



WALK, CYCLE GREATER BENDIGO

Walking and Cycling Strategy 2019



Greater Bendigo – making everyday walking and cycling easier for all ages and abilities



Acknowledgement of Country

The City of Greater Bendigo acknowledges we are on Dja Dja Wurrung and Taungurung Country.

We would like to acknowledge and extend our appreciation for the Dja Dja Wurrung People and the Taungurung People, the Traditional Owners of the land that we walk and cycle on today.

We pay our respects to leaders and Elder's past, present and emerging for they hold the memories, the traditions, the culture and the hopes of all Dja Dja Wurrung Peoples and Taungurung Peoples.

We express our gratitude in the sharing of this land, our sorrow for the personal, spiritual and cultural costs of that sharing and our hope that we may walk forward together in harmony and in the spirit of healing.

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Walking is a person’s most basic form of independent mobility and includes the use of aids such as frames, wheelchairs and motorised scooters.

Cycling includes all types of pushbikes used for everyday cycling, commuting, recreation and sport, this includes electric bicycles, tricycles, recumbent cycles and cargo bikes which are all becoming more common.



1 Introduction

'The only way people are going to be physically active five days a week is if we walk or cycle as part of everyday life'

Gil Penalosa, 8–80 Cities, Canada¹

Walking and cycling can be many things to many people. It is our most simple and affordable way to travel to places and activities for people of all ages and all abilities. When we walk and cycle we contribute to creating better places and environments, healthier people, better connected communities and more viable businesses. By making everyday walking and cycling easier and more comfortable, these benefits can be shared more equitably by more people across Greater Bendigo.

The Greater Bendigo Health and Wellbeing Plan (2017–21) clearly identifies that the quality of our health is a product of our everyday lives.

In 2018 the City of Greater Bendigo hosted two national walking and cycling conferences and became Australia's first internationally-accredited Bicycle Friendly Community. This recognises the involvement and commitment of the community and the City in developing a leading place to walk and cycle.



1. Penalosa, G (2018). 8-80 Cities, *International Parks and Leisure Conference*, Melbourne, October 2018

1.1 How the plan was developed

The City is responsible for the planning, development, management and activation of footpaths, shared paths, cycle ways and bike lanes. This strategy builds on the City's Cycling Strategy (2006), the Integrated Transport and Land Use Strategy (2014) and related strategies. It outlines a strategic framework to provide the conditions and support to enable more people to walk and cycle more often.

The Walk, Cycle Greater Bendigo Strategy (the Strategy) was developed by:

- Reviewing progress made since the last Walking and Cycling Strategy
- Investigating walking and cycling participation trends, current planning approaches and research
- Engaging with key stakeholders across the community to understand issues and concerns, opportunities, aspirations and priorities for walking and cycling, including:
 - 700 face-to-face interactions with residents
 - 1,800 interactions with the online Walk, Cycle Greater Bendigo spot map
 - Five school visits
 - 500 surveys
- Identifying priorities for community participation, infrastructure activation and behaviour-change initiatives
- Developing decision-making principles and a prioritisation framework for walking and cycling infrastructure and projects
- Establishing a Walking and Cycling Community Reference Group
- Developing an evaluation framework to monitor implementation

A draft Strategy was released, following Council endorsement at the April 2019 meeting, for a period of four weeks.

A total of 43 submissions were received across the review period. All submitters were acknowledged, thanked for their contributions and queries responded to.

Submissions were received from

- Local walking and cycling organisations and clubs
- State Government Transport Agencies (Department of Transport, Regional Roads Victoria, Public Transport Victoria)
- Educational institutions
- Community organisations
- Community Reference Group
- Environmental sustainability and Landcare organisations
- Individuals (28).

Submissions received were broadly supportive of the priorities and strategic direction set by the draft Strategy and specific content and actions including:

- The guiding principles
- Developing comfortable walking and cycling networks, linking existing infrastructure with improved crossings and protected cycleways
- Key infrastructure (Comfort, convenience and connections) actions
- activation actions
- Communications
- Planning, ensuring walking and cycling are factored into new developments
- Integration with the Public Space and Greening Greater Bendigo Strategies
- Data collection and monitoring initiatives

Feedback also emphasised the importance of funding, resourcing and prioritising implementation of the strategy.

The draft strategy was amended to reflect this community feedback.



2 Our Vision

Hundreds of residents and community organisations and the Walking and Cycling Community Reference Group have contributed to developing a shared vision for walking and cycling through community engagement activities. Residents expressed a desire for connected networks of footpaths, shared paths, off-road trails and paths, quiet neighbourhood streets and protected cycleways across the city. Ultimately, residents want to feel that walking and cycling are safe, comfortable and viable choices for travel and recreation and that the City of Greater Bendigo is a leading walking and cycling regional city and municipality.

Vision: Greater Bendigo, Australia's regional walking and cycling capital – making everyday walking and cycling easier for all ages and abilities

What is walking and cycling comfort and why does it matter?

Comfort is the combination of factors that contribute to a person's ability or choice to walk or cycle. Every person will experience these factors differently at different times across their life. These factors include:

- Ability –accessibility, confidence and skill
- Safety – including protection from traffic and passive surveillance to prevent isolation
- Physical – slope, surface material
- Legibility – knowing where you are and where you are going
- Environment – protection from elements, shade, places to rest and recover
- Culture and belonging – vibrancy, a sense of community ownership and pride

The least comfortable part of any walking and cycling journey can define the whole trip and affect the likelihood they will make the journey again. To be able to fully participate in everyday life most residents should have access to comfortable walking and cycling networks within a short distance of their home, school, work and other important destinations.

3 Guiding Principles

The Strategy is guided by the principles of:

- Equity – ensuring equitable provision across places and communities to support people to walk and cycle more often
- All Ages, All abilities – making walking and cycling possible in more places from childhood to later life
- Partnerships – ongoing engagement and working in partnership with communities, government and stakeholders
- Evaluation – monitoring our progress, evaluation and ongoing improvement

4 Areas for Action

The Walk, Cycle Greater Bendigo Strategy will contribute to improved health and wellbeing in Greater Bendigo by addressing the action areas:

- Action Area 1: Comfort, convenience and connections – Walking and cycling is a viable, safe and enjoyable experience
- Action Area 2: Activating community, culture and capacity – More people are connected to walking and cycling communities, discovering infrastructure, programs and events
- Action Area 3: Information and awareness – Improve ease of wayfinding, information and access for walking and cycling

5 Walking and Cycling in Greater Bendigo

Greater Bendigo has:

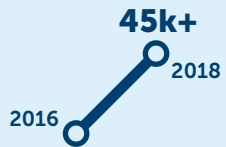
700km
of footpaths
165km of trails
12 road underpasses



Walking and Cycling are the most popular ways residents get physical activity in Greater Bendigo (Active Living Census)



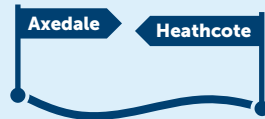
Rates of walking and cycling are growing more quickly in some parts of the community than others



45,000+ people cycled over the Back Creek trail counter in 2018, (doubling since 2016)



All Ages and Abilities
Walking and cycling infrastructure creates more options for independent travel for children and people who have a disability



O'Keefe Rail Trail extended from Axedale to Heathcote



New underpasses like McIvor Road make walking and cycling possible for more people



Less than one in five (19%) bicycle commuters are female (Bicycle Network Super Tuesday counts)



Bendigo is Australia's first accredited Bicycle Friendly Community



The O'Keefe Rail Trail produced a \$0.67M benefit to the region in 2016



People who walk and cycle regularly are more likely to be happy and have a lower risk of depression



Bicycle parking in the city centre is unevenly distributed

6 What the community told us



74% of survey respondents want to walk more often



Time, infrastructure and weather were the most common barriers to walking



Women are twice as likely (40%) to abandon a walking or cycling journey than men when part of the journey feels unsafe

Residents want

- To be separated from cars when riding a bicycle
- More support for more organised walking groups
- More places and opportunities to learn to ride and develop riding skills for all ages
- Bendigo's trail networks to be connected and activated
- More maps, information resources and directional information on walking and cycling routes
- Safe and comfortable road crossings on trails



7 Context

7.1 Policy context

Since the last Cycling Strategy (2006) was adopted, the City has developed a series of strategic plans, strategies and research including:

- Greater Bendigo Community Plan (2017–21)
- Health and Wellbeing Plan (2017-21)
- Environment Plan (2016-21)
- Connecting Greater Bendigo, Integrated Transport and Land Use Strategy (ITLUS, 2014)
- Active Living Census (2014)
- Greater Bendigo Public Space Plan (2018).

These plans and associated programs are driven by Council's Community Plan vision: 'Creating the world's most liveable Community.' Developing a Walking and Cycling Strategy will contribute to the achievement of this vision and many of the actions identified in supporting strategies and plans.

7.2 Benefits of walking and cycling

The benefits of participating in physical activities such as walking and cycling are well documented. Not only do individuals benefit from a health and wellbeing perspective, but the whole community benefits from a greater sense of community, social interaction, economic opportunities, improvement to the environment and urban congestion, air and noise pollution, reduction in crime and a healthier society.

Walking and cycling are activities that can be integrated into everyday life as daily transport and recreation making it easier to meet recommended physical activity targets. Good quality walking and cycling infrastructure helps create more transport options, develops resilience within communities and makes it easier for more people to access public transport.

International research shows that people who walk and cycle regularly are more likely to be happy and have a lower risk of depression.

In recent years electric bicycles have improved in quality, availability and affordability. Electric bicycles allow more people the opportunity to comfortably travel by bicycle extending distance travelled, riding age into later life and similar overall physical activity benefits compared to push bicycles.

7.3 Infrastructure developments

Many of the recommendations of the previous Cycling Strategy (2006) have been implemented. There has been ongoing development of footpaths and bike lanes across Greater Bendigo and pedestrian improvements in the city centre. New footpaths trails and paths have been developed, including Back Creek and the extension of the O'Keefe Rail Trail from Axedale to Heathcote. Underpasses, infrastructure that enables walkers and people cycling to cross busy roads without interacting with traffic, have been constructed in 12 locations. New Mountain bike and BMX facilities have also been developed. The City has undertaken planning and design for the Ironbark Gully Trail and the La Trobe University to City Centre cycling route, an action of ITLUS. Additional feasibility studies have also been undertaken for the Bendigo Low Line Trail (potential use of Bendigo Creek between Golden Square and White Hills) and trails and paths in the northern corridor between White Hills and Epsom. Four embedded trail counters have been installed at strategic locations to monitor user numbers.

7.4 Participation

The City's Active Living Census report (2014) identified walking (32.2%), cycling (11.9%) and bushwalking (8.8%) as three of the top five most participated in year-round physical activities undertaken by residents in Greater Bendigo. Walking is the most participated physical activity, with cycling at number three and bushwalking at number five. The report also suggests that improvements to walking and cycling track amenities would significantly encourage increased physical activity and use of public space. Urban residents reported using off-road walking and cycling tracks (66.1%) more often than rural residents (52.4%).



Barriers to walking and cycling

Engagement processes show that almost three-quarters of survey respondents would like to walk more often. Barriers to walking identified include:

- time
- lack of infrastructure
- paths and crossings
- wayfinding
- information and maps
- sense of safety.

Barriers to cycling by survey respondents include lack of and/or poor quality:

- trails and footpaths
- connections
- protected cycleways
- crossings and intersections
- safe routes through the city centre
- wayfinding and directional information.

Walking and cycling counts

Observational counts are undertaken on two days each year as part of Bicycle Network's national Super Counts program. Annually on a Tuesday in March (Super Tuesday) people who cycle to commute are counted, predominantly at on-road locations. Annually on a Sunday in November (Super Sunday) counts of people walking and jogging are undertaken on trails and paths. Super Tuesday commuter counts have shown 19% of riders were female, which is slightly below the national and Victorian averages (21% and 22% respectively). A small proportion of the counts occur on quieter streets and shared paths, such as locations along the Back Creek Trail where there is significant growth in people riding (30% from 2017 to 2018). These areas also have recorded higher proportions of female riders; that is, up to 40% in some locations.

Super Sunday counts of people walking, cycling, jogging and walking dogs in 2018 showed a significant increase of 100% on locations along the Back Creek Trail and stable rates in areas on the O'Keefe Rail Trail, Long Gully Trail and Bendigo Creek Trail.

Trail counters

There has been significant trail user growth on the Back Creek Trail and sections of the Bendigo Creek Trail

Counters are embedded in paths at four locations across Greater Bendigo along the Bendigo Creek Trail (two counters), the Back Creek Trail and the O'Keefe Rail Trail. These accurately count the number of bicycles crossing at these points and can provide indications on trends for walking. These counters have recorded between 14,000 and 45,000 bicycles each over 12 months, with the highest performing locations being Bendigo Creek Trail at White Hills and the Back Creek Trail at Flora Hill. It is estimated that up to two people walk for every person on a bike at these locations, suggesting people are crossing these counters 100,000 times annually. The Back Creek counter shows that cycling along this route has doubled in the last two years. Counts along the O'Keefe rail trail show a 15% annual increase in use between 2016 and 2017.

Why is the Back Creek Trail doing so well?

The Back Creek Trail has seen consistent increases in walking and cycling in recent years, use has almost doubled from 25,000 bicycles crossing the trail counter in its first year to more than 45,000 in 2018. In March 2019 an average of 188 bicycles crossed the counter per day. It is estimated between one and two people walk this trail for each person on a bike. This means 100,000 or more people are making use of this corridor each year.

