



Boroondara Bicycle Strategy

2022



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Executive summary

As the population of greater Melbourne continues to grow rapidly, sustainable solutions to the movement of people are becoming an increasingly necessary element of preserving and enhancing the quality of life in suburban areas. Bicycle riding is a low-carbon transport option compared to other travel modes, with significant untapped capacity that has the potential to materially contribute to the overarching transport task.

Purpose

The Boroondara Bicycle Strategy sets a framework to advance bicycle infrastructure and mode share in the City of Boroondara over the next 10 years. The purpose of the Strategy is to:

- Provide direction and set a vision for the aspirational bicycle network.
- Inform future investment in bicycle infrastructure across the municipality.
- Guide a staged implementation of actions to align with priorities.

The Strategy has been developed following extensive community engagement, research and analysis to ensure it is relevant, achievable and meets the needs of the community.

What the community said

Key messages received from the community include:

- Safety, including interaction with other vehicles and pedestrians, is the major concern and barrier to bicycle riding.
- The existing bicycle network is limited and not well connected. It is also poorly maintained and difficult to navigate.

- Riding on off-road and separated bike paths is preferred, mainly due to safety.
- Bicycle riders must compete for space with other modes of transport on congested roads.

Our vision

The 2022 Boroondara Bicycle Strategy will deliver an integrated bicycle network which is safe, connected, protected, efficient and appealing to users of all ages and abilities. The bicycle network will include off-road paths and on-road links providing access to a range of destinations and making bicycle riding a feasible and attractive option for all residents, workers and visitors.

Realising the vision

The Strategy is underpinned by four guiding principles:

- A complete and connected bicycle network
- A safe bicycle riding experience
- Integrated supporting facilities and amenities
- Awareness and education

The Strategy recommends a series of prioritised actions based on these guiding principles which will assist Council in achieving the vision.



Introduction

Purpose

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- Provide direction and set a vision for the aspirational bicycle network.
- Inform future investment in bicycle infrastructure across the municipality.
- Guide a staged implementation of actions to align with priorities.

Process

- The Strategy was developed through a collaborative process.

Issues and opportunities

Analysis of the existing issues and identification of opportunities to address them



Vision development

Vision statement to guide the overall goals of the future bicycle network



Community engagement

Consultation to ensure the Strategy aligns with the needs of the community



Action plan

Prioritised actions to deliver on the vision



Planning in the context of the COVID-19 pandemic

The coronavirus has significantly impacted how we move around our cities and communities. Worldwide, physical distancing measures and lockdown restrictions have been imposed to hinder the spread of the coronavirus, drastically reducing travel demands. Importantly, this reduction is not only a consequence of government-imposed restrictions, which have reduced people's ability to travel. Individual reactions to the pandemic have also resulted in a reduced willingness to travel.

This situation has seen active transport modes, in particular bicycle riding, become a more attractive transport option. This presents challenges and opportunities in terms of facilitating these new travel patterns which reflect the latent, underlying demand for bicycle riding not previously supported by investment in infrastructure.

While the question remains as to whether this change in travel behaviour and patterns will be permanent or temporary, it is critical that the role of bicycles in addressing the transport challenges within the City of Boroondara is carefully considered through the implementation of the actions in this Bicycle Strategy.



Vision

The 2022 Boroondara Bicycle Strategy will deliver an integrated bicycle network which is safe, connected, protected, efficient and appealing to users of all ages and abilities. The bicycle network will include off-road paths and on-road links providing access to a range of destinations and making bicycle riding a feasible and attractive option for all residents, workers and visitors.

Planning context

The Strategy is supported by various State and Local Government plans and policies.

State policy and strategic alignment

There are a number of Victorian Government plans, strategies and frameworks in place that guide transport investment by local governments. The key documents relevant to this Strategy are noted below.

Transport Integration Act 2010

The Transport Integration Act is Victoria's principal transport statute and sets out principles to guide the planning and management of the transport system. The Act provides a mandate for government departments to share common goals of an efficient, integrated and sustainable transport network.

Victorian Cycling Strategy 2018-2028



The Victorian Cycling Strategy 2018-2028 was developed by Transport for Victoria, with a vision to increase the number, frequency and diversity of Victorians cycling for transport by investing in a safer, lower-stress, better-connected network, and by prioritising Strategic Cycling Corridors (SCCs) to help make cycling a more inclusive experience. The document sets out the high-level strategic basis for Victorian Government funding commitments in the cycling network.

The strategy addresses a focus on making cycling a more inclusive experience, which includes encouraging children to cycle to school. There is also a focus on better integration of cycling and public transport, which is a particularly important consideration in the Boroondara area given the strong public transport connectivity in the form of buses, trams and trains.

The Victorian Cycling Strategy identifies the need to work with local Councils to deliver bicycle infrastructure improvements. The 2022 Boroondara Bicycle Strategy is consistent with the goals outlined in the Victorian Cycling Strategy, acknowledging initiatives of state strategic importance (e.g. Strategic Cycling Corridors), as well as recognizing the municipal and local-level gaps in Boroondara's bicycle network and providing an action plan to deliver improvements across the entire network.

Movement and Place Framework



The Department of Transport's Movement and Place Framework represents a new approach to network planning, recognising that roads and streets serve not only a transport function but can also serve as destinations in their own right. As part of this, movement classifications for each mode have been defined and assigned on the network, to guide the broad aspirational movement function of a transport link in relation to its place function. Although the framework predominantly focuses on assessment of roads and streets, its cycling classifications have been developed to include both on and off-road links. For bicycle routes there are eight classifications:

Cycling classifications

C1 Primary routes

C2 Main routes

C3 Municipal routes

C4 Neighbourhood and local links

Specialised cycling classifications

CD Direct cycling routes

CH High traffic stress routes

CT Training routes

CR Recreational routes

Walking routes are also considered in the Movement and Place Framework with varying classifications for links of differing priority and strategic importance.

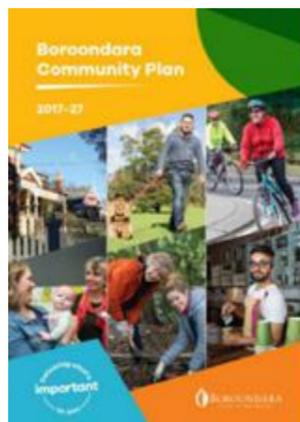
Local plans and policies

Boroondara Bicycle Strategy 2008

The 2008 Boroondara Bicycle Strategy is the preceding 10-year strategy. The overall goal was to increase the number of people using Boroondara's bicycle network and facilities. The strategy provided a list of recommended actions to drive the development, improvement and expansion of the bicycle network, recognising the needs of different types of users and focused on three guiding principles:

- **Physical and social infrastructure** – referring to the development of a bicycle network which provides both comprehensive and high-quality physical infrastructure. This can be achieved through legible, direct and accessible paths, attention to maintenance of existing paths/facilities, and reallocation of road space.
- **Safety** – focusing on improving the safety of the network, reducing the number and severity of crashes.
- **Continued development** – entailing the consideration of the long-term implications of each recommended action.

Boroondara Community Plan 2017-27 and Council Plan 2017-21



The Boroondara Community Plan addresses a series of approaches to prioritise development of the community and infrastructure.

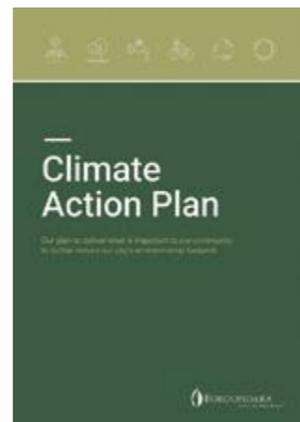
The Community Plan sets the long-term strategic direction for Boroondara and directly informs the Council Plan, the Municipal Strategic Statement, and Council strategies, plans, policies and actions. Strategies that directly address bicycle riding are

included within Theme 5 'Getting Around Boroondara' and include road safety, road congestion and sustainability.

The Boroondara Council Plan addresses the short-term implications of the Boroondara Community Plan 2017-27. The Council Plan addresses the need for more bicycle infrastructure and the improvement of existing infrastructure.

Community consultation to refresh the Boroondara Community Plan has been completed in 2021. The valuable feedback received from the community confirmed that there is strong interest in more safe, protected and connected bicycle infrastructure across the municipality.

Boroondara Climate Action Plan and Implementation Plan 2021-23

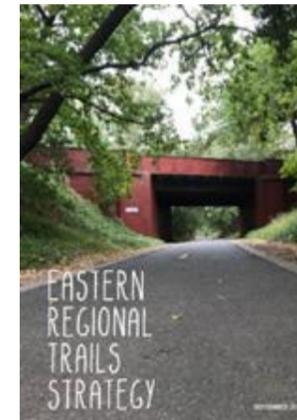


The Boroondara Climate Action Plan (CAP) provides a framework for Council to plan and deliver actions to reduce harmful emissions from Council's operations, facilitate the reduction of community emissions by the community and preserve and protect natural assets to meet the challenges of a changing climate. This will help guide Council's climate related actions into the next decade and deliver wide ranging social and environmental benefits for the community.

The CAP Implementation Plan 2021/22 and 2022/23 defines the highest priority actions for implementation over the first two years.

A number of actions relating to bicycles and active transport have been identified within the CAP, with the development and release of the Bicycle Strategy listed as a policy action in the implementation plan.

Eastern Regional Trails Strategy 2018



The Eastern Regional Trails Strategy was developed by seven eastern metropolitan Councils of Melbourne (Boroondara, Knox, Manningham, Maroondah, Monash, Whitehorse and Yarra Ranges) along with the Victorian Government.

The strategy documents a planning framework and action plan to establish a high-quality network of integrated and connected shared trails sensitively linking communities, destinations and a diverse range of urban and natural environments.

The Boroondara Bicycle Strategy is relevant to the Eastern Trails study as it outlines the needs, facilities and recommendations required to improve the bicycle network in the municipality, including a number of specific actions to complete gaps and upgrade existing sections of the off-road shared path network.

