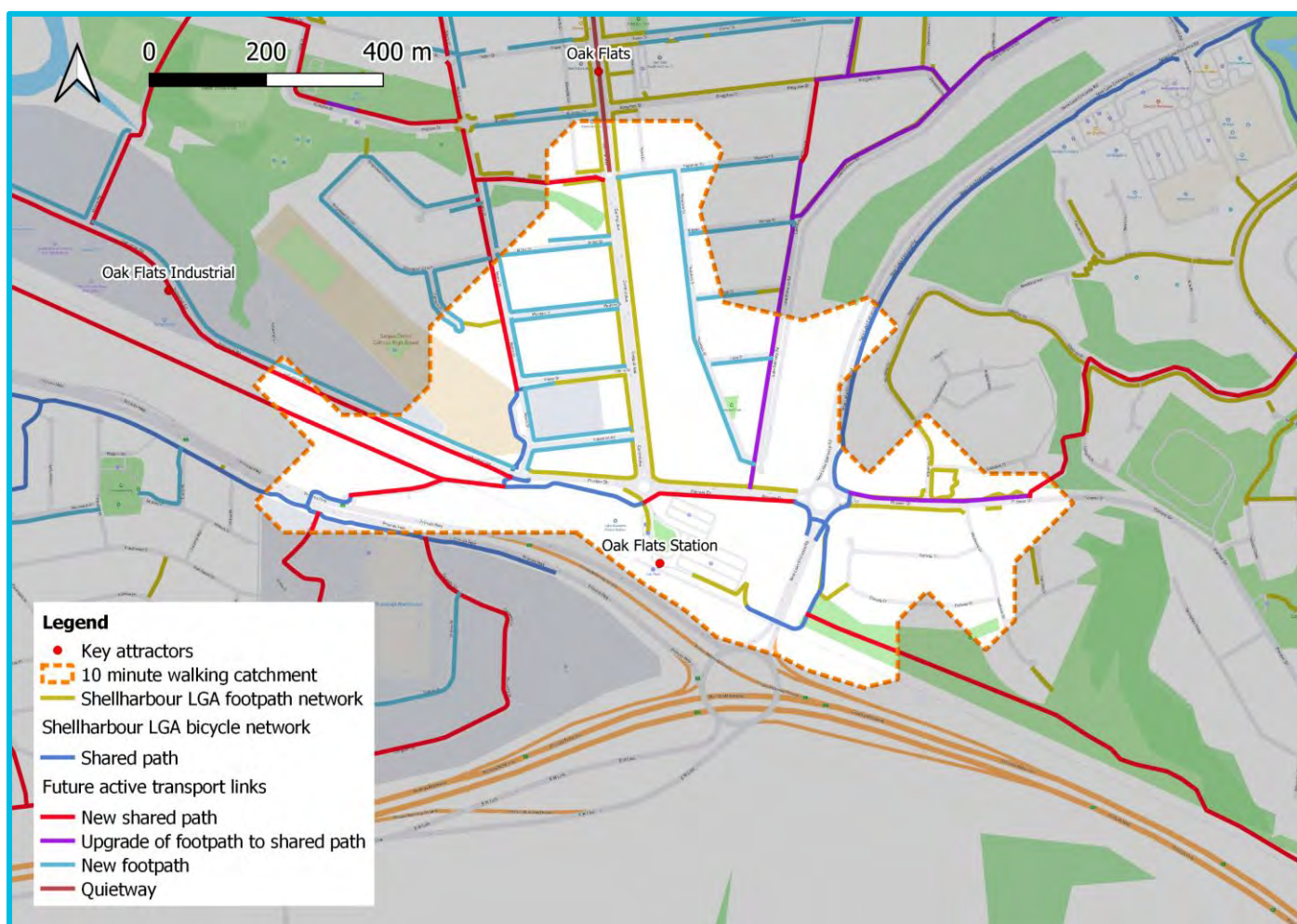
Source: Mapbox, Esri QGIS Mapping Software

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, west of Moore Street)
- New footpath – Industrial Road (both sides, east of Moore Street)
- New footpath – Moore Street (east side)
- New footpath – Theodore Street (west side)



▲ Oak Flats Station transport nodes footpath access improvements

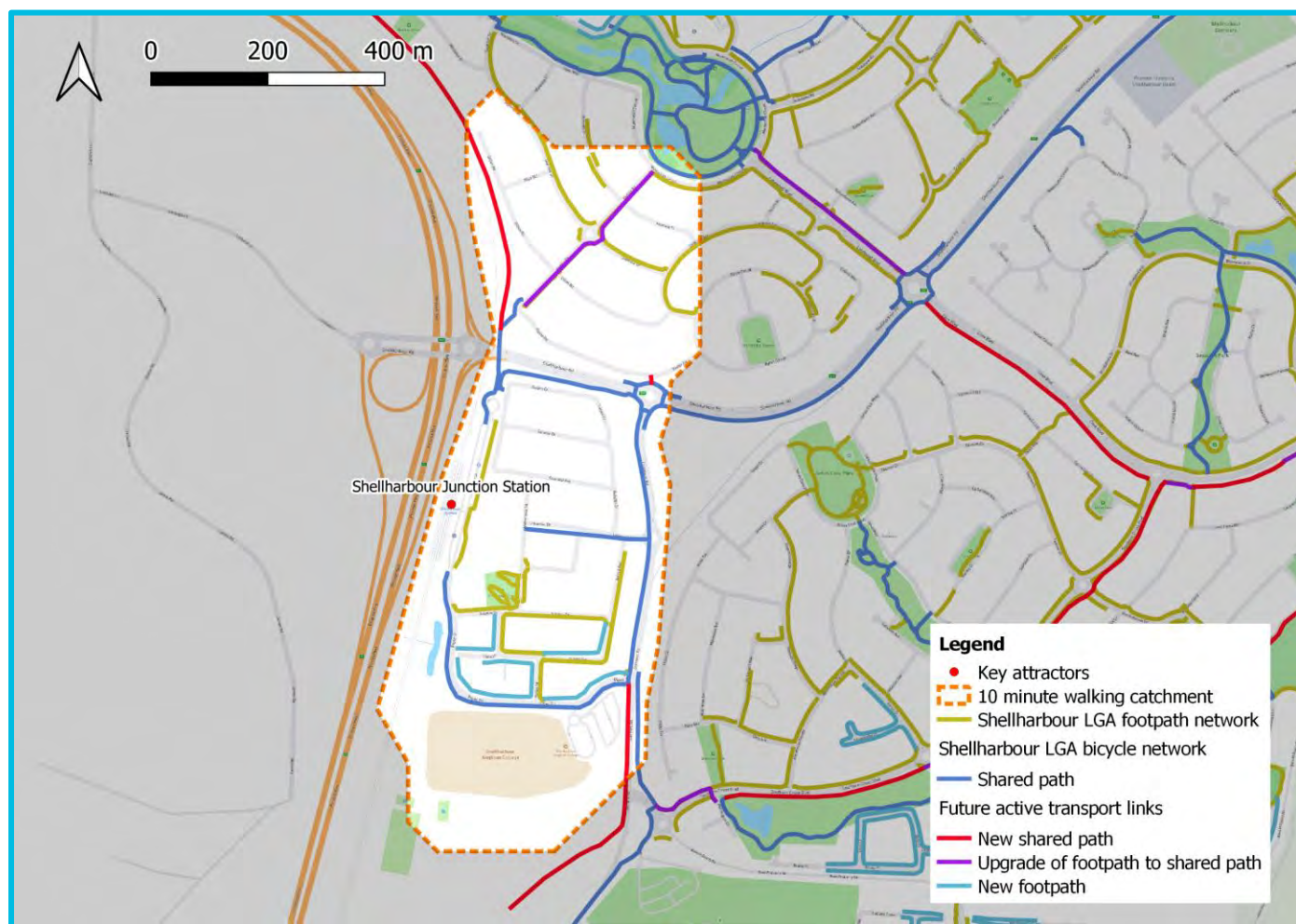
Source: Mapbox, Esri QGIS Mapping Software

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



▲ Shellharbour Junction Station transport nodes footpath access improvements

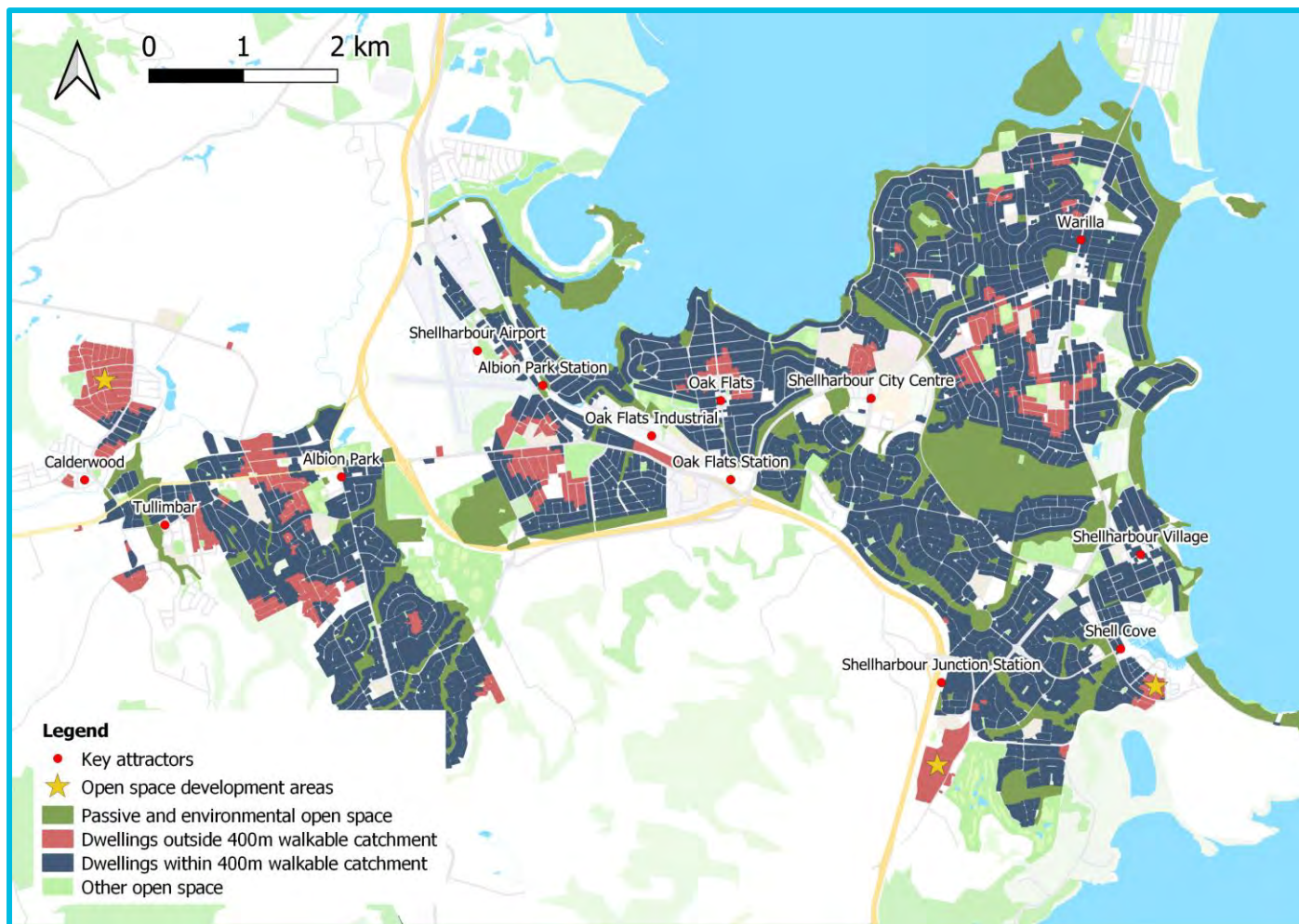
Source: Mapbox, Esri QGIS Mapping Software

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 greater than 3000m² across the Shellharbour LGA.

The following areas were identified as requiring additional walking links to improve connectivity to open spaces.



▲ Shellharbour open space walkable catchments

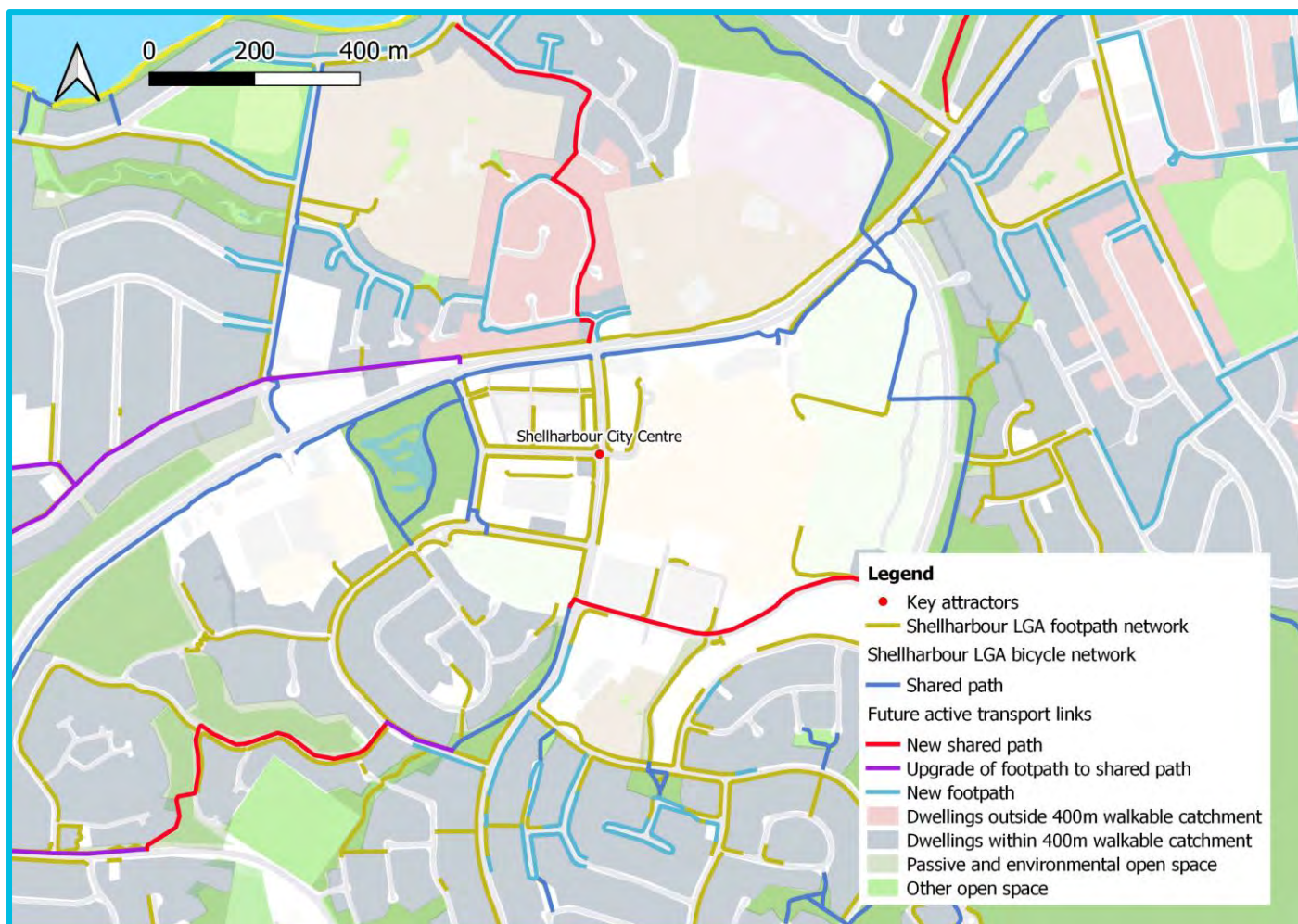
Source: Shellharbour City Council

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 (both sides)



▲ Shellharbour City Centre 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

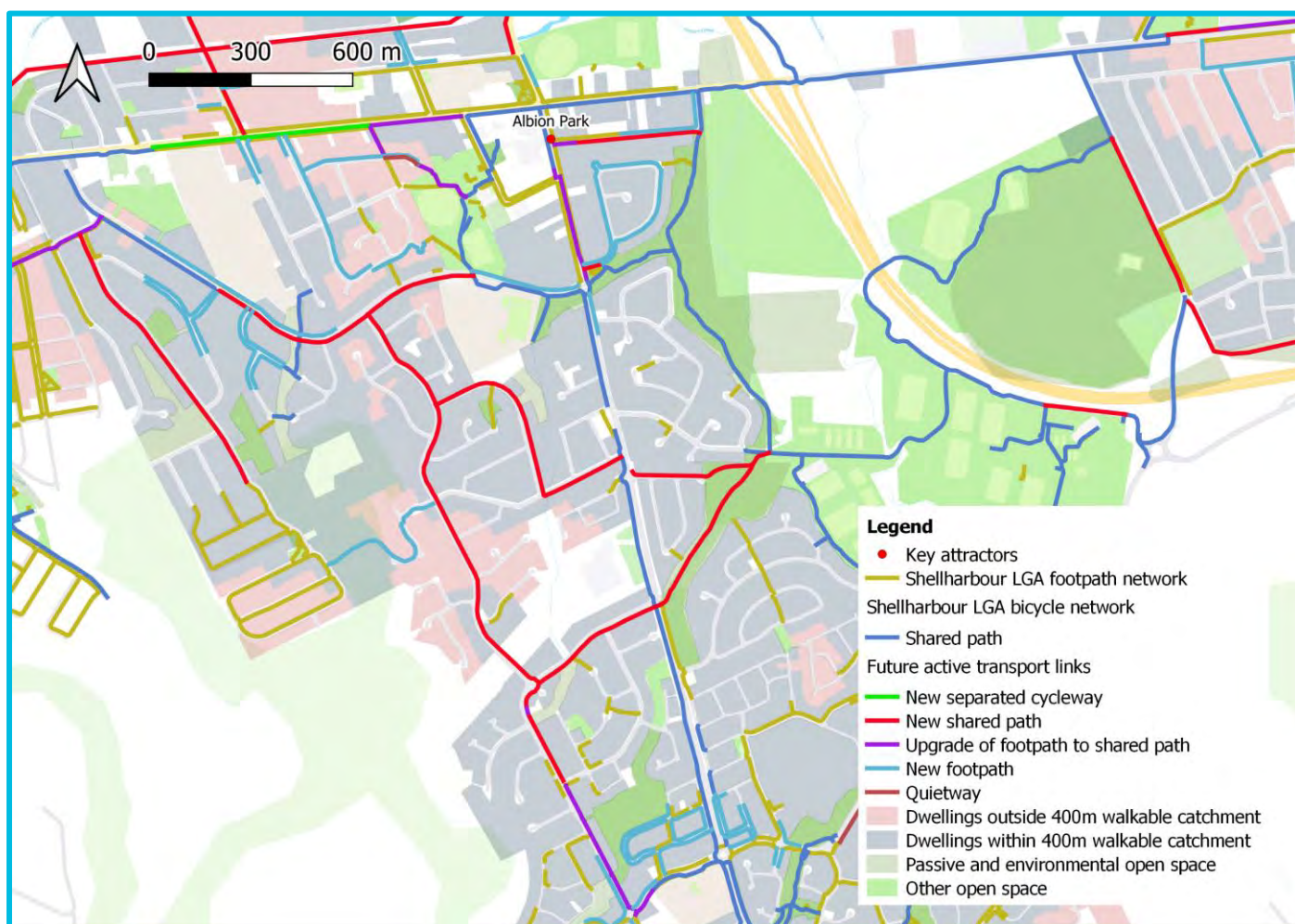
Source: Shellharbour City Council, Esri QGIS Mapping Software

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

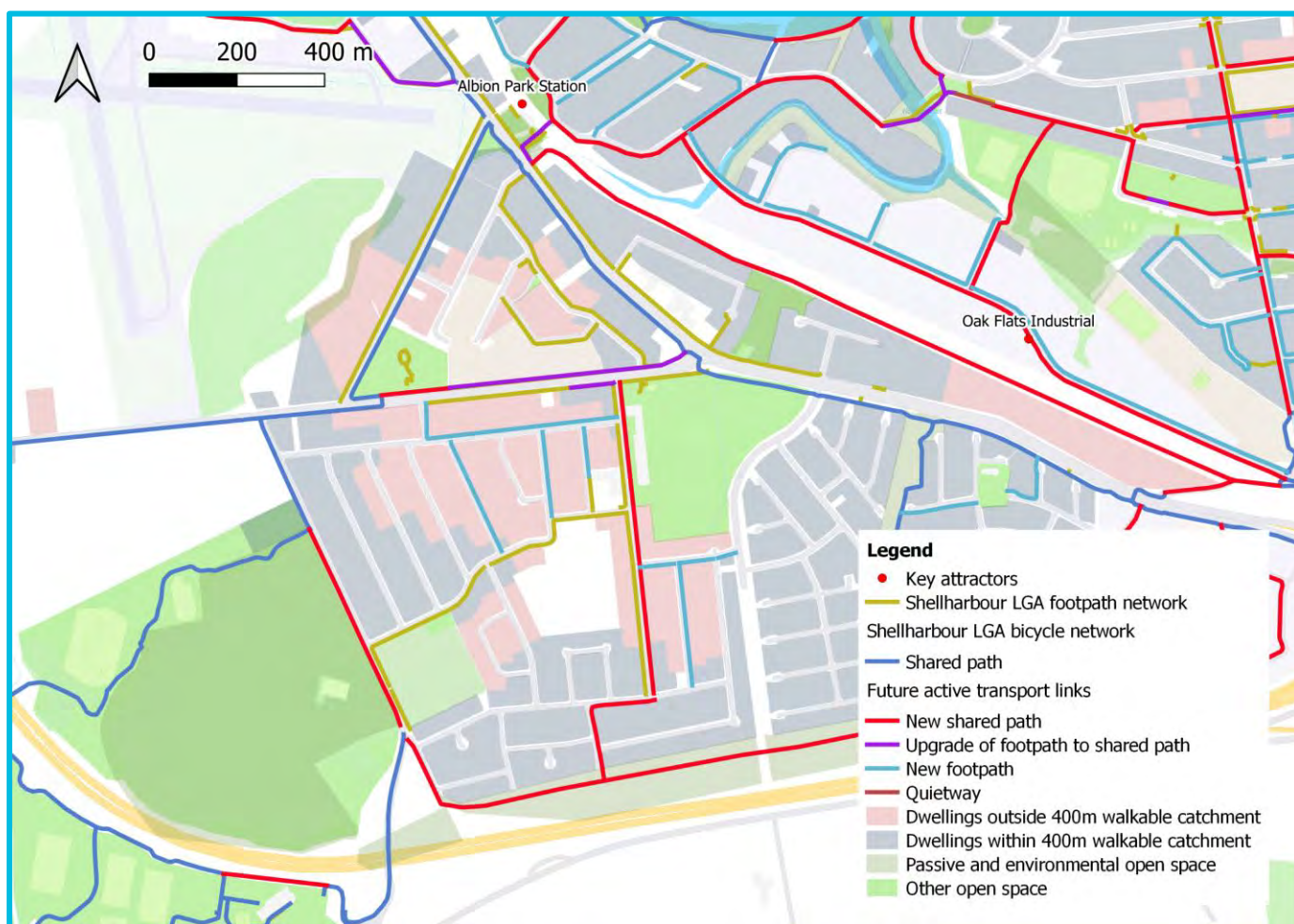
Source: Shellharbour City Council, Esri QGIS Mapping Software

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

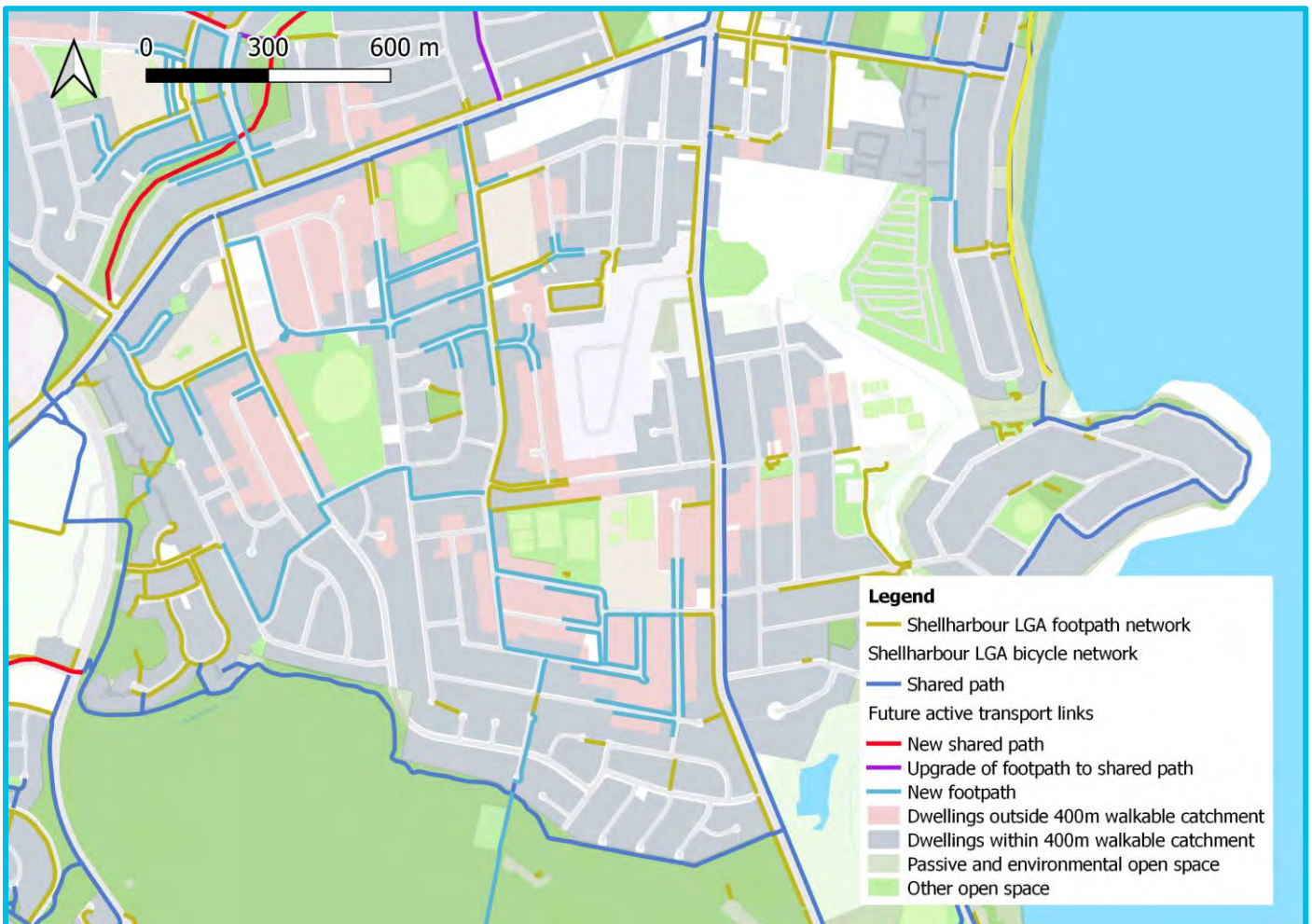
Barrack Heights

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 (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 (west 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)
- New footpath – Keros Avenue (south side)



▲ Barrack Heights open spaces footpath access improvements

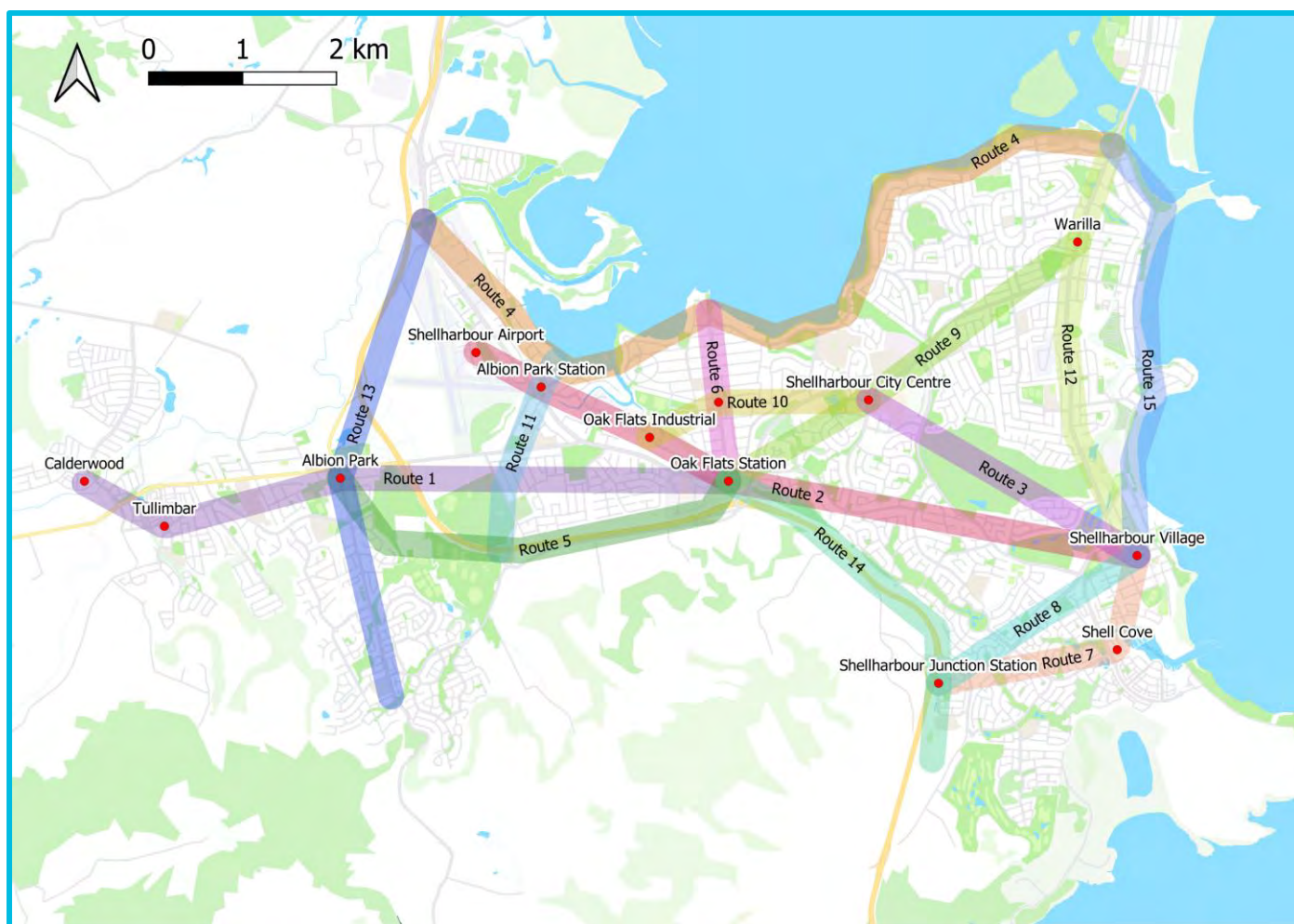
Source: Shellharbour City Council, Esri QGIS Mapping Software

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 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.

A total of 15 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

No.	Origin	Destination	Current infrastructure
1	Calderwood	Oak Flats Station	Shared 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 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 path: <ul style="list-style-type: none"> • Wattle Road • Blackbutt Forest Reserve
4	Macquarie Rivulet	Windang Bridge	Shared 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 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 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 path: <ul style="list-style-type: none"> • Shellharbour Road • Addison Street

No.	Origin	Destination	Current infrastructure
			Road shoulder: <ul style="list-style-type: none"> • Shellharbour Road
9	Oak Flats Station	Warilla	Shared path: <ul style="list-style-type: none"> • Lake Entrance Road • Harrison Park
10	Oak Flats Industrial	Shellharbour City Centre	Shared path: <ul style="list-style-type: none"> • Lake Entrance Road • Harrison Park
11	Albion Park Rail waterfront	Croom	Shared 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 path: <ul style="list-style-type: none"> • Shellharbour Road • Section of Mary Street
13	Macquarie Rivulet	Southern Albion Park	Shared path: <ul style="list-style-type: none"> • Terry Street • Tongarra Road • Adjacent to M1 Princes Motorway
14	Oak Flats Station	New Shellharbour Hospital	Shared 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 path: <ul style="list-style-type: none"> • Oak Flats Rivulet, past Windang Bridge along waterfront at Barrack Point

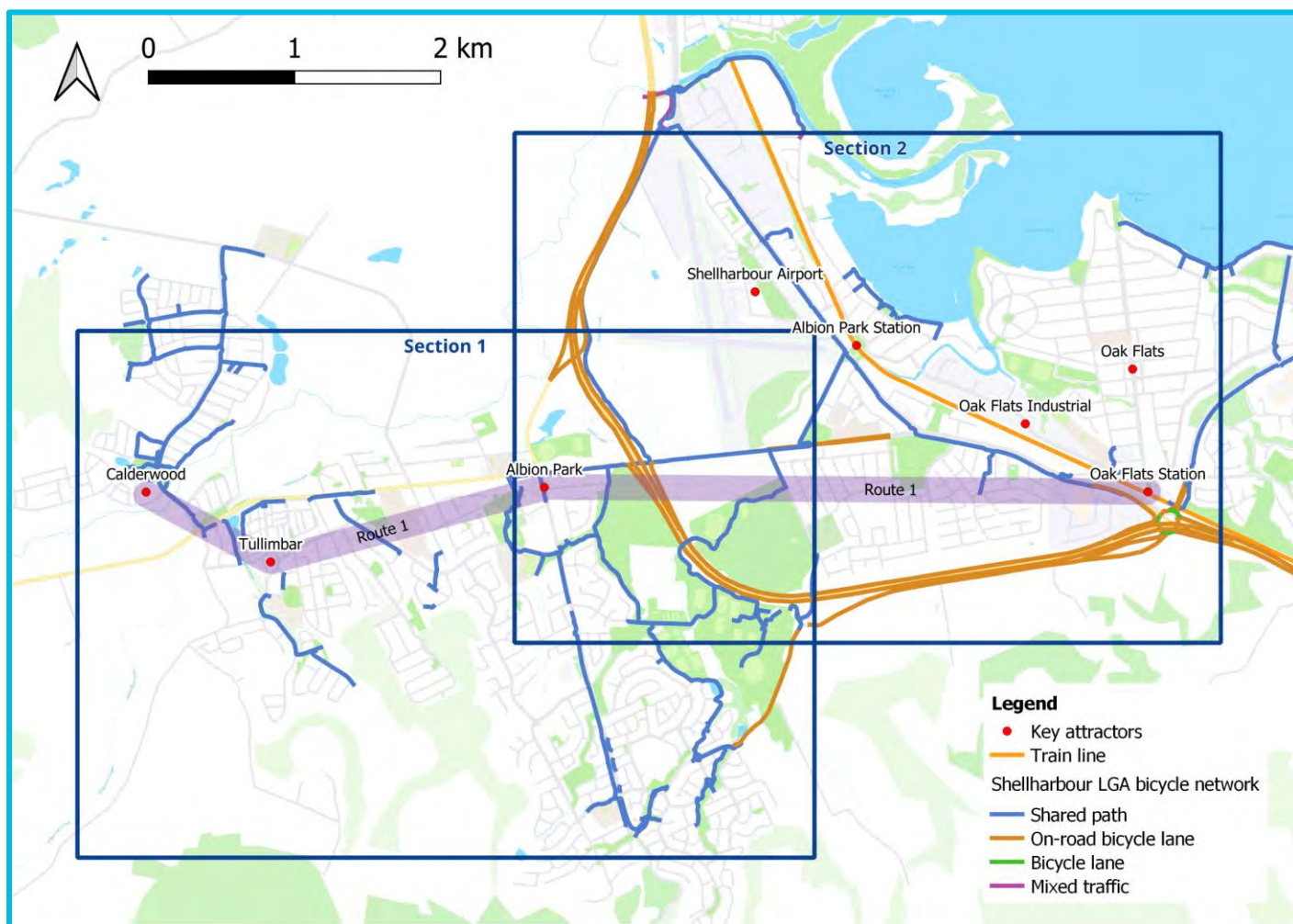
Specific network improvements were determined by assessing the strengths, opportunities, weaknesses and barriers for each strategic cycling route. These improvements have been classified as primary and secondary, to assist with wayfinding purposes.

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 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 path.

▼ Analysis of strategic cycling route 1

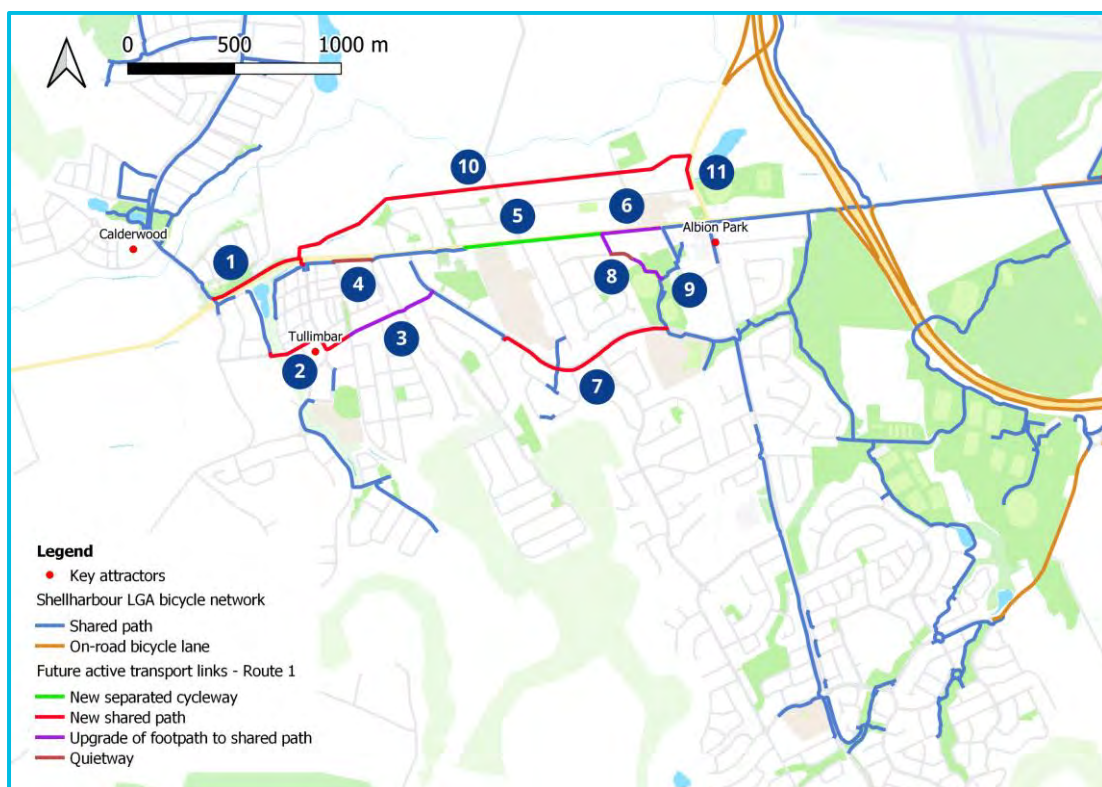
Strengths and opportunities	Barriers and weaknesses
Connection of Calderwood to Tongarra Road	Inconsistent pathways along Tongarra Road
Future Albion Park bypass will reduce traffic volumes on Tongarra Road	Train line disconnecting route from Oak Flats
Existing shared paths south of Tongarra Road	
Existing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



▲ Strategic cycling route 1

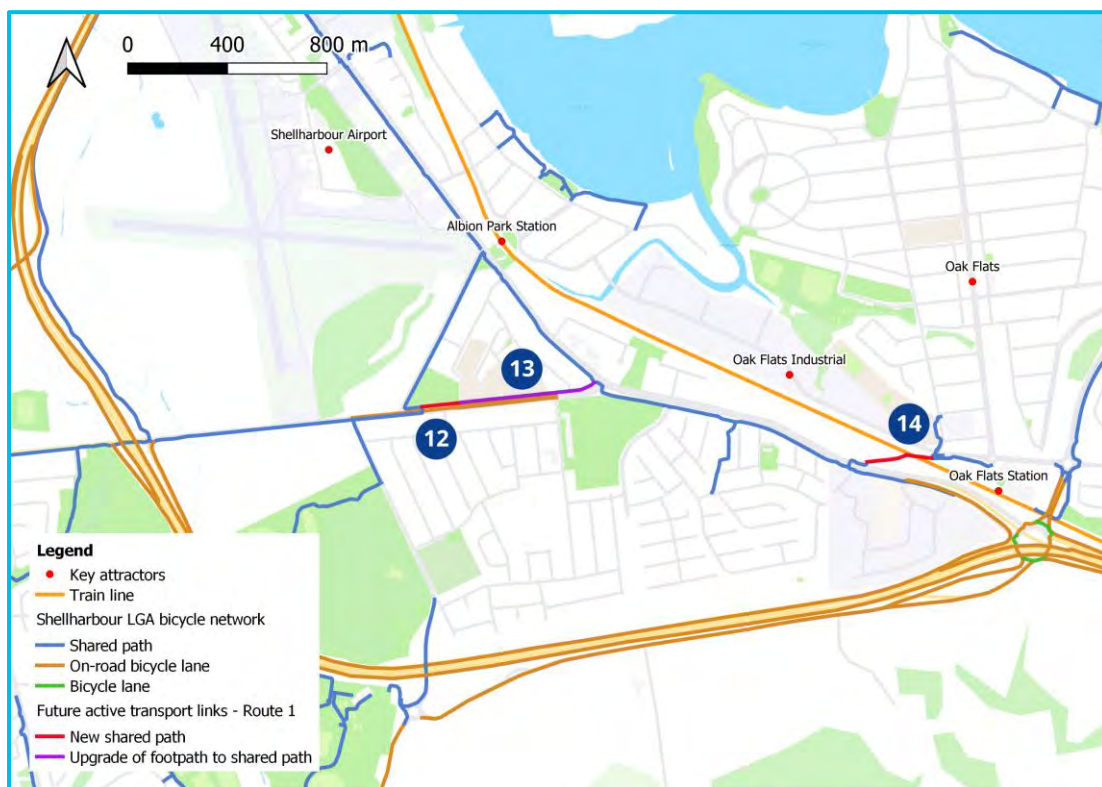
Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 1 corridor includes a separated cycleway, new shared paths, upgrade of footpaths to shared paths 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

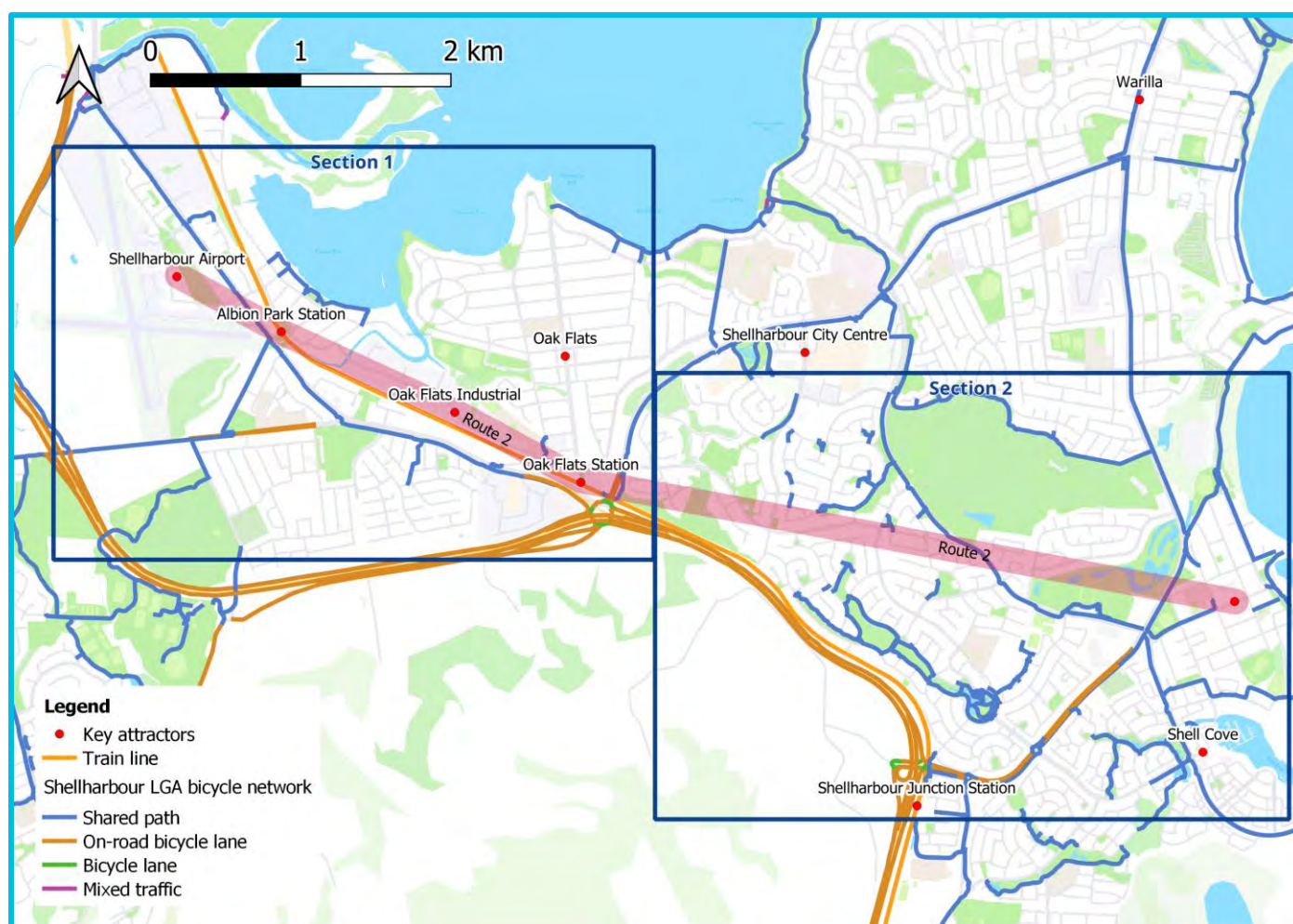
No.	Type	Location	Classification
1	New shared path	Illawarra Highway (north side)	Primary
2	New shared path	Wongawilli Street (south side), Broughton Avenue (west side) and Berrima Street (south side)	Secondary
3	Upgrade of footpath to shared path	Berrima Street (south side)	Secondary
4	Quietway	Tallowa Street	Primary
5	New on-road cycleway	Illawarra Highway (south side)	Primary
6	Upgrade of footpath to shared path	Tongarra Road (south side) and alleyway between Tongarra Road and Beveridge Street	Primary
7	New shared path	Church Street (south side)	Secondary
8	Quietway	Beveridge Street	Secondary
9	Upgrade of footpath to shared path	Footpath between Beveridge Street and shared path at Con O'Keefe Oval	Secondary
10	New shared path	Tripoli Way Extension (north side, future project)	Secondary
11	New shared path	Terry Street (west side, future project)	Secondary
12	New shared path	Tongarra Road (north side)	Primary
13	Upgrade of footpath to shared path	Tongarra Road (north side)	Primary
14	New shared 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. 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.

▼ Analysis of strategic cycling route 2

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 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

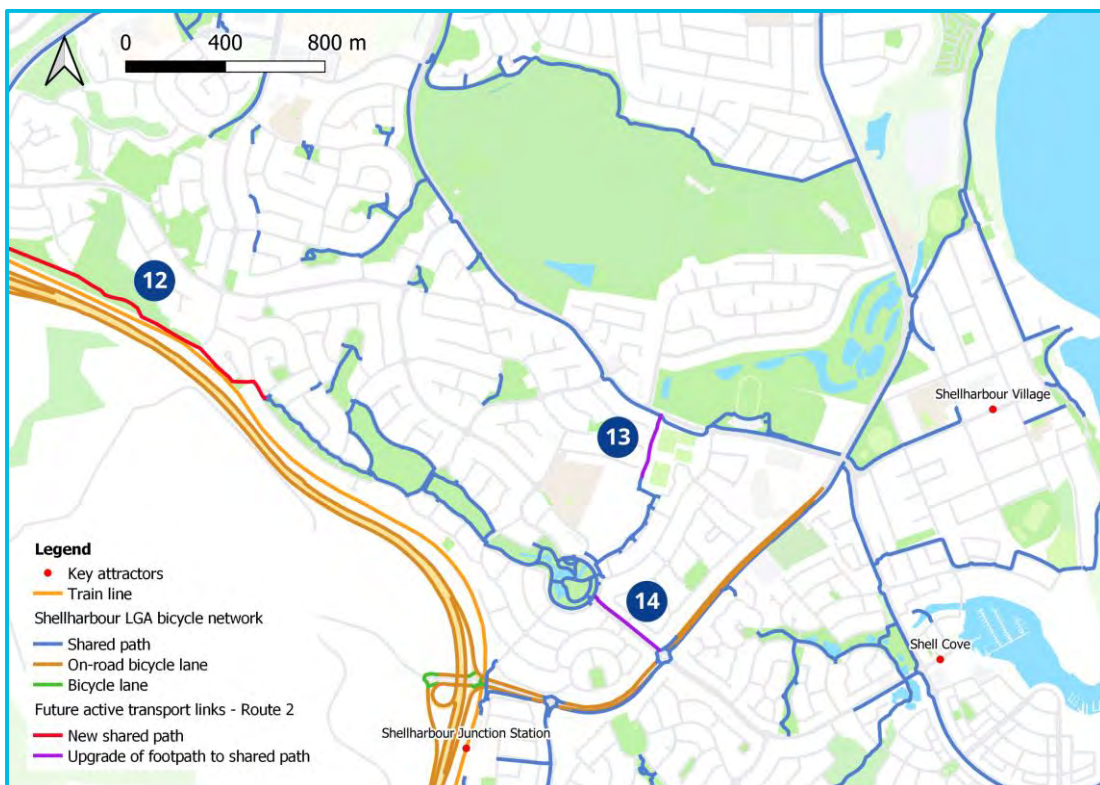
Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 2 corridor includes new shared paths, upgrade of footpaths to shared paths 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 path	Boomerang Avenue (south side) and Airport Road (west side)	Primary
2	Upgrade of footpath to shared path	Hargraves Avenue (south side)	Primary
3	Upgrade of footpath to shared path	Rotary Park and rail line crossing	Primary
4	New shared path	South side of rail line	Secondary
5	New shared path	Industrial Road (south side)	Primary
6	New shared path	Burroo Street (south side), Wooroo Street (south side) and Koona Street (south side)	Secondary
7	Upgrade of footpath to shared path	Horsley Inlet pedestrian bridge	Secondary
8	Quietway and new shared path	Fisher Street (south side)	Secondary
9	New shared path and upgrade of footpath to shared path	Geoff Shaw Oval	Secondary
10	Upgrade of footpath to shared path	Moore Street (west side)	Secondary
11	New shared path	Pioneer Drive (south side)	Primary
12	New shared path	North of rail line, Jemima Reserve and Whittaker Street (south side)	Primary
13	Upgrade of footpath to shared path	Footpath between Wattle Road and Burrinjuck Avenue	Secondary
14	Upgrade of footpath to shared path	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 include shared 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 paths on the periphery along Lake Entrance Road and Wattle Road. Shellharbour Village has existing shared paths on Mary Street and Addison Street.

