

KNOX CITY COUNCIL MOBILITY STUDY

Study into the accessibility of the footpath and shared path network for people using mobility equipment

Knox City Council Mobility Study

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Acronyms

DDA	Disability Discrimination Act 1992
KDAC	Knox Disability Advisory Committee
LGA	Local Government Area
SEIFA	Socio-economic Index for Areas



Glossary

Access	Access refers to the ability of people with physical and sensory impairments to reach and enter premises, facilities, transport, programs, employment and community services. It also includes the ability to obtain information and communicate with others to express desires, concerns and needs ¹ .
Amenity	Safe, comfortable and interesting
Bicycle/bike²	A vehicle that has one or more wheels, and built to be propelled by human power through a belt, chain or gears (whether or not it has an auxiliary motor). Vehicles such as wheelchairs, wheeled toys and scooters are not considered to be bicycles.
Support person	A person who accompanies someone using mobility equipment to assist, where necessary. This support person may be a family member, friend, or health care worker. The support person may therefore be paid or provide their support on a voluntary basis. In the context of this research, carers are considered support people.
Desire line	An informal path created through use rather than design. It usually reflects the quickest and most convenient connection to a place used by the community on a regular basis.
Destination	A place people travel to. This can include shops, schools, public transport, parks, medical centres, social and leisure centres.
Disability³	<p>The medical model of disability focuses on the physical, emotional or psychological factors that prevent people with a disability from participating fully in society.</p> <p>The social model of disability focuses on the physical, institutional and attitudinal barriers imposed by society that limit or 'disable' the person and restrict their social, cultural and economic participation in society.</p>
Footpath	Footpaths are sealed or unsealed paths intended for use by pedestrians.
Inclusion	Inclusion refers to the ability to be included and participate in events and activities. It is dependent on institutional barriers being removed to ensure equitable participation ⁴ .
Mobility equipment	In the context of this study mobility equipment is understood to be a wheelchair (non-motorised/manual or motorised/electric), motorised/electric scooter, walking stick or walking frame. In other contexts, mobility equipment could also include crutches, prams, white canes and shopping jeeps.
Origin	A place people travel from. This is usually their home, but can

¹ Knox City Council (undated) *Access and Inclusion Plan 2011-2015* p17

² <http://www.vicroads.vic.gov.au/Home/SafetyAndRules/RoadRules/Bicycles.htm>

³ Knox City Council (undated) *Access and Inclusion Plan 2011-2015* p15

⁴ Knox City Council (undated) *Access and Inclusion Plan 2011-2015* p15



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include services and facilities people leave from to go to their destination.

Pedestrian

Pedestrians include not only people on foot but also those on wheeled devices such as skateboards, rollerblades, wheelchairs and motorised mobility devices. A person pushing a bicycle is also considered to be a pedestrian⁵. The following are classified as pedestrians:

- Person driving a motorised (also called electric/power) wheelchair
- Person in a non-motorised (manual) wheelchair
- Person pushing a motorised (also called electric or power) or non-motorised (manual) wheelchair
- Person in or on a motorised or non – motorised scooter
- Person pushing a walking frame
- Person using a walking stick

Pedestrian motorised device⁶

Scooters/buggies that are motorised (also called electric or power) and electric (motorised also described as power) wheelchairs. As they are not defined as motor vehicles they cannot be registered and do not require a drivers licence. Vicroads requires that they are to be used only by a person who is injured or who has a disability, who is unable to walk or who has difficult in walking. People using these devices are pedestrians and have to obey the road rules.

Public realm

Places outside of the private home or private services where people can move around, socialise and conduct their day to day business. The public realm usually includes paths, parks and market places.

Ramp

A path where the gradient is between 1:14 and 1:19. A ramp requires handrails, kerbrails and tactile indicators.⁷

Restricted mobility

Someone with restricted mobility experiences greater difficulty moving around than someone without restricted mobility. These restrictions may be due to illness or injury and are more frequently experienced by older people or people with a disability. People may experience restricted mobility on a temporary or permanent basis, depending on the reason for the restricted mobility.

Scooter⁸

A scooter is a vehicle with or without a seat that has two or three wheels and a footboard between the front and back wheels. It is steered by handlebars and propelled by pushing one foot against the ground or by an electric motor or motors (with a maximum uncontrolled power output of 200 watts or less) or by a combination of these. Vicroads requires that motorised scooters are not capable of reaching a maximum speed above 10 km per hour.