Bicycle riding in Boroondara today

An analysis of the existing bicycle network and travel patterns was undertaken to understand and identify key focus areas to guide the development of the Strategy.

The existing bicycle network in Boroondara consists of a variety of on-road bike lanes and off-road trails in the form of shared paths, as shown in Figure 1.

Existing On-Road Network

The on-road bicycle network is generally made up of 1.5-metre lanes or wide kerbside lanes, shared with or adjacent to parking and traffic along roads with a speed limit of 40 km/h or higher. Suburbs closer to the CBD, including Hawthorn and Kew, consist of a higher proportion of on-road bicycle infrastructure along main roads. Apart from localised improvements at traffic treatments, there is currently only a total of 1km of protected on-road bicycle infrastructure in the municipality, located along Yarra Boulevard in Kew.

- *Top Right: A **dedicated bicycle lane** adjacent to parallel parking. This type of infrastructure provides dedicated road space for bicycle riders, however risks of car dooring remain and there is no physical protection from motor vehicles. These lanes often also end abruptly at intersections, making them only suitable for experienced or confident riders.*
- *Second Right: A **shared bicycle lane** whereby parked vehicles occupy the lane and riders are typically forced to encroach into the traffic lane to navigate around them.*
- *Third Right: A **wide kerbside lane** with intermittent dashed linemarking denoting an informal bike lane. Parallel parking is typically permitted along the kerb line, which bicycle riders would need to navigate around. This type of infrastructure provides no dedicated road space for bicycles and offers no physical protection from motor vehicles, making it unappealing for most riders.*
- *Bottom Right: A **typical local street** with parallel parking generally allowed on both sides. Traffic volumes and speed can be managed to make this a safer environment for bicycle riders.*



Existing Off-Road Network

Off-road infrastructure consists of a network of shared paths that extends for 37 km. The main shared paths include the Anniversary Outer Circle Trail, Koonung Trail, Main Yarra Trail and the Gardiners Creek Trail which tend to run generally parallel to railway lines and other geographical features such as rivers and creeks. There are also a total of 75 km of informal gravel or unsealed paths for use by both pedestrians and cyclists.

- *Top Right: A **formal shared path** for bicycle riders and pedestrians. These paths are typically line-marked and generally provide a width of 3m, however conflicts can occur between path users particularly as the paths are heavily utilised.*
- *Bottom Right: An **informal shared path** typically found in parks and gardens and suitable for low levels of cycling and pedestrian use. These paths are often narrower and may include unsealed surfaces which can result in safety and maintenance issues after heavy rain. Surface and edge treatments can address these issues while maintaining a natural or unsealed appearance.*

A significant opportunity exists to increase bicycle mode share through the creation of a safe and connected bicycle network spanning the entire municipality. This would make bicycle riding a viable travel option for more trip types, and encourage higher levels of participation particularly among women and children who are currently underrepresented in bicycle ridership across the community.



The key limitation of the existing bicycle network is the lack of connectivity and safe, protected routes to cater for the travel needs of the entire municipality. While safe off-road paths exist and are highly utilised, there are very few connecting on-road links and these links generally only cater for experienced or confident riders as they typically do not offer any protection from vehicular traffic. This results in only a relatively small proportion of the overall travel demand being met by the existing fragmented network, with many residents unable to access safe bicycle facilities unless they reside in close proximity to an off-road path. Even so, the off-road path network does not reach many key destinations and activity centres, further discouraging bicycle riding as a travel option.

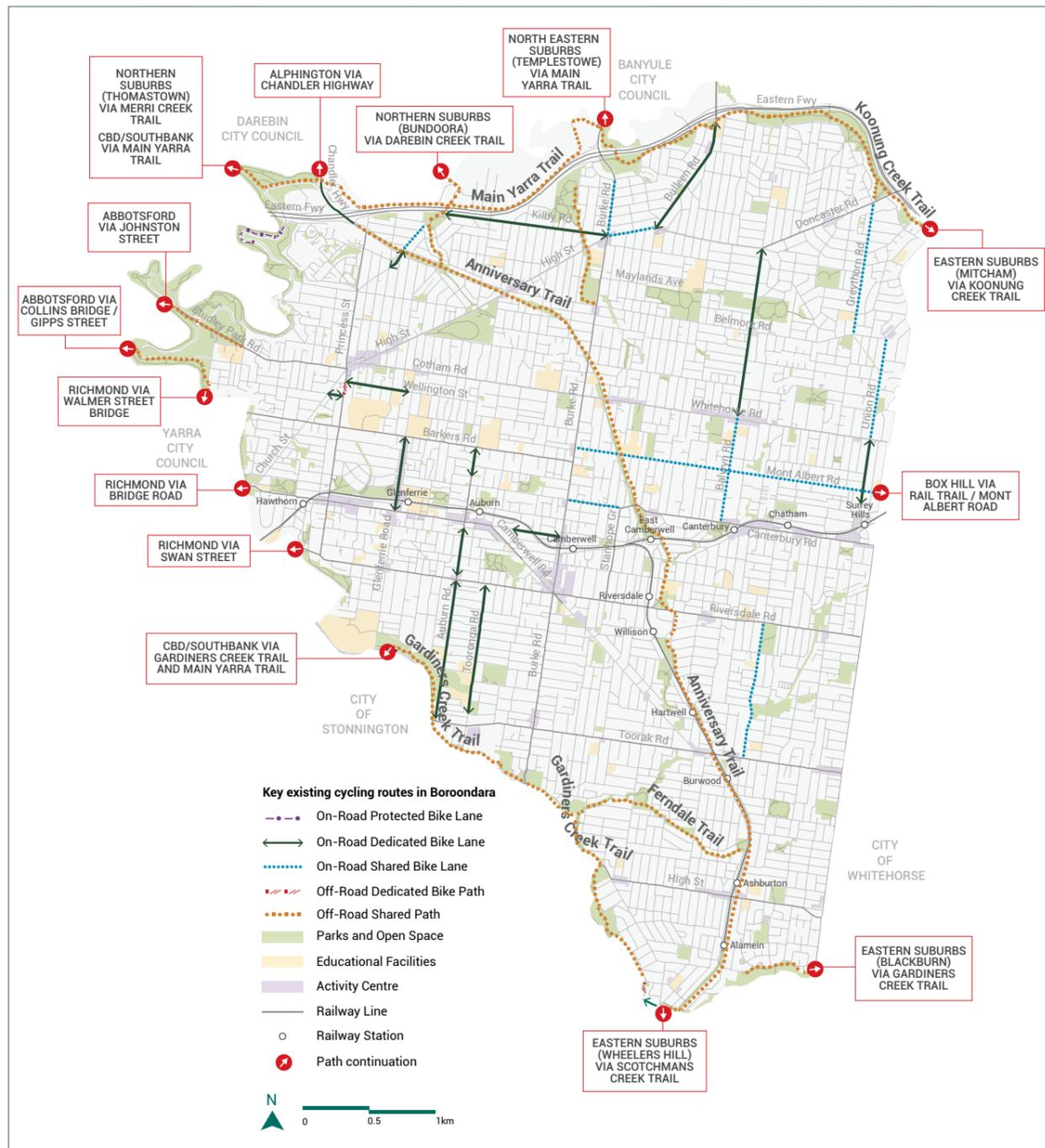


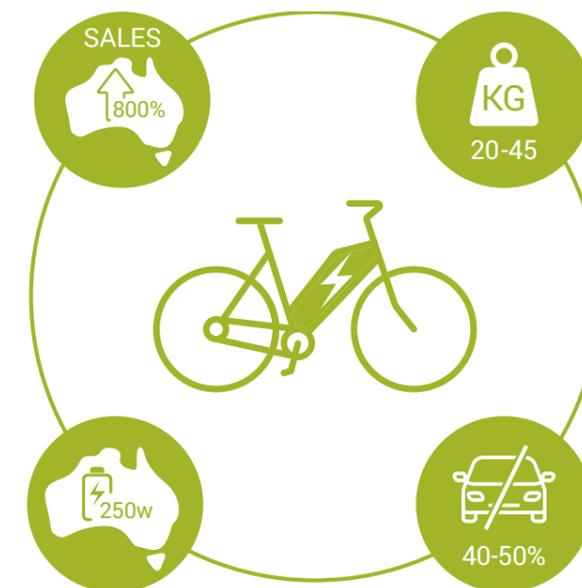
Figure 1 Existing bicycle network infrastructure

While the availability and quality of bicycle infrastructure is a key influencing factor for bicycle riding participation, the natural topography of the land can also directly influence travel patterns. Bicycle routes that are generally flat or with gentle undulations are traditionally considered better suited for high rates of bicycle riding activity, particularly among older riders and those carrying cargo. However, the recent surge

in availability of electrically assisted bikes is providing an increasingly affordable option for people of all fitness levels, particularly those seeking a less demanding ride. Electric bicycles (or e-bikes) have also gained popularity through the rise of food delivery services such as Uber Eats due to their ease of use and low running costs.

E-bike sales in Australia are up around 800% in the past five years, with around 50,000 sold during the 2019/20 financial year despite widespread shortages of stock due to the COVID-19 pandemic.

Most e-bikes weigh between 20 and 45kg, with battery ranges up to 150km on a single charge.



In Australia, regulations specify a **maximum motor power of 250 watts** and maximum assisted speed of 25 km/h.

E-bike riders are required to travel at safe speeds in accordance with Council's Amenity Local Law so as to not endanger other members of the community.

E-bikes facilitate more frequent bicycle trips and trips of greater distance compared to conventional bicycles. Studies around the world have shown that **approximately 40-50% of e-bike trips replace a journey** that otherwise would have been **undertaken by car**.