The combination of infrastructure development and community driven activation is contributing to this rapid growth.

- Infrastructure includes:
 - Ongoing trail development over a number of years
 - Connecting the Spring Gully Trail to the Bendigo Creek Trail
 - Elimination of five road crossings (trail underpasses at busy roads) including at McIvor Road, creating an almost continuous, 11 km, all ages, all abilities trail from Spring Gully to Epsom
 - Spring Gully Mountain Bike Facilities including the Pump Track and Trail Head facilities
- Community-driven activation (led by Bike Bendigo) includes:
 - Regular community bicycle rides
 - Commissioning of four vibrant murals by local artists with community participation, funded by Creative Victoria and VicRoads
 - Events including street festivals and a pop-up learn-to-ride park and Mountain Bike competitions and events Learn-to-ride and bicycle skills courses for all ages, university students, women, culturally-diverse communities and the broader community
 - Revegetation projects.





7.5 Community capacity and behaviour change

In the past five years the City has facilitated and contributed to the creation and support of community-run organisations which are working to grow walking and cycling participation and inclusion, these include

- Free Wheeling Fun – an organisation which repairs donated bikes, fixes them and finds new owners
- Active Travel Healthy Kids Community Network – a network of parents working to get more children walking and cycling
- Bike Bendigo – a community organisation working to build Bendigo’s everyday cycling culture through festivals, skills training, events, communications, art installations and advocacy
- Local walking groups

In addition to this, the City has delivered numerous programs in partnership with schools, communities and workplaces to activate infrastructure and encourage and monitor participation and behaviour change for residents and staff to increase their participation in walking and cycling in neighbourhoods (Change to Walking), schools (Walk2School and Join the Ride, One Day in 5), workplaces (Ride2Work Day) and culturally and linguistically diverse communities.

Community organisations and networks have contributed significantly to the growing walking and cycling culture in Bendigo. Organisations including the University of the Third Age (U3A), Bike Bendigo, Park Run, Bendigo Mountain Bike Club, the Friends of the Bendigo Kilmore Rail Trail and many more have contributed to a year-long calendar of events, programs, festivals and activities across Greater Bendigo.

8 Key directions

8.1 Walking

Safety and comfort

Walking is a person's most simple form of mobility and an important part of everyday life. For more than 40% of the Australian community – including children, people who have a disability and people who do not have a driver's licence or cannot afford a car – walking is their main form of transport and independent mobility². A holistic approach is needed to successfully promote walking and create walkable environments across neighbourhoods, townships and at key destinations, the city centre and activity centres. Research suggests that no one element will create a walkable environment, but a number of elements will contribute to environments and communities that support walking.

Walk Issue Spots were the second most popular spot types representing 33% or 241 spots submitted on the Walk, Cycle Greater Bendigo interactive map. The most common walking issue identified was 'No footpath', representing nearly a third (32.4%) of all Walk Issue Spots. The next two most common walking issues selected were 'Poor or no crossing facilities (20.3%)' and 'Unsafe intersection/crossing' (14.1%).

These results clearly demonstrate the importance of continuing to establish a connected pedestrian network and making intersections safer to encounter by foot. Infrastructure development strategies to improve safety and grow participation in walking include

- Providing continuous, legible walking routes
- Keeping paths clear of obstructions
- Lighting on paths and trails
- Shade on paths and trails
- Preventing car parking incursions onto footpaths
- Ensuring minimal, comfortable gradients
- Aligning and improving the accessibility of ramps



- Reducing and calming vehicle traffic in neighbourhood streets
- Improving crossings at intersections and slow vehicles at roundabouts
- Providing safe places to cross streets
- Improving crossing waiting times for pedestrians at traffic lights and aligning crossing time with the average walking speed of an older adult.

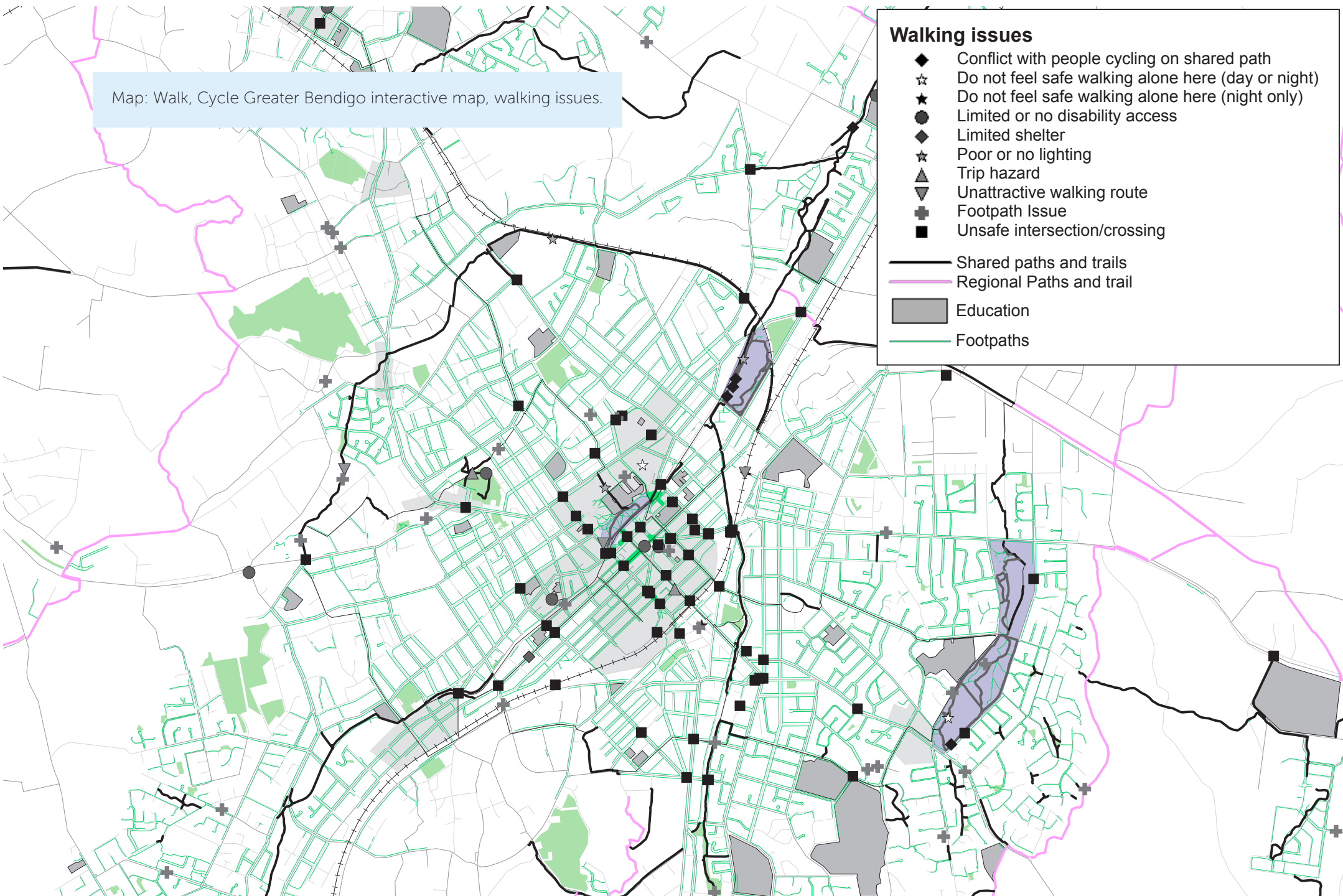
Small infrastructure including seats, playgrounds, wayfinding and water stations should be provided at intervals along trails and paths and walking circuits appropriate to the setting. For example, sparingly in bushland locations, more frequently in local residential street situations and more frequently still in town centres and at primary walking circuit locations. As a general rule, providing a public seating option in some form or another at intervals of around 800 metres is considered desirable.

Map: Walk, Cycle Greater Bendigo interactive map, walking issues.

Walking issues

- ◆ Conflict with people cycling on shared path
- ☆ Do not feel safe walking alone here (day or night)
- ★ Do not feel safe walking alone here (night only)
- Limited or no disability access
- ◇ Limited shelter
- ☆ Poor or no lighting
- ▲ Trip hazard
- ▼ Unattractive walking route
- ⊕ Footpath Issue
- Unsafe intersection/crossing

- Shared paths and trails
- Regional Paths and trail
- Education
- Footpaths



Behaviour change

While changes to the physical environment can provide the setting for people to walk, people may still need prompting to raise awareness of opportunities and to change their existing behaviour and take up the opportunity to walk. Planning for infrastructure and programs that support and encourage people to walk should prioritise residents with reduced mobility due to disability, income or age – younger and older. When planning and programs support and prioritise these groups it benefits these groups and also the fit ambulant members of our community.

Strategies to grow participation in walking include infrastructure development such as footpaths, shared paths and walkable environments. Programs that create behaviour change are more effective when they

- build on and promote other activities, such as improvements in pedestrian infrastructure
- link to existing programs
- activate and raise awareness of infrastructure and support target communities to make use of this
- take a long-term approach, ensuring change is sustained

Change to Walking, Epsom

The 'One Day in 5 – Escape the Drive' project, funded by Victoria Walks encouraged residents in the growing urban-fringe suburbs of Epsom and Ascot to leave the car at home one day each week, and instead walk and use public transport to travel into town.

A total of 1,050 households within 800 metres of Epsom Station were targeted with incentives and 'nudges' including giveaways, community events, wayfinding signs and participatory art projects on trails and paths.

There were positive changes in walking frequency, with survey data showing the average number of walking trips per week increased by 38% from 3.9 to 5.4 over the three month project period.



Footpaths

Footpaths are vital infrastructure for much of Greater Bendigo's population and provide the primary networks for independent mobility for children and residents who do not drive.

There are more than 700 kilometres of footpaths across Greater Bendigo managed and maintained by the City. The City invests every year in developing new and renewing existing footpaths. There is, however, a legacy of planning and development spanning many decades that has meant many areas do not have footpaths. In recent years the city has received more than 700 footpath requests with an estimated construction value of \$50 million. There is limited funding to develop and renew footpaths to meet this community demand.

Opportunities to address this challenge include building more, lower cost paths. This would involve a compromise on quality and potential impacts on maintenance that should be evaluated on a case-by-case basis.

Walking Circuits

Places including Lake Weeroona, Lake Neangar, Kennington Reservoir and Crusoe Reservoir are popular locations for walking and for exercise and recreation. These locations are typically relatively level, have a degree of variety, have interesting environments and wildlife, shade, and paths with comfortable widths.

The provision of a variety of levels of walking circuits should integrate with the Public Space and Walking and Cycling infrastructure hierarchies providing an even distribution of primary or regional level circuits and secondary circuits. Primary circuits will have larger catchments and typically focus around a key feature such as a significant lake or public space. These areas should prioritise walking and be connected to and accessible from local walking and cycling networks and by driving and parking. Interaction with people cycling should be eliminated where possible by providing alternative cycling routes on separated paths. Walking circuits such as these should be planned for and designed to be incorporated within master planning processes. Secondary circuits may integrate with recreation reserves or Municipal, Suburb or Township level public spaces.

Integration

The Walking and Cycling Strategy, Public Space Plan and Greening Greater Bendigo strategies are closely related in purpose. Many walking and cycling corridors correspond with public space corridors identified in the Public Space Plan. The provision of green infrastructure is also important to ensuring a comfortable, year-round user experience by providing shade and shelter through street trees and small infrastructure. Greening Greater Bendigo research processes have identified many areas in Greater Bendigo where thermal comfort is affected by a lack of shade and canopy cover on important walking and cycling corridors. It is important that as walking, cycling, public space, greening and road corridors are reviewed, designed, maintained and upgraded that an integrated approach is implemented. This will ensure the best outcome for users of the spaces.

Walking and cycling infrastructure must be designed to be integrated with public spaces and public space corridors. It is a priority to link existing walking and cycling infrastructure to schools and activity centres. Recreation facility master planning processes will integrate walking and cycling facilities including regular seating, bicycle parking and will plan trail, path and cycleway connections to existing walking and cycling networks.



Path and trail user interaction

Areas of high concentration of walking and cycling and some shared paths at peak times can at times result in conflict between users, complaints to the City and possible risk of injury. An example of this is Lake Weeroona. Contributing factors include speed, width of paths lack of awareness of trail etiquette, volume and frequency of users, off-leash dogs and incompatibility between higher speed people cycling and people walking.

Provision of shared path infrastructure must provide for safe and comfortable use by people walking and cycling. This means understanding the capacity of trails and paths for walking and cycling, expected use and trends over time (reinforced concrete paths can last for 50 or more years). Not addressing user conflict on paths can discourage participation in walking, particularly for older people, and cycling. Opportunities to reduce conflict include:

- Where an issue is present, or likely to be in future, separate users
- Provide safe, connected alternatives for people commuting by bike
- Protected cycleways, will enable more people to comfortably cycle on road routes and remove conflict on corridors
- Link quiet/comfortable neighbourhood streets and trails and paths and make access to activity centres more achievable to more people
- Increase path widths or provide separate walk and cycle tracks.

A balanced approach that develops a culture promoting etiquette, understanding and empathy for other road/path users is needed. This should be developed in consultation with the Walking and Cycling Community Reference Group. Sharing positive stories of being a walking and cycling city and region through communications, education and engagement should be a key element of this.

