

Maroondah Bicycle Network Plan Draft





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Introduction

Purpose

The Maroondah Bicycle Network Plan 2025 - 2035 outlines a framework to deliver cycling infrastructure for the municipality over the next 10 years. The Plan considers changes in legislation and policies related to cycling, as well as the impact of changing demographics and travel behaviour patterns.

The Maroondah Bicycle Network Plan aligns with the vision of *Maroondah 2040 – Our future together* through improving and expanding cycling infrastructure across the municipality. In doing so, it addresses the following preferred future outcomes ahead to the year 2040:

- Safe, healthy and active community;
- Accessible and connected community; and
- Clean, green and sustainable community.

The Plan focuses on the connectivity and integration of the Maroondah bicycle network, addresses existing gaps, drop out points and missing links for people on bicycles, scooters and low powered mobility devices. The Plan contains a list of cycling and pedestrian project opportunities to improve active transport connection within the municipality (and beyond), taking into consideration the need for safe, comfortable and accessible cycling and pedestrian infrastructure for everyone.

Methodology

The methodology by which the Bicycle Network Plan has been developed is summarised below.

Project Initiation	•Setting goals and objectives of the project •Reviewing existing conditions
Community Consultation	•Your Say Maroondah survey and pinpoint map •In-person interview surveys on the network •Prepare an Issues and Opportunities Consultation report
Develop Draft Bicycle Network Plan	•Undertake detailed site investigations •Develop proposed cycling infrastructure to address gaps and issues •Prepare a draft Bicycle Network Plan map and report including an Action Plan of proposed projects
Draft Plan on Exhibition	•The draft Bicycle Network Plan on exhibit for the community to view and provide comments
Finalise Bicycle Network Plan	•The Bicycle Network Plan was finalised based on the results of the community and stakeholders •Council Endorsement

Planning and Policies

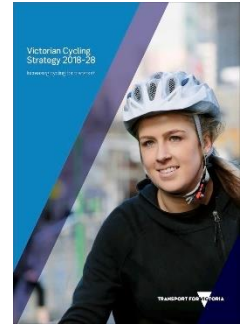
The following provides a summary of plans, policies and strategies that serve as guidance for investments related to transportation.

Victorian Cycling Strategy 2018-2028

The Victorian Cycling Strategy 2018-2028 sets out a vision for the future of cycling in the state and a pathway to deliver it. The Strategy aims to guide cycling infrastructure investment over the decade and ensure decisions consider Victoria's transport network, to deliver the best outcomes for all Victorians.

Some of the relevant key actions outlined in the Strategy include:

- Prioritise strategic cycling corridors for investment;
- Integrate cycling and public transport; and
- Work with local councils to address gaps in strategic cycling corridors.

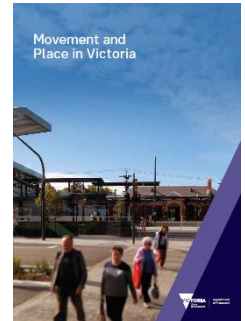


Movement and Place Framework 2019

The Movement and Place Framework aims to bring to life the strategic objectives of both transport and planning in Victoria to achieve movement and place goals in the context of road safety and environmental outcomes.

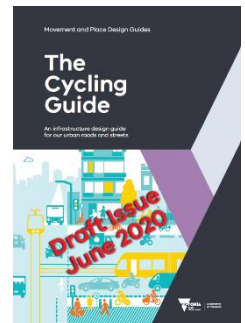
The purpose of the Framework is to recognise that streets perform multiple functions in that they move people and serve as key places and destinations themselves.

Cycling falls under a mode of movement, where a score can be placed based on level of traffic stress faced by cyclists as determined by infrastructure and speed limits. The classified cycling routes make up the Principal Bicycle Network and Strategic Cycling Corridors.



Movement and Place Cycling Guide Draft 2020

The Cycling Guide is a Movement and Place Design Guide that establishes the overarching approach to creating Victoria's cycling network. It outlines the design principles and infrastructure options to achieve a safe, comfortable and connected cycling network. The document provides guidance on the selection of suitable cycling infrastructure treatment for certain environments, and details on how to apply these in planning and design.

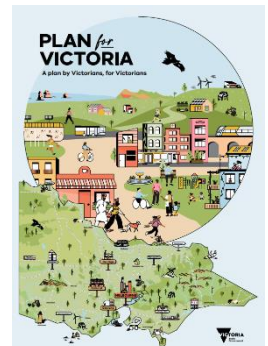


Plan for Victoria

Plan for Victoria is a long-term plan to accommodate Melbourne's future growth in population and employment. This involves a series of principles, outcomes and directions to specify key land use and movement corridor policies.

This includes the following policies relevant to cycling:

- Support cycling for commuting;
- Create a network of cycling links for local trips;
- Locate schools and other regional facilities near existing public transport and provide safe walking and cycling routes and drop-off zones.

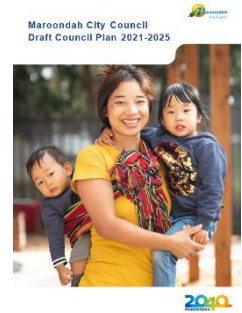


Council Plan 2021-2025

Maroondah's Council Plan is the medium-term strategy that sets key directions and priority actions to work towards the goals of Maroondah 2040.

Key directions outlined in the Council Plan relating to cycling include:

- Work in partnership to facilitate a safe, accessible and efficient integrated transport network that enhances liveability and facilitates living locally;
- Work in partnership to facilitate increased use of sustainable and active transport modes within the community;
- Enhance Maroondah's walking and cycling shared path network to promote walkability and strengthen connections with the wider metropolitan Melbourne network.

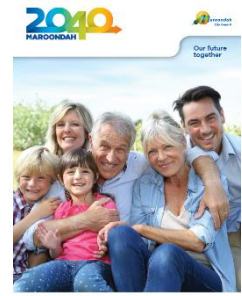


Maroondah 2040 Community Vision

The Maroondah 2040 Community Vision provides an outline for the future of Maroondah that reflects the aspirations of the community. One of the key visions is:

'In 2040, Maroondah will be accessible for all ages and abilities with walkable neighbourhoods, sustainable transport options, and a safe integrated transport network.'

This is also adopted as the vision of the Bicycle Network Plan. The key directions as per the Council Plan are nominated steps toward achieving this vision.



Maroondah Transport Strategy 2025-2035

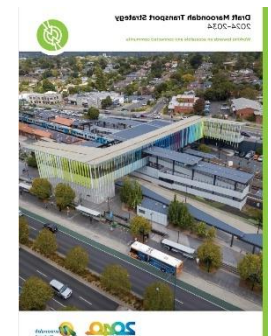
The Maroondah Transport Strategy has been developed to guide the future of transport in the City of Maroondah. Exhibition of the Strategy was completed in April 2024 and feedback received included comments on local bicycle routes and cycling experience.

The Strategy sets the strategic direction and outcomes for transport in the City of Maroondah from 2025 to 2035.

It focuses on addressing the transport challenges, opportunities and needs of our diverse community, including supporting people to walk and cycle more for local journeys.

The Strategy concentrates on key strategic focus areas to meet transport needs and includes a 10-year action plan. Priority actions to encourage more active transport trips to school and work include:

- Facilitate cycling and pedestrian safety education programs and events;
- Ringwood to Croydon Pathway;
- Greenwood Avenue Pathway;
- Maroondah Highway Boulevard Extension



Major Infrastructure Projects

The following major infrastructure projects are underway or have recently been completed within the municipality. Each project delivers new pedestrian and cycling facilities that improve cycling and pedestrian connectivity, integration and safety.

They will enable people to get where they need to be and support them to choose to walk, cycle or scoot, as the streets and places become easier, more comfortable and amenable to riding a bike or walking.

Coolstore Road, Croydon Level Crossing Removal

The project involved removal of the dangerous and congested level crossing at Coolstore Road and the development of a new Croydon Transport Hub. The new elevated station connects retail precincts and improve safety for all users.

Pedestrian and cyclist movement have been enhanced by a new cycling path running in an east-west alignment through the Transport Hub and a new link to Main Street. The station features improved end of trip facilities and bike parking.

The bike link provides a mix of shared pathway or dedicated bicycle pathway. This link is a section of the Ringwood to Lilydale Rail Trail.

An extract of this project is provided in Figure 1.



Figure 1 Croydon Transport Hub concept design extract

Bedford Road, Ringwood East Level Crossing Removal

This project formed part of the Ringwood East Level Crossing Removal and involved removal of the railway crossing at Bedford Road to improve safety and reduce congestion.

The new shared pathway along the rail corridor and pedestrian / bicycle signals at the Bedford Road and Great Ryrie intersection completes the Heathmont Rail Trail missing link to Bedford Park, removing the need to travel on-road on Lena Grove, Heathmont.

An extract of this project is provided in Figure 2.



Figure 2 Bedford Road LXR concept design extract

Dublin Road, Ringwood East Level Crossing Removal

This project formed part of the Ringwood East Level Crossing Removal Project (LXRP) and involved removal of the railway crossing at Dublin Road and the construction of a new Ringwood East Station.

The new off-road cycling path alongside the railway line/Railway Avenue, completes the shared pathway link from Ringwood Lake to the Ringwood East shops. The new station features new end of trip facilities and bike parking.

An extract of this project is provided in Figure 3.



Figure 3 Dublin Road LXR concept design extract

Existing Conditions

Demographic Information

The demographics of the people of Maroondah have been informed the most recent Census (August 2021). This Census was conducted during a COVID-19 government lockdown period which may have affected typical travel behaviour, accordingly data from the 2016 Census has also been used for comparison purposes.