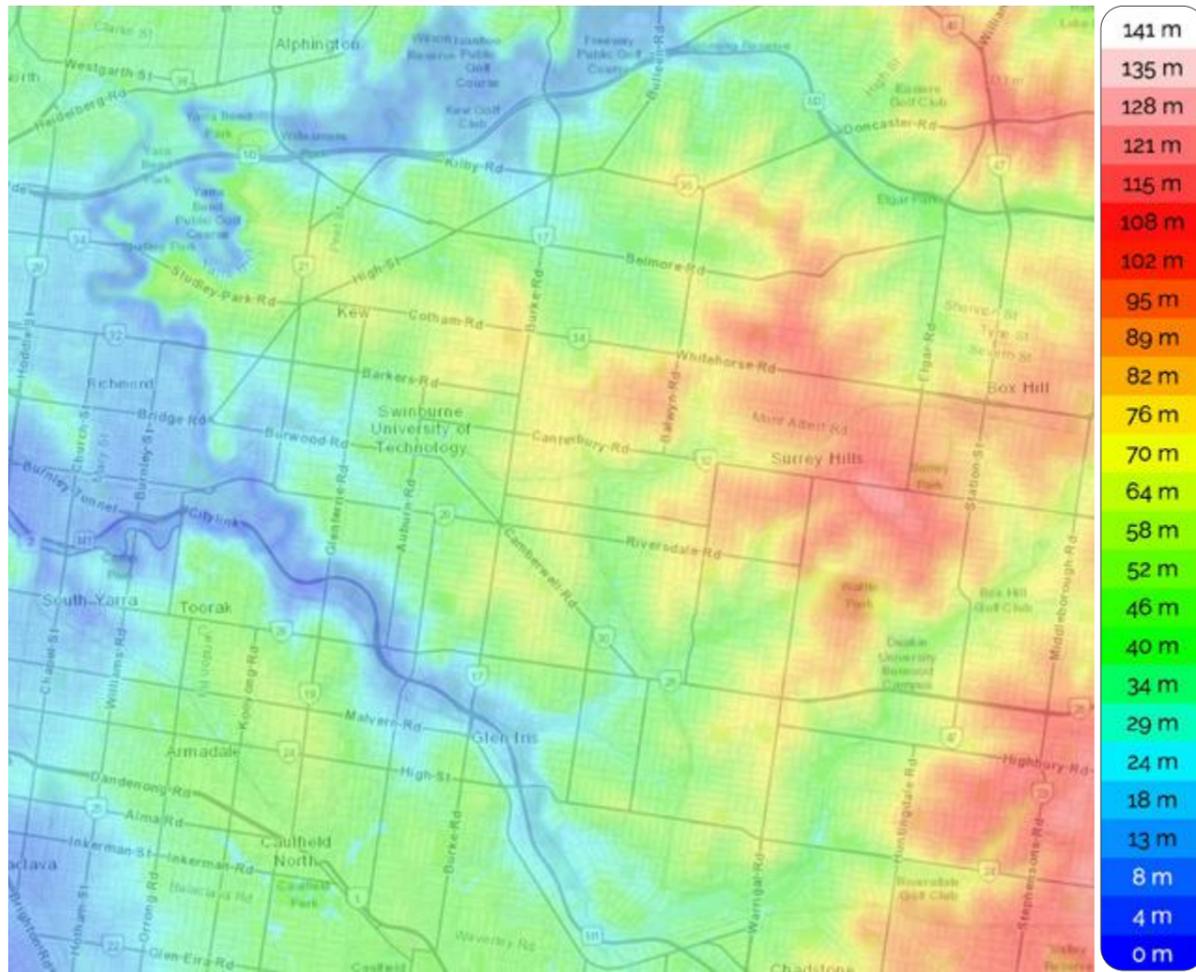


Figure 2 Elevation Map for the City of Boroondara

A map showing land elevation across Boroondara is provided at Figure 2. Changes in colour indicate areas where travel routes are likely to feature steeper inclines. The topography across Boroondara is gently undulating in most areas with eastern suburbs such as Canterbury, Mont Albert and Surrey Hills situated at a higher natural level compared to surrounding areas to the north and south.

Demand

Bicycle count surveys² indicate that Gardiners Creek Trail, crossing the City in the south, is the most popular bicycle route in the City, with the top three counts recorded along this trail. The highest count was recorded near the Monash Freeway underpass in Hawthorn, with 798 bicycle riders counted within a 2-hour morning peak period in 2021. Main Yarra Trail is the second most popular route, with 419 bicycle riders recorded near Walmer Street in Kew.

It is noted that there was a drop in weekday bicycle user volumes in the City of approximately 20 percent from 2020 to 2021 across the same sites surveyed in both years. As the counts were recorded on a Tuesday, this is likely attributed to the lower number of people commuting to work since the start of the COVID-19 pandemic and a general shift towards working from home.

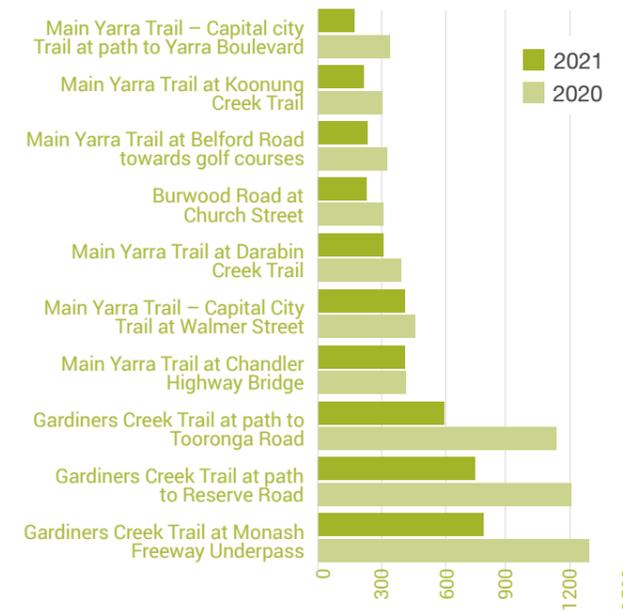
Off-road routes are significantly more utilised than on-road routes, with the higher counts generally coinciding with the various trails around the City. In 2021, the average count recorded along off-road routes was 271 bicycle riders, while the average count recorded along on-road routes was 63 bicycle riders. The highest on-road count was recorded at Burwood Road near Church Street with 233 bicycle riders

counted, which represents only about 30 percent of the highest off-road count (798 bicycle riders along Gardiners Creek Trail).

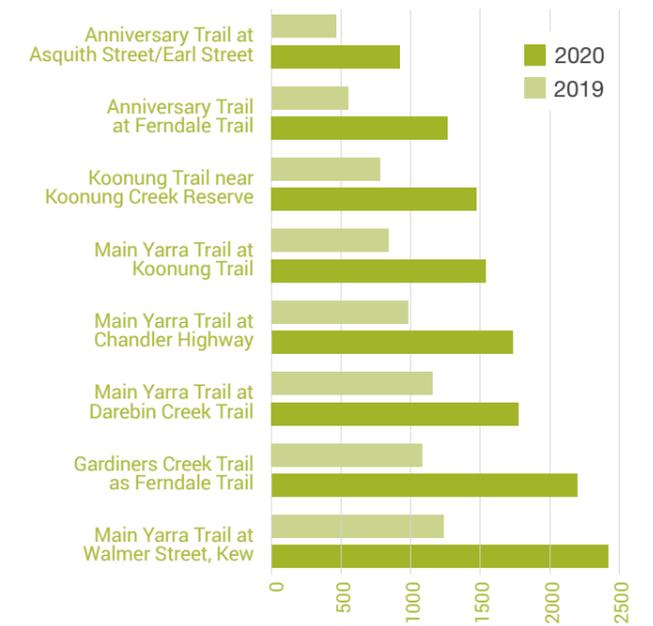
Utilisation of off-road paths is higher as these facilities are well-recognised by the community as safe routes where there is a very low risk of injury due to the lack of interaction with motor vehicles. Lower numbers of bicycle riders cycling on the road does not necessarily mean there is a low demand for these routes; rather, this is a consequence of the unprotected facilities and poor perceptions of safety whereby bicycle riders are forced to compete for road space with much larger, faster and heavier vehicles. As such the existing on-road network effectively only caters for confident or advanced-level cyclists, which are a very small minority of the overall potential demographic of bicycle users.

Separate counts³ were undertaken on a Sunday in November 2020 which found that weekend off-road path usage was up 89% compared to 2019 counts. This significant increase in recreational travel is again likely due to the impact of the pandemic as well as increased rates of dog ownership following changes to Victoria's tenancy laws.

Top Weekday Bicycle Counts – 2020/2021



Top Weekend Bicycle Counts – 2019/2020



² Based on the Super Tuesday Counts, an annual bicycle count survey coordinated by Bicycle Network. Surveys were undertaken within a 2-hour AM period (7-9am) at over 40 sites in the City of Boroondara. In 2021, the survey was undertaken on Tuesday 2 March 2021 and in 2020 on Tuesday 3 March 2020 (with 3 sites surveyed on Thursday 19 March 2020). All survey days occurred outside of Melbourne's lockdowns.

³ Based on the Super Sunday Counts, an annual bicycle count survey coordinated by Bicycle Network. Surveys were undertaken within a 4-hour period (9am-1pm) at 11 sites in the City of Boroondara. In 2020, the survey was undertaken on Sunday 8 November and in 2019 on Sunday 10 November. All survey days occurred outside of Melbourne's lockdowns.