▼ Analysis of strategic cycling route 3

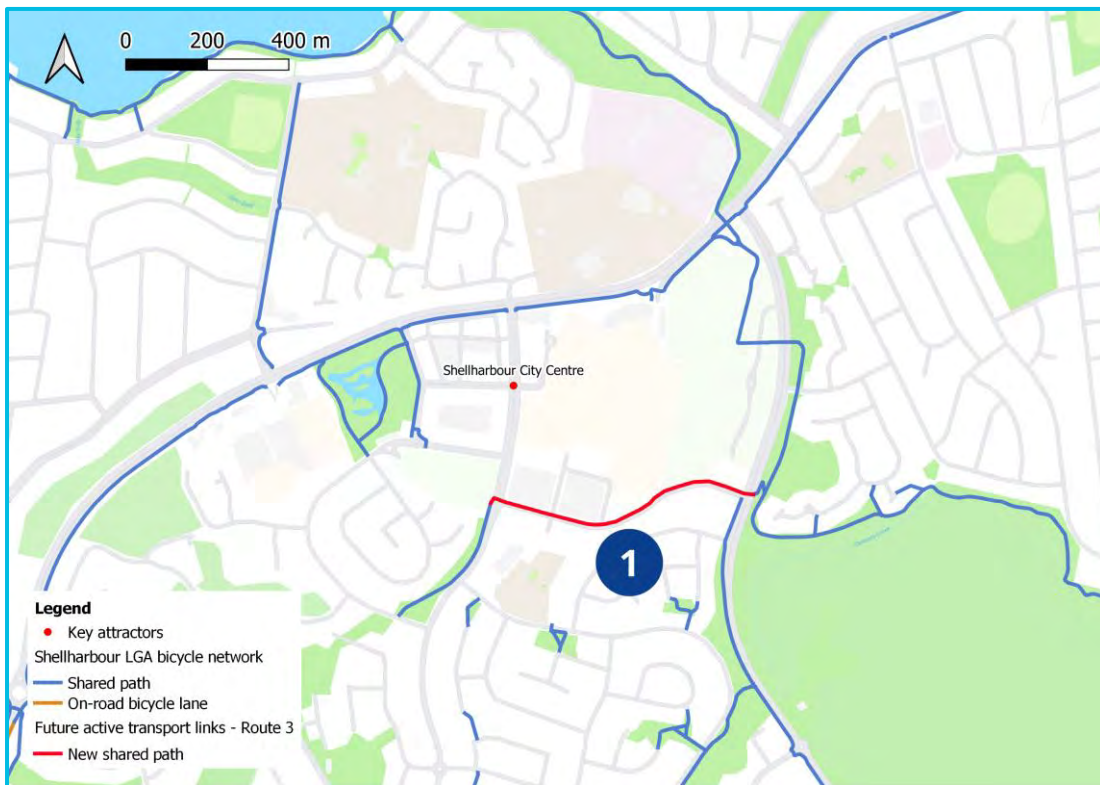
Strengths and opportunities	Barriers and weaknesses
Shared path to the north of Blackbutt Forest Reserve	Shellharbour City Centre poor connectivity
Shared path on Wattle Road	Shellharbour City Centre lack of active transport facilities
Shellharbour Village connectivity through Mary Street and Addison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



▲ Strategic cycling route 3

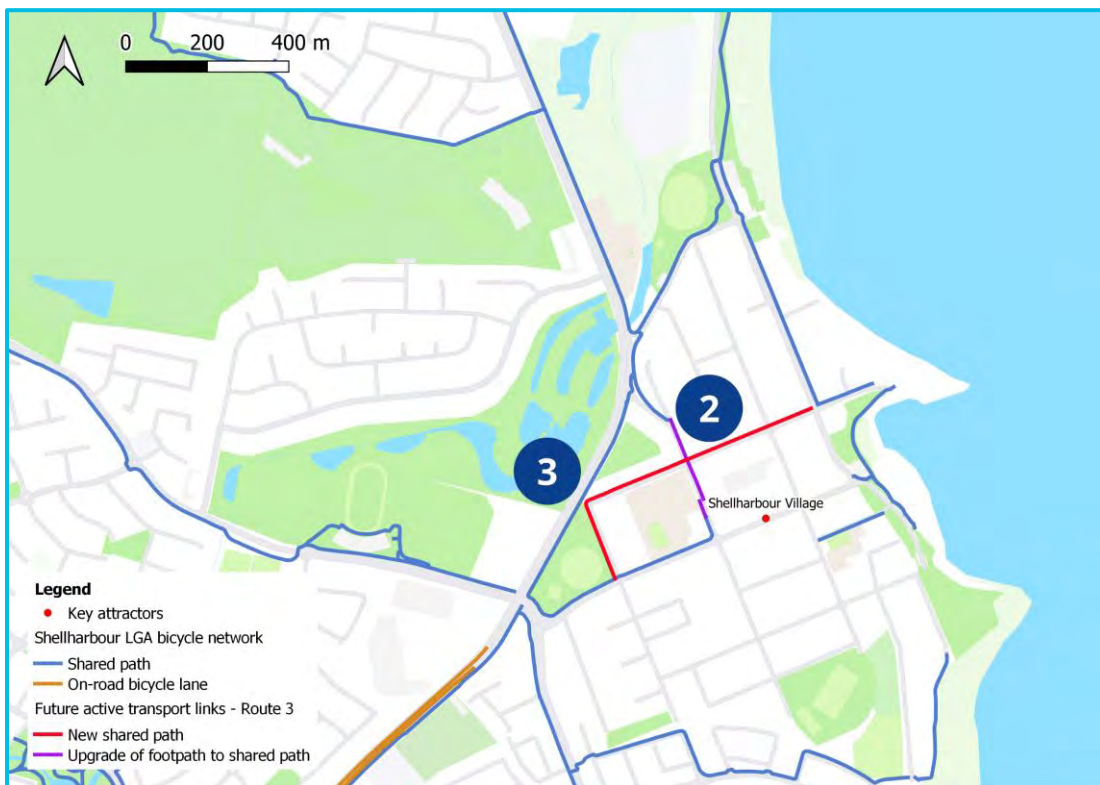
Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 3 corridor includes new shared paths and an upgrade of a footpath to a shared path.



▲ Route 3 - Future active transport facilities (section 1)

Source: Mapbox, Esri QGIS Mapping Software



▲ Route 3 - Future active transport facilities (section 2)

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 3 potential active transport infrastructure

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

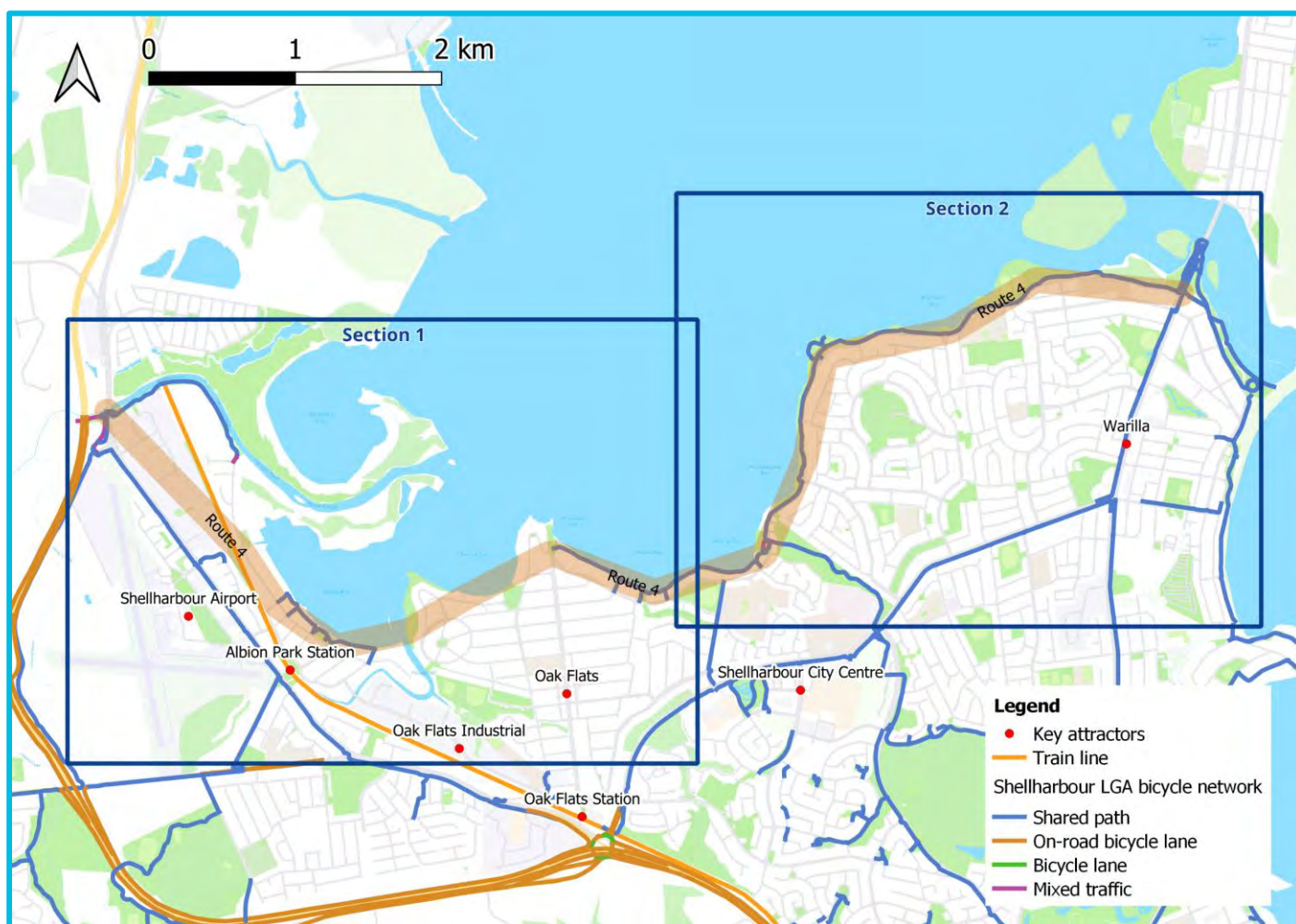


Route 4 – Macquarie Rivulet to Windang Bridge

Route 4 is the “around the lake” route connecting Macquarie Rivulet to Windang Bridge via the lake waterfront. Current infrastructure includes shared paths along sections of the waterfront with notable gaps at Oak Flats and Albion Park Rail. This route is 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 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.

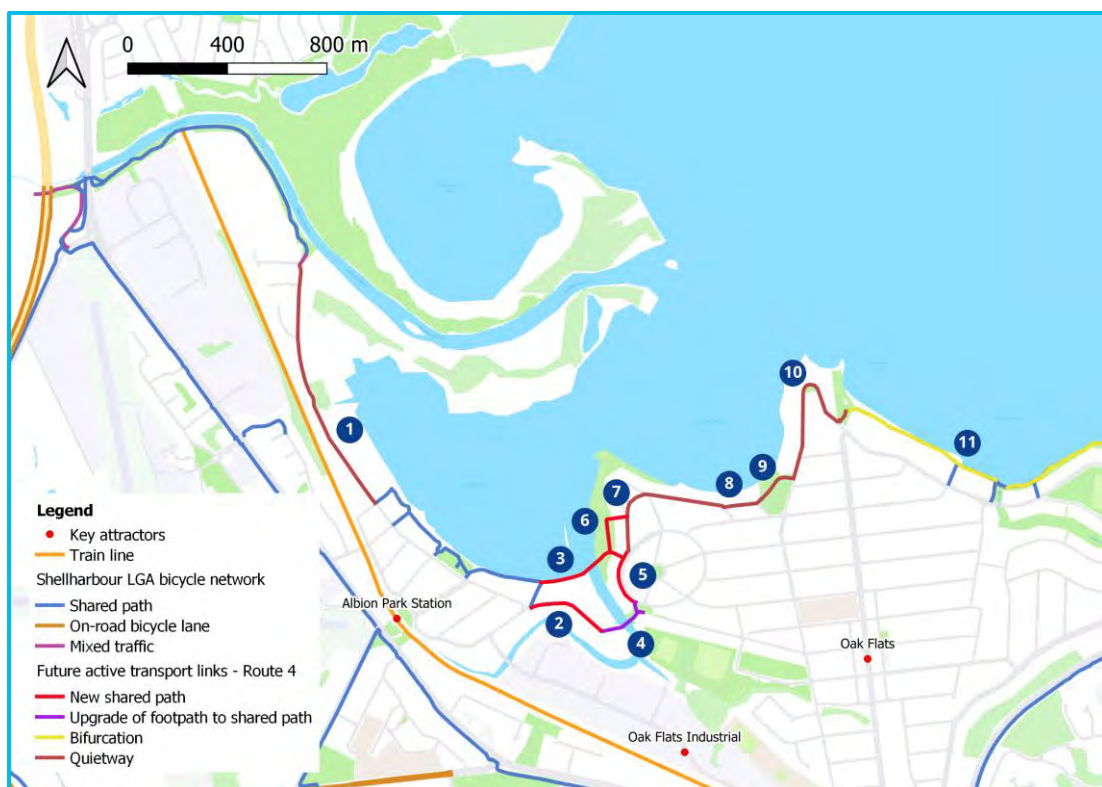
This route will require a cycling permissible crossing at Horsley Inlet, as the current Slaters Bridge prohibits bicycle use. Two possible options have been considered:

- Upgrading of Slaters Bridge through demolition and reconstruction to meet the TfNSW recommended 4m minimum width of a shared path.
- A new cycling bridge over Horsley Inlet, connecting Koon Bay Reserve to the Albion Park Rail waterfront north of the current pedestrian-only Slaters Bridge. This option is consistent with the Shared 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.



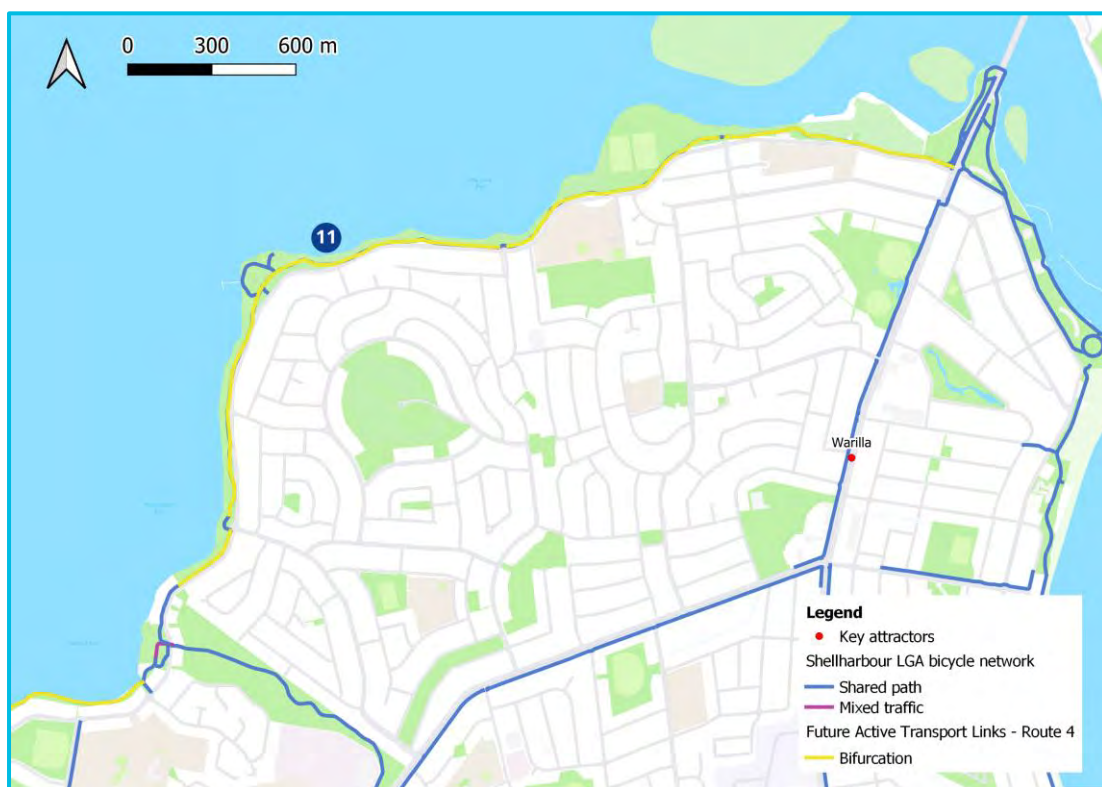
▲ Bifurcation on Iron Cove Bay Walking Trail, Sydney

Potential active transport infrastructure on the Route 4 corridor includes bifurcation, new shared paths, an upgrade of a footpath to a shared path and quietways.



▲ 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

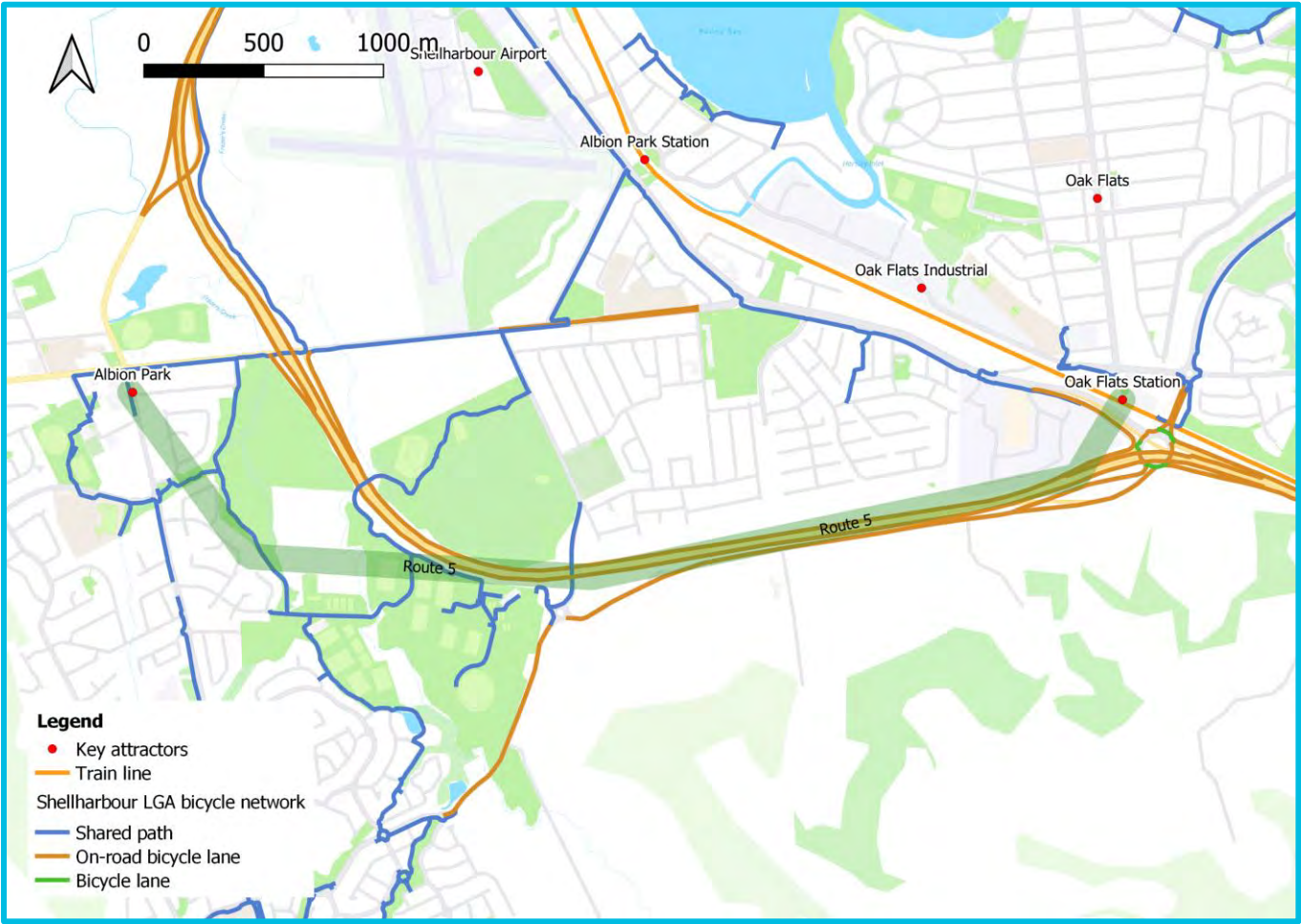
No.	Type	Location	Classification
1	Quietway	Shearwater Boulevard and Koonah Street north of Kanahooka Street	Primary
2	New shared path	Koonah Street (south side east of Wooroo Street)	Secondary
3	New shared path	Bridge Option 1: New bridge to Koonah Bay Reserve	Primary
4	Upgrade of footpath to shared path	Bridge Option 2: New Slaters Bridge	Secondary
5	New shared path	Bridge Avenue (west side)	Secondary
6	New shared path	Koonah Bay Reserve	Primary
7	Quietway	Horsley Road	Primary
8	Quietway	Newton Crescent	Primary
9	Quietway	Deakin Reserve	Primary
10	Quietway	The Boulevard	Primary
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 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 paths at Croom Regional Sporting Complex	

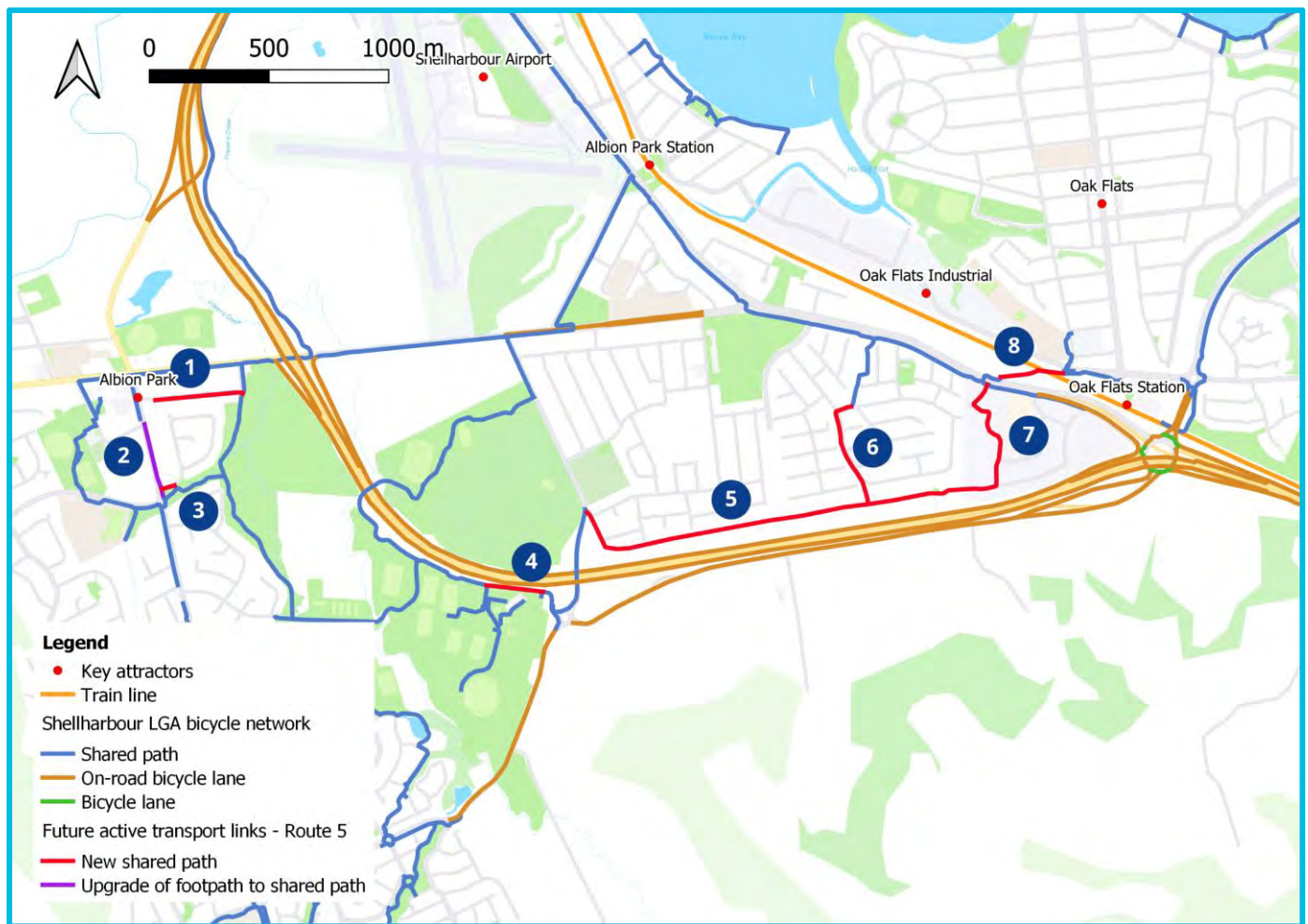


▲ Strategic cycling route 5

Source: Mapbox, Esri QGIS Mapping Software



Potential active transport infrastructure on the Route 5 corridor includes new shared paths and an upgrade of a footpath to a shared path.



▲ Route 5 – Future active transport facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 5 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared path	O’Gorman Street (south side)	Primary
2	Upgrade of footpath to shared path	Terry Street (east side)	Secondary
3	New shared path	Cawdell Drive (south side)	Secondary
4	New shared path	Outside Shellharbour City Stadium (south side)	Primary
5	New shared path	Greville Street (west side and park area north of Princes Motorway)	Primary
6	New shared path	Jarrah Way (west side)	Secondary
7	New shared path	Shandan Circuit (west side) and Colden Drive (east side)	Primary
8	New shared path	Princes Highway across train line	Primary

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 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.

▼ 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



▲ Strategic cycling route 6

Source: Mapbox, Esri QGIS Mapping Software

To address the space constraints in the Oak Flats town centre, a speed zone reduction from 40 km/h to 30 km/h is to be established on the quietway proposed on Central Avenue, subject to consultation with TfNSW. This slow street environment is designed to allow cyclists to safely share the road space with vehicles.

Potential active transport infrastructure on the Route 6 corridor includes a new shared paths, an upgrade of a footpath to a shared path and quietways.

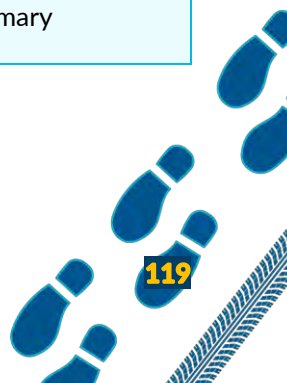


▲ Route 6 – Future active transport facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 6 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared path and upgrade of footpath to shared path	Moore Street (west side)	Primary
2	New shared path	Wentworth Street (north side)	Secondary
3	New shared path	Hopetoun Street (south side)	Secondary
4	Quietway	Central Avenue	Secondary
5	Quietway	The Boulevard	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 paths along Shellharbour Road and public transport infrastructure at Shellharbour Junction. There are other shared 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.

▼ Analysis of strategic cycling route 7

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

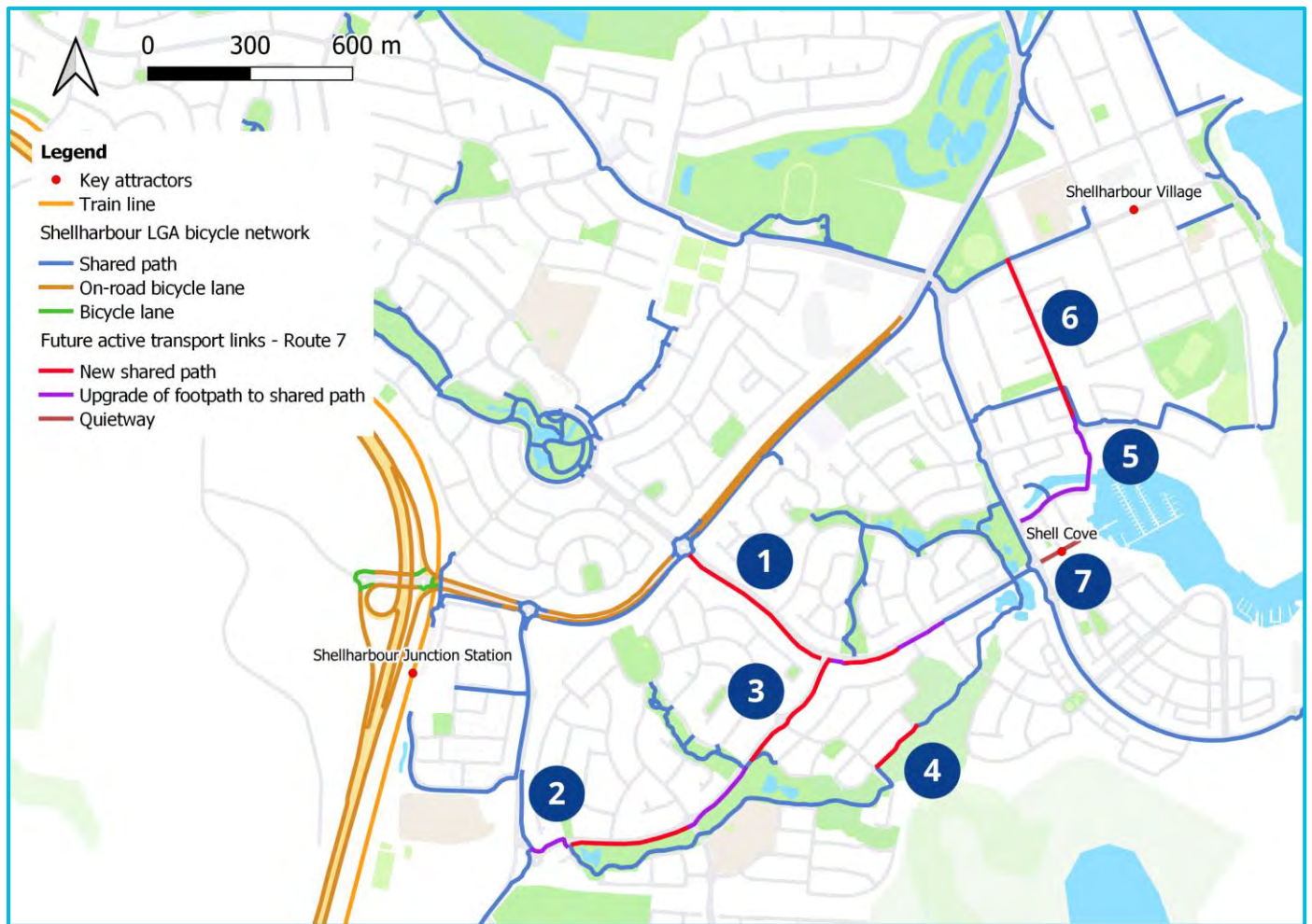


▲ Strategic cycling route 7

Source: Mapbox, Esri QGIS Mapping Software



Potential active transport infrastructure on the Route 7 corridor includes new shared paths, upgrade of footpaths to shared paths and a quietway.



▲ 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 path and upgrade of footpath to shared path	Cove Boulevard (south side west of Shallows Drive)	Secondary
2	Upgrade of footpath to shared path	Southern Cross Boulevard (north side)	Primary
3	New shared path and upgrade of footpath to shared path	Southern Cross Boulevard (south side)	Secondary
4	New shared path	Melville Crescent (south side)	Primary
5	Upgrade of footpath to shared path	Aquatic Drive (west side)	Primary
6	New shared path	Whimbrel Terrace (west side) and Sophia Street (west side)	Primary
7	Quietway	Cove Boulevard east of Harbour Boulevard	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 paths along sections of the route with new shared paths at Sophia Street and Towns Street. This route is typically used by recreational active transport users, with conflicts between pedestrians and cyclists at some locations.

▼ Analysis of strategic cycling route 8

Strengths and opportunities	Barriers and weaknesses
Shared 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

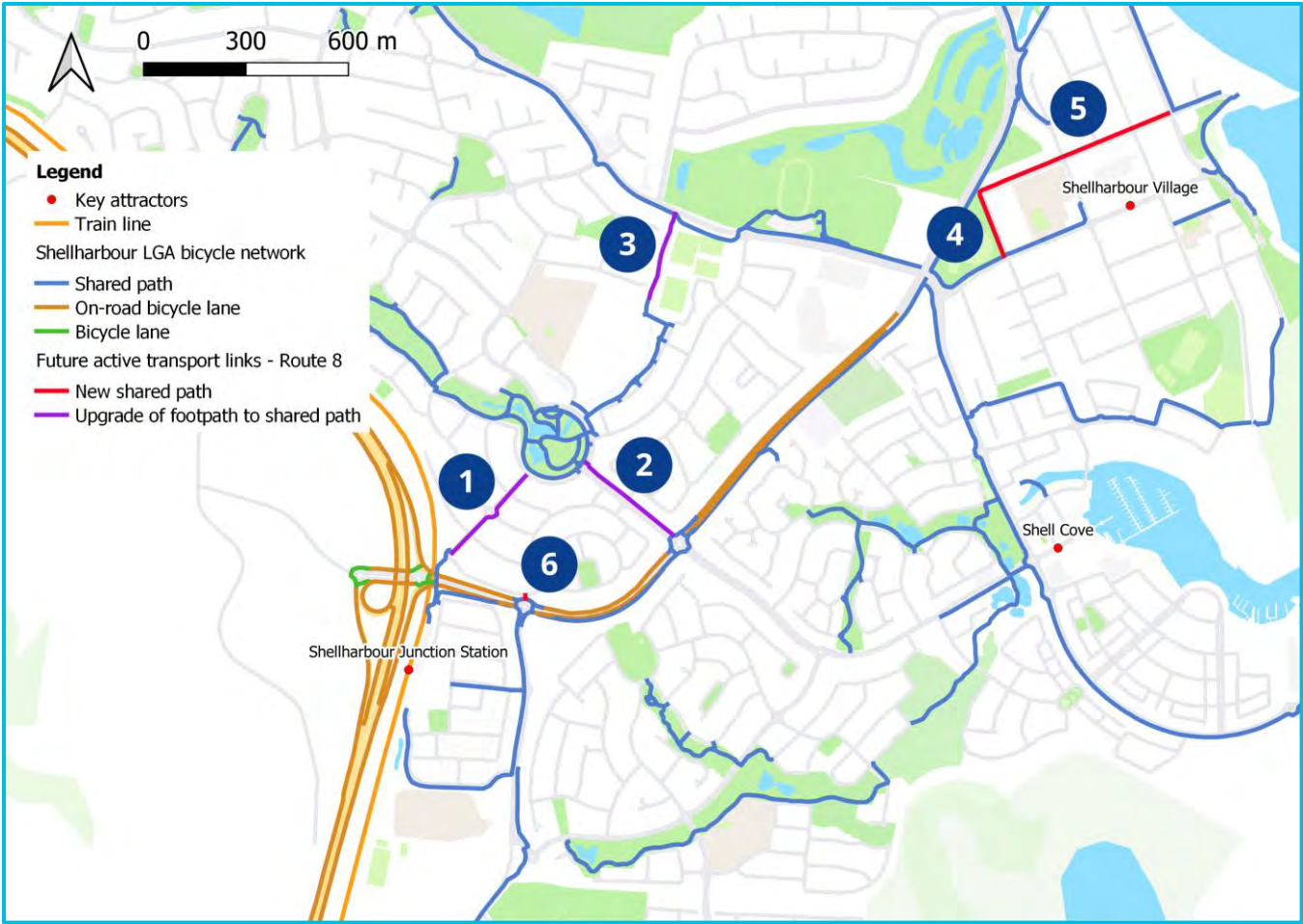


▲ Strategic cycling route 8

Source: Mapbox, Esri QGIS Mapping Software



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



▲ Route 8 – Future active transport facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 8 potential active transport infrastructure

No.	Type	Location	Classification
1	Upgrade of footpath to shared path	Haddin Road (south side)	Secondary
2	Upgrade of footpath to shared path	Lakewood Boulevard (north side)	Secondary
3	Upgrade of footpath to shared path	Footpath between Burrinjuck Avenue and Wattle Road	Secondary
4	New shared path	Sophia Street (west side)	Secondary
5	New shared path	Towns Street (north side)	Secondary
6	New shared path	Park between Foster Road and Shellharbour Road	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 paths along sections of Lake Entrance Road and New Lake Entrance Road.

▼ Analysis of strategic cycling route 9

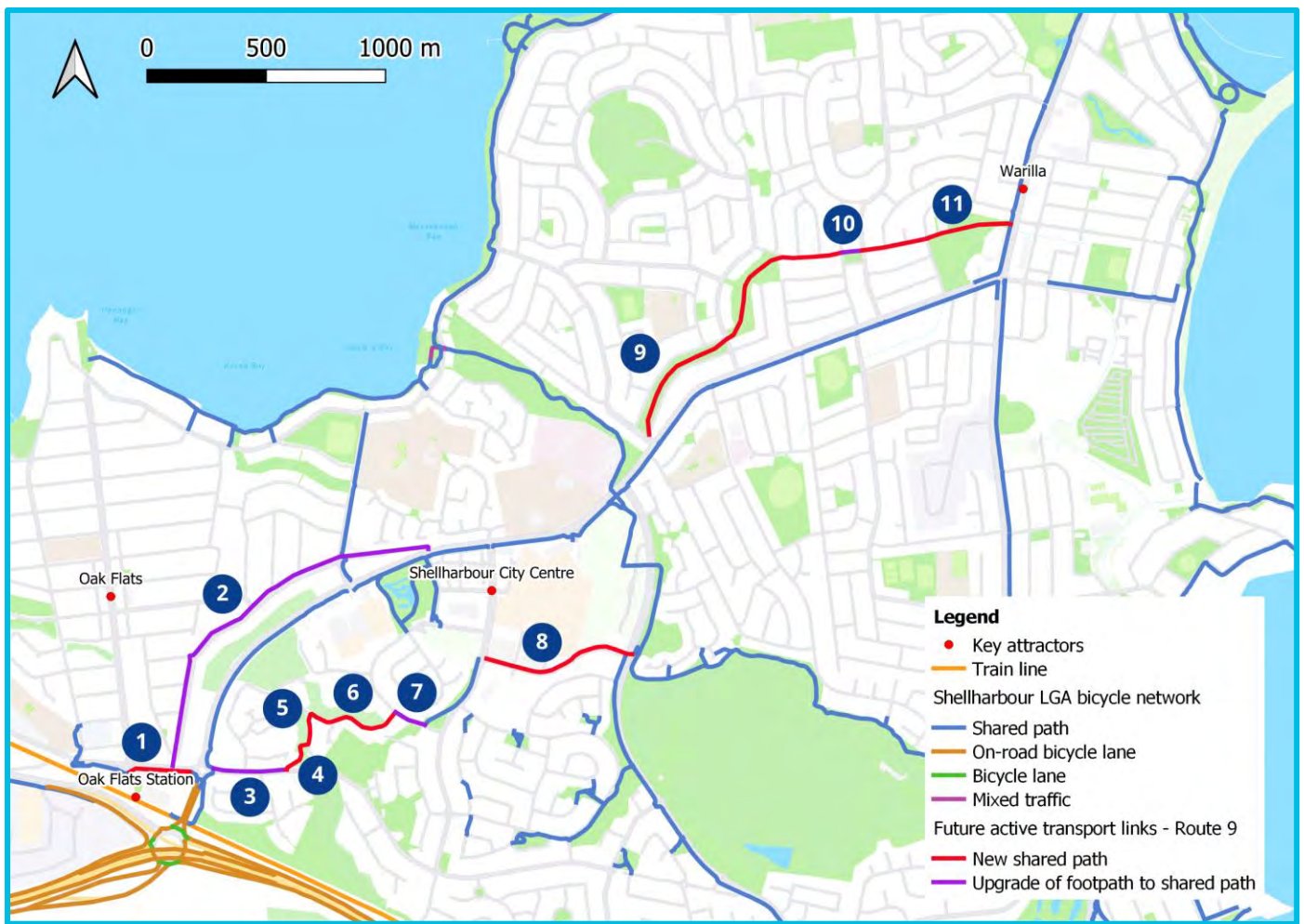
Strengths and opportunities	Barriers and weaknesses
Connects public transport with a large shopping precinct and isolated town centre	Slight gradient on Lake Entrance Road
Current shared paths on Lake Entrance Road and Shellharbour Road	Large gradient at Shellharbour City Centre



▲ Strategic cycling route 9

Source: Mapbox, Esri QGIS Mapping Software

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



▲ Route 9 – Future active transport facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 9 potential active transport infrastructure

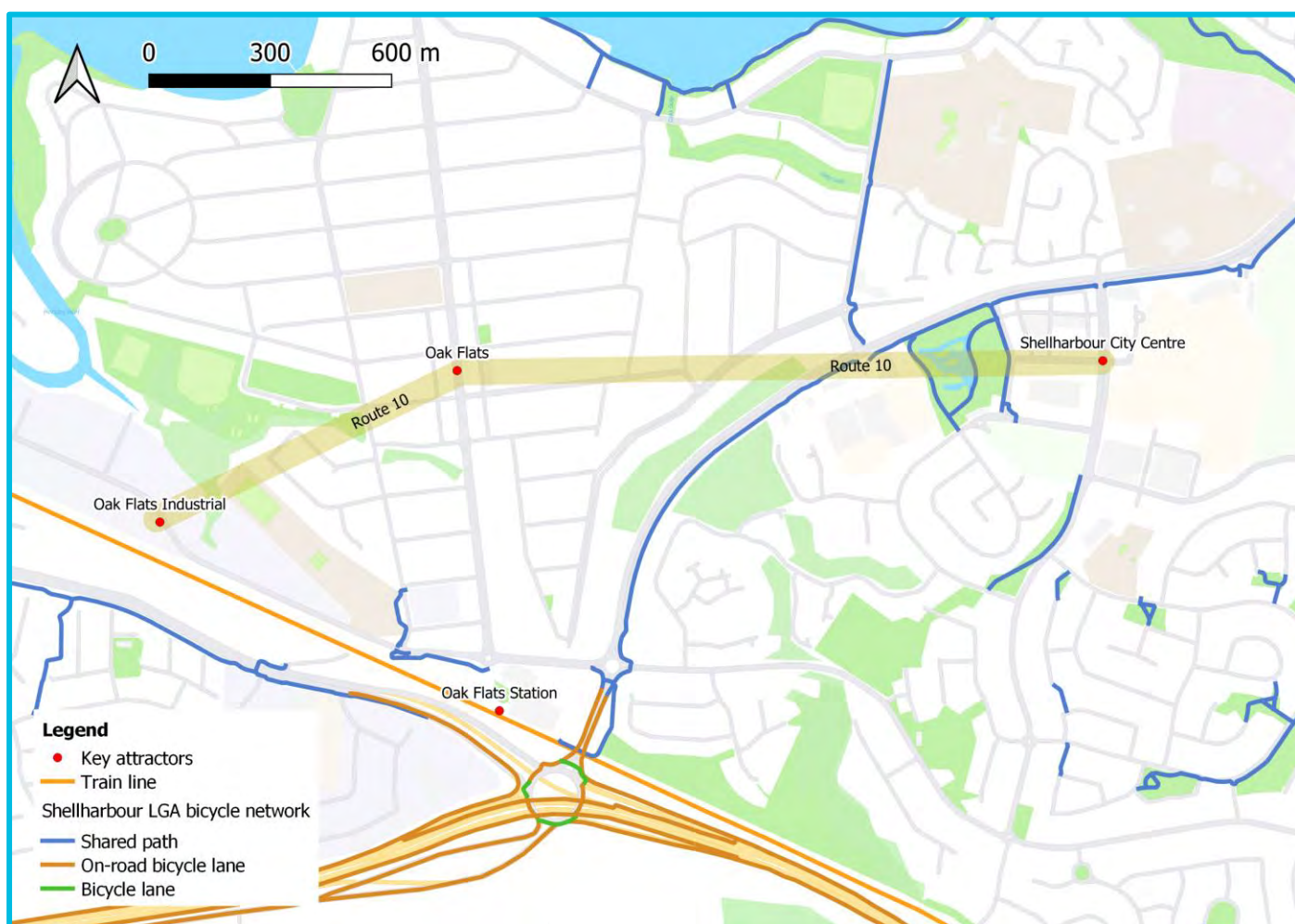
No.	Type	Location	Classification
1	New shared path	Pioneer Drive (south side west of New Lake Entrance Road)	Primary
2	Upgrade of footpath to shared path	Lake Entrance Road (north side)	Primary
3	Upgrade of footpath to shared path	Pioneer Drive (north side east of New Lake Entrance Road)	Secondary
4	New shared path	Footpath between Pioneer Drive and Lorikeet Place	Secondary
5	New shared path	Lorikeet Place (west side)	Secondary
6	New shared path	Albatross Drive (north side)	Secondary
7	Upgrade of footpath to shared path	Cygnets Avenue (north side)	Secondary
8	New shared path	Benson Avenue (north side)	Secondary
9	New shared path	Garrad Reserve, Andrew Park and Johnston Street (north side)	Primary
10	Upgrade of footpath to shared path	Footpath on the north side of Williams Park	Primary
11	New shared path	O'Neill Street (north side) and 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 paths along Pioneer Drive and future shared paths to fill in the gaps along the route. There is a shared path that 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.

▼ 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



▲ Strategic cycling route 10

Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 10 corridor includes new shared paths and upgrade of footpaths to shared paths.



▲ Route 10 – Future active transport facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 10 potential active transport infrastructure

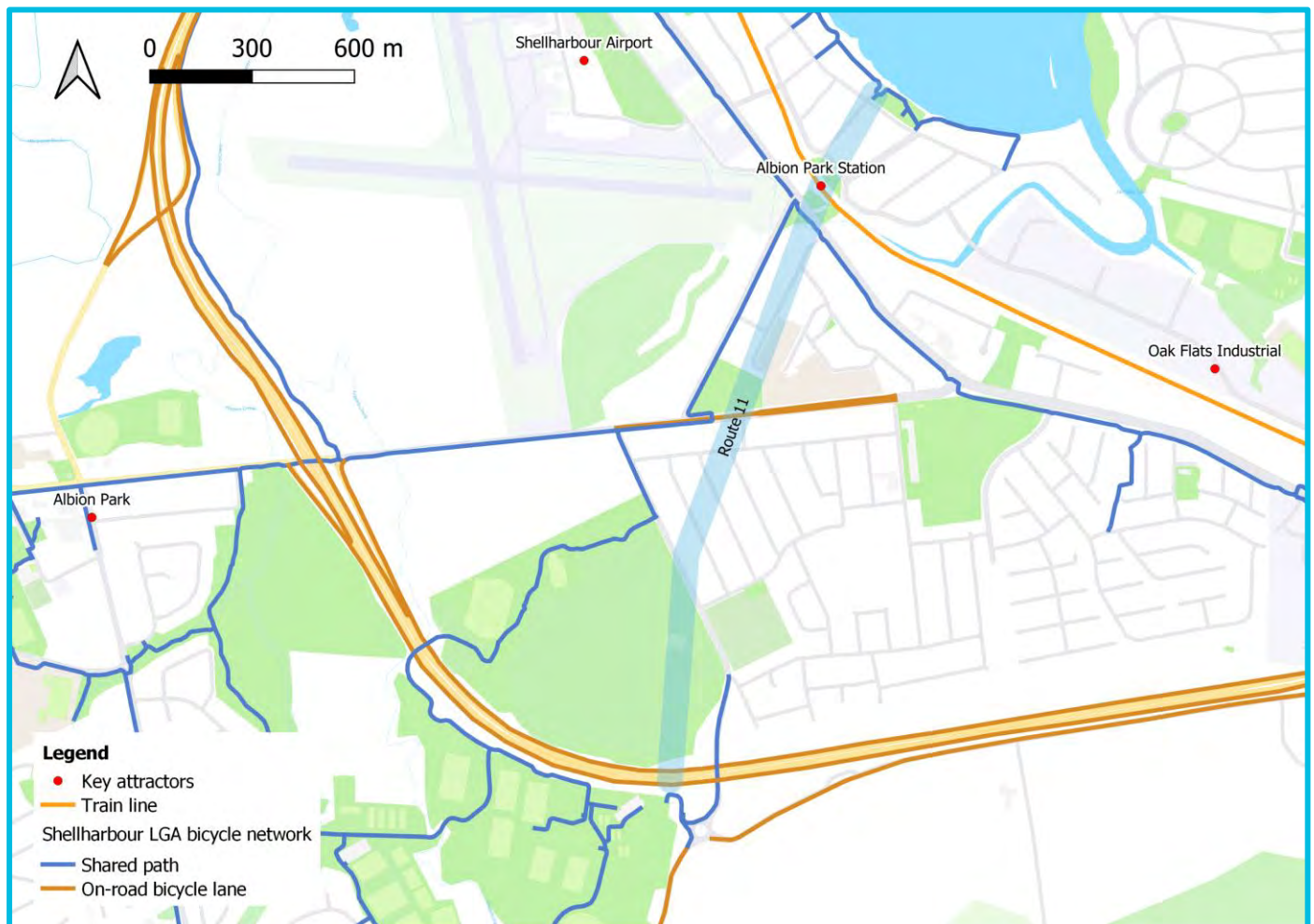
No.	Type	Location	Classification
1	New shared path	Industrial Road (south side)	Primary
2	New shared path	Mineral Road (east side) and Geoff Shaw Oval	Primary
3	New shared path	Fisher Street (south side)	Primary
4	New shared path and upgrade of footpath to shared path	Griffiths Street (north side)	Primary
5	Upgrade of footpath to shared path	David Avenue (east side)	Primary
6	Upgrade of footpath to shared path	Kingston Street (north side) and Devonshire Crescent (north side)	Primary
7	Upgrade of footpath to shared path	Lake Entrance Road (north side)	Primary

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 paths along sections of the route, with notable gaps at Werrang Street and Croome Road where new shared paths will be developed. This route is within proximity to Albion Park Rail Public School and will typically be used by recreational active transport users, with conflicts between pedestrians and cyclists at some locations.

▼ Analysis of strategic cycling route 11

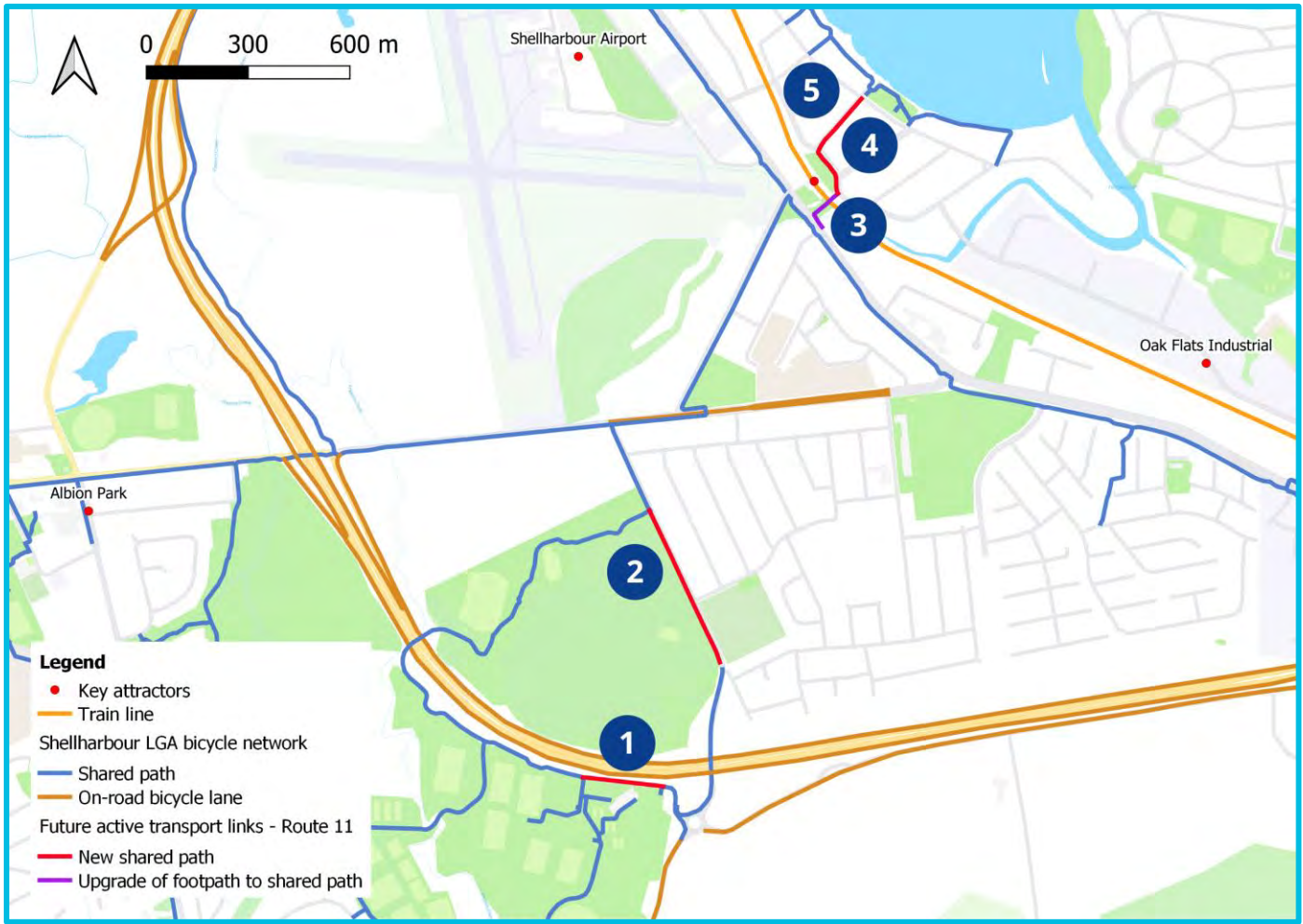
Strengths and opportunities	Barriers and weaknesses
Connects public transport with recreational centres along the waterfront and Croom Regional Sporting Complex	Gap in Croome Road missing more direct north-south connection
Current shared paths through Croom Regional Sporting Complex	Limited opportunities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



▲ Strategic cycling route 11

Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 11 corridor includes new shared paths and an upgrade of a footpath to a shared path.



