Walk and Ride Melville Plan

PREPARED FOR CITY OF MELVILLE | October 2023

Stantec

Revision schedule

Rev No	Date	Description	Prepared by	Checked by	Reviewed by	Approved by
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1	07/07/2023	Final – Comments Addressed	CS	AO	SL	SL
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3	27/09/2023	Final	LR	AO	SL	SL
4	9/10/2023	Final - amended	AO	SL	SL	AO

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1 Introduction

1.1 Background and Scope

Stantec has been engaged by the City of Melville (the City) to provide a more wholistic approach to planning for active transport, recognising that people walking, riding and wheeling often share the same infrastructure, and yet can compete for the same space in some locations.

This *Walk and Ride Melville Plan* (so titled to recognise recent increases in the use and number of micro mobility modes, as well as the use of active travel infrastructure by people travelling by wheelchair and other mobility aids) is an update to the City's 2012 Bike Plan to incorporate this diversity of users in the analysis, consultation, policy and best practice discussions within the Plan. While the document mainly refers to people walking and riding, the intention is that the resulting improvements will help people travelling actively across the board. The goal of this plan is to comprehensively evaluate facilities for walking and riding, provide a vision for walking and riding in the City, and suggest actions to achieve this goal. This will help to support the City's community aspirations:

- Clean and Green
- Growth and Prosperity
- Healthy Lifestyles
- Safe and Secure
- Sense of Community
- Sustainable and Connected Transport.

The structure of this document is outlined below**.** The following sections and Appendix document the work undertaken to develop the recommendations.

Table 1-1: Document Overview

Task	Purpose	Section
Review background information	Understand local context and align recommendations to the overall vision, objectives and goals of the City	1 & 2
Engage with stakeholders	Identify issues, opportunities and key themes from the community and stakeholders	3 & 4
Identify Strategic Improvement Principles	Identify principles for enhancing the experience of walking and riding a bike in the City	5
	Outline implementation of the LTCN, and provide an evaluation matrix for new and upgraded paths	6
Projects	Summarise identified projects focusing on infrastructure improvements, further studies and opportunities for advocacy.	7

The report provides a review of the following:

- Literature
- Existing Network Conditions
- Stakeholder engagement approach, outcomes and themes
- Strategic Cycle and Footpath Network principles
- Projects (infrastructure, further studies and advocacy)
- Conclusions.

1.2 State Policy Context

The Department of Transport (DoT) outlines the following guiding principles in its *Guidance for Local Bike Planning (Interim Framework)*:

- **Safe** (built to a standard that reflects the "8 to 80" design philosophy
- **Connected** (all routes must connect to a destination or another route)
- **Widespread** (extensive enough to get to a destination without encountering hostile traffic conditions)
- **Legible** (Intuitive and direct with coherent wayfinding)
- **Aspirational** (long term network strategy and vision for bike riding)
- **Achievable** (evidenced based planning principles)

Furthermore, the West Australian Bike Network Plan (WABN) outlines number of key actions which are relevant for this Plan including:

- Connecting Stations
- Connecting Schools
- Safe Active Streets and
- End of Trip (EoT) facilities in Activity Centres.

1.3 Literature Review

The full review of the literature can be found in Appendix A.

Table 1-2: Summary of Findings

Theme	Findings
Plan Alignment	While a number of strategic routes were identified in the last Bike Plan, these may not correspond to those in the more recent LTCN
	The majority of projects identified in the 2012 Plan (where responsibility rested with the City) were implemented, or the actions were noted as being ongoing
High Volume Roads	South Street, Leach Highway and Canning Highway are the most dangerous roads in terms of crashes involving people on bikes (noting that these roads are under the remit of MRWA)
Mode Share	3% mode share was identified for cycling in the last Bike Plan
Policy Alignment must take into account:	DoT's Guiding Principles for Local Bike Planning
	Key actions from the DoT WABN Plan
	LTCN routes and identify the need for changes where necessary
Community Views	Improvements to walking and riding networks will help to achieve the community aspirations
	There is recognition from the community that: • Reducing car dependency is important • Integrated transport networks are important • Safety for people walking and riding must be improved • Some areas within the City are well catered for in terms of walking and riding infrastructure (and some are not) • Safety perceptions differ between younger and older cohorts • Walking and riding contributes towards wellbeing • Neighbouring community facilities and activity centres should be linked by safe and good quality infrastructure.
Design	Widths of new paths should ideally not be less than 1.8m
	The City's Path Guidelines and Specifications encompass good practice for path design and placement
Interest in Walking and Riding	Research shows that interest in riding in metropolitan areas is increasing, particularly with the growing interest in e-rideables
	Interest in riding is increasing particularly in the 10-17 age group, as well as females aged 30-49
	Although average walking journeys were short, most interest in walking related to recreation and exercise or to access the shops.
Roundabouts	Considerations for people riding bikes at sites with roundabouts should include design options which: • lower speeds upon entry and exit • reduce squeeze points • terminate on-road cycle lanes before holding lines and at multi-lane roundabouts • exclude separate channelised entry into roundabouts on the left of the general traffic lane • provide access to shared paths from the carriageway particularly at locations used by children or recreational bike riders • ensure intersections between paths and the road provide opportunities for safe crossings and safe access to bicycle lanes at locations with roundabouts.
	Analysis of cycle crashes at roundabouts by Austroads showed that: • 93% of crashes occurred in speed zones of 60 km/h or less • 63% of crashes occurred in speed zones of 50km/hr or less

	• The most common crash type was a motor vehicle colliding with a cyclist on the circulating carriageway – 67% of crashes • The next most common crash type was vehicles travelling in the same direction (13%). • Entry path curvatures were the main component that needed to be increased to slow entering vehicles.

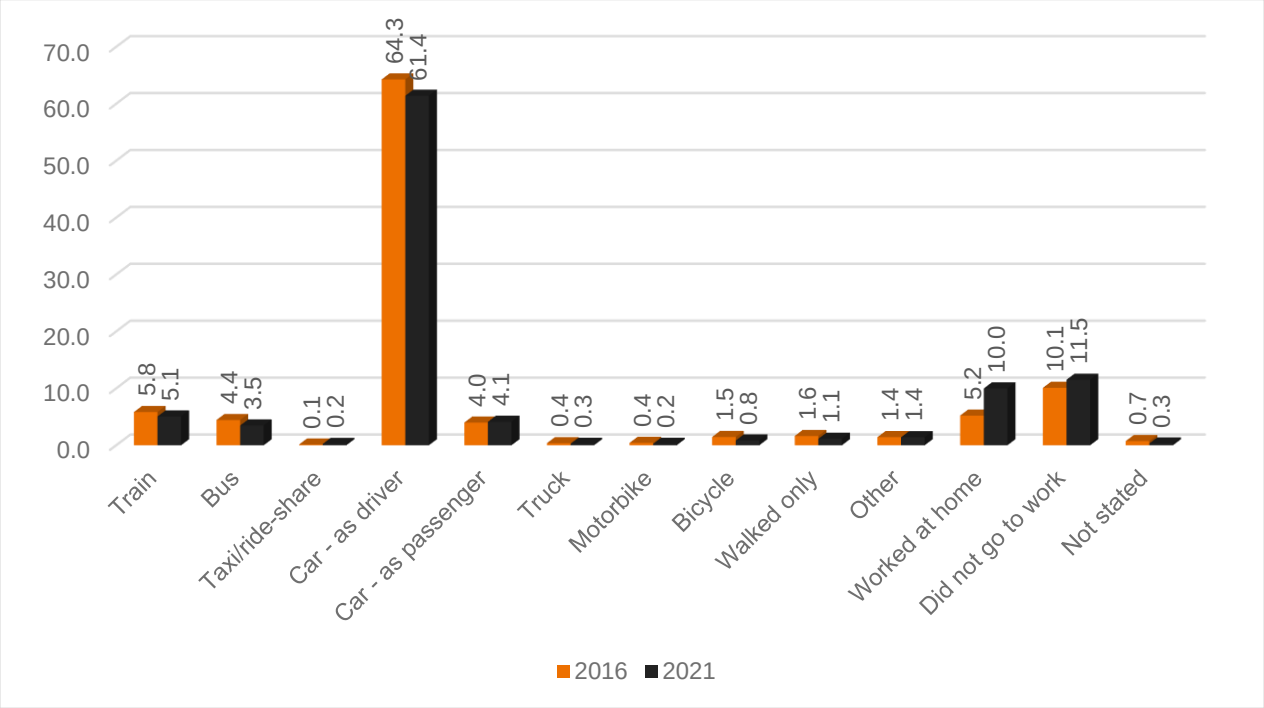
2 Existing Network Conditions

This chapter reviews the current path infrastructure within the City of Melville, the nature of the traffic volumes and speeds, and the prevalence of crashes involving people walking and riding. Ultimately, understanding the likely stresses of people riding on the City's roads is integral to the plan in order to highlight gaps in the network.

2.1 Mode Share

The recent ABS census data recorded a reduction in the number of people in the City walking and riding to work in 2021 compared with in 2016, along with a doubling of people working from home and a small reduction in the number of people driving and taking public transport (see Figure 2-1).

Figure 2-1: 2016-2021 Mode Share Comparison

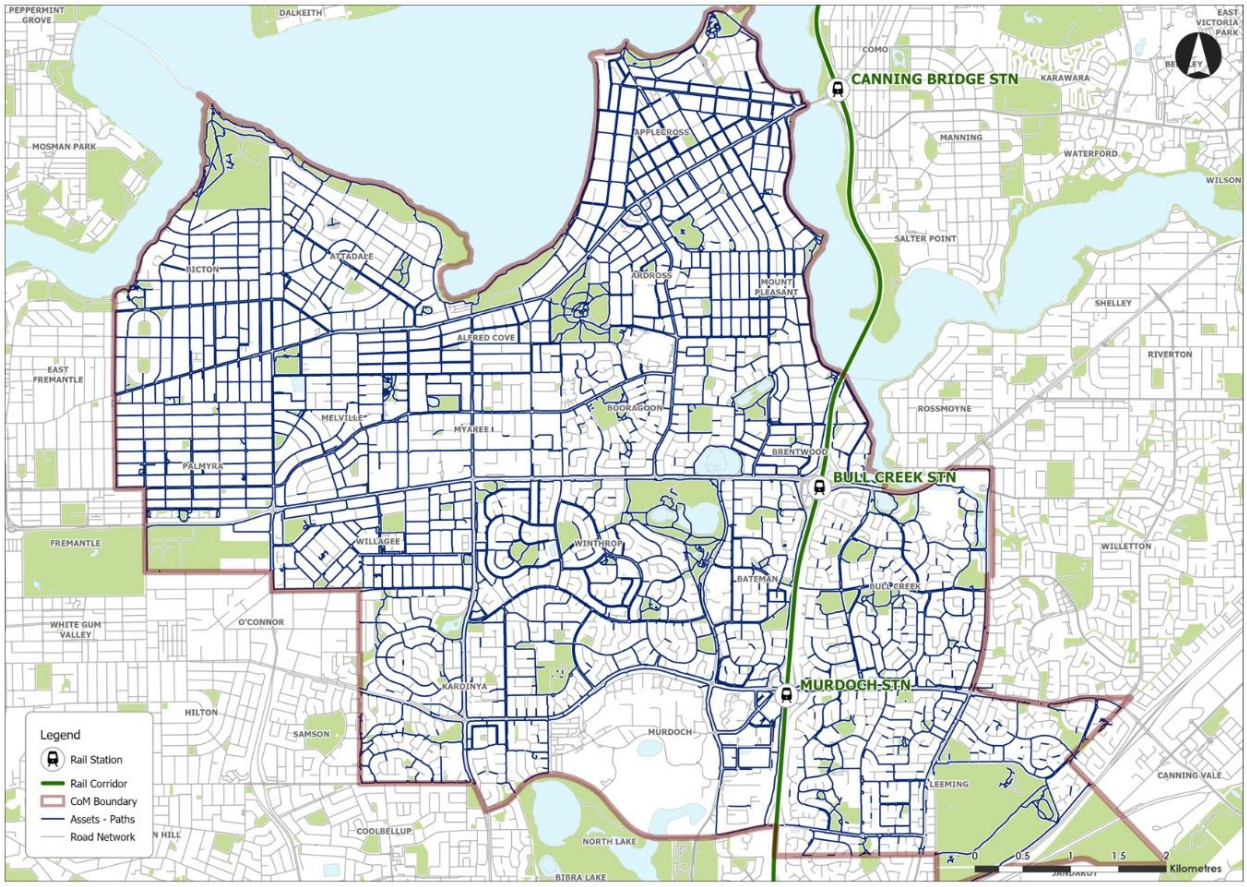


This report does not propose a target mode share for people walking and riding as this is a discussion that needs to take place in consideration of all modes and the wider transport policy landscape in which we operate. However, given Global, National and State aspirations to drive down transport emissions, a backwards step in relation to public and active transport use is alarming and must be reversed. The actions contained in this document which aim to prioritise walking and riding will help to this end.

2.2 Footpath Network

It is understood that approximately 51% of the roads in the City have a footpath on at least one side. Figure 2-2 below shows the footpath network as of September 2021.

Figure 2-2: Existing Footpath Network



Source: City of Melville

Those without footpaths are mainly low volume streets in residential areas, however it is recognised that in some locations gaps in the footpath network do act as a barrier to encouraging people to walk and ride for their local journeys. A consistent approach to prioritising the construction of footpaths is required, considering issues such as safety history, nearby destinations, the paths' likely role in relation to the cycle network, and anticipated level of use of the path by other users.

2.3 Traffic Conditions

Traffic conditions within the City of Melville vary greatly, from six-lane cross-sections to quiet neighbourhood streets. Main Roads WA controls and maintains the largest roads in the City of Melville, including Kwinana Freeway, Canning Highway, Leach Highway, South Street, and parts of Stock Road. Each of these roads has a six-lane cross-section and carries substantial traffic making them unattractive for on-road riding, although there is a path network available of varying widths and surface qualities.

The following list shows roads controlled and maintained by the City, where there is more than 5,000 vehicles/day, many of which are also roads which feature on the proposed Long Term Cycle Network (LTCN, See Appendix A.1.3 [roads on the LTCN are in italics]).

- *Marmion Street*
- *Point Walter Road*
- *Preston Point Road*
- *Carrington Street*
- Norma Road
- *North Lake Road*
- *Rome Road*
- McCoy Street
- *Somerville Boulevard*
- *Murdoch Drive*
- Riseley Street
- *Kintail Road*
- *Coomoora Road*
- Reynolds Road
- Moolyeen Road
- Cranford Avenue
- *The Esplanade*
- *Bull Creek Drive*
- *Parry Avenue*
- Camm Avenue
- Benningfield Road
- *Karel Avenue*
- Gilbertson Road
- *Farrington Road*.

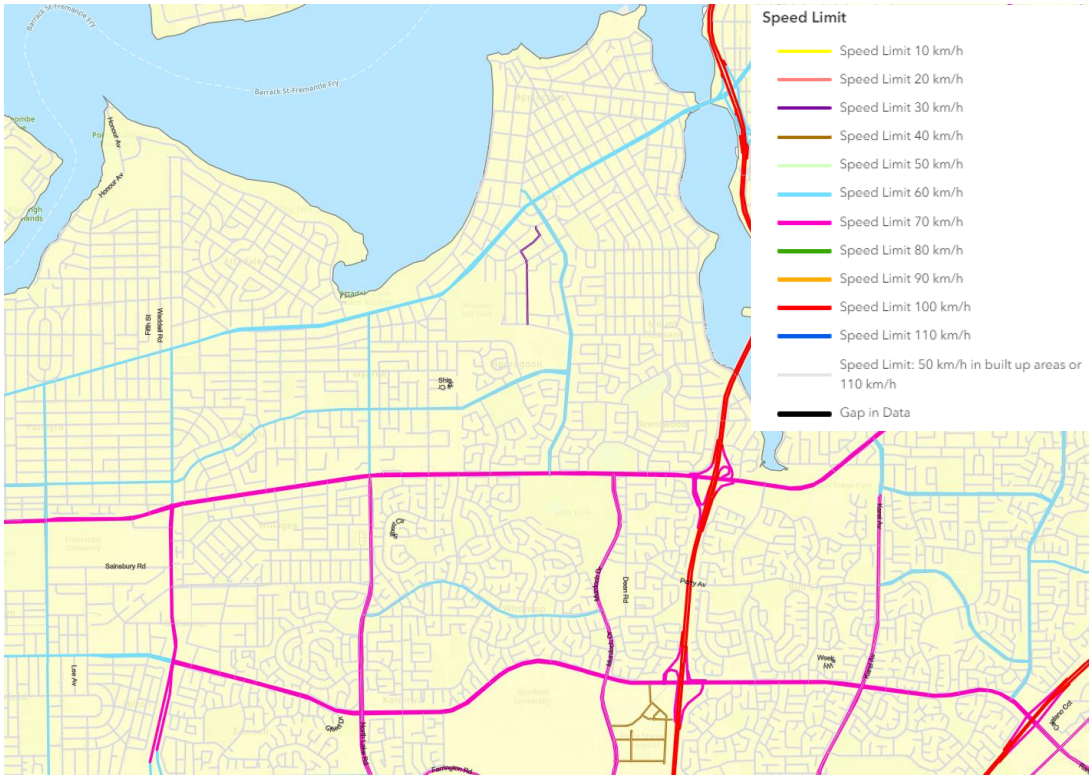
Not all these roads currently feature separated facilities meaning that people riding may need to share the road with motorised vehicles or ride on the footpath and share space with people walking. The implementation of the LTCN will need to identify which treatments are most appropriate for which roads by considering issues such as crash history, traffic volumes and speeds, its role in the cycle network and likely interaction with other users including people walking.

2.4 Speeds

Primary and regional distributor roads typically have posted speed limits of 60 or 70 km/h, whilst access roads have 50 km/h posted speed limits or less. Figure 2-3 provides a detailed overview of the speed limits within the City boundaries.

Very few roads have a posted speed limit of less than 50 km/h in the City of Melville. These include the 30km/h posted speed Safe Active Street connecting the start of Links Road to the end of Hope Road via portions of Drew Road, Collier Street and Millington Street. The Murdoch Health Precinct has a concentrated pocket of 40km/h posted speed limit roads.

Figure 2-3: Speed Limits in the City of Melville



Source: MRWA Road Information Mapping System

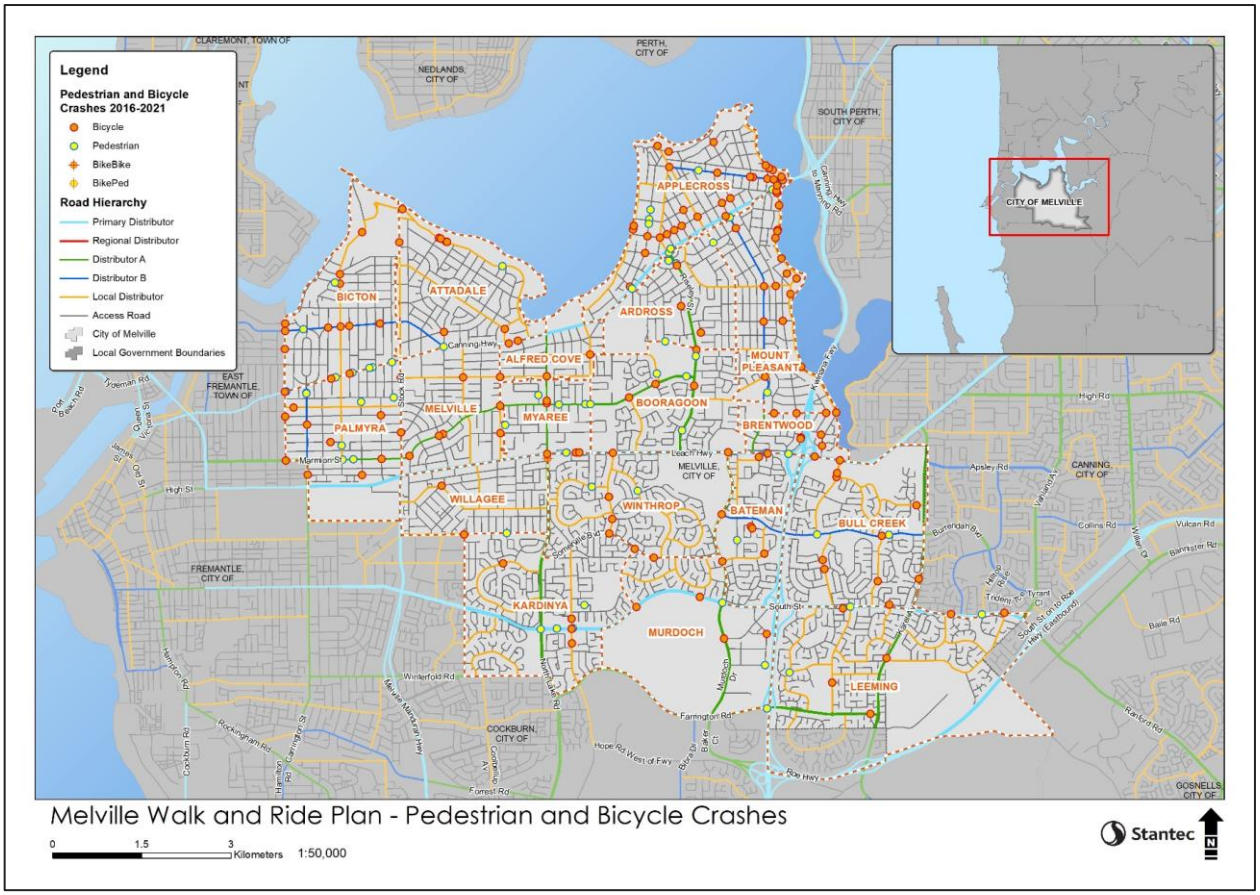
While there are very few roads with posted speeds of under 50km/hr, this does show that there are many alternative routes which do not involve riding on busy main roads, however that crossings over those main roads are important considerations to ensure connectivity across the City and beyond.

2.5 Pedestrian and Cyclist Crash Data

Pedestrian and bicycle crashes in the City of Melville are distributed across the network, with crashes occurring at intersections along major transport corridors. Marmion Street, South Street, Leach Highway, and Canning Highway all have high numbers of bicycle crashes, while other roads such as Macrae Road, Kintail Road, Kitchener Road, and Winthrop Drive are also over-represented. It is worth pointing out however, that since that time, Macrae Road has been closed to traffic at the intersection with Gairloch Street; nonetheless, the road continues to be a crash hotspot in the City of Melville in some locations.

An overview of all crashes in the City between 2016 and 2021 is provided in Figure 2-4. Many of these crashes are concentrated around Ness Road and McLeod Street, and have been reduced along the rest of Macrae Road, likely due to the modal filter (road closure that restricts vehicle movements but allows through access to people riding). Detailed crash maps for each ward are provided in Appendix B.2.

Figure 2-4: City of Melville Pedestrian and Bicycle Crash Map (2016 – 2021)



Source: MRWA

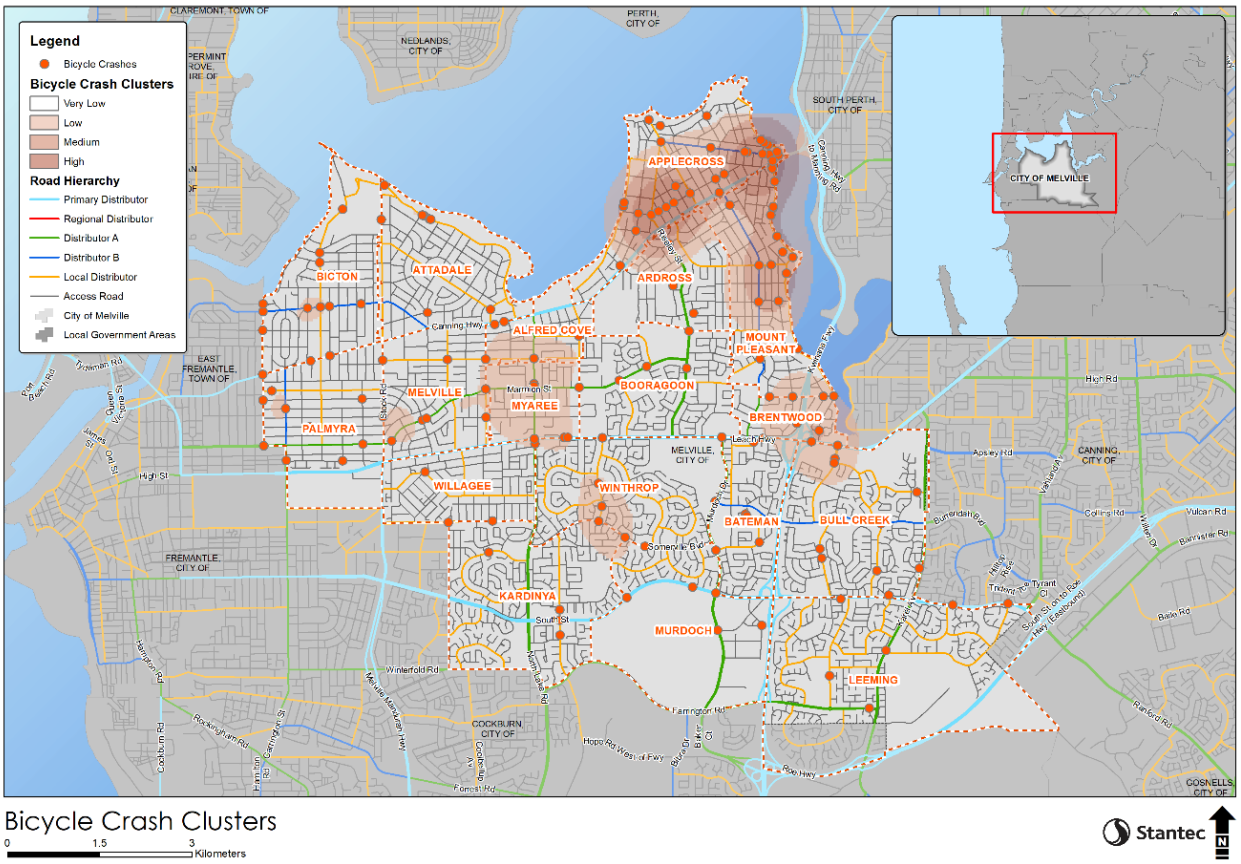
2.5.1 Bike Crash Clusters

Cycling crash clusters are located:

- Along The Esplanade
- Along Macrae Road, Applecross
- At roundabouts along Reynolds Road
- At intersections with Cranford Avenue, Brentwood. *[Note – the new MRWA PSP link under the Cranford Rd bridge has addressed this issue].*

A map of the bicycle crash clusters is provided in Figure 2-5.

Figure 2-5: City of Melville Bicycle Crashes Cluster Map (2016 – 2021)



Source: MRWA

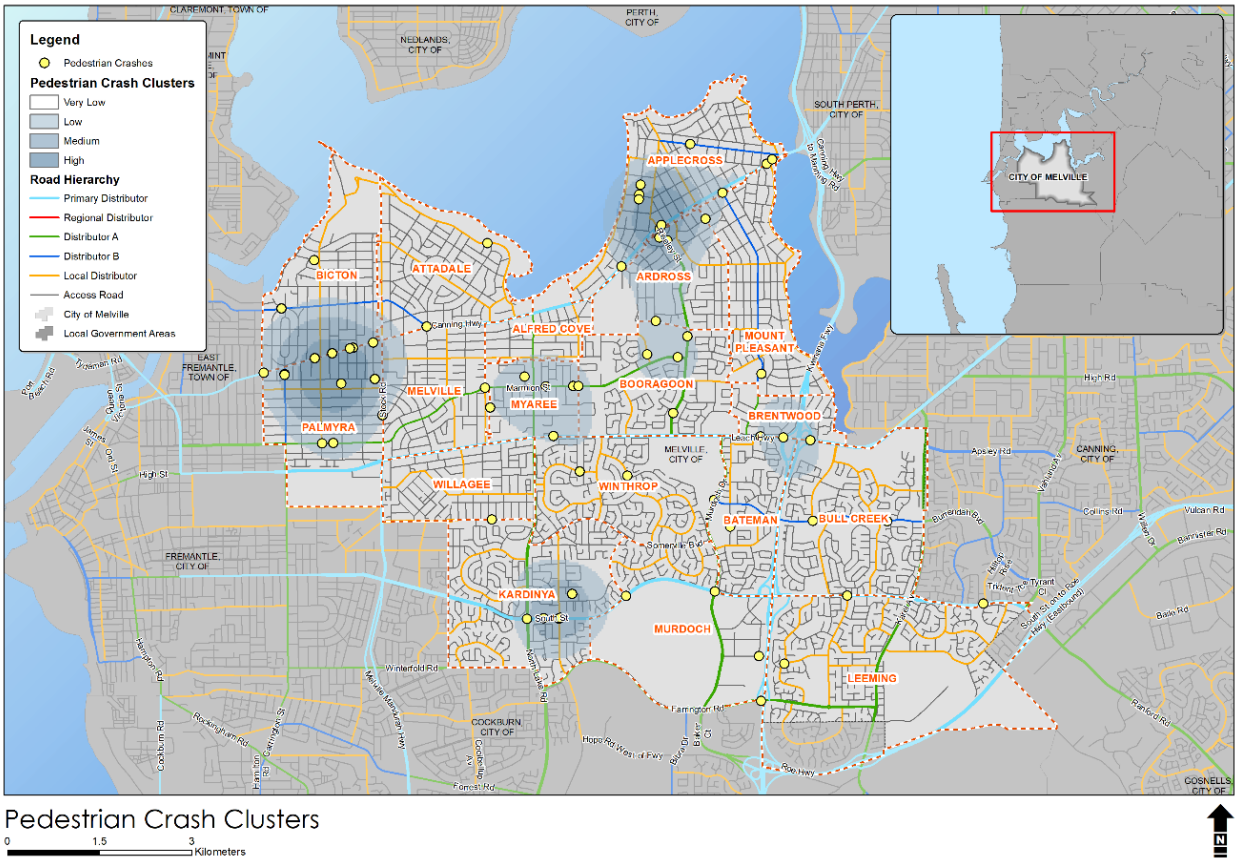
2.5.2 Pedestrian Crash Clusters

The most common locations for pedestrian crashes occur at road crossings and collisions with vehicles emerging from driveways. This crash data has been used to help determine and prioritise areas where advocacy for safety improvements are required for people on foot and on bike. The key locations for pedestrian incidents are:

- Canning Highway in Bicton
- Riseley Street and Canning Highway
- South Street and North Lake Road near the shopping centre east of the intersection.

A map of the crash clusters for pedestrian crashes is provided in Figure 2-6.

Figure 2-6: City of Melville Pedestrian Crashes Cluster Map (2016 – 2021)



Source: MRWA

2.6 Bicycle Stress

To better understand the level of comfort for bike riders on roads, a bicycle stress calculation was performed on the City's road network using traffic volume and 85th percentile speed data. Roads without dedicated infrastructure for active transport users can function as adequate facilities for people riding under certain conditions. Specifically, roads with traffic volumes under 1,500 vehicles per day (vpd) and 85th percentile speeds under 30 kilometres per hour (km/h) serve as comfortable facilities for people riding and do not require additional cycling infrastructure.

In the Western Australian context, there are very few roads speed zoned to 30 km/h, so roads with an 85th percentile speed of 40 km/h were also examined in this analysis. The City of Melville provided data on traffic volumes and 85th percentile speeds generated from traffic counts undertaken in the last 10 years, where available. Data relating to the Links Road Safe Active Street was added to the data set to take account of changes in traffic speeds and volumes in that location. This data was joined to the Road Hierarchy GIS layer, using the highest speed and volume data in instances where more than one count occurred on the same road.

Based solely on volumes, many of the access roads in the City of Melville would be considered comfortable for people riding without additional facilities. However, even with low volumes of traffic, roads with 85th percentile speeds over 40 km/h are still considered to be stressful for people riding without additional infrastructure[1].

This shows the importance of access roads as part of the cycle network and ensuring that these are safe and attractive places for people to ride on while advocating for and investing in separated paths on busier roads.

Consideration of a reduction in speeds to 30km/hr in appropriate locations such as near schools and where high volumes of people walking and riding might frequent would help in this regard (see Section 5.1.6).

The full results are shown in Appendix C

[1] This relates to riding on roads only and does not factor in the presence of shared paths or other separated infrastructure.

3 Stakeholder Engagement

To ensure the maximum amount of people were consulted, numerous different strategies were employed to obtain a wide and diverse range of feedback. A rigorous and comprehensive approach to consultation was outlined in the Stakeholder Engagement Plan. A summary of the outcomes from these engagements are provided within Appendix D - Appendix F .

Activities included:

- Internal workshops with the City
- Online community surveys (the engagement platform receiving over 1,000 visits) involving:
  - A questionnaire responding to the nature of walking and riding in the City (140 responses)
  - Online map for respondents to highlight locations of concern (299 comments)
  - Opportunity to provide comments on the LTCN.
  - Respondents were also able to provide an expression of interest to participate in future workshops
- Saddle surveys with City officers to experience the network in person from the perspective of people walking, riding and driving
- External workshops with stakeholders and community representatives including transport agencies, neighbouring Local Government Authorities and walking and riding advocacy groups. to:
  - Provide an overview of work undertaken to date
  - Outline outcomes from consultation exercises
  - Provide opportunities for stakeholders to identify any other issues and seek feedback on preliminary networks and proposed next steps.
- A Second external stakeholder workshop with invites sent to interested community representatives and previous attendees. The purpose of this workshop was to ratify the findings from the various investigations including the saddle survey, share the preliminary networks and outline our proposed approach to prioritisation of projects.

Key themes from the various consultations and technical investigations are summarised in the Section 4.

4 Key Themes

Having reviewed the consultation themes and the outcomes from all the previous investigations including the data and literature review as well as observations on site, the themes can be categorised into the following:

- Footpaths
- Cycle infrastructure
- Crossings
- Connectivity
- User conflicts
- Traffic speeds and volumes
- Wayfinding
- Roundabouts
- End of trip Facilities.

The table below shows how often these issues came up within each ward.

Table 4-1: Consultation themes by ward

Theme	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	General Recommendations	Prevalence
	Bicton, Attadale, Alfred Cove	Palmyra, Melville, Willagee	Applecross, Mount Pleasant	Bateman, Kardinya, Murdoch	Bull Creek, Leeming	Ardross, Booragoon, Myaree, Winthrop		
Footpaths	2	3	5	1	2	2	1	16
Cycle Infrastructure		1	5	5	2	3		16
Crossings	2	2	4	2	2	2	1	15
Connectivity	5		3	3	1	1	1	14
User Conflicts	3	1	6					10
Intersections	3	1	2				1	7
Traffic Speeds and Volumes		1	1			1	1	4
Wayfinding			2				1	3
Roundabouts				1	1			2
End of Trip Facilities			1					1
Totals	**15**	**9**	**29**	**12**	**8**	**9**	**6**	**88**

A total of 88 issues were picked up across 10 broad themes. However, it is important to note that just because a theme did not come up multiple times in consultation does not necessarily mean it is not as important. The different forms of engagement did allow for an understanding of the prevalence of an issue across the community, for Council officers and because of technical assessments.

The prevalence of each individual issue was captured across the following sources:

- Whether the location of the issue was on the LTCN
- Whether the issue came up during internal workshops
- Whether the issue came up in survey themes
- Whether the issue was corroborated by the saddle survey, and
- Whether the issue was corroborated by evidence and/or data (such as crash data for example).

Identifying the above provided an understanding of the priority of that issue for the community and stakeholders. The table below provides an overview of issues that were identified most often through these sources. This has informed the approach to identifying and prioritising improvement principles (Chapters 5 and 6) and projects (a complete list is provided in Chapter 7).

Table 4-2: Consultation Issues by Priority

Ward	Location	Issue	Theme	Prevalence
4	South Street near Kardinya shopping centre and at Murdoch Activity Centre/Discovery Side. Identified as Primary Route*	Difficulties crossing the street	Crossings	5
4	Somerville Rd	Roundabouts	Roundabouts	5
6	Marmion Street	Unsafe cycling route	Cycle infrastructure	5
6	Marmion Street	Difficult to cross the road for school children	Crossings	5
6	Marmion Street	Difficulty in crossing the road owing to speed environment	Traffic speeds / volumes	5
2	Rome Road	High traffic volumes, needs calming	Traffic speeds / volumes	4
2	Kitchener Road	Problematic intersections	Intersections	4
3	Canning Bridge*	Lack of safe crossings	Crossings	4
3	Canning Bridge*	Crashes	User conflicts	4
3	Canning Bridge*	Wayfinding	Wayfinding	4
5	Benningfield Road	Crossing facility problematic near the shopping centre	Crossings	4
6	North Lake Road*	Pedestrian issues - narrow footpaths, inadequate quality	Footpaths	4
6	North Lake Road*	Unsafe cycling route - designated primary route	Cycle infrastructure	4
1	Petra Street*	Bike crashes all along to Marmion St from the River at intersections	Intersections	3
1	Point Walter Road	Bike and pedestrian crashes at the north end	Intersections	3
1	First Avenue Shared Path	Dangerous bends	User conflicts	3
1	Canning Highway*	Footpath provision	Footpaths	3
3	Ardross Street	Alternate access to school to reduce traffic on Bombard Street	Traffic speeds / volumes	3
3	MacCrae Road	Crashes at intersections (west end)	Intersections	3
3	Apex Reserve	Separated bike facilities	User conflicts	3
3	Canning Beach Road	Crashes on road	Intersections	3
3	Riseley Centre*	Lack of safe crossings	Crossings	3
3	Mount Henry Bridge underpass (MRWA)*	Unappealing at night	Cycle infrastructure	3
4	North Lake Road*	Lack of safe pedestrian crossing facilities (South Street and Leach Highway)	Crossings	3
4	Farrington Road (MRWA)*	Poor quality along PSP, on ramp from freeway	Cycle infrastructure	3
4	Kwinana Fwy PSP (Murdoch - MRWA)*	Lighting, surface quality	Cycle infrastructure	3
5	Parry Ave	Navigating roundabouts safely, accessing the freeway overpass	Roundabouts	3
5	Karel Avenue	Intermittent breaks in the Shared Path between South Street and Roe Hwy	Footpaths	3

Note:
Ward 1 - Bicton, Attadale, Alfred Cove
Ward 2 - Palmyra, Melville, Willagee
Ward 3 - Applecross, Mount Pleasant
Ward 4 - Bateman, Kardinya, Murdoch
Ward 5 - Bull Creek, Leeming
Ward 6 - Ardross, Booragoon, Myaree, Winthrop
* Denotes a project that required collaboration with another agency or LGA

5 Strategic Improvement Principles

This chapter outlines strategic improvement principles in relation to the themes identified during consultation:

- Network improvements
- Connecting the community
- Behaviour change
- Policy changes
- Key performance indicators.

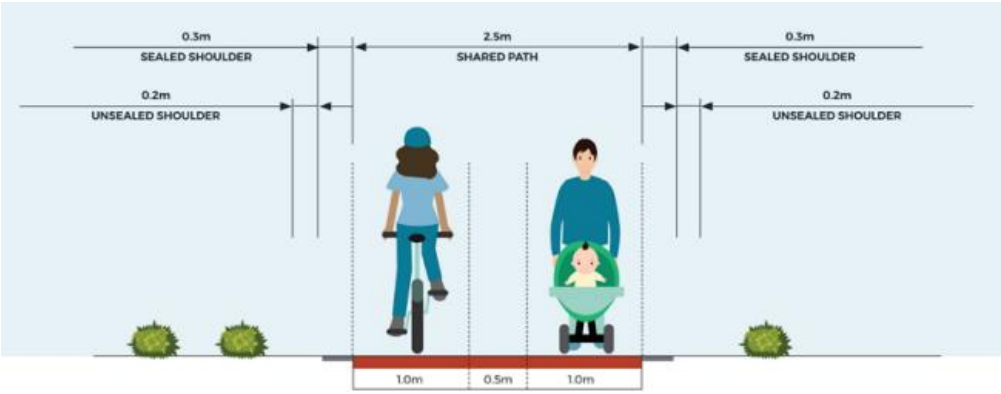
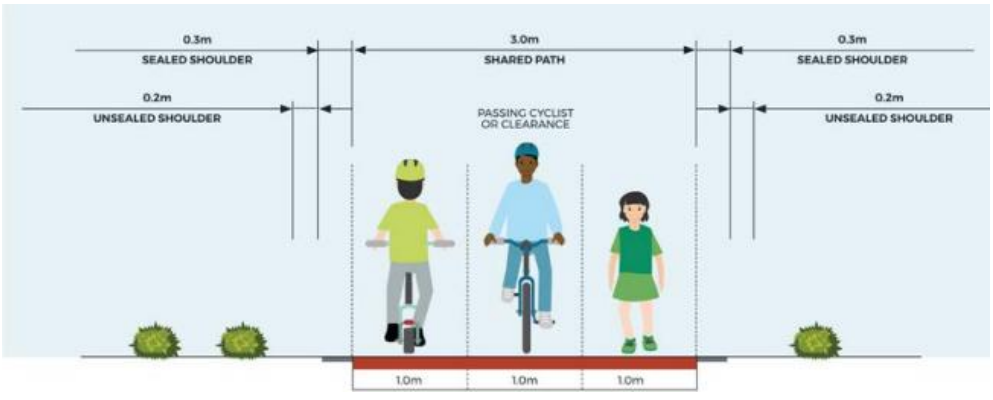
These principles provide guidance to implementation of the projects including specific treatments and indicative costs (where applicable) outlined in later chapters.

5.1 Network Improvements

5.1.1 Path Widths

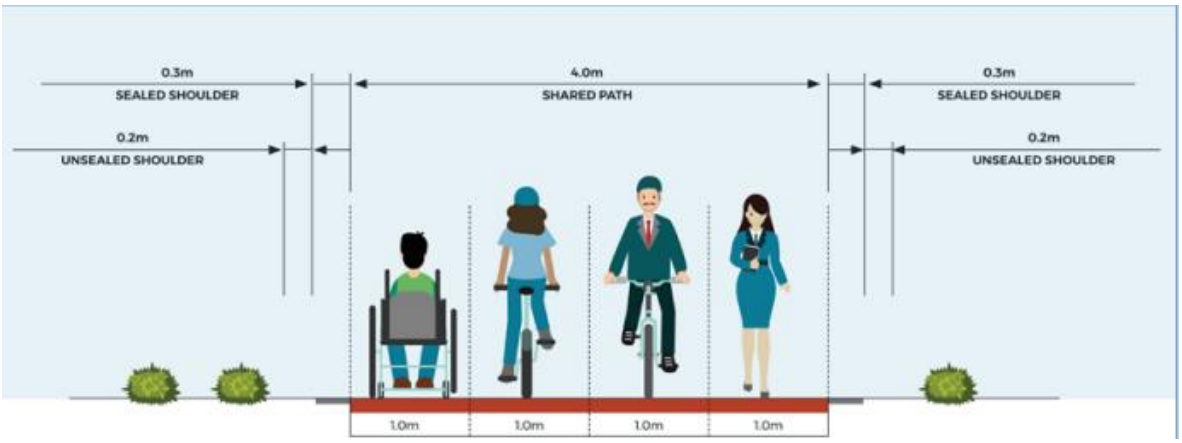
The quality of the path network observed during the saddle survey is reasonable in most places, however some paths are under standard widths. Figure 5-1 provides guidance on when to use different types of paths depending on the location and purpose.

Figure 5-1 Guidance on When to Use Different Types of Paths

2.5m shared path
▪ **Paths of this width provide only 0.5m of clearance when passings occur.** ▪ **If a passing and a meeting occur simultaneously, one of the users may be forced off the path.** ▪ **Paths of this width are only suitable for local and secondary routes, where volumes are low.**

3.0m shared path
▪ **Providing 1.0m of clearance, allows both passings and meetings to occur simultaneously.** ▪ **This width is recommended for new local governments shared paths (suitable for most primary and secondary riding routes), particularly those with a recreational function.**


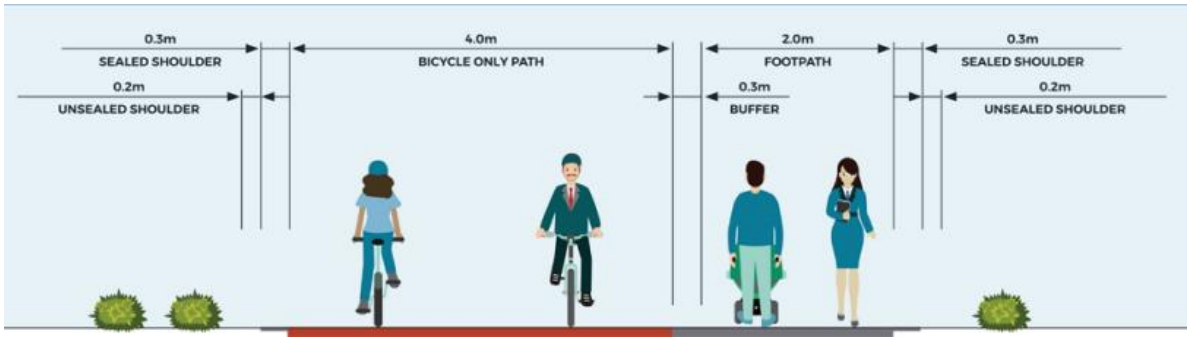
4.0m shared path

- **Standard width for all new principal shared paths (PSPs).**
- **Allows for simultaneous passing to occur in both directions.**
- **Enables comfortable side-by-side riding, making it attractive for people who wish to ride with family/friends.**
- **Note that in some situations, a 1.8m + 2.2m separated path may be a more suitable use of available space.**



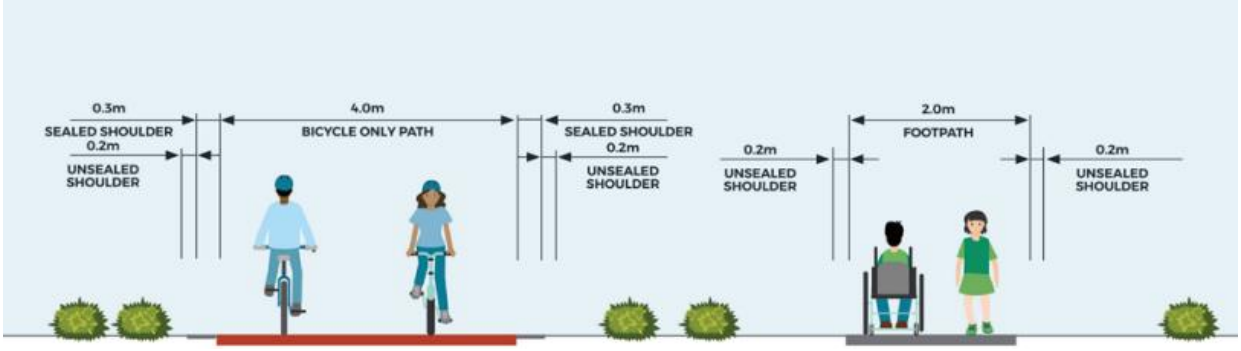
6.0m separated path

- **This type of path is warranted where there are very high volumes of pedestrians and bike riders (such as very busy inner-city commuter routes or popular waterfront locations).**
- **Requires consideration of how best to separate pedestrians and bike riders.**



6.0m split path

- **Split paths provide a higher level of service than separated paths and are typically constructed when there is adequate space available.**
- **They are typically only used in areas with high volumes of pedestrians and bike riders (such as popular waterfront locations).**



Source: Planning and Designing for Bike Riding in Western Australia – Shared and Separated Paths (DoT, 2021)

It is recommended that the City updates its Path Guidelines and Specifications to be in line with the above. As riding on the footpath is now permitted, effectively this means that all paths are shared paths. Shared paths that are currently less than 2.5m wide are recommended to be increased as upgrades are undertaken where possible, and for new sections, subject to achieving the required offsets from trees, light poles etc.

In some cases, shared paths may not be the best outcome and separation should be considered. Undertaking a survey to understand the number of people using the path will help to identify the most appropriate width.

5.1.2 Gaps in the Path Network

The path network should be continuous, particularly around areas which are likely to experience higher volumes of people walking and riding such as central commercial and retail areas, schools and recreational facilities.

Path widths in these locations should cater to the number of path users (the above DoT guidance states that low demand is <10 users/hr whereas high demand is >50users/hr in both directions) in line with the widths described in Section 5.1.1.

Opportunities:

- Footpaths eligible for upgrade to be prioritised using the Footpath Evaluation Matrix (Section 6.2), taking account of the following:
  - Upgrade paths on routes which lead to schools to shared paths with an aspirational width of 2.5m where possible,
  - Footpaths in Activity Centres should be measured to ensure that where possible, there is enough clearance at the narrowest point (i.e., taking into consideration features that might reduce the effective width for walking), to comply with the proposed path widths, with consideration for pedestrian demand in that location
  - Other footpaths should be upgraded where possible to a minimum of 2.5m during scheduled upgrade and maintenance activities.
  - Address gaps in the path network to ensure continuity, in particular within 400m of schools and other important community facilities.

5.1.3 Cycle Infrastructure

Marmion Street and North Lake Road were identified has having inadequate cycle facilities, or no formal facilities at all. Other issues included:

- Sealed shoulders are too narrow (Garling Street)
- Sealed shoulders leading to roundabout bypasses (discussed more fully in Section 5.1.7) - multiple locations including:
  - Farrington Road
  - Parry Avenue
  - Somerville Boulevard.

Opportunities:

- Corridor study to identify improvements for riding on Marmion Street and North Lake Road
- Investigate options for improving riding amenity on Garling Street
- Investigate options to improve safety at roundabouts
- Look for opportunities to separate cycle lanes from traffic where possible
- Where bikes must share the road with vehicles, consider treatments which result in lower vehicle speeds.

5.1.4 Crossings

Many crossings in the City are problematic, particularly in across arterial roads such as Canning Highway, Leach Highway and South Street. While the City cannot act alone in the implementation or adaptation of crossings on such roads, it can commission studies to assess their performance, and work collaboratively with MRWA to improve safety and amenity for people walking and riding.

Consultation findings identified the following high priority crossings of main roads:

- South Street at Kardinya Shopping Centre
- South Street intersection with Murdoch Drive
- Canning Bridge
- Marmion Street
- Benningfield Road
- Riseley Street

- North Lake Road.

Opportunities:

- Assess problematic crossings on local roads, and work with MRWA on main roads, to identify potential solutions and implement improvements. Priority locations include community facilities such as schools, activity centres, medical facilities and recreation centres.

5.1.5 User Conflicts

Multiple locations were identified during consultation where conflicts between road and path users was likely. These locations included:

- Apex Reserve
- Canning Bridge
- The Esplanade
- Burke Drive
- Alfred Cove near First Avenue.

5.1.5.1 On Paths

In a previous study (undertaken by Stantec on behalf of the City) looking at conflicts between users occurring at Apex Reserve in the City, it was concluded that the following issues are likely to continue to contribute towards conflicts:

- During peak periods, faster bike riders are competing with pedestrians
- Walking and riding is forecast to increase from 3% to 12% by 2050 (partly due to increasing development in Canning Bridge, and impacts from Covid-19 i.e., more people being around).

The following short-term recommendations were proposed by the report authors to the City:

1. Shared spaces to be implemented in areas where chances of conflict are high
2. Slow treatments to be considered if speeds continue to be above 20km/hr – these could include:
    - Entrance statements
    - Gateway planting
    - Removing the centreline of shared paths
    - Rumble strips
    - Green surface treatments
    - Speed humps.
3. Treatments to be accompanied by appropriate messaging

Long term recommendations included:

- Creating a bi-directional cycle path (widths as per Section 5.1.1)
- Creating a separated path for people walking (widths as per Section 5.1.1).

The above recommendations may be more appropriate for off-road shared paths where user conflict is high between path users, i.e. people walking and people riding personal mobility devices (including bikes and e-bikes/scooters) which operate at different speeds. However, this may not be appropriate for situations where conflicts are between people riding and people driving.