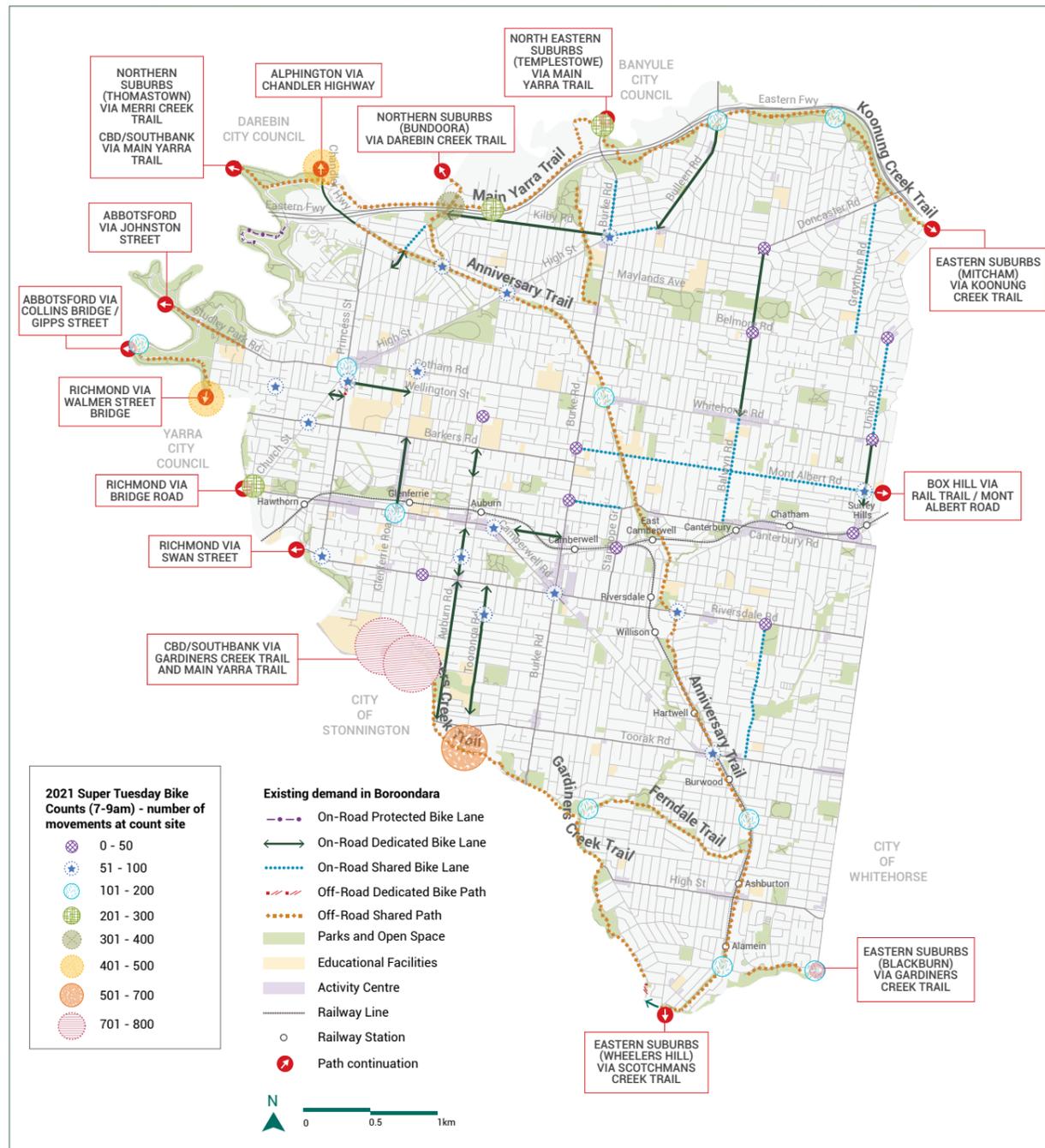


Figure 2 City of Boroondara weekday bicycle counts

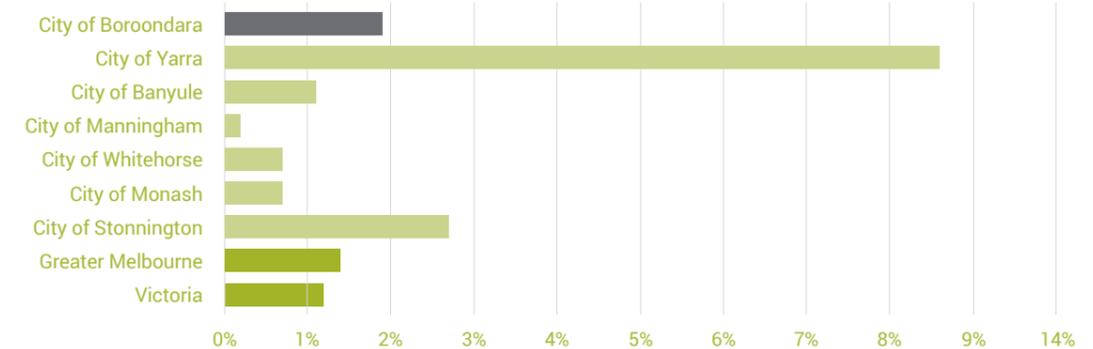
Bicycle riding participation

Bicycle count surveys⁴ indicate that women represented 16 percent of bike riders across the City in 2021, which is lower than the average female ridership across Victoria of 27 percent and the Australia-wide average of 25 percent.

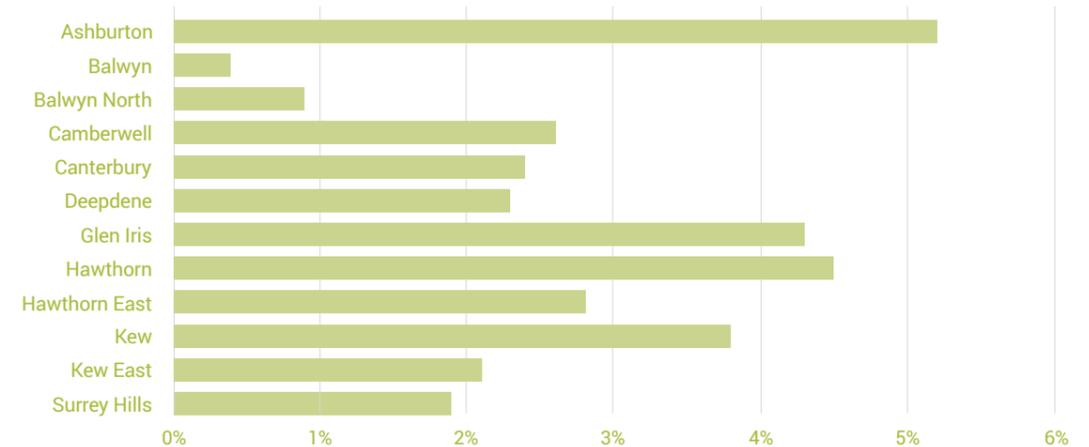
The cycle to work mode share⁵ for the City is 1.9 percent, which is higher than most of the adjacent municipalities as well as the Greater Melbourne average of 1.4 percent. The City

of Yarra is a clear leader in regards to the cycle to work mode share at 8.6 percent. Whilst this level of mode share can be attributed to a range of factors, it demonstrates what can be achieved within a Victorian context, particularly in the inner metropolitan Melbourne area. Within the City's boundaries, the suburb of Ashburton has the highest cycle mode share at 5.2 percent, with the lowest in Balwyn at 0.4 percent.

Cycle to work mode share (by Council)



Cycle to work mode share (by suburb)



⁴ Based on Super Tuesday counts coordinated by Bicycle Network

⁵ 2016 Method of Travel to Work (ABS Census – i.d profile)

Safety

In recent years, there has been a general downward trend in the number of reported crashes involving bicycles. From 2015 to 2019, there were a total of 227 casualty crashes involving bicycles reported to the police throughout Boroondara, including one fatality in 2018. The number of crashes declined by approximately 27% over the 5-year period, from 55 in 2015 to 40 in 2019. Further analysis of the data shows that around two-thirds of crashes occur at intersections.

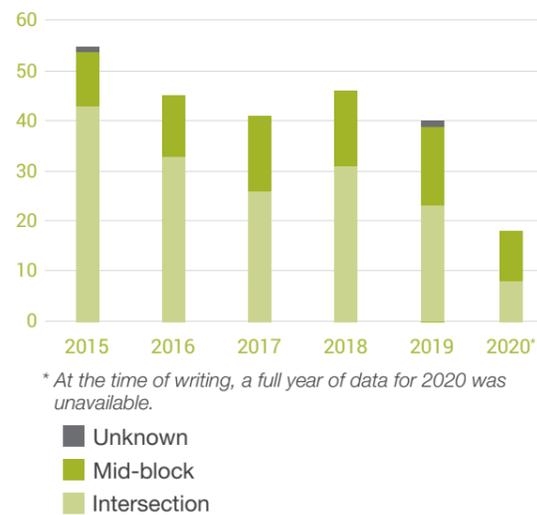
All crashes were recorded on state-managed or Council-managed roads; Reports of injury crashes are rarely received on off-road paths, however there are a number of common risk factors that can affect safety including path width, lighting, surface quality, linemarking and signage. The interaction between pedestrians, dogs and cyclists on busy shared paths can also lead to near-misses and poor perceptions of safety. Off-road paths running through or near dog-off leash parks can also result in potential safety issues with dogs moving in an unpredictable manner near path users.

In 2020, there were 18 crashes involving bicycles recorded between January and November⁶, which is significantly lower than previous years. This can largely be attributed to the effects of the COVID-19 pandemic including social distancing restrictions which led to lower numbers of both commuter cyclists and motorists across the road network for most of the year.

Crashes involving bicycles (by severity)



Crashes involving bicycles (by location type)



* At the time of writing, a full year of data for 2020 was unavailable.

⁶ Crash statistics for January 2015 to December 2019 from VicRoads CrashStats database. A full year of data for 2020 is not available at this time, with the latest crash reported in the database dated 4 November 2020. At the time of download, this database was last updated 23 July 2021

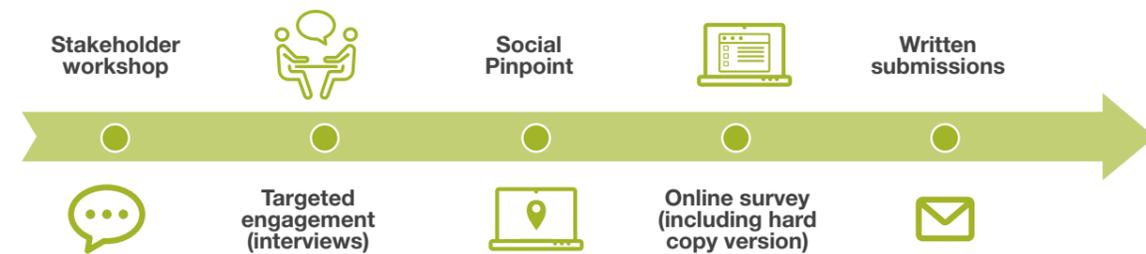


Community inputs

Consultation was undertaken with the community and key stakeholders to ensure the Strategy serves the needs of the community.