The population of Maroondah increased from 110,372 in 2016 to 115,043 in 2021, representing an average population increase of 0.8% per annum. The age of residents living in Maroondah in 2021 is presented in Figure 4.

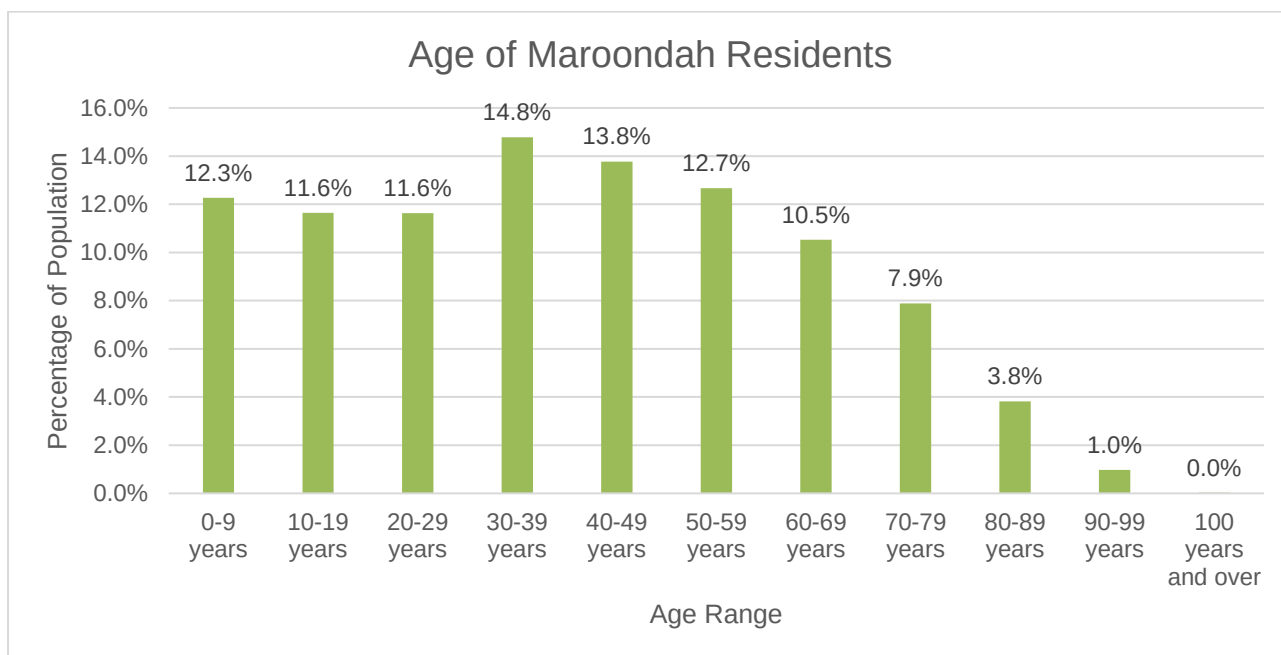


Figure 4 Maroondah resident age demographics

The method of travel to work by Maroondah residents in 2021 and 2016 is illustrated in Figure 5. This shows that car (as a driver) is the most popular mode of travel.

Cycling makes up 0.3-0.4% of trips to work by Maroondah residents. Of this group, the large majority (89%) were male and 78% were aged between 30-49 years.

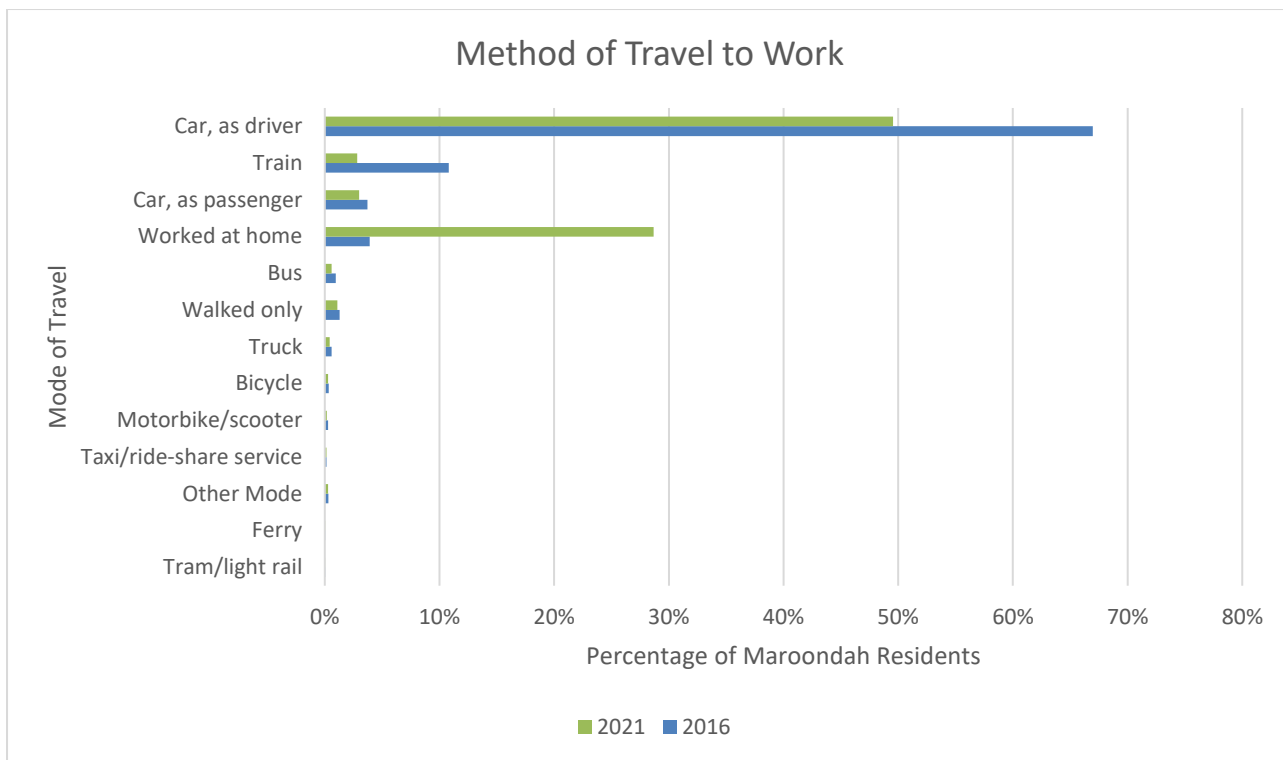


Figure 5 Method of travel to work

Of note, the proportion of the population who worked from home increased dramatically from 4% in 2016 to 29% in 2021 explained by the fact that the Census was conducted on 10 August 2021, during a COVID-19 government lockdown period.

Existing Cycling Networks

The Maroondah Bicycle Network includes on-road and off-road bike lanes and paths, bicycle parking and repair stations, and wayfinding signage.

In general, Maroondah provides a good network of on-road bicycle lanes and off-road bicycle paths across the municipality, as seen in Figure 6. Existing infrastructure is mostly focussed on the activity centres and south-western section of the municipality, with some missing connections or lack of services toward the north and northeast.

The larger gaps between the routes means that some routes function independently from nearby routes. The gaps limit the ability of the routes to work together and become greater than the individual routes.

Smaller severance or dismount points on the route are common at road crossings and intersections. These micro gaps and dismount points decreases the overall level of service and effectiveness of the routes and increases journey time.

Off-road cycling infrastructure includes Eastlink Trail, Dandenong Creek Trail, Heathmont Rail Trail (part of the Heathmont to Belgrave Rail Trail), Tarralla Creek Trail (part of the Carrum to Warburton Trail) and Mullum Mullum Creek Trail.

On-road bike lanes are currently provided along segments of roads including Heatherdale Road, Bedford Road and Mount Dandenong Road