The DoT in its document Planning and Designing for Bike Riding in Western Australia – Shared and Separated Paths (2021), recommends that consideration should be given to providing grade separation, or rerouting the shared path around the area (while ensuring access is maintained). Where space or budgetary constraints prevent this from occurring, various advisory treatments can be implemented to help manage the potential conflict. Engineering judgement should be used to determine the most appropriate treatment/s.

5.1.5.2 On Roads

One way of addressing user conflicts on roads is to implement a Safe Active Street (SAS). The purpose of a SAS is to establish a safer, quieter, and more attractive road environment that encourages people of all ages and abilities to choose riding or walking over the private car. SAS help to create communities where active transport is more convenient, easy, and sociable. Located primarily on local streets, SAS fill missing links in the larger strategic bike network by using traffic reduction and calming measures to reduce traffic volumes, lower vehicle speeds to 30km/h, and improve neighbourhood amenity.

Appropriate messaging and visual cues are provided which communicate the nature of the SAS to all users.

5.1.5.3 E-Rideables

E-rideables are becoming more and more prevalent on roads and on paths. These provide greater transport choice and are a more sustainable option than driving, however, add to already congested path networks in some locations. Additionally, the fact that these devices are so quiet can also be problematic.

Legislation recently published states that:

- Helmets must be worn
- Riders should be aged 16 or over
- Must keep left except when overtaking
- Devices must have bells or riders must provide verbal warnings
- Lights and reflectors are required
- Speeds on footpaths must be no more than 10km/h
- Speeds on shared paths, bike paths and local roads to be no more than 25km/h
- Must not be ridden on roads with posted speed limits of over 50km/h.

While the public and law enforcement officials are getting up to speed with these new technologies, it is appropriate to reinforce messaging regarding the above rules and appropriate messaging should be provided in locations where conflicts are likely to occur to help raise awareness and tolerance between path users.

Opportunities:

- Separation of people walking and riding should be implemented in the following locations:
  - Canning Bridge (lobbying MRWA at the time of planning for Bridge upgrades)
  - Apex Reserve
- Safe Active Street Treatments to be implemented in the following locations:
  - The Esplanade
  - Burke Drive
- Provide messaging regarding e-rideable rules in locations where path user conflict is likely.

5.1.6 Traffic Speeds and Volumes

As discussed in Section 2.6 (Bicycle Stress Mapping), a bicycle stress calculation was used to determine the level of stress for people riding bikes in the City by looking at the speed and volume of traffic on each road where data was available. The results showed that:

- Based solely on volumes, many of the access roads in the City of Melville would be considered comfortable for people riding without additional facilities.
- Considering solely speed, very few roads in the City of Melville have 85th percentile speeds under 30 km/h or 40 km/h
- Even with low volumes of traffic, roads with 85th percentile speeds over 40 km/h are still stressful for people riding without additional infrastructure.

A reduction in 85th percentile speeds on access roads would likely create the conditions for safe and comfortable riding, particularly on roads with lower volumes.

Locations identified as problematic during consultation included high volume, high speed roads such as Canning Highway or South Street of course, but lower order roads such as Rome Road, and Marmion Street were also mentioned. In many ways this goes back to the issue of user conflicts and the following strategies can be used to help reduce this:

- Separation of path or road users where possible
- Implementation of shared spaces if separation is not possible
- Implementation of slow treatments to reduce vehicle speeds, particularly where conflicts are most likely.

If data for the specific locations does not already exist, it can be collected on a case-by-case basis and can just be a spot check during a site visit either as a standalone assessment or as part of a wider Healthy Streets assessment if appropriate.

Opportunities:

- Identify locations from consultation that would be suited to a reduction in vehicle speeds to 30km/h.

5.1.7 Wayfinding

Wayfinding was not identified as a particular issue during consultation in relation to specific areas, with the exception of Canning Bridge and as a general theme. Wayfinding signage can be useful in areas of high user conflict to direct users away from squeeze points, and to enable visitors unfamiliar with the area to easily locate end of trip facilities.

In the document Planning and Designing for Bike Riding in Western Australia – Shared and Separated Paths (DoT, 2021), it states that “Bicycle directional signs need to convey clear and concise information to assist riders to find their way around the network and guide riders to their destinations while making full use of cycle infrastructure. Directional signage can display destinations, directions and distances.”

More information is also provided in MRWA’s Technical Guideline – Bicycle Directional Signs Part C.

5.1.8 Roundabouts

A well-designed roundabout can be one of the safest forms of intersection control. Numerous ‘before and after’ type studies have shown that, in general, fewer motor vehicle crashes resulting in casualty crashes occur at roundabouts than at intersections containing traffic signals, stop, or give-way signs. Unfortunately, this same safety benefit does not apply to bike riders or pedestrians – AGRD Part 4B Roundabouts.

Special consideration must be given to pedestrian movement(s) at roundabouts. While roundabouts are not *necessarily* less safe than other intersection types, children and elderly pedestrians *feel* less safe at roundabouts, particularly when crossing exit lanes. This is because, unlike traffic signals, roundabouts do not give priority to pedestrians for any crossing movement, and this has an impact on accessibility.

In local streets the operational objectives are not the same as those on arterial roads and design standards will be quite different to those that are applicable on arterial roads. This allows roundabout on local streets to be designed using a different methodology, consistent with the guidelines provided in Austroads’ *Bicycle Safety at Roundabouts*.

This document recommends a ‘radial’ roundabout geometry, which uses tighter entry and exit radii to reduce circulating and turning speeds to 30km/hr or less.

It is understood that Main Roads WA is developing design guidelines for local access roads roundabouts which would use a radial design geometry. Independent of this guideline, the City could implement radial roundabouts in new builds where people walking and people on bikes are expected (such as an LTCN route).

Retrofitting existing tangential roundabouts to a radial design can also be accomplished at a relatively low cost. The primary difference in design is the approach and departure geometry, and a compliant radial design may be created by modifying central median and kerblines only; without changing the central island at all.

The following shows a tangential roundabout that has been retrofitted to create a slower, safer roundabout form, suitable for safe cycling movements on-road.

Figure 5-2: Radial Roundabout (George Street/Beulah Road, Norwood, SA)

Source: Google Maps

An alternative intervention, provides bike and walk crossing points on all arms of a roundabout, changing priority and improving safety for vulnerable road users, as depicted below.

Figure 5-3: Roundabout Priority Crossing Points Set Back from the Entry (Moray Street/Dorcas Steet, Melbourne)

Other forms of roundabout design may be considered on a case-by-case basis, such as raised roundabouts or mini roundabouts as depicted below. These designs can also achieve slower traffic speeds, creating a safer environment for people walking and riding to navigate.

Figure 5-4: Roundabouts – Local Example Northbridge

Roundabouts present a contentious issue for many bike riders. Specific locations mentioned include:

- Farrington Road
- Parry Avenue
- Somerville Boulevard.

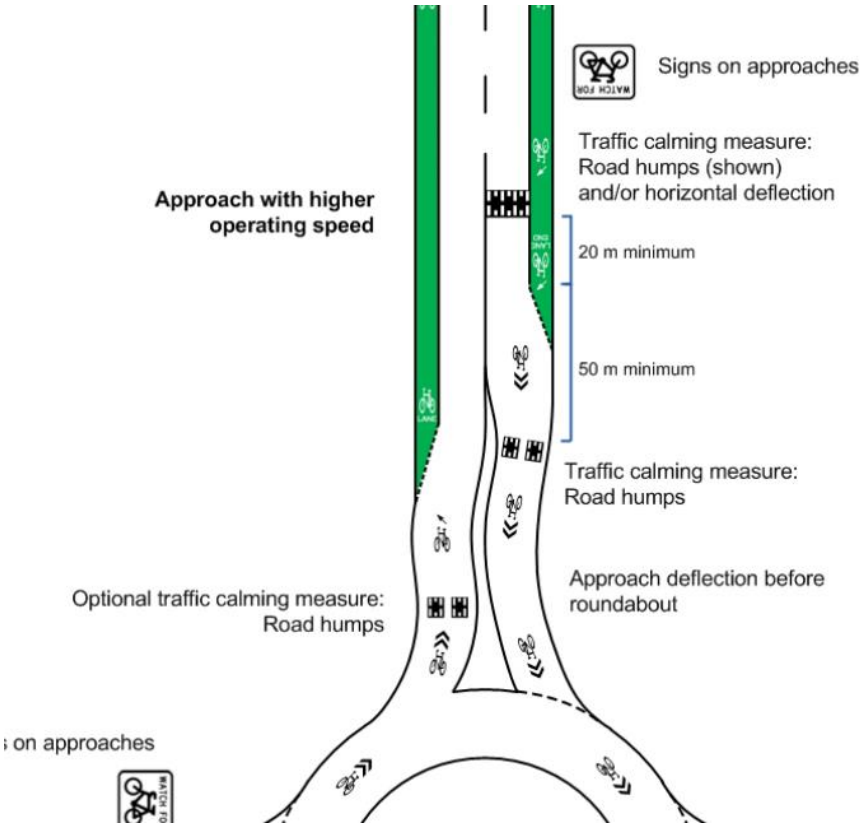
It is understood that the City is working with MRWA to research the application of mini-roundabout geometries, as well as the impact of plateaus on the approach to roundabouts.

In summary:

- Physically separating pedestrians and bike riders from the circulating lane of a roundabout is generally considered to be best practice. However, unless rider priority is maintained, this can increase crossing risk.
- Vehicle speed is highly influential on crashes involving all road users at roundabouts – measures to slow vehicle entry and circulating speeds are highly beneficial.
- Single lane roundabouts are safer than multi-lane roundabouts. Separating people riding on multi lane roundabouts is even more important.
- The number of legs entering has an impact on cyclist crashes. Consolidating the number of legs reduces risk.
- If physical separation away from the circulating lane is not possible, measures to slow traffic and position bike riders in the centre of the lane result in much greater safety outcomes.
- Bike lanes in the roundabout or terminating at the hold line are not recommended.

Where a standard tangential roundabout has been constructed, and a radial alternative is not considered feasible, the following treatment is recommended. This combines speed reduction devices on the entry and exit with signage and linemarking supporting bike riders to ride in the centre of the lane. The cycle lanes on the approach and departure are located to provide the maximum opportunity for safe merging prior to the critical decision point at the hold line.

Figure 5-5: Merging at Roundabouts



Source: VicRoads

Opportunities:

- Retrofit appropriate roundabouts within the City to radial roundabouts and provide painted signs on approach to encourage bike riders to adopt the central position.
- Use and implement beneficial outcomes from the City's work with MRWA on mini-roundabouts and its investigations on the use of plateaus at roundabouts.

5.1.9 End of Trip Facilities

Provision of end of trip facilities (EoTF) within the City did not come up as a big issue during consultation. Generally EoTF should be provided at destinations such as schools, workplaces, activity centres and other community facilities. The excerpt below is taken from Bicycle Parking Facilities: Updating the Austroads Guide to Traffic Management (2016).

Figure 6: End of Trip Facilities

> The provision of bicycle parking facilities at destinations provides the fundamental requirements to support bicycle trips. In many instances, the provision of quality, fit-for-purpose bicycle parking may be all that is required (e.g. for short-stay visitor parking and parking for shopping trips). However, for commuters, additional facilities are required to ensure that they are adequately catered for. This includes the provision of appropriate change room facilities, showers and personal storage space (lockers) to store clothing and towels. As noted earlier, the management and treatment of towels in end-of-trip facilities can have a significant impact on the attractiveness and amenity afforded by the facilities.

Source: Austroads

The recent increase in e-rideables reinforces the need for suitable security and/or charging facilities at public facilities, and the consideration of the diverse nature of e-rideables with regards to size, e.g. cargo bikes.

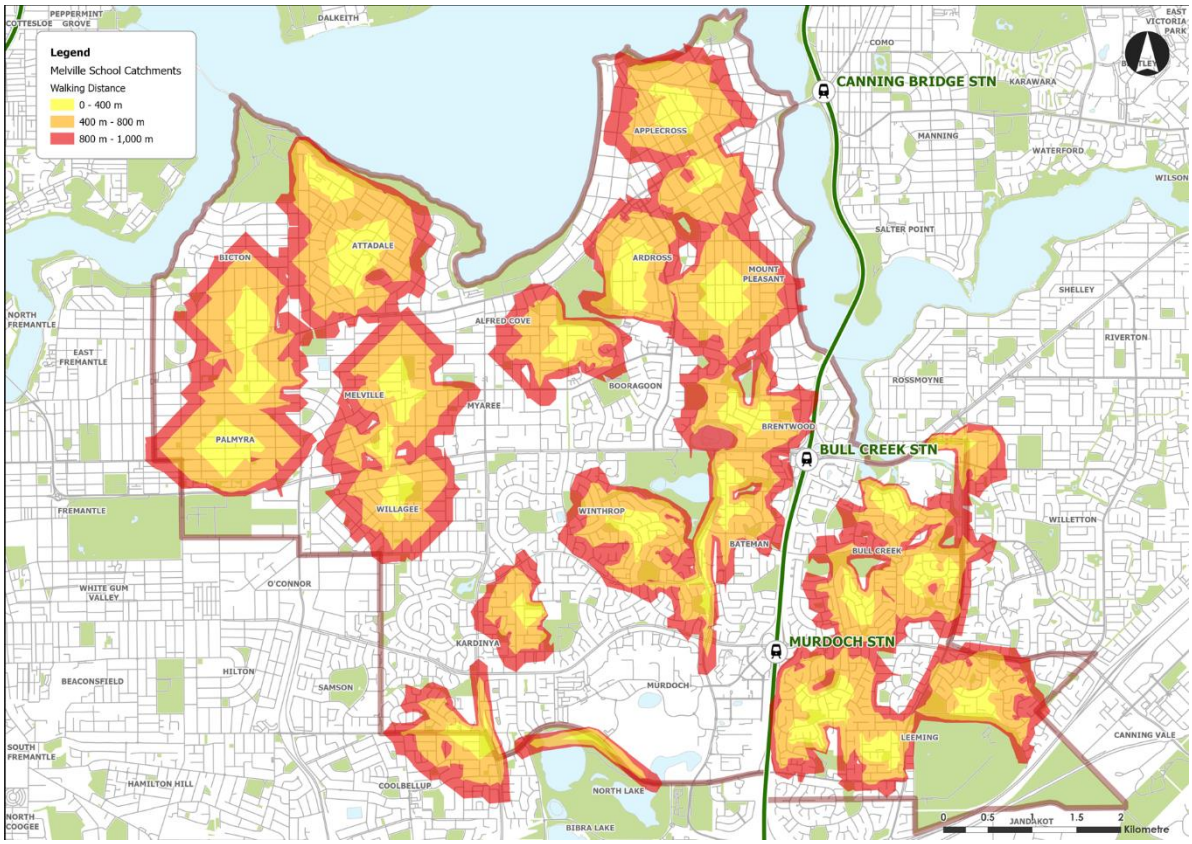
5.2 Connecting the Community

5.2.1 Schools

The walking catchment to schools is 400m, as per DoT Guidance, and footpaths should be provided on all streets within that radius as a priority. Similarly, the riding catchment for schools 800m as identified by the DoT. This study includes catchment map of all schools in the City overlaid on the footpath network, which can be used to identify any gaps in current provision.

The City should work towards addressing any gaps in this network with relation to the walkable and rideable catchment of schools.

Figure 5-7: Schools – Walking and rideable Catchments



According to Healthy Streets guidance on path widths (see Appendix A.6), paths should have a desirable width of 2.8m or wider (DoT guidance states a minimum of 2.5m), where the density of people walking in that location exceeds 400 people per hour.

Crossings and pram ramps should always be located as near as possible to the desire line.

5.2.2 Public Transport

License plate data from 2010 and 2017 (provided to the City by PTA) shows that many people east of the Murdoch and Bull Creek Train Stations still choose to drive there as opposed to walking or riding, even when they reside only a short distance away. This represents a significant inefficiency (and opportunity) in the transport network.

To support sustainable connections to public transport, it is important to ensure that there is high quality walking and riding infrastructure within the appropriate public transport station catchment.

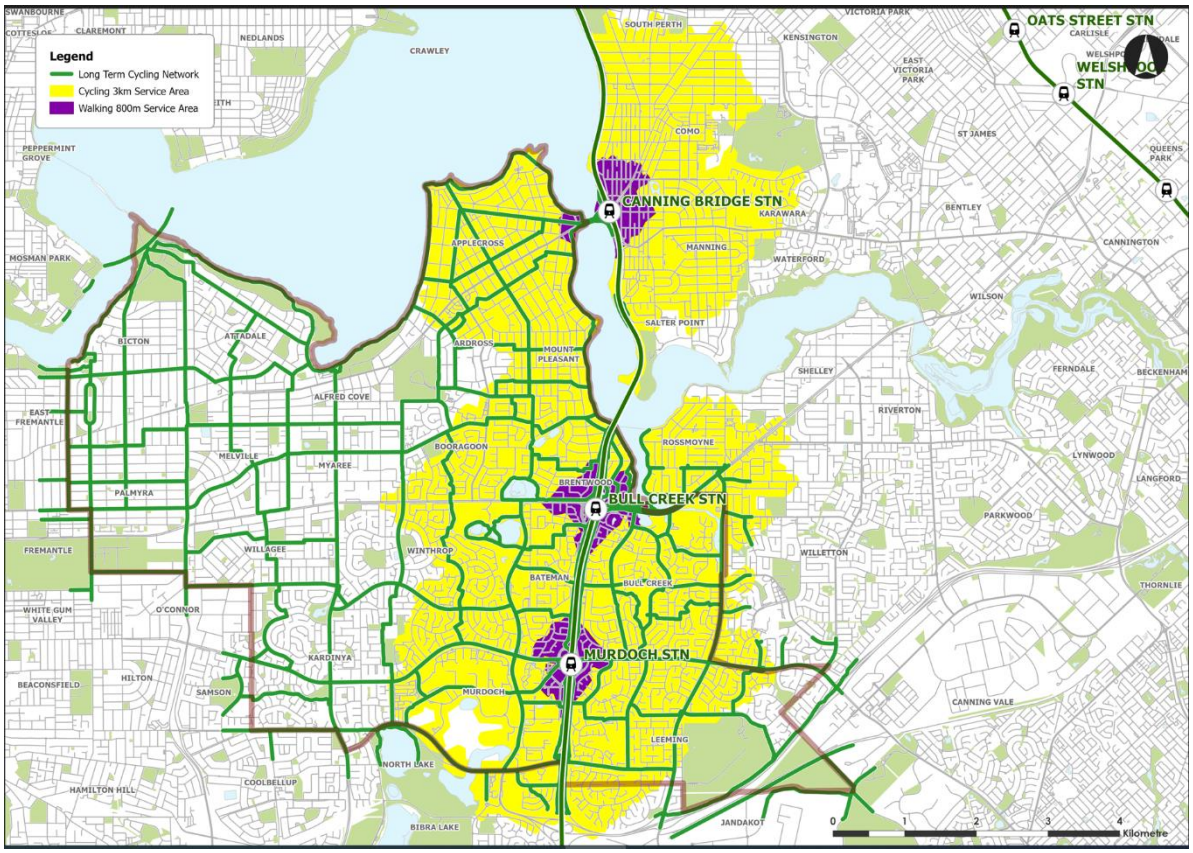
Consultation outcomes showed that people were looking for improvements in relation to accessing Train Stations (particularly in an east-west direction), with the following issues identified:

- People on bikes having to share the bus lane on South Street approaching Murdoch Train Station
- Pedestrian phases at crossings on the eastern side of Murdoch Train Station being too long
- Circuitous routes heading east-west at Leach Highway to access dual paths.

The WABN Plan references connecting Stations and states that riding routes within a 3km radius of train stations should be reviewed for safety and convenience.

Walkable (800m) and rideable catchments (3km) of train stations have been mapped as a result of this study (see Figure 5-8) and overlayed onto the LTCN to identify priority areas. Any gaps in the network within these areas would form priority works in line with the recommended Footpath Implementation Plan and LTCN implementation schedule.

Figure 5-8: Train Stations - Walking and Rideable Catchments



5.2.3 Retail and Employment Centres

As with schools it is important to ensure that people who would be interested in walking or riding to work and other community facilities are provided with the infrastructure to be able to do so. Walking and riding catchments around retail and employment areas should reflect those for access to public transport (800m and 3km respectively) and path and LTCN network gaps should be addressed accordingly and in line with the Footpath Implementation Plan.

Land uses from the LPS6 Zoning Map which should be considered as a high priority include:

- Centres
- Mixed Use
- Light industry
- Education
- Hospitals
- University
- Service Commercial
- Special Use Zones
- Urban Development.

Connections and access to buildings and final destinations are particularly important in this regard, as are appropriate end of trip facilities. These should be tied into Development Approval Conditions.

End of Trip facilities should be provided as per Section 5.1.9.

5.2.4 Open Spaces

5.2.4.1 River

The City is blessed with the spectacular backdrop of the river both to the north and to the east and it is a fundamental part of why people choose to live in and visit the City. Easy and safe access to the river for people walking and riding is therefore imperative, to allow everyone the benefits of being close to a body of water for reasons of both physical and mental wellbeing.

Many of the locations of greatest conflict were close to the river, largely due to the density of demand and the wide range of different people and modes competing for access and space. Specific issues raised during community and stakeholder consultation and during the saddle survey (in addition to user conflicts already discussed in Section 6.5) included:

- Crossing the road at the intersection with Canning Highway and North Lake Road to access the river path
- Lack of continuity of river access from the Local LTCN route on Palmer Street (Attadale)
- Gap in path provision around Bicton Paths to link the network in the Town of East Fremantle to the City
- Potential for a boardwalk around Brentwood Avenue (Brentwood) to connect river paths.

5.2.4.2 Parks and Reserves

Access to green spaces is important for residents and visitors, and the path and cycle network should provide safe, convenient and direct routes to these destinations. Specific feedback relating to walking and riding in and to parks included:

- Paths connecting aged care facilities to local parks including along Davy Street
- Safer crossings for residents of the Braemar Cooinda aged care facility to Robert Street Park (North Lake Road/Leach Highway)
- Realign the proposed Local Route between Garling and South Streets to utilise the green space at Ormond Boyer Park
- Identify an additional east-west route alignment to connect path trails adjacent to Paterson Gardens to North Lake Road in the vicinity of Charlsey/Archibald Streets in Willagee.

Opportunities:

- Improve access to parks and rivers by:
  - Addressing unsafe crossing facilities
  - Addressing gaps in the footpath network and the LTCN
  - Improving path quality and widths
  - Ensuring safe and convenient access to green space for seniors at aged care facilities
  - Utilise green spaces as alternative routes to others that would meander through local streets.

5.3 Behaviour Change

Opportunities for Behaviour Change programs exist through engagement with the following:

- Schools
- Employers
- Recreational groups
- Your Move (DoT).

Opportunities can be identified by considering national walking and riding days which encourage people to walk or ride to school or work. Additionally, wellbeing is an important tool in encouraging people to think of their mental and physical health, and active travel can increase peoples' daily physical activity.

Moreover, activation of new or upgraded infrastructure is important to demonstrate its benefits, raise awareness of its existence and promote its use.

A wider behaviour change campaign should be considered with regards to addressing user conflicts and a general message to foster tolerance of other road users. There are a number of locations which experience user conflicts identified in Section 5.1.5 which should be targeted for relevant messaging.

Opportunities:

- Continue to implement existing TravelSmart initiatives already undertaken by the City which support the above.

5.4 Policy Changes

5.4.1 Path Guidelines and Specifications

The City's Path Guidelines and Specifications have recently been updated (see Section A.7) and reflect a significant improvement over previous specifications. Implementation of new paths constructed in accordance with these guidelines (new paths, or when possible during upgrades) is recommended within the following alignment hierarchy, depending on the specifics of the location:

1. Middle of the verge
2. Kerbline with offset
3. Property boundary
4. Kerbline.

Paths should also remain level across crossovers as outlined on the City's Crossover Guidelines.

5.4.2 Path Policy

The above policy was also updated recently (see Section A.1). It is recommended that the approach to footpath implementation is guided by a ranking system, such as the one described in Section 6.2.

5.5 Key Performance Indicators

Charting the infrastructure constructed, kms of paths installed etc. is of little value if data is not also being collected with regards to actual use of a new facility. Activation of a facility is imperative to ensure a return on investment through promotion of the new feature. Activation is an important element of the Activation, Consultation and Evaluation (ACE) components of the WABN Grants Program projects, ensuring a project is delivering on the outcomes listed in a grant application.

It is noted that the City is collecting data relating to the Community Outcome Indicators (A.2.9) and this should continue.

The following datasets are recommended depending on the project:

- Number of trips made by bike/people riding
- Mode share (all trips, not just the journey to work)
- Crash data
- % of residents who feel safe and comfortable on bike networks/ % resident satisfaction with bike networks
- Cycle traffic by route
- Gender of people riding
- Data relating to reasons for people choosing to ride.

The above metrics were evaluated against four specific priority areas:

1. Delivering a safe, direct, and connected cycling network
2. Growing a riding culture
3. Creating a riding friendly community
4. Building a riding economy.

The above priorities and metrics can be applied to walking, are relevant for the City and require data that is relatively easy to collect via existing methods. The collection of data and application of key performance indicators can assist in identifying trends over time, as well as supporting internal and external funding applications.

Common evaluation methods include community feedback, surveys, infrastructure audits, assessment of strategic outcomes, observational counts, counters, EOT and bicycle parking usage counts, video surveys and participation in activation events or programs. DoT can provide advice on implementing any of these measures, surveys and observational counts including if a counter/s will be used on the project.

The DoT has just published their Bicycle Network Data and Monitoring Strategy which identifies data sources which they currently use. These include:

- Data from the bike counter network
- Community surveys
- National walking and cycling participation surveys
- Strava metro data
- General population surveys
- ABS data
- Rideshare usage data
- Video studies
- Super Tuesday manual counts
- Incident data
- Market sales data.

Opportunities:

- Identify data that the City already collects with respect to the above metrics to provide additional context to projects as they arise
- Refer to DoT's Bicycle Network Data and Monitoring Strategy for common data sources to bolster evaluation activities
- Commit to a regular (two-yearly) reporting schedule to communicate advances in provision for people walking and riding with respect to the above metrics as well as specific project successes.

6 Network Plans

6.1 Updated Long Term Cycle Network

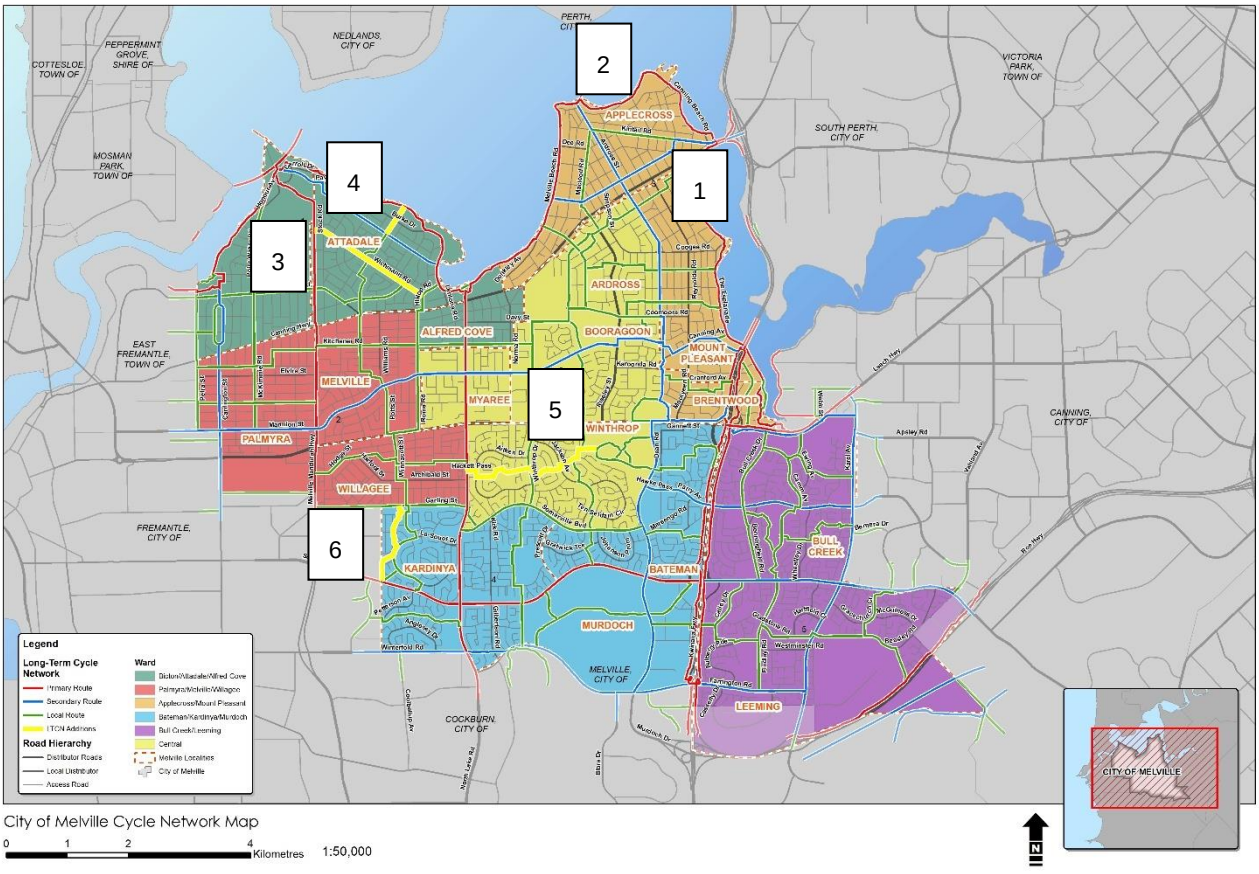
6.1.1 Proposed Alterations

Through the consultation process, the community and Stakeholders have provided feedback on the LTCN. This network has received widespread support, with a small number of alterations proposed for discussion between the City and the DoT. These are:

1. Consider Macrae Road upgrade to primary route
2. River foreshore RSP (Ness Road to Canning Bridge) downgraded to Secondary Route
3. Local Route included along Wichmann Road
4. Local Route included from Palmer Street through the Attadale Reserve to the River foreshore path
5. A new east-west Local Route from Piney Lakes to North Lake Road in the vicinity of Archibald Street (exact alignment to be determined)
6. Realignment of a Local Route from South Street to Garling Street using green space as opposed to meandering through residential streets.

An updated LTCN which reflects the above changes is presented in Figure 6-1.

Figure 6-1: LTCN Map (proposed additions – for discussion with DoT)



6.1.2 Route Priority

The LTCN cannot be implemented in a short space of time, or even over the lifetime of this document (20 years). With regards to prioritising implementation of routes at a network level, the following routes are deemed to be of a higher priority and these recommendations are informed by:

- Community and stakeholder consultation outcomes
- Data and literature review regarding need and risk (including crash history)
- The role of the route in connecting the community to important local destinations and facilities

Projects relating to specific locations on the network which address issues identified by the community and stakeholders are outlined in Chapter 7 along with the specific treatment and an indicative cost. Those projects form part of the wider implementation of a route, although some address issues in locations not on the LTCN.

Table 6-1: LTCN Implementation Framework – recommended route priorities

Ward	Route Hierarchy	Location	Reasoning
Bicton, Attadale, Alfred Cove	Local	Wichmann Road (Hislop Road to Stock Road	▪ Providing safe cycling access to two schools ▪ Providing access to the Stock Road Primary Route
		Point Walter Road (Canning Highway to Honour Avenue)	▪ Addressing pedestrian and cycle crash history
	Primary	Stock Road	▪ Implementation of actions from the DoT Corridor Study ▪ Strategic link to wider LTCN
Palmyra, Melville, Willagee	Local	Kitchener Road (Stock Road to Rome Road)	▪ Provides an important east-west link as an alternative to Canning Highway ▪ Addresses safety issues relating to intersections and roundabouts
		Rome Road (Canning Highway to Leach Highway)	▪ Provides access to numerous community facilities including schools and aged care ▪ Addresses issues relating to traffic volumes and speeds ▪ Provides access to the river paths
		Winnacott Street (Leach Highway to Archibald Street)	▪ Provides access to numerous community facilities including schools, public open spaces and the Archibald St Activity Centre
	Secondary	Marmion Street (Petra Street to Rome Road)	▪ Important strategic east-west connection through the City ▪ Addresses safety concerns relating to traffic speeds and volumes
	Primary	Stock Road (Canning Highway to Garling Street)	▪ Implementation of actions from the DoT Corridor Study ▪ Strategic link to wider LTCN
Applecross and Mount Pleasant	Secondary	Ardross Street to Lake Booragoon	▪ Important strategic north-south link (and across Canning Highway) ▪ Addresses safety concerns regarding riding on Riseley Street
	Primary	Macrae Road (Melville Beach Drive to Canning Bridge)	▪ Upgrade from Secondary route ▪ Important strategic route connecting to Canning Bridge and the PSP ▪ Addresses crash history in the area and builds on existing cycling investment
		The Esplanade (Canning Bridge to Deep Water Point)	▪ Addresses issues relating to safety and user conflicts ▪ Important recreational route that provides enjoyment to many of the City's residents and visitors
Bateman, Kardinya, Murdoch	Local	Somerville Boulevard (Stock Road to Murdoch Drive)	▪ Provides important east-west connection ▪ Addresses safety concerns relating to roundabouts
	Primary	South Street (Freeway to North Lake Road)	▪ Important east-west route ▪ Addresses safety concerns relating to safety
Bull Creek, Leeming	Local	Benningfield Road (South Street to Parry Avenue)	▪ Provides connections to local community facilities including shops and public open spaces ▪ Addresses safety concerns

	Secondary	Parry Avenue (Freeway to Karel Avenue)	▪ Important connection across the freeway ▪ Links numerous community destinations including sports facilities and local retail centre ▪ Addresses safety concerns relating to roundabouts
	Secondary	Karel Avenue (Leach Highway to Roe Highway)	▪ Provides strategic connection between Roe PSP and Leach Highway RSP
Ardross, Booragoon, Myaree, Winthrop	Local	Piney Lakes to Charlsey Street (Route alignment to be determined)	▪ Provides alternative east-west connection to Leach Highway which is not on the LTCN
		Winthrop Drive/Clements Road (Somerville Boulevard to Davy Street)	▪ Important and direct north-south route providing cross-City access using low traffic and no-traffic routes
	Secondary	Marmion Street (Rome Road to Riseley Street)	▪ Continuing on work on the route in other areas of the City ▪ Important strategic east-west connection through the City ▪ Addresses safety concerns relating to traffic speeds and volumes
	Primary	North Lake Road	▪ To address safety concerns relating to riding this road ▪ Provides strategic route from the City to the wider LTCN.

6.2 Footpath Prioritisation Plan

A potential footpath implementation plan has been developed to help prioritise the delivery of new paths across the LGA. It is acknowledged that with almost 50% of roads lacking path infrastructure, the completion of the pedestrian and cycling network will require significant ongoing investment.

A hierarchy approach has been used to build this prioritisation tool, based on quantitative and qualitative metrics related to need and impact.

Table 6-2: New and Upgraded Paths - Evaluation Matrix

Parameter		Score (1 = Low, 2 = Medium, 3 = High)
Path width		1: Existing path is > 1.5m wide 2: Existing path is between 1.2m and 1.5m wide 3: No path exists, or existing path is <1.2m wide
Distance between existing paths		1: Less than 200m 2: Between 200m and 400m 3: Greater than 400m
What is the distance from an LPS6 Zoning, Centre, Education Facility (Primary/High School, Tafe or University) or Public Open Space (with a LOS Development target of 1 or 2)		1: Greater than 800m 2: Less than 400m – 800m 3: Less than 400m
Long Term Cycle Network (LTCN) Route Status		0: Not on LTCN 1: Local Route 2: Secondary Route 3: Primary Route
Distance to nearest Trip Attraction		1: Greater than 800m 2: Between 400m and 800m 3: Less than 400m
10 Year Crash History (Hit Pedestrian)		1: Zero crashes 2: One or more crashes of medical severity or less 3: One or more crashes of hospital severity or greater
Community demand (within past 5 years)		1: Zero requests 2: One to Five requests 3: Greater than Five requests
85th Percentile Traffic Speeds		1: Less than 30 km/h 2: Between 30km/h and 50km/h 3: Greater than 50km/h
Peak Hour Traffic Volumes (within past 5 years) [2]		1: Less than 200 vph 2: Between 200 vph and 500 vph 3: Greater than 500 vph
SUPPLEMENTARY **Survey Data [3]** **(no. of pedestrians in any given peak hour [4])**		1: Less than 7 pedestrians/hour 2: Between 7 and 70 pedestrians/hour 3: Greater than 70 pedestrians/hour
Score	**Low Priority**	**7 to 11**
	Medium Priority	**12 to 18**
	High Priority	**Above 19**

The priority of a given path would be related to delivery schedules but would not be the sole determinant of timing. Many other aspects of implementation will be necessary, including budgetary constraints, buildability and network considerations beyond the outputs of this simple tool.

While this is often used in consideration of an entire street section in terms of streetscape, it can be used as a way of informing the design of small sections of path depending on their location as this will assist in improving outcomes for all path users, and ultimately encourage additional walking and riding for short trips.

[2] If data is unavailable, spot checks for the specific location at an appropriate time of day is sufficient
[3] If unavailable, collect data on a case by case basis to provide supporting evidence for path upgrade
[4] Thresholds based on the NSW Walking Space Guide 2020

7 Projects

7.1 Infrastructure Projects

A variety of infrastructure projects, further studies and advocacy activities have been developed for each of the City's Wards (see Figure 7-1). The following tables provide detail regarding each project, including:

- Ward
- Project IDs relating to the project map
- Project location
- Whether the project is located on the LTCN
- What the issue is and the project opportunity
- The prevalence of the underlying issue (i.e., how many times it has been identified within each of the investigations) in consultation and observation and data analysis (including crash history).
- Implementation timeframe i.e., short (within 2 years), medium (2 to 5 years) or long-term implementation (5-10 years)
- Indicative cost
- Responsible authority.

Projects are organised by implementation timeframe (short- to long-term).

Figure 7-1 Projects Map

Table 7-1 to Table 7-3 provides information with regards to the identified infrastructure projects.
A number of additional issues were identified but are not progressing for a variety of reasons. These are documented in **Appendix** G

Table 7-1: Infrastructure Projects by Ward

Ward	ID	Location	LTCN	Issues	Project Opportunities	Prevalence	Time frame (S/M/L)	Cost	Responsible Authority
Ward 1 - Bicton, Attadale, Alfred Cover	1	Stirk Road	-	No footpath	▪ Construct footpath in line with the Footpath Evaluation Matrix	2	M	$60k	CoM
	2	Wichmann Rd	Local (proposed)	Services two primary schools but not on the LTCN	▪ Apply to DoT for inclusion on the LTCN	1	M	-	CoM/DoT
	3	Palmer Street	Local (proposed)	No access from the LTCN local route to the river	▪ Apply to DoT for inclusion on the LTCN ▪ Investigate footpath options from Palmer Street to the foreshore	1	M	-	CoM/DoT
	4	Davy Street	-	Additional paths needed near to aged care facility opposite Westfield Booragoon	▪ Construct footpath in line with the Footpath Evaluation Matrix	1	M	$60k	CoM
Ward 2 - Palmyra, Melville, Willagee Projects	5	Money Rd	Local	Footpath width is very narrow, particularly for accessing the bus stop on Canning Highway	▪ Widen path along Money Road between Canning Highway and Bridge Road and implement improvements to the footpath in line with the Footpath Evaluation Matrix	2	M	$92k	CoM

Ward 3. Applecross and Mount Pleasant	6	Apex Reserve	Primary	User conflicts	▪ Separate the path	3	S	$85k	CoM
	7	Matheson Road / Nairn Road		Pedestrian crashes, no footpath	▪ Construct footpath in line with Footpath Evaluation Matrix	1	M	$20k	CoM
	8	Nisbet Road		No footpath access for residents to access the path network adjacent to the river	▪ Construct footpath in line with Footpath Evaluation Matrix	2	M	$40k	CoM
	9	Brentwood Avenue	Primary	Provide path continuity between river paths	▪ Evaluate feasibility of River boardwalk for pedestrians ▪ Construct 3.5m shared path (211m)	2	L	$154k	CoM
Ward 4 – Bateman, Kardinya and Murdoch	10	Robin Warren Drive/Barry Marshall Parade		Cycle lane ends at the intersection with Murdoch Drive	▪ Remove red asphalt to signal bike lane continues on path	2	S	$5k	CoM
	11	Parry Ave	Secondary	Lack of lighting and overgrown vegetation	▪ Undertake Lighting audit ▪ Undertake pruning of vegetation to increase effective path width	2	S	$5k	CoM
	12	Somerville Blvd	Local	Problematic roundabouts	▪ Retrofit roundabouts within the City to radial roundabouts and provide painted signs on approach to encourage bike riders to adopt the central position.	5	S	$80k infra	CoM
	13	Ormond Bowyer Park	Local (proposed)	Suggested Local LTCN Route in this location is indirect through local streets and wayfinding may be problematic	▪ Identify suitable alignment for new local route through here between Garling Street and South Street ▪ Apply to DoT to adjust LTCN	2	M	$5k	CoM/DoT

Ward 5. Bull Creek and Leeming	14	Parry Ave	Secondary	Navigating roundabouts safely	▪ Retrofit roundabouts within the City to radial roundabouts and provide painted signs on approach to encourage bike riders to adopt the central position.	3	S	$75k	CoM
	15	Benningfield Road	Local	Crossing problematic south of the intersection with Parry Ave	▪ Install traffic calming (options): - Wombat crossing - Speed hump ▪ Speed cushion	2	M	$47k $31k $16k	CoM
Ward 6. Central ward. Ardross, Booragoon, Myaree and Winthrop	16	Winthrop Drive	Local	Sealed shoulder missing the bicycle sign. Roundabouts. Difficult crossing at Leach Hwy heading north to PAW	▪ Remove white line ▪ Retrofit roundabouts within the City to radial roundabouts and provide painted signs on approach to encourage bike riders to adopt the central position	3	M	$100k	CoM
	17	Melson Way		No footpath. Used to access schools/shopping centre/wireless park	▪ Construct a footpath in line with the Footpath Implementation Plan	2	M	$25k	CoM
	*	Coomora Road	Local	Unsafe for bike riders and people crossing the road	Traffic calming measures		S	$500K	CoM

7.2 Further Studies

Table 7-2 provides information with regards to the identified further studies.

Table 7-2: Further Study Projects by Ward

Ward	ID	Location	LTCN	Issues	Project Opportunities	Prevalence	Time frame (S/M/L)	Cost	Responsible Authority
Ward 1 - Bicton, Attadale, Alfred Cover	18	Petra Street	Local	Bike crashes all along Petra Street to Marmion Street from the River at intersections	▪ Crash analysis report ▪ Road Safety Audit in collaboration with Town of East Fremantle	3	S	$8k study	CoM/ToEF
	19	Point Walter Road	Local	Bike and pedestrian crashes at the north end	▪ Crash analysis report ▪ Safety Audit	3	S	$5k study	CoM
	20	Point Walter Road	Local	Problematic parking near Canning Highway	▪ Undertake parking surveys and develop suitable design response to improve safety outcomes for people riding	1	M	$12k study	CoM
	21	Stock Road	Primary	Safety issues along its length	▪ Work with DoT to develop an action plan to guide implementation of Stock Road Corridor Study in line with outcomes from this report	2	L	-	CoM/DoT
Ward 2 Palmyra, Melville, Willagee	22 &23	Rome Road	Local	High traffic volumes and speeds, user conflicts	▪ Develop design response to reduce traffic volumes and speeds (e.g., traffic calming or modal filters) and improve access to schools ▪ Analysis to understand demand and impacts of reducing/removing traffic	4	S	$20k study	CoM
	24	Kitchener Road	Local	Problematic intersections including roundabouts	▪ Analyse crash data and prepare design response ▪ Consider treatments such as raised intersections, roundabout removal and changes to priority	4	M	$15k study	CoM

	25 & 26	Winnacott St (Leach Hwy to Archibald St)	Local	Opportunities to improve amenity for people walking between multiple community land uses (schools, park, and activity centre)	▪ Undertake a Healthy Streets assessment to identify opportunities to improve outcomes for people walking and riding	2	M	$4k study	CoM
	27	Garling Street	Local	Sealed shoulders are very narrow and median strips result in multiple pinch points. Provides connection between 2 primary LTCN routes.	▪ Conduct a feasibility study to identify design response options to slow traffic and improve amenity, or remove white lines and widen the footpath	2	M	$12k study	CoM/CoF
Ward 3 Applecross and Mount Pleasant	28	Macrae Road/Ness Road	Secondary (Proposed Primary)	Crashes at intersections	▪ Corridor Study to encompass: ▪ Upgrade to primary LTCN route ▪ Crash analysis ▪ Safety Audit ▪ Prepare suitable design response following review of study findings ▪ Implement recommendations in line with Implementation schedule of the LTCN	3	S	$25k study	CoM/DoT
	29	Canning Bridge / Esplanade and surrounds	Primary	Crashes	▪ Crash analysis ▪ Safety Audit ▪ Prepare suitable design response following review of study findings ▪ Stakeholder engagement	4	S	$70k feasibility study	CoM/MRWA

	30 & 31	Riseley Centre		Pedestrian crashes, volumes of people walking	▪ Undertake a demand assessment of the footpath in this location to determine the number of users during peak time ▪ Assess path widths and implement improvements to the footpath in line with the Footpath Evaluation Matrix ▪ Work with MRWA to assess crossings ▪ Undertake Road Safety Audit related to pedestrian crashes	2	S	$15k study	CoM
	32	Canning Bridge to PSP		Wayfinding	▪ Prepare a consistent wayfinding strategy considering improvements to infrastructure and facilities in this location (to be consistent with wayfinding design in other areas of the City)	4	M	$40k study	CoM/ DoT
	33	Esplanade	Primary	User conflicts	▪ Undertake a feasibility study for a Safe Active Street in this location	2	M	$70k	CoM
	34	Dunkley / Cunningham / Melville Bch Rd	Primary	Convergence of paths, conflicts between users	▪ Assess location to determine if a design response is required ▪ Check path widths considering Healthy Streets criteria in relation to the number of users	2	M	$4k study	CoM
	35 & 36	Pulo Rd	Local	Access to train station and High School. Road also used by pelotons	▪ Undertake pedestrian and rider demand study ▪ Assess existing footpath width ▪ Conduct a SAS Feasibility Study	2	M	$40k study	CoM

	37	Ardross Street (between MacDonald Road and Munro Road)	Secondary	Footpath only on one side outside of the Applecross Village	▪ Undertake a demand assessment of the footpath in this location to determine the number of users during peak time ▪ Collate community feedback with respect to whether a footpath on the western side would be desired ▪ Implement footpath in line with Footpath Evaluation Matrix	2	L	$12k study $80k infrastructure	CoM
	38	Beamish Av	Local	Well used by bike riders	▪ Provide wayfinding to PSP as part of the City-wide Wayfinding Strategy	2	L	See B7	CoM
	39	Bombard Street / Reynolds Road	Local	Dangerous for on road riding, school access, heavy vehicles accessing Woolworths, higher volumes of traffic	▪ A study has been commissioned by CoM	3	S	-	CoM
Ward 4 Bateman, Kardinya and Murdoch	40	North Lake Road	Primary	Lack of safe pedestrian crossing facilities (South Street and Leach Highway) Poor bicycle infrastructure	▪ Identified as a Primary Route on the LTCN ▪ Commission a Corridor Study to identify opportunities to walking and riding infrastructure along the length of North Lake Road ▪ Undertake Road Safety Audit related to pedestrian crashes ▪ Develop a design response considering its status as a Primary Route and implementation schedule for the LTCN	3	L	$60k study	CoM/DoT

Ward 5 Bull Creek and Leeming	41	Benningfield Road	Local	Crossing facility problematic near the shopping centre	▪ Undertake a crossing demand study and a Road Safety Audit ▪ Develop a suitable design response to improve the safety of the crossing	4	S	$10k study	CoM
	42	Karel Avenue	Secondary	Narrow on-road cycle lanes/sealed shoulders Narrow footpaths	▪ As a designated secondary routes, commission a corridor study to identify opportunities to improve bicycle infrastructure between South Street to Roe Hwy ▪ Identify pedestrian and rider demand along the length of the corridor ▪ Develop a design response for foot paths widths, and the LTCN implementation Schedule	3	M	$30k study	CoM
Ward 6 Ardross, Booragoon, Myaree and Winthrop	43 & 44	North Lake Road	Primary	Narrow foot paths, inadequate quality	▪ Develop a suitable design response to footpath provision, quality and width in relation to the findings from the Footpath Policy/Crossover Guidelines	4	S	$45k Study	CoM
	44	North Lake Road	Primary	Unsafe riding route.	▪ Identified as a Primary Route on the LTCN ▪ Commission a Corridor Study to identify opportunities to walking and riding infrastructure along the length of North Lake Road ▪ Develop a design response considering its status as a Primary Route and implementation schedule for the LTCN	4	L	$50k study	CoM

	45	Marmion Street	Secondary	Unsafe riding route	▪ Identified as a Secondary Route on the LTCN ▪ Commission a Corridor Study to identify opportunities to walking and riding infrastructure along the length of Marmion Street ▪ Develop a design response considering its status as a Secondary Route and implementation schedule for the LTCN	5	M	See B2 above	CoM
	46	Piney Lakes	Local (Proposed)	Connect park trails to paths adjacent to Paterson Gardens. Identify additional local route east-west to connect to North Lake Rd, in the vicinity of Charlsey and Archibald Streets	▪ Investigate suitable alignment for this local route ▪ Apply to DoT to have this route added into the LTCN	1	M	$10k study	CoM/DoT

7.3 Advocacy

Table 7-3 provides information with regards to the identified further studies.

