



Active Transport Plan

Final Report

Hilltops Council

14 February 2025



The Power of Commitment



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1. Introduction

1.1 Background

Active transport, primarily in the form of walking and cycling, is a sustainable and simple means of access to places, goods, services, experiences and information. In the planning of public and private space or facilities, priority should be given to active transport modes which are attractive, safe, convenient and accessible for everyone. All responsible agencies should recognise the importance of constructing and maintaining active transport paths for transport, health, safety, leisure and social purposes.

Planning for pedestrians and cyclists does not follow the same logic as motorised traffic planning, which normally involves a 'car' - 'trips' - 'routes' - 'traffic network'. It places more emphasis on the environment and the conditions along routes and at attractors. Unlike faster-moving motorists, pedestrians and cyclists are far more attuned to the environment in which they are moving. There is international recognition that in order to significantly boost walking and cycling adoption, a high standard of active transport facilities is required, particularly paths that provide adequate separation from motor vehicle traffic.

An important aspect of this study is to highlight the key elements that can improve the active transport network in the Hilltops Council context. These include an understanding of the following:

- The types of existing / potential pedestrians and cyclists and their needs.
- The condition of the existing active transport network (including paths, gaps and barriers).
- Where pedestrians and bike riders are going, and why.
- The motorised traffic environment (speed and volumes) that pedestrians and cyclists must deal with.
- The key planning and engineering principles that underpin the design of a usable and safe active transport network.
- The most appropriate design options that meet active transport needs.
- The views and aspirations of stakeholders.

1.2 What is active transport?

The term active transport indicates travelling by walking, bicycle, scooter, skateboard, mobility scooter and other forms of non-motorised transport. This study covers active transport for functional and recreational trips; in the former are included trips to the shops, to school, to work and other trips with a functional purpose; recreational trips are those made where the primary purpose exercise, recreation and leisure in general. Table 1.1 summarises these different types of active travel trips.

Both functional and recreational trips are important aspects of active transport. For example, often when people start walking and riding for recreational purposes, they can over time get more comfortable with using active transport for functional purposes as well.

Table 1.1 *Forms of active transport*

For transport	For recreation
Walking Cycling, including electric bikes (e-bikes) Skating, scooting and rollerblading / roller skating Mobility scooters and other mobility aids	Walking, bushwalking, jogging/running, trail-running Cycling (including road cycling, mountain biking, BMX, trail biking) Skating, scooting and rollerblading / roller skating. Horse riding Canoeing and kayaking

1.3 Benefits of active transport

Increased adoption of active transport can deliver many benefits, including environmental benefits, such as reduced vehicle emissions, and significant physical and mental health benefits for the people. Additionally, economic benefits include those for individual households, and businesses as well as the potential attraction of tourists as shown in Figure 1.1.

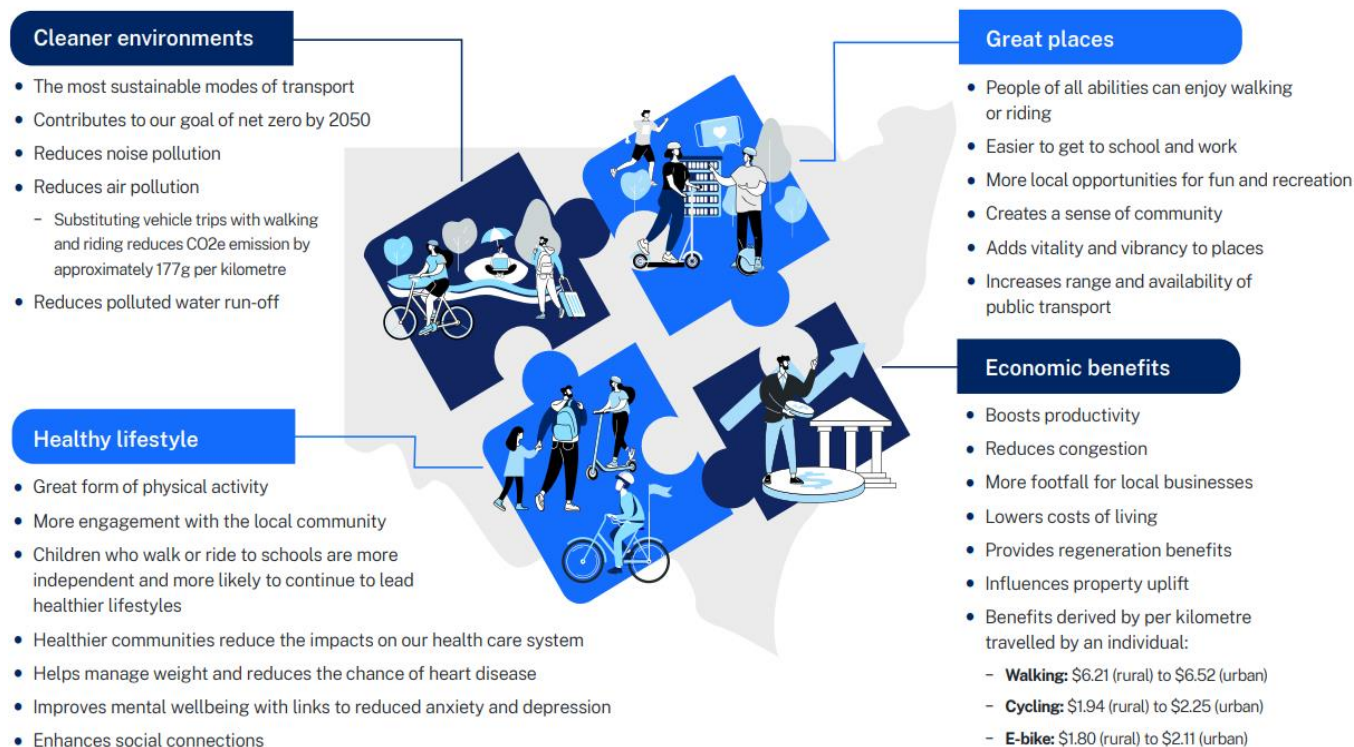


Figure 1.1 Potential active transport benefits

Source: Transport for NSW (TfNSW) Active Transport Strategy

1.4 Active Transport Study area

Hilltops Council is located in the South West Slopes of NSW and covers an area of 7,142 km². It is situated approximately 360 km south-west of Sydney and 160 Km north-west of Canberra. The Council includes the towns of Boorowa, Harden-Murrumburrah and Young and other smaller centres. The estimated residential population of the Hilltops Council for 2021 is 19,254, with a population density of 2.69 persons per km² (ABS Census, 2021).

The main towns are Boorowa, Harden-Murrumburrah and Young. The location of these areas is shown in Figure 1.2.

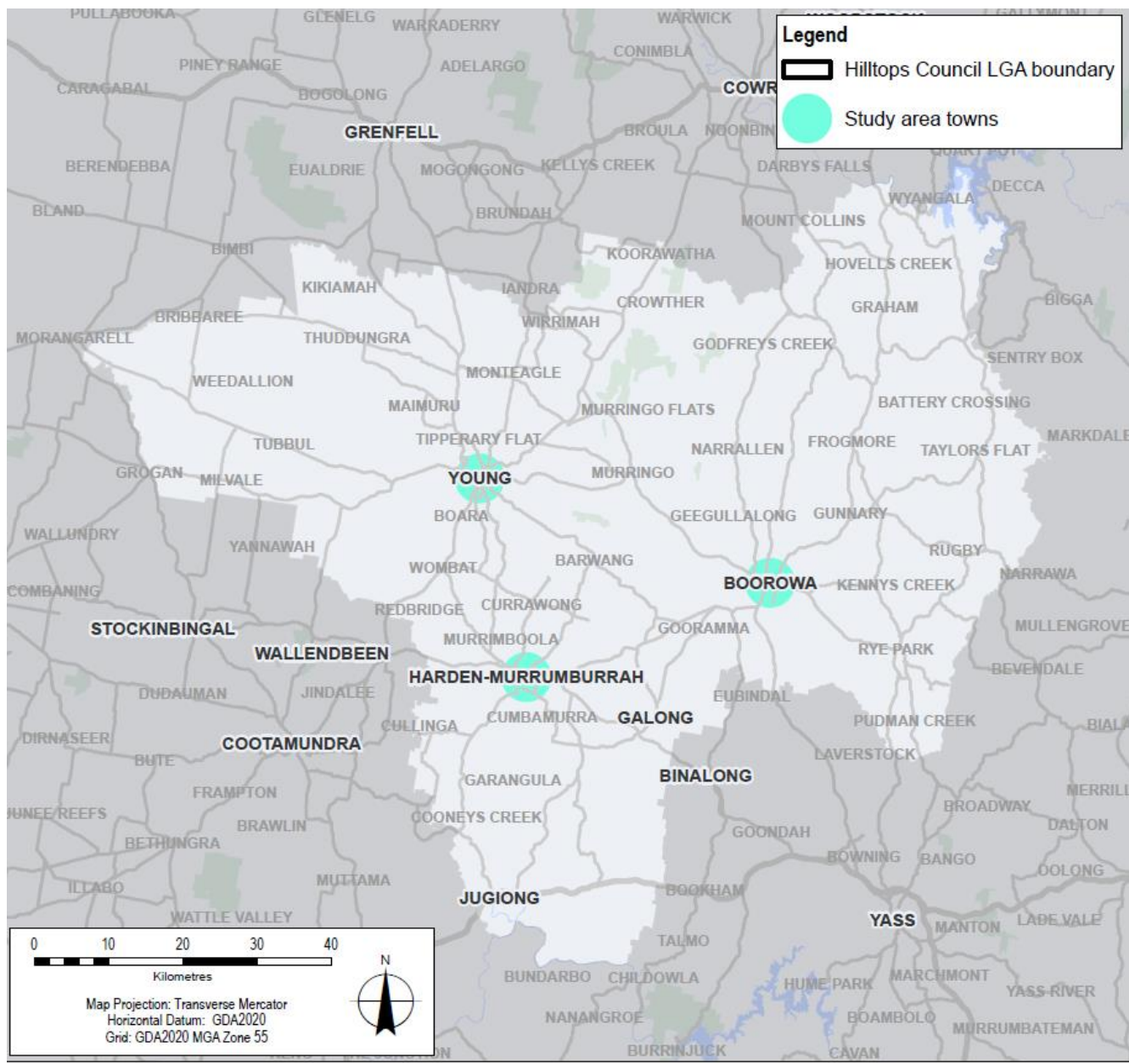


Figure 1.2 Hilltops Council-Study area

Source: NSWSS, Topographic base data, modified by GHD.

1.5 Purpose of this report

This Hilltops Active Transport Plan (ATP) has been prepared for Hilltops Council to provide a framework for existing active transport needs, future management, use and enhancement for walking and cycling of all ages and mobility. This document identifies the active transport network hierarchy and associated action plans for management.

1.6 Disclaimer

GHD has prepared this active transport plan for Hilltops Council and it may only be used and relied on by Council for the purpose agreed between GHD and Hilltops Council as set out in Section 1.5 of this report.

GHD otherwise disclaims responsibility to anyone other than Hilltops Council arising in connection with this strategy. GHD also excludes implied warranties and conditions to the extent legally permissible. The services undertaken by GHD in connection with preparing this plan were limited to those specifically detailed in the strategy and are subject to the scope limitations set out in the strategy.

The opinions, conclusions and recommendations in this strategy are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

1.7 Structure of this report

The remaining sections of this report are structured as follows:

- **Section 2 – Strategic context and policy review:** provides a summary of the previous pedestrian planning and related policies from the Council and various NSW Government agencies.
- **Section 3 – Background review:** provides a detailed summary of Hilltops population / demographic characteristics and current walking/cycling infrastructure.
- **Section 4 – Planning for pedestrians and bicycle riders:** provides an overview of design and planning guidelines and best practice standards that apply to the treatment of pedestrian and bicycle facilities.
- **Section 5 – Proposed pedestrian and bicycle rider improvements:** a list of potential pedestrian improvements is given with the different types of infrastructure to improve safety, amenity, and access for pedestrians.
- **Section 6- Priorities for pedestrian and bicycle rider improvements:** an assessment of pedestrian and cyclist requirements was conducted and is provided with short, medium and long-term infrastructure projects. An indicative cost and level of difficulty to implement them is included.
- **Section 7- Conclusions and Recommendations:** provides the key findings in the active transport plan (ATP), with a list of recommendations and priorities in the ATP for the active transport improvements.

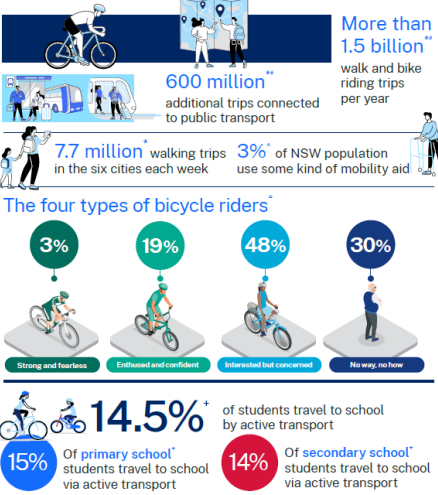
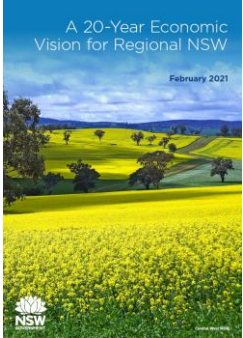
2. Strategic context and policy review

2.1 Regional context

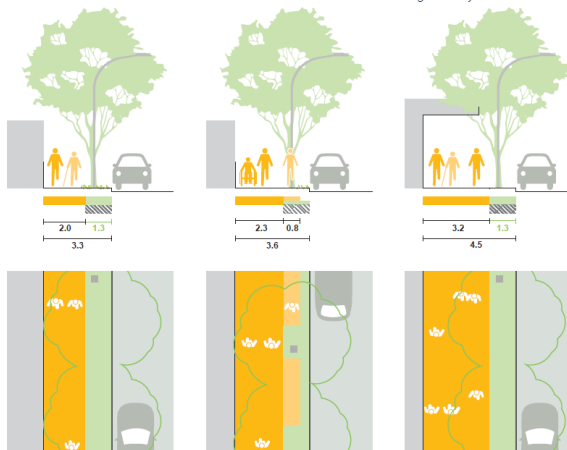
GHD conducted a review of the following documents in relation to the regional level transport context specific to Hilltops Council. This review covered the plans, policies, and reports that are summarised in Table 2.1.

Table 2.1 Review of Strategic Planning Context (Regional)

Planning Document	Relevant / Reference to Hilltops
Future Transport Strategy 2056 (Transport for NSW, 2022)  This strategy replaces Future Transport Strategy 2056 Shaping the future, which was published in 2018. It contains a suite of strategies, policies and plans for transport developed in concert with the Department of Planning and Environment, the Greater Cities Commission, Infrastructure NSW and other government agencies, to provide the integrated vision for the state.	The key strategies are summarised as follows: – Support car-free, active, sustainable transport options so that customers can have connected cycleway networks to serve places such as local centres that are effectively integrated with public transport. – Support thriving and healthy 15-minutes neighbourhoods so that local communities can have healthy lifestyles by prioritising walking and cycling. – Provide spatially efficient ways for people walking and cycling by making sure that strategic walking and cycling route are safely connected to the key destinations. – Improve the safety of people walking and cycling. • Deliver reduced speeds and speeds limits. • Deliver infrastructure safety treatments, including through the Towards Zero Safer Roads Program. • Continue investing in pedestrian crossings, refuge islands and traffic-calming measures. • Ensure micro-mobility devices are embedded safely within networks.
Transport for NSW Active Transport Strategy 	The purpose of the Active Transport Strategy is to double active transport trips in 20 years. This Active Transport Strategy draws on the Future Transport Strategy and its vision for walking, bike riding and personal mobility. This Strategy provides longer term ambitions accompanied by five-year priority moves to guide planning, investment, and priority actions for active transport across NSW. The Active Transport Strategy focuses on five areas: – Enable 15-minute neighbourhoods. – Deliver continuous and connected cycling networks. – Provide safer and better precincts and main streets. – Promote walking and cycling and encourage behaviour change. – Support partners and accelerate change. Walking and bike riding in NSW is shown overleaf.

Planning Document	Relevant / Reference to Hilltops
	3. Walking and bike riding in NSW  More than 1.5 billion^{**} walk and bike riding trips per year 600 million^{**} additional trips connected to public transport 7.7 million^{**} walking trips in the six cities each week 3% of NSW population use some kind of mobility aid The four types of bicycle riders[†] 3% Strong and fearless 19% Enthusiast and confident 48% Interested but concerned 30% No way, no how 14.5%[†] of students travel to school by active transport 15% Of primary school students travel to school via active transport 14% Of secondary school students travel to school via active transport 8 million total NSW population More than 1 million[~] people in NSW ride a bike at least once per week 2.6 million[~] people ride a bike once a year Last trip taken by bicycle[~] 15% within the last week 24% within the last month 36% within the last year People that cycled in the last month in regional and outer metropolitan NSW 93% rode for recreation 29% rode for transport 49% of all trips to work are under 10 kilometres Only 1% of trips to work are on a bicycle Source: [*] Household Travel Survey, Transport for NSW [#] Journey to Work, Australia Bureau of Statistics [†] Disability, Ageing and Carers, Australia Bureau of Statistics [~] NSW School Physical Activity and Nutrition Survey, NSW Health [~] National Walking and Cycling Participation Survey, Cycling and Walking Australia and New Zealand [~] Cycling Customer Value Proposition Report, Transport for NSW
A 20-Year Economic Vision for Regional NSW (Department of Regional NSW, 2021)  This is a plan that outlines the 20-year economic vision for regional NSW. It addresses how the NSW Government sets out a long-term investment plan and framework for social and economic success in regional NSW.	The NSW Government plans priority actions for regional economic development with the following principles to promote active transport. – Principle 2: Improved travel between regional centres and from regional centres to international gateways. • Within five years NSW Government will improve active transport activity with walking and cycling investments for better health, social and environmental outcomes. – Principle 7: Regulation and planning to promote commercial opportunities. • Within five years the NSW Government will increase opportunities to grow wellbeing and liveability with the investment in active transport and open space infrastructure that is walkable, safe, connected, and accessible.
National Road Safety Strategy 2021-30 (Department of Infrastructure, Transport, Regional Development and Communication, 2021)  The National Road Safety Strategy aims to reduce the annual number of fatalities by at least 50 percent and serious injuries by at least 30 percent by 2030 and reach towards Vision Zero by 2050.	The strategy sets multiple priorities to reach Vision Zero and consider how the road transport system works together to prevent death and serious injury. Following are the priorities that supports pedestrians and cyclists to have a safe trip. – Provide safe access for all road users. – Increase community understanding of risky road use and address it through education and enforcement. – Better transport options and assistance. – Governments at all levels will plan and implement network-wide safety improvements. – Governments will focus on designing a Safe System that is future focused.

Planning Document	Relevant / Reference to Hilltops
This Strategy addresses three main roles to improve road safety. The main themes are safe roads, safe vehicles, and safe road use.	
State Infrastructure Strategy 2022-2042 (Infrastructure NSW, 2022) Staying Ahead: State Infrastructure Strategy 2022-2042 Infrastructure NSW May 2022 State Infrastructure Strategy outlines the infrastructure needs and priorities and strategic directions to deliver and achieve better outcomes for the next 20 years. In order to achieve best outcomes, Infrastructure NSW applied the guiding principles. This includes: • Optimise existing assets and networks. • Partner with local governments and communities • Drive Collaboration across government. • pursue long-term fiscal and market sustainability.	The key objective, strategic directions and recommendations for active transport are summarised below: Objective: Service growing communities Government aims to achieve evolving needs of citizens by delivering quality infrastructure that enables better access to essential services. Strategic Directions: – Deliver housing in great neighbourhoods for all parts of the community. – Improve access to efficient, quality services through better use of assets and a better mix of physical infrastructure and technology-enabled solutions. – Continue NSW's investment program in sectors that require renewal, with a focus on TAFE and Justice. Recommendations summary – Fund and deliver a prioritised active transport infrastructure program to support liveability and 15-minute neighbourhoods. – Improve efficiency and service quality in the social infrastructure sectors through co-location and divestment of legacy assets. – Establish a prioritised program of investments for Justice and TAFE infrastructure services and identify options to complement initiatives outlined in 20-year health and education sector infrastructure strategies.
Cycleway Design Toolbox: Designing for cycling and micro mobility (Transport for NSW, 2020)  This Cycleway Design Toolbox aims to achieve high-quality cycling infrastructure by providing design guidance for high-quality cycling infrastructure. This design toolbox is for all bicycle users regardless of their ages and abilities in the context of New South Wales and Greater Sydney.	 There are six (6) design principles that assist in achieving high-quality cycling intrastate. The principles are listed below: – Safe: Providing safe cycling infrastructure so cycling users can access places that are safe and perceived to be safe so that people of all ages and abilities feel comfortable when using facilities. – Direct: Providing direct routes that minimise the time and distance of cycle users. – Connected: Providing high-quality cycling infrastructure that is simple to navigate and consistent along the routes so that people can easily reach their day-to-day destinations. – Attractive: Providing cycle infrastructure that is well-designed and attractive. The attractiveness of a cycleway facility includes safe and quality cycling routes and the surrounding environment such as shade, quality public open space, and welcoming destinations. – Comfortable: Providing the quality routes so that all cycling users can feel comfort. The comfortable routes include adequate width for the volume of users, a smaller number of steep gradients and stopping and limited interaction with high speed or high-volume motorised traffic. – Adaptable: Design cycling infrastructure that has flexibility in design to accommodate changes in user needs and demand over time.

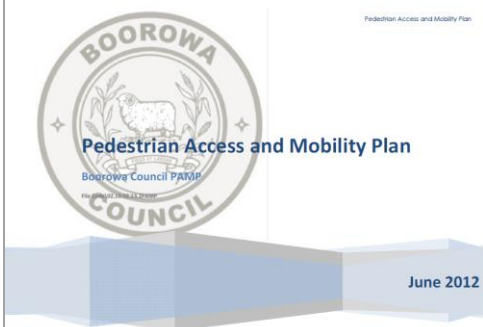
Planning Document	Relevant / Reference to Hilltops																																				
NSW Movement and Place Framework (Transport for NSW) NSW movement and Place Framework is a 'place-based' approach that builds and supports thriving communities by collaboration on shared outcomes. This framework classifies that streets are not just for movement for people, they are also places where people can live and work. 	This approach aims to support analysis and support the planning, design, and delivery of a well-designed built environment. Also, it supports collaboration in working towards a place-based vision. Well-designed built environment is classified by five themes and 36 Built Environment Indicators as shown below:  <table><tr><td>1. Mode share*</td><td>19. Tree canopy*</td></tr><tr><td>2. Walking paths</td><td>20. Biodiversity</td></tr><tr><td>3. Cycling accessibility</td><td>21. Impervious surface</td></tr><tr><td>4. Public transport accessibility*</td><td>22. Waterways</td></tr><tr><td>5. Freight network accessibility*</td><td>23. Road safety*</td></tr><tr><td>6. Bus and strategic freight reliability</td><td>24. Pedestrian crowding</td></tr><tr><td>7. Equitable access</td><td>25. Safe speed for environment</td></tr><tr><td>8. Steepness</td><td>26. Community safety</td></tr><tr><td>9. Public space*</td><td>27. Air quality and noise*</td></tr><tr><td>10. Local living</td><td>28. Urban heat</td></tr><tr><td>11. Primary schools</td><td>29. Permeability*</td></tr><tr><td>12. Transport node facilities</td><td>30. Building height</td></tr><tr><td>13. Places to stop and rest</td><td>31. Street enclosure</td></tr><tr><td>14. Mix of uses*</td><td>32. Street space for pedestrians</td></tr><tr><td>15. Population density</td><td>33. Culture and heritage</td></tr><tr><td>16. Housing diversity</td><td>34. Land division</td></tr><tr><td>17. Local jobs</td><td>35. Legibility</td></tr><tr><td>18. Economic development and regeneration</td><td>36. Building density</td></tr></table> This provides for the integrated and efficient movement of people and goods as well as the demands of places and communities. In order to ensure the best outcome, Transport for NSW sets three key strategies as below: – Establishing the vision for the project – Identifying the issues and opportunities – Establishing and assessing solutions	1. Mode share*	19. Tree canopy*	2. Walking paths	20. Biodiversity	3. Cycling accessibility	21. Impervious surface	4. Public transport accessibility*	22. Waterways	5. Freight network accessibility*	23. Road safety*	6. Bus and strategic freight reliability	24. Pedestrian crowding	7. Equitable access	25. Safe speed for environment	8. Steepness	26. Community safety	9. Public space*	27. Air quality and noise*	10. Local living	28. Urban heat	11. Primary schools	29. Permeability*	12. Transport node facilities	30. Building height	13. Places to stop and rest	31. Street enclosure	14. Mix of uses*	32. Street space for pedestrians	15. Population density	33. Culture and heritage	16. Housing diversity	34. Land division	17. Local jobs	35. Legibility	18. Economic development and regeneration	36. Building density
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11. Primary schools	29. Permeability*																																				
12. Transport node facilities	30. Building height																																				
13. Places to stop and rest	31. Street enclosure																																				
14. Mix of uses*	32. Street space for pedestrians																																				
15. Population density	33. Culture and heritage																																				
16. Housing diversity	34. Land division																																				
17. Local jobs	35. Legibility																																				
18. Economic development and regeneration	36. Building density																																				
Walking Space Guide towards Pedestrian Comfort and Safety & Pedestrian Crossing Guideline (Transport for NSW) This Walking Space Guide (Guide) provides a set of standards and tools to assist those responsible for Walking Spaces on streets, to ensure that sufficient space is provided to achieve comfortable environments which encourage people to walk.	Relevance to Hilltops study in providing practical guidance to how to improve the pedestrian networks in Boorowa, Harden-Murrumburrah and Young based on TfNSW guidelines. Walking Space Guide – Footpath Types <table><tr><td>Type 1 Local footpath – Low activity</td><td>Type 2 Local footpath – Medium activity</td><td>Type 3 Main street footpath – Medium activity / Local footpath – High activity</td></tr></table> 	Type 1 Local footpath – Low activity	Type 2 Local footpath – Medium activity	Type 3 Main street footpath – Medium activity / Local footpath – High activity																																	
Type 1 Local footpath – Low activity	Type 2 Local footpath – Medium activity	Type 3 Main street footpath – Medium activity / Local footpath – High activity																																			

Planning Document	Relevant / Reference to Hilltops
Design of roads and streets A guide to improve the quality of roads and streets in NSW (Transport for NSW) This is a practical 'how to' manual explaining how we can improve our design of roads and streets throughout NSW by better understanding their role and context as local places. 	This document is applied alongside the movement and place framework to enable planners and designers to create meaningful and appropriate functional street and road environments. 
Get NSW Active program FY2024/25 Funding Guidelines 	Get NSW Active is a multi-year program funding local council projects that encourage more people across NSW to incorporate walking and bike riding into their everyday travel. The benefits of active transport are many and through the Get NSW Active program, local councils can deliver projects which make it possible for the people of NSW to incorporate walking and riding into their journey. The FY2024/25 Get NSW Active program has adopted minimum path width recommendations as follows: – minimum footpath width 1.8m – minimum shared path width 3.0m. The minimum requirements above are considered in the cost estimates provided in section 5.1.1.

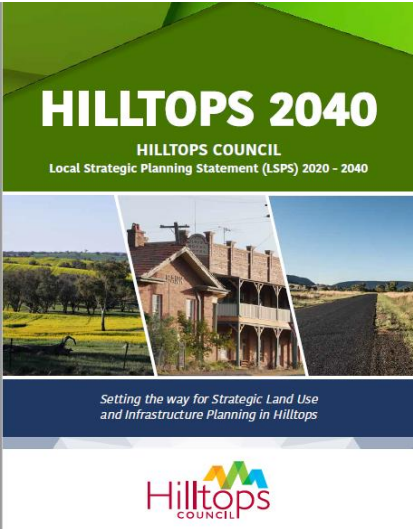
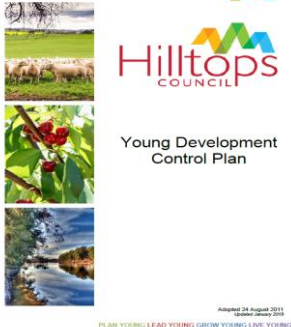
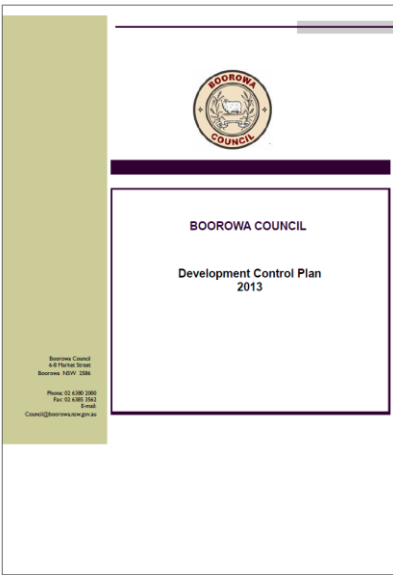
2.2 Local context

GHD conducted a review of planning documents in relation to the local level transport context specific to Hilltops Council, including plans, policies, and reports detailed in Table 2.2.

