

HAWKESBURY CITY COUNCIL ACTIVE TRANSPORT PLAN

MAY 2024



hawkesbury.nsw.gov.au

Funding for this project was through the NSW Government and Transport for NSW's Get NSW Active program. It provides local councils with funding for projects that create safe, easy, and enjoyable walking and bike riding trips.

STATEMENT OF COMMITMENT TO FIRST NATIONS PEOPLES

Council acknowledges the Darug and Darkinjung peoples as the Traditional Custodians of the land throughout the Hawkesbury.

Council recognises the continuing connection of First Nations people to their Country and respects the cultures and histories of Aboriginal and Torres Strait Islander peoples as the first peoples of this land.



Revision Schedule

Rev No	Date	Description	Signature of Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
1	25/07/23	Draft Report v1	Rijad Ahmic	Matt Todd	Niranjan Midde	Volker Buhl
2	11/09/23	Final Draft	Rijad Ahmic	Matt Todd	Niranjan Midde	Niranjan Midde
3	09/10/23	Final Report	Rijad Ahmic	Matt Todd	Niranjan Midde	Niranjan Midde

This document was prepared by Stantec Australia (“Stantec”) for the account of Hawkesbury City Council (the “Client”). The conclusions in the Report titled Hawkesbury City Council Active Transport Action Plan Background Report are Stantec’s professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient’s own risk.

Stantec has assumed all information received from the Client and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec’s contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec’s discretion.

Quality Statement

Project manager	Project technical lead
Niranjan Midde	Niranjan Midde

Prepared by

Rijad Ahmic [Redacted] 09/10/2023

Checked by

Matt Todd [Redacted] 09/10/2023

Reviewed by

Niranjan Midde [Redacted] 09/10/2023

Approved for Issue by

Volker Buhl [Redacted] 09/10/2023

Contents

1. Introduction	10
1.1 Study Area	11
2. Strategic Context	13
2.1 State Policy	13
2.2 Local Policy	14
2.3 Planning and Design Principles	16
3. Existing Conditions	17
3.1 Land Use	17
3.1.1 Existing Land Use	17
3.1.2 Future Land Use Changes	19
3.2 Population Growth	22
3.3 Walking	22
3.4 Cycling	27
3.5 Road Network	29
4 Stakeholder and Community Engagement	30
4.1 Visioning Workshop	30
4.2 Community Survey	32
4.3 Social Pinpoint	38
5 Issues and Opportunities	39
6 Action Plan	41
6.1 Methodology	41
6.2 Pedestrian Network	42
6.2.1 Pedestrian Network Overview	42
6.2.2 Crossing Recommendation	43
6.2.3 Proposed Pedestrian Network and Crossing Opportunity Infrastructure Upgrades	44
6.3 Cycling Network	62
6.3.1 Proposed Cycling Network Overview	62
6.3.2 Proposed Cycling Network	63
6.3.3 Cycling Network Summary	78
6.4 Cost Estimates	80
6.4.1 Pedestrian Footpath Cost Estimation	81
6.4.2 Pedestrian Crossing Cost Estimation	82
6.4.3 Cycling Network Cost Estimation	84
6.5 Prioritisation	87

Contents

Figure 1: Hawkesbury LGA	11
Figure 2: Vineyard Stage 1 Indicative Layout	20
Figure 3: Jacaranda Development Proposed Movement Network	21
Figure 4: Bligh Park and South Windsor Pedestrian Footpath Network and Crossing Facilities	23
Figure 5: Hobartville and Richmond Pedestrian Footpath Network and Crossing Facilities	24
Figure 6: North Richmond Pedestrian Footpath Network and Crossing Facilities	25
Figure 7: Windsor Pedestrian Footpath Network and Crossing Facilities	26
Figure 8: Hawkesbury Cycling Network – South of Hawkesbury River	28
Figure 9: Hawkesbury Road Network Classifications	29
Figure 10: Age Profile of Survey Respondents	32
Figure 11: Residential Suburb of Survey Respondents	32
Figure 12: Trip Purpose Survey Results	33
Figure 13: Mode of Choice Survey Results	33
Figure 14: Walking Frequency Survey Results	34
Figure 15: Cycling Frequency Survey Results	34
Figure 16: Barriers to Walking Survey Results	34
Figure 17: Barriers to Cycling Survey Results	35
Figure 18: Walkability Survey Results	35
Figure 19: Cyclability Survey Results	36
Figure 20: Motivators to Walking More Survey Results	36
Figure 21: Motivators to Cycling More Survey Results	37
Figure 22: Would Walking and Cycling Motivators Improve Participation Survey Results	37
Figure 23: Social Pinpoint Survey Response Locations	38
Figure 24: Zebra crossing outside Richmond North Public School	43
Figure 25: Pedestrian refuge island on Berger Road, South Windsor	43
Figure 26: Hawkesbury Valley Way and Macquarie St intersection	43
Figure 27: Bilpin Proposed Pedestrian Network and Crossing Opportunity Upgrades	45
Figure 28: Bligh Park Proposed Pedestrian Network and Crossing Opportunity Upgrades	46
Figure 29: Glossodia Proposed Pedestrian Network and Crossing Opportunity Upgrades	48
Figure 30: Hobartville Pedestrian Network and Crossing Opportunity Upgrades	49
Figure 31: McGraths Hill Proposed Pedestrian Network and Crossing Opportunity Upgrades	51
Figure 32: North Richmond Proposed Pedestrian Network and Crossing Opportunity Upgrades	53
Figure 33: Pitt Town Proposed Pedestrian Network and Crossing Opportunity Upgrades	55
Figure 34: Richmond Proposed Pedestrian Network and Crossing Opportunity Upgrades	56
Figure 35: South Windsor Proposed Pedestrian Network and Crossing Opportunity Upgrades	58
Figure 36: Wilberforce Proposed Pedestrian Network and Crossing Opportunity Upgrades	60
Figure 37: Windsor Proposed Pedestrian Network and Crossing Opportunity Upgrades	61
Figure 38: Cycling Network Overview	62
Figure 39: Cycling Route 1 – Windsor to Rouse Hill (Primary)	63
Figure 40: Cycling Route 2 – Bligh Park to Windsor (Primary)	64
Figure 41: Cycling Route 3A – Windsor to Richmond (Primary)	65
Figure 42: Cycling Route 3B – Richmond to North Richmond (Primary)	67
Figure 43: Cycling Route 4 North Richmond – Kurrajong (Secondary)	68
Figure 44: Cycling Route 5 North Richmond (Secondary)	69
Figure 45: Cycling Route 6 – Hobartville to Richmond (Secondary)	71
Figure 46: Cycling Route 7 – Bligh Park to South Windsor (Secondary)	72
Figure 47: Cycling Route 8 – Windsor to Wilberforce (Secondary)	74
Figure 48: Cycling Route 9 – McGraths Hill (Secondary)	75
Figure 49: Cycling Route 10 – McGraths Hill to Pitt Town (Secondary)	77

Tables

Table 1: Local Population – 2021 Census	17
Table 2: Break Down of Land Uses Within the Key Study Area	18
Table 3: Key Land Uses Within Hawkesbury	19
Table 4: 2022 Travel zone projections (TfNSW)	22
Table 5: Heavy Vehicle Movements within Hawkesbury	29
Table 6: Walking and Cycling Responses Regarding Categories	38
Table 7: Issues and Opportunities for Walking and Cycling in Hawkesbury	39
Table 8: Summary of Footpath Network by Suburb	42
Table 10: Bilpin Footpath Network Recommendations	44
Table 11: Bilpin Crossing Point Recommendations	44
Table 12: Bligh Park Crossing Point Recommendations	46
Table 13: Glossodia Footpath Network Recommendations	47
Table 14: Glossodia Crossing Point Recommendations	47
Table 15: Hobartville Footpath Network Recommendations	49
Table 16: McGraths Hill Footpath Network Recommendations	50
Table 17: McGraths Hill Crossing Point Recommendations	50
Table 18: North Richmond Footpath Network Recommendations	52
Table 19: North Richmond Crossing Point Recommendations	53
Table 20: Pitt Town Footpath Network Recommendations	54
Table 21: Pitt Town Crossing Point Recommendations	54
Table 22: Richmond Footpath Network Recommendations	55
Table 23: Richmond Crossing Point Recommendations	56
Table 24: South Windsor Footpath Network Recommendations	57
Table 25: South Windsor Crossing Point Recommendations	57
Table 26: Wilberforce Footpath Network Recommendations	59
Table 27: Wilberforce Crossing Point Recommendations	59
Table 28: Windsor Crossing Point Recommendations	61
Table 29: Cycling Route Network Classification	62
Table 30: Cycling Route 1 Specifications	63
Table 34: Cycling Route 3A Specifications	66
Table 35: Cycling Route 3A Opportunities and Constraints	66
Table 36: Cycling Route 3B Specifications	67
Table 37: Cycling Route 3B Opportunities and Constraints	67
Table 38: Cycling Route 4 Specifications	68
Table 39: Cycling Route 4 Opportunities and Constraints	69
Table 40: Cycling Route 5 Specifications	70
Table 41: Cycling Route 5 Opportunities and Constraints	70
Table 42: Cycling Route 6 Specifications	71
Table 43: Cycling Route 6 Opportunities and Constraints	72
Table 44: Cycling Route 7 Specifications	73

Table 45: Cycling Route 7 Opportunities and Constraints	73
Table 46: Cycling Route 8 Specifications	74
Table 48: Cycling Route 9 Specifications	76
Table 49: Cycling Route 9 Opportunities and Constraints	76
Table 50: Cycling Route 10 Specifications	77
Table 51: Cycling Route 10 Opportunities and Constraints	77
Table 52: Cycling Network Summary	78
Table 53: Infrastructure Cost per Unit and Total Sum of Recommendations	80
Table 54: Pedestrian Footpath Cost Estimation	81
Table 55: Pedestrian Crossing Cost Estimation	82
Table 56: Cycling Network Cost Estimation	84
Table 57: Prioritisation Action Plan	87

1 Introduction

Stantec have been commissioned by Hawkesbury City Council to prepare an Active Transport Action Plan (ATAP) for the Hawkesbury LGA. The ATAP follows on from the previous iteration of the Hawkesbury Mobility Plan (Bike Plan and Pedestrian Access and Mobility Plan P.A.M.P), which was adopted by Council in May 2010.

This ATAP forms part of Hawkesbury City Council's wider strategic policy and aligns with the vision and future direction of the region set out in local planning frameworks such as the Local Strategic Planning Statement and Hawkesbury Liveability Project Master Plan and Public Domain. Additionally, the ATAP has been completed in support of state government planning policy set out in the Future Transport Strategy, and Active Transport Strategy and considers design frameworks such as the Cycleway Design Toolbox and Walking Space Guide.

The Active Transport Action Plan has been delivered in two phases, which are:

1. Background Report
2. Infrastructure Action Plan

The Background Report was completed and approved by Council in May 2023. A copy of the background report can be found attached in **Appendix D**. The purpose of the background report was to:

- Identify current State and Local Government strategic policies and frameworks that are to be used to guide and develop the Infrastructure Action Plan;
- Identify the current issues and constraints within the existing walking and cycling networks that are present across the Hawkesbury LGA;
- Identify future land use changes that are occurring across the Hawkesbury LGA so that future infrastructure can be provided to support population and employment growth;
- Identify future planned projects and infrastructure upgrades and define the level of funding that supports their implementation;
- Identify appropriate typologies for walking and cycling infrastructure and,
- Detail the compliance of existing infrastructure in the Hawkesbury LGA following a desktop review and site visit observations.

The Infrastructure Action Plan is the second phase of the ATAP and provides a prioritisation and implementation plan that supports the networks proposed. In summary, the Infrastructure Action Plan:

- Summarises State and Local Policy detailed in the Background Report that guides the development of the ATAP;
- Provides an overview of existing infrastructure and land use types within the LGA;
- Contextualises local demographics, travel patterns and journey-to-work information from the most recent 2021 ABS Census;
- Reports a summary of the results from the community engagement processes undertaken for this Plan;
- Recommends Walking and Cycling networks that meet the needs of the existing and future Hawkesbury communities;
- Details an implementation plan to introduce and finalise these networks in the Hawkesbury LGAs
- Provides cost estimations to Council and the community for network implementation.

The Infrastructure Action Plan and Background Report should be reviewed at the end of the 10-year program to ensure the proposals made are still relevant and supportive of the Hawkesbury community.

1.1 Study Area

The Hawkesbury LGA is located 55 kilometres north-west of Sydney CBD. It is the largest LGA area in Greater Metropolitan Sydney, covering 2,776 square kilometres. The population is 68,156 according to the Australian Bureau of Statistics 2023. The extent of the Hawkesbury LGA is shown below in **Figure 1**.

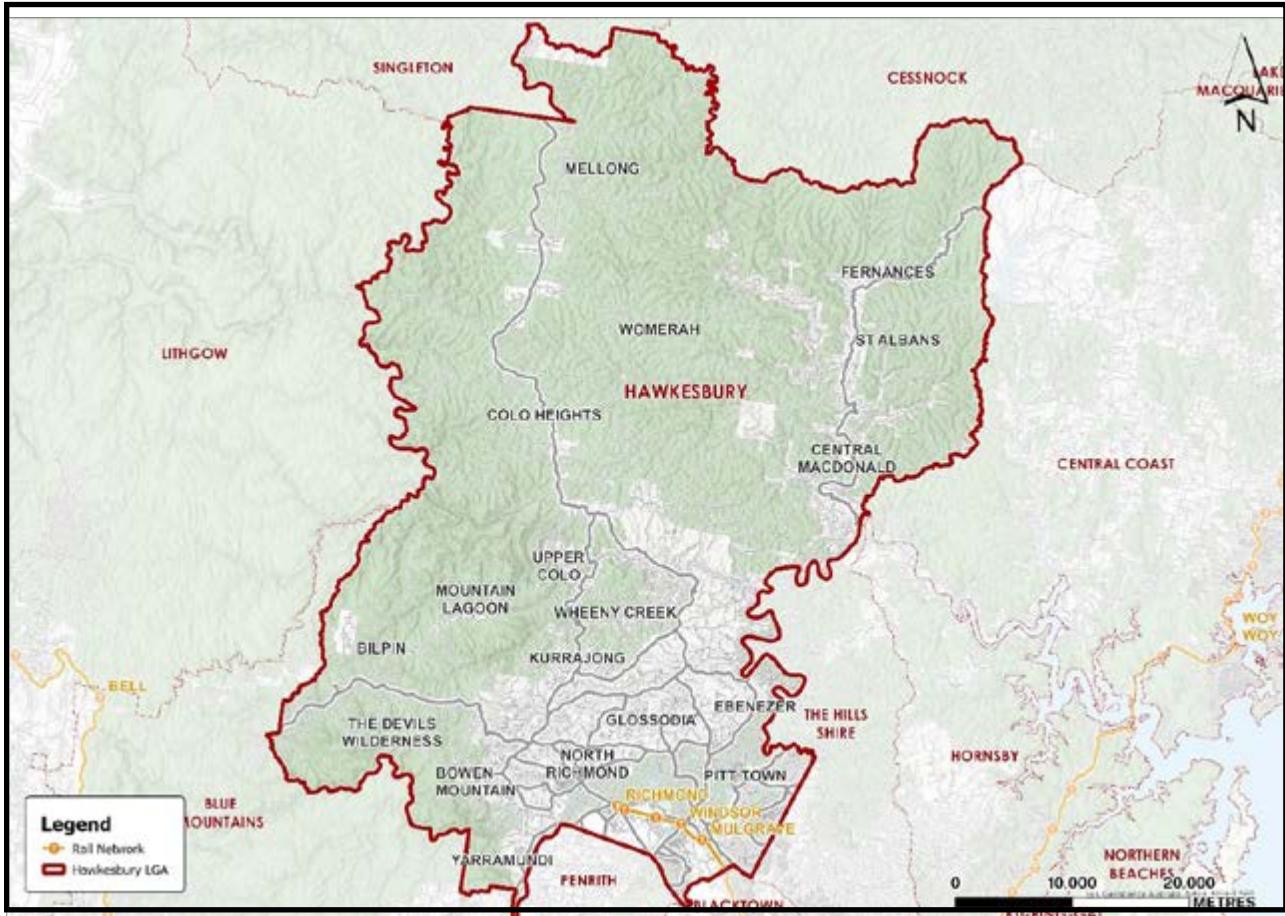


Figure 1: Hawkesbury LGA

The topography of the area is diverse ranging from fertile flood plains and wetlands, undulating hills, and heavily timbered ridges, through to inaccessible mountainous regions dissected by steep gorges and towering escarpments. As a result of these geographic features, the Hawkesbury LGA experiences regular flooding and bushfires, often resulting in disruption to agriculture, property, and community infrastructure. These features also limit development within the city.

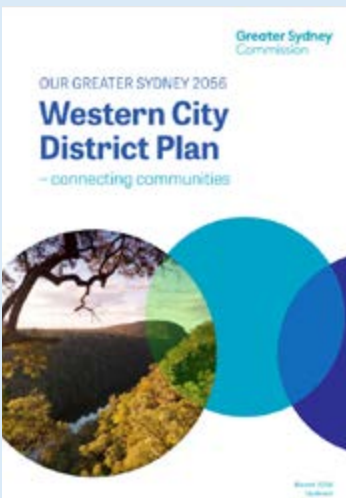
Hawkesbury has diverse land use, ranging from strategic centres of Richmond and Windsor to industrial hubs such as Mulgrave. A strong proportion of the land within Hawkesbury is designated as national park (70 per cent). The majority of this national park is undeveloped, with many areas susceptible to bushfires. Hawkesbury has a complex river system, which is made up of the Hawkesbury, Colo, Nepean, Grose, and MacDonald Rivers. The region is highly prone to flooding, particularly during seasons of heavy rainfall. Other key land uses within Hawkesbury include the RAAF defence force, and recreational activities, which are particularly active in nature. Due to the abundance of the region's forestry and parks, Hawkesbury is a popular tourist destination, attracting outdoor enthusiasts.

The majority of Hawkesbury's population is centred in the southern half of the LGA, within Windsor, Richmond and the surrounding suburbs of North Richmond, South Windsor, Bligh Park and Hobartville. In addition to the more densely populated suburbs, there are plentiful smaller localities throughout the LGA, such as Bilpin and St Albans. North Richmond and Richmond are the most populated centres however, it is Windsor, particularly South Windsor, which has the densest population, due to the high concentration of residential land use. In the grander scheme, population density across Hawkesbury is incredibly low at 24.35 persons per km². This is due to the vastness of uninhabited land in the region.



2 Strategic Context

This section summarises major state and local planning policies and frameworks that have an association with, and directly influence the development of the Hawkesbury Active Transport Action Plan. Supportive further information with additional context on the strategies discussed can be found within Section 2 of the Background Report, which is attached in **Appendix D**.



2.1 State Policy

Future Transport Strategy

NSW State Government's vision for future mobility across Metropolitan Sydney and Regional NSW. The document represents a major shift in social and economic change which has been brought about through the pandemic, bushfires, and drought. Notable strategies of relevance to Hawkesbury include:

- C2.1 - Support car-free, active, sustainable transport options
- C3.1 - Provide transport choices for people no matter where they live
- C4.5 - Improve the safety of people walking and cycling
- E2.2 - Stabilise Greater Sydney's traffic

Active Transport Strategy

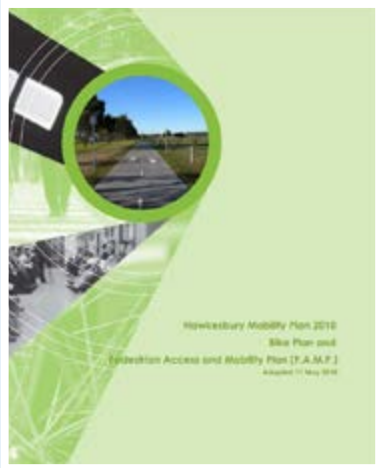
Active transport is further recognised and emphasised through the NSW Active Transport Strategy. The Active Transport Strategy (2022) sets out the NSW Government's vision to double active transport trips in 20 years. The strategy is built out of the Future Transport Strategy and forms the basis for this active transport action plan. The Strategy promotes:

- Delivering connected and continuous cycling networks
- Provide safer and better precincts and main streets
- Promote walking and cycling and encourage behaviour change

Western City District Plan

The Western City District Plan (WCDP) is a 20-year plan designed to manage economic, social, and environmental growth matters to achieve the 40-year vision for Greater Sydney. With the Western City District poised as a fundamental aspect of Sydney's future growth, the District Plan is intended to guide decision-making to shape the region. Strategies relevant to Hawkesbury include:

- W1 - Planning for a city supported by infrastructure
- W4 - Fostering healthy, creative, culturally rich, and socially connected communities
- W7 - Establishing the land use and transport structure to deliver a livable, productive, and sustainable Western Parkland City



2.2 Local Policy

Hawkesbury Mobility Plan (2010)

The Hawkesbury Mobility Plan is a strategic plan that outlines priorities and strategies to help guide active transport decisions for the LGA. The Mobility plan sets out the objective of identifying key active transport routes that are convenient, connected, and coherent.

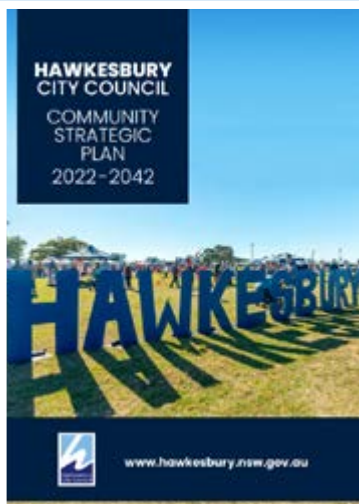
- Integrate consistent and continuous active transport networks into the land use and transport system, to facilitate and encourage more walking and cycling.
- Linkage of pedestrian concentrations to pedestrian networks to facilitate and encourage safe and convenient accessibility and mobility for pedestrians.
- Development and integration of intra and inter-regional cycling routes, that form part of a connected cycling network.
- Ensure the use and safe operation of bicycles are incorporated into the plan for all classes of bike users.

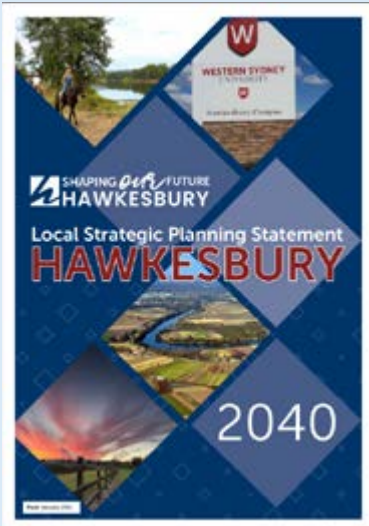
Hawkesbury Community Strategic Plan (2022–2042)

The Hawkesbury Community Strategic Plan provides a vision and strategy for the region, which has been developed through consultation with the local community to ensure their views are reflected and supported to create a healthy and resilient future for the region. Community outcomes for the region are for the Hawkesbury to be a great place to live, to protect the region's environment and valued history, to promote a strong economy and to be a reliable council. A key aim of the Plan is for more residents to use public transport, walk or cycle for journeys, rather than personal cars and for infrastructure to service the community most effectively and sustainably.

Key active transport-based long-term objectives for the community include:

- Encourage and enable our community to make more sustainable choices.
- Achieve net zero emissions targets.
- Encourage and enable our community to participate in a healthy lifestyle.
- Provide the right places and spaces to serve our community.





Local Strategic Planning Statement

The Hawkesbury LSPS outlines the long-term visions and planning priorities for the LGA. The LSPS provides a framework for managing growth throughout the area, as it sets out strategic directions and actions that help steer decision-making towards community goals.

To achieve certain planning priorities, the LSPS introduces active transport in strategic measures, these include:

- Council will work with Transport for NSW to ensure that transport decisions enable and support liveability, employment, and long-term community outcomes.
- Identify the shortfall of infrastructure to meet the social, economic, and environmental needs of the growing community.
- Ensure that there is adequate social and environmental infrastructure available to match the additional population and housing diversity.
- Prepare and implement the Vibrant Towns and Villages Master Plan to identify and enhance the distinctive character of Hawkesbury's towns and villages.

Net Zero Emissions and Water Efficiency Strategy

The Hawkesbury City Council Net Zero Emissions and Water Efficiency Strategy (NZEWS) set out Council's strategy to achieve net zero across the region by 2050. As part of this, the strategy targets low carbon and local transport by:

- Providing public and on-demand transport infrastructure
- Encouraging active transport usage
- Provide and test use cases of electric scooters.



Hawkesbury Environmental Sustainability Strategy

The Hawkesbury Environmental Sustainability Strategy provides a framework to progress sustainability in the Hawkesbury region. Concerning transport, the Strategy highlights sustainable and active travel as key measures in helping Hawkesbury achieve a greater level of sustainability. The desired future state, as highlighted within the strategy includes:

- Continue investigating partnerships and funding opportunities for enabling active and/or electric transport options and infrastructure throughout the LGA
- Continue to enable and promote opportunities for community uptake of sustainable, active and/or electric transport choices
- Safe mobility options for all
- Adopt an Active Transport Plan



2.3 Planning and Design Principles

The documents discussed within this section provide supportive information for the planning and design of walking and cycling infrastructure across NSW. Enabling practitioners to deliver on State Policy and ensure a streamlined approach is taken going forward.

Movement and Place Framework

The objective of Movement and Place is to achieve roads and streets that:

- Contribute to the network of public space within a location, where people can live healthy, productive lives, meet each other, interact, and go about their daily activities.
- Are enhanced by transport and have the appropriate space allocation to move people and goods safely and efficiently and connect places. Balancing movement and place recognises that trade-offs may be required to achieve a best fit for the objectives.

The Hawkesbury ATAP will consider Movement and Place visions and outcomes for key streets within the study areas at a high level only. Recommendations will seek to maintain or enhance the unique character of places with the provision of active transport infrastructure that aligns with desired outcomes.

Walking Space Guide

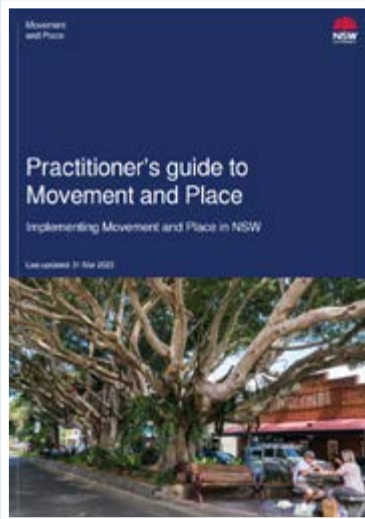
The Walking Space Guide by TfNSW has been developed with principles that look to improve pedestrian comfort and safety. The guide characterises paths based on activity (number of pedestrians) and provides recommendations tailored to that level of activity.

The Hawkesbury ATAP will aim to provide recommendations for pedestrian infrastructure that aligns with the Walking Space Guide. This includes looking to provide the recommended minimum walking space, when possible, to provide a higher level of service to pedestrians.

Cycleway Design Toolbox

The Cycleway Design Toolbox was developed by Transport for NSW to guide practitioners on cycling and micro-mobility design across NSW. The toolbox guides practitioners with a range of design tools and best practices for the design and delivery of high-quality cycling infrastructure. The toolbox is centred around five internationally recognised design principals, and one more additional principal. The routes proposed as part of this Plan will look to satisfy all six design principles:

- Safe
- Connected
- Direct
- Attractive
- Comfortable
- Adaptable



3 Existing Conditions

3.1 Land Use

3.1.1 Existing Land Use

The Hawkesbury LGA is predominantly rural, with much of the population and employment opportunities located in the south of the region. Mulgrave, Richmond, North Richmond, Windsor, and South Windsor have the greatest employment opportunities, with the highest concentrations found in Mulgrave, Richmond, and Windsor. Bligh Park, North Richmond, Richmond, and South Windsor have the highest population and account for 35 per cent of the region's total population. **Table 1** details population data for key suburbs located within the Hawkesbury LGA.

Location	Land Area (km ²)	Population 2021 (Persons)	Pop Density (per km ²)
Hawkesbury LGA	2,776	67,207	24
North Richmond	21.5	6,358	295
Bligh Park	2.1	6,220	2,934
South Windsor	8.8	5,948	671
Richmond	51.5	5,418	105
Pitt Town	39.5	3,871	98
Hobartville	1.1	2,712	2,488
McGraths Hill	3.1	2,537	816
Windsor	4.2	1,915	460
Vineyard	13.8	1,143	83
Mulgrave	5.8	78	13

Table 1: Local Population – 2021 Census

Source: ABS Census Data 2021

Hawkesbury has two strategic centres, Richmond, and Windsor. Within these strategic centres, there is a concentration of land uses, primarily retail and commercial services. Both centres provide access to passenger rail via Windsor, East Richmond, and Richmond Station. Train services run on either the T1 or T5 line, providing access to the centres of Penrith, Blacktown, Parramatta, Leppington, and Sydney's CBD.

Windsor's local centre is concentrated along George Street, with services ranging from retail, medical, banking, and other amenities. The largest shopping centres in the region include Windsor Riverview Shopping Centre and Windsor Marketplace, where grocery stores such as Coles and Woolworths can be found. Regarding recreation, Windsor has a series of open parks, including Deerubbin Park, Howe Park, McQuade Park, and Governor Philip Park, where various recreational activities take place. Windsor is also home to the largest medical facility within the Hawkesbury LGA, with the Hawkesbury District Health Service.

Similarly, concentrations of services in Richmond can be found along Windsor Street, including Richmond Mall, Aldi, and a range of other services. The town centre can be accessed easily from Richmond Train Station, as it is located within the core of the centre. Richmond also contains the only Service NSW within the LGA.