Table 7-3: Advocacy Projects by Ward

Ward	ID	Location	LTCN	Issues	Project Opportunities	Prevalence	Time frame (S/M/L)	Cost	Responsible Authority
Ward 1 Bicton, Attadale, Alfred Cover	47	North Lake Road	Primary	Hard for bike riders to continue in a straight-on direction from North Lake Road (intersection with Canning Highway) to access the river path	▪ Analyse crossing behaviour and develop design response ▪ Collaborate with MRWA to implement recommendations	3	S	$5k design study	CoM/MRWA
	48	Preston Pt Rd/Canning Hwy		Dangerous Crossing for	▪ Obtain bus patronage data for adjacent bus stops	1	S	$20k design study	CoM/MRWA

				accessing bus stops	▪ Commission a Road Safety Audit ▪ Develop design response to narrow entry and exit from Preston Point Road ▪ Consider design response to reduce traffic movements ▪ Collaborate with MRWA to identify a suitable solution ▪ Inspect bus stop facilities considering Healthy Streets criteria				
	49	Canning Highway (Stock Road-Petra Street)		Lack of crossings and distances between crossings	▪ Corridor Study with MRWA ▪ Heathy Streets assessment to help identify suitable locations for additional crossings ▪ Crossing demand study ▪ Undertake Road Safety Audit related to pedestrian crashes	2	M	$40k study	CoM/MRWA
	50	Canning Highway		Inadequate footpath provision	▪ Undertake Healthy Streets Assessments to help determine the weakest points ▪ Work with MRWA to implement recommendations from assessments at the weakest locations ▪ Undertake Road Safety Audit related to pedestrian crashes	3	M	$25k study	CoM/MRWA

Ward 2 Palmyra, Melville, Willagee	51	Canning Highway		Lack of crossings and distances between crossings	▪ Corridor Study with MRWA ▪ Heathy Streets assessment to help identify suitable locations for additional mid-block crossings ▪ Crossing demand study	2	M	$40k study	CoM/MRWA
	52	Canning Highway		Inadequate footpath quality	▪ Healthy Streets Assessments to help determine the weakest points ▪ Work with MRWA to implement recommendations from the assessments at the weakest locations	1	M	$25k study	CoM/MRWA
Ward 3 Applecross and Mount Pleasant	53	Mount Henry Bridge underpass		Visibility issues with oncoming walkers/riders	▪ Install mirrors to provide visibility to path users	2	S	$1k	MRWA
	54	Mount Henry Bridge underpass		Unappealing at night	▪ Undertake a lighting assessment of the underpass	3	M	$3k study	MRWA
	55	Canning Bridge (Canning Highway)		Lack of safe crossings	▪ Advocate for improvements once the design process for the redevelopment of Canning Bridge Activity Centre is underway	4	L	-	CoM/MRWA
	56	Cranford Ave		Very skinny median for pedestrian crossing	▪ Median should be 2m wide. Widen the median as part of capital works program	2	L	$15k	CoM/MRWA
Ward 4 Bateman, Kardinya and Murdoch	57	South Street near Kardinya shopping centre and at Murdoch Activity Centre/Discovery Side. Identified as Primary Route		Difficulties crossing the street	▪ Lobby MRWA to: ▪ Commission a Road Safety Audit at South Street ▪ Collaborate with MRWA to identify a suitable solution to issues at South Street ▪ Inspect bus stop facilities considering Healthy Streets criteria ▪ Murdoch Activity Centre:	5	M	$6k audit	CoM/MRWA

					▪ New shared path being installed now on the west side of Murdoch Drive between Bramanti Rd and Discovery Way. ▪ New pedestrian crossing on the slip lane to Discovery Way adjacent to the existing traffic lights to go in. ▪ New pedestrian crossing points and pram ramps along Murdoch Drive moving south				
	58	Farrington Road		Poor path quality on ramp from freeway	▪ Collaborate with MRWA to audit path quality of the PSP in this location	3	M	-	MRWA
	59	Kwinana Fwy PSP (Murdoch)		Poor lighting and path surface quality	▪ Collaborate with MRWA to audit lighting and path quality of the PSP in this location	3	M	-	MRWA
	60	Parry Ave	Secondary	Poor path quality Improve Crossing over Kwinana Freeway Accessing the Bridge	▪ Designated as a Secondary Route on the LTCN providing an important link from Bull Creek to areas west of the Freeway ▪ Collaborate with MRWA to audit path quality of the PSP in this location ▪ Undertake a pedestrian and rider demand audit of the Parry Avenue Bridge to determine if path widths are suitable ▪ Undertake a review of crossing demand for accessing the PSP ▪ Develop design response for implementation as part of capital works program	2	M	$25k study	CoM/MRWA
	61	South Street	Primary	Lack of cycle infrastructure	▪ South Street is a designated Primary Route	1	M	$1M	CoM/MRWA

					however on road riding would not be recommended. ▪ If separating people walking from riding on the path is not possible, ensure path widths of shared paths are suitable for the demand of people walking and riding along its length ▪ Upgrade cycling facilities in line with the LTCN implementation schedule				
Ward 5 Bull Creek and Leeming	62	South Street	Primary	Bike riders sharing the bus lane during peak hour	▪ Riding on the road in this location is not recommended unless bikes can be protected from traffic. If separation is not possible, investigate the feasibility of a 3.5m separated path from Benningfield Road to Karel Avenue (1km) ▪ If separating people walking from riding on the path is not possible, ensure path widths of shared paths are suitable for the demand of people walking and riding along its length ▪ Upgrade cycling facilities in line with the LTCN implementation schedule	2	S	$750-850k	CoM/MRWA
	63	Kwinana Freeway		Add a PSP to the eastern side of the Kwinana Freeway	▪ Advocate to MRWA regarding the benefits of a PSP in this location	1	L	-	MRWA
Ward 6 Ardross, Booragoon,	64	Marmion Street	Secondary	Difficult to cross the road for school children	▪ Identify opportunities for a crossing point west of Curtis Road ▪ Undertake a Road Safety Audit	5	M	$15k Study	CoM/MRWA

					▪ Develop a suitable design response ▪ Lobby MRWA fro slower speeds				
	65	Marmion Street	Secondary	Difficulty in crossing the road owing to speed environment	▪ Identified as a Secondary Route on the LTCN ▪ Commission a Corridor Study to identify opportunities to slow vehicle speeds at suitable locations along the length of Marmion Street particularly near schools and other activity centres ▪ Develop a design response considering its status as a Secondary Route and implementation schedule for the LTCN	5	M	$30k study	CoM/MRWA

8 Conclusions

This study has consulted a wide range of literature and data and approached community and technical stakeholders using multiple platforms to identify the issues that are important for walking and riding in the City of Melville.

The findings of the study can be summarised as follows:

- The City implemented all projects identified within the 2012 Plan for which they were directly responsible
- Crash data
  - Hotspots for cycle crashes included:
    - The Esplanade (Applecross)
    - Macrae Road (Applecross)
    - Reynolds Road (Mount Pleasant) – all of these occurred at roundabouts
  - Hotspots for pedestrian crashes included:
    - Riseley Street Shopping Centre
    - Canning Highway (between Palmyra and Bicton)
    - Kardinya Shopping Centre - South Street/North Lake Road intersection.
- Cycle Stress
  - A bicycle stress calculation was used to determine the level of stress for people riding bikes in the City by looking at the speed and volume of traffic on each road where data was available. The results showed that:
    - Based solely on volumes, many of the access roads in the City of Melville would be considered comfortable for bike riders without additional facilities.
    - Considering solely speed, very few roads in the City of Melville have 85th percentile speeds under 30 km/h or 40 km/h except for Links Road Safe Active Street
    - Even with low volumes of traffic, roads with 85th percentile speeds over 40 km/h are still stressful for bike riders without additional infrastructure.
    - A reduction in 85th percentile speeds on access roads would likely create the conditions for safe and comfortable cycling, particularly on roads with lower volumes.
  - A trial of a 30km/hr speed zones on local roads would provide useful evidence of the likely feasibility of widespread implementation.
  - This shows the importance of access roads as part of the cycle network and ensuring that these are safe and attractive places for people to ride on while investing in separated paths on busier roads.
- Consultation themes and the number of issues relating to each theme is shown below.

Table 8-1: Consultation Themes

Theme	Prevalence
Footpaths	16
Cycle Infrastructure	16
Crossings	15
Connectivity	14
User Conflicts	10
Intersections	7
Traffic Speeds and Volumes	4
Wayfinding	3
Roundabouts	2
End of Trip Facilities	1
Totals	**88**

A number of alterations to the LTCN and an evaluation matrix for prioritising the implementation of footpaths have been proposed.

Construction projects, further studies and advocacy activities have been provided for each of the neighbourhoods (wards) in the City as well as for the LTCN over a 20 year period:

- 20 LTCN projects
- 17 infrastructure projects
- 29 further studies
- 19 advocacy projects.

This study presents a holistic view of walking and riding within and through the City of Melville and provides a comprehensive list of actions, strategies and advocacy activities that the City can implement over a period of time to improve walking and riding amenity for residents and visitors for years to come.

Appendix A Literature Review

An extensive literature review has been undertaken as part of developing this Plan. The review encompasses the following documents / reports:

- Department of Transport Guidance for Local Bike Planning – Interim Framework
- Western Australia Bike Network Plan (WABN Plan)
- Long Term Cycle Network (LTCN)
- City of Melville Bike Plan 2012
- City of Melville Path Policy (2022)
- City of Melville Crossover Guidelines and Specifications 2022
- City of Melville Path Guidelines and Specifications (2022)
- Safer Melville Plan 2017-2021
- City of Melville Community Outcome Indicator Score 2019
- City of Melville Corporate Business Plan
- City of Melville Strategic Community Plan
- City of Melville Community Wellbeing Report 2021
- CWANZ Cycling and Walking Participation Survey 2021 (WA)
- Bicycle Safety at Roundabouts (Austroads, 2017)
- City of Stirling New Footpath Policy (2012)
- Healthy Streets
- Safe System.

A.1 State Policy

A.1.1 Department of Transport Guidance for Local Bike Planning – Interim Framework

The Department of Transport (DoT) Guidance for Local Bike Planning – Interim Framework informs planning and designing for bike riding in WA during the development of the DoT Bike Planning Guidelines. The key elements within the guidance document for developing a plan are inclusive of the following items:

1. Set a vision for bike riding in your area
2. Provide an understanding of the local context:
3. Reference the Long-Term Cycle Network (LTCN)
4. Guiding principles for a cycling network:
   - a) Safe (built to a standard that reflects the “8 to 80” design philosophy
   - b) Connected (all routes must connect to a destination or another route)
   - c) Widespread (extensive enough to get to a destination without encountering hostile traffic conditions)
   - d) Legible (Intuitive and direct with coherent wayfinding)
   - e) Aspirational (long term network strategy and vision for bike riding)
   - f) Achievable (evidenced based planning principles)
5. Consider an internal ‘working group’ drawn from your different LGA directorates
6. Stakeholder engagement
7. Refine, Prioritise & Implementation:
8. Suggested structure:
9. Complete the Plan

The DoT Interim Framework Guidance for Local Bike Planning relates to the cycling aspect of the Melville Walk and Ride Plan and can be followed in order to address the key points.

A.1.2 Western Australia Bike Network Plan

The Western Australia Bicycle Network Plan (WABN Plan) presents a coordinated, visionary document with specific initiatives to support bicycling across Western Australia into the future. The vision of the plan is as follows:

A number of key actions in the WABN plan set the framework for this Plan including:

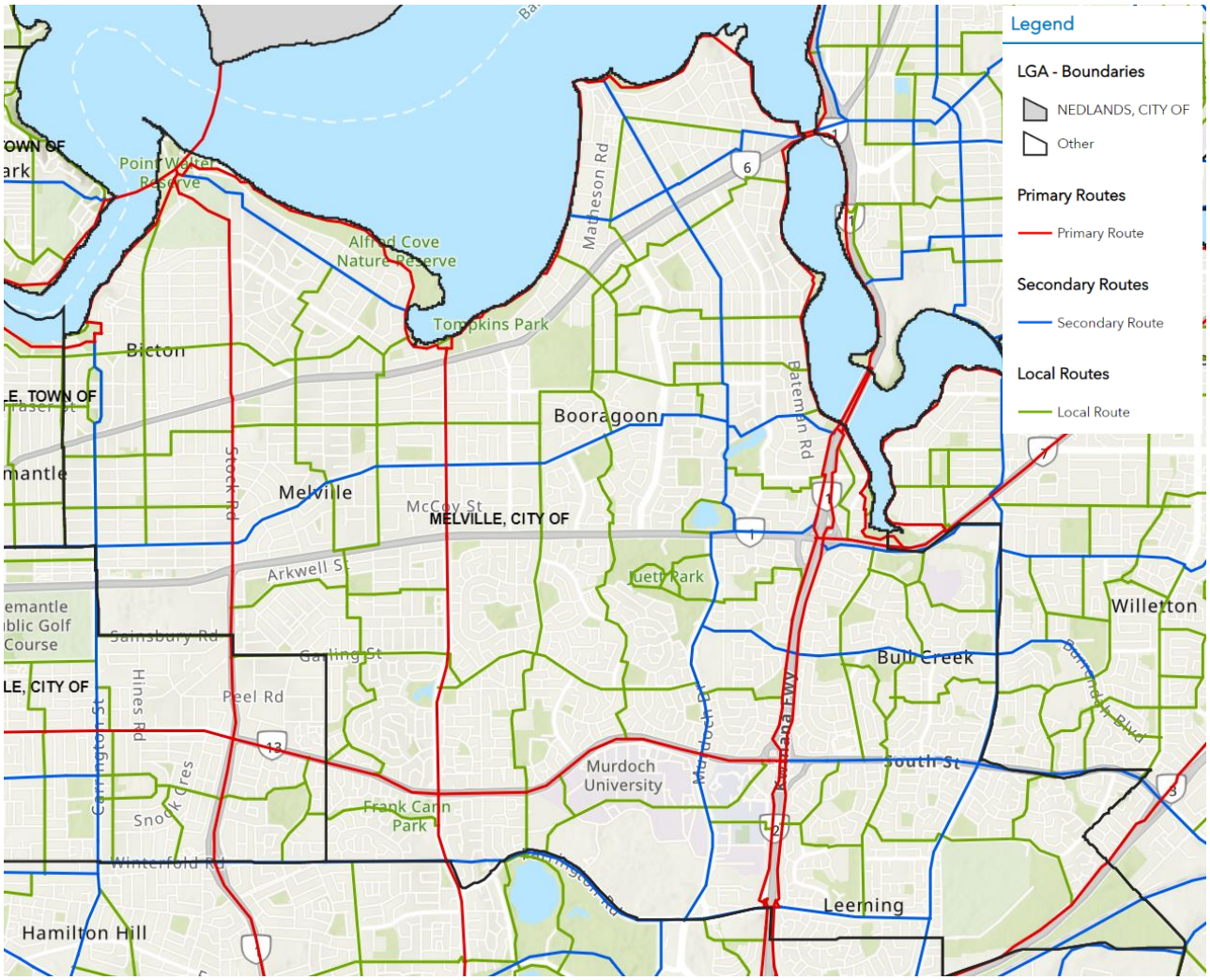
- Developing a Long-Term Cycle Strategy for Perth;
- Expansion of the PSP network
- Implementation of the Perth Bicycle Network Grants Program
- Connecting Stations
- Connecting Schools
- Safe Active Streets
- End of Trip (EoT) facilities in Activity Centres.

Funding for many of improvements to bicycling infrastructure noted in this plan will be provided through the WABN plan network grant program, so the significance of this document for the City of Melville’s Walk and Ride Plan cannot be understated.

A.1.3 Long Term Cycle Network

The Long Term Cycle Network (LTCN) for Perth and Peel is a project of the Western Australian Department of Transport (DoT) to create a regional network of bicycle facilities for the metropolitan region. Each of the 33 local governments was invited to participate in a consultation process. At the time of writing, 32 local governments have adopted the LTCN. Whilst the LTCN represents an aspirational vision for cycling in the Perth/Peel region, the plan is not set and can be modified through the development of new bicycle, master, or precinct plans.

As such, this plan represents an opportunity for the City of Melville to examine the proposed alignments included in the LTCN and ensure that each alignment represents the most achievable and best route option. It is important to maintain an up to date LTCN, as funding from the DoT to construct new facilities may be tied to these specific alignments.



Source: Department of Transport

A.1.4 MRWA Supplement to Austroads Guide to Road Design – Roundabouts and Traffic Signals (2015)

The purpose of this document is to provide information to assist practitioners to determine the most appropriate intersection control solution between a roundabout and a signalised intersection. In WA on the higher order roads roundabouts are considered the most appropriate form of intersection control whereas traffic signals may be an appropriate form of control.

The guidance references provision for people riding bikes at sites with roundabouts, specifically mentioning the following considerations:

- Low design speeds (generally 30-40km/h) using horizontal curves (pre-deflection) to slow vehicle travel speeds and allow people on bikes to mix with traffic and take control of the lane. This may also include tighter geometry to slow travel speeds upon exit.
- Avoiding squeeze points on the approach and through the roundabout. Bike lanes should be terminated before the holding line.
- At multi-lane roundabouts the bicycle lane should be terminated in advance of the intersection by the provision of an off-ramp to a Dual Use Path or similar.
- The provision of a separate channelised entry into the roundabout on the left of the general traffic lane is not recommended, as the separation of entering bicycles may not be obvious to motorists.
- Provision for bike riders to move off the carriageway to use shared paths around the outside of the roundabout, particularly at locations used by children or recreational bike riders. The crossings of the splitter islands should be wide enough to shelter a bicycle, be flush with the road pavement and be set back 6 metres, or preferably 12 metres (one or two car lengths), from the holding line.
- At roundabouts used by bike riders or where a safety problem has developed, consideration should be given to the provision of signs and / or markings to warn motorists to look out for and give way to bike riders moving around the roundabout.
- Provision of a by-pass on three legged roundabouts for bike riders travelling along the top of the T-intersection.
- On approaches where the skew of an intersection necessitates provision of a left turn slip lane on the corner of a roundabout, a marked bicycle lane may be required.
- Provision of a marked bicycle lane where a major vehicle movement is able to by-pass a roundabout at speed.
- Where a bicycle path or shared path is provided around a roundabout, the intersection between the path and road should be designed to ensure that bike riders are able to safely cross the road and enter the bicycle lanes that may exist on the roundabout approaches and departures.
- It is not Main Roads' practice to install on-road cycle lanes within the circulating carriageway.

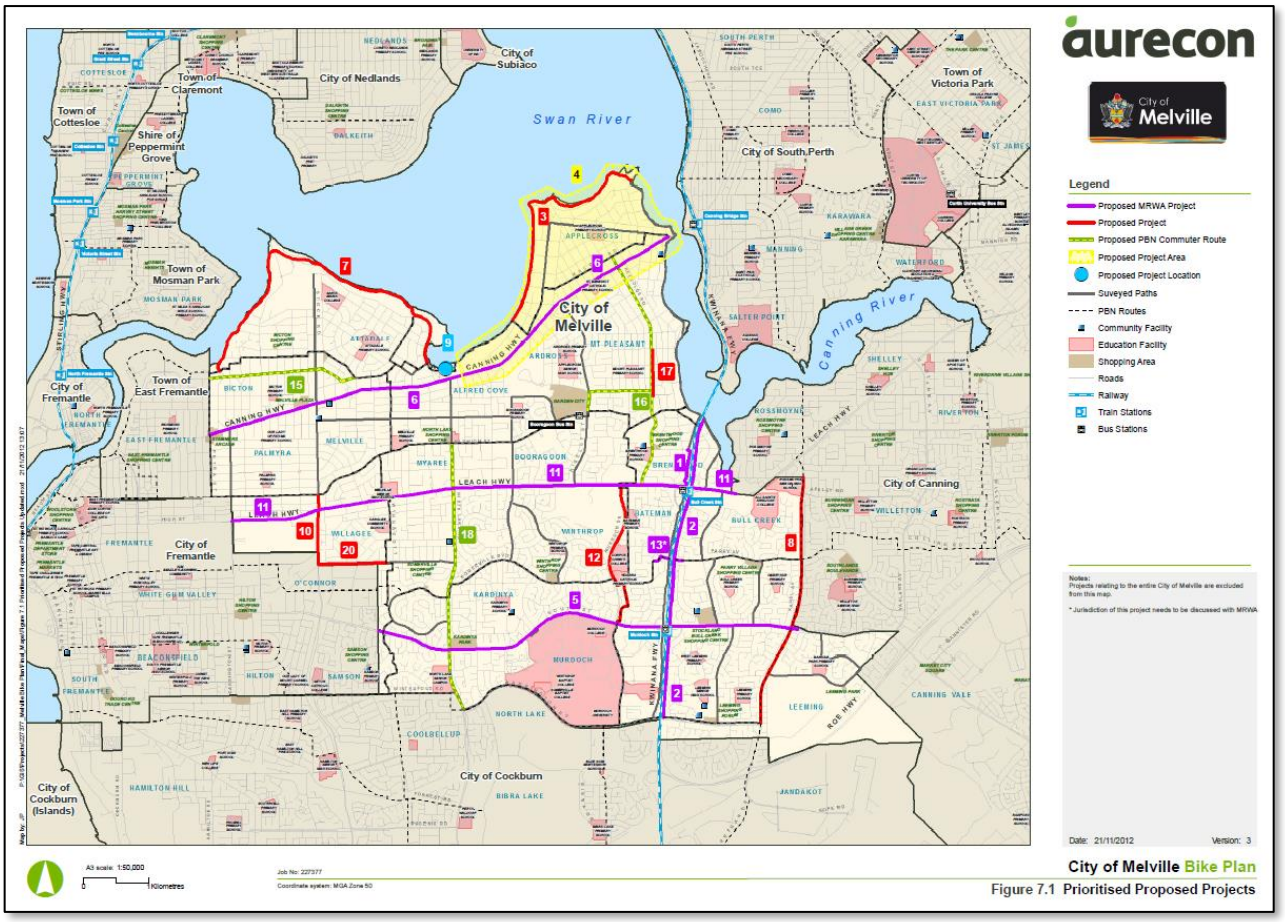
A.2 Local Policy

A.2.1 City of Melville Bike Plan 2012

The City of Melville Bike Plan 2012 provided a strategic vision for the development of a bike network and the continued promotion of cycling as an important mode of transport in the city. The plan identified opportunities to improve the cycling network, where expansions to the cycling network should occur and barriers to cycling linked to existing infrastructure, while also examining the policy and strategic context. The key components of the bike plan were as follows:

- Crash Analysis,
- Stakeholder Consultation,
- Promotion and Encouragement Initiatives,
- Current and Proposed Bicycle Network Facilities,
- Strategic Projects and Prioritization,
- Maintenance and Renewal Projects and
- Implementation and Recommendations.

The Bike Plan developed 24 recommendations, including for facilities, maintenance, renewal, promotion and engineering (see below)



Of these projects, six fall under the remit of Main Roads WA and three were considered to be unsupported, upon further investigation.

Over the intervening nine years, progress has been made on many of the projects with seven projects considered to be complete and four other projects in progress. Four of the projects focused on general policy recommendations and can also be considered as ongoing.

It is also noted that some of these will be achieved through the implementation of the LTCN, and others (such as addressing bicycle facilities through intersections) are not locations specific and are therefore subject to implementation on an ongoing basis through a prioritisation process.

A.2.2 Path Policy (2022)

The purpose of paths in the City are to “provide a network that support safe, accessible and comfortable movement around the City to the benefit of the community”. Stated policy principles are:

- Paths shall be constructed and maintained to promote safety, healthy lifestyles and liveable and connected neighbourhoods.
- The path shall be continued (or reinstated) through the crossover as per the City’s Crossover Guidelines and Specifications. All path users shall have priority over vehicles on crossovers.
- Path construction, renewal and maintenance shall be in accordance with the City’s Path Guidelines and Specifications where practical. Where it is not practical, the City may construct, renew or maintain a non-standard path to suit local conditions. Where this occurs, the City shall document its reasons.
- New paths shall be constructed based upon a priority ranking taking into account risk and having regard to traffic volume, road hierarchy, traffic/pedestrian conflicts, activity generators, linkages, path requests and bike plan recommendations.
- The City shall audit, maintain and renew paths to a level as defined in the Path Asset Management Plan.

This policy is updated regularly.

A.2.3 City of Melville Path Guidelines and Specifications (2022)

The objective of this document (last updated in early 2022) is to provide detailed guidance for the planning, design and construction of paths in the City and covers the following path types:

- Footpaths
- Shared paths
- Separated footpaths
- Paths for the exclusive use of bike riders.

The intent it that paths:

- Meet the City’s Path Policy
- Meet the City’s Duty of Care
- Provide for safe, connected, and accessible paths.

The Guidelines states that paths should only be along the kerb line on access roads. In other locations, they should be offset from the kerb line, in the middle of the verge, or along the property boundary (with the exception of shared paths - see figure below).

Type	Kerb Line	Kerb Line with Offset	Middle of Verge	Property Boundary
Access (Up to 3,000 VPD)	•	•	•	•
Local Distributor (Up to 6,000 VPD)		•	•	•
District Distributor B (Up to 15,000 VPD)		•	•	•
District Distributor A (Above 15,000 VPD)		•	•	•
Arterial Roads		•	•	•
Shared Paths		•	•	

Source: City of Melville Path Guidelines and Specifications

The Guidelines identifies path widths (see figure below) – in general:

Type Path Type	Location Access Roads	Distributor Roads	Activity centres	Parks	Other
Footpath	1.8m	2.1m	Full verge width	As designed	As designed
Shared Path	3 to 4m	3 to 4m	As designed	3 to 4m	As designed
Separated Footpath	2.5 to 4m	2.5 to 4m	As designed	2.5 to 4m	As designed
Paths for the exclusive use of cyclists.	As designed	As designed	As designed	As designed	As designed

Source: City of Melville Path Guidelines and Specifications

Grab rails are not recommended on Access Roads.

Barriers installed at the end of Public Access Ways must not restrict access by mobility devices such as wheelchairs.

This policy is updated regularly.

A.2.4 Crossover Guidelines and Specifications 2022

The purpose of this document it to provide a consistent framework for the planning and design of crossovers for residential and commercial properties taking best practice and statutory guidance into account.

Considerations in relation to this Plan include:

- Improving the safety of path users
- Creating space for tree and, pedestrian crossings
- Sight lines of people using paths
- Visual and physical continuity of the footpath
- Priority of people walking and riding (pedestrians and bike riders have priority over vehicles)
- Existing path condition.

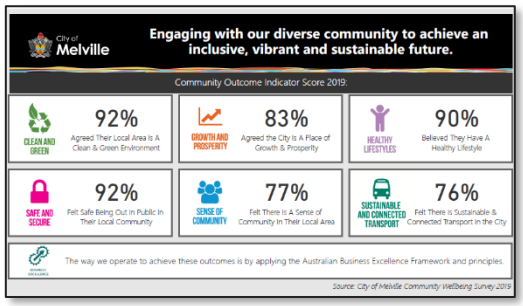
A.2.5 2017-2021 Safer Melville Plan

The Safer Melville Plan seeks to address the strategic objective of creating a safe and secure City of Melville for residents and visitors though a specific set of actions. Road safety is addressed in this document and reference is made to safe system approach to road safety, while reducing transport crashes is identified as an important goal to improving safety. Within this goal, reference is made to implementing the City's bicycle plan.

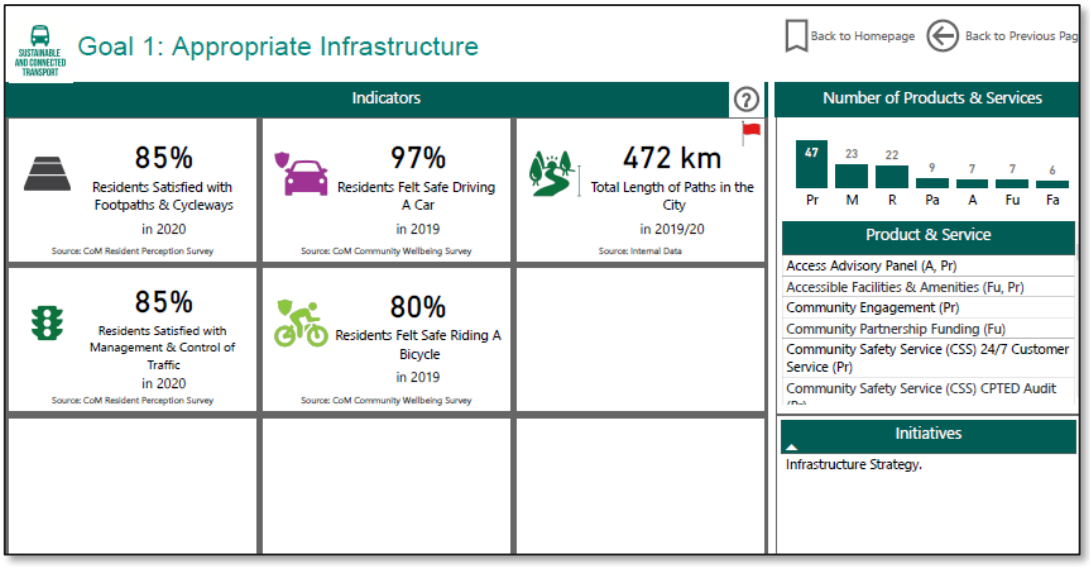
A.2.6 City of Melville Community Outcome Indicator Score 2019

This document provides the results of a survey of the City of Melville community in 2019 relating to the six specific community aspirational areas

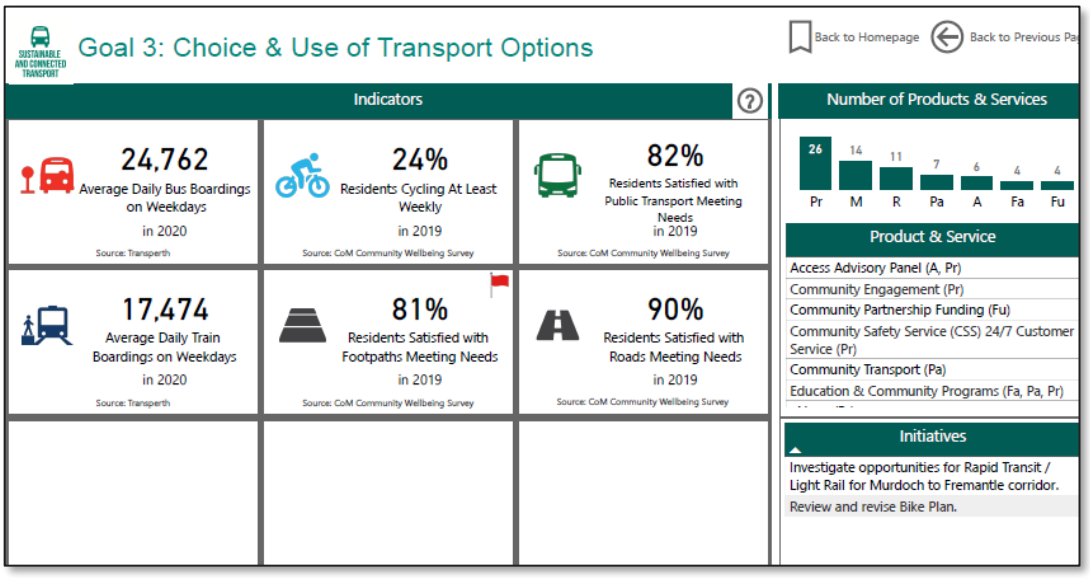
- Clean and Green
- Growth and Prosperity
- Healthy Lifestyles
- Safe and Secure
- Sense of Community
- Sustainable and Connected Transport.



This document uses various metrics in an infographic format. Pedestrian and bicycle transport is referenced under two of the key metrics. Under the Working together to create a City which is safe and secure at all times for all people metric, reducing transport crashes is an important goal, though no mention is made of pedestrian and bicycle crashes. Another key goal is Working together towards a City with sustainable and connected transport and travel options for all People. Under this metric, the first goal is Appropriate Infrastructure, which indicates that 85% of residents are satisfied by the footpaths and cycleways and 80% felt safe riding a bicycle (see figure below).

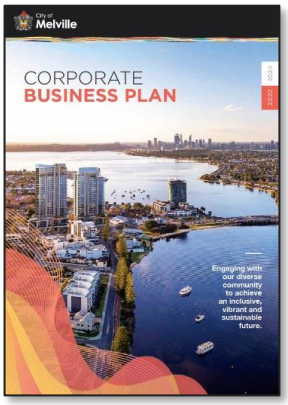


The second goal, Balancing Transport Priorities, indicated that 45% of roads have footpaths, while also referencing the need to construct a SAS link from Melville City Centre to Riseley Centre and develop an Integrated Transport Plan. Goal 3, Choice & Use of Transport Options, also includes useful information about pedestrians and bike riders (see figure below).



Specifically, 24% report cycling at least weekly, while 81% are satisfied with footpaths meeting their needs. There is also mentioned under this goal to review and revise the Bike Plan.

A.2.7 City of Melville Corporate Business Plan



This document also makes mention of the six key community aspirational areas, Clean and Green, Growth and Prosperity, Healthy Lifestyles, Safe and Secure, Sense of Community, Sustainable and Connected Transport. One of the key priorities is to implement innovative, efficient and appropriate initiatives that support community-centered infrastructure with integrated transport solutions. A total length of footpaths, cycle paths, and shared paths in the City of Melville is 468 km, according to this document.

A.2.8 City of Melville Strategic Community Plan

This document sets out the City of Melville's vision and aspirations for the future and identifies key strategies and actions to achieve this vision. Again, the six key community aspirational areas guide this document

Via an online survey, community respondents indicated that a priority should be set on reducing their dependence on cars. Common problems include congestion, 'rat runs' through the suburbs, and illegal/inconsiderate parking. Cycle infrastructure is yet to be properly established and even simple pedestrian movements can be hazardous.

The methods by which the City of Melville contributes to the strategic community aspiration, Sustainable and Connected Transport, are numerous. The City advocates for high quality transport options at State and Commonwealth levels, constructs and maintains bike paths and footpaths, and manages road safety programs within their boundary.

A.2.9 City of Melville Community Wellbeing Report

The Community Wellbeing Report for the City of Melville provides the survey results from the City's Wellbeing Survey, which is conducted every two years. Organized by the City of Melville's six key aspirational areas, the survey results indicate that over 80% of the residents of the City of Melville either agree or strongly agree with the following statements:

- The City of Melville is a good place to raise a family.
- The City of Melville is a good place to grow old.
- I feel like my life has a sense of purpose.
- I feel valued and appreciate by others.

Of the six key aspirational areas, the area of Sustainable and Connected Transport had the lowest percentage of respondents (64.3%) indicating that they agree or strongly agree with the following statement:

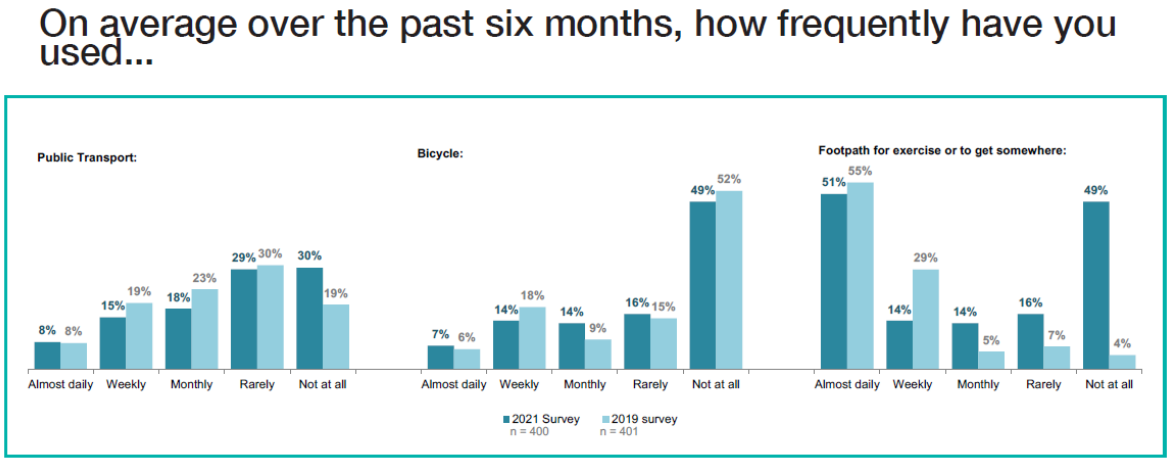
Overall, I feel that in the City of Melville there is 'sustainable and connected transport'.

There were significant differences based on location within the City of Melville. For instance, 100% of residents in Murdoch agree with the above statement regarding sustainable and connected transport in the City of Melville, while only 38% of Applecross residents agreed.

The results also indicate that 76% of respondents agree that the footpaths in the local area meet their needs. However, geographic disparity is also present regarding this result. Specifically, 100% and 96% of Murdoch/Myaree and Melville residents agreed that footpaths meet their needs, respectively, while only 40% of Brentwood residents agreed.

Regarding bicycle riding, 52% indicated that they felt safe riding a bicycle in their area. Interestingly, this result is skewed towards younger people. People between the age of 16 and 24 agreed that they felt safe bicycling in their area in the greatest proportion, while people between the ages of 75 and 84 agreed the least with this statement. Within those considering themselves students, 100% agreed with this statement, while only 22% of retired people agreed.

The survey also examined the frequency in which active transport facilities are used. In 2021, slightly more than 50% of residents of the City of Melville indicated that they use the bicycle, with 14% using a bicycle on a weekly basis and 7% using a bicycle almost daily. More males (33%) than females (11%) used a bicycle weekly or almost daily, while only 10% of retired people used a bicycle weekly or almost daily (see figure below)



In relation to using a footpath, 51% indicated that they use a footpath almost daily. Again, 100% of Murdoch/Myaree residents agreed with this statement.

Overwhelmingly, participants mentioned that more frequent and reliable public transport and more connected public transport are the key actions for improvement in the area of sustainable and connected transport, while addressing current traffic congestion/safety should be another area of focus.

A.2.10 Attadale Values Survey

The Attadale Value Survey in 2021 assessed the values of the community in relation to the Attadale Alfred Cove Foreshore Master Plan. Garnering a total of 658 responses, the survey assessed various themes relating to the foreshore area. Comments on cycling and footpaths accounted for 12% of all comments. Some key takeaways include the following:
Separated walking and cycle ways valued (dual path)

- Walking trails/footpaths to be meandering adjacent to waterways and bushland areas, areas of interest for daily commute
- Current footpaths near clubrooms in poor condition
- Some concern of safety of pedestrians coming into contact with fast bike riders
- Cycling paths suitable for cycling events/campaigns/programming
- Interconnected viewing platforms, boardwalks and hides for bird watching.

A.2.11 Stock Road Corridor Study

The 33km route from Point Walter to Rockingham in Perth's south western suburbs is designated as a Primary Route for cycling. The DoT commissioned a corridor study to investigate possible route alignment and form options. Sections 1 to 3 were either fully or partially contained within the City of Melville:

- Section 1 - Point Walter to Marmion Street via Point Walter Golf Course and Stock Road
- Section 2 - Marmion Street to South Street via Stock Road
- Section 3 - South Street to Beeliar Drive via Stock Road.

The route alignment is described in the following table.

Section	Description
1	Comprises an off-road path north of the Point Walter Golf Course in Bicton then leading onto a SAS between Reserve Street and Preston Point Road. The shared SAS would be a traffic calmed environment with a 4.5m wide trafficable roadway where bike riders and vehicles share the road space. Traffic volumes in this section of the corridor are very low. This transitions to a protected bidirectional cycle lane (2.5 to 3.0m wide) located on the western side of the roadway from Preston Point Road, through Canning Highway to Marmion Street.
2	The protected, bidirectional cycle lane would continue to Leach Highway where the corridor widens from 30m to 40m allowing an off road, 4.0m wide shared path on the western side. The setback of the shared path to the nearest traffic lane varies according to specific constraints such as the location of vegetation and power poles.
3	The 4.0m wide shared path continues on the western side of the corridor throughout this section noting that some localised narrowing (to a minimum of 2.5m) occurs at particular pinch points. The road over the freight rail is a particular constraint however the protected cycle path can continue through the existing bridge cross section with some compromise to road geometry.

Source: Corridor Study for Primary Cycle Route between Point Walter and Rockingham (ARUP, 2022)

The assessment has identified that the western side is the preferred alignment for the corridor for continuity and connectivity. A pre-feasibility level design has been undertaken for the corridor for the preferred option. The preferred treatments do not require land acquisition.

In relation to implementation it is noted that:

- MRWA historical planning for the upgrade of Stock Road to a six-lane controlled access road does not include cycle infrastructure
- Future designs for controlled access and interim upgrades should aim to implement the above treatments
- An MCA concluded that sections near Melville could be staged in the short term due to proximity to existing density, ease of implementation and ability to tie in with existing infrastructure.
- Canning Highway to South Street could be staged in the medium term

A.3 Research

A.3.1 E-Scooter Safety: Issues and Solutions (Sandt, L., 2022)

The digest identifies emerging behavioural safety issues arising from the expanding use of e-scooters and summarizes how communities are working to prevent and mitigate injuries. The research was conducted by the University of North Carolina at Chapel Hill in conjunction with the University of Tennessee, Knoxville; Safe Streets Research and Consulting; Equitable Cities; and Populus.

The keys themes from the document were:

- sidewalk riding increased when a bike lane was not available or where motor vehicle speeds were higher.
- E-scooter users have consistently requested bicycle infrastructure to feel safe riding e-scooters in the street
- People who walk and people who drive want to avoid e-scooters
- With similar operating speeds and characteristics, e-scooter riders and bike riders have similar infrastructure needs.
- Locations with more bikeways tend to be safer for e-scooters
- Surveys consistently find that e-scooter trips replace walking and bicycling trips to the same or a greater degree than they replace auto trips, although the difference varies by location
- E-scooter users' preference to ride in bicycle lanes aligns with pedestrians' desire that e-scooter users not ride on sidewalks.
- Recent research shows that males are more likely to ride e-scooters than females and that e-scooters are popular among riders under 40 years old.
- E-scooters are more susceptible to irregularities on the roadway than bicycles.

A.3.2 Cycling and Walking Australia and New Zealand - National Walking and Cycling Participation Survey (WA) 2021

The National Walking and Cycling Participation Survey provides insight into walking and cycling activity across Australia and is a successor to the National Cycling Participation Survey which was conducted biennially from 2011 to 2019. The survey is administered using telephone interviews with a representative sample of Australians using both mobile and landline telephone numbers.

The key research findings from this study related to this project include:

- 96.6% of WA residents walk for at least five minutes in a typical week outside their home
- On average WA residents walk for at least five minutes on 5.2 days, spending a median of 3.5 hours per week walking
- 80% walking for recreation or exercise and 60.4% walked to shopping
- Around 21.4% of residents rode a bike (including e-bikes) in the previous week and 46.7% in the previous year
- The participation rate has increased in metropolitan Perth and remained steady in regional areas of WA
- Cycling participation is much higher in males (26.5%) than females (16.4%)
- The participation rate has increase significantly among both genders since 2019
- Among both genders the participation rate declines as young children become teenagers and then precipitously from teenagers to young adults.
- However, statistically significant increases in participation over the week preceding the survey interview were observed among children aged 10 to 17 years of both genders and females aged 30 to 49 years
- Across Western Australia 40.0% of residents aged 15 and over were classified as interested in riding; that is, they do not ride currently but would like to do so or currently ride only off-road.
- It is estimated that 1.9% (95% CI: 1.4 – 2.5%) of the Western Australian population ride an electrically assisted rideable such as an e-scooter, e-skateboard or Segway in a typical week.
- Males are more likely to ride these devices than females.

A.3.3 Bicycle Safety at Roundabouts (Austroads, 2017)

The objectives of this report were to identify the geometric design factors associated with bicycle crashes at roundabout and identify design options that may reduce the incidence of severity of these crashes.

The research looked at crashes in Australia and New Zealand and identified that:

- 93% of crashes occurred in speed zones of 60km/h or less
- 63% of crashed occurred in speed zones of 50km/hr or less
- The most common crash type was a motor vehicles colliding with a cyclist on the circulating carriageway – 67% of crashes
- The next most common crash type was vehicles travelling in the same direction (13%).
- Geometric analysis of crashes at a representative sample of roundabouts in QLD, NSW and Victoria showed that:

- local road roundabouts typically had entry curve radii ranging between 40 m and 50 m, which would cater for entry speeds greater than 40 km/h, which is greater than the target speed of ≤ 30 km/h for a road space shared by motor vehicles and bike riders.
- Travel path curvature at the entry was identified as a key characteristic of the roundabout that influences possible vehicle speeds at the roundabout.
- Some research has shown that restricting sight distance can reduce the approach speeds of motor vehicles

Possible treatments were identified, with the entry path curvature being the main component that needed to be increased to slow the entering vehicles. On local roads, with smaller design vehicles, the entry curve radius could be reduced to achieve a speed of ≤ 30 km/h, but on the arterial road roundabouts, reducing the entry speeds was not achievable due to the larger design vehicles on these roads. On the local roads, the alignment of the roundabout to achieve the desired entry speed was similar to the alignment of a radial-type roundabout.

Guidance on designing a roundabout, particularly an urban local road roundabout for a specific speed is a key task for the future.

A.3.4 New Footpath Policy (City of Stirling, 2012)

This policy identifies eligible locations for new paths by assessing the risk of each.
Risk is calculated by applying a numerical score for both the category of road and proximity to origins and destinations:

- Road category score
  - Local Distributor Road (LDR) = 40
  - Collector 1 (C1) = 30
  - Collector 2 (C2) = 20
  - Local Road (LR) = 10
- Origin/Destination score
  - Road hierarchy: LDR = 20; C1 = 15; C2 = 10; LR = 5
  - Proximity to Train Station: 400m = 10; 800m = 5
  - Bus Route: Along road = 10; Intersecting with = 5
  - Proximity to School: 100m = 10; 200m = 5
  - Proximity to Shops: 200m = 10; 100m = 5
  - Proximity to equipped play area: 200m = 10; 400m = 5
  - Aged care facilities or retirement village: 200m = 10; 400m = 5
  - Missing link or substantive gap in suburb network: 10
  - Beach access: 200m = 5
  - Local Knowledge/Councillor Input: ‘Out of Range’ score to any of above parameters
  - Traffic Counts: Road Hierarchy x (AWTF/350)*

A.4 Healthy Streets

Every decision we make about our built environment, however small, is an opportunity to deliver better places for people to live in and thereby improve their health. The Healthy Streets Approach is a human-centred framework for embedding public health in transport, public realm and planning.

The approach is based on 10 evidence-based Healthy Streets Indicators, each describing an aspect of the human experience of being on streets. These indicators must be prioritised and balanced to improve social, economic and environmental sustainability through the way streets are designed and managed.

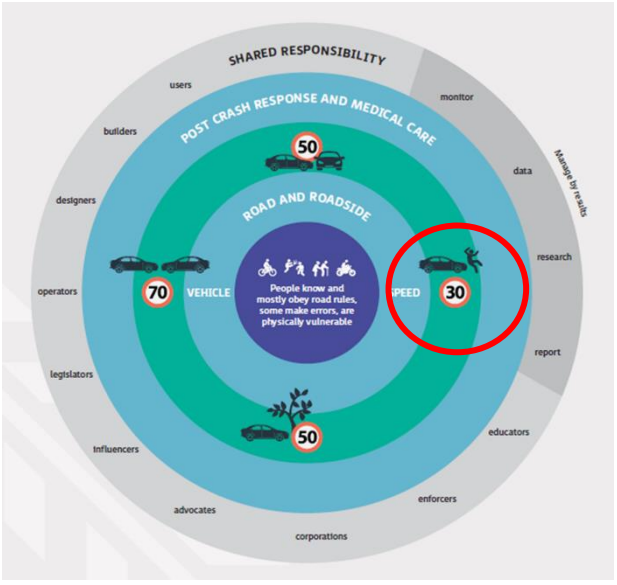
This approach can be applied to any street, anywhere in the world. It builds improvements onto the existing environment rather than seeking a fixed end goal. This approach encourages incremental changes in all aspects of the decision-making processes related to streets and transport.

The Healthy Streets framework has been used as a guide for the provision of improvements.

A.5 Safe System

The Safe System philosophy brings a public health focus to road safety, with an aim of harm minimisation. At the centre of this is human fallibility and the fact that errors at present can lead to unintentional death and injury. Efficient movement should not come at the expense of human wellbeing. There are six key principles that form the basis of the Safe System philosophy (International Transport Forum 2022):

- **People make mistakes** that can lead to road crashes
- The human body has a **limited physical ability** to tolerate crash forces before harm occurs
- A **shared responsibility** exists amongst those who plan, design, build, manage and use roads and vehicles and those who provide post-crash care to prevent crashes resulting in serious injury or death
- **All parts of the system must be strengthened** to multiply their effects; so that if one part fails, road users are still protected.



The Safe System is usually considered in terms of key interacting “pillars”:

1. Road safety management
2. Safe road
3. Safe vehicles
4. Safe speeds
5. Safe road-user behaviour
6. Post-crash care

The Safe System approach recognises it is not possible to prevent all crashes but aims to prevent serious injuries by seeking to better manage the interaction between road users, roads and roadsides, travel speeds and modes of transport. Many of the opportunities discussed in Chapter 6 respond to the Safe System philosophy, but particularly in relation to implementation of infrastructure, and road speed considerations.

A.6 Path Widths

The desirable minimum width of local access (shared) paths is given as 2.5m in accordance with Austroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths (2021) – accepting that variations between 2-3m may be more suitable considering expected flows of people walking and riding, and likely operating speeds (see below).

	Suggested path width (m)		
	Local access path	Regional path[3]	Recreational path
Desirable minimum width	2.5	3.0	3.5
Minimum width – typical maximum	2.0[1] – 3.0[2]	2.5[1] – 4.0[2]	3.0[1] – 4.0[2]

1 *A lesser width should only to be adopted where cyclist volumes and operational speeds will remain low.*
2 *A greater width may be required where the numbers of cyclists and pedestrians are very high or there is a high probability of conflict between users (e.g. people walking dogs, in-line skaters etc.).*
3 *May be part of a principal bicycle network in some jurisdictions.*

Source: Austroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths (2021)

The WA Department of Transport's Shared and Separated Path Guidelines (September 2021) outline the following minimum widths depending on the route hierarchy (see below).

Shared paths	
Minimum width	Desirable width
2.5m (local and secondary routes)	3.0m (local and secondary routes)
3.0m (primary route)	4.0m (primary route)

Source: Shared and Separated Path Guidelines (September 2021)

The City's policy is in line with, and in some cases more generous than the above guidelines in that shared paths should be between 3-4m wide, even on Access Roads (see below).

Type / Path Type	Location: Access Roads	Distributor Roads	Activity centres	Parks	Other
Footpath	1.8m	2.1m	Full verge width	As designed	As designed
Shared Path	3 to 4m	3 to 4m	As designed	3 to 4m	As designed
Separated Footpath	2.5 to 4m	2.5 to 4m	As designed	2.5 to 4m	As designed
Paths for the exclusive use of cyclists.	As designed	As designed	As designed	As designed	As designed

Source: City of Melville Path Guidelines and Specifications (2022)

Shared paths that are currently less than 2.5m wide are recommended to be increased as upgrades are undertaken, and for new sections, subject to achieving the required offsets from trees, light poles etc.

In some cases, shared paths may not be the best outcome and separation should be considered. Footpaths Healthy Streets provides the following metric for footpath width based on usage (people per hour). This guidance can help support a nuanced network that responds to the needs of the corridor at a fine-grained level (see below).

A-1

People per hour	A (3 points)	B (2 points)	C (1 point)	D (0 points)
Fewer than 7	2.0m or more	1.6m-1.99m	1.5m-1.59m	Less than 1.5m
7-69	2.6m or more	2.2m-2.59m	1.9m-2.19m	Less than 1.9m
70-399	3.2m or more	2.8m-3.19m	2.3m-2.79m	Less than 2.3m
400-1999	3.9m or more	3.4m-3.89m	2.9m-3.39m	Less than 2.9m
2000 or more	3.9m or more and less than 9.5 people per metre per minute	3.4m or more and less than 13.5 people per metre per minute	2.9m or more and less than 18 people per metre per minute	Less than 2.9m or more than 18 people per metre per minute

Source: Healthy Streets

This framework recognises that the wider the path, the better that path supports pedestrians needs – but that the need scales with demand. Healthy Streets assessment focuses on the weakest point within a path section to determine its effective width, and recommends that these locations should be specifically addressed during upgrade activities.

In locations on local routes where footfall is low, footpaths should be upgraded as and when possible (for example during routine maintenance or road upgrades) in accordance with the City's Guidelines and Specifications to a minimum of 1.8m. The guidance provided by Healthy Streets may assist in providing justification for wider paths.