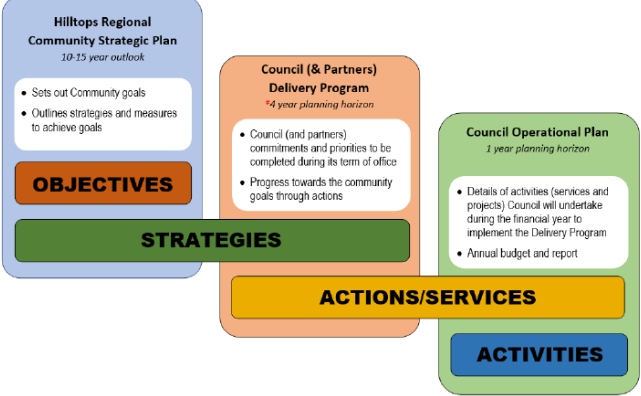
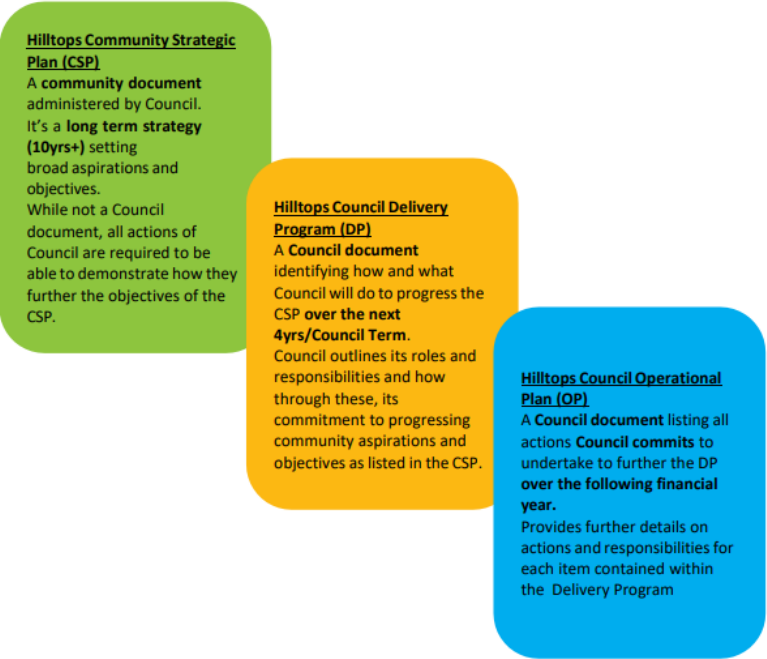
Table 2.2 Review of strategic planning context (local)

Planning Document	Relevant / Reference to Hilltops Shire
Young Shire Pedestrian Access and Mobility Plan 2013-2018 YOUNG SHIRE PEDESTRIAN ACCESS AND MOBILITY PLAN (PAMP) 2013 – 2018 October 2013 	The Pedestrian Access and Mobility Plan (PAMP) was developed by Young Shire Council in 2013. The Young township was chosen for the study area in relation to the crash analysis, community consultation and assessment of existing pedestrian facilities. The 2013-2018 PAMP aimed to provide: – A strategy that will optimise and promote the movement of pedestrians by improving the level of pedestrian access and priority. – A strategy that improves connectivity for recreational, commuter and local pedestrian movements, including the provision of links with other transport services to achieve an integrated land use and transport network of facilities. – A prioritised works program including best practice for the materials to be used. – A strategy that ensures the community has input into its development and is informed of the final outcomes. – Improvements in the level of personal mobility and safety for pedestrians with disabilities and older persons through the provision of pedestrian infrastructure and facilities which cater for the needs of all pedestrians. – Integration with Young's long term Community Strategic Plan 2013-2023 and link to existing vulnerable road users plans in a coordinated manner (e.g., bike plans, social plans, maintenance programs and accessible public transport). – Investigation to ensure that pedestrian facilities remain appropriate and relevant to the surrounding land use and pedestrian user groups. – A strategy that meets obligations under the Commonwealth Disability Discrimination Act (1996).
Boorowa Pedestrian Access and Mobility Plan 2012 	The PAMP was developed by Boorowa Council in 2013. A PAMP is a comprehensive strategic and action plan to develop pedestrian policies and build pedestrian facilities. Boorowa Council developed its first PAMP in 2005, which included an audit of facilities, the identification of pedestrian routes, community needs, and a forward works program of pedestrian facilities. The objectives of the plan include: – To promote the movement of pedestrians by improving the level of pedestrian access within our urban areas. – To promote an equal level of personal mobility and safety for pedestrians with disabilities and older persons through the provision of pedestrian infrastructure. – To ensure that the facilities provided are relevant for our communities' pedestrian user groups. – To co-ordinate existing plans and monetary allocations for the most efficient and effective results. (e.g., Bike plans, maintenance programs) – To prioritise expenditure on areas that will provide maximum user benefits. – To develop a realistic prioritised works program. – Develop a strategy that ensures the community has input into its development and is informed of the final outcomes. – To meet obligations under the Commonwealth Disability Discrimination Act (1996).
Harden Pedestrian Access and Mobility Plan 2006	Harden Shire Council developed Pedestrian Access and Mobility Plan (PAMP) in May 2006. The aim of the Harden Shire Council PAMP is to improve the following factors in pedestrian networks at various locations in the Shire. The factors include: – Coherent logical connections

Planning Document	Relevant / Reference to Hilltops Shire
Pedestrian Access and Mobility Plan (PAMP)  HARDEN SHIRE COUNCIL Pedestrian Access and Mobility Plan (PAMP) Prepared by TECHNICAL and ENGINEERING SERVICES DEPARTMENT HARDEN SHIRE COUNCIL May, 2006	– Comfort – Safety – Accessibility and mobility. The development of a PAMP will help council achieve the following objectives: – To facilitate improvements in level of pedestrian access and priority, particularly in areas of pedestrian concentration. – To reduce pedestrian access severance and enhance safe and convenient crossing opportunities on major roads. – To provide pedestrian facilities which cater for the needs of all pedestrians including people with disabilities, children, seniors and recreational walkers. – To ensure pedestrian facilities are employed in a manner consistent and appropriate with other Councils in NSW. – To link to other Council road user plans in a coordinated manner, as those plans are developed. – To address the obligations under the Commonwealth Disability Discrimination Act (1996).
Harden Bicycle Plan 2006  HARDEN SHIRE COUNCIL BICYCLE PLAN Prepared by TECHNICAL and ENGINEERING SERVICES DEPARTMENT HARDEN SHIRE COUNCIL June, 2006	Harden Shire Council developed a Bicycle Plan in June 2006. The aim of the Plan was to improve the following factors in cycleway networks at various locations in the Shire. The factors include: – Coherent logical connections – Comfort – Safety – Accessibility and mobility. The development of a Bicycle Plan will help council achieve the following objectives: – To develop a strategy to enable Council to implement an overall cycleway network. – To develop the requirements of the community as they relate to cycleway routes. – To determine the existing and potential demand for bicycle facilities in the town for both commuter and recreational users. – To plan a co-ordinated approach to the implementation of a practical and safe network of bicycle routes and facilities. – To develop estimates of proposed works for the funding necessary to implement the network. – To ensure the PAMP and Bicycle Plan are compatible, particularly where routes are shared and where funding will provide opportunities to jointly develop both networks.
Hilltops Local Environmental Plan 2022 Hilltops Local Environmental Plan 2022 [NSW] Hilltops Local Environmental Plan 2022  New South Wales	<i>Hilltops Local Environmental Plan (LEP)</i> provides guidance on planning decisions and framework to shape the future of communities and manage local development is done appropriately. The following zones below have objectives to maximise and encourage the use of active transport by providing employment opportunities in accessible locations. – Zone E1 – Local Centre – Zone E2 – Commercial Centre – Zone MU1 – Mixed use.

Planning Document	Relevant / Reference to Hilltops Shire
Hilltops Council Local Strategic Planning Statement-2020-2040 	The <i>Hilltops Local Strategic Planning Statement 2020 - 2040</i> provides the strategic direction for how, what and where land use and infrastructure will be allocated, planned and managed to achieve the objectives of Hilltops communities. Hilltops 2040 is a strategic document, enacting State, Regional and Local strategies through land use and infrastructure planning and management. It incorporates relevant State plans and policies for Hilltops and surrounds including the Southeast and Tablelands Regional Plan providing direction looking forward over the next twenty years. As a long-term strategic document, Hilltops 2040 is designed to be adaptable and responsive to individual communities while providing clear intentions and goals. This allows Hilltops 2040 to outline how broad objectives relate to and respond to the individual communities and neighbourhoods of the Hilltops area. The LSPS identifies priorities for the Hilltops Shire that will support and develop local identity, values and opportunities. The LSPS document comprises of three parts: – Part 1- “Placing Hilltops-Land uses and Infrastructure”. – Part 2- Town Narratives – Part 3- Strategic Policy Implementation Plan will be developed to monitor and report on Hilltops 2040 progress on an annual basis.
Young Development Control Plan-2011 	The <i>Young Development Control Plan 2011 (DCP)</i> applies to all land in the former Shire of Young to which the Hilltops Local Environmental Plan 2022 applies. The objectives of the Young DCP are: – To provide detailed provision for regulating development. – To protect and improve the environment. – To protect and improve amenity and design of development. – To conserve, protect and enhance environmental heritage. – To encourage a diversity of housing to meet the needs of the residents. – To facilitate development that is environmentally sustainable.
Boorowa Development Control Plan-2013 	The <i>Boorowa Development Control Plan 2013 (DCP)</i> applies to all land in the former local government area (LGA) of Boorowa to which the Local Environment Plan (LEP) applies. This plan was adopted by Council on 25 November 2013 and came into force in December 2013. The objectives of the Boorowa Development Control Plan 2013 are: – To provide detailed provision for regulating development. – To protect and improve the environment. – To protect and improve amenity and design of development. – To encourage a diversity of housing to meet the needs of the residents. – To facilitate development that is environmentally sustainable. The purpose of this DCP is to supplement the LEP and provide more detailed provisions to guide development. Under section 79C of the <i>Environmental Planning and Assessment Act 1979</i>. Council is required to take into consideration the relevant provisions of DCP when determining an application for development. However, compliance with the provisions of DCP does not guarantee that development consent will be granted. Section 79C of the <i>Environmental Planning and Assessment Act 1979</i> contains other matters that must be considered in determining a development application. The Boorowa Development Control Plan 2013 (the DCP) makes it easier for business and the community to determine the guidelines, objectives and controls that apply to any one site within the LGA.

Planning Document	Relevant / Reference to Hilltops Shire
Young Cultural Infrastructure Master Plan 2014 YOUNG SHIRE COUNCIL  CULTURAL INFRASTRUCTURE MASTERPLAN November 2014  Christopher McInerney Architecture and Environmental Design In association with Monika McInerney Arts and Cultural Development Consultant 2659 Araluen Rd Email : c.mcine	Council commissioned a planning study to identify and facilitate the development of Arts and Cultural facilities. This study examines the key existing cultural infrastructure within the former Young Local Government Area and assesses the suitability of these facilities and other sites for present and future use. The Cultural Infrastructure Master Plan report provides: - - An overview of existing facilities in use for cultural activities including performance, visual arts, cultural history (museum) and library. - Identification of gaps in cultural infrastructure. - Recommendations for upgrading present facilities or building new facilities. The strategies of the Master Plan are: - Establishment of an Arts and Culture Precinct in Young. - Definition of Precinct included facilities and identification of clear access and movement between. - Precinct based around, and integral to, Young Central Business district and Burrangong Creek Reserve. - Showcase Young's Cultural life, open up the precinct and the institutions. - Expand or improve physical capacity of existing spaces and identify new. - Engage all sectors of the Young Community. - Precinct enables the promotion of Young as a Cultural destination, to increase audiences and participation, and enhance Young as a Cultural destination. - Define a sustainable commercial strategy to achieve goals of Master Plan working with Cultural groups and Institutions.
Hilltops Community Strategic Plan 2030 HILLTOPS COMMUNITY STRATEGIC PLAN 2030 <i>"In 2030 the Hilltops is a thriving region offering a relaxed country lifestyle and diverse economy. We value and protect our friendly community spirit, pristine natural environment, and deep cultural heritage. There are strong connections between our community, environment, economy, infrastructure and Council, making the Hilltops region a vibrant place to live, work, invest and visit for all."</i>  Elle Steenberg (Tied Winner - Drawing Under 7) The Hilltops Community Strategic Plan 2030 has been developed in consultation with the communities of the Hilltops Region and has been resourced and facilitated by the Hilltops Council. The Vision Statement: <i>"In 2030 the Hilltops is a thriving region offering a relaxed country lifestyle and diverse economy. We value and protect our friendly community spirit, pristine natural environment, and deep cultural heritage. There are strong connections between our community, environment, economy, infrastructure and Council, making the Hilltops region a vibrant place to live, work and visit."</i>	The Community Strategic Plan is a high-level aspirational plan which identifies the main priorities and aspirations for the future of our community and identifies the strategies for achieving these. It is also required to set out a community's long term 'Vision' for the region. The Community Strategic Plan seeks to address four key questions: - Where are we now? - Where do we want to be in 2030? - How will we get there? - How will we know we have arrived? The key pillar 'Wellbeing Pillars' are designed to encourage thinking about an activity in a holistic manner rather than just considering the economic bottom line in isolation. The objectives and strategies of the five key pillars are listed below: - Community – Loving where we live. - Nurturing our natural environment. - Building a strong and robust regional economy. - Strengthening the region's connectivity and maintenance of assets and infrastructure. - Ethical, proactive and effective leadership and governance. The relationship between the Community Strategic Plan, Delivery Program and Operational Plan are: -

Planning Document	Relevant / Reference to Hilltops Shire
	 The diagram illustrates the planning hierarchy. At the top is the Hilltops Regional Community Strategic Plan (10-15 year outlook), which sets out community goals and outlines strategies and measures to achieve them. This leads to the Council (& Partners) Delivery Program (4 year planning horizon), which includes council commitments and priorities, and progress towards community goals through actions. The Delivery Program is supported by OBJECTIVES, STRATEGIES, and ACTIONS/SERVICES. The Delivery Program leads to the Council Operational Plan (1 year planning horizon), which details activities (services and projects) the council will undertake during the financial year to implement the Delivery Program, and includes the annual budget and report. The Operational Plan includes ACTIVITIES.
Hilltops Council Delivery Program 2022-2026  DELIVERY PROGRAM 2022-2026 Hilltops Council's commitments towards progressing the Hilltops Community Strategic Plan 2022-2032 The Delivery Program 2022-2026 provides council initiatives that directly address the objectives mentioned in the Hilltops Community Strategic Plan 2030.	The Delivery Program outlines various council initiatives planned across the next four years to progress each of the five pillars of the Community Strategic Plan. The Delivery Program provides objectives and priorities for Hilltops Council to increase the Liveability, Environmental Sustainability, Economic Development and Governance of Hilltops. It also lists how Council will manage and influence its infrastructure, assets, land management and resources to progress towards the goals. In addition, it outlines Council's roles and objectives for engaging and collaborating with local communities and stakeholders including all levels of government. Below are the progressing community objectives through Council programs and operations: -  Hilltops Community Strategic Plan (CSP) A community document administered by Council. It's a long term strategy (10yrs+) setting broad aspirations and objectives. While not a Council document, all actions of Council are required to be able to demonstrate how they further the objectives of the CSP. Hilltops Council Delivery Program (DP) A Council document identifying how and what Council will do to progress the CSP over the next 4yrs/Council Term. Council outlines its roles and responsibilities and how through these, its commitment to progressing community aspirations and objectives as listed in the CSP. Hilltops Council Operational Plan (OP) A Council document listing all actions Council commits to undertake to further the DP over the following financial year. Provides further details on actions and responsibilities for each item contained within the Delivery Program Hilltops Council is committed to monitoring and reporting on the progress of the Delivery Program and associated Operational Plan. The Council is obligated to do this on a regular basis through regular engagement with the community and attaining compliance with all legislative requirements including the Integrated Planning and Reporting Framework.
Hilltops Council Resource Strategy 2022-2026	The <i>Hilltops Council Resourcing Strategy 2022-2026</i> identifies how Council will implement and resource the vision and objectives of the Hilltops Community Strategic Plan. The Resourcing Strategy consists of 3 components:

Planning Document	Relevant / Reference to Hilltops Shire
 RESOURCE STRATEGY Hilltops Council Resource Strategy 2022-2026	– Long-Term Financial Planning (LTFP) - The LTFP is a 10-year rolling plan that informs decision-making and demonstrates how the objectives of the CSP and commitments of the Hilltops Council Delivery Program and Operational Plan will be resourced and funded. It is a guide for future action, to be reviewed and updated annually, and addresses the following: • how Council will survive future financial pressures • opportunities for future income and economic growth • whether council can afford what the community requests • how Council can achieve outcomes agreed with the community. – Workforce Management Planning- The output of Workforce Management Planning is the Workforce Management Strategy. The Workforce Management Strategy makes up part of the Resourcing Strategy which along with the Assets Management Plan and Long-Term Financial Plan (LTFP) provide the assumptions and background to assist in the completion of Council's program of works and services. – Asset Management Planning- Asset Management Plan (AM Plan) details information about infrastructure assets with actions required to provide an agreed level of service in the most cost-effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide over the 5-year planning period. The AM Plan will link to a Long-Term Financial Plan which typically considers a 10-year planning period.
Hilltops Council Operational Plan 2024-2025	The Hilltops Council Operational Plan (OP) is Council's action plan for achieving the community priorities outlined in the Community Strategic Plan (CSP) and Hilltops Council Delivery Program (DP). An Operational Plan is prepared each year. This includes annual community consultation prior to being adopted by Council. Each Operational Plan identifies the projects, programs and activities that council will conduct to achieve the commitments of the DP.
Hilltops Destination Action Plan 2020-2025  Hilltops Destination Action Plan 2020 to 2025 July 2020 	Destination Southern New South Wales commissioned the preparation of the Tablelands Destination Development Plan (TDDP) 2020 to 2025 and integrated local Destination Actions Plans (DAPs) to create a collaborative Regional Visitor Economy Action Planning Framework to guide the work of local, regional and state tourism stakeholders to grow, develop and promote the regions visitor economy to 2025. Six strategic priorities and associated actions have been established to guide the cooperative work of Council and industry to grow and develop the Hilltops visitor economy over the next five years. – Priority 1-Destination Management – Priority 2-Destination Infrastructure Development – Priority 3-Destination Product and Experience Development – Priority 4-Destination Festivals and Events – Priority 5-Destination Engagement – Priority 6-Destination Marketing.

3. Background review

This section provides context for existing active transport trends in the Hilltops, including pedestrian and bicycle rider crashes, population, and employment statistics as well as travel mode share trends.

3.1 Walking and bicycle riding networks

This section presents maps of the existing walking and cycling networks. It can be seen from the maps in Figure 3.1, Figure 3.3 and Figure 3.5 that the active transport network in these towns is incomplete at present. The findings from the site visit, community engagement and feedback from Council highlighted that the absence of footpaths in some areas and streets forces pedestrians and disability scooter users to walk/ride on the roadway. These issues are described in more detail in Section 3.13.

STRAVA heatmaps have also been generated for each town to show indicative cycling activity. The maps in Figure 3.2 Figure 3.4 and Figure 3.6 show aggregated STRAVA cycling activity data for two years of usage, with the intent to identify the current usage of the network by cyclists.

It should be noted that the STRAVA maps are only indicative of actual cycling usage, with activities recorded by STRAVA app users only. This may therefore underrepresent other users such as children and other recreational riders. It was clarified at the stakeholder workshop that the majority of recreational bicycle users would not feature on these STRAVA maps.

3.1.1 Young

The existing active transport network of Young is presented in Figure 3.1.

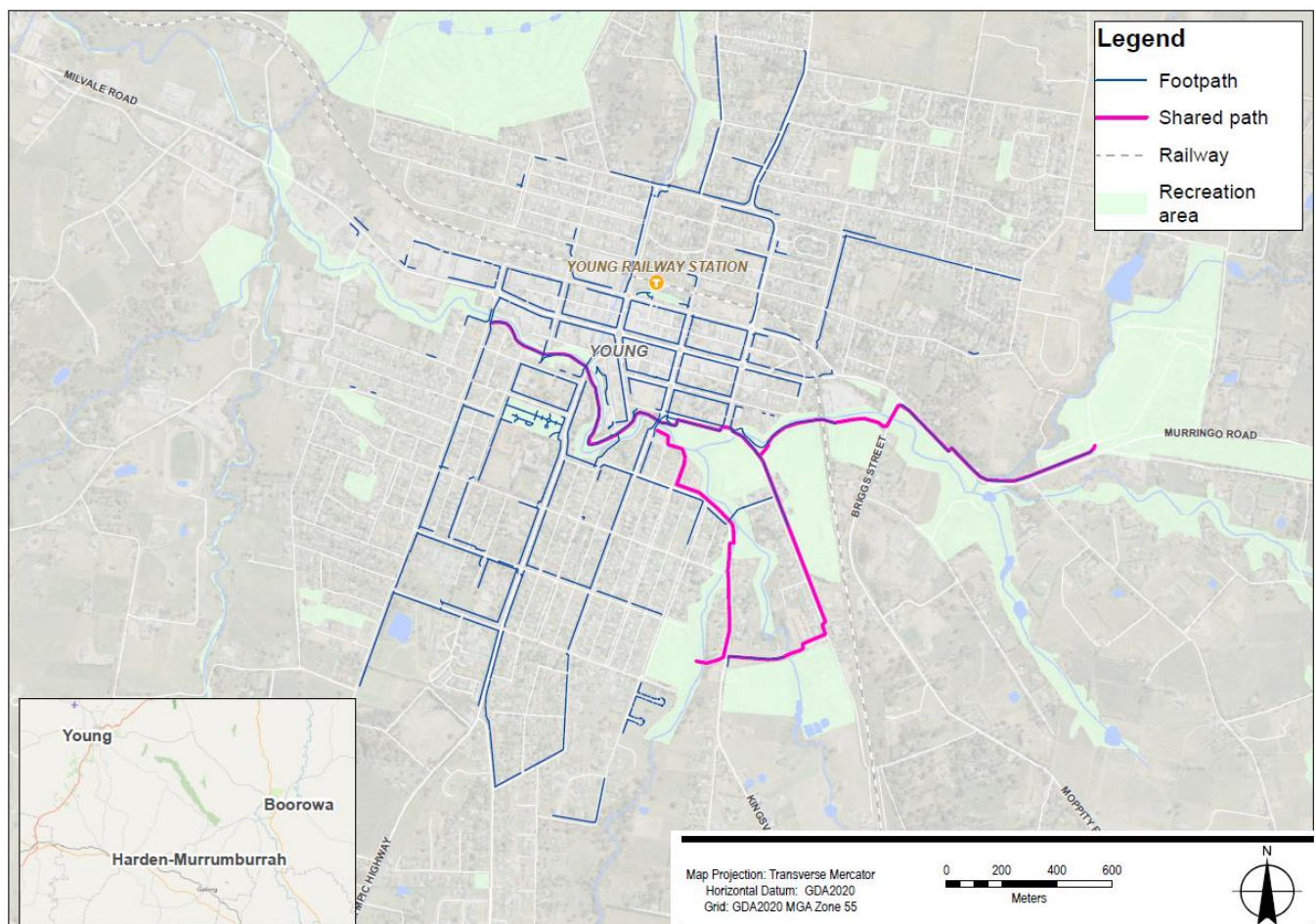


Figure 3.1 Existing active transport network in Young

Figure 3.2 shows the Young STRAVA cycling usage heatmap qualitatively displaying the number of bicycle trips recorded by Strava users. The heatmap indicates some of the highest used cycling routes (high usage) include Lovell Street, Boorowa Street, Zouch Street, Milvale Road, Murringo Road, Campbell Street and Gordon Street into Young.



Figure 3.2 Young STRAVA Cycling usage heatmap.

Source: STRAVA Global Heatmap

3.1.2 Boorowa

The existing active transport network of Boorowa town is presented in Figure 3.3.

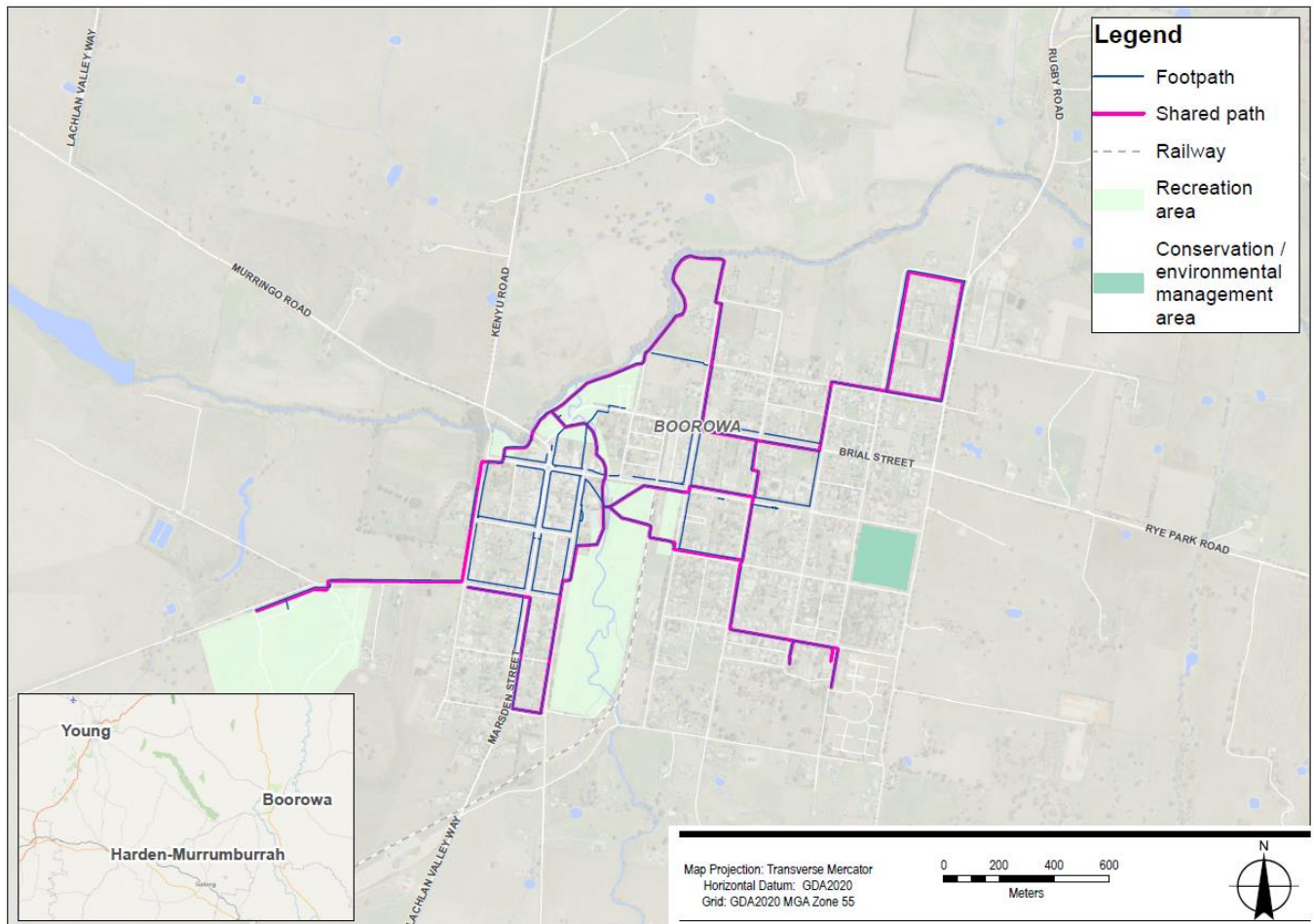


Figure 3.3 Existing active transport network in Boorowa

Figure 3.4 shows the Boorowa STRAVA cycling usage heatmap qualitatively displaying the number of bicycle trips recorded by Strava users. The heatmap of Boorowa suggests high levels of cycling activity on the access roads into Boorowa, and from the residential area connected to Farm Street in south Boorowa. Other local roads and streets seem to have comparatively low cycling activity by STRAVA app users.



Figure 3.4 Boorowa STRAVA Cycling usage heatmap.

Source: STRAVA Global Heatmap

3.1.3 Harden-Murrumburrah

The existing active transport network of Harden-Murrumburrah is presented in Figure 3.5

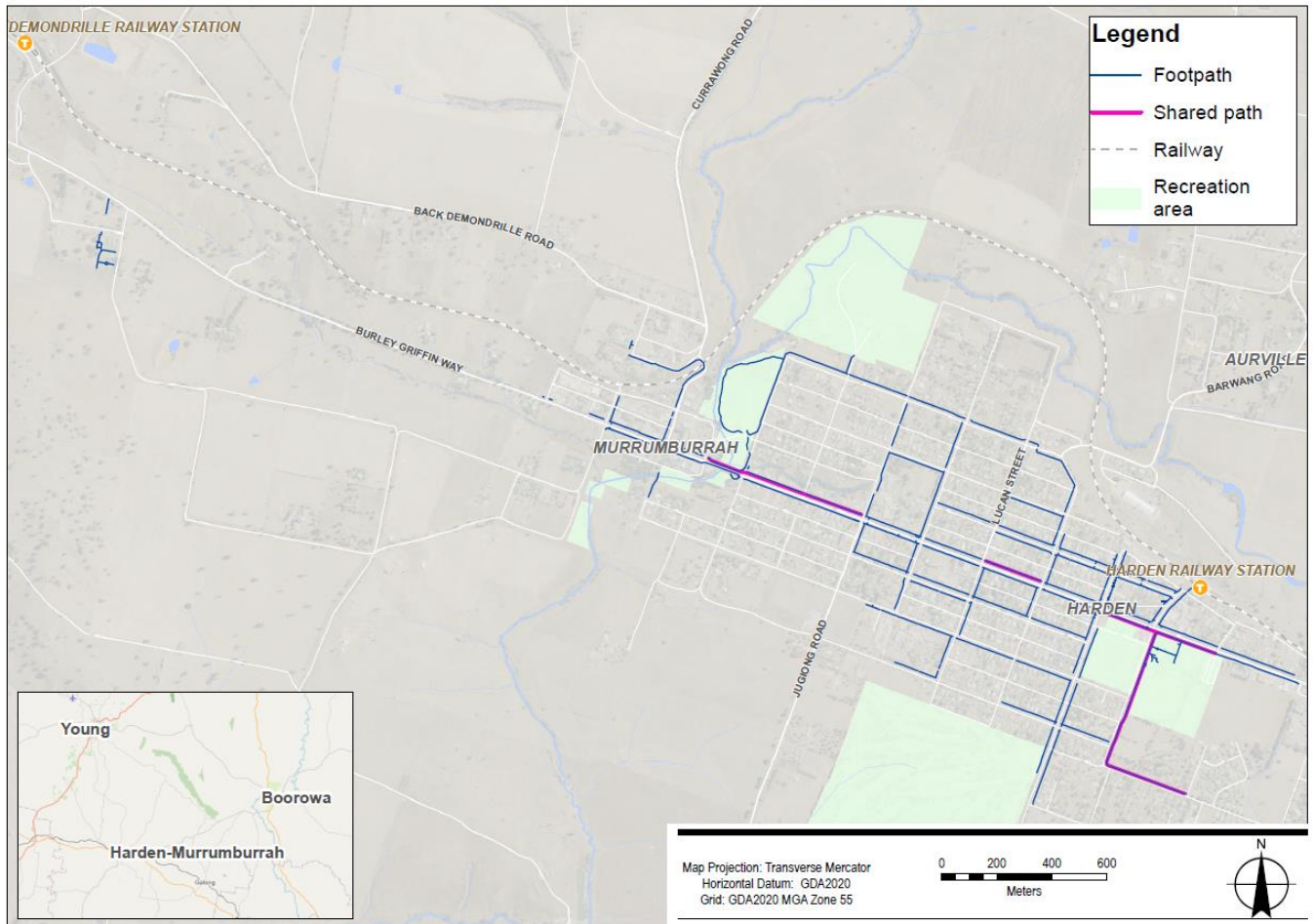


Figure 3.5 Existing active transport network in Harden-Murrumburrah

Figure 3.6 shows the Harden-Murrumburrah STRAVA cycling usage heatmap qualitatively displaying the number of bicycle trips recorded by Strava users. The heatmap of Harden-Murrumburrah indicates low cycling activity on residential streets, with higher activity on the main roads into Harden-Murrumburrah.



Figure 3.6 Harden-Murrumburrah STRAVA cycling heatmap

Source: STRAVA Global Heatmap

3.2 Trip generators

This section maps the key identified trip generators, whilst overlaying the existing pedestrian facilities network provided by Hilltops Council and existing shared paths across Boorowa (refer to Figure 3.7), Harden-Murrumburrah (refer to Figure 3.8) and Young (refer to Figure 3.9).