With regards to employment, Windsor, Richmond, North Richmond, Mulgrave, and South Windsor primarily provide employment opportunities. Bligh Park, Hobartville, McGraths Hill, Pitt Town, Wilberforce, Glossodia, Kurmond, and Kurrajong are very similar in that they can be classified as primarily residential suburbs, with either few or no retail services or employment opportunities.

Table 2 provides an overview of the key land uses present within the key suburbs of the Hawkesbury region.

Suburb	Residential	Employment Centre	Retail	Recreational	Educational Facility	Train Station
Bligh Park	•		•	•	•	
Clarendon				•	•	•
Glossodia	•		•	•	•	
Hobartville	•			•	•	
Kurmond	•		•		•	
Kurrajong	•		•		•	
McGraths Hill	•			•		
Mulgrave		•	•		•	•
North Richmond	•	•	•	•	•	
Pitt Town	•		•		•	
Richmond	•	•	•	•	•	•
South Windsor	•	•	•	•	•	
Wilberforce	•		•	•	•	
Windsor	•	•	•	•	•	•

Table 2: Break Down of Land Uses Within the Key Study Area

Table 3 summarises some of the key trip attractors within the Hawkesbury region. Key trip attractors are considered for access improvements due to the demand they generate.

Shopping Centres	Hospital/Medical Centres	Tertiary Education
<ul style="list-style-type: none"> • Bligh Park Shopping Centre (Bligh Park) • Glossodia Neighbourhood Shopping Centre (Glossodia) • Hobartville Shopping Centre (Hobartville) • HomeCo. McGraths Hill (Vineyard) • Magnolia Mall (Richmond) • McGraths Hill Shopping Centre (McGraths Hill) • North Richmond Shopping Village (North Richmond) • Park Mall (Richmond) • Pitt Town Shopping Village (Pitt Town) • Richmond Mall (Richmond) • Richmond Marketplace (Richmond) • South Windsor Shopping Village (South Windsor) • Wilberforce Shopping Centre (Wilberforce) • Windsor Marketplace (Windsor) • Windsor Riverview Shopping Centre (Windsor) 	<ul style="list-style-type: none"> • Hawkesbury Community Health Centre • Hawkesbury Community Mental Health Centre • Hawkesbury District Health Service (Windsor) • RAAF Richmond Health Centre • St John Of God Hawkesbury District Health Service (Windsor) • St John of God Richmond Hospital (North Richmond) 	<ul style="list-style-type: none"> • Macquarie Community College (Richmond) • New Era Institute (Windsor) • TAFE NSW (Richmond) • University of Notre Dame (Windsor) • Western Sydney University, Hawkesbury Campus (Richmond)

Table 3: Key Land Uses Within Hawkesbury

3.1.2 Future Land Use Changes

The following information considers scheduled land use changes occurring within the Hawkesbury LGA. Future land use changes are enacted to support change and the growth of population and employment, with infrastructure planning required to meet future needs and wants. Of these planned developments, North Richmond, Glossodia, and Vineyard are all expected to realise substantial population growth over the coming years.

3.1.2.1 North Richmond

The re-zoning of land uses in North Richmond is occurring within the Redbank development, located to the west of the town centre along Grose Vale Road. Once completed the development will consist of approximately 1,400 lots. Lot sizes within this residential precinct range from R2 Low-Density Residential, R3 Medium-Density Residential and R5 Large Lot Residential. Additionally, Redbank will provide a Village Centre, as well as a series of open spaces that provide adequate permeability and connect the development.

3.1.2.2 Vineyard Stage 1

Vineyard Precinct, as per stage 1, is a major urban release area within the North West Growth Area (NGWA). The precinct sits within the Hawkesbury LGA jurisdiction, bounded by Windsor Road to the southwest, Boundary Road to the south east, and Menin Road to the north. The development has been planned to deliver a total of 2,500 new lots, with land uses including R2 Low Density Residential and R3 Medium Density Residential. To this date, over 300 lots have been released. Along the southwest boundary, space dedicated to environmental living can be found, with both active and passive open spaces, as shown in **Figure 2**.

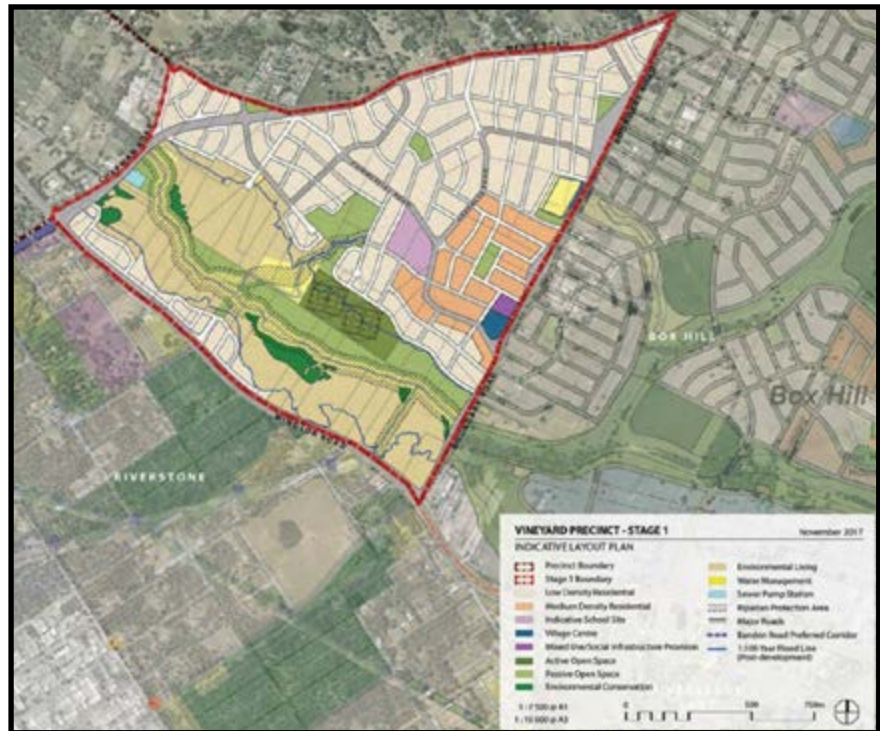


Figure 2: Vineyard Stage 1 Indicative Layout

Source: NSW Planning Portal

3.1.2.3 Vineyard Stage 2

Building off of the Stage 1 Vineyard Precinct, Vineyard Stage 2 will look to provide future land release within Hawkesbury in the future. The rezoning of Vineyard Stage 2 is deferred until confirmation of essential services.

3.1.2.4 Glossodia

The Jacaranda development, located in Glossodia off Spinks Road, is currently in planning and is proposed to deliver a maximum of 580 new lots. Residential development within Jacaranda is to be undertaken on R2 Low-Density Residential and R5 Large Lot Residential zoned land. The development is proposed to contain a series of recreational nodes, creating an open space network across the proposed residential precinct. The Jacaranda development is to provide connections across Spinks Road to Woodbury Reserve, Glossodia Neighbourhood Shopping Centre, and Glossodia Public School. An indicative movement network has been illustrated in **Figure 3**.



Figure 3: Jacaranda Development Proposed Movement Network

Source: *Onecollective*

3.2 Population Growth

Table 4 shows population growth forecasts for the southern Hawkesbury region, taken from the 2022 Travel Zone Projections (TP22). TYP22 projections are provided via the Department for Planning and Environment. Pitt Town is projected to see the greatest level of population change within the LGA with over 2,000 additional persons residing in the suburb by 2041. North Richmond is expected to be the 3rd largest growing suburb within the region, with growth between 1,000 to 2,000 additional persons. Glossodia is also expecting a population change of 501-1,000 people.

Travel Zone (TZ)	Population			
	2022	2031	2041	% Change (2022 – 2041)
Vineyard	1,037	1,104	2,613	152%
Pitt Town	3,708	4,388	5,730	55%
North Richmond	4,622	5,395	5,962	29%
Glossodia	3,488	3,554	4,316	24%
Oakville	1,691	1,732	1,808	7%
Richmond	4,860	5,017	5,154	6%
Windsor	3,019	3,072	3,171	5%
McGraths Hill	2,720	2,751	2,805	3%
Bligh Park	6,439	6,463	6,580	2%
South Windsor	4,844	4,863	4,898	>1%
Hobartville	3,585	3,561	3,546	~

Table 4: 2022 Travel zone projections (TfNSW)

3.3 Walking

Connective pedestrian infrastructure within Hawkesbury can primarily be seen in the town centres of Richmond and Windsor. Both town centres provide crossing opportunities through the provision of zebra/wombat, signalised, and Pedestrian Refuge crossings. Windsor also provides a pedestrian-only area located on George Street between Fitzgerald Street and Baker Street. Footpaths along George Street (Windsor) and Windsor Street (Richmond) are wide, to help facilitate higher pedestrian activity due to the concentration of land uses. Town centres are connected outwards to higher residential areas, Windsor to South Windsor via George Street, and Richmond to Hobartville via East Market Street.

Footpaths in South Windsor are limited to main roads/streets, with most residential areas un-serviced. Footpaths on Mileham Street and Walker Street provide access to Industry zones; however, the wider industrial area is not serviced. Connective routes from South Windsor to Bligh Park are limited to Mileham Street and a shared path is provided between the woodland that connects the two suburbs. This allows Bligh Park residents to access the industrial zoning without needing to make a large detour. Routes along Colonial Drive and Rifle Range Road, allow Bligh Park residents to move within the area and connect to residential streets, with zebra/wombat crossings provided near schools and the neighbourhood centre.

Pedestrian infrastructure in North Richmond is limited and largely concentrated around North Richmond Shopping Village. Footpaths along Grose Vale Road provide a connective route to the Redbank development in North Richmond, which is a growing residential centre. Pedestrian crossings are mainly provided in the form of Pedestrian Refuges, with one zebra crossing outside of Richmond North Public School and a signalised crossing at Bells Line of Road. The existing pedestrian networks for the key suburbs are shown in **Figure 4** to **Figure 7**. A more detailed review of the existing pedestrian network and crossing facilities can be found in the Background Report attached in **Appendix D**.

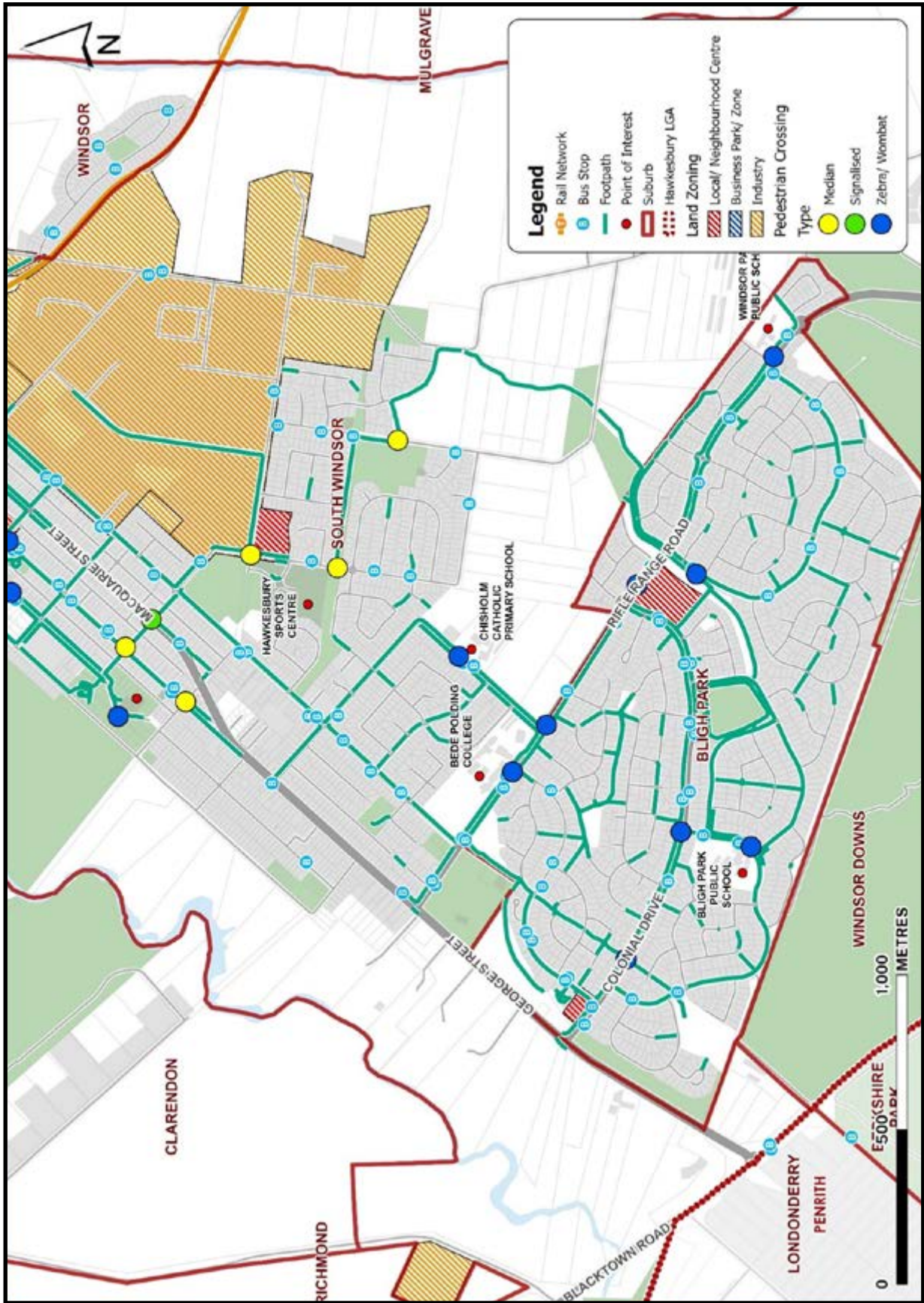


Figure 4: Bligh Park and South Windsor Pedestrian Footpath Network and Crossing Facilities

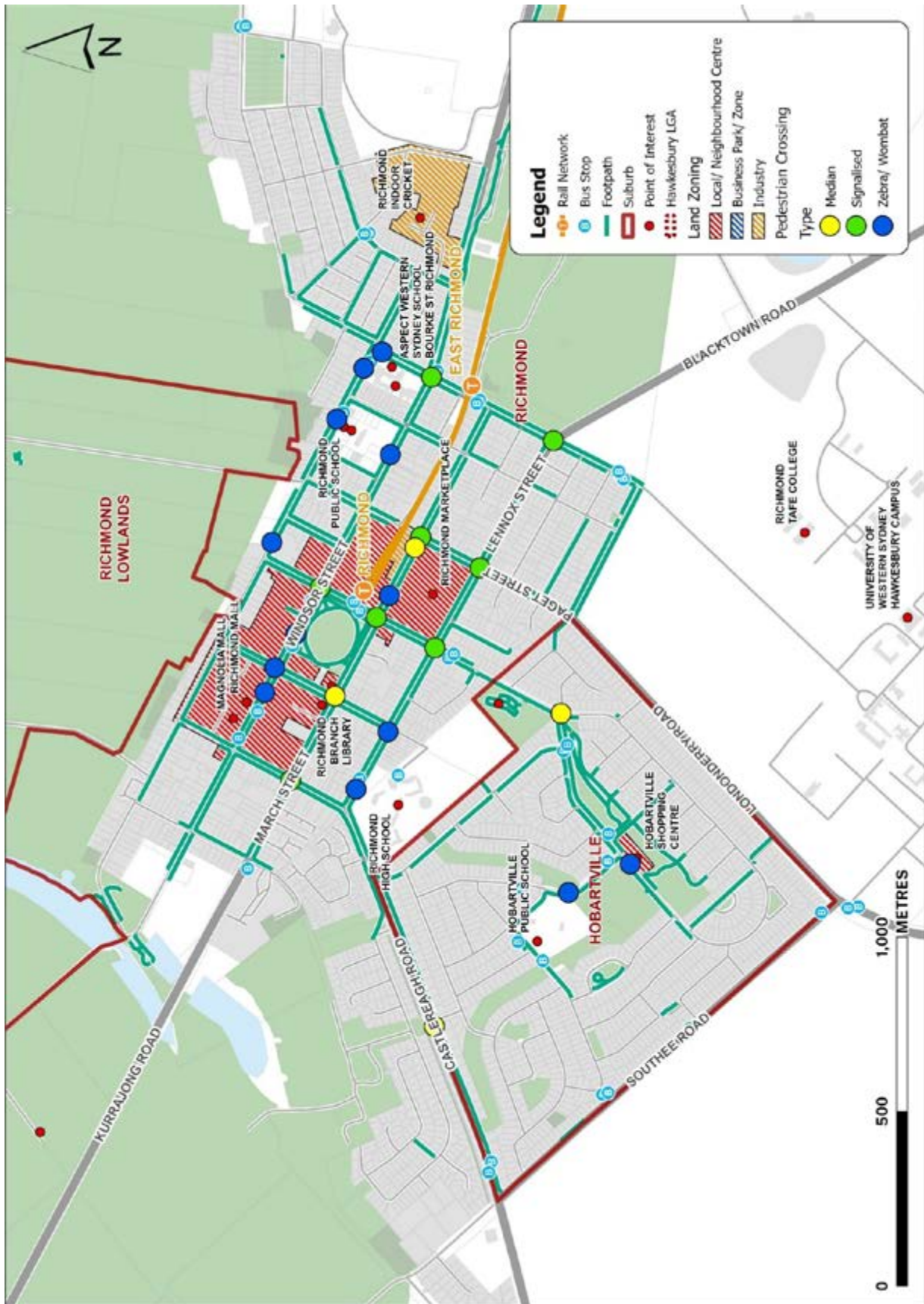


Figure 5: Hobartville and Richmond Pedestrian Footpath Network and Crossing Facilities

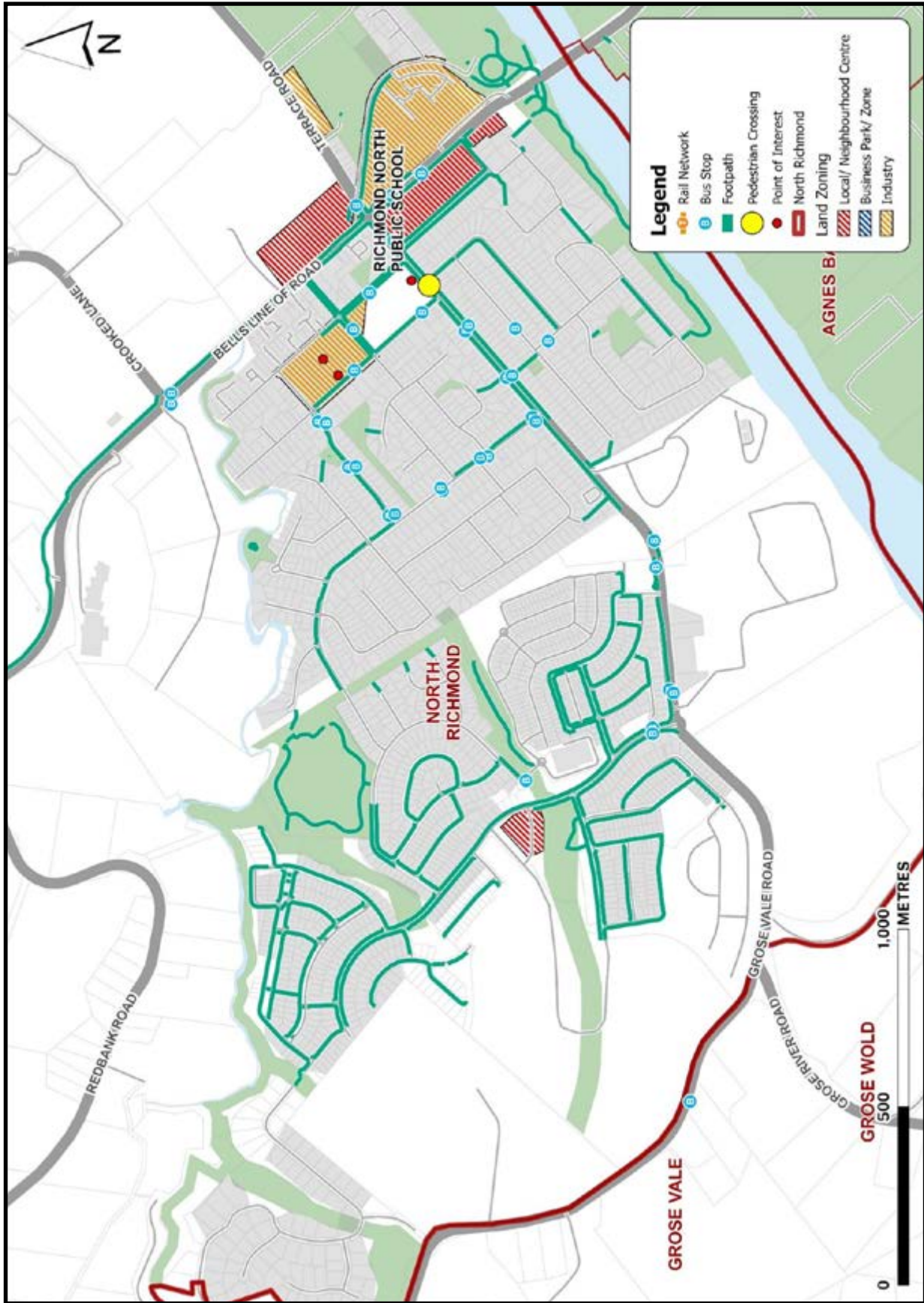


Figure 6: North Richmond Pedestrian Footpath Network and Crossing Facilities

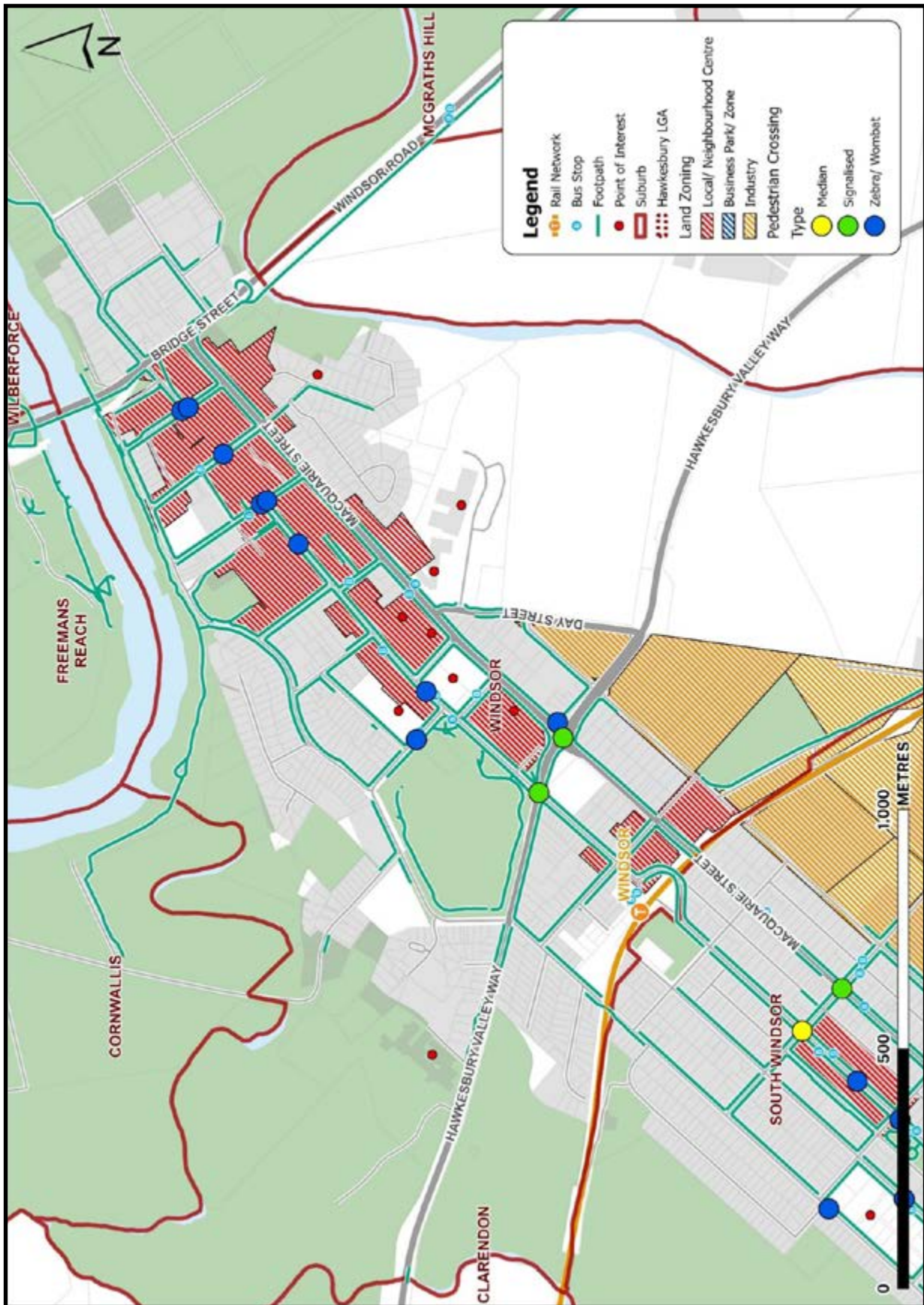


Figure 7: Windsor Pedestrian Footpath Network and Crossing Facilities



3.4 Cycling

Cycling infrastructure within Hawkesbury is primarily contained to on-road routes, through the provision of cycling road shoulders. These road shoulders exist on main roads which service relatively higher traffic volumes as they form connective routes. On-road cycleways are located along the key roads of:

- Hawkesbury Valley Way
- Macquarie Street and George Street
- Blacktown Road
- Kurrajong Road
- Castlereagh Road

Separated cycling infrastructure is much more limited regarding the overall provision and connectivity. Shared paths that can be considered connective in the region include:

- Bells Line of Road, connecting from North Richmond toward Bilpin
- Yobarnie Avenue & Mantle Avenue (incl. other paths in Redbank development)
- Shared path from East Richmond Station to Clarendon Station
- Shared path through woodland connecting South Windsor and Bligh Park
- Shared path along Windsor Road, extending to Bridge Street and over the Hawkesbury River
- Shared path along Macquarie Street

Furthermore, there are recreational paths provided in parks such as Howe Park, Governor Phillip Park, and Hawkesbury Park.

Bicycle parking is relatively unavailable in the region. Certain pockets such as Richmond Oval, South Windsor near McLeod Park, and Clarendon Train Station do however provide free and accessible parking for users.

Figure 8 provides an overview of the existing cycling network within the lower Hawkesbury region. A more detailed review of the existing cycling network can be found in the Background Report attached in **Appendix D**.

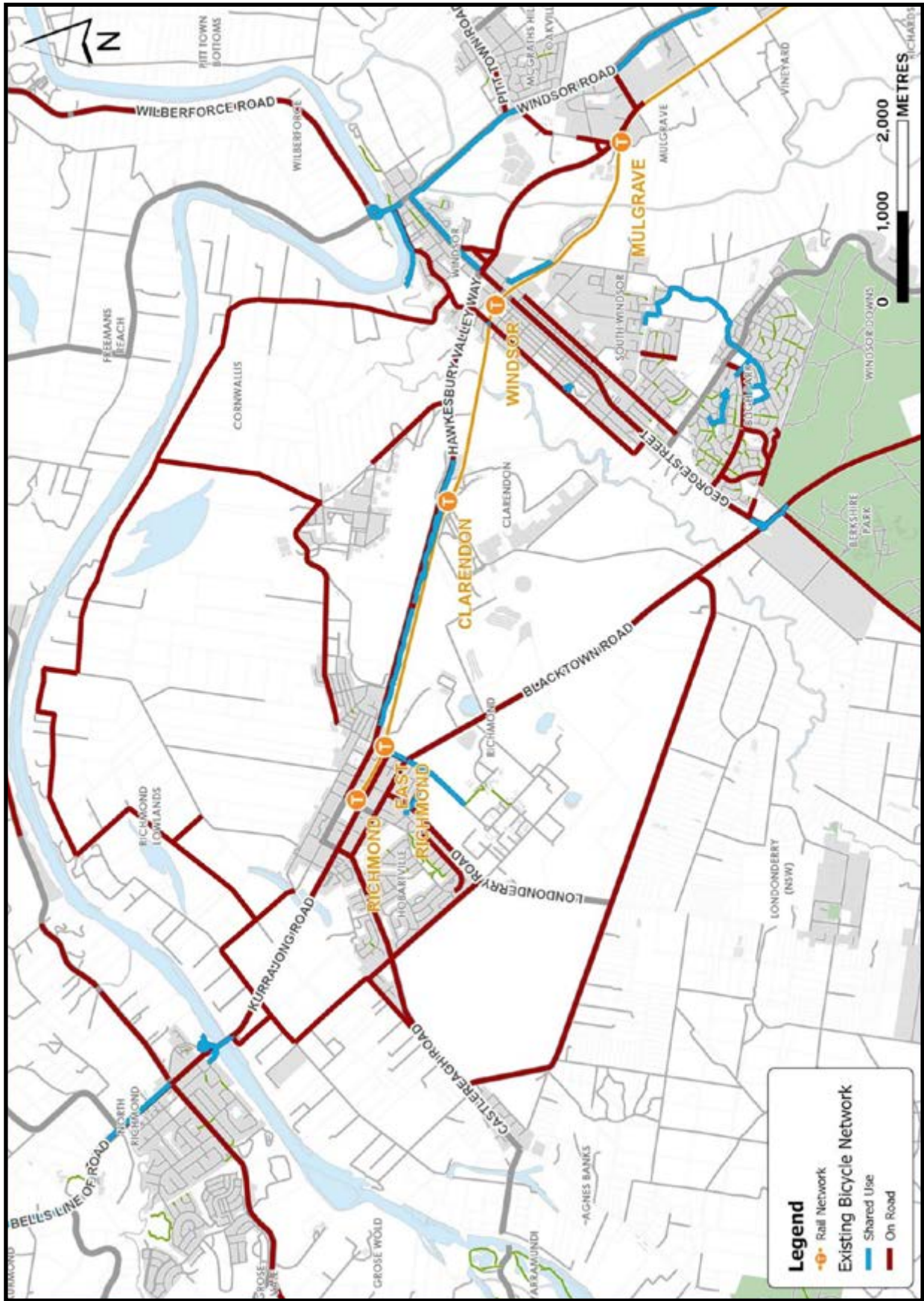


Figure 8: Hawkesbury Cycling Network – South of Hawkesbury River

3.5 Road Network

The highest classification of road running through Hawkesbury LGA is arterial, as there are no motorways present within the LGA. Key arterial roads in the region include Bells Line of Road, Putty Road, Windsor Road, and Blacktown Road. The road hierarchy for the region is shown below in **Figure 9**.