A.6.2 Healthy Streets

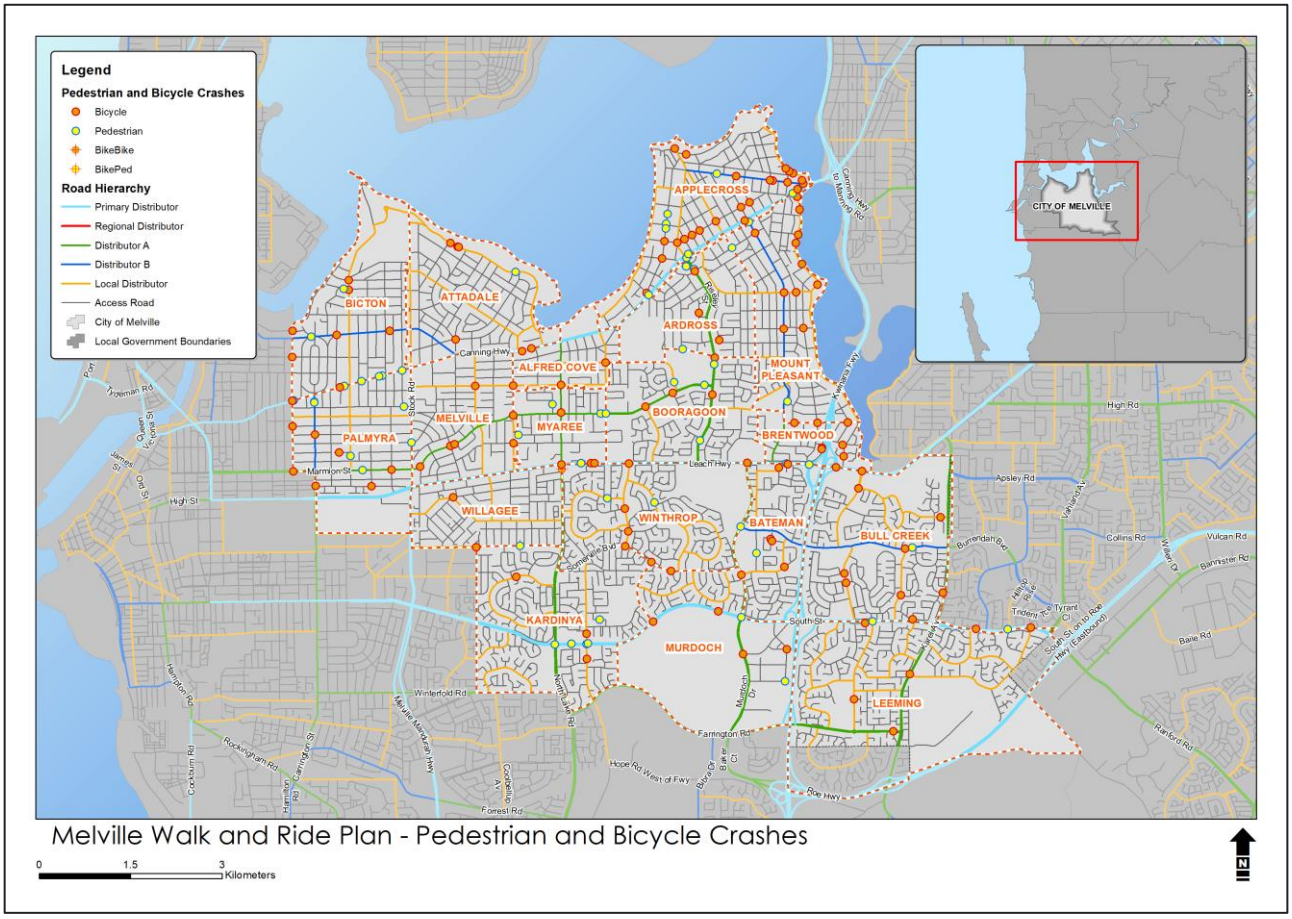
The Healthy Streets framework is an effective method to evaluate the constraints and opportunities within the street network. Application of this style of review can support decision-making by the City, by identifying areas of concern – targeting resources towards improvements in critical locations.

Interventions can then be designed in accordance with the City's policy, strategy and engineering systems to improve the function of these streets for all users, including people walking and cycling. The table below shows how the Healthy Streets score is generated.

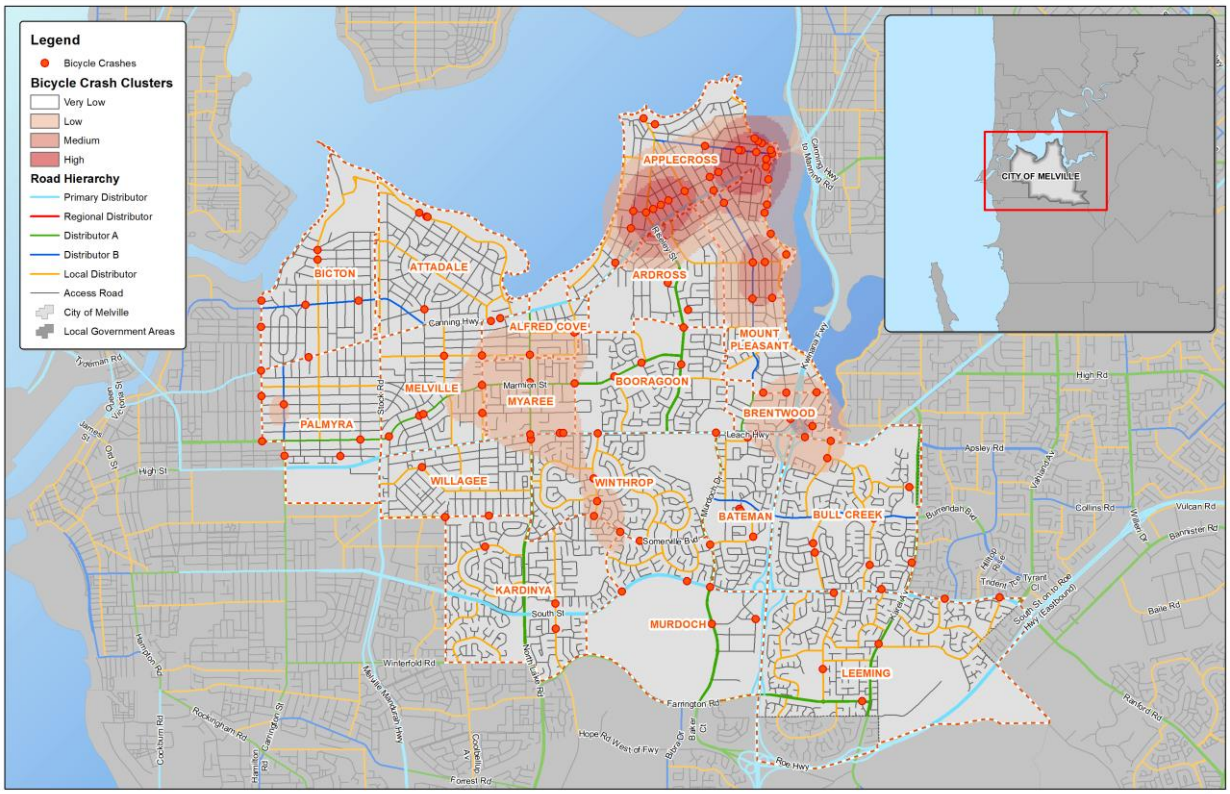
Metric		Everyone feels welcome	Easy to cross	Shade and shelter	Places to stop and rest	Not too noisy	People choose to walk and cycle	People feel safe	Things to see and do	People feel relaxed	Clean air
1	Traffic speed	●	●			●	●	●		●	●
2	Volume of motorised traffic	●	●			●	●	●		●	●
3	Mix of vehicles	●	●			●	●	●		●	●
4	Conflict between cycles and turning vehicles	●					●	●		●	
5	Turning speeds at side-street intersections	●	●				●	●		●	
6	Ease of crossing mid block	●	●				●	●		●	
7	Priority of crossing at intersections	●	●				●	●		●	
8	Quality of the footpath	●					●			●	
9	Space for walking	●			●		●	●		●	
10	Appropriate separation of people walking from traffic	●				●	●	●		●	
11	Space for cycling	●			●		●	●		●	
12	Lighting	●					●	●		●	
13	Availability of drinking water	●			●		●	●	●	●	
14	Public seating	●			●		●		●	●	
15	Cycle parking	●			●		●			●	
16	Shade for walking	●		●			●		●	●	
17	Shade for cycling	●		●			●		●	●	
18	Reducing through traffic	●	●			●	●			●	
19	Bus stops	●		●	●		●			●	

Appendix B Detailed Crash Maps

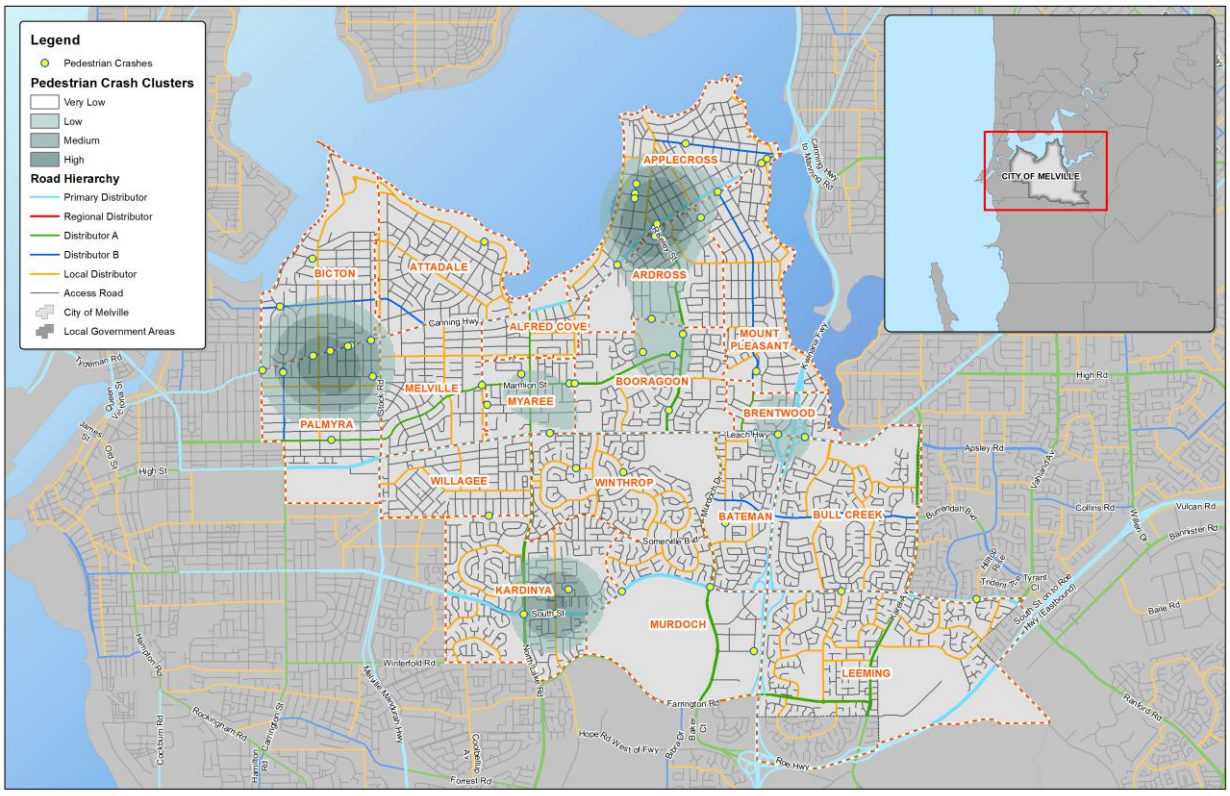
B.1 Overall Crash Map



Source: MRWA Crash Data



Bicycle Crash Clusters

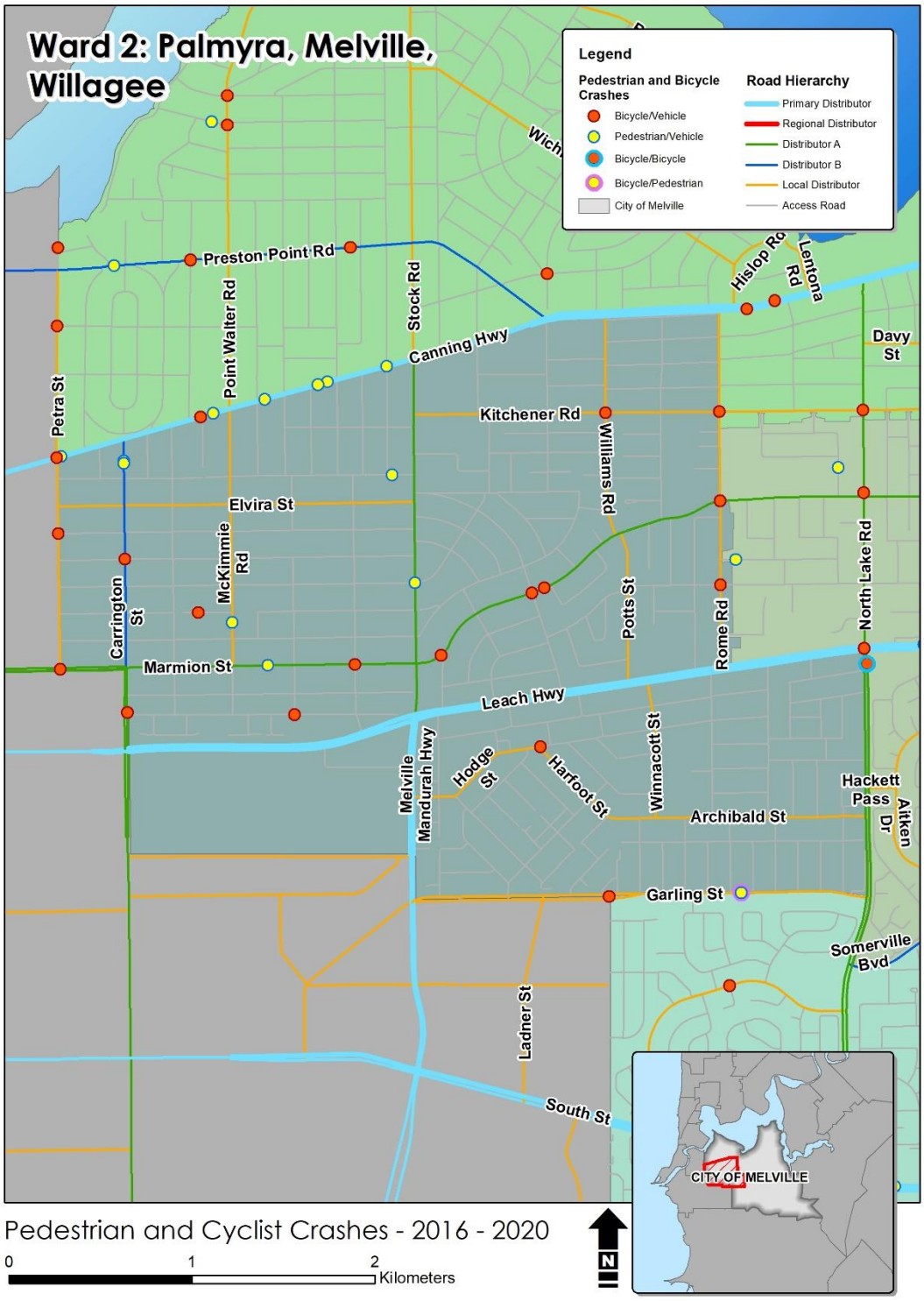


Pedestrian Crash Clusters

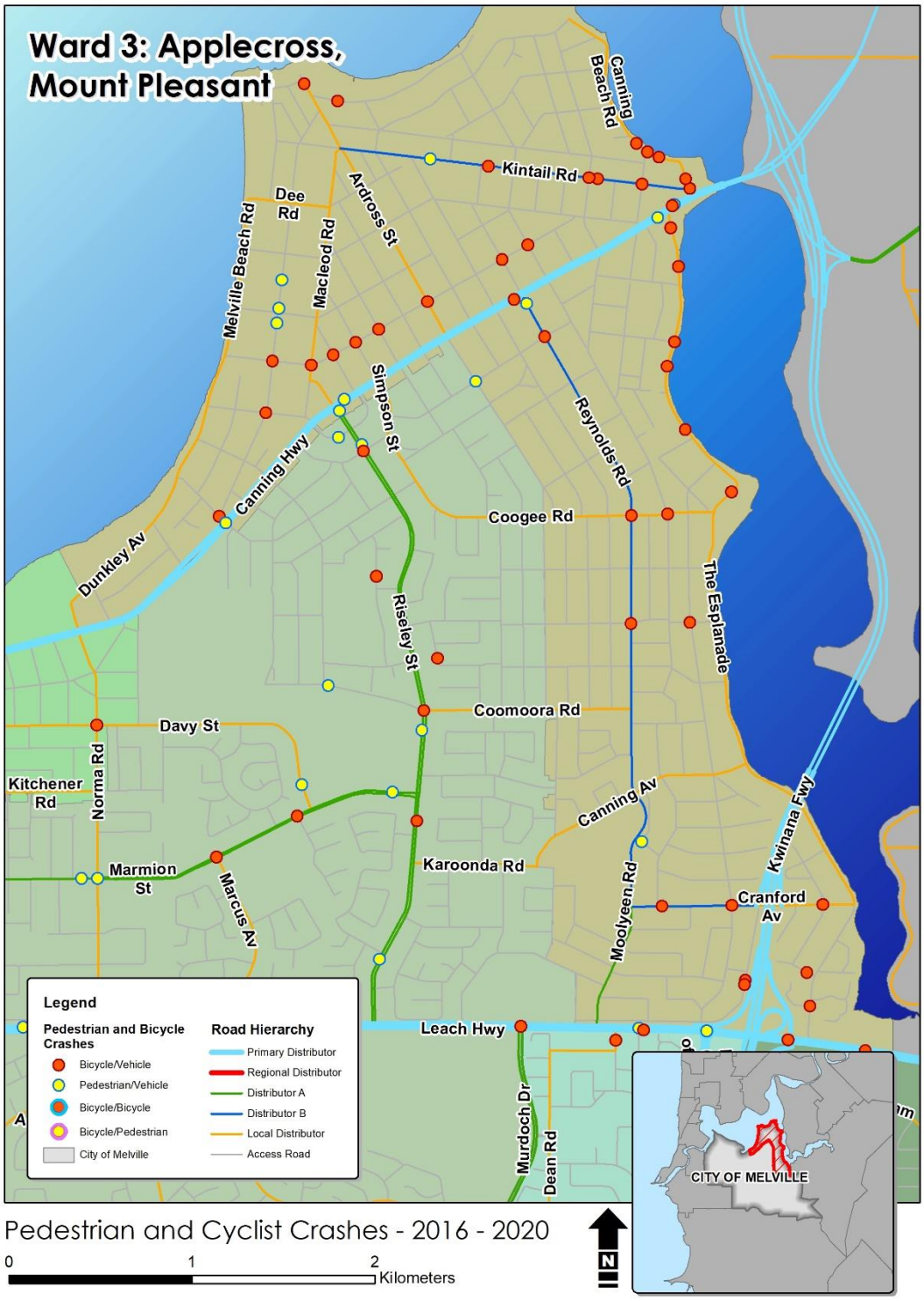
B.2 Crash Maps by Ward

B.2.1 Ward 1: Bicton, Attadale, Alfred Cove

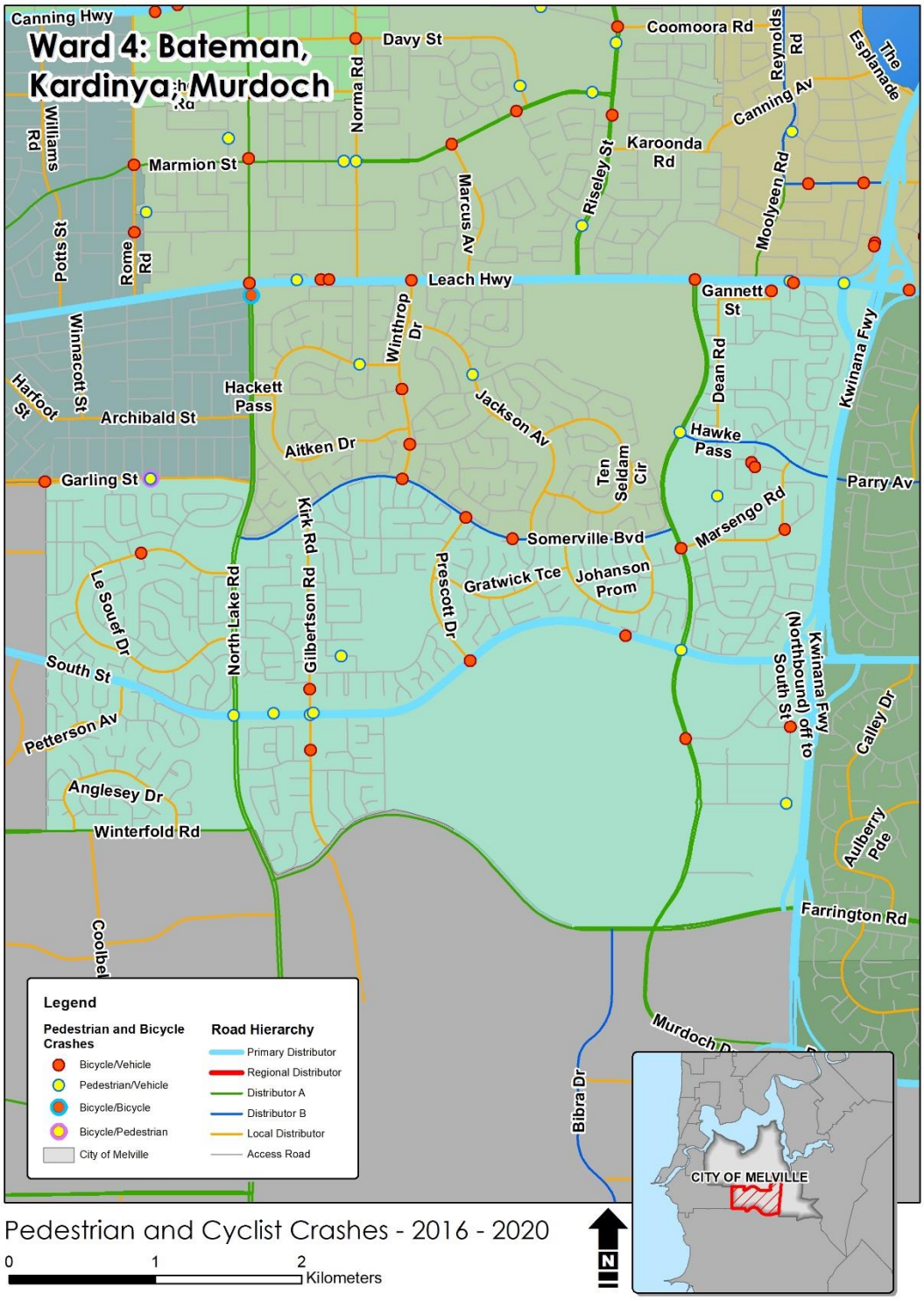
B.2.2 Ward 2: Palmyra, Melville, Willagee



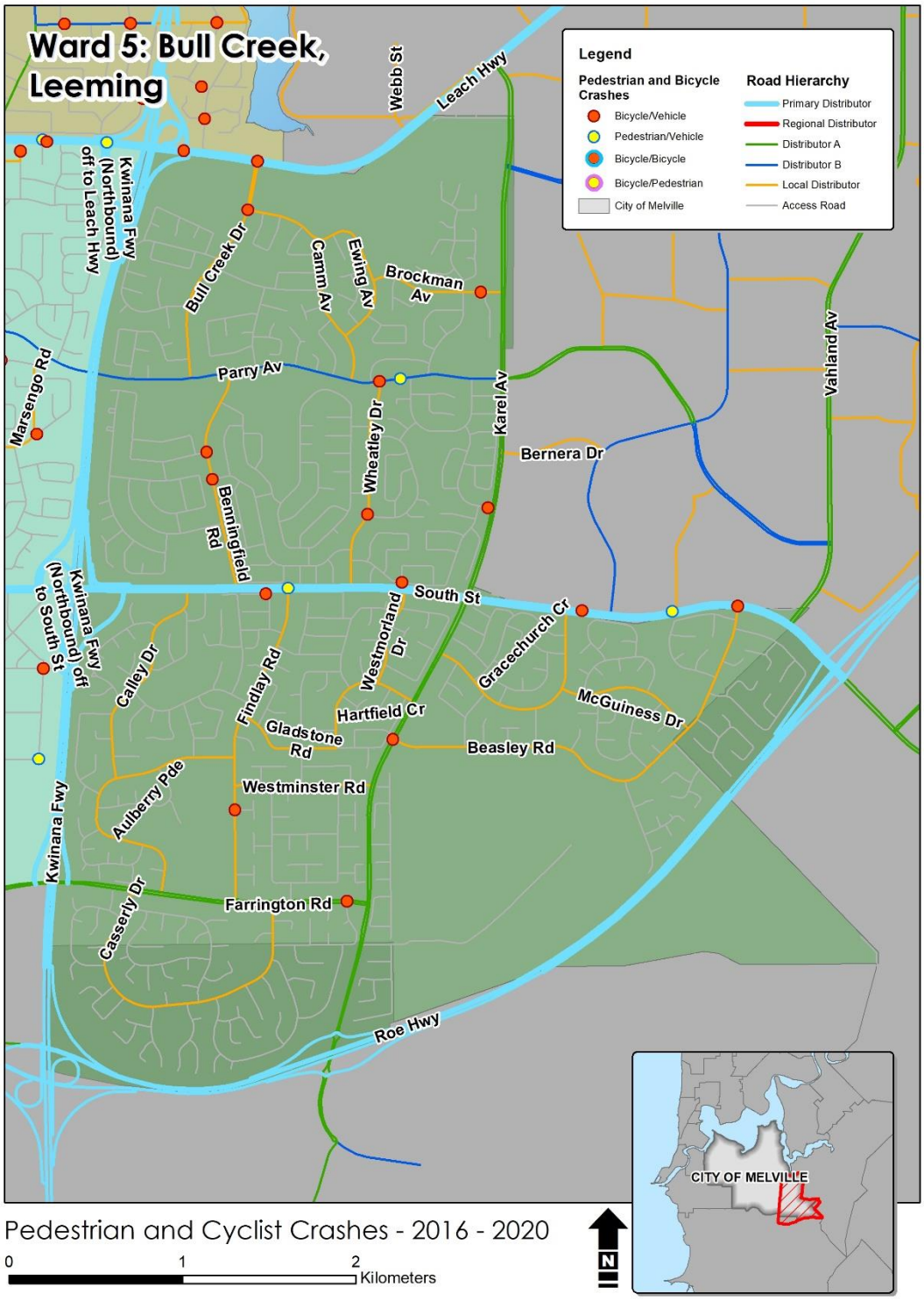
B.2.3 Ward 3: Applecross, Mount Pleasant



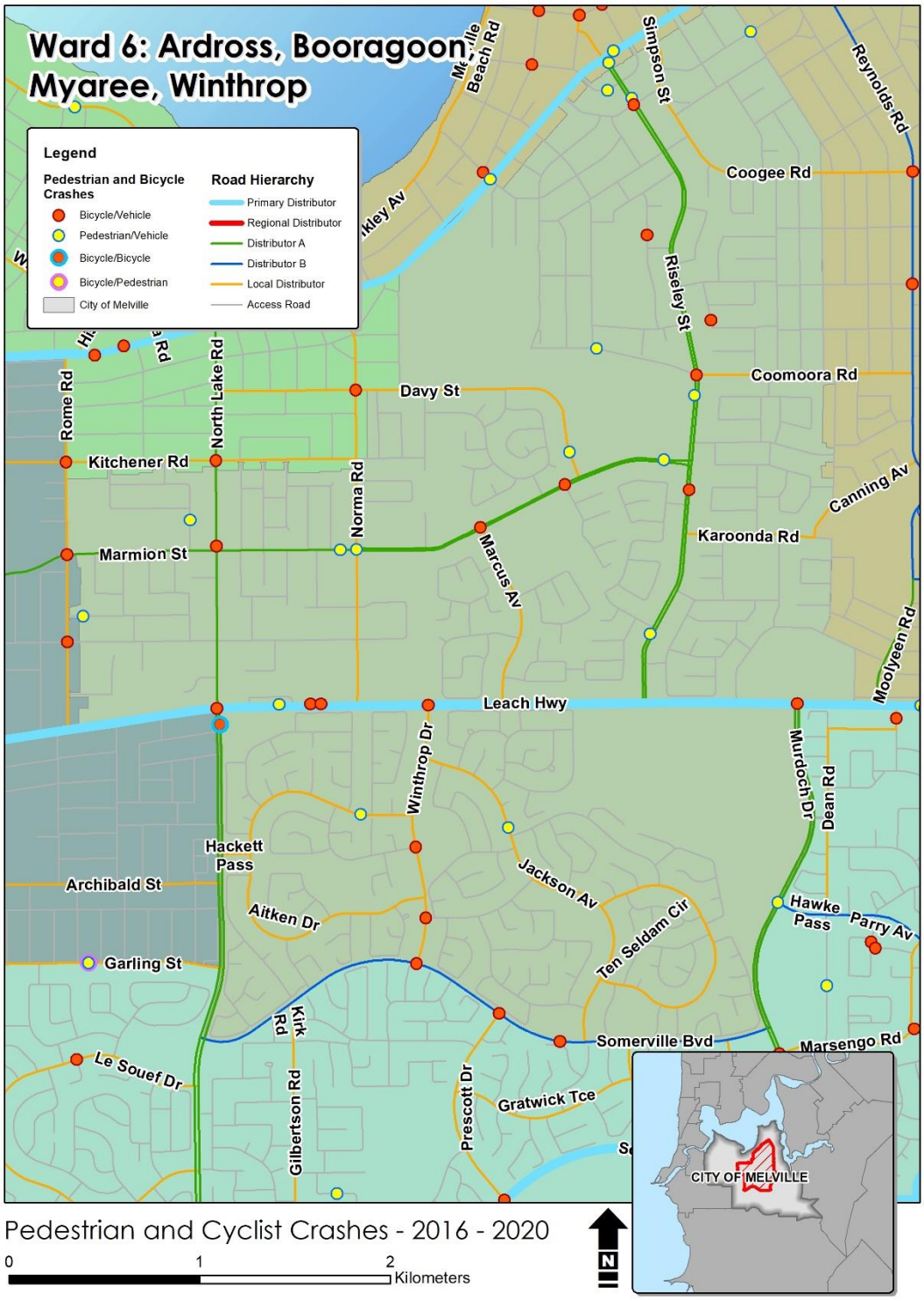
B.2.4 Ward 4: Bateman, Kardinya, Murdoch



B.2.5 Ward 5: Bull Creek, Leeming



B.2.6 Ward 6: Ardross, Booragoon, Myaree, Winthrop



Appendix C Bicycle Stress Mapping

C.1Method

Roads without dedicated infrastructure for active transport users can function as adequate facilities for bike riders under certain conditions. Specifically, roads with traffic volumes under 1,500 vehicles per day (vpd) and 85th percentile speeds under 30 kilometres per hour (km/h) serve as comfortable facilities for bike riders and do not require additional cycling infrastructure.

In the Western Australian context, there are very few roads speed zoned to 30 km/h, so roads with an 85th percentile speed of 40 km/h were also examined in this analysis. The bicycle stress calculation follows the formula below:

$$\left(\frac{AWT}{1500}\right) * \left(\frac{85thSp}{30}\right) = Bicycle\ Stress\ Level$$

$$where\ AWT = Average\ Weekday\ Traffic\ and\ 85thSp = 85th\ Percentile\ Speed$$

Links Road, although zoned as a 30km/h is not shown on the maps in this chapter as the data pre-dates the speed zone change.

If the bicycle stress level is greater than 1, then the facility is considered to be stressful for bike riders without the provision of additional infrastructure. For facilities with extremely low volumes or 85th percentile speeds, this method begins to break down. However, this situation occurs very rarely.

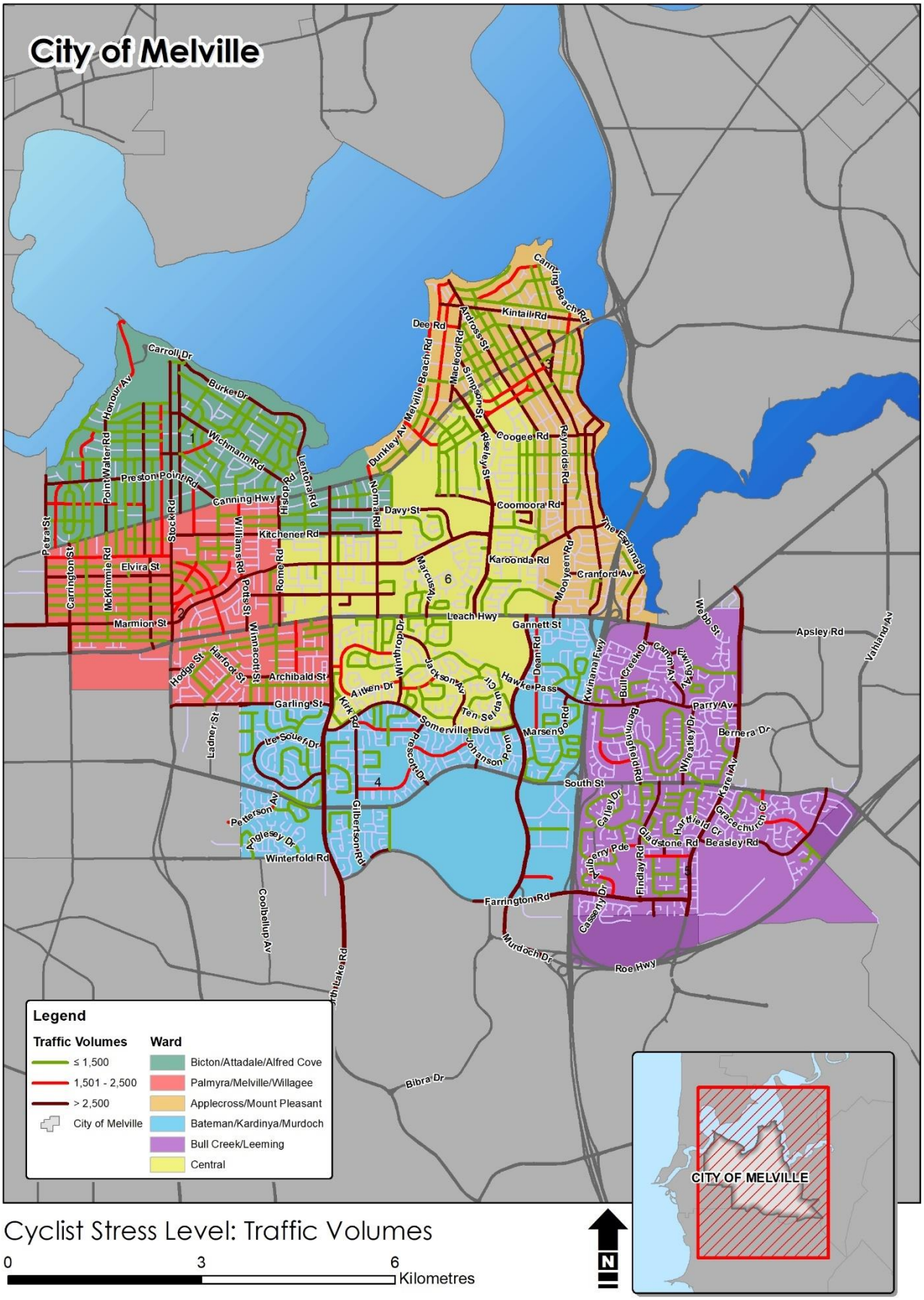
C.2Results

To interpret the results, traffic volumes and 85th percentile speeds, which are the two criteria needed to generate a bicycle stress level, are presented on individual maps. The third map presents the results of the bicycle stress calculation.

C.2.1 Traffic Volumes

Many of the access roads in the City of Melville have volumes under the 1,500 vpd threshold, while some local distributors have volumes between 1,500 and 2,500 vpd. Based solely on volumes, many of the access roads in the City of Melville would be considered comfortable for bike riders without additional facilities.

Figure 8-1: Cyclist Stress Level – Traffic Volumes

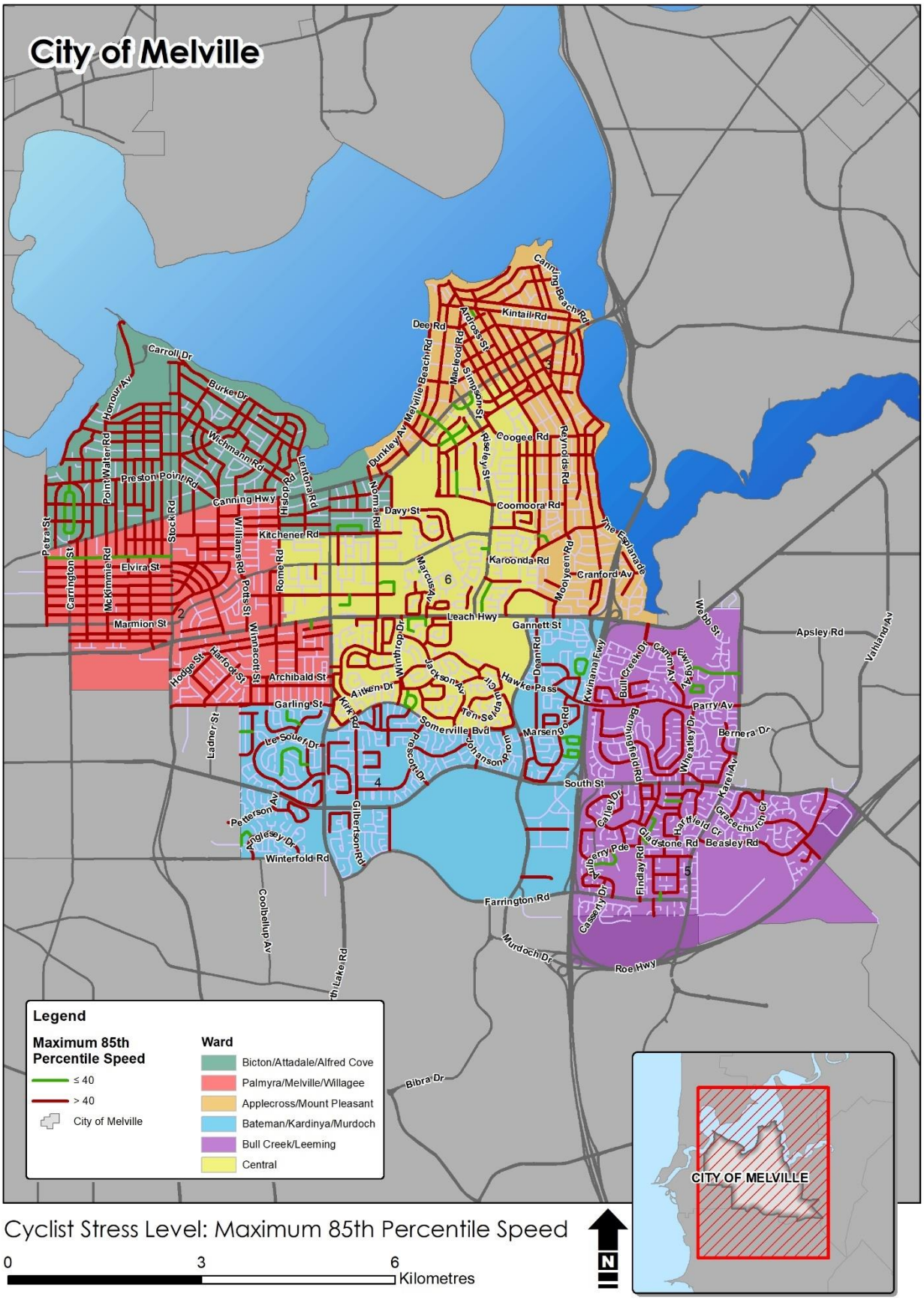


Source: City of Melville

C.2.2 85th Percentile Speeds

Very few roads in the City of Melville have 85th percentile speeds under 30 km/h or 40 km/h (see map below). This is understandable, as access roads are typically speed zoned at 50 km/h. However, even with low volumes of traffic, roads with 85th percentile speeds over 40 km/h are still considered to be stressful for bike riders without additional infrastructure.

Figure 8-2: Cyclist Stress Level – 85th Percentile Speeds

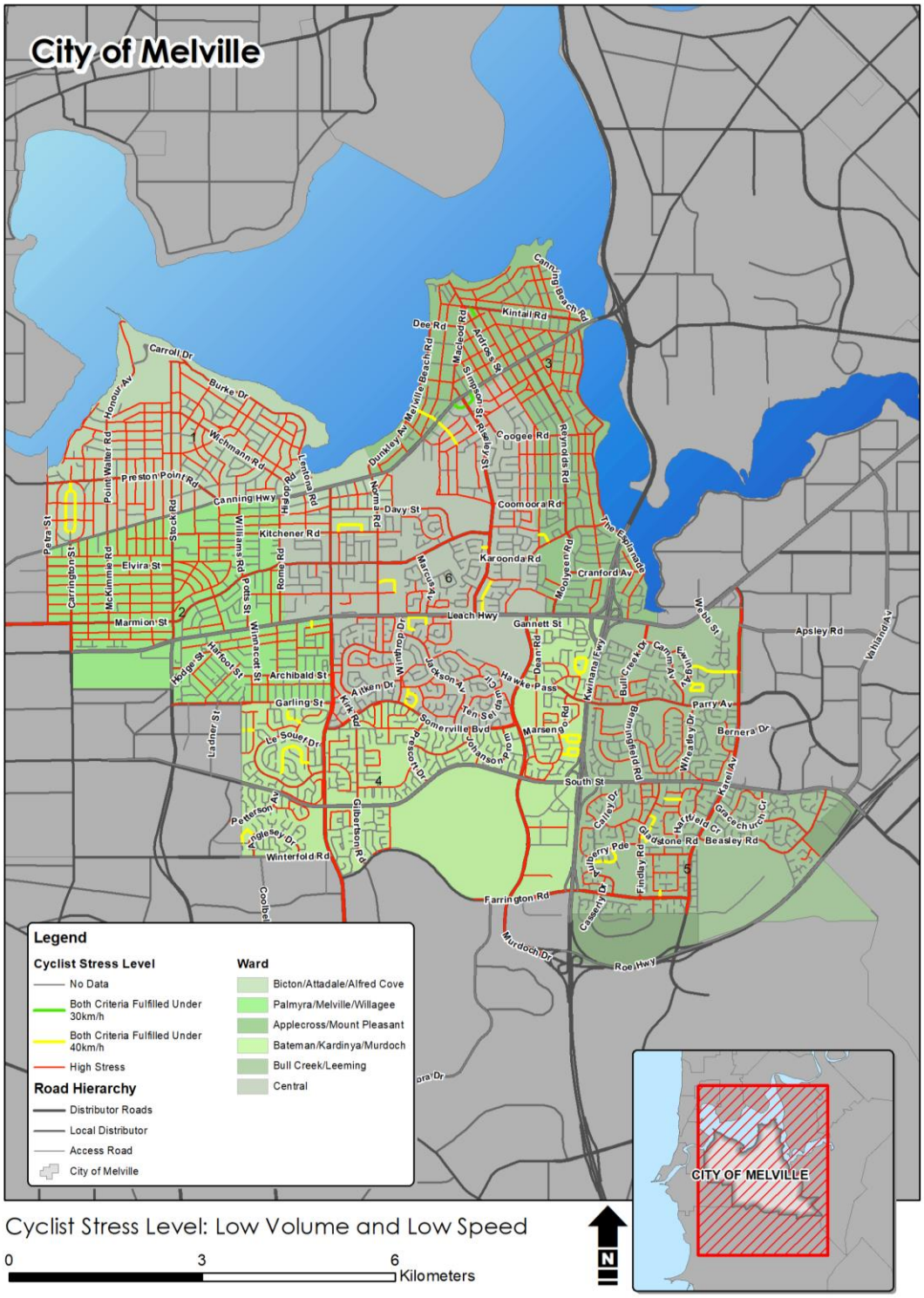


Source: City of Melville

C.2.3 Bicycle Stress Map

The map below presents the bicycle stress map for the City of Melville's on-road cycle network. As discussed, there are very few streets which meet the criteria for a comfortable cycling facility without the need for additional infrastructure. However, a reduction in 85th percentile speeds on access roads could create the conditions for safe and comfortable cycling, particularly on roads with lower volumes.

Figure 8-3: Bicycle Stress Map



Source: City of Melville

Appendix D Stakeholder Engagement

D.1Internal Workshop

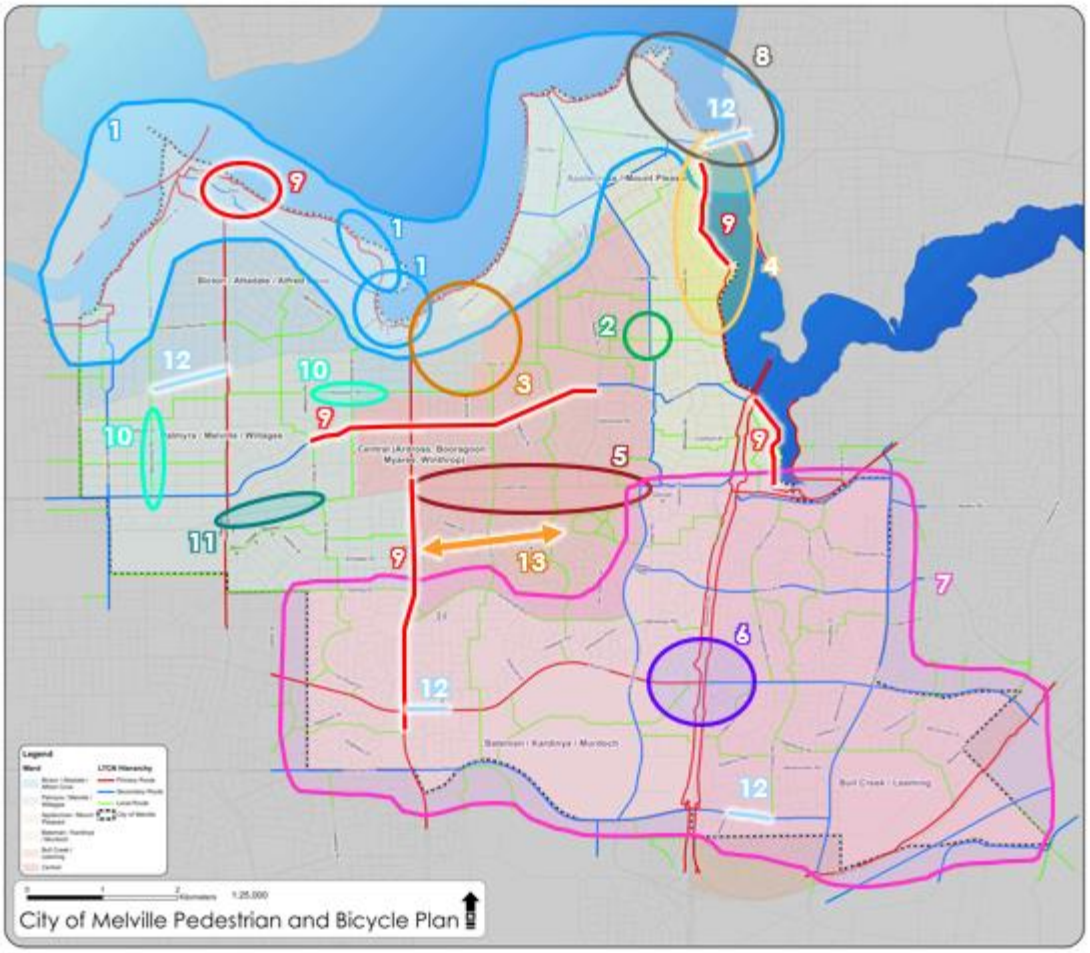
The internal workshop took place on the 21st October 2021, the purpose of which was to understand the City's priorities, issues and aspirations or walking and riding infrastructure, and to inform planning for external stakeholder engagement. The items discussed included:

- Discussing what the vision for walking and riding in the City in 10 years' time might include
- Setting the context for the Plan
- Presenting the methodology for the Plan
- Identifying key issues, opportunities and behaviour change initiatives which would help to inform future planning for walking and riding around the City
- Shaping external consultation process
- Next steps.

Participants were invited to provide feedback relating to issues, opportunities, routes and behaviour change at 4 different stands, and rotate around each stand after a period of time.

The following images below provide a summary of those discussions.

Internal Workshop Discussion - Issues



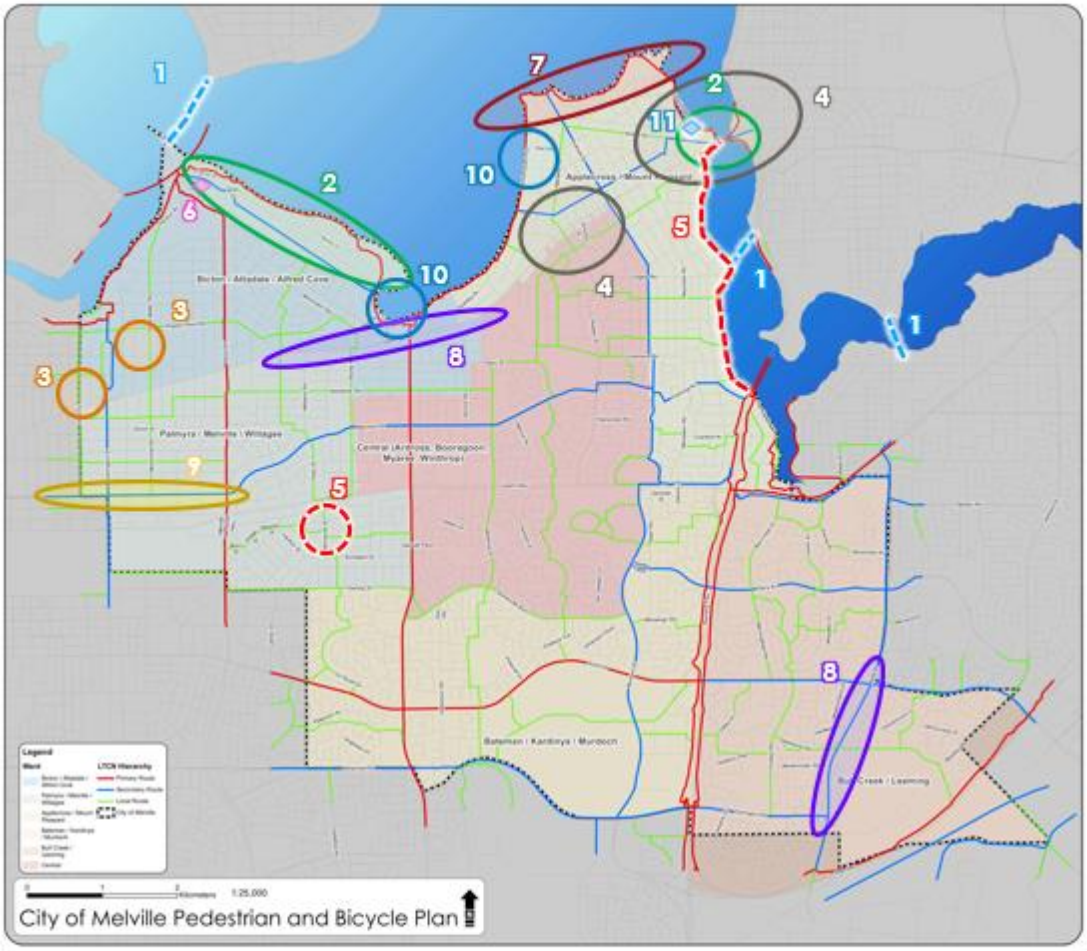
ISSUES

1. Conflicting Users – cyclists and pedestrians
2. Poor access to parks – e.g. Square kerbs, no paths, no connections
3. Rat runs
4. Severance, convergence of path users, pinch points
5. Severance
6. Connections to destinations
7. Lack of Place – "Forgotten" wide roads, no feedback, low density
8. Lack of wayfinding
9. Dangerous route
10. Steep road sections
11. Issues with school children
12. Lack of crossing or need for safer crossing opportunities
13. Lack of connections

General Issues

- Lack of connectivity – to destinations (schools)
- Severance Issues
- Context – Where, Place/Centres, Why, Purpose, Barriers
- Lack of Wayfinding
- Fit for purpose
- Increased traffic – Rat Runs
- Policy visions is not aligned
- Propensity for behaviour change by age
- Speed
- Shade/rest stops
- Disconnection between paths
- Internal Primary Routes need upgrading
- Conflicting Community Views
- Budget constraints
- Fast roads are barriers
- Problem Streets: Petra St., Point Walter Road, Stock Road
- Alternative east-west connection instead of Leach Hwy.
- No footpath linkages to get to bus stops

Internal Workshop Discussion - Opportunities



OPPORTUNITIES

1. Bridge
2. More shade
3. Separate bike lanes
4. Activity Centre wayfinding
5. Safe Active Street Implementation
6. Signage – behaviour change
7. Stabilise paths from erosion
8. Shared Use Path
9. Dedicated cycle lanes
10. Boardwalk connection to river
11. Opportunities based on new development

General Opportunities

- Increased connections to activity centres/schools/community centres/parks
- More shade
- Perimeter paths within neighbourhood/district parks
- Education for sharing facilities – signs in hotspots
- More Safe Active Streets
- Minibuses servicing local areas (activity centres/schools)
- Agreed implementation priorities
- Safer crossings on arterial routes

D.2Online Engagement

A community and stakeholder engagement program was developed to better understand the future vision key stakeholders have about how people move around the City, using active transportation in a safe, convenient and connected manner.