Process

Feedback from the community, key local organisations and professional stakeholders was obtained through multiple methods to inform the Strategy.



What we heard

Some key feedback from the consultation process (via the online survey and social pinpoint) are highlighted in Figure 3.

Figure 3 displays seven key quotes from the consultation process:

- "Safety is my principal concern with riding a bike in Boroondara. I would use a bike as an alternative to a car and encourage my children to ride if it was safer."
- "Remove on street parking on arterial roads. Turn that into space for walking and riding."
- "Bicycle lanes need to be more consistent. It is no use having a bike lane if it regularly disappears."
- "The Boroondara Bicycle Strategy needs to develop direct, continuous and safe low stress routes that would be attractive to the 'interested but concerned' cyclists, and accessible to all potential cyclists in Boroondara."
- "Residents of central Boroondara will benefit enormously from a safe separated bicycle route leading directly to Melbourne."
- "We are at a vitally important crossroads in the development of cycling in Boroondara."
- "Remove on street parking on arterial roads. Turn that into space for walking and riding."

Figure 3 Key feedback from consultation process

Outcomes



Safety

Safety is the major concern. The community reported often feeling unsafe or stressed, particularly when riding on-road and having to compete with cars and trams. Safety was identified as the main barrier to riding more often.



Bicycle network

Stakeholders and the community share the view that the bicycle network does not allow for safe and efficient riding within and through Boroondara. It is considered by many as poorly maintained and difficult to navigate.



Pedestrian safety

Interaction between bicycle riders and pedestrians and the safety of pedestrians is a key concern. The risks posed by shared paths for people riding and walking was consistently raised.



Strategy integration

Stakeholders and bicycle user groups are keen to ensure the strategy is integrated with other transport plans, including those from surrounding local government areas, and state-wide bicycle plans and networks.



Connectivity

The lack of connectivity of the bicycle network is a major issue. This includes the connectivity of bike paths with Strategic Cycling Corridors and public transport. Hawthorn, Kew and Camberwell had the greatest number of areas identified as unsafe, mostly located around on-road bike paths and gaps in off-road trails.



Bike paths

The community overwhelmingly identified feeling safer on off-road or separated bike paths.



Congestion

Congestion and competition between cars, trams, buses and bikes for limited road space was highlighted as an area of significant concern. Together these create an aggressive and dangerous environment for bicycle riders, with parked vehicles in bike lanes being a major issue.



Infrequent bicycle riders

While infrequent bicycle riders made up a relatively small proportion of respondents, their priorities and concerns largely align with more confident riders. As expected, they are less likely to ride on the road or in proximity to traffic.

Guiding principles

The Strategy is underpinned by four guiding principles, developed to align with the vision and in response to community feedback.



Connected and complete cycling network

Key to increasing bicycle riding participation and mode share is by enabling the community to see it as a feasible and attractive transport option that meets their transport needs. One component to achieving this is through a connected and complete bicycle network, which includes the following key elements and characteristics:

- **Links to key destinations** – The network provides convenient access to destinations, including activity centres, train stations, commercial areas, and health and education precincts. Connections to these destinations enable people to ride a bicycle to meet their everyday tasks, e.g. commuting for work or education, attending appointments, shopping and running errands.
- **Integrated with the broader transport network** – The network enables bicycle riding to play its role as part of the wider transport network and as part of a longer trip. While a 6-12km cycle from the municipality to the Melbourne CBD may not be feasible for all, a short bicycle trip connecting with railway stations and other public transport modes could be an attractive option, provided the bicycle network is well integrated with the broader transport network.
- **Reaches all parts of the City** – The network is broad-reaching and extends to all parts of the City.

- **Integrated with surrounding municipalities** – The Boroondara network links with the bicycle network in neighbouring municipalities to provide continuous bicycle routes that are safe and protected.
- **Direct with minimal detours** – The network allows competitive bicycle journey times compared to alternative transport options. Bicycle routes take advantage of safe alignment options and seek to minimize steep grades wherever possible.

An aspirational connected and complete bicycle network has been developed for the City (Figures 4 and 5). The network consists of three types of corridors:

- **Strategic Cycling Corridors (SCCs)** – State-significant corridors which focus on bicycle riding for transport and act as the main arterials of the bicycle network, joining up important destinations of State significance
- **Municipal cycling corridors** – Corridors providing connections to key destinations within the City
- **Neighbourhood cycling corridors** – Additional local connections to support a complete network that extends to all parts of the City

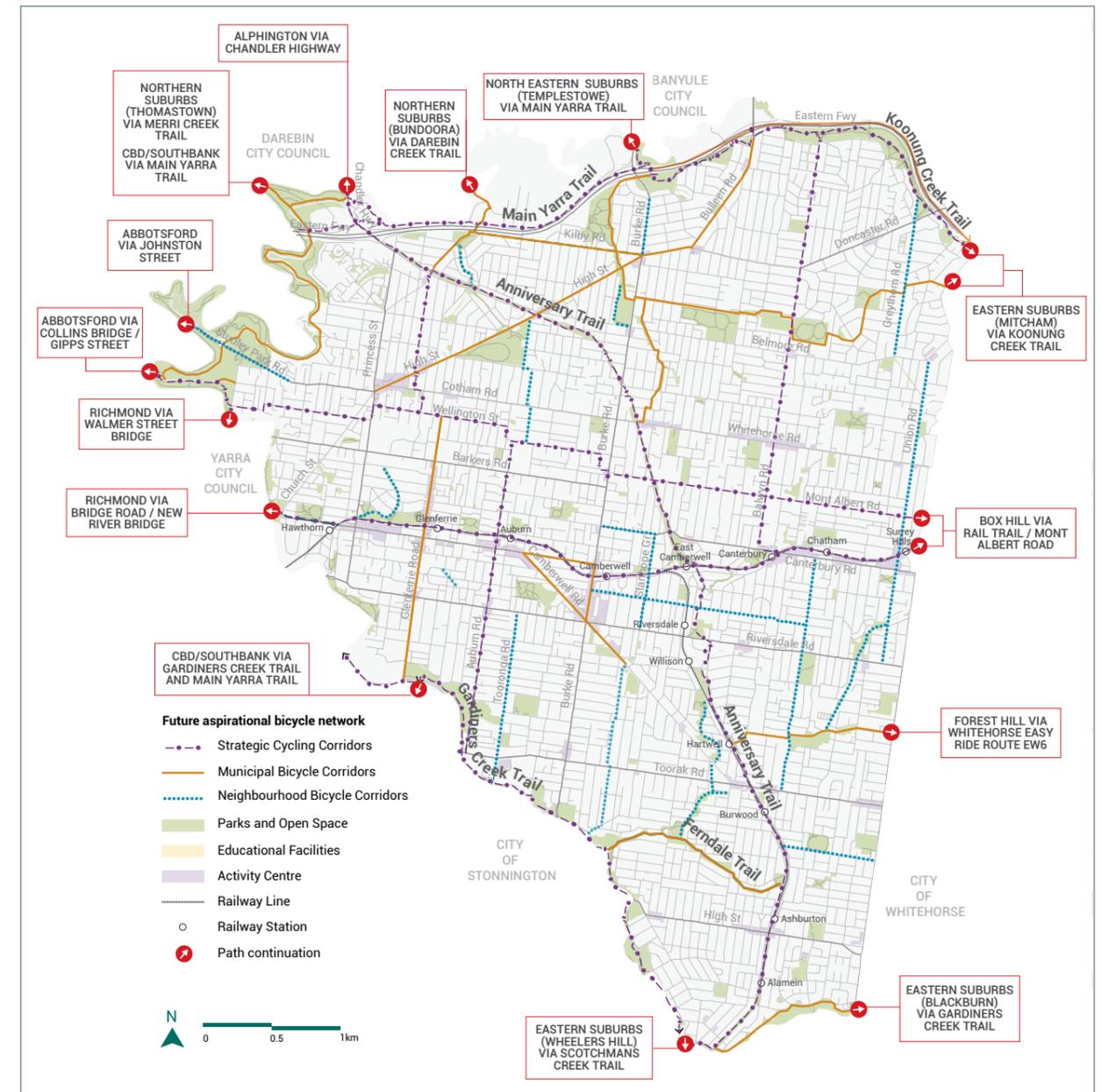


Figure 4 Future aspirational bicycle network

7 Analysis undertaken by the Department of Transport (*Strategic Cycling Corridor Network Overview*, Department of Transport, December 2020) shows that the average weekday trip length by bicycle was found to be 3.9km for trips originating from inner Melbourne and 6.2km for trips originating from middle Melbourne.