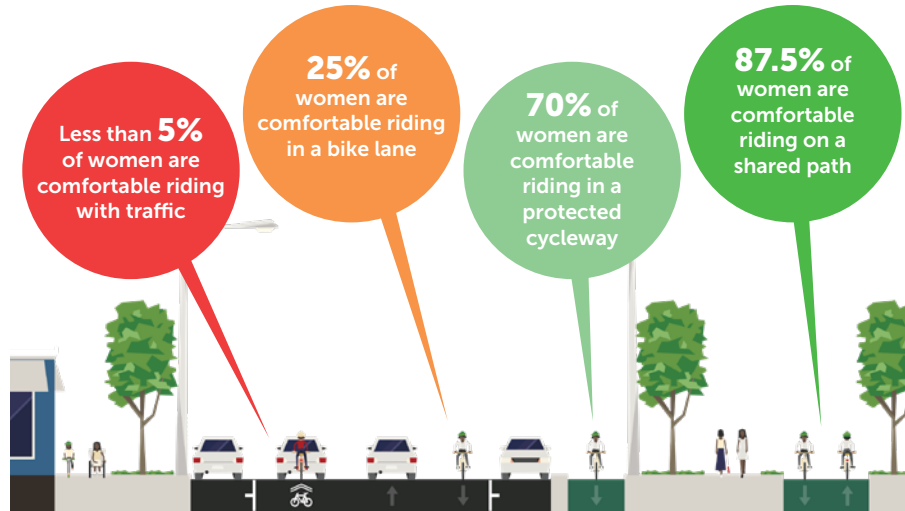
8.2 Cycling

Cycling comfort

It is important to understand the characteristics of who is currently cycling and future cycling communities within Greater Bendigo. International research in similar environments to Australian cities has identified four general categories of people who cycle informed by tolerance for riding with traffic (traffic-stress). These categories are supported by Greater Bendigo community engagement processes.

Categories of people who cycle	Preferred riding environment	Greater Bendigo Engagement
Less than 1% Strong and fearless Ride in almost any traffic conditions	All road and path types but prefers not to use shared paths through parks or away from roads	Less than 5% of female respondents and less than 10% of male respondents are comfortable riding a bicycle in traffic in Greater Bendigo.
7% Enthused and confident Comfortable riding in most situations including bike lanes along arterial roads	Roads with marked bike lanes, low traffic neighbourhood streets	
60% Interested but concerned Find situations in which they have to negotiate with traffic streams uncomfortable but respond well to standalone paths and streets with little and slow traffic	Low traffic neighbourhood streets, protected cycleways and off-road paths	70% of respondents indicated that they would be comfortable riding in a bike lane that is protected or physically separated from motor vehicle traffic.
33% No way no how No interest in riding a bicycle	Off-road paths	

Cycling comfort



The predominant environments for everyday cycling in Australian cities like Bendigo are medium-to-high level of cycling traffic-stress yet only a small proportion of the community is comfortable riding here.

By focusing on developing comfortable cycling networks and connections for the 'Interested but concerned' group (60–70% of the population) there is potential to significantly increase the proportion of our community who are prepared to cycle regularly.

The City has mapped cycling comfort across Greater Bendigo's road network, identifying high-to-low traffic-stress streets for cycling. This has enabled the City to identify comfortable cycling catchments across Bendigo. These catchments are typically small and isolated from neighbouring comfortable catchments by high traffic-stress and arterial roads. Some of these catchments are linked by shared paths, crossings and road underpasses creating larger catchments that connect people to public spaces, activity centres, schools and recreational facilities.

Connecting comfortable catchments

By strategically identifying infrastructure interventions – such as new crossings, underpasses, traffic calming and protected cycleways – comfortable cycling catchments can be connected significantly improving opportunities to cycle comfortably and minimise interaction with traffic on busier roads.

The development of five road underpasses on the Back Creek Trail, including the McIvor Road Underpass, is a significant demonstration of this all ages, all abilities approach with comfortable cycling areas now linked from Spring Gully to Epsom with just a few remaining significant road crossings. Use of this corridor has doubled to an estimated 100,000 people walking and cycling across the trail counter adjacent to Wolstencroft Reserve.





Cargobike families

I couldn't comprehend how to manage riding with three kids and all our bags. Since falling in love with the electric cargobike, the car is feeling very lonely in the driveway! We are saving money on fuel, feeling more connected to our community and getting fitter. We use the bike for our short trips (school, supermarket and work) and the car for longer trips.

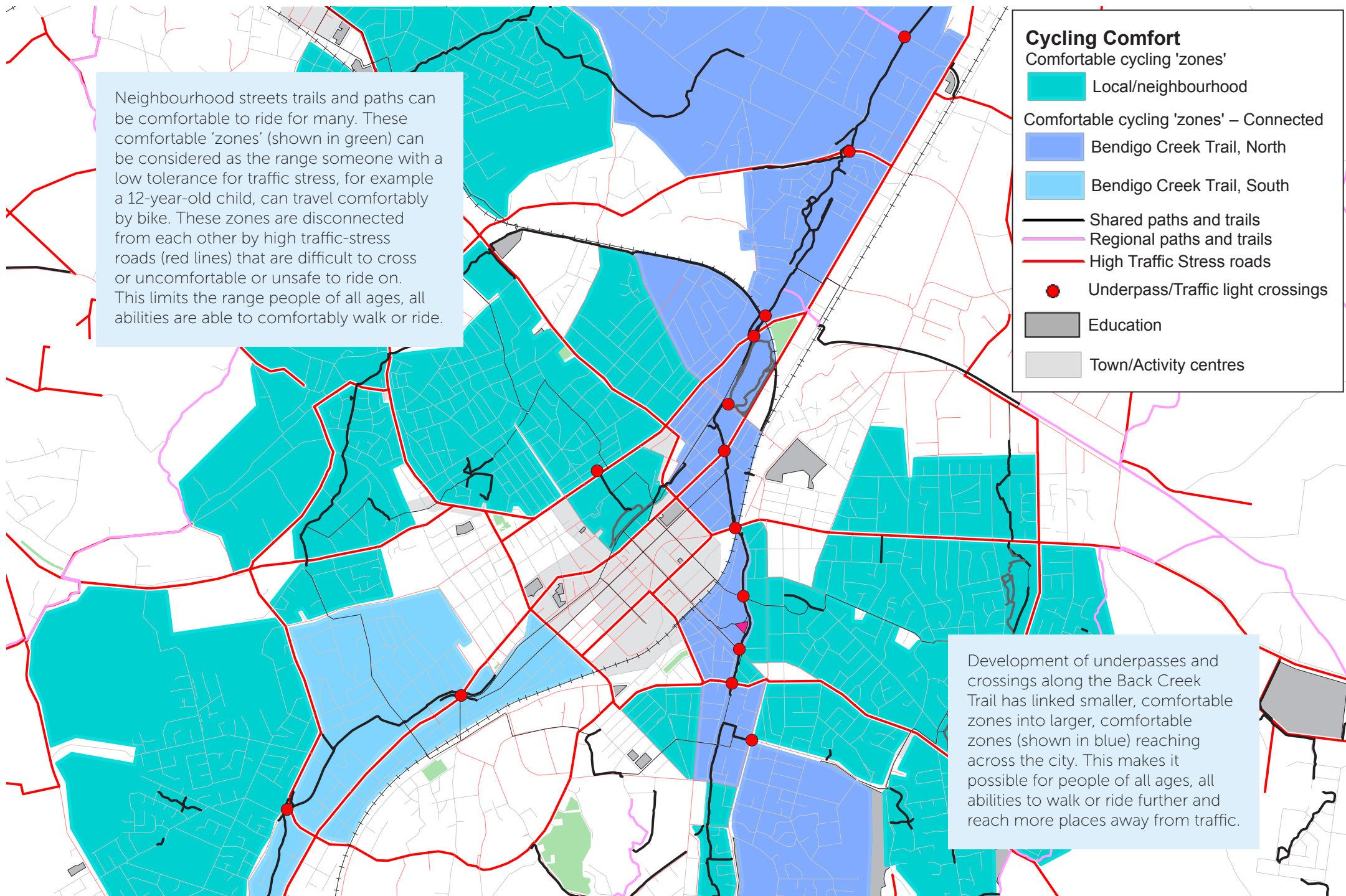
Clare Dullard

From the kids:

We love our cargo bike. It feels like we are travelling on a rollercoaster! It is fun to see different things that we don't notice in the car. And we are meeting lots of new people.

Give us a wave if you see us riding by!





Cycling Comfort

Comfortable cycling 'zones'

- Local/neighborhood

Comfortable cycling 'zones' – Connected

- Bendigo Creek Trail, North
- Bendigo Creek Trail, South

Shared paths and trails

- Regional paths and trails

High Traffic Stress roads

- Underpass/Traffic light crossings

Education

- Town/Activity centres

Neighbourhood streets trails and paths can be comfortable to ride for many. These comfortable 'zones' (shown in green) can be considered as the range someone with a low tolerance for traffic stress, for example a 12-year-old child, can travel comfortably by bike. These zones are disconnected from each other by high traffic-stress roads (red lines) that are difficult to cross or uncomfortable or unsafe to ride on. This limits the range people of all ages, all abilities are able to comfortably walk or ride.

Development of underpasses and crossings along the Back Creek Trail has linked smaller, comfortable zones into larger, comfortable zones (shown in blue) reaching across the city. This makes it possible for people of all ages, all abilities to walk or ride further and reach more places away from traffic.

Protected cycleways

A protected cycleway is a bicycle lane that physically separates bicycle riders from traffic and significantly improves cycling comfort. Protected cycleways are shown to improve safety, participation in cycling by the Interested but Concerned group and benefit all road users by reducing congestion and improving travel times. Evidence shows that protected cycleways can contribute to higher amenity, economic benefits for retailers and property values.

A protected cycleway provides a physical barrier – which can be a kerb, bollard or planter box – to separate people on bicycles from motor vehicles. International research supported by the City's community engagement processes, shows this is the most effective way to make cycling a viable option for up to 60% of the community who are interested in riding more often but concerned about safety in traffic. Protected cycleways have been shown internationally to benefit people walking and cycling and driving in city centres.

Protected cycleways can be developed by piloting and incrementally upgrading infrastructure or with State Government funding be developed to support all ages, all abilities cycling.

All cycleway projects should be implemented with parallel improvements to walking infrastructure along these corridors.

Greater Bendigo does not currently have any protected cycleways. The first of these, identified as an action in the Integrated Transport and Land Use Strategy (ITLUS, 2014), has been designed for the La Trobe University to City Centre Cycle Route. This Route has been identified as the highest priority protected cycleway development by the Department of Transport Loddon Mallee Region. ITLUS also identified actions to develop a range of on-road protected cycleway treatments across the City including through the City Centre.

The City has developed designs for low cost, entry-level cycleways and higher standard all ages, all abilities protected cycleways along this route. Protected roundabouts are included to increase safety and priority for people walking and cycling at these locations. These designs will be implemented along the University Route and can be evaluated and refined for further implementation across Greater Bendigo.



Images: Protected cycleways physically separate people cycling from vehicle traffic. Protected cycleways can be developed using incremental approaches that allow for rapid roll out of low cost networks followed by improvement over time to all ages, all abilities standards.

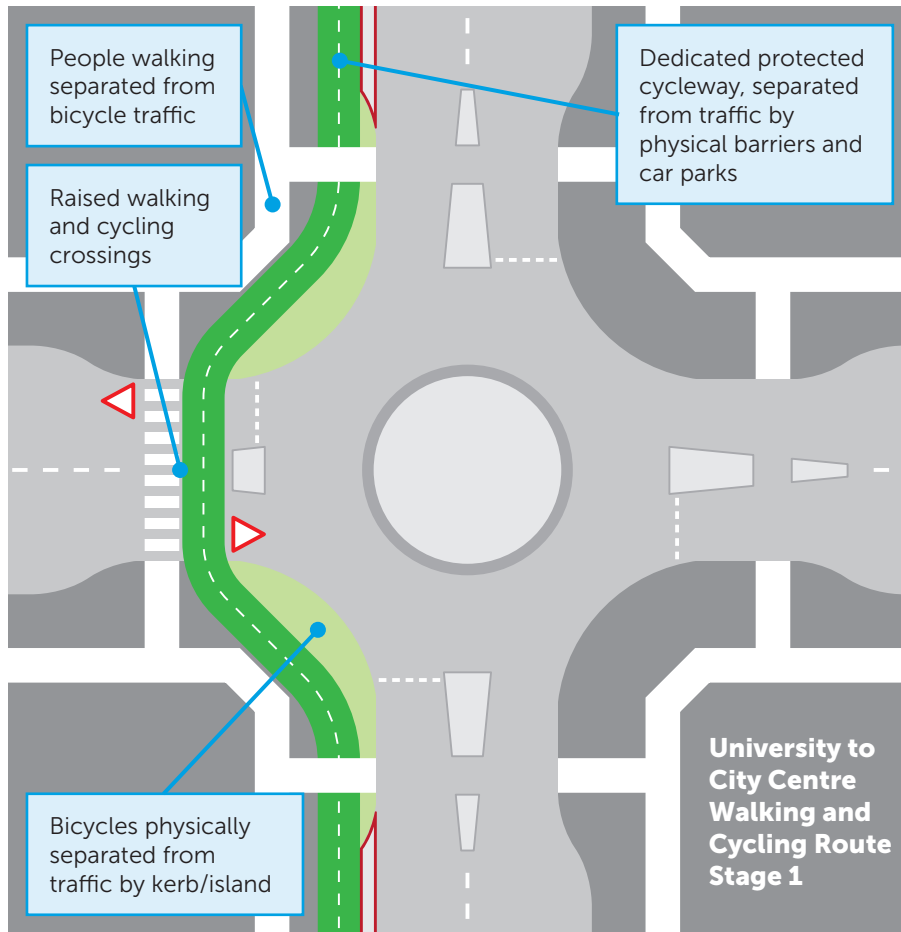
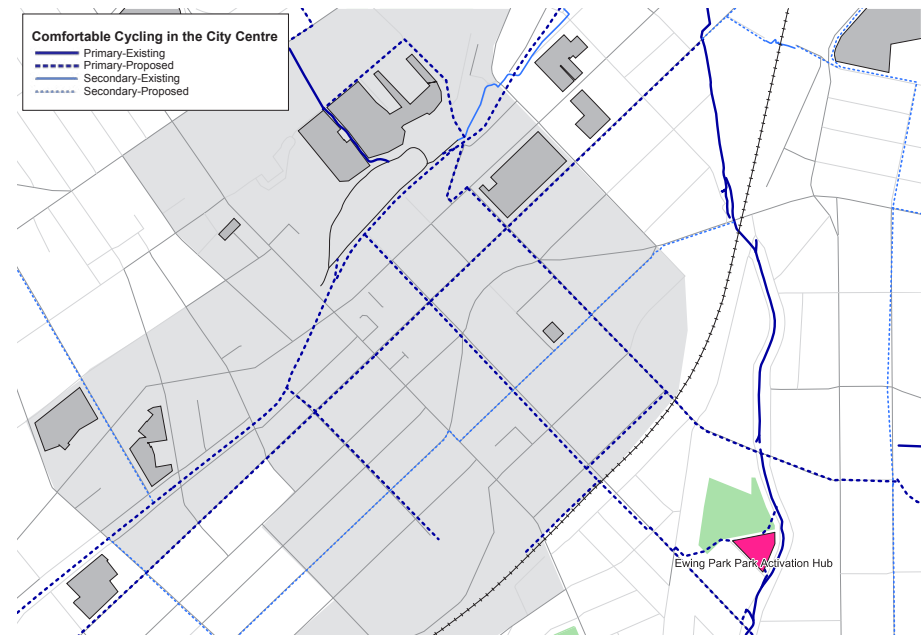