⁵ <http://www.vicroads.vic.gov.au/Home/SafetyAndRules/RoadRules/Pedestrians.htm>

⁶ David Locke Associates and PBAI (2005) *Knox Pedestrian Plan*

⁷ AS 1428.1

⁸ <http://www.vicroads.vic.gov.au/Home/SafetyAndRules/RoadRules/ScootersAndWheeledDevices.htm>



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Shared path	Shared paths are sealed or unsealed paths intended for use by both pedestrians and cyclists.
Sightline	A clear view between the observer and an object, place or space.
Tactile indicator	A textured ground surface installed on footpaths, kerbs and train stations to alert people with vision impairment to features such as crossings, bus stops and other hazards. Australian Standards exist regarding these tactile indicators, and the way in which they are installed.
Walkability	The extent to which the physical and natural environment supports and facilitates the ability of pedestrians to move around.
Walkable	<p>An environment that is designed around pedestrians and the experience of walking (using the human foot) and which facilitates less reliance on the motor car to conduct day to day business.</p> <p>They are environments that are easy and pleasant to commute by walking and are characterised by high levels of amenity and easy access to land uses and activities that support individual's day to day requirements.</p>
Walkway	A path with a gradient of 1:10 and 1:33. A handrail and kerbrail is required on one side where the adjacent ground does not follow the same grade for an additional width of 600mm.



Acknowledgements

The Consultant team would like to express their gratitude to all the users of mobility equipment who gave up their time to share their insights into their day to day experiences of the footpath and shared path network.



Executive Summary

Background

The primary purpose of the Knox City Council Mobility Study is to improve the quality of the footpath and shared path network in order to make it easier, safer and more comfortable for people using mobility equipment to move around and access services and facilities.

The findings of the study will be used by a range of stakeholders involved in planning, designing and maintaining public places and spaces, and prioritisation of the maintenance and construction of Council's footpath and shared path network.

This report shares the insight provided by a number of pedestrians using mobility equipment about their individual experience along the footpath and shared path network, where they travel on a regular basis, where they would like to travel and what impediments they face along the way.

The report also describes how planning and designing for this particular user group fits into the broader contextual and conceptual framework of the built environment.

Understanding the role of footpaths and shared paths

Footpaths⁹ and shared paths¹⁰ provide the means by which pedestrians access the built and natural environment. They enhance individual and community health and wellbeing by:

- improving accessibility for the broader community;
- supporting environmental sustainability;
- integrating communities; and
- enhancing real and perceived safety.

Understanding pedestrians and walkability

A pedestrian is commonly understood to be someone travelling on foot. In the public realm, pedestrians typically travel along footpaths, inside shopping centres, through car parks, and through parks and reserves. However, the legal definition of pedestrians includes people using a range of wheeled devices, including the user group which is the focus of this study, i.e. people using electric and manual wheelchairs, electric scooters, walking frames and walking sticks.

Walkability refers to the quality of the built environment that either encourages or discourages people from choosing to walk rather than use other means of transport. Pedestrians are more likely to choose to walk if the walking environment motivates them and supports their needs.

⁹ Footpaths are sealed or unsealed paths intended for use by pedestrians.

¹⁰ Shared paths are sealed or unsealed paths intended for use by both pedestrians and cyclists.



Strategic and legislative context

There is strong support within the national, state and local government context for measures that improve the safety of the walking environment, and enhance access for all people in the community.

The *Disability Discrimination Act 1992* protects everyone in Australia from discrimination based on disability. Under this legislation, people of all abilities are entitled to expect that every area and facility open to the public should be open and available to people with a disability. This applies to existing places as well as places under construction.

Under the *Disability Discrimination Act 1992* (DDA), the Attorney-General may make Disability Standards in relation to access to premises, assistance animals, goods, services and facilities, local government, public transport and sport.

Physical and social context

Knox has an extensive footpath and shared path network extending over 1,250km. The majority of these paths are constructed from concrete, followed by crushed rock. However, there are specific areas within the municipality where connectivity is compromised, particularly in the south eastern part of the Municipality along Kelletts Road, Wellington Road, and Napoleon Road.

The municipality's topography is mostly gently undulating, with the flatter areas in the western part and the relatively hilly parts located to the east. The geographic form is defined mostly by hills and creeks.

Although Knox has a slightly lower proportion of people with disability, its residents are ageing, and this trend is projected to continue into the future, suggesting an increase in the number of people likely to be using mobility equipment.