A stakeholder engagement program was developed, using a number of engagement tactics to gather a range of perspectives from both internal and external stakeholder groups, with a key interest in shaping the future of pedestrian and cycling facilities in the City of Melville.

An initial step in the engagement process utilised the City's 'Melville Talks' online engagement platform, to canvass the community about their aspirations for walking and cycling in and around the city. Leveraging the online survey and interactive mapping functionality of Social Pinpoint, the city undertook a far-reaching promotional campaign, inviting both residents and visitors to the City, to provide feedback on key elements of the Plan.

Between November 11thnd and December 12th, 2021

- 140 people completed an online survey,
- 299 comments were attributed to the interactive map; and
- over 1000 visits were made to the City's engagement platform.

A wide range of feedback was gathered on how individuals utilise footpaths and streets for walking and riding around the City, as well as where they feel most safe in doing so. Stakeholders were also encouraged to provide feedback on popular routes across the City including routes that adjoined with neighbouring Local Government boundaries.

As the consultation period progressed, responses were monitored by the City to ensure that, as much as possible feedback was obtained from a representative sample of demographic groups as well as from as many wards as possible. Additional promotion took place throughout the survey period to illicit further responses from underrepresented groups.

A summary of the feedback received is outlined below. The full Online Engagement Outcomes Report can be found in Appendix F.

D.3Walking

Community facilities are the most frequented walking destinations amongst respondents, with 34% walking to them on a daily basis.

- Respondents between the ages of 25–34 years of age and over 65 years of age walk to these facilities the most.
- Respondents living in Myaree, Alfred Cove and Brentwood using walking as the most popular active mode of transport to get to these facilities.

Schools were identified as the place least walked to by respondents (although arguably school aged children were unlikely to have represented a large proportion of survey respondents):

- 31% of respondents who walk to school do so daily.
- when considering the data without those who responded never (73%) due to the likelihood this group do not attend or visit school.
- The majority of respondents who walk to a school daily are between 35 and 64, (likely age of parents or carers of school ages children.
- Respondents living in Bull Creek, Bateman and Myaree are most likely to walk to school daily.

The top primary motivations of respondents for walking include Exercise (37%) and Wellbeing (21%).
The most common barriers that prevent respondents from walking include:

- lack of footpath
- difficulty crossing roads
- traffic speeds/volume.

Majority of the respondents stated they would prefer a footpath on one side of the road (69%) rather than on both sides of the road (27%). There is a need for more footpaths around the city.

A total of 36% of the respondents identified that overall, the City is good or very good – in terms of pedestrian friendliness, with 33% of residents identified the city as poor or very poor.

Results demonstrated Booragoon, Mount Pleasant, and Palmyra were the most pedestrian friendly suburbs.

The least friendly suburbs for pedestrians include Brentwood, Leeming (part) and Willagee.

D.4 Riding

The most popular mode of active mobility used by residents is bicycles at 58% followed by E-bikes at 13%. A total of 15% of residents don't have access to alternative mobility options.

Community facilities are the most frequented riding destinations with 10% of locals riding to them on a daily basis, and 21% a few times a week. People over 45 years old ride to these facilities the most, and people living in Myaree and Attadale ride to these facilities the most.

School is identified as the place least rode to by residents (although comments relating to the proportion of school-aged respondents from the previous section also applies):

- 22% of locals who ride to school do so daily when considering the data without those who responded 'never' due to the likelihood this group do not attend or visit school.
- Majority of those who ride to a school daily are between 18 and 24, possibly as university students.
- Suburbs in which people ride daily to school include Kardinya, Palmyra and Myaree.

The primary motivation for riding includes Exercise (52%) followed by Transport (20%).

When asked to indicate where residents feel safe riding, busy main roads are an area that people feel most unsafe in and separated footpath facilities for riding was where people felt the safest.

When asked how rider friendly the city is, majority (43%) state good, while 25% state very poor and 29% state poor.

D.5 Comments from the Interactive Map

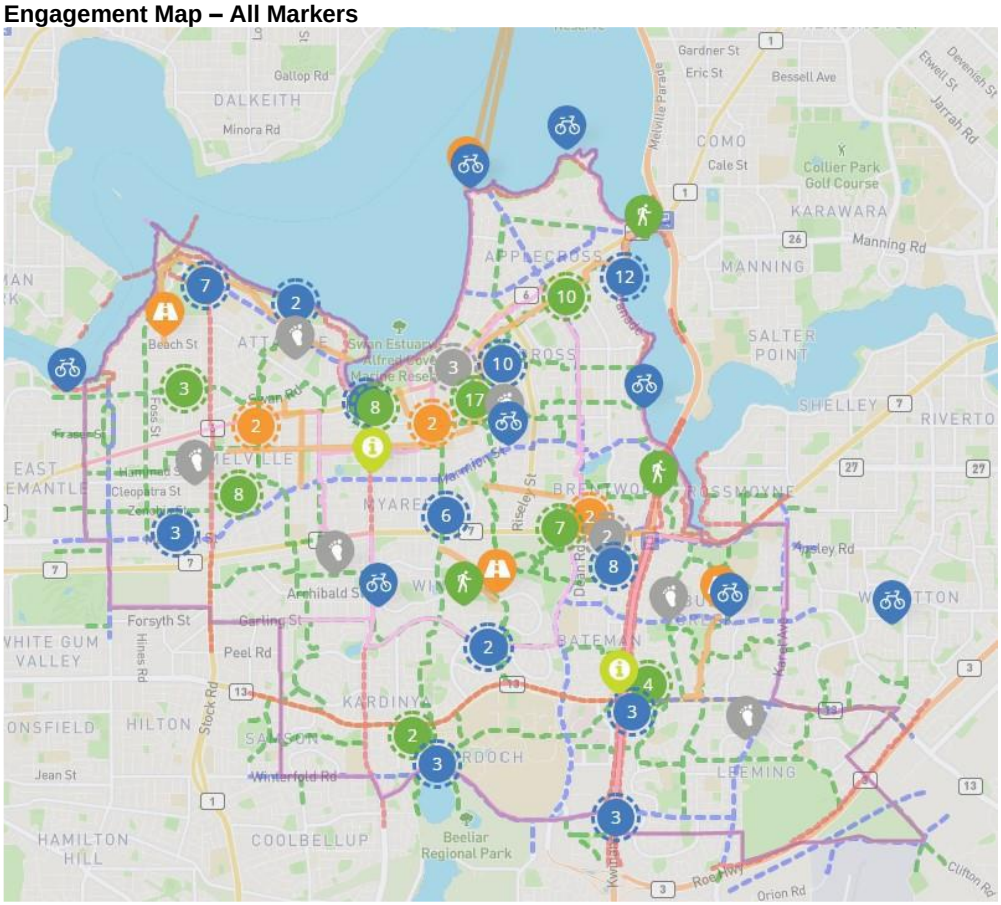
Participants were able to place markers on a map which either corresponded with Riding, Walking, Footpaths and Routes. A total of 299 markers were placed along with comments, the public were able to have discussions under these comments to raise issues or appreciations. The findings are summarised below:

- 6.4% were route markers
  - Users outlined the routes they took around the city, and the themes of accessibility, safety and need for more paths.
- 7% were footpath markers
  - The community raised ideas on accessibility, safety and many areas that need footpaths or require maintenance.
- 39.5% were walking markers
  - Many of the walking markers were regarding the safety of pedestrians, concerns around traffic and the sharing of paths with riders. Other themes raised included specific streets such as Canning Hwy and Riseley street that are unsafe. The community also focused on accessibility, amenity, and safety, in particular difficulty crossing major roads.
- 47.1% were riding markers
  - Many markers for riding regarded how unsafe the community feels crossing major intersections and roundabouts around the city, along with feeling unsafe on roads with cars. Other themes included accessibility, amenity, and safety. 17% of comments relating to riding mentioned roundabouts and the need for traffic calming.

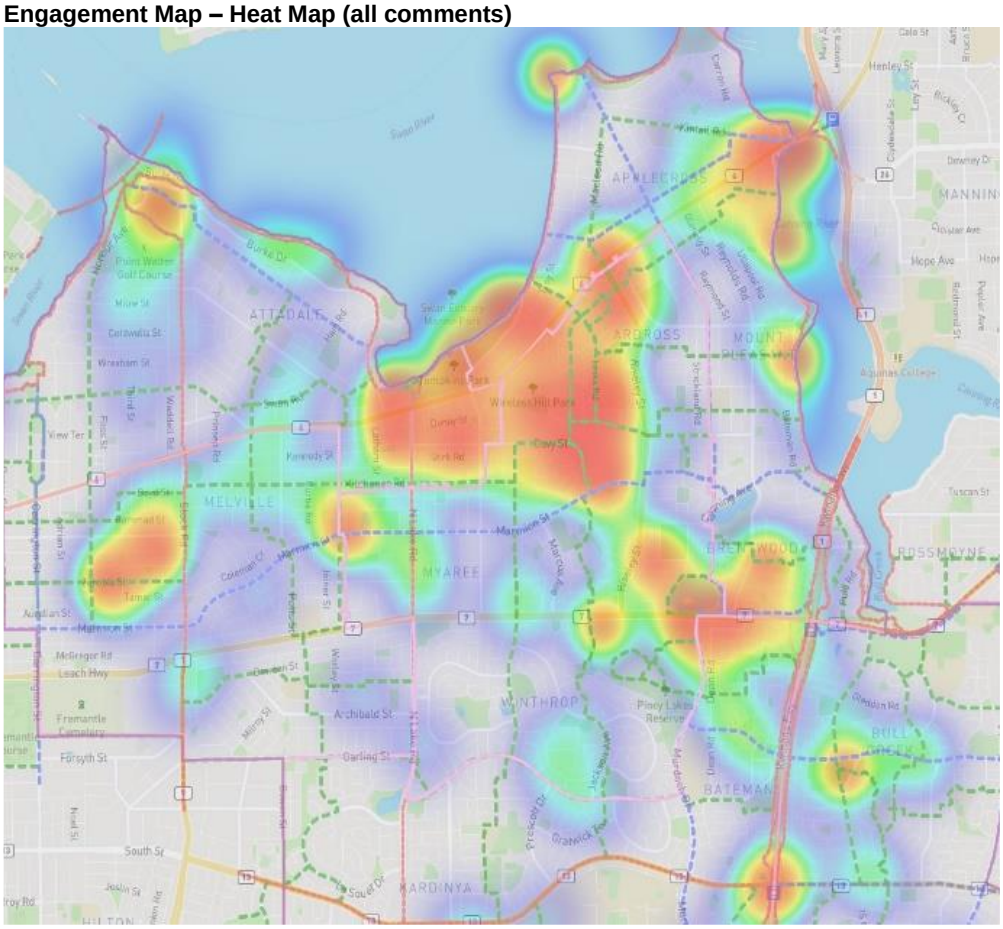
Other issues mentioned include illegal parking making it dangerous for anyone using footpaths. The most popular comment made with 13 upvotes by the community was "Canning Bridge underpasses (both east and west) are dangerous, narrow, have blind spots and sand piles on entry or exit, and are frequently under water during winter or high tides." A main frustration in the community is the difficulty and lack of safety crossing major roads.

The below figures show the outcome of the interactive map, as a heat map and showing the markers placed by the community. This created a visual tool to understand where exactly residents had issues or commendations on walking and riding facilities.

Engagement Map – All Markers



Engagement Map – Heat Map (all comments)



D.6External Workshop 1

A workshop with external stakeholders was held online on 10th February 2022 to coordinate the Melville Walk and Ride Plan. The following organisations were in attendance:

- South West Group
- WALGA
- City of Cockburn
- City of Canning
- Department of Transport
- City of South Perth
- Main Roads WA
- Westcycle
- Town of East Fremantle

The City of Fremantle was invited but was unable to attend. Several key themes were discussed during the meeting.

D.6.1 Quality/Quantity

Regarding footpaths, the group discussed whether providing high-quality footpaths would be likely to increase walking and cycling or whether providing as many footpaths, of varying quality, as possible is a better way forward. Considerations for shade are also important for the comfort of those people walking.

D.6.2 Footpath Placement

There was some discussion of the merits of placing a footpath on the kerb line versus the property line. Often, this decision must be based on existing utilities and/or the presence of trees. Some residents do extensive maintenance of the verge and view this as an extension of their garden.

D.6.3 Reduction in Space for Traffic

Providing high quality places for people to walk and ride was also discussed. Cycle infrastructure is often combined with areas where there are also high walking volumes. If possible, trials of using the road reserve for bicycling and walking infrastructure over motor vehicle infrastructure could be explored. Speed reduction should also be considered across the City of Melville where appropriate, according to participants.

D.6.4 Roundabout Design

Roundabouts are a contentious issue for people riding bikes. Often, on-street bicycle facilities will disappear on the approach to a roundabout. There was discussion among the group about putting a ramp in place at roundabouts to allow those that wish to use the pedestrian infrastructure the option to do so. The group also discussed trialling a radial roundabout.

D.6.5 Transport User Behaviour

Many of the participants indicated that there can be conflict between pedestrians, bike riders, and motor vehicles, particularly at locations where different modes interact (roundabouts, LATM squeeze points, etc.). The introduction of E-Rideables has also added another level of complexity to the interaction between modes. The use of education and encouragement programs to support courteous interactions between all transport users should be considered as part of this plan.

D.6.6 Traffic Signal Phasing/Priority Crossings

In particular for pedestrians, traffic signals often lack pedestrian phases or, if pedestrian phasing is included, have very long wait times. Pedestrian crossings at midblock locations lack priority, making it dangerous to cross the road. This is often the case in areas with higher levels of pedestrian traffic, such as near shopping destinations.

D.6.7 Vulnerable Users

Many children wish to take advantage of the walking and cycling network. However, dangerous conditions preclude younger riders from walking and cycling safely.

D.6.8 Planning Philosophy

Two key planning philosophies were mentioned during the meeting: Healthy Streets and the Safe System Approach. Participants suggested that the City of Melville apply these philosophies in assessing the needs of active transport users on specific roads or in relation to new projects moving forward.
Some additional points were made by stakeholders outside of the workshop, which are summarised below.

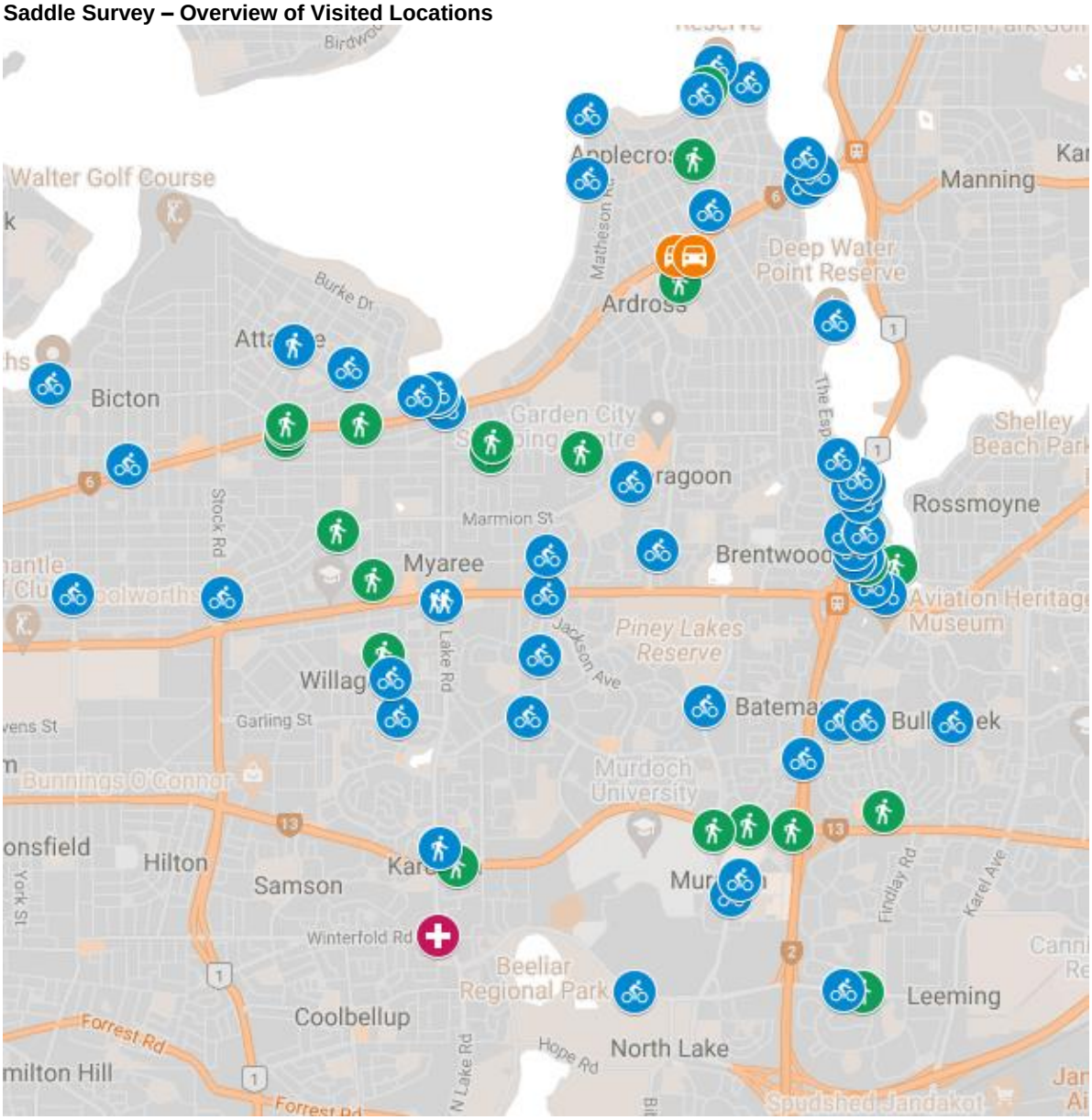
- Maintenance – it was suggested that a fundamental part of the plan be the preservation of existing infrastructure
- Rat-running – efforts to combat this behaviour
- E-Rideables –Users of E-Rideable devices will likely use the same infrastructure. Consideration should be given to providing secure parking to E-Ridables and bicycles at key City-owned destinations.
- Wayfinding – Better wayfinding is strongly supported.
- Interfacing Projects
- Town of East Fremantle
  - Petra Street: A new section of concrete footpath is proposed to tie into an existing path near the Bicton Baths.
- City of Canning
  - Apsley Road: Canning has plans to implement protected bicycle infrastructure on Apsley Rd as well as a new shared path south of Rossmoyne SHS along an existing fire break within Bull Creek Park. This project would create a key connection to the existing shared path network within the park that joins Leach Highway shared path.
- City of South Perth
  - Canning Bridge to Curtin University Cycle Route: This project will run along Davilak, Godwin, and Pether Roads.
  - The Canning Bridge Train Station will be redeveloped with associated pedestrian and bicycle improvements.
- City of Cockburn
  - Intersection of North Lake/Winterfold Road: The City of Melville is working on the signalisation through Black Spot funding
  - Shared Path along Hope Road: The City of Cockburn completed the construction of a shared path along Hope Road between Bibra Lake and Freeway.

D.7Saddle Survey

Stantec and the City of Melville undertook a saddle survey over the course of 2 days, driving and then riding through the locations highlighted within the community survey (see heat map in Appendix D.5) in order to experience the issues presented by the community as someone walking or riding in that area.

A total of 85 site notes were taken at the locations pinpointed below with a sample of the photographs taken from the side visits following.

Saddle Survey – Overview of Visited Locations

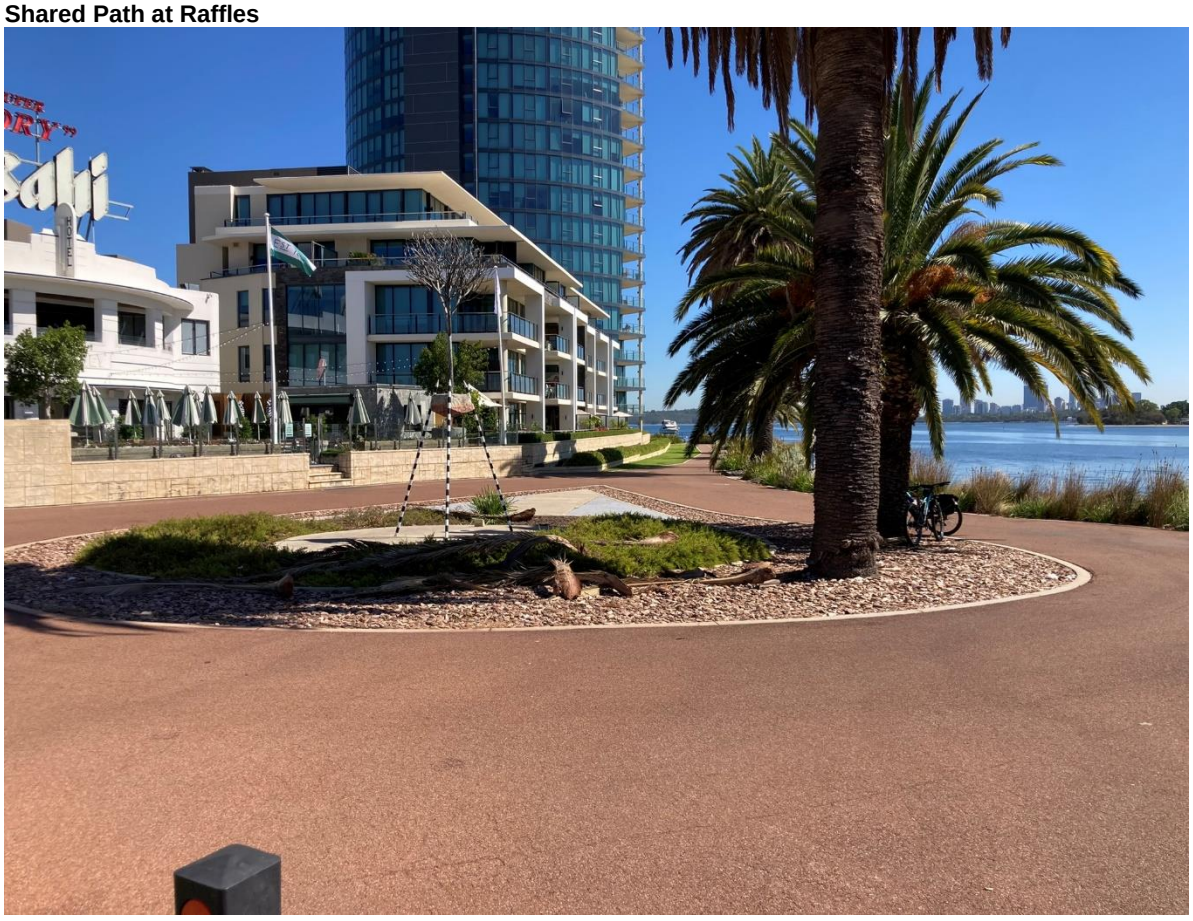


Bike parking at Deep Water Point

Foreshore shared path near Heathcote Reserve

People congregating at the coffee van at Mount Henry Bridge

Shared Path at Raffles



Apex Reserve Shared Path

Canning Beach Road Convergence of Shared Paths

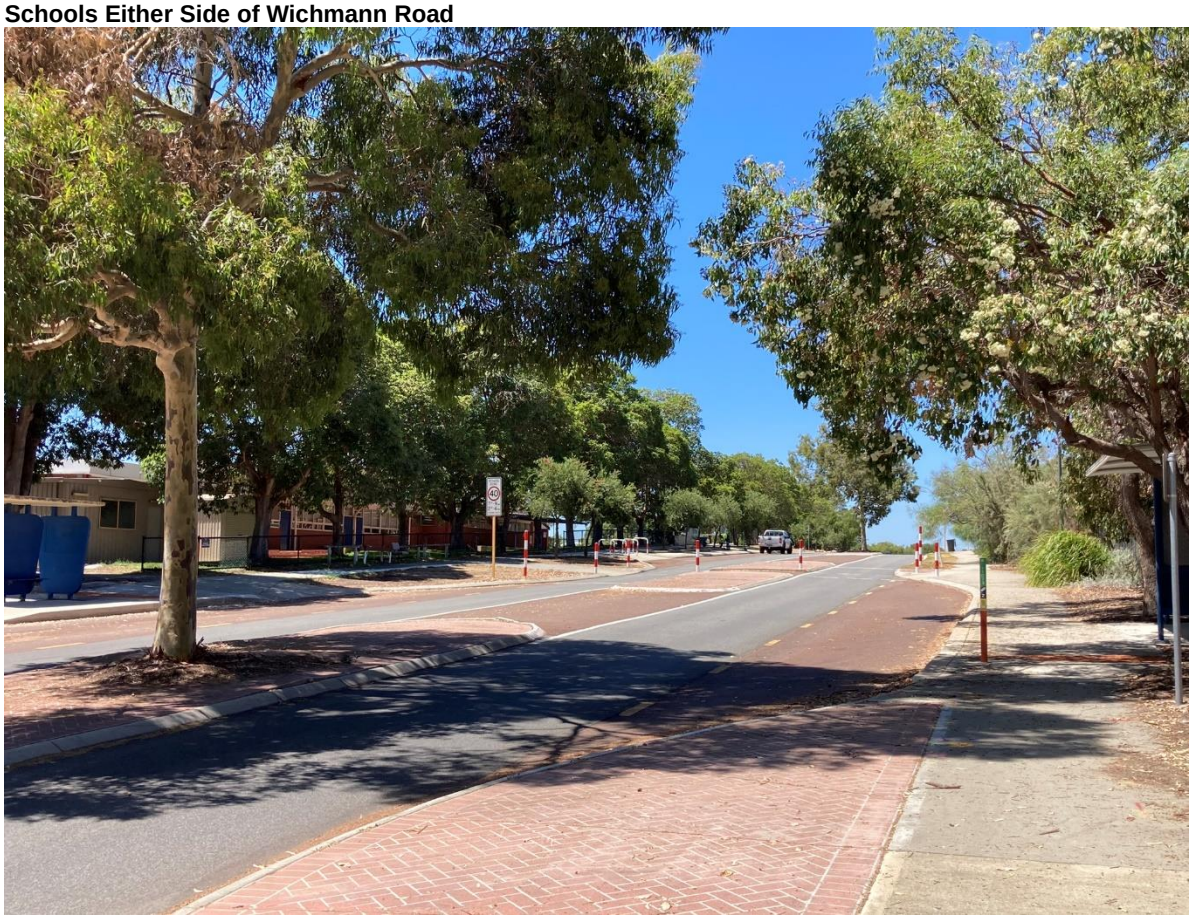
Canning Bridge Underpass

Foreshore Path Connecting with Dee Road

Blind corner on Foreshore Shared Path North of First Avenue

Preston Point Road Intersection with Canning Highway

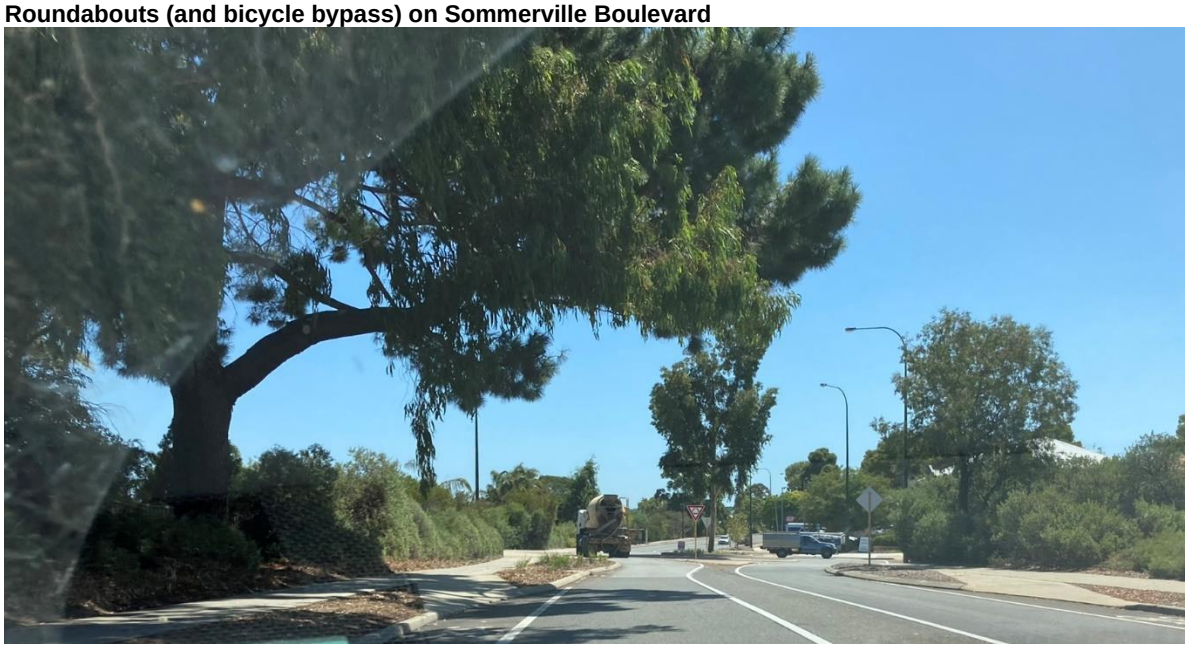
Schools Either Side of Wichmann Road



Footpath on Money Street (heading south)

Public Access Way (between Leach Highway and Marmion Street opposite Winthrop Drive)

Roundabouts (and bicycle bypass) on Sommerville Boulevard



D.8External Workshop 2

The second external workshop took place on Thursday 28th April 2022. It was held online, and had community representatives present, as well as a number of external stakeholder organisations, and officers from the City. The executive summary from the Community Consultation Outcomes Report was circulated to attendees prior to the session.

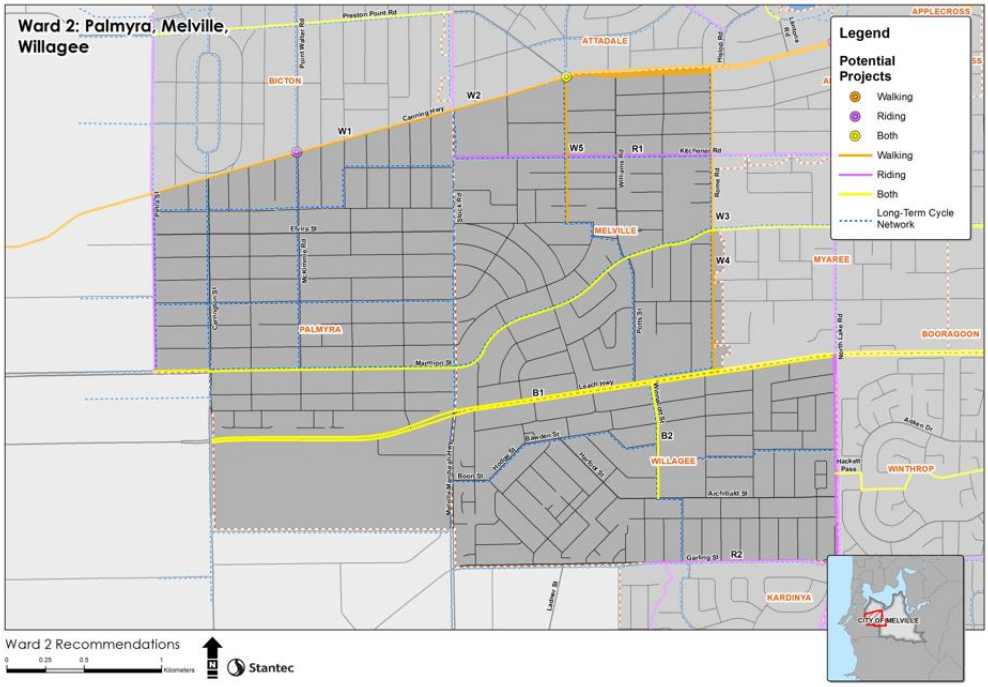
The session covered:

- Purpose of the study and the session
- An overview of the work undertaken to date
- An overview of consultation outcomes
- Proposed changes to the LTCN
- Preliminary Walk and Ride Networks – discussions by Ward
- Proposed approach to the prioritisation of projects
- Next steps.

For the discussion relating to the preliminary walk and ride networks, attendees were allocated to two different online breakout rooms facilitated by the Stantec project team where specific projects that were highlighted through the consultation were discussed by ward and by priority.

Each ward map showed the identified project (either location specific or along a corridor or section of road), whether they related to walking or riding (or both), and how they interacted with the LTCN (see below).

Project Map Example (by ward) – Ward 2



Information relating to the issue and its preliminary priority score was also provided (see below). The score was determined by how often this issue came up in internal/external stakeholder consultation and whether it was corroborated by data and during site observations. A score of 1 is low priority.

Example Ward Project List – Issues and Priorities – Ward 2

ID	Location	Issue	Preliminary Priority
W1	Canning Highway	Safer crossings	2
W2	Canning Highway	footpath quality	1
W3	Rome Road	High traffic volumes,needs calming	4
W4	Rome Road	Footpath issues, accessing schools, aged care facility	1
B1	Leach Highway (Stock Road to Potts Road)	School children crossing Leach Hwy	1
R1	Kitchener Road	Problematic intersections	4
B2	Winnacott St (Leach hwy to Archibald)	Multiple schools, park	2
W5	Money Street	Footpath width	2
R2	Garling Street	Cycle lanes too narrow	2

The session provided an opportunity for attendees to accept or reject the proposed projects as well as a final chance to suggest additional issues or projects for consideration.

Appendix E Internal Workshop Survey Results

What's your vision for walking in and around the City in 10 years time?

Mentimeter

Well connected, accessible, and safe for all ages and abilities.

Shared paths seats places to rest shade

Connecting places and centres and attractions

Safer crossings in hot spot areas and more footpaths throughout the coty

People who are happy, able and willing to walk around the City of Melville in an accessible, safe and enjoyable way.

Accessible walking paths, more people on the streets.

Better infrastructure, network & safety for all users.

Pedestrians given priority on the street and in our budgets.

Little as possible

18

What's your vision for walking in and around the City in 10 years time?

Mentimeter

City of Melville is a place that puts pedestrians first in places, infrastructure, connections and centres

Safe connections, accessible, inviting.

Connection, separation from bikes, shade, rest points, lighting,

Improved infrastructure for walk and ride

More people walking to local areas

Provide safer walking facility

Safe, quick, protected and connected infrastructure

Safe and well connected, suitable for all users

People who feel comfortable to walk out their door with kids for recreation and school, kids playing on the street.

18

What's your vision for riding in and around the City in 10 Years time?

Mentimeter

Riding given priority over cars on the road

Separated bike lanes. Safe crossing at major intersections slow vehicle speeds

Increased safer riding facility that encourages riding

Well connected to public transport and activity centres

Dedicated cycle lanes and we'll appointed bike charging stations

More dedicated cycle or shared paths. Increase in cycling and younger people getting around

All centres easy to access by bike. Bike lanes separated from cars.

More people on bikes, commuting safely around the city. Dedicated bike paths for electric bikes/scooters.

Separation between ebikes and pedals, less intersections,

17

What's your vision for riding in and around the City in 10 Years time?

Mentimeter

Safe for faster electric cycles.

A bigger network for cyclists with end of journey facilities.

Address conflicts between pedestrians and riders on shared paths.

Safe riding, protected paths. CoM invests in road infrastructure. CoM has fleet electric bikes.

Better connections in and out of the City.

Safer connections, more riders than cars! Better sharing of spaces

Where riding is normalised, comfortable and accepted by drivers

Our places/centres are easily accessible by riding to a centre from its catchment, between centres and regionally

17

What do you think is the biggest number one issue for encouraging people to start riding and walking around the City?

Mentimeter

- Slowing vehicle speeds
- Wayfinding (or lack there of)
- Speed of traffic next to bikes
- Time
- Behavioural change.
- Cost of bikes, negative experiences , time
- Fear of the unknown.
- Connections. Pathway. Education.incentives
- Providing a network that takes people to where they want to go

17

What do you think is the biggest number one issue for encouraging people to start riding and walking around the City?

Mentimeter

Lack of accessible and connected routes

Not the first travel mode people think of..

Speed and behaviour of drivers

Motivation to get started

SafetyUnprotected riding facultyUnconnected riding facilities

Convenience. Diret paths to destinations

Footpaths are narrow, lack of shade, poor way finding, vehicle speed, convenience.

Safety - not enough separated paths. Habit- people are so used to getting in the car.

17

If you had no constraints - what's your number one idea for improving the experience of people walking and riding in and round the City?

Mentimeter

- Remove cars
- Take space away from cars and give it to walkers and riders.
- Provide protected riding and walking facilities
- Separate paths for walking & cycling.
- No cars, no helmet fines, secure facilities
- Reduce road widths
- Shade and an interesting interactive environment
- Dedicated walking and riding facilities
- Model other countries were cycling and walking is the norm

17

If you had no constraints - what's your number one idea for improving the experience of people walking and riding in and round the City?

Mentimeter

Close road access to cars, so spaces are only available to pedestrians or bikes, like in the city.

Seperate lanes

Foot paths along all roads

Slower streets

Implement best practice from around the world, without concessions to the main roads hierarchy and network.

Remove cpnflict point s

Implement safe active streets everywhere! Narrow roads, increase footpaths, separated bike lanes, lots of shade, more interest in activity centres, increased local employment.

Dedicated cycleways.

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Appendix F Community Survey Outcomes Report

City of Melville Walk and Ride Plan

Online Engagement Outcomes Report

Social Pinpoint Analysis

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Exploring New Boundaries

Certified B Corporation

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Version:	Final

Contents

Executive Summary

As part of the City of Melville's (the City) development of a Walk and Ride Plan, the City developed a community and stakeholder engagement program to better understand the future vision key stakeholders have about how people move around the City, using active transportation in a safe, convenient and connected manner.

A stakeholder engagement program was developed, using a number of engagement tactics to gather a range of perspectives from both internal and external stakeholder groups, with a key interest in shaping the future of pedestrian and cycling facilities in the City of Melville.

An initial step in the engagement process utilised the City's 'Melville Talks' online engagement platform, to canvass the community about their aspirations for walking and cycling in and around the city. Leveraging the online survey and interactive mapping functionality of Social Pinpoint, the city undertook a far-reaching promotional campaign, inviting both residents and visitors to the City, to provide feedback on key elements of the Plan.

Between November 11th[nd] and December 12th, 2021

- 140 people completed an online survey,
- 299 comments were attributed to the interactive map; and
- over 1000 visits were made to the City's engagement platform.

A wide range of feedback was gathered on how individuals utilise footpaths and streets for walking and riding around the City, as well as where they feel most safe in doing so. Stakeholders were also encouraged to provide feedback on popular routes across the City including routes that adjoined with neighbouring Local Government boundaries.

A summary of the feedback received is outlined below.

Walking

Community facilities are the most frequented walking destinations within the City, with 34% of locals walking to them on a daily basis.

- People between the ages of 25–34 years of age and over 65 years of age walk to these facilities the most.
- People living in Myaree, Alfred Cove and Brentwood using walking as the most popular active mode of transport to get to these facilities.

Schools were identified as the place least walked to by residents.

- 31% of locals who walk to school do so daily.
- when considering the data without those who responded never (73%) due to the likelihood this group do not attend or visit school.
- The majority of those who walk to a school daily are between 35 and 64, (likely age of parents or carers of school ages children.
- Residents of Bull Creek, Bateman and Myaree are most likely to walk to school daily.

The top primary motivations of residents for walking include Exercise (37%) and Wellbeing (21%)

The most common barriers that prevent people from walking include lack of footpath, difficulty crossing roads and traffic speeds/volume.

Majority of the community stated they would prefer a footpath on one side of the road (69%) rather than on both sides of the road (27%). There is a need for more footpaths around the city.

36% of the community identified that overall, the **City is good or very good – in terms of pedestrian friendliness.** with 33% of residents identified the city as poor or very poor.
Results demonstrated **Booragoon, Mount Pleasant, and Palmyra were the most pedestrian friendly suburbs.**
The **least friendly suburbs for pedestrians include Brentwood, Leeming (part) and Willagee**.

Riding

The **most popular mode of mobility used by residents is bicycles at 58%** followed by E-bikes at 13%.

- 15% of residents don't have access to alternative mobility options.

Community facilities are the most frequented riding destinations with 10% of locals riding to them on a daily basis, and 21% a few times a week.

- People over 45 years old ride to these facilities the most
- People living in Myaree and Attadale ride to these facilities the most

School is identified as the place least rode to by residents

- 22% of locals who ride to school do so daily when considering the data without those who responded 'never' due to the likelihood this group do not attend or visit school.
- Majority of those who ride to a school daily are between 18 and 24, likely as university students.
- Suburbs in which people ride daily to school include Kardinya, Palmyra and Myaree.

The primary motivation for riding includes Exercise (52%) followed by Transport (20%)

When asked to indicate where residents feel safe riding, busy main roads are an area that people feel most unsafe in and separated footpath facilities for riding was where people felt the safest.

When asked how rider friendly the city is**, majority (43%) state good, while 25% state very poor and 29% state poor.**

Comments from Interactive Map

Participants were able to place markers on a map which either corresponded with Riding, Walking, Footpaths and Routes.
299 markers were placed along with comments, the public were able to have discussions under these comments to raise issues or appreciations.

6.4% were Route markers

Users outlined the routes they took around the city, and the themes of accessibility, safety and need for more paths.

7% were Footpath markers

The community raised ideas on accessibility, safety and many areas that need footpaths or require maintenance.

39.5% were Walking markers

Many of the walking markers were regarding the safety of pedestrians, concerns around traffic and the sharing of paths with riders. Other themes raised included specific streets such as Canning Hwy and Riseley street that are unsafe. The community also focused on accessibility, amenity, and safety, in particular difficulty crossing major roads.

47.1% were Riding markers

Many markers for riding regarded how unsafe the community feels crossing major intersections and roundabouts around the city, along with feeling unsafe on roads with cars. Other themes included accessibility, amenity, and safety. 17% of comments relating to riding mentioned roundabouts and the need for traffic calming.

Other issues mentioned include illegal parking making it dangerous for anyone using footpaths.

The most popular comment made with 13 upvotes by the community was *"Canning Bridge underpasses (both east and west) are dangerous, narrow, have blind spots and sand piles on entry or exit, and are frequently under water during winter or high tides."* **A main frustration in the community is the difficulty and lack of safety crossing major roads.**

The below figures show the outcome of the interactive map, as a heat map and showing the markers placed by the community. This created a visual tool to understand where exactly residents had issues or commendations on walking and riding facilities.

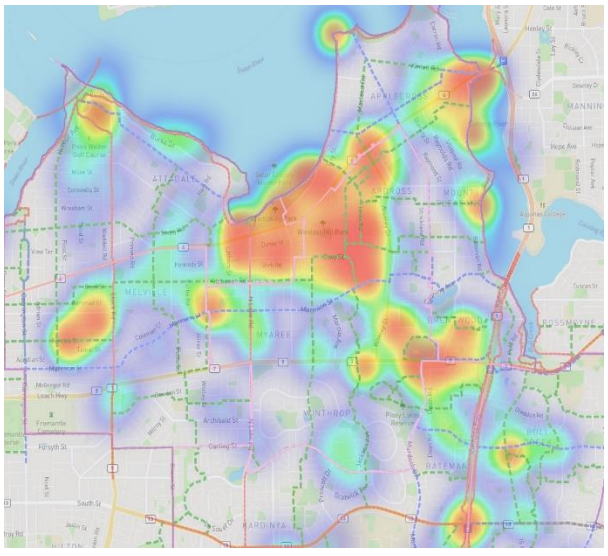


Figure 1 - Heat Map generated on Social Pinpoint

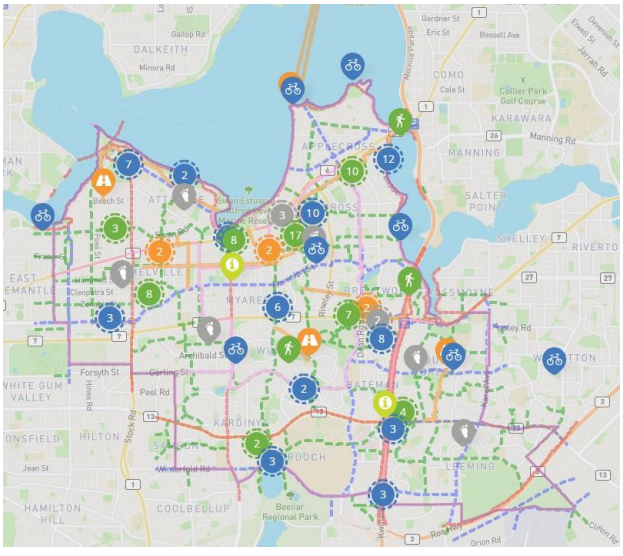


Figure 1.1 - Markers Engagement Map generated on Social Pinpoint

Introduction

As part of the City of Melville's (the City) development of a Walk and Ride Plan, the City created a community and stakeholder engagement program to better understand key stakeholders' future visions for how people move around the City using active transportation in a safe, convenient, and connected manner.

A survey and associated interactive map were undertaken to provide a clear vision of walking and riding facilities within the City of Melville, informed by input from the local community. The city aims to provide more opportunities for the community to use active transport in a safe, accessible, and connected way. The community has provided a range of informative feedback through the engagements which are outlined in this report. This engagement was part of a broader engagement program to provide a long-term walking and cycling network for the City, and has supplied a range of key information to inform this process.

The survey and map were available for the community to respond to from:

11th November 2021 – 12th December 2021

Below shows an overall summary of the online stakeholder engagement.

1013	381	2:59	169	299	140
Total Visits	Unique Users	Avg Time (min)	Unique Stakeholders	Comments	Survey Responses

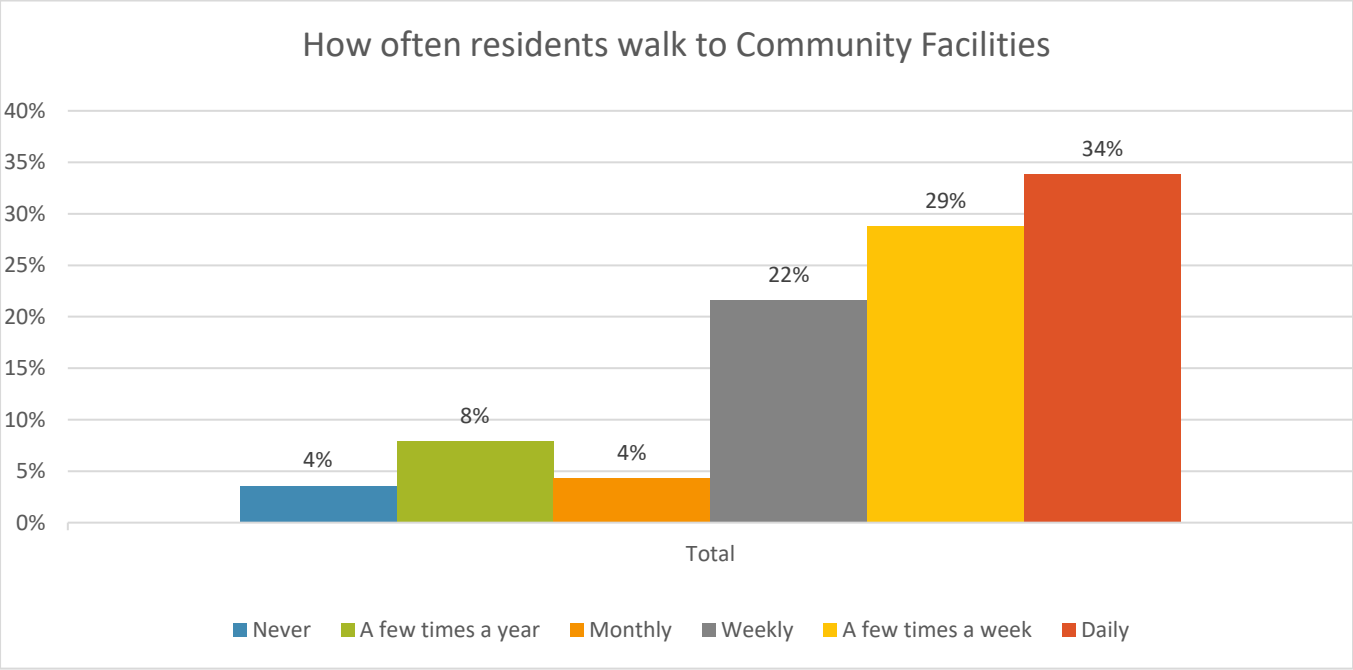
Survey Findings

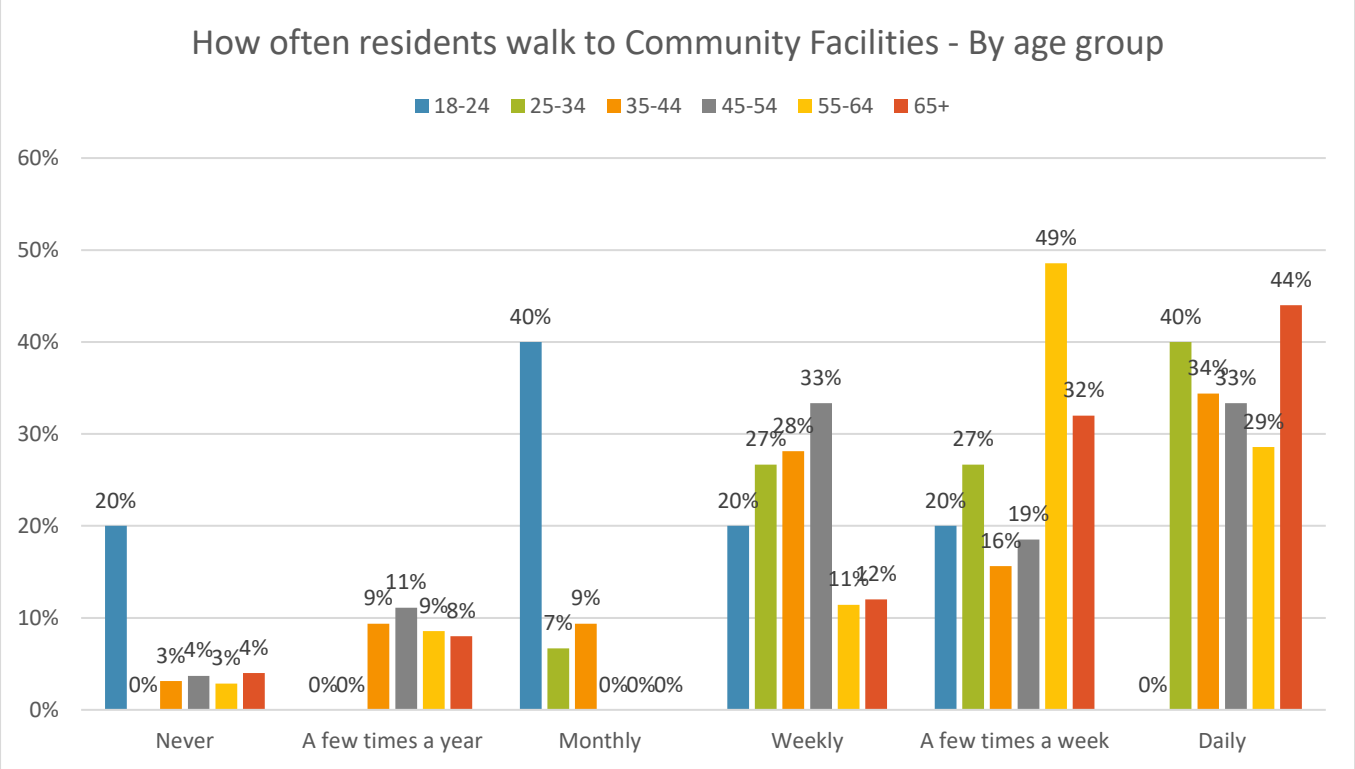
The survey questionnaire is attached in Appendix 1 for context.