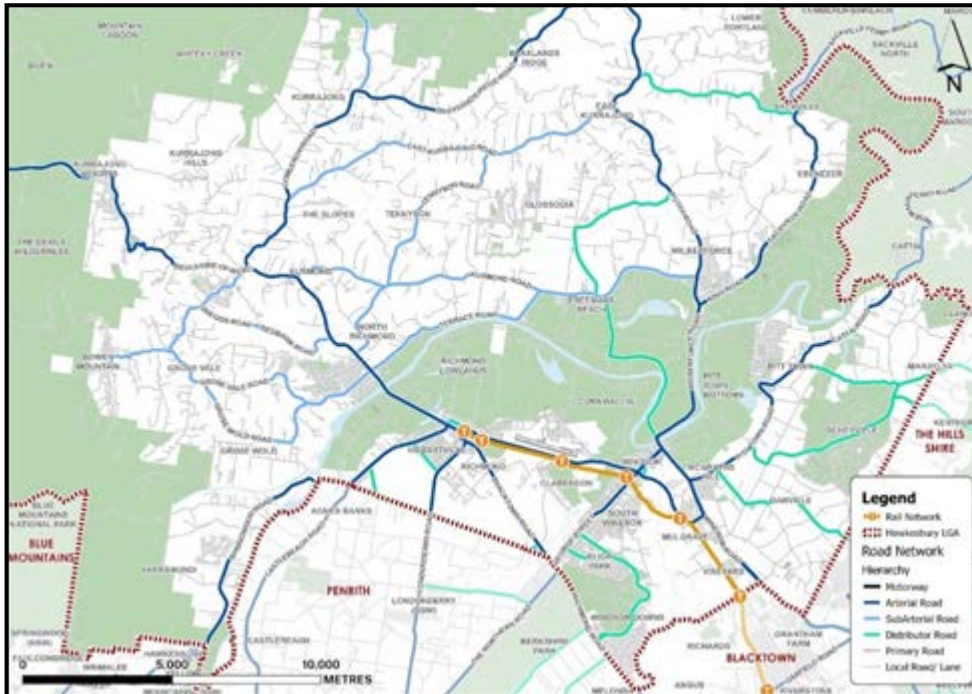


Figure 9: Hawkesbury Road Network Classifications

Freight routes within the Hawkesbury LGA consist of secondary and tertiary routes. There are no primary freight routes located within the LGA. Richmond Road, Blacktown Road and Kurrajong Road are classified as secondary freight routes, stopping at North Richmond. Hawkesbury Valley Way, George Street, The Northern Road, and Windsor Road are all classified as tertiary freight routes.

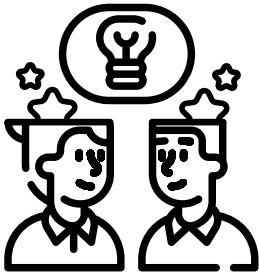
Table 5 shows the proportion of freight traffic on some of these key freight routes.

Road Name	Intersecting Road / Locality	Suburb	Road Status	HV % Total
George Street	Colonial Drive	Bligh Park	State	7.8%
Grose Vale Road	Elizabeth Street to Pecks Road	North Richmond	Regional	15.5%
Eldon Street	Cattai Road	Pitt Town	State	11.7%
The Driftway	East and West of Londonderry Road	Richmond	Local	10.0%
Macquarie Street	Drummond Street	South Windsor	State	9.8%
Bridge Street	200m north of George Street	Windsor	State	10.6%
Windsor Road	Macquarie Street	Windsor	State	7.8%

Table 5: Heavy Vehicle Movements within Hawkesbury

4 Stakeholder and Community Engagement

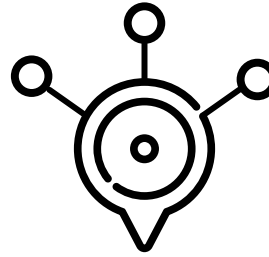
In support of the Active Transport Action Plan's development varying forms of stakeholder and community engagement have been undertaken. The primary purpose of engagement is to generate feedback from the community that assists with developing the vision and ideas of Hawkesbury Council. The following engagement activities have been undertaken during the development of this Plan and the results are discussed further within this chapter:



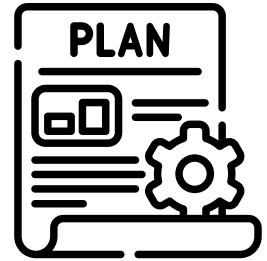
Visioning Workshop



Community Survey and Mapping



Options Development Workshop



Infrastructure Action Plan

4.1 Visioning Workshop

A Visioning Workshop was held with Council during the Plans development phase. The purpose of the workshop was to understand and develop Council's desires for Active Transport across Hawkesbury and to what extent it should play in supporting the future of the region. The workshop provided a forum for understanding and determining what the prioritised objectives are, and the appetite for change, which enables a holistic plan to be developed which matches the visions set out by the Stakeholder.

During this engagement, an interactive session was held via Jamboard, a digital whiteboard that facilitates a collaborative approach. Council participants, those present in the meeting and otherwise (link was provided), were given the opportunity to comment on various questions provided by Stantec, as shown below. These questions were designed to help better understand what exactly the Council's objectives were regarding active transport, identifying areas they wanted to focus on and avoid. Participants were also prompted to raise any concerns they thought might impact either the implementation or adoption of active transport within Hawkesbury.



VISION

- What do we want active transport to look like in Hawkesbury in the future?
- What do we not want Hawkesbury to be in the future?
- What are the key elements to shape Hawkesbury for the future? short-term and long-term?
- What are the priorities for active transport?
- What are the priorities of the community for active transport?
- How do these priorities fit with the strategic process?

IMPLEMENTATION

- What are the barriers to achieving safe and efficient active transport travel in the LGA?
- What are the major implementation considerations in translating a new vision for Hawkesbury?

CONSTRAINTS

- What are the major issues to be addressed in developing the active transport plan?
- What barriers are there to accessing education, employment, and leisure safely?

Following the conclusion of the visioning workshop, the following visions were finalised for delivering the Hawkesbury Active Transport Action Plan:

1

Provide a safe, reliable, and resilient active transport network that contributes to the prosperity and liveability of the Hawkesbury residents.

2

Improve walking and cycling access for people of all ages and abilities for travel to and from key areas of high population, schools, and train stations.

3

Provide efficient, reliable, and quality infrastructure that support 30-minute sustainable transport journey times.

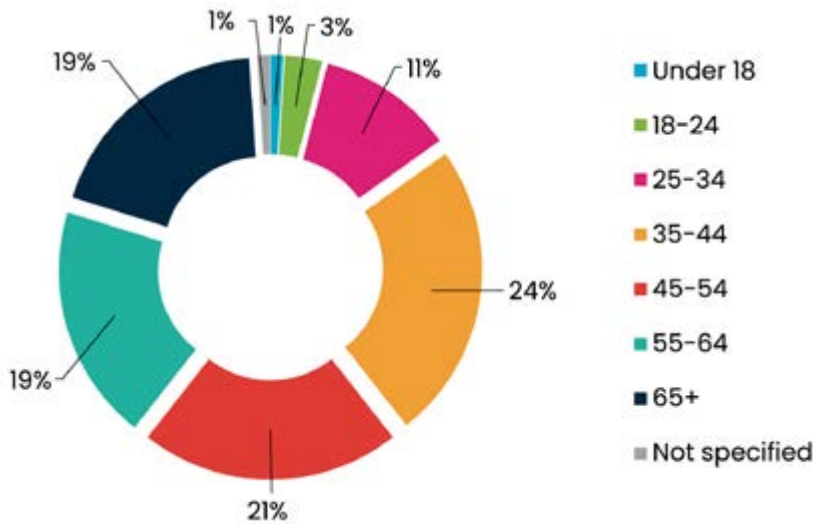
4

Encourage a shift from private transport towards multimodal journeys by integrating active and public transport networks.

4.2 Community Survey

An online community questionnaire survey was undertaken throughout March 2023 to gather community opinions regarding the current state of walking and cycling within the Hawkesbury LGA. The survey was posted on Councils Your Say webpage and promoted through the Council website and online social media platforms. Respondents were asked for their opinions and how it may be improved. A total of 267 respondents participated in the survey whilst it was live. The results of the survey are shown below from **Figure 10** to **Figure 22**. Some comments required respondents to provide comments to the questions posed, which have been provided in **Appendix A**.

Age Profile of Survey Respondents



The greatest proportion of respondents to the survey fell within the 35-44 age range (24%), with those in the 45-54 age range being the second largest (21%).

Only 4% of respondents were aged 24 or younger.

Figure 10: Age Profile of Survey Respondents

Residential Suburb of Survey Respondents

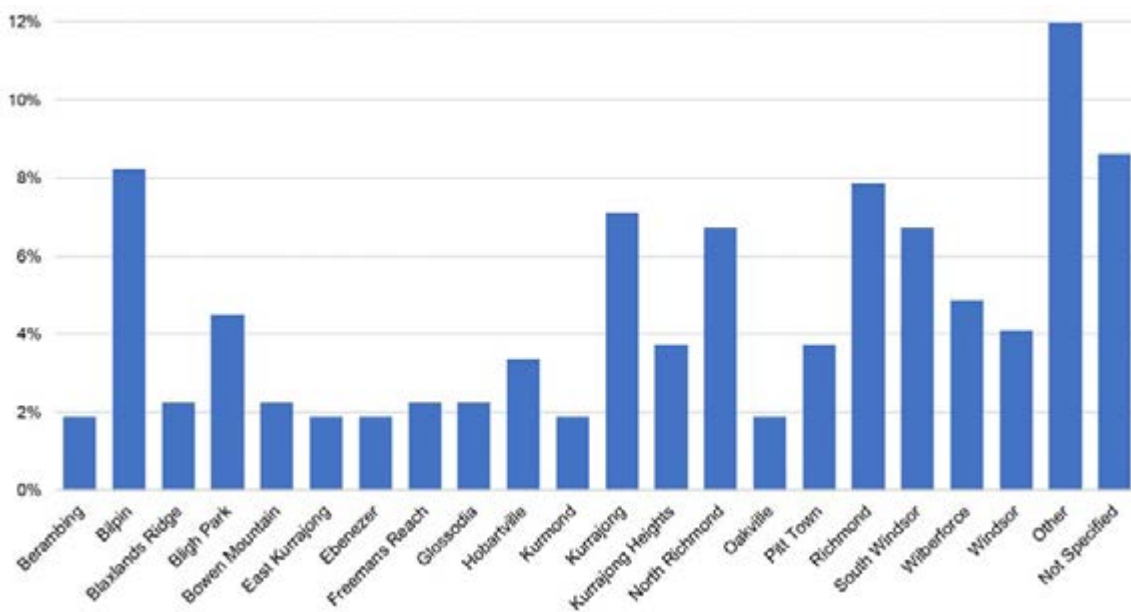
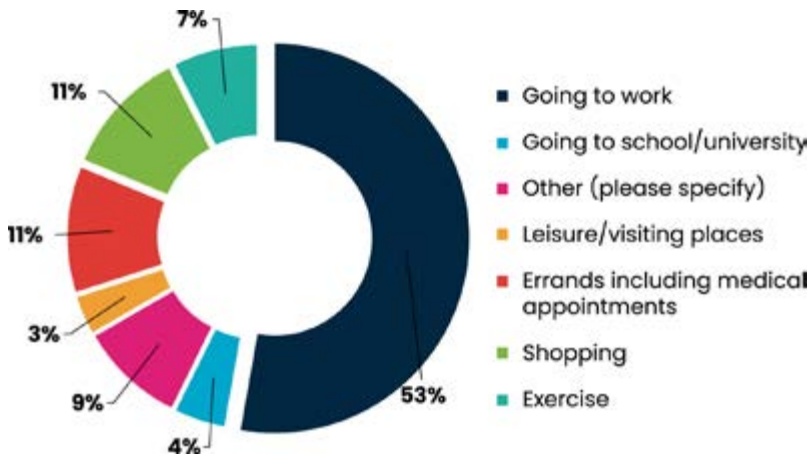


Figure 11: Residential Suburb of Survey Respondents

The highest proportion of survey respondents from a single suburb were from Bilpin and Richmond and were accountable for 8% of all results respectively. Kurrajong, North Richmond, and South Windsor were each responsible for 7% of all respondents. 9% of respondents did not specify where they resided.

Question: On a typical weekday, what is the main trip you would undertake during the day?

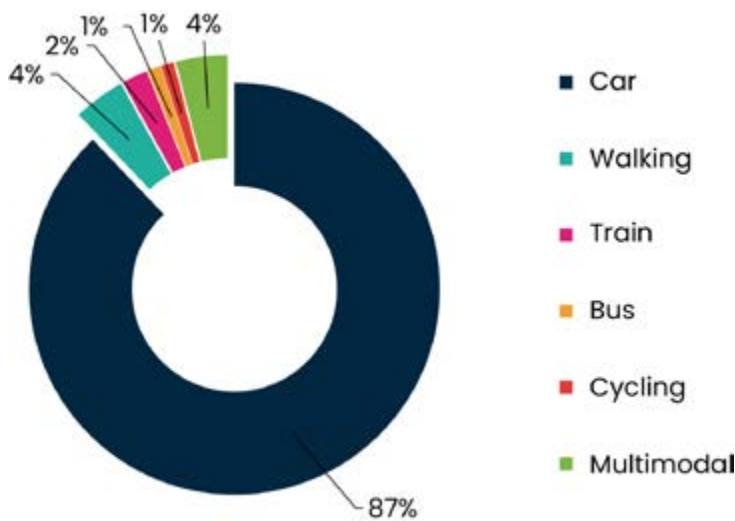


Approximately half of the participants (53%) identified travel to work as their main trip on a typical weekday, followed by shopping (11%), errands (9%), exercise (7%), school/university (4%) and leisure/visiting places (3%).

Those who selected “other” (9%) indicated trip purposes such as dropping off/picking up children from school and a combination of trip purposes provided.

Figure 12: Trip Purpose Survey Results

Question: What is your usual primary method of transport for this trip?

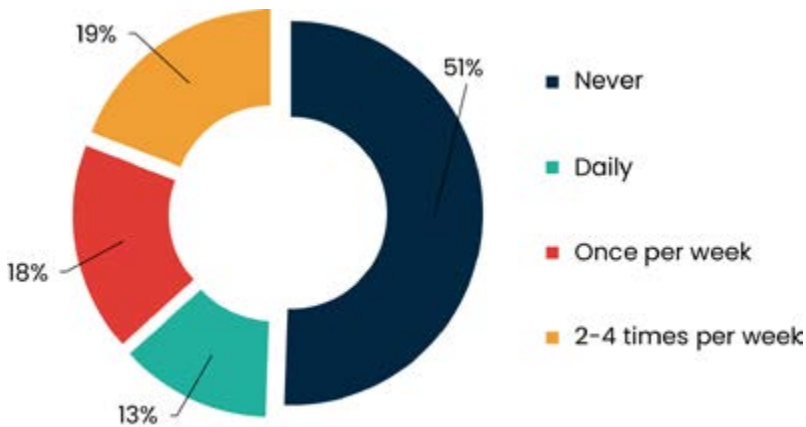


The majority of the participants (87%) indicated that the car was their main method of transport.

This is followed by 4% for walking, 2% for train, 1% for bus, 1% for cycling and the remaining 4% have noted to undertake a mix of two or more transport modes as their usual way of travel.

Figure 13: Mode of Choice Survey Results

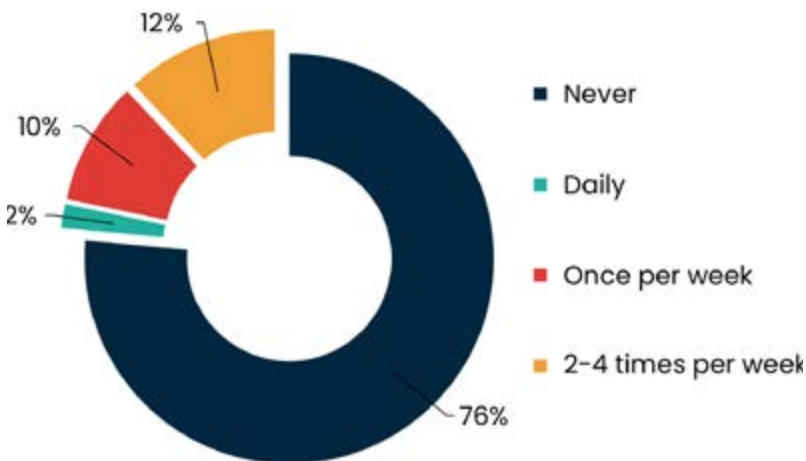
Question: How often do you walk to a destination in a week?



49% of the participants said they choose to make trips by walking, with 13% indicating that they walk daily, 19% walk two to four times per week and 18% walk once per week. 51% of the participants stated that they do not choose to walk to destinations.

Figure 14: Walking Frequency Survey Results

Question: How often do you cycle in a week?

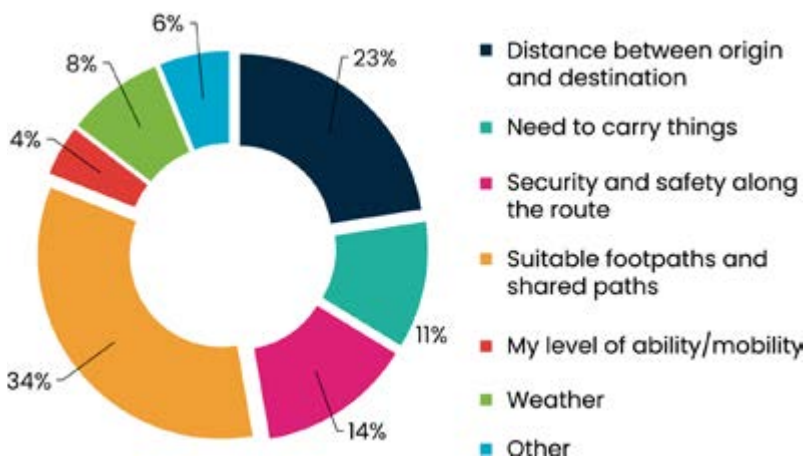


The majority of participants (76%) stated that they do not undertake cycling trips as a mode of transport to a destination.

24% of the participants identified that they undertake walking trips for travelling to a destination during a week, with 2% indicating that they cycle daily, 12% cycle two to four times per week and 10% cycle at least once per week.

Figure 15: Cycling Frequency Survey Results

Question: What factors/ barriers deter you from walking more? (multiple responses allowed)

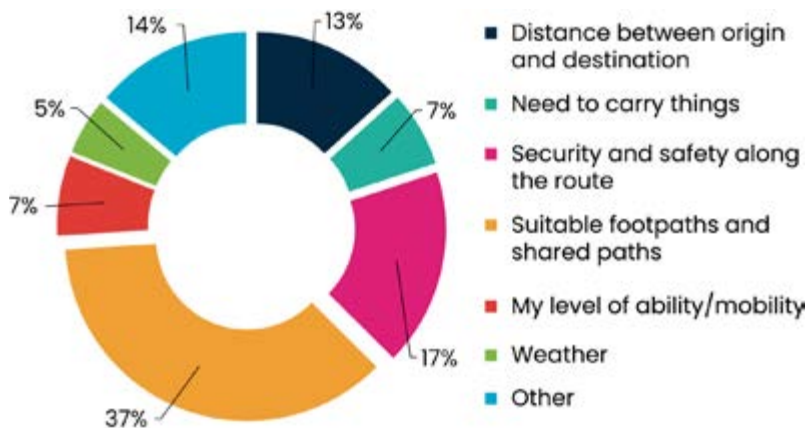


The largest deterrent to people walking more was a lack of suitable footpaths (34%), followed by the distance between an origin and destination (23%).

The level/ ability of the respondent was the least concerning deterrent (4%). Dangerous routes and no supporting footpaths were the largest responses in the other category.

Figure 16: Barriers to Walking Survey Results

**Question: What factors/ barriers deter you from cycling more?
(multiple responses allowed)**

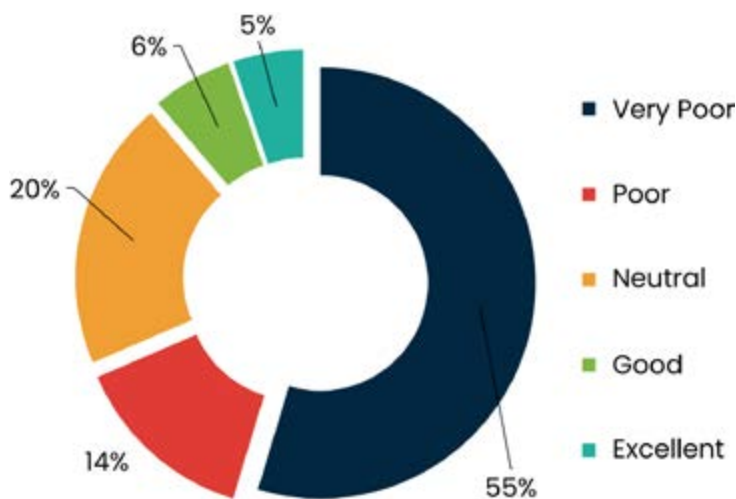


The largest deterrent to people walking more was a lack of suitable footpaths (37%), followed by security and safety along their route (17%).

The weather was the least concerning deterrent. No access to a bike was the largest response in the other category.

Figure 17: Barriers to Cycling Survey Results

**Question: How would you rate the walkability in your local suburb? -
Very Poor (1) to Excellent (5)**

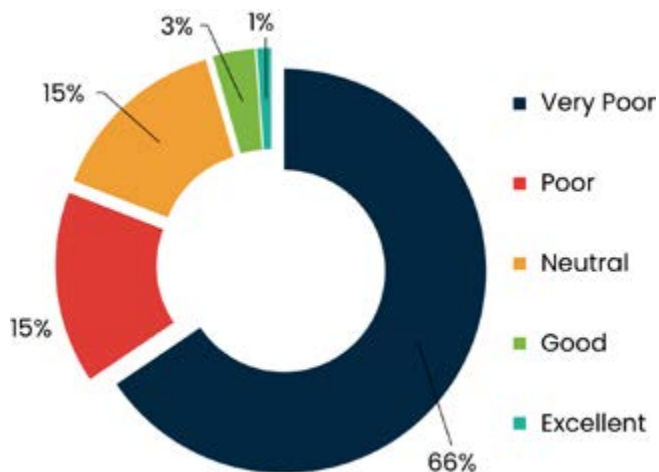


Walkability is considered very poor in Hawkesbury with 55% of respondents suggesting so. A total of 11% of respondents considered walkability in the region to be either good or excellent.

The average score for walkability in the region was 27 out of a possible 100.

Figure 18: Walkability Survey Results

Question: How would you rate cycling in your local suburb? - Very Poor (1) to Excellent (5)

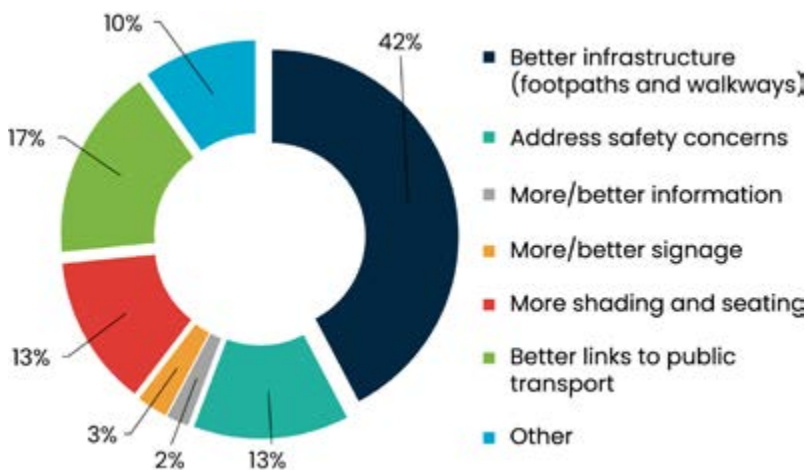


Cyclability is considered to be worse than walking, with 66% of respondents stating that it is very poor.

Only 4% of respondents state that cyclability is either good or excellent. The average score for cyclability in the region was 18 out of a possible 100.

Figure 19: Cyclability Survey Results

Question: What would encourage you to walk more? (multiple responses allowed)

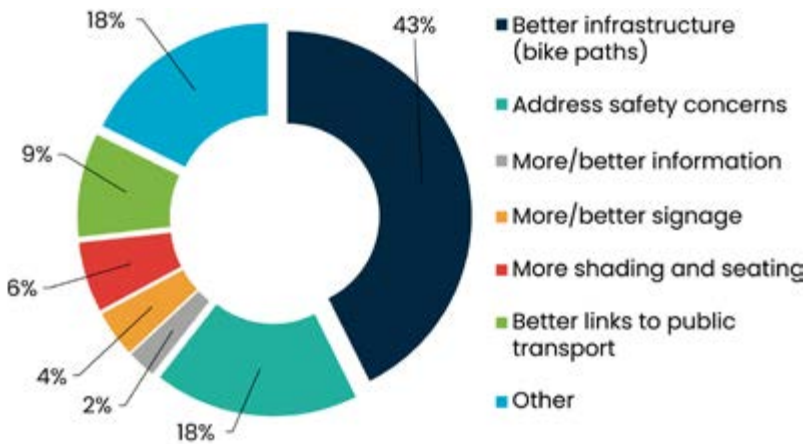


The majority of respondents suggested that better infrastructure would encourage them to walk more (42%).

Better links to public transport (17%) were the second most popular option, followed by more shading and seating (13%).

Figure 20: Motivators to Walking More Survey Results

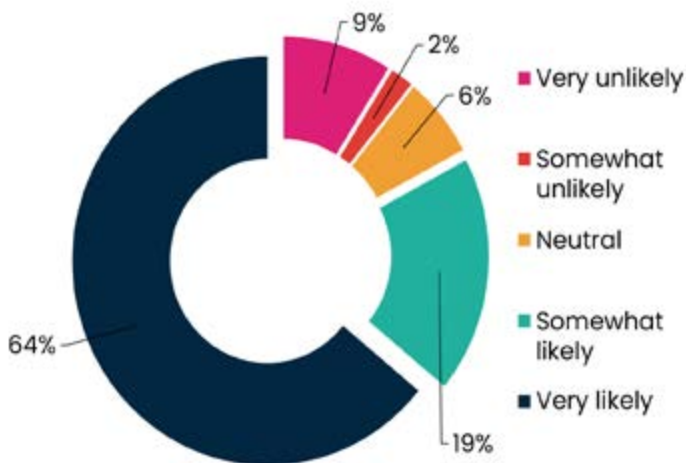
**Question: What would encourage you to cycle more?
(multiple responses allowed)**



Better cycling infrastructure (43%) was the most popular response for encouraging people to cycle more. Safety and Other were the joint second most popular responses with a share of 18% each.

Figure 21: Motivators to Cycling More Survey Results

Question: If the above improvements were introduced, how likely is it that you would walk or cycle more?



Respondents were positive in saying they would take up walking and cycling more if the proposed measures were introduced with 64% saying they would be very likely to participate more.

A total of 11% of respondents said they would be very or somewhat unlikely to walk or cycle more following improvements to infrastructure.

Figure 22: Would Walking and Cycling Motivators Improve Participation Survey Results

4.3 Social Pinpoint

An interactive online community survey (Social Pinpoint) was undertaken in parallel to the community survey through March 2023. The online mapping tool enabled respondents to geospatially record comments regarding specific issues and opportunities for walking and cycling infrastructure within the Hawkesbury LGA. Respondents were prompted to place down points on an interactive map, where they could then identify their issues and opportunities for improvements to specific locations. **Figure 23** illustrates the location of the results collected through the survey. Respondent points were largely centred around the suburbs of Windsor, South Windsor, Richmond, North Richmond, and Kurmond. There was a total of 83 points collected in the survey, which were focused on walking, consisting of 63 points, and 20 for cycling. The responses collected during the survey have been provided in **Appendix B**.