▲ 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 path	Outside Shellharbour City Stadium (south side)	Primary
2	New shared path	Croome Road (west side)	Primary
3	Upgrade of footpath to shared path	Rotary Park across train line	Primary
4	New shared path	Werrang Street (west side)	Primary
5	New shared 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 paths along the majority of the route, with a future shared path on Mary Street near Shellharbour Village.

▼ Analysis of strategic cycling route 12

Strengths and opportunities	Barriers and weaknesses
Current shared 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



▲ Strategic cycling route 12

Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 12 corridor includes a new shared path and upgrade of footpaths to shared paths.



▲ Route 12 – Future active transport facilities

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 12 potential active transport infrastructure

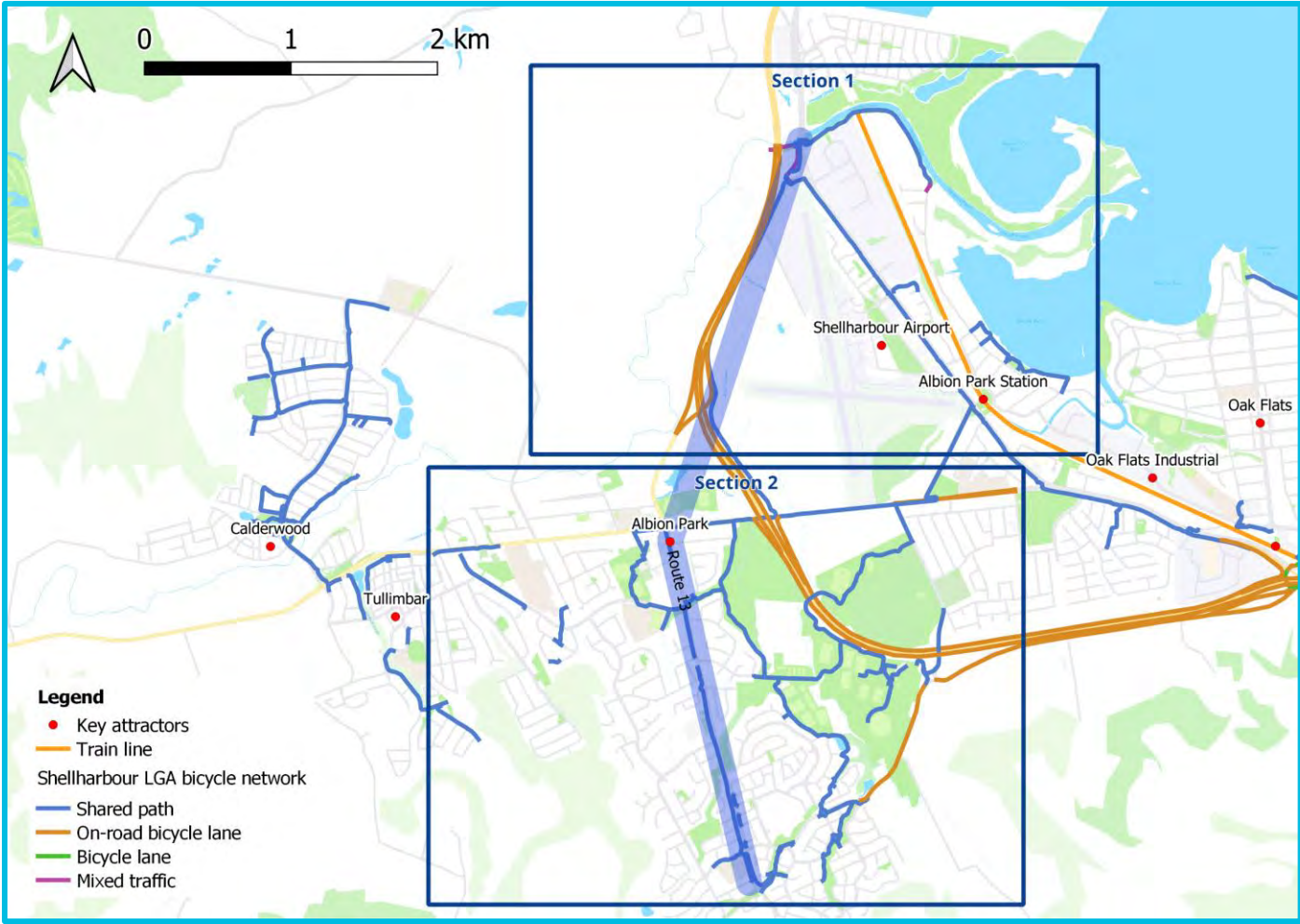
No.	Type	Location	Classification
1	Upgrade of footpath to shared path	Mary Street (east side north of pedestrian crossing and west side south of pedestrian crossing)	Primary
2	New shared path	Sophia Street (west side) and Town Street (north side)	Secondary
3	Upgrade of footpath to shared path	Shellharbour Road (west side)	Primary

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 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 paths to the east. This route is primarily used by recreational active transport users, with conflicts between pedestrians and cyclists at some locations.

▼ Analysis of strategic cycling route 13

Strengths and opportunities	Barriers and weaknesses
Current shared 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 path has breaks along Terry Street
Shared path along the M1 alignment as part of the Albion Park Rail bypass project	



▲ Strategic cycling route 13

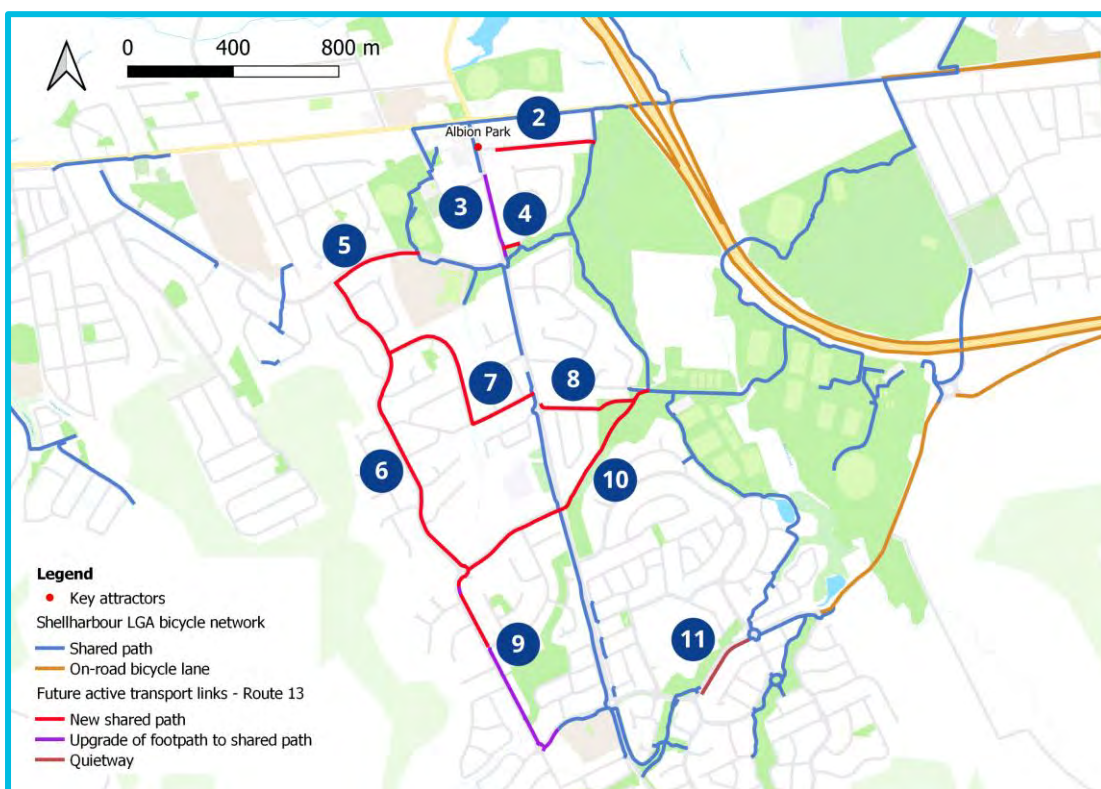
Source: Mapbox, Esri QGIS Mapping Software

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



▲ Route 13 – Future active transport facilities (section 1)

Source: Mapbox, Esri QGIS Mapping Software



▲ Route 13 – Future active transport facilities (section 2)

Source: Mapbox, Esri QGIS Mapping Software

▼ Route 13 potential active transport infrastructure

No.	Type	Location	Classification
1	New shared path	Access road (west side north of Croome Lane)	Primary
2	New shared path	O’Gorman Street (south side)	Primary
3	Upgrade of footpath to shared path	Terry Street (east side)	Primary
4	New shared path	Cawdell Drive (south side)	Primary
5	New shared path	Church Street (south side)	Secondary
6	New shared path	Hillside Drive (east side)	Secondary
7	New shared path	Centenary Road (north side) and Simpson Parade (south side)	Secondary
8	New shared path	Smith Avenue (north side) and Terry Reserve	Secondary
9	New shared path and upgrade of footpath to shared path	Daintree Drive (east side)	Secondary
10	New shared path	Terry Reserve	Secondary
11	Quietway	Ashburton Drive (access road between Esperance Drive and Windermere Avenue)	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 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 paths to the northeast of this route.

▼ 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



▲ Strategic cycling route 14

Source: Mapbox, Esri QGIS Mapping Software

Potential active transport infrastructure on the Route 14 corridor includes new shared paths and an upgrade of a footpath to a shared path.



▲ 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 path	North of rail line, Jemima Reserve and Whittaker Street (south side)	Primary
2	New shared path	North of rail line	Primary
3	Upgrade of footpath to shared path	Haddin Road (east side)	Secondary
4	New shared 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 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.

▼ Analysis of strategic cycling route 15

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



▲ Strategic cycling route 15

Source: Mapbox, Esri QGIS Mapping Software



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



▲ Route 15 – Future active transport facilities

Source: Mapbox, Esri QGIS Mapping Software

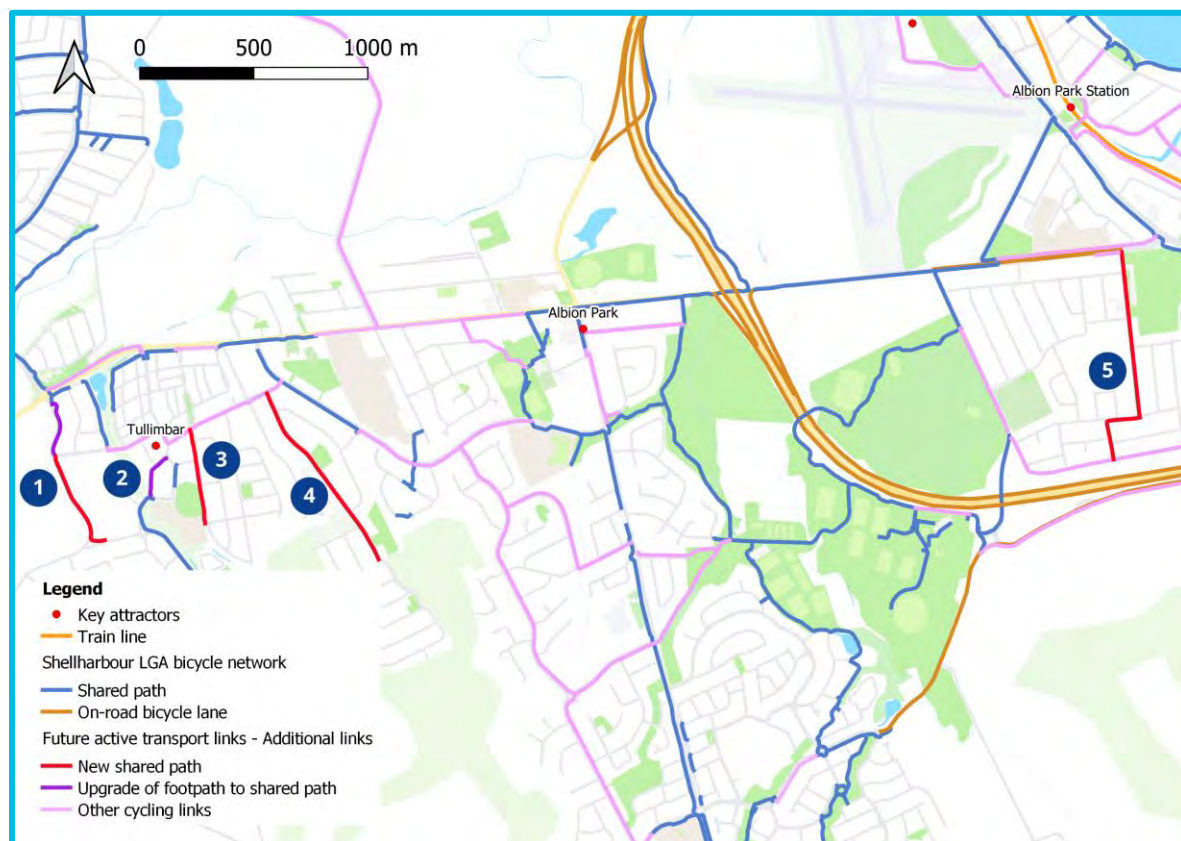
▼ Route 15 potential active transport infrastructure

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

Links connecting corridors

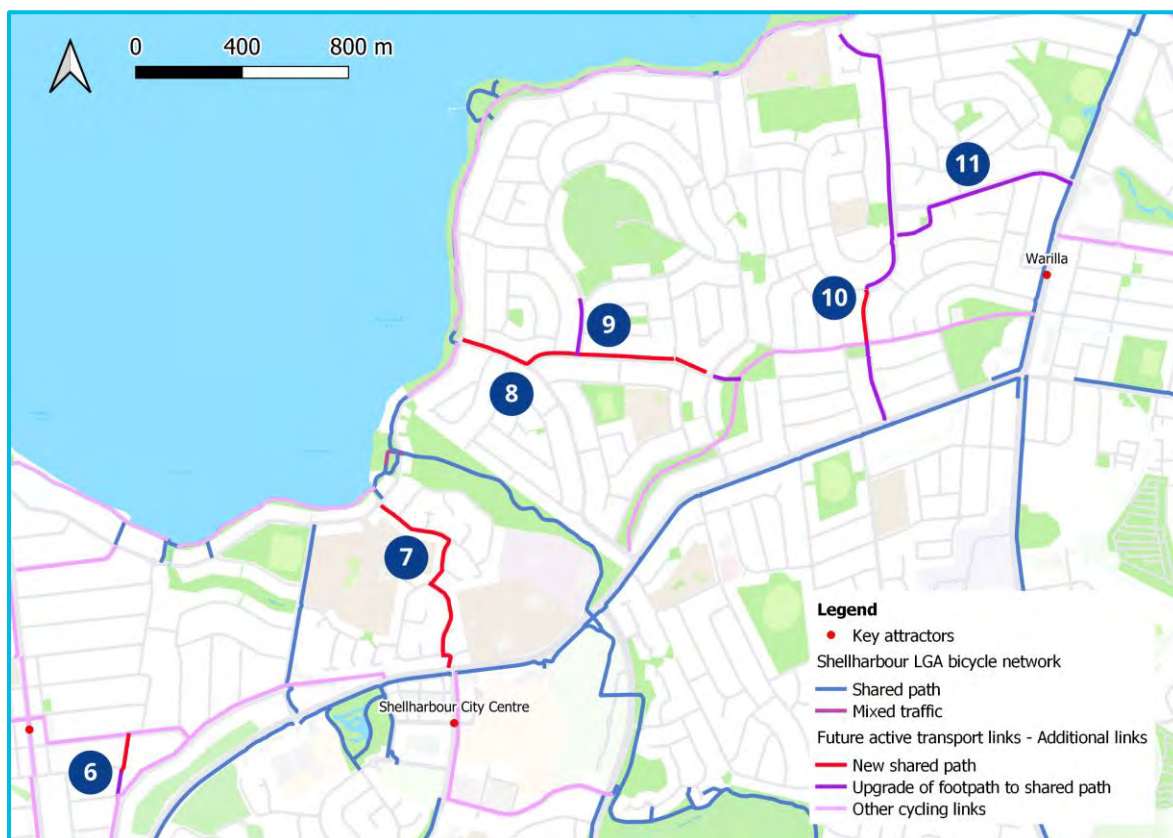
Additional cycling links beyond the primary routes have been investigated to connect residential and commercial areas to the primary cycling links discussed earlier, forming the core framework of the future network.

This primarily includes new shared paths and upgrade of footpaths to shared paths.



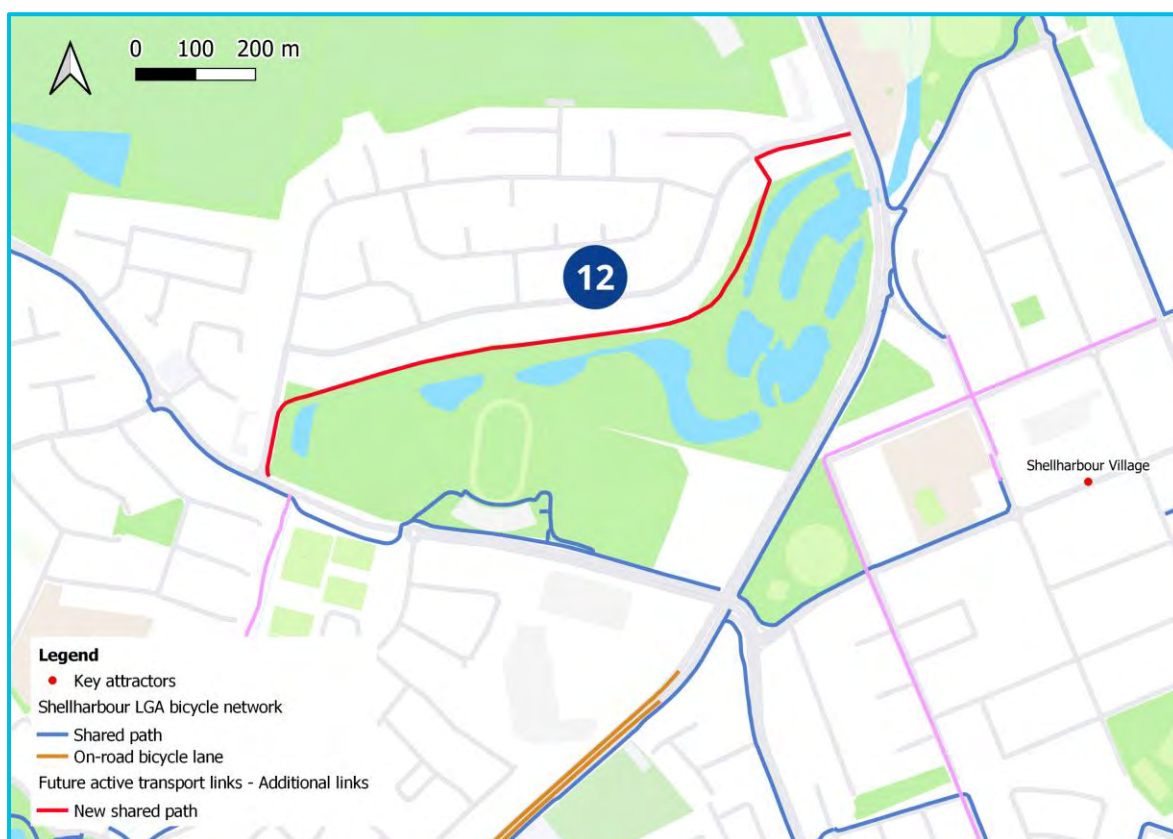
▲ Additional cycling links connecting corridors – Tullimbar and Albion Park Rail

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	New shared path and upgrade of footpath to shared path	Yellow Rock Road (east side, future project)	Illawarra Highway to new residential developments in western Tullimbar
2	Upgrade of footpath to shared path	Broughton Avenue (east side)	New commercial area at Tullimbar town centre to shared path on Araluen Terrace
3	New shared path	Balmoral Parade (west side)	Tullimbar Public School to sports oval and Route 1 on Berrima Street
4	New shared path	Crest Road (west side)	New medium density housing in western Albion Park to Route 1 on Sophia Street
5	New shared path	Lobella Street (east side), Oak Street (south side) and Ash Avenue (east side)	Route 1 on Tongarra Road to Route 5 in southern Albion Park Rail
6	Upgrade of footpath to shared path	Hopetoun Lane (east side, on-road) and laneway south of Hopetoun Lane	Route 9 on New Lake Entrance Road to Route 10 on Kingston Street
7	New shared path	Minda Crescent (east side), Kilpa Place (west side) and Allinga Drive (west side)	Shellharbour City Centre to Route 4 on the lake waterfront
8	New shared path	Madigan Boulevard (north side) and Morgan Avenue (north side)	Route 3 on the lake waterfront to Route 9 at Andrew Park
9	Upgrade of footpath to shared path	Cuthbert Drive (west side)	Morgan Avenue to Alex Hoffman Park
10	New shared path and upgrade of footpath to shared path	King Street (west side)	Route 3 on the lake waterfront to Route 9 at William Park
11	Upgrade of footpath to shared path	Harvey Street (south side) and Queen Street (south side)	King Street to Route 12 on Shellharbour Road
12	New shared path	Ocean Beach Drive south of residential properties	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.

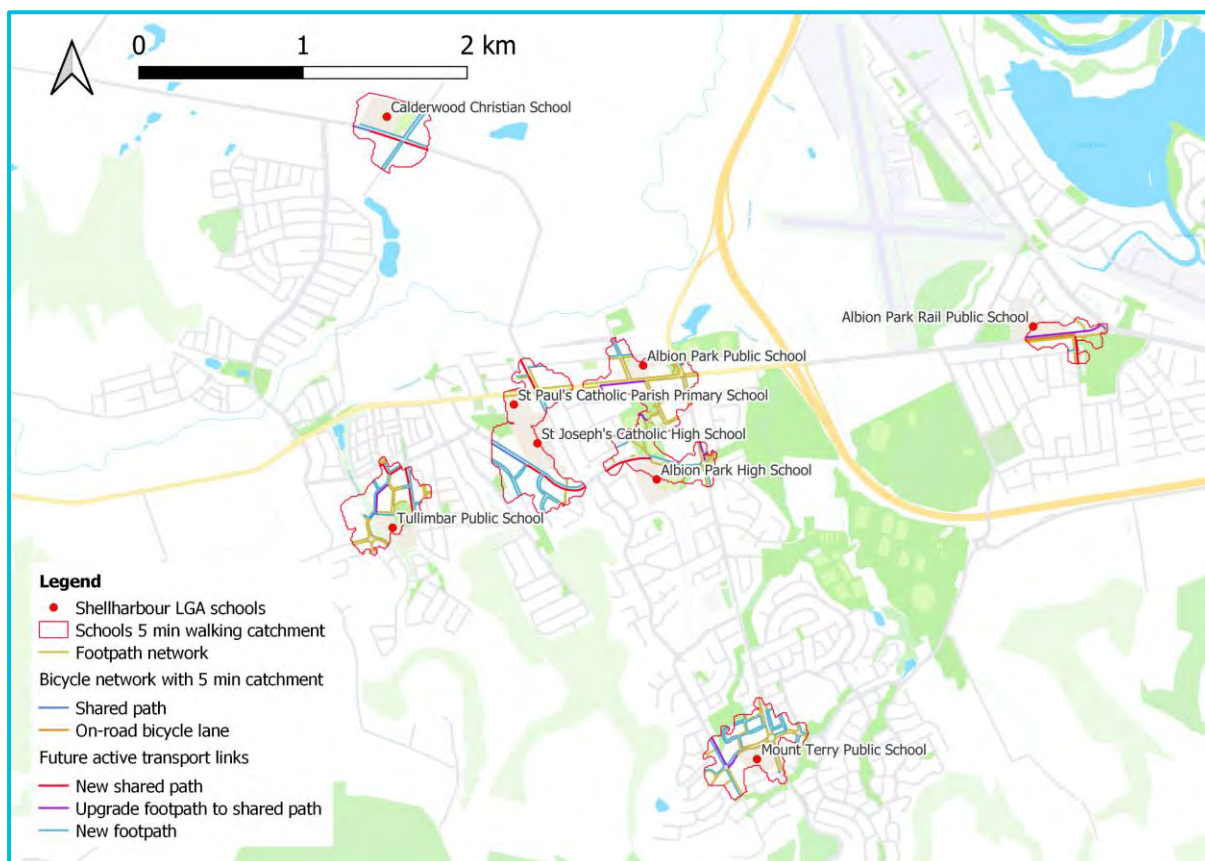
5-minute walking catchments

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
- Shellharbour Public School
- St Joseph's Catholic high School
- St Paul's Catholic Parish Primary School
- Stella Maris Catholic Primary 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 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 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:

- Veronica Street and Commerce Drive Light Industrial Area, Warilla
- Durgadin 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 paths and footpaths will provide alternative options for all road users.



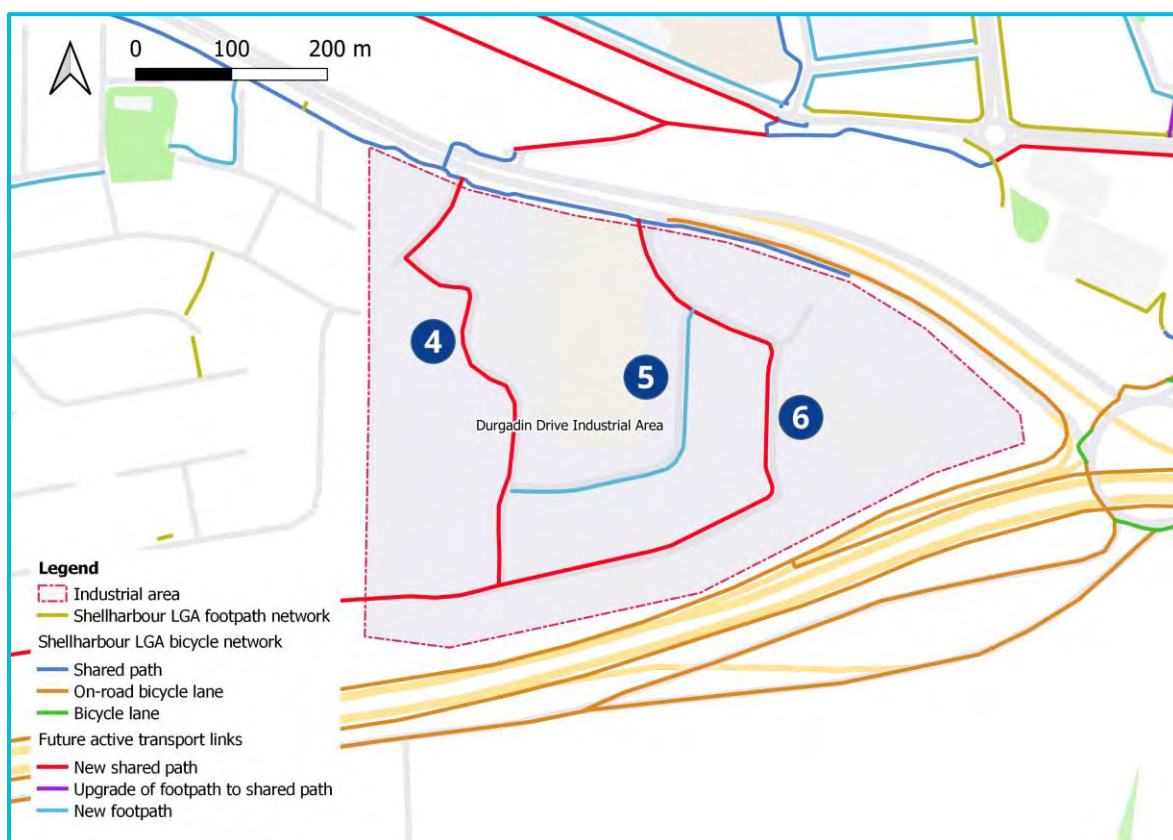
▲ Industrial areas requiring improved active transport access

Source: Mapbox, Esri QGIS Mapping Software



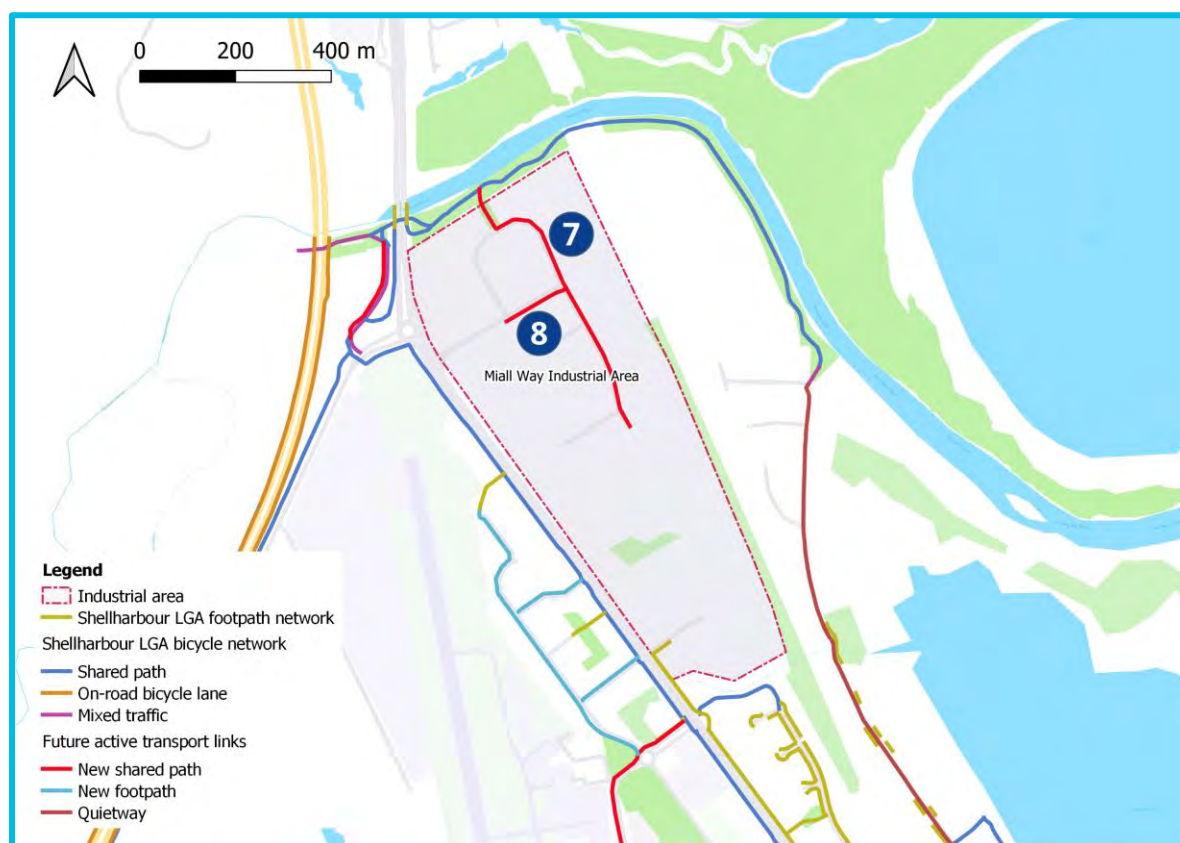
▲ Veronica Street and Commerce Drive Light Industrial Area

Source: Mapbox, Esri QGIS Mapping Software



▲ Durgadin Drive Industrial Area

Source: Mapbox, Esri QGIS Mapping Software



▲ Miall Way Industrial Area

Source: Mapbox, Esri QGIS Mapping Software

▼ Improved access to industry links

No.	Type	Location
1	Upgrade of footpath to shared path	Veronica Street (south side west of Woolworths Avenue)
2	New footpath	Woolworths Avenue (east side) and Commerce Drive (south side)
3	New shared path	Veronica Street (south side east of Woolworths Avenue)
4	New shared path	Shandan Circuit (west side) and Colden Drive (east side)
5	New footpath	Shaban Street (east side)
6	New shared path	Durgadin Drive (west side)
7	New shared path	Rivulet Circuit (east side)
8	New shared path	Miall Way (south 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 have a low storage 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 / 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

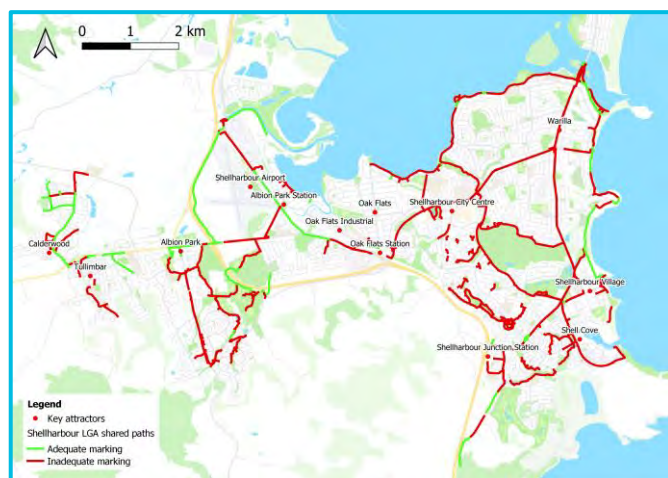


▲ Locations of bicycle storage facilities

Source: Mapbox, Esri QGIS Mapping Software

Clear path markings

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

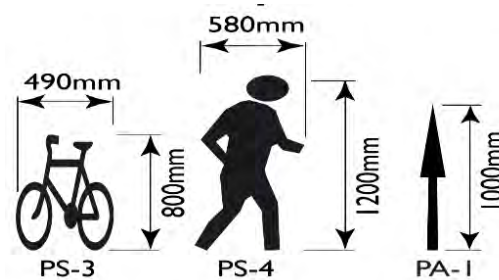


▲ Shellharbour LGA shared path markings – as of September 2022

Source: Mapbox, Esri QGIS Mapping Software

To ensure the future network meets relevant standards, additional line marking will effectively communicate shared path 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 paths



▲ Shared 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 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.

Tree plantings and shade

Improving tree canopy coverage has benefits for human health, mitigating the impacts of climate change the useability of the active transport network. Planning for the provision of trees when improving active transport connections will ensure there is an integrated approach that will benefit both the natural environment and active transport users.

Incorporation of shade trees along existing and proposed sections of the active transport network, as well as rest areas, will improve comfort of the network whilst also improving canopy coverage in the LGA.



▲ Tree planting and rest facilities – George Street, Warilla

Source: Google Maps

Rest facilities

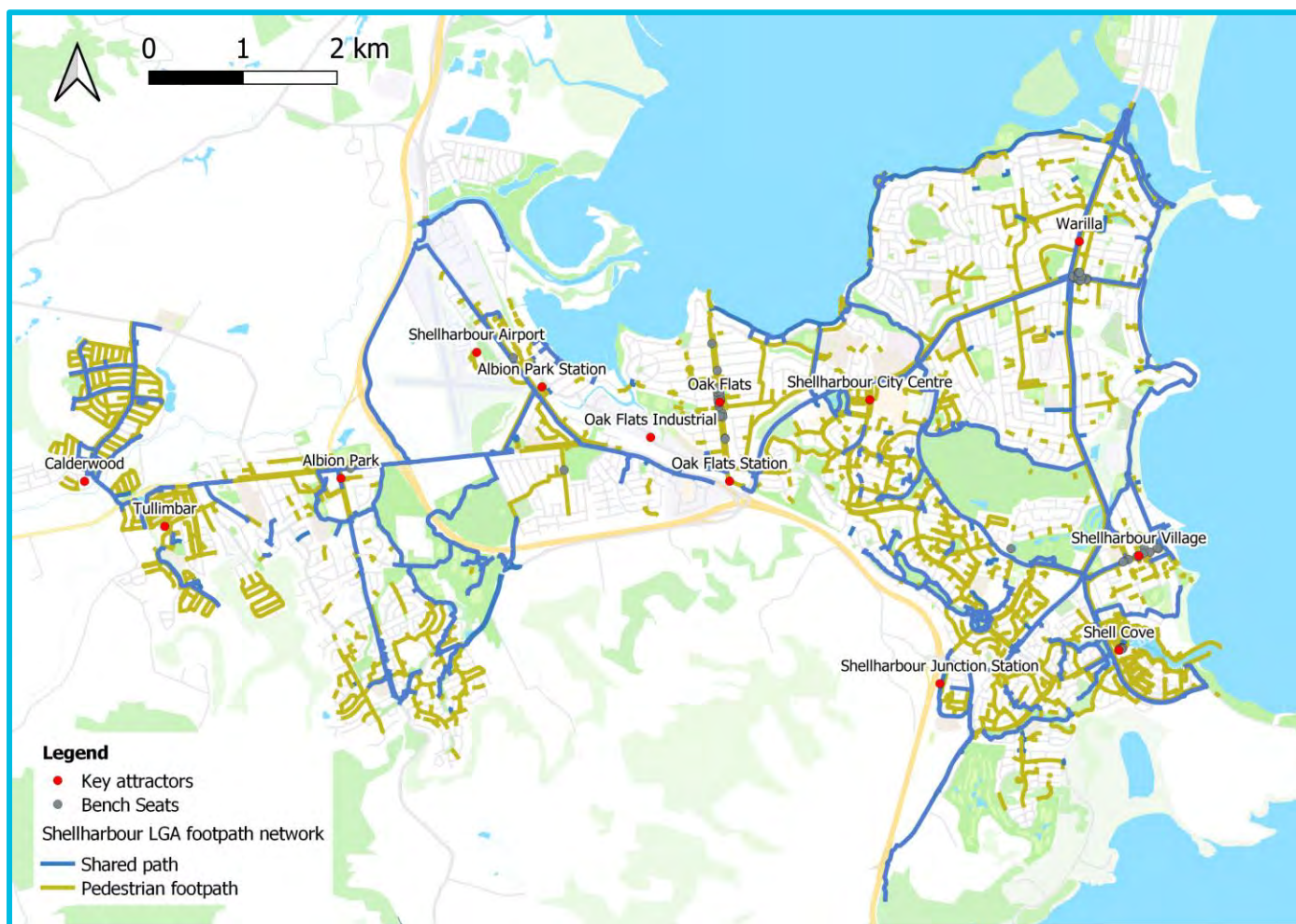
Pedestrian rest facilities are designated areas or structures that provide amenities and services to pedestrians, offering them a safe and comfortable environment to rest, relax and engage in various activities. These facilities are typically located along pedestrian routes, pavements, or in public spaces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

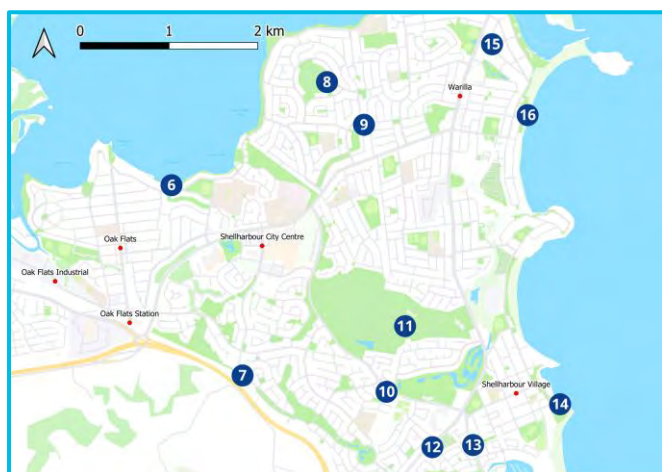
- Long routes without active land uses between origins and destinations
- Routes more likely to be frequented by the elderly and young children
- Areas of high amenity such as waterfront locations, shade and lookout points.

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

Access to Mount Warrigal Public School is provided on the north side of Hogarth Avenue and the south side of Roycroft Avenue. There is limited road width on Hogarth Avenue due to parked cars, with no enforced time limit for parking on the south side of the road. This causes localised congestion, 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

No.	Location	Improvement measure	Purpose of implementation
1	Jones Avenue	Upgrade two-stage crossing 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	Upgrade speed hump to raised pedestrian (wombat) crossing 	Improves pedestrian connectivity and safety on Hogarth Avenue
3	Hogarth Avenue	New 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	New 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

Access to Albion Park High School is provided on the south side of Church Street, which is relatively wide and has no enforced time limit for parking on either side. There is a kerb extension at the location of the existing pedestrian crossing which has helped to 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	Upgrade 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 measures

Source: Metromap

Corpus Christi Catholic High School

Access to Corpus Christi Catholic High School is provided on the west side of Moore Street and the north side of Industrial Road. On-street parking is not available on Moore Street south of Storey Street and on Industrial Road. There is also a light industrial area adjacent to the school which contributes to congestion experienced on the local road network.

▼ Corpus Christi Catholic High School safety improvement measures

No.	Location	Improvement measure	Purpose of implementation
1	Moore Street	Upgrade two-stage crossing 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 measures


Source: Metromap



Flinders Primary School

Access to Flinders Primary School is located on the north side of Adam Murray Way and the east side of Willinga Road. A mix of restricted and unrestricted parking is provided on both sides of Willinga Road, while Adam Murray Way operates as a one-way road in the eastbound direction. 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	New 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 measures



Source: Metromap



Amity College, Illawarra Campus

Access to Amity College, Illawarra Campus is provided on the east side of Shellharbour Road. 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	New 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 proposed shared path on Ocean Beach Drive .
2 and 3	Shellharbour Road and Beach Road intersection	New pedestrian (zebra) crossings 	Pedestrian crossings on the Beach Road left-in and left-out slip lanes to demarcate pedestrian priority.



▼ Amity College, Illawarra Campus location of safety improvement measures

Source: Metromap

Lake Illawarra High School




Access to Lake Illawarra High School is provided on the 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 location 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 median	New pedestrian (zebra) crossing 	To assist safe crossing across school service road.
2	Reddall Parade between shared path and median	New 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 west of median	New 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

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 a roundabout or traffic signals at the Terry Street / Burdekin Drive intersection will provide a safe crossing point for pedestrians, linking the east and west of Albion Park at this location. The proposed intersection treatment will be subject to a warrants assessment and TfNSW approval.



▲ Location of upgrade at the Terry Street / Burdekin Drive intersection

Source: Metromap

Other intersections

Kerb ramps play a crucial role in providing accessibility and promoting active transport in urban areas. They enable safe and convenient transitions between paths and the road for pedestrians, cyclists and individuals with mobility impairments.

As part of the Strategy, Council will review the condition of existing kerb ramps within the LGA and identify intersections where kerb ramps are non-complaint and/or require upgrades. The kerb ramps will be upgraded to ensure that:

- All individuals, regardless of their mobility capabilities can access and use the kerb ramps easily and safely.
- The design of the kerb ramps prioritises the safety of pedestrians and cyclists, in accordance with the Australian Standards.
- The kerb ramps are seamlessly integrated into the existing or proposed new infrastructure.



▲ Example of a compliant kerb ramp

Source:

https://www.dit.sa.gov.au/towardszerotogether/safe_road_users/pedestrians/pedestrian_safety_treatments

Education and awareness

Promoting and encouraging active travel within Shellharbour LGA is important to the success of the overall strategy. As the active transport network is upgraded, initiatives that Council will consider implementing include:

- Awareness campaigns that highlight the benefits of active travel on health, the environment and overall quality of life.
- Collaboration with schools to develop educational programs that promote walking and cycling, empowering students with the knowledge and skills needed to choose active modes of travel.
- Workshops and training sessions that target different user groups, covering topics such as roles and responsibilities, bicycle maintenance, safe cycling practises and route planning.
- Partnerships with stakeholders such as schools, community organisations, businesses and other government agencies to leverage their expertise and resources to develop and deliver educational programs that have a broad reach and lasting impact.
- Use of social media platforms including Council's Let's Chat, Facebook and Instagram pages to reach a wide audience and provide engaging and informative content that highlights the benefits of active transport and encourages community participation.



▲ Let's Chat Shellharbour page

Source: <https://www.shellharbour.nsw.gov.au/>

Emerging technologies

Emerging technologies can enhance the effectiveness and efficiency of the active transport network. These technologies have the potential to improve safety, connectivity and overall user experience. Some emerging technologies that Council will consider as part of the strategy include:

- Mobile applications and digital platforms that provide a convenient way for individuals to plan their active travel routes and access real-time information.
- E-bike and e-scooter systems which have gained popularity in urban areas. This requires a holistic approach that would involve infrastructure development, clear regulations and guidelines, education, and incentives to ensure their successful integration into the transport system.
- Smart signage and wayfinding systems that enhance the navigational experience of pedestrians and cyclists.



▲ Examples of micro-mobility

Source: <https://lens.monash.edu/@design-architecture/2021/10/06/1383900/the-changing-face-of-urban-mobility-the-rise-of-electric-scooters-and-e-bikes>

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 LGA, 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

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

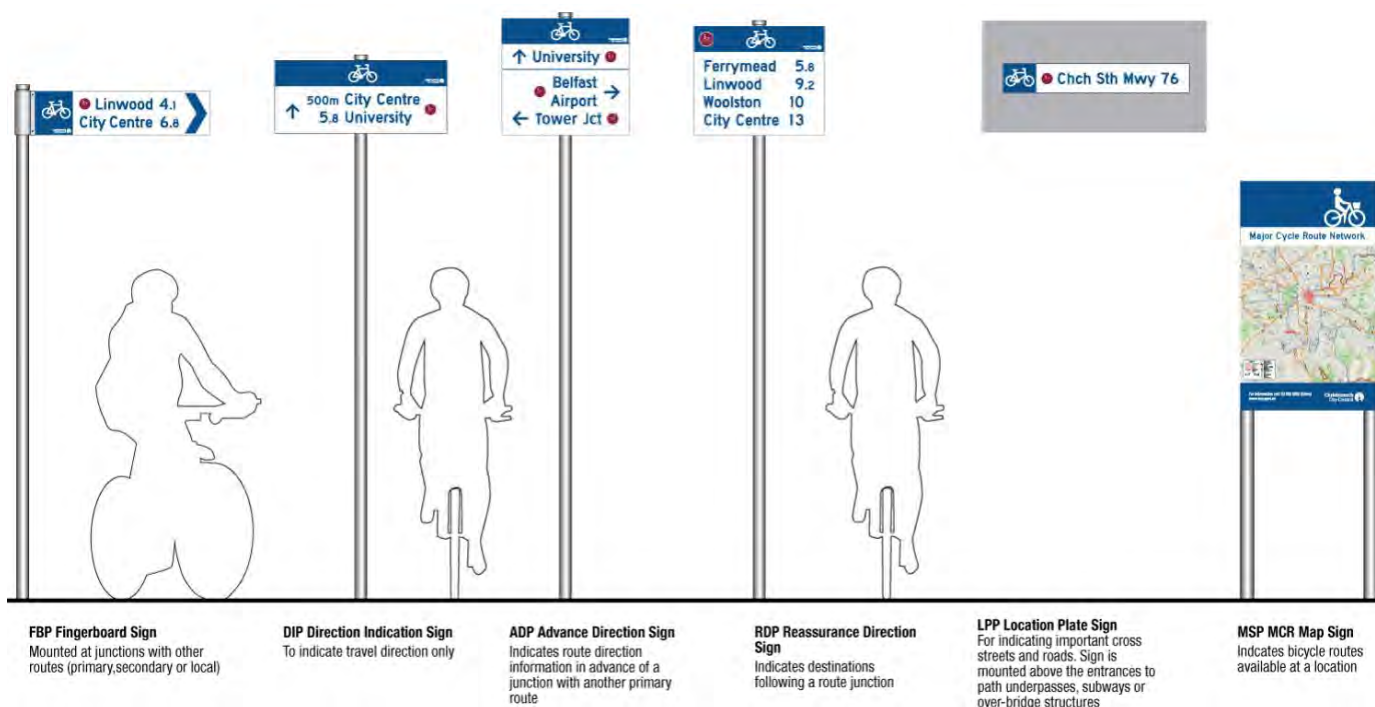
Signage is divided into various categories to designate where a particular sign is applicable and what message it is intended to convey. For instance, reassurance signs are a category of signage that informs riders that they are still on the same bike route. They are best suited for use in sections where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

	Route Types				
Sign 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.

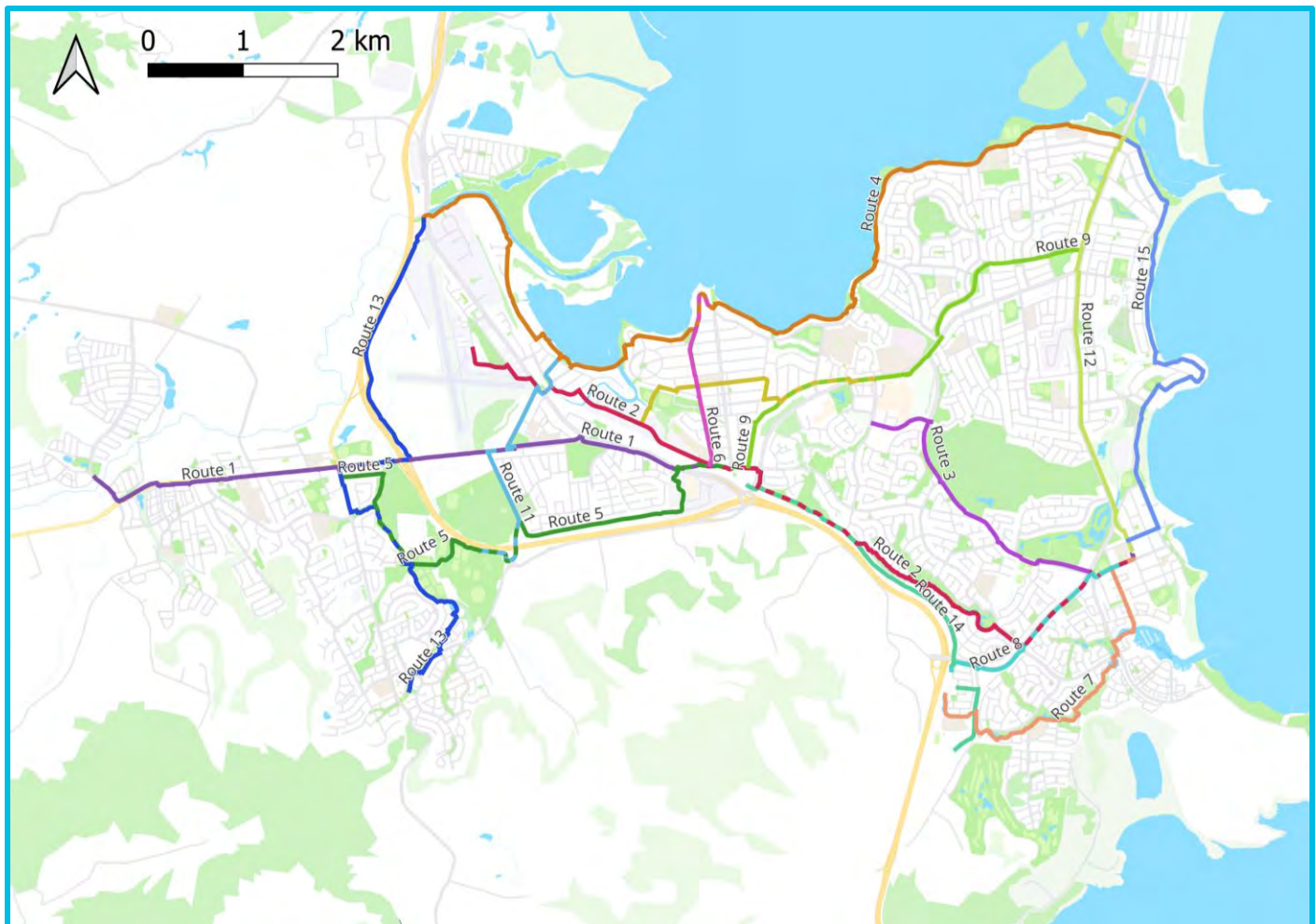
Identify cycle routes

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.