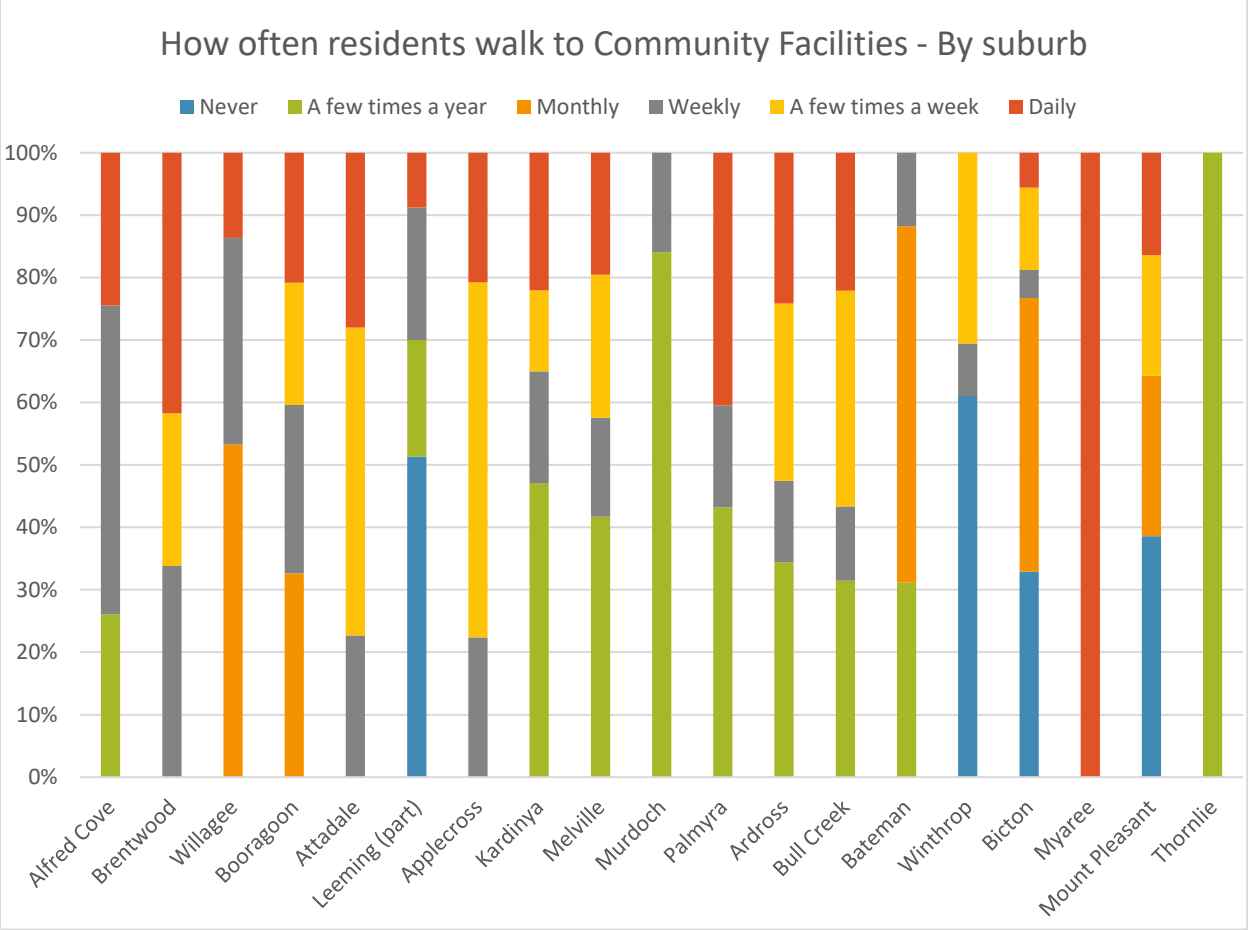
WALKING

Q1. If you walk in the City of Melville, where do you walk to and how often?

When asked **where people walk most often, majority identified community facilities** as a main place to walk to, the following graphs shows how often people walk there, and crosstabulation by age group and suburb.

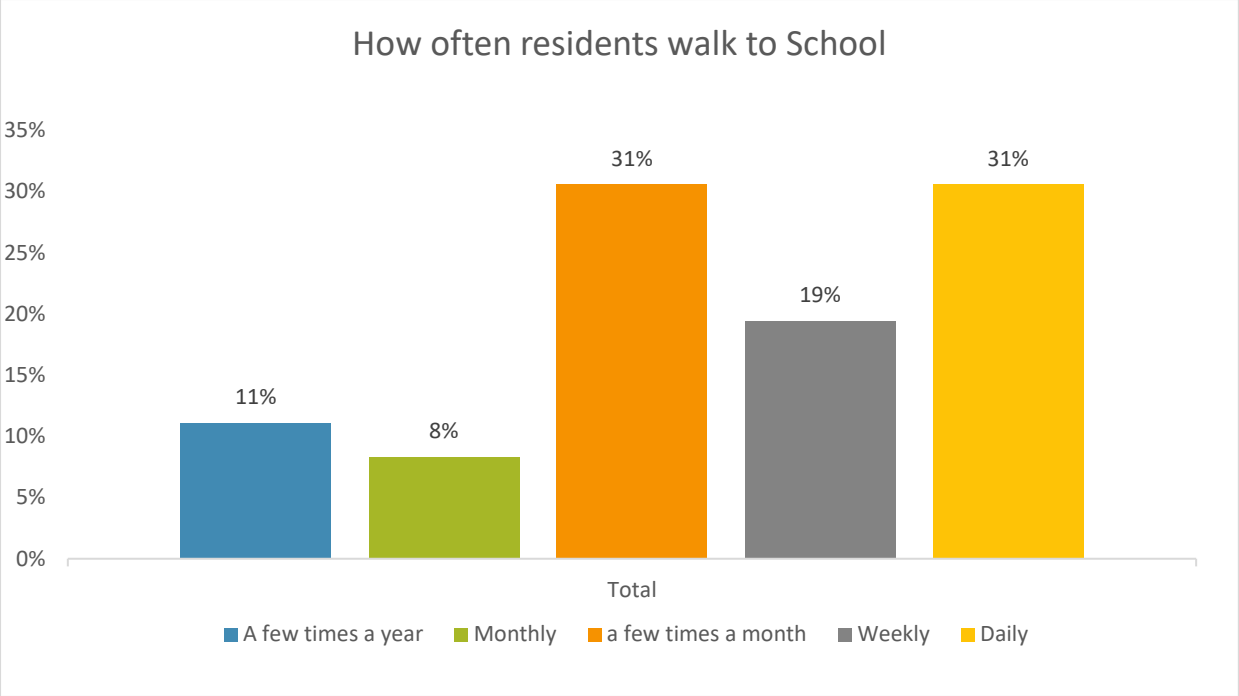


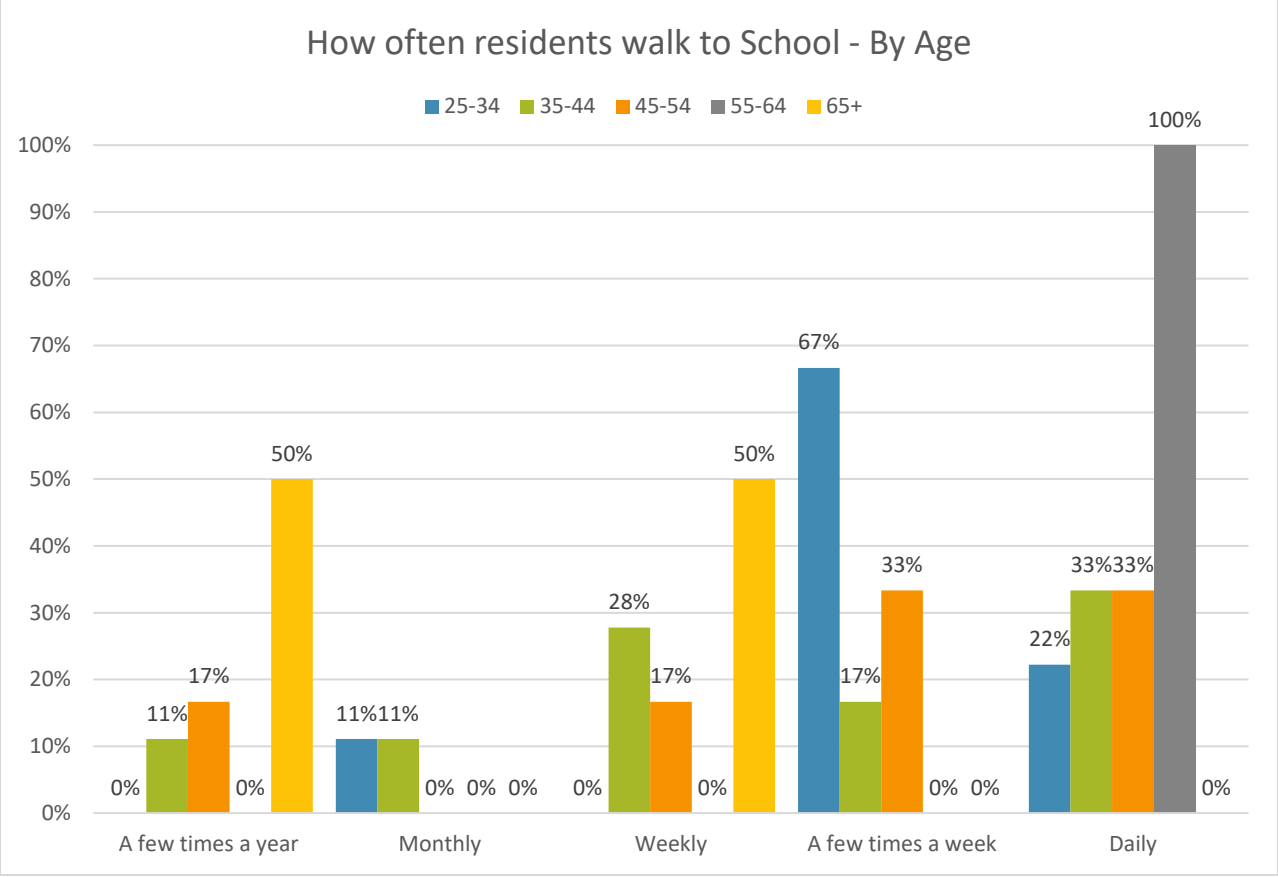


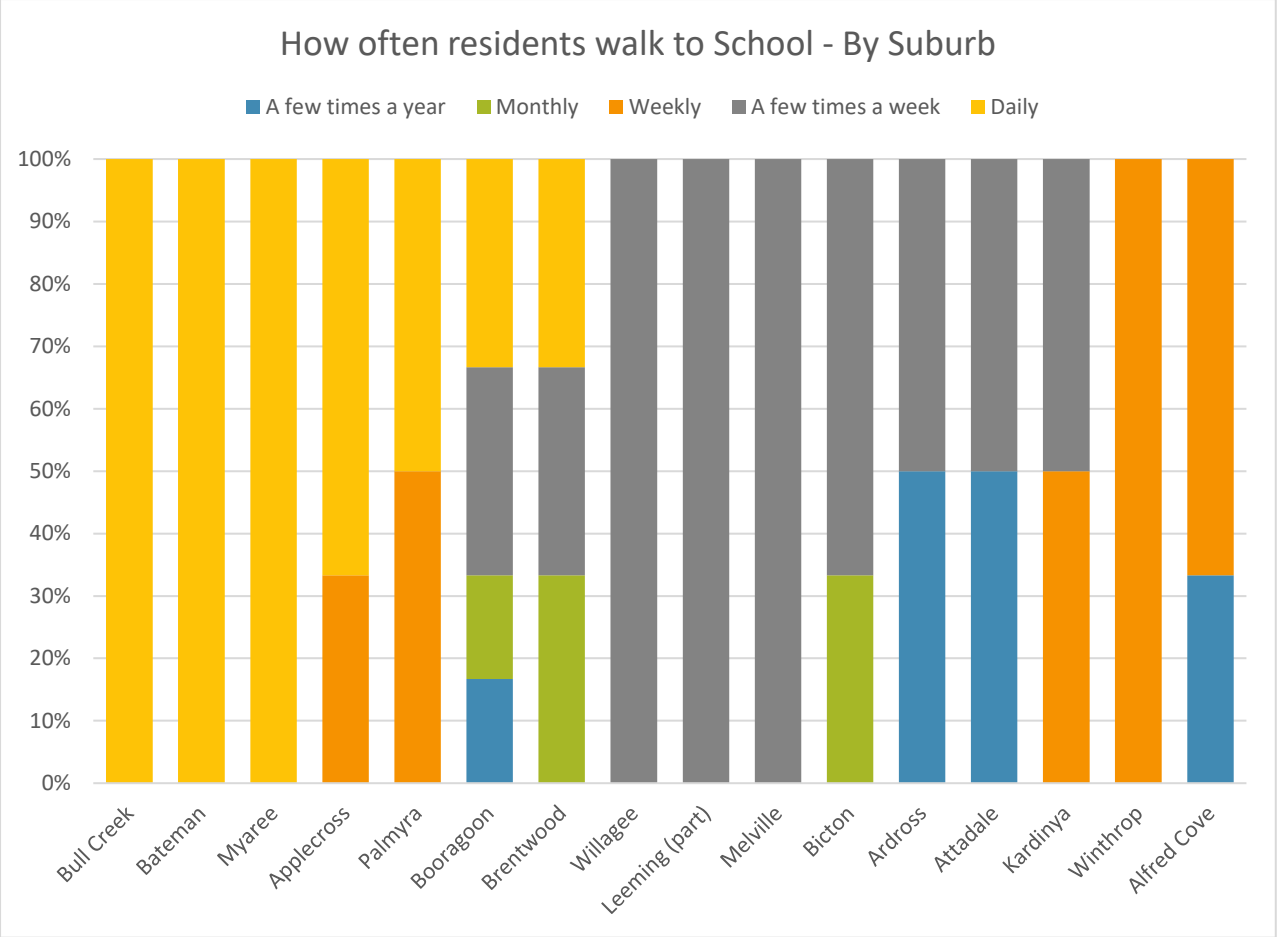


When asked where people walk most often, **results demonstrated school as the place least walked too**. The following graphs show how often people walk there, and crosstabulation by age group and suburb.

NOTE: This data needs to be considered in the broader context that the results are due to the likelihood of respondents not required to attend / visit a school. A main concern of the community reflected in the map data and the survey data was access to school, by parents and children. Of all residents, 73% stated they never walked to school, the following graph is represented without this statistic due to the likelihood of many of these respondents not attending school.

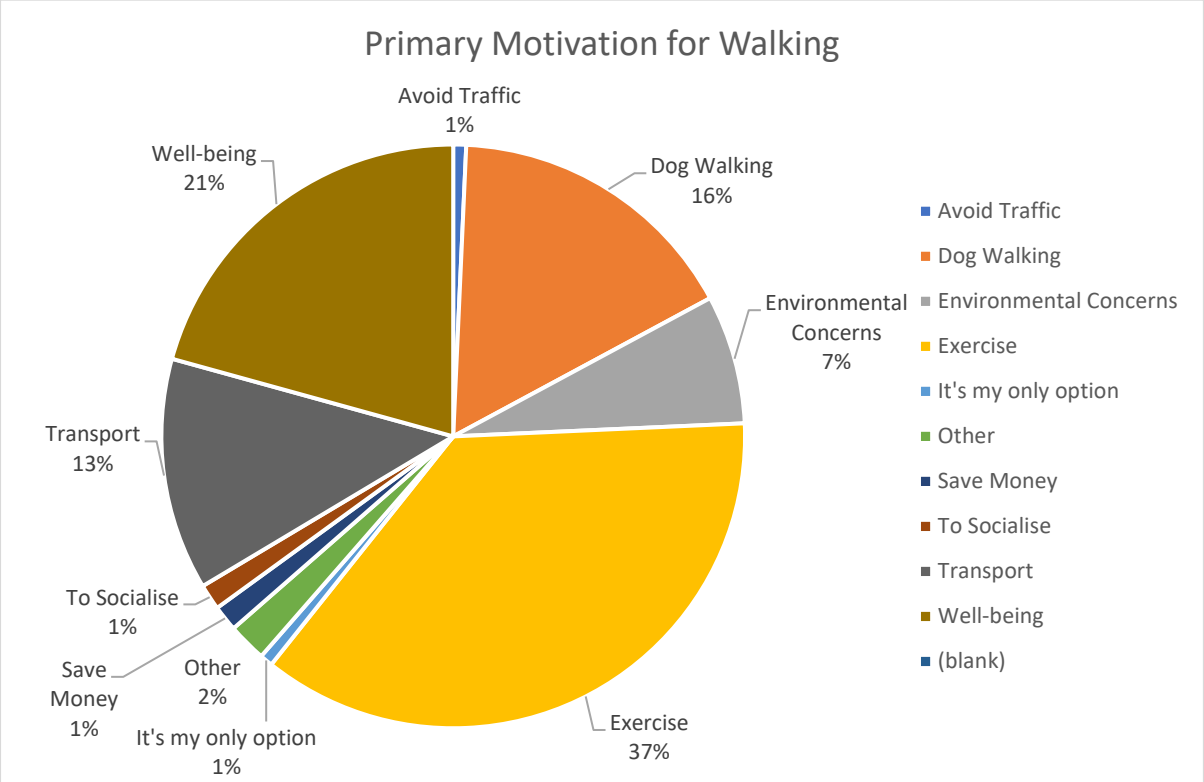

How often residents walk to School
35%
30%
25%
20%
15%
10%
5%
0%
11%
8%
31%
19%
31%
Total
A few times a year
Monthly
a few times a month
Weekly
Daily

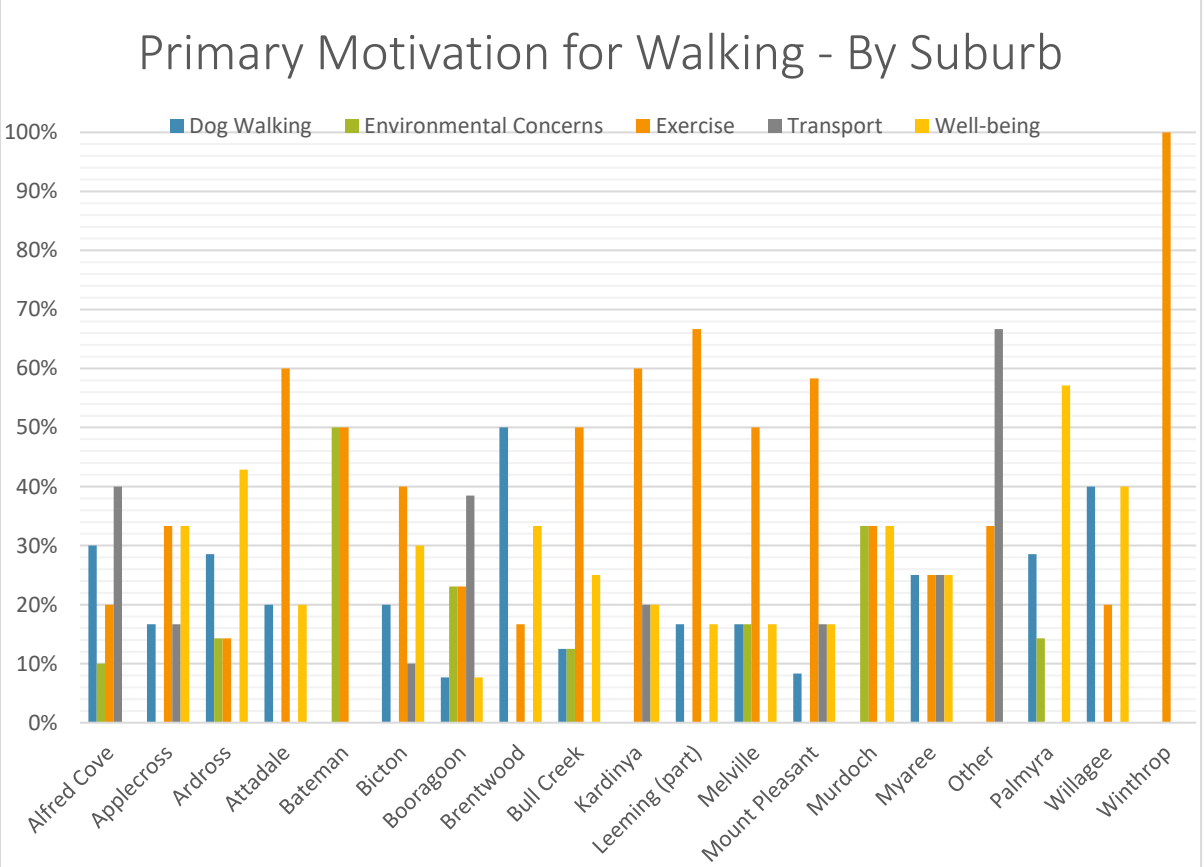

How often residents walk to School - By Age
25-34
35-44
45-54
55-64
65+
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0%
11%
17%
0%
50%
11%
11%
0%
0%
0%
0%
28%
17%
0%
50%
67%
17%
33%
0%
0%
22%
33%
33%
100%
0%
A few times a year
Monthly
Weekly
A few times a week
Daily


How often residents walk to School - By Suburb
A few times a year
Monthly
Weekly
A few times a week
Daily
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Bull Creek
Bateman
Myaree
Applecross
Palmyra
Booragoon
Brentwood
Willagee
Leeming (part)
Melville
Bicton
Ardross
Attadale
Kardinya
Winthrop
Alfred Cove

Q2. What is your primary motivation for walking?

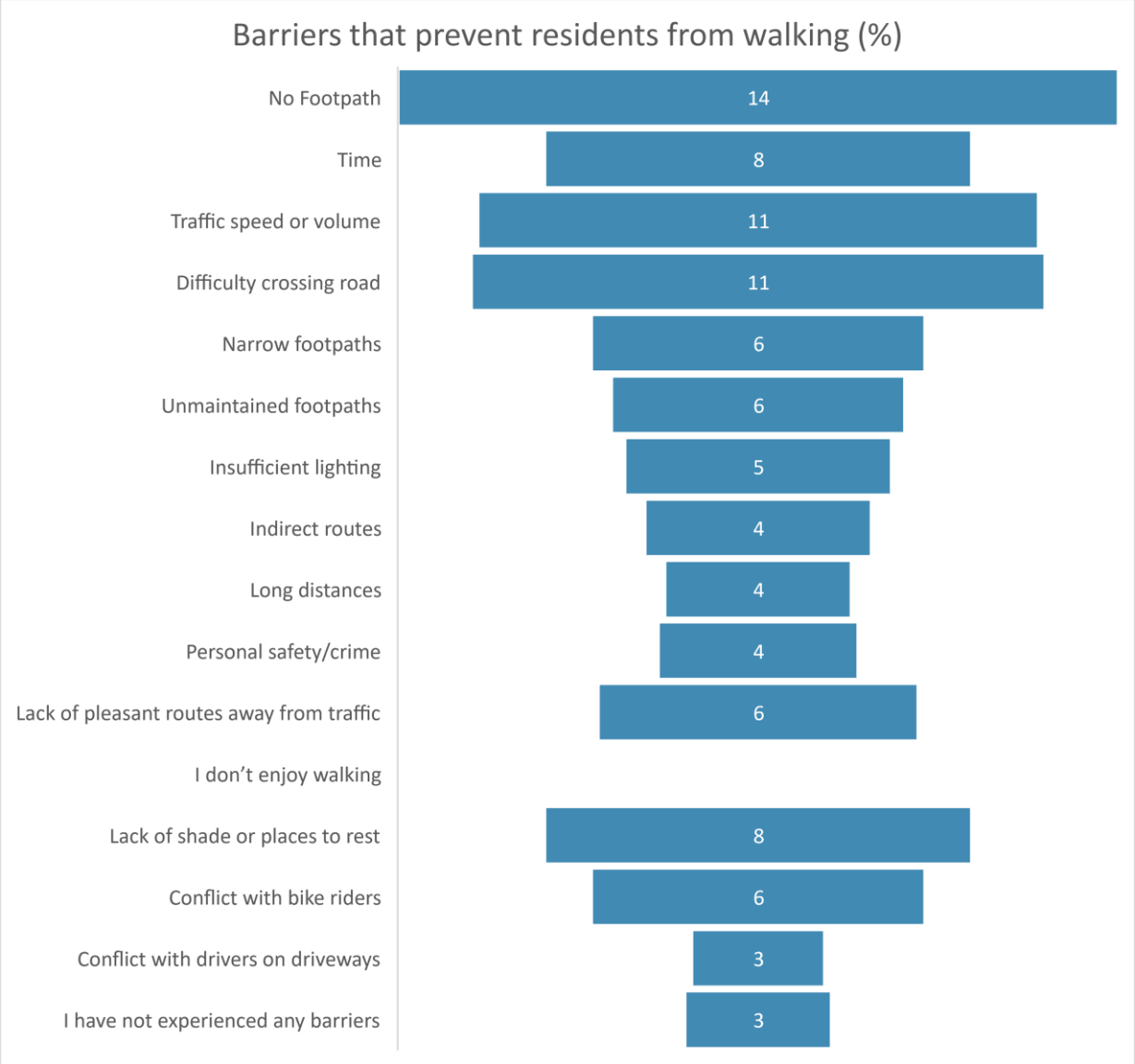
When asked what residents' primary motivation for walking was, the community identified **exercise, well-being, transport, environmental concerns, and dog walking** as top motivations. Data is shown by suburb.





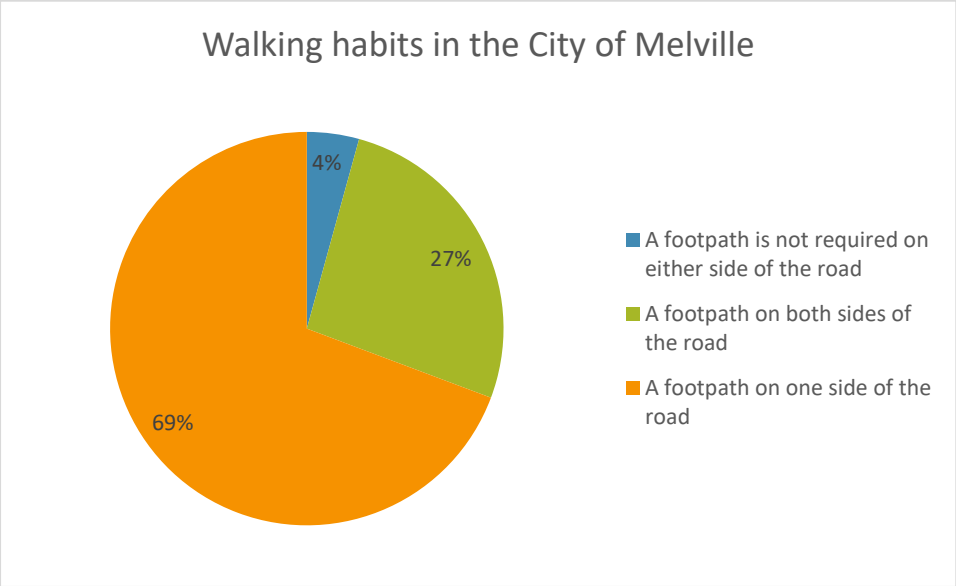
Q3. What are the barriers (if any) that prevent you from walking or from walking more frequently?

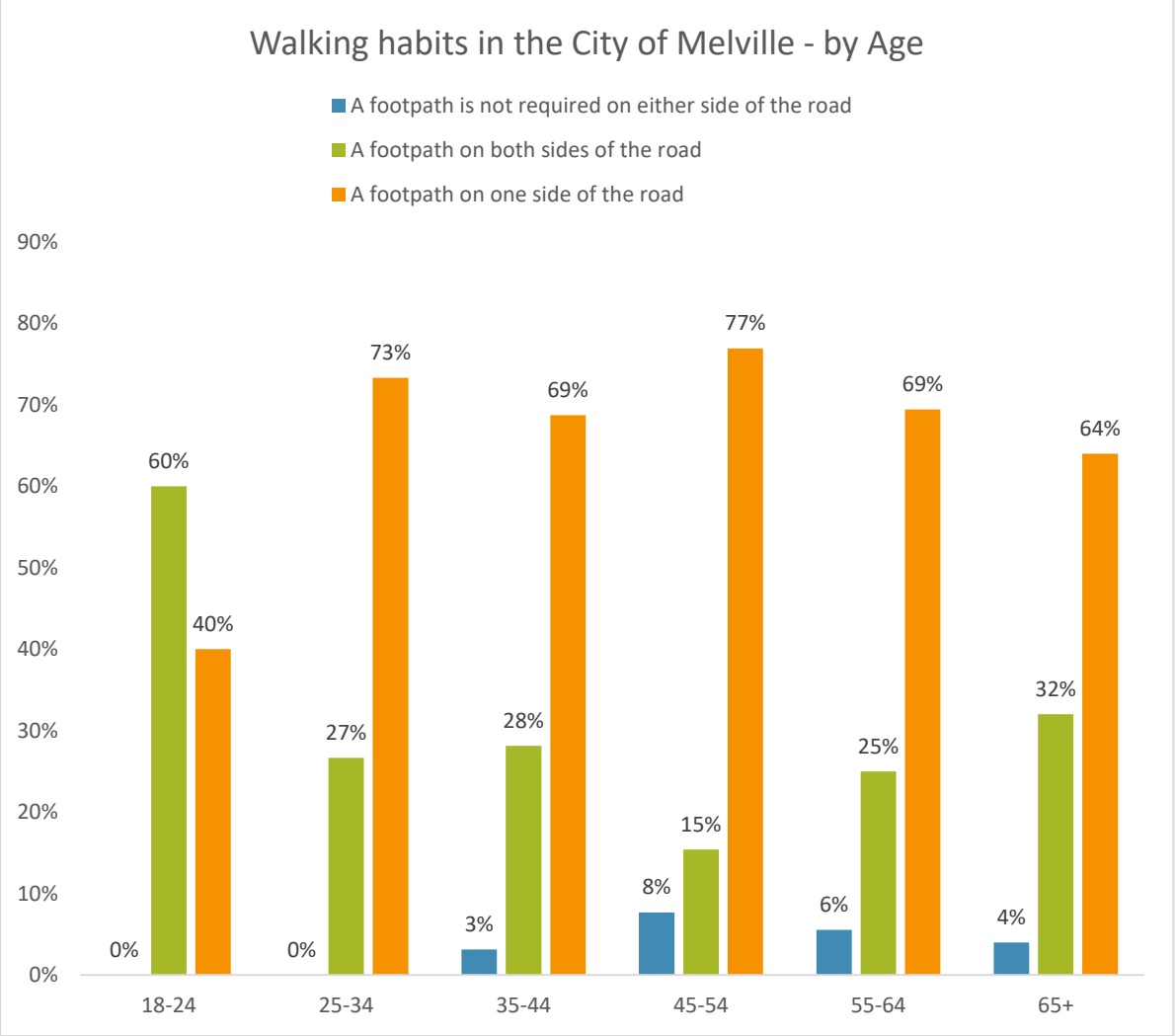
From options provided the community identified that having **no footpath, not being able to cross the road and traffic speeds** as main concerns to prevent them from walking around the city. These themes are also identified in the mapping comments. Nobody surveyed stated that they didn't enjoy walking.



Q4. When thinking about your walking habits and footpaths on local, quiet streets around the City of Melville, which footpath option do you prefer?

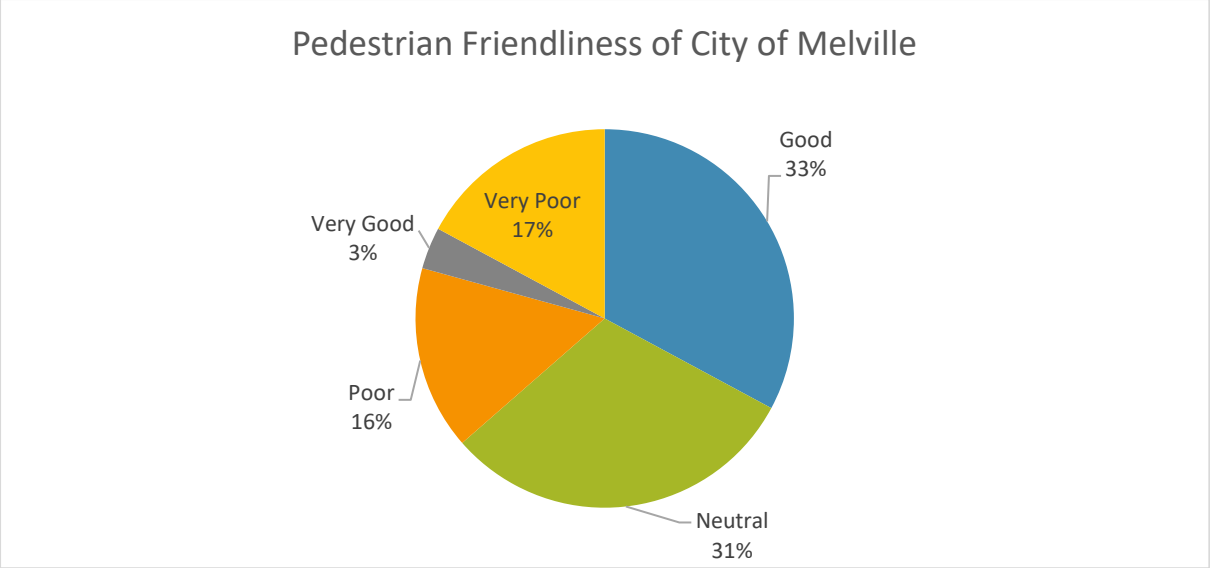
When surveyed on footpath options, **the majority of the community stated they would prefer a footpath on one side of the road than both** (69% and 27% respectively). **A recurring theme** throughout the map comments **was the need for more footpaths around the city.** These walking habits are shown by age in the following graph.

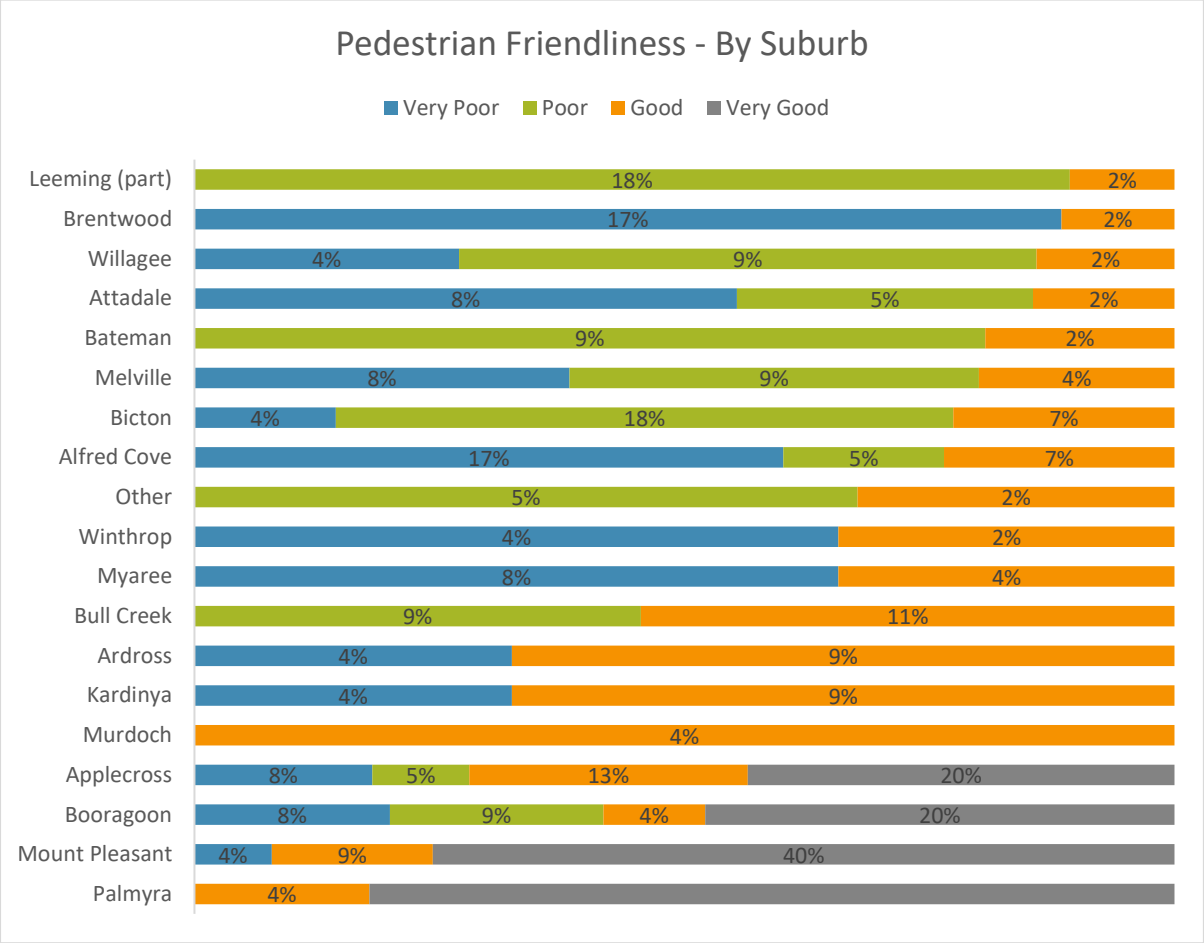




Q5. Thinking about other places in Perth, and now comparing these places to the City of Melville, how pedestrian friendly is the City of Melville?

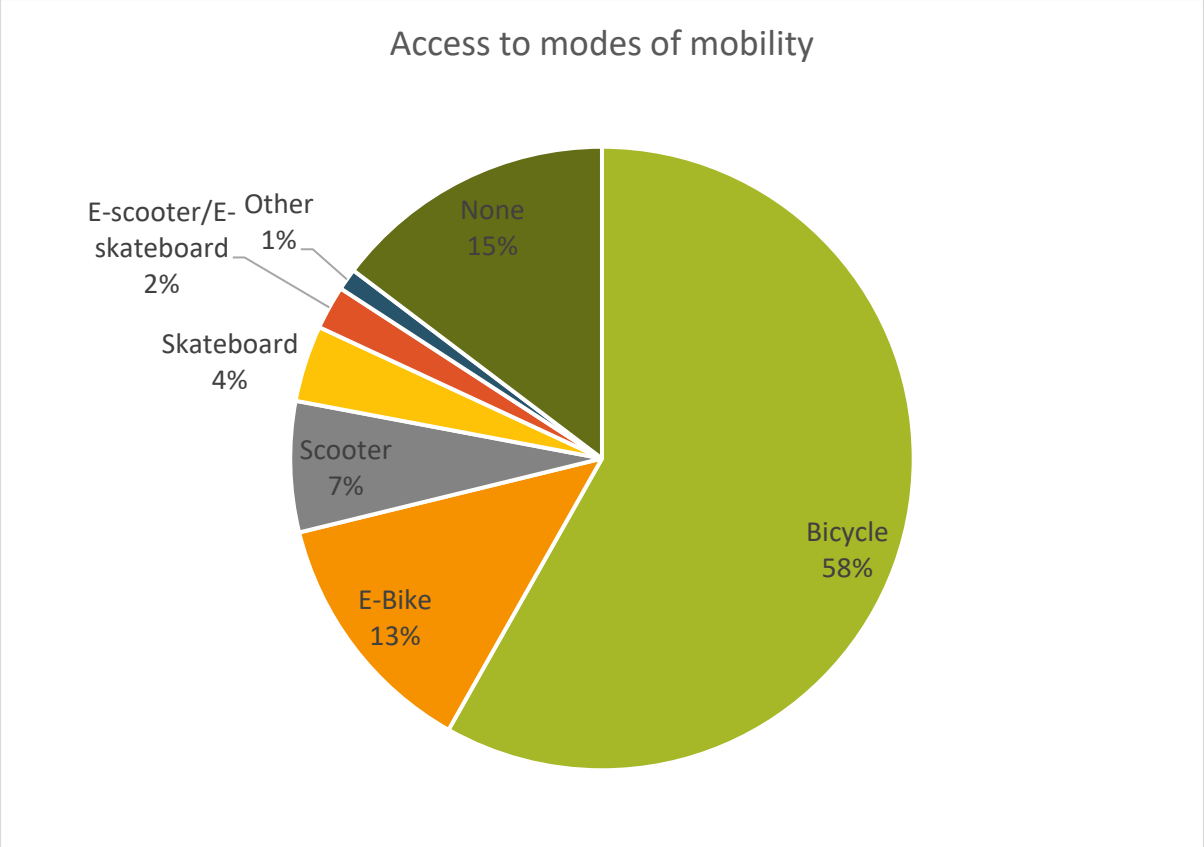
36% of the community identified that overall, the city is good or very good – in terms of pedestrian friendliness. 33% of residents identified the city as poor or very poor. By suburb the results vary, which shows which suburbs are perceived to be not pedestrian friendly. Booragoo, Mount Pleasant and Palmyra were of the most pedestrian friendly suburbs. The least friendly suburbs for pedestrians include Brentwood, Leeming (part) and Willagee.





Q7. Do you have access to any of the following modes of mobility?

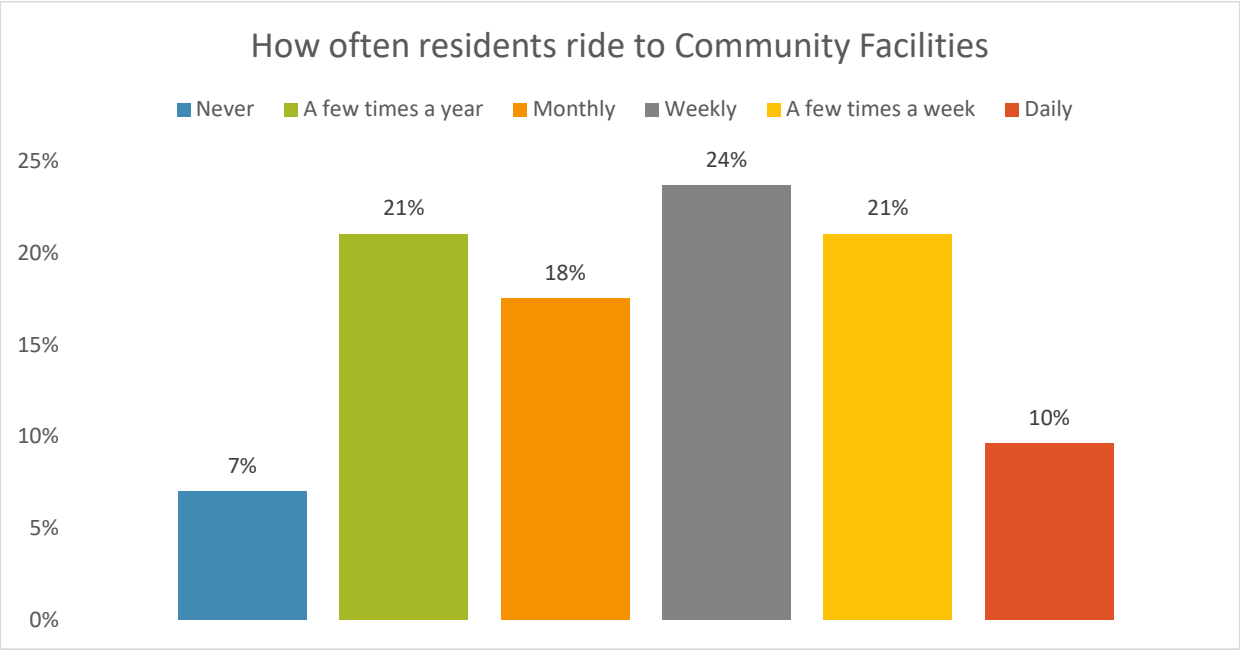
The **most popular mode of mobility used by residents is bicycles** at 58%, 15% of residents don't have access to alternative mobility options.

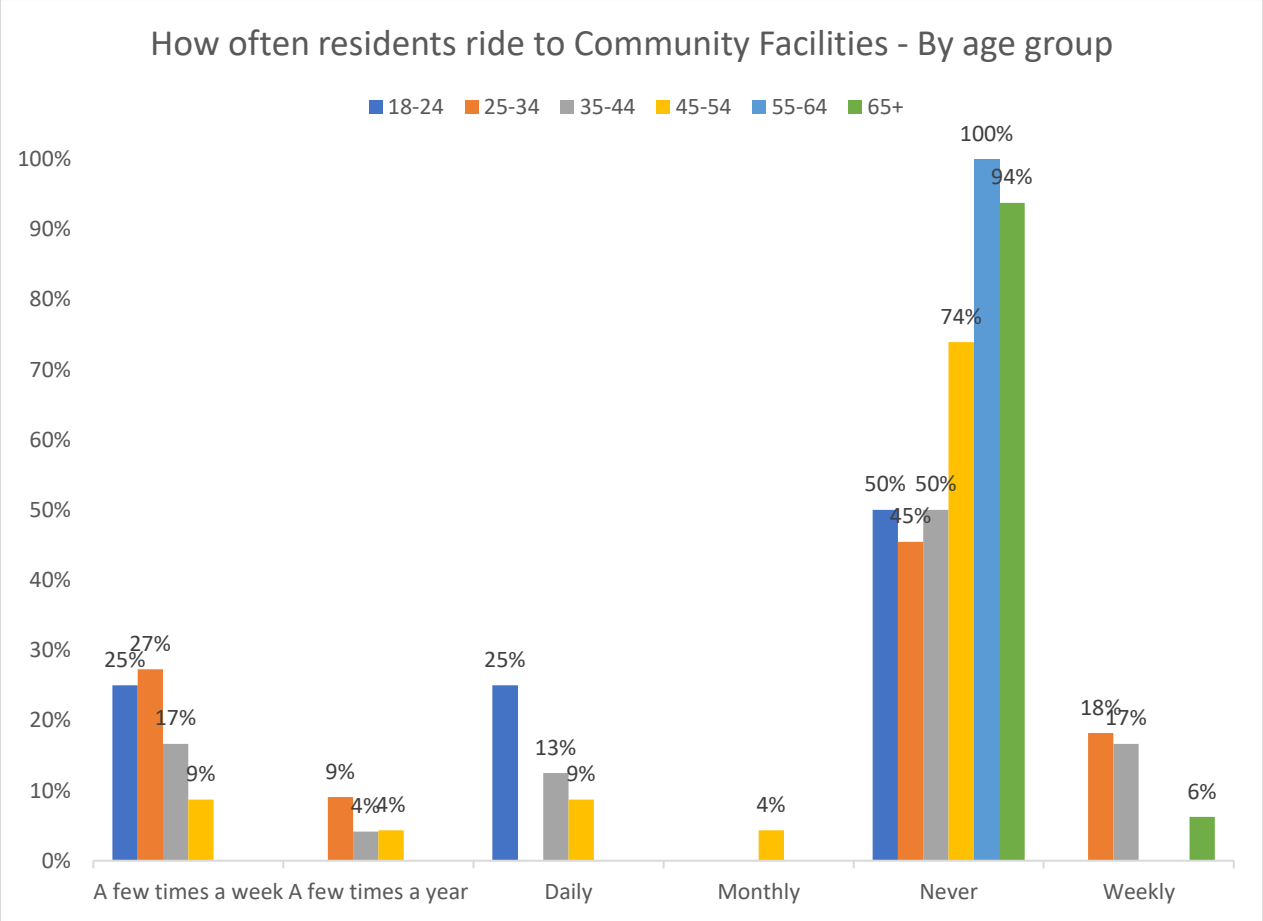

Access to modes of mobility
None
15%
Other
1%
E-scooter/E-
skateboard
2%
Skateboard
4%
Scooter
7%
E-Bike
13%
Bicycle
58%

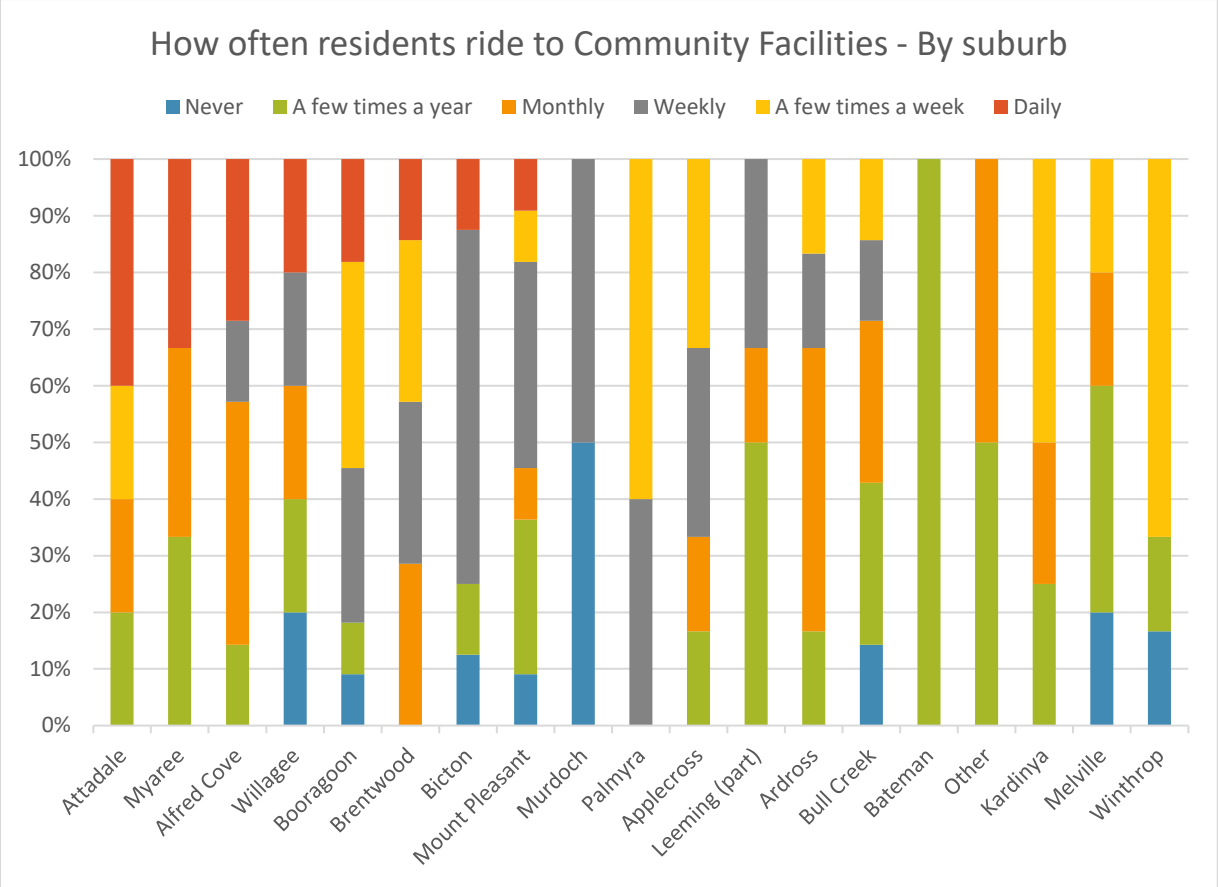
RIDING

Q8. If you ride in the City of Melville, where do you ride to and how often?