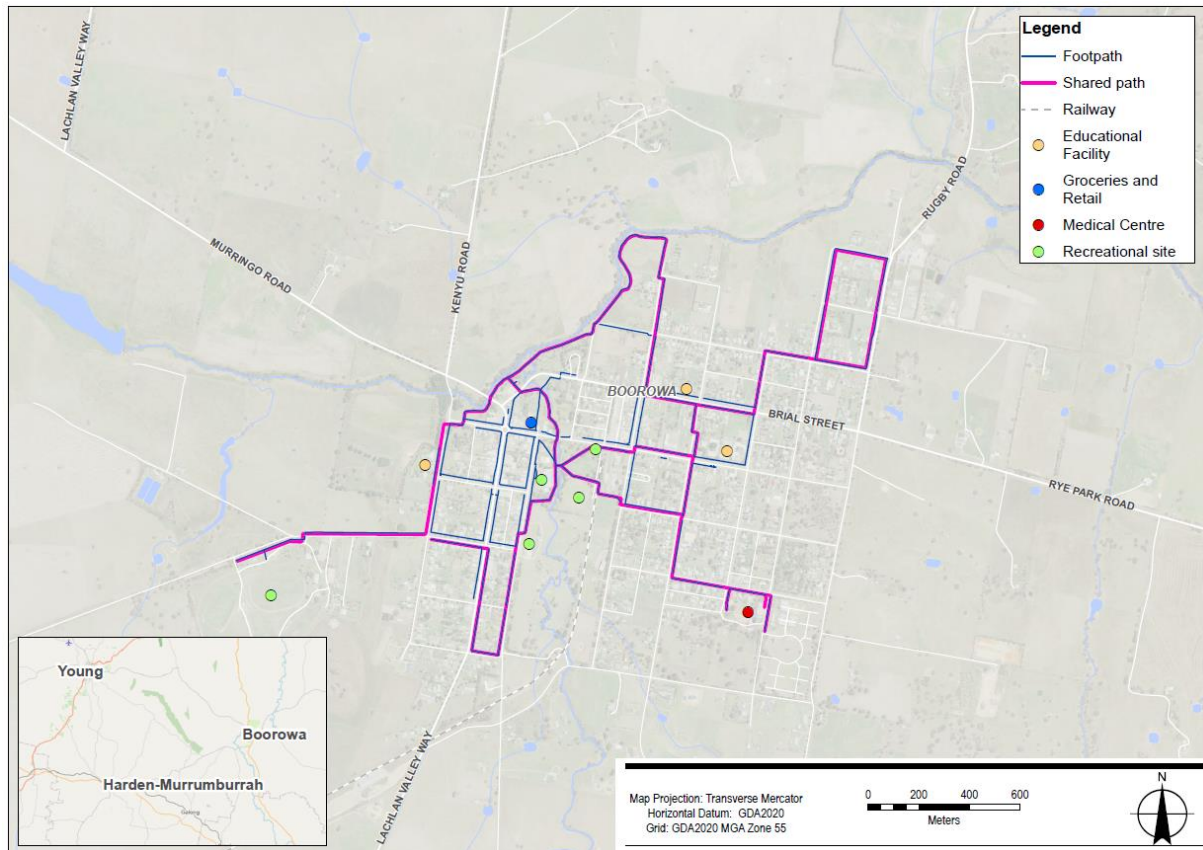


Figure 3.7 Boorowa trip generators on the existing active transport network

In general, fewer key trip generators have been identified in Boorowa township, with those identified well connected by existing footpaths and shared paths. However, many of the residential streets do not have footpaths.

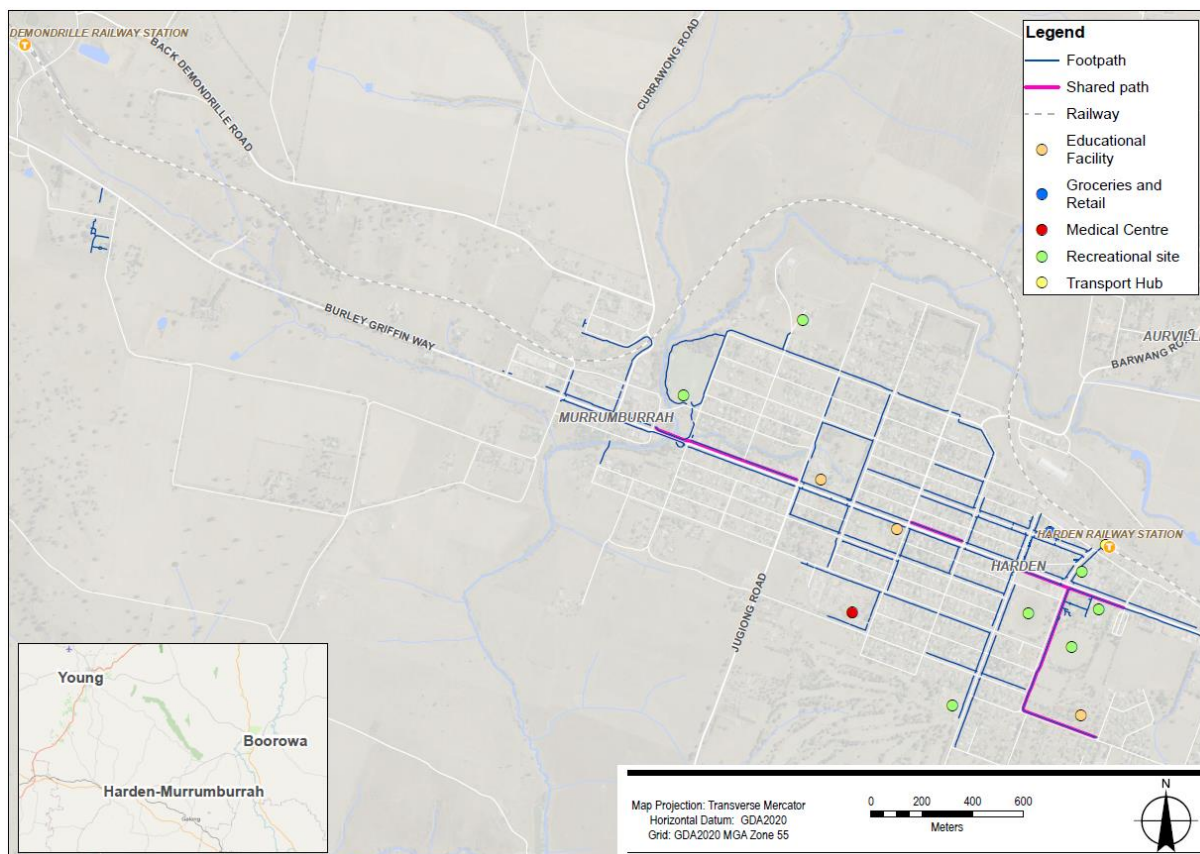


Figure 3.8 Harden-Murrumburrah trip generators on the existing active transport network

Trip generators in Harden-Murrumburrah are largely well connected by existing footpaths. However, there may be a disconnect between place of residence and access to the network that connects the main trip generators around the town centre, which could encourage the use of private vehicles for short trips over walking.

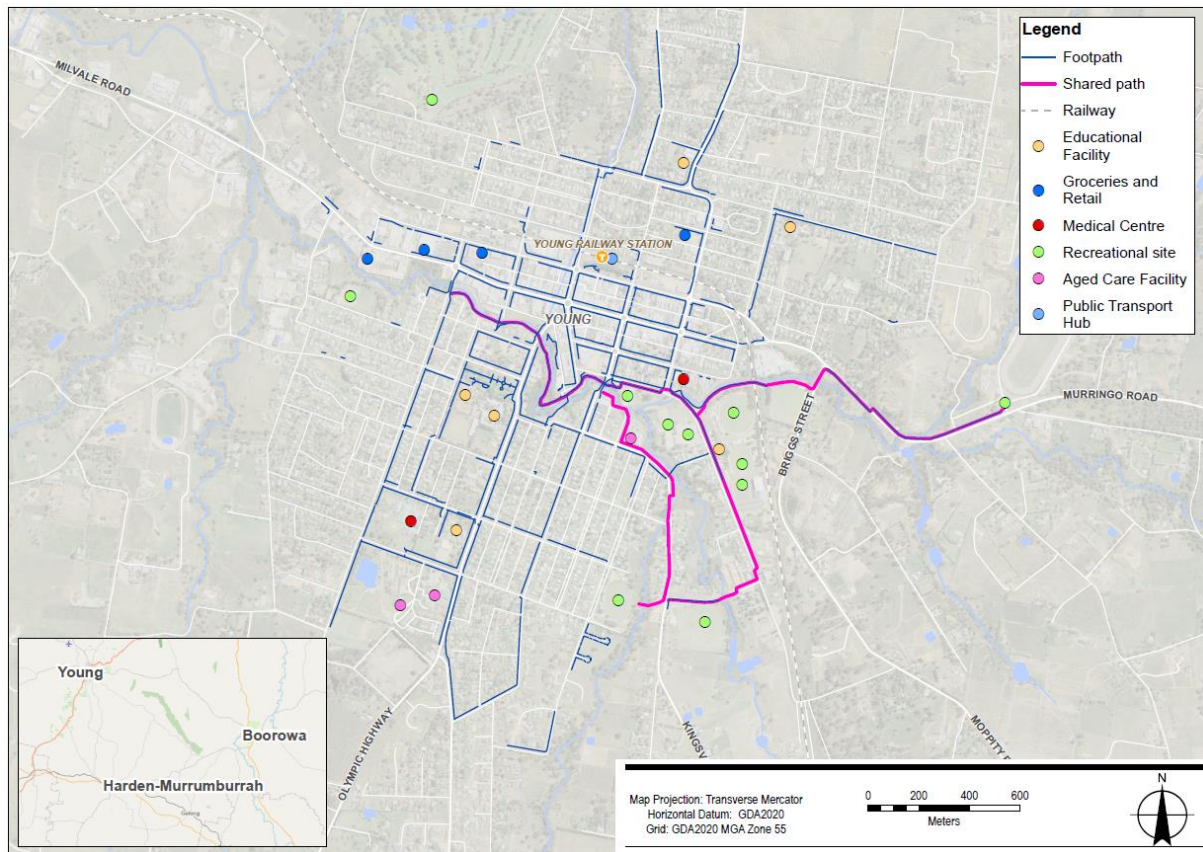


Figure 3.9 Young trip generators on the existing active transport network

Identified trip generators are spread quite broadly across Young. Existing shared paths provide access mainly to recreational sites in the southeast. Whilst the existing pedestrian footpath network provides access to retail areas in the centre of Young, the existing footpath networked does not extend to many of the residential streets.

3.3 Population data

The 2021 ABS census data indicate the following population for the key population centres within the Hilltops Council:

- Boorowa–1,402 people
- Harden-Murrumburrah –1,789 people
- Young–7,712 people.

The Hilltops Local Strategic Planning Statement (LSPS) 2020 – 2040 provides higher population figures; this is assumed to be caused by differences in how the township areas have been demarcated for population counts compared with the ABS data.

Hilltops 2040 current population statistics indicate:

- Boorowa–1,639 people
- Harden-Murrumburrah –2,158 people
- Young–10,428 people.

3.4 Family characteristics

Census data indicates that couple families with no children are the most common family unit type in the Hilltops Council (44.5 percent), followed by couple families with children (37.1 percent), as shown in Figure 3.10.

The provision of a robust active transport network would help support active transport mobility for the younger demographic.

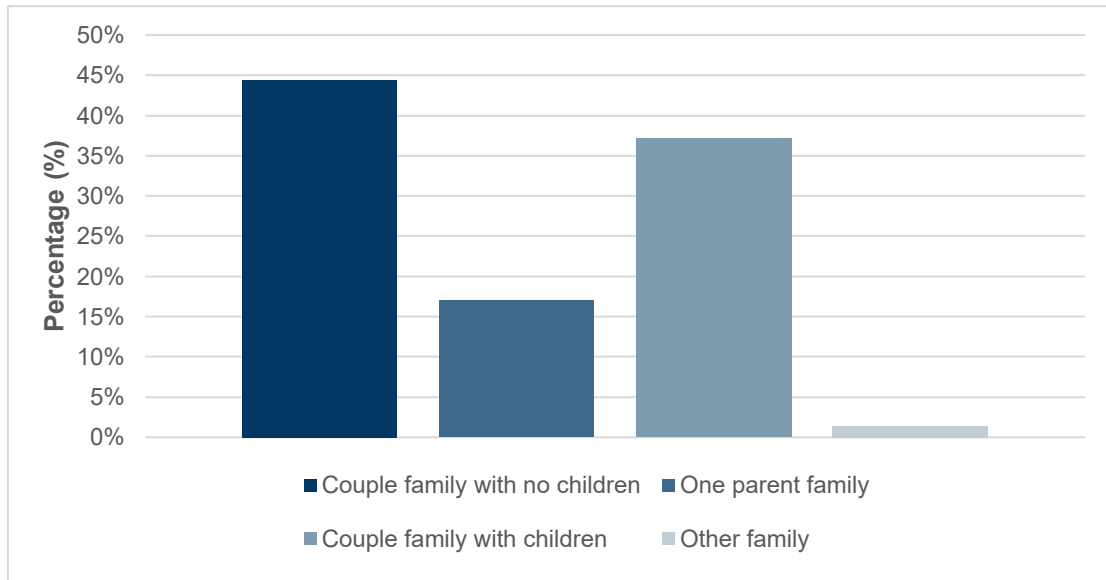


Figure 3.10 Composition of families in Hilltops Shire

Source: ABS Census of population and Housing, 2021

3.5 Employment

Employment levels in the Hilltops LGA are higher than the regional NSW average, for both part- and full-time work, as shown in Figure 3.11. The majority of Hilltops residents who are employed work within Hilltops Council (83 percent), as shown in Figure 3.12.

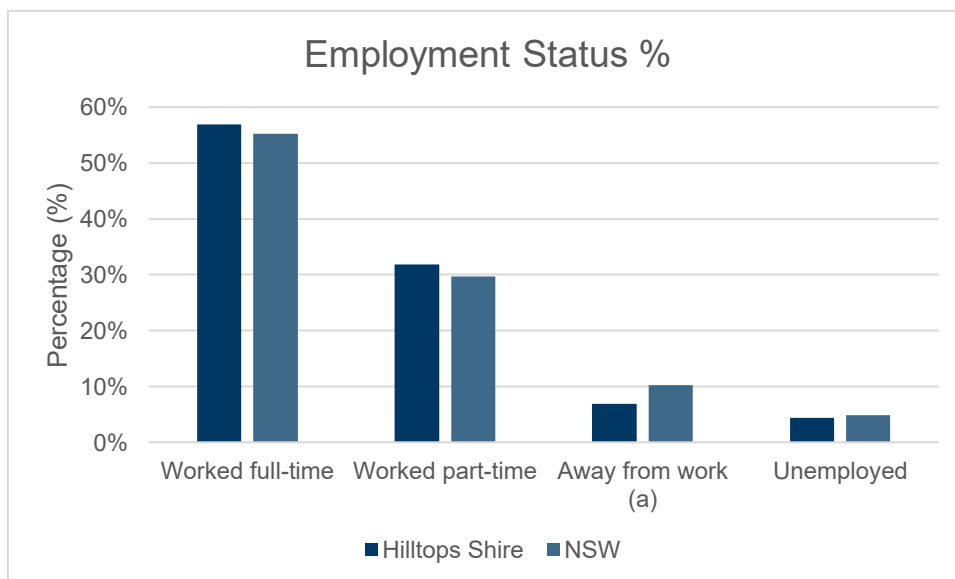


Figure 3.11 Hilltops Council Employment Status

Source: ABS Census of population and Housing, 2021

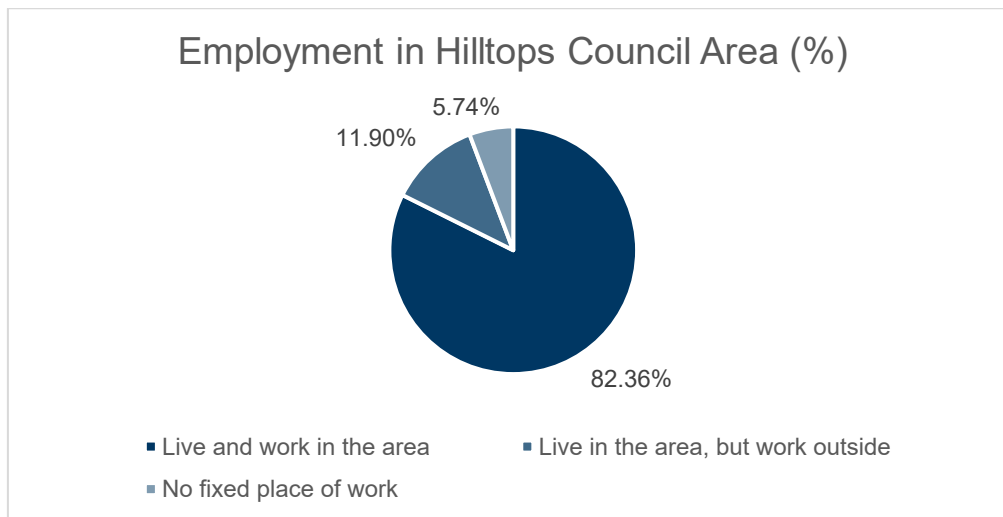


Figure 3.12 Employee location Hilltops Council Area

Source: ABS Census of population and Housing, 2021

The above data indicates that the majority of employees in the Hilltops Council area both live and work in the area. Consequently, connecting the key employment areas to residential areas, whilst providing quality options for active transport has the potential to drive change in the transport mode share of commuter journeys, provided the distances required to travel are suitable.

3.6 Vehicle ownership

Vehicle ownership in Hilltops is broadly in line with that of Regional NSW, with only five percent of households stated to not have access to a motor vehicle, as shown in Figure 3.13. However, it remains paramount that members of the community without access to a motor vehicle are not excluded or isolated by a lack of suitable public and active transport.

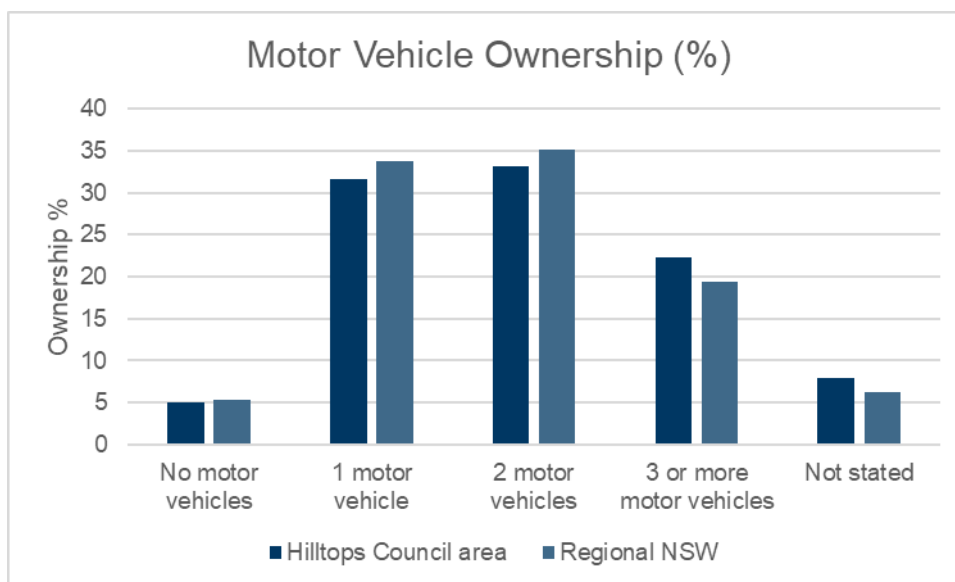


Figure 3.13 Vehicle Ownership Hilltops Council Area vs Regional NSW

Source: ABS Census of population and Housing, 2021

High motor vehicle ownership rates are an indicator of car dependence. Additionally, highly car-dependent households have increased vulnerability to petrol prices, interest rates and inflation.

Whilst access to a car can bring increased mobility and employment opportunities, the flip side of this coin is where households become car dependant. Car dependant households that have to pay to run multiple cars are at a financial disadvantage to households which have fewer or no cars but have access to other forms of mobility.

3.7 Journey to work

The Journey to Work data for the Hilltops Council is displayed in Figure 3.14. It is worth noting census data was collected during 2021 in which the impacts of COVID 19 and some restrictions may have impacted results, GHD have sense checked the proportions against the 2016 census data pre COVID 19 and found results to have not changed significantly. Particularly when considering post COVID 19 trends such as a sustained increase of working from home and hybrid working which have remained in 2023 and are expected to continue.

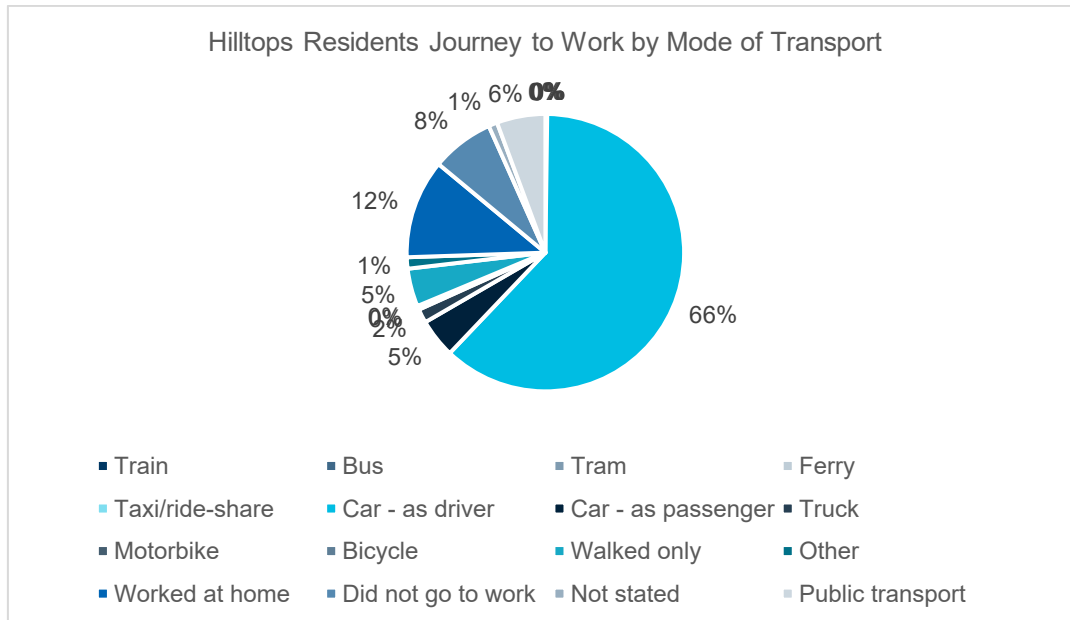


Figure 3.14 Hilltops Residents Journey to Work by Mode of Transport

Source: ABS Census of population and Housing, 2021

Figure 3.14 indicates that:

- The majority of Hilltops residents (71 percent) drive to work as driver or passenger.
- A low proportion (six percent) utilise public transport.
- Around five percent of workers walk to and from their places of employment.

Given the high proportion of residents that live in proximity to their places of employment (as detailed in Section 3.6), there are opportunities to increase the modal share for active transport. Providing residents with better quality infrastructure to support active transport and understanding the current barriers and issues preventing residents from switching to more active and sustainable transport modes is vital to realising a meaning modal shift in the community.

3.8 Future population

A summary of the expected population growth (by three towns) in the Hilltops LGA is presented in Table 3.1.

Table 3.1 Projected Population Growth

Town	Current Population	2036 Projected population	Percentage change
Young	10,428	11,193	7%
Harden-Murrumburrah	2,158	2,268	5%
Boorowa	1,639	1,776	8%

Source: Hilltops 2040 Hilltops Council Local Strategic Planning Statement (LSPS) 2020 - 2040

All three towns have a projected rise in population by 2036 of five percent or more. The increasing population presents an opportunity to promote active travel to new residents of Boorowa, Harden-Murrumburrah and Young. Providing quality, attractive options for active transport to new residents may guide early decisions on repeated journeys such as commuting towards active transport.

3.9 Crash data review

Road crash information in the study area was collected from road crash statistics published by NSW Centre for Road Safety. From 2017 to 2021, a total of 106 road crash incidents were recorded across Young town, as shown in Figure 3.15, 10 road crash incidents in Boorowa (refer to Figure 3.16) and total of 13 road crashes in Harden-Murrumburrah as shown in Figure 3.17.

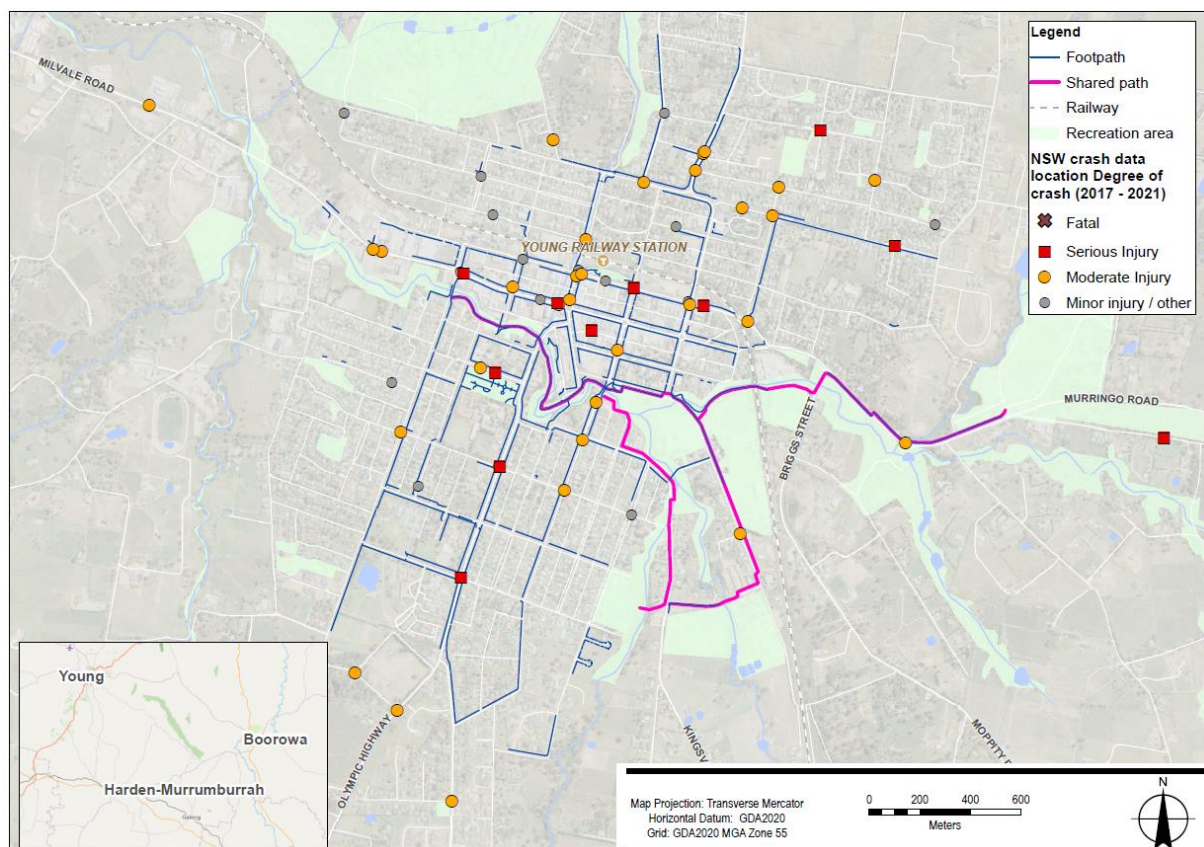


Figure 3.15 Road Crash Incidents-Young

Source: Crash and Casualty Statistics, Centre for Road Safety; modified by GHD

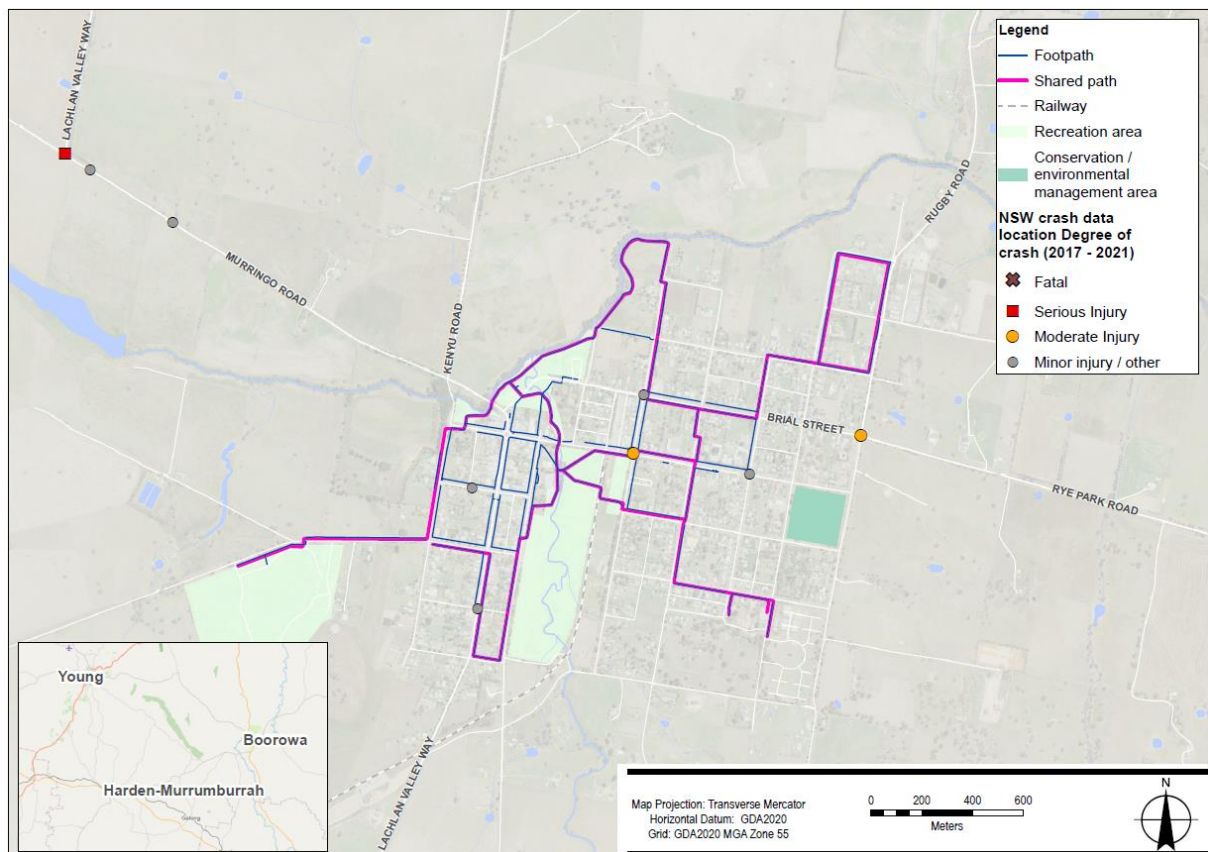


Figure 3.16 Road Crash Incidents-Boorowa

Source: Crash and Casualty Statistics, Centre for Road Safety; modified by GHD

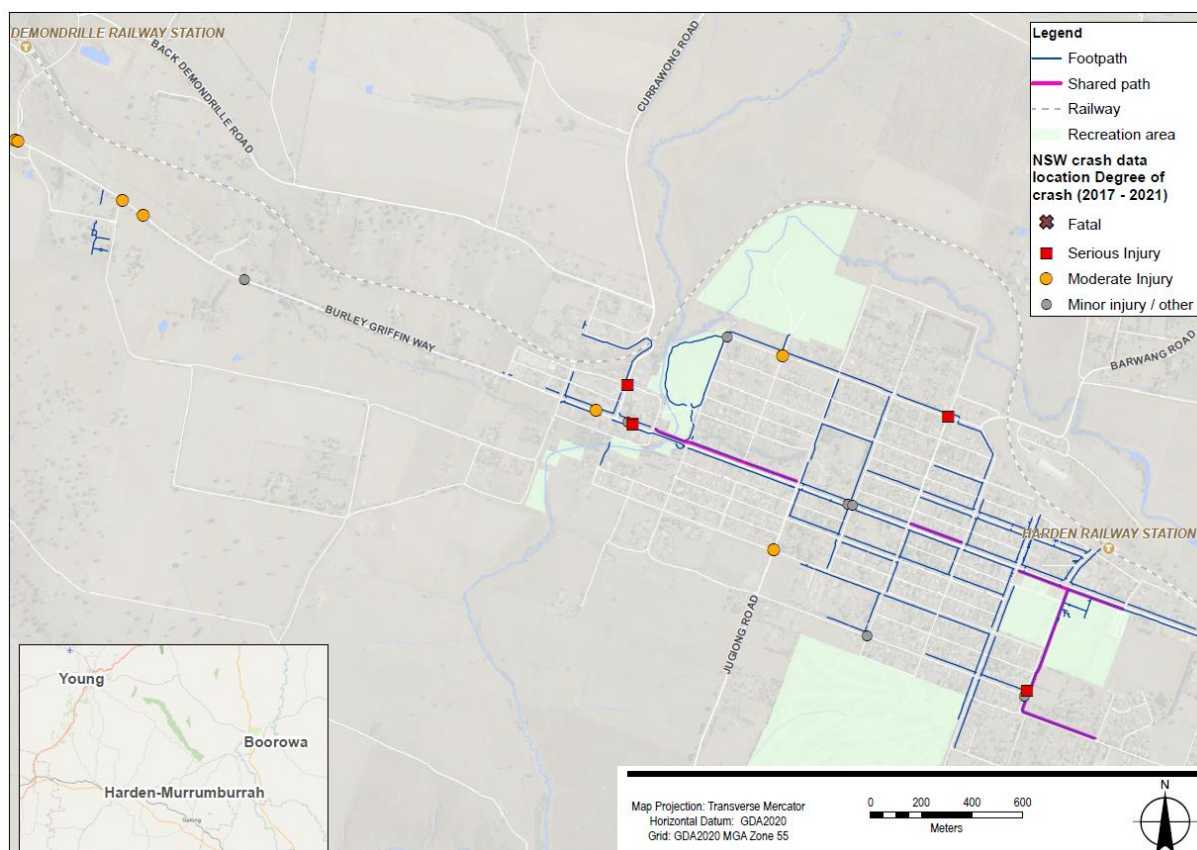


Figure 3.17 Road Crash Incidents-Harden-Murrumburrah

Source: Crash and Casualty Statistics, Centre for Road Safety; modified by GHD

3.9.1 Pedestrian crashes

A summary of the incidents involving pedestrians in the Hilltops LGA between 2017 – 2021, which resulted in serious injuries or moderate injuries, is provided in Table 3.2. Analysis of the data indicates:

- There were no crashes that resulted in fatalities for pedestrians in the given period.
- There were twelve pedestrian crashes that resulted in serious, moderate injuries or minor injuries.
- Pedestrian crashes in the Hilltops LGA in the period were concentrated around Young and Harden-Murrumburrah town centres.