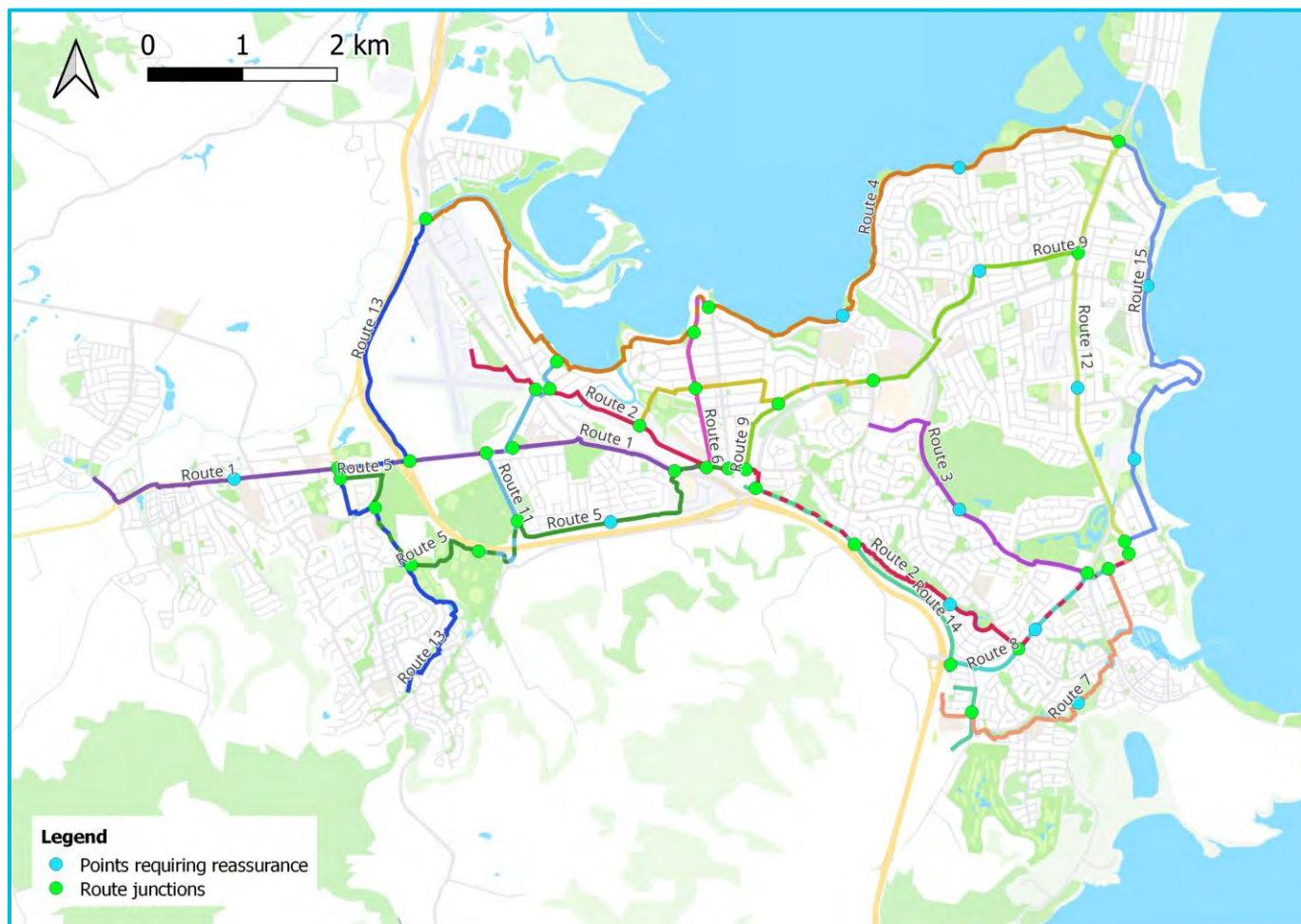


▲ Cycling wayfinding identified by routes

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 B. All maps showing existing and future infrastructure has been reproduced in A3 size in Appendix C.

▼ High and Very High scoring infrastructure

Infrastructure	Overall
New pedestrian links to town centres	
<p>Shellharbour Village</p> <ul style="list-style-type: none"> • 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 – Old Bass Point Road (east side) • New footpath – Mary Street (both sides) • New footpath – William 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 	Very High
<p>Oak Flats</p> <ul style="list-style-type: none"> • New footpath – Parkes Street (both sides) • New footpath – Wentworth Street (both sides) • New footpath – Griffiths Street (south side) • 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 (outer side) • New footpath – Camelot Place (both sides) • New footpath – Moore Street (east side) • New footpath – Theodore Street (west side) 	Very High
<p>Oak Flats Industrial</p> <ul style="list-style-type: none"> • 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) 	High

<p>Albion Park</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 Church Street) • New footpath – Charlotte Crescent (south side) 	High
<p>Tullimbar</p> <ul style="list-style-type: none"> • 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 (west side) • New footpath – Burragorang Chase (north side) • New footpath – Balmoral Parade (east side) • New footpath – Bodalla Street (both sides) 	High
<p>Calderwood</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 (outer side) • New footpath – Scanlon Street (both sides) • New footpath – Stockman Road (both sides) • New footpath – Escarpment Drive (west side) • New footpath – Bartlett Crescent (south 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 (east side) • New footpath – Koona Street (south side) • New footpath – Burroo Street (west side) • New footpath – Yallah Street (east side) • New footpath – Karoo Street (both sides) 	High

<ul style="list-style-type: none"> • New footpath – Boonerah Street (west side) • New footpath – Industrial Road (north side) • New footpath – Casuarina Street (west side) • New footpath – Wooroo Street (west side) 	
<p>Oak Flats Station</p> <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, west of Moore Street) • New footpath – Industrial Road (both sides, east of Moore Street) • New footpath – Moore Street (east side) • New footpath – Theodore Street (west side) 	Very High
<p>Shellharbour Junction Station</p> <ul style="list-style-type: none"> • New footpath – Aurora Avenue (both sides) • New footpath – Venus Road (west side) • New footpath – Pluto Place (north sides) • New footpath – Piper Drive (north side) 	High
New pedestrian links to open spaces	
<p>Shellharbour City Centre</p> <ul style="list-style-type: none"> • New footpath – Minda Crescent (outer side) • New footpath – Jilba Place (north side) • New footpath – Birra Drive (both sides) 	Very High
<p>Oak Flats</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>Albion Park</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
Albion Park Rail	High

<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) 	
New pedestrian links to schools (5-minute walking catchment)	
<p>Balarang Public School</p> <ul style="list-style-type: none"> • 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
<p>Barrack Heights Public School</p> <ul style="list-style-type: none"> • 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
<p>Corpus Christi Catholic High School</p> <ul style="list-style-type: none"> • 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
<p>Lake Illawarra South Public School</p> <ul style="list-style-type: none"> • New footpath – Reddall Parade (both sides) 	High
<p>Mount Terry Public School</p> <ul style="list-style-type: none"> • 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 – Gascoyne Street (both sides) 	High
<p>Mount Warrigal Public School</p> <ul style="list-style-type: none"> • New footpath – Hogarth Avenue (both sides) 	High

<ul style="list-style-type: none"> • 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) 	
<p>Oak Flats High School</p> <ul style="list-style-type: none"> • New footpath – The Esplanade (both sides) • New footpath – Allinga Drive (both sides) • New footpath – Tarra Crescent (both sides) 	Very 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>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 – Tathra Street (both sides) 	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
New cycling network links	
<p>Route 1 – Calderwood to Oak Flats Station primary links</p> <ul style="list-style-type: none"> • New shared path – Illawarra Highway (north side) • Quietway – Tallowa Street • New on-road cycleway – Illawarra Highway (south side) 	High

<ul style="list-style-type: none"> • Upgrade of footpath to shared path –Tongarra Road and (south side) and alleyway between Tongarra Road and Beveridge Street • New shared path – Tongarra Road (north side) • Upgrade of footpath to shared path – Tongarra Road (north side) • New shared path – Princes Highway crossing at train line 	
<p>Route 1 – Calderwood to Oak Flats Station secondary links</p> <ul style="list-style-type: none"> • New shared path – Wongawilli Street (south side), Broughton Avenue (west side) and Berrima Street (south side) • Upgrade of footpath to shared path – Berrima Street (south side) • New shared path – Church Street (south side) • Quietway – Beveridge Street • Upgrade of footpath to shared path – Footpath between Beveridge Street and shared path at Con O’Keefe Oval • New shared path – Tripoli Way Extension (north side, future project) • New shared path – Terry Street (west side, future project) 	High
<p>Route 2 – Shellharbour Airport to Shellharbour Village primary links</p> <ul style="list-style-type: none"> • New shared path – Boomerang Avenue (south side) and Airport Road (west side) • Upgrade of footpath to shared path – Hargraves Avenue (south side) • Upgrade of footpath to shared path – Rotary Park and rail line crossing • New shared path – Industrial Road (south side) • New shared path – Pioneer Drive (south side) • New shared path – North of the rail line, Jemima Reserve and Whittaker Street (south side) • Upgrade of footpath to shared path – 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 path – South side of the rail line • New shared path – Burroo Street (south side), Wooroo Street (south side) and Koonaa Street (south side) • Upgrade of footpath to shared path – Horsley Inlet pedestrian bridge • Quietway and new shared path – Fisher Street (south side) • New shared path and upgrade of footpath to shared path – Geoff Shaw Oval • Upgraded footpath to shared path – Moore Street (west side) • Upgrade of footpath to shared path – 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"> • Upgrade of footpath to shared path – Mary Street (east side north of pedestrian crossing and west side south of pedestrian crossing) • New shared 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 and Koonaa Street north of Kanahooka Street • New shared path – Bridge Option 1: New bridge to Koonaa Bay Reserve • New shared path – Koonaa Bay Reserve • Quietway – Horsley Road • Quietway – Newton Crescent • Quietway – Deakin Reserve 	Very High

<ul style="list-style-type: none"> • Quietway – The Boulevarde • Bifurcation – Lake waterfront 	
<p>Route 4 – Macquarie Rivulet to Windang Bridge secondary links</p> <ul style="list-style-type: none"> • New shared path – Koona Street (south side east of Wooroo Street) • Upgrade of footpath to shared path – Bridge Option 2: New Slaters Bridge • New shared path – Bridge Avenue (west side) 	High
<p>Route 5 – Albion Park to Oak Flats Station primary links</p> <ul style="list-style-type: none"> • New shared path – O’Gorman Street (south side) • New shared path – Outside Shellharbour City Stadium (south side) • New shared path – Greville Street (west side and park area north of Princes Motorway) • New shared path – Shandan Circuit (west side) and Colden Drive (east side) • New shared path – Princes Highway across train line 	Very High
<p>Route 6 – Oak Flats waterfront to Oak Flats Station primary links</p> <ul style="list-style-type: none"> • New shared path and upgrade of footpath to shared path – Moore Street (west side) • Quietway – The Boulevarde 	High
<p>Route 6 – Oak Flats waterfront to Oak Flats Station primary links</p> <ul style="list-style-type: none"> • New shared path – Wentworth Street (north side) • New shared path – Hopetoun Street (south side) • Quietway – Central Avenue 	High
<p>Route 7 – Shellharbour Junction Station to Shellharbour Village (via Shell Cove) primary links</p> <ul style="list-style-type: none"> • Upgrade of footpath to shared path – Southern Cross Boulevard (north side) • New shared path – Melville Crescent (south side) • Upgrade of footpath to shared path – Aquatic Drive (west side) • New shared path – Whimbrel Terrace (west side) and Sophia Street (west side) 	High
<p>Route 7 – Shellharbour Junction Station to Shellharbour Village (via Shell Cove) secondary links</p> <ul style="list-style-type: none"> • New shared path and upgrade of footpath to shared path – Cove Boulevard (south side west of Shallows Drive) • New shared path and upgrade of footpath to shared path – Southern Cross Boulevard (south side) • Quietway – Cove Boulevard east of Harbour Boulevard 	High
<p>Route 9 – Oak Flats Station to Warilla primary links</p> <ul style="list-style-type: none"> • New shared path – Pioneer Drive (south side west of New Lake Entrance Road) • Upgrade of footpath to shared path - Lake Entrance Road (north side) • New shared path - Garrad Reserve, Andrew Park and Johnston Street (north side) • Upgrade of footpath to shared path - Footpath on the north side of Williams Park • New shared path - O’Neill Street (north side) and 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 path – Industrial Road (south side) • New shared path – Mineral Road (east side) and Geoff Shaw Oval 	High

<ul style="list-style-type: none"> • New shared path - Fisher Street (south side) • New shared path and upgrade of footpath to shared path – Griffiths Street (north side) • Upgrade of footpath to shared path – David Avenue (east side) • Upgrade of footpath to shared path - Kingston Street (north side) and Devonshire Crescent (north side) • Upgrade of footpath to shared path – Lake Entrance Road (north side) 	
<p>Route 11 – Albion Park Rail waterfront to Croom primary links</p> <ul style="list-style-type: none"> • New shared path - Outside Shellharbour City Stadium (south side) • New shared path - Croome Road (west side) • Upgrade of footpath to shared path - Rotary Park across train line • New shared path - Werrang Street (west side) • New shared 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"> • Upgrade of footpath to shared path - Mary Street (east side north of pedestrian crossing and west side south of pedestrian crossing) • Upgrade of footpath to shared path – Shellharbour Road (west side) 	High
<p>Route 13 – Macquarie Rivulet to Southern Albion Park primary links</p> <ul style="list-style-type: none"> • New shared path – Access road (west side north of Croome Lane) • New shared path - O’Gorman Street (south side) • Upgrade of footpath to shared path - Terry Street (east side) • New shared path – Cawdell Drive (south side) • Quietway - Ashburton Drive (access road between Esperance Drive and Windermere Avenue) 	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 and waterfront • Bifurcation - Eric Cleary Park • New shared path - Sophia Street (west side) and Towns Street (north side) 	High
<p>Route 15 – Windang Bridge to Shellharbour Village (via waterfront) secondary links</p> <ul style="list-style-type: none"> • Upgrade of footpath to shared path – Mary Street (east side north of pedestrian crossing and west side south of pedestrian crossing) 	High
New cycling links connecting corridors	
New shared path at Minda Crescent (east side), Kilpa Place (west side) and Allinga Drive (west side)	High
New shared path and upgrade of footpath to shared path at King Street (west side)	High
New shared path at Ocean Beach Drive south of residential properties	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
Upgrade of path markings	Very High
<p>School safety improvement at Mount Warrigal Public School</p> <ul style="list-style-type: none"> Jones Avenue - Upgrade two-stage crossing to a pedestrian (zebra) crossing with small kerb extension Hogarth Avenue - Upgrade speed hump to a raised pedestrian (wombat) crossing 	High
<p>School safety improvement at Albion Park High School</p> <ul style="list-style-type: none"> Church Street - Upgrade pedestrian (zebra) crossing to raised (wombat) pedestrian crossing 	High
<p>School safety improvement at Corpus Christi Catholic High School</p> <ul style="list-style-type: none"> Moore Street - Upgrading two-stage crossing to raised pedestrian (wombat) crossing 	High
<p>School safety improvement at Flinders Primary School</p> <ul style="list-style-type: none"> Willinga Road east of the intersection with Woodburn Terrace - New raised pedestrian (wombat) crossing 	High
<p>School safety improvement at Amity College, Illawarra Campus</p> <ul style="list-style-type: none"> Shellharbour Road and Ocean Beach Drive Intersection - New signalised intersection Shellharbour Road and Beach Drive Intersection - New 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 median - New pedestrian (zebra) crossing Reddall Parade between the shared path and median - New pedestrian (zebra) crossing 	Very High

• Reddall Parade west of median – New speed hump	
Upgrade roundabout to signalised intersection at the Lakewood Boulevard / Shellharbour Road intersection	High
Pursue funding for an alternative intersection treatment at the Terry Street / Burdekin Drive intersection	High
Review and upgrade of kerb ramps at other intersections	High
Implement education and awareness programs and initiatives	High
Implement wayfinding signage	Very High

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 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 the design and construction of Cycling Route 2 – Shellharbour Airport to Shellharbour Village	High	Short term
4	Pursue funding for the design and construction of Cycling Route 4 – Macquarie Rivulet to Windang Bridge	High	Short term
5	Pursue funding for the design and construction of Cycling Route 5 – Albion Park to Oak Flats Station	High	Short term
6	Review shared path markings to ensure compliance with TfNSW standards	High	Short term
7	Pursue funding for the implementation of school safety measures with the following at highest priority: <ul style="list-style-type: none"> • Amity College, Illawarra Campus 	High	Short term

	<ul style="list-style-type: none"> • Lake Illawarra High School 		
8	Develop a wayfinding schedule aligned with the Active Transport Strategy	High	On-going
9	Pursue funding for the design and construction of Cycling Route 1 – Calderwood to Oak Flats Station	Medium	Medium term
10	Pursue funding for the design and construction of Cycling Route 6 – Oak Flats waterfront to Oak Flats Station	Medium	Medium term
11	Pursue funding for the design and construction of Cycling Route 7 – Shellharbour Junction Station to Shellharbour Village (via Shell Cove)	Medium	Medium term
12	Pursue funding for the design and construction of Cycling Route 9 – Oak Flats Station to Warilla	Medium	Medium term
13	Pursue funding for design and construction of Cycling Route 13 – Macquarie Rivulet to Southern Albion Park	Medium	Medium term
14	Pursue funding for design and construction of Cycling Route 15 – Windang Bridge to Shellharbour Village (via waterfront)	Medium	Medium term
15	Pursue funding for the design and construction of a new shared path at Ocean Beach Drive	Medium	Medium term
16	Pursue funding for the 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
17	Investigate with TfNSW the feasibility of signalisation at the Lakewood Boulevard / Shellharbour Road intersection	Medium	Medium term
18	Investigate with TfNSW the feasibility of an alternative intersection treatment at the Terry Street / Burdekin Drive intersection	Medium	Medium term
19	Review and upgrade kerb ramps at other intersections	Medium	Medium term
20	Implement education and awareness programs and initiatives	Low	Ongoing

21	Introduction of bicycle racks at locations identified	Low	Long term
22	Continue delivery of footpath works as incorporated into PAMP	Low	Long term
23	Pursue funding opportunities for the design and construction of other cycling links scoring High in Weighted Scoring Criteria	Low	Long term

Appendix A Response to submissions

Community feedback	Response to submission
Speed limits	
All suburban streets should be limited to 30km/h.	Speed zoning is a matter for TfNSW as part of the High Pedestrian Activity Area (HPAA) Program. Examples include Shellharbour Village, Warilla CBD and Warilla Grove. Reduced speed limits would be subject to further investigation as individual projects progress following the implementation of the strategy.
Need to consider speed limits on shared paths.	Council cannot enforce / have no jurisdiction on movement violations and would be a police matter.
Parking	
On-street parking or traffic lanes should not be removed for bikes.	The strategy does not propose to remove any on-street parking or traffic lanes to accommodate the active transport network.
Parking is a problem around Shell Cove.	An aim of the strategy is to increase active travel which could lead to a reduction in car usage and on-street parking requirements. Notwithstanding, Council is considering a parking strategy for the LGA. The parking strategy would identify existing parking constraints and issues and propose measures to improve on-street and off-street parking.
More parking should be provided at South Beach.	As per above response.
Street parking on Harbour Boulevard creates safety issues.	As per above response.
Development of the Marina will cause parking issues.	As per above response.
Woolworths' car park in Shell Cove should have more capacity.	As per above response.
Connectivity	
Provide pedestrian connectivity between Barrack Avenue and Headland Parade.	Council have recently completed shared paths on Barrack Avenue and Iluka Road in Barrack Heights and Barrack Point, connecting these streets to the shared path on Headland Parade as part of route 15.
Foreshore footpaths to be linked.	A continuous path for pedestrians and cyclists along the foreshore is proposed from North Beach to Macquarie Rivulet as part of Route 4 and Route 15.

Community feedback	Response to submission
A shared footpath with seating should be provided from Shellharbour Village to North Beach. From Shell Cove through Shellharbour Village, a direct path and seating should be provided along the foreshore from Cowries to Shellharbour north, rather than the path along Wollongong Street.	New shared paths are proposed in Shellharbour Village on Mary Street, Towns Street and Sophia Street, improving connectivity between existing shared paths from Shellharbour Village to North Beach. A shared path already exists on Wollongong Street and forms part of Route 15. Seating is already provided in Shellharbour Village, with additional seating proposed at Shellharbour Reserve.
Access between Shell Cove and Shellharbour Village is needed.	Access between Shell Cove and Shellharbour Village is proposed with new shared paths on Aquatic Drive, Whimbrel Terrace, and Sophia Street.
Connections between the train stations and Shellharbour CBD should be improved to reduce car travel.	A 10-minute walking catchment was created around public transport, with new footpaths proposed to ensure pedestrians have suitable access to the train stations within the Shellharbour LGA. The proposed cycle routes also connect to each of the stations, and if fully developed, a well-connected cycle network between key centres and trip attractors/generators will be created.
It is preferable to upgrade the existing informal track through bushland area between Oak Flats Station and the Civic Centre.	In addition to the shared path on New Lake Entrance Road, pedestrian and cyclist connectivity between Oak Flats Station and the Shellharbour City Centre is proposed under route 9 with a shared path on Lake Entrance Road. TfNSW is currently considering traffic management options to facilitate pedestrian and cyclist movements at the New Lake Entrance Road / Pioneer Drive roundabout. Furthermore, as part of a new development at the corner of the roundabout, the developers will provide a footpath connection from New Lake Entrance Road to Oak Flats Station.
The cycle/walking paths around Lake Illawarra between the Wollongong and Shellharbour LGAs should be connected.	Route 4 provides future connection to Wollongong LGA. Shellharbour City Council will liaise with Wollongong City Council on proposed pedestrian and cyclist paths between the LGA's to ensure a seamless transition between adjoining networks. Wollongong City Council have been consulted throughout the development of this strategy.
A lot of paths abruptly end or may continue on the other side of a busy road. Need to ensure that paths are well connected.	A thorough review of existing pedestrian and cyclist infrastructure was undertaken, with missing links to be completed as part of the strategy.
The footpath on Baragoot Road in Flinders should be extended along the perimeter of the reserve on Berringer Way and Tyrell Street to create a loop.	Existing footpaths are located on Berringer Way and Tyrell Street, albeit on the other side of the road. Given the low volumes of traffic on these roads, footpaths on the other side of the road along the perimeter of the reserve are not proposed as part of the strategy. However, Council may investigate in the future whether provision of these additional footpaths to create a loop would be an appropriate allocation of funds for the overall active transport network.
A footpath down Woodford Avenue to Warilla Beach would be beneficial.	In the draft strategy, a new footpath on Woodford Avenue is proposed between Beverley Avenue and Stephanie Avenue. This footpath will be extended east of Stephanie Avenue, connecting to the beach access from Little Lake Crescent.

Community feedback	Response to submission
The footpath at the harbour that ends at the ocean pool should continue along the foreshore on the northern side of the caravan park, then circle around the perimeter of the caravan park, then continue along the southern side and connect to the existing footpath on John Street.	A new footpath is proposed around the perimeter of the caravan park.
Include a flat walkway from Shellharbour Junction Station to the new hospital.	Both Oak Flats Station and Shellharbour Junction Station are proposed to be connected to the new Shellharbour Hospital under route 14, with new shared paths proposed along the northern side of the rail line and on Dunmore Road.
A footpath should be provided from the corner of Cassia Street in Barrack Heights to the existing footpath on Leawarra Avenue as a lot of school children walk this route daily.	Cassia Street falls within the 5-minute walking catchment of Warilla High School and hence footpaths on both sides of the road are proposed.
Joan Avenue and Arcadia Street are important for movement.	A new footpath is proposed on Joan Avenue while a footpath already exists on Arcadia Street.
Cyclist access should be provided to and from Bass Point.	Bass Point is crown land and Council cannot consider shared paths into the area at this point in time.
Route 13 should connect to route 4.	There is an existing link between the two routes. This will be reflected in the updated cycle route maps.
Madigan Boulevard is important.	A new shared path is proposed on Madigan Boulevard, connecting route 3 and route 9.
Round the back of Tullimbar along Church Street is preferred for route 1.	Route 1 is proposed along Tongarra Road rather than Church Street as it provides a more direct route between Calderwood and Oak Flats train station.
Terry Street is important.	A shared path exists on Terry Street. Additional shared paths are proposed to provide active transport connectivity to Terry Street, particularly to the west.
Link over Slaters Bridge is important.	Slaters Bridge has been identified as a deficiency in the draft strategy, as the current infrastructure prohibits cycling. Although Slaters Bridge could be upgraded, the preferred option is for a new cycling bridge to be provided over Horsley Inlet, connecting Koon Bay Reserve to the Albion Park Rail waterfront.
Paths along rail line and connections to Croom are great.	Shared paths are proposed along the rail line, facilitating pedestrian and cyclist trips between the train stations. East-west shared paths are also proposed on either side of the Princes Motorway, connecting Croom to Oak Flats Station.
Better access to Killalea should be provided.	Council has a long-term strategy to construct a connection point from Dunmore Road to Killalea State Reserve.

Community feedback	Response to submission
Deakin Street / Moore Street roundabout has no adjoining footpaths.	Shared paths are proposed on Deakin Street and Moore Street.
Main road outside Oak Flats Station does not have good facilities.	The 10-minute walking catchment for Oak Flats Station has been investigated, with additional pedestrian and cyclist infrastructure proposed.
A footpath on the western side of Shearwater Boulevard is best.	A quietway is proposed on Shearwater Boulevard. A footpath along Shearwater Boulevard is being considered by Council as part of a separate project. Community consultation will be conducted as part of the project.
The cycle network should be readily accessible from all residential suburbs and direct links provided to all significant destinations	The 15 proposed cycle routes link key trip attractors across the LGA. The strategy has also considered the provision of active transport links to these cycle routes from all residential suburbs.
Pedestrian crossings	
Safe pedestrian access should be provided from Ocean Beach Drive to Myimbarr Community Park.	A new use shared path is proposed along Ocean Beach Drive, connecting route 3 and route 12. There are wetlands between Ocean Beach Drive and the Myimbarr Community Park which would restrict the provision of pedestrian access between these areas.
A pedestrian crossing or refuge island on Ocean Beach Drive is needed since there are no traffic signals at the Ocean Beach Drive / Shellharbour Road intersection.	Council is investigating traffic signals at the Ocean Beach Drive / Shellharbour Road intersection, which would include pedestrian crossings. Council is also considering traffic signals at the Wattle Road / Liddell Street intersection. These projects are subject to further investigation by Council and TfNSW.
There is a crossing on Reddall Parade near Windang Road that is very dangerous due to poor visibility and sight distance. It should be relocated towards to school or at least 40 metres away with a speed hump on either side.	Council will investigate the possible relocation of the pedestrian crossing along Reddall Parade as part of a separate project following the implementation of the strategy.
Crossing at Osborne Parade from Veronica Street is dangerous due to parked cars and buses which limits visibility.	Council will consider parking restrictions near the crossing point to improve sight distance.
It is hard to cross Reddall Parade with a pram at the Madigan Boulevard / Reddall Parade intersection.	There are plans for kerbside blister treatments at The Esplanade and Ski Way Park which would provide a connection to the existing footpath along Balarang Reserve. A footpath along Madigan Boulevard would have a steep grade that is not suitable for wheelchairs or prams. Balarang Reserve is the preferred route for pedestrians as the footpath connects to Shellharbour Road near the existing hospital.

Community feedback	Response to submission
Crossings on Addison Street should be painted.	The visibility and clarity of pedestrian crossings will be investigated as the project progresses.
There are pedestrian crossing issues near the Old Chinese restaurant on Addison Street. This should be repainted to improve awareness.	As per above response.
Need pedestrian access to Bunnings.	New shared paths and footpaths are proposed within the 10-minute walking catchment for Oak Flats Station, improving access to and from the Bunnings.
Pram ramps are in poor condition at many locations e.g. corner of Griffiths Street and Moore Street.	New footpaths are proposed on Griffiths Street and Moore Street. The condition of pram ramps at this intersection will be considered as the project progresses towards concept and detailed design.
Cycle path / footpath surface condition	
Council should work with Wollongong City Council to improve the cycleway into Wollongong. The diversion around Port Kembla leads to many cyclists riding on the road in Warrawong.	Shellharbour City Council will liaise with Wollongong City Council on proposed pedestrian and cyclist paths between the LGA's to ensure a seamless transition between adjoining networks. Wollongong City Council have been consulted throughout the development of this strategy.
Footpath surfaces are uneven around the Village Green.	Footpath surface upgrades would fall under Council's maintenance program. This location will be reviewed by Council's Asset team and may be upgraded if deemed necessary.
Bicycle storage	
Bicycle racks on buses would be helpful to link and connect areas.	Bicycle racks on buses would be the responsibility of TfNSW and the bus operators.
Secure bicycle lockers are needed.	Bicycle storage facilities are proposed at the three train stations within the LGA. Additional bicycle racks are also proposed at town centres.
Need to provide bike storage at Albion Park Station.	As per above response.
Bike racks are needed at Warilla SLSC as the café is busy.	Council will consider additional bike racks at key locations where cyclists would stop.
Trees and vegetation	

Community feedback	Response to submission
Trees should be plants along all paths to make the walk or ride more pleasant, with more shade and greenery to reduce the temperature.	Tree management has not been explicitly stated in the draft active transport strategy, however Council recognises the importance of the natural environment in providing shade and reducing temperatures. Hence, this would be considered as the individual active transport projects progress towards concept and detailed design. A section within the strategy on the importance of tree plantings and shade will be added.
The bush and scrub along the lake out to the Warilla Surf Club should be cleared so that the coastal walk is visible to Warilla Beach and to create an area for families and friends to gather.	This particular area is native and is part of an endangered ecological community protected under legislation.
Need to consider vegetation management.	Vegetation management will be considered as the individual active transport projects progresses towards concept and detailed design.
At the northbound off-ramp on Princes Highway there are a lot of weeds that should be cleared.	As per above response.
Vulnerable users	
Routes should be able to accommodate cyclists and wheelchair users to ensure the practical.	Thorough investigations and studies will be undertaken for each approved project under the Strategy to ensure that the proposed infrastructure adequately accommodates its proposed users.
There are a lot of old kerb / gutters that are very steep and are a problem for wheelchair users.	Wheelchair users will be considered for any new infrastructure or upgrade proposed under this Strategy.
Harbour Boulevard is very narrow, uneven and dangerous for wheelchair users.	Although upgrades are not proposed on Harbour Boulevard as part of this Strategy, Council acknowledges this feedback and will consider whether upgrades to Harbour Boulevard are needed upon additional review and investigation.
There are limited places in Shellharbour for children to ride a bike or scooter.	As part of the Strategy, a number of locations have been identified for construction of shared paths or upgrade of footpaths to shared paths which will provide more opportunities for both children and adults to cycle in the LGA.
There should be clear and safe pedestrian crossing places along commonly used routes that lead to schools, especially near blind corners or on busy roads.	Footpaths on both sides of the road have been proposed within the 5-minute walking catchment of all school with the LGA, with zebra crossings and traffic calming measures also proposed on busy roads.
Walking to school and good access to buses is important.	As per above response.

Community feedback	Response to submission
Need to provide adequate infrastructure so that school kids can ride to school	As per above response.
Lower speed limits should be rolled out near Shellharbour schools.	Speed zoning is a matter for TfNSW as part of the High Pedestrian Activity Area (HPAA) Program. Examples include Shellharbour Village, Warilla CBD and Warilla Grove. Reduced speed limits would be subject to further investigation as individual projects progress following the implementation of the strategy.
Improved footpaths should be provided for the elderly.	Vulnerable users have been considered in the weighted scoring criteria when prioritising the recommended upgrades. Requirements for the elderly will be considered in more detail as the individual active transport projects progress towards concept and detailed design.
Deakin Street / Moore Street roundabout is not good for mobility scooters.	New shared paths are proposed at this intersection. Requirements for mobility scooters will be considered as the project progress towards concept and detailed design.
Conflicts between pedestrians and cyclists	
Bikes should be forced to use the road from Reddall Reserve on Reddall Parade to the Warilla Surf Club as most bikes are too fast and very few ring their bell.	Separate paths for pedestrians and cyclists (bifurcation) are proposed on route 15 along Reddall Reserve and Warilla Beach and North Beach.
Route 15 needs a separated path for cyclists.	As per above response.
Separated bike paths and footpaths would be ideal, particularly at Warilla Beach	As per above response.
Provide cycle paths that are direct point to point and not shared or added to footpaths.	A section within the Strategy on education and awareness will be added to ensure that conflicting users on proposed infrastructure is managed. The wayfinding strategy will also outline each user's role and responsibilities. Where appropriate, the separation of cyclists and pedestrians will be proposed.
Need to manage motorised scooters and e-bikes.	As per above response.
Seating	
More seating should be provided at Reddall Reserve.	Council will consider additional seats at key locations, particularly along the scenic routes and in recreational areas.
Flooding	
Concerns around wide paths taking up more space and creating flooding issues.	Flood management is not addressed as part of the Strategy but will be considered as the individual active transport projects progress towards concept and detailed design.

Community feedback	Response to submission
Lighting	
Path along Tongarra Road needs to be well lit.	The qualitative lighting assessment undertaken as part of the Strategy showed that lighting levels on Tongarra Road were medium, with a section between the M1 and Croome Road having no lighting. Lighting requirements along route 1 will be considered as the project progresses.
Visibility near Shellharbour Surf Club and Beach Road is bad.	The qualitative lighting assessment undertaken as part of the Strategy showed that lighting levels on Beach Road and Junction Road were low. Lighting requirements along route 15 will be considered as the project progresses.
Sections of route 15 are not well lit.	The qualitative lighting assessment undertaken as part of the Strategy showed that the paths assessed along route 15 were low to medium or non-existent near Warilla Beach, and low on Beach Road and Junction Road. Lighting requirements along route 15 will be considered as the project progresses.
Need to improve lighting at Windang Bridge.	Although lighting at Windang Bridge was not assessed, this location forms part of route 4, 12 and 15. Lighting requirements for these routes will be considered as the project progresses.
Haywards Bay is a neglected area, with more visibility needed at the park.	Lighting at Haywards Bay was not assessed as part of the Strategy.
Steep grades	
The cycle path on Wattle Road in Blackbutt is difficult.	This has been noted in the Strategy as Wattle Road forms part of route 3. No additional upgrades are proposed to the existing shared path of Wattle Road, with improved connectivity to be provided to access the shared path at Shellharbour Village or Shellharbour City Centre.
Education	
Should improve education for kiss and drop areas including clear line marking and use of banners.	A section within the Strategy on education and awareness will be added to ensure that users understand their role and responsibilities when using the active transport network. Council has an ongoing School Banner Fence Program where educational banners are provided to schools within the LGA. These fence barriers aim to educate parents, school children and the public on common parking restrictions near schools such as kiss and drop zones and bus zones.
Should increase education and awareness of active travel.	As per above response.
Wayfinding	
Wayfinding is important.	A wayfinding strategy has been implemented as part of the overall strategy.
Wayfinding at Oak Flats Station is poor.	As per above response.
Charging stations	

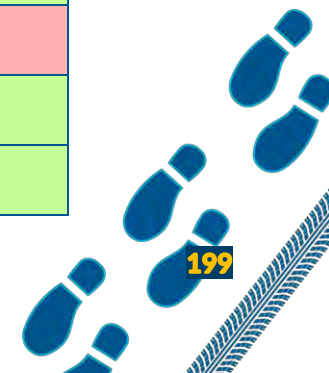
Community feedback		Response to submission	
Need to consider charging stations for mobility scooters and e-bikes scooters.		Council has recently installed e-charging stations at the Council chambers. Council will consider other locations in the future.	
Bus routes			
The bus route should follow the lake from Government Road, Oak Flats through to the PCYC and connect to other routes to the north and south.		Changes to bus routes are outside of the scope of this strategy.	
TfNSW should install Public Transport Information and Priority System (PTIPS) for congested signalised intersections on bus routes and integrate with local bus vehicle location systems.		Implementation of PTIPS on buses is outside of the scope of this Strategy and is the responsibility of TfNSW.	
Condition of road surface			
At Deakin Reserve, access through car park is unsafe (poor and unsealed).		Road surface upgrades would fall under Council's maintenance program. This location will be reviewed by Council's Asset team and may be upgraded if deemed necessary.	
Maps			
Existing and proposed routes should be added to the NSW spatial network maps so that users know where they can ride.		Once active transport projects are completed as part of the Strategy, online maps showing the active transport infrastructure upgrades will be updated.	
Funding			
Strategy delivery should be fully integrated with Council development, budgetary processes as well as grant application cycles.		Following Council endorsement of the Strategy, Council will seek funding from appropriate sources for the identified projects based on their priority, in order to achieve the visions and objectives of the Strategy.	
Other facilities / infrastructure			
Water bubblers and dog poo bag dispensers are needed on paths.		These facilities are outside of the scope of this Strategy.	
Play equipment for younger children needed at Jack Wickham Park.		As per above response.	

Community feedback	Response to submission
More showers should be provided in Warilla Beach near the lifeguard tower.	As per above response.
Should designate part of Warilla Beach as a dog area.	As per above response.
Signage about no dogs at Shellharbour Beach are needed.	As per above response.
The drain and gutter near the tourism centre are bad.	As per above response.
At the McDonald's, a left turn only lane should be provided.	As per above response.
The small park at the end of Hughes Drive in Albion Park could do with an upgrade with benches, bbq areas and picnic tables as it is a nice flat area away from cars.	As per above response.
The kiosk at Reddall Parade needs to be improved.	Design plans are currently underway to upgrade the Reddall Reserve kiosk.

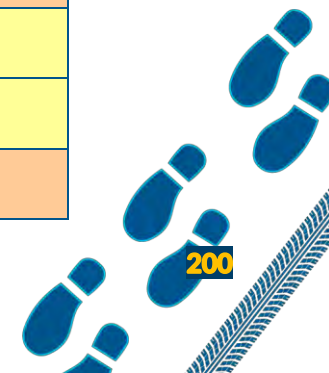
Appendix B Full weighted scoring criteria

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	Low	Low	Low	Medium	Low
Shellharbour Village	High	High	Very High	Very High	Very High
Warilla	Medium	Medium	Medium	Medium	Medium
Oak Flats	Very High	High	Very High	High	Very High
Oak Flats Industrial	High	High	High	High	High
Albion Park	High	High	High	Medium	High
Tullimbar	High	Very High	High	High	High
Calderwood	Medium	High	Very 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
Shellharbour Junction Station	High	High	Very High	High	High

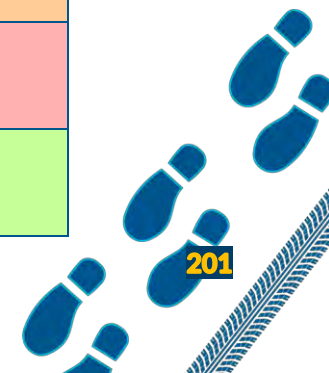
Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
New pedestrian links to open spaces					
Shellharbour City Centre	High	High	Very High	Very High	Very High
Oak Flats	High	High	High	Very High	High
Albion Park	High	Medium	Medium	High	High
Albion Park Rail	High	High	High	High	High
Barrack Heights	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
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



Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Lake Illawarra South Public School	High	High	Medium	Medium	High
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
Oak Flats Public School	High	Very High	High	Very High	Very High
Shell Cove Public School	Medium	Medium	Medium	High	Medium
Shellharbour Anglican School	Medium	Medium	High	Medium	Medium
Shellharbour Public School	Medium	Medium	Medium	High	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
Stella Maris Catholic Primary School	Medium	Medium	High	Medium	Medium
Tullimbar Public School	Medium	High	High	High	High
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



Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
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
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	Very High	High	High
Route 5 – Albion Park to Oak Flats Station primary links	Very High	Medium	High	Very High	Very High
Route 5 – Albion Park to Oak Flats Station secondary links	Medium	Low	Medium	Low	Low

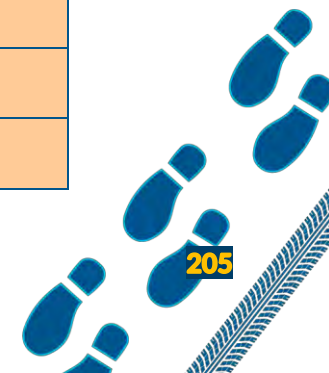


Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Route 6 – Oak Flats waterfront to Oak Flats Station primary links	Very High	High	High	Medium	High
Route 6 – Oak Flats waterfront to Oak Flats Station secondary links	High	High	High	Medium	High
Route 7 – Shellharbour Junction Station to Shellharbour Village (via Shell Cove) primary links	High	Medium	Very High	High	High
Route 7 – Shellharbour Junction Station to Shellharbour Village (via Shell Cove) secondary links	High	Medium	Very High	Low	High
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 9 – Oak Flats Station to Warilla secondary links	Medium	Medium	Medium	High	Medium
Route 10 – Oak Flats Industrial to Shellharbour City Centre primary links	High	High	Medium	High	High
Route 11 – Albion Park Rail waterfront to Croom primary links	High	Medium	High	Medium	High

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
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
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	Very High	High	High
New cycling links connecting corridors					

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
New shared path and upgrade of footpath to shared path at Yellow Rock Road	Medium	Low	High	Medium	Medium
Upgrade of footpath to shared path at Broughton Avenue	Medium	Medium	Medium	Medium	Medium
New shared path at Balmoral Parade	Medium	Medium	Low	Medium	Medium
New shared path at Crest Road	Low	Medium	Medium	Medium	Low
New shared path at Lobella Street, Oak Street and Ash Avenue	Medium	Very High	Low	Medium	Medium
Upgrade of footpath to shared path at Hopetoun Lane and laneway south of Hopetoun Lane	Low	Low	High	High	Medium
New Shared path at Minda Crescent, Kilpa Place and Allinga Drive	High	High	High	Medium	High
New shared path at Madigan Boulevard and Morgan Avenue	High	Medium	Medium	Medium	Medium
Upgrade of footpath to shared path at Cuthbert Drive	Medium	Medium	Low	Low	Low
Upgrade of footpath to shared path at King Street	High	High	High	Medium	High

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Upgrade of footpath to shared path at Harvey Street and Queen Street	Medium	Medium	High	Medium	Medium
New shared path at Ocean Beach Drive south of residential properties	High	High	High	Very High	High
Improved access to industry					
Veronica Street and Commerce Drive Light Industrial Area	Medium	High	High	Medium	Medium
Durgadin Drive Industrial Area	Medium	High	High	Medium	Medium
Miall Way Industrial Area	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
Bicycle racks at Oak Flats	High	Medium	High	High	High



Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
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
Upgrade of path markings	Very High	High	Very High	Very High	Very High
Tree plantings and shade	Medium	Medium	Medium	Very High	Medium
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
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

Infrastructure recommendation	Safety improvement	Equity to vulnerable users	Strategic importance	Comfort and quality	Overall
Upgraded roundabout to signalised intersection at the Lakewood Boulevard / Shellharbour Road intersection	Very High	High	Medium	High	High
Alternative intersection treatment at the Terry Street / Burdekin Drive intersection	Very High	High	Medium	High	High
Kerb ramps at other intersections	Very High	High	Medium	High	High
Education and awareness	Very High	High	Medium	Low	High
Emerging technologies	High	Low	Medium	High	Medium
Wayfinding signage	High	High	Very High	Very High	Very High

Appendix C Maps





0 1 2 km



Calderwood

Tullimbar

Albion Park

Shellharbour Airport

Albion Park Station

Oak Flats Industrial

Oak Flats Station

Oak Flats

Shellharbour City Centre

Warilla

Shellharbour Village

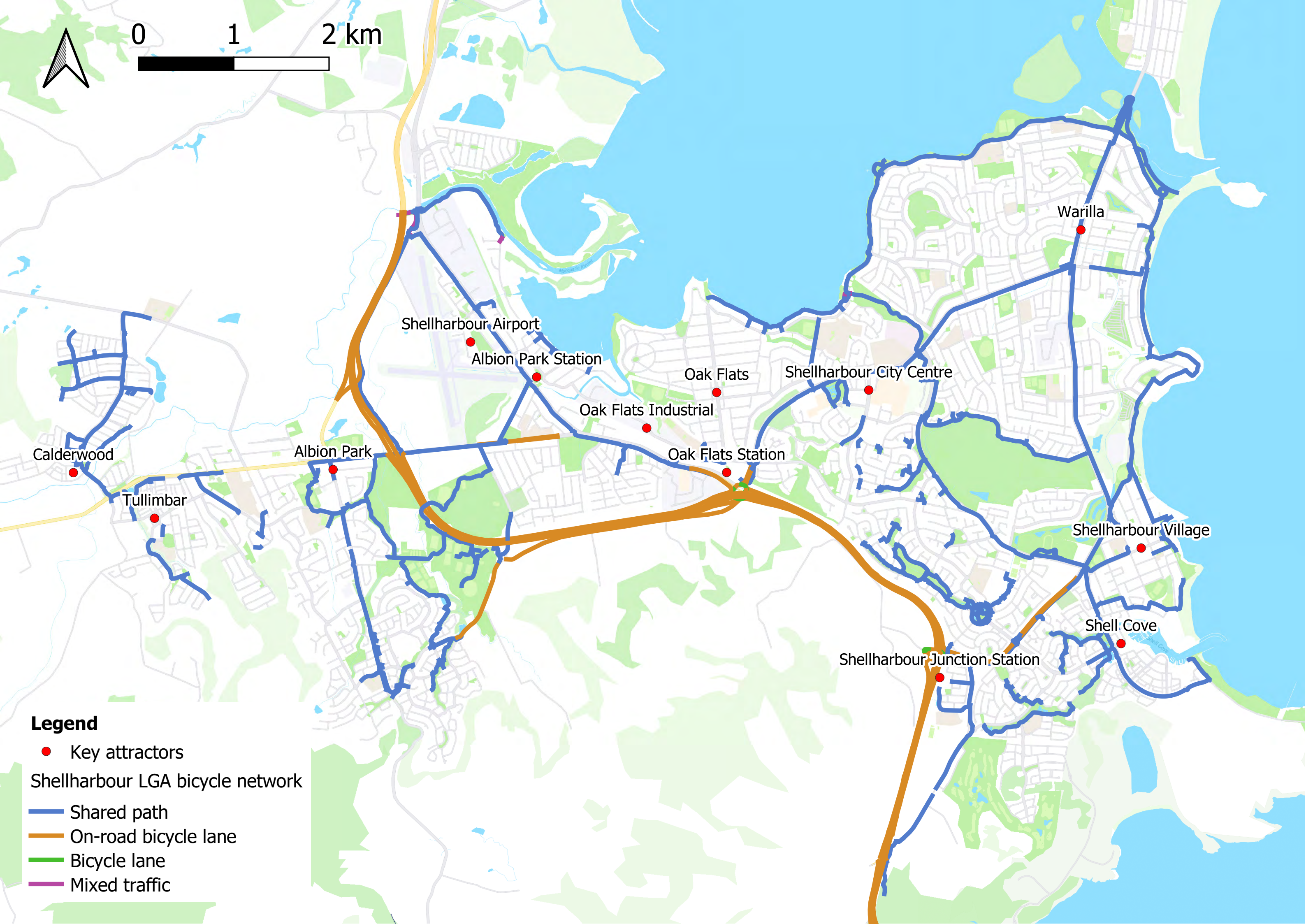
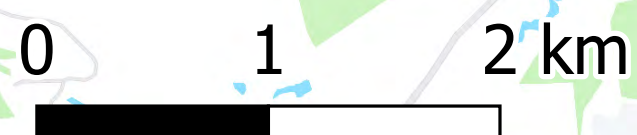
Shell Cove

Shellharbour Junction Station



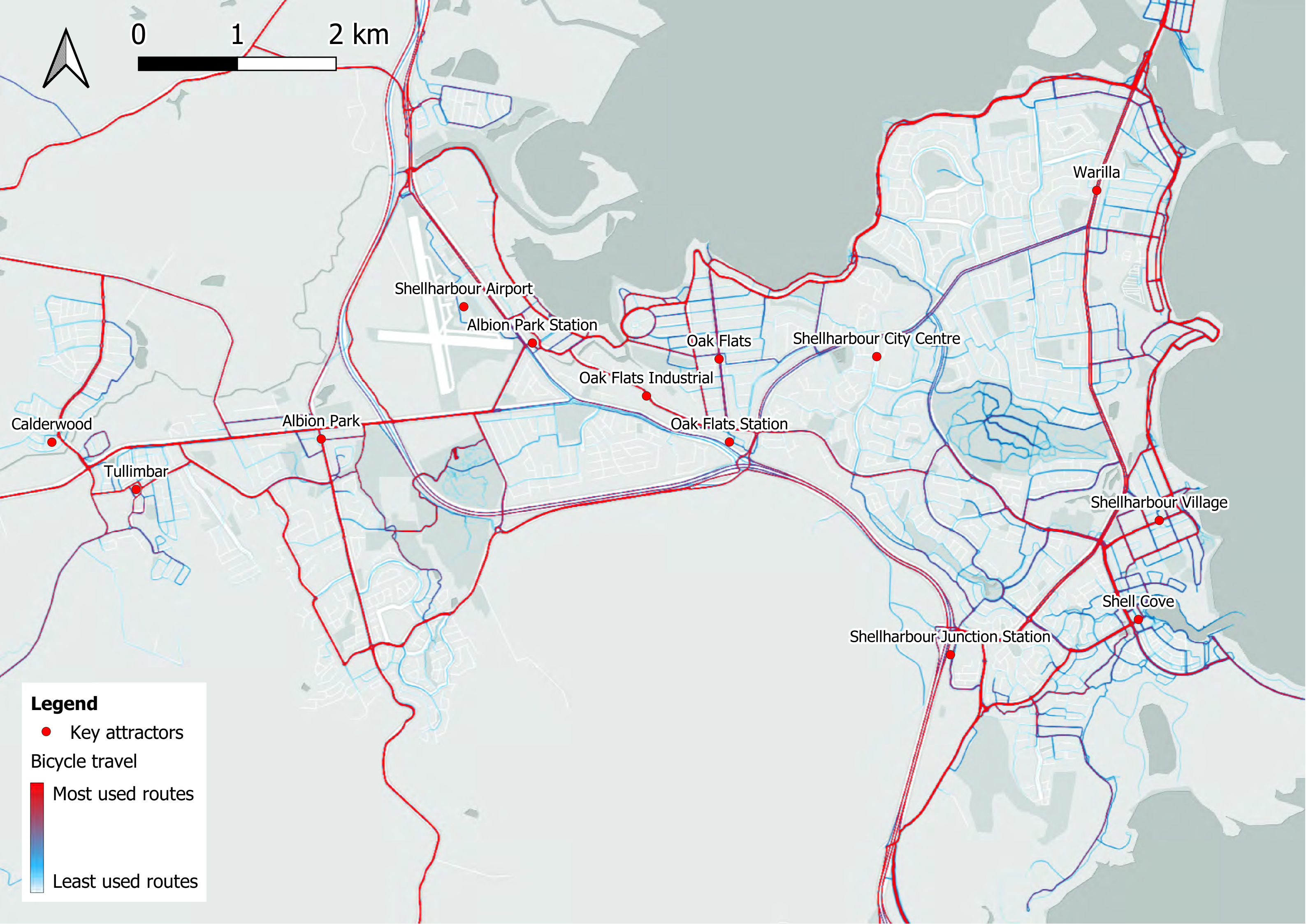
Legend

- Key attractors
- Shellharbour LGA footpath network
 - Shared path
 - Pedestrian footpath



Legend

- Key attractors
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane
 - Mixed traffic