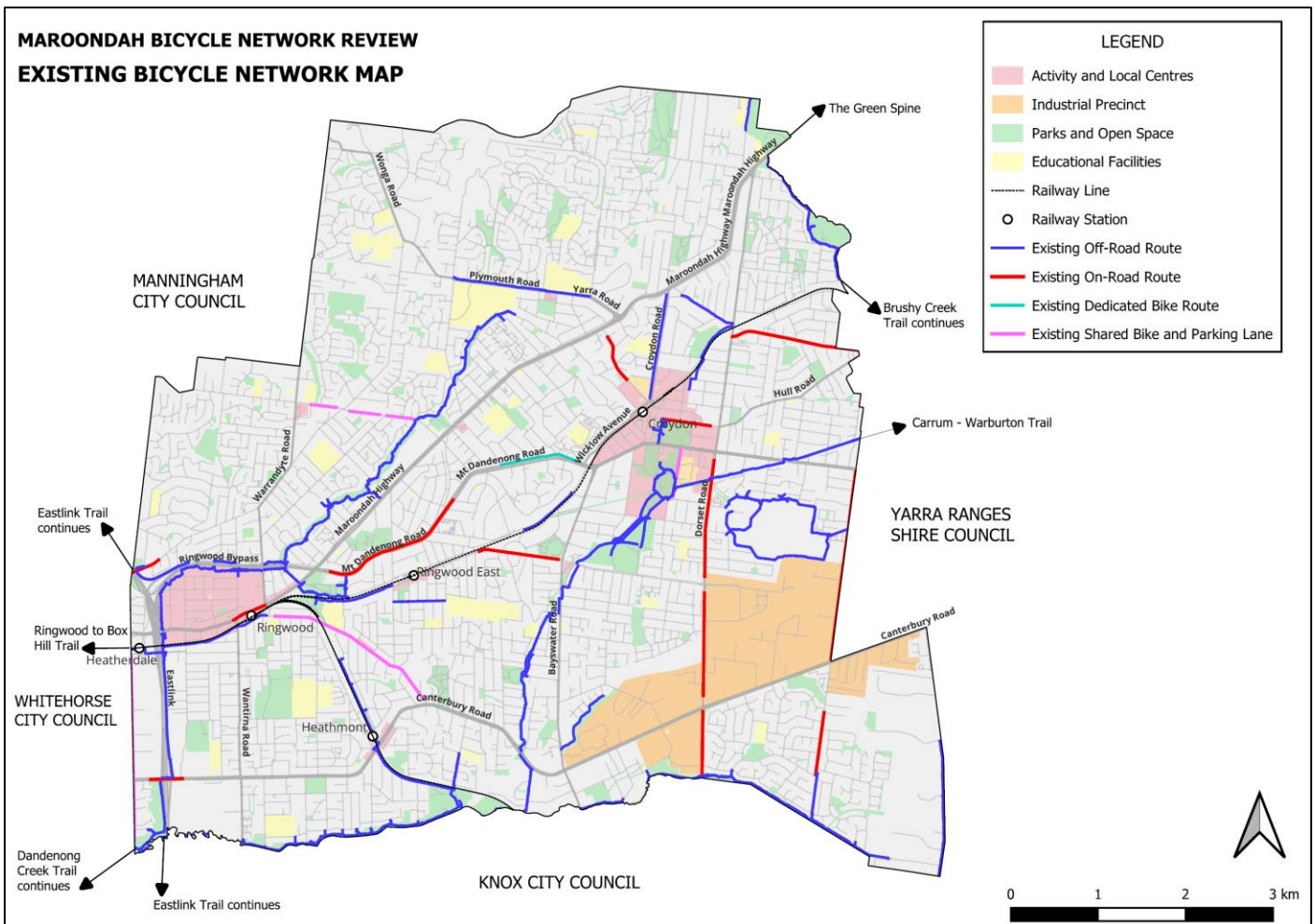


Figure 6 Existing bicycle network

Principal Bicycle Network (PBN)

The PBN is a network of existing and proposed bicycle routes that provide access to key destinations across metropolitan Melbourne. It was developed by VicRoads for the purpose of guiding investment in bicycle facilities that support cycling for transport.

The Maroondah PBN includes the majority of the arterial road network, along with off-road trails, as shown in Figure 7. This includes the Mullum Mullum Creek Trail, Taralla Creek Trail, Maroondah Highway, Mount Dandenong Road, Canterbury Road, the railway corridor and more.

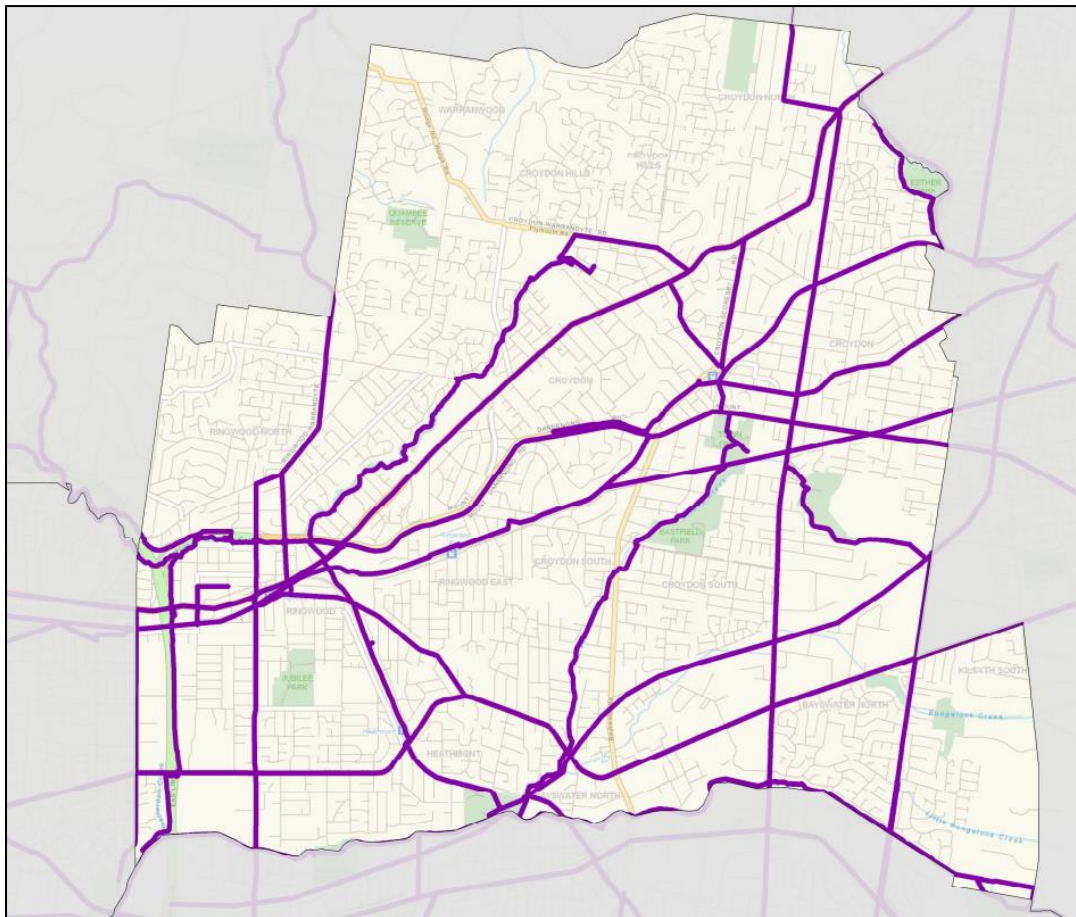


Figure 7 Principal Bicycle Network

Strategic Cycling Corridors (SCC)

Strategic Cycling Corridors are a subset of the PBN that support the needs of commuter trips and other important trips such as to stations, shops and schools. The SCC network involves on- and off-road paths on municipal and state roads, designed to provide a safer and lower-stress cycling environment.

The Movement and Place Framework has been developed to assist with designing, planning and delivering our transport system. The Framework includes classifications applicable to cycling, of which C1 and C2 make up the SCC as described below:

- C1 – Primary Routes provide a core network of Strategic Cycling Corridors that connect places of state significance including the central city, Metropolitan Activity Centres (MACs) and National Employment and Innovation Centre (NEICs) within metropolitan Melbourne.
- C2 – Main routes are Strategic Cycling Corridors that provide additional connections to state significant destination, as well as connections to major activity centres and key railway station within metropolitan Melbourne.

Within Maroondah, most of the SCC comprises C2 with the exception of the Eastlink Trail to the Ringwood Metropolitan Activity Centre, as seen in Figure 8.

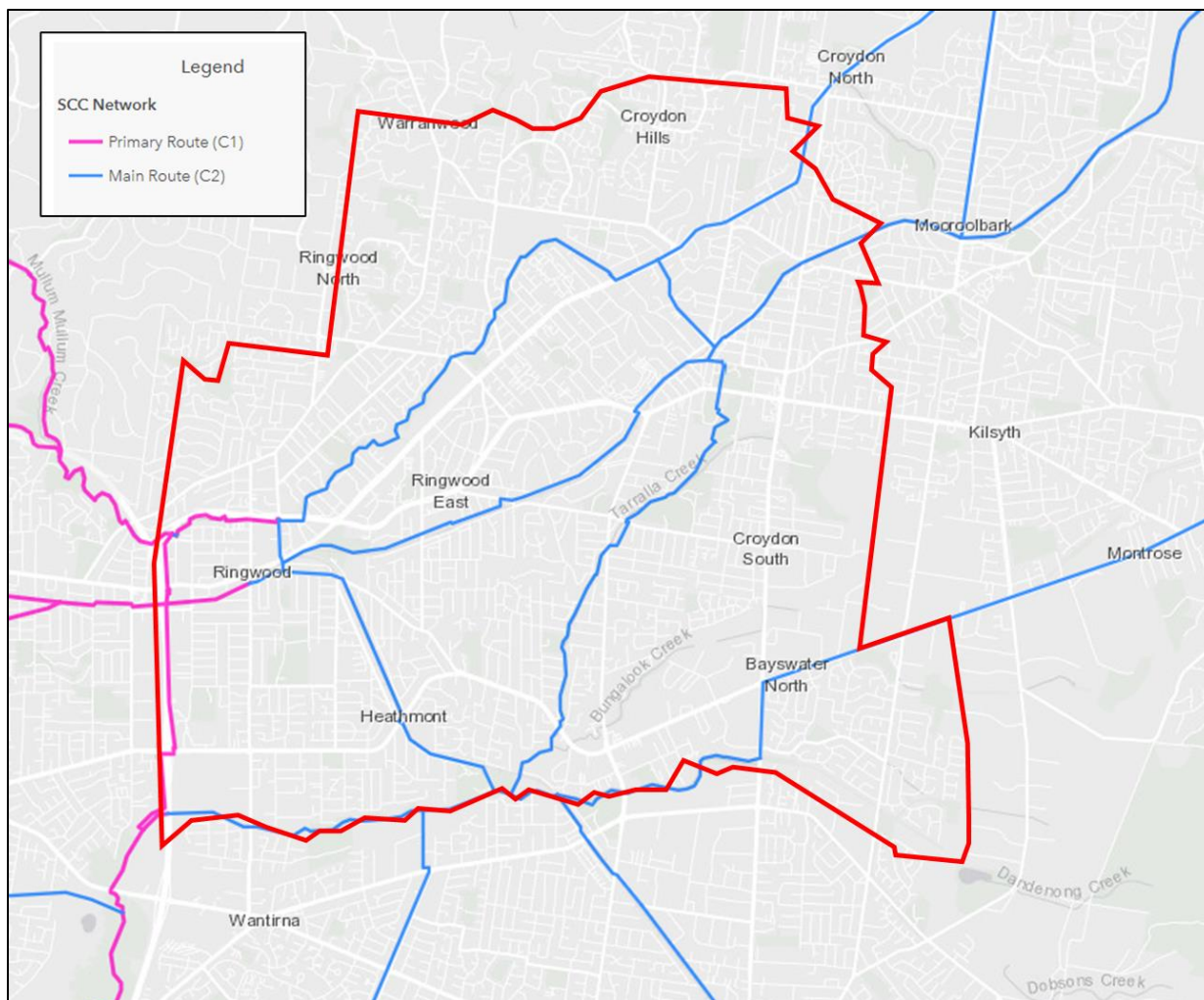


Figure 8 Strategic Cycling Corridor

Cycling Movements

Figure 9 illustrates the main destinations (place of work) of cyclist commute trips undertaken by Maroondah residents in 2021. A comparison of this data from 2016 is provided in Figure 10. Smaller proportions of residents travelled to other regions.