Image: a protected roundabout prioritises and separates people walking and cycling from each other and from traffic. A partial protected roundabout will be implemented on the University to City Centre Walking and Cycling route

Cycling comfort in the city centre

The need for comfortable, protected cycleways in the Bendigo city centre was one of the strongest themes to emerge from community engagement processes. Residents indicated they do not feel safe riding and interacting with traffic in this area. It is international best practice to calm traffic and provide separated, protected cycling infrastructure (protected cycleways) in these busy environments. A minimum grid of protected cycleways in the city centre that support all ages, all abilities riding will enable more people to ride to the city centre and arrive safely and comfortable within one to two blocks of their destination. Williamson and Hargreaves Streets have been identified for this function in the Integrated Transport and Land Use Strategy. A cycleway and improved pedestrian infrastructure between Back Creek and the city centre along Mundy Street will strengthen this high traffic walking and cycling route and will provide comfortable connectivity to developments including the GovHub, TAFE, Hospital and Law Courts.



Map: A minimum grid of protected cycleways will make cycling easier for more people of all ages, all abilities to reach their destinations.

Cycling for me doesn't feel like exercise, it's like walking between classes or around the supermarket. It has become part of my way of life, it feels liberating and I need the exercise to keep my mind healthy. The only thing that will hold me back is how safe I feel on the road. With safe, comfortable infrastructure I will enjoy riding more and many others will too.

Penny Dodsworth, Planning Student, La Trobe University



Additional routes along the east-west (e.g. Wills Street and Myers Street) and north-south (e.g. Edwards Street) axes of the city centre grid should be evaluated with State Government to complete this minimum grid. Improved crossings at the periphery of the city centre that also improve access for people walking are important to these connections and will require advocacy to State Government. Many of Bendigo's roads are generous in width and can accommodate the reallocation of space for protected cycleway infrastructure with minor impact on the existing functions of streets. There is potential to seek State Government funding to plan and develop these protected cycleway corridors (Strategic Cycling Corridors).

Ample, convenient and accessible bicycle parking should be provided at all City owned and managed facilities.

Bicycle parking

Community engagement processes and infrastructure auditing processes identified a lack of convenient and accessible bicycle parking in the city centre. There are approximately 6,000 car parking spaces available in the city centre, however, there are fewer than 200 bicycle parking spaces with significant proportions of these concentrated in a small number of locations. The number of bicycle parks available in the city centre should be increased to 500 over time with a more even distribution in particular in the areas adjacent to primary cycling corridors and high activity areas including shopping and food precincts. Many cities have installed bicycle corrals where an individual car parking space can be converted to bicycle parking for ten or more bicycles.

8.3 Sharing the Road

People who walk or cycle are over-represented in road crash statistics. Over the past five years seven people who were walking or cycling in Greater Bendigo have lost their lives in crashes and another 230 crashes with serious or other injuries have been reported to Police³. Results of community engagement processes have highlighted concerns of people who walk and cycle and their experiences interacting with motor vehicle traffic in particular driver distraction with mobile phones and close passing of people cycling.

Advocacy should continue to State Government to prioritise the safety and protection of vulnerable road users through legislative changes, education, constructive education campaigns and infrastructure improvements.

Cycling on high traffic-stress urban and rural roads

Road cycling is a popular recreational, sport and social activity for many in the Greater Bendigo Region. Road cycling is commonly done on urban and regional roads. People who road cycle will typically ride greater distances and have a higher tolerance for riding with traffic than the 'interested but concerned' group. Like all people who cycle, those riding on roads remain vulnerable. In the past five years there have been five cycling deaths on Greater Bendigo roads. Creating safer environments for people who cycle on roads road is a complex challenge involving infrastructure, driver culture and behaviour.

The State Government, including VicRoads and the Transport Accident Commission have adopted a Safe System philosophy to road safety. This is a holistic method that aims to minimise the risk of death or serious injury on the roads by considering the interaction between roads, vehicles, speeds and road users.

The key principles underpinning and driving a safe system approach are that:

- People make mistakes
- People have a limited tolerance to injuries
- Safety is a shared responsibility.

Resolving the challenge of safer roads and road culture for people who cycle on roads will ultimately save lives. This is a complex challenge that requires infrastructure, cultural and legislative changes, including

- Seeking State Government funding to widen shoulders on regional roads popular for road cycling
- Improve provision and continuity of bike lanes
- Ensuring bike lanes do not put riders in harm's way – for example preventing dooring incidents
- Implement awareness campaigns and culture change programs for road users
- Advocating for legislation to protect vulnerable road users
- Engaging directly with vulnerable road user groups to understand and address their safety needs.

3. VicRoads Crash Statistics Data, <https://www.vicroads.vic.gov.au/safety-and-road-rules/safety-statistics/crash-statistics> (2018)

8.4 Crossings

School crossings

There are 50 supervised school crossings across Greater Bendigo. Thousands of children make use of these crossings each school day making walking and cycling to school safer option for many children. The City regularly collects data and information from the 52 school crossing supervisors to monitor usage and document issues. Significant issues at school crossings including speeding drivers, drivers proceeding through crossings when instructed to stop and managing traffic on highways, split roads and high speed roads. Opportunities to improve school crossings include traffic calming, speed limit changes and upgrading crossing infrastructure.

Creeks

The existing walking and cycling trails along Bendigo's creeks provide the foundation for a comprehensive future walking and cycling network for Bendigo and towns like Heathcote. Providing more crossings across the creeks will provide more opportunities for residents to make use of these trails and conveniently connect across the network for everyday travel and recreation.



Road and rail

Community engagement activities have shown arterial roads and rail lines are significant barriers to regular walking and cycling participation and accessibility. Greater than 40% of female and 23% of male survey respondents indicated they will abandon a walking or cycling trip that becomes uncomfortable or feels unsafe. Improving road and rail crossings has can make walking an cycling a safer, more comfortable and convenient option for more people by eliminating or reducing the stress of crossing busy roads or rail lines can be improved.

Improving crossings

Improving the comfort of walking and cycling across the network will require improvement to road, rail and school crossings on new and existing trails and paths, footpath networks, protected cycleways and low traffic stress corridors. Crossings should be treated in order of priority to eliminate or minimise traffic stress for people walking and cycling with traffic by

1. Eliminating interaction with traffic through grade separation (e.g. underpasses)
2. Controlling the intersection (e.g. traffic signals)
3. Raised or 'wombat' crossings with path or trail priority
4. Implementing neighbourhood traffic calming, public realm upgrades and park integrated streets where appropriate

Neighbourhood streets should also be improved to calm traffic and improve walking and cycling comfort in these settings. The Public Space Plan identifies public realm upgrades in the immediate area around schools, reducing traffic speeds and connecting schools to local walking and cycling networks. The plan also identifies opportunities to create park integrated streets in situations where streets should be designed to feel and function like part of a parkland.

Improving crossings on trails and paths will contribute to linking more comfortable walking and cycling catchments and increase the number of trails that can be classified as all ages, all abilities (AAA).

Primary and secondary trails should be audited and standard treatments for all road crossings developed and implemented progressively.

A number of key high-traffic-stress road crossings have been identified through community engagement processes as having potential for improvements to walking and cycling safety, comfort, convenience and connection. These have had an initial prioritisation on the basis of safety and the overall contribution to linking comfortable walking and cycling catchments.

Development of many of the proposed crossings will require sustained collaboration and funding approaches between the City and State Government agencies. Further prioritisation is needed along with advocacy to state government to further investigate these opportunities and to seek funding for improvements, locations include:

- Ironbark Gully Trail, Nolan Street, North Bendigo
- Ironbark Gully Trail, Holmes Road, North Bendigo
- Mundy Street, Myers Street, Bendigo
- Mundy Street, Sternberg Street, Bendigo
- Neale Street, Townsend Street, Kennington/Flora Hill
- Long Gully Trail at Bendigo Stadium, Marong Road, Ironbark

- Back Creek Trail, Houston Street, Flora Hill
- Bendigo Creek, Lockwood Road, Kangaroo Flat
- Bullock Creek Trail, Calder Highway, Marong
- Rail line, near Thistle Street, Golden Square
- O’Keefe Rail Trail, McIvor Highway, Junortoun
- Emu Creek, Strathfieldsaye Road, Strathfieldsaye.

Consideration should also be made for improving rail line crossings, making use of and upgrading existing (e.g. culverts and former station underpasses such as Golden Square) and developing new infrastructure where possible.



Images: Road crossings for trails and paths should be treated in order of priority to eliminate, minimise or reduce interaction with traffic.

8.5 Comfortable walking and cycling networks

Greater Bendigo already has more than 130 km of shared walking and cycling trails and paths. Many of these trails and paths are connected. However, there are significant gaps that make travel and recreation between places uncomfortable and inconvenient. To make walking and cycling a viable comfortable, connected and convenient option for people of all ages, all abilities it is a priority to link these trails and paths into a cohesive network of footpaths, cycleways, low traffic stress streets and shared paths. Most schools and recreation reserves can be connected to broader walking and cycling networks.

Regional City Trail

The existing trail network in urban Bendigo provides a significant foundation for which a 22 km circulator trail, similar to Melbourne's 29 kilometre Capital City Trail, can be developed. This route would link the following trails and paths:

- Bendigo Creek Trail
- Long Gully and Ironbark Gully Trails
- Spring Gully and Back Creek Trails
- University to city centre route
- Kennington Reservoir trails and paths.