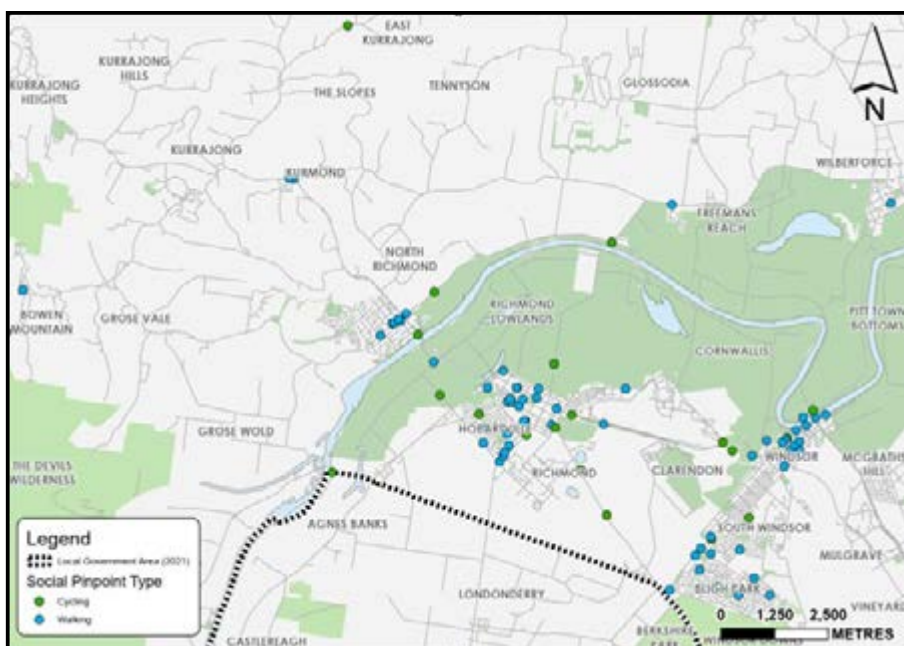


Figure 23: Social Pinpoint Survey Response Locations

Table 6 summarises the respondent’s comments received during the survey. Route connectivity is an important issue for both pedestrians and cyclists, with 35 per cent and 55 per cent of points associated with improved or lack of connectivity, respectfully. Both user groups highlighted the importance of road safety and separation from vehicles.

Category	Walking	Cycling
Route connectivity	35%	55%
Infrastructure (condition, width, obstructions)	5%	25%
Crossing facilities (active and passive, at intersections and midblock)	36%	-
Wayfinding and signage	2%	-
Amenity (trees for shade, water fountains, street lighting)	12%	-
Road safety, separation from vehicles (including parked)	8%	15%
Active transport for leisure	2%	5%

Table 6: Walking and Cycling Responses Regarding Categories

5 Issues and Opportunities

This chapter provides a summary of the key issues and their associated opportunities identified during the Community Engagement and Stantec’s assessment. The context provided has been considered when making improvement recommendations for this study.

Mode	Issue	Opportunities
Walking	Footpaths are not provided consistently across residential areas. Concentrations of residential development areas such as Hobartville are not adequately provided for concerning pedestrian infrastructure.	<ul style="list-style-type: none"> Review opportunities to mitigate these issues in the future.
Cycling	The current strategic and local cycling network does not provide adequate connections and is underdeveloped.	<ul style="list-style-type: none"> Create a cycling network that aligns with the Greater Sydney cycleway corridor network. Build off the WestInvest cycleway from Windsor to Richmond to create a strategic network that services the centres of Hawkesbury. Develop local networks to support cycling within suburbs. Look to connect residential hubs to key land uses like town centres or recreational centres.
Cycling	There is a general lack of End-of-Trip (EOT) facilities, such as bike parking within strategic centres and points of interest.	<ul style="list-style-type: none"> Provide parking and other amenities to capitalise off the cycling network by making cycling or more attractive transport mode.
Walking & Cycling	Poor existing usage of active transport modes within the study area due to convenience, safety concerns, and lack of infrastructure as indicated in online consultation outcomes.	<ul style="list-style-type: none"> Provide adequate infrastructure to help support and facilitate travel across communities, thereby increasing the usage of active transport.
Walking & Cycling	Despite over 50% of the LGA’s residents working within Hawkesbury, only 5% of work trips are made via walking or cycling	<ul style="list-style-type: none"> Opportunity for a modal shift in the way employees within Hawkesbury move. The nature of the work as well as the vastness of the LGA must be acknowledged, however, the shifts of certain trips remain a strong opportunity.
Walking & Cycling	Signage regarding cycling and walking is inconsistent both in quality and reoccurrence (regarding the distance between signs in a sequence). This can be seen with existing road shoulder markings, as the lining is often either faded or not maintained.	<ul style="list-style-type: none"> Provide adequate signage for safety, particularly in examples with on-road cycling, as well as highlight the available modes of transport.

Mode	Issue	Opportunities
Walking & Cycling	Much of the infrastructure currently located within the Hawkesbury LGA does not meet standard typologies and suitable widths promoted in the Walking Space Guide and Cycleway Design Toolbox. State recommendations are often greater than Council DCP requirements to support greater levels of comfort to the user.	<ul style="list-style-type: none"> Align the design of cycling and pedestrian infrastructure to best practices such as the Cycleway Design Toolbox and Walking Space guide per TfNSW. Aligned designs provide better opportunities to support business cases to access funding from state government agencies.
Walking & Cycling	No corresponding issues	<ul style="list-style-type: none"> Look to promote WestInvest projects through the provision of active transport infrastructure to and from the site.
Walking & Cycling	No corresponding issues	<ul style="list-style-type: none"> Utilise the WestInvest Hawkesbury Wayfinding program to support the primary and secondary cycling network.

Table 7: Issues and Opportunities for Walking and Cycling in Hawkesbury

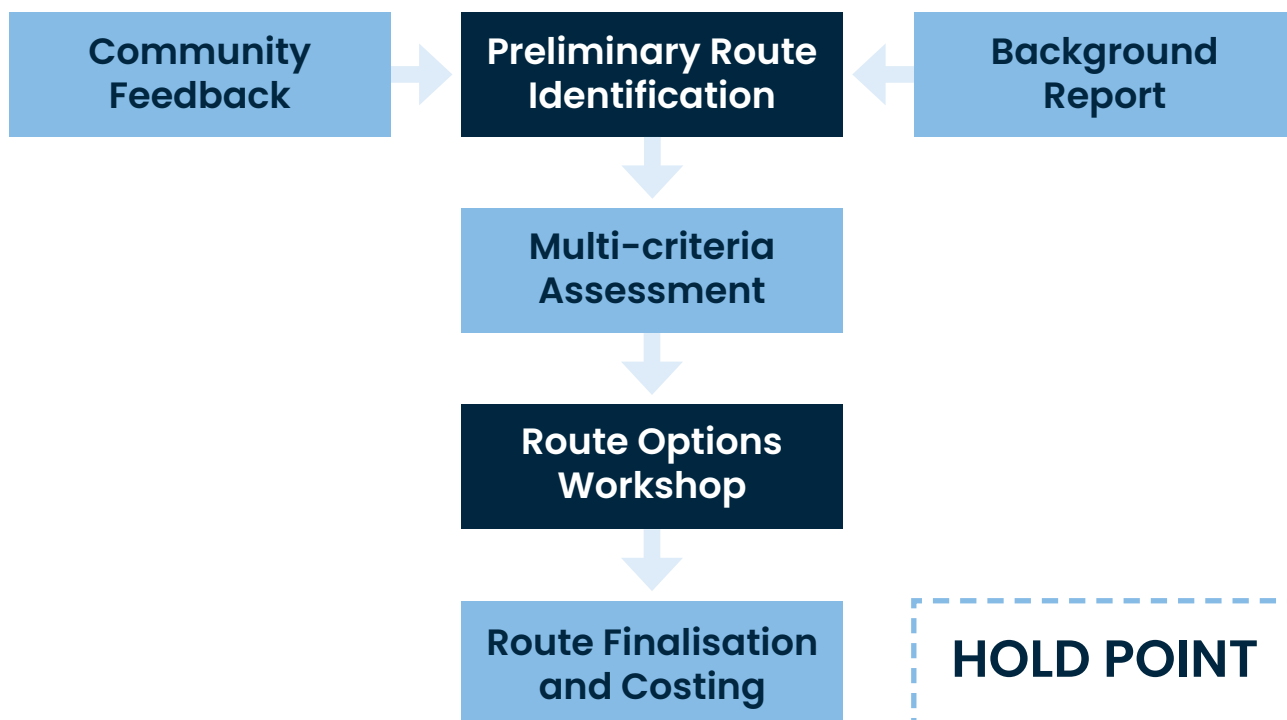


6 Action Plan

This chapter presents the action plan for recommended improvements to the core walking and cycling network in the Hawkesbury LGA.

6.1 Methodology

Improvements to the pedestrian and cycling network within Hawkesbury have been recommended on the basis of a holistic methodology that was proposed to and approved by Council. The review incorporates the existing network, best practices, community consultation, and key land uses. The purpose of the methodology is to set out key principles and objectives which the infrastructure should achieve. These principles and objectives act as a strategic guide for recommendations, as a certain criterion needs to be met. The methodology used to create recommendations for the pedestrian network is as follows:



The following actions were undertaken as part of the multi-criteria assessment and to enable the development of recommendations for the infrastructure Action Plan:

- Identify and address gaps within the existing pedestrian and cycling networks
- Analysis of infrastructure key land uses and trip attractors that generate a higher number of trips
- Analysis of future land use changes
- Community consultation
- Review of historic crash data

The process resulted in the proposed recommendations that are detailed in the following chapters.

6.2 Pedestrian Network

The pedestrian network refers to infrastructure that includes but is not limited to, footpaths, crossings (various types) and kerb ramps. The following chapter highlights upgrade recommendations to support and expand the existing pedestrian network within Hawkesbury. These recommendations aim to achieve the objectives of the ATAP by delivering a safer, better-connected, and accessible walking experience.

6.2.1 Pedestrian Network Overview

Table 8 highlights the existing footpath network, as well as the proposed/planned additions to the network. The proposed pedestrian network aims to provide connectivity and accessibility across all regions and should be considered and investigated to achieve this.

Town	Existing Footpath Network (m)	Proposed/Upgraded Footpath Network (m)	No. of Proposed/Upgraded Crossings
Bilpin	1,160	250	2
Bligh Park	19,799	-	4
Glossodia	3,013	1,554	1
Hobartville	6,473	1,055	-
McGraths Hill	4,707	90	1
North Richmond	28,913	1,120	7
Pitt Town	13,101	370	1
Richmond	27,927	273	4
South Windsor	21,055	245	3
Wilberforce	2,313	580	3
Windsor	19,638	-	6

Table 8: Summary of Footpath Network by Suburb

In addition to the proposed footpath network, crossing types have been recommended for installation or improvement. Examples of these are identified in **Table 9**.

6.2.2 Crossing Recommendation



Figure 24: Zebra crossing outside Richmond North Public School



Figure 25: Pedestrian refuge island on Berger Road, South Windsor



Figure 26: Hawkesbury Valley Way and Macquarie St intersection

Zebra / Raised Zebra (Wombat) Crossings

Zebra crossings provide pedestrians with prioritised crossing points, as they are given the right of way per traffic rules. Zebra crossings are often found near schools and other activities which draw upon high levels of pedestrians.

Similarly, Raised Zebra crossings, colloquially referred to as Wombat crossings, provide pedestrians or cyclists with a prioritised crossing point. As the crossing is raised, it results in vehicles reducing their speed, like a speed bump.

Pedestrian Refuge

Pedestrian refuge, also commonly known as a pedestrian island or mid-block, is a traffic calming measure that allows pedestrians to cross one direction of vehicle traffic at a time, providing a safe space in the middle of the road. Refuges are particularly effective in aiding the mobility of pedestrians on multi-lane roads.

Signalised Crossing

Signalised pedestrian crossings provide pedestrians with a designated and predictable way to cross busy roads by controlling traffic. Signals can generally be found on arterial, sub arterial and distributor roads where there are higher levels of traffic.

Table 9: Crossing Typologies

6.2.3 Proposed Pedestrian Network and Crossing Opportunity Infrastructure Upgrades

Bilpin

Table 10 details the proposed footpath network recommendations for Bilpin. In total, three upgrade recommendations have been made which cover a distance of 250 metres. The recommendations provide a continuation of the existing infrastructure, connecting gaps and upgrading existing footpaths that require improvement.

ID	Road	Start	End	Length (m)	Status	Description
BF1	Bells Line of Road	Along the grass verge in front of Stop ID 275836		90	Missing	Extend the footpath to provide access to the bus stop.
BF2	Bells Line of Road	Along the extent of the local centre including the bakery and food store		90	Existing	Upgrade the existing footpath around the bakery/hardware store. In addition, extend the footpath to provide access to the bus stop.
BF3	Bells Line of Road	at Bilpin District Hall	Opposite the end of the existing footpath network	70	Missing	Provide a formal path to provide access to Bilpin District Hall.

Table 10: Bilpin Footpath Network Recommendations

Table 11 details the pedestrian crossing point recommendations for Bilpin. A total of two crossing points have been recommended, to provide safe crossing opportunities over Bells Line of Road around the community centre and Bilpin local centre.

ID	Location	Crossing Type	Status	Description
BC1	Bells of Line Road near Hardware Store	Pedestrian Refuge	Missing	To provide safe crossing opportunities on Bells Line of Road between land uses.
BC2	Bells of Line Road near Bilpin District Hall	Pedestrian Refuge	Missing	To provide safe crossing opportunities to the District Hall and Community Farmer Market.

Table 11: Bilpin Crossing Point Recommendations

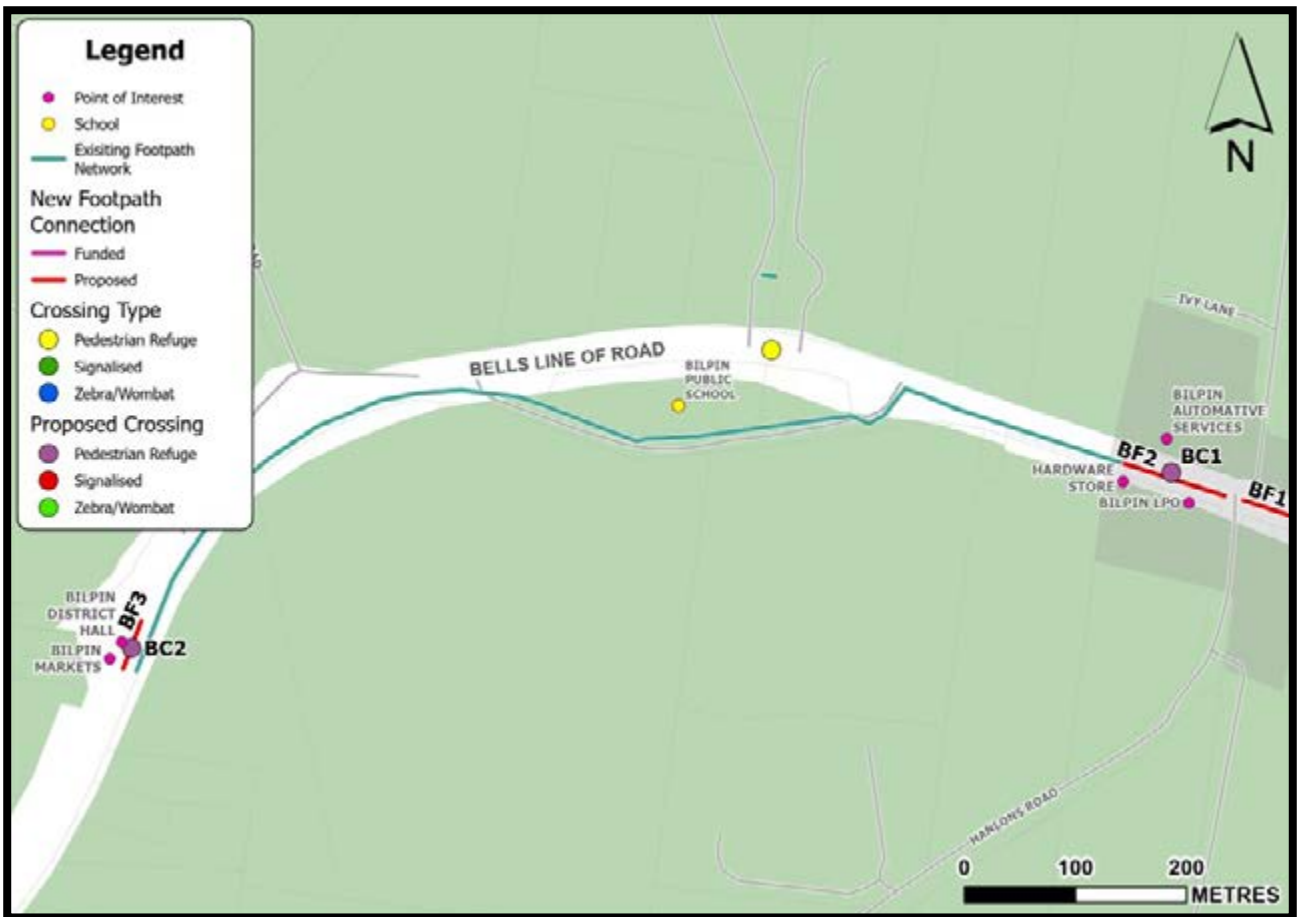


Figure 27: Bilpin Proposed Pedestrian Network and Crossing Opportunity Upgrades

Bligh Park

Following the conclusion of the existing network infrastructure assessment, the pedestrian network in Bligh Park was found to be functional and supportive in meeting the community's needs. Shared path infrastructure upgrades are proposed to occur in conjunction with the proposed cycling network upgrades along the key roads of Colonial Drive and Rifle Range Road, with further context provided on these in Chapter 6.3.2. Overall, it was determined that no additional pedestrian-only footpath infrastructure would be required in Bligh Park.

A total of three pedestrian crossings have been proposed for Bligh Park as detailed in **Table 12**. The proposed crossing opportunities provide safer access to schools and local amenities. The full extent of these improvements is shown in **Figure 28**.

ID	Location	Crossing Type	Status	Description
BPC1	George Street at Rifle Range Road	Signalised	Missing	George Street receives high levels of traffic, including heavy vehicle traffic, as that section of George Street is a part of the Double-B Routes. To support the future cycling network and current pedestrian trips, a signalised crossing is required.
BPC2	Mileham Street near Rifle Range Road	Pedestrian Refuge	Missing	To provide safer crossing opportunities around Bede Polding College between the two bus stops, providing access to Windsor Sporting Complex.
BPC3	George Street near Thorley Street	Signalised	Missing	To provide safe crossing opportunities from Bligh Park to the assortment of retail services across George Street, in support of the proposed shared path.
BPC4	George Street at Colonial Drive	Signalised	Upgrade	Convert the existing roundabout to a signalised intersection with a pedestrian crossing facility to provide safe crossing opportunities and improve traffic flow.

Table 12: Bligh Park Crossing Point Recommendations



Figure 28: Bligh Park Proposed Pedestrian Network and Crossing Opportunity Upgrades

Glossodia

Table 13 details the proposed pedestrian footpath network recommendations for the suburb of Glossodia. In total, four separate upgrades are recommended, covering an extent of 1,474 metres. The proposed improvements provide connections to Glossodia local centre, offering additional connectivity to Glossodia Public School from the south and the north. The future network is supportive of developments occurring in the Jacaranda residential development to the south of the suburb via Derby Place.

ID	Road	Start	End	Length (m)	Status	Description
GF1	Golden Valley Drive	Spinks Road	Glossodia Community Centre	370	Missing	Provide access from the residential area located to the south of Glossodia to the town centre
GF2	Golden Valley Drive	Bus Stop ID 2756336	Kentucky Drive	260	Missing	Provide access along Golden Valley Drive to the bus stop located outside of Glossodia Public School.
GF3	Derby Place	Across the length of Derby Place		184	Missing	The footpath will provide access to the local centre in support of the future Jacaranda development.
GF4	Spinks Road	Near Woodbury Reserve entry	217 Spinks Road	740	Missing	The footpath will provide access to the local centre and Woodbury Reserve in support of the future Jacaranda development.

Table 13: Glossodia Footpath Network Recommendations

Table 14 details the pedestrian crossing point recommendations for Glossodia, with a total of one upgrade required. The extent of these recommendations are shown in **Figure 29**.

ID	Location	Crossing type	Status	Description
GC1	Spinks Road at Golden Valley Drive	Pedestrian Refuge	Missing	To support future crossing opportunities between Glossodia town centre and the Jacaranda development
GC2	Spinks Road to Woodbury Reserve	Pedestrian Refuge	Missing	To support future crossing opportunities between Woodbury Reserve and the Jacaranda development

Table 14: Glossodia Crossing Point Recommendations

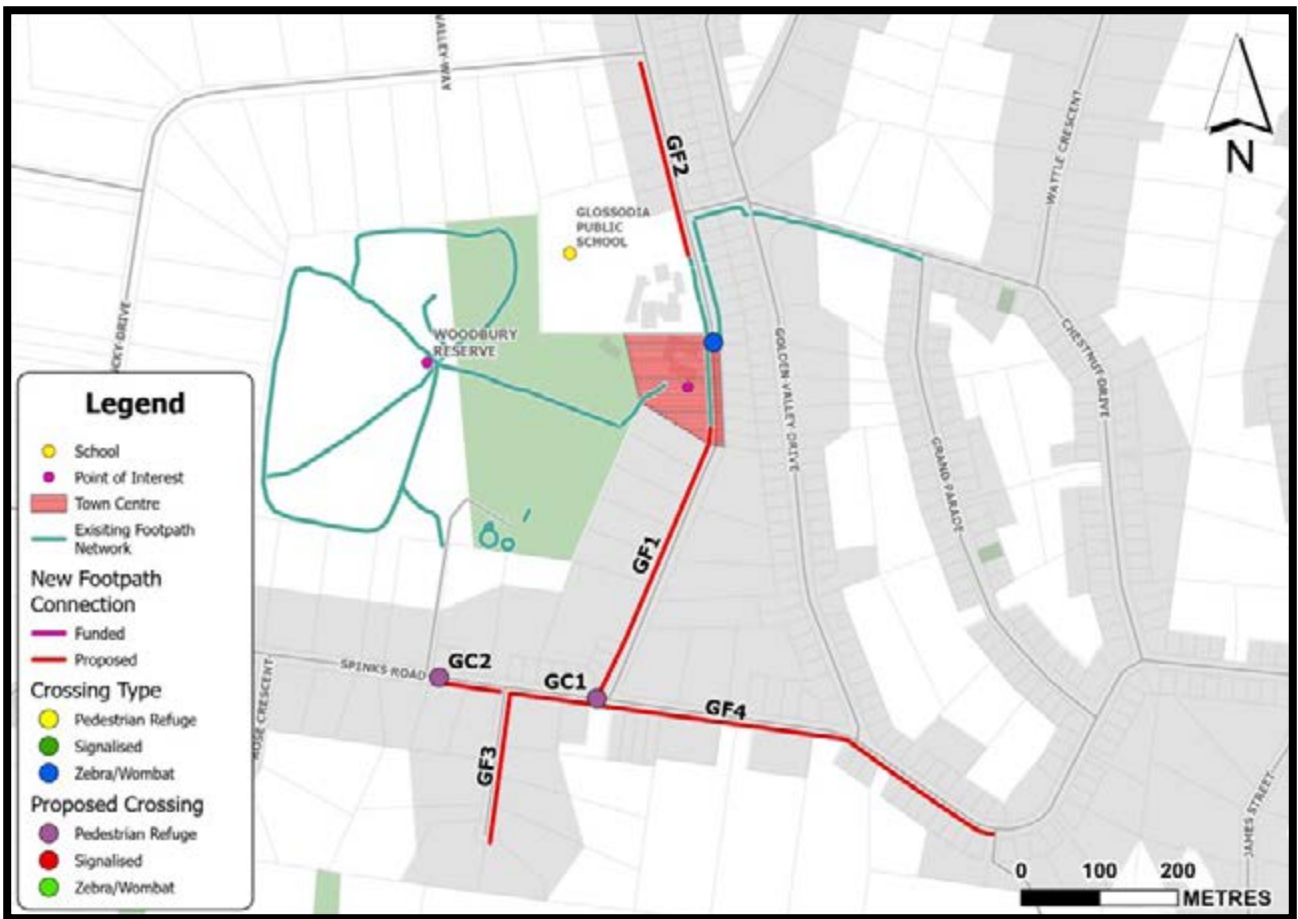


Figure 29: Glossodia Proposed Pedestrian Network and Crossing Opportunity Upgrades

Hobartville

Table 15 details the pedestrian footpath network recommendations for the suburb of Hobartville. A total of four segments are proposed to complete the footpath network, with the fourth recommendation, HF4, being funded as part of the New Richmond Bridge duplication and bypass improvements. The total length for all infrastructure improvements that have not received funding is 1,055 metres. Following the conclusion of the existing infrastructure assessment it was determined that no additional crossings would be required. This is due to the low levels of traffic travelling through Hobartville and the existing crossings already provided. It is however recommended that this is to be reviewed following the construction of the bypass, to understand whether there are any changes to traffic flows throughout the residential network that may impact on pedestrian wellbeing and safety.

ID	Road	Start	End	Length (m)	Status	Description
HF1	Luttrell Street	1 Luttrell Street	Smith Avenue	625	Missing	Provides a missing link between East Market Street and the University. The footpath will support demand which is visible from the track that extends through this area.
HF2	Anderson Avenue/ Potts Street/ Luttrell Street	Southee Road	Cornwell Avenue	170	Missing	Provides access from the footpath installation set to occur from the construction of the new Richmond Bridge Bypass on Southee Road to the existing footpath network.
HF3	Valder Avenue	Southee Road	Rutherglen Avenue	260	Missing	
HF4	Inalls Lane/ Southee Road	Drift Road	Londonderry Road	-	Funded	The project is committed as part of the Richmond Bridge duplication

Table 15: Hobartville Footpath Network Recommendations



Figure 30: Hobartville Pedestrian Network and Crossing Opportunity Upgrades

McGraths Hill

Table 16 details the pedestrian footpath network improvement recommendations for McGraths Hill. MHF1 is the only pedestrian-only infrastructure improvement recommended for the suburb due to the shared path recommendations forming part of the cycling network improvements.

ID	Road	Start	End	Length (m)	Status	Description
MHF1	Meares Road	Andrew Thompson Drive	Old Hawkesbury Road	90	Existing	Provides a connection through the McGraths Hill residential estate that connects with the proposed shared path corridor.

Table 16: McGraths Hill Footpath Network Recommendations

Table 17 details the pedestrian crossing recommendations for McGraths Hill. Only one improvement recommendation is provided, in support of enabled safe crossing opportunities across Windsor Road to support the recommended walking and cycling improvements. The extent of these improvements is shown in **Figure 31**.

ID	Location	Crossing type	Status	Description
MHC1	McGrath Road / Windsor Intersection	Signalised	Missing	Provide a safe crossing opportunity for residents from McGraths Hill to access commercial and retail land uses. This crossing will also help provide connectivity to the strategic cycling network.

Table 17: McGraths Hill Crossing Point Recommendations

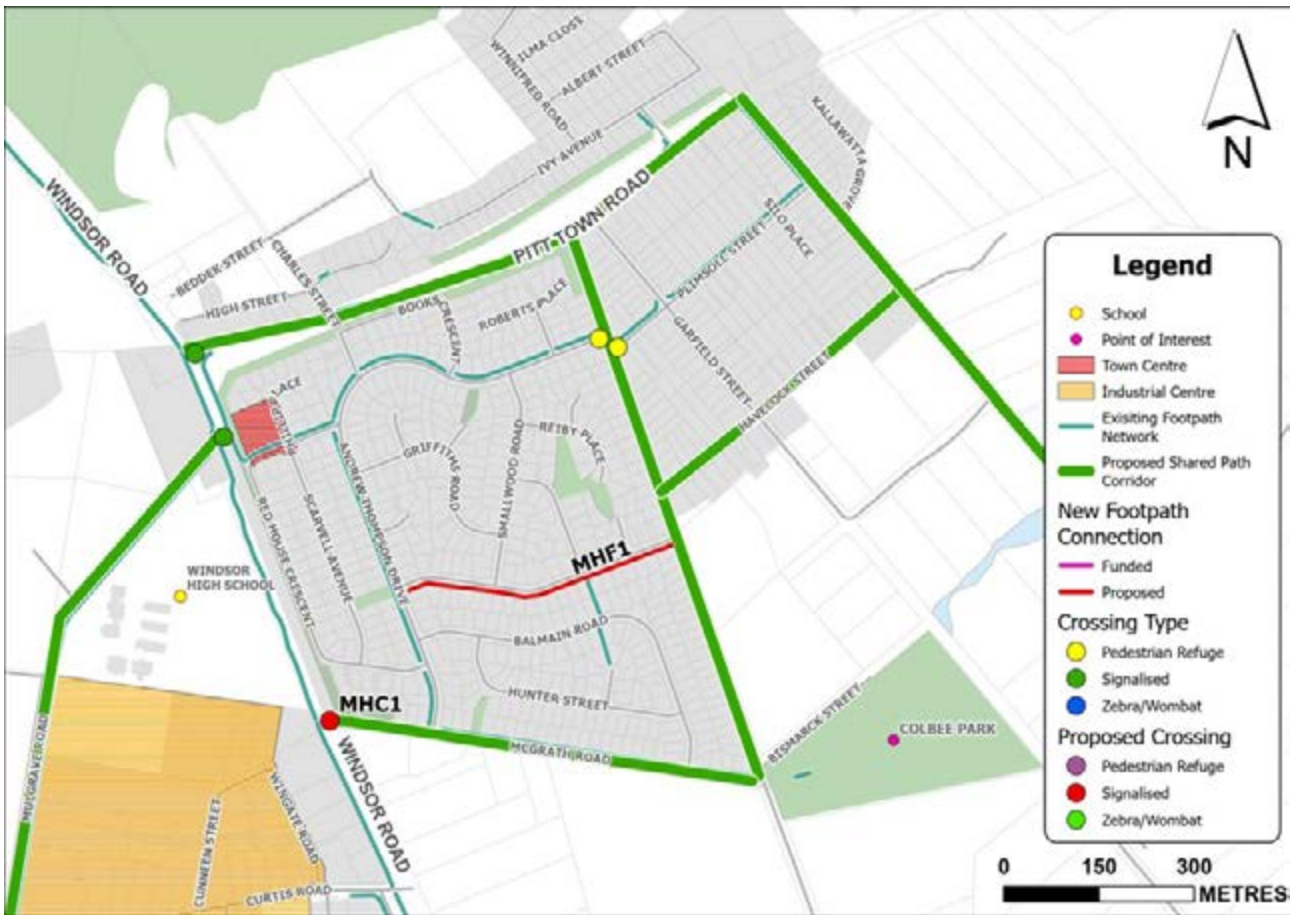


Figure 31: McGraths Hill Proposed Pedestrian Network and Crossing Opportunity Upgrades

North Richmond

Table 18 provides an overview of the pedestrian infrastructure improvements recommended for the suburb of North Richmond. A total of four footpath improvements are recommended, which extend for a distance of 1,120 metres. NRF1 to NRF3 have been proposed to improve connectivity between the Redbank development and North Richmond local centre, whilst the remaining recommendation has been made to improve access to community facilities. The pedestrian network around the centre of North Richmond provides a good level of support for movement functionality and does not require any upgrades.