This data shows that of Maroondah residents cycling to work, the majority work within the Maroondah municipality. Knox is also a high trip generator for cycling commuter trips. Several Maroondah residents cycle to the City of Melbourne for work, however this has declined since 2016.

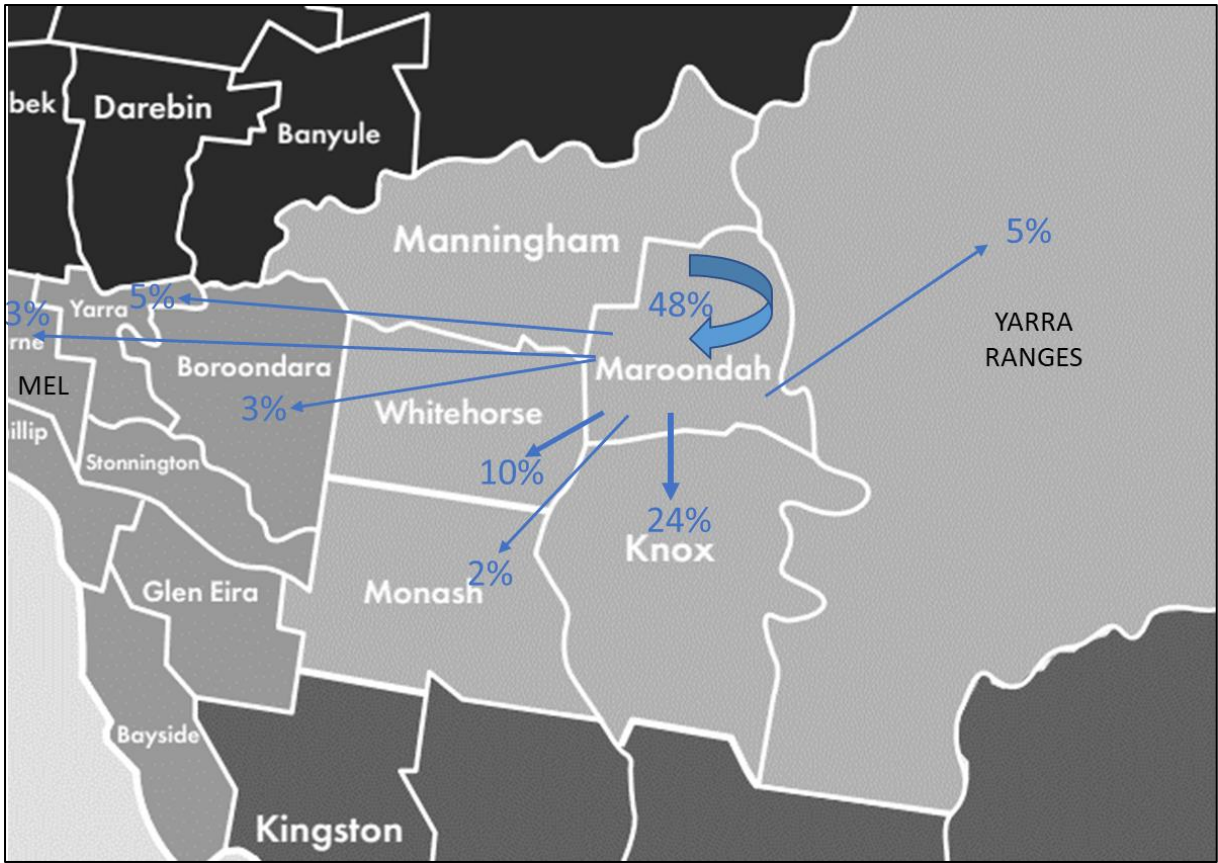


Figure 9 Cyclist commute trips from Maroondah (2021)

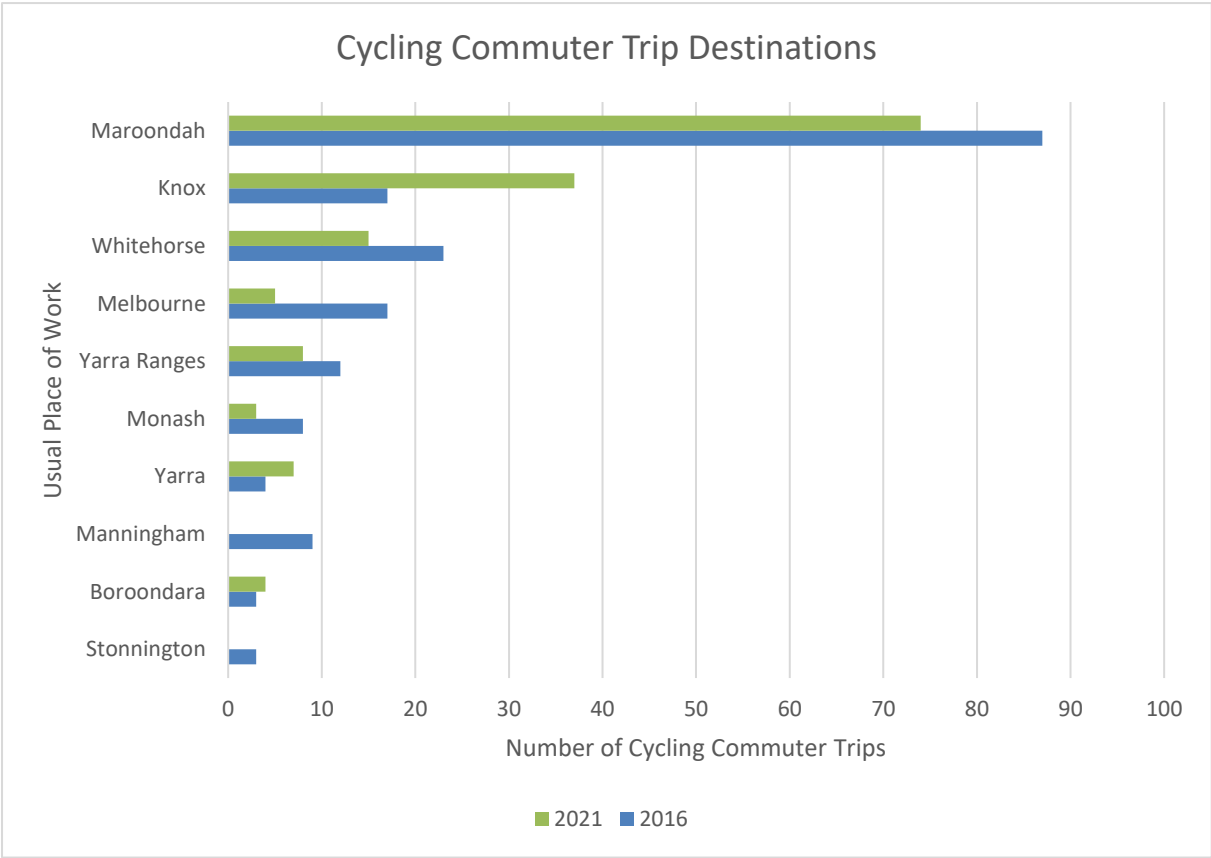


Figure 10 Cycling commute trips 2021 and 2016

Topography

In addition to the provision of cycling infrastructure, the natural topography of the land can be a key influencer or barrier to cycling participation and travel patterns.

Bicycle routes that are flat are better suited to cycling in terms of the ease of the ride. However, recently electric bikes have become more popular and available as a cycling option for people of all fitness levels.

The topography of Maroondah is consistent. However, it does contain hilly terrain in the vicinity of the Wicklow Ranges Ridge Line in the centre and secondary ridgelines in Ringwood North as depicted in Figure 11. These ridge lines are a factor in the planning of a bicycle network.