Legend

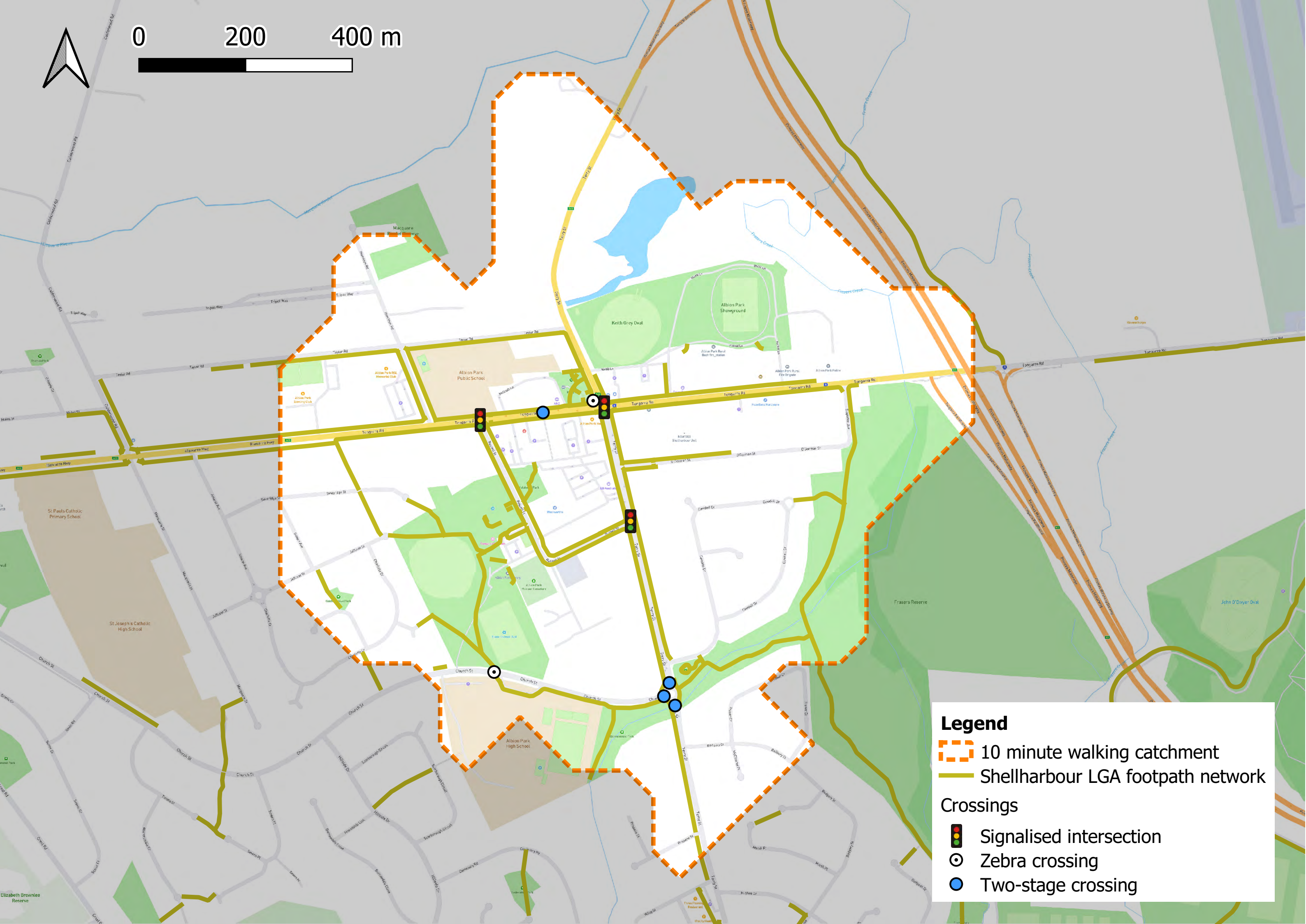
- Key attractors
- Bicycle travel
- Most used routes
- Least used routes



0

200




400 m



Legend

-  10 minute walking catchment
-  Shellharbour LGA footpath network

Crossings

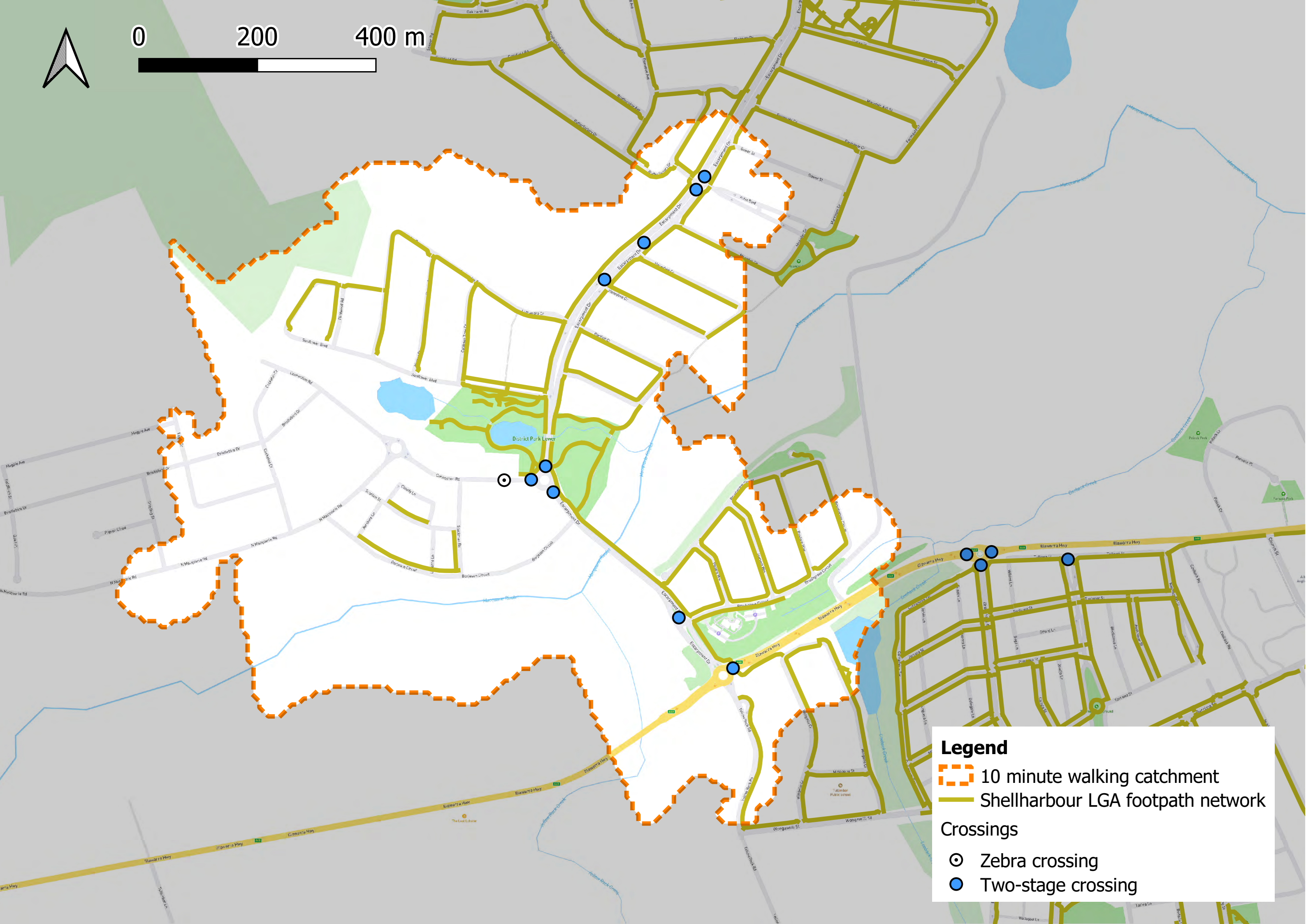
-  Signalised intersection
-  Zebra crossing
-  Two-stage crossing



0

200

400 m



Legend

- 10 minute walking catchment
- Shellharbour LGA footpath network

Crossings

- Zebra crossing
- Two-stage crossing






0 100 200 m



Legend

-  10 minute walking catchment
-  Shellharbour LGA footpath network

Crossings

-  Signalised intersection
-  Zebra crossing
-  Two-stage crossing





0

200




400 m

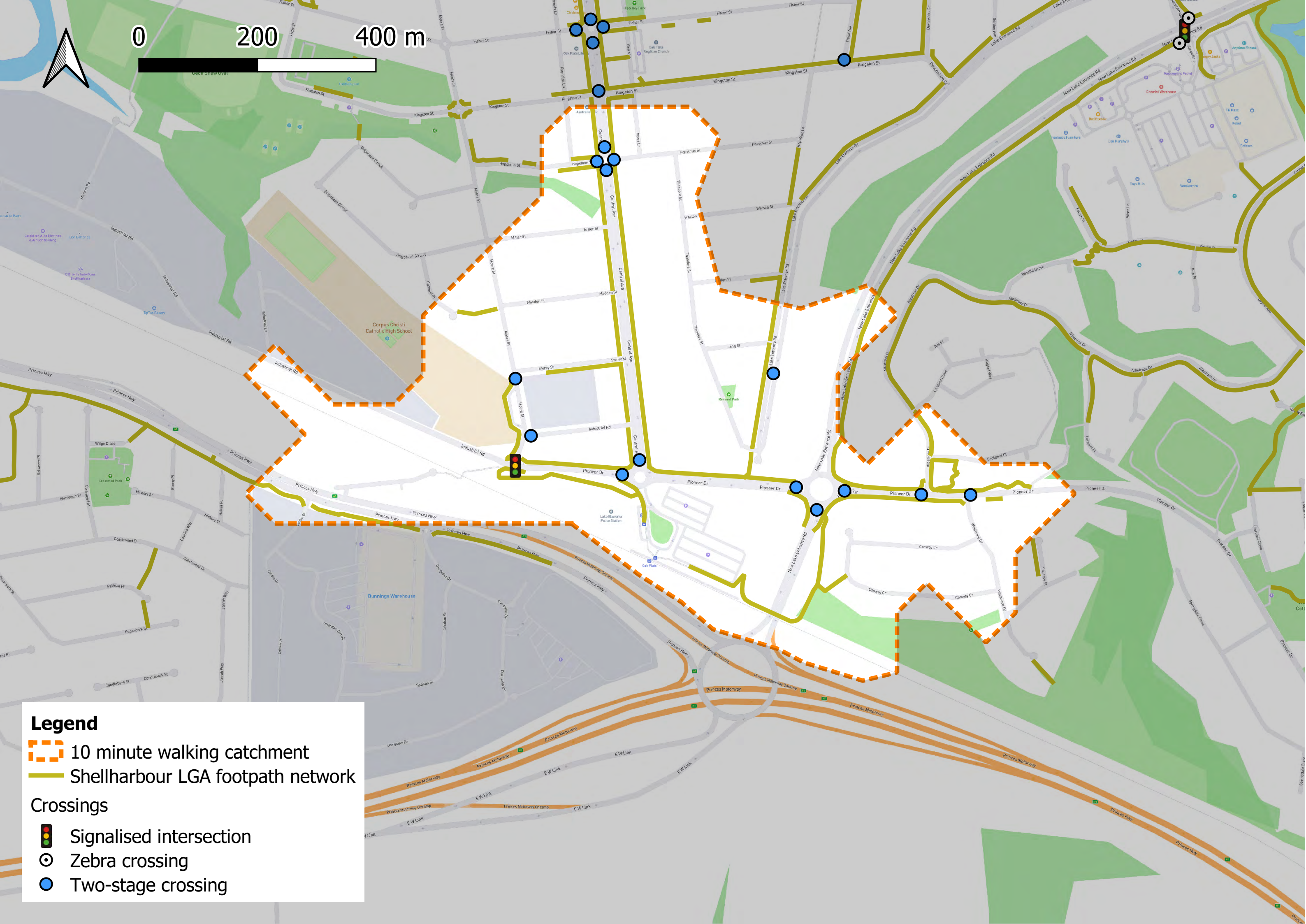


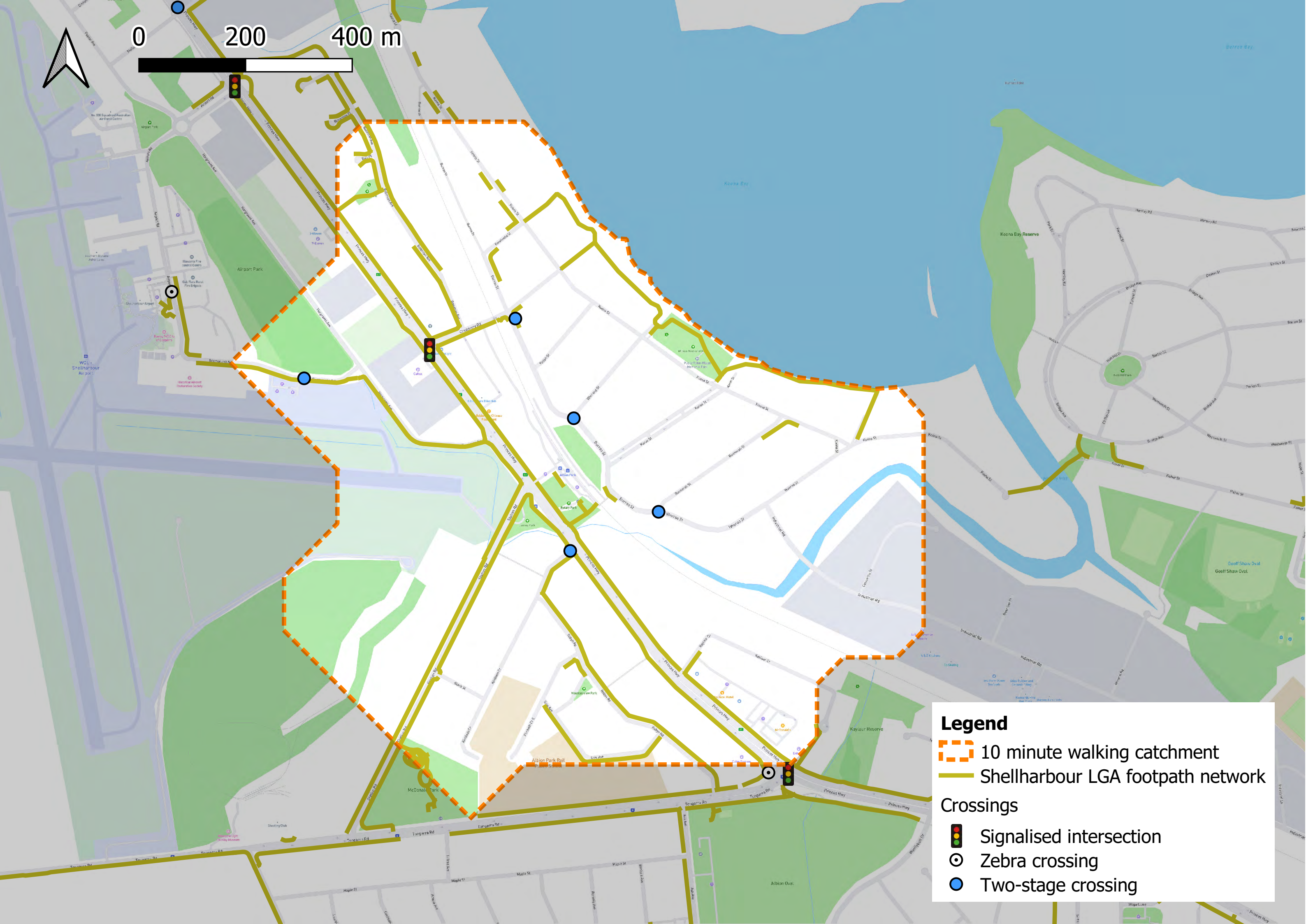
Legend

-  10 minute walking catchment
-  Shellharbour LGA footpath network


Crossings

-  Signalised intersection
-  Zebra crossing
-  Two-stage crossing






Legend




10 minute walking catchment




Shellharbour LGA footpath network


Crossings



Signalised intersection



Zebra crossing



Two-stage crossing






0 100 200 m



Legend

-  10 minute walking catchment
-  Shellharbour LGA footpath network

Crossings

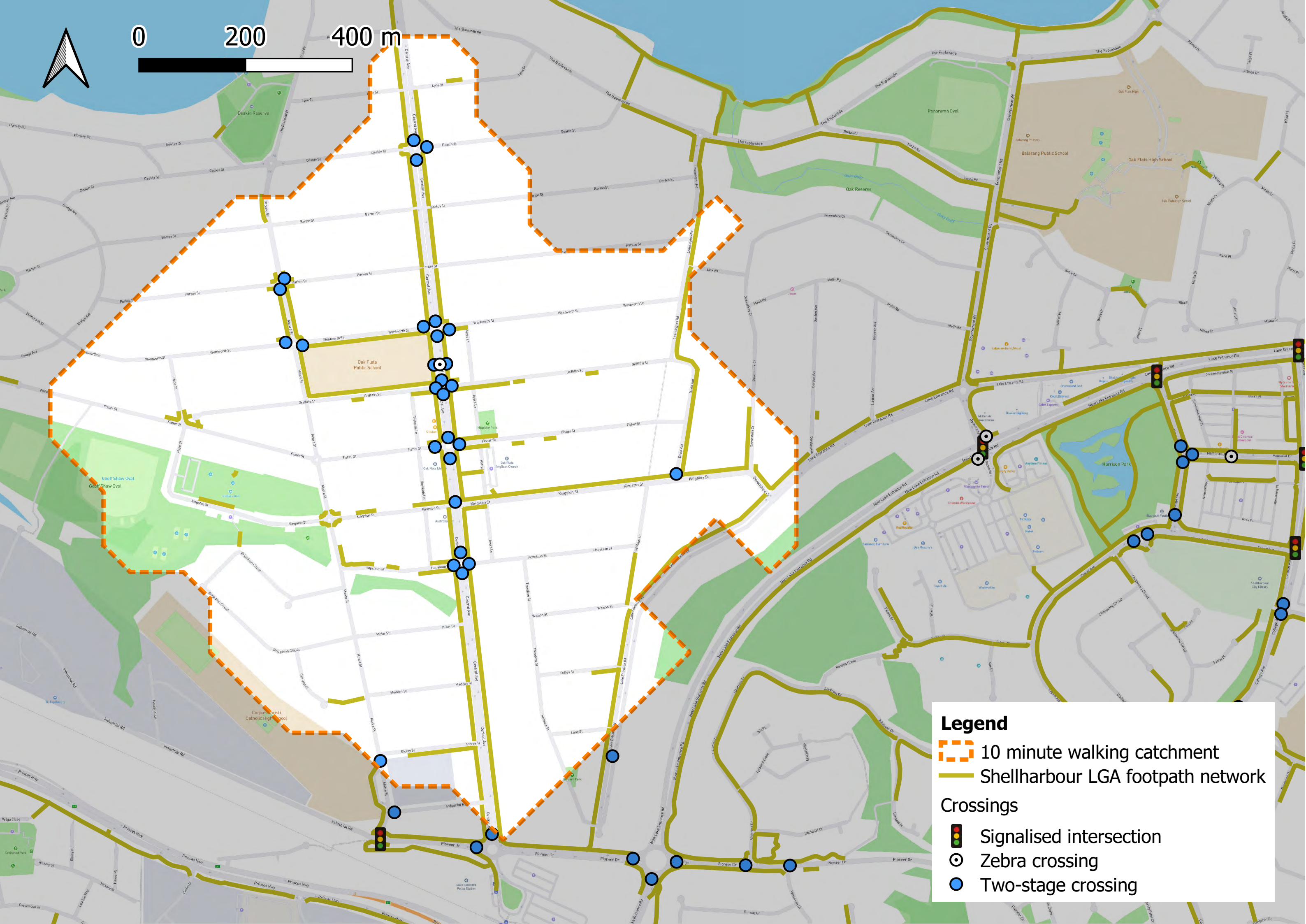
-  Signalised intersection
-  Zebra crossing
-  Two-stage crossing





0

200




400 m

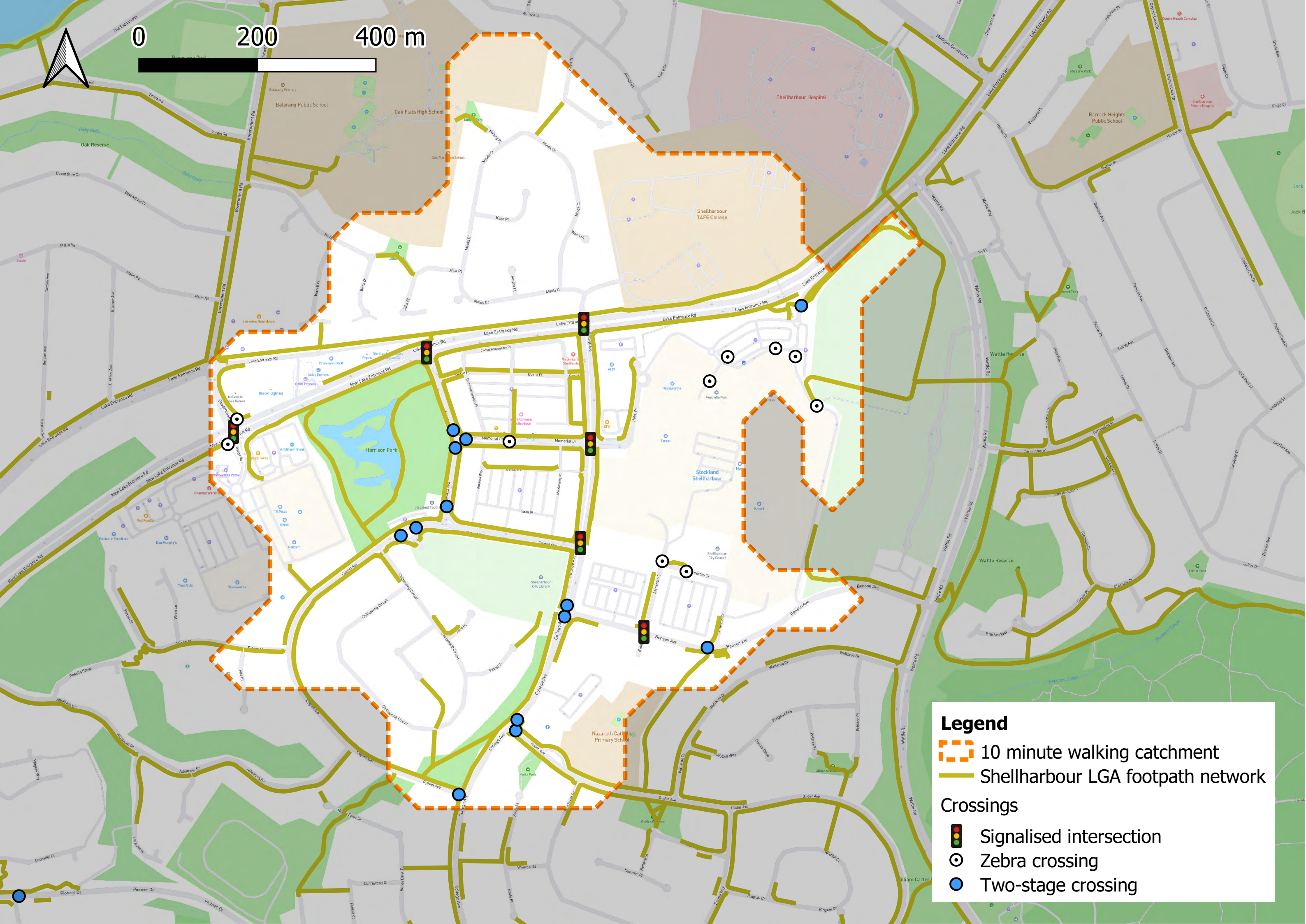


Legend

-  10 minute walking catchment
-  Shellharbour LGA footpath network

Crossings

-  Signalised intersection
-  Zebra crossing
-  Two-stage crossing





0




200

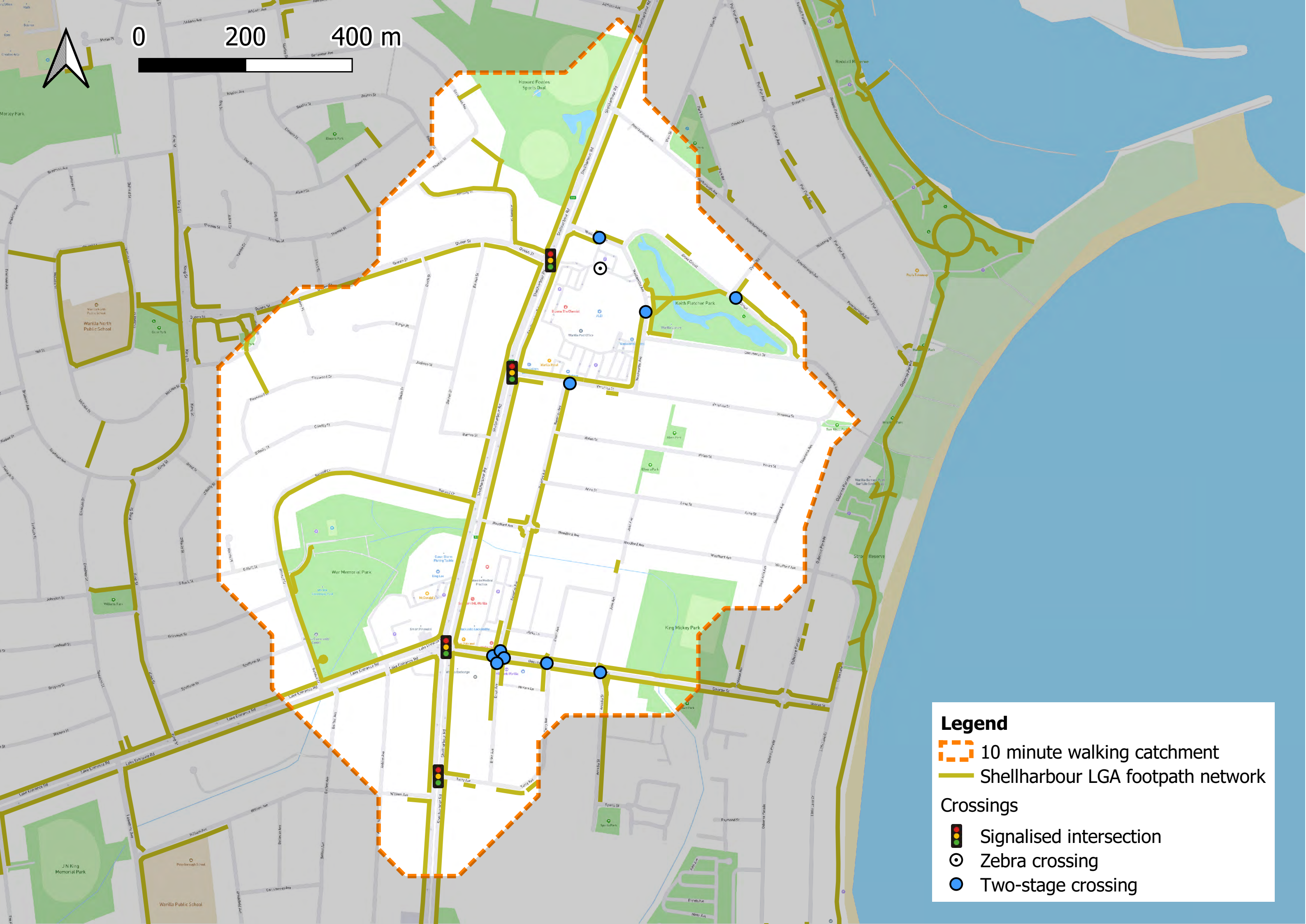
400 m

Legend



-  10 minute walking catchment
-  Shellharbour LGA footpath network

Crossings




-  Signalised intersection
-  Zebra crossing
-  Two-stage crossing



Legend

-  10 minute walking catchment
-  Shellharbour LGA footpath network

Crossings

-  Signalised intersection
-  Zebra crossing
-  Two-stage crossing





0




200

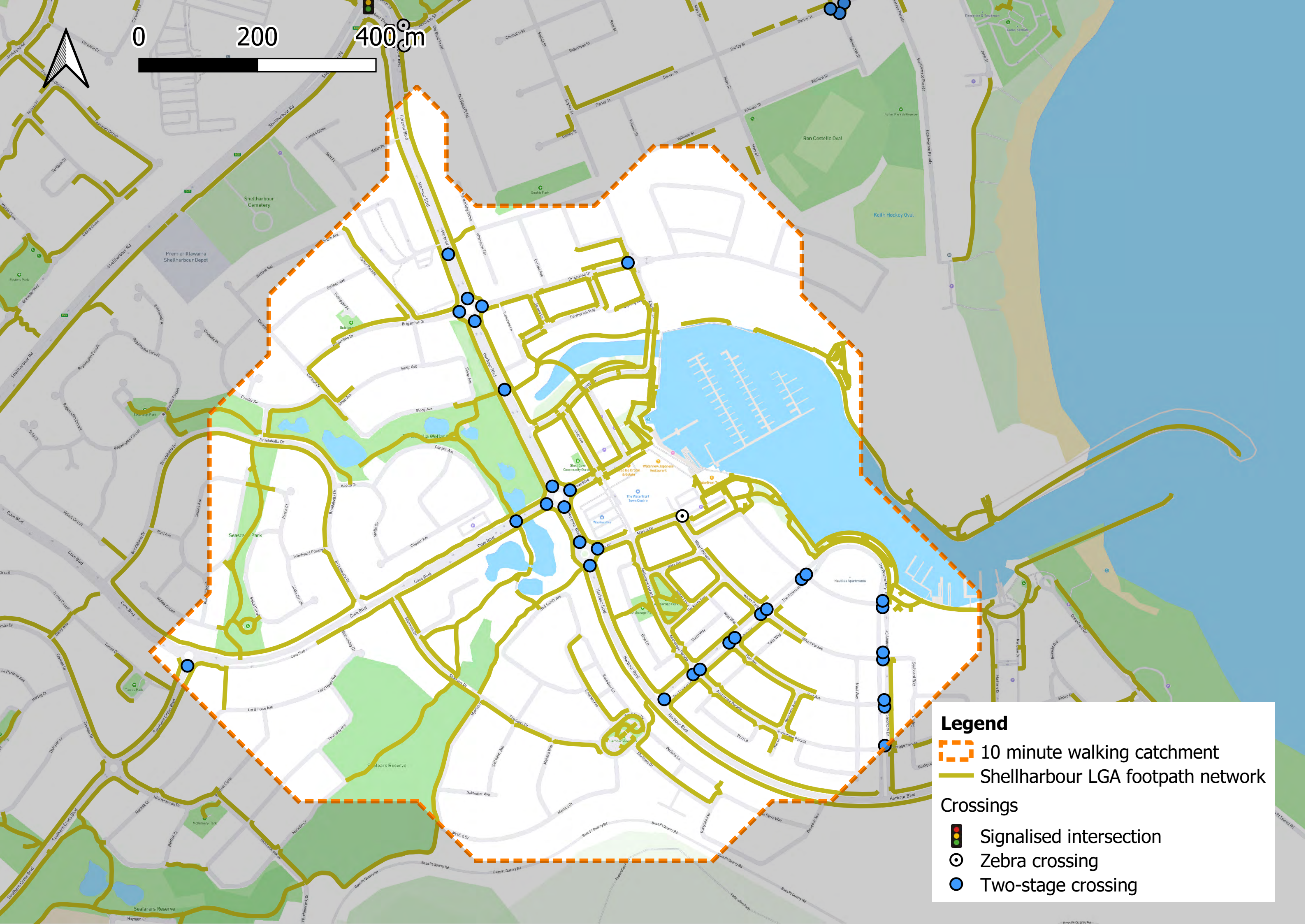
400 m

Legend



-  10 minute walking catchment
-  Shellharbour LGA footpath network

Crossings




-  Signalised intersection
-  Zebra crossing
-  Two-stage crossing



Legend



-  10 minute walking catchment
-  Shellharbour LGA footpath network

Crossings


-  Signalised intersection
-  Zebra crossing
-  Two-stage crossing



Legend

-  10 minute walking catchment
-  Shellharbour LGA footpath network

Crossings

-  Two-stage crossing



0

200




400 m

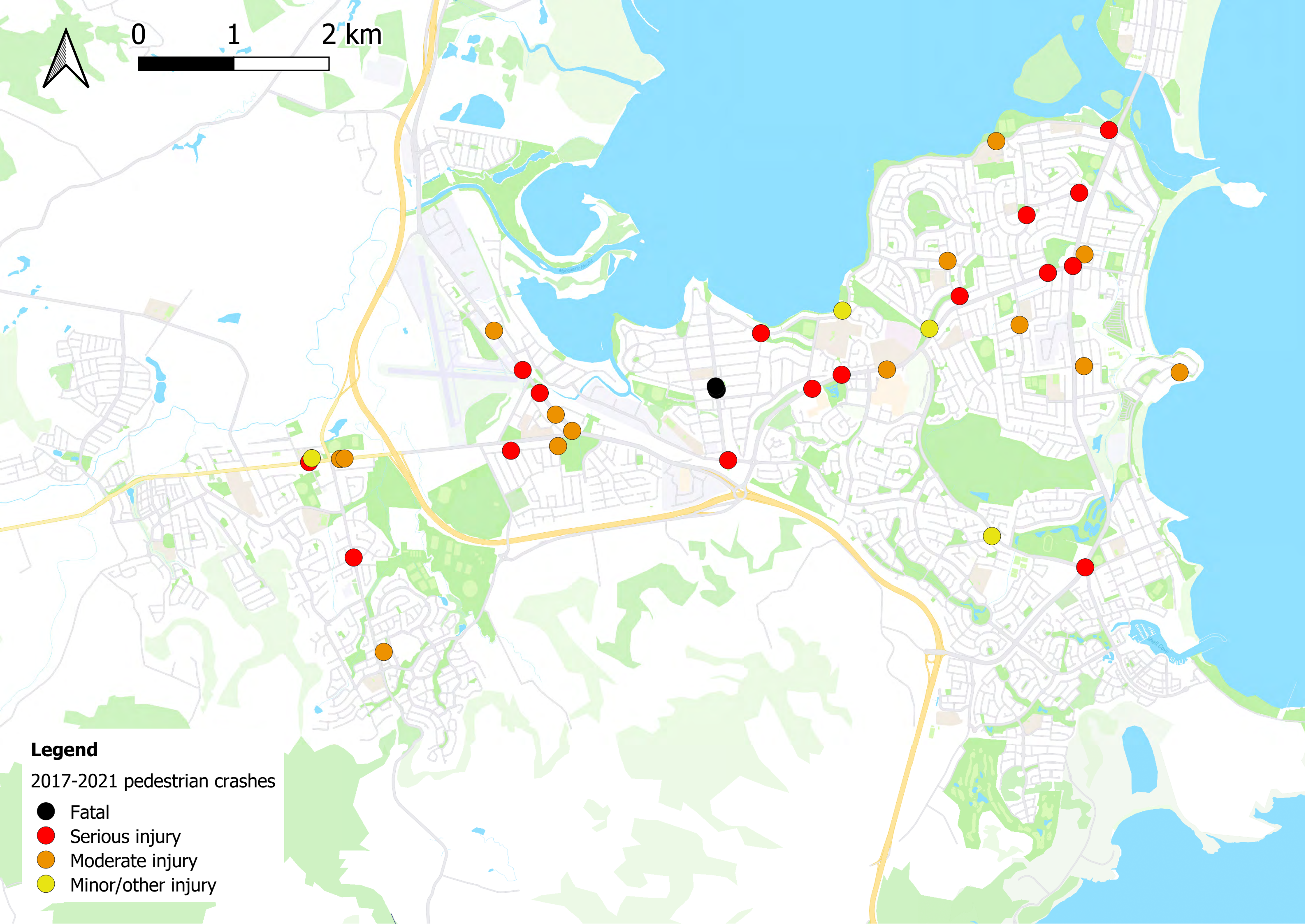


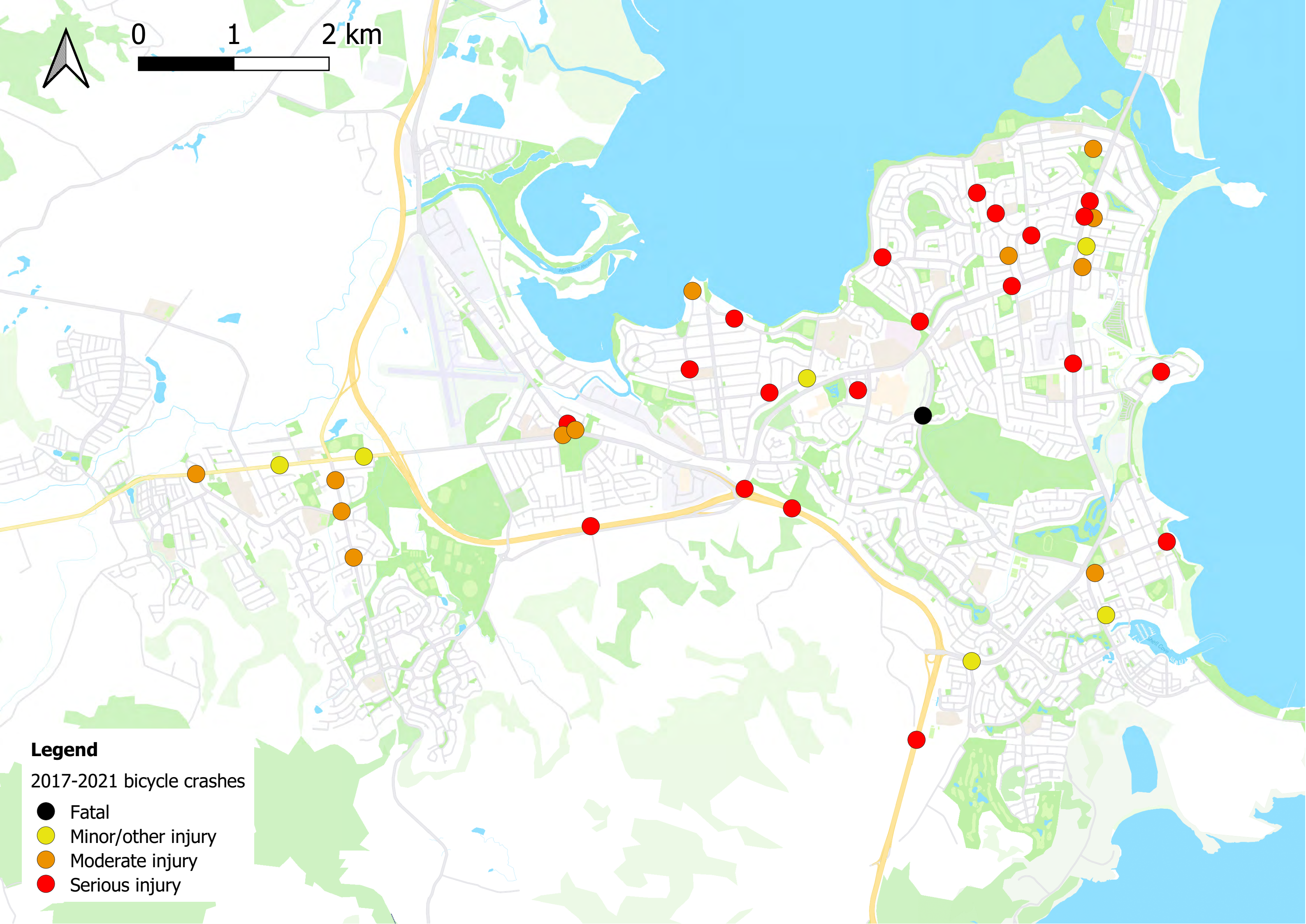
Legend

-  10 minute walking catchment
-  Shellharbour LGA footpath network

Crossings

-  Signalised intersection
-  Zebra crossing
-  Two-stage crossing





Legend

2017-2021 bicycle crashes

- Fatal
- Minor/other injury
- Moderate injury
- Serious injury

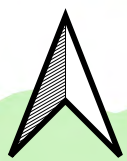


Legend

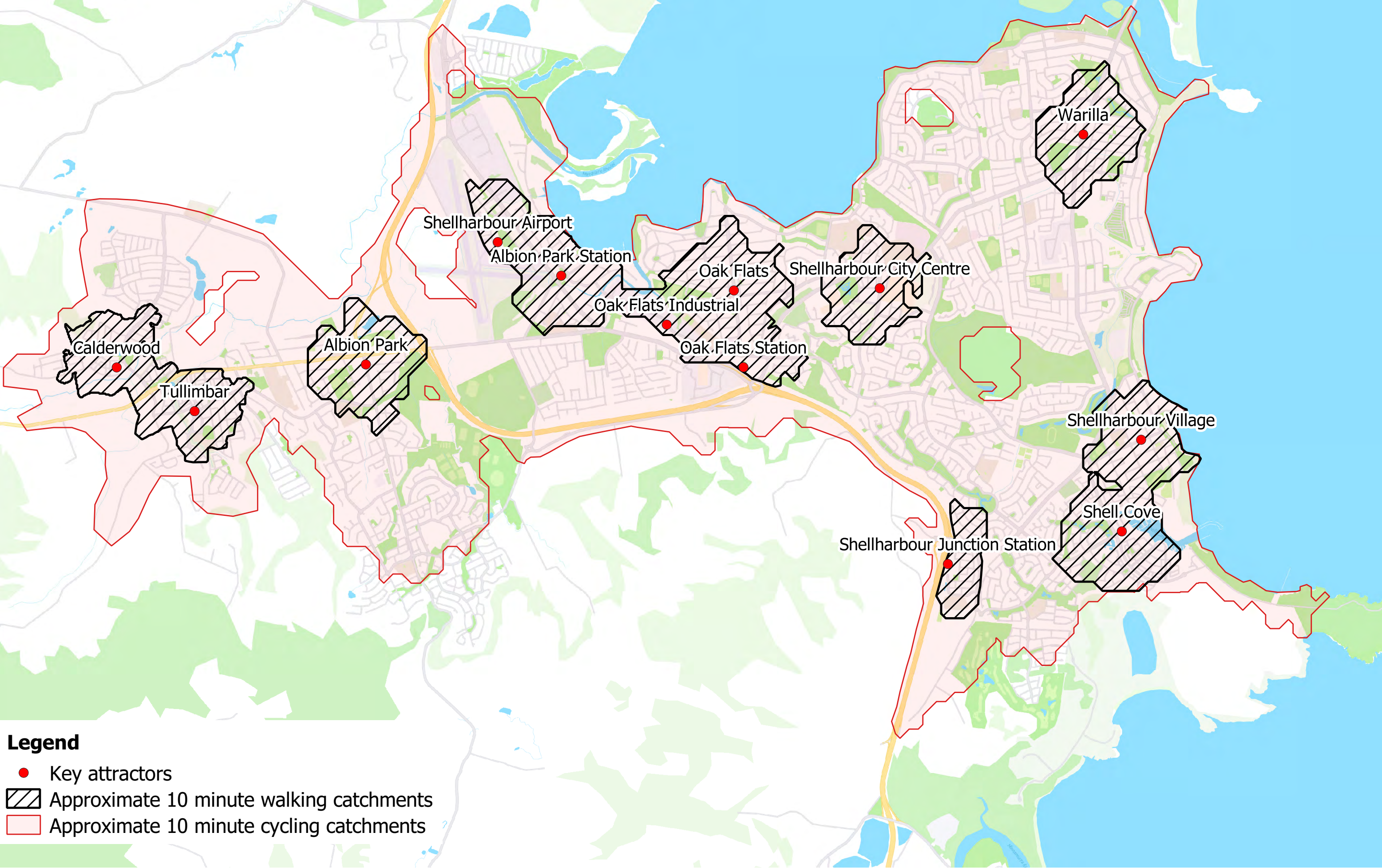
- Key attractors

Speed limits

- 10-20 km/h
- 30 km/h
- 40 km/h
- 50 km/h
- 60-70 km/h
- 80-100 km/h



0 1 2 km



Legend

- Key attractors
- ▨ Approximate 10 minute walking catchments
- Approximate 10 minute cycling catchments



0 1 2 km

Calderwood

Tullimbar

Albion Park

Shellharbour Airport

Albion Park Station

Oak Flats Industrial

Oak Flats

Oak Flats Station

Shellharbour City Centre

Warilla

Shellharbour Village

Shell Cove

Shellharbour Junction Station

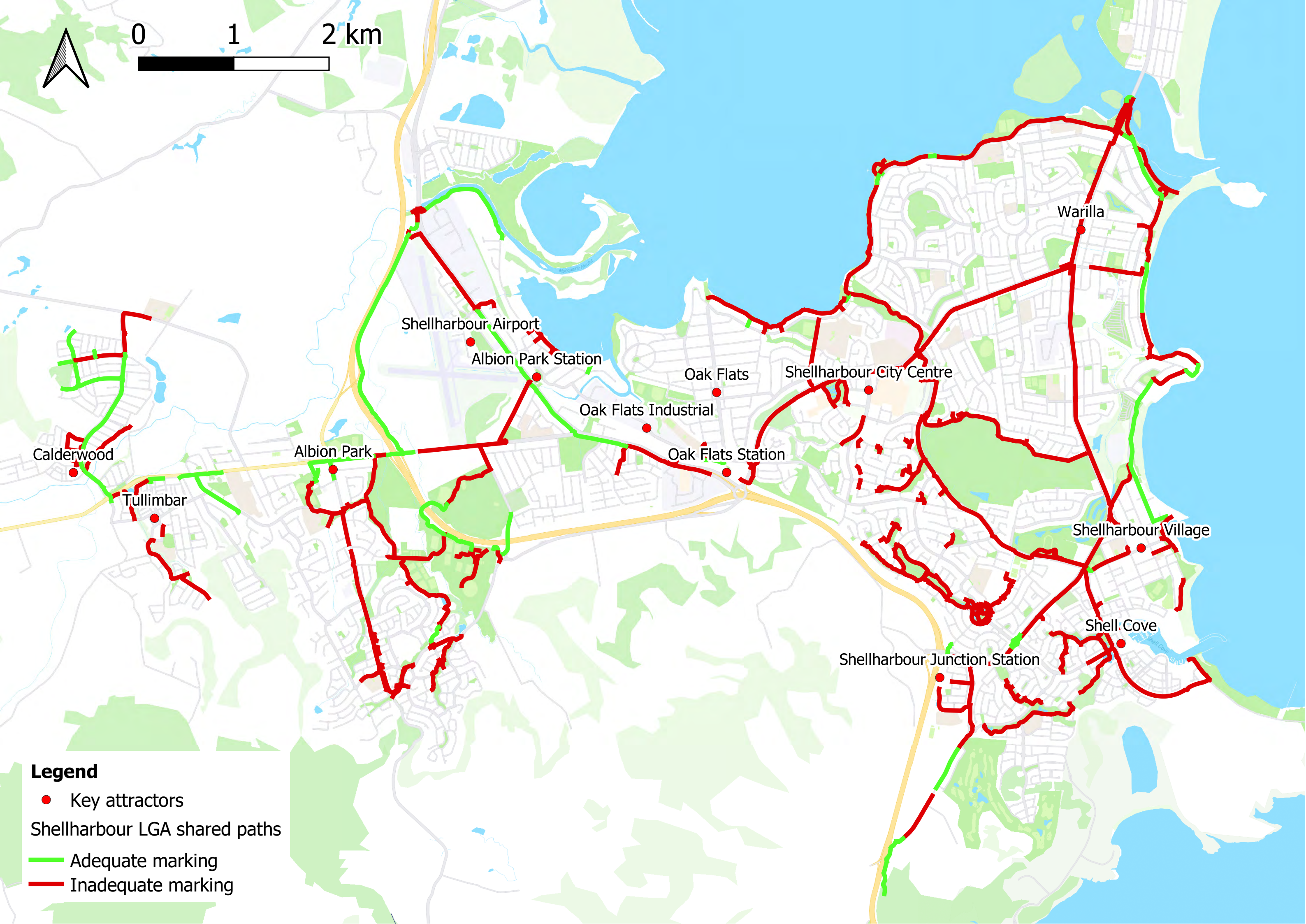
Legend

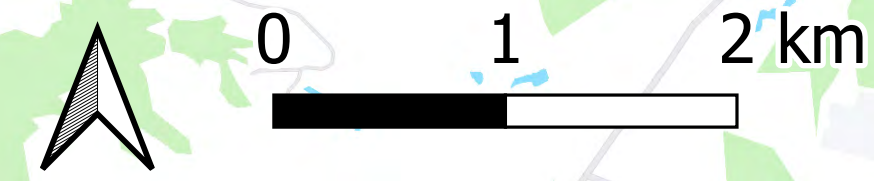
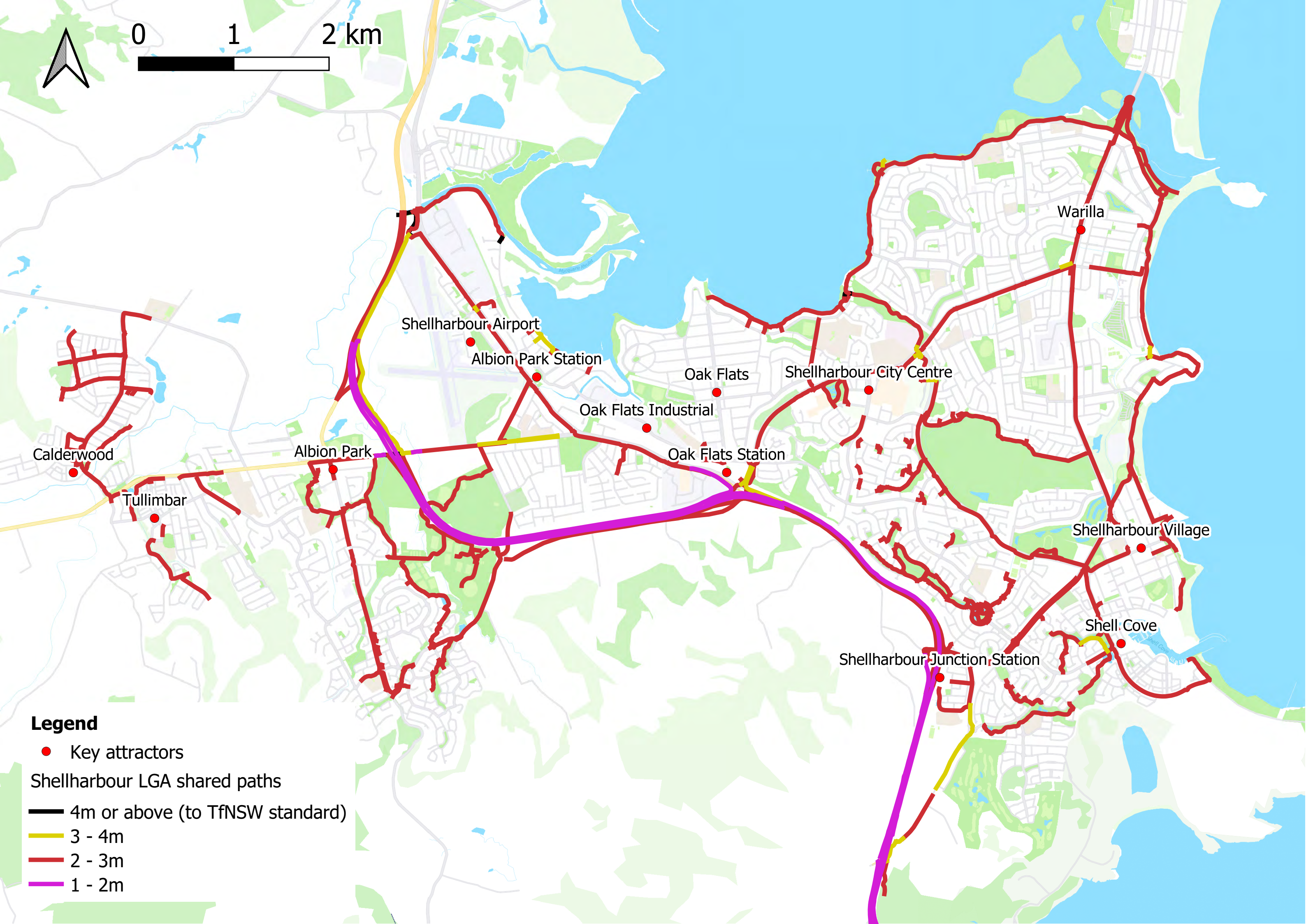
● Key attractors

Shellharbour LGA shared paths

— Adequate marking

— Inadequate marking





- Legend**
- Key attractors
 - Shellharbour LGA shared paths
 - 4m or above (to TfNSW standard)
 - 3 - 4m
 - 2 - 3m
 - 1 - 2m