Table 3.2 Serious and Fatal Pedestrian Crashes

Degree of Crash	Locality	Road	Conditions	Description
Serious Injury	Young	Rosemary Lane	Daylight	Pedestrian from nearside of the road
Serious Injury	Young	Lovell Street	Darkness	Pedestrian from far side of the road
Moderate Injury	Young	Main Street	Darkness	Pedestrian from nearside of the road
Moderate Injury	Young	Wombat Street	Daylight	Pedestrian from nearside of the road
Serious Injury	Young	Ripon Street	Darkness	Pedestrian from nearside of the road

Degree of Crash	Locality	Road	Conditions	Description
Minor/Other Injury	Young	Boorowa Street	Daylight	Pedestrian – other
Serious Injury	Young	Bendick Street	Darkness	Pedestrian walking with traffic
Moderate Injury	Young	Lynch Street	Daylight	Pedestrian from nearside of the road
Moderate Injury	Young	Lovell Street	Darkness	Pedestrian from nearside of the road
Serious Injury	Young	Back Creek Road	Daylight	Manov emerging from Driveway
Moderate Injury	Young	Brock Street	Darkness	Pedestrian on Footway/median
Serious Injury	Harden-Murrumburrah	Station Street	Daylight	Pedestrian from nearside of the road

Source: TfNSW Centre for Road Safety, 2021

3.9.2 Bicycle riders

A summary of the incidents involving bicycle riders in the Hilltops LGA between 2017 – 2021, which resulted in moderate injuries, can be found in Table 3.3. Analysis of the data indicates the following:

- There were no crashes that resulted in fatalities for bicycle riders.
- There were three crashes that resulted in moderate injuries.
- The crashes involving bicycle riders were concentrated around Young.

Table 3.3 *Moderate or Serious Bicycle Rider Crashes*

Degree of Crash	Locality	Road	Condition	Description
Moderate Injury	Young	Ripon Street	Daylight	On path Vehicle door
Moderate Injury	Young	Boorowa Street	Daylight	Manov from footway
Moderate Injury	Young	Olympic Highway	Daylight	Manov from footway

Source: TfNSW Centre for Road Safety, 2021

The pedestrian and bicycle rider crash data indicates that there are opportunities to improve safety for pedestrians and cyclists in Young, particularly on Lovell Street and Main Street.

3.10 Heavy vehicle routes

Any single motor vehicle or combination with a combined load that exceeds the general access overall dimensions as defined in the Heavy Vehicle National Regulation is considered to be a Restricted Access Vehicle (RAV).

The TfNSW interactive map for heavy vehicles identifies a network of routes that are approved to accommodate heavy vehicles of various sizes. The figures below show the outputs from the RAV map, indicating the approved 26-m B-double routes in Young (refer to Figure 3.18), Harden-Murrumburrah (refer to Figure 3.19) and Boorowa (refer to Figure 3.20).

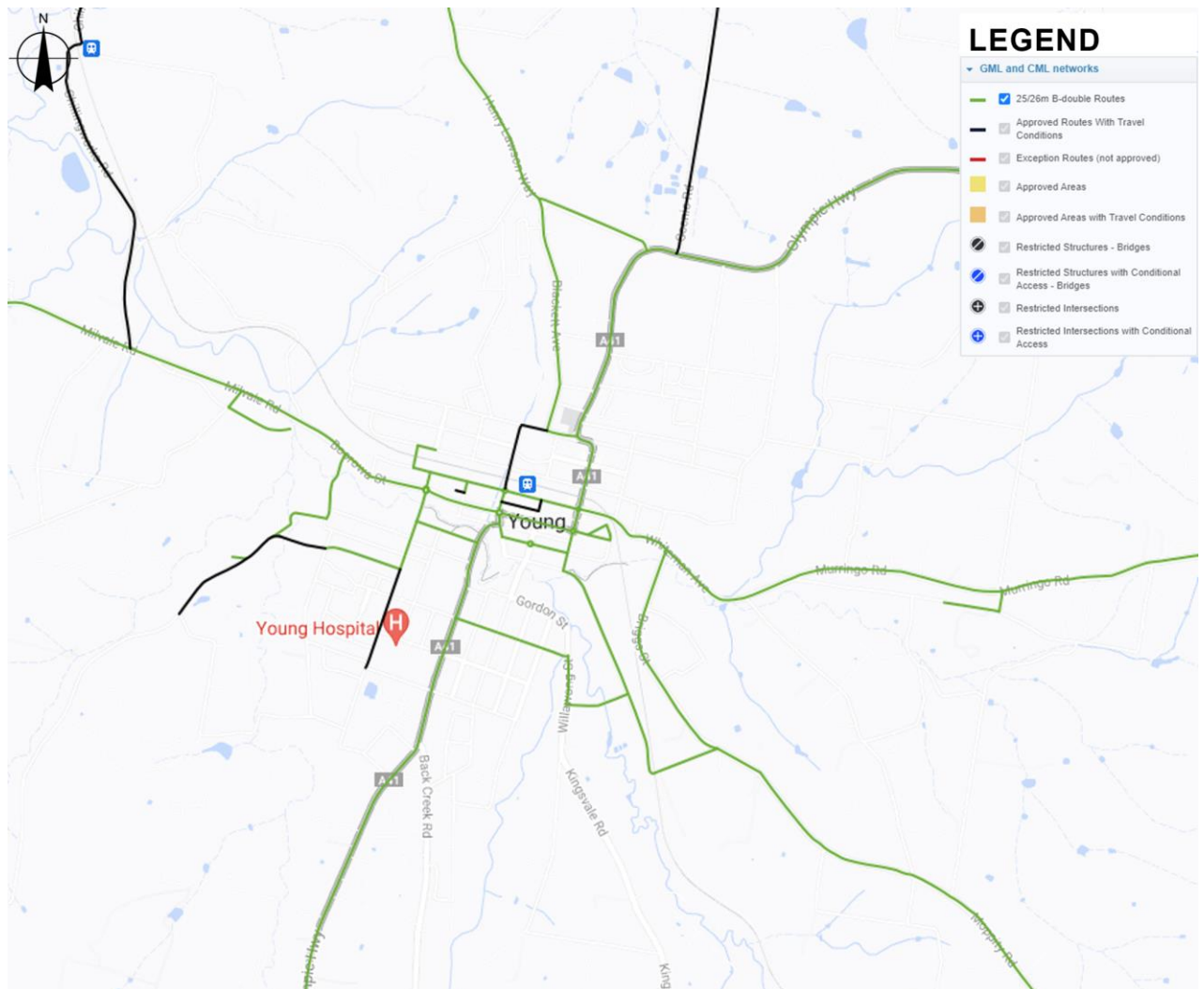


Figure 3.18 Approved heavy vehicle routes for 26m B-doubles in Young.

Source: NSW Combined Higher Mass Limits (HML) and Restricted Access Vehicle (RAV) Map (TfNSW, 2023), modified by GHD

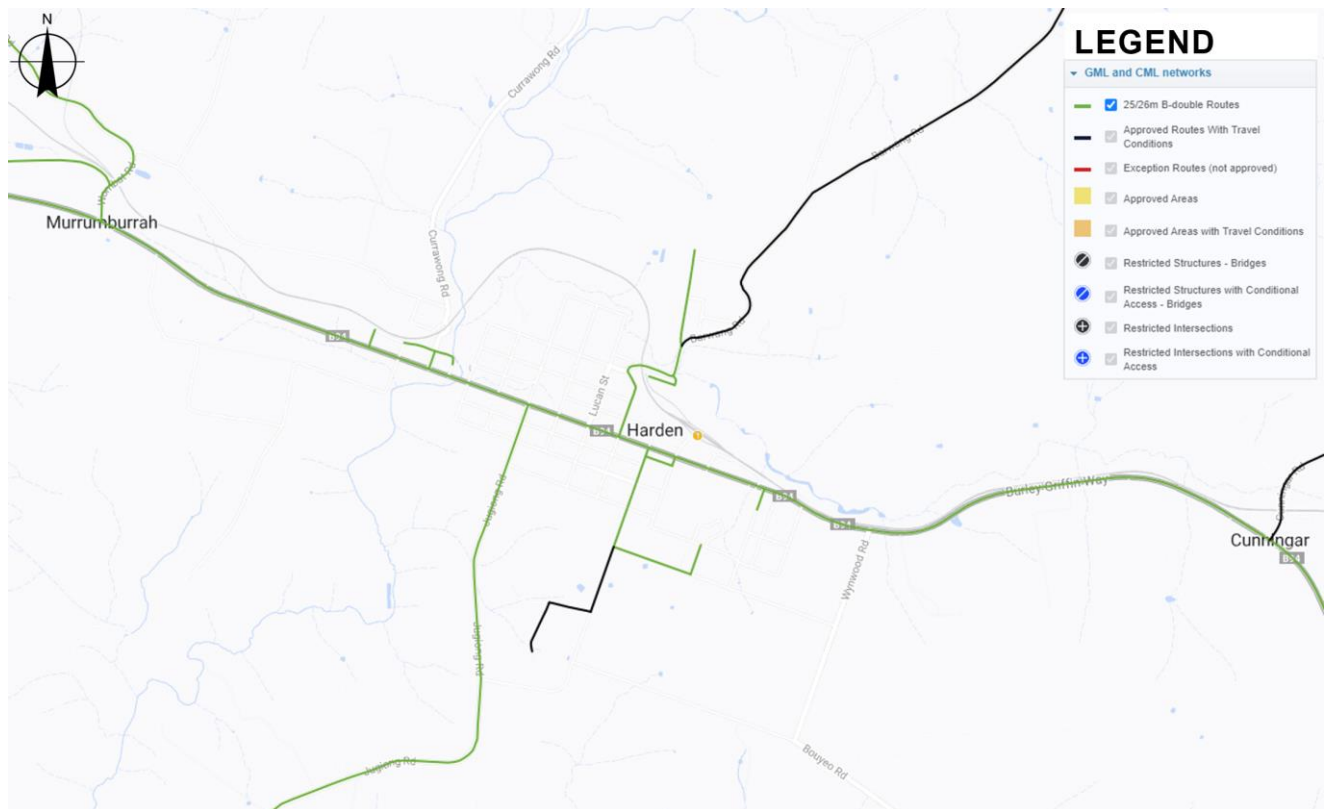


Figure 3.19 *Approved heavy vehicle routes for 26m B-doubles in Harden-Murrumburrah.*

Source: NSW Combined Higher Mass Limits (HML) and Restricted Access Vehicle (RAV) Map (TfNSW, 2023), modified by GHD



Figure 3.20 *Approved heavy vehicle routes for 26m B-doubles in Boorowa.*

Source: NSW Combined Higher Mass Limits (HML) and Restricted Access Vehicle (RAV) Map (TfNSW, 2023), modified by GHD

The Hilltops Freight and Transport Strategy document establishes the approved General Mass Limits (GML), Higher Mass Limits (HML) routes and the routes approved with specific travel conditions. As shown in Figure 3.21, the majority of the State and Regional Road network is captured by the classified HML, however there are a number of Regional Roads and local roads that provide options for a last-mile connection which are not HML routes e.g. Murringo Gap Road.

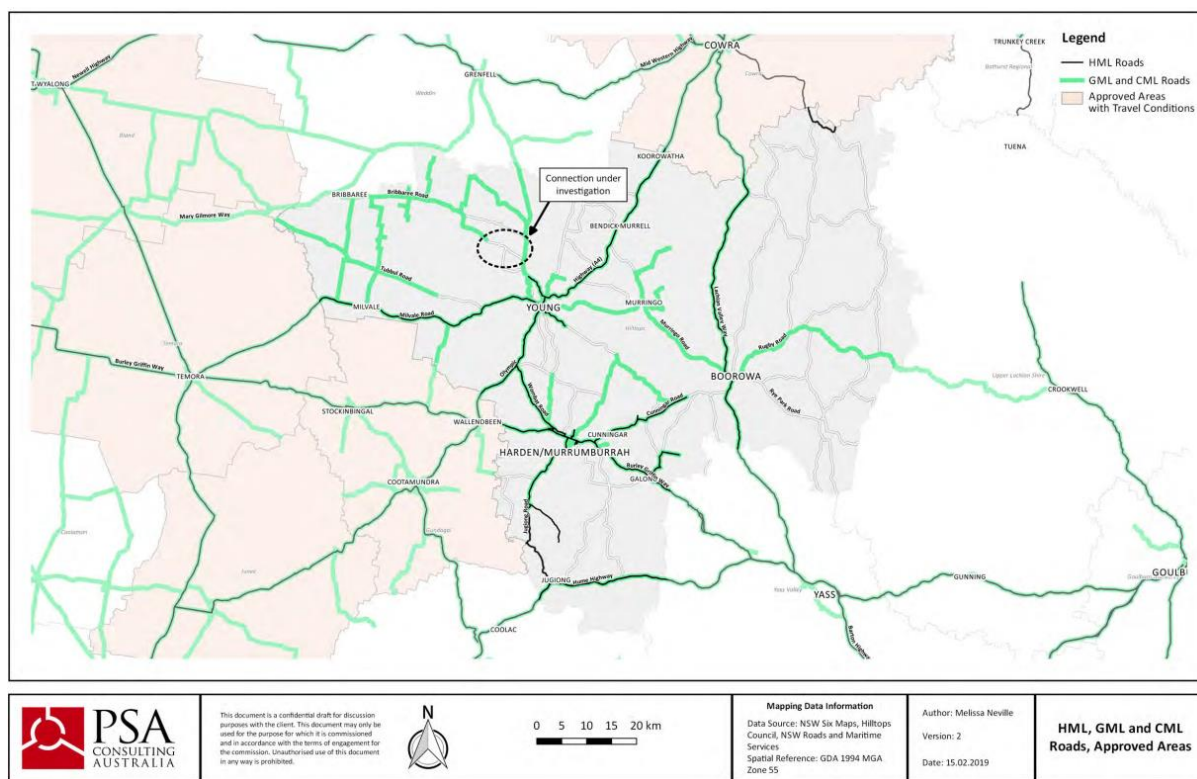


Figure 3.21 Combined HML, GML and CML Roads, approved areas in Hilltops LGA

Source: Hilltops Freight and Transport Strategy

The maps above indicate that:

- Due to the proximity of heavy vehicle routes to each of the town centres, their movement and speed was restricted both due to speed limits in the town centre and pedestrian activity.
- Heavy vehicles may also be disadvantaged by limited corner sight distance as a result of pedestrian facilities (high hedges, social gathering points – park benches and tables).
- These heavy vehicle routes potentially present a major barrier to safe walking and cycling trips, and thereby offer a focal point to identify and investigate potential crossing priorities in each town.

3.11 Land use data

3.11.1 Young

Young township is the primary retail, commercial and recreational centre for the wider Council. The key land uses in Young are shown in Figure 3.22 and summarised Table 3.4.

Low and medium density residential lots predominate within the towns, including local and neighbourhood centres for commercial purposes as well as parks for public recreation. The mix of land uses within towns supports short local trips of no more than a few kilometres.

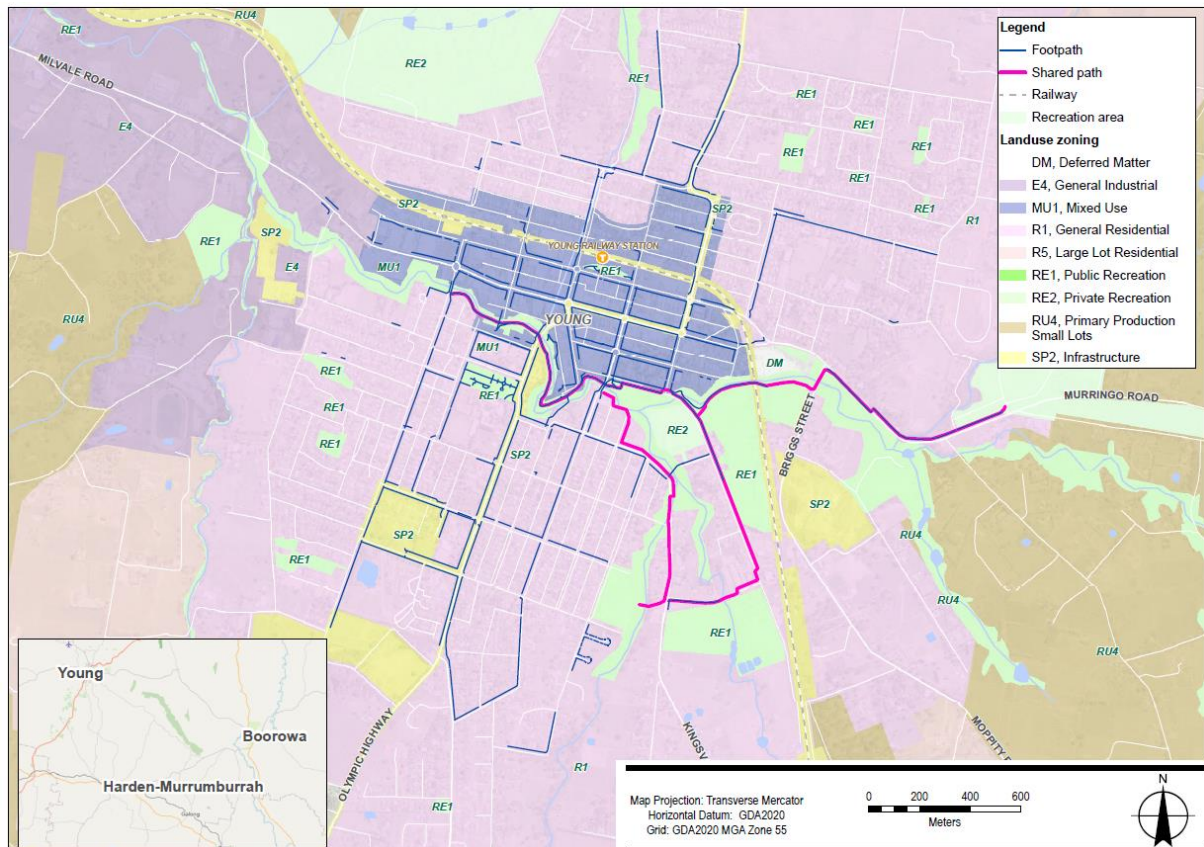


Figure 3.22 Young Land use

Source: NSW Planning Portal Spatial Viewer, modified by GHD

Table 3.4 Young township land use data

Types	Description
Parks and recreation	Young Sports Stadium, Young Golf Club, Carrington Park, Lambing Flat Chinese Tribute Garden, Young Caravan Park.
Civic and cultural facilities	Hilltops Council, Hilltops Regional Library, Service NSW, Historical Museum, Young Police Station, Gallery 78, Young Courthouse.
Educational and health facilities	Young High School, Young Public School, Young Hospital, St Mary's Primary School, Young North Public School, Hennessy Catholic College, New Madinah College, Mercy Care Centre Young.
Community and religious	St Mary's Catholic Church, Young Presbyterian Church, New Life Community Church, Saint John's Anglican Church, Young Seventh-Day Adventist Church, Uniting Church Young, Kingdom Hall of Jehovah's Witness, Young Mosque.
Young CBD	Bunnings Warehouse, Big W, Harvey Norman and a large number of shops, pubs, restaurants and cafes.

3.11.2 Boorowa

The key land uses in Boorowa are shown in Figure 3.23 and summarised Table 3.5

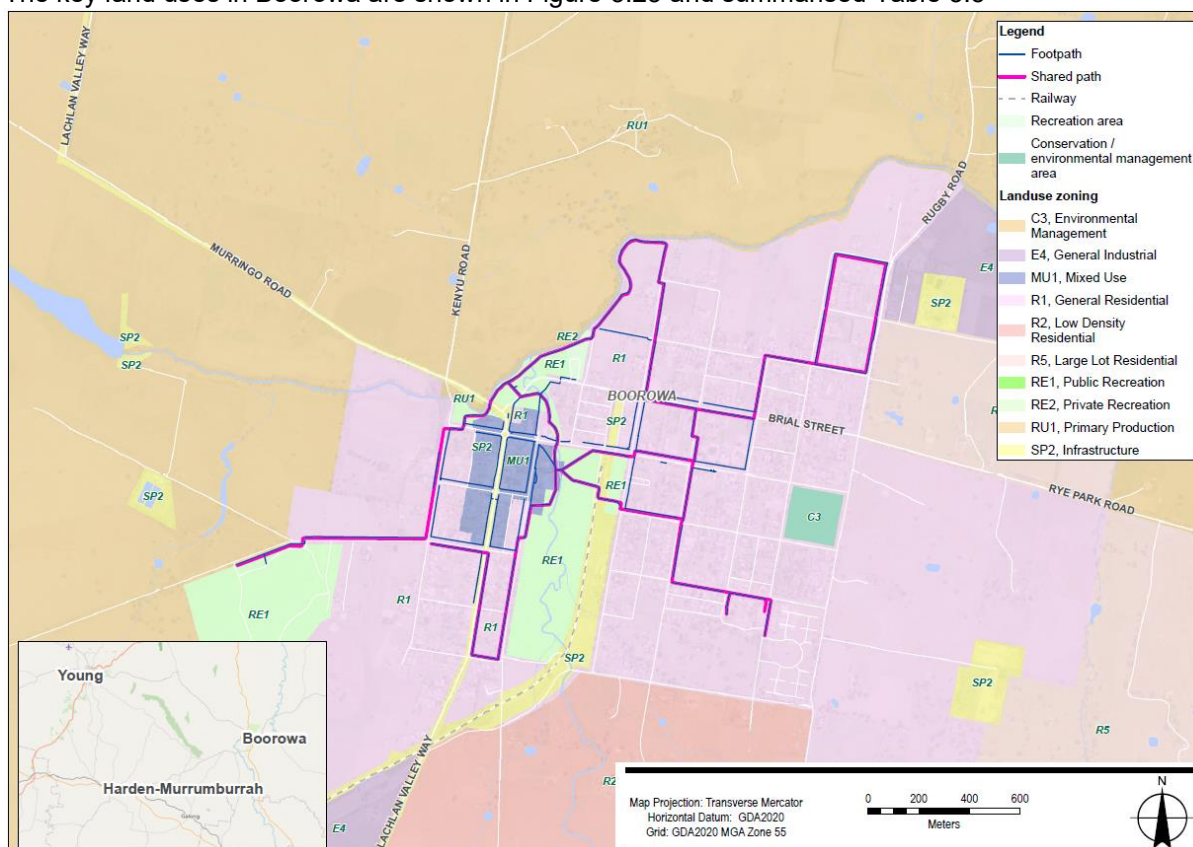


Figure 3.23 Boorowa Land use

Source: NSW Planning Portal Spatial Viewer, modified by GHD

Table 3.5 Boorowa township land use data

Township	Description
Parks and recreation	Boorowa Courthouse Park, Boorowa Skate Park, Golf Club.
Civic and cultural facilities	Boorowa Library, Boorowa Museum, Boorowa Visitor Information Centre, Boorowa Police Station.
Educational and health facilities	St Joseph's Primary School, Boorowa Central School, Boorowa Early Education Centre, Boorowa Multi-Purpose Centre.
Community and religious	Boorowa Uniting Church, St Patricks Catholic Church, St Johns Anglican Church.
Boorowa CBD	IGA Boorowa, Boorowa Pharmacy and number of shops, pubs, restaurants and cafes.

3.11.3 Harden-Murrumburrah

The key land uses in Harden-Murrumburrah are shown in Figure 3.24 and summarised Table 3.6.

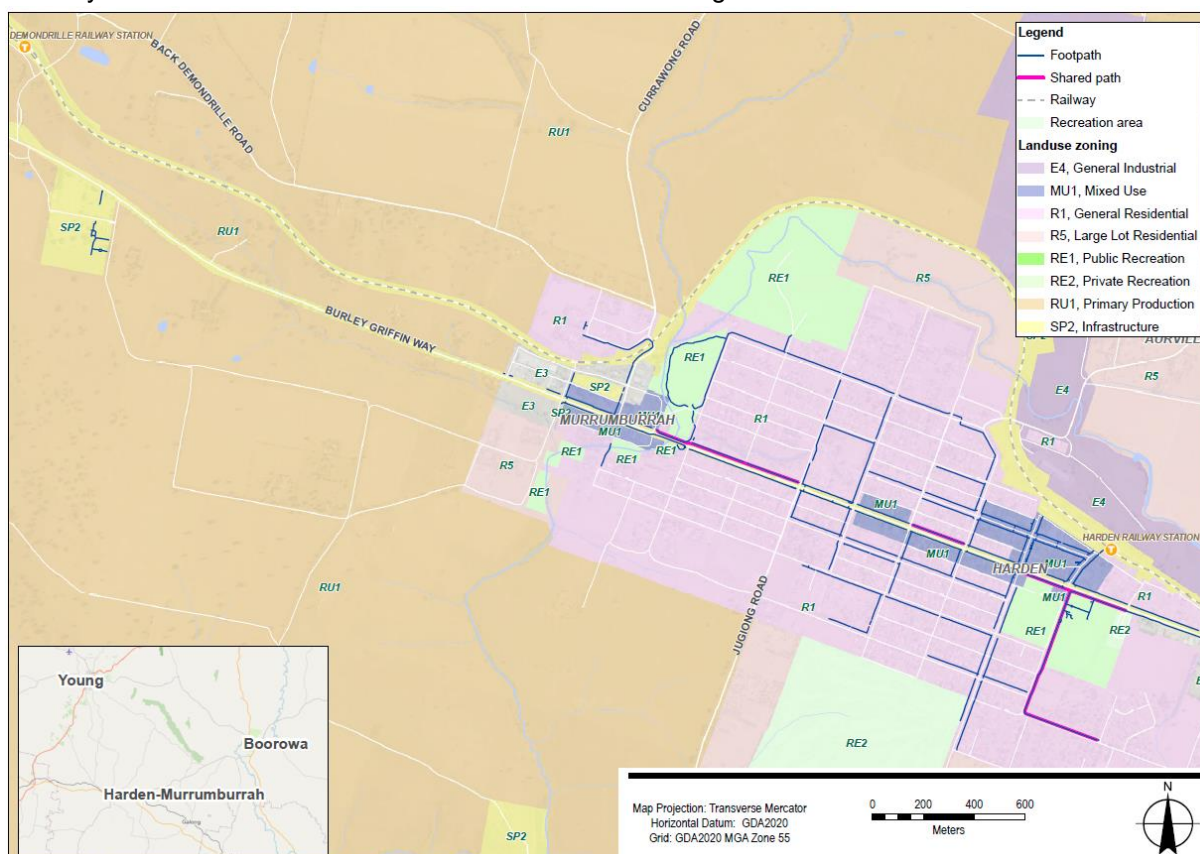


Figure 3.24 Harden-Murrumburrah Key Land use

Source: NSW Planning Portal Spatial Viewer, modified by GHD

Table 3.6 Harden-Murrumburrah land use data

Township	Description
Parks and recreation	Coddington Park, Roberts Park, Newson Park, Harden Skate Park, Golf Club.
Civic and cultural facilities	Harden Station, Harden Library, Historical Museum, Harden Murrumburrah Visitor centre.
Educational and health facilities	Murrumburrah Public School, Trinity Catholic Primary School, Bunyip Preschool, Murrumburrah High School, Kruger Health and Wellness Centre, Murrumburrah-Harden district Hospital.
Community and religious	St Anthony's Catholic Church, Ross Memorial Uniting Church, St Paul's Anglican Church, Salt Church Murrumburrah.
Harden and Murrumburrah CBDs	Supabarn Harden, Harden Pharmacy and number of shops, restaurants, and cafes.

3.12 Summary of site visit

A site visit of Boorowa, Harden-Murrumburrah and Young townships within the Hilltops LGA was conducted to identify key constraints and opportunities associated with the current active transport network. The site visit involved inspections of current infrastructure for active transport within the three towns, including but not limited to pedestrian footpaths, pedestrian lighting, shared paths, facility accessibility and safety.