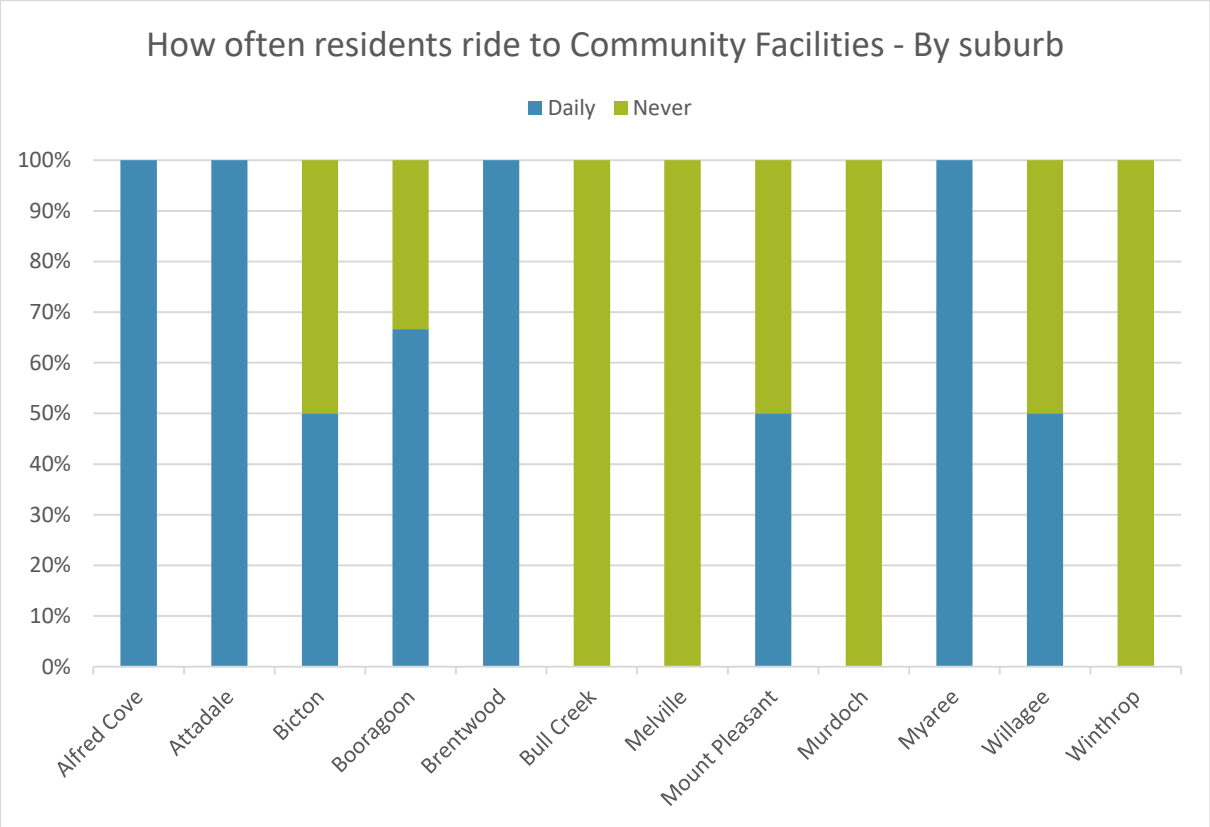
When asked **where people ride most often**, **majority identified community facilities** as a main place to ride to, the following graphs show how often people ride there, and crosstabulation by age group and suburb, also by suburb limited to those who stated daily or never.



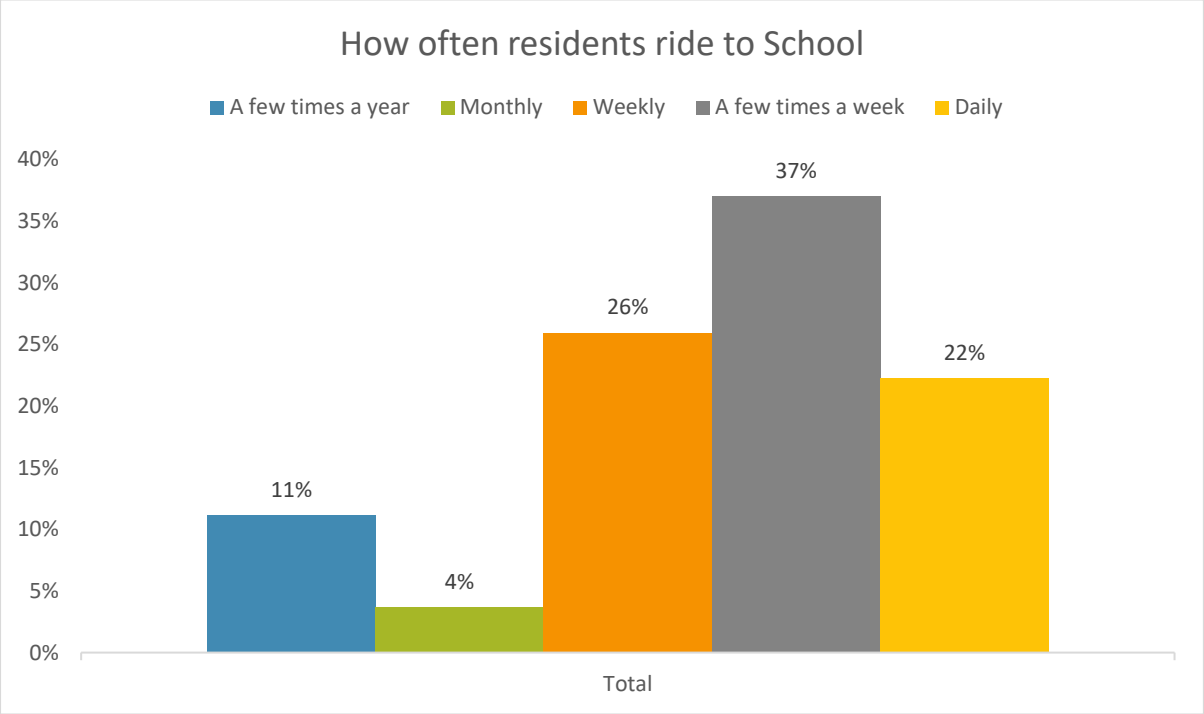


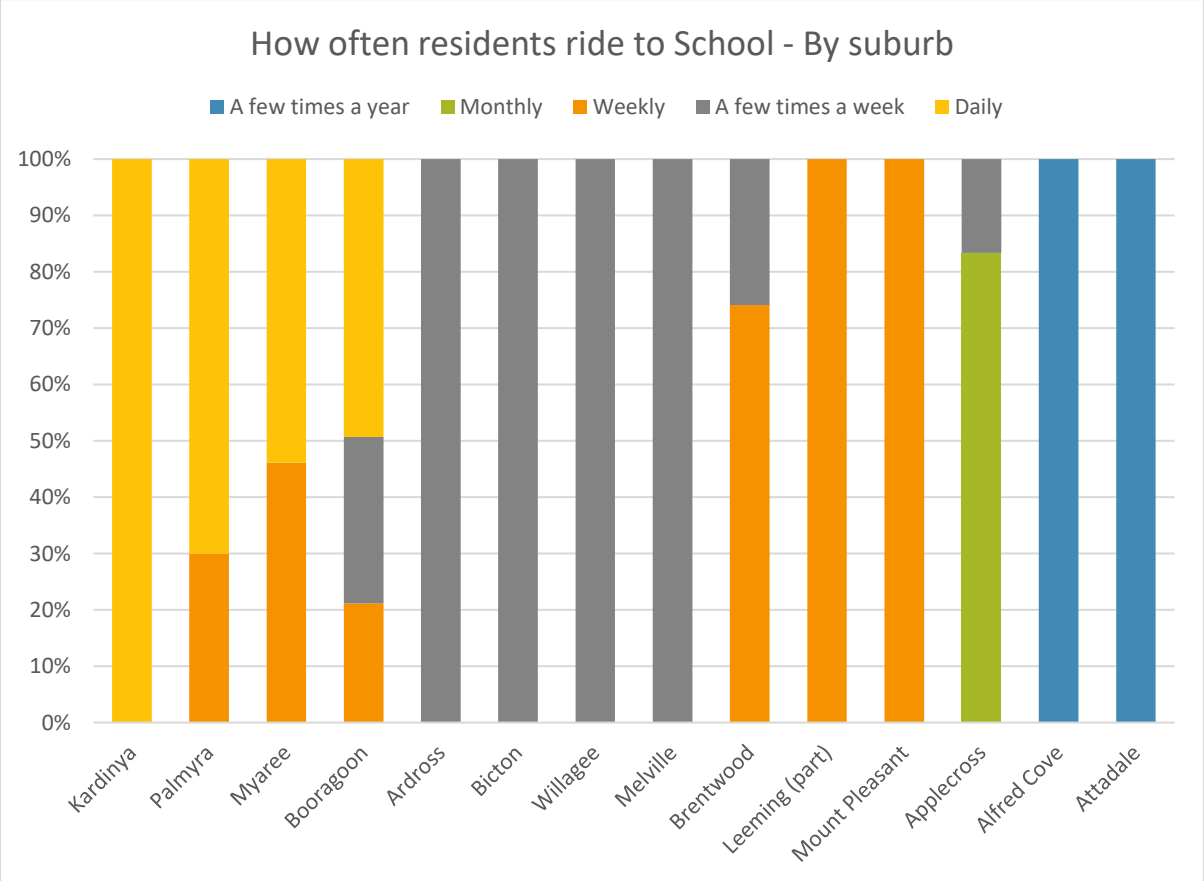


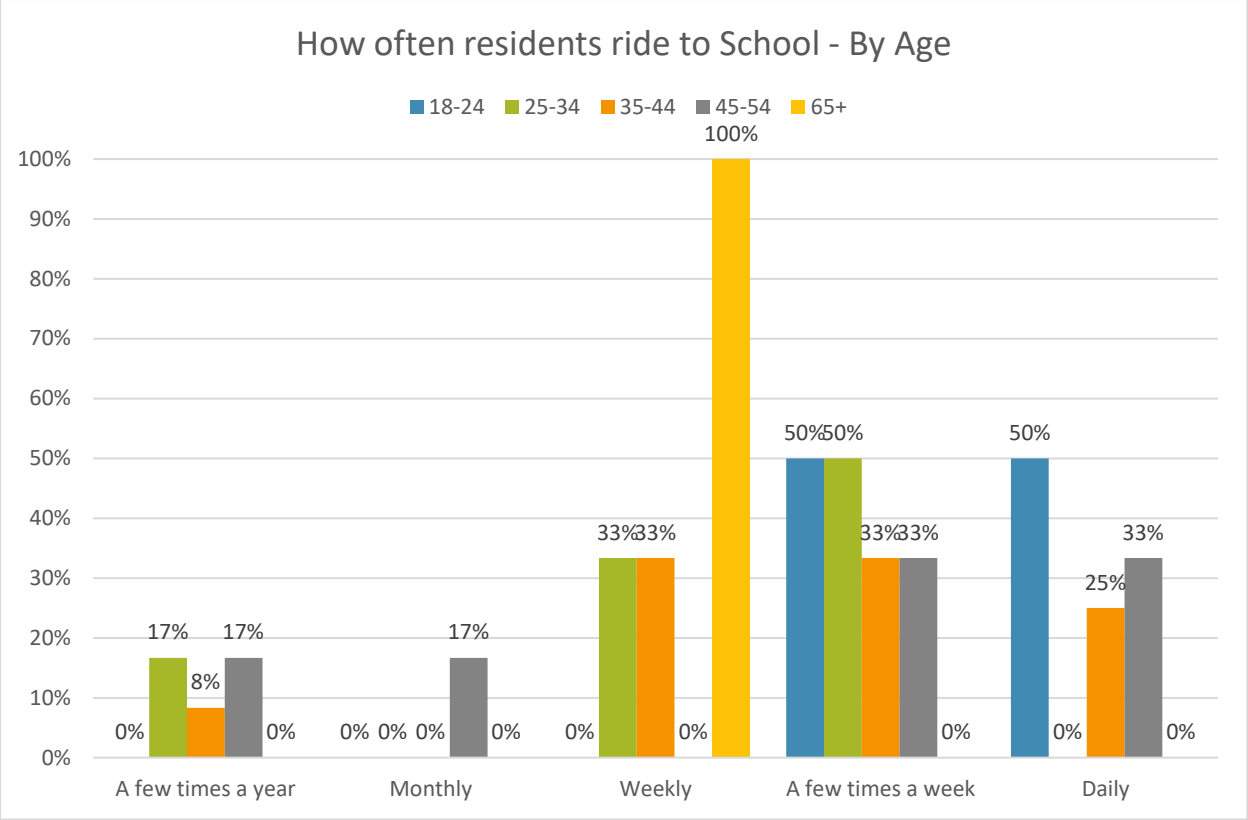
The most popular suburbs in which people ride to community facilities include Attadale, Myaree and Palmyra. The suburbs where people choose to ride the least to community facilities include Kardinya, Winthrop and Melville.



When asked where people ride most often, school was identified as the least most popular place, the following graphs show how often people ride there, and crosstabulation by age group and suburb, also by suburb limited to those who stated daily or never. In some graphs we have removed the option for 'never' to show a better representation of those who actually attend school or have children in school, and what transportation they choose.

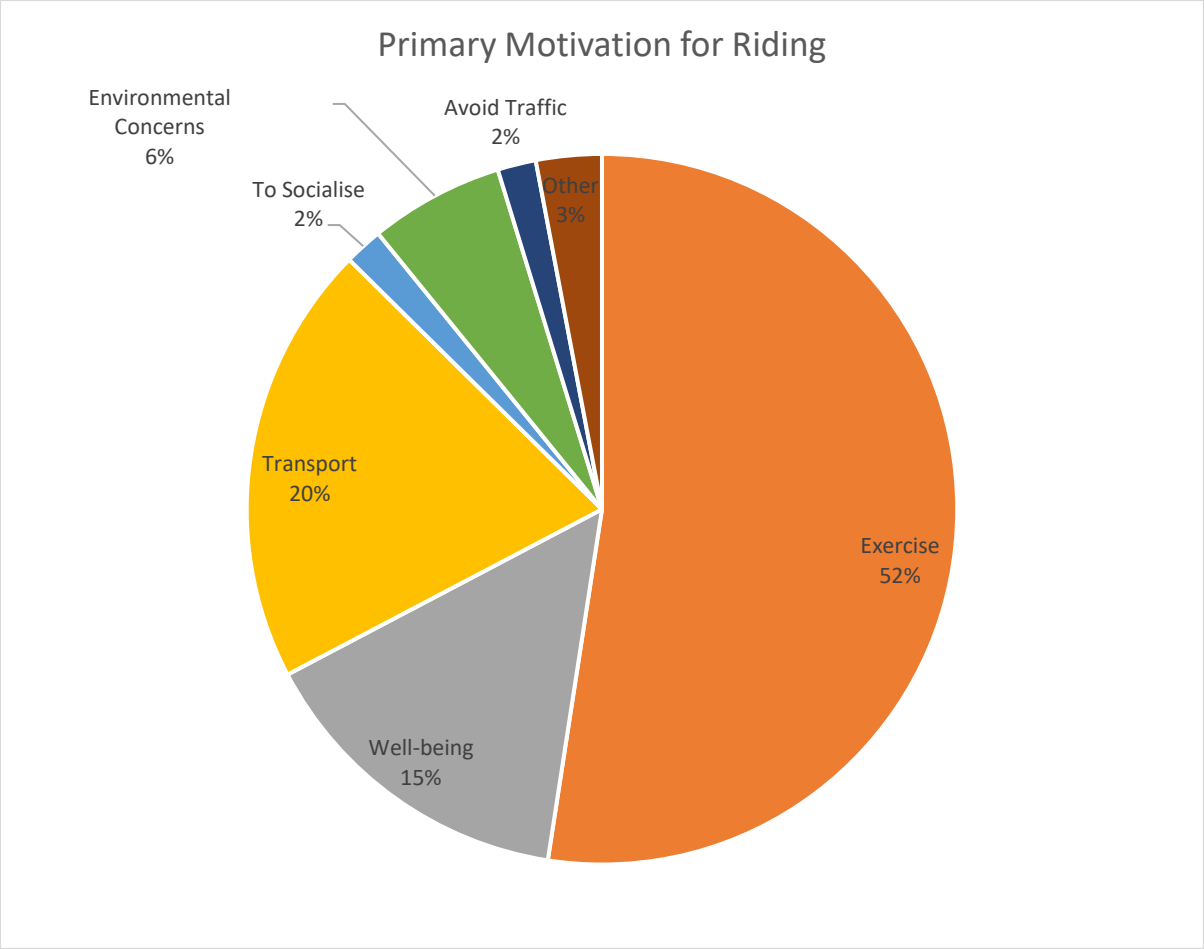





How often residents ride to School - By Age
18-24
25-34
35-44
45-54
65+
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
17%
8%
17%
0%
0%
0%
0%
17%
0%
33%
33%
0%
100%
50%
50%
33%
33%
0%
50%
0%
25%
33%
0%
A few times a year
Monthly
Weekly
A few times a week
Daily

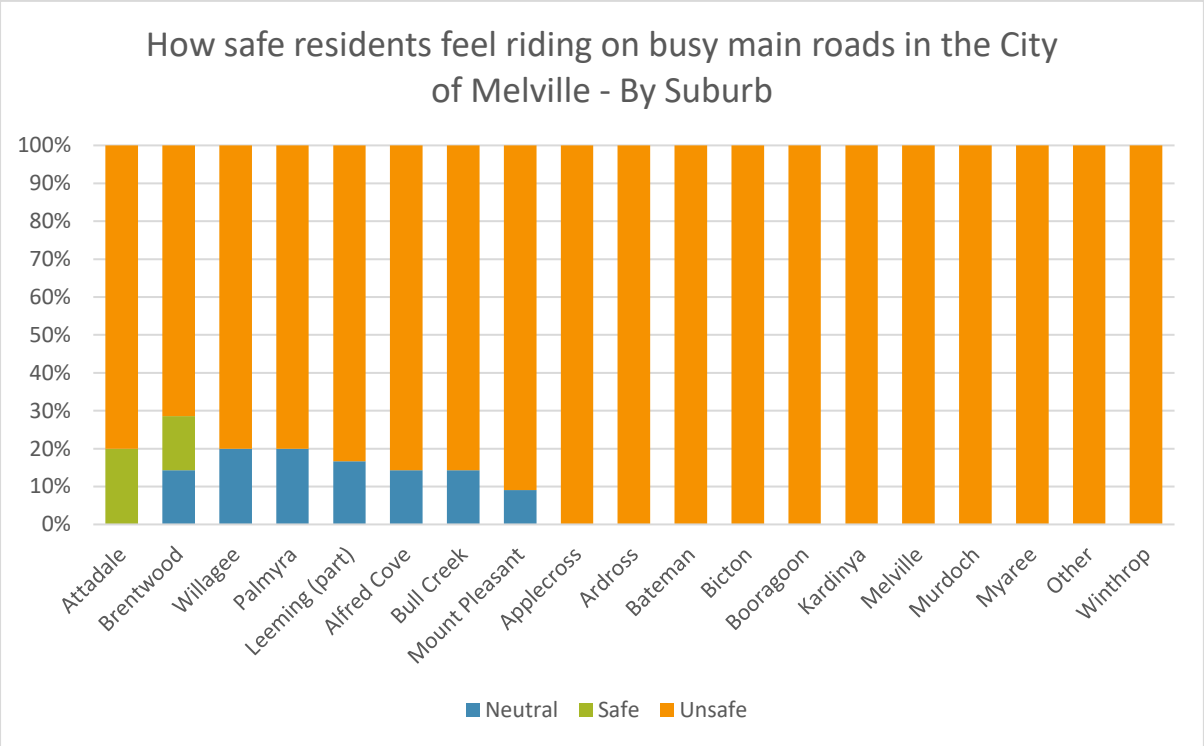
Q9. What is your primary motivation for riding?

The **community's primary motivation for riding is exercise** at 52%, followed by well-being and transport.



Q10. Please indicate how safe you feel riding on the following roads and pathways in the City of Melville?

When asked to indicate where residents feel safe riding, **busy main roads are an area that people feel most unsafe** in and **separated footpath facilities for riding was where people felt the safest**. These aspects are shown by suburb in the following graphs.



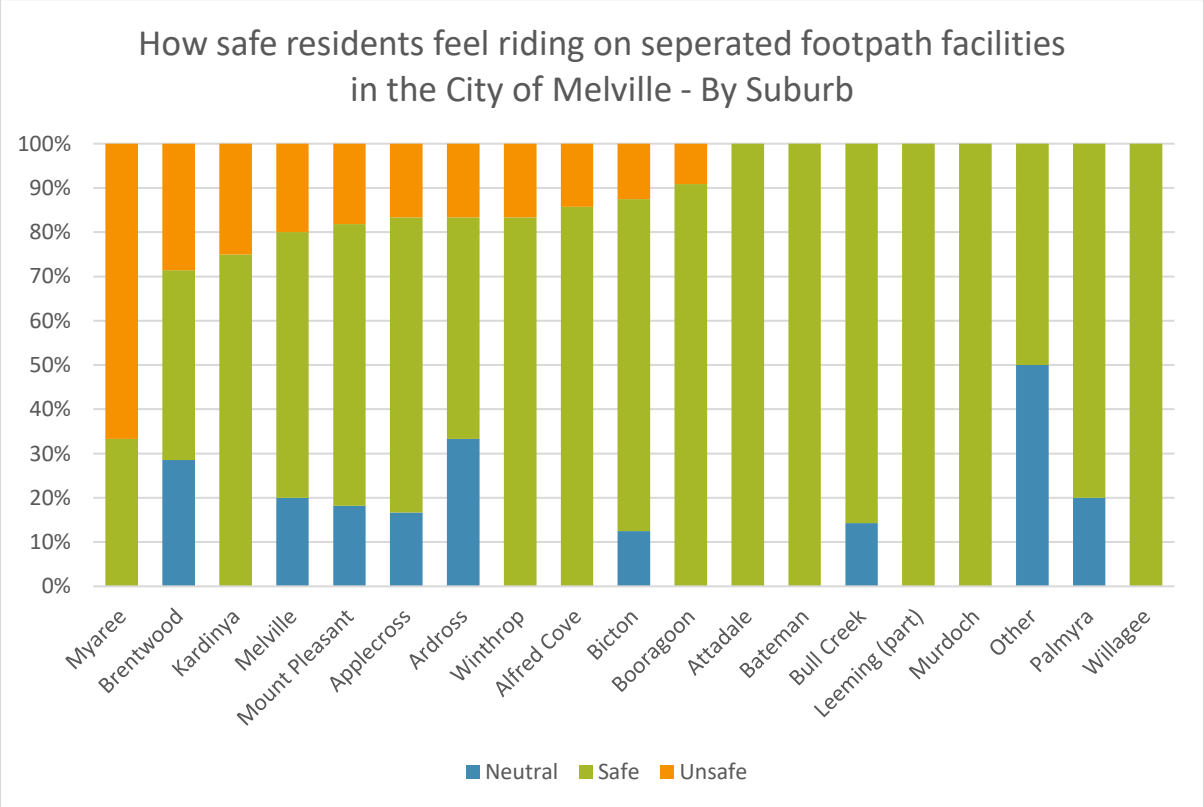
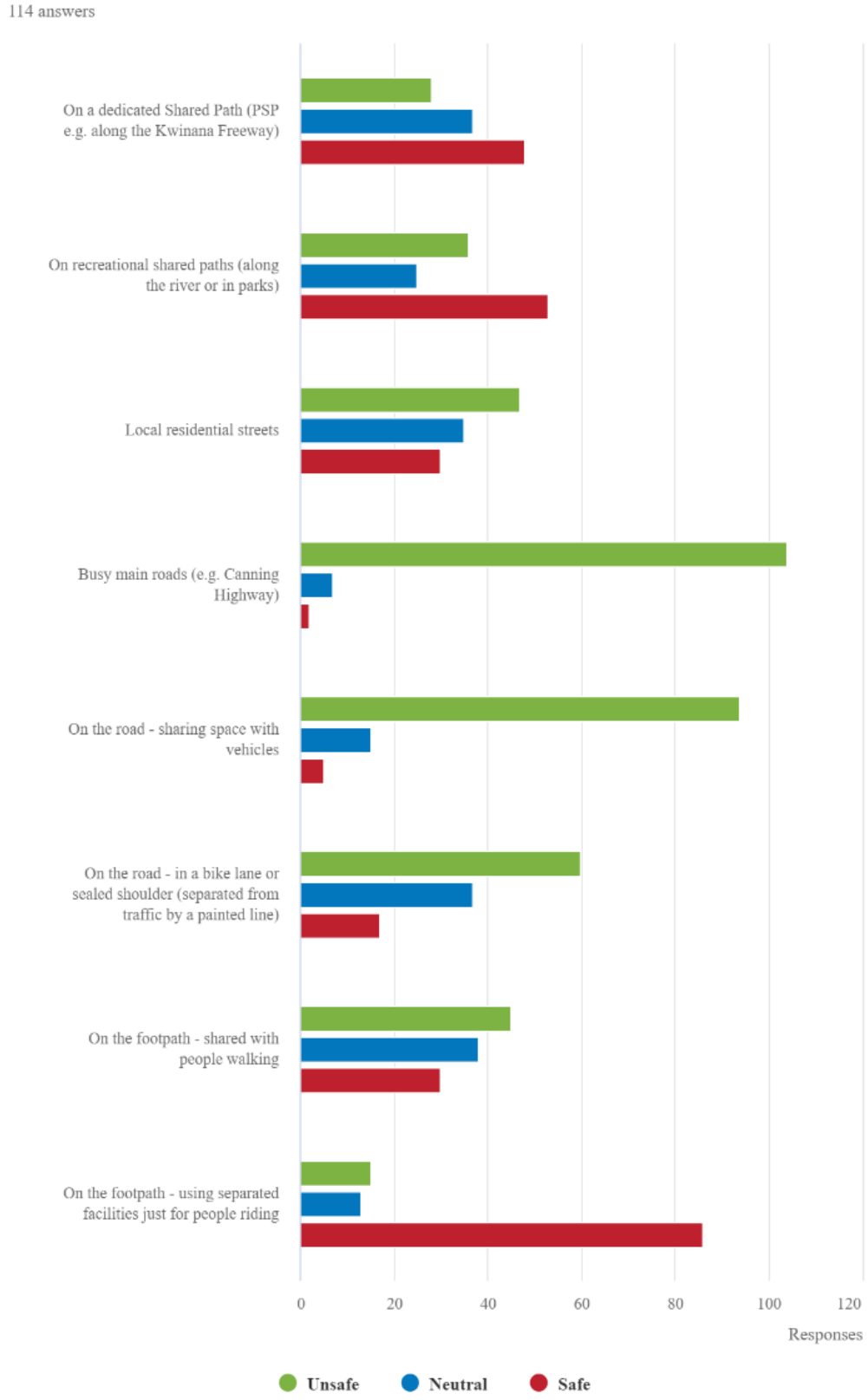
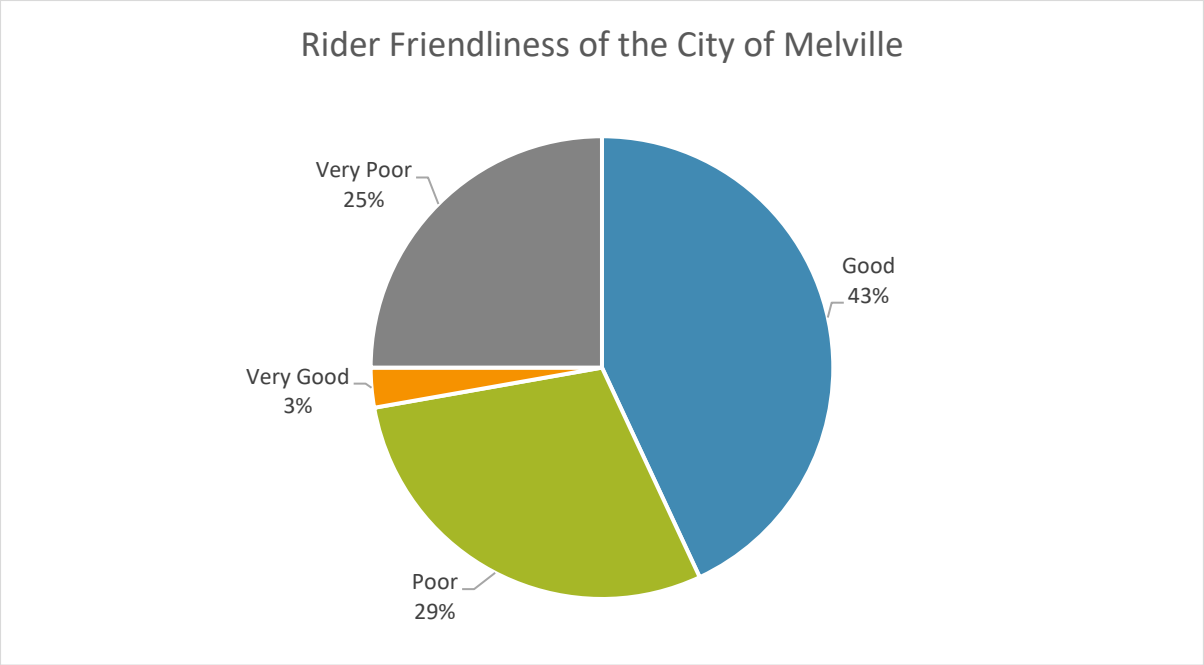


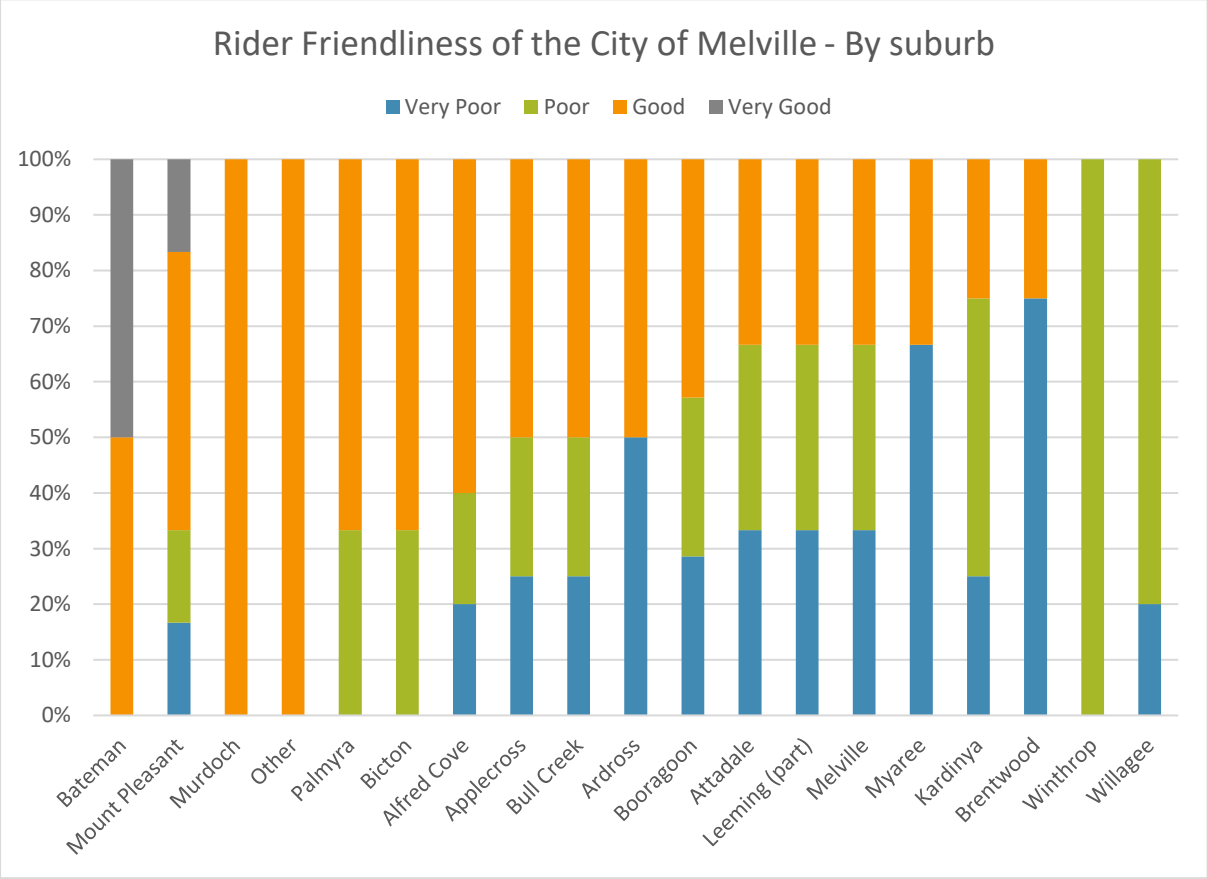
Fig 1.3 – How safe residents feel on various footpath options in the City



Q11. Thinking about other places in Perth, and now comparing these to the City of Melville, how rider friendly is the City of Melville?

When asked how rider friendly the city is, majority (46%) state good or very good, which is much higher than the rates of walkability in Q5, yet far more residents identified the 'very poor' option. By suburb, as shown in the graph below there are large differences throughout the city.

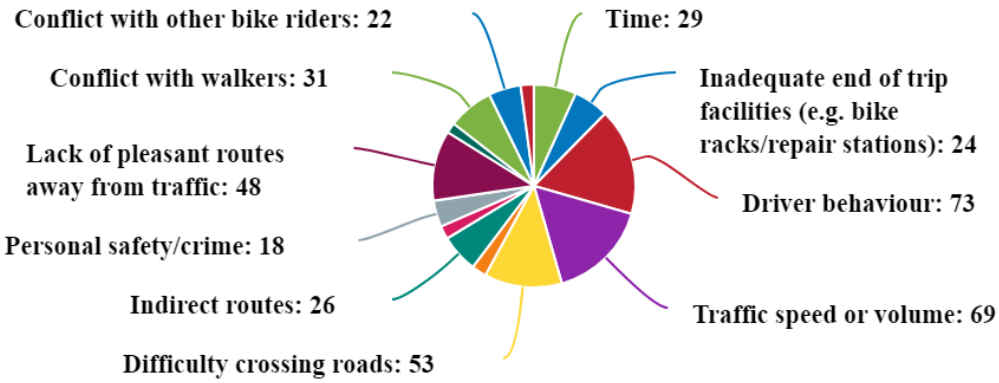


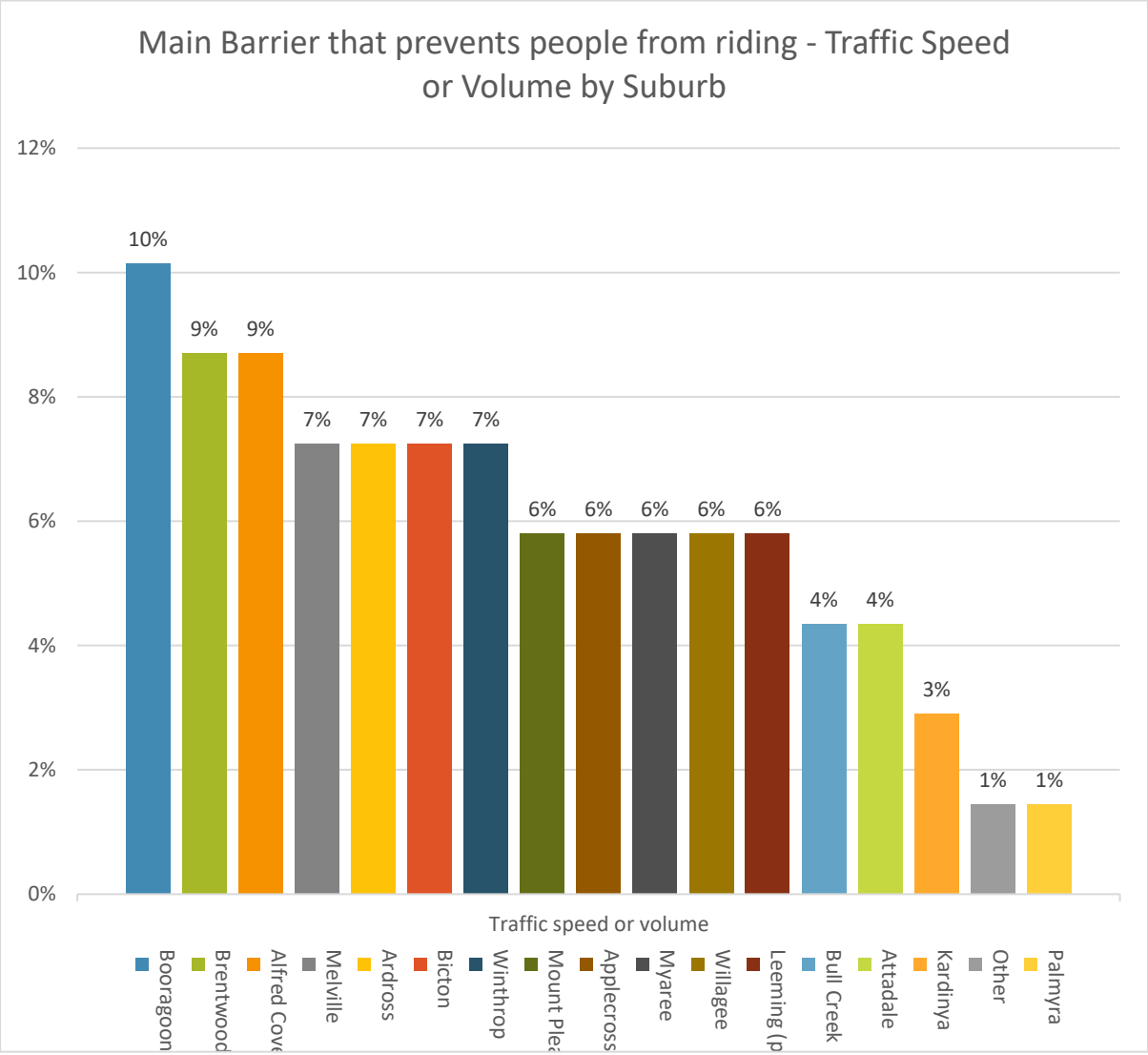


Q12. What are the barriers (if any) that prevent you from riding or riding more frequently?

The **main barriers that prevent people from riding are identified as traffic speed or volume, and driver behaviour.** Traffic volume by suburb is shown below, identifying Booragoon, Brentwood and Alfred Cove with a greater number of issues.

Figure 3 Barriers that prevent people from riding

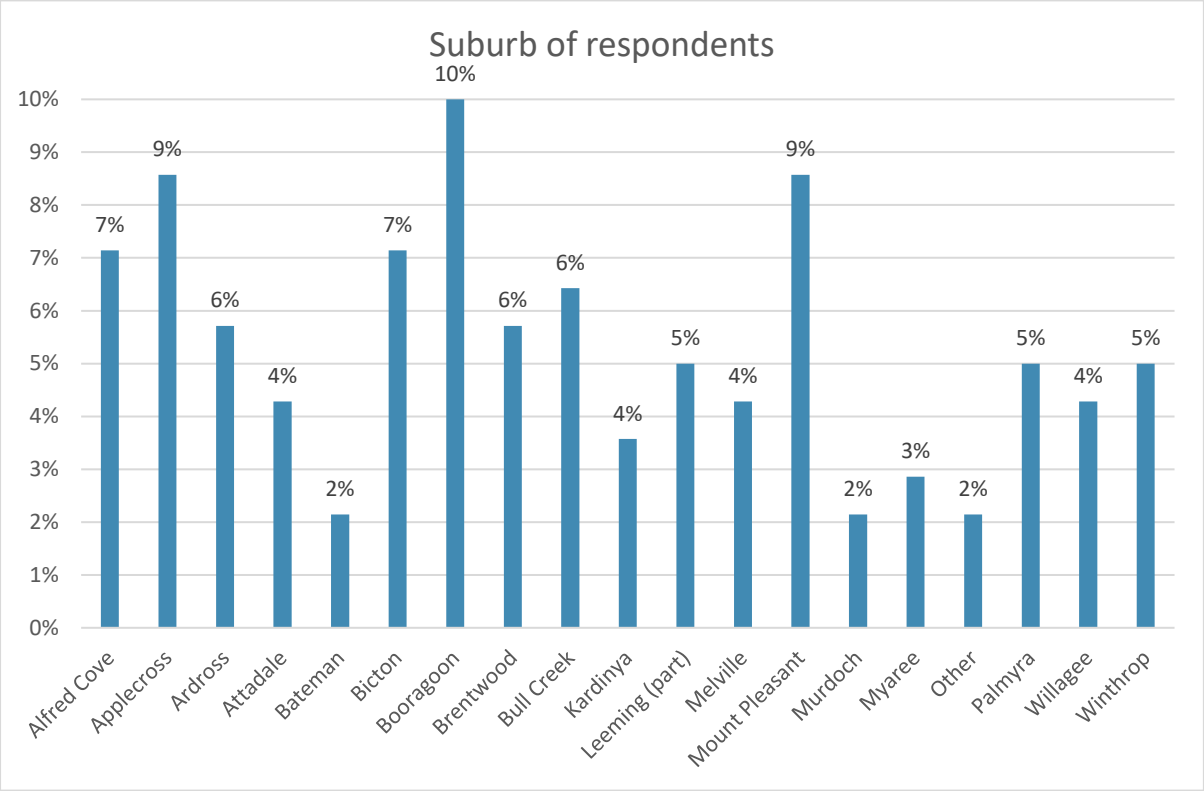




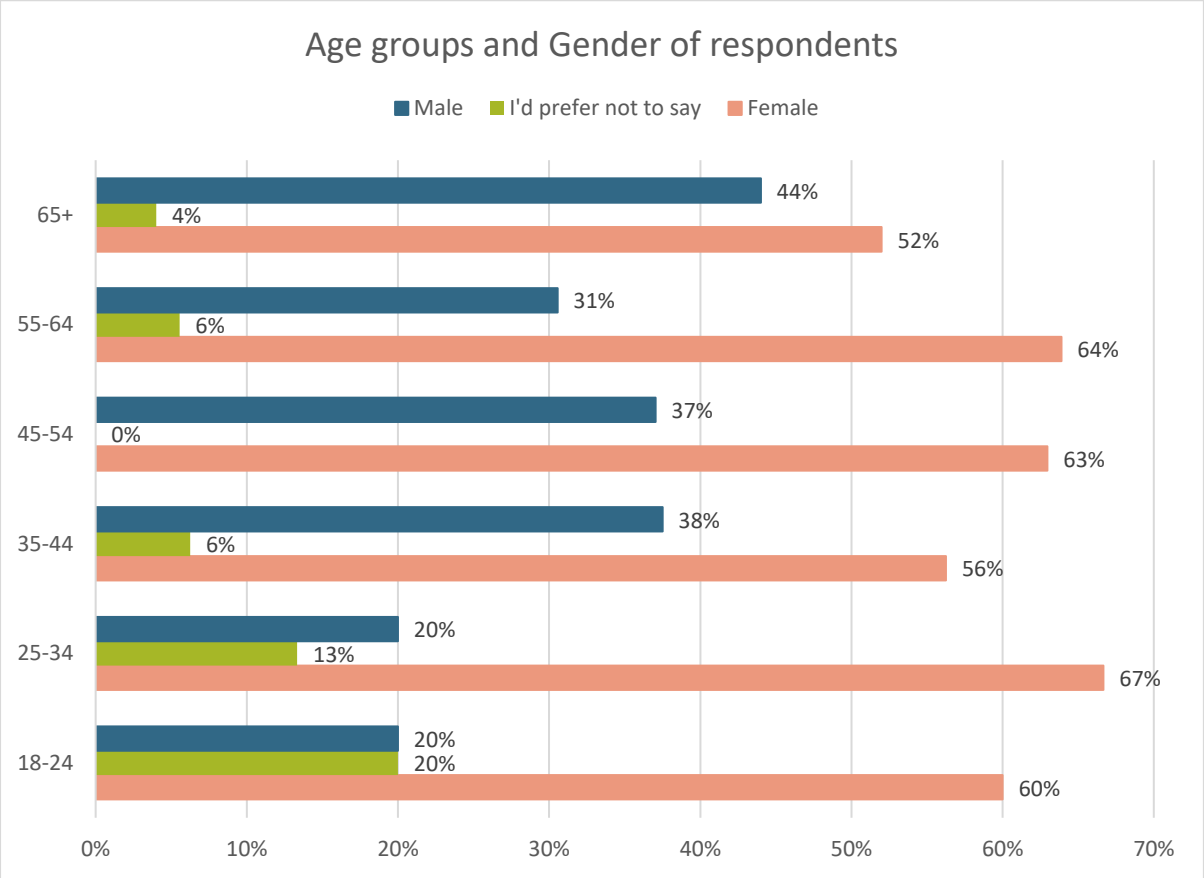
DEMOGRAPHICS

The graphs in this section show the demographics of the respondents to the survey, which supports a better understanding of how to plan for walking and riding in the community, and who to plan for.

Q13. What suburb do you live in?



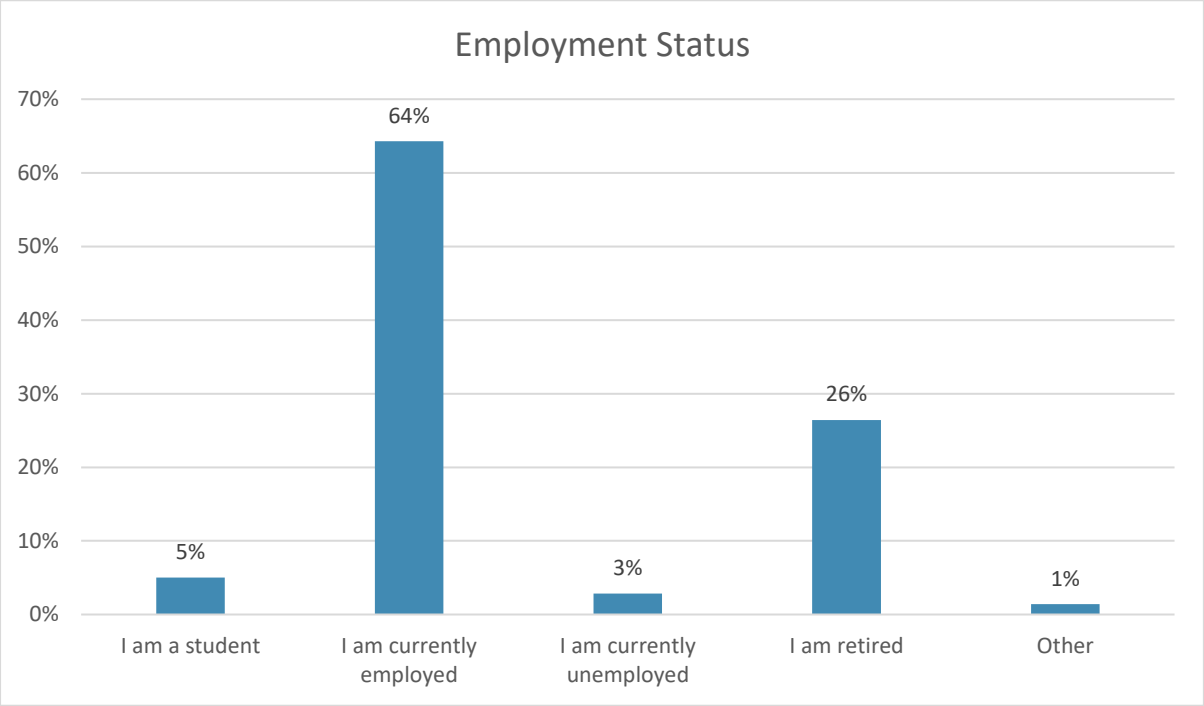
Q14. & Q15. What Age Group do you belong to? What Gender do you identify as?



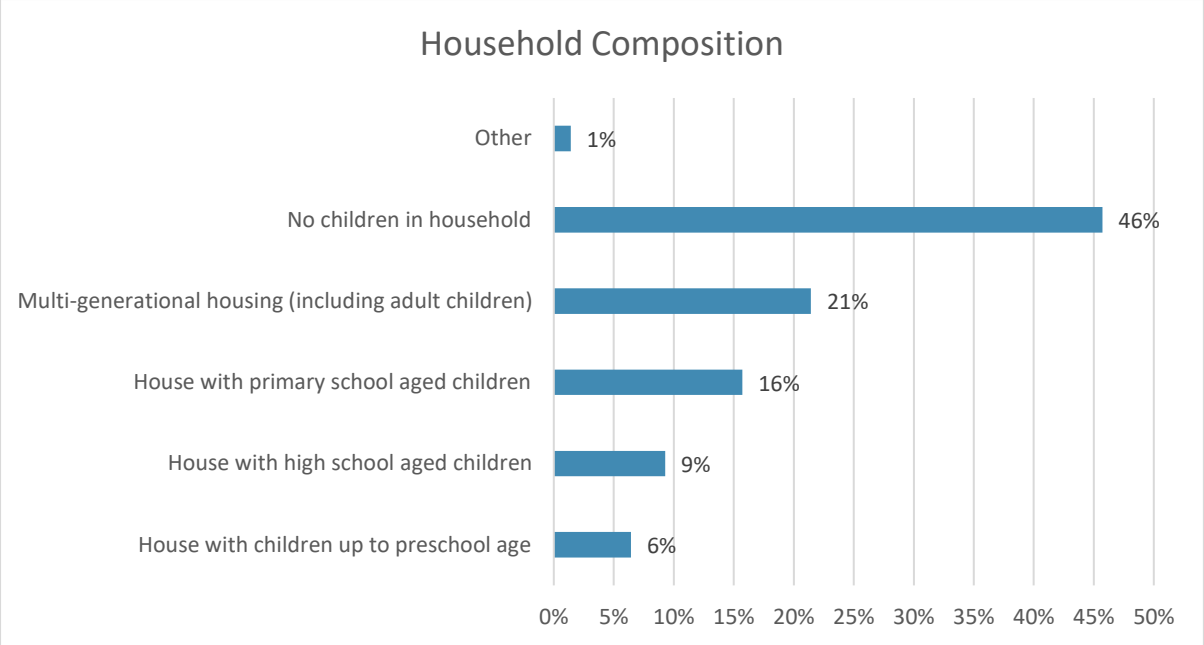
Q16. Does your household have access to a vehicle?

100% of respondents (140 people) had access to a vehicle.

Q17. What is your current employment status?



Q18. Do you have children in your household?



Interactive Map Data and Comments

Heat Maps

The maps in this section present where respondents placed markers onto Social Pinpoint's interactive map. Four types of markers were provided, including Riding, Walking, Footpaths and Routes.