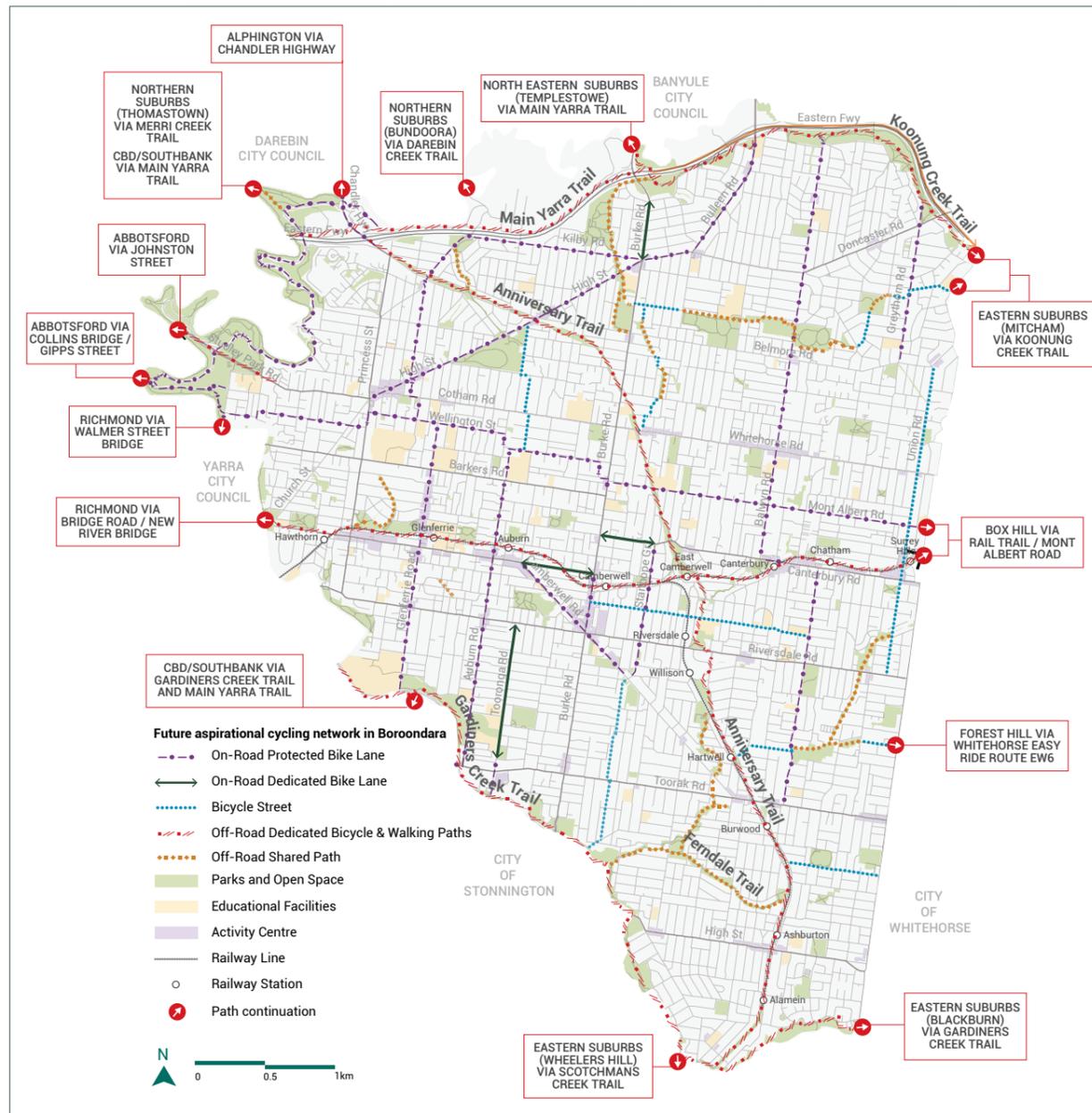


Figure 5 Future aspirational bicycle infrastructure

Safe bicycle riding experience

A key component to increasing bicycle riding participation and mode share is through development of a bicycle network that provides a safe riding environment. This makes the activity more accessible to the broader population, noting that high female ridership is often considered a good indicator of a safe riding environment. A safe environment can be achieved through various types of infrastructure selected to suit the road environment or off-road paths.

A recent survey of residents living in the City of Boroondara found that 78 percent of respondents were interested in riding more, but concerned about the potential safety risks. Whilst generally willing to ride on off-road paths, busy traffic corridors without barrier separated facilities deter them from riding more often. These riders generally remain within safe environments such as low volume residential streets and recreational paths. For this category of riders, the perceived safety of the riding environment is as important as the actual safety and design of infrastructure. The provision of off-road paths or protected on-road infrastructure is noted as having the biggest potential to substantially increase bicycle riding participation across the municipality.

Integrated supporting facilities and amenities

Bike parking, bike repair stations, water fountains, seats and end-of-trip facilities are important complementary infrastructure, along with route information and wayfinding which help to direct people to the most suitable facilities. When integrated with the bicycle network at key destinations and at strategic locations along key routes, these facilities and amenities help to support and attract people to use the network.

Awareness and education

In addition to the physical infrastructure, non-infrastructure actions can be effective to encourage a change in travel choice, particularly among the ‘interested but concerned’ group. Initiatives and programs can be targeted to different groups and tailored to particular needs or concerns of groups or individuals, providing encouragement and support for the travel behaviour change.

8 Provision of protected cycling infrastructure has the potential to substantially increase cycling participation, VicHealth and Monash University survey, 2020



Action plan

The Strategy recommends a series of initiatives and actions to support improvements to physical infrastructure and provide a connected, safe network for the City of Boroondara.

The action plan to deliver the Strategy is outlined and illustrated in the following pages. The actions include a combination of new actions and previously recommended actions carried over from the 2008 strategy. While many projects from the 2008 strategy have been delivered, those which had not been completed have been reviewed in the current context and where they are still considered relevant, have been included in this strategy to be undertaken as a high priority.

The actions will be investigated and implemented in 2-year stages with the highest priority actions and those carried over from the previous Bicycle Strategy in Stage 1. An Implementation Plan will be developed for each stage (i.e. every 2 years) to ensure we progressively deliver on the Strategy's vision over the next 10 years:

- Stage 1: 2022-2023
- Stage 2: 2024-2025
- Stage 3: 2026-2027
- Stage 4: 2028-2029
- Stage 5: 2030-2031

The Implementation Plan contains additional detail for each of the initiatives and actions, including high level cost estimates, delivery mechanisms and identification of key stakeholders for each project.

The delivery of all actions will be subject to relevant stakeholder approvals as well as community engagement to ensure a quality outcome considering the needs of the immediate and wider community is delivered. Any actions involving major changes (e.g. new path links or significant upgrades to existing paths in parks and reserves, protected bike lanes resulting in significant parking loss, or the implementation of numerous treatments including lower speed limits to create 'bicycle streets' on local roads) would also be presented to Council for consideration.

Initiative 1

Advocate to and work with the State Government (Department of Transport) to develop the Strategic Cycling Corridor network within Boroondara.

Strategic Cycling Corridors (SCC) represent the main routes of the Principal Bicycle Network (PBN) and are the most important routes for bike riding for transport, linking up important destinations of metropolitan or state significance such as the CBD, national employment and innovation clusters and major activity centres. SCCs are intended to be developed as routes that are safe and appealing for riders of all ages and abilities.

SCCs have complex governance arrangements, with planning, implementation and maintenance responsibilities separated across landowners, asset owners and asset managers. A collaborative approach with the Department of Transport and other key stakeholders is therefore required to develop the SCCs within Boroondara and achieve good outcomes.

For off-road sections of the SCC network, separate paths for pedestrians and bicycle riders is the preferred option to minimise potential conflict and enhance safety. A number of design options exist for providing separate path facilities. The preferred option would involve completely separate paths with distinct alignments. Dependant on site conditions, physical delineation between path users can also be provided – e.g. pedestrian and bicycle paths separated by a vegetation strip, or paths provided at different levels with kerb separation. Separate bicycle and pedestrian paths designated through only linemarking and/or different pavement materials would be the least preferred option and pursued only where site constraints prevent alternative design options. Site-specific investigations and community consultation will be required to arrive at the most suitable design for each section.

- **Connected and complete bicycle network**
- **Safe bicycle riding experience**
- **Integrated supporting facilities and amenities**
- **Awareness and education**

Initiative 1 Actions:

- 1.1 Work with the State Government to deliver the Box Hill to Hawthorn SCC along the Belgrave/Lilydale rail corridor.
- 1.2 Work with the State Government to deliver the Kew to Highett SCC via the Anniversary Outer Circle Trail.
- 1.3 Work with the State Government to deliver the Dandenong to Cremorne SCC via the Gardiners Creek Trail.
- 1.4 Work with the State Government and neighbouring Councils to deliver the Ringwood to Collingwood SCC along the Main Yarra Trail and Koonung Creek Trail as part of the North East Link Project.
- 1.5 Work with the State Government to deliver the Surrey Hills to Richmond SCC via Mont Albert Road.
- 1.6 Work with the State Government to deliver the Kew to Hawthorn East SCC via Auburn Road.
- 1.7 Work with the State Government to deliver the Canterbury to Balwyn North SCC via Balwyn Road.
- 1.8 Work with the State Government to deliver the Kew Junction to Anniversary Outer Circle Trail SCC.

Further detail is provided in the Bicycle Strategy Implementation Plan.

Initiative 2

Create a high-quality off-road shared path network by upgrading existing paths in line with current standards and providing new links.

Boroondara's 75 kilometres of informal off road paths and 37 kilometres of formal shared paths are the most popular bicycle routes in the City, used by both recreational and commuter cyclists.

Most bicycle riders feel safer and prefer using off-road paths; however pedestrian safety is a key concern on shared paths, with many existing routes containing narrow pinch-points with a risk of conflict between people walking and riding. High-quality shared paths are an important component of a connected and safe network providing a riding experience that is appealing for all ages and abilities.

On high volume routes, separated paths for pedestrians and bicycle riders should be provided. Opportunities should be investigated into progressively separating all off-road paths into the future to accommodate growing demand.

Other shared path upgrades to be investigated and considered include:

- Widening shared paths to a minimum width of 3 metres (where path separation is not feasible or identified as a longer-term objective)
- Lighting, where appropriate
- Surface treatments
- Drainage improvements
- Kerb ramps
- Installation of user amenities such as water fountains and seating.

- **Connected and complete bicycle network**
- **Safe bicycle riding experience**
- **Integrated supporting facilities and amenities**
- **Awareness and education**

Initiative 2 Actions:

- 2.1** Provide new off-road path links to expand the network and improve local access to safe bicycle routes.
- 2.2** Upgrade the existing formal and informal off-road path network with suitable treatments including separate paths for pedestrians and bicycle riders, the use of a range of materials for sealed or unsealed paths, lighting and signage.
- 2.3** Install supporting infrastructure to improve path accessibility and monitor usage patterns.
- 2.4** Promote a safe shared environment for all path users and progressively deliver safety upgrades to maintain high quality facilities.
- 2.5** Provide safer road crossings including path priority where suitable.

Further detail is provided in the Bicycle Strategy Implementation Plan.