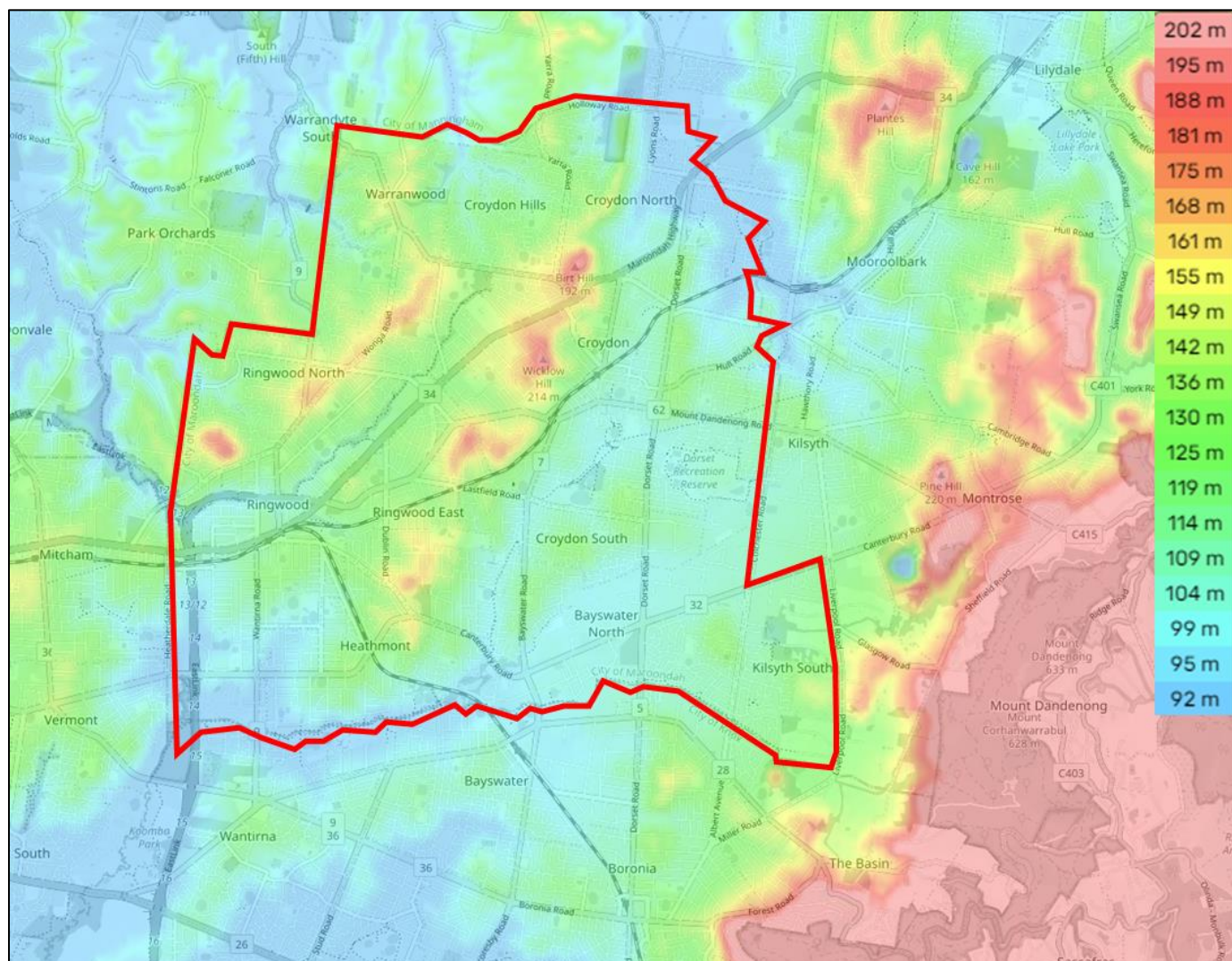


Figure 11 Maroondah topography map

Crash Statistics

An assessment of the crash history data from across the municipality for the past five calendar years was obtained from the VicRoads Road Crash Information database. The database contains all reported casualty crashes, which include the categories of Fatal, Serious Injury and Other Injury crashes. Non-injury or property damage only crashes are not included in this database.

The categories of crash severity are defined as follows:

- Fatal Injury – one or more persons are killed in the crash or die within 30 days from injuries sustained in the crash. It is noted that no crashes resulted in the loss of life of a cyclist within Maroondah for the 5 years, so this category is not included in the maps and tables;
- Serious Injury – one or more persons are admitted to hospital because of injuries sustained in the crash; and
- Other Injury – one or more persons are given medical treatment for injuries sustained in the crash.

In this case, the data has been filtered for crashes involving a bicycle to identify 'hot spots' and locations to which particular attention may be required in the updated Bicycle Network Plan.

All recorded crashes within the municipality in the most recent 5 years of data are shown in Figure 12, with further information summarised in Table 1, over the page.

Figure 12 Crash statistics map

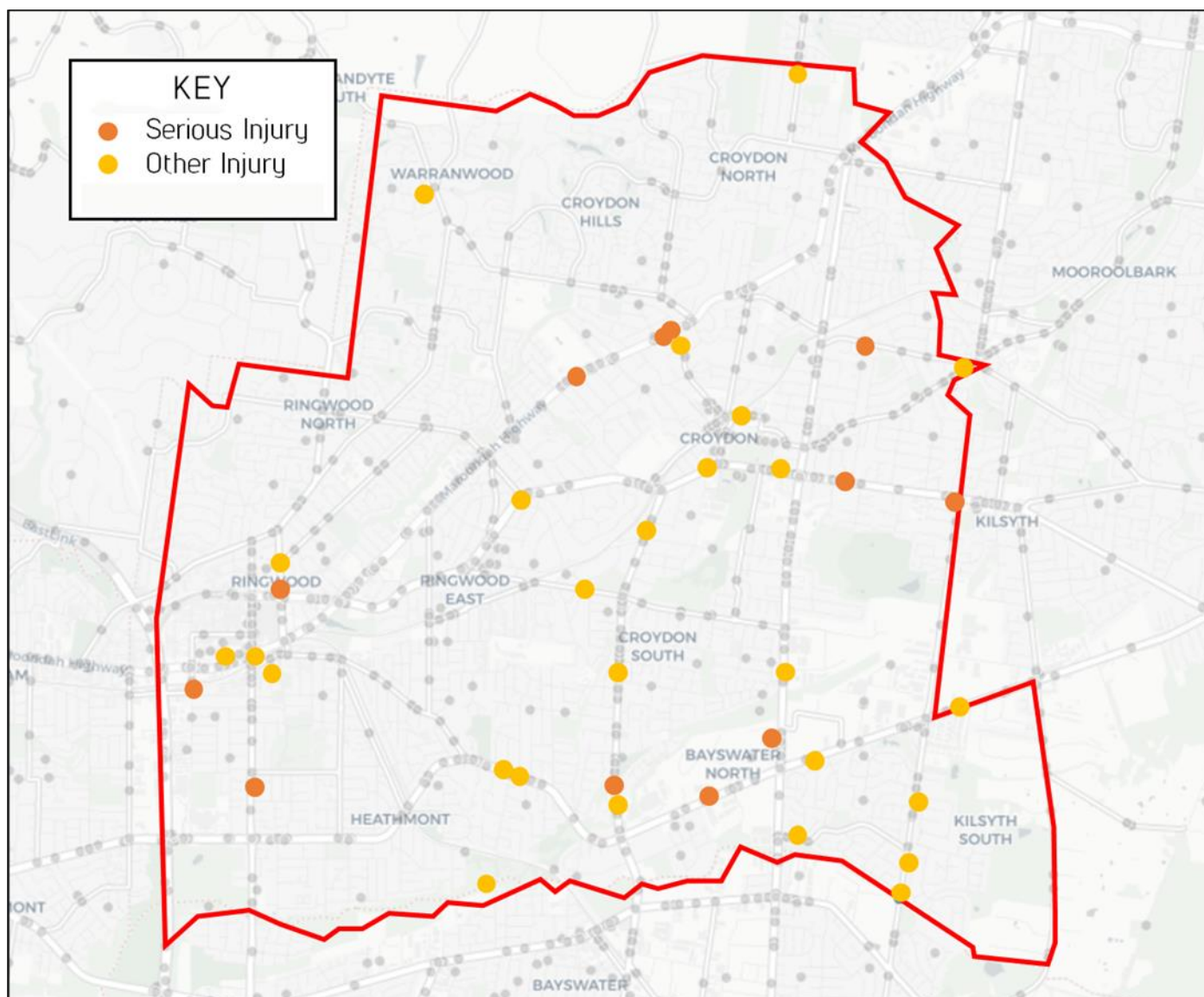


Table 1 Crash by Definition for Classifying Accidents (DCA) code

Right / through collision with vehicle (121)	0	1	4	5
Vehicle strikes another vehicle when emerging from driveway (147)	0	3	2	5
Rear end collision with vehicle (130)	0	1	3	4
Vehicle off footpath strikes vehicle on carriageway (148)	0	1	3	4
Left near collision with vehicle (116)	0	1	2	3
Head on collision with vehicle (120)	0	0	2	2
Left turn side swipe (137)	0	0	2	2
Pedestrian near side, pedestrian hit from the right (100)	0	1	0	1
Pedestrian far side, pedestrian hit from left (102)	0	1	0	1
Bicycle struck pedestrian (109)	0	0	1	1
Cross intersection collision with vehicle (110)	0	0	1	1
Right far collision with vehicle (111)	0	0	1	1
Two right turning vehicles (114)	0	0	1	1
Other adjacent collision with vehicle (119)	0	1	0	1
Right turn side swipe (136)	0	0	1	1
Leaving parking collision with vehicle (142)	0	0	1	1
Overtaking out of control (151)	0	1	0	1
Bicycle strikes door or parked / stationary vehicle (163)	0	1	0	1
Other accident off straight, no collision or object struck (179)	0	0	1	1
Unknown details (199)	0	0	1	1

Most crash incidents recorded took place on roads and intersections within the municipality. Few incidents were recorded on off-road bicycle paths.

The types of crash incidents included:

- Cyclists emerging from a footpath, laneway or driveway and colliding with a vehicle.