The accessibility of key points of interest within in each town, previously identified via a desktop study, was assessed alongside the surrounding transport network. Most of the site visit was conducted on foot, with a car used to travel between some destinations.

During the site visit, the attributes of existing roads and streets, including carriageway (number of lanes, provision of parking and lane widths) and footpaths (indicative width and constraints associated) were observed to evaluate preferable routes and cycleway feasibility. The site visit was also helpful in gathering an indication of pedestrians' volumes, traffic speed, congestion, parking conditions, power poles, sign boards and other factors that need be considered when accommodating a cycle way in the study area. Several photographs were captured during the site visit to highlight key observations made on site.

3.13 Key issues summary

3.13.1 Young Township

The Young township is identified as a primary area of focus for the active transport strategy due to the higher population density when compared to the other towns within the LGA. As a result, it is also the main area for business, retail activity, and leisure activities. Home to recreational facilities including Young Golf Club, Young Sports Stadium and Young Showground.

The primary active transport related issues identified for Young included:

- Poor visibility and lack of infrastructure to provide pedestrian safety at intersections, particularly roundabouts. Intersection treatments exist in some limited residential areas. However, some areas provide no pathway links.
- Along the main roads of Olympic Highway and Lovell Street in Young, most intersections were unsignalised roundabouts. Multiple refuge islands at roundabouts were found to be similar to the one presented in Figure 3.25, with bushes and shrubs of approximately 1.2 m of height on both sides of the street near the roundabouts.
- Cornering sight distance of pedestrians from vehicles is compromised by the vegetation planted around the roundabouts (refer to Figure 3.25). This particularly concerns vulnerable groups such as children or elderly people, who are often shorter and can be obscured by the vegetation. Consequently, the extent of the bushes placed on the crossings may increase the risk of incidents and collisions and reduce the overall level of pedestrian safety.
- The active transport network is incomplete with missing links and gaps.
- The absence of footpaths in some streets forces pedestrians to the roadway, shared with vehicles.
- Subdivisions generally have footpaths provided, although several have no continuous footpath connections to the CBD and or to schools.
- Roundabouts are not currently provided along Lovell Street (except at Main Street and Olympic Highway). Providing roundabouts could improve the pedestrian crossing opportunities, by providing median islands and kerb extensions to reduce the crossing distance and would also reduce traffic speeds along this corridor.
- There is limited footpath connectivity along many residential streets to link to the CBD and other trip generators.



Figure 3.25 *Boorowa Street and Main Street roundabout with restricted corner sight distance due to high hedges planted close to crossing.*

- Limited street lighting along on most roads, which can make walking unsuitable after dark. It was noted that streetlights were provided at intersections and at some key points of interest.



Figure 3.26 *Streetlight at crossing near Young Public School*

- Lack of pedestrian priority facilities within Young, mostly found around schools.
- Most roundabout crossings included a median island and kerb extensions to reduce the crossing distance for pedestrians, all crossings remained as vehicle priority.

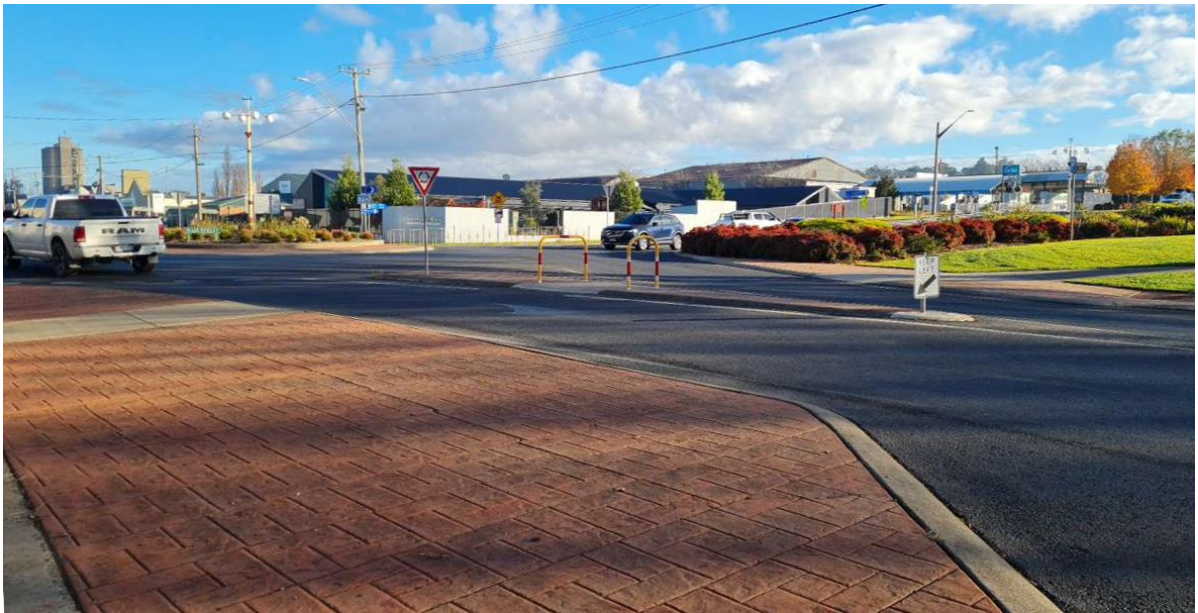


Figure 3.27 Lovell Street and Main Street roundabout with kerb extension and pedestrian median

- Outside of the main roads of Young, some sections of the footpath network were disconnected and required pedestrians to cross to the other side of the road to continue using the footpath.
- Connectivity issues were found with the existing cycle path network with many of the shared paths ending abruptly or leading to high-speed roads that were unsuitable for the majority of cyclists. This results in several cycle paths having reduced accessibility for use as well and greatly reduced safety, comfort, perceived level of safety and attractiveness for those wanting to use the infrastructure.
- Cycling facilities in the form of shared paths through Young have limited connectivity to other points of interest within the town.
- Little to no cycle paths near the edge of the CBD area north of the railway line and in the western extents of Young.
- End-of-trip facilities for bicycle users only provided at leisure facilities in Young.
- Lack of bicycle parking facilities may disincentivise students and commuters alike from utilising active transport methods to travel to and from school and work, consequently increasing the dependency on personal vehicle usage.
- Few shared paths have road markings that divided the path, reducing the safety for cyclists. The site visit also found that several shared paths were not reported on Transport for New South Wales Cycleway Finder Map.



Figure 3.28 *Bicycle parking near Young Aquatic Centre*

- The site visit found that key shared paths in Young were located next to Burrangong Creek and its tributaries, with a history of flooding, which remains a hazard despite recent mitigation efforts (see Figure 3.29). This presents reliability and safety concerns, especially during periods of high rainfall. Flooding and water runoff around these areas would lead to an increased rate of wear on the paths with a higher level of maintenance required to keep them in a good condition overall.
- The narrow width of some of the footpaths are unsuitable for use by those with an impaired mobility, requiring walkers or wheelchairs.
- The overall lack of connectivity between existing paths and the town centre area does not provide adequate access to facilities in the town for those who have a mobility impairment.



Figure 3.29 Young shared path with Burrangong Creek nearby

3.13.2 Boorowa and Harden-Murrumburrah townships

GHD's site visits to Boorowa and Harden-Murrumburrah townships found:

- Boorowa and Harden-Murrumburrah have many of the same issues for active transport as Young, including disconnected footpaths, limited end-of-trip facilities for cyclists and limited pedestrian priority crossings in areas with high pedestrian activity.
- Walking between the three towns would be unfeasible due to the large distance between each town. While shared paths extended from Young to the race course area, they did not cover the entire distance to Boorowa.
- The majority of pedestrian facilities in Harden-Murrumburrah were in good condition, with wide footpaths to accommodate the needs of most users.
- Despite some raised pedestrian crossings (see Figure 3.30) and pedestrian crossing signs in the town centres, most crossings have vehicle priority.
- Some footpath lighting was provided in Harden-Murrumburrah near Roberts Park and the Harden Activity Cycleway (see Figure 3.31).



Figure 3.30 Raised pedestrian crossing in Harden town centre with vehicle priority

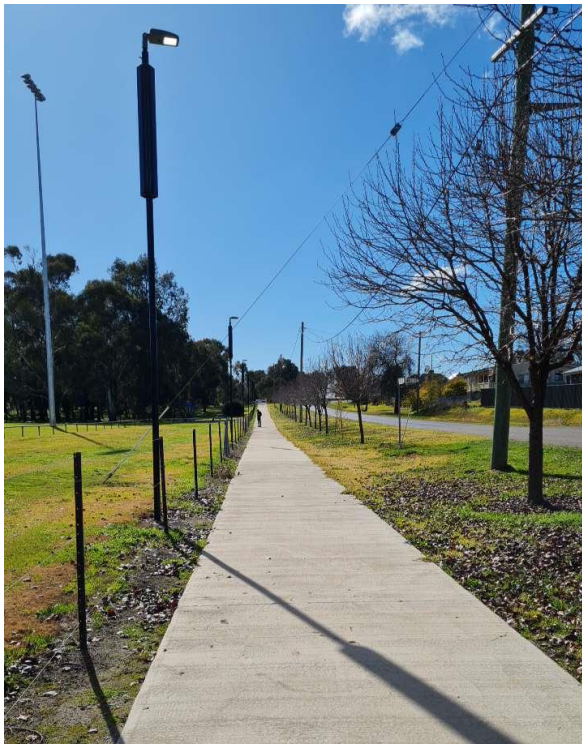


Figure 3.31 Pedestrian lighting outside of Roberts Park in Harden

- Similarly to Young, some shared paths in Harden-Murrumburrah are not included in the Transport for New South Wales Cycleway Finder Map, potentially limiting the uptake of cycling. A Cycleway Finder Map is provided in Figure 3.32.
- Limited end-of-trip facilities for cyclists in Harden-Murrumburrah, disincentivising users from cycling and further increasing motor vehicle usage. While shared paths were divided, their width was not sufficient for cyclists to use in bi-directional flow (refer to Figure 3.33).



Figure 3.32 Cycleway Finder map

Image Source: TfNSW Cycleway Finder, modified by GHD



Figure 3.33 Shared path along Albury Street near Station Street

- In Boorowa, pedestrian facilities are generally of better quality when compared with those in Young and Harden-Murrumburrah, with pedestrian priority crossings at key areas of interest and in the main town centre (see Figure 3.34).
- There are also more shared paths in Boorowa.
- The width and condition of the shared paths are often insufficient to accommodate cyclists.
- Limited signage for shared paths, potentially resulting in less usage and uptake.



Figure 3.34 Pedestrian priority crossing at Marsden Street, Boorowa

- The footpath connectivity and condition are generally good near Boorowa Town Centre, areas of interest outside of the town centre have significantly worse footpaths, or no footpaths at all.
- Some footpaths have been constructed at or below the level of the road, with no kerbs, increasing the likelihood of trips and falls, particularly for vulnerable users and reducing separation with traffic (see Figure 3.35).



Figure 3.35 Footpath near Boorowa Recreation and Bowling Club with no separation between road and footpath level

- Similar to Harden-Murrumburrah and Young, Boorowa lacks sufficient end-of-trip facilities for cyclists which may disincentivise the use of active transport.
- Some bicycle parking was found near the town centre (see Figure 3.36), there were no facilities near any other key areas of interest.

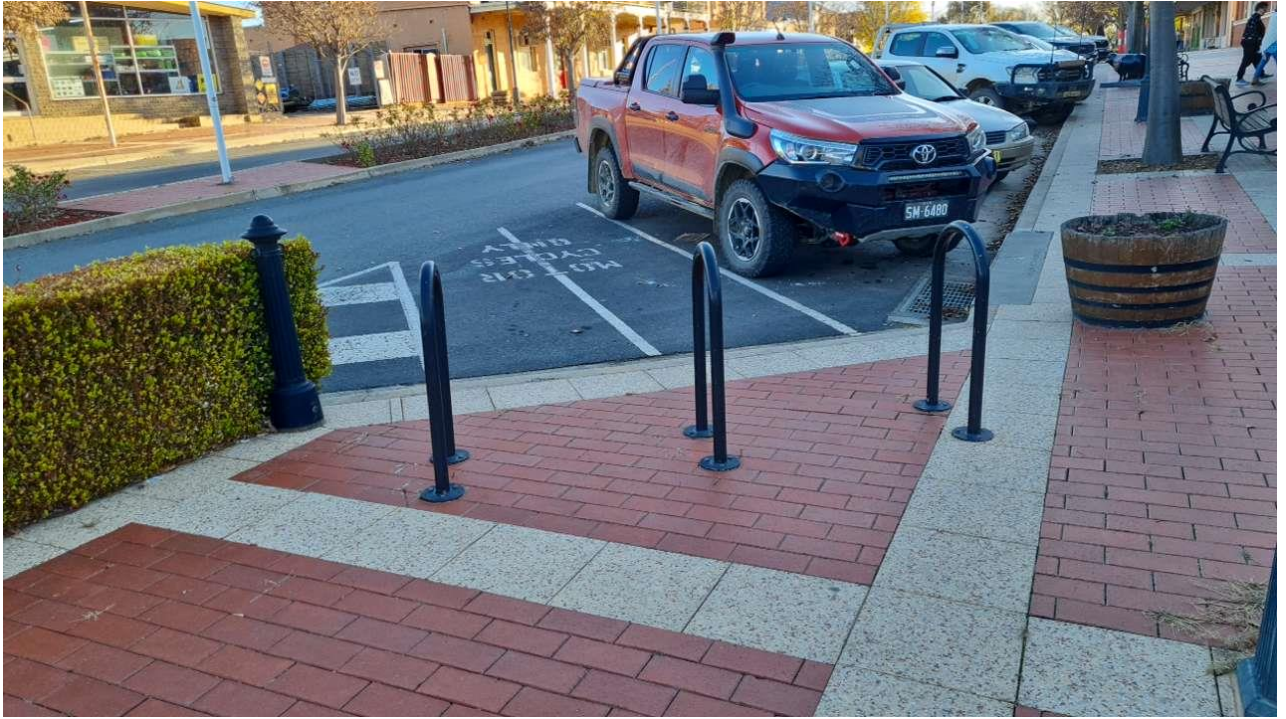


Figure 3.36 Bicycle parking on Pudman Street, Boorowa

3.13.3 Incentive to switch to active transport

One major issue identified for active transport in three towns Boorowa, Harden-Murrumburrah and Young is a lack of incentive for residents to switch to active transport modes, as well as a lack of awareness and engagement in the community around active transport. As discussed in Section 3.7, there is a heavy reliance on private vehicles to get to and from work by residents in the Hilltops LGA with a low active transport mode share of around five percent.

As a result, the Active transport Plan for Hilltops Council involves expanding and integrating more pedestrian and cycling infrastructure within the road network which would encourage commuters to use active transport modes more often.

Promoting a switch to active transport modes is generally driven by a desire to reduce reliance on private vehicles to reduce congestion and traffic on the roads, especially within major metropolitan areas. The primary reasons for promoting active transport in the Council is identified as:

- Creating more connected and sociable communities
- Creating safer spaces for residents and visitors to walk and cycle
- Promoting social equity for those who don't have access to a car
- Reduction in air and noise pollution around town centres
- Increased focus on physical and mental health
- Switching the mindset of streets being places just for cars to streets as places also to be used by other transport modes.

This would link into one of the key reasons for promoting active transport in the area being to switch the mindset surrounding road use through town areas of the Council. However, sufficient development of infrastructure and marketing would likely be required for mode shift to more sustainable travel.

3.14 Stakeholder engagement

GHD facilitated a workshop in June 2023 with several stakeholders invited by Hilltops Council. Stakeholders were best informed about the current conditions and needs of Young Township and therefore the workshop's focus was mainly centred on Young. However, many points were applicable across townships.

Workshop attendees included three TfNSW representatives, a representative of Young's community transports, and two representatives of Hilltops Council. The full Mural board can be found in Appendix B.

The key findings from the workshop included:

- Current shared paths are heavily used recreationally for walking and cycling during weekends.
- Young Cycling Club is well attended but mostly on road cycling with routes heading out of town.
- The existing narrow footpaths are not suited to persons with impaired mobility.
- Lighting an issue for perceived safety particularly in darker months.
- High heavy vehicle activity is a barrier to cyclists and impacts the feel and enjoyment of active transport.
- Limited safe crossing for Young High School.
- Confusion of priority between pedestrians and traffic in busy areas of Young.
- Footpaths are disconnected and change from one side of the road to the adjacent side without any pedestrian priority crossings provided at the locations where the footpaths swap to the other side of the road.
- High kerbs with a lack of usable kerb ramps is an issue for mobility, including those in wheelchairs or with prams.
- There is a lack of end of trip facilities for cycling in all three towns.

Following the workshop, the interactive mural board created by GHD was provided to Hilltops Council to further distribute amongst community stakeholders in an effort to gather further feedback to inform the proposed improvements.

4. Design Guidelines and Planning for pedestrians and bicycle rider

4.1 Planning for pedestrians

Walking is a widely accessible form of transportation, and many trips involving other modes of transport also include some component of walking, such as walking to and from public transport interchanges and car parking.

Planning for safe and convenient pedestrian access is an important aspect of transportation planning. This section provides an introductory guide to planning for pedestrians¹.

4.1.1 Creating a Safe and Attractive Pedestrian Environment

Pedestrians use most areas of the public domain, including roads, footpaths, nature strips, open spaces and shopping areas. Some planners and engineers incorrectly assume that planning for pedestrians will follow the same logic as traffic planning:

- Car > 'trips' > 'routes' > 'traffic network'

The planning scale for pedestrians is detailed to accommodate the local nature of the trips. Pedestrian movement can be better conceptualised in terms of:

- Pedestrian > 'activity' > 'areas of activity' > 'pedestrian environment'

Pedestrians tend to be more attuned to the amenity, personal safety and design of the environment around them and are particularly vulnerable to motorised vehicles. Pedestrian planning involves more of emphasis on their needs with respect to these important concepts, rather than more traditional traffic engineering concepts such as road geometry.

4.1.1.1 Pedestrian needs

Provision of pedestrian infrastructure should aim not only to satisfy the requirements of standards and existing users' needs but should also aim to promote walking as a healthy way of getting around, for transport and recreational purposes. The benefits of increased walking include healthier people, with fewer car trips and an overall safer and more active public domain. The following elements are required to produce a high-quality pedestrian environment:

Safety

Pedestrians highly value their perceived and actual safety in the public domain. Safe, well-lit and frequent road crossings must be provided for pedestrians along major streets. Pedestrians usually will not take large detours from the key desire lines across major streets to access safe crossing locations. Good lighting and open space are also important in improving the security of pedestrian spaces and ensuring that walking is accessible to people of all ages and genders at any time.

Directness

Pedestrian facilities must serve the key desire lines between major centres of activity. This is important, as pedestrians usually tend not to like walking too far out of their way to use facilities such as crossings due to the extra effort associated with walking further. Access should be as direct and visible as possible to encourage walking trips. Barriers such as major roads should be overcome with additional crossing points wherever possible, such as signalised or grade-separated crossings, and engineered barriers like fences should only be used to direct pedestrians in the absence of other options.

¹ How to Prepare a Pedestrian Access and Mobility Plan, Roads and Traffic Authority of NSW (RTA), 2002

Amenity

Pedestrians are generally very sensitive to the quality of the overall urban environment around them, including traffic volumes, noise and quality of walking surfaces, among other factors. Attention to the amenity of areas at a human scale can provide an attractive walking environment and encourage these trips, while poor amenity may have the opposite effect. Targeted works to improve the amenity of areas with high pedestrian activity, such as around shopping streets, commercial buildings and public buildings, are generally thought to provide the highest value in terms of the benefits they produce.

Spot improvement programs can also target localised areas of high need.

Suitable for all users

Pedestrian environments must be of appropriate quality and accessibility for all people choosing to use them. Standards such as *Austrroads Guide to Traffic Management*, *Guide to Road Design* and *AS1428.1-2021* - Design for access and mobility require compliance of path widths, gradients, ramps and freedom from obstructions such as street furniture and signage to accommodate the numbers of pedestrians and any mobility devices used. Hearing and vision-impaired users must also be considered in the design of pedestrian environments, particularly regarding any safety issues.

4.1.2 Best practice standards

The following are essential design aspects according to the best practice standards when considering pedestrians.

Minimum Footpath Widths

The Walking Space Guideline summary (refer to section 2.1) states that the minimum target walking space is 2.0m. Table 4.1 outlines these minimum widths for various types of footpath users.

Table 4.1 Minimum Footpath Widths

Type	Suggested minimum width	Description
Type 1-Local Footpath-low activity	2.0m	- Low activity local footpaths are appropriate where people walking are unlikely to pass people coming the other way. - These footpaths support 2 friends walking together and passing if they walk in single file.
Type 2-Local footpath – Medium activity	2.3m + 0.6m Passing zone	- Medium activity local footpaths are appropriate where people walking are more than likely to pass people coming the other way. - These footpaths support 2 people passing abreast or 2 friends walking together passing another person using the Passing Zone
Type 3-Main street footpath – Medium activity / Local footpath – High activity	3.2m (3.0m not adjacent to active shopfronts)	- Medium activity main street footpaths are appropriate where people walking are virtually certain to pass people coming the other way. - These footpaths support 2 friends walking together and passing another person without having to walk in single file
Type 4-Main street footpath – High activity	3.9m (3.7m)	High activity main street footpaths are appropriate where people walking are virtually certain to meet multiple groups of people coming the other way.

Type	Suggested minimum width	Description
		– These footpaths support 2 friends passing 2 friends coming the other way without either group having to walk in single file
Type 5-Main street footpath – Very high activity	less than or equal to 9.5 People Per Metre / Minute	– Very high activity main street footpaths are appropriate where it is very busy most of the time. These footpaths provide enough space for large numbers of people to walk comfortably.

Source: Walking Space Guide Summary



Figure 4.1 Walking Space Guide Summary

Source: Walking Space Guide Summary

Get NSW Active program FY2024/25 Funding Guidelines

The FY2024/25 Get NSW Active program has adopted minimum path width recommendations as follows:

- minimum footpath width 1.8m
- minimum shared path width 3.0m.

The minimum requirements above are considered in the cost estimates provided in section 5.1.1.

Austrroads Guide to Road Design Part 6A 2021 – Paths for walking and cycling maximum grades

Grades of footpaths and drop kerbs are important as they affect the usability and safety of pedestrian facilities. Long sections of steep footpaths can be difficult or impossible for mobility-impaired users to negotiate.

Steep kerb ramps can also cause safety issues for mobility-impaired users. Users can become vulnerable to general traffic as they attempt to leave the carriageway and proceed up steep ramps.

It is noted that AS 1428.1 – 2021, specifies that any footpath should not exceed a gradient of 1:8 as wheelchairs may tip backwards. This is considered as an absolute maximum ramp gradient and should only be used in extenuating circumstances.

Table 4.2 shows the maximum grades for footpaths and kerb ramp treatments.

Table 4.2 Maximum Grades

Footpaths	Grade
Recommended maximum grade (footpaths)	1:20 (2.5% cross fall)
Absolute maximum grade (kerb ramps)	1:8

Source: AS1428.1 Design for Access and Mobility Part 1 2021 –General Requirements for Access-New Building Work

Pedestrian refuges

A refuge in the middle of a pedestrian crossing may be desirable in locations where there are high numbers of more vulnerable pedestrians such as young children or elderly pedestrians, or where there are high volumes of traffic. The refuge can simplify the cognitive load for the pedestrian because they only have to concentrate on one direction of vehicular travel at a time.

Refuges alone may not result in vehicle speed reduction. Some speed reduction may be achieved if the refuge creates a significant narrowing of traffic lanes. Kerb extensions along with the refuge may also help to achieve reduced vehicle speeds. The general dimensions of pedestrian refuges are illustrated in Figure 4.2.



Figure 4.2 Pedestrian crossing with refuge, Jacksons Road, North Narrabeen. Refuges are often supplemented with kerb blisters or extensions

Source: TfNSW Pedestrian crossing guideline

Wombat crossings

Wombat crossings are generally the same dimensions as flat top road humps (with pedestrian priority provided with the use of 'zebra' style line markings). It provides priority to pedestrians as well as acting as a traffic-calming measure. The minimum length of the device, including ramps is six metres, and the desirable minimum height of the platform is 100 mm. Wombat crossings generally have ramp gradients of 1:15 to 1:20 to be bicycle and/or bus friendly. Wombat crossings can be used when the warrant for such a traffic control is met as required in AS 1742.10.



Figure 4.3 Rothschild Ave, Rosebery at the intersection with Cressy Street- Wombat crossing example.

Source: Raised pedestrian 'wombat' crossing (nsw.gov.au)

Tactile Ground Surface Indicators (TGSIs)

TGSIs should also be provided at all pedestrian crossing locations to indicate the edge of the roadway to sight-impaired pedestrians.



Figure 4.4 Tactile Ground Surface Indicators example (TGSIs)

Source: AS1428.1 2021 - Design for access and mobility & Access

Transport for NSW Pedestrian crossing guidelines

The Transport for NSW Pedestrian crossing guideline, section 6, set out minimum criteria for pedestrian crossings in AS 1742.10 are:

- Non-arterial road
- 50 km/h or less
- No more than one lane of moving traffic on each approach
- Adequate sight distances (refer to Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections)
- Adequate kerb ramps (refer to AS 1428)
- Adequate lighting (refer to AS/NZS 1158.4).

Local governments may choose to use TfNSW warrants outlined in the *Supplement to Australian Standard AS 1742.10-2009*. However, the threshold of combined pedestrian and vehicle volumes required by the TfNSW warrants may be difficult to achieve on local or sub-arterial roads.

As an alternate to the TfNSW warrants, councils may use the following pedestrian demand calculation:

- In each of two separate one-hour periods in a typical day, the pedestrian flow per hour (P) crossing the road is, or is expected to be, equal to or greater than 20.
- Children and elderly or mobility impaired pedestrians count as two pedestrians.

Inner West Council Pedestrian crossing warrant policy

In addition to TfNSW guidelines, Sydney's Inner West Council Pedestrian developed its own crossing warrant policy. This policy outlines the criteria to be used for assessing the suitability of a site for the installation of a pedestrian (zebra) crossings on local and regional roads. TfNSW Supplements to Australian Standards sets out the state road warrant for the installation of a pedestrian (zebra) crossing. In absence of a specific TfNSW warrant for non-arterial roads, this Policy sets out an interim warrant for the installation of a pedestrian (zebra) crossing on local and regional roads.

The following warrants have been prepared to assist in assessing the need for pedestrian (zebra) crossings on local and regional roads:

Normal Warrant

- A pedestrian (zebra) crossing is deemed to meet the numerical warrant for a pedestrian (zebra) crossing if the crossing point meets the following volumes in three separate one-hour periods in a typical day:
 - Pedestrian volumes ≥ 30
 - Vehicle volumes ≥ 200 .

Reduced Warrant

- A pedestrian (zebra) crossing is deemed to meet the numerical warrant for a pedestrian (zebra) crossing if the crossing point is predominately used by school children and the crossing point meets the following volumes in two counts of one hour duration immediately before and after school hours:
 - Pedestrian volumes ≥ 30
 - Vehicle volumes ≥ 200 .

Austroads Pedestrian Tool

- The pedestrian facility selection tool is designed to select the most appropriate type of pedestrian crossing based on walkability, safety and economic outcomes.
- The online tool assesses the viability of different types of pedestrian crossing facilities according to the physical and operational parameters of a site and its safety performance. It can be used to assess both mid-block and intersection locations.
- Practitioners are required to enter a range of site variables into the tool including site information, physical/environmental variables, operational variables and safety performance.

- The tool can assess raised platforms, kerb extensions, median refuges, zebra crossings, signals, grade separation or combinations of these facilities.

4.1.3 Methodology for identifying pedestrian needs

The following subsections outline the approach adopted to identify activity generators and primary routes and develop a hierarchy of pedestrian needs.

4.1.3.1 Primary pedestrian activity zone

This is typically the main commercial street. Throughout the day, pedestrians are attracted to this zone from surrounding residential areas and it is therefore an important trip attractor. Also, there are high levels of pedestrian activity occurring within this zone, making it an important area for internal pedestrian movements (between shops and to car parking).

4.1.3.2 Secondary pedestrian activity generators

This includes shops, schools, sporting facilities, clubs, hospitals and community facilities such as churches that are not located within the Primary Pedestrian Activity Zone. These land uses will attract people, but possibly only at certain times of the day or week.

4.1.3.3 Tertiary pedestrian activity generators

These include the above land uses from the Secondary Activity Generators but differentiate them based on a lower level of activity. Again, these are not located within the Primary Pedestrian Activity Zone.

4.1.3.4 Primary pedestrian routes

These are routes from residential areas to the Primary, Secondary and Tertiary Activity Zones and Generators. They are trunk or collector level routes, which do not reach every property but instead form a network of routes that are accessible to a significant catchment of population. These routes take account the existing street network and topographical constraints, aiming to provide a direct and convenient route to the major trip generators. The demographic use of connecting generators is considered when defining the routes (i.e., schools and playing fields, aged care facilities and return service league clubs).

4.1.3.5 Identification of infrastructure provision goals

The hierarchy above provides a basis for applying standard treatments and ensuring the development of a comprehensive and structured pedestrian network. Specific treatments may be required in some of these areas to accommodate the user needs or where other community suggestions are made.

These treatments form the basis of the proposed improvements. While this standard may not be achievable in the short-term due to the capital investment required, it is nevertheless a useful guide to work towards.

4.1.3.6 Aims in the development of infrastructure recommendations

The main goals of in the development of infrastructure recommendations, in decreasing order of priority, are:

- Fill any shortcomings in the Primary Pedestrian Activity Zone areas through new footpaths and crossing points, particularly if safety issues have been raised.
- Establish a network of key pedestrian routes in the town centre and between major trip generators including schools. Prioritised routes are those that serve a wide range of community users and can remove pedestrians from unsafe environments.
- Broaden the extent of the network to areas outside of the Primary Pedestrian Activity Zones.
- Provide additional pedestrian routes for primarily recreational or tourism purposes.

Additionally, crossing points are generally catered for via pedestrian refuges, rather than a zebra crossing or signalised crossing. This is because there are onerous requirements to install marked pedestrian crossings in terms of pedestrian and vehicle warrants, as described by the Australian Standards requirements of *AS 1742 Part 10*. Refuges are of benefit to pedestrians as they allow for a staged crossing of a road and provide a visual cue for motorists that pedestrians can be expected in the vicinity of a refuge.

4.2 Planning for bicycle riders

This section provides a summary of guidance on planning for bicycle riding. For Young, the approach to bicycle infrastructure planning should particularly focus on providing for the mid-distance two to five-kilometre trips to jobs, shops, schools and public transport hubs.

4.2.1 Purpose of bicycle trips

There are a wide variety of people who participate in bicycle riding and do so for a range of reasons and motivations. When planning new bicycle riding routes and assessing existing routes, it is important to consider the types of bicycle riders that are using or will use the infrastructure.

There is a substantial body of evidence which reveals that there is a difference in what non-bicycle riders and bicycle riders consider as the necessary “enablers” for bicycle riders, particularly for where infrastructure is concerned.