ID	Road	Start	End	Length (m)	Status	Description
NRF1	Arthur Phillips Drive/ Pecks Road	81 Arthur Phillip Drive	North Richmond Zone Substation	360	Missing	Connects the missing link between the two footpath networks along the street front, improving the overall well-being and safety of users.
NRF2	O'Dea Place	Along the extent of O'Dea Place		225	Missing	Connects John Wellington Oval to the existing footpath network, which provides permeability from the Redbank Estate.
NRF3	Tyne Crescent	27 Tyne Crescent	Pecks Road	250	Missing	Connects the Redbank Estate access point to the current pedestrian network.
NRF4	Campbell Street/ William Street	Campbell Street at Elizabeth Street	William Street near the Community Centre	285	Missing	To provide accessibility around the new community centre as part of the WestInvest.

Table 18: North Richmond Footpath Network Recommendations

Table 19 details the pedestrian crossing point recommendations for North Richmond. Recommendations made are concentrated towards the east of Grose Vale Road and provide safer crossing points around North Richmond Shopping Village and North Richmond High School. The extent of these recommendations are shown in **Figure 32**.

ID	Location	Crossing type	Status	Description
NRC1	Riverview Street at Grose Vale Road	Pedestrian Refuge	Missing	Provide safer crossing opportunities around the centre of North Richmond, allowing safer access to the shopping centre
NRC2	Elizabeth Street near Grose Vale Road	Pedestrian Refuge	Missing	Provide safer crossing opportunities around Richmond North Public School.
NRC3	Grose Vale Road offset from the two bus stops	Pedestrian Refuge	Missing	A mid-block crossing will improve safety and accessibility across the road for residents utilising the bus stops.
NRC4	Riverview Street, after Grose Vale Road	Pedestrian Refuge	Missing	Provide adequate crossing opportunities to access North Richmond Shopping Village.
NRC5	Charles Street near Williams Street	Pedestrian Refuge	Missing	Provide safe access to North Richmond Community Centre and Richmond North Public School.
NRC6	Charles Street near Elizabeth Street	Pedestrian Refuge	Missing	To allow safe crossing opportunities to children around Richmond North Public School, as well as accessing the childcare centre (before and after school care)

Table 19: North Richmond Crossing Point Recommendations

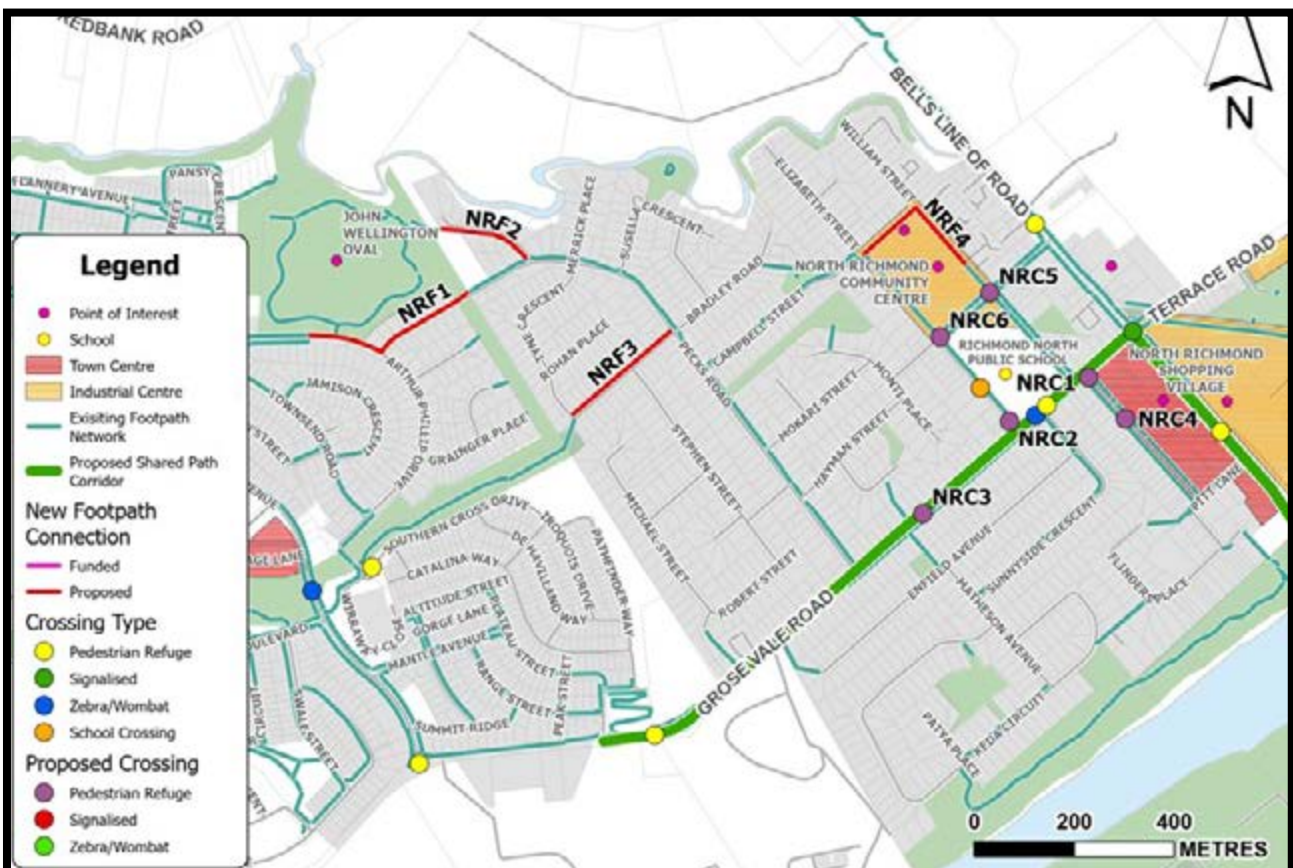


Figure 32: North Richmond Proposed Pedestrian Network and Crossing Opportunity Upgrades

Pitt Town

Table 20 provides an overview of infrastructure improvements for Pitt Town. Of the two proposed improvements, one has already received funding (PTF2). The remaining recommendation provides improved access to recreational land uses within the village.

ID	Road	Start	End	Length (m)	Status	Description
PTF1	Wellesley Street	Eldon Street	31 Wellesley Street	290	Missing	Provides formalised access to Brinsley Oval and Pitt Town Tennis Courts.
PTF2	Fernadell Park	-	-	-	Funded	Upgrades to Fernadell Park include a walking route around the park.
PTF3	Bootles Lane	Bathurst Street	Fernadell Drive	80	Missing	Connects to Bathurst Street, accounting for the missing link in the pedestrian network.

Table 20: Pitt Town Footpath Network Recommendations

Table 21 details pedestrian footpath crossing point recommendations for Pitt Town. One improvement has been proposed, to support safe crossing opportunities to Pitt Town Public School. The extent of the recommendations made are shown in **Figure 33**.

ID	Location	Crossing type	Status	Description
PTC1	Buckingham Street at Pitt Town Public School	Wombat	Upgrade	Upgrade the existing school crossing to a wombat crossing to provide safer crossing opportunities for school students.

Table 21: Pitt Town Crossing Point Recommendations

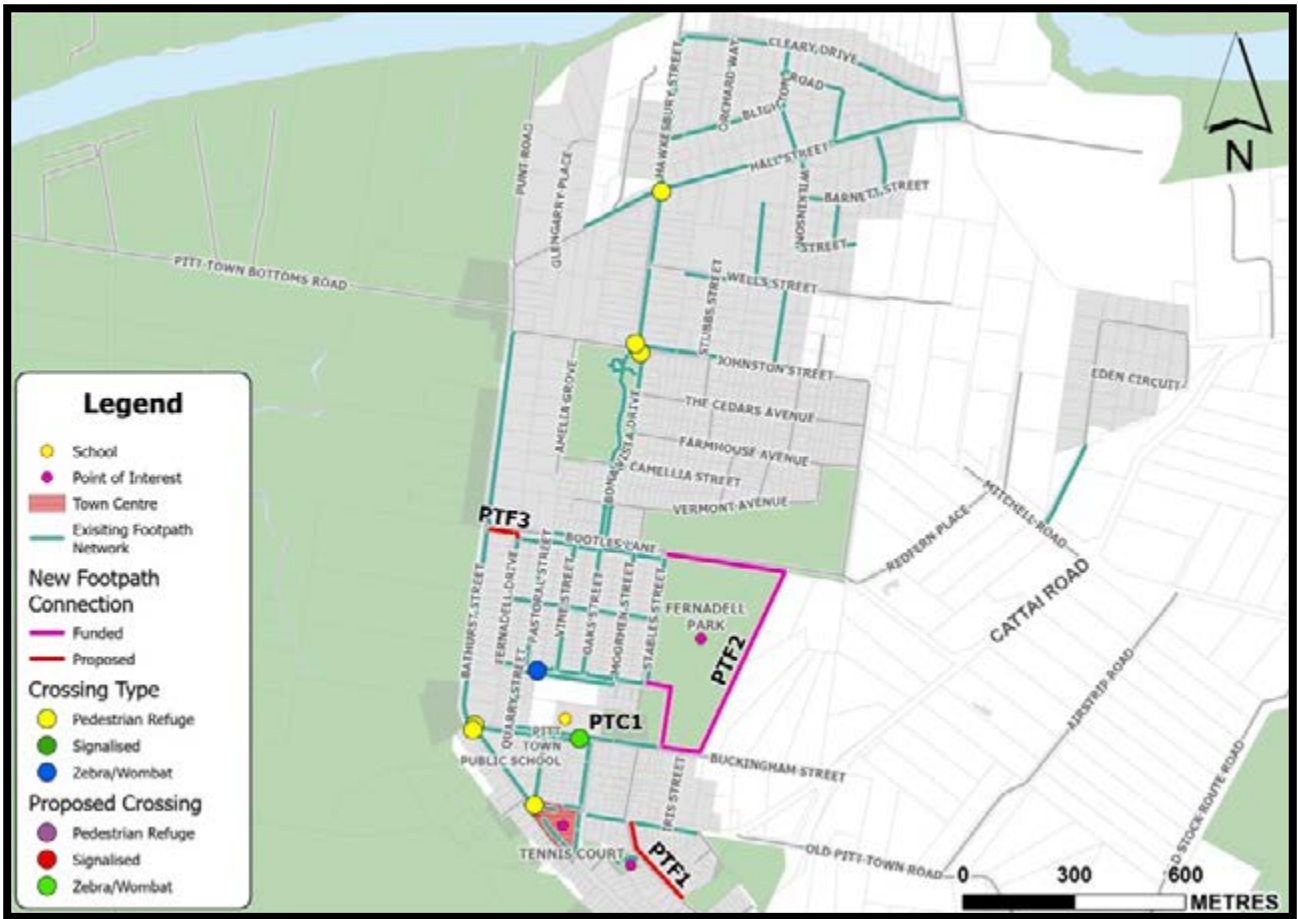


Figure 33: Pitt Town Proposed Pedestrian Network and Crossing Opportunity Upgrades

Richmond

Following the conclusion of the existing network infrastructure assessment, the pedestrian network in Richmond was found to be functional and supportive in meeting the communities needs. Shared path infrastructure upgrades are proposed to occur in conjunction with the proposed cycling network upgrades along Kurrajong Road, March Street and East Market Street, with further context provided on these in Chapter 6.2.3. Overall, it was determined that minimal additional pedestrian-only footpath infrastructure would be required in Richmond.

Table 22 details the proposed footpath section in Richmond.

ID	Road	Start	End	Length (m)	Status	Description
RF1	Windsor Street	-	Smith Park	273	Missing	Provides the missing connection to the recreational areas of Smith Park and Pughs Lagoon via Windsor Street.

Table 22: Richmond Footpath Network Recommendations

Table 23 details the pedestrian crossing point recommendations for Richmond. The recommendations made provide safe crossing opportunities to transport hubs, key retail and, educational facilities. The extent of the crossing opportunities are shown in **Figure 34**.

ID	Location	Crossing Type	Status	Description
RC1	Bourke Street at East Richmond	Wombat	Missing	To allow for better accessibility to East Richmond Train Station. During heavier flows of traffic, pedestrians are forced to wait for appropriate gaps to slip through and cross. A Wombat Crossing will allow pedestrians to have a prioritised crossing point and reduce traffic speeds, improving pedestrian safety and amenity within the area.
RC2	Castlereagh Road near Lennox Street	Wombat	Missing	Provide safer crossing opportunities around Richmond High School.
RC3	Toxana Street near Windsor Street	Pedestrian Refuge	Missing	Provide safer crossing opportunities around Richmond town centre.
RC4	Windsor Street at Aldi	Pedestrian Refuge	Missing	Provide safer crossing opportunities around Richmond town centre to key shopping areas.

Table 23: Richmond Crossing Point Recommendations



Figure 34: Richmond Proposed Pedestrian Network and Crossing Opportunity Upgrades

South Windsor

Table 24 details the infrastructure recommendations for the suburb of South Windsor. A total of two recommendations have been made that extend for a distance of 245 metres. The recommendations made close gaps in the existing network and provide connectivity to crossing recommendations.

ID	Road	Start	End	Length (m)	Status	Description
SWF1	Bell Street	Church Street	Macquarie Street	205	Missing	Provides the missing connection, which links with the pedestrian footpaths on George Street and Macquarie Street.
SWF2	Woods Road	Collith Avenue	Woods Road	40	Missing	Extends the footpath to the proposed crossing point for pedestrians to improve clear sight lines and visibility of traffic in the vicinity of the school.

Table 24: South Windsor Footpath Network Recommendations

Table 25 details the pedestrian crossing point recommendations for South Windsor. A total of three crossing point recommendations have been made, with two located near George Street due to the high volumes of traffic around this area. The extent of the recommendations is shown in **Figure 35**.

ID	Location	Crossing Type	Status	Description
SWC1	Yarrowonga Street near George Street	Pedestrian Refuge	Missing	Due to the crossing width (13 metres) and higher traffic adjacent to the Yarrowonga, a pedestrian refuge/Pedestrian Refuge would allow for safer crossing opportunities.
SWC2	Macquarie Street near George Street	Pedestrian Refuge	Missing	A new mid-block crossing is required for the future shared path to provide a safe crossing across Macquarie Street, connecting to South Windsor local centre.
SWC3	Woods Road near Collith Avenue	Pedestrian Refuge	Missing	Currently, pedestrians are forced to cross at a turn with poor sight lines. A new mid-block Pedestrian Refuge would improve overall safety.

Table 25: South Windsor Crossing Point Recommendations

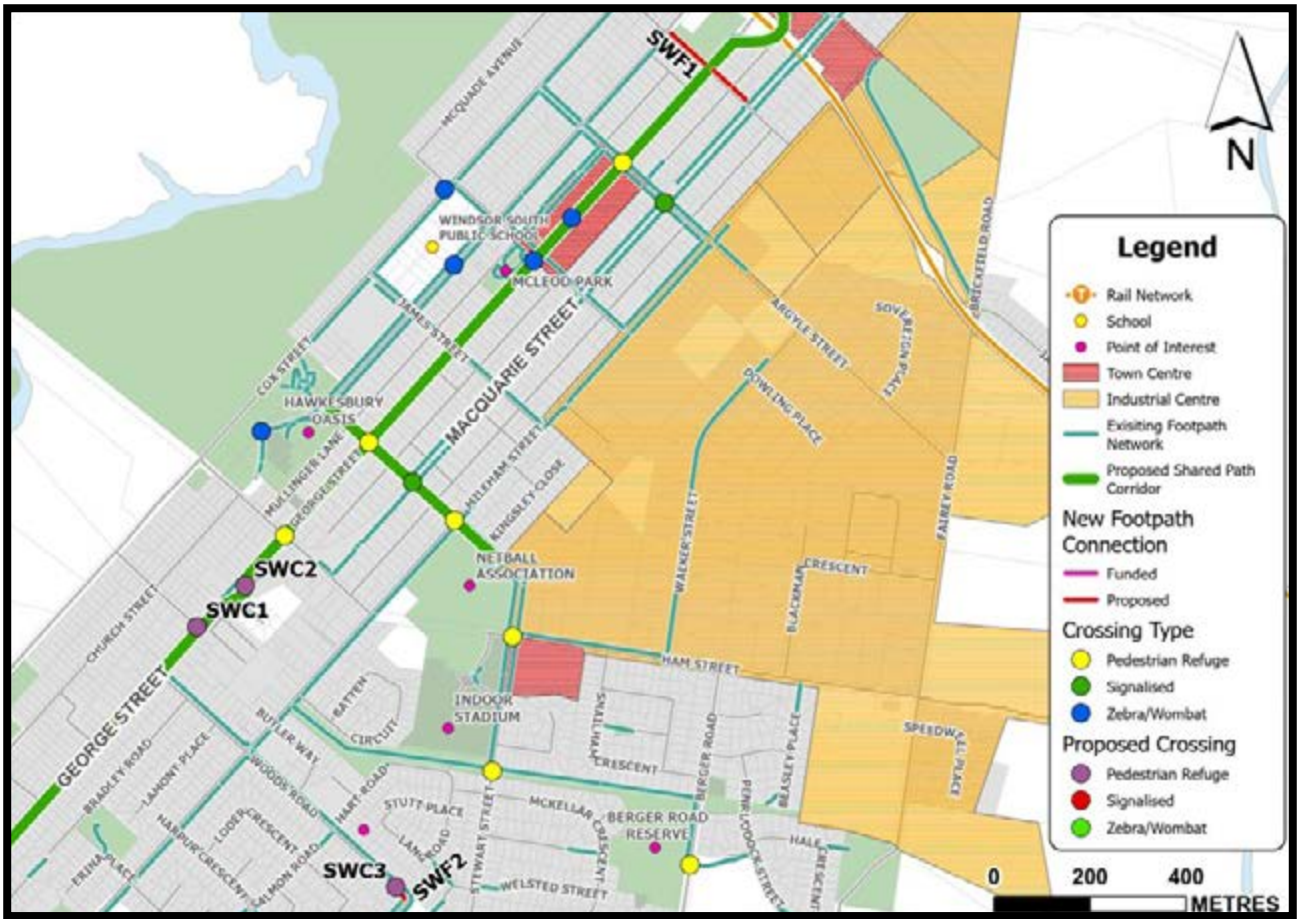


Figure 35: South Windsor Proposed Pedestrian Network and Crossing Opportunity Upgrades



Wilberforce

Table 26 details the proposed infrastructure improvements for the suburb of Wilberforce. The recommendations made close gaps in the existing network to provide safe walking opportunities to and from the shopping centre and public school. The proposed recommendations extend for a total distance of **580 metres**.

ID	Location	Start	End	Length (m)	Status	Description
WFF1	George Road	Mayne Street	Castlereagh Road	150	Missing	Provide improved connectivity around Wilberforce Public School.
WFF2	Castlereagh Road	Macquarie Road	George Road	160	Missing	Provides improved connectivity around Wilberforce Public School and connects to the main pedestrian network.
WFF3	George Road	Castlereagh Road	Duke Road	225	Missing	Provides connectivity between Wilberforce Shopping Centre and Wilberforce Park.
WFF4	Putty Road	King Road	2 Putty Road	45	Missing	The footpath between David St and 2 Putty Road has significantly deteriorated. Reconstructing the footpath would fill the network gap linking to the Heritage Hotel.

Table 26: Wilberforce Footpath Network Recommendations

Table 27 details the pedestrian footpath crossing point recommendations for Wilberforce. Two recommendations have been made that provide safe crossing outside of the public school.

ID	Location	Crossing type	Status	Description
WFC1	King Road near Putty Road	Pedestrian Refuge	Missing	Provides safe crossing across King Road outside of Wilberforce Shopping Centre
WFC2	Putty Road near King Road	Pedestrian Refuge	Missing	Provides a safe crossing across Putty Road to the retail services.

Table 27: Wilberforce Crossing Point Recommendations

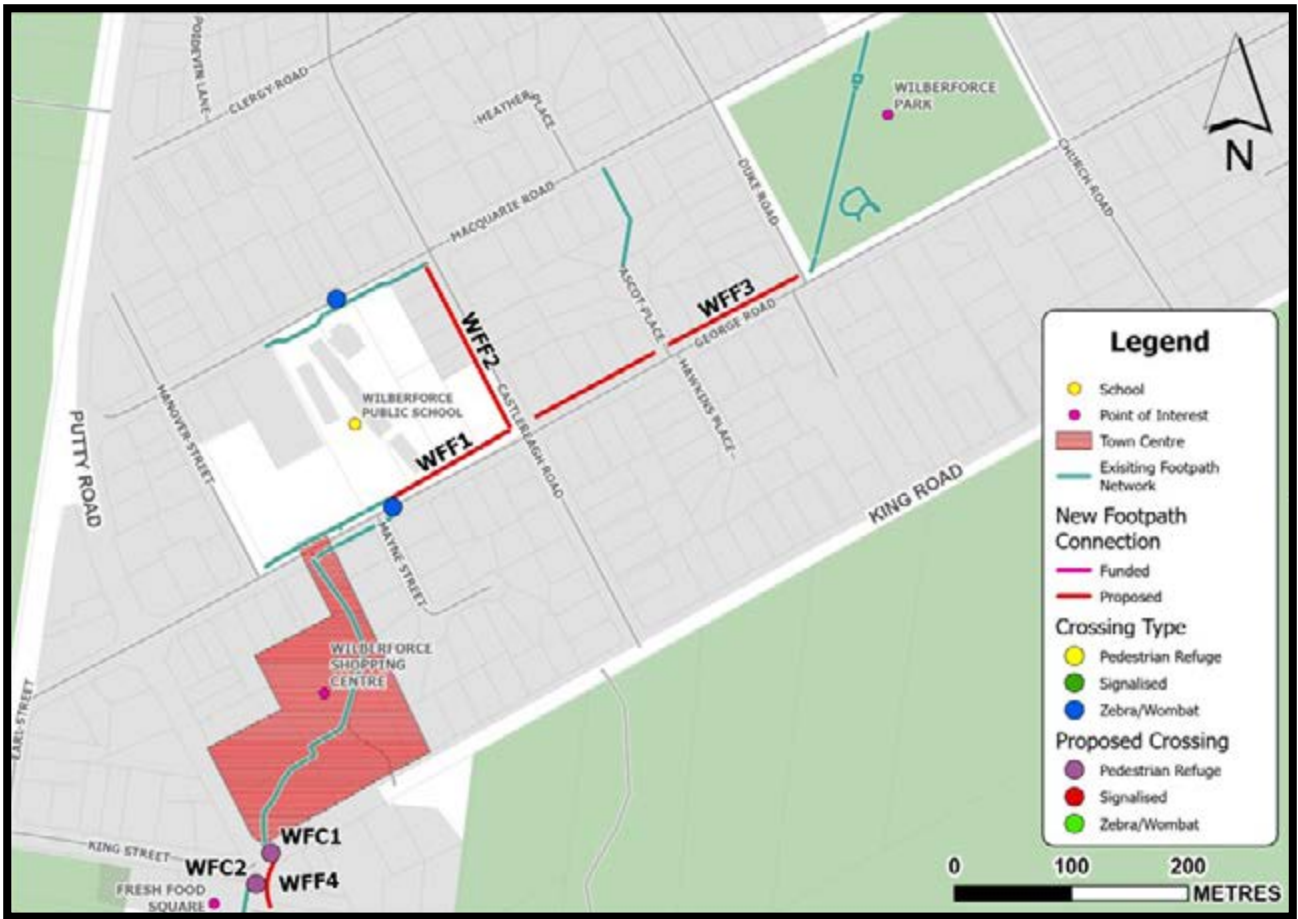


Figure 36: Wilberforce Proposed Pedestrian Network and Crossing Opportunity Upgrades

Windsor

Following the conclusion of the existing network infrastructure assessment, the pedestrian network in Windsor was found to be functional and supportive in meeting the communities needs. Shared path infrastructure upgrades are proposed to occur in conjunction with the proposed cycling network upgrades along Hawkesbury Valley Way and Macquarie Street, with further context provided on these in Chapter 6.2.3. Overall, it was determined that no additional pedestrian-only footpath infrastructure would be required in Windsor.

Table 28 details the pedestrian crossing point recommendations for Windsor, with a total of six improvements made. Key improvements include crossing opportunities around Windsor Station, where there is currently a lack of facilities as well as around Windsor Public School and areas of recreational activity. The extent of the recommendations are shown in **Figure 37**.

ID	Location	Crossing Type	Status	Description
WC1	George Street at Windsor Station	Pedestrian Refuge	Missing	To allow for better accessibility across George Street to Windsor Train Station.
WC2	George Street at Windsor Station	Pedestrian Refuge	Missing	To allow for better accessibility across George Street to Windsor Train Station.
WC3	Hawkesbury Valley Way near Cox Street	Pedestrian Refuge	Missing	To provide a safe crossing across Hawkesbury Valley Way and to connect with the proposed shared path network.
WC4	Christie Street near George Street	Pedestrian Refuge	Missing	To provide safer crossing opportunities around Windsor Public School.
WC5	The Terrace near Elizabeth Street	Pedestrian Refuge	Upgrade	Improve the existing Pedestrian Refuge to allow for a pedestrian refuge as there are currently no accessible crossing opportunities.
WC6	The Terrace	Wombat	Missing	Wombat crossing to provide a continuous path from the river walk to Windsor local centre.

Table 28: Windsor Crossing Point Recommendations

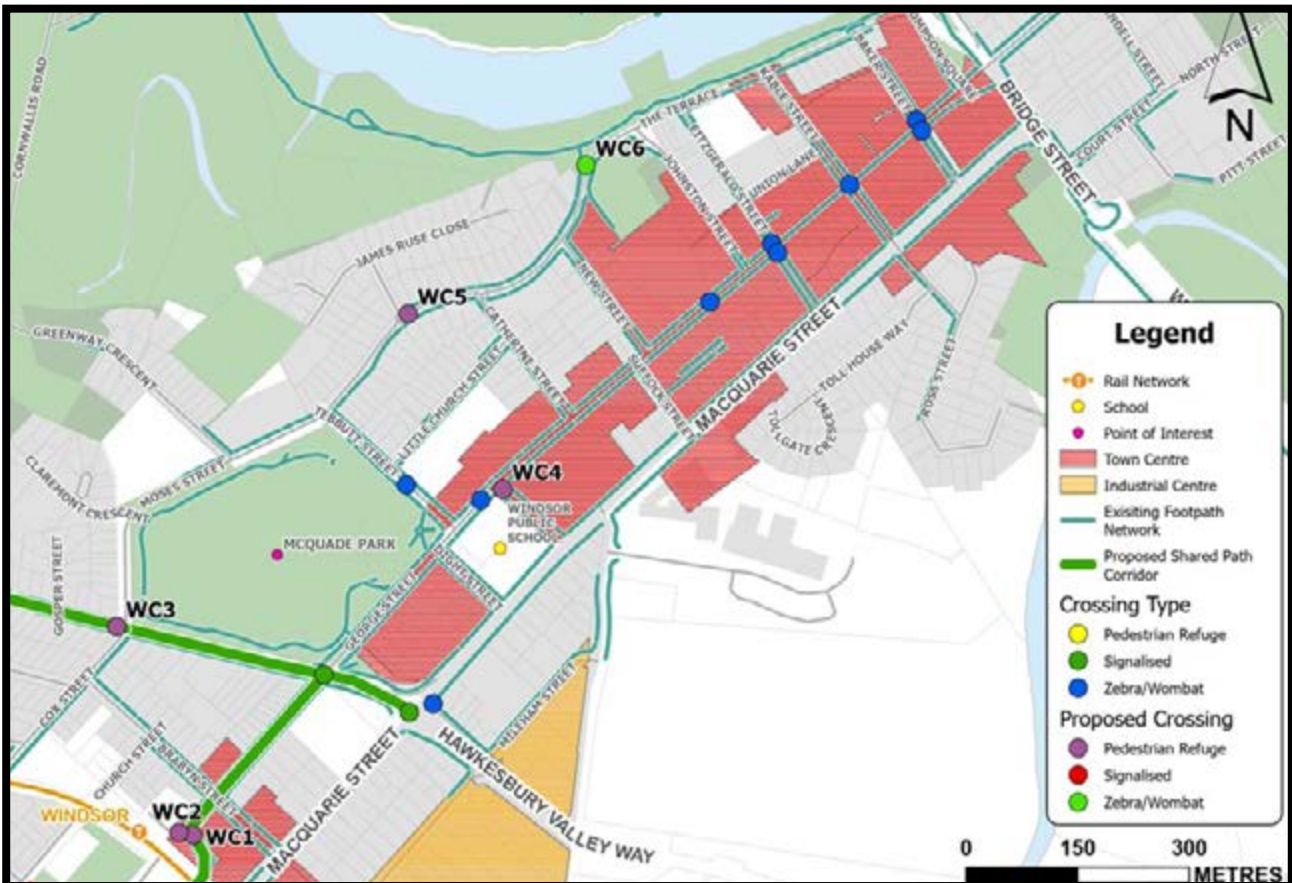


Figure 37: Windsor Proposed Pedestrian Network and Crossing Opportunity Upgrades

6.3 Cycling Network

6.3.1 Proposed Cycling Network Overview

The proposed strategic network is illustrated in **Figure 38** with a breakdown of their origins, destinations, and classifications in **Table 29**. The route network is partitioned between primary and secondary routes, which aim to provide direct connections to targeted land uses. Primary routes have been aligned to the Greater Sydney Strategic Cycleway Corridor, which highlights Richmond to Rouse Hill via Windsor as a key connection. The Strategic Cycleway Corridors program provides a framework for cross-city connections and local bike networks. In the context of Hawkesbury, three strategic corridors have been identified in support of this, as shown in **Table 29**. Secondary routes have been strategically designed to support the primary network and provide a strong and sustainable local bike network.