Notably, 5 of these crashes involved cyclists aged 13 to 18, three (3) of which resulted in serious injury. This suggests drivers failing to give way when emerging from a driveway, or not being able to see cyclists on the footpath (for example when there are high front fences or vegetation either side of the driveway).

However, people of this age typically feel safer when riding on a footpath versus using the roadway, where bicycle lanes are either lacking or are not physically separated from the adjacent vehicle lane (i.e., the cyclists would feel too exposed to vehicle movements). Counter to this, riding on the footpath increases the risk of being struck by emerging vehicles.

- Cyclists making a right turn at an intersection and being struck by an oncoming vehicle.

This is a common crash type that can occur for various reasons.

- Cyclists involved in a rear-end collision.

This would typically occur when a cyclist is travelling within the vehicle lane. It may involve a lack of attention from either the cyclist or vehicle driver.

- Cyclists or vehicles turning left onto a roadway and being struck by a vehicle or cyclist.

This may typically occur because of inattention from either party, or obscured sight lines.

The information and evidence gathered by review of historical crash history will inform the application of a Safe System approach to lower the risk of incidents from occurring involving a cyclist. The Safe System has been adopted as part of the *2021-2030 Victorian Road Safety Strategy*, which sets a vision for no deaths or serious injuries on our roads.

The principles underpinning the Safe System approach are that:

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

The Bicycle Network Plan considers treatments for safer cycling that are aligned with the Safe System Approach, as far as practicably possible.

Existing Issues and Opportunities

To investigate the existing positive aspects and barriers to cycling amongst the Maroondah community, consultation was undertaken on Your Say Maroondah in July and August 2023. This incorporated in person engagements across the municipality featuring surveys and maps.

A detailed consultation findings report was prepared and can be found on the Your Say Maroondah website for the Bicycle Network Review Project. Key findings are included below:

- The majority (62%) of survey responses identified safe cycling locations across the municipality as opposed to unsafe locations (38%).
- The majority of the identified 'Safe Spots' related to the off-road shared path network, namely Mullum Mullum Creek Trail, Dandenong Creek Trail, Tarralla Creek Trail and Eastlink Trail.
- 'Safe Spots' were identified to include features such as separation from vehicles, presence of other people, respectful community, well-maintained wide paths and good visibility.
- 'Unsafe Spots' were nominated due to a lack of cycling connections, abrupt path endings, narrow on-road lanes, busy trails, poor cyclist or pedestrian behaviour, lack of lighting and blind corners or pinch points.
- Locations where a lack of cycling infrastructure was noted included: between Tarralla Creek Trail and Mullum Mullum Creek Trail, on Mount Dandenong Road, on Maroondah Highway, and between Mullum Mullum Creek Trail and Croydon.

Cycling Design Principles

Key design principles will be considered by Council to determine the best choice and application of cycling infrastructure. These include:

- Aspire to deliver off-road facilities that are separated from vehicle traffic, as these are the safest, most attractive and comfortable routes for riders of all ages and abilities.
- If sufficient space, deliver separate facilities for pedestrians and people on bicycles, scooters and mobility devices.
- If facilities must be on-road, ensure the safest options for all road users is delivered.
- Give people the most direct route possible.
- Enable people to reach destinations easily through complete and seamless routes.
- Incorporate flexibility in design to accommodate changes in user needs and demand over time.

AustRoads and the Department of Transport and Planning (formerly VicRoads) have prepared a comprehensive range of best practice designs and standards for on and off-road facilities. Council will endeavour to apply these in specific network, local and community contexts.

Council will consider and give regard to the Victorian Movement and Place Design Guidelines – The Cycling Guide which has been developed (draft issue dated June 2020) to establish the design options to create Victoria's cycling network.

It outlines a range of design principles and infrastructure options to achieve a safe, comfortable and connected cycling network.

The design principles outlined in The Cycling Guide are summarised below:

- People first – creating a safe, inclusive and comfortable cycling environment considering the needs of all people and their bikes;
- Integrated network – creating simple, connected journeys across different layers of the cycling network;
- Design for the future, deliver today – setting the long-term vision to help guide actions today;
- Safe – eliminating the likelihood, consequence and severity of potential injuries to people who ride bikes;
- Connected and direct – addressing all gaps and severance points; and
- Comfortable and attractive – making cycling an attractive, appealing and enjoyable option.

The Draft Cycling Guide provides information on the fundamental infrastructure options including how and where to implement appropriate cycling infrastructure. This draft information has been considered along with AustRoads Engineering standards and safe design practice in the development of the Maroondah Bicycle Network Action Plan. Typical infrastructure options to support bicycles in Maroondah are detailed below.

Off-road cycling infrastructure

Separated Paths

Separated paths are a form of off-street cycling infrastructure, with separate space provided for cyclists and pedestrians. By having an exclusive space, cyclists can better maintain their speed while the path type is able to accommodate a higher volume of users and reduces potential conflict with pedestrians.

Separated paths are typically two-way and physically separated from both the pedestrian footpath and the vehicle carriageway. A width of 2.5-4m supports comfortable cycling on a separated or exclusive path.

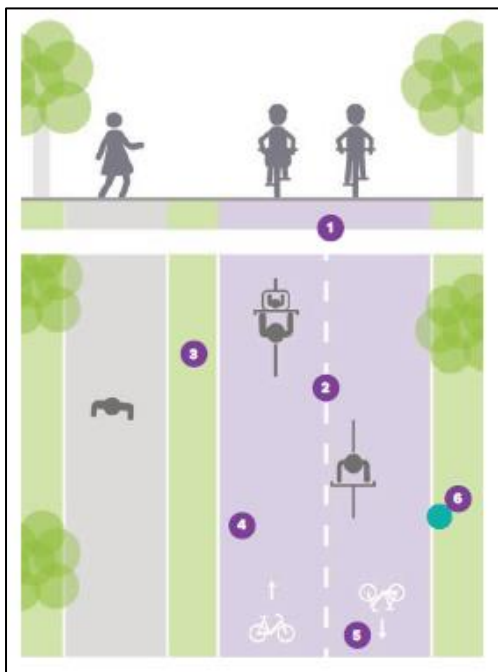
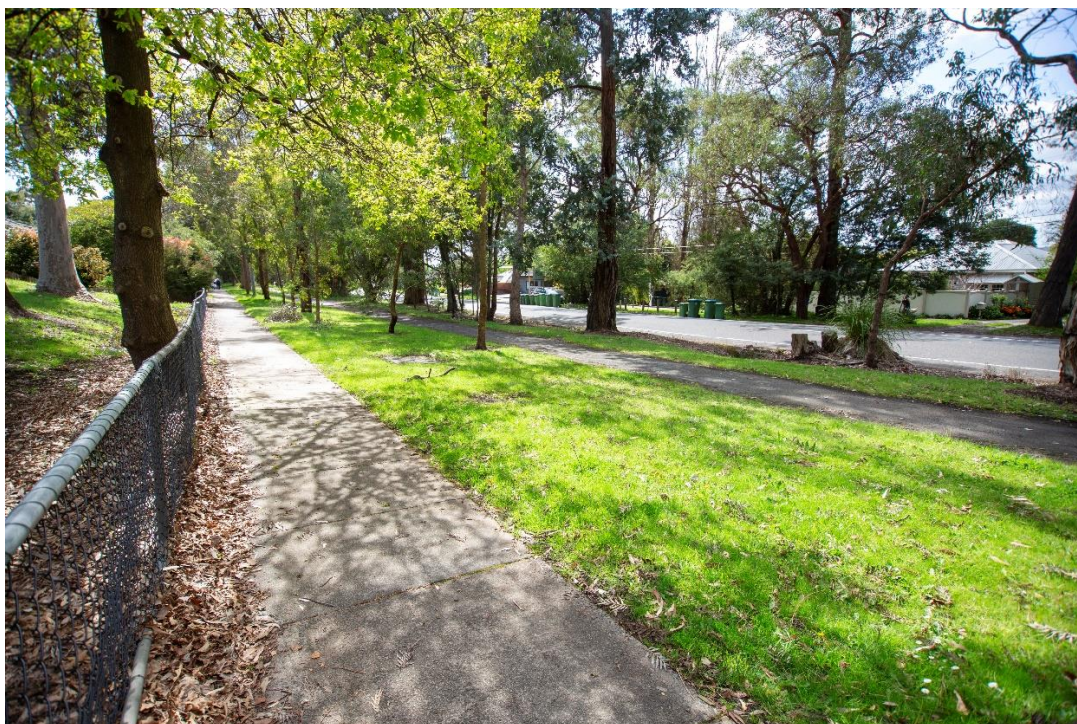


Figure 13 Separated off-road paths diagram



Separated off-road path example along Croydon Road, Croydon

Shared Paths

Off-road shared paths provide complete separation between cyclists and vehicles. The path is shared between cyclists and pedestrians. This significantly improves the safety of cyclists, removing the risk of conflict with vehicles.

Shared paths are typically two-way with line marking arrows and occasionally a centre line to guide users.

A width of 3-4m is desirable for off-road shared paths to allow cyclists to overtake pedestrians while allowing for a range of users (such as recreational users, skateboards, pets etc).