4.2.2 Cycleway facility selection tool

A summary of the cycleway facility selection tool for priority and local route types is shown in Figure 4.5 and Figure 4.6.

Priority routes

Street typology (Movement and Place)	Civic space	Local street	Main street	Main road
Motor vehicle speed	≤10 km/h	≤30 km/h	≤50 km/h	>50 km/h
Motor vehicles / day	n/a	≤2,000	>2,000	n/a
<u>Bicycle path</u> (One and two-way)				
<u>Quietway</u>				
<u>Shared path</u> (Low pedestrian activity and low cross-cycleway movement)				
<u>Shared path</u> (High pedestrian activity or high cross-cycleway movement)				
<u>Shared zone</u>				

 Required for priority routes  Suitable, but not preferred for priority routes

Figure 4.5 Cycleway Facility Selection Tool-Priority routes

Source: Cycleway Design Toolbox, Transport for NSW 2020

Local routes

Street typology (Movement and Place)	Civic space	Local street	Main street	Main road
Motor vehicle speed	≤10 km/h	≤30 km/h	≤50 km/h	>50 km/h
Motor vehicles / day	n/a	≤2,000	>2,000	n/a
Bicycle path (One and two-way)				
Quietway				
Shared path (Low pedestrian activity and low cross-cycleway movement)				
Shared path (High pedestrian activity or high cross-cycleway movement)				
Shared zone				

 Required for priority routes
  Suitable, but not preferred for priority routes

Figure 2.2b Cycleway Facility Selection Tool - Local Routes

Figure 4.6 Cycleway Facility Selection Tool-Local routes

Source: Cycleway Design Toolbox, Transport for NSW 2020

4.2.3 Creating a safe and attractive bicycle riding environment

4.2.3.1 Background

Bicycle riding is a highly efficient, environmentally benign form of transport. As with walking, bicycle riders are improving their health and contributing to an active environment at a human scale.

Bicycle riders move around the public domain in various ways, largely depending on the trip purpose and rider characteristics. For example, children will tend to use the footpath and ride at low speeds, while an adult on the way to work may ride along the fastest and most direct route available (on- or off-road).

Bicycle riders therefore move through an “environment” in a similar way to pedestrians, although the speed and distance which they travel mean that they identify more with the concept of a network. Attention to bicycle riding facilities should not be confined to one or two “routes” or “links” in an area, as trip origins and destinations are diverse. Every street should be a safe route for bicycle riders and be designed in accordance with the function, traffic volume and width of the street. However, governments have limited funds and need to prioritise expenditure.

Bicycles are vehicles and infrastructure should be designed and constructed with consideration of speed, sight distance, priority at intersections etc. However, bicycles have a degree of manoeuvrability that makes them somewhat unpredictable to motorists and pedestrians. Therefore, the design of both on- and off-road facilities should aim to encourage predictability and clear priority at all conflict points.

To fully integrate bicycles into the transport system, a shift towards bicycle riding needs to be supported with dedicated infrastructure that separates riders from pedestrians and vehicles. Providing a space where their intermediate speeds is accommodated enables bicycle riders to see that they are welcomed and catered for.

4.2.3.2 Bicycle rider needs

Bicycle infrastructure should aim not only to satisfy the requirements of existing users, but also to encourage bicycle generally riding in the area. The intent of this is to reduce the amount of car trips taken, particularly over short distances, and create healthier communities with more active people and streets.

The following are a summary of the important factors in considering bicycle rider needs².

Safety

Bicycle riders are particularly vulnerable due to their small size and relatively slower speed, with lower general visibility compared to larger vehicles. They are also significantly less protected in the event of a collision.

Amenity

Bicycle riders, as with pedestrians, are more likely to engage in this active transport mode in pleasant and amenable environments. This includes places with lower levels and speeds of traffic, places that are scenic and places that are quiet. Environments in which traffic is calmed often produce desirable conditions for bicycle riding.

Coherence

Coherence is determined by the extent to which bicycle routes and facilities are connected, continuous and their level of quality. This is characterised by the completeness of connecting routes outside of urban areas, whereas the completeness of the network is more relevant within urban areas. Coherence measures the extent to which a bicycle network matches with the travel needs of its users, and the level to which it offers users the freedom of route choice through the continuity and quality of paths.

Directness

As for pedestrians, bicycle riders will tend to value directness of routes, and so care must be taken when planning any deviations. However, bicycle riders are expected to be somewhat flexible when a more amenable riding environment is provided on the deviating route. A balance must be achieved between directness, freedom from delays and providing a route that is safer.

Suitable for all users

Bicycle rider skill level varies across users and may depend on factors such as age, frequency of riding and any loads carried. Their trip purposes also vary, and this often determines the bicycle riding facility provided. Parallel facilities may be considered when one facility does not provide for all users of a particular route.

End of trip facilities

Bicycle riders should be provided with appropriate end of trip facilities, including bike racks and lockers in well-lit and highly visible areas that are protected from the weather. New offices and other workplaces should include in their design, where possible, showers and change rooms to facilitate bicycle riding as a way of commuting.

Bicycle riding strategies

The following actions support and encourage bicycle riding:

- Providing quality bicycle riding facilities and an amenable riding environment to encourage bicycle riding.
- Constructing a network of primary bicycle riding routes throughout the LGA, connecting social, recreational and employment destinations

² Source: Transport for NSW Cycleway Design Toolbox

- Establish a road and traffic environment that is bicycle-friendly and allows access for bicycles to the network.
- Implement traffic calming measures, including reduction of speed limits to 40km/h where necessary, to lower overall speeds on local roads.
- Provide secure parking and end-of-trip facilities.
- Develop guidelines, policies and training to ensure that planning and designing new traffic facilities and urban areas include appropriate consideration of bicycle riders and their needs.

4.2.4 Methodology for identifying bicycle rider needs

4.2.4.1 Identifying activity generators and primary routes

Similarly to the methodology for identifying pedestrian needs in Section 4.1.3, the following subsections outline the approach adopted to develop a hierarchy of bicycle rider needs:

4.2.4.2 Primary activity zone

This is typically the main commercial street in the town centre and is an important trip attractor. High levels of activity occurring within this zone make it an important area for short trips. Bicycle parking should also be provided in primary activity zones.

4.2.4.3 Secondary activity generators

These include shops, schools, sporting facilities, clubs, hospitals and community facilities such as churches located outside of the Primary Activity Zone. These land uses will attract people, but with less regularity.

4.2.4.4 Tertiary activity generators

These include the above land uses from the Secondary Activity Generators but differentiate them based on a lower level of activity.

4.2.4.5 Strategic bicycle routes

These are routes that connect the Major Centres identified in TfNSW's *Sydney's Cycling Future*. These routes are highway / regional level routes providing direct and continuous bicycle routes between the Major Centres. Although these are regional routes, it is the NSW State Government's preference to provide fully separated cycleways where possible for the strategic routes in order to enable non-confident bicycle riders to travel to work/school by bicycle.

4.2.4.6 Primary bicycle routes

These are routes from residential areas to the Primary, Secondary and Tertiary Activity Zones and Generators. They are trunk or collector level routes, which do not reach every property but instead form a network of routes that are accessible to a significant catchment of population. The demographic use of connecting generators is considered when defining the routes (i.e. schools and playing fields, aged care facilities and return service league clubs).

4.2.5 Selecting the appropriate cycling facility

Several facility types have been described in various technical guidelines to assist decision-makers in selecting the appropriate cycling treatment to suit local conditions.

As per the Cycleway Design Toolbox (Transport for NSW, 2020) and the Cycling Aspects of Austroads Guide (Austroads, 2017), selecting the appropriate facility type and width includes a combination of factors such as the level of cycling demand, local conditions, the availability of space, and whether the facility is used exclusive for cycling or shared with pedestrians.

Cycling facilities include:

- **Mixed traffic cycling**, in which bicycle riders share travel lanes with motor vehicles. Due to the cycling safety risks, mixed traffic cycling should only form part of formal cycling routes

where traffic speeds and volumes are very low, for example in local-access residential streets and laneways with design speeds of 30km/h or less.

- On-road marked (painted) “**bike lanes**,” located alongside motor vehicle travel lanes within the road corridor. As with mixed traffic cycling treatments, this treatment is typically only suitable for cycling by all ages and abilities where traffic speeds and volumes are low.
- Off-road paths, consisting of
 - o “**bike paths**” (for bicycles only). Most appropriate where there is high cycling demand
 - o “**shared paths**” (paths for combined walking and cycling use)
 - o “**separated paths**” (dedicated walking and cycling paths located alongside one another). Most appropriate where there is high walking and/or cycling demand.

For Hilltops Council, **shared paths** are identified as the preferred off-road cycling facility, given existing and potential levels of demand in our communities are typically low. Where shared paths present potential safety risks or a low level of service for path users, suitable design solutions may include additional shared path width to increase circulation space; deviation of path alignment to avoid or improve sightlines to obstacles and safety hazards; and localised separation of path users through introduction of **separated paths** or **mixed traffic cycling**. (Table 4.3)

This may typically occur where:

- there are intersecting pedestrian and bicycle movements, such as near entrances to schools or near busy pedestrian crossings
- pedestrian activity is high, such as on shopping streets or busy bus stops
- cycling speeds are relatively high
- the route is narrow, or
- the route interacts with numerous driveways, side streets or other intersecting functions.

Table 4.3 Preferred cycling facility types and widths in Hilltops LGA

Facility type	Preferred width	Notes
Shared path	3.0m	1. Transport for NSW’s Get NSW Active grants program recommends a minimum width of 3.0m 2. Austroads (2017) recommends a minimum width of 2.5m only on local access routes with very low demand 3. Austroads (2017) and Transport for NSW (2020) recommend a wider path up to 4.0m where demand is high or there is a large mix of user types.
Separated path	4.5m	4. Austroads (2017), comprising a 2.5m bike path and 2.0m footpath
Mixed traffic cycling	n/a	5. Transport for NSW (2020) recommends mixed traffic cycling only where motor vehicle speeds and volumes are low (design speed 30km/h or less, and less than 2000 vehicles per day)

4.2.6 Intersections

4.2.6.1 Shared environment intersection

- Reduce speed of intersecting traffic and people cycling and provide high level of service to people walking.
- This intersection type offers a lower level of service to people cycling compared to continuous bicycle path treatments (Cycleway design toolbox Figure 3.1A and Figure 3.1B), as riders are not prioritised. Moreover, as priority is not clearly defined, safety issues may occur and vehicles waiting to enter the carriageway could block people cycling. Hence this is marked as ‘suitable’ for some environments but is not the ‘preferred’ treatment.
- Design elements:
 - Raised intersection and clear road marking.
 - No high objects(>1.0m) between the bicycle path and the road, to allow for reciprocal visibility.

- Narrow side street designed to reduce speed of motorised traffic.
- Surface treatments providing texture and visual cues for the shared environment intersection.

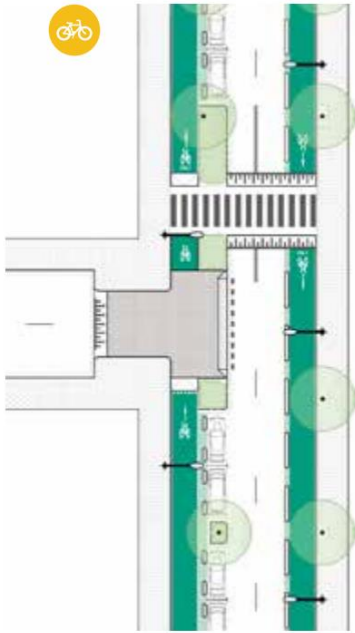


Figure 4.7 *Bicycle Path (one-way), shared environment intersection plan*

Source: Cycleway Design Toolbox, Transport for NSW 2020

4.2.6.2 Continuous bicycle path-raised intersection

- Reduce speed of intersecting traffic and provide high level of service to people walking and cycling.
- May be considered in circumstances where there is insufficient space for a suitably wide bend-out.
- This intersection has not yet been applied within the Australian context but would provide a higher level of service and enhanced safety for people walking and cycling than existing guidance and treatments.
- Design elements:
 - Prioritised continuous bicycle path and footpath.
 - Raised intersection and clear road marking to indicate to all road users that pedestrians and bicycle riders have priority over turning vehicles.
 - No high objects (>1.0m) between the bicycle path and the road, to allow for reciprocal visibility - Surface treatments providing texture and visual cues.
 - Kerb build outs to narrow intersection (to reduce vehicles turning speeds and increase reciprocal visibility) and enable waiting motor vehicles to store outside carriageway.

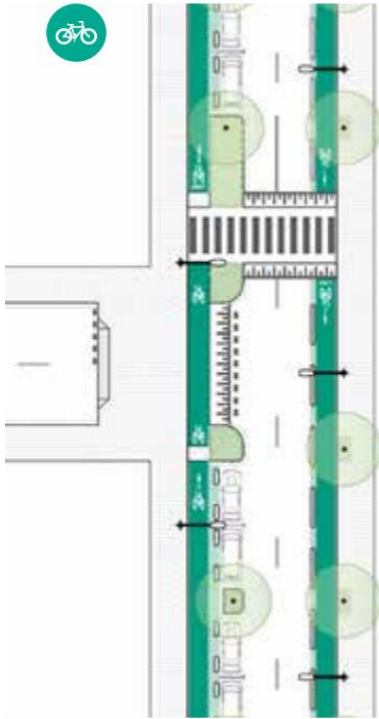


Figure 4.8 *Bicycle Path continuous cycleway raised.*

Source: Cycleway Design Toolbox, Transport for NSW 2020

4.2.6.3 Roundabouts

Bicycle riders often have safety concerns at intersections, primarily at roundabouts. Roundabouts do not provide for a comfortable environment for either pedestrians or bicycle riders as the driver's attention is focused on watching for vehicles entering or on the roundabout. For this reason, roundabouts are not recommended on any primary or local bicycle or walking routes.

4.2.6.4 Bike boxes

Expanded Bicycle Storage Areas (or 'Bike boxes') assist bicycle riders with both left and right turning movements. These areas continue the preceding bicycle lane to a distance of 4 to 5 metres beyond the motor vehicle stop line and they vary in width to suit the number of traffic lanes that they are to be expanded in front of. A stop line truncates the bicycle lane. Bike boxes are usually only provided at signalised intersections on the minor road.

An example of a Bike box is shown in Figure 4.9.



Figure 4.9 Bike box example in Redfern, NSW

Source: <https://cyclingprojects.weebly.com/bike-box.html>

4.2.7 Bicycle advisory marking

4.2.7.1 Distinctive coloured pavement bicycle lanes

The purpose of green coloured pavement for on-road bicycle lanes is to enhance the visibility and recognition of bicycle lanes to reduce the chance of conflict between motor vehicles and bicycles. On-road green coloured bicycle lanes can be considered in areas of 'high potential conflict' between motor vehicle and bicycle traffic. Areas of 'high potential conflict' between motor vehicles and bicycle traffic include those segments of on-road bicycle lane where motor vehicle traffic is legally permitted to cross the double continuity lines.

4.2.7.2 Bicycle Information - pavement stencils

Pavement stencils are used to advise bicycle riders about a changing road environment. Examples of pavement stencils used in South Australia are shown in Table 4.3. The pavement stencil is located approximately five metres ahead of the platform to warn bicycle riders to merge with traffic before reaching the platform where the traffic lanes narrow.

Table 4.3 Examples of pavement stencils

Advising of a potential conflict between pedestrians and bicycle riders. 	A "Cyclists Dismount" marking on the shared bicycle path in Glenelg, Australia 
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4.2.8 Bicycle parking

4.2.8.1 Bicycle Enclosures (long term parking)

Bicycle enclosures as shown in Figure 4.10 may be suitable to be installed when a high demand for commuter bicycle riding occurs, such as at the train stations or town centres. They can also be considered at other high demand locations for bicycle riders, such as at schools/TAFE.



Figure 4.10 *Secure bicycle enclosures*

Bicycle enclosure at Upper Mt. Gravatt busway station
in Brisbane



Bicycle enclosure on the Gold Coast,
Queensland

5. Section 5 – Proposed pedestrian and bicycle rider improvements

This final section of the report details the proposed active transport network improvements aimed at driving a modal share shift towards active transport, increasing connectivity, improving the user experience, and improving accessibility to active transport for the Hilltops community to provide better transport equity. The proposed improvements have been formulated following:

- Site observations
- GIS mapping
- Review of best practice
- Review of existing conditions
- Review of previous PAMPs
- Community and stakeholder engagement and discussions with Hilltops Council.

5.1 Types of Pedestrian and Bicycle Improvements

Pedestrian infrastructure initiatives are classified under the following categories:

- **Amenity** which is the attractiveness of an area for pedestrians and cyclists. Improvements could involve upgrading an existing footpath and shared path surface or introducing landscaping or art feature along walkways and cycleways.
- **Safety** along the route to address safety issues for pedestrians and cyclists from traffic or other physical hazards including trip hazards. This also includes perceived safety issues for pedestrians and cyclists such as walking and cycling along or crossing busy roads.
- **Information** that includes wayfinding signage, maps, brochures and pamphlets.
- **Disabled/pram access** along the routes that do not comply with Disabled Discrimination Act (DDA) standards and other issues including steep gradients and access via steps.
- **Connectivity** with new links between streets and land uses.
- **Severance** for pedestrians and cyclists to cross busy roads, railway lines or waterways.
- **Access to adjacent land uses** with new pedestrian and cycling access to land uses being blocked by fences or walls.

These active transport improvements can include the types of projects shown in Table 5.1, which also indicates the benefits of each pedestrian and cyclist improvement.

Table 5.1 Potential Pedestrian Infrastructure Initiatives

Initiative	Amenity	Safety along the route	Information	Security	Disabled/ Pram Access	Connectivity	Severance	Access to adjacent land use
Footpath/ Shared Path Resurfacing	✓	✓			✓			
Footpath Replacement	✓	✓			✓			
New Footpath/ Shared Path	✓	✓			✓		✓	✓
Bridge Crossing		✓			✓	✓	✓	✓
Underpass Crossing		✓			✓	✓	✓	✓

Initiative	Amenity	Safety along the route	Information	Security	Disabled/ Pram Access	Connectivity	Severance	Access to adjacent land use
Lighting	✓	✓		✓				
Ramps					✓	✓		
Lifts					✓	✓		
Stairs						✓		
Pedestrian/ Cyclists Actuated Signal Crossing		✓			✓	✓	✓	
Zebra Crossing		✓			✓	✓	✓	
Raised pedestrian/cyclists crossing (Zebra)		✓			✓	✓	✓	
Shared Zone	✓	✓			✓			
Reduced Traffic Speed Limit		✓						
Traffic Calming	✓	✓						
Wayfinding/ Signage			✓	✓				
Information			✓	✓				

5.1.1 Cost Estimate

The indicative unit costs shown in Table 5.2 for the purposes of costing the prioritised active transport improvement works. The minimum widths for footpaths and shared paths are based on Get NSW Active program FY2024/25 Funding Guidelines (see section 2.1).

Table 5.2 *Indicative Cost Estimate Assumptions*

Treatment	Unit cost
New footpaths – 1.8m wide, no reinforcement (per sqm)	\$150
Footpath upgrade /resurfacing (per sqm)	\$150
Shared path – 3m wide, reinforced (per sqm)	\$185
Line marking (per 100m)	\$500
Footpath grinding (each)	\$250
Kerb ramp – to suit a standard 1.8m wide path	\$2,500
Driveway treatment (raised continuous footpath)	\$25,000
Kerb blister / extension	\$30,000
Pedestrian refuge	\$25,000
Pedestrian Refuge + 2 blisters	\$50,000
Service lid repair	\$500
Zebra crossing	\$60,000
Raised pedestrian crossing (Wombat)	\$140,000
signal controlled crossing	no rates generated no signals in HC
signal controlled crossing (existing signal intersection)	no rates generated no signals in HC
Tactile Ground Surface Indicators	\$600

Treatment	Unit cost
Road signage	\$500
Bus stop seats	\$2,500
Bus stop pad	\$8,400
Bus stop shelter (slimline)	\$15,000
Public seating	\$3,500
Pedestrian fence (handrail) per m	\$250
Pedestrian fence (guard rail) per m	\$480
Removal of pedestrian infrastructure and upgrade	POA
Replace stair (per m)	\$1,000
Vegetation trimming (per site)	\$250
Bollard	\$500
Resurface road at intersection	\$25,000
Raised traffic calming (raised threshold)	\$140,000

Where possible, unit rates provided by the Council have been used directly. For items where costs were not available previous studies, estimation and professional judgement have been used. These costs are indicative and are subject to change and make no allowances for contingencies or actual site design and installation.

5.2 Vehicle speed

Vehicle speeds is a significant factor in cyclists' safety. According to the Transport for NSW Cycleway Design Toolbox, where separation is not a possible improvement for all road users, safety risk mitigation can be achieved by reducing motor traffic volumes and speed of 30km/h or less.

The NSW Cycleway Design Toolbox recommends the implementation of Quietways as follows:

- To enhance road safety for cyclists, the following measures should be taken:
 - Reduce traffic volumes to <2000 Passenger car unit per day.
 - Minimise or eliminate through-traffic by applying filtered permeability, closing streets to motor vehicles, or incorporating pinch points at the entry and exit.
 - Reduce speed limits to <30 km/h.
 - Reduce road width to <3.0 m per lane, but preferable less.
 - Apply traffic calming measures such as raised/tactile centre medians.
 - Impede sight lines through carefully located landscape features or street furniture.
 - Parking and loading zones should be provided outside the main carriageway to prevent dooring.

5.3 Rural village schools

Investigate and provide students with a pathway to safely ride to rural village schools like Bribbaree Public School, Jugiong Public School, Koorawatha Public School, Maimuru Public School, Monteagle Public School, Murringo Public School and Wombat Public School. Walking is one of the healthiest, safest and easiest ways to be utilised as part of the school's health fitness activities and can be a big step toward improving the health of the students.

5.4 Boorowa, Harden-Murrumburrah and Young proposed pedestrian and bicycle rider improvements

The proposed treatments to improve the active transport facilities in terms of safety, accessibility and efficiency for pedestrians and cyclists are described in this section. A full list of the proposed improvements is provided in Table 5.3, Table 5.4 and Table 5.5.

It is noted that further investigation for kerb ramps and crossings will be required at design stage to fully consider the site constraints when implementing the proposed treatments. It is also recommended to further investigate the case for new pedestrian crossings in Boorowa, Harden-Murrumburrah and Young town, taking into account that heavy vehicle traffic routes are a major barrier to safe walking and cycling trips.

Despite the village of Wombat not being included in the scope of this study, it was noted that the pedestrians and cyclists from Wombat are exposed to high safety risks as the village's eastern and western sides are separated by the Olympic Highway, with residents and visitors from the west side having to cross the highway for multiple purposes (e.g. accessing Wombat Public School and the Wombat Hotel). Further initiative is required to provide safe pedestrian crossing across the highway.

Table 5.3 Young proposed pedestrian and bicycle rider improvement

ID	Location	Street/ Intersection	Description of Issue	Description of Proposed Treatment	Number of Units	Distance (m)	Estimate Cost (AUD)
1	Young	Recreational and retail areas	Lack of end of trip facilities at key trip generators 	Add 8x cycle parking at Cranfield Oval, Young Cricket Ground, Young Showgrounds, Woolworths, Young Train station and Skatepark / outdoor pool, Young Croquet Club	56	0	\$7,280
2	Young	Boorowa Street	Non-standard refuge crossings 	Refuge should be widened to standard width at Boorowa Street / Thornhill Street roundabout. Investigate warrant to provide pedestrian crossing.	1	0	\$25,000
3	Young	Boorowa Street	Lack of crossings in the town centre	Needs to be considered holistically with a reviewed street master plan. Investigate speed calming and divert Olympic Highway traffic away from the city centre. It is recommended to investigate the provision of 1 or 2 zebra crossings at the high pedestrian activity area (e.g. Commonwealth Bank). Further investigation into diverting heavy freight vehicles is also recommended to improve the safety of pedestrians and cyclists by diverting the movement of freight to Lovell Street. The diversion of heavy freight vehicles would facilitate crossing at the refuge islands along Boorowa Street, improving accessibility to the key attractors (i.e. bank, cafes, restaurants)	1	0	TBD
4	Young	Clark Street	Improve crossings of rail lines. Higher quality facility which is completely accessible is possible at Clark Street, Main Street and Lynch Street. 	Investigate the possibility to remove the level crossing to improve pedestrian crossing, creating a smooth surface over the tracks to improve accessibility for bikes, prams, wheelchairs and walking aids. Subject to permission from rail network manager.	1	30	TBD
5	Young	Main Street	Improve crossings of rail lines. Higher quality facility which is completely accessible is possible at Clark Street, Main Street and Lynch Street. 	Investigate the possibility to remove level crossing at Main Street if no longer required to improve pedestrian crossing, creating a smooth surface over the tracks to improve accessibility for bikes, prams, wheelchairs and walking aids. Subject to permission from rail network manager.	1	30	TBD
6	Young	Lynch Street	Improve crossings of rail lines. Higher quality facility which is completely accessible is possible at Clark Street, Main Street and Lynch Street. 	Investigate the possibility to remove crossing facilities at Lynch Street if no longer required to improve pedestrian crossing, creating a smooth surface over the tracks to improve accessibility for bikes, prams, wheelchairs and walking aids. Subject to permission from rail network manager.	1	30	TBD

ID	Location	Street/ Intersection	Description of Issue	Description of Proposed Treatment	Number of Units	Distance (m)	Estimate Cost (AUD)
7	Young	Burrangong Creek	Flood damaged active transport infrastructure along Burrangong Creek 	Repair flood-damaged sections of the shared path	1	1800	TBD (further investigations required)
8	Young	Lovell Street	Lack of cycling infrastructure in town centre 	Provide cycling facility along Lovell Street to improve the connectivity to Burrangong Creek shared path via Thornhill Street. Further investigation required for cycling path selection (e.g. shared path/ cycling line/ separated cycle path) to provide cyclist efficient and safe cycle routes.	1	888	\$492,840
9	Young	Berthong Street	Provide footpath along Berthong Street between Willawong Street to Templemore Street near Young High School 	Provide footpath along Berthong Street between Willawong Street and Templemore Street near Young High School	1	1,600	\$432,000
10	Young	Corner Dundas and Thornhill Street	Narrow, and poorly implemented ramp 	Upgrade ramp to current standard for easier prams and mobility devices access	1	10	\$2,500
11	Young	Thornhill Street	Lack of footpaths to connect residential streets to town centre 	Footpath extension on west side of Thornhill Street between Spring Street to where existing footpath terminates after Miro Street	1	240	\$64,800
12	Young	Nasmyth Street	Lack of adequate shared path for pedestrians, cyclists and mobility impaired. 	Reduce effective carriageway width and shift parking further from the kerb to implement a 3m wide shared path to be used by walkers, cyclists and mobility scooters. Along Nasmyth Street between Edwards Street and the intersection with Zouch Street.	1	1400	\$777,000
13	Young	Nasmyth Street (Under Bridge)	Lack of footpath to connect residential street to Big W. 	Provide footpath along eastern side of the road under the railway bridge between Nasmyth Street and Lovell Street-Big W.	1	135	\$3,6450

ID	Location	Street/ Intersection	Description of Issue	Description of Proposed Treatment	Number of Units	Distance (m)	Estimate Cost (AUD)
15	Young	Nasmyth Street	No Kerb ramps on Nasmyth Street (under Bridge Street) for prams and mobility devices to access newly proposed footpath. 	Provide kerb ramps on both side of Nasmyth Street (under Bridge Street).	1	1	\$2,500
16	Young	Lovell Street	Absence of refuge island and Kerb ramps to cross Lovell Street for shopping centre 	Provide ramps and refuge island on Lovell Street to provide an access to shopping centre.	1	1	\$30,000
17	Young	Clarke Street	Kerb ramps on Clarke Street/Lovell Street are not compliant with design standards-Transport for NSW-R0300 Kerb and Channel Series and AS-1428.1:2021- Design for access and mobility. 	Upgrade kerb ramps on Clarke Street/Lovell Street to comply with Transport for NSW-R0300 Kerb and Channel Series and AS-1428.1:2021- Design for access and mobility.	2	1	\$5,000
18	Young	Boorowa Street	Lack of paved connection from footpath to ramp. 	Provide paved path to connect existing ramp and exiting footpath along Boorowa Street	1	1	\$140,000
19	Young	Nasmyth Street	Lack of footpath along Nasmyth Street 	Provide footpath along Nasmyth street connecting proposed path between Stoneridge Street and Hills Street.	1	1,600	\$432,000
20	Young	William Street	Missing link for pedestrians 	Implement and extend existing footpath along William Street between Jasprizza Avenue and Fontenoy Street.	1	880	\$237,600
21	Young	William Street, Nasmyth Street, Edwards Street	No refuge island and Kerb ramps on William Street, Nasmyth Street, Edwards Street 	Provide refuge island with ramps facility and Kerb ramps on William Street, Nasmyth Street, Edwards Street.	-	-	\$90,000
22	Young	Edwards Street	Lack of footpath along Edwards Street 	Provide footpath along Edwards Street between William Street and Mclerie Street.	1	1,920	\$518,400

ID	Location	Street/ Intersection	Description of Issue	Description of Proposed Treatment	Number of Units	Distance (m)	Estimate Cost (AUD)
23	Young	Clarke Street	Missing Link on Clarke Street 	Provide footpath between William Street and Nasmyth Street	1	200	\$54,000
24	Young	Lynch Street	Missing Link on Lynch Street 	Provide footpath along Lynch Street between William Street and Nasmyth Street	1	200	\$54,000
25	Young	Hill Street	Connectivity & continuity of footpaths 	Investigate case for providing footpath along Hill Street between Nasmyth Street and the Olympic Highway.	1	1,600	\$432,000
26	Young	Brock Street/Karabah Avenue	Connectivity & continuity of footpaths 	Investigate case for providing footpath along Brock Street/Karabah Avenue between Hill Street and Olympic Highway.	1	1,060	\$286,200
27	Young	Prospect Street	Connectivity & continuity of footpaths 	Provide footpath along Prospect Street between Taylor Road and Olympic Highway/Elizabeth Street.	1	500	\$135,000
28	Young	Orchard Street	Connectivity & continuity of footpaths 	Provide footpath along Orchard Street between Hill Street and Olympic Highway/Elizabeth Street.	1	1,000	\$270,000
29	Young	Taylor Road	Connectivity & continuity of footpaths 	Provide footpath along Taylor Road between William Street and Olympic Highway.	1	1,230	\$332,100
30	Young	Blackett Avenue	Connectivity & continuity of footpaths 	Extend footpath along Blackett Avenue between Musgrave Street and Landra Street	1	800	\$216,000
31	Young	Berthong Street	Connectivity & continuity of footpaths	Provide footpath along Berthong Street between Templemore Street and Willawong Street	1	1,600	\$432,000

ID	Location	Street/ Intersection	Description of Issue	Description of Proposed Treatment	Number of Units	Distance (m)	Estimate Cost (AUD)
							
32	Young	Thornhill Street	Absence of pedestrian crossing to cross Thornhill Street for shopping centre. 	Provide refuge island on Thornhill Street and provide an access to shopping centre. Investigate warrant for priority crossing.	1	1	\$25,000
33	Young	Kingsvale Road	Connectivity & continuity of footpaths	Provide shared path along Kingsvale road or rail corridor to Lambing Flat Chinese Tribute Garden	1	3,000	\$900,000