Route	Origin	Destination	Classification
1	Windsor	Rouse Hill	Primary
2	Bligh Park	Windsor	Primary
3A	Windsor	Richmond	Primary
3B	Richmond	North Richmond	Primary
4	North Richmond	Kurrajong	Secondary
5	North Richmond CBD	Redbank – North Richmond	Secondary
6	Hobartville	Richmond	Secondary
7	Bligh Park	South Windsor	Secondary
8	Windsor	Wilberforce	Secondary
9	McGraths Hill	McGraths Hill	Secondary
10	McGraths Hill	Pitt Town	Secondary

Table 29: Cycling Route Network Classification

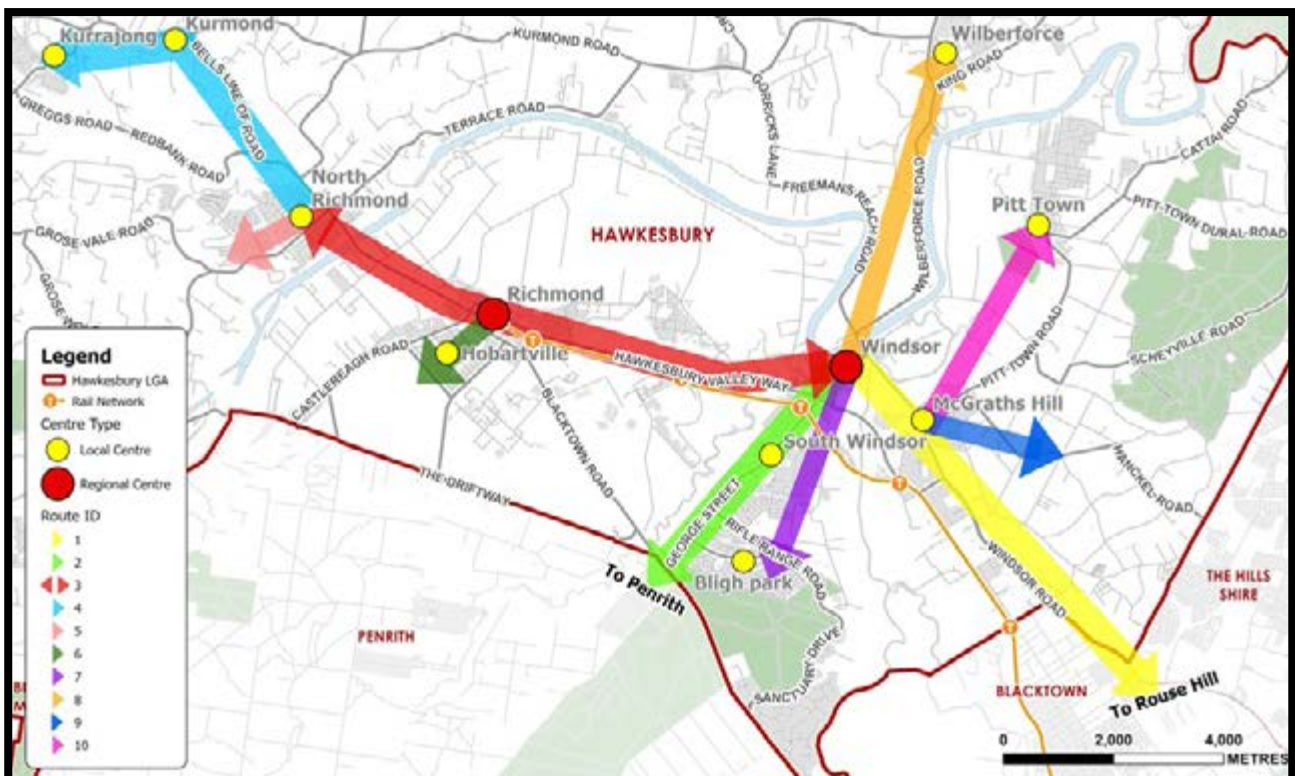


Figure 38: Cycling Network Overview

6.3.2 Proposed Cycling Network

Route 1 – Windsor to Rouse Hill (Primary)

Route 1 – Windsor to Rouse Hill, is a primary route that forms part of the Greater Sydney Strategic Cycleway Corridor. Route 1 is illustrated in **Figure 39**, with specifications of the route highlighted in **Table 30**. This route extends the strategic corridor of Richmond – Windsor, connecting to Rouse Hill and thereby the greater Western Parklands. The route connects to Rouse Hill via Windsor Road, with an off-road shared path located to the west of the carriageway.

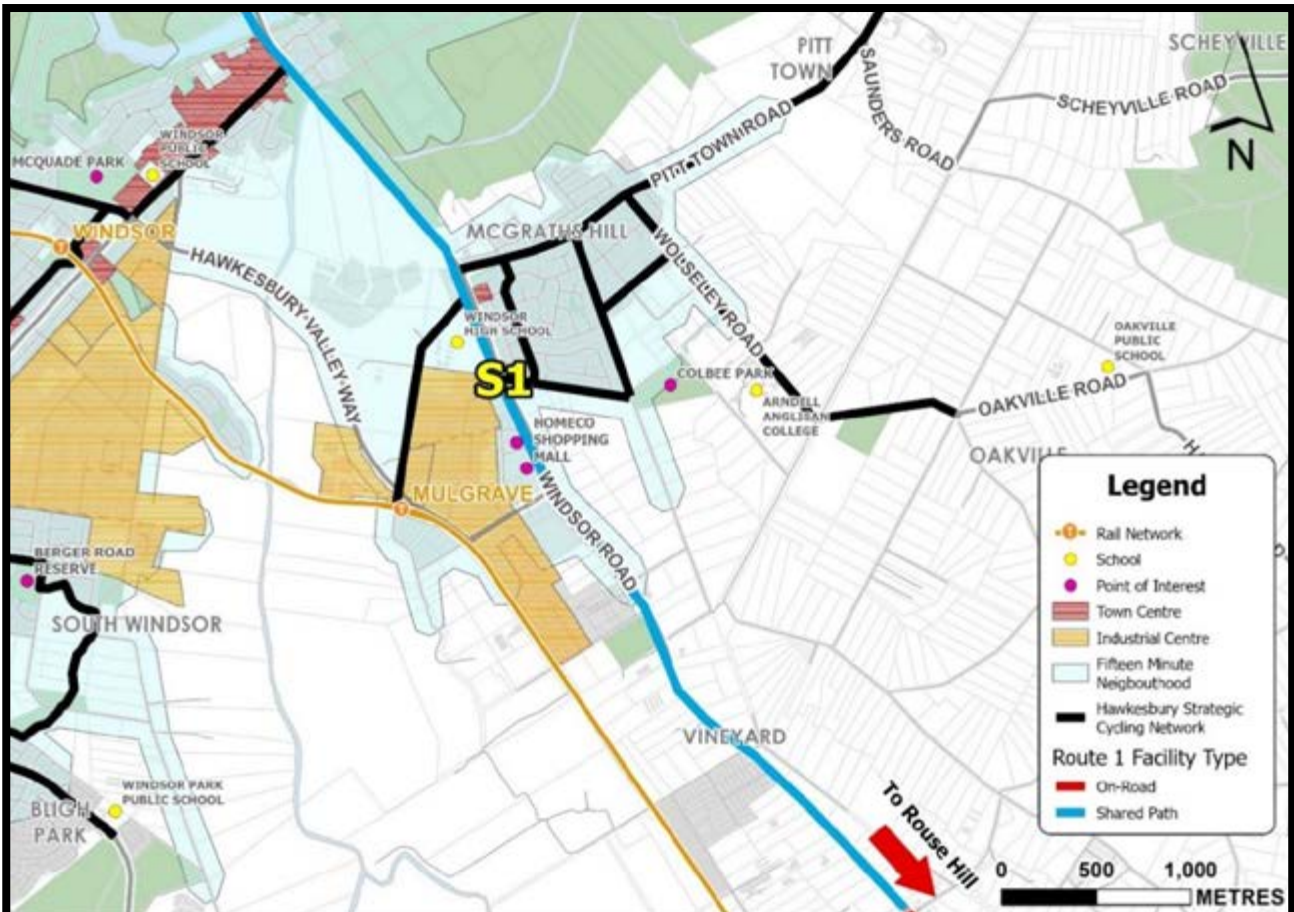


Figure 39: Cycling Route 1 – Windsor to Rouse Hill (Primary)

* 15-minute neighbourhoods support local communities and healthy lifestyles by prioritising place-making, walking, cycling, micromobility and last-mile freight. They enable persons to access services such as medical, education and shopping within a 15-minute walk or cycle.

Segment	Condition	Length (m)	Typology	Comments
1	Existing	~ 7,800m	Off-road shared path	The existing route provides an adequate connection to Rouse Hill.

Table 30: Cycling Route 1 Specifications

Land uses along Route 1 vary across the corridor. As the route is aligned to Windsor Road, between McGraths Hill and Rouse Hill there are limited commercial and industrial land uses directly on the route itself. Route 1 provides access to Congregations of retail land uses within the suburbs of Windsor, McGraths Hill, and Rouse Hill, with Windsor and Rouse Hill both being strategic centres. Secondary route connections branching off from Route 1 provide access to Windsor and Mulgrave stations. **Table 31** details opportunities and constraints associated with Route 1.

Strengths and Opportunities	Barriers and Weaknesses
<ul style="list-style-type: none"> • An extension corridor that connects the strategic centres of Windsor and Richmond to other centres in the Western Parkland City • Infrastructure across the route already exists • Forms part of the TfNSW Strategic Cycleway Corridor. 	<ul style="list-style-type: none"> • The distance between Windsor and Rouse Hill is large, with the extended route approximately at 12,000m, which will only appeal to immediate/advanced cyclists • The network runs parallel with one of the busiest roads in Hawkesbury which can affect the feeling of safety and wellbeing.

Table 31: Cycling Route 1 Opportunities and Constraints

Route 2 – Bligh Park to Windsor (Primary)

Route 2 – Bligh Park to Windsor is a primary route that seeks to maximise connectivity between the residential land uses of Bligh Park and South Windsor to the strategic centre of Windsor. Route 2 is shown in **Figure 40**, with specifications of the route highlighted in **Table 32**. This route utilises George Street to provide a direct path to Windsor’s town centre and connects with the on-road cycleway along Blacktown Road and The Northern Road which leads to Penrith.

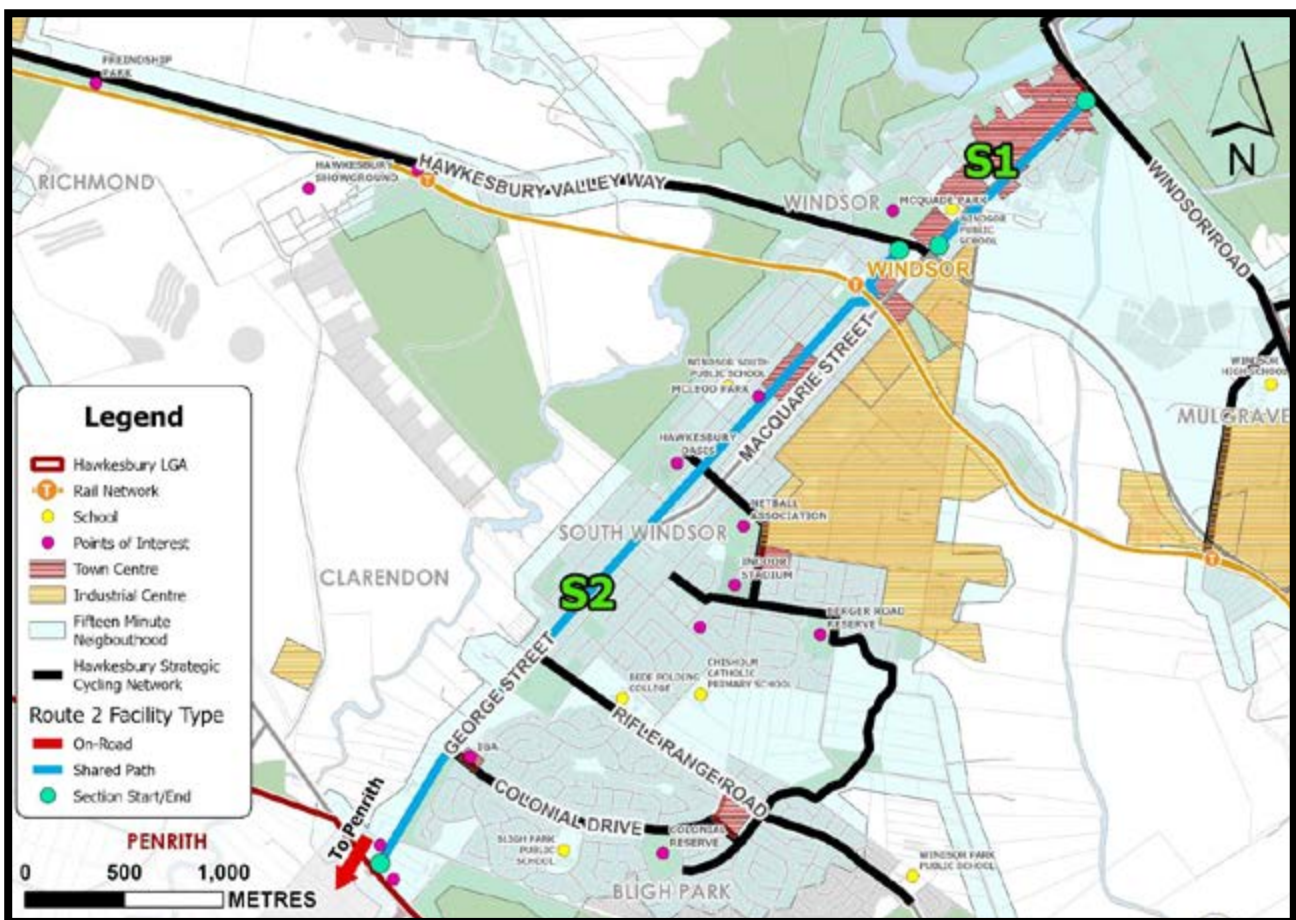


Figure 40: Cycling Route 2 – Bligh Park to Windsor (Primary)

Segment	Condition	Length	Typology	Comments
1	Existing	1,100m	Off-road shared path	An existing route along Macquarie Street which connects with Windsor Road
2	Missing	4,200m	Off-road shared path	Segment 2 will run along George Street between Hawkesbury Valley Way and Blacktown Road

Table 32: Cycling Route 2 Specifications

Segment 2 will look to connect the residential areas of Bligh Park and South Windsor to Windsor. Additionally, the route passes Windsor Train Station which will allow residents greater access to public transport.

Strengths and Opportunities	Barriers and Weaknesses
<ul style="list-style-type: none"> • Provide a direct connection to South Windsor and Windsor local centres • Improves accessibility across Bligh Park and South Windsor 	<ul style="list-style-type: none"> • Limitations across busy intersections will require crossing improvements • Utilities and vegetation along George Street will need to be relocated. • High volumes of traffic including freight vehicles

Table 33: Cycling Route 2 Opportunities and Constraints

Route 3A – Windsor to Richmond (Primary)

Route 3A – Windsor to Richmond is a primary route and forms part of the TfNSW Strategic Cycleway Corridor. Route 3A can be seen in **Figure 41** with a breakdown of the route found in **Table 34**. Route 3A is a direct route between Windsor and Richmond, running along Hawkesbury Valley Way and Windsor Street for the extent of the route.

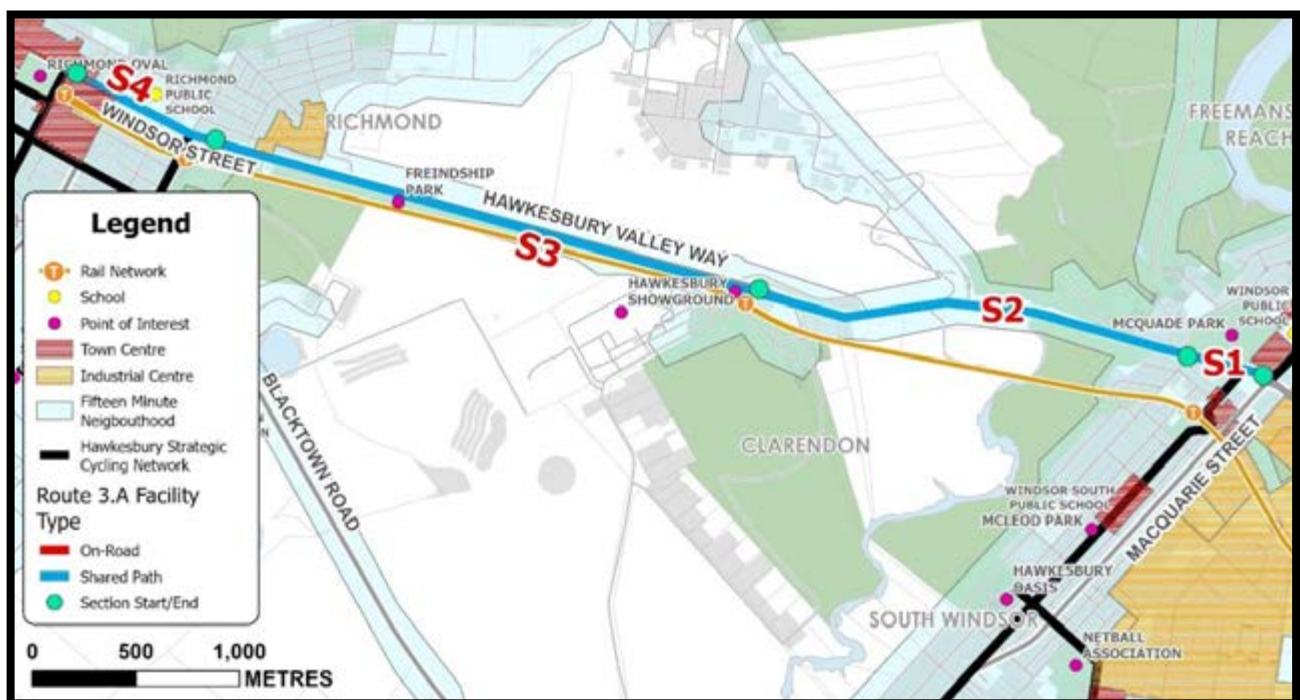


Figure 41: Cycling Route 3A – Windsor to Richmond (Primary)

Segment	Condition	Length	Typology	Comments
1	Missing	400m	Off-road shared path	Connects the Windsor – Richmond strategic route to Windsor – Rouse Hill
2	Funded	2,000m	Off-road shared path	Secured WestInvest funding which includes an active transport bridge over Rickabys Creek
3	Existing	2,400m	Off-road shared path	The existing path near East Richmond Station to Clarendon Station, which runs adjacent to Hawkesbury Valley Way
4	Missing	1,100m	Off-road shared path	An off-road shared path that connects to Route 3B, segment 5. Segment 4 runs through Richmond centre past key retail and eateries.

Table 34: Cycling Route 3A Specifications

Windsor and Richmond are both strategic centres that offer commercial and retail land uses. The towns of these centres offer unique experiences, such as the Windsor Mall pedestrian zone and heritage tourism attractions.

Strengths and Opportunities	Barriers and Weaknesses
<ul style="list-style-type: none"> Provides a route that aligns with the TfNSW Strategic Cycleway Corridor Maximise the benefit of WestInvest funding by providing connections between the two strategic centres The majority of the route is either funded or existing. 	<ul style="list-style-type: none"> Utilities on Hawkesbury Valley Way may need to be relocated for section 1 High traffic volumes run through Hawkesbury Valley Way

Table 35: Cycling Route 3A Opportunities and Constraints

Route 3B – Richmond to North Richmond (Primary)

Route 3B – Richmond to North Richmond is a primary route that extends between Richmond and North Richmond. Route 3B is shown in **Figure 42** whilst the route specifications are shown in **Table 36**. Route 3B is a direct route that connects Richmond to North Richmond via Kurrajong Road/Bells Line of Road. The route crosses the Hawkesbury River and will do so via either the Richmond Bridge or Richmond Bridge duplication. It is noted that Route 3B utilises Kurrajong Road due to the calming benefits of the New Richmond Bridge bypass, and thus the project should be aligned to be delivered with the Richmond Bridge duplication program.

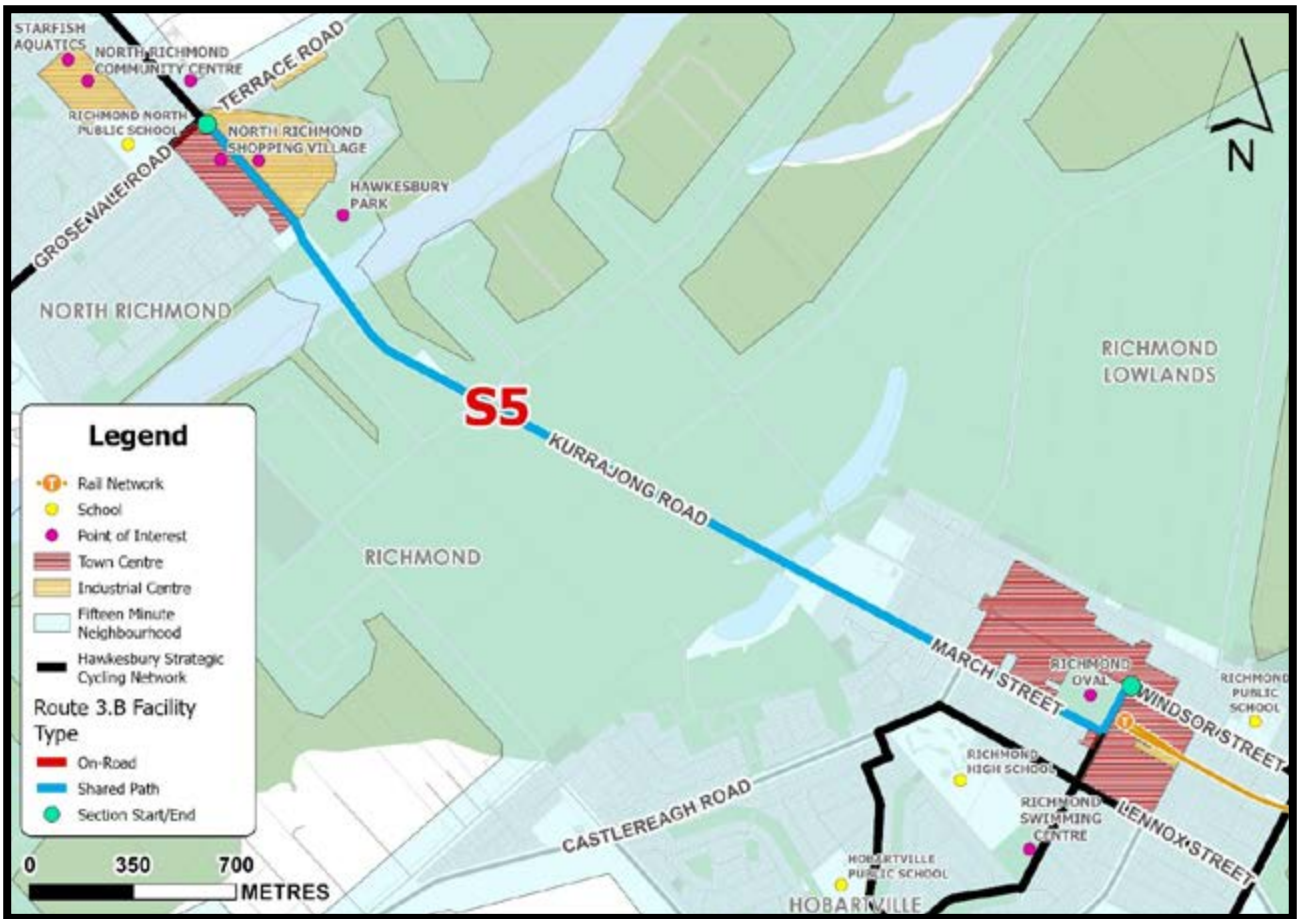


Figure 42: Cycling Route 3B – Richmond to North Richmond (Primary)

Segment	Condition	Length	Typology	Comments
5	Missing	3,700m	Off-road shared path	Route 3B will need to be coordinated with the Richmond Bridge duplication

Table 36: Cycling Route 3B Specifications

This route will provide residents of North Richmond, one of the highly populated suburbs of Hawkesbury, access to Richmond, a regional strategic centre, via cycling. As the route connects directly to Richmond’s centre, travellers from North Richmond will be provided the opportunity to access Richmond Train Station, providing access to a wider range of public transport.

Strengths and Opportunities	Barriers and Weaknesses
<ul style="list-style-type: none"> The new Richmond Bridge Bypass reduces traffic volumes between the two centres Utilises new active transport connections along the Bridge Connects directly to Richmond Station 	<ul style="list-style-type: none"> The route is dependent on the Richmond Bridge duplication for wide infrastructure and reduced traffic volumes/ Certain sections of the carriageway along Kurrajong Road do not provide sufficient space and will require further investigation and additional infrastructure.

Table 37: Cycling Route 3B Opportunities and Constraints

Route 4 – North Richmond to Kurrajong (Secondary)

Route 4 – North Richmond to Kurrajong is a secondary route that extends away from the TfNSW Strategic Cycleway Corridor connecting with the towns of Kurmond and Kurrajong. Route 4 is illustrated in **Figure 43** with the route's specifications detailed in **Table 38**. The route runs along Bells Line of Road for all of Segment 1 and much of Segment 2, where it connects to Old Bells Line of Road and Kurrajong local centre.

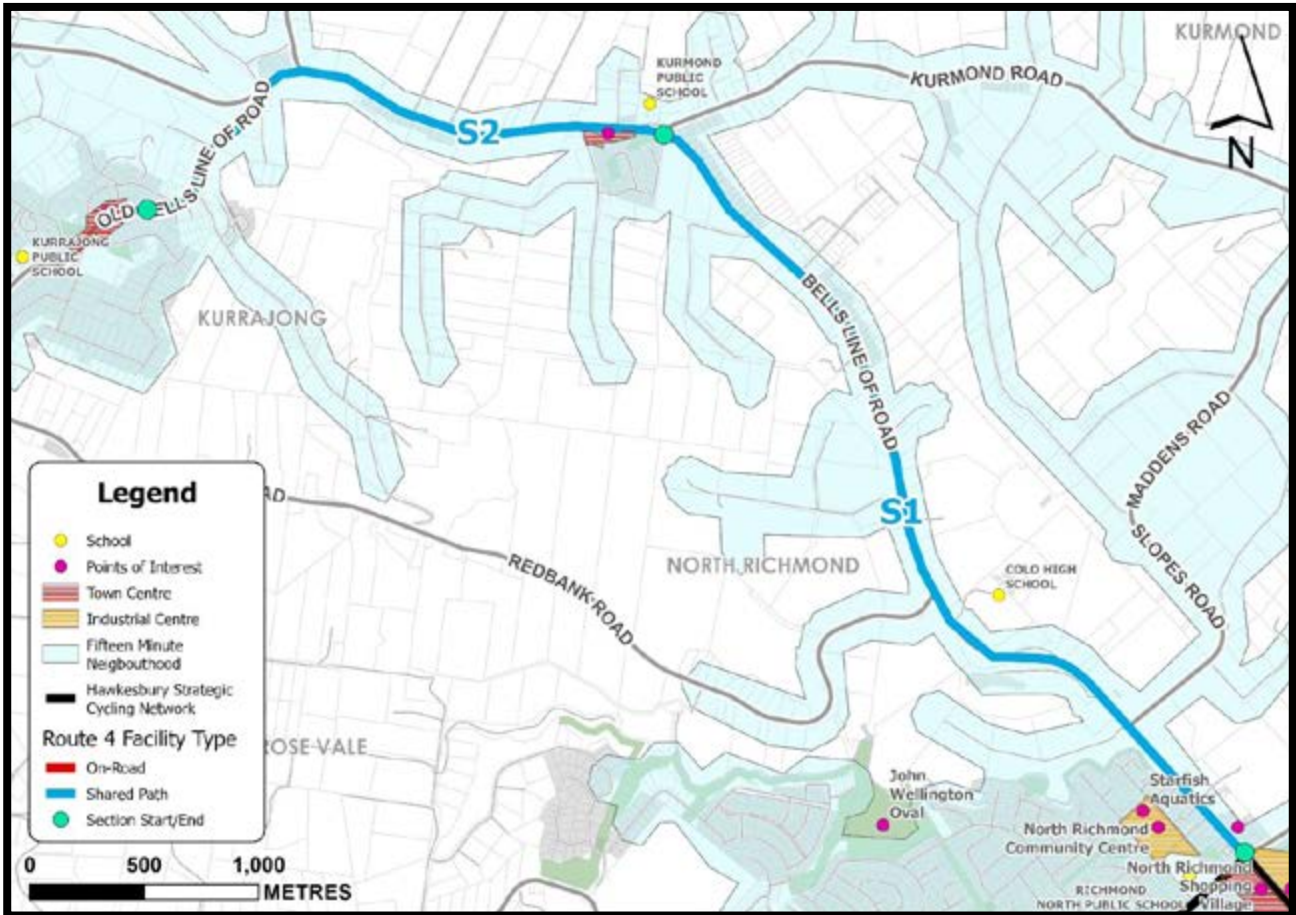


Figure 43: Cycling Route 4 North Richmond – Kurrajong (Secondary)

Segment	Condition	Length	Typology	Comments
1	Existing	4,500m	Off-road shared path	Currently a connection from North Richmond to Kurmond via Bells Line of Road
2	Funded	1,750m	Off-road shared path	Runs along Bells of Line Road and turns into Old Bells of Line Road towards the Kurrajong town centre

Table 38: Cycling Route 4 Specifications

Land uses within the suburbs of Kurmond and Kurrajong are primarily residential, with retail and commercial activities centred in their respective centres. Schools are present in both township locations, with Kurmond Public School and Kurrajong Public School in Kurmond and Kurrajong respectively.