Potential Infrastructure Upgrades

Informal Shared Paths

Existing informal sealed paths carrying lower volumes of pedestrians and bicycle riders can be upgraded through measures such as path widening, lighting and linemarking. Unsealed paths susceptible to safety and drainage issues can also be improved through concrete edging and various surface treatments which retain a natural appearance while improving grip levels and preventing water damage.



Narrow unsealed path susceptible to safety and drainage issues



Minimum 3m wide path with unsealed surface and concrete edging to prevent path washout

Formal Shared Paths

Existing formal shared paths which carry high volumes of pedestrians and bicycle riders can be upgraded through measures such as path separation, widening and lighting.



Formal shared path with potential for conflict between bicycle riders and pedestrians



Separate paths for bicycle riders and pedestrians on busy routes

Initiative 3

Improve bicycle safety along main roads and intersections through the implementation of on-road cycle infrastructure treatments which respond to the existing road corridor environment.

Main roads are higher-volume traffic routes that provide direct connections between key destinations and municipal links. There are three categories as defined below:

- State-managed roads, typically arterial multi-lane and with 60 km/h speed limits.
- Council-managed major roads, typically single lane with 50 or 60 km/h speed limits.
- Council-managed collector roads, typically single lane with 50 km/h speed limits.

Safety for those riding on these types of roads can be greatly improved through the provision of upgraded infrastructure, both on-road and at intersections. The level of infrastructure to be provided depends on the road environment. As risk factors increase including vehicle speeds, provision of car parking and number of traffic lanes, the level of infrastructure required to address these issues generally increases. In addition, gaps at intersections and crossings create unsafe and indirect bicycle routes and do not support a safe riding experience. Currently 57 percent of the incidents involving bicycle riders in the City of Boroondara occur at intersections.

On-road treatments vary in terms of the level of safety and protection provided for bicycle riders, from line marking to physical kerb protection. Investigations will be required on a site by site basis to determine the best on-road bicycle infrastructure treatment, including at intersections. However, physical separation between motor vehicles and bicycle riders should be explored as a priority for all main roads given the higher traffic volumes and vehicle speeds. Barrier kerbing offers the highest level of protection for bicycle riders as it physically prevents motor vehicles from encroaching into the bike lane. However this type of treatment effectively narrows the remaining road width and may restrict access in some situations. Mountable kerb options can be explored as an alternative where access requirements dictate (including for emergency service vehicles).

- **Connected and complete bicycle network**
- **Safe bicycle riding experience**
- **Integrated supporting facilities and amenities**
- **Awareness and education**

Suitable treatments may include:

- Barrier separation kerbing (preferred)
- Mountable separation kerbing eg. low profile yellow coloured rubber kerbing
- Vibra-line
- Painted bike lanes
- Green pavement
- Signage
- Linemarking

Approval from the Department of Transport will also be required for any actions affecting state-managed roads.

Initiative 3 Actions:

- 3.1** Develop concepts and advocate to the State Government for bicycle safety improvements on Department of Transport managed roads across the municipality.
- 3.2** Develop concepts and advocate to the State Government for on-road bicycle lanes (including physical separation where feasible) and safer intersection treatments for bicycle riders along select Department of Transport managed roads. Consider strategic removal or banning of car parking along the corridor to improve safety, particularly at crests and/or during peak travel times.
- 3.3** Provide bicycle safety improvements on Council managed major and collector roads across the municipality.
- 3.4** Upgrade existing on road bicycle lanes (including physical separation where feasible) and provide safer intersection treatments for bicycle riders along select Council-managed major and collector roads. Consider strategic removal or banning of car parking along the corridor to improve safety, particularly at crests and/or during peak travel times.

Further detail is provided in the Bicycle Strategy Implementation Plan.

Potential Infrastructure Upgrades

Protected Bicycle Lanes

Physical protection for bicycle riders is the preferred option for main roads, which typically carry high traffic volumes and have speed limits of 50 km/h or above - as these factors result in higher exposure risk and travel speed differential between bicycles and motor vehicles. Options exist to retain parking during off-peak travel periods, while providing additional road space for bicycle riders during peak travel times.



Fully protected bicycle lanes



Parking banned during peak travel periods to provide wide bicycle lanes

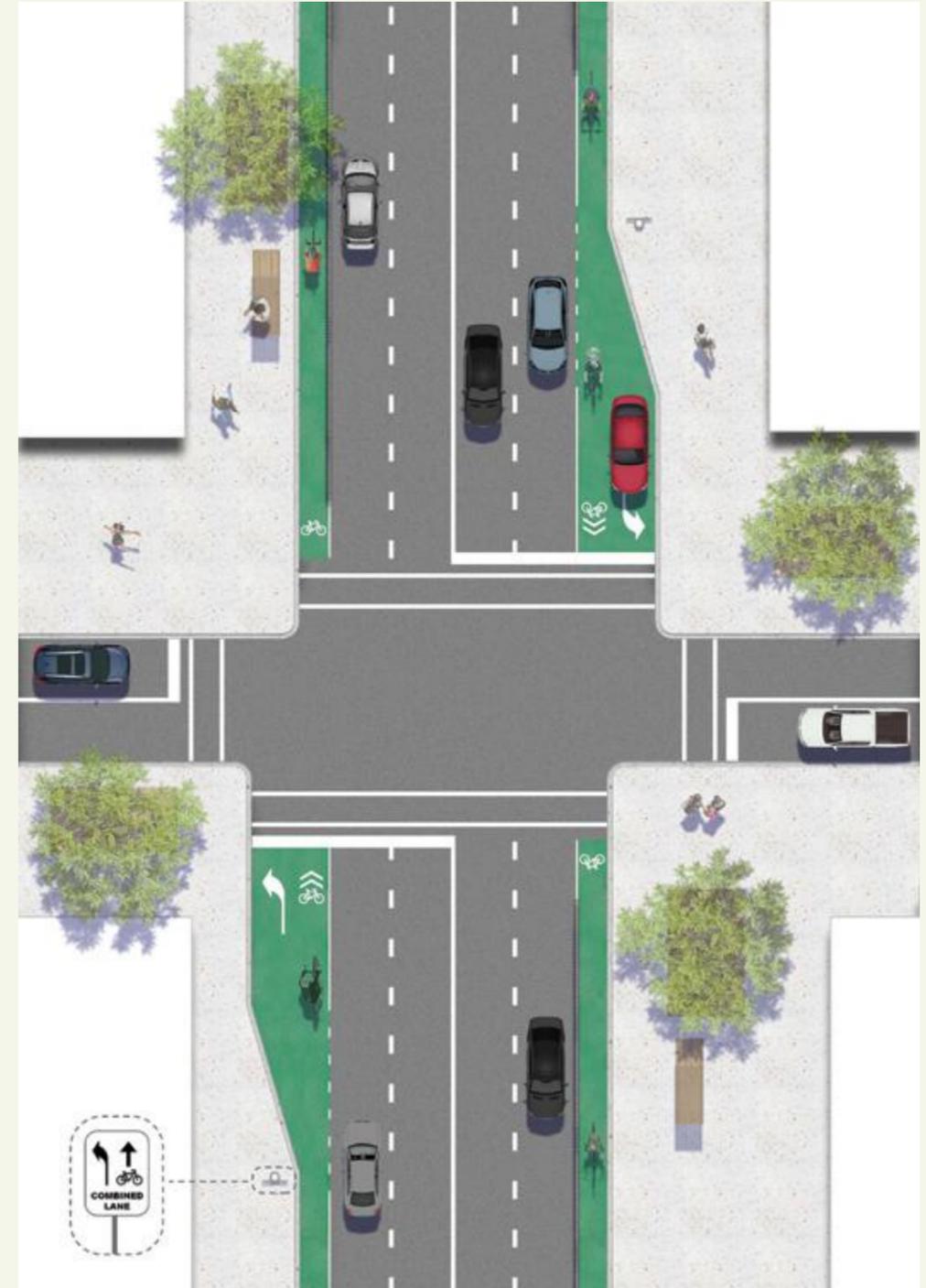


Parking retained during off-peak travel periods

Safer Intersections

Safety at signalised intersections can be greatly improved by providing clearly marked bicycle lanes adjoining both the approach and departure sides. This can be supplemented with physical protection where site constraints allow.

For unsignalised intersections, safety can be improved through traffic treatments which provide priority for bicycle riders, control vehicle speeds or improve driver visibility and awareness. Examples include use of physical separation treatments (kerbing or flexible bollards) on approach and departure sides including isolated removal of car parking to provide improved delineation and dedicated road space for bicycle riders.



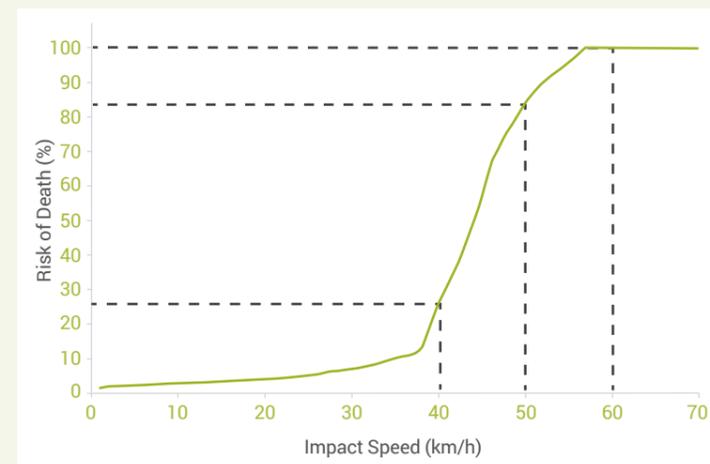
Initiative 4

Create a supporting network of safe bicycle streets which encourages bicycle access and supports local trips by bicycle.

Many residential streets with low traffic volumes offer the basic components of a safe bicycle riding environment. These streets can be enhanced with design measures to create bicycle boulevards, including reducing posted speed limits to 30 or 40 km/h, traffic calming, raised intersections and coloured road markings including advisory bike lanes. Safe bicycle streets can be used to link other safe facilities such as off-road paths, to create a safe bicycle network.