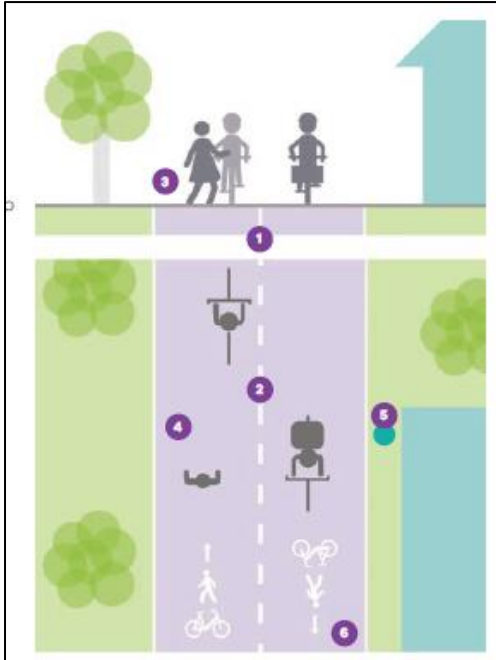


Figure 14 Shared paths diagram



Figure 15 Off-road shared path example from Eastlink Trail

On-road cycling infrastructure

Protected Bike Lanes

On-road protected bike lanes provide a designated cycling space, physically separated from vehicles. This improves the safety of cyclists, protecting them from high-speed moving vehicles, and opening of parked car doors. This increases the level of comfort and may encourage those less confident to ride.

On-road protected bike lanes are one-way or two-way and may be raised from vehicle lanes. These facilities are appropriate to implement in locations on roads with vehicle speeds over 30km/hr and less than (or equal to) 60km/hr.

A minimum width of 1.8m is necessary for people to pass and this supports safe movement in low vehicle volume environments. A greater width should be adopted where possible to improve the safety and comfort of cyclists.



Figure 16 Protected bike lanes diagram



Figure 17 Protected bike lanes, example on Kent Avenue, Croydon

Bicycle Streets

Bicycle Streets (or Shared Streets) have no physical separation between bike and vehicles and are designed to encourage low vehicle volumes and speeds of less than 30km/hr, suitable for sharing with cyclists. They are designed to provide priority to cyclists within the roadway.

These facilities can be implemented where low vehicle demand and low vehicle speeds can be achieved, such as on local street and laneways. They typically play a role in connecting other existing (and future) cycling infrastructure such as off-road cycling paths and on-road bike lanes.

Bicycle Streets should incorporate traffic calming treatments such as speed humps, chicanes / pinch points, and line marking to advise road users of the shared nature of the road.

For example, Lena Grove in Ringwood provide a bike street connecting the on-road bike lanes on Bedford Road and the Heathmont Rail Trail. Line marked bike sharrows are provided to encourage cyclists to use the centre of the road.

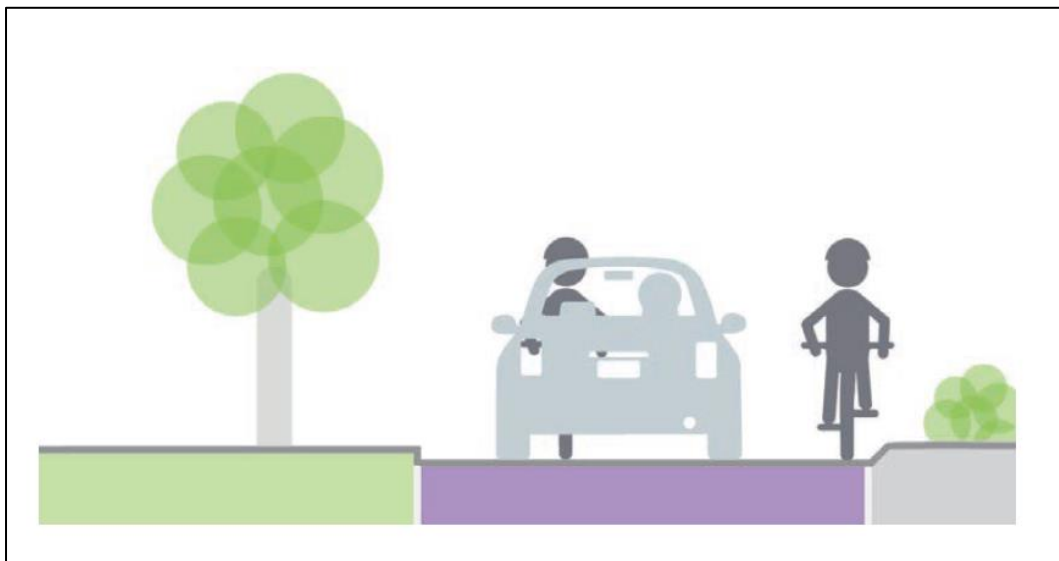


Figure 18 Bike street diagram



Figure 19 Bike street example on Lena Grove, Ringwood

Intersections and Crossings

Crossings

Where off-road bike paths intersect roads, safety for cyclists can be improved by incorporating design features to provide cyclists (and pedestrians) with priority over vehicles.

Features such as grade separation, pavement marking, and signage can be used to enhance visibility and give priority to active transport users.

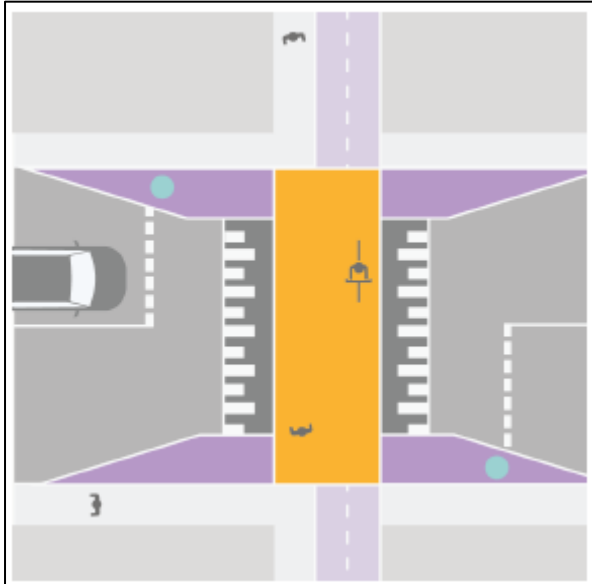


Figure 20 Bike path crossing diagram



Figure 21 Shared path priority crossing example from Golden Ridge Drive, Corydon Hills

Protected Intersections

Protected intersections give protection to drivers and cyclists through high conflict areas. They extend safety features for cyclists into the intersection, rather than losing such features on approach to the intersection, reducing the risk of collisions.

Intersection treatments should be designed to allow the bike lane to continue through the intersection, with kerb separators and other design features.

All types of intersections including signalised intersections and roundabout can be provided with features to protect cyclists. Treatments such as the example in Figure 22, are a design consideration for strategic bicycle routes on main roads. These projects need to be developed and implemented through consultation and partnerships with community, transport authorities and other stakeholders to determine the best design for intersections. This collaboration can include codesign and use feedback to refine designs to ensure the best network and community outcomes.

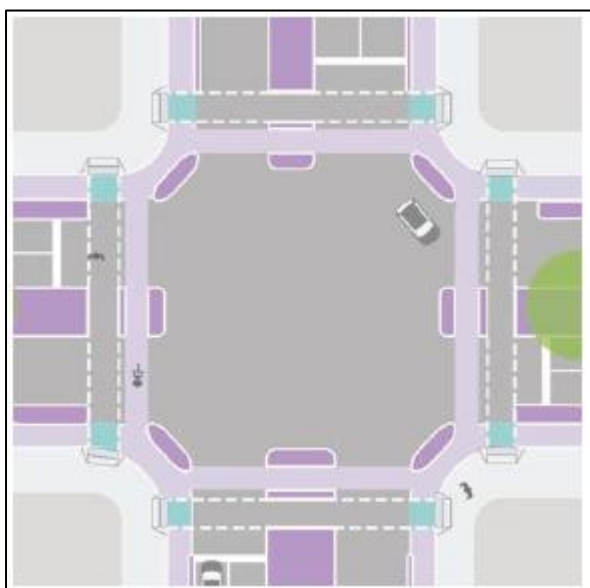


Figure 22 Protected intersection diagram



Figure 23 An example of a protected intersection (roundabout) on Moray Street, South Melbourne

Road and street type considerations

In selecting the right cycling infrastructure and design for a place, the role of the road within the broader network is one of several important factors, along with the value for money, community consultation and design safety all requiring consideration. The network roles of cycling routes are as follows:

- **Primary routes (C1):** A core network of the Strategic Cycling Corridors connecting places of stage significance;
- **Main Routes (C2):** Strategic Cycling Corridors with additional connections to state significant destinations, major activity centres and key railway stations;
- **Municipal Routes (C3):** Support mostly local and short trips to activity centres including train stations and other interchange, and feed to C1 and C2 routes; and
- **Neighbourhood and Local Links (C4):** Short connections to C1-C3 routes and nearby activity centres and are often the origin links from residential areas.

The Movement and Place Design Guide to Urban Roads and Streets defines several road and street types which can be grouped into the following 'street families' where they share similar features and roles:

- **Exchange:** Places where people can meet, interact and converse to thrive. These streets support communities to access goods and services;
- **Connect:** Move people and goods across the city. They are places where trams, buses, bicycles, pedestrians and cars interact to connect people and places;
- **Live:** Places people inhabit, supporting people to live their lives, relax, play, sleep and build a sense of community; and
- **Serve:** Places of service and production. These are working street where goods are made, stored, delivered, sold and distributed.

Based on the above, the Movement and Place Cycling Guide identifies the ideal cycling facility for each street family. The application of the ideal cycling facilities will be tailored for each project to achieve optimal mobility, safety and community benefit.

Aspirational Maroondah Bicycle Network

Based on the preceding discussion and community consultation, an aspirational Maroondah Bicycle Network Plan has been developed (Figure 24). This Figure 24 includes all existing and proposed cycling infrastructure.

The aspirational bicycle network includes several potential projects to provide new or improved cycling infrastructure to expand connectivity for cyclists. The type of facilities selected for the projects consider the road / carriageway spatial factors and design principles to maximise safety, accessibility and connectivity for cyclists.