Calderwood

Tullimbar

Albion Park

Shellharbour Airport

Albion Park Station

Oak Flats

Oak Flats Industrial

Oak Flats Station

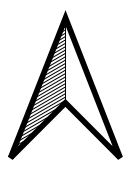
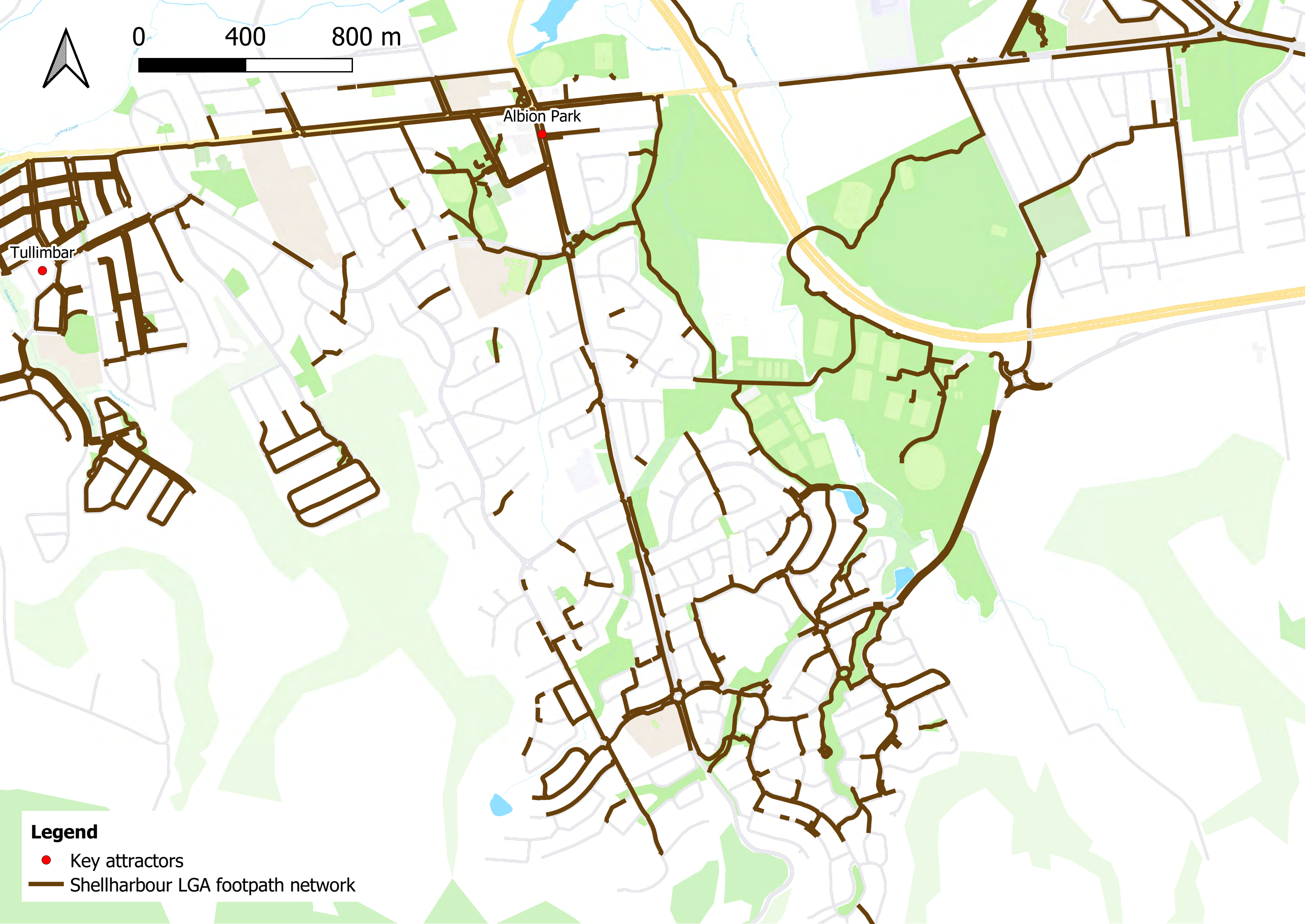
Shellharbour City Centre

Warilla

Shellharbour Village

Shell Cove

Shellharbour Junction Station



0 400 800 m

Tullimbar

Albion Park

Legend

- Key attractors
- Shellharbour LGA footpath network



Shellharbour Airport

Albion Park Station

Oak Flats

Oak Flats Industrial

Oak Flats Station

Legend

- Key attractors
- Shellharbour LGA footpath network



0

400

800 m



Warilla

Shellharbour City Centre

Legend



Key attractors



Shellharbour LGA footpath network



0 200 400 m



Shellharbour Airport



Albion Park Station

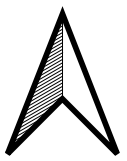


Oak Flats



Legend

- Key attractors
- Shellharbour LGA bicycle network
- Shared path
- Mixed traffic



0 100 200 m



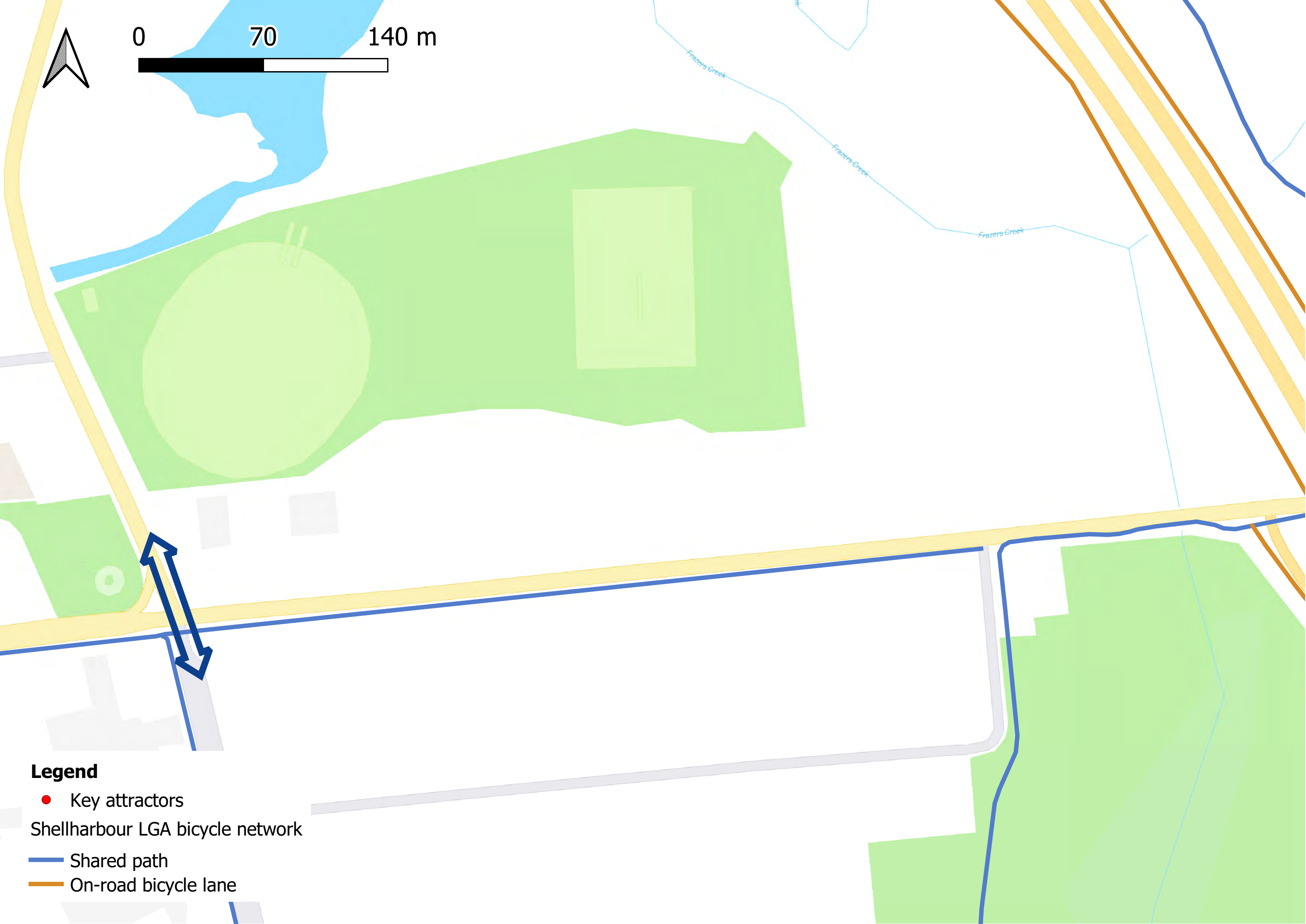
Legend

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane





0 70 140 m

Legend

- Key attractors
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane



0 100 200 m



Albion Park Station



Legend

• Key attractors

Shellharbour LGA bicycle network

— Shared path





0

300

600 m

Oak Flats

Shellharbour City Centre

Oak Flats Station

Legend

● Key attractors

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

— Bicycle lane

— Mixed traffic



0 300 600 m

Shell Cove

Legend

- Key attractors
- Shellharbour LGA bicycle network
- Shared path
- On-road bicycle lane

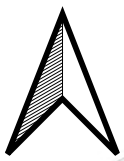


0 100 200 m

Legend

Shellharbour LGA bicycle network

- Shared path
- On-road bicycle lane



0

100

200 m



Albion Park



Legend



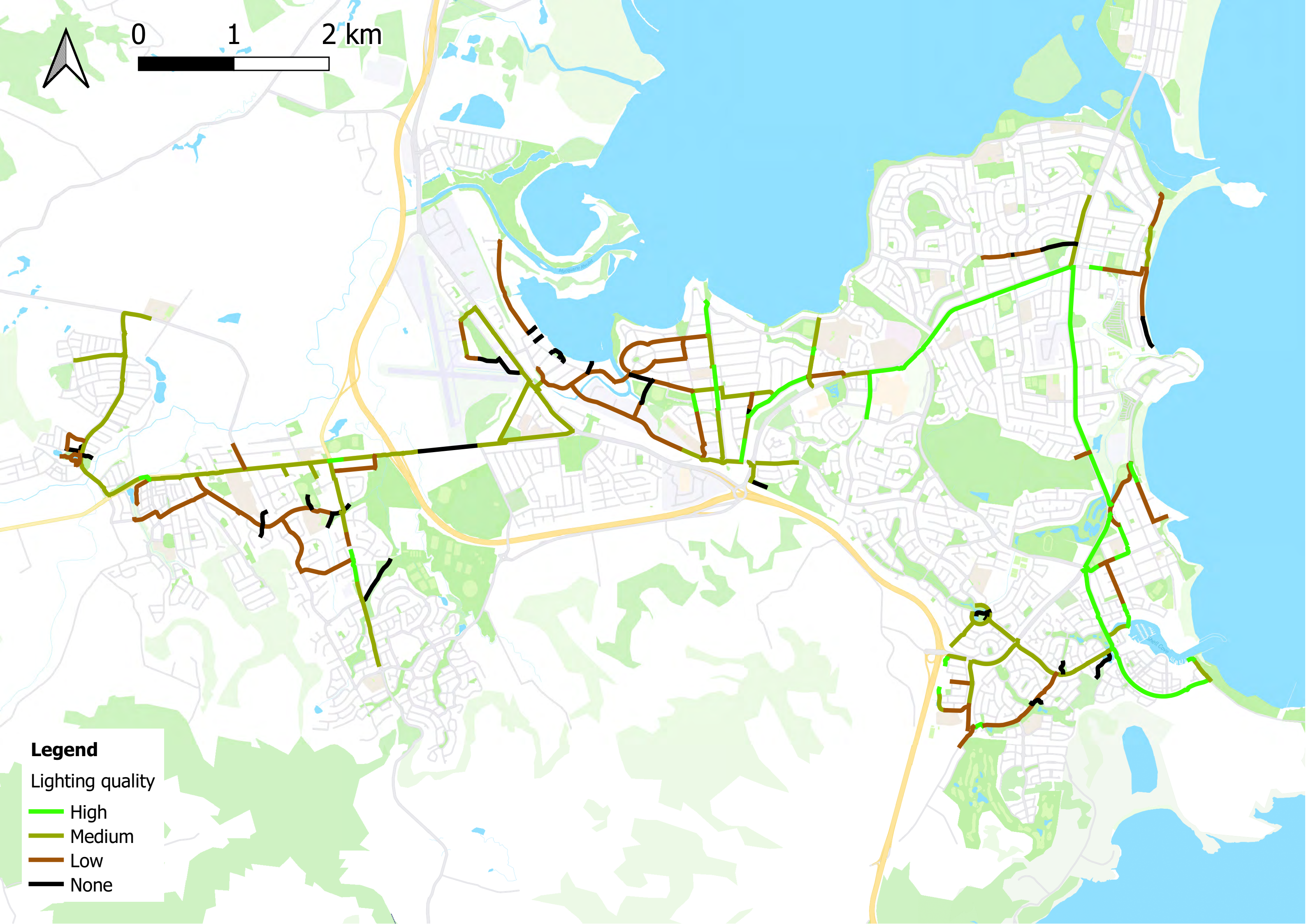
Key attractors

Shellharbour LGA bicycle network

Shared path

On-road bicycle lane





0 1 2 km

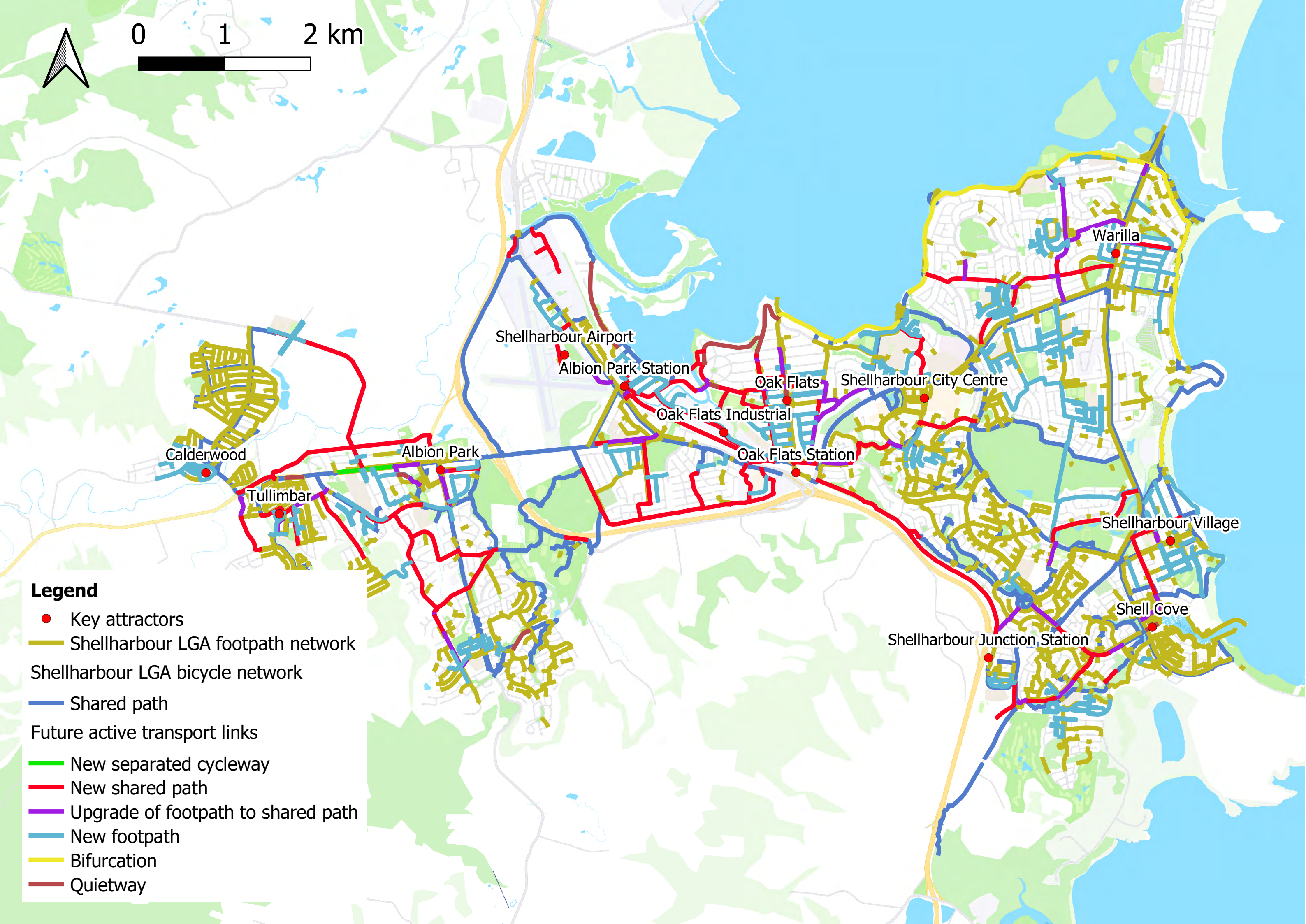
Legend

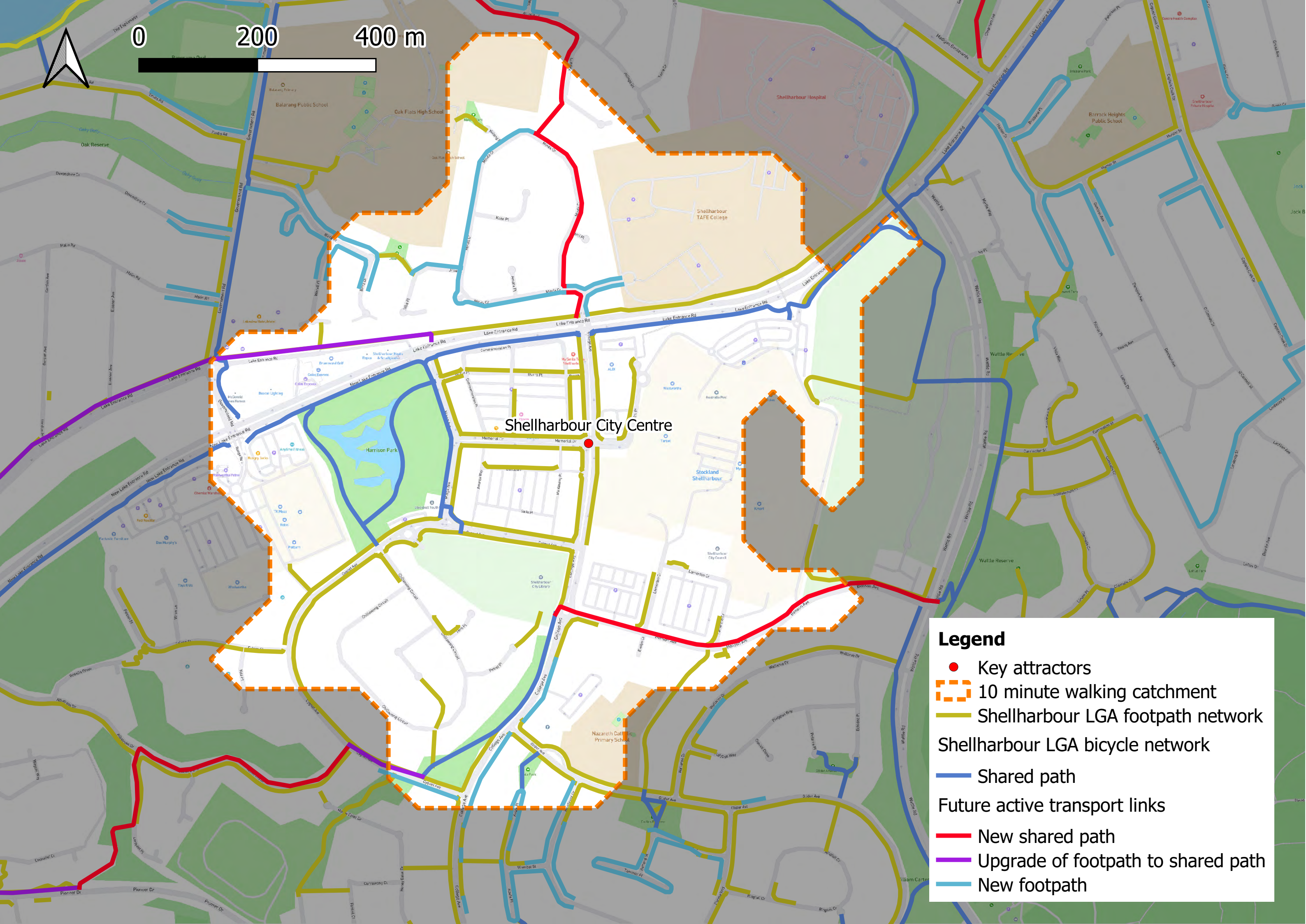
Lighting quality

- High
- Medium
- Low
- None



- Legend**
- Key attractors
 - Shellharbour LGA footpath network
 - Shellharbour LGA bicycle network
 - Shared path
 - Future active transport links
 - New separated cycleway
 - New shared path
 - Upgrade of footpath to shared path
 - New footpath
 - Bifurcation
 - Quietway





0

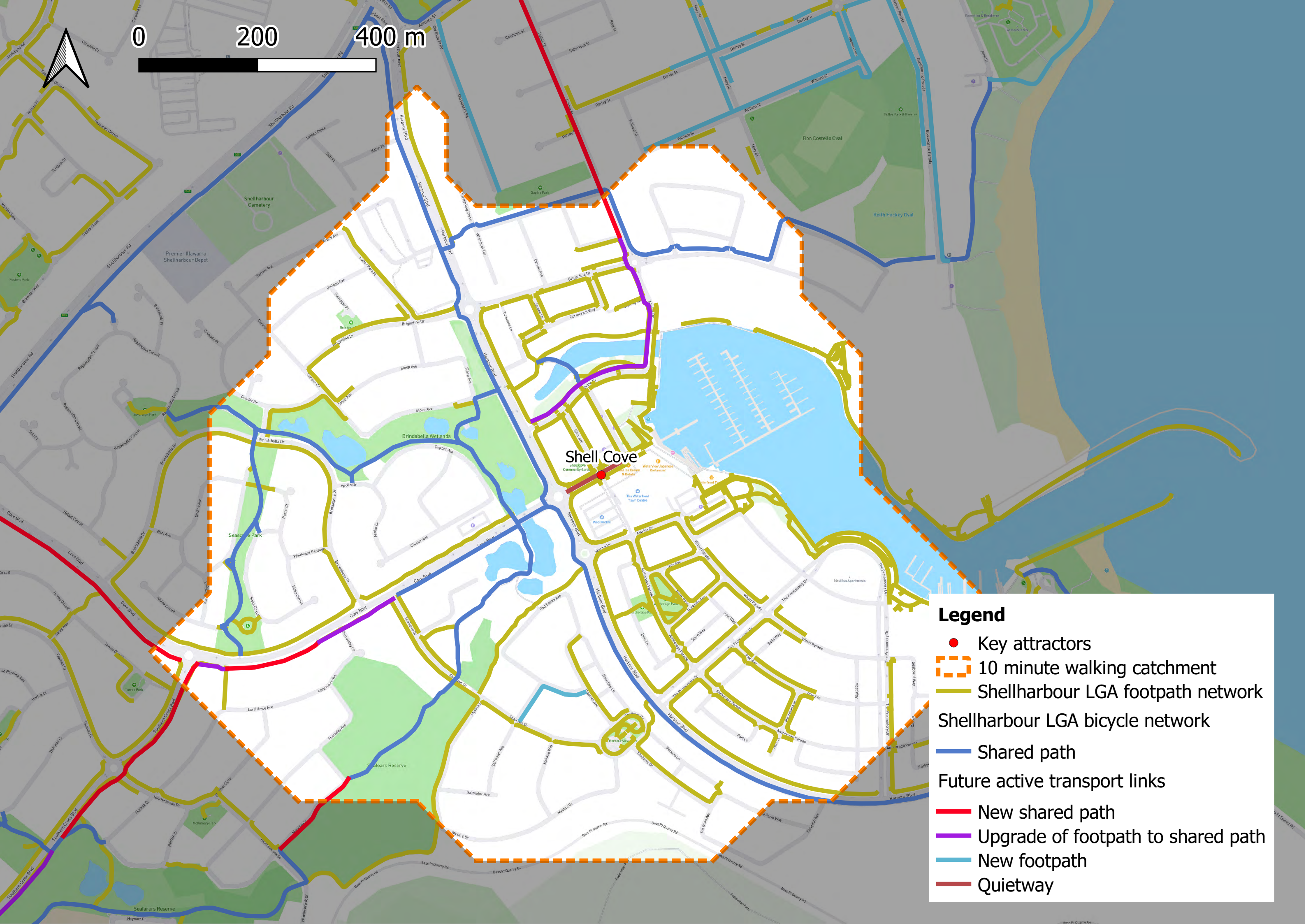
200

400 m

Shellharbour City Centre

Legend

- Key attractors
- ⬡ 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New shared path
- Upgrade of footpath to shared path
- New footpath



Legend

Key attractors

10 minute walking catchment

Shellharbour LGA footpath network

Shellharbour LGA bicycle network

Shared path

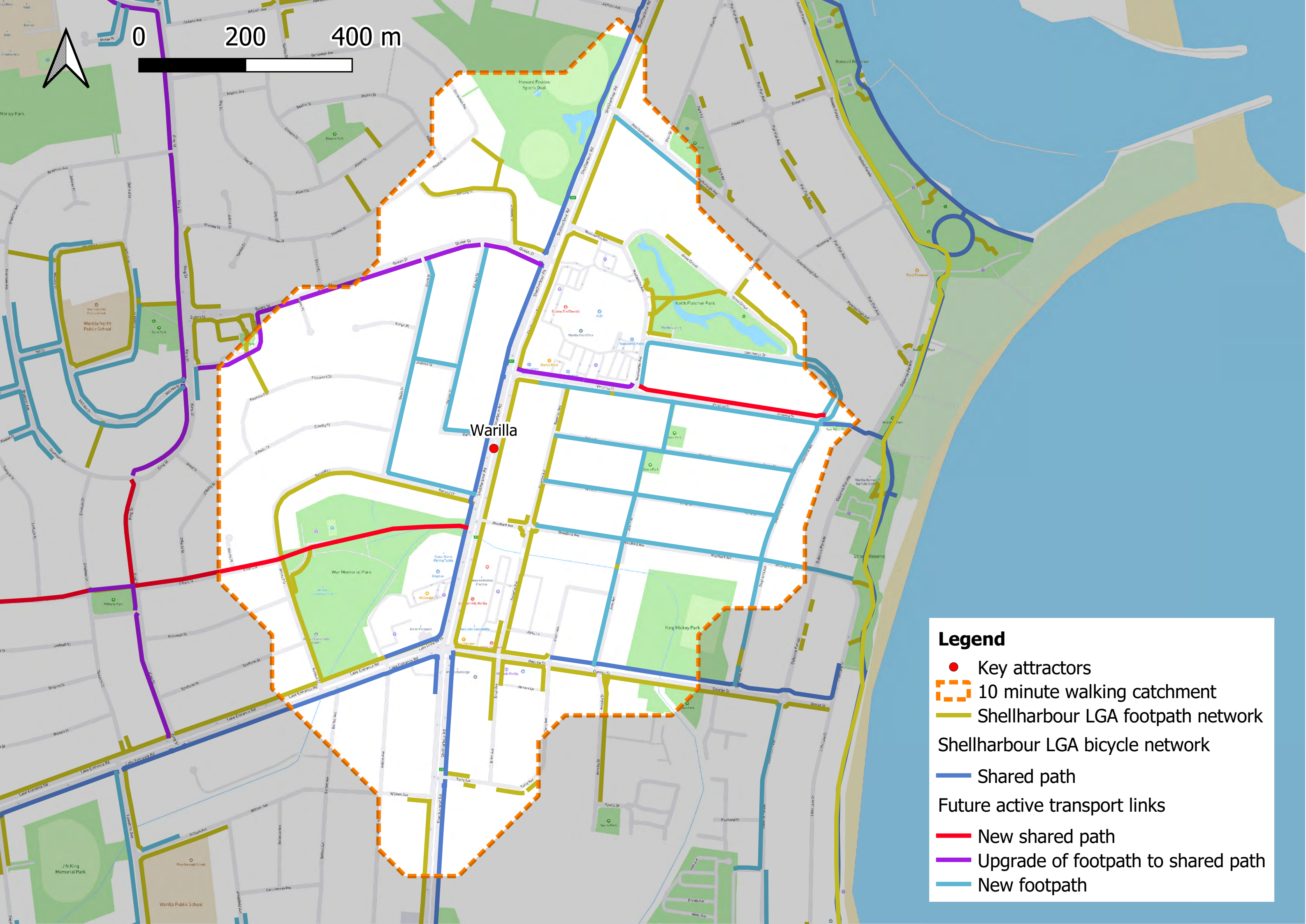
Future active transport links

New shared path

Upgrade of footpath to shared path

New footpath

Quietway



0 200 400 m

Warilla

Legend

Key attractors

10 minute walking catchment

Shellharbour LGA footpath network

Shellharbour LGA bicycle network

Shared path

Future active transport links

New shared path

Upgrade of footpath to shared path

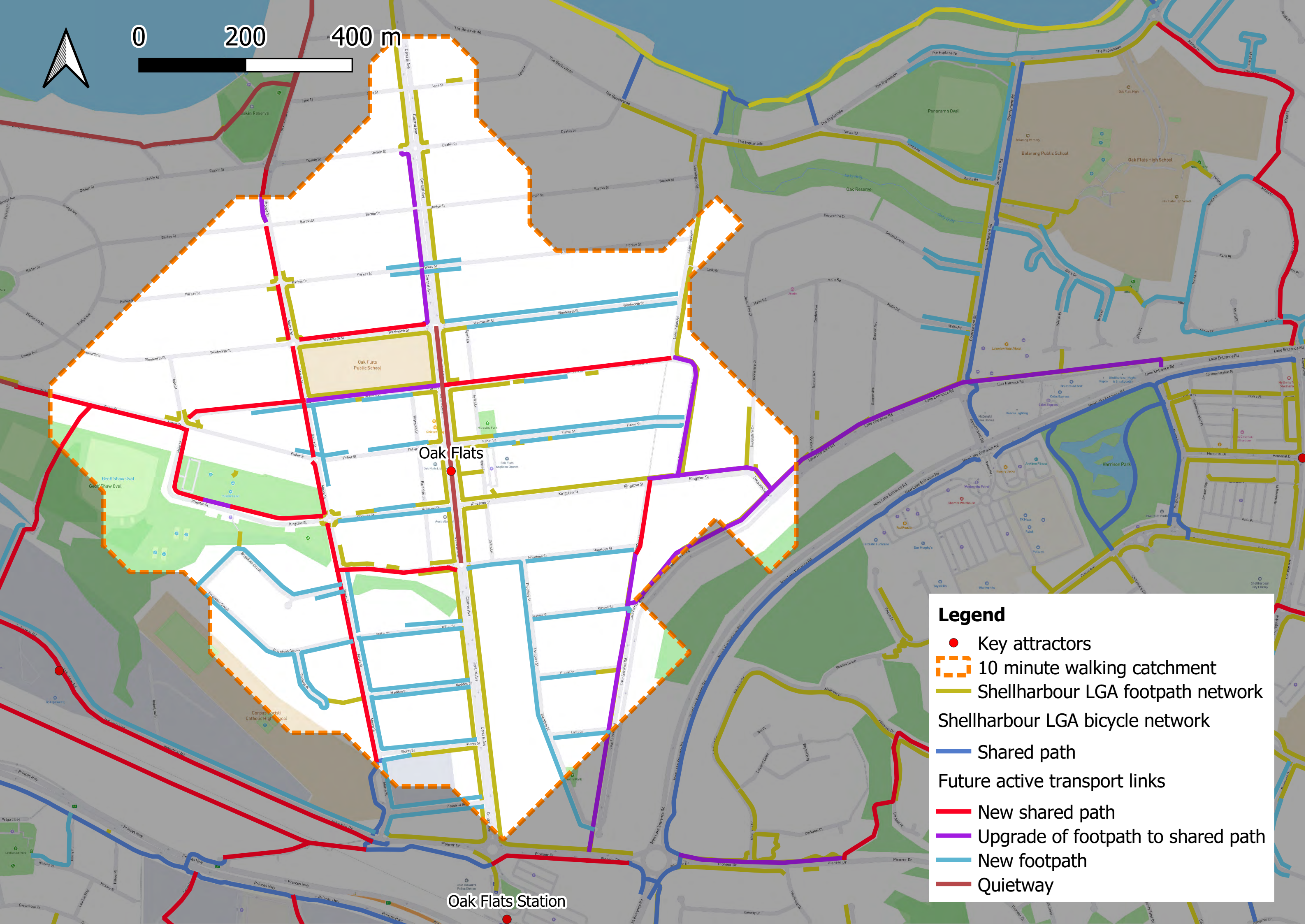
New footpath



0

200

400 m



Oak Flats

Oak Flats Station

Legend

- Key attractors
- ⬡ 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New shared path
- Upgrade of footpath to shared path
- New footpath
- Quietway



Shellharbour Village

Legend

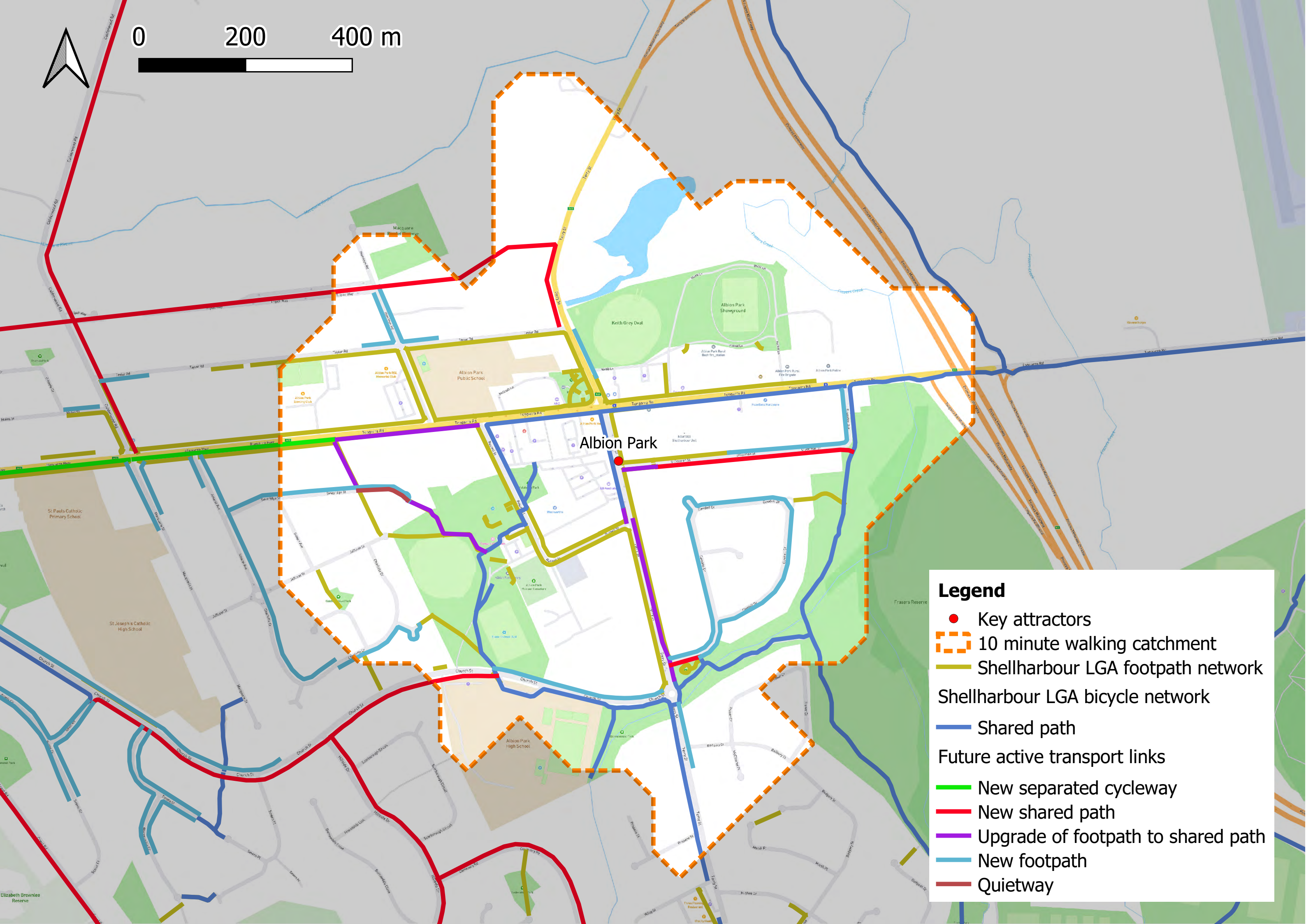
- Key attractors
- ⬡ 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
 - New shared path
 - Upgrade of footpath to shared path
 - New footpath



0

200

400 m



Legend

- Key attractors
- ⬡ 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
 - New separated cycleway
 - New shared path
 - Upgrade of footpath to shared path
 - New footpath
 - Quietway



0 100 200 m



Oak Flats

Oak Flats Industrial

Legend

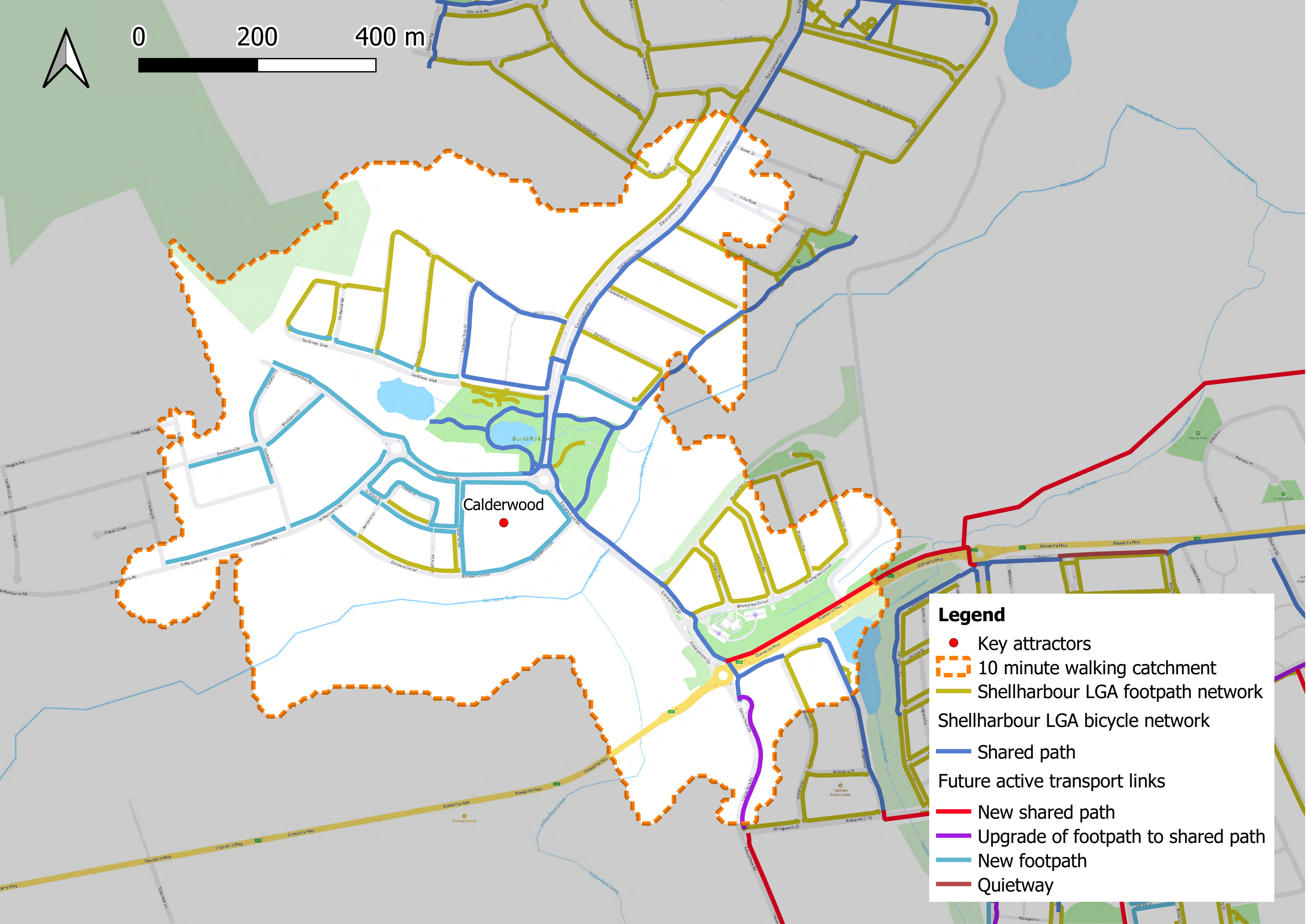
- Key attractors
- 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
 - New shared path
 - Upgrade of footpath to shared path
 - New footpath
 - Quietway



0

200

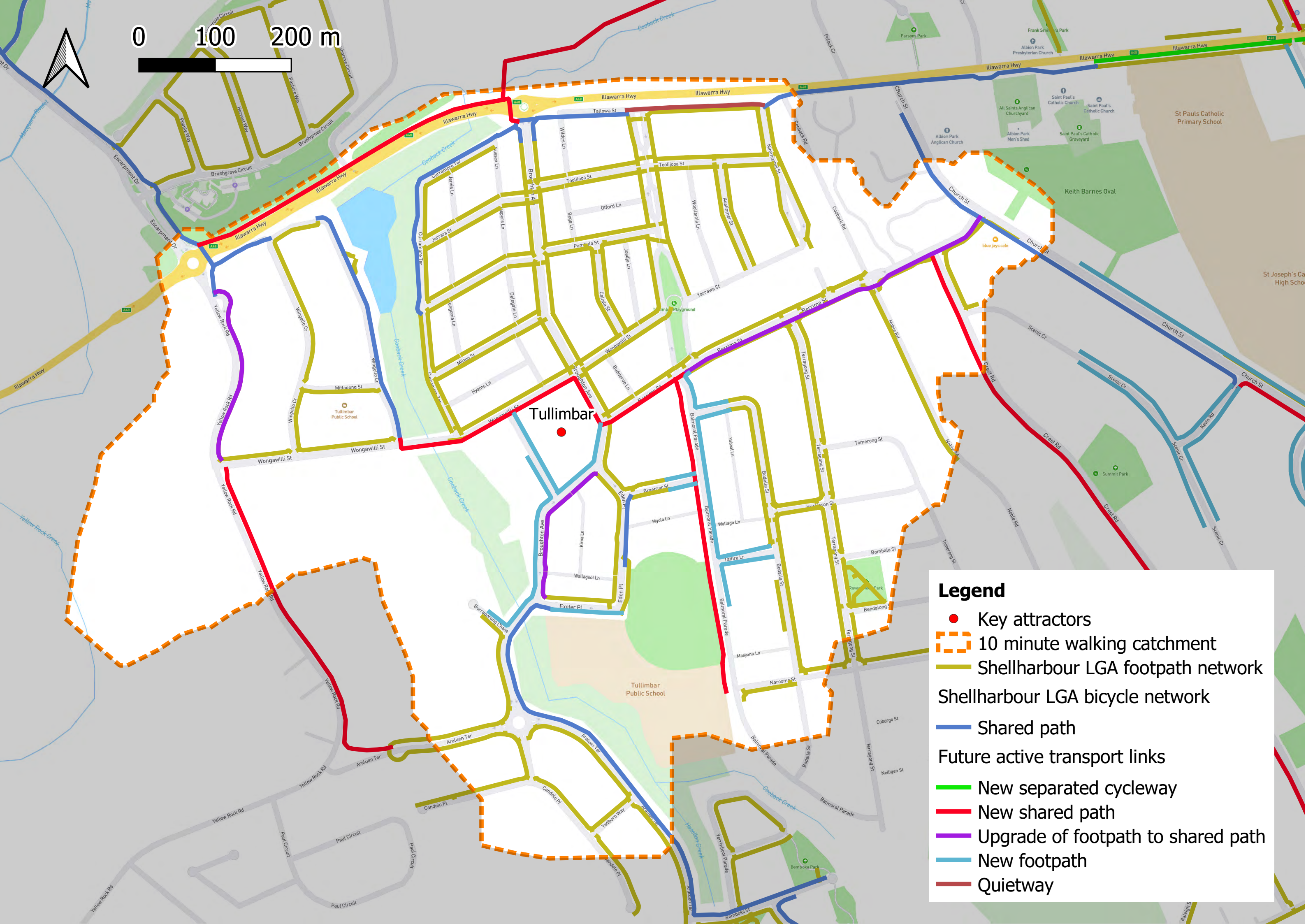
400 m



Calderwood

Legend

- Key attractors
- ⬡ 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New shared path
- Upgrade of footpath to shared path
- New footpath
- Quietway



Legend

- Key attractors
- ⬡ 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New separated cycleway
- New shared path
- Upgrade of footpath to shared path
- New footpath
- Quietway



0 100 200 m

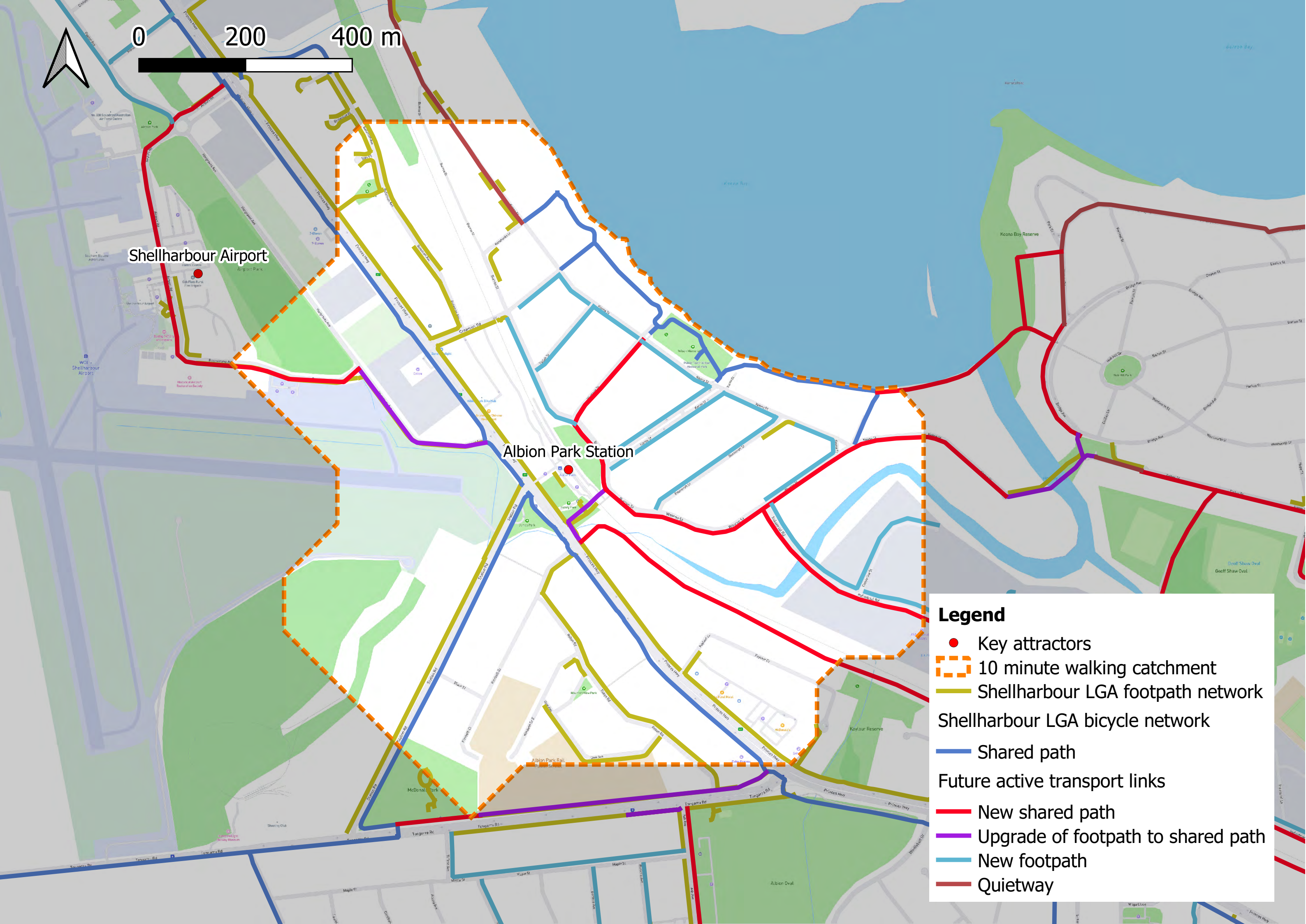


Legend

- Key attractors
- ▤ 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New shared path
- Upgrade of footpath to shared path
- New footpath
- Quietway

Shellharbour Airport

Albion Park Station

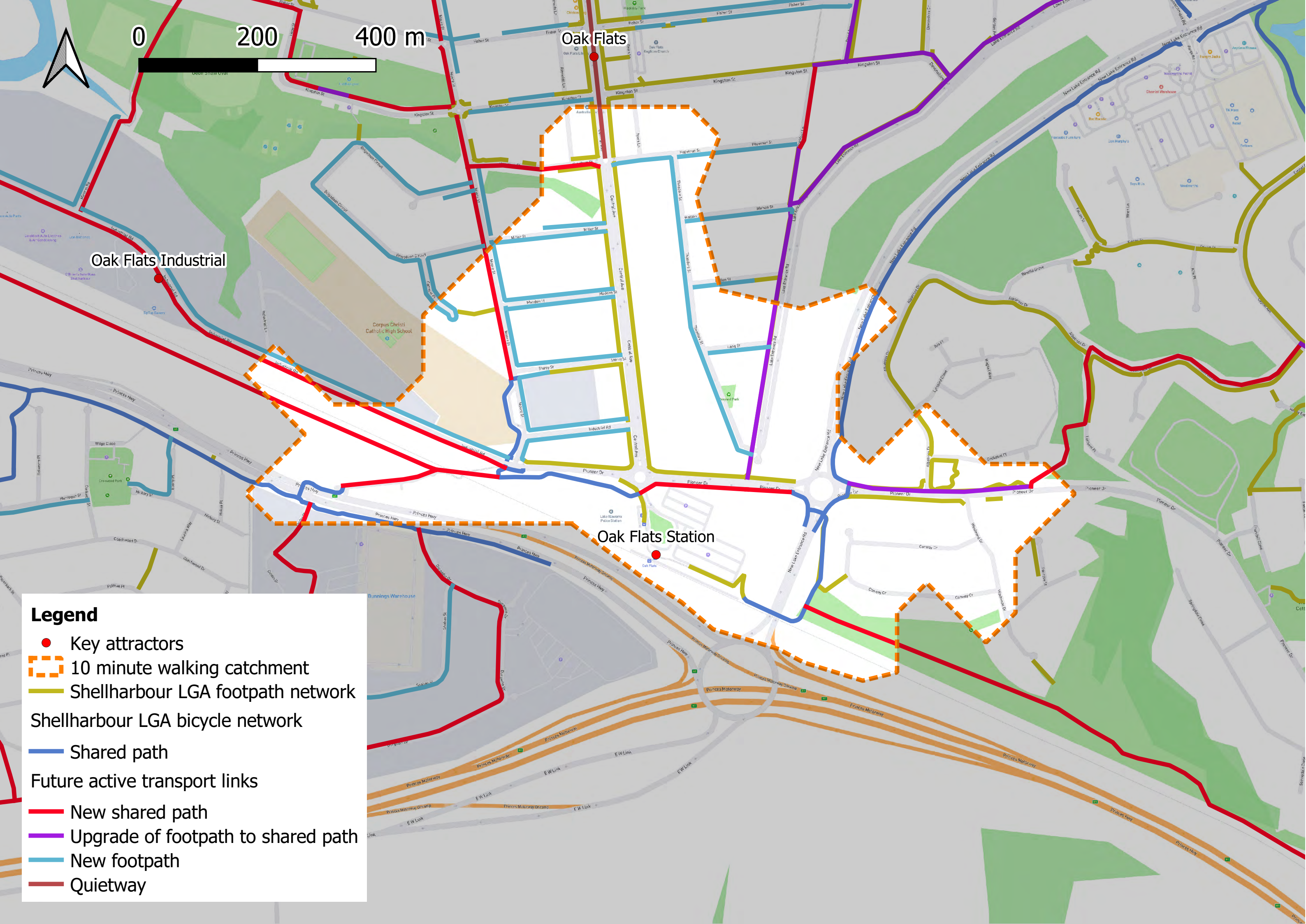


Shellharbour Airport

Albion Park Station

Legend

- Key attractors
- ⬡ 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New shared path
- Upgrade of footpath to shared path
- New footpath
- Quietway



Legend

- Key attractors
- ⬡ 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New shared path
- Upgrade of footpath to shared path
- New footpath
- Quietway