Speed management in shared environments such as local streets is important due to the exponential relationship between vehicle travel speeds and the risk of a fatality or serious injury for vulnerable road users, including bicycle riders. For example, research indicates that risk of a pedestrian fatality increases rapidly from around 10% at vehicle impact speeds of 35 km/h, to almost 100% at speeds above 55 km/h. Speed limit reductions along local roads are proposed for nominated streets that provide strategic links to key destinations such as activity centres, shopping strips, community facilities, schools, as well as links to the on-road or off-road bicycle network. The implementation of lower speed limits in nominated streets would also be subject to Council approval.

Risk of pedestrian death as a function of vehicle impact speed



Source: Curtin Monash Accident Research Centre
<https://www.nrsp.org.au/resources/fact-sheet-6-improving-pedestrian-safety/>

- **Connected and complete bicycle network**
- **Safe bicycle riding experience**
- **Integrated supporting facilities and amenities**
- **Awareness and education**

Lower impact treatments such as shared lane markings, or 'sharrows' can also provide a range of benefits for bicycle riding on local roads when installed appropriately. These benefits are complimentary to other treatments and this type of treatment can be effective in reinforcing the presence and legitimacy of bicycle traffic, influencing the positioning of bicycle traffic at key conflict points including adjacent to parked cars, and providing directional and wayfinding guidance. This type of treatment would be installed at targeted, suitable routes where it would be expected to provide notable benefits including for access and wayfinding to local facilities, off-road path links and key destinations.

Investigations will be required to determine the degree of treatment required, including any major road crossing intersection treatments, as well as the suitability of the route including current general traffic volumes. A targeted approach will be undertaken with treatments to be introduced along specific roads which contribute to the broader bicycle network.

Initiative 4 Actions:

- 4.1 Establish principles and develop concept designs for local road treatments to improve bicycle safety in different road environments.
- 4.2 Implement suitable treatments to create safe bicycle streets along select local roads which contribute to the broader bicycle network. Advocate to the Department of Transport for speed limit reductions to 30 or 40 km/h along these streets.
- 4.3 Install sharrows (shared lane markings) along targeted informal bicycle routes identified in Boroondara's TravelSmart map that provide access and wayfinding to off-road path links, local facilities and key destinations.

Further detail is provided in the Bicycle Strategy Implementation Plan.

Initiative 4: Potential Infrastructure Upgrades

Safe Bicycle Streets

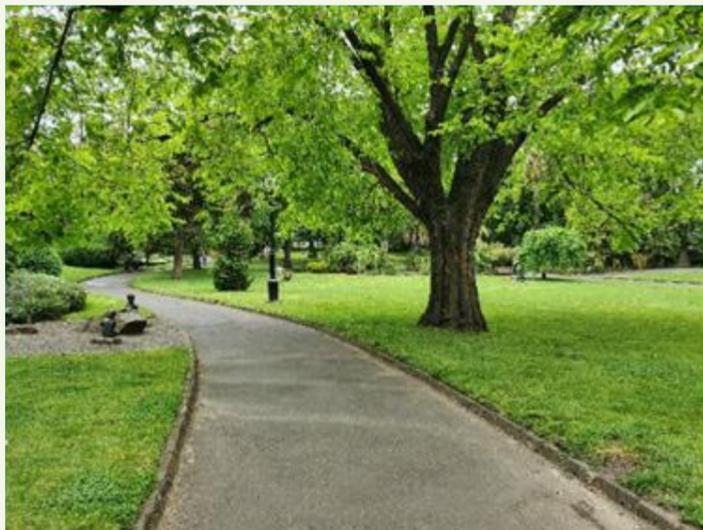
Safety for bicycle riders on local streets can be enhanced through treatments that promote slower motor vehicle speeds and improve driver visibility and awareness of bicycle activity.



Initiative 5

Improve management of paths used by both pedestrians and bicycle riders in formal gardens across the municipality

There are several formal gardens in the City that have paths which are used by both bicycle riders and people walking, including vulnerable path users such as the elderly or young children. These paths are sometimes used by bicycle riders travelling at speed, creating high-risk conflict areas. It is noted that many of these gardens are located near SCCs and that completion of SCCs may help reduce the risk of high speed cyclists using the paths; however further measures should be considered to reduce the risk.



- Connected and complete bicycle network**
- Safe bicycle riding experience**
- Integrated supporting facilities and amenities**
- Awareness and education**

Initiative 5 Actions:

- 5.1** Develop a community education campaign around the use of paths within formal gardens, including promoting a low-speed shared space with pedestrian priority.
- 5.2** Provide protected on-road bicycle route options in the vicinity of formal gardens to offer convenient and safe alternative routes to bicycle riders.

Further detail is provided in the Bicycle Strategy Implementation Plan.

Initiative 6

Provide improved quality and quantity of bike parking and end-of-trip facilities.

High quality, abundant, secure and well-located bike parking and end-of-trip facilities play a significant role in contributing to the overall attractiveness of bicycle riding. Facilities generally include bike parking as a minimum can extend to bike repair stations, water fountains, and showers and lockers, with the types of facilities to be provided varying depending on the location and users. Various types of bike parking should also be considered to accommodate non-standard bikes (e.g. cargo bikes and electric bikes).

Integrating facilities with the public transport network supports longer commuting trips and commuters tend to favour sheltered and secure bike parking. However, Surrey Hills Station is currently the only train station within the City that provides a Parkiteer cage.

For destinations such as workplaces or educational institutions, it would be beneficial to provide facilities for staff or students within a 'bike hub', with separate facilities provided for visitors. Consideration should also be made to provide e-bike charging facilities at some locations.

In addition to facility provision in public areas, the Boroondara Planning Scheme includes a strategy to support developments to provide high quality bicycle parking and end-of-trip facilities. Bike parking and supporting facilities are to be positioned at suitable locations following site-specific investigations, and in accordance with relevant standards and guidelines.

- Connected and complete bicycle network
- Safe bicycle riding experience
- Integrated supporting facilities and amenities
- Awareness and education



Initiative 6 Actions:

- 6.1** Undertake a review of existing bike repair stations and water fountains and provide additional facilities at strategic areas across the municipality.
- 6.2** Advocate for improved quality and quantity of bike parking at all train stations, including potential removal of a few car parking bays to provide a Parkiteer cage at Hawthorn, Camberwell, East Camberwell, Canterbury, Riversdale, Burwood and Ashburton Stations. Provide or advocate for additional Parkiteer cages at other strategic locations including transport hubs.
- 6.3** Undertake a review of existing bike parking facilities and implement an action plan to deliver high quality bike parking at key locations.

Further detail is provided in the Bicycle Strategy Implementation Plan.

Initiative 7

Provide high quality wayfinding.

Effective wayfinding can enhance the safety, amenity and efficiency of the entire transport network. It can take many forms, such as maps, signage, pavement markings or stickers and when used and placed appropriately, can be effective in increasing awareness and legibility of the bicycle network.

Along bicycle routes, clear and consistent wayfinding, with information on direction, distance and travel times to key destinations help to assist users with identifying routes. For the ‘interested but concerned’ group and other target groups, wayfinding can also help to overcome any perceptions of long distances and provide confidence in their journey. Wayfinding can also be used to complement behaviour change programs.

Wayfinding forms also an important part of integrating bicycles with the public transport network and helps to promote multi-modal trips. It can help to improve the legibility of the bicycle network and also help to increase the awareness of nearby destinations such as local shops or cafés which are easy to access by bicycle.

- Connected and complete bicycle network**
- Safe bicycle riding experience**
- Integrated supporting facilities and amenities**
- Awareness and education**

Initiative 7 Actions:

7.1 Develop and implement a new wayfinding strategy that reviews existing on and off-road wayfinding signs and delivers an easy to navigate bicycle and walking network. Include supporting information to allow path users to select appropriate routes for their needs, including distance and travel times to key destinations, directions to local amenities and facilities, and information on path congestion and potential conflict points such as road crossings.

Further detail is provided in the Bicycle Strategy Implementation Plan.

Initiative 8

Continue to run and support promotional and educational programs aimed at encouraging people to ride bicycles through raising awareness of the benefits and developing safe riding skills.

Promotional activities or events, and educational programs can help support an increased bicycle mode share, helping to promote the benefits, dispel misconceptions and create a cultural shift around bicycle riding. These can help to educate and increase awareness, providing the information, resources and community support required to encourage people to ride bicycles, and can target those who do not consider riding to be a practical transport mode.

The City, in collaboration with other organisations, currently runs various promotion and educational workshops and programs. It is proposed to continue these initiatives and broaden the target audience of the programs, in particular targeting under-represented groups in the bicycle riding population including women, students (secondary and tertiary), the culturally and linguistically diverse (CALD) population and parents of school-aged children.

In addition to promotional programs, education programs help to identify safe bicycle routes that cater for all users, encourage safe riding behaviour and educate on bicycle skills to build confidence levels. This could focus particularly on how to navigate areas of potential user conflict, such as passing pedestrians on shared use paths, riding on-road in shared street environments or transitioning between different types of facilities.

The timing of the implementation of programs is also key to their effectiveness and programs should ideally build upon the change in travel behaviour that has been observed during the COVID-19 pandemic.

- Connected and complete bicycle network
- Safe bicycle riding experience
- Integrated supporting facilities and amenities
- Awareness and education

Initiative 8 Actions:

- 8.1 Update the current Boroondara TravelSmart map and distribute to raise awareness of safe, attractive bike routes and to help riders to plan journeys by bike.
- 8.2 Continue to run bicycle promotional and behaviour change programs for children including travel plans for primary and high schools and Safe Routes to School initiatives.
- 8.3 Work in partnership with tertiary institutes to develop a promotional and behaviour change program targeting students and staff.
- 8.4 Work in partnership with local organisations to develop travel plans and Ride to Work Day initiatives.
- 8.5 Continue to run safe bicycle riding educational training and skills programs or workshops.
- 8.6 Continue to support and promote sustainable transport initiatives with Council staff.

Further detail is provided in the Bicycle Strategy Implementation Plan.

For more information on the Boroondara Bicycle Strategy:

 www.boroondara.vic.gov.au/bicycle-strategy

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