Table 5.4 Harden-Murrumburrah proposed pedestrian and bicycle rider improvement

ID	Location	Street/ Intersection	Description of Issue	Description of Proposed Treatment	Number of Units	Distance (m)	Estimate Cost (AUD)
1	Harden-Murrumburrah	Albury Street	Fractured and discontinuous shared path along Albury Street 	Provide and connect existing shared path along Albury Street between Station Street and Iris Street/ Roberts Park for better connectivity and continuity.	1	1,344	\$745,920
2	Harden-Murrumburrah	Albury Street	Poor quality footpaths along Albury Street. Narrow and damaged 	Restore and upgrade damaged footpath. Due to water main limitations, three sections of pathway were / not completed under previous PAMP.	1	500	\$135,000
3	Harden-Murrumburrah	Station Street	Lack of connection between leisure facilities on Station Street 	Provide a refuge island and investigate case for priority crossing on Station Street to link Tim Doolan Oval / Skatepark / Pool to McLean Oval / Bus area High School to Scott Street	1	1	\$25,000
4	Harden-Murrumburrah	Recreational Areas	Lack of end of trip facilities at key trip generators 	20x cycle parking at Harden Tim Doolan Oval / Pool / Skatepark, 5x cycle parking at Roberts Park	25	1	\$3,250
5	Harden-Murrumburrah	Station Street	Lack of pedestrian facility in the town centre 	Refuge island in front of Commonwealth bank on Station Street should be widened to standard width.	1	1	\$25,000
6	Harden-Murrumburrah	Whitton Lane	Lack of pedestrian facility in the town centre	Provide standard kerb ramps, potentially include signage for high pedestrian activity and reduced speed	2	1	\$5,000

ID	Location	Street/ Intersection	Description of Issue	Description of Proposed Treatment	Number of Units	Distance (m)	Estimate Cost (AUD)
							
7	Harden-Murrumburrah	Station Street	Damaged footpath in front of the railway station 	Improve footpath between the railway station entrance and Station Street	1	17	\$4,590
8	Harden-Murrumburrah	Aurville Road, rail underpass	Lack of connection	Pathway required to link North Street to Aurville Road area	1	470	\$126,900
9	Harden-Murrumburrah	Clarke Street	Missing link and lack of connection of footpaths 	Extend existing footpath along Clarke Street between Iris Street and Ward Street and Derby Street and Lucan Street	1	682	\$184,140
10	Harden-Murrumburrah	Iris Street	Connectivity & continuity of footpaths 	Extend footpath along Iris Street between Albury Street and Swift Street	1	270	\$72,900
11	Harden-Murrumburrah	Swift Street	Missing link and lack of connectivity & continuity of footpaths 	Provide footpath along Swift Street to connect with existing path	1	1,000	\$270,000
12	Harden-Murrumburrah	Jugiong Road	Missing link and lack of connectivity & continuity of footpaths 	Extend footpath along Jugiong Road between Scott Street and East Street	1	1920	\$518,400

Table 5.5 Boorowa proposed pedestrian and bicycle rider improvement

ID	Location	Street/ Intersection	Description of Issue	Description of Proposed Treatment	Number of Units	Distance (m)	Estimate Cost (AUD)
1	Boorowa	Rail Trail	Lack of recreational active travel facilities 	Implement proposed Boorowa / Galong Rail Trail. Deemed feasible in 2022	N/A	0	TBD
2	Boorowa	Recreational Areas	Lack of end of trip facilities at key trip generators	15x cycle parking at Boorowa Park, 10x at Boorowa Showground	25	1	\$3,250

ID	Location	Street/ Intersection	Description of Issue	Description of Proposed Treatment	Number of Units	Distance (m)	Estimate Cost (AUD)
							
3	Boorowa	Market Street	Unsafe crossing of Market Street to reach recreational facilities and library 	Refuge should be widened to current widths at the top of Market Street and at swimming pool access. Investigate warrant to provide priority pedestrian crossing.	1	1	\$25,000
4	Boorowa	Pudman Street	Lack of connectivity of active transport to wider township 	Provide shared path along Pudman Street between Scott Street and Long Street. Linking to existing path beginning at Court Street running into Boorowa Park	1	787	\$436,785
5	Boorowa	Short Street/Farm Street	Lack of connectivity of active transport to wider township 	Provide shared path along Short Street/Farm Street to extend the existing path to Farm Street	1	685	\$380,175
6	Boorowa	Long Street/Dillon Street	Lack of connectivity of active transport to wider township 	Provide shared path along Long Street/Dillon Street to extend the proposed path to Farm Street	1	1,550	\$860,250
7	Boorowa	Ford Street	Lack of connectivity of active transport to wider township 	Provide shared path along Ford Street	1	1,350	\$749,250
8	Boorowa	Brial Street	Lack of connectivity of active transport to wider township 	Provide shared path along Brial Street between Long Street and Dry Street, as well as between Court Street and the existing river walk.	1	600	\$333,000
9	Boorowa	Pudman Street	Lack of continuity from Central School to CBD 	Provide refuge island across Pudman Street near the intersection of Pudman Street and Court Street to enable better continuity and safety of pedestrians who use the southern part of Pudman Street	1	0	\$25,000
10	Boorowa	Market Street	Lack of continuity from Central School to CBD 	Provide refuge island with 2 blisters across Market Street in front of the entrance of Boorowa Playground for better continuity for kids and students	1	0	\$50,000

Figure 5.1 shows the proposed active transportation treatments for Young. The numbers in circles represents treatments at discrete locations, the other numbers indicate linear treatments. The proposed connection to the Lambing Flat Chinese Tribute Gardens is not shown as there are multiple options for the route.

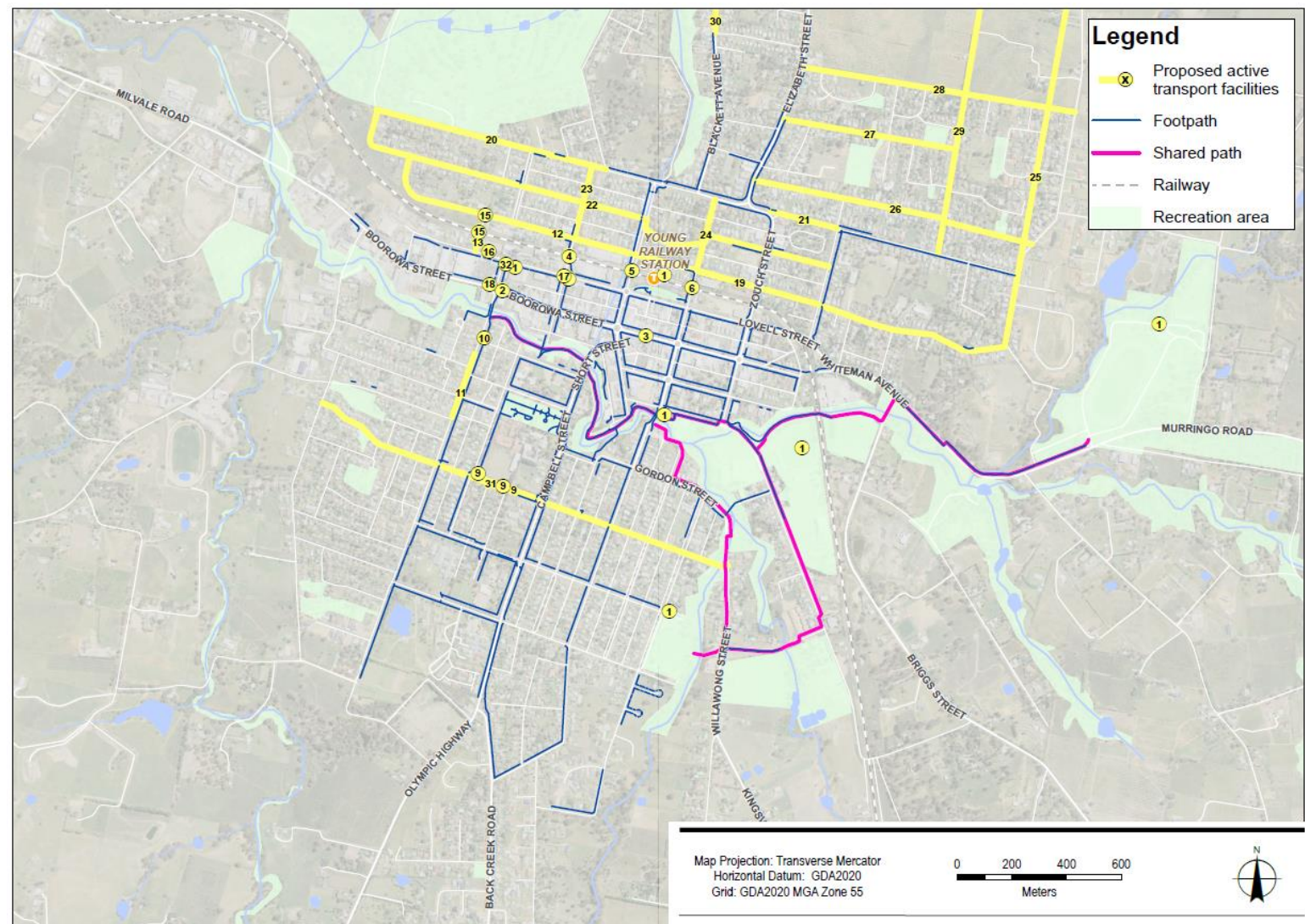


Figure 5.1 Young Proposed pedestrian and bicycle routes GIS map (see Table 5.3 for ID reference and descriptions)

Figure 5.2 shows the proposed active transportation treatments for Boorowa. The numbers in circles represents treatments at discrete locations, the other numbers indicate linear treatments.

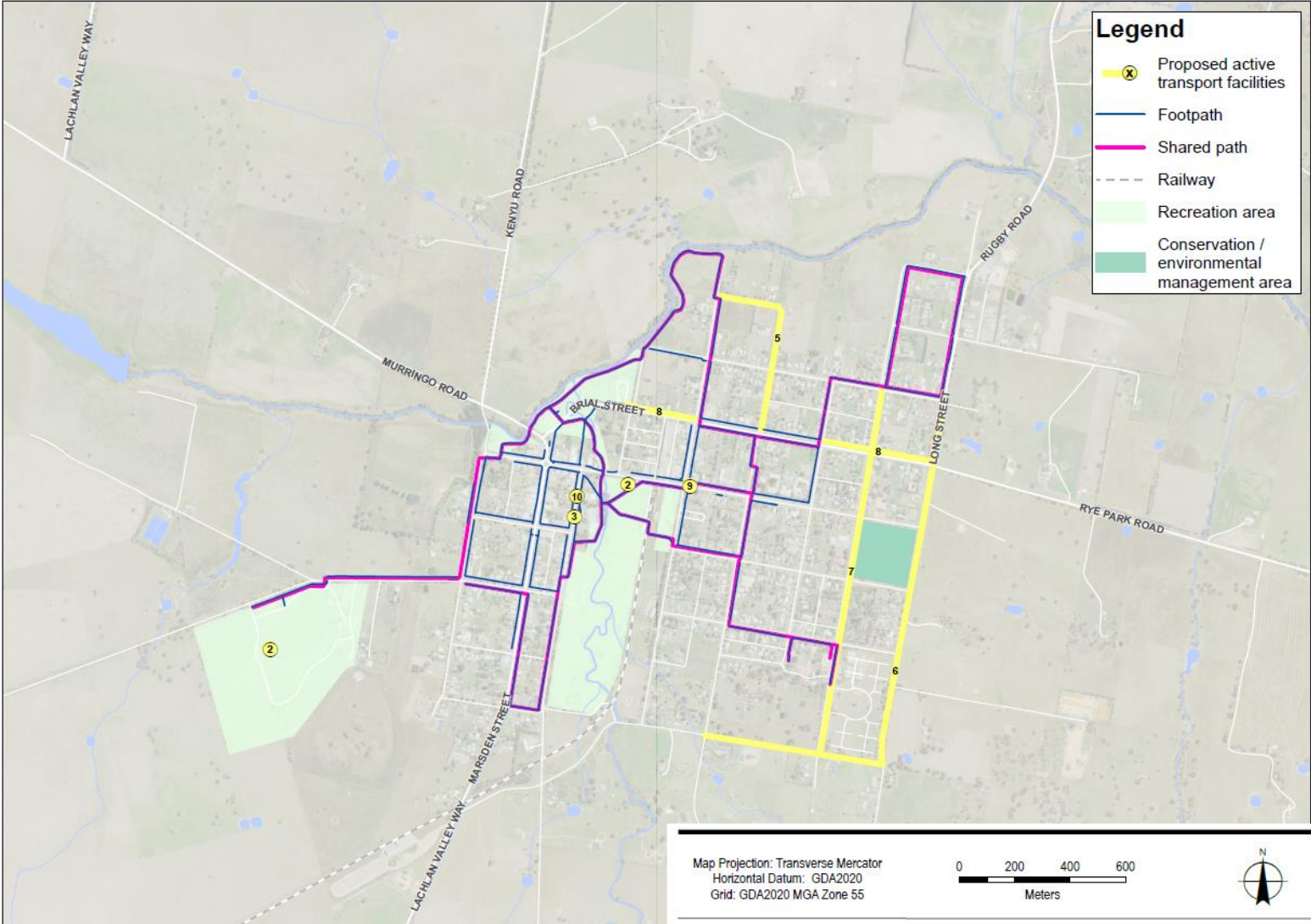


Figure 5.2 Boorowa Proposed pedestrian and bicycle routes GIS map (see Table 5.4 for ID reference and descriptions)

Figure 5.3 shows the proposed active transportation treatments for Harden. The numbers in circles represents treatments at discrete locations, the other numbers indicate linear treatments.

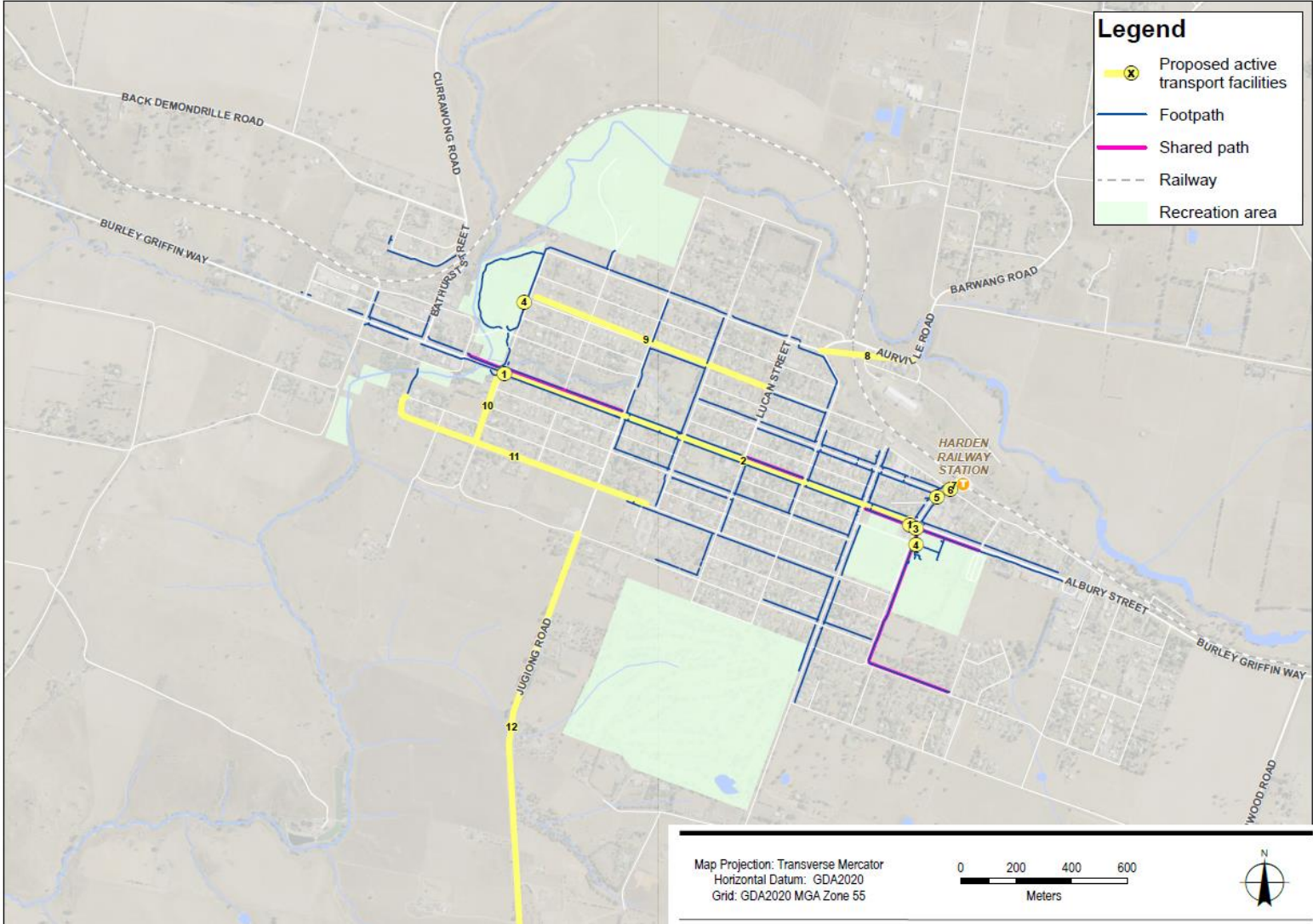


Figure 5.3 Harden Proposed pedestrian and bicycle routes GIS map (see Table 5.5 for ID reference and descriptions)

6. Priorities for pedestrian and bicycle rider Improvements

6.1 Methodology to prioritise pedestrian requirements

The *How to Prepare a Pedestrian Access and Mobility Plan* (2002) provides guidance on what is important in providing footpaths. This method was used to determine the prioritisation of the proposed improvements.

Scores were derived for each of the recommended pedestrian improvements for the purpose of prioritising projects. The Weighted Criteria Scoring System from the Transport for NSW *How to Prepare a Pedestrian Access and Mobility Plan* (2002) was used to prioritise each proposed improvement as shown in Table 6.1.

Table 6.1 TfNSW Weighted Criteria Scoring System

Category	Criteria
Land Use	Number of Attractors/Generators
	Land Use Type
	Proximity to Attractors/Generators
	Future Development with Attractors/Generators
Traffic Impact	Road Hierarchy
Safety	Identified as Hazardous Area (from consultation)
	Identified Pedestrian Crashes
Facility Benefits	Demonstrated Path
Continuity of Routes	Addition to Existing Facility
Priority	Pedestrian Route Hierarchy

The TfNSW defines the overall work prioritisation as:

- High (100 – 70)
- Medium (<70 – 40)
- Low (<40)

In order to determine the priorities of the pedestrian access improvement items, the infrastructure initiatives or studies are given a priority rating to be accommodated in the Council budget cycle. A possible weighted scoring system is provided in Table 6.2. However, a system could be customised to suit specific council areas according to local needs.

Council is likely to receive requests for additional works beyond those identified in this plan. The same methodology can be applied to these requests to determine their level of prioritisation.

Table 6.2 **Weighted Scoring Criteria to Prioritise the ATP Initiatives**

Category	Criteria	Performance Conditions 1	Score 2, 3
Land Use	Number of attractors/generators (locations)	more than 5 locations	10
		3-5 locations	8
		1-2 locations	5
		0 locations	0
	Land use type	schools	10
		commercial/retail	8
		residential	5
		other	0
	Proximity to generators/attractors	less than 250 metres	10
		>250-500 metres	8
		>500-1000 metres	5
		>1000 metres	0
	Future development with attractors/generators	High	5
		medium	3
		low	1
Traffic Impact	Road hierarchy	State Road	15
		Regional Road	10
		Local Road	8
		Special use	5
		Other	0
Safety	Identified as hazardous area (from audit or consultation)	High	10
		Medium	8
		Low	5
		None	0
	Identified pedestrian crashes	>3 reported crashes per year	15
		3 reported crashes per year	10
		2 reported crashes per year	8
		1 reported crash per year	5
		0 reported crashes per year	0
Facility Benefits	Demonstrated path	High usage	10
		Medium usage	8
		Low usage	5
		No demonstrated use	0
Continuity of routes	Addition to existing facility	Link existing facilities	10
		Extension of facilities	8
		Addition to facilities	5
		Other	0
Priority	Pedestrian route hierarchy	High use	5
		Medium use	3
		Low use	1

Notes:

¹ Only one performance condition is to be selected for each criterion e.g. Land use type residential = 5.

^{2,3} The maximum score achievable overall is 100.

The overall work prioritisation is then determined by adding up each criterion scores to reflect the environment of the specific area. e.g. High (100-70), Medium (<70-40), Low (<40) or Considering (not scored).

Source: How to Prepare a Pedestrian Access and Mobility Plan, Roads and Traffic Authority of NSW (RTA), 2002

6.1.1 Limitations of TfNSW methodology

Please note that there are limitations to the TfNSW based methodology for prioritising each proposed improvement. For example, the Weighted Criteria Scoring System does not include the presence of existing footpaths on the opposite side of the street. This results in the proposed improvement having a higher priority using the TfNSW method (as it is assumed there is no footpath along the route).

In addition, at some key generators, pedestrian facilities may be urgently required (outside an aged care facility, for example). However, the weighting system may not provide a score that is significantly higher for the same type of facility at a less critical location. Therefore, consideration needs to be taken when assessing priorities in conjunction with the Transport for NSW methodology.

The methodology also does not apply a weighting for the costs associated with identified works. Noting the limitations on the amount and timing of funding being available, it is likely that works would not necessarily ultimately be delivered in the same order they are scored.

6.2 Ranking of the pedestrian improvements

Results from the Transport for NSW weighted prioritisation is provided in Table 6.3. Recommendations are based on GHD site-based prioritisation. Transport for NSW weighted prioritisations are provided in full in Appendix C.

The overall work prioritisation has been determined for high, medium and low priority projects, by using the following prioritisation scoring ranges:

- High priority: 100-70
- Medium priority: <70-40
- Low priority: <40

Table 6.3 *Identified Issues and Proposed Upgrades*

ID	Location	Street/ Intersection	Description of Proposed Treatment	TfNSW Priority	TfNSW Rank	Priority
2	Young	Boorowa Street	Refuge should be widened to current widths at Boorowa St / Thornhill Street roundabout. Investigate warrant to provide priority pedestrian crossing.	60	1	Medium
3	Young	Boorowa Street	It is recommended to provide 1 or 2 pedestrian prioritised crossing(s) (zebra crossing) at the high pedestrian activity area (i.e. CommBank). Also, further investigation for diverting the movement of freight into another street is recommended. The safety of pedestrians and cyclists would be increased a lot by diverting the movement of freight to Lovell Street. Also, the diverting of freights would increase the practicability of refuge islands that are installed in the middle of Boorowa Street. This would enable people to cross the road more safely and have a better accessibility to the key attractors (i.e. bank, cafes, restaurants)	60	1	Medium

ID	Location	Street/ Intersection	Description of Proposed Treatment	TfNSW Priority	TfNSW Rank	Priority
5	Harden-Murrumburrah	Station Street	Refuge island in front of Commonwealth bank on Station Street should be widened to standard width.	59	3	Medium
3	Harden-Murrumburrah	Station Street	Provide a refuge island and investigate case for pedestrian crossing on Station Street to link Tim Doolan Oval / Skatepark / Pool to McLean Oval / Bus area High School to Scott Street	56	4	Medium
9	Boorowa	Pudman Street	Provide refuge island across Pudman Street near the intersection of Pudman Street and Court Street to enable better continuity and safety of pedestrians who use the southern part of Pudman Street	56	4	Medium
10	Boorowa	Market Street	Provide refuge island with 2 blisters across Market Street in front of the entrance of Boorowa Playground for better continuity for kids and students	56	4	Medium
19	Young	Nasmyth Street	Provide footpath along Nasmyth street connecting proposed path between Stoneridge Street and Hills Street.	55	7	Medium
33	Young	Kingsvale Road	Provide shared path along Kingsvale Road or rail corridor to Lambing Flat Chinese Tribute Garden	55	7	Medium
6	Harden-Murrumburrah	Whitton Lane	Provide standard kerb ramps, potentially include signage for high pedestrian activity and reduced speed	54	8	Medium
9	Young	Berthong Street	Provide footpath along Berthong Street between Willawong Street and Templemore Street near Young High School	53	9	Medium
21	Young	William Street, Nasmyth Street, Edwards Street	Investigate case to provide pedestrian crossings and kerb ramps along William Street, Nasmyth Street and Edwards Street.	53	9	Medium
3	Boorowa	Market Street	Refuge should be widened to current widths at the top of Market Street and at swimming pool access. Investigate warrant to provide priority pedestrian crossing.	51	11	Medium
7	Harden-Murrumburrah	Station Street	Improve footpath between the railway station entrance and Station Street	51	11	Medium
31	Young	Berthong Street	Provide footpath along Berthong Street between Templemore Street and Willawong Street	50	13	Medium

ID	Location	Street/ Intersection	Description of Proposed Treatment	TfNSW Priority	TfNSW Rank	Priority
10	Harden-Murrumburrah	Iris Street	Extend footpath along Iris Street between Albury Street and Swift Street	50	13	Medium
11	Harden-Murrumburrah	Swift Street	Provide footpath along Swift Street to connect with existing path	50	13	Medium
2	Harden-Murrumburrah	Albury Street	Restore and upgrade damaged footpath. Due to water main limitations, three sections of pathway not completed under previous PAMP.	48	16	Medium
20	Young	William Street	Implement and extend existing footpath along William Street between Jasprizza Avenue and Fontenoy Street.	48	16	Medium
9	Harden-Murrumburrah	Clarke Street	Extend existing footpath along Clarke Street between Iris Street and Ward Street and between Derby Street and Lucan Street	47	18	Medium
4	Young	Clark Street	Investigate the possibility to remove crossing facilities if no longer required to improve pedestrian crossing. Build smooth surface over the tracks to improve accessibility for bikes, prams, wheelchairs and walking aids. Subject to rail operator permission.	46	19	Medium
5	Young	Main Street	Investigate the possibility to remove crossing facilities at Main Street if no longer required to improve pedestrian crossing. Build smooth surface over the tracks to improve accessibility for bikes, prams, wheelchairs and walking aids. Subject to rail operator permission.	46	19	Medium
6	Young	Lynch Street	Investigate the possibility to remove crossing facilities at Lynch Street if no longer required to improve pedestrian crossing. Build smooth surface over the tracks to improve accessibility for bikes, prams, wheelchairs and walking aids. Subject to rail operator permission.	46	19	Medium
27	Young	Prospect Street	Provide footpath along Prospect Street between Taylor Road to Olympic Highway/Elizabeth Street, investigate further.	45	22	Medium
12	Harden-Murrumburrah	Jugiong Road	Extend footpath along Jugiong Road between Scott Street and East Street	45	22	Medium
22	Young	Edwards Street	Provide footpath along Edwards Street between William Street and Mclerie Street.	43	24	Medium

ID	Location	Street/ Intersection	Description of Proposed Treatment	TfNSW Priority	TfNSW Rank	Priority
24	Young	Lynch Street	Provide footpath along Lynch Street between William Street and Nasmyth Street	42	25	Medium
25	Young	Hill Street	Investigate case for providing footpath along Hill Street between Nasmyth Street and the Olympic Highway.	40	26	Medium
32	Young	Thornhill Street	Implement refuge island on Thornhill Street to provide an access to shopping centre. Investigate warrant for priority crossing.	38	27	Low
23	Young	Clarke Street	Provide footpath between William Street and Nasmyth Street	35	27	Low
26	Young	Brock Street/Karabah Avenue	Investigate case for providing footpath along Brock Street/Karabah Avenue between Hill Street and Olympic Highway.	35	27	Low
29	Young	Taylor Road	Provide footpath along Taylor Road between William Street and Olympic Highway.	35	27	Low
30	Young	Blackett Avenue	Extend footpath along Blackett Avenue between Musgrave Street and Landra Street	35	27	Low
10	Young	Corner Dundas and Thornhill Street	Widen and improve ease of access up kerb to ramp for prams and mobility devices	33	31	Low
11	Young	Thornhill Street	Footpath extension on west side of Thornhill St between Spring Street and where the existing footpath terminates after Miro Street	33	31	Low
13	Young	Nasmyth Street (under Bridge)	Provide footpath along eastern side of the road under the railway bridge between Nasmyth Street and Lovell Street-Big W.	32	33	Low
8	Harden-Murrumburrah	Aurville Road, rail underpass	Pathway required to link North Street and Aurville area	32	33	Low
28	Young	Orchard Street	Provide footpath along Orchard Street between Hill Street and Olympic Highway/Elizabeth Street, investigate further.	30	36	Low
15	Young	Nasmyth Street	Introduce Kerb ramps on both side of Nasmyth Street (under Bridge Street)	27	37	Low
16	Young	Lovell Street	Provide ramps and refuge island on Lovell Street to provide an access to shopping centre.	27	37	Low
17	Young	Clarke Street	Upgrade Kerb ramps on Clarke Street/Lovell Street to comply with Transport for NSW-R0300 Kerb and Channel Series and AS-1428.1:2021- Design for access and mobility.	27	37	Low

ID	Location	Street/ Intersection	Description of Proposed Treatment	TfNSW Priority	TfNSW Rank	Priority
18	Young	Boorowa Street	Provide paved path to connect existing ramp and exiting footpath along Boorowa Street	27	37	Low

6.3 Bicycle facilities prioritisation and methodology

The Roads and Maritime Services guideline *How to Prepare a Bicycle Plan* (2002), indicate that future bicycle routes should be based on a set of priorities, including:

- Safety
- Community needs and expectations
- Council commitment
- Available funding and future planning opportunities
- Rectification / maintenance programs.

Overall, this set of priorities is considered to be rather general in nature and does not provide specific guidance on prioritising one route above another. However, specific guidance exists from the related Roads and Maritime Services publication *How to Prepare a Pedestrian Access and Mobility Plan* (PAMP) (2002), which can be adopted to suit a prioritisation methodology for bicycle routes.

6.4 Route prioritisation

A hierarchy of routes has been developed for the provision of walking and bike riding infrastructure for along the primary and secondary routes. The hierarchy has been developed based on a prioritisation scoring tool, shown in Table 6.4.

Each “Criteria” shown in Table 6.4 was scored high, medium or low based on the following scoring:

- High = 3
- Medium = 2
- Low = 1

The scores for each Criteria were then ranked based on the weighting for each Category, as shown in Table 6.4.

Table 6.4 Prioritisation of Works Scoring Tool

Category	Weighting	Criteria
Land Use	20%	Proximity to Attractors / Generators
		Future Development with Attractors / Generators
Perception	20%	Road Hierarchy
		Traffic volumes
		Ease of use of existing roads
		Attracts non-regular bicycle riders
		Safety (perception)
Safety	20%	Identified as Hazardous Area (from Site Audit and Consultation)
		Identified Pedestrian/ Bike Rider Crashes
Continuity of Routes	20%	Link existing facilities
		Extension of facilities

Category	Weighting	Criteria
		Addition to facilities
User Groups	20%	Children
		Older People
		Shopping
		Social
		Commuting
Total	100%	

Table 6.5 ranks the proposed local bicycle routes for Hilltops Council based on the modified Weighted Criteria Scoring System.