0

200

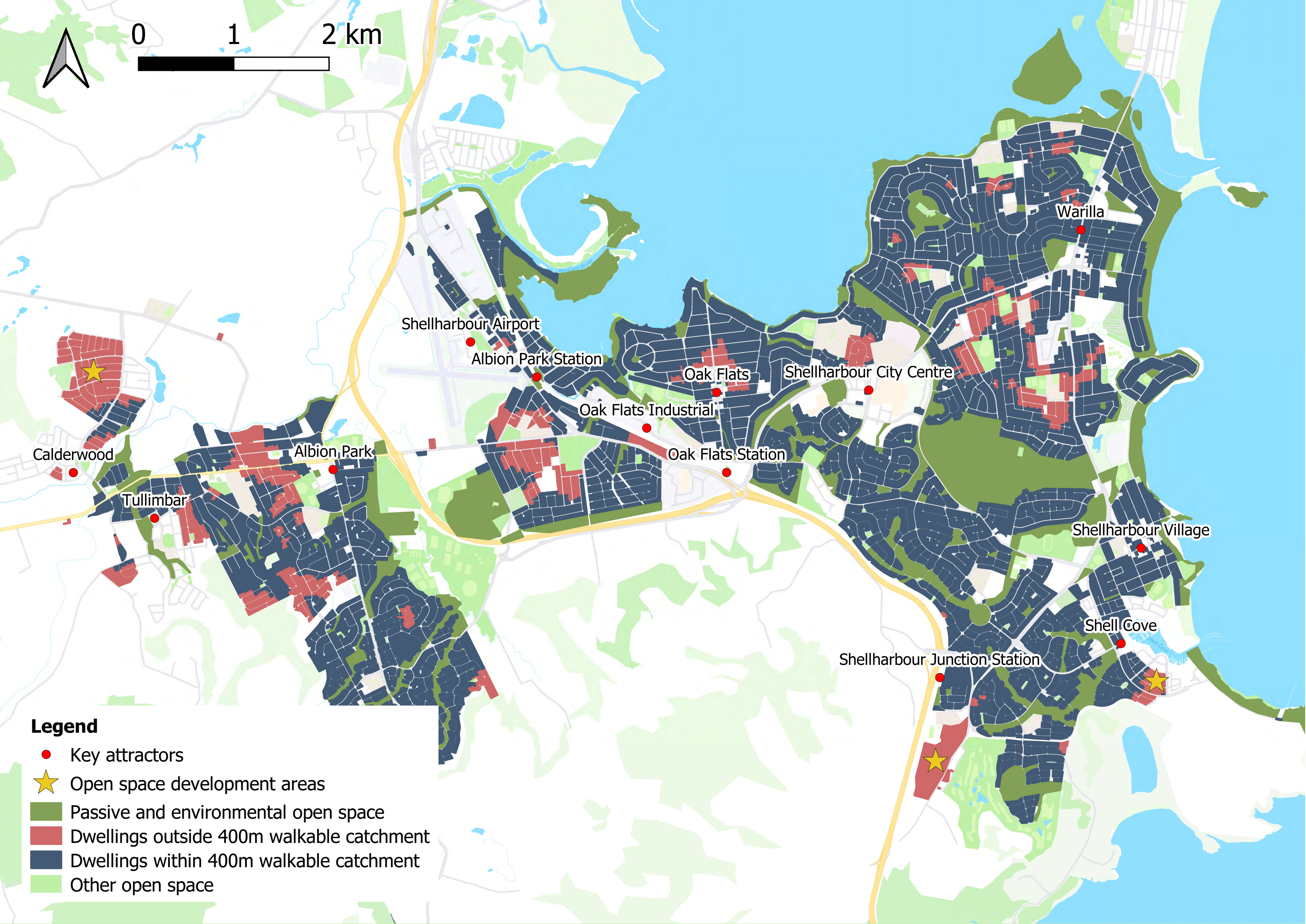
400 m



Shellharbour Junction Station

Legend

- Key attractors
- ▭ 10 minute walking catchment
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New shared path
- Upgrade of footpath to shared path
- New footpath





Albion Park

Legend

- Key attractors
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New separated cycleway
- New shared path
- Upgrade of footpath to shared path
- New footpath
- Quietway
- Dwellings outside 400m walkable catchment
- Dwellings within 400m walkable catchment
- Passive and environmental open space
- Other open space



0 200 400 m



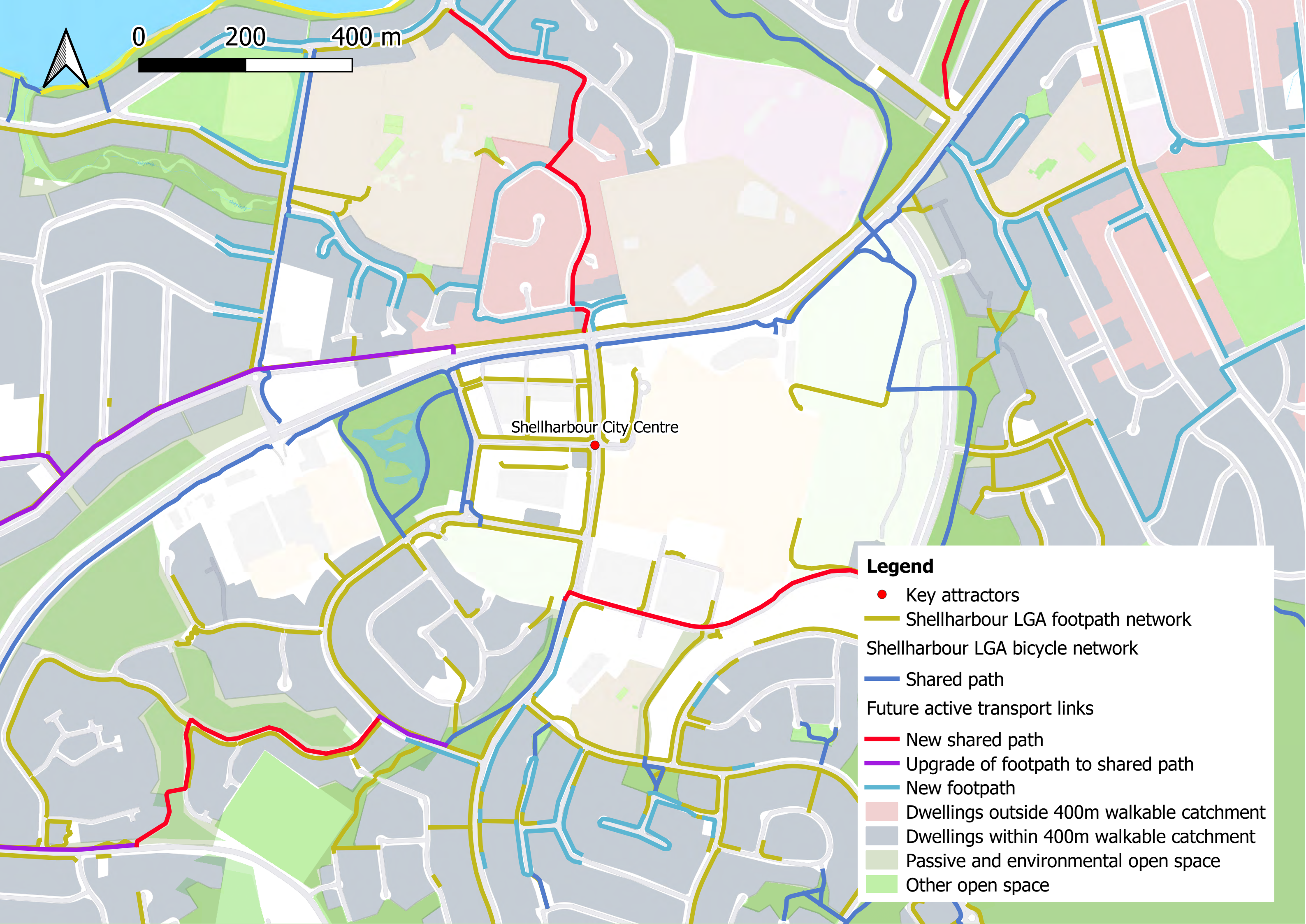
Albion Park Station

Oak Flats Industrial

Legend

- Key attractors
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New shared path
- Upgrade of footpath to shared path
- New footpath
- Quietway
- Dwellings outside 400m walkable catchment
- Dwellings within 400m walkable catchment
- Passive and environmental open space
- Other open space





0

200

400 m

Shellharbour City Centre

Legend

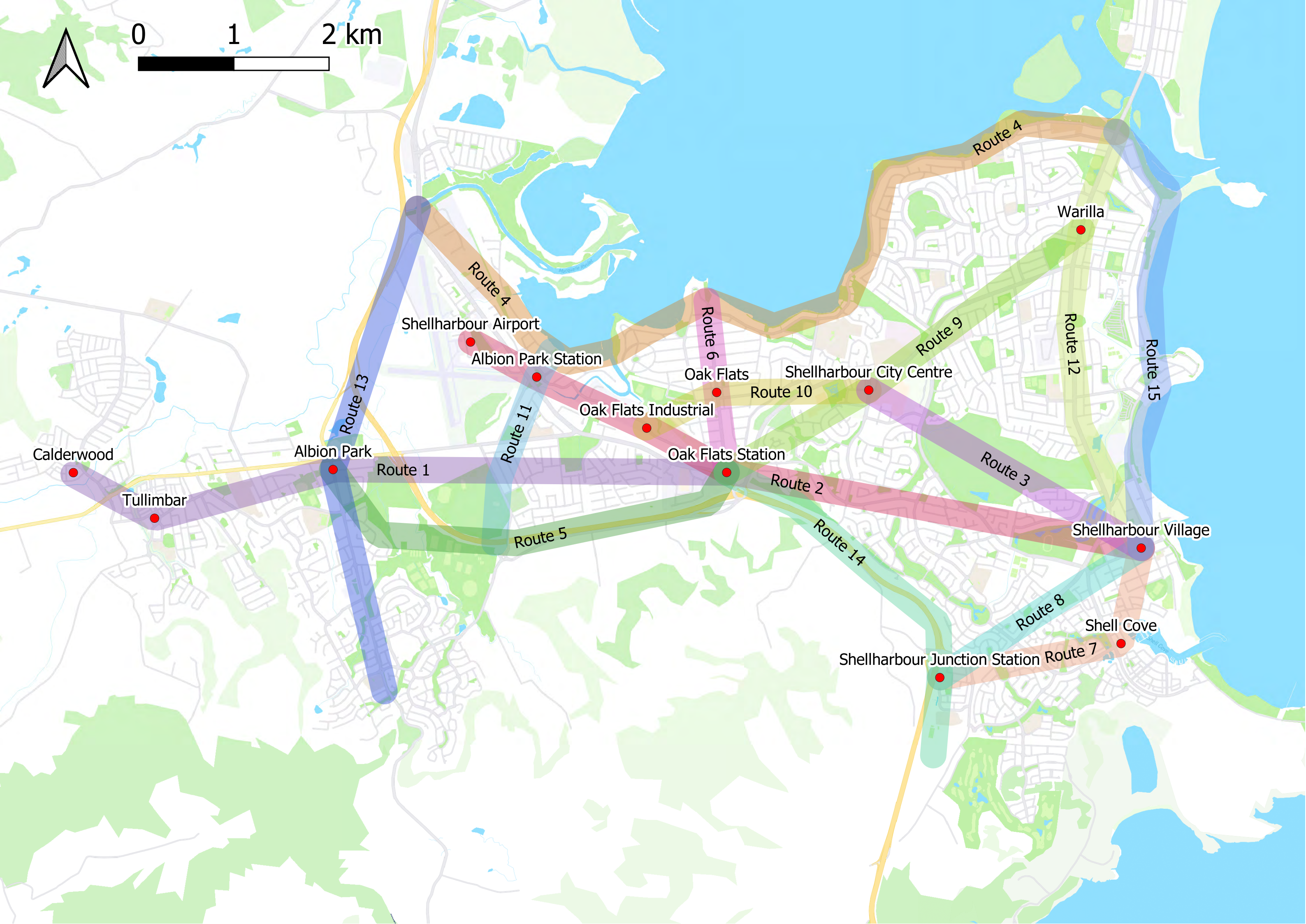
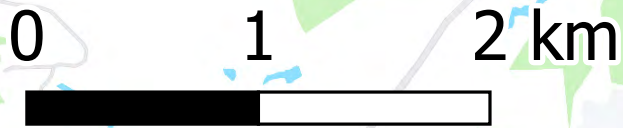
- Key attractors
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
- New shared path
- Upgrade of footpath to shared path
- New footpath
- Dwellings outside 400m walkable catchment
- Dwellings within 400m walkable catchment
- Passive and environmental open space
- Other open space

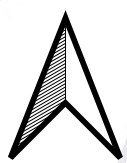


0 300 600 m

Legend

- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- Future active transport links
 - New shared path
 - Upgrade of footpath to shared path
 - New footpath
- Dwellings outside 400m walkable catchment
- Dwellings within 400m walkable catchment
- Passive and environmental open space
- Other open space

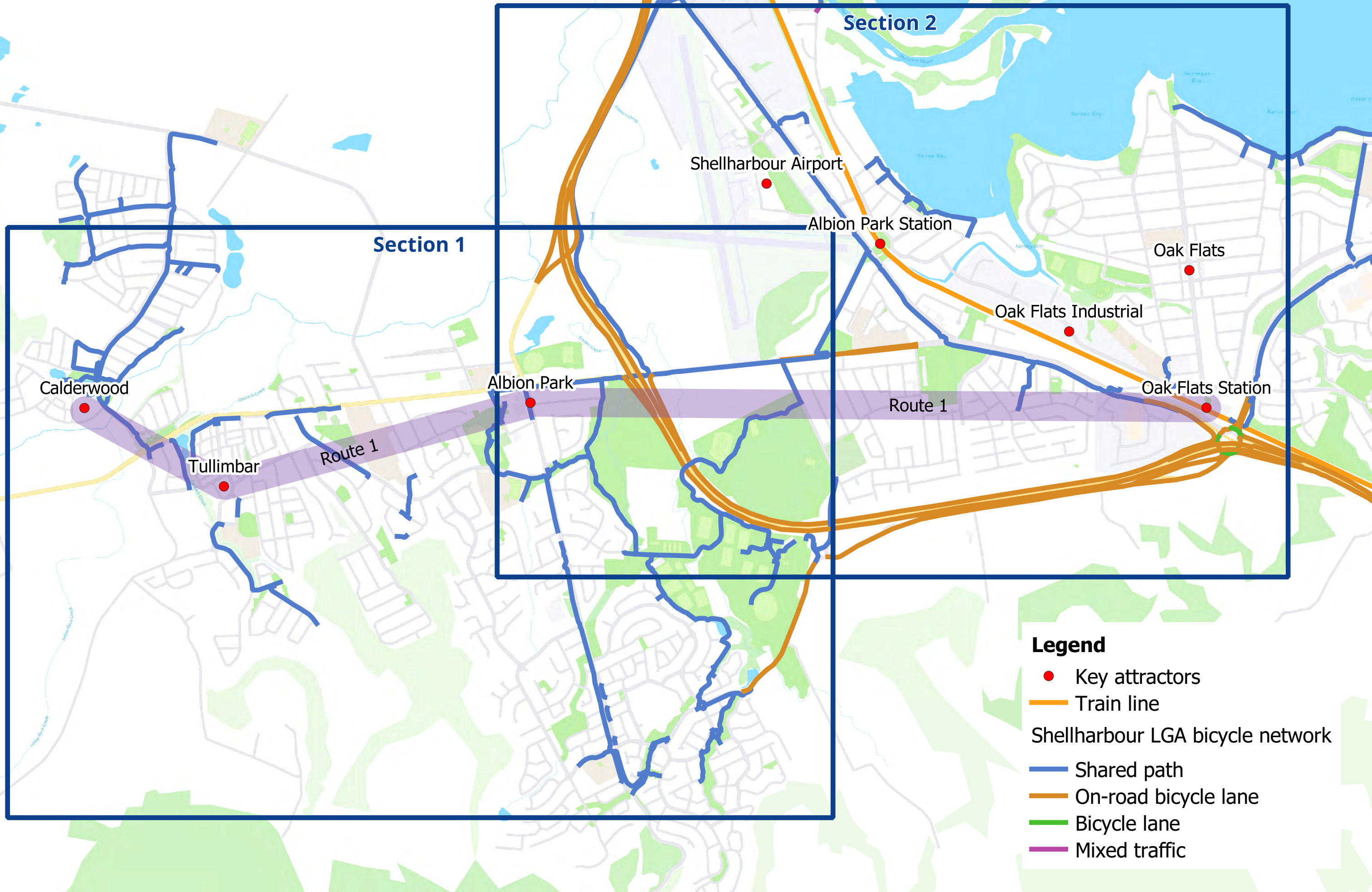


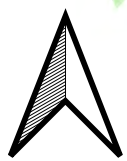


0

1

2 km





0 500 1000 m



Calderwood



1

Tullimbar

2

4

3

10

5

6

8

7

9

11

Albion Park



Legend

- Key attractors

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

Future active transport links - Route 1

— New separated cycleway

— New shared path

— Upgrade of footpath to shared path

— Quietway



0 400 800 m

Shellharbour Airport

Albion Park Station

Oak Flats

Oak Flats Industrial

Oak Flats Station

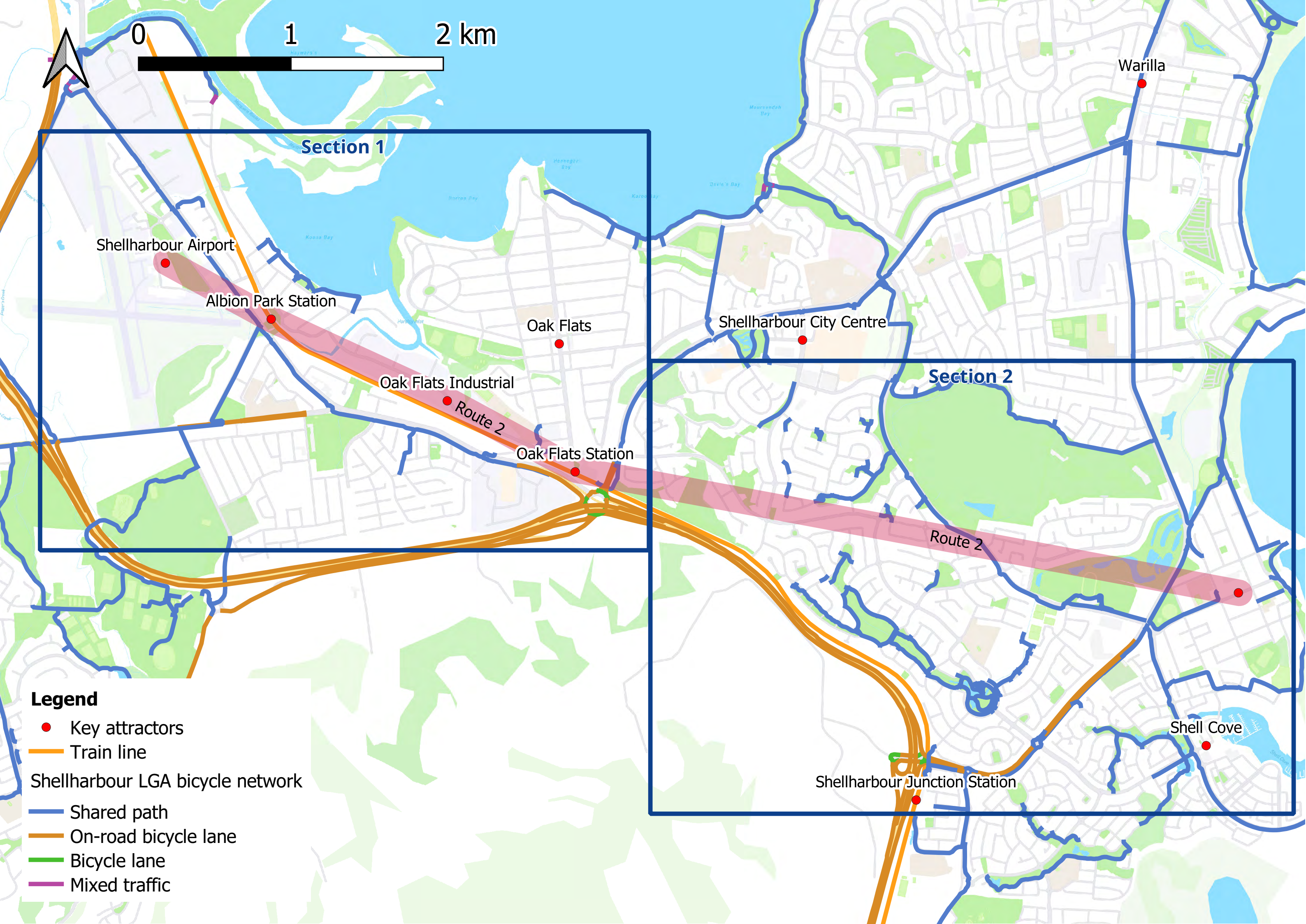
13

12

14

Legend

- Key attractors
- Train line
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane
- Future active transport links - Route 1
 - New shared path
 - Upgrade of footpath to shared path



0 1 2 km

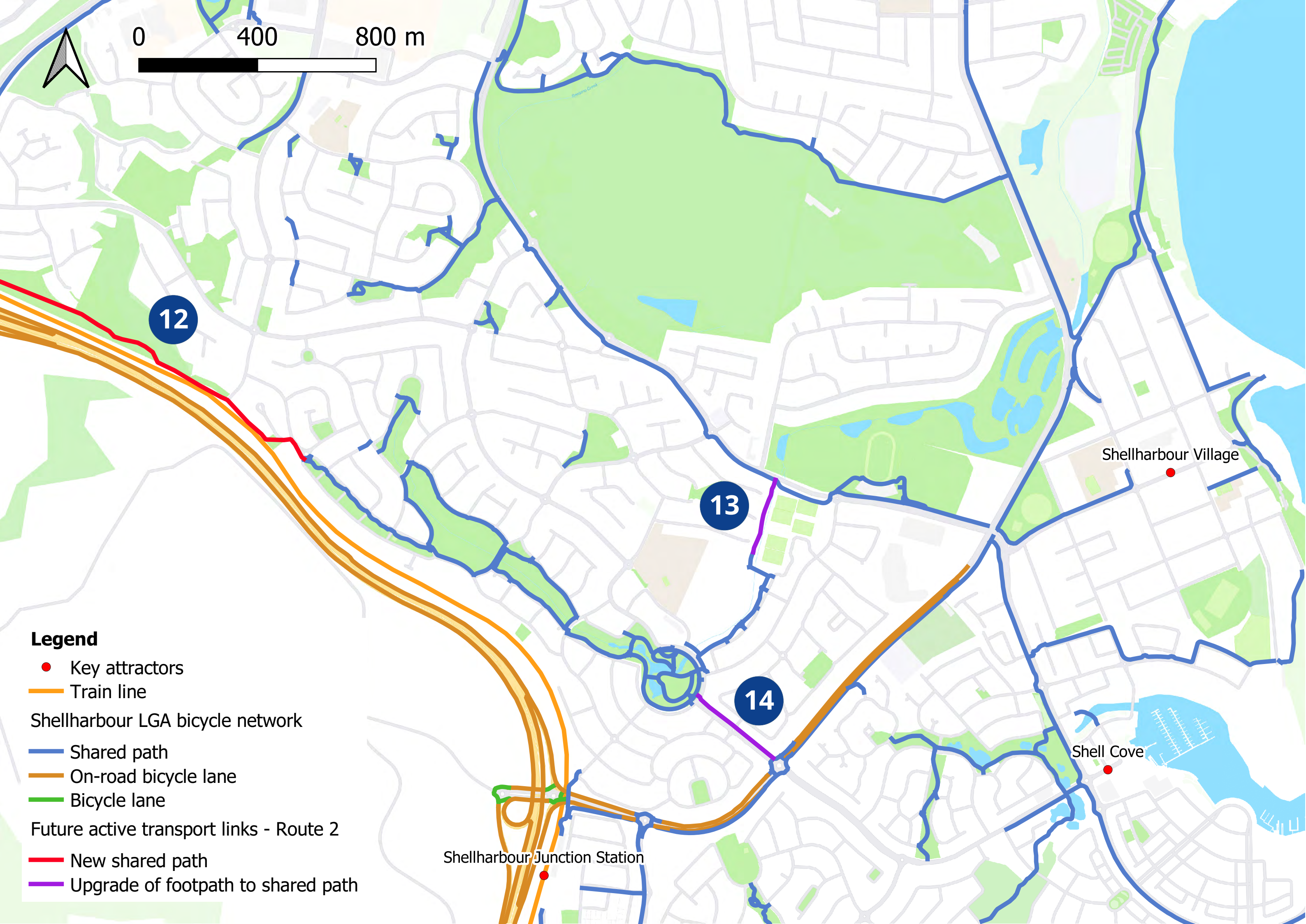
Section 1

Section 2

Legend

- Key attractors
- Train line
- Shellharbour LGA bicycle network
- Shared path
- On-road bicycle lane
- Bicycle lane
- Mixed traffic





0 400 800 m

12

13

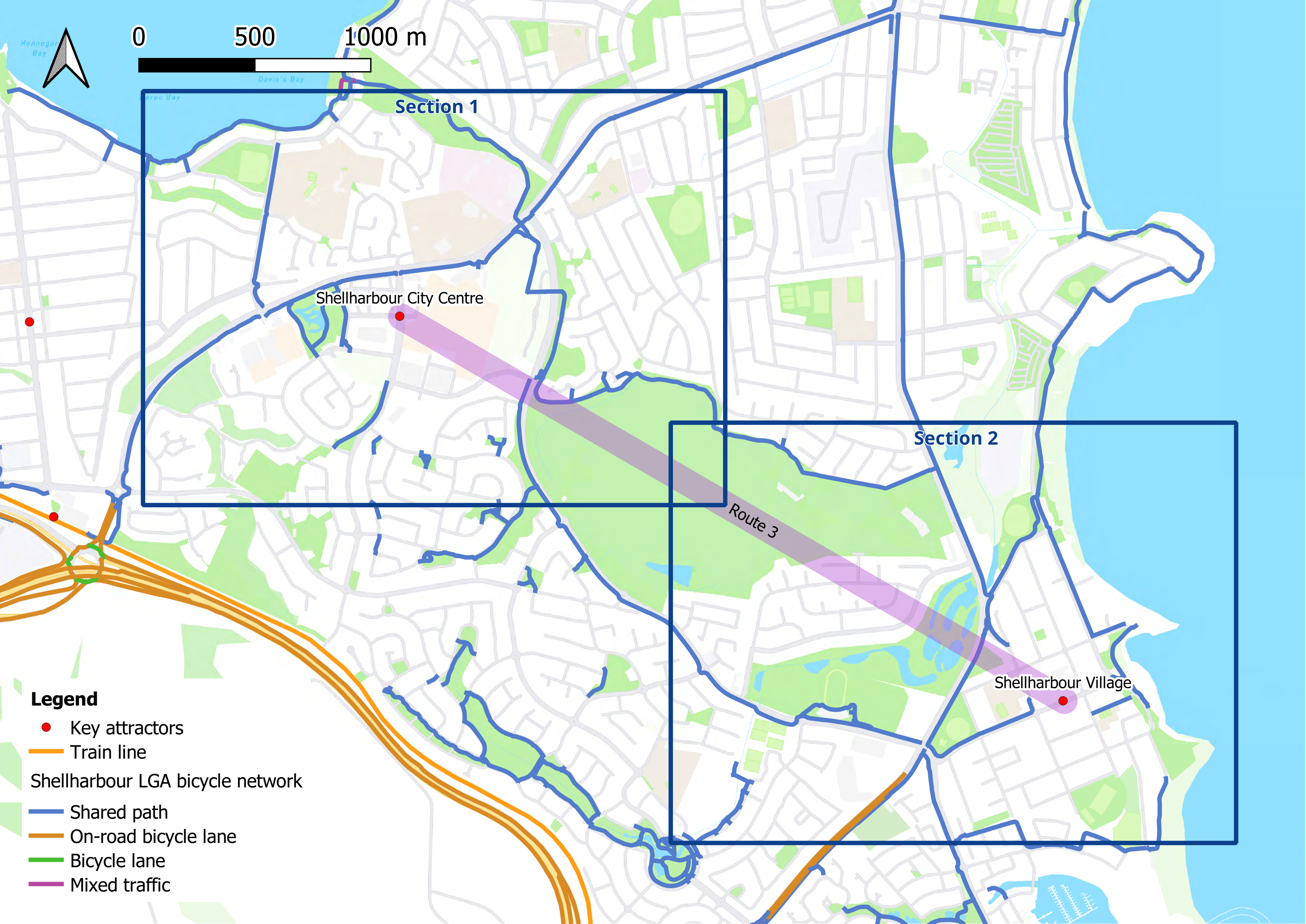
14

Shellharbour Village

Shell Cove

Shellharbour Junction Station

- Legend**
- Key attractors
 - Train line
 - Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane
 - Future active transport links - Route 2
 - New shared path
 - Upgrade of footpath to shared path



0 500 1000 m

Section 1

Shellharbour City Centre

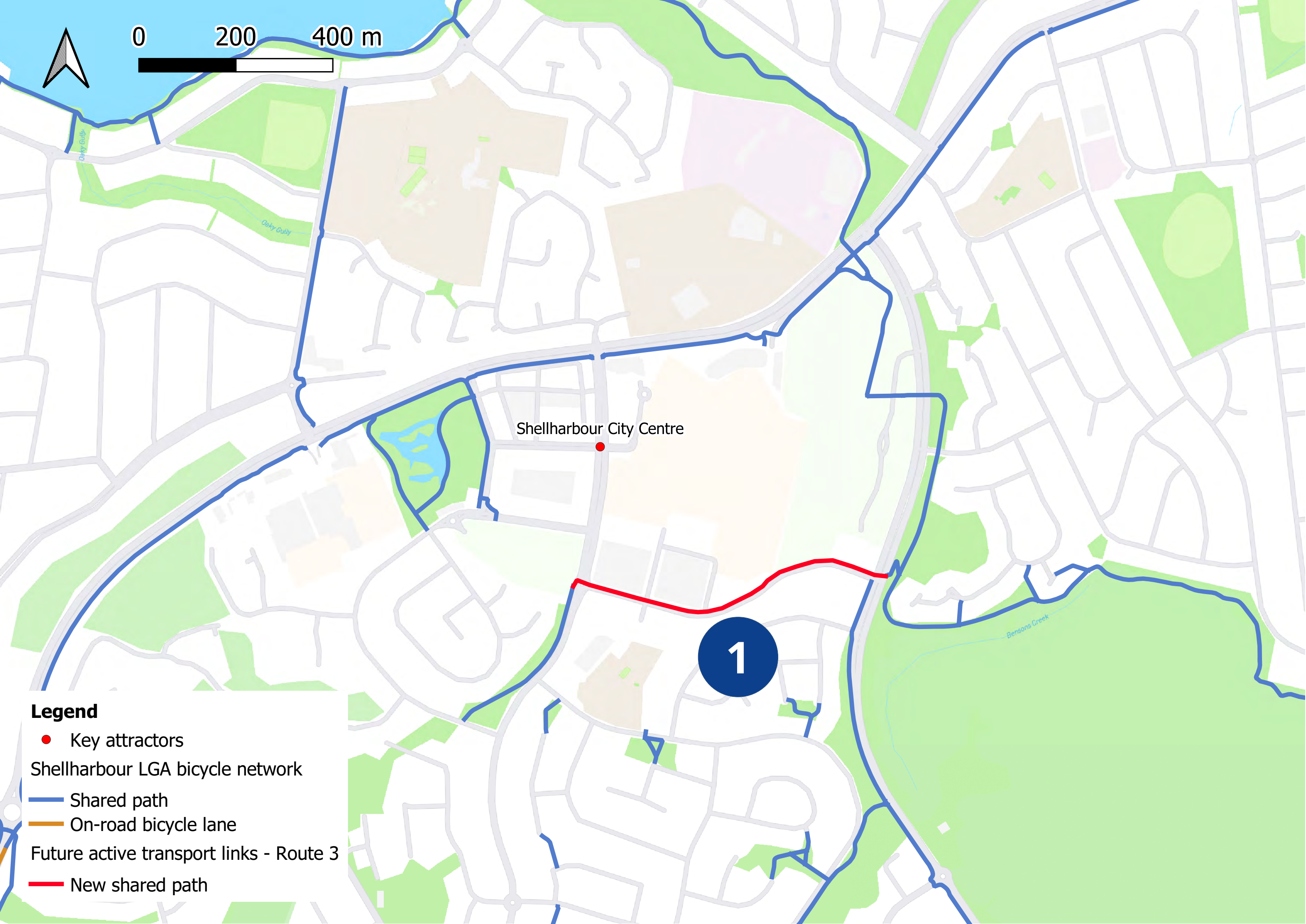
Section 2

Route 3

Shellharbour Village

Legend

- Key attractors
- Train line
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane
 - Mixed traffic



0 200 400 m

Shellharbour City Centre

1

Legend

- Key attractors
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
- Future active transport links - Route 3
 - New shared path





0

1

2 km

Section 1

Section 2

Route 4

Route 4

Shellharbour Airport

Albion Park Station

Oak Flats

Oak Flats Industrial

Oak Flats Station

Shellharbour City Centre

Warilla

Legend

● Key attractors

— Train line

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

— Bicycle lane

— Mixed traffic





0

300

600 m



11

Warilla

Legend

● Key attractors

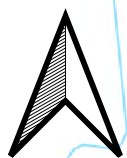
Shellharbour LGA bicycle network

— Shared path

— Mixed traffic

Future Active Transport Links - Route 4

— Bifurcation



0

500

1000 m



Shellharbour Airport

Albion Park Station

Oak Flats

Oak Flats Industrial

Albion Park

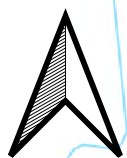
Oak Flats Station

Route 5

Route 5

Legend

- Key attractors
- Train line
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane



0

500

1000 m



Shellharbour Airport

Albion Park Station

Oak Flats

Oak Flats Industrial

Oak Flats Station

Albion Park

1

2

3

4

5

6

7

8

Legend

● Key attractors

— Train line

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

— Bicycle lane

Future active transport links - Route 5

— New shared path

— Upgrade of footpath to shared path



0 300 600 m



Route 6

Oak Flats

Oak Flats Industrial

Oak Flats Station

Shellharbour City Centre

Legend

- Key attractors
- Train line
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane
 - Mixed traffic





0 300 600 m

Shellharbour Village

Route 7

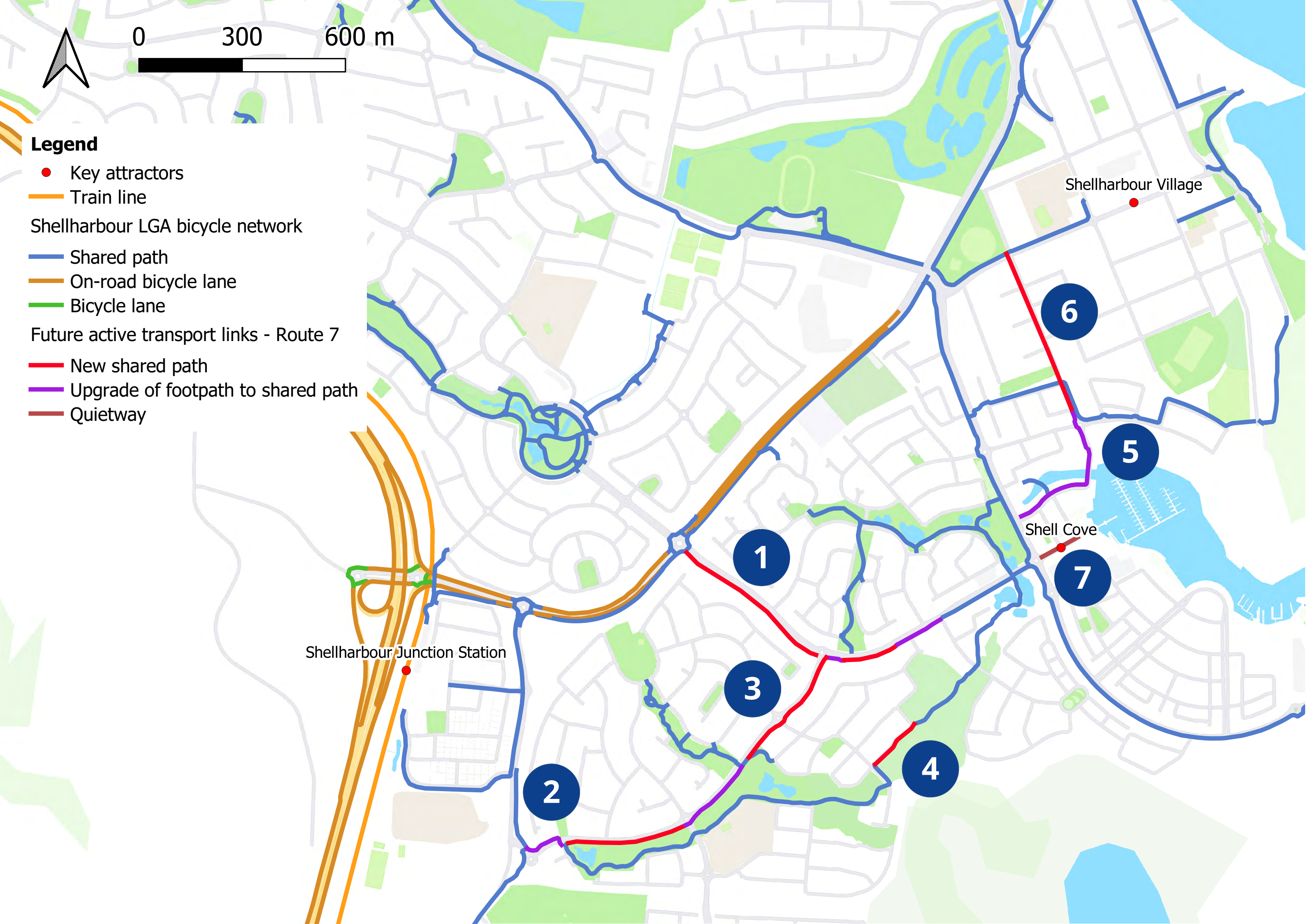
Shell Cove

Shellharbour Junction Station

Route 7

Legend

- Key attractors
- Train line
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane



0 300 600 m

Legend

- Key attractors
- Train line
- Shellharbour LGA bicycle network
- Shared path
- On-road bicycle lane
- Bicycle lane
- Future active transport links - Route 7
- New shared path
- Upgrade of footpath to shared path
- Quietway

Shellharbour Village

Shellharbour Junction Station

Shell Cove

6

5

7

1

3

2

4



0 300 600 m

Shellharbour Village

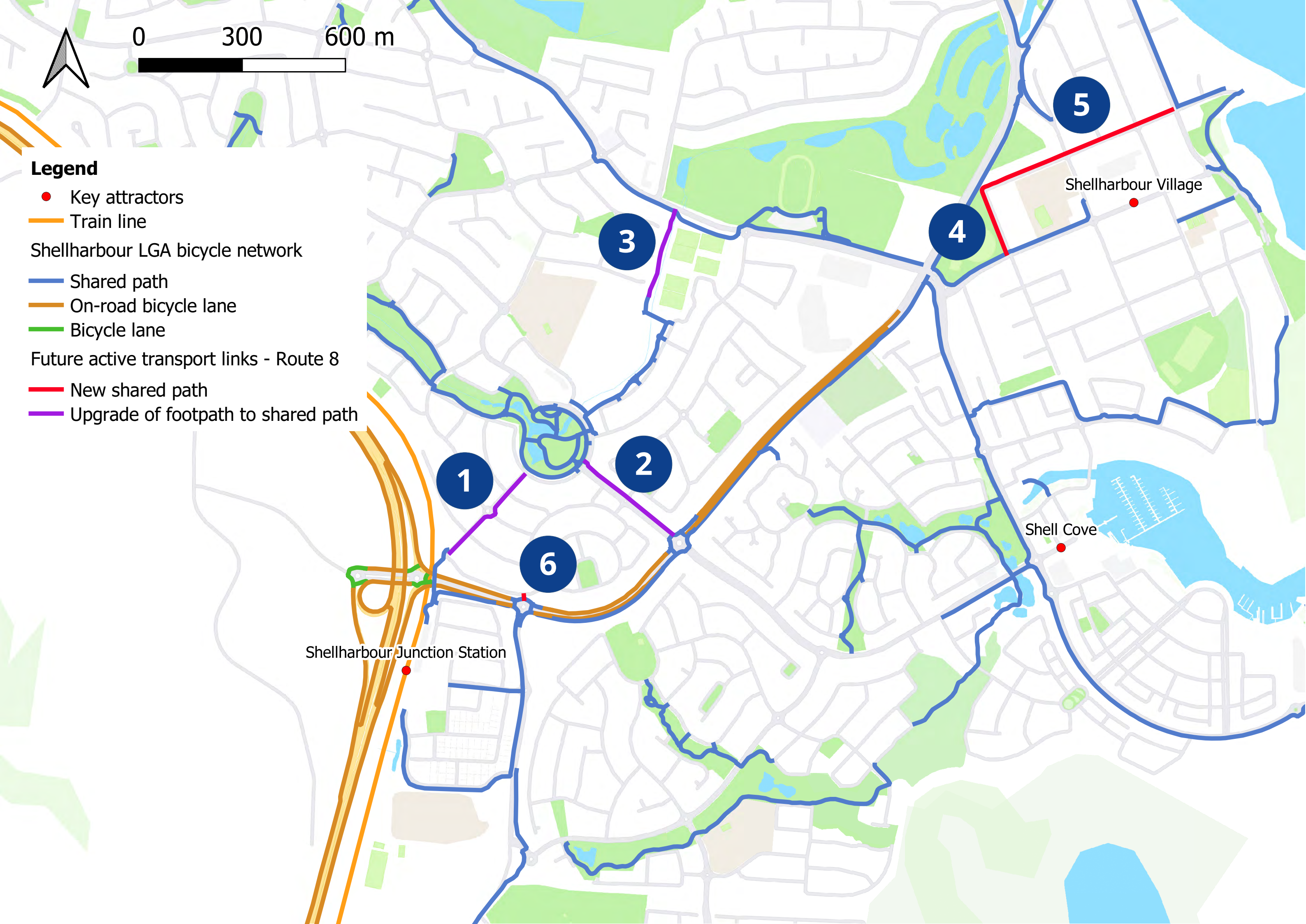
Route 8

Shell Cove

Shellharbour Junction Station

Legend

- Key attractors
- Train line
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane





0

500

1000 m



Warilla

Route 9

Oak Flats

Shellharbour City Centre

Route 9

Oak Flats Station

Legend

● Key attractors

— Train line

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

— Bicycle lane

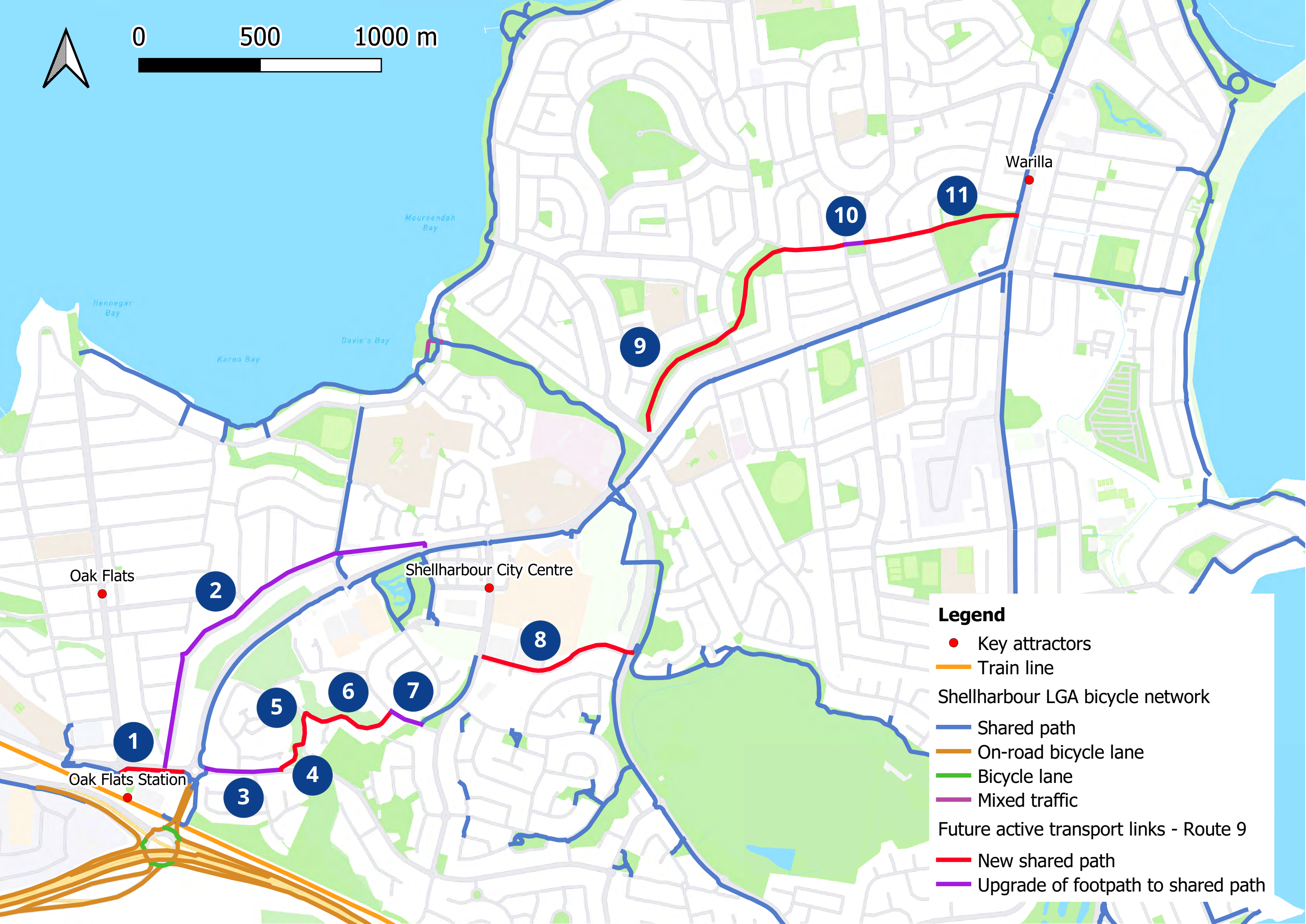
— Mixed traffic



0

500

1000 m





0

300

600 m

Oak Flats

Route 10

Shellharbour City Centre

Route 10

Oak Flats Industrial

Oak Flats Station

Legend

● Key attractors

— Train line

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

— Bicycle lane



0 300 600 m



3

2

1

4

5

6

7

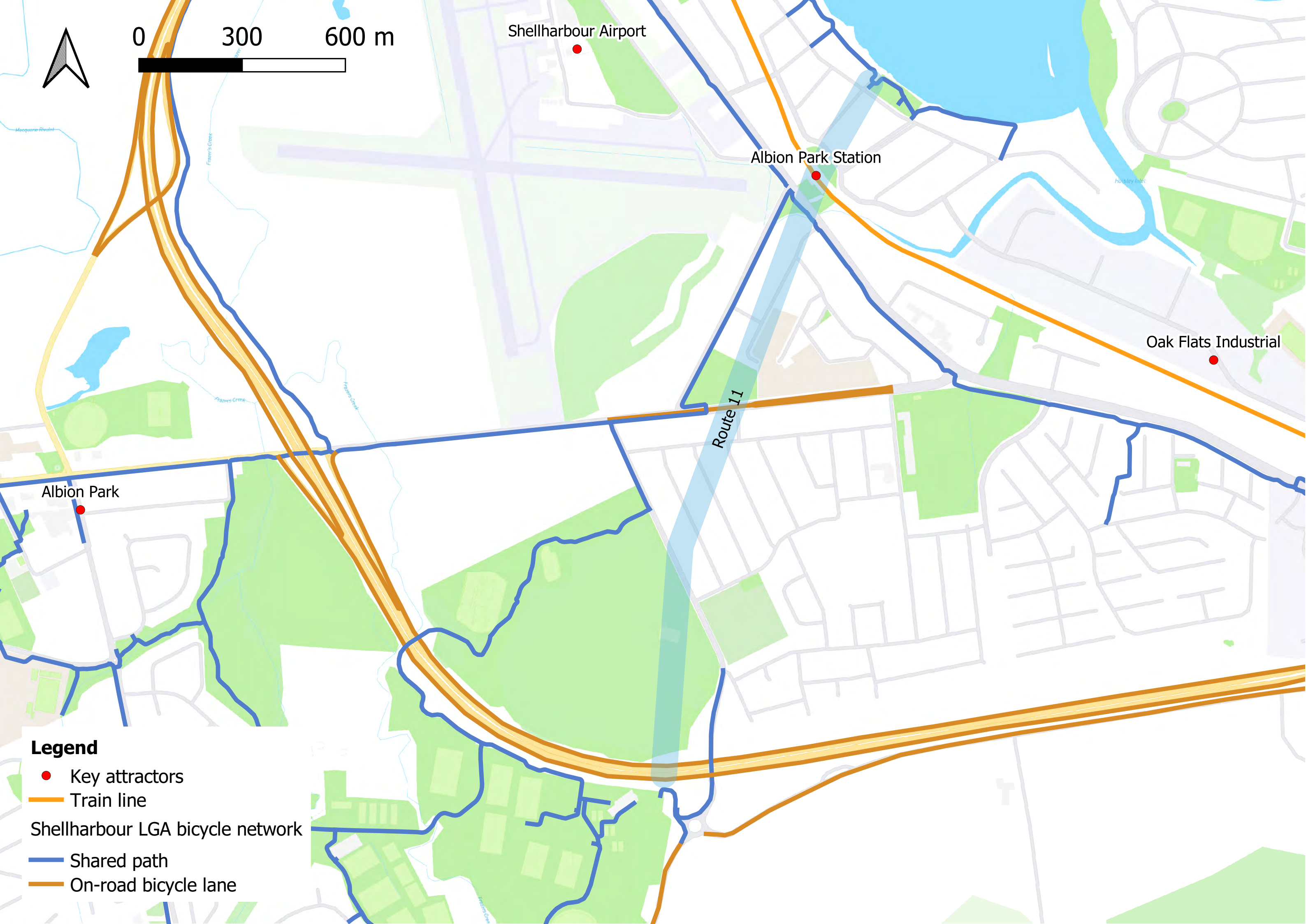
Oak Flats Industrial

Oak Flats

Oak Flats Station

Shellharbour City Centre

- Legend**
- Key attractors
 - Train line
 - Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane
 - Future active transport links - Route 10
 - New shared path
 - Upgrade of footpath to shared path