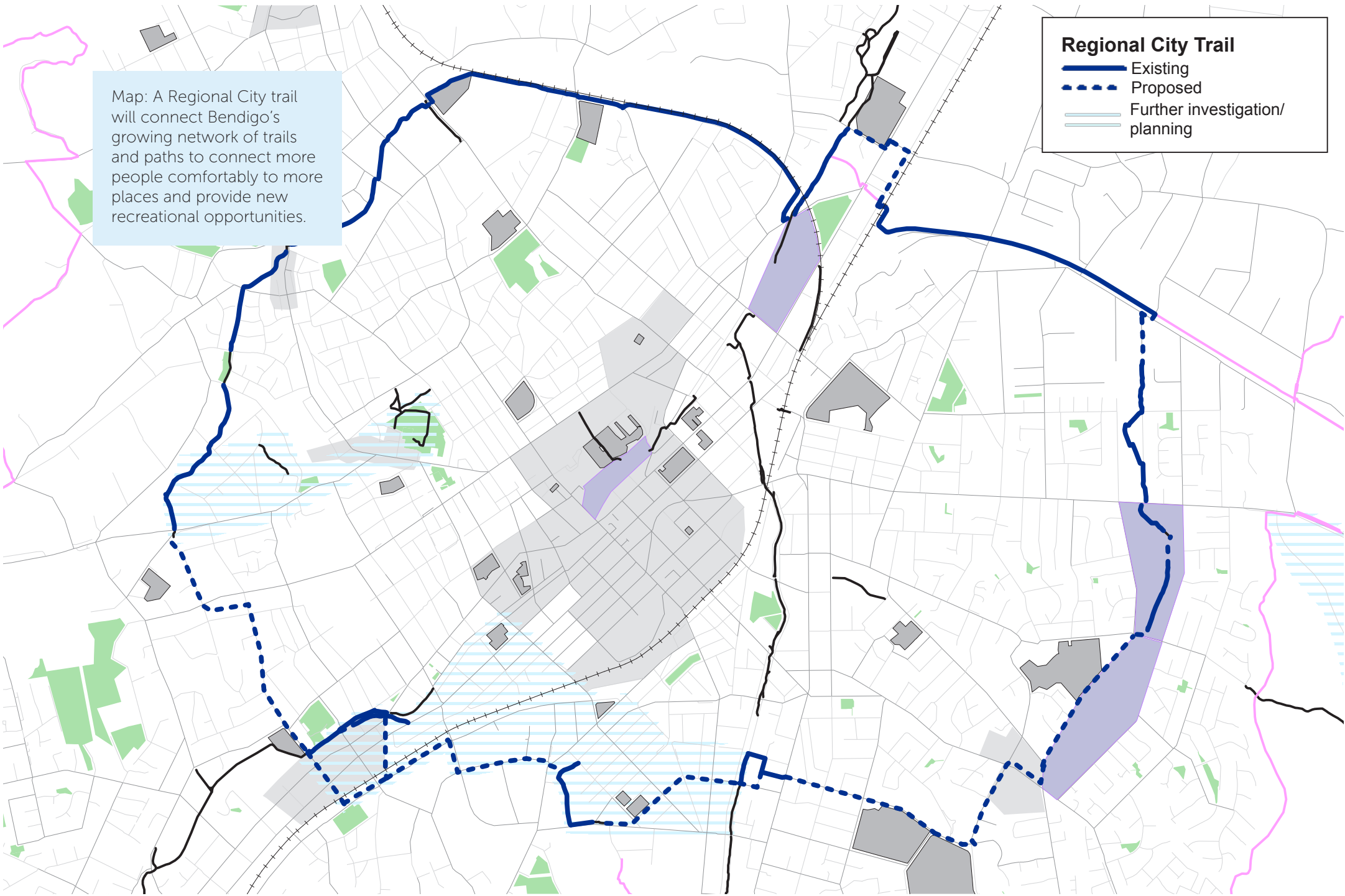
The trails and paths can be linked by approximately 6 km of new connections using a combination of new trail, footpaths, road underpasses or crossings and protected cycleways to create a continuous 22 km Regional City Trail. Wherever dedicated cycle ways are developed an equivalent walking path should also be developed to a similar or better standard. The trail will join suburbs surrounding Bendigo and link to existing trail spokes to and from the city centre creating a more cohesive network that enables users to access suburbs across the city more readily. Master planning processes should be undertaken to identify the most beneficial alignment for areas requiring further investigation, design considerations and approaches to challenges including crossing the rail line at Golden Square and connections within or adjacent to Kennington Reservoir.



Map: A Regional City trail will connect Bendigo's growing network of trails and paths to connect more people comfortably to more places and provide new recreational opportunities.

Regional City Trail

- Existing
- Proposed
- Further investigation/ planning



8.6 Connecting suburbs and towns

Engagement activities have highlighted a strong desire from the community to connect the outer suburbs and towns surrounding Bendigo, through the City centre and across the urban path and off-road trail network.

Key walking and cycling links include

- Eaglehawk to Bendigo city centre
- University to city centre
- Bendigo Low-line (Bendigo Creek, Golden Square to White Hills)
- Cousins Trail to city centre (St Aidan's Road and Mundy Street)
- Trotting Terrace Junortoun
- Northern corridor
- Maiden Gully to Ironbark Gully Trail
- Huntly to Epsom
- Marong to Maiden Gully

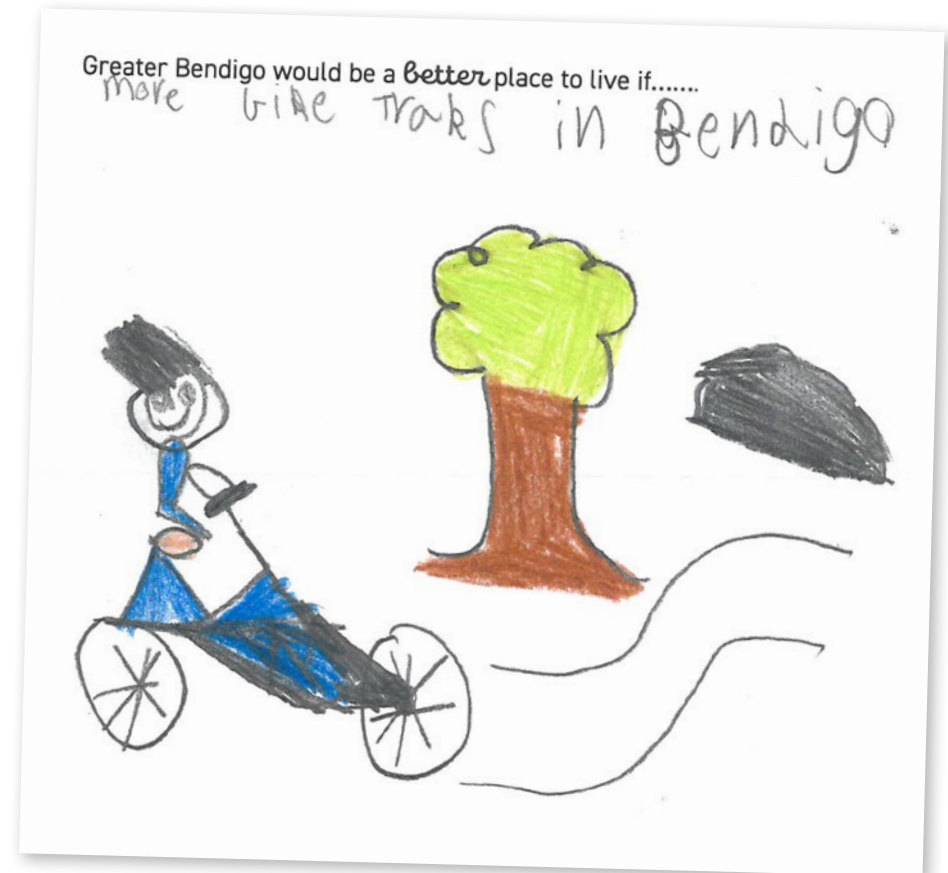
Options have been identified for these connections. Further community engagement, assessment of feasibility, planning and design is required to prioritise these routes. Where multiple options are identified these may not all be developed.

These trails and paths will be prioritised by applying the Walking and Cycling Decision-Making Framework. Like the Regional City Trail concept these trails and paths can be developed using a combination of new trail, footpaths, road underpasses or crossings and protected cycleways.

Development of these trail can be achieved by seeking State Government funding, integration with State Government transport corridor projects and by the City progressively developing sections with incrementally upgradable infrastructure to improve quality over time.

Neighbourhood connections to off-road trails and paths surrounding the city and towns should also be developed and planned for.

Several identified trail opportunities provide that require further planning and engagement to determine preferred alignments and address planning challenges.



Picture: School aged children contributed their ideas to make walking and cycling easier in Greater Bendigo

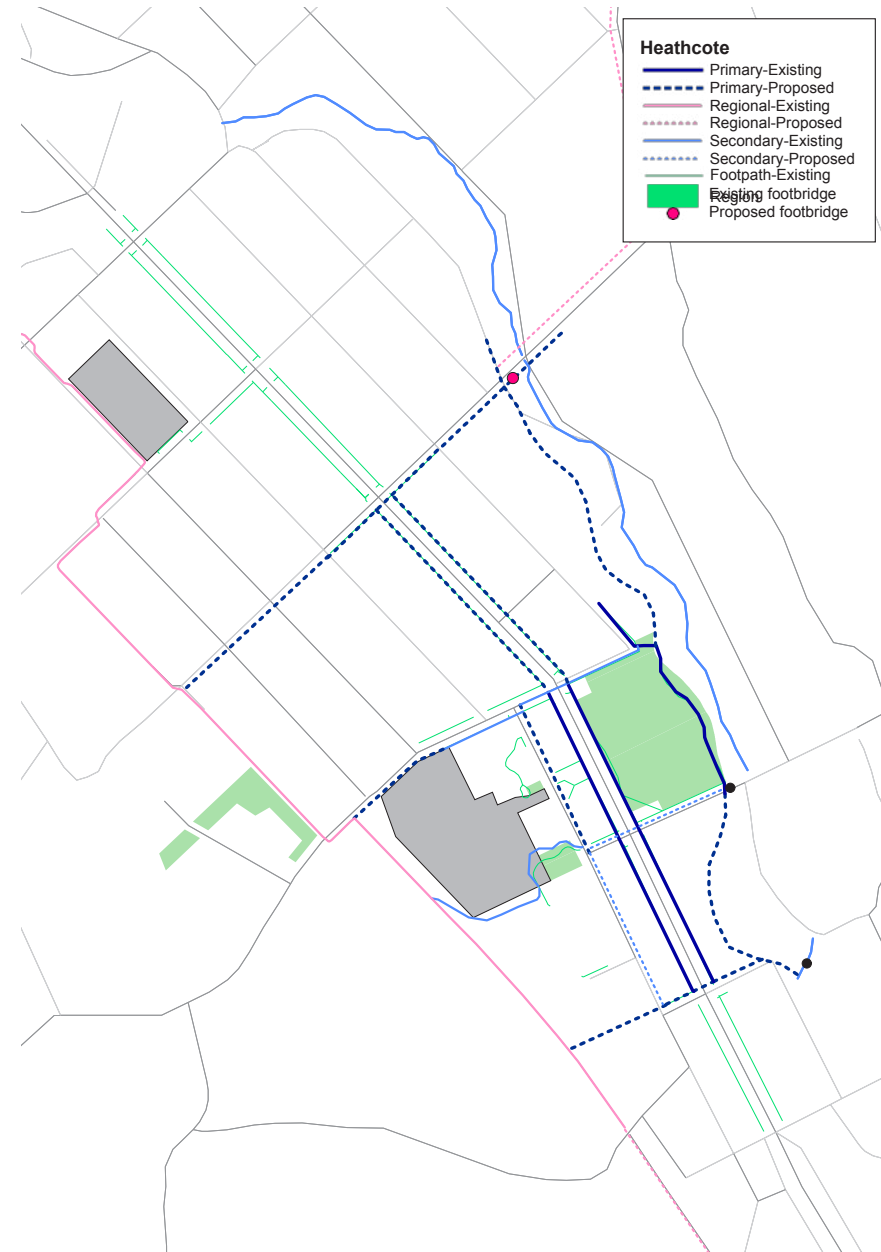
Township networks

It is important that the residents of small towns within Greater Bendigo have appropriate local opportunities to walk and cycle for everyday activities, for health, social activities and recreation.

A framework for small towns within the Walking and Cycling Decision-Making Framework guided by engagement with residents and the Walking and Cycling Community Reference Group, local plans and the Public Space Plan will seek to guide the development of local walking and cycling facilities including:

- Improved walking and cycling opportunities along primary public space corridors
- Safe and comfortable footpath and trail connections to schools, activity centre, parks, recreation facilities and public transport
- Local walking and cycling loops or circuits or trail connections to a regional trail
- Connections to the Bendigo urban trail network for larger towns; for example Huntly to Epsom and Maiden Gully to Bendigo
- Local wayfinding information consistent with the broader Greater Bendigo networks.

Map: Example Small Town Hierarchy, Heathcote, offers walking and cycling loops, connections to the O'Keefe Trail and access to the town centre



Regional trails and facilities

A number of regionally significant walking and cycling trails and facilities exist or have been developed across Greater Bendigo in recent years, these include the:

- O’Keefe Rail Trail from Bendigo to Heathcote
- Goldfields Trail
- Bendigo Bushland Trail
- Mulga Bill playground, Eaglehawk
- BMX Facilities (Eaglehawk)
- Track cycling facilities (Tom Flood Centre)

These trails and facilities provide an important role including tourism and economic development, health, everyday use by residents, events and informal and formal events and activities by community organisations.

An economic impact study of the O’Keefe Rail Trail (2016) identifies average domestic overnight expenditure by visitors to the region was \$134 per user with an overall annual benefit of \$0.669million to the region over the 2016 calendar year.

There are proposals led by neighbouring local government areas to extend the trail to areas including Campaspe Shire and Mitchell Shire.

There is a need to develop and implement consistent plans in collaboration with neighbouring municipalities and stakeholders for regional trails such as the O’Keefe Trail. Engagement with Parks Victoria to improve the quality and condition of the Bendigo Bushland Trail should continue over the medium-to-longer term. A regional trails prioritisation within the Walking and Cycling Decision-Making Framework will allow the City to prioritise the many proposals.

Way finding and access to information

Community engagement activities have identified a strong demand for improved wayfinding signage, access to information and cultural storytelling across Greater Bendigo’s walking and cycling networks. A clear and consistent wayfinding plan and approach integrating significant and regional trails is needed across Greater Bendigo.

Access to information including easy-to-read maps, walking and cycling information and resources, skills and learn-to-ride courses, infrastructure updates, and reporting of trail and path issues was a consistent theme throughout community engagement processes. Any publications should be made available in accessible and translated versions for culturally diverse communities.

The City of Newcastle provides an example of a single point of information for cycling information on its ‘On Your Bike’ website (onyourbike.com.au) that could be replicated for walking and cycling resources in Greater Bendigo.

8.7 Equity

When reviewed together the Active Living Census (2014), Australian Census (2016) and Public Space Plan identify areas within Greater Bendigo where there is:

- low rates of physical activity
- a lower provision of walking and cycling infrastructure and provision of quality public space
- socio-economic inequity
- significant populations of culturally diverse and refugee communities
- incomplete footpath networks.