The following Plan details each of the proposed projects, separated into the following categories:

- **On-road projects** – including new on-road bike lanes;
- **Off-road projects** – including new off-road paths;
- **Intersections and crossings** – including new or improved cycling infrastructure at intersections / crossings;
- **Bridges and underpasses** – including new or improved cycling infrastructure are bridges and underpasses; and
- **Trial projects** – including temporary cycling infrastructure that can be implemented in the short-term.

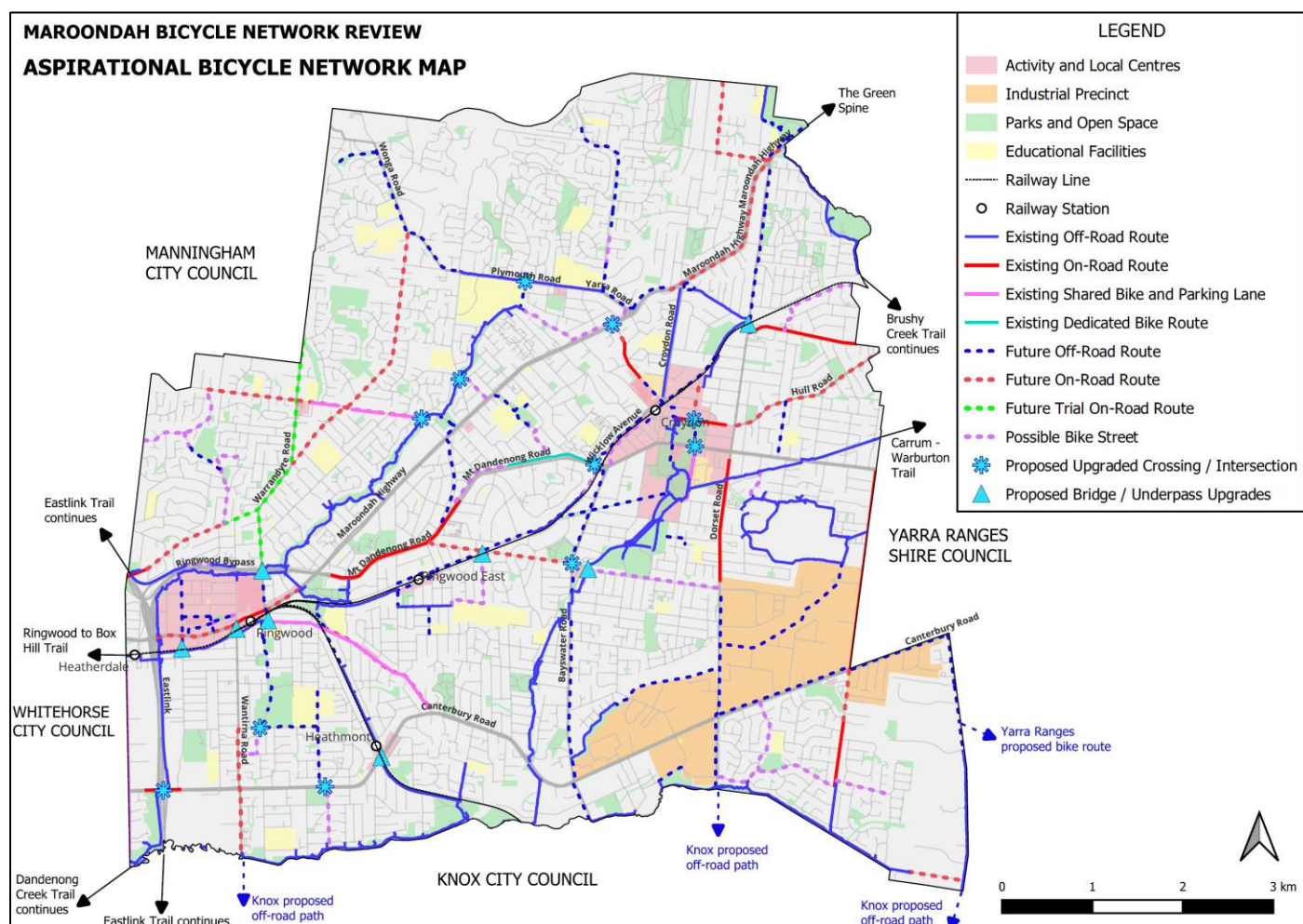


Figure 24 Aspirational bicycle network

Project Opportunities

The Maroondah Bicycle Network Plan is supported by a Project Opportunities 2025 - 2026 document, that lists cycling and pedestrian infrastructure opportunities to progress toward the aspirational network over the next 10 years.

A mix of opportunities are included, and they range from new routes and connections to expand the bicycle network to cycling infrastructure improvements on existing routes. For each opportunity a high-level description of is provided including the status, key stakeholders involved, level priority and anticipated outcome of the opportunity.

The level of priority relates to the transport benefit ranking. The transport benefit rank was generated from a range of metrics, such as strategic cycling route classification, known safety issues, strategic alignment, destinations served and effect on parking. There are three ranks, low, medium, and high, as outlined below:

- **High:** The projects are major or main cycling routes with demonstrated safety benefits, a significant level of service to destinations, ready / close to being built and no to low impact on street parking. These elements make them good candidates for advocacy to funding bodies.
- **Medium:** The projects are commonly main or municipal cycling routes with some safety benefits, a moderate level of service to destinations and low or moderate impacts on parking. With further project development, they can be ready for construction and advocacy to funding bodies.
- **Low:** These projects are typically local cycling routes with limited safety benefits, low level of service to destinations, are still under feasibility or early design stages and may have a significant impact on street parking.

Implementation

This Plan is aspirational with regards to an improved Maroondah bicycle network. An extensive range of identified project opportunities over the next 10 years leaves Council well placed to assist with advocacy to external funding bodies in association with Council's capital works program. Recent Maroondah level crossing removal projects, railway and station upgrades and major road upgrades are examples of projects that incorporate new and improved cycling infrastructure.

The scale of the identified future projects means that the delivery of much of the aspirational network is beyond the remit and resources of Council. Implementation is subject to the complexity of transport policy, transport jurisdictions and a wide range of landowners. Accordingly, securing the approvals and investments from a range of stakeholders is vital to the implementation of the network, especially for larger and more complex projects.

Advocacy is core to securing the necessary commitments to deliver on priority projects in this Plan. Council's advocacy plan contains prioritised cycling infrastructure projects, such as the Ringwood to Croydon Pathway and the Greenwood Avenue Shared User Pathway. Council will engage with Federal and State government, transport authorities, operators and advisory groups in this regard.

Decisions about cycling infrastructure will be subject to consultation and engagement with stakeholders, especially residents and road users. Engagements will occur at key decision points in the project development cycle consistent with Council's Community Engagement Policy. We will listen and work in partnership with stakeholders to ensure we understand and considered the problems and work towards a balanced design response to the range of requirements. A clear explanation of the project and framing of the problem and benefits at each engagement will deepen community understanding for the proposal. Involved residents and users will feel comfortable with the proposal, more supportive and connected to the project.

The design of cycling infrastructure is to be adaptable to account for the nuances of urban and suburban environments. This will be considered in response to changes in land use, transport mix and parking demands over time. Incorporating flexibility into design may involve the trial of facilities and treatments to test the function and scale of usage. Based on available evidence the facilities and treatments can be refined over time to better account for user experiences.

Monitoring and Evaluation

Progress on the Project Opportunities document will be monitored and reported to the Council every two years. This report will detail investments made in planning, designing, and constructing new cycling infrastructure projects, as well as the associated outcomes and impacts. Upgrades or renewal projects for existing cycling infrastructure will also be included and reported on. This will help to identify any project delays and issues and assist with timely corrective actions.

The Project Opportunities document will be regularly updated by removing completed projects and adding newly identified ones. These updates will ensure the document remains current, flexible, and transparent. The Bicycle Network Plan will undergo a review after eight years to inform the next Plan refresh at the end of the 10-year period.

Glossary

Active Transport - Physical activity undertaken as a means of transport. It includes walking, cycling and other physical human-powered means.

Bicycle Lanes - Bicycle lanes are a part of the road that is separated by a line (or barrier) from the rest of the road, for the use of people riding bicycles.

Bicycle Paths - Bicycle paths are a type of cycleway that is separated from motorised traffic and dedicated to cycling or shared with pedestrians and other non-motorised users.

Bicycle Street - Bicycle Streets are roads and streets that carry low traffic volumes and speeds that have been optimised for bicycle traffic.

Chicanes - Chicanes are bends in the road (in the shape of an S) added by design such as kerb outstands that force drivers to travel more slowly.

Integrated Transport - Integrated transport involves the combining of different modes of transport to maximise ease and efficiency for the user in terms of time, cost, comfort, safety, accessibility and convenience.

Mobility Devices - Mobility devices are designed to help individuals with mobility impairments to walk or improve their overall mobility. It includes wheelchairs, walkers and other power-driven devices for example.

Pedestrians - A pedestrian is a person travelling on foot, whether walking, running or using a mobility device.

Shared Paths - Shared paths are separated from motorised traffic for use by both pedestrians and cyclists (including scooters, skateboards, those using mobility devices etc).

Trails - Trails are an off-road path or marked route that is intended for use by people riding bicycles, and pedestrians. They are often unpaved paths.

Walkable Neighbourhood - A Walkable Neighbourhood is one that provides essential amenities within a 15–20-minute walk. It should include pedestrian-friendly infrastructure, mixed-use development, access to public transport, sense of community and safety consideration.

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