Markers/themes were coded as follows:

- Walking (green)
- Riding (blue)
- Footpaths (grey)
- Routes (orange)

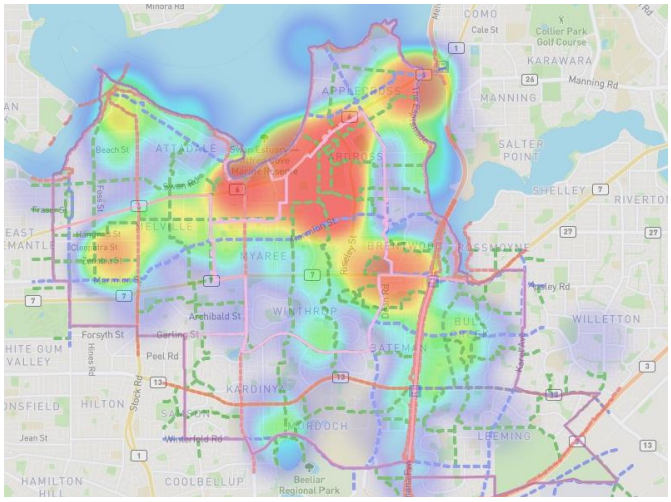


Figure 2.1 – Presents overall comments provided on the interactive map

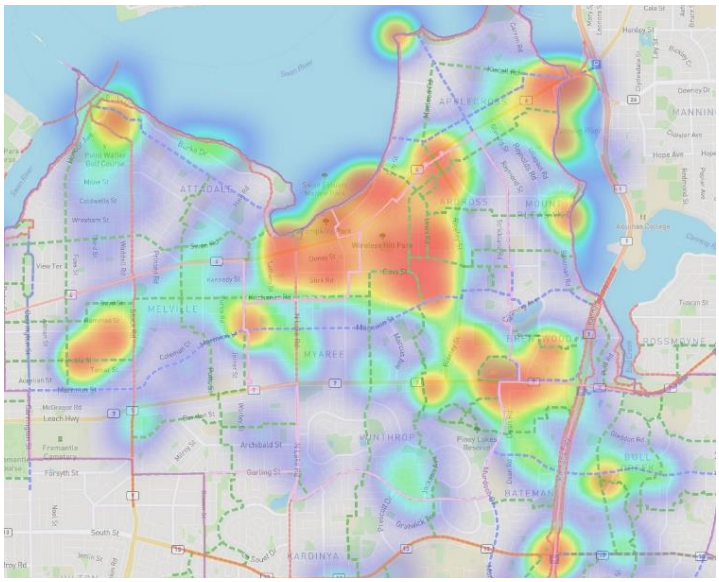


Figure 2.2 – Presents a closeup of hot spot area heat map of all provided

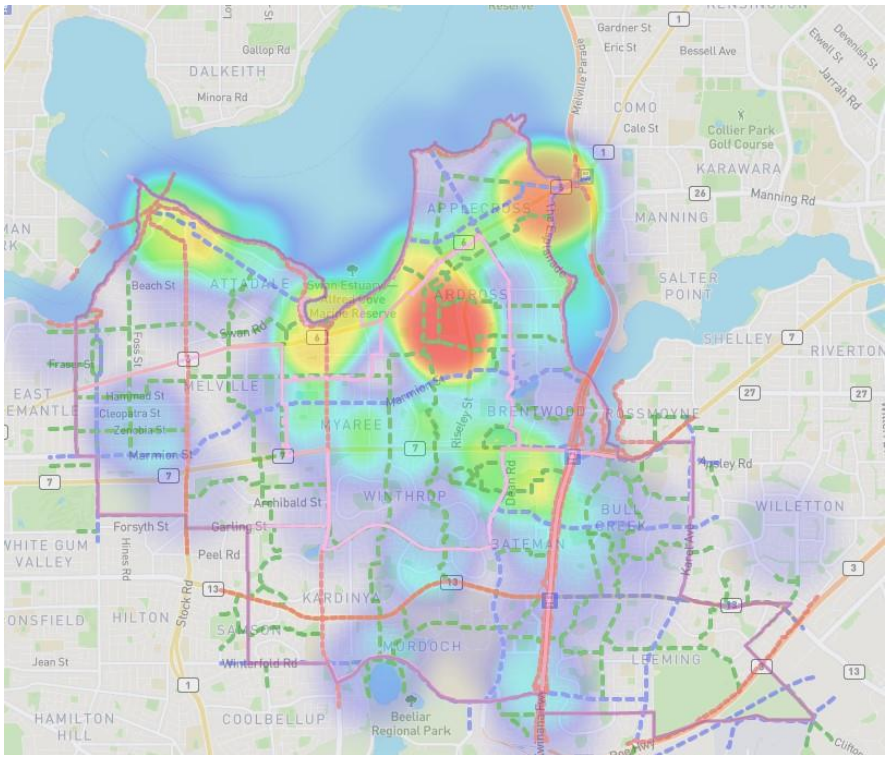


Figure 2.3 – Presents an overall heat map of riding comments provided

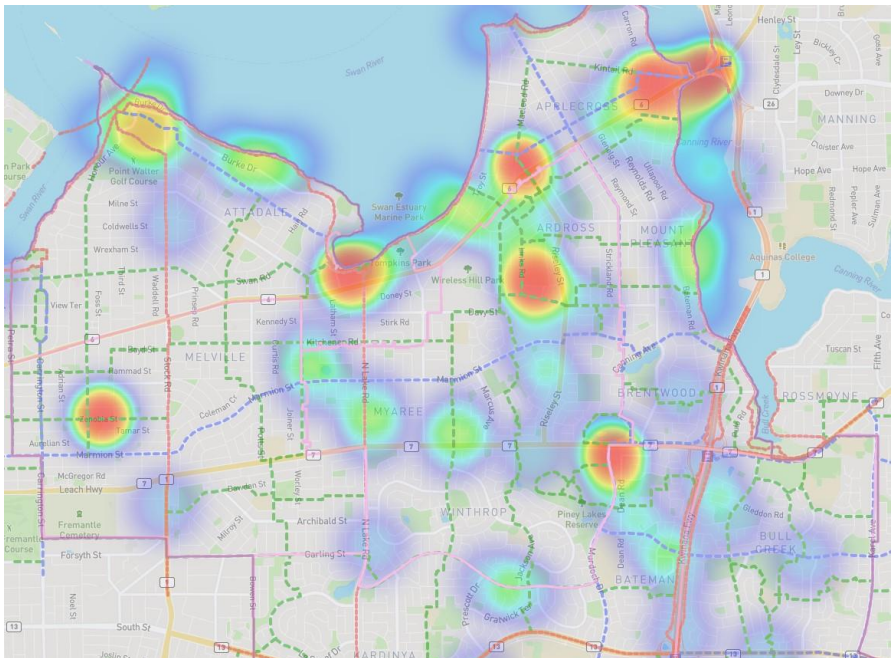


Figure 2.4 – Presents a closeup of hot spot area heat map of all riding comments

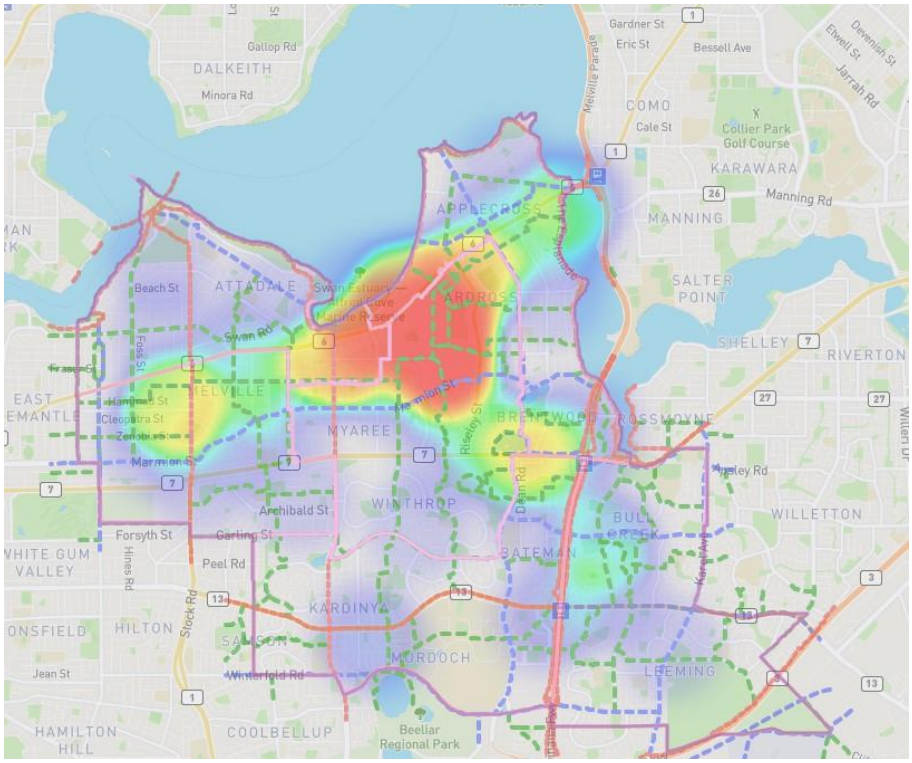


Figure 2.5 – Presents an overall heat map of comments provided on Walking and Footpaths

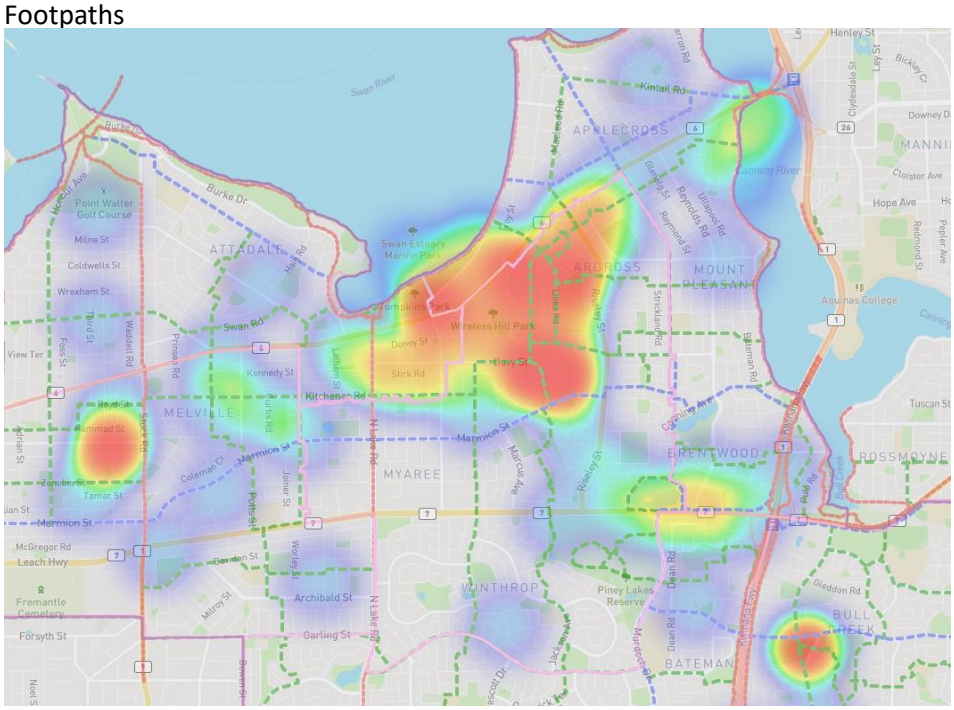


Figure 2.6 – Presents a closeup heat map of hot spot area of provided comments on walking and footpaths

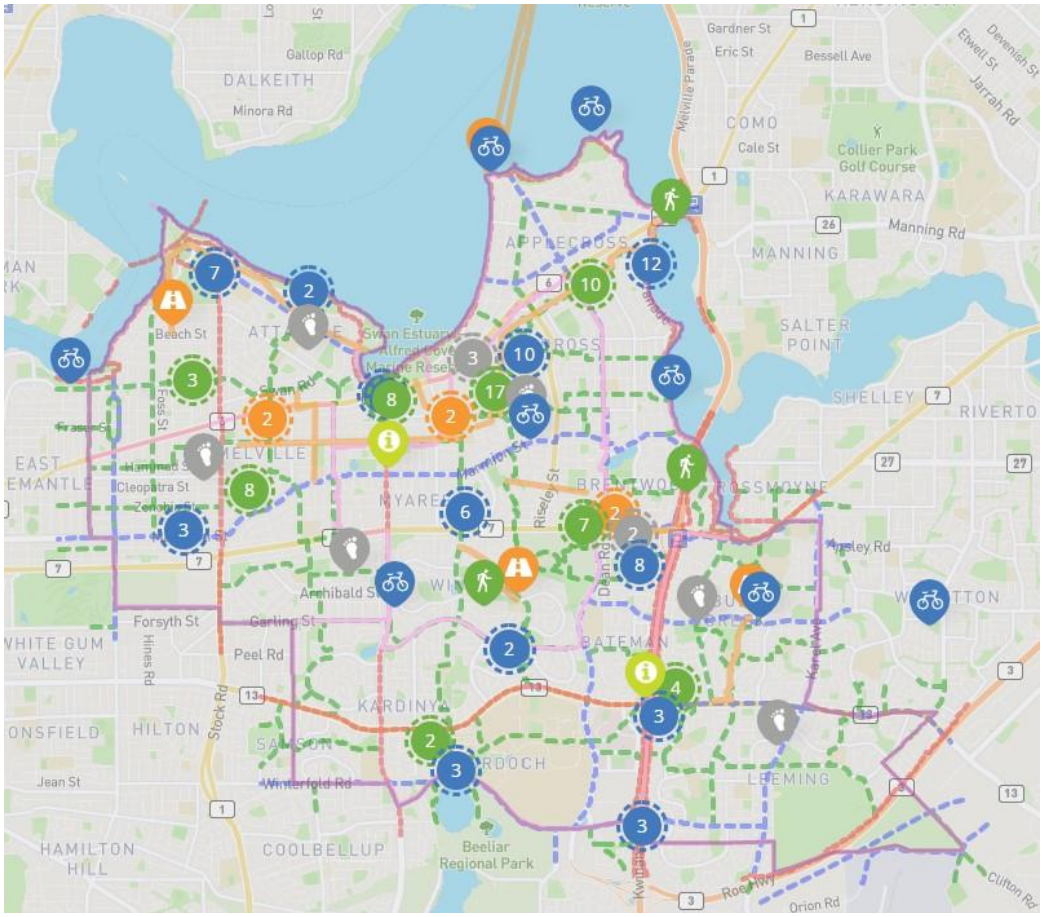


Figure 3.1 - Demonstrates the areas where respondents placed markers and made comments

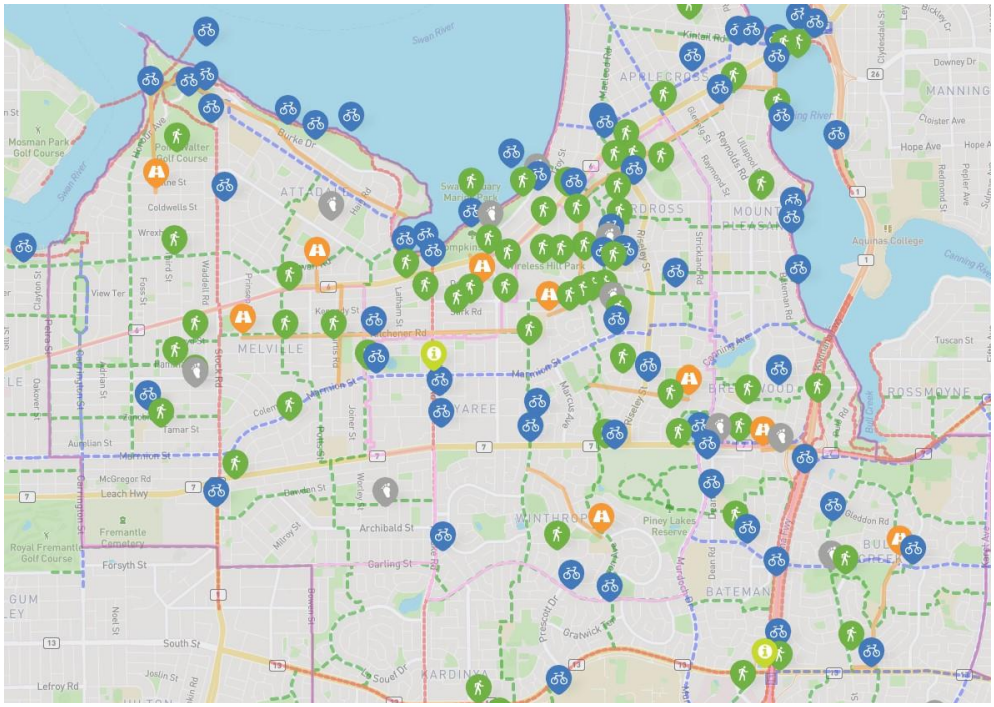


Figure 3.2 – Demonstrates close up of the hot spot areas where comment markers

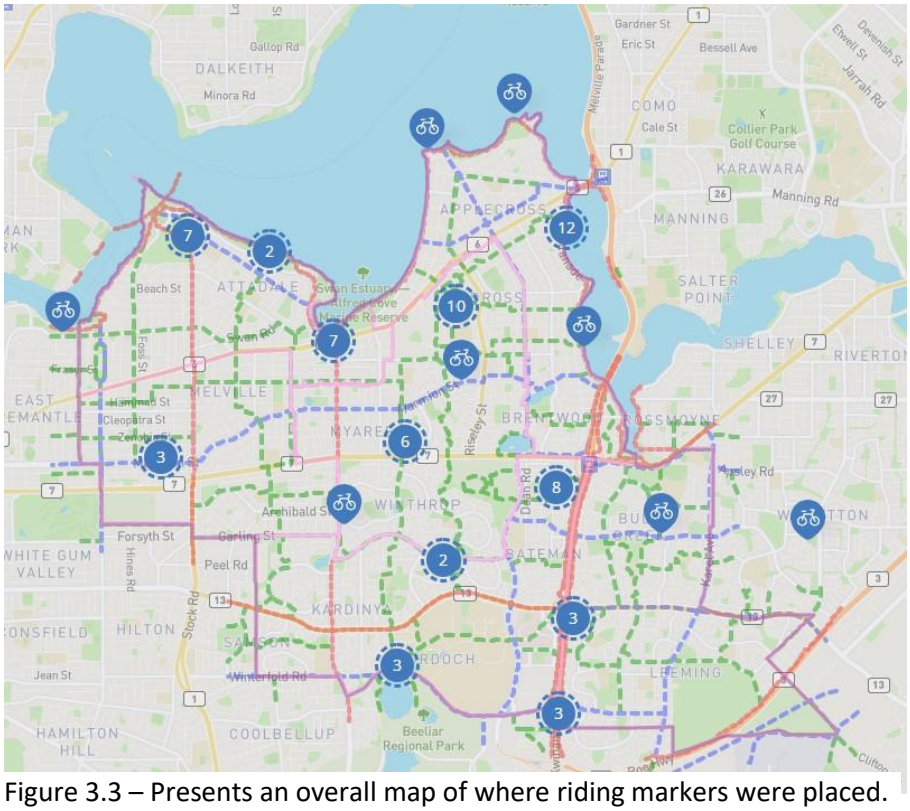


Figure 3.3 – Presents an overall map of where riding markers were placed.

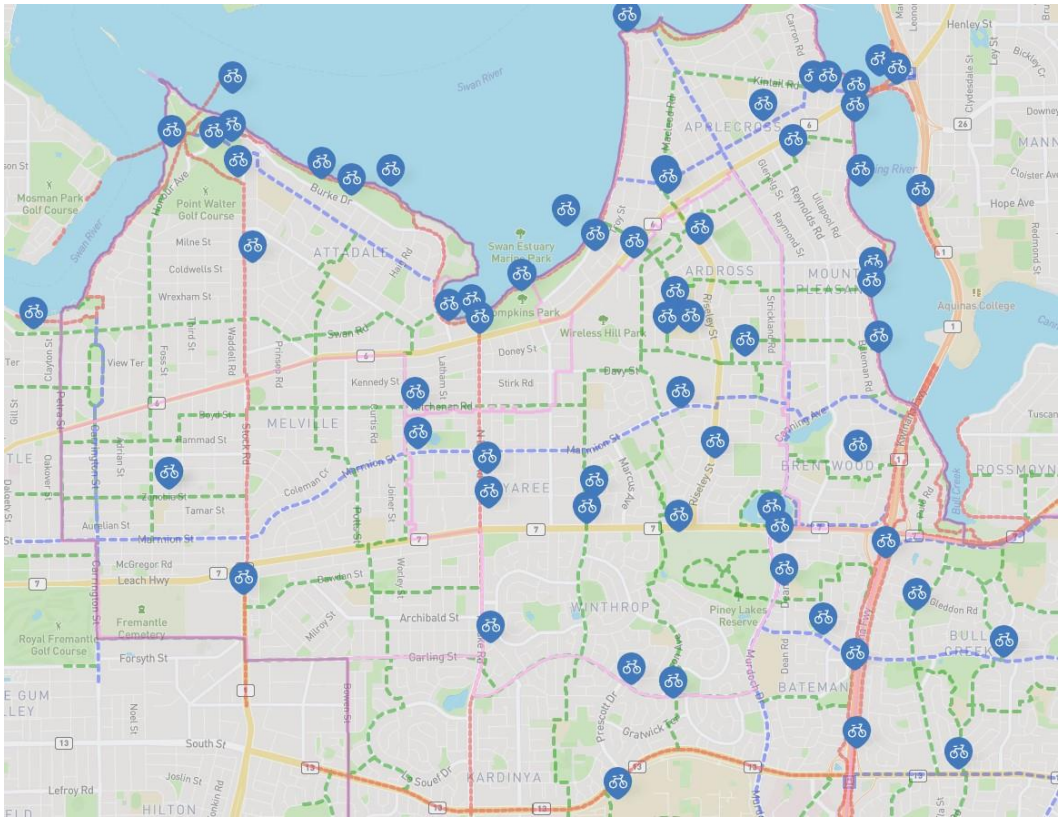


Figure 3.4 – Demonstrates a close up of hot spot areas identified through riding markers

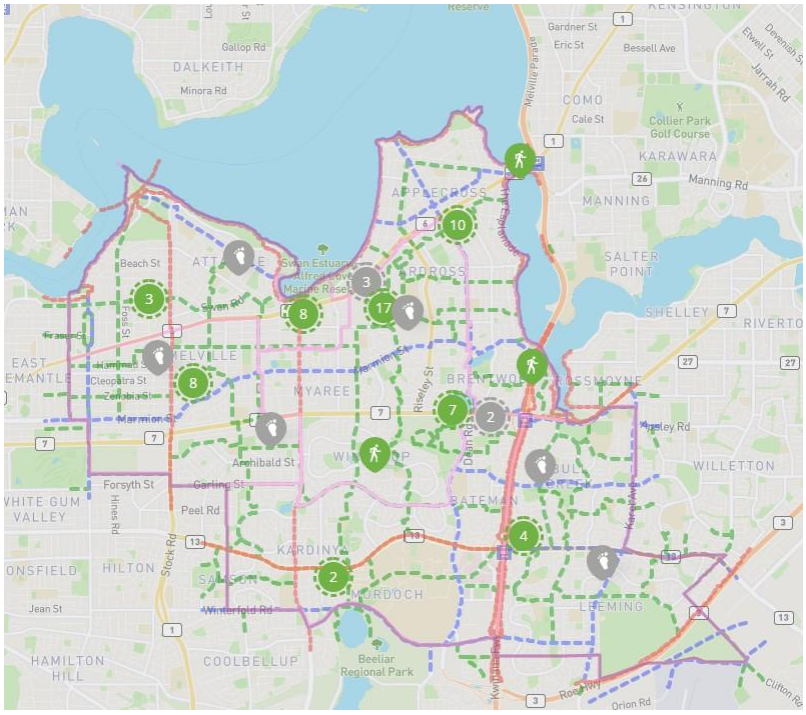


Figure 3.5 - Demonstrates where walking markers were dropped

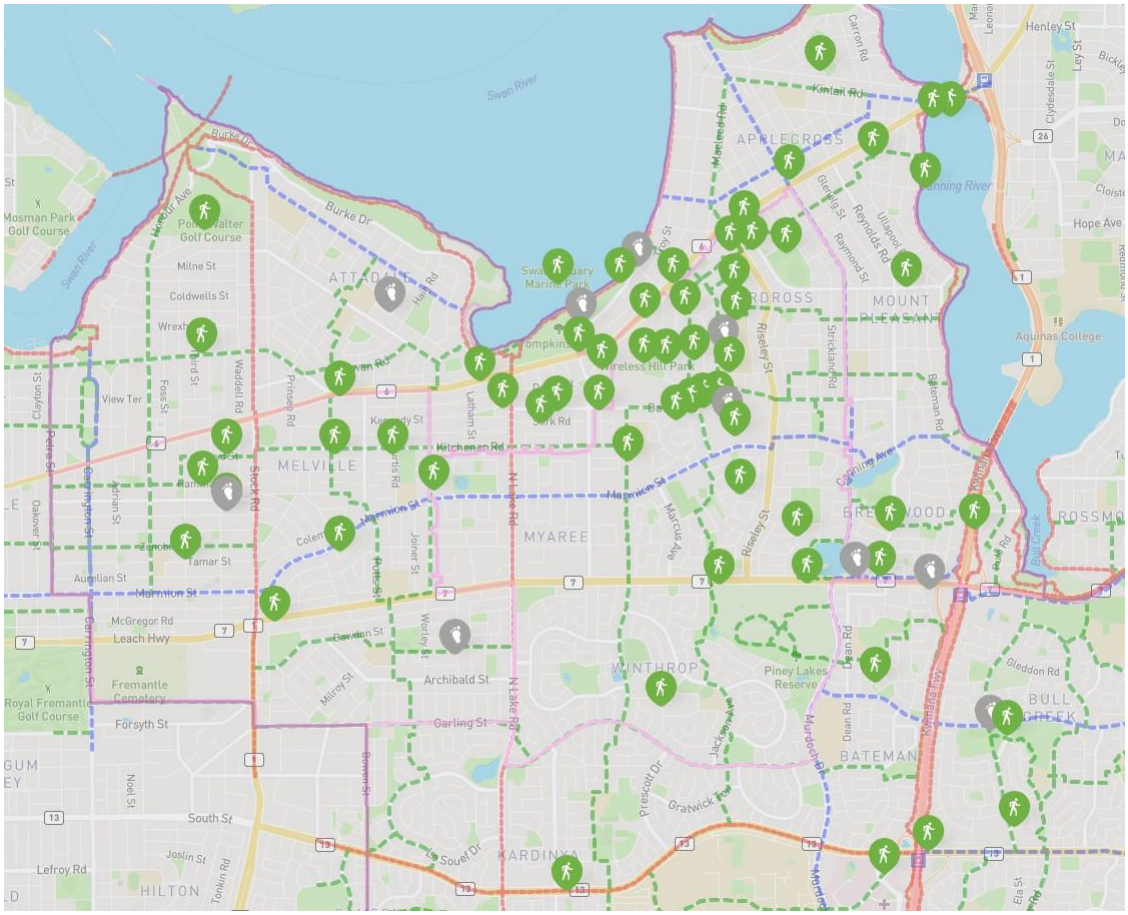


Figure 3.6 – Provides more detail on key areas of interest regarding walking

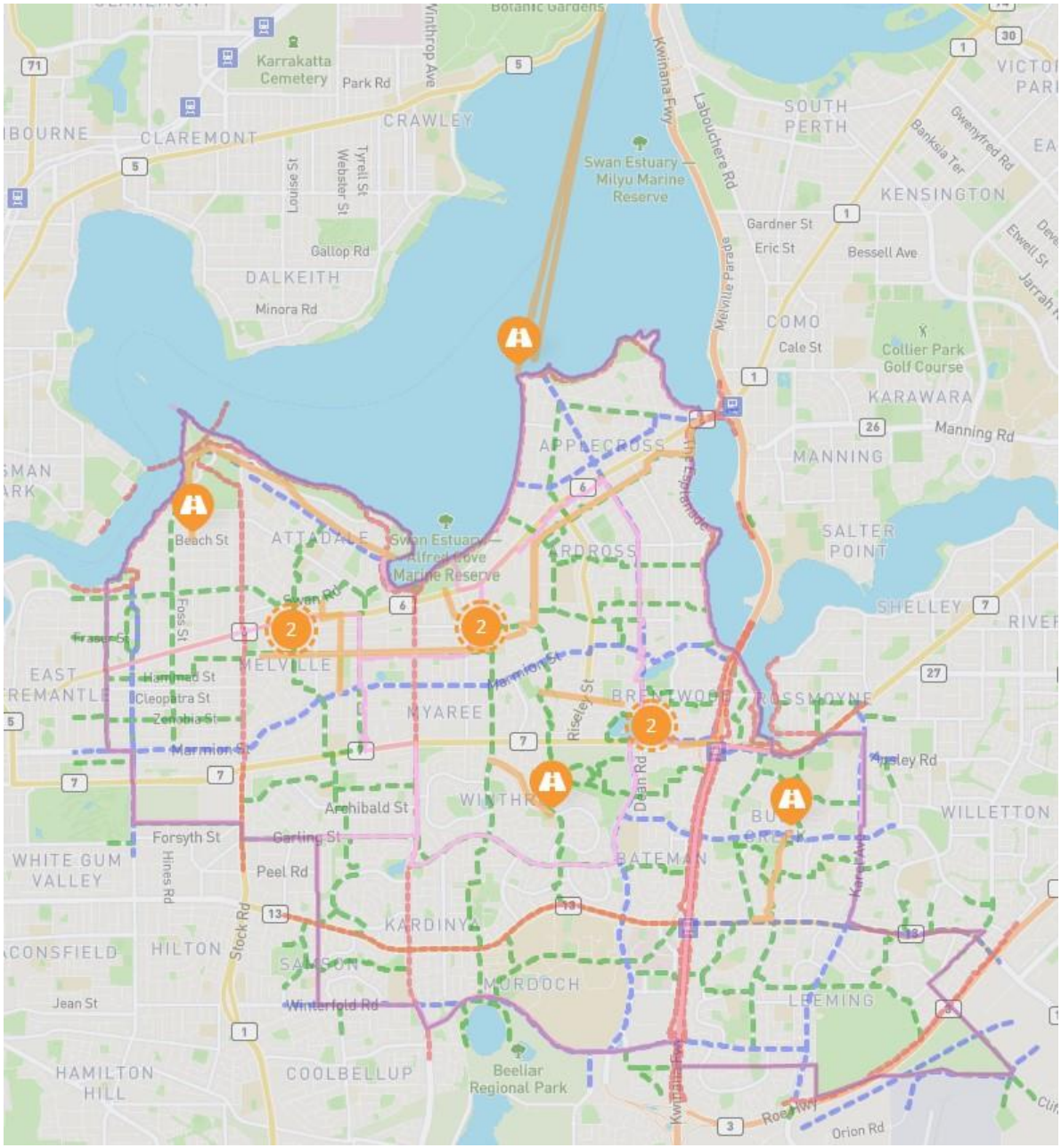


Figure 3.7 - outlines the key routes respondents wanted to comment on interactive map

Below presents the top voted comments by the community in the Social Pinpoint map, under various markers. For more detail on comments provided, please refer to Appendix 1.

Theme	*Comment*	*Up Votes*
Riding	*Canning Bridge underpasses - both east and west - are dangerous, narrow, have blind spots and sand piles on entry or exit, and are frequently under water during winter or high tides.*	*13*
Riding	*The islands in the middle of the road along The Esplanade Mount Pleasant make cycling dangerous because cars are unable to overtake the cyclists. It frustrates the car drivers and some attempt to squeeze between the cyclist and the island.*	*12*
Walking	*Can't even cross the road to catch a bus. It is a dangerous and unpleasant pedestrian environment. Shame on City of Melville - we have been raising this for 20 yrs!!!!*	*12*
Riding	*PSP between Canning Bridge and Mount Henry Bridge is narrow and congested esp. on weekend mornings. Path condition is deteriorating and is often overrun with sand or leaves - tree roots are lifting the path surface in places. The PSP is unlit and unsafe at night for walking or riding.* *Separated infrastructure is desperately needed on this stretch.*	*11*
Riding	*Preston Point Road between Petra Street and Wauhop Road needs to have bike infrastructure installed and a number of the traffic islands removed.* *The stretch is the only part along the entire length of Preston Point Road without any designated lanes.* *The road reserve is wide enough, so why isn't this already fixed by Melville and East Fremantle councils?*	*10*
Footpaths	*With infill housing more cars are parking over footpaths. This is a major issue for someone in a wheelchair as they cannot always safely get around the car.*	*10*
Riding	*Try riding East West! At Leach you have to get off and walk through train station, or cross to North side of Hwy, cross to middle to go across bridge, then cross Hwy again. You end up on the North side of the hwy, despite the dual use path being on the south!!*	*9*
Riding	*The cycle path has two dangerous corners with 90 degree bends. It is difficult to see around these corners. Vegetation on one corner is often protruding onto the path making it difficult to negotiate and stay on your side of the path. A couple of years back on a wet morning my husband slowed to take the corner his back tyre slipping on the paint markings causing a dislocated ankle with 2 fractures. This is not the first accident to happen here many cyclists have seen or experienced a close call.*	*9*
Footpaths	*Walking in the shopping centre car parks is really unenjoyable. Paths often end/don't connect. The path under the movie theatre footbridge is really narrow and dangerous. The roads are also badly maintained and full of significant potholes. I have twisted*	*9*
Riding	*Path in the vicinity of the rowing club needs to be separated.* *Too many walkers and bicycles attempting to be in the same place at the same time.*	*9*
Riding	*I understand the idea... but why on earth nominate a boardwalk as part of the LTCN?* *A boardwalk is made for casual cyclists and pedestrians, not those who would use a Primary Route.*	*9*

Appendix 1

Comments

To specify where comments are on the map, please visit the website, which will enable you to see the interactive map and view comments. https://www.melvillecity.com.au/walkandride

Figure 1 - Markers

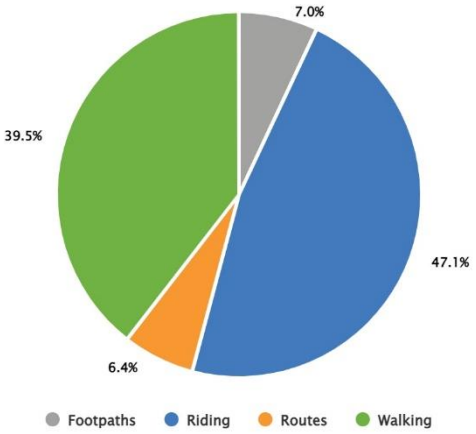
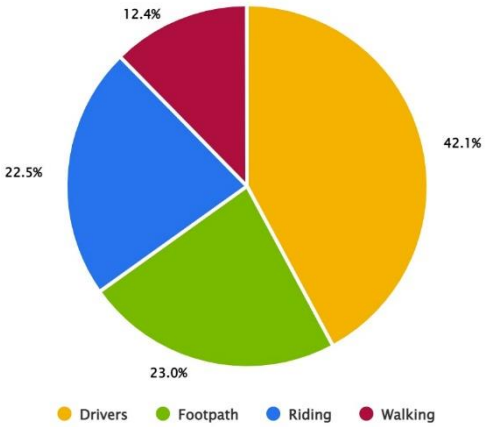


Figure 2 – Themes in comments



This word cloud has been generated from the comments made on the interactive map, identifying key themes the community has created.

To view threads look at the discussion and top comments.

Long Term Cycle Network/Routes

The LTCN aims to provide a network of safe and attractive bicycle routes:

- Provide continuous routes along major corridors
- Establish links between activity centres and public transport services
- Provide connections to schools, education sites and local centres

It is important that the community has input into the LTCN as they will be using it each day.

6.4% of markers were aligned to route markers placed along with comments. Users outlined routes they take across the City, with multiple comments flowing along the LTCN proposed paths, with some showing other areas that could be added to the LTCN.

Themes within these comments include;
Accessibility – More overpasses, lights and ease of crossing major roads such as Canning Highway and Riseley Road. Access to community facilities via LTCN, bike paths and routes
Paths – need for more footpaths and cycle paths, paths that are wide therefore accessible for multiple users.
Safety – better lighting, crossings over roads and ramps for ease of use.

Footpaths
7% of markers were regarding Footpaths.

Themes from comments included;
Accessibility –

- Need for overpass over major roads
- Cars parked over footpaths, need action against as people must walk onto the roads

Safety – There as a general preference for:

- Paths setback from the kerb
- Separation of riders and walkers
- Shopping centre carparks need to be more pedestrian friendly
- Around Leach HWY and Canning HWY major safety issues

Areas that need footpaths or require maintenance

- Footpath on EVERY street
- Stirk road (needs path)
- Attadale
- Leeming all along Matthew Ave, Irwin St, Beresford Place, Collinson Way, Laughton Way and some parts of Gladstone Rd
- East of Carrington Street
- West side of Canning Bridge (suggested by walking group of 20)
- Realigning and widening at the intersection of Dunkley and Cunningham
- Milligan Street
- Preston Point Road (no crossings)
- Swan Road and Money Road (reconstruction)
- Hammad and Harris St (narrow path)
- Almondbury Rd to COM Office
- John Creaney Park and Bob Gordon Reserve
- Reserve Street
- Melson way
- Nisbet Road
- Murdoch Train station (maintenance)

Walking
39.5% of markers were on walking. 16% of markers contain the word pedestrians.

Positive – Street specific

- Wireless Hill (great to walk in – needs more paths leading there)
- Palmyra pleasant for walking, shady with established peppermint trees

Negative – Street Specific

- Canning Highway (unable to cross)
- Riseley Street (unable to cross)
- McCallum Crescent (speeds unsafe, near school)
- Leach Highway (unable to safely cross)

Accessibility (6% of markers are regarding accessibility)

- Unable to walk to school or public transport
- Carparks open short hours, need longer hours
- Footpaths needed on EVERY street
- Roads around all schools need better traffic calming measures
- More paths to and around shopping centres/activity centres

Amenity

- Shadier streets for walkability
- Heat island effect - need more trees/verge gardens along paths

Safety – 24% of comments on walking contain the words safe or unsafe
23% of comments on walking contain the word dangerous (25% of ALL comments contain this word)

- Concern due to bikes sharing paths with walkers
- Many areas of danger for pedestrians crossing major roads
- Roundabouts unsafe
- Reduce speeds on local residential streets
- Many more safe road crossing points needed
- Elderly people, children, those in wheelchairs or visually impaired having to walk on road creating unsafe environment

Driver behaviour/ Danger
18% of comments mention Canning Highway

- Intersection of Benningfield and Dartford
- Car park entrances/exits (dangerous for pedestrians)
- Illegal parking making paths inaccessible/dangerous
- Drew Road (drivers speed needs to be reduced)
- Roam Road (traffic calming needed)
- North Lake Road/Canning Highway intersection is dangerous
- Andrea Lane (drivers ignore signs, cameras?)
- Cars turning from Moolyeen – Leach cannot see pedestrians
- Benningfield Road crossing (blind spot)

Riding

Positive – Street specific

- Zenobia Street is a great route for cycling
- Good standard path from Brentwood to Murdoch
- Near Kwinana Fwy/Bateman – pleasant and safe cycle path

Negative – Street Specific

- Traffic lights at Murdoch Drive and Leach Highway (dangerous crossing)
- The Esplanade mount pleasant (islands frustrate drivers and make it unsafe for riders)
- Benning field roundabout (dangerous)
- Riseley and Wilcock St (needs traffic calming, needs separated cycle lane)
- Matheson Road (incidents between bike/car)
- Leach Hwy and Winthrop Drive lights (narrow)
- The dual use path along Blackwall Reach (seal the track and make it a dedicated cycling path while reclassifying the dual use path as a dedicated pedestrian path)
- Macleod Rd, Risely St, Ness Rd (obscured drivers cannot see cyclists)
- Preston Point Road between Petra Street and Wauhop Road needs to have bike infrastructure installed
- PSP between Canning Bridge and Mount Henry Bridge is narrow and congested
- Wren Street (narrow, needs traffic calming)
- Path in vicinity of rowing club needs separation (rider/walker conflict)
- North lake road – riders unable to join path
- Cranford Ave (traffic calming)
- McCoy St/Pitt Way (blind corners)
- Bike path from Parry Ave bridge to Scandrett Way requires an upgrade.
- Transition between the shared path and Lentona St / Burke Dr (confusing, unsafe)
- Add a marked cycle lane on Kintail Road and Forbes Road.
- "North Lake Road is pretty bad for walking and cycling in general. The footpath often gets very narrow (especially around poles), there are plenty of almost-blind driveways, cars speed a lot, and one of the pedestrian crossings has a button but no actual crossing light. The only way I can see this becoming a safe route is with an elevated veloway."
- Honor Ave (dangerous)
- Need a dedicated cycling route to Fremantle from Leeming/Bullcreek. (South Street is too dangerous)
- Burke Drive is a major well used route (adding on-road cycling infrastructure such as cyclist signage, cyclist stencils and even consider on-road bike lanes space permitting - anything to make it safer for the cyclists)
- Jackson Ave (dangerous blind spots)
- Links Road (bad environment to cycle)

Accessibility –

- General narrow paths (cannot be used by walkers and cyclists)
- Roundabouts (people choose to drive rather than use active transport due to danger of roundabouts and inability to get places easily)
- Unable to cross Farrington road to reach Playground, needs a crossing with lights and traffic calming

Amenity –

- Underpasses that do exist around Canning Bridge are unsafe, narrow, and flood in high tide
- Separation of road and bike path with raised barrier (example Bulwer St)
- Shadier routes required
- More bike repair stations, drink fountains

Safety –

- Roundabouts unsafe, making traffic faster to the detriment of those using active transport
- Need speed reductions near major cycling routes

- Cycle paths too close to the road and not wide enough, need a separation/barrier between the road
- A lot of pedestrian/bike conflict due to lack of paths
- PSP's unlit and unsafe at night
- Between Rowing Club and raffles hotel – need separation of walkers and cyclists
- Need much better safety measures (CPTED) as people are uncomfortable cycling at night

Driver behaviour/ Road Danger –

- 17% of comments on riding are related to roundabouts
    - Cycle lanes disappear at them
    - Unsafe and unrideable or walkable
- Many areas are used as 'rat runs' by cars and make for hostile environments for riders, on some areas of proposed LTCN included
- Traffic calming measures are needed
- Riders want to be separated from drivers

Walker/Rider

- Infrastructure is needed to separate walkers and riders to keep everyone safe
- Major shared paths in the city are unsafe for these groups to share
- Facilities for fast riders to have their own space
- Footpaths everywhere around the city are needed
- Roundabouts propose a large risk to these groups
- Need safer crossings at major roads to make places such as schools and PT accessible
- Paths need to be separated from the road with verges and or kerbs

Crosstab/Other

This section contains other niche problems that the community raised in the engagement process.

- Large amount of illegal parking
- Lack of water fountains
- Better facilities at Southside BMX tracks
- Move drinking fountain at west end of Attadale Foreshore Dog Park to east side of path (dogs and walkers have to cross over)

Specific issues relating to **Bombard Street**, Mount Pleasant provided by a long term resident

- Residential Street with serious volume of traffic issues.
- This street is close to St Benedicts Primary School and earmarked as a **Local Walk and Bike Route** on the plan. But some more urgent action is needed.

The Melville Traffic Engineers have provided Raw Data (from recent traffic Counts) to analyse the current traffic.

Here are just a few of the key findings of the recent Traffic Counts so far:

- Bombard runs parallel to Canning Highway, one street back from Canning Highway and has a significant bicycle and pedestrian usage.
- Bombard Street is open to traffic at both ends and has become a Rat-Run.
- Bombard Street has significantly more road traffic than Macrae Road did at the time of it's closure.
- In October 2015, Bombard Street had **17,846** vehicles use the road in a 7 day period whereas is September 2015 Macrae Road (before closure) had **12,709** vehicles in a 7 day period (so that's 40% more traffic in Bombard - the Rat Run).

- Many cyclists are now resorting to using the pedestrian footpath on Bombard to avoid the vehicles.
- In September 2015 there were 1,065 cyclists that used Macrae Road in a 7 day period. In October 2021 there were 563 cyclists that use Bombard (less than Macrae but this count does **not** include the many of us that have to use the Footpath with our bikes during peak times)
- Bombard Street now has 396 large vehicles (Trucks etc) using the road each week whereas Macrae had 178 in a week (ie: Bombard had **122%** more traffic from these large vehicles. Most of these Tracks are heading to Woolworths.
- Approximately 20% of all vehicles exceeded 50 kmph
- Bombard Street already has 40% MORE Traffic than Macrae Road did prior to it's closure.

Appendix 2

City of Melville Walking and Riding Survey

Preamble -

WALKING

1. If you walk in the City of Melville, where do you walk to and how often? * (Allow multiple choices)

	Never	A few times a year	Monthly	Weekly	A few times a week	Daily
to community facilities (parks, sporting amenities, playgrounds, etc.)?	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
to work						
to school	☐	☐	☐	☐	☐	☐
to public transport?	☐	☐	☐	☐	☐	☐
to restaurants or shops?	☐	☐	☐	☐	☐	☐
to meet with friends or family?	☐	☐	☐	☐	☐	☐

Other – open ended

2. What is your primary motivation for walking?* (Select one)
   - Well-being
   - Exercise
   - Transport
   - To socialise
   - Save money
   - Environmental concerns
   - Avoid traffic
   - It's my only option
   - Dog walking

   Other (open ended)
3. What are the barriers (if any) that prevent you from walking or from walking more frequently? * (Allow multiple choices)
   - Time
   - No footpath
   - Traffic speed or volume
   - Difficulty crossing the road
   - Narrow footpaths
   - Unmaintained footpaths
   - Insufficient lighting
   - Indirect routes
   - Long distances
   - Personal safety/crime
   - Lack of pleasant routes away from traffic
   - I don't enjoy walking
   - Lack of shade or places to rest
   - Conflict with bike riders
   - Conflict with drivers on driveways
   - I have not experienced any barriers

4. When thinking about your walking habits and footpaths on local, quiet streets around the City of Melville which footpath option do you prefer?
   - A footpath on one side of the road

- A footpath on both sides of the road
- A footpath is not required on either side of the road

If you have any other specific feedback on footpaths located in the City of Melville, please provide your comments on the interactive map

5. Thinking about other places in Perth, and now comparing these places to the City of Melville, how pedestrian friendly is the City of Melville?* (rank)

1 = Very Poor 2= Poor 3= Neutral 4= Good 5= Very Good

If you have other feedback about walking in the City of Melville, please provide your comments on the interactive map.

RIDING

6. Do you have access to any of the following modes of mobility? (multi choice)
   - Bicycle
   - E-bike
   - Scooter
   - Skateboard
   - E-scooter / E-skateboard
   - Gopher
   - No – I don't ride – (logic takes people to the barriers question)

   Other (open ended)

7. If you ride in the City of Melville, where do you ride to and how often?* (allow multiple choices)

	Never	A few times a year	Monthly	Weekly	A few times a week	Daily
to community facilities (parks, sporting amenities, playgrounds, river etc.)?	☐	☐	☐	☐	☐	☐
to work	☐	☐	☐	☐	☐	☐
to school?	☐	☐	☐	☐	☐	☐
to public transport?	☐	☐	☐	☐	☐	☐
to restaurants or shops?	☐	☐	☐	☐	☐	☐
to meet with friends or family?	☐	☐	☐	☐	☐	☐

Other – Open ended

8. What is your primary motivation for riding?* (Select one)
   - Well-being
   - Exercise
   - Transport
   - Social
   - Save money
   - Environmental
   - Avoid traffic
   - It's my only option

   Other (open ended)

9. If you ride, please indicate how safe you feel riding on the following roads and pathways in the City of Melville?* (Likert Scale - Very unsafe, Safe, Neutral Safe, Very Safe)
   - On a dedicated Shared Path (PSP e.g. along the Kwinana Freeway)
   - On recreational shared paths (along the river or in parks)
   - Local residential streets
   - Busy main roads – i.e Canning Highway
   - On the road – sharing space with vehicles
   - On the road – in a bike lane or sealed shoulder (separated from traffic by a painted line)

- On the footpath -shared with people walking
- On the footpath – using separated facilities just for people riding

10. What are the barriers (if any) that prevent you from riding or riding more frequently?* (Allow multiple choices)
    - Time
    - Inadequate end of trip facilities (e.g. bike racks / repair stations)
    - Driver behaviour
    - Traffic speed or volume
    - Difficulty crossing roads
    - Insufficient lighting
    - Indirect routes
    - Long distances
    - Personal safety/crime
    - Lack of pleasant routes away from traffic
    - I don't enjoy riding
    - Conflict with walkers
    - Conflict with other bike riders
    - I have not experienced any barriers

11. Thinking about other places in Perth, and now comparing these to the City of Melville, how rider friendly is the City of Melville?* (rank)

1 = Very Poor 2= Poor 3= Neutral 4= Good 5= Very Good

If you have other feedback about riding in the City of Melville, please provide your comments on the interactive map.

Demographic Info

12. Which suburb do you live in?
    - Alfred Cove
    - Applecross
    - Ardross
    - Attadale
    - Bateman
    - Bicton
    - Booragoon
    - Brentwood
    - Bull Creek
    - Kardinya
    - Leeming (part)
    - Melville
    - Mount Pleasant
    - Murdoch
    - Myaree
    - Palmyra
    - Willagee
    - Willetton
    - Winthrop.
    - Other (Suburb) (manual)

13. What is your age group?
    - Under 12
    - 12-17
    - 18-24
    - 25-34
    - 35-44
    - 45-54
    - 55-64
    - 65+

14. Do you identify as:
    - Male
    - Female
    - Other
    - I'd prefer not to say

15. Does your household have access to a vehicle?
    - Yes
    - No

16. What is your current employment status?
    - I am currently employed
    - I am currently unemployed
    - I am unable to work
    - I am a student
    - I am retired
    - Other (please state)

17. Do you have children in your household?
    - House with children up to preschool age
    - House with primary school-aged children
    - House with high school-aged children
    - Multi-generational house (including adult children)
    - Household with people living with a disability
    - No children in household
    - Other (please specify

Preamble for the Map:
Using our interactive map, tell us about your walking and riding experiences here in the City of Melville to help inform our Walk and Ride Melville Plan. We want to provide more opportunities for people to walk, ride, skate, scoot and travel in and around the City in a safe, connected and active way. Show us where you frequently walk and/or ride and pinpoint any issues you have experienced.
We want to provide more opportunities for people to walk, ride, skate, scoot and travel in and around the City in a safe, connected and active way. Using our interactive map, tell us about your walking and riding experience in, or through the City of Melville. You can share with us where you like to walk or ride, how often you use this route, or even drop a pin to let us know of any issues or safety concerns.

Walking Pin (for participants)
Tell us about your walking experiences in the City of Melville by dropping a pin:
- Streets or places of interest where you enjoy walking and tell us why?
- Issues you have experienced walking and tell us what can be improved?
- Highlight any areas where you may have been involved in a traffic incident whilst walking.
- Pinpoint areas where you have feedback on footpaths or shared paths.

Riding Pin (for participants)
Tell us about your riding experiences in the City of Melville by dropping a pin:
- Roads, pathways or places of interest where you enjoy riding and tell us why?
- Issues you have experienced whilst riding and tell us what can be improved?
- Highlight any areas where you have been involved in a traffic incident whilst riding a bike?
- Provide us with your feedback on the State Government's proposed Long Term Cycle Network in Melville. (LTCN)?

Footpaths Pin (for participants)
We are keen to hear more about what you think about footpaths around the City of Melville, drop a pin:

- Pinpoint any issues you have experienced with footpaths/shared paths
- Highlight streets where you would like a new footpath to be constructed

Route Marker (for participants)
Show us the routes you take around Melville
Using the Route feature, click to outline a route that you often take walking or cycling.
- Are there any issues with this route?
- Should this route have a bike path, is there quality paving?
- Comment on why you outlined this particular route.

Pre amble for the LTCN Marker to provide detail on the map layer
The Long Term Cycle Network (LTCN) has been developed by the Department of Transport in collaboration with the City. The LTCN identifies a network of routes.
We would like your feedback regarding this proposed network;
- Does it go where you would like it go?
- Are there any missing routes?
- Do you have any other concerns?

This exercise is about testing the routes contained in the LTCN, rather than the specific types of infrastructure that they will feature.

Appendix G Resolved Projects

Resolved Projects

Ward	Location	LTCN	Issues	Outcome
Ward 1 - Bicton, Attadale and Alfred Cove	First Avenue Shared Path	Primary	Dangerous bends with reduced sight lines	▪ River boardwalk proposed within Attadale Foreshore Management Plan
	Burke Drive/The Close	Primary	Bike riders hopping up the kerb onto the river path at speed	▪ Attadale Foreshore Plan will address this issue
	Canning Beach Road	Primary	Multiple crashes on road	▪ Resolved through new Riviere Development
	Kintail Rd	Local	Vegetation growing onto path	▪ City undertakes regular pruning of vegetation required in this location to increase the effective width for walking
	Mount Henry Coffee Van		Bike racks parked informally and not using rack provided	▪ More bikes racks have been installed
	Cranford Avenue		Access to PSP from the bridge	▪ Resolved in recent PSP works
	Ardross Street	Secondary	Number of vehicles accessing St Benedict school from Bombard Street	▪ Slip lane being constructed by 2026
	South of Perth Yacht Club / Heathcote Reserve		Path quality	▪ Works to improve path quality to be complete by 2025
	Riseley Street		Narrow cycle lane/sealed shoulders	▪ City to re-evaluate the sealed shoulder on Riseley St
Ward 3 Applecross and Mount Pleasant	Leach Hwy		Dangerous crossing to access the school on Moolyeen Rd	▪ MRWA jurisdiction
	Farrington Road (east)		Dangerous pedestrian crossing near the shops (between Aulberry Parade and Findlay Rd)	▪ Currently under investigation
	Leach Hwy		Hard to cross in general	▪ MRWA jurisdiction

DESIGN WITH COMMUNITY IN MIND

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of place and of belonging. That's why at Stantec, we always design with community in mind.

We care about the communities we serve—because they're our communities too. This allows us to assess what's needed and connect our expertise, to appreciate nuances and envision what's never been considered, to bring together diverse perspectives so we can collaborate toward a shared success.

We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

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