A Walking and Cycling Decision-Making Framework has been developed to give an increased weighting to social, health, geographic and participation equity factors. Prioritising walking and cycling infrastructure development in these areas will contribute to improving accessibility of, equity of access to and the viability of walking opportunities.

Age and ability

It is important that Walking and Cycling Infrastructure and programs are accessible and designed with All Ages, All Abilities as a priority. Universal design approaches will be applied to ensure infrastructure is inclusive and suitable for younger and older residents will enable more people to participate across their lives.

There is interest from community organisations to create opportunities for older residents and people living with a disability and limited mobility to enjoy the experience of a bicycle ride on regular and electric tricycles.

Walking works wonders

The U3A bushwalking group lets us appreciate time away from our busy lives and technology. We love that Bendigo is a City in a forest and explore different areas of the city, our National Park and areas further afield. We follow the seasons in our weekly walks and after have coffee and a chat.

Every week we get fit, chat and trudge up the hills, knowing when we go home we will feel better mentally and physically.

Walking is a very important part of our lives and we would love to see the walking tracks on a map!

Liz Martin, University of the Third Age (U3A)



Gender equity

Community engagement processes have shown that women and girls are much more likely to feel vulnerable when walking or cycling on Bendigo's networks of trails and footpaths and riding on roads. This is reflected in low participation rates in commuter cycling counts where less than 20% of riders counted in Bendigo are female. It is important walking and cycling infrastructure is designed to improve safety for women and girls so that all members of the community can comfortably share in the benefits. Walking and cycling infrastructure and facilities across Greater Bendigo should be designed to meet the needs of women and girls including

- Improved passive surveillance
- Designing with Crime prevention through environmental design (CPTED) approaches
- Lighting underpasses, crossings and trails at night
- Providing protected cycleway infrastructure to minimise interaction with traffic
- Safety at amenities (toilets etc.)
- Other women using the facilities

It is important that women and girls are supported to participate in leadership opportunities including equal representation on the City's Walking and Cycling Community Reference Group and in leadership roles within the community. Positive stories of women in walking and cycling leadership roles should be documented and shared with the community.

The City should also work with a focus group of women and girls to audit and evaluate existing and proposed walking and cycling trails to understand and improve safety for women and girls.

Funding

Creating comfortable walking and cycling networks and crossings and new innovative projects will require sustained collaboration, new and innovative approaches between the City and State Government agencies to share resources, explore and reallocate and develop new funding streams.

8.8 Activation

Activating Greater Bendigo's walking and cycling trails, paths and cycleways will support community, visitors and the City to get the best value from the investment and its benefits. Activation raises awareness, celebrates and builds the capacity of communities and develops a stronger sense of community ownership toward walking and cycling infrastructure. Community driven activation programs have complemented the new Back Creek Trail infrastructure and it provides a case study for activation that can be replicated in other areas of Greater Bendigo.

Activation can take many forms including working with and supporting community to design and deliver:

- education, skills and awareness programs
- events and festivals
- creative projects
- walking and cycling groups
- way finding signs and information resources
- traffic calming and pilot infrastructure initiatives
- co-designing of new initiatives.

For a number of years the City has supported, sought funding and implemented ongoing behaviour change and initiatives and events including

- Walk2School
- Join the Ride (schools)
- Ride2Work Day community breakfasts
- Walking groups
- Change to Walking, Epsom and Ascot
- Bike Palooza Bendigo community festival
- It is important that activation initiatives are targeted focusing on: Equity – gender, socioeconomic, geographic and cultural
- All ages, All abilities programs, events and activities

- Increasing participation in areas where physical activity rates are low
- Locations where new infrastructure and new types of infrastructure (e.g. cycleways) are developed.

The Healthy Heart of Victoria project is an example of activation targeted in these settings. The project is seeking to promote awareness of and activate walking and cycling infrastructure in Kangaroo Flat and Long Gully by working in partnership with local communities and by implementing a variety of co-designed programs and infrastructure improvements.

Activation will support the community to get the best value from more than 700 kilometres of footpaths and 130 kilometres of shared paths across Greater Bendigo.

La Trobe University Electric Bike Activation Trial

In May 2019 the RACV loaned nine electric bikes to La Trobe University Bendigo staff and students following similar trials in Moreland and Geelong.

Participants are reporting through weekly surveys on changes in their lifestyle and health as they ride to and from the La Trobe campus, or for every-day trips.

Dentistry student Margaret Tran normally rides a bike to and from university, but expects the eBike will save her time and energy.

“Bendigo does tend to be quite hilly,” she says.

She’ll also use the eBike to get to classes at the Bendigo Hospital, a healthier option than driving or car-pooling with other students.

The RACV chose Bendigo for the pilot due to a strong cycling community, as well as some issues with public transport routes between the university and the rest of the city.

Photo credit: La Trobe University



Schools

School students from across Greater Bendigo were asked how they currently travel to school and other activities. More than 70% of students were transported by car. In contrast greater than 80% of students indicated their preferred mode of travel was by walking, cycling, skating or scooting.

Activation programs designed with and for schools, parents and students to encourage children and families to break down to walking or cycling to school are crucial to developing life long active travel behaviours. These programs provide crucial opportunities for children to build skills, knowledge and confidence to develop their independent mobility as they mature.

Ewing Park – Activation hub and graduated learning experiences

Ewing Park is ideally located a short distance from the city centre and railway station on the Back Creek Trail. Comfortable connections from here can be made to Epsom, Spring Gully, the University, Heathcote (via the O’Keefe Rail Trail), Spring Gully Mountain Bike facilities and the Bendigo Hospital. The Integrated Transport and Land Use Strategy identified Ewing Park, as a key location to develop a walking and cycling activation hub working with community. The Ewing Park Masterplan has progressed some of these concepts incorporating walking circuits, a learn-to-ride park, skate park and allocation of space for the walking and cycling activation hub.

Development of a multi-purpose activation hub at this location can provide Bendigo’s walking and cycling communities and community organisations a focal point and facilities in a similar manner to those made available to sporting clubs and a variety of community organisations across Greater Bendigo.

Facilities at the multipurpose hub should include

- Walking circuit
- Exercise equipment
- Learn to ride park
- Outdoor classrooms
- Workshop areas and storage

- Bicycle repair station
- Drinking water station
- Way-finding information
- Start/end of trip facilities
- Commercial opportunities including provision for bike hire and food vendor infrastructure.

These facilities can be made available to schools participating in bicycle education programs, and for community based or commercial bicycle skill educators to provide learn-to-ride and skills courses for all ages. Facilities such as these will provide a key location for social interaction and for life-long, graduated learning and skill development encouraging physical activity across a variety of age groups and abilities.

By developing infrastructure and supporting cycling education and skill development programs more people will be equipped to expand the range of environments in which they are comfortable riding in. This will enable children and adults to progress through a graduated learning experience from learning to ride to riding on trails and paths to cycleways, and bike lanes. Ultimately, this will make everyday cycling a more viable, comfortable, enjoyable and convenient experience for more people.

Bicycle recycling programs

A number of bicycle recycling programs are currently active with Bendigo and central Victoria. These community-run programs will collect, repair and redistribute second hand bicycles to other members of the community or for sending internationally as part of community building and development programs. Bicycle recycling programs support the development of cross-sector engagement opportunities, community connections, increase access to affordable transport for low-income residents. These programs also contribute significantly to preventing and reducing waste.

The City can support these programs to develop sustainably by sharing information and investigating opportunities in partnership with these organisations to develop facilities and networks.

8.9 Leadership

The City has a history of leadership and innovation in walking and cycling. The undergrounding of powerlines in the 1990s and planting of street trees has contributed to shadier and more comfortable walking environments in the city centre. The City implemented a series of pedestrian improvements in the city centre in the 2000s and has developed walking and cycling trails and paths across the municipality.

In 2012 the City launched one of the first local government bicycle fleets in Victoria with four bicycles for staff to make short trips and reduce reliance on fleet vehicles. The fleet has since expanded to include nine electric bicycles and eight regular pushbikes. The bicycle fleet is now used by staff to travel more than 3000 kilometres each year with an average trip distance of two to six kilometres.

The City advocated for a trial of bike carriers on buses implemented by the State Government in 2016/17. The Strathfieldsaye bus (70) was included in the trial and performed consistently. Advocacy should continue to expand the trial to more buses and better integrate cycling with local and regional public transport services.

In 2016 Bendigo hosted Australia's first Cycling Innovation Showcase highlighting innovative cycling products and approaches from across Australia. A Bike Share business case study has been completed identifying potential pathways to a multi-organisational bike fleet and public bike share systems.

In 2018 the City of Greater Bendigo became the first internationally accredited Bicycle Friendly Community in Australia. The silver rating recognises the involvement of the community and the City in developing a leading place to walk and cycle. The Report Card identifies key steps and priority areas toward gold status including:

- Improved safe/separated cycling infrastructure
- Establishment of a Bicycle Advisory Group
- Introduction of a Bike Friendly Business program
- Education programs
- Appointing an Active Travel Coordinator
- Improved infrastructure for secure bike parking at public transport stops

It is important that the City continues its leadership role by working to include walking and cycling facilities as part of the GovHub initiative – the proposed co-location of City and State Government agencies in a new building. Investigations regarding similar large government and private developments in Greater Bendigo has shown end of trip facilities for walking cycling and jogging to and for work have rapidly reached capacity. Considerations for large developments including GovHub include

- Implementing the recommendations of the Bike Share Business Case including establishing a multi-organisation electric bike fleet
- Prioritising convenient, visible and accessible active travel facilities with secure bicycle parking and end-of-trip facilities with sufficient capacity for growth in use over time
- A high standard of pedestrian amenity and protected cycleway connections to the footpath, trail and protected cycleway networks.
- Supported bulk e-bike purchasing and/or leasing arrangements for staff riding to and for work purposes.

8.10 Communications

The benefits of walking and cycling are many and varied. Community engagement activities indicate there is a lack of awareness and available information and resources promoting opportunities to walk and cycle for everyday travel and recreation. Engagement identified perceived barriers including available time despite 74% of survey respondents indicating they would like to walk more often.

There is an opportunity to more regularly promote walking and cycling opportunities and benefits through a variety of mediums, these communications should promote:

- The benefits of walking and cycling – including time saving benefits of combining walking and cycling and daily exercise
- Available information and resources, journey planning route information and maps
- A focus on all ages, all abilities and gender equity
- Available infrastructure and to introduce and explain new infrastructure as it is planned and developed

Trail user etiquette and responsibilities developed in consultation with the Walking and Cycling Community Reference Group.



8.11 Data collection

Collection of walking and cycling data across Greater Bendigo provides valuable information and evidence to support evaluation, decision-making and evidence to inform ongoing planning of infrastructure and activation initiatives.

The City currently collects walking and cycling data through automated counters (bicycle counters) at four locations. A number of infra-red counters are distributed across paths and public spaces and observational counts are undertaken twice each year.

The infra-red counters are typically reaching the end of their useful life and there are concerns about the ongoing accuracy of the devices. The embedded trail counters are significantly more accurate but also more costly. The existing embedded counters can be upgraded to automatically upload data over wireless networks and potentially be linked with State Government counting systems.

Observational counts provide more detailed user information but are subject to one-off weather events. Planning and implementation of observational counts by the City working with local community organisations, offers the potential to undertake more frequent counts. These counts can also include walking, providing more data and flexibility at a lower cost.

The City and La Trobe University are working on a project to develop a wireless, low power wide area network and a variety of low-cost sensors that would automatically collect and collate data to a central system. There is potential for lower cost walking and cycling counters to be developed in this project.

Planning for new walking and cycling infrastructure, in particular on primary routes, should include automated walking and cycling counters.

With accurate and remotely connected counters there is greater opportunity to make data available to partner organisations and the public via online systems or live displays at key locations on the walking and cycling network.

9 Hierarchy and Decision-Making Frameworks

Hierarchies for footpaths, walking circuits, trails and paths, protected cycleways and bicycle lanes will be implemented to determine standards and design principles for walking and cycling infrastructure and associated amenities. This will assist in developing comfortable, walking and cycling networks that achieve priority for walking and cycling on primary routes and where possible on secondary routes.

A Walking and Cycling Decision-Making Framework applying criteria and weightings will be implemented to ensure a variety of factors are evaluated in the prioritisation of walking and cycling infrastructure development. Criteria within the hierarchy include

- Strategic benefit
- Safety
- Participation in walking and cycling
- Connectivity
- Accessibility
- Equity – social, health and geographic
- Environmentally Sustainable Design
- Financial viability

Hierarchies will be applied separately to walking, cycling and regionally significant and tourist infrastructure developments. Hierarchy categories and their associated function are defined as

- Primary - Linking communities across and between communities with the highest level of walking and cycling priority
- Secondary and Recreational
- Walking and cycling priority where possible
- Neighbourhood – Low-traffic-stress streets, off-road trails and paths connecting to the broader network
- Training and Transport – popular urban and rural on-road cycling routes
- Regional – regionally significant trails

Development of a network of protected cycleways can be achieved by seeking State Government funding for projects and/or by implementing incrementally upgradable infrastructure. Low-cost pilot projects and entry-level protected cycleway design, and treatments to establish routes. These routes can be upgraded to all ages, all abilities standards as funding is sourced.

A Standard Walking and Cycling Infrastructure Design Manual guided by the walking and cycling hierarchies will be developed to guide the consistent implementation of walking and cycling infrastructure including intersections and road crossings and what type of materials and small infrastructure, etc. should also be provided.