Shellharbour Airport

Albion Park Station

Oak Flats Industrial

Albion Park

Route 11

Legend

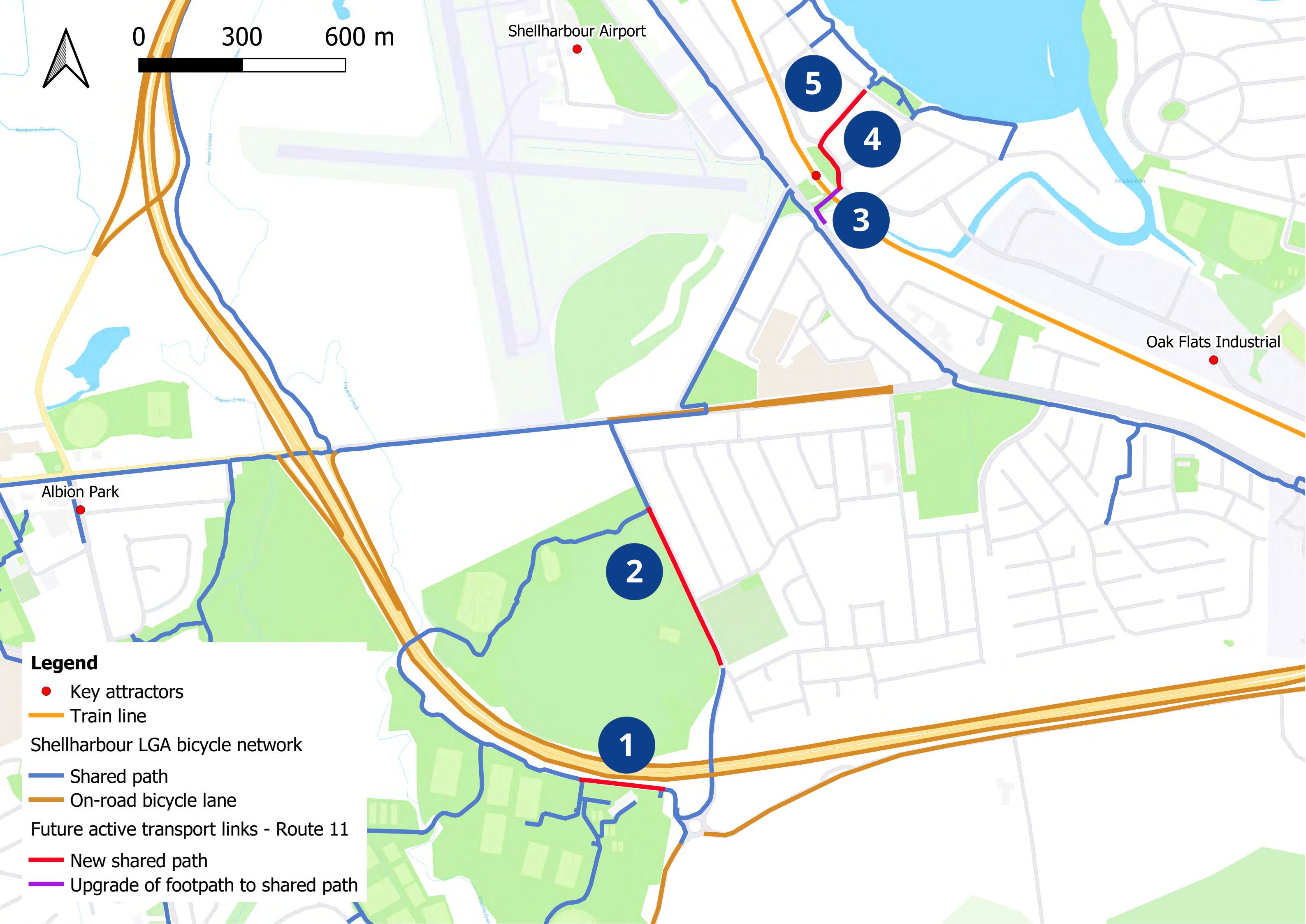
● Key attractors

— Train line

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane





0

1

2 km



Legend

● Key attractors

— Train line

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

— Bicycle lane

— Mixed traffic



0

1

2 km



Warilla

Shellharbour City Centre

Shellharbour Village

Legend

● Key attractors

— Train line

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

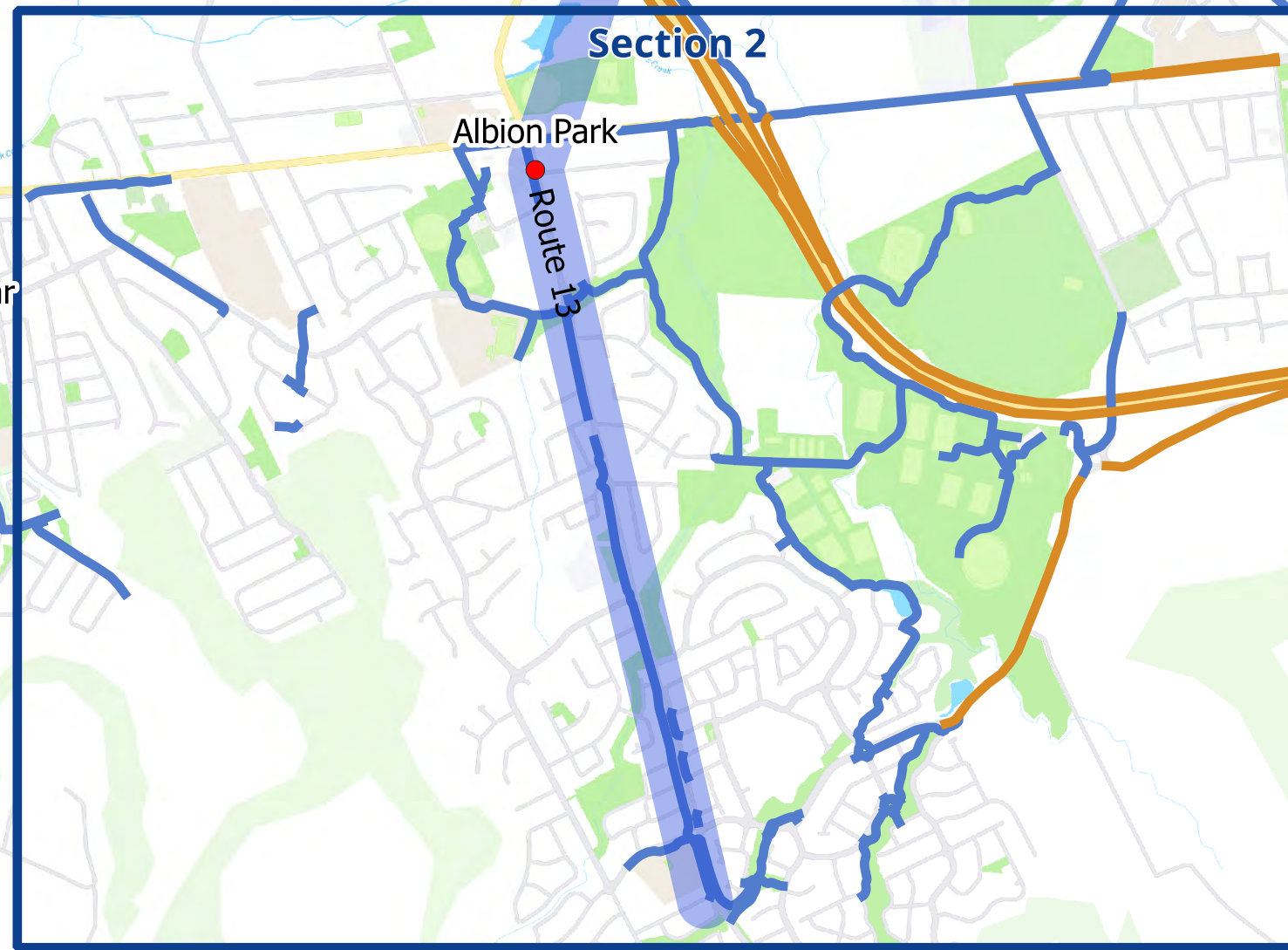
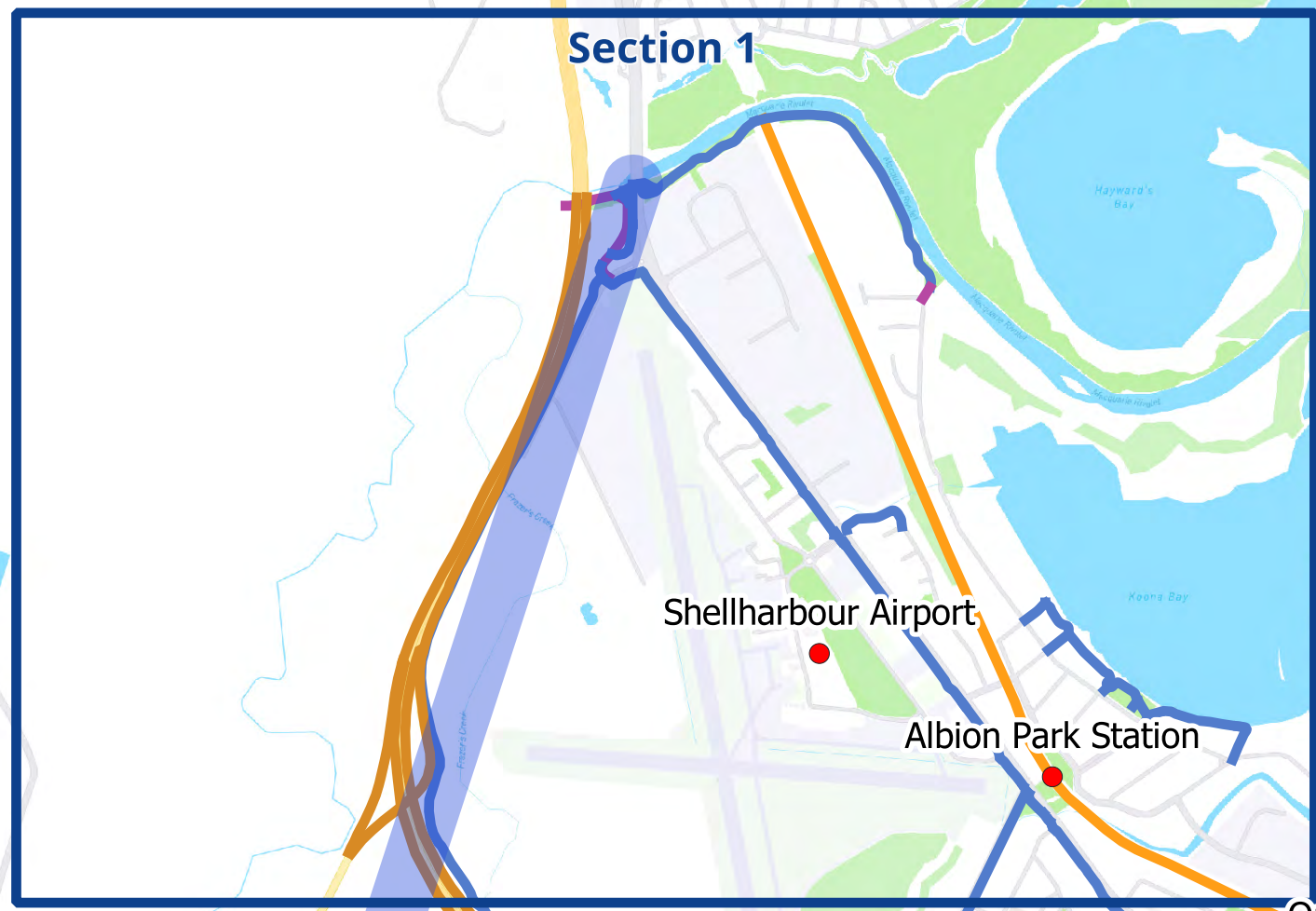
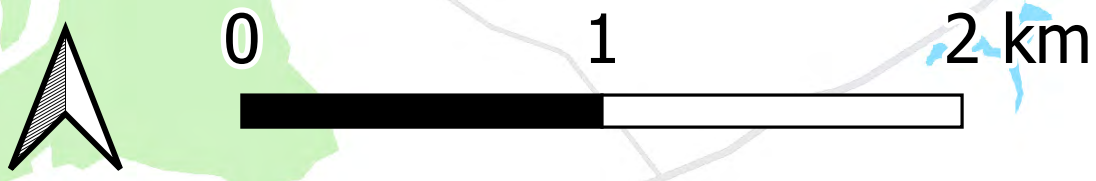
— Bicycle lane

— Mixed traffic

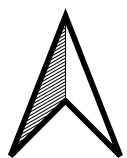
Future Active Transport Links - Route 12

— New shared path

— Upgrade of footpath to shared path



- Legend**
- Key attractors
 - Train line
 - Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane
 - Mixed traffic



0

400

800 m



Legend

● Key attractors

— Train line

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

— Mixed traffic

Future active transport links - Route 13

— New shared path





0 400 800 m



Albion Park

2

3

4

5

7

8

6

10

9

11

Legend

● Key attractors

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

Future active transport links - Route 13

— New shared path

— Upgrade of footpath to shared path

— Quietway





0 500 1000 m
Oak Flats Station

Route 14

Shellharbour Junction Station

Route 14

Legend

- Key attractors
- Train line
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane



0 500 1000 m
Oak Flats Station

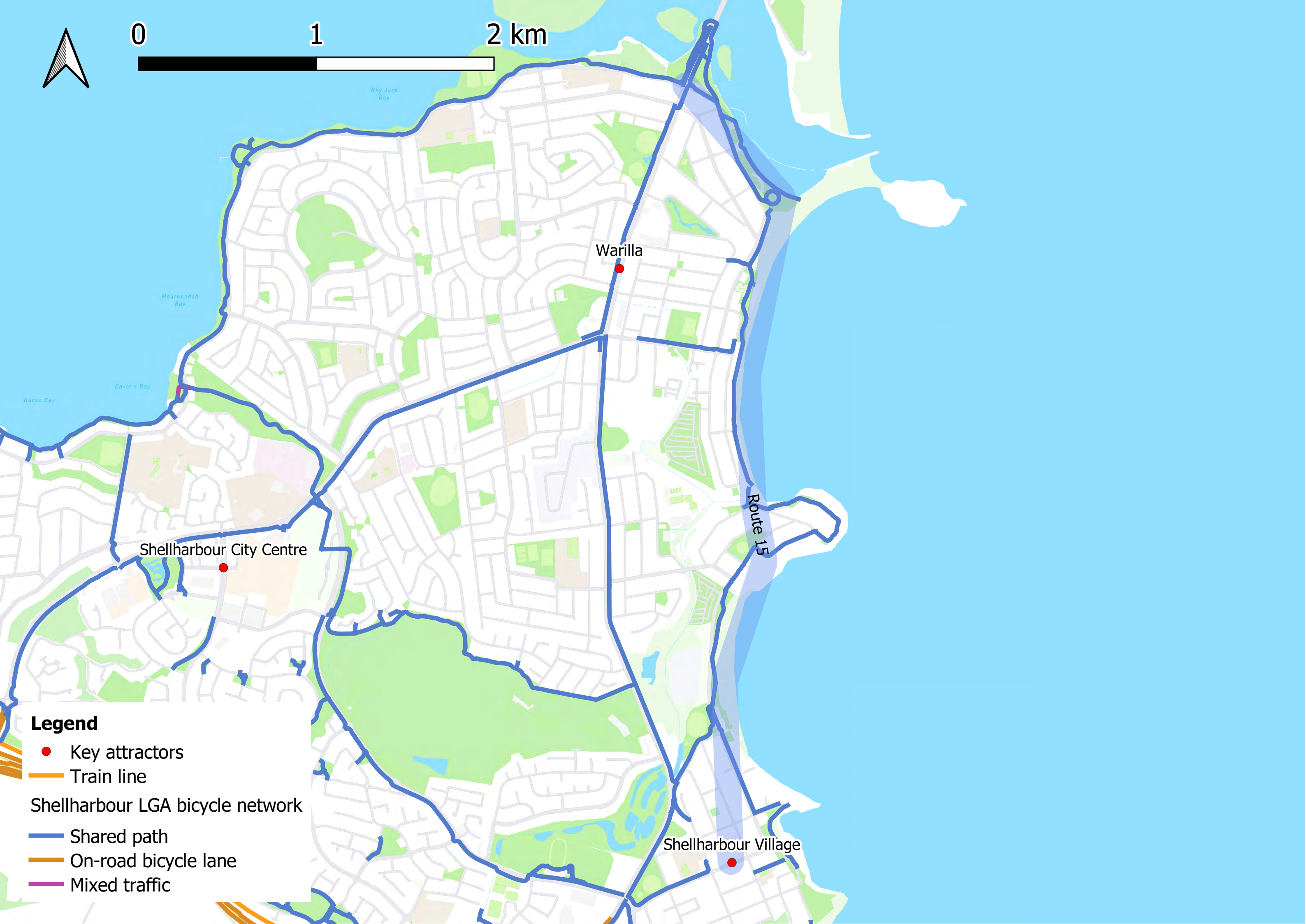
- Legend**
- Key attractors
 - Train line
 - Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Bicycle lane
 - Future active transport links - Route 14
 - New shared path
 - Upgrade of footpath to shared path



0

1

2 km



Warilla

Shellharbour City Centre

Route 15

Shellharbour Village

Legend

● Key attractors

— Train line

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

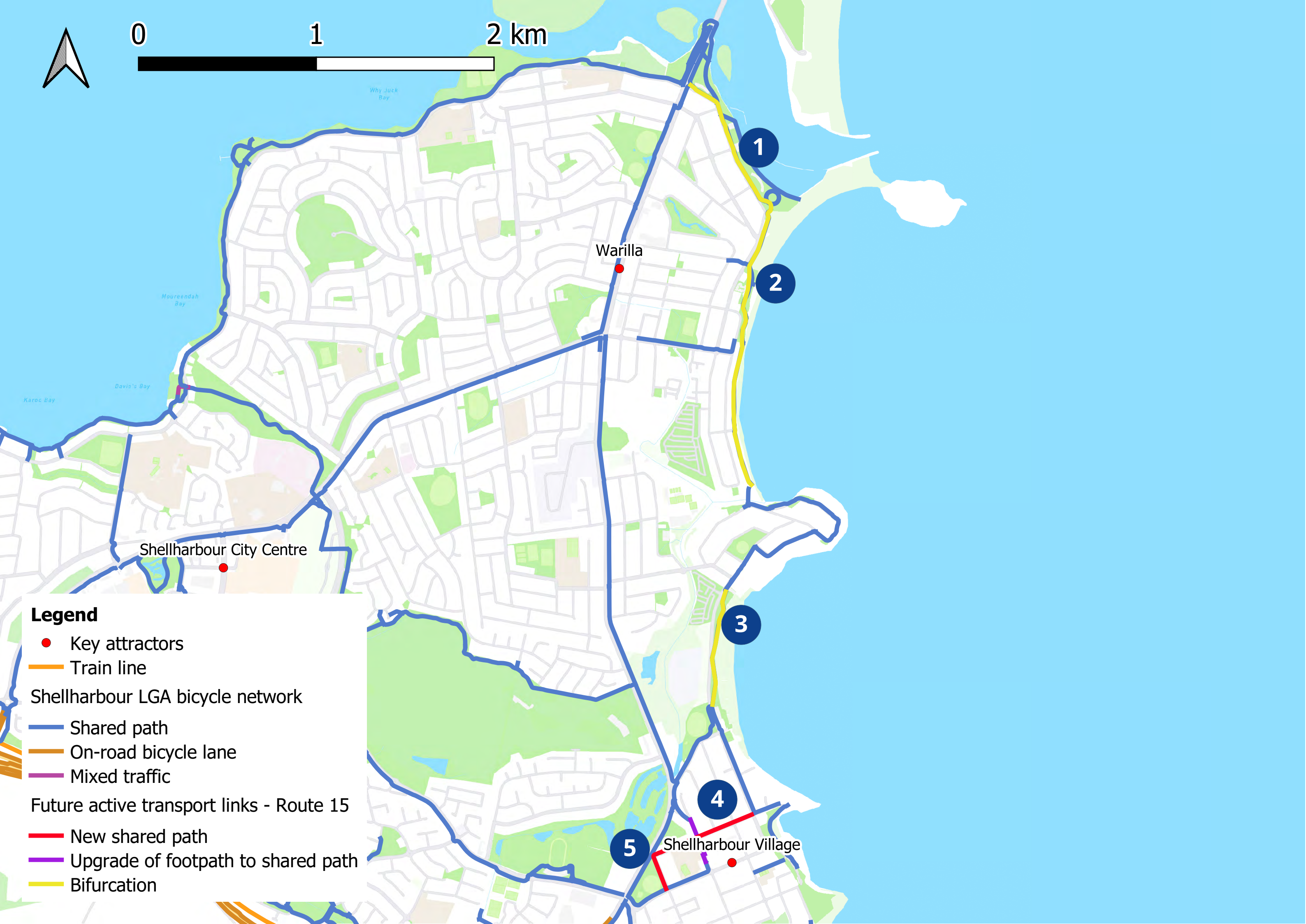
— Mixed traffic



0

1

2 km



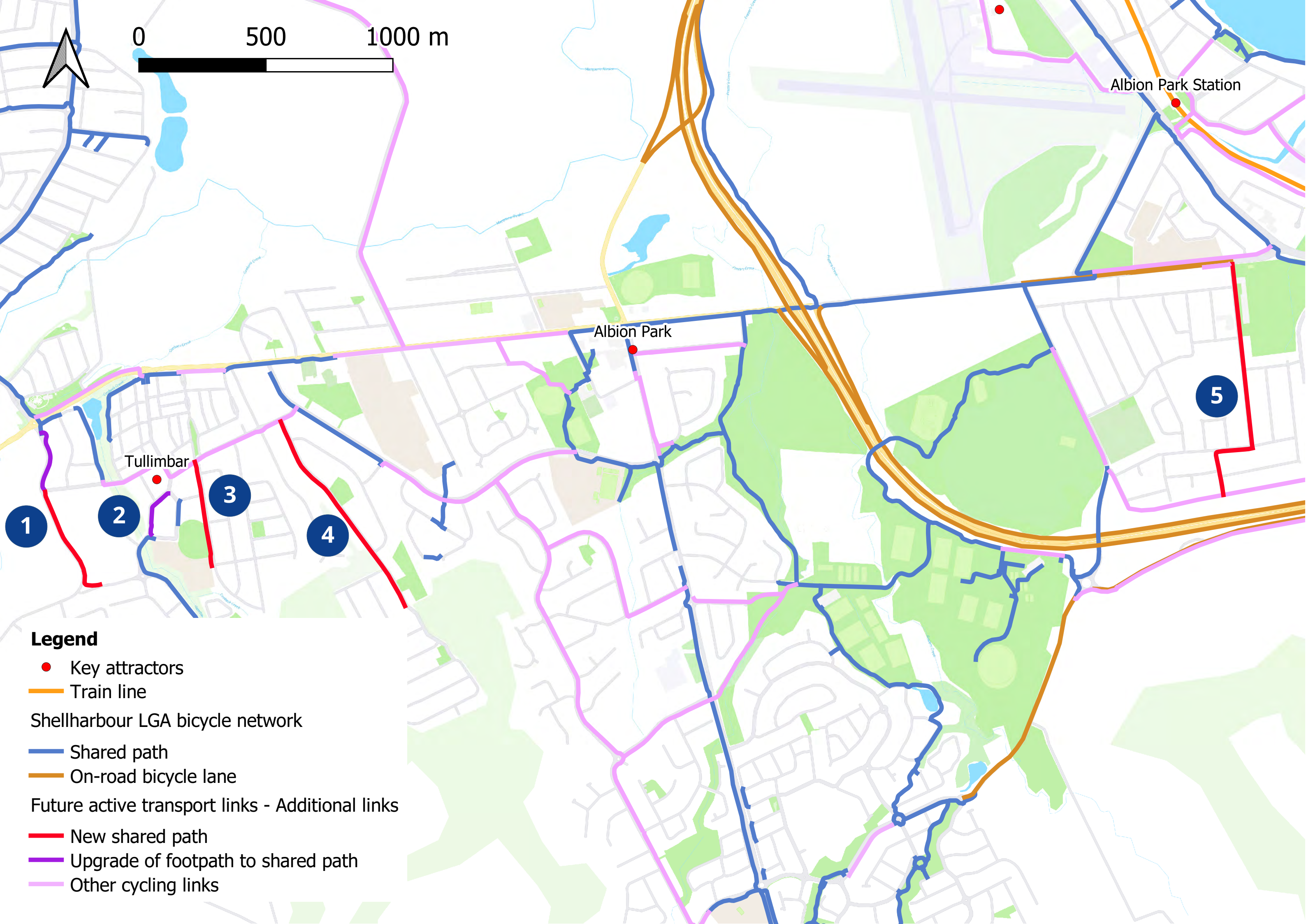
Warilla

Shellharbour City Centre

Legend

- Key attractors
- Train line
- Shellharbour LGA bicycle network
 - Shared path
 - On-road bicycle lane
 - Mixed traffic
- Future active transport links - Route 15
 - New shared path
 - Upgrade of footpath to shared path
 - Bifurcation

Shellharbour Village





0

400

800 m



Warilla

Shellharbour City Centre

Legend

● Key attractors

Shellharbour LGA bicycle network

— Shared path

— Mixed traffic

Future active transport links - Additional links

— New shared path

— Upgrade of footpath to shared path

— Other cycling links



0 100 200 m



12

Shellharbour Village

Legend

● Key attractors

Shellharbour LGA bicycle network

— Shared path

— On-road bicycle lane

Future active transport links - Additional links

— New shared path

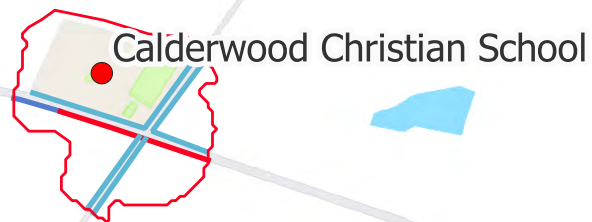




0

1

2 km



Calderwood Christian School

Albion Park Rail Public School



Albion Park Public School

St Paul's Catholic Parish Primary School

St Joseph's Catholic High School

Albion Park High School

Tullimbar Public School

Mount Terry Public School

Legend

- Shellharbour LGA schools
- Schools 5 min walking catchment
- Footpath network
- Bicycle network with 5 min catchment
 - Shared path
 - On-road bicycle lane
- Future active transport links
 - New shared path
 - Upgrade footpath to shared path
 - New footpath



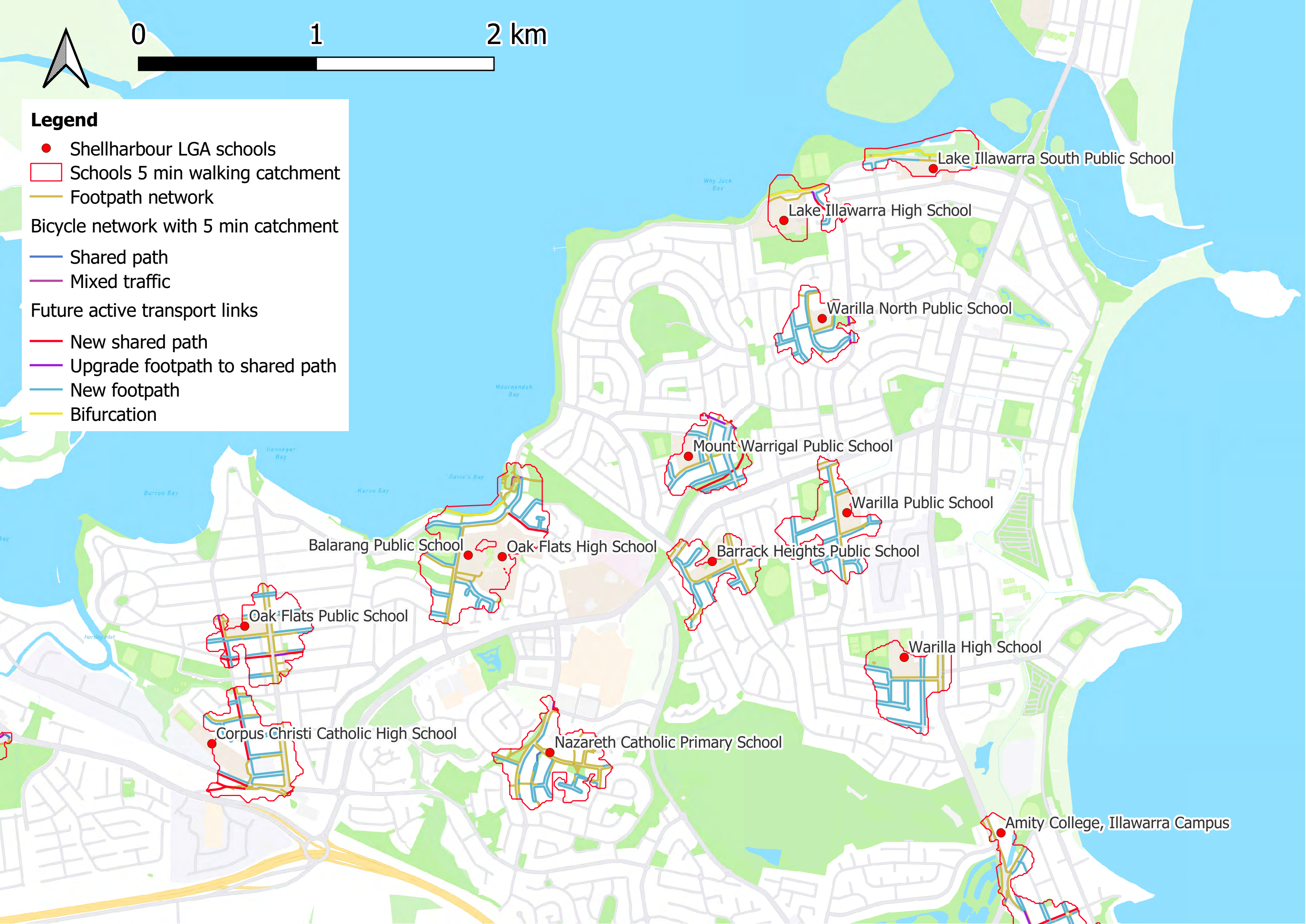
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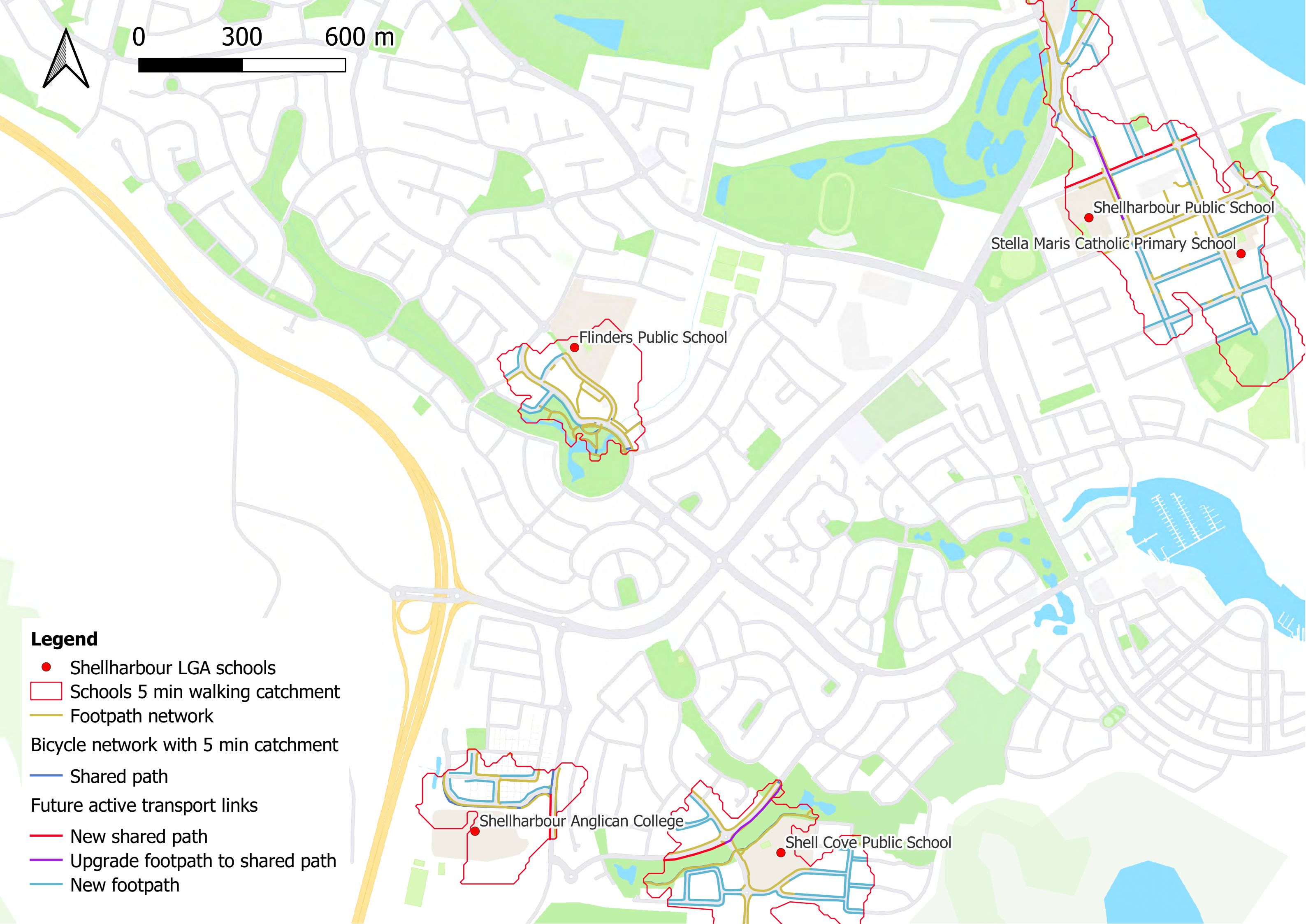
1

2 km

Legend

- Shellharbour LGA schools
- Schools 5 min walking catchment
- Footpath network
- Bicycle network with 5 min catchment
 - Shared path
 - Mixed traffic
- Future active transport links
 - New shared path
 - Upgrade footpath to shared path
 - New footpath
 - Bifurcation





0 300 600 m



Legend

- Shellharbour LGA schools
- Schools 5 min walking catchment
- Footpath network
- Bicycle network with 5 min catchment
- Shared path
- Future active transport links
- New shared path
- Upgrade footpath to shared path
- New footpath



Legend

- Shellharbour LGA schools
- Shellharbour LGA bicycle network
 - Shared path
 - Future active transport links
 - New shared path



0

1

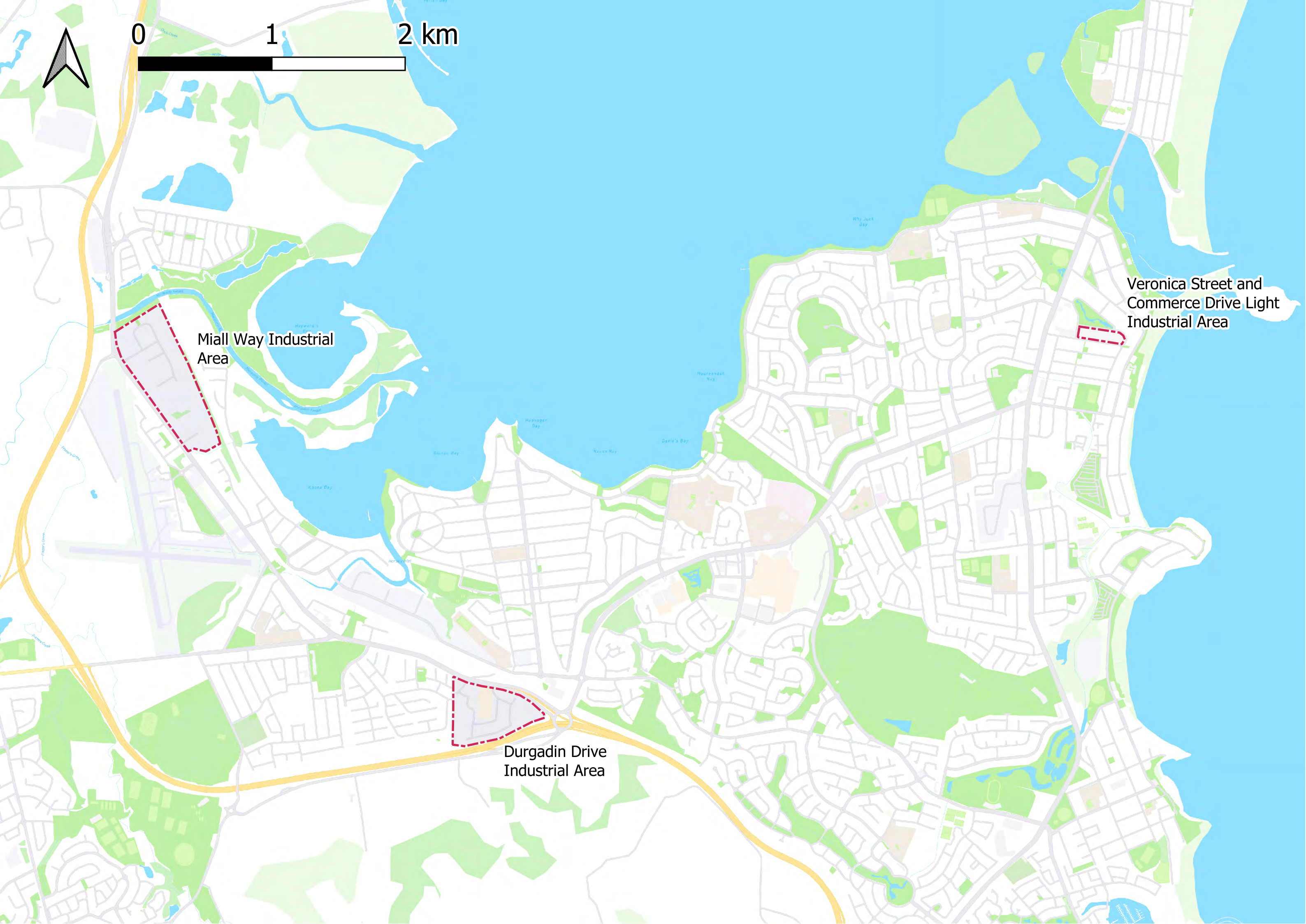
2 km

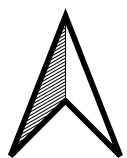


Miall Way Industrial Area

Veronica Street and Commerce Drive Light Industrial Area

Durgadin Drive Industrial Area





0

70

140 m












1

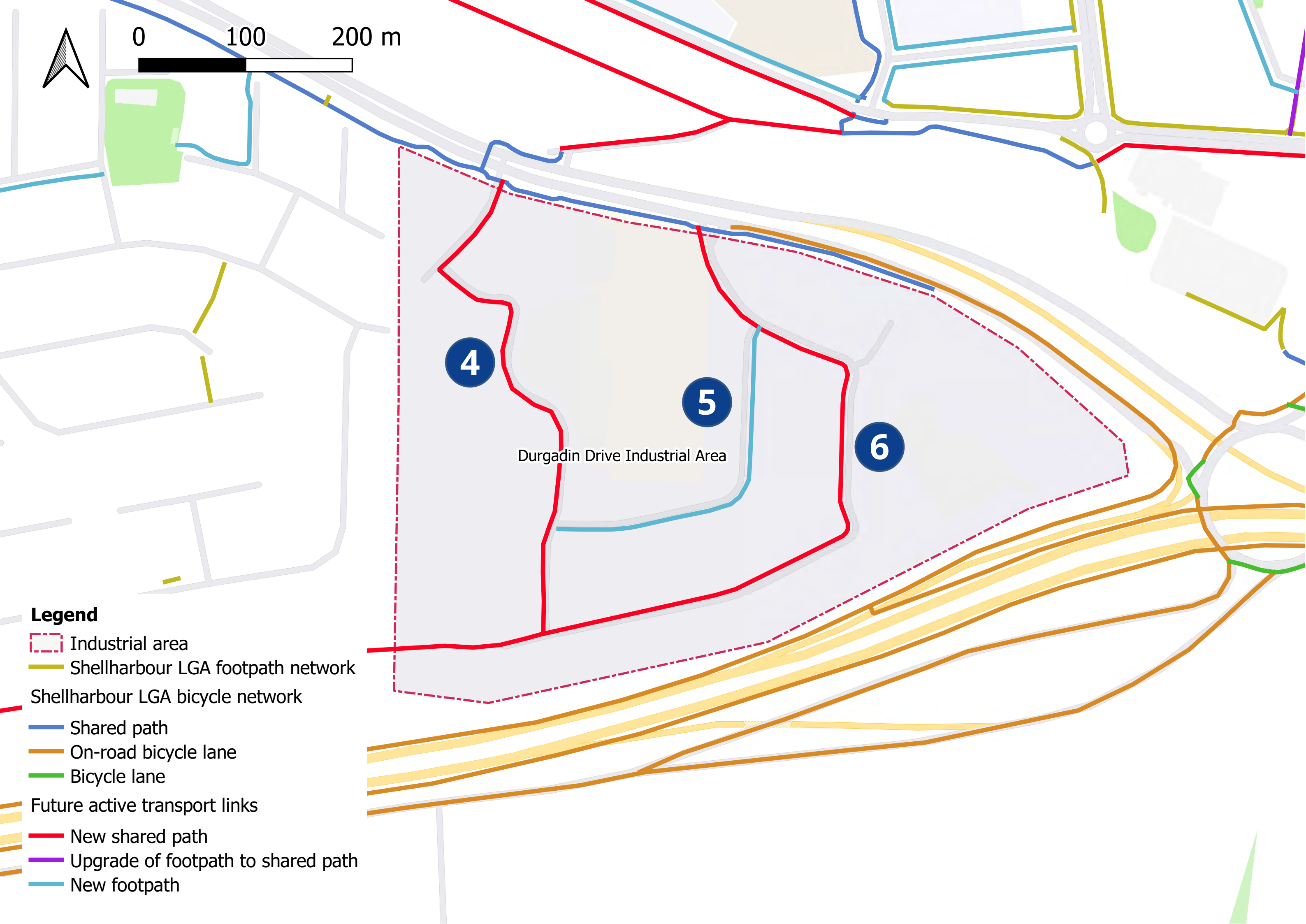
2

3

Veronica Street and Commerce Drive Light Industrial Area

Legend

-  Industrial area
-  Shellharbour LGA footpath network
-  Shellharbour LGA bicycle network
-  Shared path
-  Future active transport links
-  New shared path
-  Upgrade of footpath to shared path
-  New footpath
-  Bifurcation



0 100 200 m

Durgadin Drive Industrial Area

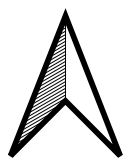
4

5

6

Legend

- Industrial area
- Shellharbour LGA footpath network
- Shellharbour LGA bicycle network
- Shared path
- On-road bicycle lane
- Bicycle lane
- Future active transport links
- New shared path
- Upgrade of footpath to shared path
- New footpath



0

200

400 m



7

8

Miall Way Industrial Area


Legend

 Industrial area

 Shellharbour LGA footpath network


Shellharbour LGA bicycle network

 Shared path

 On-road bicycle lane

 Mixed traffic

Future active transport links

 New shared path

 New footpath

 Quietway

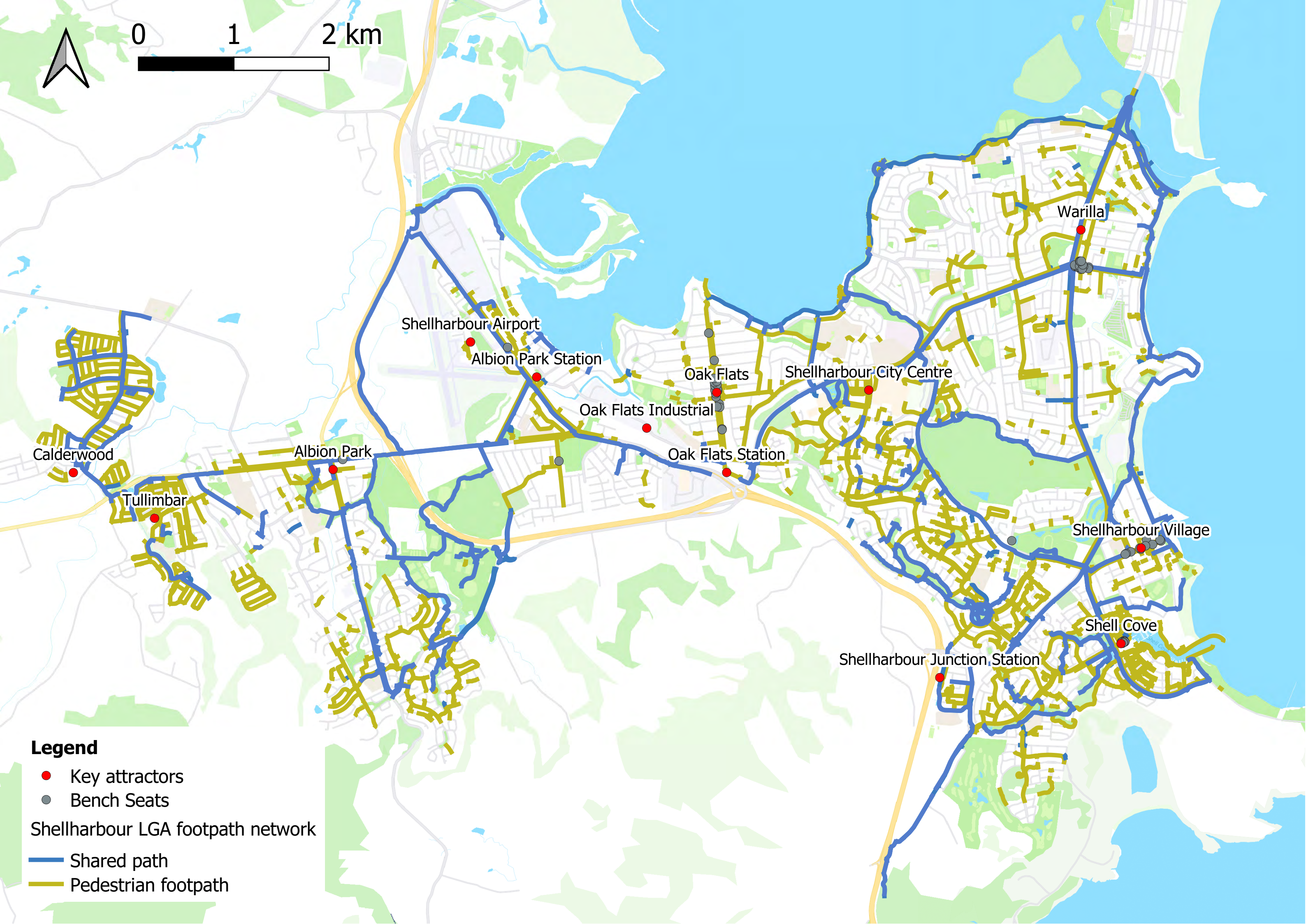


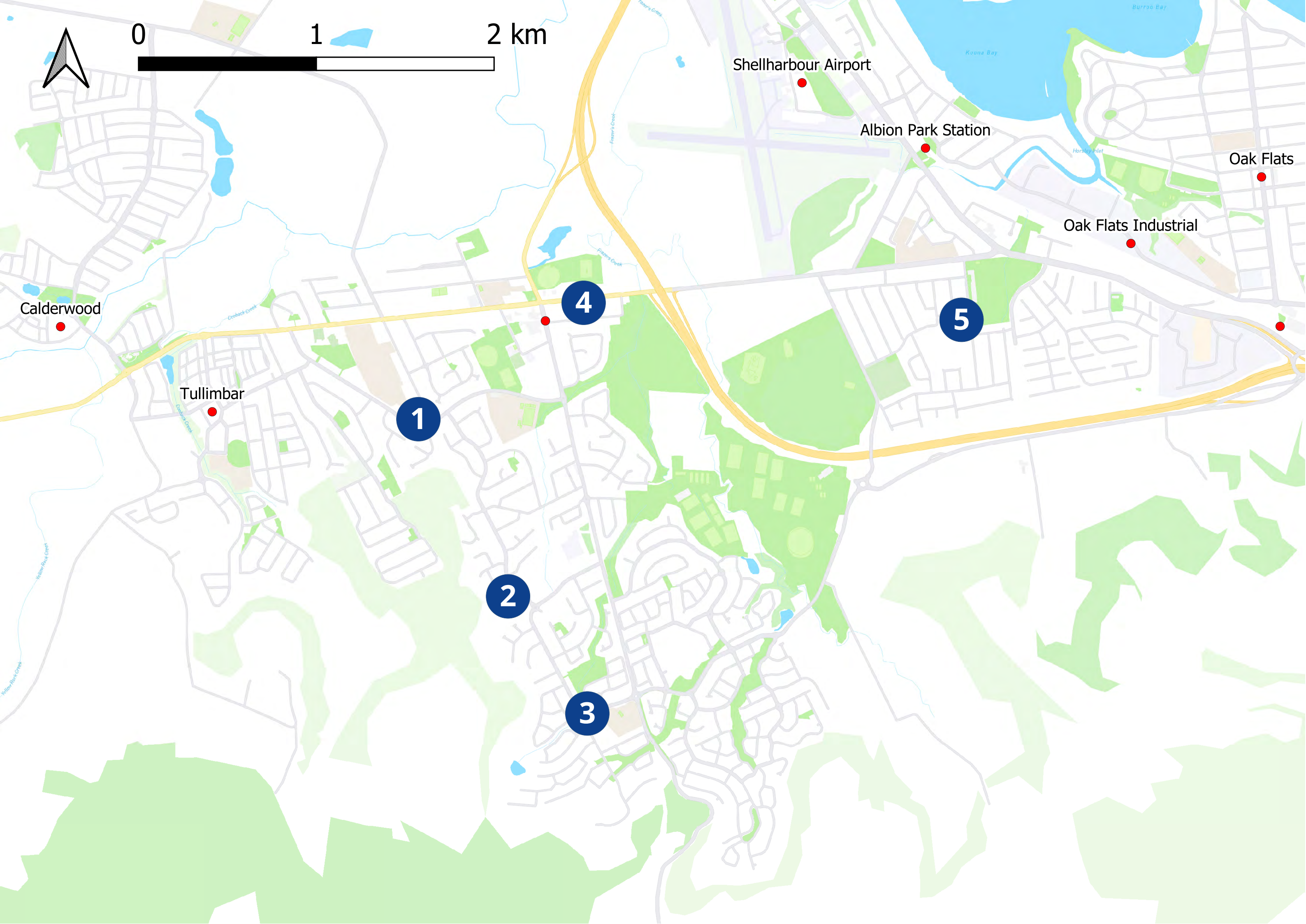


Legend

Proposed bicycle storage facilities

- Bicycle racks
- Bicycle shed





0

1

2 km

Shellharbour Airport

Albion Park Station

Oak Flats Industrial

Oak Flats

Calderwood

Tullimbar

1

4

5

2

3

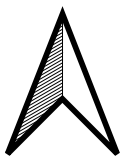


0

1

2 km





0

1

2 km



Terry Street / Burdekin
Drive intersection

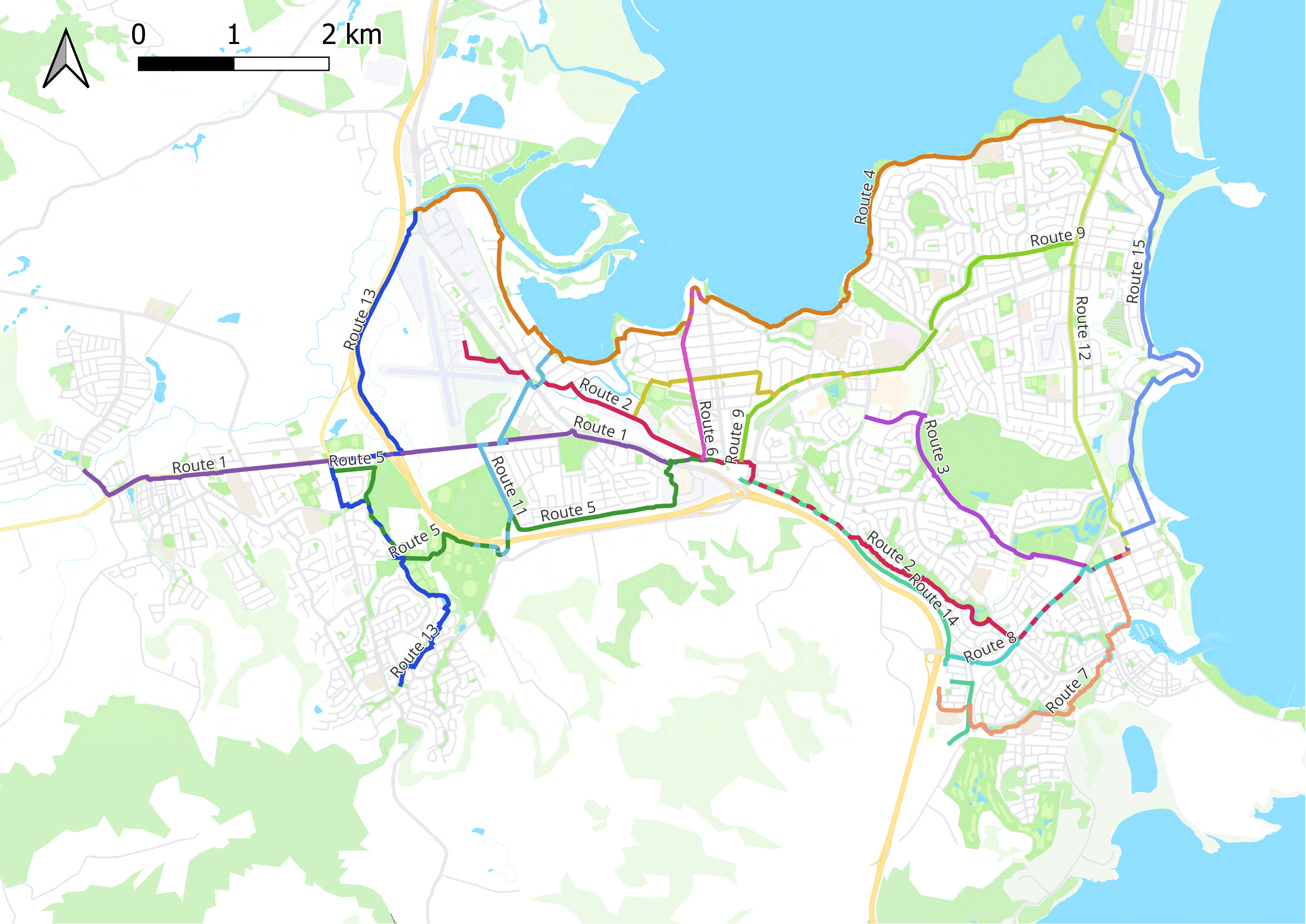


Lakewood Boulevard /
Shellharbour Road
intersection





0 1 2 km





Legend

- Points requiring reassurance
- Route junctions