Strengths and Opportunities	Barriers and Weaknesses
<ul style="list-style-type: none"> Creates a direct regional link that builds off the existing network and extends to the locality of Kurrajong. Provides a direct link from Kurrajong through to Vineyard. Provides a safe path for cyclists and pedestrians to travel along Bells Line of Road The majority of the route is currently existing. 	<ul style="list-style-type: none"> The longer distance of the route will not be attractive to most recreational cyclists, drawing in mostly immediate/advanced riders

Table 39: Cycling Route 4 Opportunities and Constraints

Route 5 – North Richmond (Secondary)

Route 5 – North Richmond is a secondary route that connects the growing population of the Redbank development with North Richmond local centre. Route 5 is as seen in **Figure 44**, with its specifications outlined in **Table 40**. Route 5 will traverse Grose Vale Road, connecting to the cycling network.

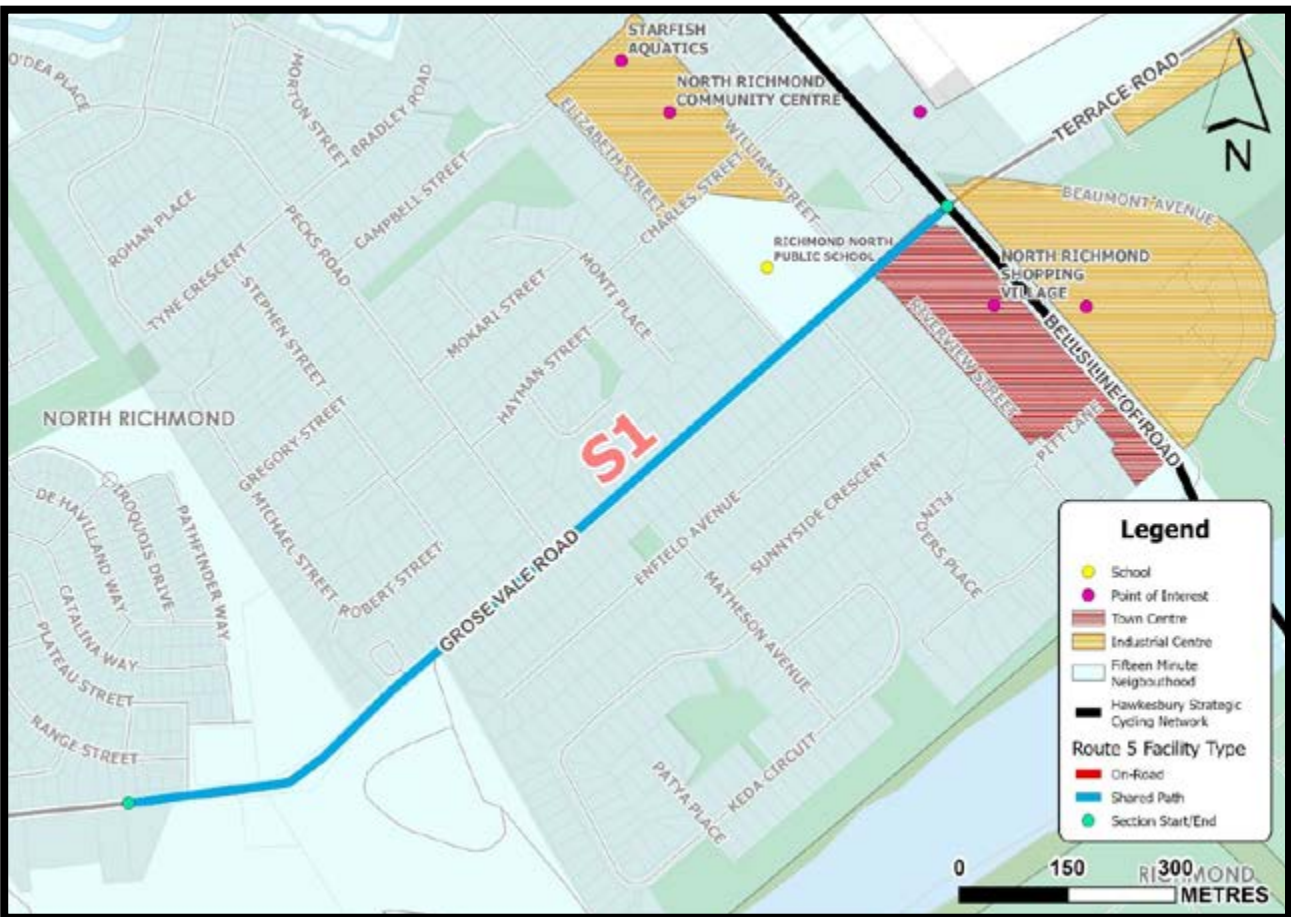


Figure 44: Cycling Route 5 North Richmond (Secondary)

Segment	Condition	Length	Typology	Comments
1	Missing	1,350m	Off-road shared path	Route is proposed along Grose Vale Road between Bells line of Road and Southern Cross Drive

Table 40: Cycling Route 5 Specifications

The Redbank development is part of a significant re-zoning project, providing accessible residential land within North Richmond. Land within this development contains R2 low-density residential and R3 medium-density residential, with a total of 1,400 additional lots across the project. North Richmond’s commercial and retail land use is concentrated at the Shopping Village along Bells Line of Road.

Strengths and Opportunities	Barriers and Weaknesses
<ul style="list-style-type: none"> Provides a connection from the Redbank residential developments to the town centre of North Richmond Connects North Richmond residents to the proposed primary and secondary cycle network 	<ul style="list-style-type: none"> Utilities and vegetation along Grose Vale Road may need to be relocated. Infrastructure may be constrained along Grose Vale Road due to property boundaries Topography may deter some users from accessing Redbank via Yobarnie Avenue

Table 41: Cycling Route 5 Opportunities and Constraints

Route 6 – Hobartville to Richmond (Secondary)

Route 6 – Hobartville to Richmond is a secondary route that connects the residential area of Hobartville to the strategic centre of Richmond. As seen in **Figure 45**, Segments 1 to 3 loop to the centre of Hobartville, connecting the two WestInvest projects, Richmond High School and Hobartville Public School, Richmond Swimming Centre, and Tamplin Field. Further specifications for the route can be found in **Table 42**.

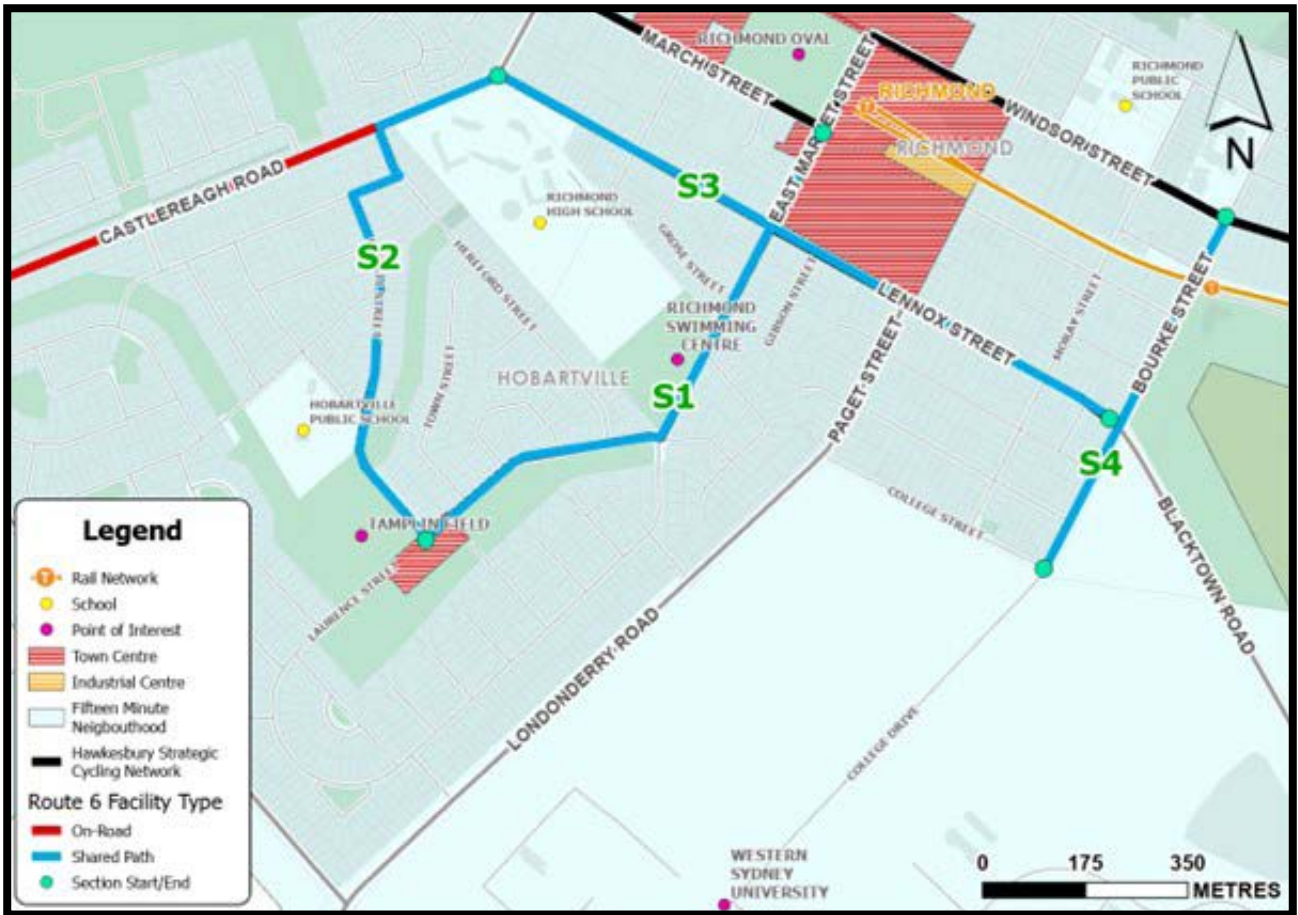


Figure 45: Cycling Route 6 – Hobartville to Richmond (Secondary)

Segment	Condition	Length	Typology	Comments
1	Missing	1,000m	Off-road shared path	A path along E Market Street near March Street towards Tamplin Field
2	Missing	1,000m	Off-road shared path	Provides access across the centre of Hobartville
3	Missing	1,200m	Off-road shared path	Connect path from Castlereagh Street to existing path on Bourke Street
4	Existing & Missing	660m	Off-road shared path	530m of shared path on Bourke Street exists between East Richmond Station and College Street. 130m is needed to Extend the existing path from East Richmond Station to Windsor Street to connect to the primary network

Table 42: Cycling Route 6 Specifications

Strengths and Opportunities

- Provides Hobartville with safe and comfortable access to Richmond town centre
- Provides access to new WestInvest projects
- Provides increased access to Richmond High School

Barriers and Weaknesses

- Utilities and vegetation along Lennox Street and Powell Street may need relocation

Table 43: Cycling Route 6 Opportunities and Constraints

Route 7 – Bligh Park to South Windsor (Secondary)

Route 7 – Bligh Park to South Windsor is a secondary route that runs through Bligh Park and connects to the existing shared path towards South Windsor. Route 7 is illustrated in **Figure 46**, with a detailed overview of its route in **Table 44**. Segments 1 and 3 provide accessibility within Bligh Park, as well as providing connectivity to future cycling networks, while Sections 4 and 5 connect to South Windsor.

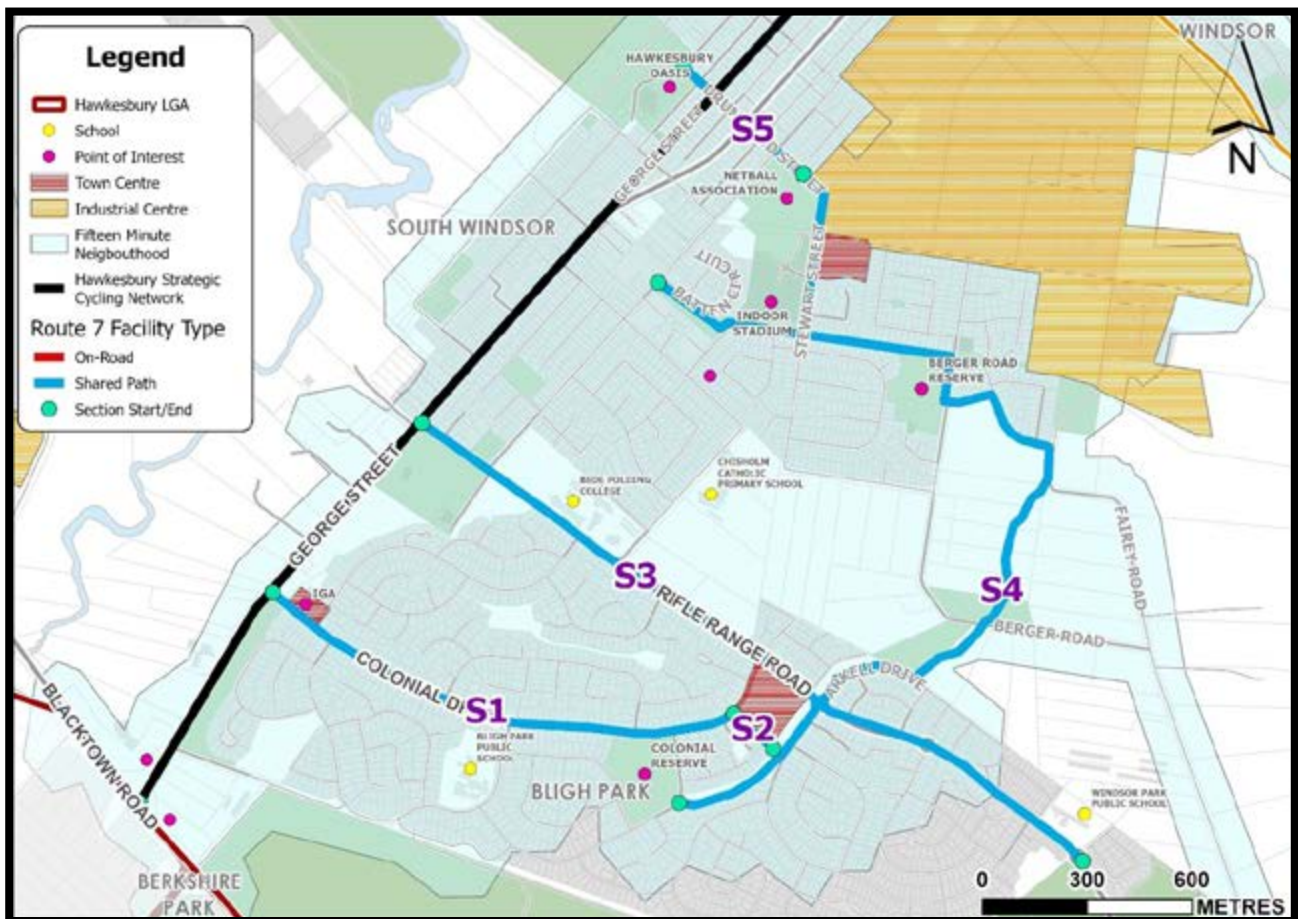


Figure 46: Cycling Route 7 – Bligh Park to South Windsor (Secondary)

Segment	Condition	Length	Typology	Comments
1	Missing	1,400m	Off-road shared path	Runs along Colonial Drive and provides access across Bligh Park
2	Existing	190m	Off-road shared path	A green link from Colonial Drive to Porpoise Crescent
3	Missing	2,300m	Off-road shared path	Runs along Rifle Range Road to the existing unpaved pedestrian/cyclist path
4	Existing	3,500m	Off-road shared path	A path runs from Colonial Reserve to Berger Road Reserve, and further to Hawkesbury Indoor Stadium
5	Missing	450m	Off-road shared path	Looks to connect the existing network to the new WestInvest Hawkesbury Oasis via Drummond Street

Table 44: Cycling Route 7 Specifications

Strengths and Opportunities	Barriers and Weaknesses
<ul style="list-style-type: none"> Provides accessibility across Bligh Park via Colonial Drive Connects to the existing shared path network Provides a direct route to the proposed primary network Permeability throughout Bligh Park provides additional connectivity 	<ul style="list-style-type: none"> Vegetation along Colonial Drive may need relocation George Street is a busy road with high volumes of traffic and frequent freight Section 4 runs through shrubland which may deter some user groups, particularly during periods of darkness

Table 45: Cycling Route 7 Opportunities and Constraints

Route 8 – Windsor to Wilberforce (Secondary)

Route 8 – Windsor to Wilberforce is a secondary route that provides a regional connection between Windsor and Wilberforce. Route 8 is illustrated in **Figure 47**, with the route detailed in **Table 46**. The route extends from the primary network and utilises Wilberforce Road to access the town of Wilberforce.

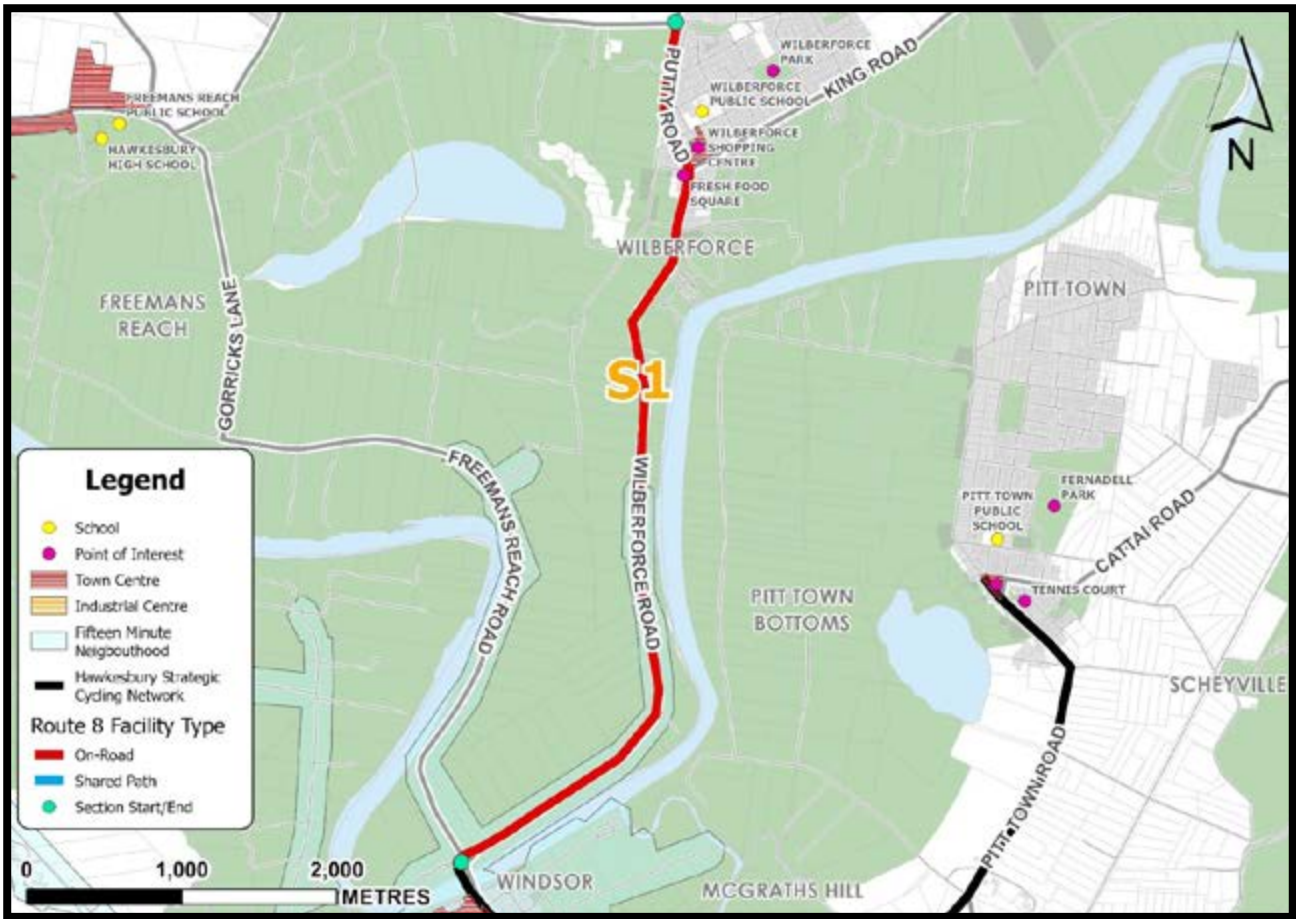


Figure 47: Cycling Route 8 – Windsor to Wilberforce (Secondary)

Segment	Condition	Length	Typology	Comments
1	Existing	5,400m	On-road cycleway (road shoulders)	The existing path to Wilberforce is aligned with Wilberforce Road

Table 46: Cycling Route 8 Specifications

The suburb of Wilberforce covers a wide area, however, most residents are concentrated between Old Sackville Road and King Road, where its town centre can also be found. Other land uses in Wilberforce include Wilberforce Primary School, St Johns Anglican Church, and Wilberforce Park.

Strengths and Opportunities	Barriers and Weaknesses
<ul style="list-style-type: none"> The existing route is a direct connection for both towns Provides cyclists in Wilberforce with the opportunity to access Windsor’s town centre and train station 	<ul style="list-style-type: none"> There is a major pinch point at Buttsworth Creek, where the on-road cycleway merges into the road Due to the distance between the two suburbs, over 5km, the route will not appeal to cyclists of all levels Wilberforce Road connects with Putty Road and thus receives higher levels of traffic.

Table 47: Cycling Route 8 Opportunities and Constraints

Route 9 – McGraths Hill (Secondary)

Route 9 – McGraths Hill is a secondary route that looks to provide accessibility across McGraths Hill and connect to the strategic network. Route 9 is illustrated in **Figure 48**, with further details listed in **Table 48**.

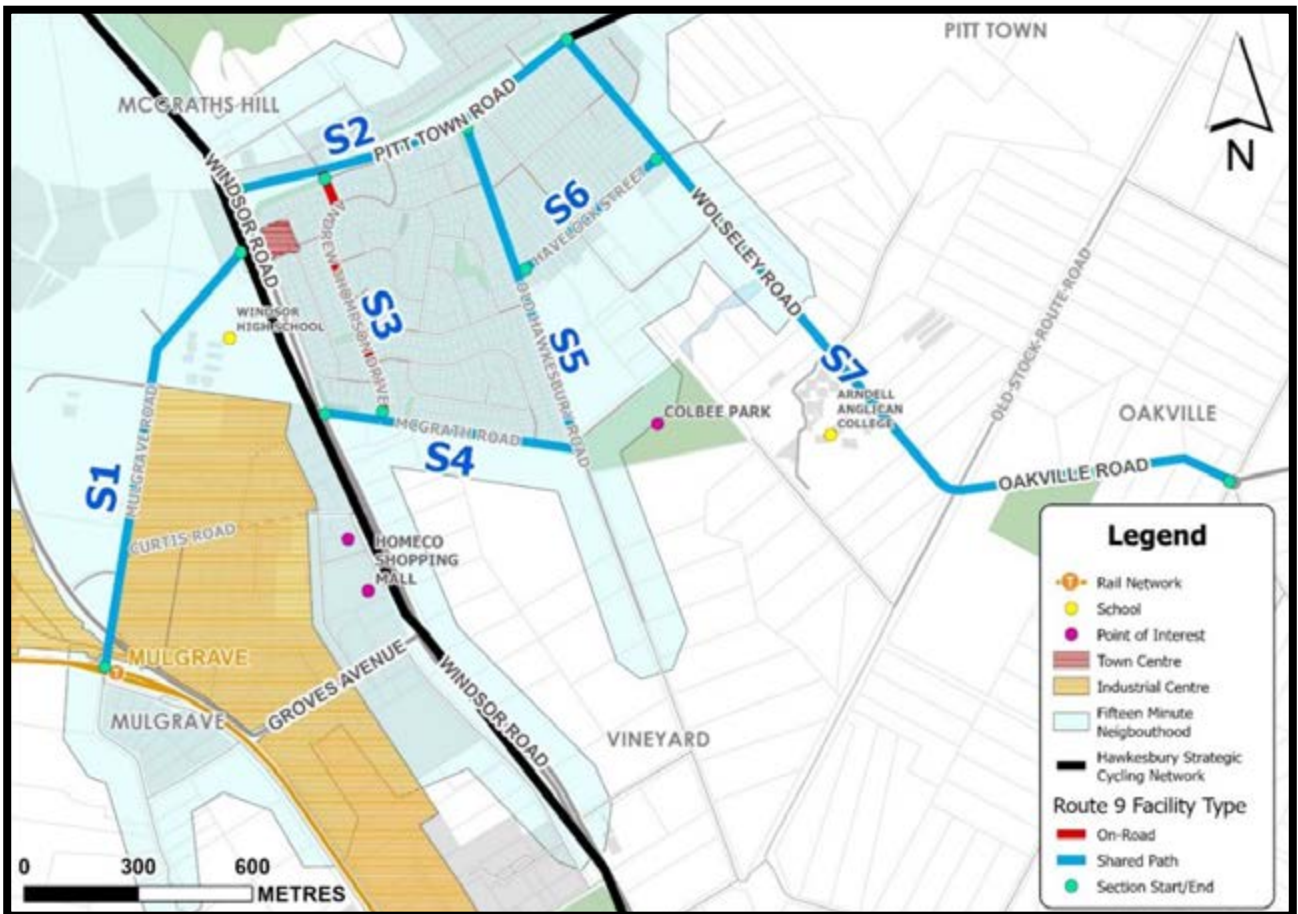


Figure 48: Cycling Route 9 – McGraths Hill (Secondary)

Segment	Condition	Length	Typology	Comments
S1	Missing	1,200m	Off-road shared path	Provides a direct connection between McGraths Hill and Mulgrave Station, which supports Windsor High
S2	Missing	960m	Off-road shared path	Connects McGraths Hill to the cycling network
S3	Missing	650m	On-road	A connection through a quiet low-density residential
S4	Missing	660m	Off-road shared path	Provides an alternative connection around McGraths Hill to Colbee Park
S5	Missing	970m	Off-road shared path	Provides access to Colbee Park from Pitt Town Road
S6	Missing	480m	Off-road shared path	Links Old Hawkesbury Road to Wolseley Road
S7	Missing	2,320m	Off-road shared path	Provides a direct connection that can be expanded to support the future Vineyard precinct

Table 48: Cycling Route 9 Specifications

Strengths and Opportunities	Barriers and Weaknesses
<ul style="list-style-type: none"> Connects McGraths Hill residents to local amenities Connects McGraths Hill residents to the existing cycling network Provides access to Mulgrave Station and Windsor High School 	<ul style="list-style-type: none"> Windsor Road segregates the route Additional crossing infrastructure may be required to support improvements

Table 49: Cycling Route 9 Opportunities and Constraints

Route 10 – McGraths Hill to Pitt Town (Secondary)

Route 10 – McGraths Hill to Pitt Town is a secondary route that connects two residential hubs. Route 10 runs along Pitt Town Road, as shown in **Figure 49**, with further specifications listed in **Table 50**.



Figure 49: Cycling Route 10 – McGraths Hill to Pitt Town (Secondary)

Segment	Condition	Length	Proposed Typology	Comments
1	Missing	3,800m	On-road cycleway	The path will be aligned with Pitt Town Road and Bathurst Street

Table 50: Cycling Route 10 Specifications

McGraths Hill and Pitt Town are both primarily residential areas, with small pockets of retail and commercial land use. Pitt Town has been identified as a major growth centre within Hawkesbury, with the local population almost doubling by 2041 (per 2022 Travel Zone projections).

Strengths and Opportunities	Barriers and Weaknesses
<ul style="list-style-type: none"> Utilises the traffic-calming benefits of the Pitt Town Road bypass Utilises the extra carriageway space created via the Pitt Town Road bypass 	<ul style="list-style-type: none"> Due to the distance between the two suburbs, the route may not appeal to cyclists of all levels

Table 51: Cycling Route 10 Opportunities and Constraints

6.3.3 Cycling Network Summary

Table 52 provides an overview of the full proposed network including the proposed typology to suit the recommendations.