Table 6.5 *Priority Levels for Proposed Bicycle Routes – local routes*

ID	Location	Street/ Intersection	Description of Proposed Treatment	Score	Rank	Priority
1	Harden-Murrumburrah	Albury Street	Provide and connect the existing shared path along Albury Street between Station Street and Iris Street/ Roberts Park for better connectivity and continuity.	5.4	1	High
4	Boorowa	Pudman Street	Shared path along Pudman Street between Scott Street and Long Street. Linking to existing path between Court Street and Boorowa Park.	5.4	1	High
12	Young	Nasmyth Street	Reduce effective carriageway width and shift parking further between the kerb to implement a 3m wide shared path to be used by walkers, cyclists and mobility scooters. Stretching between Edwards Street and Nasmyth Street junction with A41	5.4	1	High
8	Boorowa	Brial Street	Extend the existing shared path along Brial Street between Long Street and Dry Street and Court Street and existing river walk.	5.2	4	High
8	Young	Lovell Street	Provide cycling facility along Lovell Street to improve the connectivity to Burrangong Creek shared path via Thornhill Street. Further investigation required for cycling path selection (e.g. shared path/ cycling line/ separated cycle path) to provide cyclist efficient and safe cycle routes	5	5	High

ID	Location	Street/ Intersection	Description of Proposed Treatment	Score	Rank	Priority
1	Young	Recreational and Retail Areas	Add 8x cycle parking at Cranfield Oval, Young Cricket Ground, Young Showgrounds, Woolworths, Young Train station and Skatepark / outdoor pool, Young Croquet Club	4.6	6	Medium
33	Young	Kingsvale Road	Provide shared path along Kingsvale Road or rail corridor to Lambing Flatt Chinese Tribute Garden	4.6	6	Medium
4	Harden- Murrumburrah	Recreational Areas	20x cycle parking at Harden Tim Doolan Oval / Pool / Skatepark, 5x cycle parking at Roberts Park	4.6	6	Medium
1	Boorowa	Rail Trail	Implement proposed Boorowa / Galong Rail Trail. Deemed feasible in 2022	4.4	8	Medium
2	Boorowa	Recreational Areas	15x cycle parking at Boorowa Park, 10x at Boorowa Showground	4.2	9	Medium
7	Young	Burrangong Creek	Repair flood damaged sections of shared path	3.8	10	Medium
5	Boorowa	Short Street/Farm Street	Provide shared path along Short Street/Farm Street to extend the existing path to Farm Street	3.6	11	Low
6	Boorowa	Long Street/Dillon Street	Provide shared path along Long Street/Dillon Street to extend the proposed path to Farm Street	3.4	12	Low
7	Boorowa	Ford Street	Provide shared path along Ford Street	3.4	12	Low

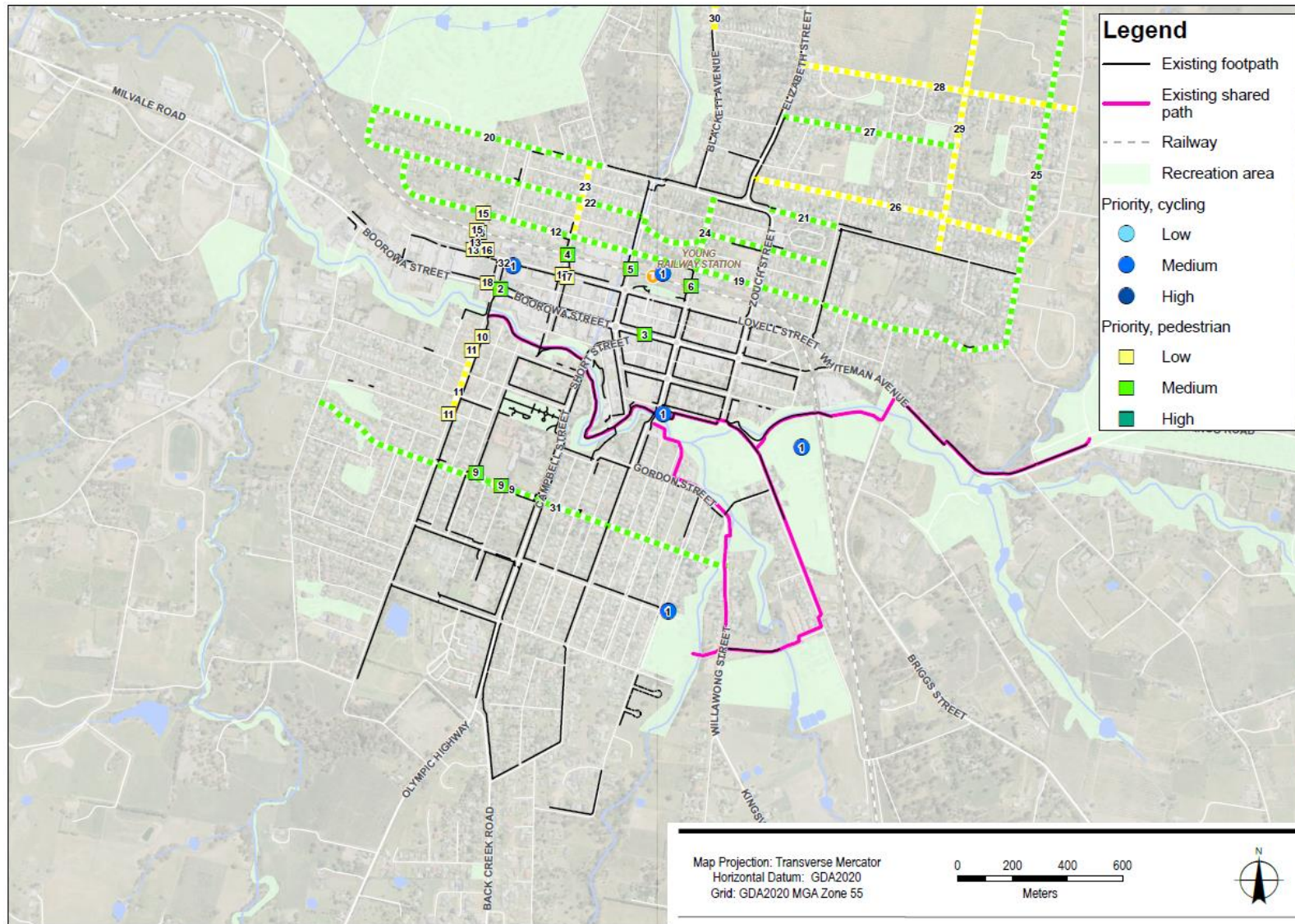


Figure 6.1 Priority levels for proposed pedestrian and bicycle routes-Young
 Note: The proposed connection to the Lambing Flat Chinese Tribute Gardens is not shown as there are multiple options for the route.

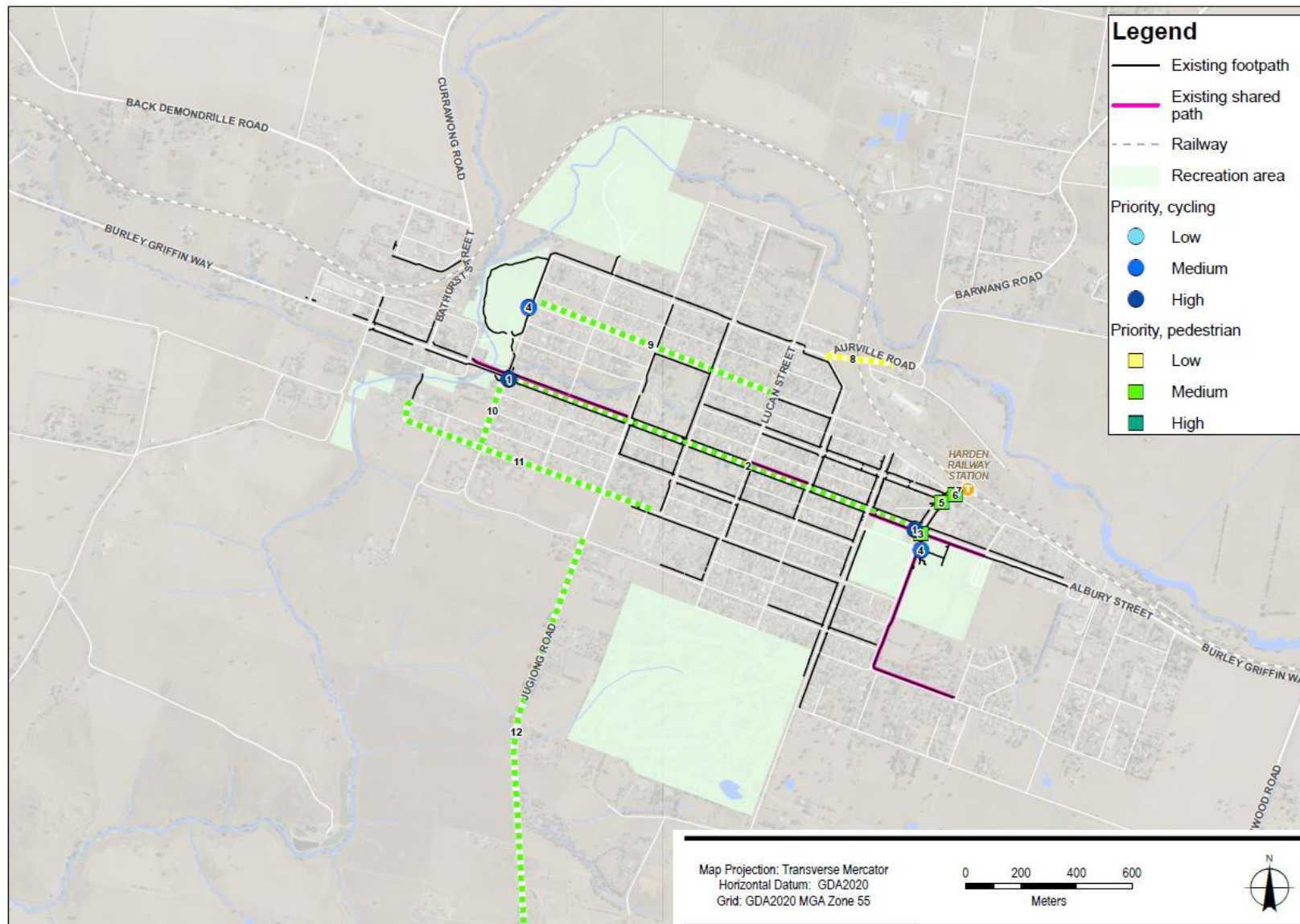


Figure 6.2 Priority levels for proposed pedestrian and bicycle routes-Harden-Murrumburrah

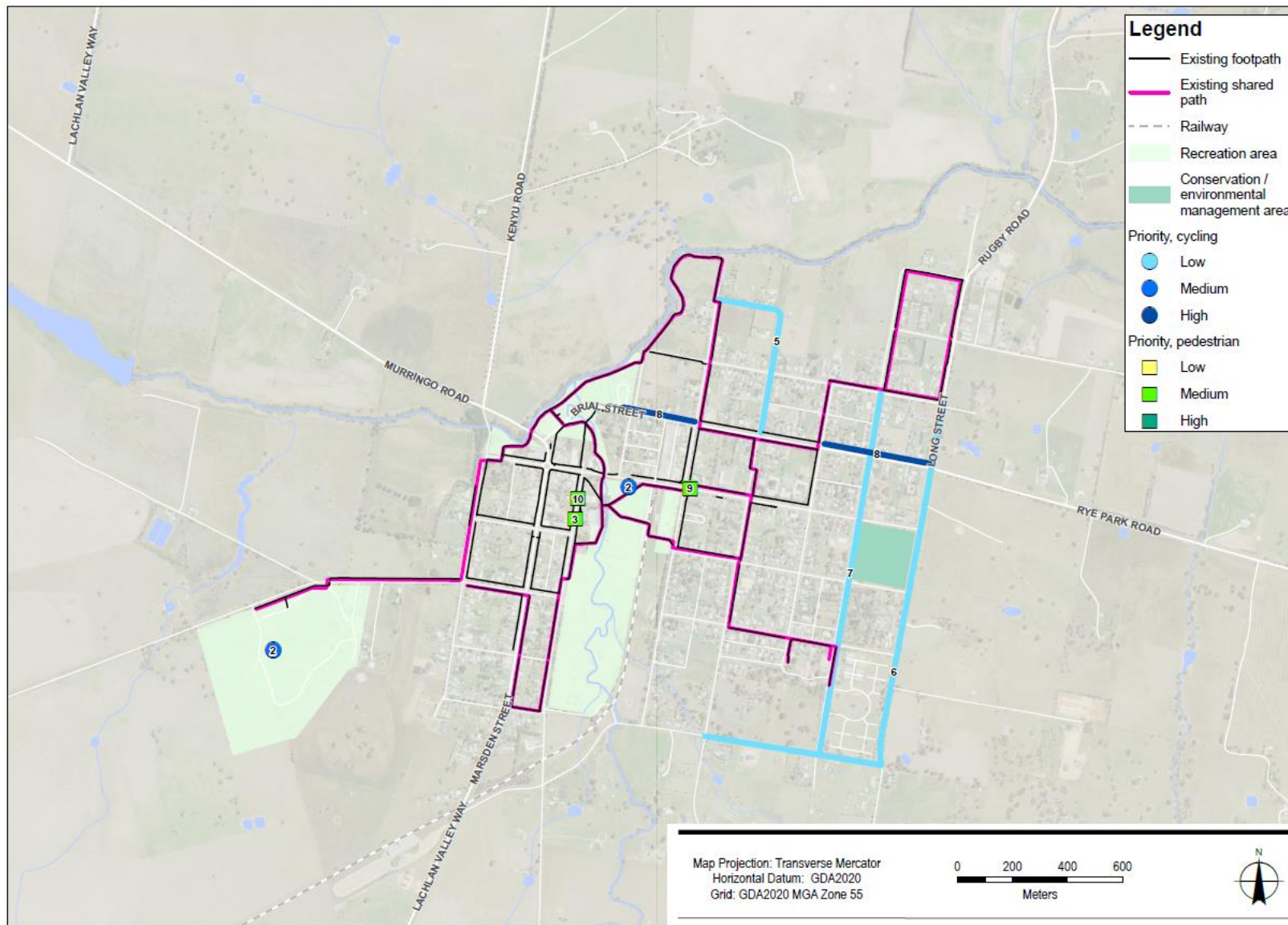


Figure 6.3 Priority levels for proposed pedestrian and bicycle routes-Boorowa

7. Conclusions and Recommendations

7.1 Conclusions

GHD was engaged by Hilltops Council to prepare an Active Transport Plan (ATP) for the three main towns within the Hilltops LGA - Boorowa, Harden-Murrumburrah and Young to improve the walking and cycling environment for all pedestrians, bicycle riders and mobility scooters. The development of this study included the following activities:

- Review relevant background report, policies and plans
- Undertake community and stakeholder consultation
- Undertake site audits of current pedestrian infrastructure
- Identify, cost and priorities improvements for walking infrastructure.

7.1.1 Background review

The findings from the background review highlighted that:

- The majority of State and Local Government planning policy documents reviewed as part of this study aim to encourage sustainable travel modes, including walking. The strategies identified in this ATP will help to support this objective by providing improved walking and cycling connections.
- A review of crash data for the study area indicates that there were twelve crashes involving pedestrians and three crashes involving bicycling riders over the five-year period between 2017 to 2021.

7.1.2 Stakeholder consultation

GHD facilitated a workshop in June 2023 with several stakeholders invited by Hilltops Council. Stakeholders were best informed about the current conditions and needs of the Young township and therefore the workshop's focus was mainly centred on Young. However, many points were applicable across the other townships of Boorowa and Harden-Murrumburrah.

Workshop attendees included three TfNSW representatives, a representative of Young's community transports, and two representatives of Hilltops council. The full Mural board can be found in Appendix B.

The key finding from the workshop included:

- Current shared paths are heavily used recreationally for walking and cycling during weekends.
- Young Cycling Club is well attended but mostly on road cycling with routes heading out of town.
- The existing narrow footpaths are not suited to persons with impaired mobility.
- Lighting an issue for perceived safety particularly in darker months.
- High heavy vehicle activity is a barrier to cyclists and impacts the feel and enjoyment of active transport.
- Limited safe crossing for Young High School.
- Confusion of priority between pedestrians and traffic in busy areas of Young.
- Footpaths are disconnected and change from one side of the road to the adjacent side without any pedestrian priority crossings provided at the locations where the footpaths swap to the other side of the road.
- High kerbs with a lack of usable kerb ramps are an issue for mobility, including those in wheelchairs or with prams.
- There is a lack of end of trip facilities for cycling in all three towns.

7.2 Recommendations

Active transport improvement works were identified and prioritised for the study area. It is recommended that Council considers all of the recommended implementations, particularly those ranked as high or medium priority in Table 7.1 and Table 7.2. It is recommended that Hilltops Shire Council internally review the proposed improvements and consider the prioritisation of works and the ease of implementation of the proposed measures in order to provide the maximum benefit in the short term for the residents of Hilltops Shire.

Table 7.1 Highest/Medium Priority Pedestrian Treatments

ID	Location	Street/ Intersection	Description of Proposed Treatment	TfNSW Priority	TfNSW Rank	Priority
2	Young	Boorowa Street	Refuge should be widened to current widths at Boorowa St / Thornhill Street roundabout. Investigate warrant to provide priority pedestrian crossing.	60	1	Medium
3	Young	Boorowa Street	It is recommended to provide 1 or 2 pedestrian prioritised crossing(s) (zebra crossing) at the high pedestrian activity area (i.e. CommBank). Also, further investigation for diverting the movement of freight into another street is recommended. The safety of pedestrians and cyclists would be increased a lot by diverting the movement of freight to Lovell Street. Also, the diverting of freights would increase the practicability of refuge islands that are installed in the middle of Boorowa Street. This would enable people to cross the road more safely and have a better accessibility to the key attractors (i.e. bank, cafes, restaurants)	60	1	Medium
5	Harden-Murrumburrah	Station Street	Refuge island in front of Commonwealth bank on Station Street should be widened to standard width.	59	3	Medium
3	Harden-Murrumburrah	Station Street	Provide a refuge island and investigate case for priority crossing on Station Street to link Tim Doolan Oval / Skatepark / Pool to McLean Oval / Bus area High School to Scott Street	56	4	Medium
9	Boorowa	Pudman Street	Provide refuge island across Pudman Street near the intersection of Pudman Street and Court Street to enable better continuity and safety of pedestrians who	56	4	Medium

ID	Location	Street/ Intersection	Description of Proposed Treatment	TfNSW Priority	TfNSW Rank	Priority
			use the southern part of Pudman Street			
10	Boorowa	Market Street	Provide refuge island with 2 blisters across Market Street in front of the entrance of Boorowa Playground for better continuity for kids and students	56	4	Medium
19	Young	Nasmyth Street	Provide footpath along Nasmyth street connecting proposed path between Stoneridge Street and Hills Street.	55	7	Medium
33	Young	Kingsvale Road	Provide shared path along Kingsvale Road or rail corridor to Lambing Flat Chinese Tribute Garden	55	7	Medium
6	Harden-Murrumburrah	Whitton Lane	Provide standard kerb ramps, potentially include signage for high pedestrian activity and reduced speed	54	8	Medium
9	Young	Berthong Street	Provide footpath along Berthong Street between Willawong Street and Templemore Street near Young High School	53	9	Medium
21	Young	William Street, Nasmyth Street, Edwards Street	Investigate to provide pedestrian crossing facility and Kerb ramps on William Street, Nasmyth Street, Edwards Street.	53	9	Medium
3	Boorowa	Market Street	Refuge should be widened to current widths at the top of Market Street and at swimming pool access. Investigate warrant to provide priority pedestrian crossing.	51	11	Medium
7	Harden-Murrumburrah	Station Street	Improve footpath between Rail Station to Station Street	51	11	Medium
31	Young	Berthong Street	Provide footpath along Berthong Street between Templemore Street and Willawong Street	50	13	Medium
10	Harden-Murrumburrah	Iris Street	Extend the footpath along Iris Street between Albury Street and Swift Street	50	13	Medium
11	Harden-Murrumburrah	Swift Street	Provide footpath along Swift Street to connect with existing path	50	13	Medium
2	Harden-Murrumburrah	Albury Street	Restoring and upgrading of damaged footpath. Due to water main limitations three sections of pathway not	48	16	Medium

ID	Location	Street/ Intersection	Description of Proposed Treatment	TfNSW Priority	TfNSW Rank	Priority
			completed under prior PAMP, investigate further.			
20	Young	William Street	Implement and extend existing footpath along William Street between Jasprizza Avenue to Hills Street.	48	16	Medium
9	Harden-Murrumburrah	Clarke Street	Extend existing footpath along Clarke Street between Iris Street and Ward Street and between Derby Street and Lucan Street	47	18	Medium
4	Young	Clark Street	Investigate the possibility to remove crossing facilities if no longer required to improve pedestrian crossing. Build smooth surface over the tracks to improve accessibility for bikes, prams, wheelchairs and walking aids. Subject to rail operator permission.	46	19	Medium
5	Young	Main Street	Investigate the possibility to remove crossing facilities at Main Street if no longer required to improve pedestrian crossing. Build smooth surface over the tracks to improve accessibility for bikes, prams, wheelchairs and walking aids. Subject to rail operator permission.	46	19	Medium
6	Young	Lynch Street	Investigate the possibility to remove crossing facilities at Lynch Street if no longer required to improve pedestrian crossing. Build smooth surface over the tracks to improve accessibility for bikes, prams, wheelchairs and walking aids. Subject to rail operator permission.	46	19	Medium
27	Young	Prospect Street	Provide footpath along Prospect Street between Taylor Road to Olympic Highway/Elizabeth Street, investigate further.	45	22	Medium
12	Harden-Murrumburrah	Jugiong Road	Extend footpath along Jugiong Road between Scott Street and East Street	45	22	Medium
22	Young	Edwards Street	Provide footpath along Edwards Street between William Street and Mclerie Street.	43	24	Medium

ID	Location	Street/ Intersection	Description of Proposed Treatment	TfNSW Priority	TfNSW Rank	Priority
24	Young	Lynch Street	Provide footpath between William Street and Nasmyth Street on Lynch Street	42	25	Medium
25	Young	Hill Street	Investigate case for providing footpath along Hill Street between Nasmyth Street and the Olympic Highway.	40	26	Medium

Table 7.2 *High Priority Cycle Treatments*

ID	Location	Street/ Intersection	Description of Proposed Treatment	Score	Rank	Priority
1	Harden-Murrumburrah	Albury Street	Provide a shared path along the extent of Albury Street between Station Street and Iris Street/ Roberts Park.	5.4	1	High
4	Boorowa	Pudman Street	Shared path along Pudman Street between Scott Street and Long Street. This will provide a link to the existing shared path between Court Street and Boorowa Park.	5.4	1	High
12	Young	Nasmyth Street	Reduce effective carriageway width and shift parking further between the kerb to implement a 3m wide shared path to be used by walkers, cyclists and mobility scooters. Stretching between Stoneridge Street and Nasmyth Street junction with A41	5.4	1	High
8	Boorowa	Brial Street	Extend the existing shared path along Brial Street between Long Street and Dry Street and between Court Street and the existing river walk.	5.2	4	High
8	Young	Lovell Street	Provide cycling facility along Lovell Street to improve the connectivity to Burrangong Creek shared path via Thornhill Street. Further investigation required for cycling path selection (e.g. shared path/ cycling line/ separated cycle path) to provide cyclist efficient and safe cycle routes	5	5	High

7.2.1 Cost

Where possible, unit rates provided by the Council have been used directly. For items where costs were not available, previous studies, estimation and professional judgement have been used. These costs are indicative and are subject to change and make no allowances for contingencies or actual site design and installation (including site establishment, excavation and disposal).

The total costs for the proposed upgrades for the ATP are in the order of \$11,408,480 (excluding GST). The cost breakdown for high, medium and low priority project is as follows (excluding GST): -

- \$2,508,000 for high priority work
- \$5,041,800 for medium priority works (note, this does not include costs associated with removal of the rail infrastructure or pedestrian bridges, rail trail and crossings, as further investigations would be required).
- \$3,858,620 for low priority works.

Appendix A

**Pedestrian Access and Mobility Plan
& Bike Plan 2013-2018**

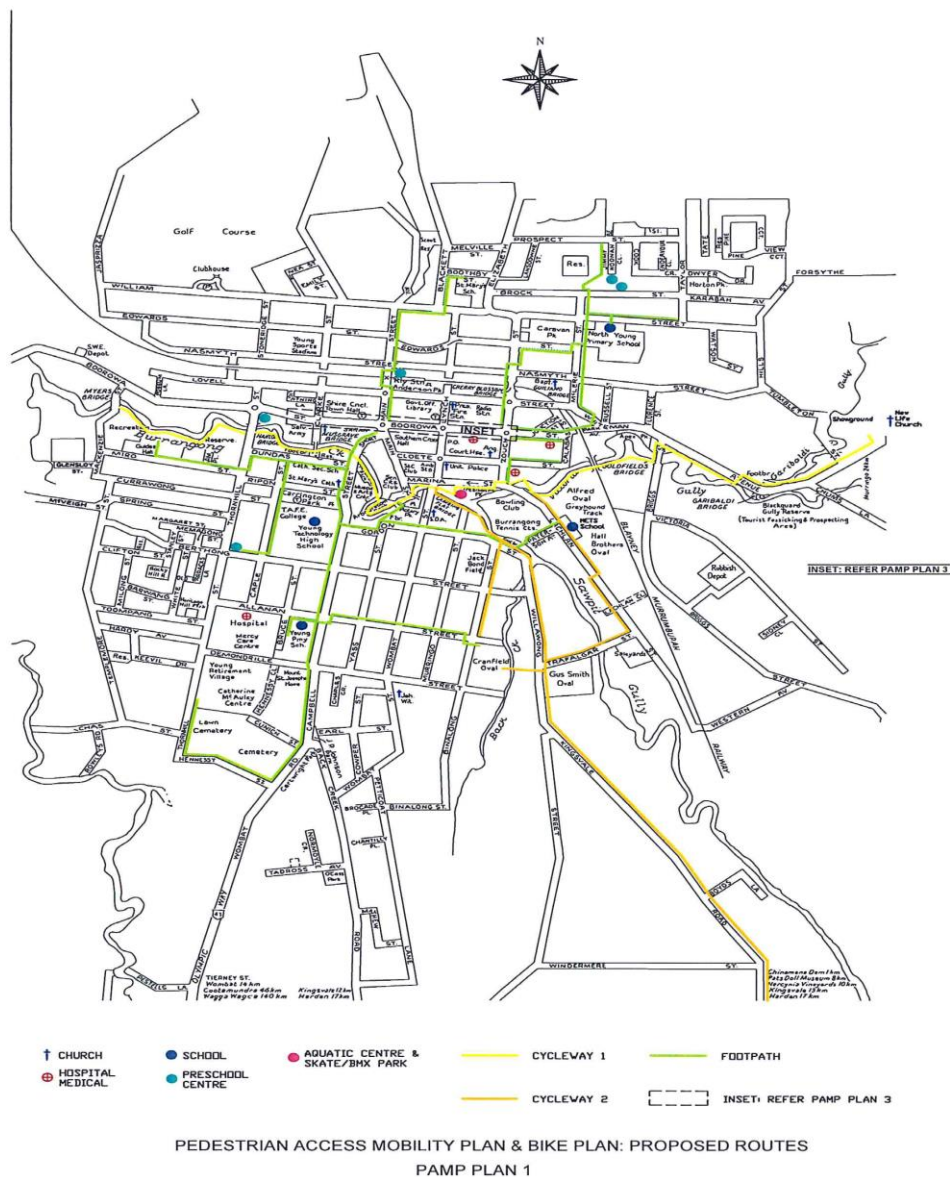


Figure 7.1 Pedestrian Access and Mobility Plan & Bike Plan: Proposed Routes PAMP Plan 1

Source: Young Shire Pedestrian Access and Mobility Plan (PAMP)

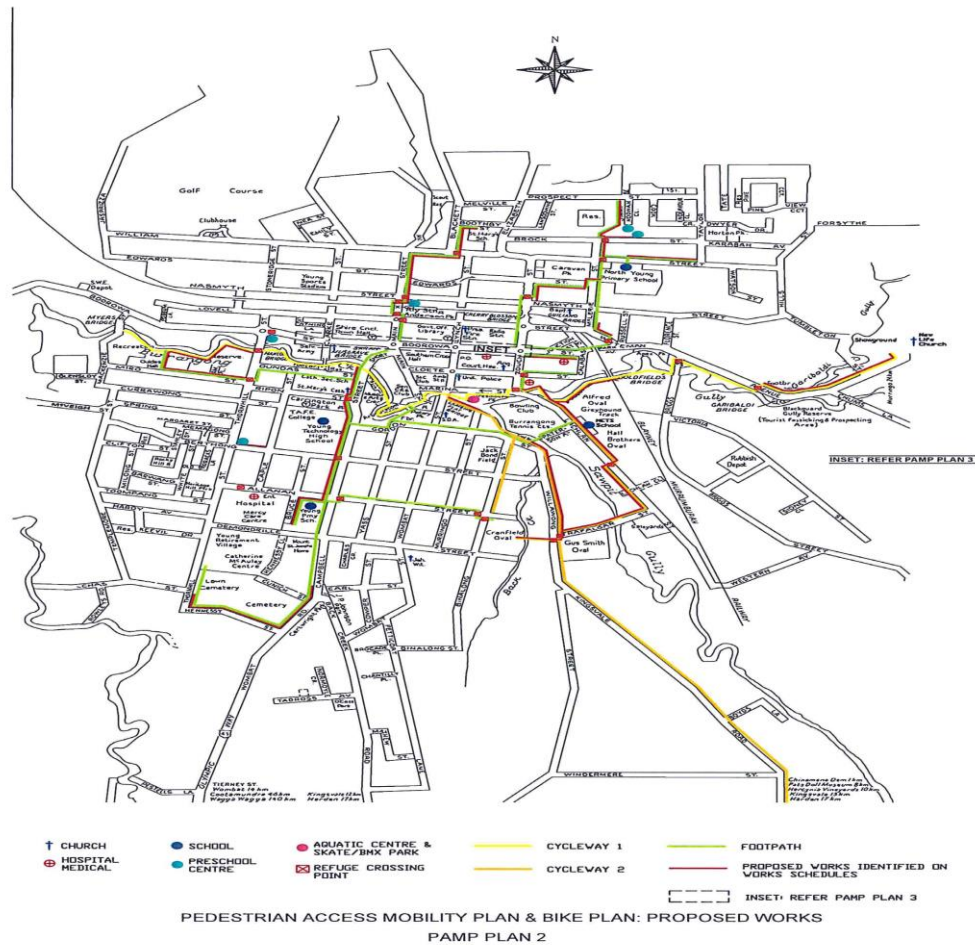


Figure 7.2 Pedestrian Access and Mobility Plan & Bike Plan: Proposed Works PAMP Plan 2

Source: Young Shire Pedestrian Access and Mobility Plan (PAMP)

Appendix B

**Hilltops Active transport Workshop Mural
Board**

Appendix C

**Pedestrian and bicycle rider priority
calculations**