9.1 Walking and Cycling Hierarchy

	Walking	Cycling	Tourism/Regionally Significant Trails
Primary Linking communities across and between communities. Highest level of walking and cycling priority	Activity Centres (e.g. town centres, hospital; precinct). Primary Public Spaces, Corridors and walking circuits. Higher frequency of small infrastructure (including seats, drinking fountains and bike parking), traffic calming.	Strategic Cycling Corridors. City centre protected cycling minimum grid, shared paths, protected cycleways neighbourhood streets. Higher frequency of small infrastructure (including seats, drinking fountains and bike parking), traffic calming.	-
	<i>User focus</i> <i>All ages, all abilities</i>	<i>User focus</i> <i>All ages, all abilities</i>	
Secondary and Recreational Walking and cycling priority where possible	Secondary Public Space Corridors Shared paths and walking circuits. Medium frequency of small infrastructure (including seats, drinking fountains and bike parking), traffic calming.	Principal Bicycle Network (revised). Shared paths/cycleways, neighbourhood streets. Medium frequency of small infrastructure (including seats, drinking fountains and bike parking), traffic calming.	-
	<i>User focus</i> <i>All ages, all abilities</i>	<i>User focus</i> <i>All ages, all abilities</i>	
Neighbourhood Low-traffic-stress streets, off-road trails. paths and connections to broader network	Footpaths and local trails, paths connecting to the broader network and walking circuits. Lower frequency of small infrastructure (including seats, drinking fountains and bike parking), traffic calming.	Off-road trails, paths and low traffic-stress neighbourhood streets. Lower frequency of small infrastructure (including seats and bike parking), traffic calming.	-
	<i>User focus</i> <i>All ages, all abilities</i>	<i>User focus</i> <i>All ages, all abilities</i>	
Training and Transport	-	Rural roads Training routes Road routes High traffic-stress Urban roads (including bike lanes)	-
		<i>User focus</i> <i>Strong and Fearless</i>	
Regional	-	-	Regional Walking and Cycling Trails e.g. O'Keefe Rail Trail, Goldfields Track and Bendigo Bushland Trail
			<i>User focus</i> <i>Mixed</i>

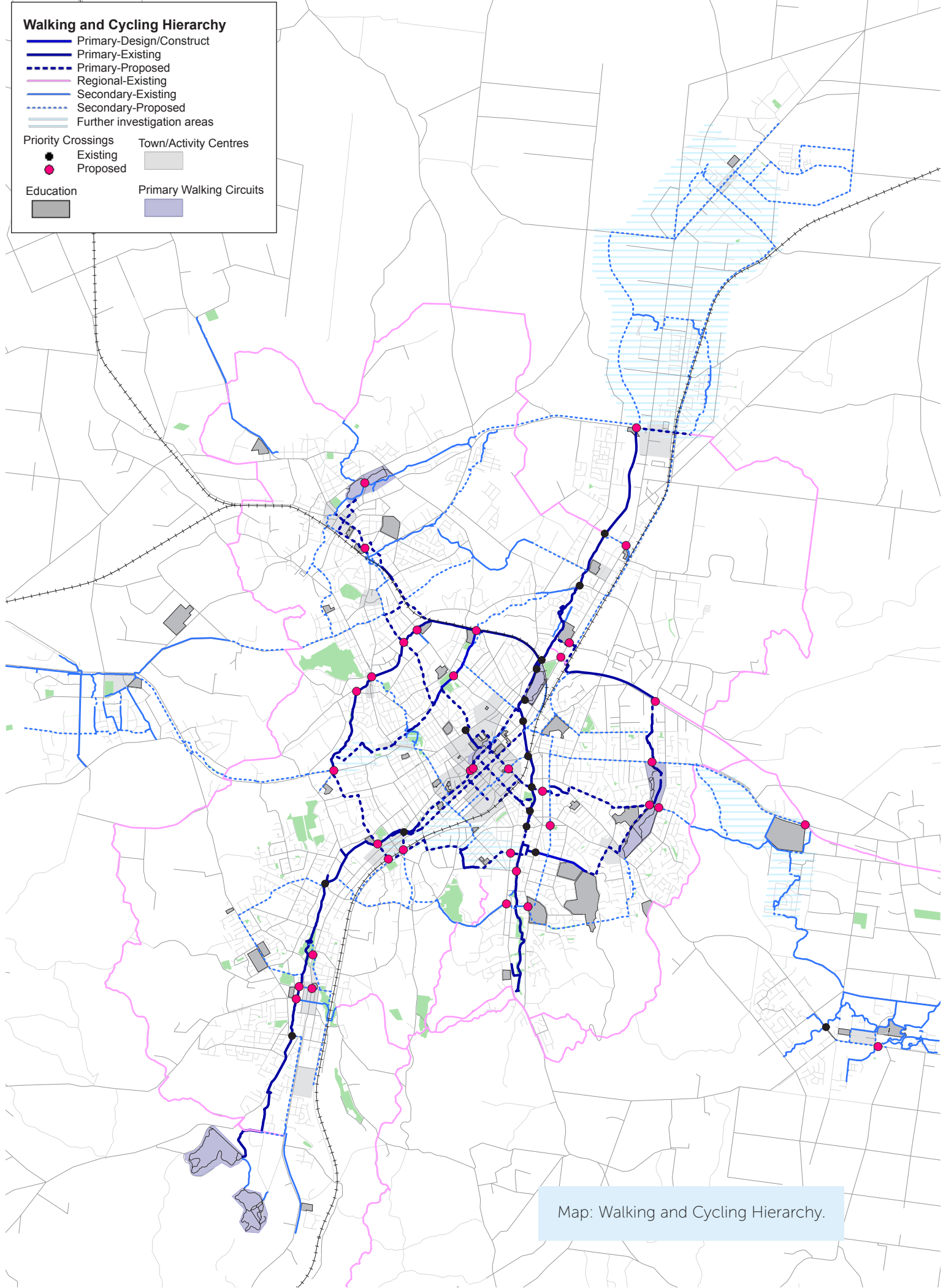
Incrementally Upgradable

Walking and Cycling Hierarchy

- Primary-Design/Construct
- Primary-Existing
- - - Primary-Proposed
- Regional-Existing
- Secondary-Existing
- - - Secondary-Proposed
- - - Further investigation areas

- | | |
|---|---|
| Priority Crossings | Town/Activity Centres |
| Existing ● | |
| Proposed ● | |

- | | |
|--|--|
| Education | Primary Walking Circuits |
|--|--|



Map: Walking and Cycling Hierarchy.

10 Action areas

Action Area 1: Comfort, convenience and connections – Walking and cycling is a viable, safe and enjoyable experience

Key Health and Wellbeing Plan progress measures

- **Healthy and well** – Proportion of adults, adolescents and children who are sufficiently physically active
- **Safe and secure** – Proportion of adults feeling safe walking in their street at night / in their home at night
- **Liveability** – Distance of footpaths, off-road paths, on-road bike lanes and on-road protected bike lanes (cycleways)
– Greater Bendigo Liveability Indicators

Key One Planet Living progress measures

- **Travel and Transport** – Most people actively engaged in using shared and/or low carbon modes of transport
– Municipal infrastructure that supports new transport technologies
- **Land and nature** – Increase in canopy cover in urban areas
- **Materials and products** – All buildings and infrastructure are constructed in environmentally sustainable ways, require fewer inputs, are healthier and more comfortable to inhabit
- **Zero carbon** – People actively using low carbon modes of transport

Key Connecting Greater Bendigo, Integrated Transport and Land Use Strategy measures

- **Healthy Greater Bendigo** – Increase the percentage of school children who regularly travel to school by an active transport mode
- **Engaging Greater Bendigo** – Increase the percentage of the workforce who commute to work by walking and cycling from 3.5% to 10% by 2026
– Increase the percentage of population that walks or cycles 5 times a week for at least 30 minutes from 56% to 65% by 2021

Actions	
<p>1.1 Develop and implement a ten-year walking and cycling infrastructure plan</p>	<ul style="list-style-type: none"> • Prioritise infrastructure by applying the walking and cycling key principles, decision-making framework priority areas and criteria <p>Principles</p> <ul style="list-style-type: none"> - Equity – ensuring equitable provision across places and communities to support people to walk and cycle more often - All Ages, All abilities – making walking and cycling possible in more places from childhood to later life - Partnerships – ongoing engagement and working in partnership with communities, government and stakeholders - Evaluation – monitoring our progress, evaluation and ongoing improvement <p>Priority areas</p> <ul style="list-style-type: none"> - Safe routes to schools - All ages, all abilities - Equity (Health, socioeconomic, gender and geographic) - Participation impact - Everyday travel <p>Criteria</p> <ul style="list-style-type: none"> - Strategic benefit - Equity of provision - Safety - Comfort, convenience and connections - Participation impact - Everyday travel outcomes

Actions

1.1 Develop and implement a ten-year walking and cycling infrastructure plan *continued*

- Apply the Standard Walking and Cycling infrastructure design manual
- Integrate with the Walking and Cycling Activation Plan
- Develop project costings
- Review plan every three years
- Seek State and Federal Government funding support
- Work with State and Federal Governments to identify new and innovate approaches to share resources, explore and develop new funding streams

1.2 Develop standard walking and cycling infrastructure design manual

Develop standard design treatments for walking and cycling infrastructure linked to the Walking and Cycling Infrastructure Hierarchy.

Incorporate design approaches for

- Incremental development approaches across and within walking and cycling hierarchy levels
- Walking and cycling infrastructure crossings/intersections at roads in order of priority by
 1. Eliminating interaction through separation (e.g. underpasses)
 2. Controlling the intersection (e.g. traffic signals)
 3. Prioritising path users with raised or 'wombat' crossings with path, cycleway or trail priority
 4. Neighbourhood, park integrated streets and traffic calming as applicable
- Wayfinding
- Learn-to-ride and activation facilities
- Supporting infrastructure provision including
 - Seating
 - Lighting
 - Drinking fountains
 - Electric scooter and bicycle recharge points
- Data collection
- Integration with Public Space, Greening and Recreation Facilities planning and design processes
- Preventing and limit the likelihood of trail/path user conflict
- Environmental sustainable design
- Investigate opportunities to collaborate with other levels of government

1.3 Progress and/or prioritise planning and implementation of key walking and cycling infrastructure projects

- Continue implementation of
 - University to City Centre walking and cycling route (stage 1)
 - Ewing Park Learn-to- Ride Park and Walking and Cycling Activation Hub
 - Ironbark Gully Trail
- Undertake master planning, engagement and design processes
 - Regional City Trail
 - University to City Centre walking and cycling route
 - Eaglehawk to city centre
 - City centre protected cycleway grid
 - Bendigo Creek, Low-line
 - Walking circuits (integrate with public space master plan processes)
 - Assess the need for learn to ride facilities across Greater Bendigo

Actions

1.3 Progress and/or prioritise planning and implementation of key walking and cycling infrastructure projects *continued*

- Develop appropriate walking and cycling plans for townships across Greater Bendigo including
 - Improved walking and cycling opportunities along primary public space corridors
 - Safe and comfortable footpath and trail connections to schools, activity centre, parks, recreation facilities and public transport
 - Local walking and cycling loops or circuits or trail connections to a regional trail
 - Connections to off-road trails, the Bendigo urban trail network for larger towns; for example Huntly to Epsom and Maiden Gully to Bendigo
 - Local wayfinding information consistent with the broader Greater Bendigo networks.
 - Integrate the township plans with the Public Space Plan and Greening Greater Bendigo Strategy for the townships: Axedale; Elmore; Goornong; Heathcote; Junortoun; Lockwood South; Marong; Mia Mia and Redesdale; Neilborough, Raywood and Sebastian; Strathfieldsay
- Prioritise
 - Identified road crossings for walking and cycling comfort
 - Walking and cycling trail crossings for upgrade
- Work with State and Local Government partners in consultation with the Walking and Cycling Community Reference Group and community stakeholders to
 - Develop sustainable plans for existing regional trails
 - Prioritise regional trail proposals

1.4 Monitor and maintain walking and cycling infrastructure

- Regularly inspect and sweep trails, paths, cycleways and bike lanes
- Prevent intrusion of car parking onto footpaths, trails, paths, protected cycleways and bicycle lanes
- Manage vegetation on trails and paths

1.5 Increase availability of bicycle parking in the city centre, at city managed facilities and in activity centres

- Double the availability of on-street bicycle parking facilities in the city centre within 5 years
- Pilot bicycle corrals in the city centre

1.6 Ensure major development projects include appropriate walking and cycling facilities

- Prioritise convenient, visible and accessible active travel facilities with sufficient room for ongoing growth
- Provide a high standard of pedestrian amenity, low traffic stress streets and protected cycleway connections to Greater Bendigo walking and cycling networks
- Implement behaviour change programs and policy to support walking and cycling to and from the workplace and for work related short trips
- Bulk e-bike purchasing and/or leasing arrangements for staff riding to and for work purposes
- Develop an integrated walking and cycling plan for the GovHub, TAFE and Courthouse major development precinct within the city centre

1.7 Link new residential developments to the walking and cycling network

- Ensure new residential developments are linked to the walking and cycling network and provide appropriate walking and cycling infrastructure within developments
- Ensure design of infrastructure reflects the Walking and Cycling Hierarchy and Standard Walking and Cycling Infrastructure Design Manual
- Develop a Healthy by Design checklist for new developments

1.8 Support workplaces to create walking and cycling end of trip facilities in new and existing facilities and secure bicycle parking

- Encourage/support workplaces to create secure bike parking and end of trip facilities
- Support the development of bicycle fleets
- Implement recommendations of the Bendigo Bike Share Business Case
- Support the provision of bike share and/or multi-organisation bicycle fleet(s)