ID	Origin	Destination	Typology	Condition	Length
1-1	Windsor Road, Windsor	Windsor Road, Rouse Hill	Shared Path	Existing	7,800m
2-1	Blacktown Road/George Street, Bligh Park	Hawkesbury Valley Way/Macquarie Street, Windsor	Shared Path	Missing	1,100m
2-2	Hawkesbury Valley Way/Macquarie Street, Windsor	Macquarie Street/Bridge Street, Windsor	2.5m Shared Path	Existing	4,200m
3-1	Hawkesbury Valley Way/Macquarie Street, Windsor	Hawkesbury Valley Way near Cox Street	3m Shared Path	Missing	400m
3-2	Hawkesbury Valley Way near Cox Street, Windsor	Hawkesbury Valley Way, near Clarendon Station	Shared Path	Funded	2,000m
3-3	Hawkesbury Valley Way	Windsor Street near Pitt Street, Richmond	Shared Path	Existing	2,400m
3-4	Windsor Street near Pitt Street, Richmond	Windsor Street near E-Market Street, Richmond	3m Shared Path	Missing	1,100m
3-5	E Market Street near Windsor Street, Richmond	Bells Line of Road near Grose Vale Road, North Richmond	3m Shared Path	Missing	3,700m
4-1	Bells Line of Road near Grose Vale Road, North Richmond	Bells Line of Road near Kurmond Road, Kurmond	Shared Path	Existing	4,500m
4-2	Bells Line of Road near Kurmond centre	Old Bells Line of Road at Kurrajong town centre, Kurrajong	Shared Path	Funded	1,750m
5-1	Grose Vale Road near Southern Cross Drive, North Richmond	Grose Vale Road near Bells line of Road, North Richmond	2.5m Shared Path	Missing	1,350m
6-1	E-Market Street at March Street, Richmond	Laurence Street near Powell Street, Hobartville	2.5m Shared Path	Missing	1,000m
6-2	Powell Street near Laurence Street, Hobartville	Castlereagh Road near Lennox Street, Richmond	2.5m Shared Path	Missing	1,000m
6-3	Lennox Street near Castlereagh Road, Richmond	Lennox Street near Bourke Street, Richmond	2.5m Shared Path	Missing	1,200m
6-4	East Richmond Station on Bourke Street, Richmond	Bourke Street at College Street, Richmond	Shared Path	Existing	530m

ID	Origin	Destination	Typology	Condition	Length
6-4	East Richmond Station on Bourke Street, Richmond	Bourke Street near Windsor Street, Richmond	2.5m Shared Path	Missing	130m
7-1	Colonial Drive near George Street, Bligh Park	Colonial Drive near Birk Place, Bligh Park	2.5m Shared Path	Missing	1,400m
7-2	Colonial Drive, Bligh Park	Porpoise Crescent, Bligh Park	Shared Path	Existing	190m
7-3	Rifle Range Road near George Street, Bligh Park	Rifle Range Road near Kentwell Drive, Bligh Park	2.5m Shared Path	Missing	2,300m
7-4	Colonial Reserve at Guardian Crescent, Bligh Park	Drummond Street or Mileham Street near Batten Circuit, South Windsor	Shared Path	Existing	3,500m
7-5	Drummond Street, South Windsor	Hawkesbury Oasis at Church Street, South Windsor	2.5m Shared Path	Missing	450m
8-1	Wilberforce Road near Windsor Bridge, Windsor	Putty Road near Kurmond Road/ Old Sackville Road, Wilberforce	On Road	Existing	5,400m
9-1	Mulgrave Road near Windsor Road, McGraths Hill	Mulgrave Road at Mulgrave Train Station, Mulgrave	2.5m Shared Path	Missing	1,200m
9-2	Pitt Town Road near Windsor Road, McGraths Hill	Pitt Town Road near Wolseley Road, McGraths Hill	2.5m Shared Path	Missing	960m
9-3	Books Crescent near Pitt Town Road, McGraths Hill	Andrew Thompson Drive near McGrath Road, McGraths Hill	On Road	Missing	650m
9-4	McGraths Road near Windsor Road, McGraths Hill	Old Hawkesbury Road at Colbee Park, McGraths Hill	2.5m Shared Path	Missing	660m
9-5	Old Hawkesbury Road near Pitt Town Road, McGraths Hill	Old Hawkesbury Road at Colbee Park, McGraths Hill	2.5m Shared Path	Missing	970m
9-6	Havelock Street near Wolseley Road, McGraths Hill	Havelock Street near Old Hawkesbury Road, McGraths Hill	2.5m Shared Path	Missing	480m
9-7	Wolseley Road near Pitt Town Road, McGraths Hill	Oakville Road, Stahls Road	2.5m Shared Path	Missing	2,320m
10-1	Pitt Town Road near Wolseley Road, McGraths Hill	Bathurst Street near Grenville Street, Pitt Town	On Road	Missing	3,800

Table 52: Cycling Network Summary

6.4 Cost Estimates

Indicative cost estimates were prepared for infrastructure upgrades proposed across the strategic cycling and walking networks. These costs represent a high-level indicative estimate, developed with the purpose of identifying the range of funding required to address infrastructure issues and opportunities. The cost estimations provided are to be used as a rough indicator only and should improvements be implemented a more detailed investigation will be required for each project required to obtain a higher level of accuracy.

Cost estimations have been provided as a total price per metre sum (footpaths etc.), or as the total cost for an individual item (crossings). In some cases, infrastructure already exists or has received funding for construction, in these cases the cost of construction has been excluded and noted in the corresponding table. For the purpose of the study, on-road painted cycleways have been excluded as the cost of implementation is at the discretion of Council. **Table 53** details the cost per unit agreed with Council during the project development phase. Additionally, the total sum for infrastructure recommendations has been summarised in this table against the item. A breakdown of these costs has been provided in **Table 54** to **Table 56**.

Item	Cost per Unit	Total Cost
Provide a footpath (2m)	\$264 per metre	\$1,419,528
Provide a shared path (2.5m)	\$468 per metre	\$9,200,880
Provide a shared path (3m)	\$561 per metre	\$2,917,200
Provide a pedestrian refuge	\$220k per crossing	\$3,960,000
Replace an existing pedestrian refuge	\$550k per crossing	\$550,000
Provide a wombat crossing	\$550k per crossing	\$2,200,000
Provide a signalised ped crossing	\$1.1m per crossing	\$3,300,000
TOTAL		\$23,475,536

Table 53: Infrastructure Cost per Unit and Total Sum of Recommendations

6.4.1 Pedestrian Footpath Cost Estimation

Table 54 provides an estimate of the costs to construct each footpath proposed in **Chapter 6.2.3**.

ID	Suburb	Location	Type	Length	Cost
BF1	Bilpin	Bells Line of Road	Footpath min 2m	90m	\$23,760
BF2	Bilpin	Bells Line of Road	Footpath min 2m	90m	\$23,760
BF3	Bilpin	Bells Line of Road	Footpath min 2m	70m	\$18,480
GF1	Glossodia	Golden Valley Drive	Footpath min 2m	370m	\$97,680
GF2	Glossodia	Golden Valley Drive	Footpath min 2m	260m	\$68,640
GF3	Glossodia	Derby Place	Footpath min 2m	184m	\$48,576
GF4	Glossodia	Spinks Road	Footpath min 2m	740m	\$195,360
HF1	Hobartville	Luttrell Street	Footpath min 2m	625m	\$165,000
HF2	Hobartville	Anderson Avenue/ Potts Street/ Luttrell Street	Footpath min 2m	170m	\$44,880
HF3	Hobartville	Valder Avenue	Footpath min 2m	260m	\$68,640
HF4	Hobartville	Inalls Lane/ Southee Road	Footpath min 2m	-	-
MHF1	McGraths Hill	Meares Road	Footpath min 2m	90m	\$23,760
NRF1	North Richmond	Arthur Phillips Drive/ Pecks Road	Footpath min 2m	360m	\$95,040
NRF2	North Richmond	O'Dea Place	Footpath min 2m	225m	\$59,400
NRF3	North Richmond	Tyne Crescent	Footpath min 2m	250m	\$66,000
NRF4	North Richmond	Campbell Street/ William Street	Footpath min 2m	285m	\$75,240
PTF1	Pitt Town	Wellesley Street	Footpath min 2m	290m	\$76,560
PTF2	Pitt Town	Fernadell Park	Footpath min 2m	-	-
PTF3	Pitt Town	Bootles Lane	Footpath min 2m	80m	\$21,120
RF1	Richmond	Windsor Street near Pughs Lagoon	Footpath min 2m	273m	\$72,072
SWF1	South Windsor	Bell Street	Footpath min 2m	205m	\$54,120
SWF2	South Windsor	Woods Road	Footpath min 2m	40m	\$10,560
WFF1	Wilberforce	George Road	Footpath min 2m	150m	\$39,600
WFF2	Wilberforce	Castlereagh Road	Footpath min 2m	160m	\$42,240
WFF3	Wilberforce	George Road	Footpath min 2m	225m	\$59,400
WFF4	Wilberforce	Putty Road	Footpath min 2m	45m	\$11,880
TOTAL					\$1,461,768

Table 54: Pedestrian Footpath Cost Estimation

6.4.2 Pedestrian Crossing Cost Estimation

Table 55 provides an estimate of the costs to construct each pedestrian crossing proposed in **Chapter 6.2.3**.

ID	Suburb	Location	Type	Status	Cost
BC1	Bilpin	Bells of Line Road near Hardware Store	Pedestrian Refuge	Missing	\$220,000
BC2	Bilpin	Bells of Line Road near Bilpin District Hall	Pedestrian Refuge	Missing	\$220,000
BPC1	Bligh Park	George Street at Rifle Range Road	Signalised	Missing	\$1,100,000
BPC2	Bligh Park	Mileham Road near Rifle Range Road	Pedestrian Refuge	Missing	\$220,000
BPC3	Bligh Park	George Street at Colonial Drive	Signalised	Upgrade	\$1,100,000
BPC4	Bligh Park	George Road near Thorley Street	Signalised	Missing	\$1,100,000
GC1	Glossodia	Spinks Road at Golden Valley Drive	Pedestrian Refuge	Missing	\$220,000
GC2	Glossodia	Spinks Road at Woodbury Reserve	Pedestrian Refuge	Missing	\$220,000
MHC1	McGraths Hill	McGrath Road / Windsor Intersection	Signalised	Missing	\$1,100,000
NRC1	North Richmond	Riverview Street at Grose Vale Road	Pedestrian Refuge	Missing	\$220,000
NRC2	North Richmond	Elizabeth Street near Grose Vale Road	Pedestrian Refuge	Missing	\$220,000
NRC3	North Richmond	Grose Vale Road offset from the two bus stops	Pedestrian Refuge	Missing	\$220,000
NRC4	North Richmond	Riverview Street after Grose Vale Road intersection	Pedestrian Refuge	Missing	\$220,000
NRC5	North Richmond	Charles Street near William Street	Pedestrian Refuge	Missing	\$220,000
NRC6	North Richmond	Charles Street near Elizabeth Street	Pedestrian Refuge	Missing	\$220,000
PTC1	Pitt Town	Buckingham Street at Pitt Town Public School	Wombat	Upgrade	\$550,000
RC1	Richmond	Bourke Street at East Richmond	Wombat	Missing	\$550,000

ID	Suburb	Location	Type	Status	Cost
RC2	Richmond	Castlereagh Road near Lennox Street	Wombat	Missing	\$550,000
RC3	Richmond	Toxana Street near Windsor Street	Pedestrian Refuge	Missing	\$220,000
RC4	Richmond	Windsor Street at Aldi	Pedestrian Refuge	Missing	\$220,000
SWC1	South Windsor	Yarrowonga Street near George Street	Pedestrian Refuge	Missing	\$220,000
SWC2	South Windsor	Macquarie Street near George Street	Pedestrian Refuge	Missing	\$220,000
SWC3	South Windsor	Woods Road near Collith Avenue	Pedestrian Refuge	Missing	\$220,000
WFC1	Wilberforce	King Road near Putty Road	Pedestrian Refuge	Missing	\$220,000
WFC2	Wilberforce	Putty Road near King Road	Pedestrian Refuge	Missing	\$220,000
WC1	Windsor	George Street at Windsor Station	Pedestrian Refuge	Missing	\$220,000
WC2	Windsor	George Street at Windsor Station	Pedestrian Refuge	Missing	\$220,000
WC3	Windsor	Hawkesbury Valley Way near Cox Street	Pedestrian Refuge	Missing	\$220,000
WC4	Windsor	Christie Street near George Street	Pedestrian Refuge	Missing	\$220,000
WC5	Windsor	The Terrace near Elizabeth Street	Pedestrian Refuge	Upgrade	\$550,000
WC6	Windsor	The Terrace	Wombat	Missing	\$550,000
TOTAL					\$11,990,000

Table 55: Pedestrian Crossing Cost Estimation

6.4.3 Cycling Network Cost Estimation

Table 56 provides an estimate of the costs to construct each cycleway proposed in **Chapter 6.3.2**.

Route	Segment ID	Suburb	Location	Description	Type	Length	Cost
1	S1	Windsor – Rouse Hill	Windsor Road	A shared path along the strategic Greater Sydney cycling network.	Shared Path	7,800m	Existing
2	S1	Windsor	Macquarie Street	An existing path connecting from the Greater Sydney cycling network, providing access to Windsor centre.	Shared Path	1,200m	Existing
2	S2	Bligh Park – South Windsor	George Street	Provides direct connection across Windsor, South Windsor, and Bligh Park.	2.5m Shared Path	4,200m	\$1,965,600
3	S1	Windsor	Hawkesbury Valley Way	To support the existing and future network, connecting Route 2–S2 and Route 3–S2.	3m Shared Path	400m	\$224,400
3	S2	Clarendon	Hawkesbury Valley Way	WestInvest Project, extending the shared path in Friendship Park to Hawkesbury Valley Way.	Shared Path	2,000m	Funded
3	S3	Clarendon	Hawkesbury Valley Way	An existing shared path from Clarendon Station through Friendship Park.	Shared Path	2,400m	Existing
3	S4	Richmond	Windsor Street	Connects existing shared path through Friendship Park to Richmond centre.	3m Shared Path	900m	\$504,900
3	S5	Richmond – North Richmond	March Street – Kurrajong Road	Connects the strategic centre of Richmond to North Richmond. Will need to be coordinated with the Richmond Bridge duplication and bypass project.	3m Shared Path	3,900m	\$2,187,900
4	S1	North Richmond – Kurmond	Bells Line of Road	An existing path that connects two centres together.	Shared Path	4,500m	Existing

Route	Segment ID	Suburb	Location	Description	Type	Length	Cost
4	S2	Kurmond – Kurrajong	Bells Line of Road – Old Bells Line of Road	WestInvest project which builds upon the North Richmond – Kurmond path, providing further connectivity to Kurrajong.	Shared Path	1,750m	Funded
5	S1	North Richmond	Grose Vale Road	Provides connectivity from the Redbank Development to North Richmond centre.	2.5m Shared Path	1,350m	\$631,800
6	S1	Hobartville	East Market Street – Laurence Street	Connects Richmond centre to Hobartville, providing connectivity to land uses including Richmond Swimming Centre and Tamplin Field.	2.5m Shared Path	1,000m	\$468,000
6	S2	Hobartville	Powell Street – Hereford Street – Castlereagh Road	Connects Hobartville’s residential core to the network.	2.5m Shared Path	1,000m	\$468,000
6	S3	Richmond	Lennox Street	Provides connectivity for Richmond High School, as well as providing a loop for the Hobartville network.	2.5m Shared Path	1,200m	\$561,600
6	S4	Richmond	Bourke Street	Links East Richmond Station to College Drive and up towards WSU.	Shared Path	530m	Existing
6	S4	Richmond	Bourke Street	Addresses the gap between East Richmond Station and the shared path.	2.5m Shared Path	130m	\$60,084
7	S1	Bligh Park	Colonial Drive	Route provides connectivity through the residential core of Bligh Park, providing accessibility to Route 2-S2 and Route 7-S4.	2.5m Shared Path	1,400m	\$655,200
7	S2	Bligh Park	-	A green link which connects Route 7-S1 to 7-S4	Shared Path	190m	Existing

Route	Segment ID	Suburb	Location	Description	Type	Length	Cost
7	S3	Bligh Park	Rifle Range Road	Provide a connection along a key road in Bligh Park, as well as connect Route 2-S2 to Route 7-S4.	2.5m Shared Path	2,300m	\$1,076,400
7	S4	South Windsor – Bligh Park	-	An existing Shared path that connects Bligh Park and South Windsor via open space.	Shared Path	3,500m	Existing
7	S5	South Windsor	Drummond Street	Connects existing network to the proposed network (Route 2-S2) and the Hawkesbury Oasis, a WestInvest project.	2.5m Shared Path	450m	\$210,600
8	S1	Wilberforce	Wilberforce Road	Connects Wilberforce to the strategic centre of Windsor.	On Road	6,100m	-
9	S1	Mulgrave	Mulgrave Road	Connects existing network to Mulgrave Station.	2.5m Shared Path	1,200m	\$561,600
9	S2	McGraths Hill	Pitt Town Road	Connect McGraths Hill to the strategic cycleway to Windsor.	2.5m Shared Path	960m	\$449,280
9	S3	McGraths Hill	Andrew Thompson Drive	An on-road route through McGraths Hill core.	On Road	650m	-
9	S4	McGraths Hill	McGraths Road	Provide connectivity to various land uses at the HomeCo Shopping Mall.	2.5m Shared Path	660m	\$308,880
9	S5	McGraths Hill	Old Hawkesbury Road	Provide connectivity from Pitt Town Road to Colbee Park.	2.5m Shared Path	970m	\$453,960
9	S6	McGraths Hill	Havelock Street	Provide connectivity from Wolseley Road.	2.5m Shared Path	480m	\$224,640
9	S7	McGraths Hill	Wolseley Road	Shared path connecting to Oakville, for future connection to Vineyard Precinct	2.5m Shared Path	2,320m	\$1,085,760
10	S1	McGraths Hill – Pitt Town	Pitt Town Road	Route connects Windsor to Wilberforce via an on-road shoulder.	On Road	3,800m	-
TOTAL							\$12,099,360

Table 56: Cycling Network Cost Estimation

6.5 Prioritisation

The following summary of actions should be considered when seeking to implement the recommendations made in this Infrastructure Action Plan. The actions provided relate to the implementation of infrastructure recommendations and improvements, in addition to other measures that can promote walking and cycling and enhance the experience for the user. The Infrastructure Action Plan has been designed with a focus on a 10-year implementation plan. As such, prioritisation measures have been provided in the short-term (1-2 years), medium-term (3-5 years), and long-term (6-10 years).

ID	Action	Suburb/ Location	Type	Distance	Cost	Prioritisation
1	Follow best practice guidelines to ensure all future walking and cycling infrastructure improvements meet the recommended state government requirements.	Hawkesbury	-	-	-	Continuous
2	Work in partnership with School Infrastructure NSW (SINSW) to provide and support safe, sustainable travel options for school children.	Hawkesbury	-	-	-	Continuous
3	Incorporate the recommended pedestrian infrastructure changes into Council's Operational Plan.	Hawkesbury	-	-	-	Short-term
4	Seek funding through the Get NSW Active program for footpath and intersection upgrades.	Hawkesbury	-	-	-	Short-term
5	Undertake a review of Council's Development Control Plans (DCP) to ensure adequate footpath and cycling infrastructure is provided in new residential developments.	Hawkesbury	-	-	-	Short-term
6	Pursue funding opportunities for the concept design of Cycling Route 2-S2	Bligh Park/South Windsor	2.5m Shared path	4,200m	\$1,965,600	Short-term
7	Pursue funding opportunities for the concept design of Cycling Route 3-S1.	Windsor	3m Shared path	400m	\$224,400	Short-term

ID	Action	Suburb/ Location	Type	Distance	Cost	Prioritisation
8	Pursue funding opportunities for the concept design of Cycling Route 3-S4.	Richmond	3m Shared path	900m	\$504,900	Short-term
9	Pursue funding opportunities for the concept design of Cycling Route 3-S5.	Richmond – North Richmond	3m Shared path	3,900m	\$2,187,900	Short-term
10	Pursue funding opportunities for the concept design of Cycling Route 6-S1.	Richmond – Hobartville	3m Shared path	1,000m	\$468,000	Short-term
11	Pursue funding opportunities for the concept design of Cycling Route 6-S3.	Richmond	3m Shared path	1,200m	\$561,600	Short-term
12	Pursue funding opportunities for the concept design of Cycling Route 6-S4.	Richmond	3m Shared path	170m	\$79,560	Short-term
13	Pursue funding opportunities for the concept design of Cycling Route 7-S5.	South Windsor	2.5m Shared path	450m	\$210,600	Short-term
14	Pursue funding opportunities for the concept design of Cycling Route 9-S1.	McGraths Hill	2.5m Shared path	1,200m	\$561,600	Short-term
15	Pursue funding opportunities for the concept design of Cycling Route 9-S2.	McGraths Hill	2.5m Shared path	960m	\$449,280	Short-term
16	Pursue funding opportunities for the concept design of Cycling Route 9-S4.	McGraths Hill	2.5m Shared path	660m	\$308,880	Short-term
17	Provide a footpath at HF2.	Anderson Avenue/ Potts Street/ Luttrell Street	2m Footpath	170m	\$44,880	Short term
18	Provide a footpath at HF3.	Valder Avenue	2m Footpath	260m	\$68,640	Short term
19	Provide a crossing at BC2.	Bells of Line Road near Bilpin District Hall	Pedestrian Refuge	-	\$220,000	Short term
20	Provide a crossing at BPC1.	George Street at Rifle Range Road	Signalised	-	\$1,100,000	Short term
21	Provide a crossing at RC2.	Castlereagh Road near Lennox Street	Wombat	-	\$550,000	Short Term

ID	Action	Suburb/ Location	Type	Distance	Cost	Prioritisation
22	Provide a crossing at RC4.	Windsor Street at Aldi	Pedestrian Refuge	-	\$220,000	Short term
23	Provide a crossing at WC3.	Hawkesbury Valley Way near Cox Street	Pedestrian Refuge	-	\$220,000	Short Term
24	Provide a footpath at NRF4.	Campbell Street/ William Street	2m Footpath	285m	\$75,240	Short-term
25	Provide a footpath at PTF3.	Bootles Lane	2m Footpath	80m	\$21,120	Short-term
26	Provide a footpath at SWF2.	Woods Road	2m Footpath	40m	\$10,560	Short-term
27	Provide a crossing at NRC1.	Riverview Street at Grose Vale Road	Pedestrian Refuge	-	\$220,000	Short-term
28	Provide a crossing at NRC2.	Elizabeth Street near Grose Vale Road	Pedestrian Refuge	-	\$220,000	Short-term
29	Provide a crossing at NRC3.	Grose Vale Road offset from the two bus stops	Pedestrian Refuge	-	\$220,000	Short-term
30	Provide a crossing at NRC5.	Charles Street near William Street	Pedestrian Refuge	-	\$220,000	Short-term
31	Provide a crossing at NRC6.	Charles Street near Elizabeth Street	Pedestrian Refuge	-	\$220,000	Short-term
32	Provide a crossing at PTC1.	Buckingham Street at Pitt Town Public School	Wombat	-	\$550,000	Short-term
33	Provide a crossing at SWC2.	Macquarie Street near George Street	Pedestrian Refuge	-	\$220,000	Short-term
34	Provide a crossing at SWC3.	Woods Road near Collith Avenue	Pedestrian Refuge	-	\$220,000	Short-term
35	Provide a crossing at WC4.	Christie Street near George Street	Pedestrian Refuge	-	\$220,000	Short-term
36	Undertake a review of end-of-trip facility audit throughout Hawkesbury's key centres, transport hubs and other key trip attractors to ensure that the adequate provision of parking is made available to users choosing to cycle.	Hawkesbury	-	-	-	Medium-term

ID	Action	Suburb/ Location	Type	Distance	Cost	Prioritisation
37	Pursue funding opportunities for the concept design of Cycling Route 5-S1.	North Richmond	2.5m Shared path	1,350m	\$631,800	Medium-term
38	Pursue funding opportunities for the concept design of Cycling Route 6-S2.	Hobartville	2.5m Shared path	1,000m	\$468,000	Medium-term
39	Pursue funding opportunities for the concept design of Cycling Route 7-S1.	Bligh Park	2.5m Shared path	1,400m	\$655,200	Medium-term
40	Pursue funding opportunities for the concept design of Cycling Route 7-S3.	Bligh Park	2.5m Shared path	2,300m	\$1,076,400	Medium-term
41	Pursue funding opportunities for the concept design of Cycling Route 9-S3.	McGraths Hill	On-Road	650m	-	Medium-term
42	Pursue funding opportunities for the concept design of Cycling Route 9-S5.	McGraths Hill	2.5m Shared path	660m	\$308,880	Medium-term
43	Pursue funding opportunities for the concept design of Cycling Route 10-S1.	McGraths Hill – Pitt Town	On-Road	3,800m	-	Medium-term
44	Provide a footpath at HF1.	Luttrell Street	2m Footpath	625m	\$165,000	Medium-term
45	Provide a footpath at RF1.	Windsor Street near Pughs Lagoon	2m Footpath	273m	\$72,072	Medium-term
46	Provide a crossing at BC1.	Bells of Line Road near Hardware Store	Pedestrian Refuge	-	\$220,000	Medium-term
47	Provide a crossing at BPC2.	Mileham Road near Rifle Range Road	Pedestrian Refuge	-	\$220,000	Medium-term
48	Provide a crossing at BPC4.	George Street at Colonial Drive	Signalised	-	\$1,100,000	Medium-term
49	Provide a crossing at MHC1.	McGrath Road / Windsor Intersection	Signalised	-	\$1,100,000	Medium-term
50	Provide a crossing at RC1.	Bourke Street at East Richmond	Wombat	-	\$550,000	Medium-term
51	Provide a crossing at RC3.	Toxana Street near Windsor Street	Pedestrian Refuge	-	\$220,000	Medium-term

ID	Action	Suburb/ Location	Type	Distance	Cost	Prioritisation
52	Provide a crossing at WC5.	The Terrace near Elizabeth Street	Pedestrian Refuge	-	\$220,000	Medium-term
53	Provide a crossing at WC2.	George Street at Windsor Station	Pedestrian Refuge	-	\$220,000	Medium-term
54	Provide a footpath at MHF1.	Meares Road	2m Footpath	90m	\$23,760	Medium-term
55	Provide a footpath at NRF1.	Arthur Phillips Drive/ Pecks Road	2m Footpath	360m	\$95,040	Medium-term
56	Provide a footpath at NRF2.	O'Dea Place	2m Footpath	225m	\$59,400	Medium-term
57	Provide a footpath at NRF3.	Tyne Crescent	2m Footpath	250m	\$66,000	Medium-term
58	Provide a footpath at PTF1.	Wellesley Street	2m Footpath	290m	\$76,560	Short-term
59	Provide a footpath at SWF1.	Bell Street	2m Footpath	205m	\$54,120	Medium-term
60	Provide a footpath at WFF1.	George Road	2m Footpath	150m	\$39,600	Medium-term
61	Provide a footpath at WFF3.	George Road	2m Footpath	225m	\$59,400	Medium-term
62	Provide a footpath at WFF4.	Putty Road	2m Footpath	45m	\$11,880	Medium-term
63	Provide a crossing at NRC4.	Riverview Street after Grose Vale Road intersection	Pedestrian Refuge	-	\$220,000	Medium-term
64	Provide a crossing at WC1.	George Street at Windsor Station	Pedestrian Refuge	-	\$220,000	Medium-term
65	Review the Background Report and Infrastructure Action Plan at the end of the 10-year program to ensure the proposals made are still relevant and supportive of the Hawkesbury community.	Hawkesbury	-	-	-	Long-term
66	Undertake a review of lighting on core walking and cycling routes to improve safety and security for the user.	Hawkesbury	-	-	-	Long-term
67	Pursue funding opportunities for the concept design of Cycling Route 9-S6.	McGraths Hill	2.5m Shared path	480	\$224,640	Long-term

ID	Action	Suburb/ Location	Type	Distance	Cost	Prioritisation
68	Pursue funding opportunities for the concept design of Cycling Route 9-S7.	McGraths Hill	2.5m Shared path	2,320	\$1,085,760	Long-term
69	Provide a 2m footpath at BF1.	Bells Line of Road	-	90m	\$23,760	Long-term
70	Provide a crossing at BPC4.	George Road near Thorley Street	Signalised	-	\$1,100,000	Long-term
71	Provide a crossing at GC1.	Spinks Road at Golden Valley Drive	Pedestrian Refuge	-	\$220,000	Long-term
72	Provide a crossing at GC2.	Spinks Road near Woodbury Reserve entry	Pedestrian Refuge	-	\$220,000	Long-term
73	Provide a footpath at BF2.	Bells Line of Road	2m Footpath	90m	\$23,760	Long-term
74	Provide a footpath at BF3.	Bells Line of Road	2m Footpath	70m	\$18,480	Long-term
75	Provide a footpath at GF1.	Golden Valley Drive	2m Footpath	370m	\$97,680	Long-term
76	Provide a footpath at GF2.	Golden Valley Drive	2m Footpath	260m	\$68,640	Long-term
77	Provide a footpath at GF3.	Derby Place	2m Footpath	184m	\$48,576	Long-term
78	Provide a footpath at GF4.	Spinks Road	2m Footpath	740m	\$195,360	Long-term
79	Provide a footpath at WFF2.	Castlereagh Road	2m Footpath	160m	\$42,240	Long-term
80	Provide a crossing at SWC1.	Yarrowonga Street near George Street	Pedestrian Refuge	-	\$220,000	Long-term
81	Provide a crossing at WFC1.	King Road near Putty Road	Pedestrian Refuge	-	\$220,000	Long-term
82	Provide a crossing at WFC2.	Putty Road near King Road	Pedestrian Refuge	-	\$220,000	Long-term

Table 57: Prioritisation Action Plan





Address	366 George Street, Windsor NSW 2756
Mailing Address	PO Box 146, Windsor NSW 2756
Phone	(02) 4560 4444
Email	council@hawkesbury.nsw.gov.au
Website	www.hawkesbury.nsw.gov.au
Office Hours	Monday to Friday 8:30am - 5pm