1.9 Maintain and improve Bicycle Friendly Community Accreditation

- Seek to maintain and improve upon Bicycle Friendly Community Accreditation from Silver (2018)

Action Area 2: Activating community, culture and capacity – more people are connected to walking and cycling communities, discovering infrastructure, programs and events

Key Health and Wellbeing Plan progress measures

- **Healthy and well** – Proportion of adults, adolescents and children who are sufficiently physically active
- **Liveability** – Distance of footpaths, off-road paths, on-road bike lanes and on-road protected bike lanes (cycleways)
– Greater Bendigo Liveability Indicators
- **Connected to culture and community** – Rate of use of local recreation facilities among people with a disability
– Proportion of adults who feel part of the community
- **Able to Participate** – Suitable measures for health, financial and digital literacy (for investigation)
– Suitable measures for positive ageing (for investigation)

Key One Planet Living progress measures

- **Travel and Transport** – Most people actively engaged in using shared and/or low carbon modes of transport
- **Zero carbon** – People actively using low carbon modes of transport

Key Connecting Greater Bendigo, Integrated Transport and Land Use Strategy measures

- **Healthy Greater Bendigo** – Increase the percentage of school children who regularly travel to school by an active transport mode
- **Engaging Greater Bendigo** – Increase the percentage of the workforce who commute to work by walking and cycling from 3.5% to 10% by 2026
– Increase the percentage of population that walks or cycles 5 times a week for at least 30 minutes from 56% to 65% by 2021

Actions

2.1 Implement ongoing engagement and partnerships

- Establish an ongoing Walking and Cycling Community Reference Group ensuring equitable representation for social, health, gender, geography and cultural diversity
- Establish a women and girls walking and cycling focus group
 - Audit and evaluate existing and proposed walking and cycling infrastructure to better understand and improve safety for women and girls
 - Integrate recommendations from audit processes into the Walking and Cycling Standard Infrastructure Design Manual
- Provide support to strengthen walking and cycling community organisations

Actions

2.2 Develop and implement a ten-year walking and cycling activation plan

- Progress planning, integration and implementation and establish partnerships for key walking and cycling activation projects
- Deliver targeted behaviour change activation programs guided by the strategy's guiding principles and priority areas
- Implement the Walking and Cycling Activation Plan
 - Apply the Standard walking and cycling activation approaches and design manual
 - Integrate with the Walking and Cycling Infrastructure
 - Review plan every three years
- Work with State and Federal Governments to identify new and innovate approaches to share resources, explore and develop new funding streams
- Activate new infrastructure as developed
 - Integrate with Walking and Cycling Infrastructure Plan
- Continue focused activation and behaviour change initiatives in priority areas including
 - Healthy Heart of Victoria
 - Walk to School
 - Ride to School
 - Join the Ride
 - Ride2Work Day
 - Let's Walk (Victoria Walks)
 - Infrastructure trials
- Support the establishment and promote more regular walking groups
 - Develop a walking groups mentor/toolkit program
 - Develop a community walks calendar
- Provide more opportunities for cycling graduated learning
 - Fund, support and promote cycling education and skill development programs for all ages, all abilities
- Support community to develop walking and cycling experiences across mobility and ability
 - Support community initiatives that enable older residents and people living with a disability or limited mobility to enjoy the experience of a bicycle ride
- Support community-led events, festivals arts and creative projects along walking and cycling corridors
 - Build on the Back Creek Trail activation successes and replicate in other locations
 - Launch new infrastructure in partnership with community organisations
- Support the development and ongoing sustainability of community bicycle recycling programs
- Continue to support and develop behaviour change programs
- Build on the Back Creek Trail Activation success and replicate in other locations
- Facilitate and support arts and creative projects along walking and cycling corridors building on the success of projects on the Back Creek Corridor

2.3 Develop a Standard walking and cycling activation approaches and design manual

Identify and document approaches for defining target audiences and design of behaviour change and activation initiatives

2.4 Collect data and monitor

- Develop, implement and evaluate a pilot program of observational walking and cycling counts directly in collaboration with local community organisations
- Develop approaches to share walking and cycling data with project partners and the broader community
- Upgrade counters to collect walking data and allow remote data upload
- Investigate opportunities to integrate with VicRoads state-wide sensor network
- Investigate opportunities to develop a wireless, low-cost walking and cycling sensor trial with La Trobe University; explore other opportunities as they arise

Action Area 3: Information and awareness – Improve ease of wayfinding and access for walking and cycling

Key Health and Wellbeing Plan progress measures

- **Liveability**
 - Distance of footpaths, off-road paths, on-road bike lanes and on-road protected bike lanes (cycleways)
 - Greater Bendigo Liveability Indicators
- **Connected to culture and community**
 - Rate of use of local recreation facilities among people with a disability
 - Proportion of adults who feel part of the community
- **Able to Participate**
 - Suitable measures for health, financial and digital literacy (for investigation)
 - Suitable measures for positive ageing (for investigation)

Key One Planet Living progress measures

- **Travel and Transport**
 - Most people actively engaged in using shared and/or low carbon modes of transport
- **Zero carbon**
 - People actively using low carbon modes of transport

Key Connecting Greater Bendigo, Integrated Transport and Land Use Strategy measure

- **Healthy Greater Bendigo**
 - Increase the percentage of school children who regularly travel to school by an active transport mode
- **Engaging Greater Bendigo**
 - Increase the percentage of the workforce who commute to work by walking and cycling from 3.5% to 10% by 2026
 - Increase the percentage of population that walks or cycles 5 times a week for at least 30 minutes from 56% to 65% by 2021

Actions

3.1 Develop and implement a walking and cycling communications plan

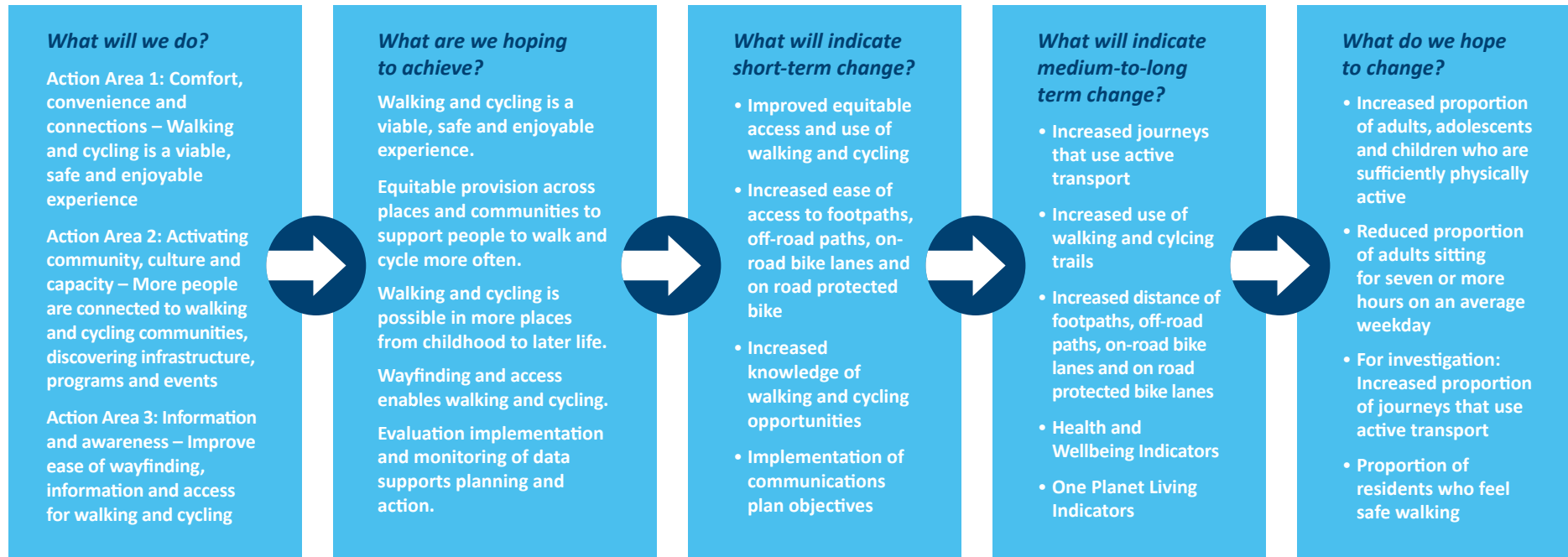
Provide a central walking and cycling information resource promoting

- Benefits
- Engagement opportunities
- Infrastructure developments (works updates, introduce and explain how to use new infrastructure)
- Journey Planning
- Maps
- Access to courses
- Information Resources
- Events and festivals
- Community walk/walking groups calendar
- The City's focus on all ages, all abilities and gender equity
- User etiquette on trails and paths (in consultation with Community Reference Group)

11 Monitoring and evaluation

The monitoring and evaluation of the strategy will consist of four key elements. This will inform the implementation, determine progress and enable action to improve strategic delivery against the goals and population changes we hope to impact and change.

The primary role of the City in implementing this strategy is to activate infrastructure and planning; engaging with the community; improving information and resources; delivering communications and marketing; delivering programs and providing activation; monitoring progress and collecting data.



The monitoring and evaluative processes provide mechanisms to inform decision making, action and it prompts when a review of the Strategy is required.



Walking and Cycling Comfort

Walking and Cycling Hierarchy

- Primary-Existing
- Primary-Proposed
- Regional-Existing
- Secondary-Existing
- Secondary-Proposed

Priority Crossings

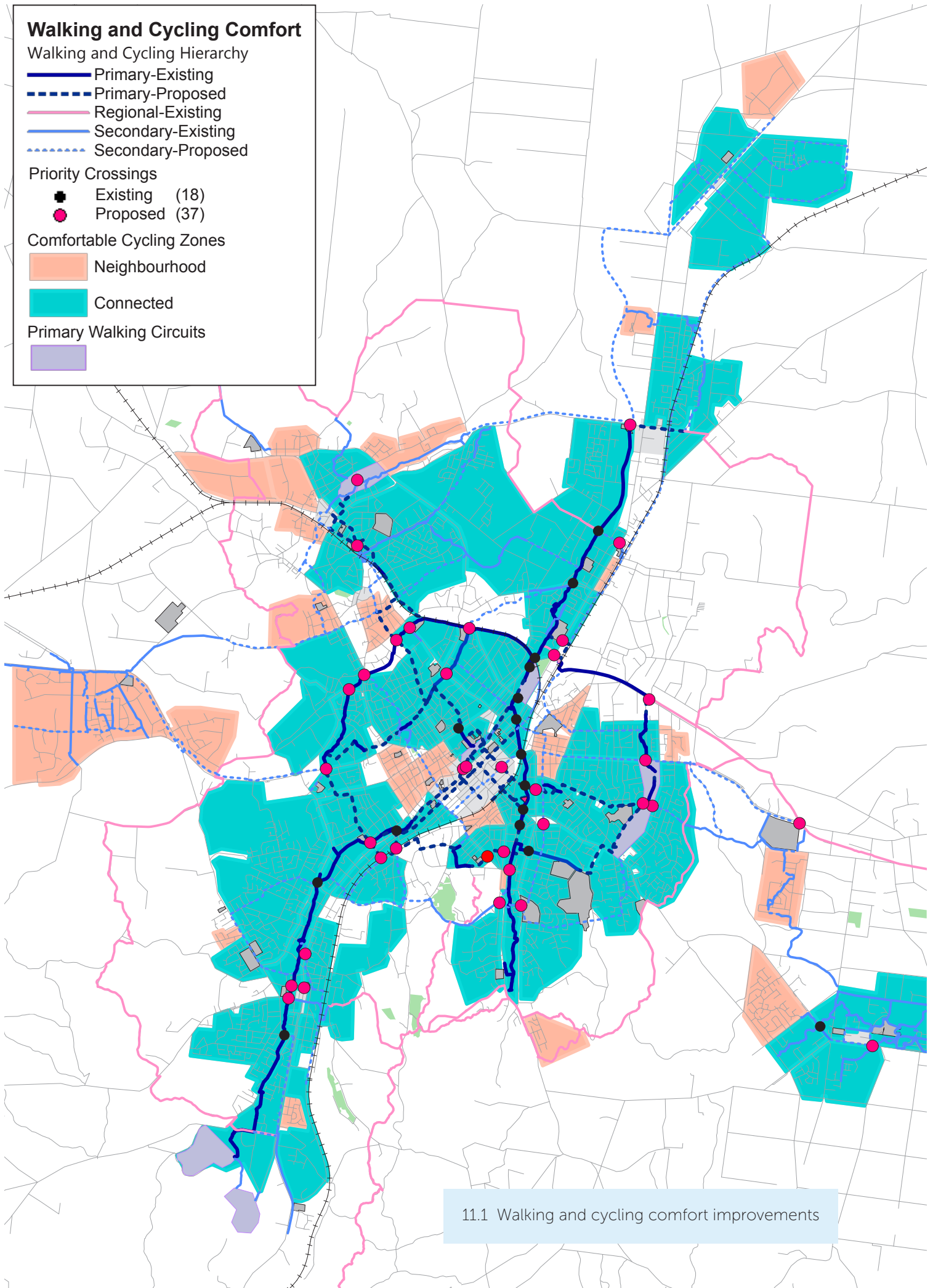
- Existing (18)
- Proposed (37)

Comfortable Cycling Zones

- Neighbourhood
- Connected

Primary Walking Circuits

-



11.1 Walking and cycling comfort improvements