The environmental scan identified that there are a number of opportunities, and challenges that are likely to affect the way in which pedestrians using mobility equipment experience the footpaths and shared paths. These include:

Opportunities	Challenges
Existing knowledge and awareness of the need to enhance the footpaths and shared paths.	Undulating topography.
Existing infrastructure consisting of wide, connected footpaths and shared paths and key multi-use destinations.	Some 'missing links'.
Attractive physical environment.	Car dominated intersections.
Existing partnerships between stakeholders.	Limited public transport network.
New developments can incorporate enhanced design principles.	Impediments on path caused by footpath trading, poor maintenance and lack of awareness within the community.
Maintenance schedules provide opportunities for retrofitting.	Physical extent of municipality.
	Wide range of agencies involved in developing and maintaining road network.
	Path interfaces in private ownership



Movement patterns

Feedback gathered during the consultation process identified the following specific areas visited most frequently by the community:

Wantirna and Knoxfield

- Studfield Shopping Centre
- Orana Neighbourhood House
- Knox Council Offices
- Knox City Shopping Centre
- Wantirna Retirement Village
- Villa Maria
- Knox Village Retirement Village

Boronia

- Boronia Primary School
- Boronia Central Shopping Centre
- Boronia Junction Shopping Centre
- Boronia Basketball Stadium
- Tormore Reserve
- Knox Leisureworks
- Boronia Station

Rowville

- Lakeside Reserve
- Rowville Lakes Shopping Centre
- Waterford Valley Lakes Retirement Village
- Pepper Tree Hill Retirement Village
- Stud Park Shopping Centre
- Rowville Primary and Secondary School
- Wellington Village Shopping Centre
- Eildon Park

Bayswater

- Bayswater Primary School
- Guy Turner Reserve
- Bayswater West Primary School
- Bayswater Village Shopping Centre



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- Bayswater South Primary School
- Bayswater Station
- Glen Park

Ferntree Gully

- Ferntree Gully Station
- Shops
- Knox Community Health
- Wally Tew Reserve

Community needs, aspirations and issues

The following factors were considered by the community to be most important in making the journey easier and more pleasant:

- path width;
- path quality (smooth surfaces, freedom from obstacles);
- path alignment (connecting to other paths, connecting to public transport);,
- feelings of safety (traffic lights with longer crossing times, lighting, signage, public telephones);
- accessibility (car parking spaces, entrances to shops); and
- community awareness (blocking pathways with cars, bins and other structures).

Best practice

The following best practice principles may be applied to ensure that pedestrians using mobility equipment feel safe and comfortable using the footpath and shared path network.

Principle	Quality	Best practice principle
Comfort	<i>Does the route motivate people to want to use it?</i>	At key points, ensure paths are wide enough to accommodate pedestrian, mobility equipment and support person. Promote longer road crossing times. Provide pedestrian refuges. Maximise natural surveillance. Maintain quality of paths.
Convenience	<i>Does the route provide the most suitable conditions to travel?</i>	Install kerbs that are level with the road. Avoid steep gradients. Avoid sharp turns. Minimise obstacles on the path.
Connectivity	<i>Does the route</i>	Align paths with each other.



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	<i>connect people to where they want to go?</i>	Align paths with road crossings. Ensure paths connect to destinations. Ensure paths connect to accessible car parks and entrances.
Principle	Quality	Best practice principle
Convivial	<i>Does the route enhance the enjoyment of the journey?</i>	Provide amenities such as toilets, drinking fountains, shade, public telephones, resting points, safety rails, lighting, litter bins.
Conspicuous	<i>Do people know where they are going?</i>	Include wayfinding signage (destinations, travel times, orientation points, amenities). Enhance awareness that paths are used by people with restricted mobility.

Recommendations

The following recommendations will guide the implementation of the findings in this report:

Recommendation 1 – Prioritisation

Prioritise new, upgrade (retrofit) and maintenance schedules to remove barriers (such as obstacles on the paths, traffic signal length); reflect footpaths and shared paths that are located in close proximity to concentrations of older people and key destinations; enhance connectivity within the broader network; and reflect existing aspirations identified through the consultation process and presence of desire lines.

Recommendation 2 – Information dissemination, advocacy and collaboration

Raise awareness within Council and the broader community of the need to and benefits associated with enhancing accessibility for people with restricted mobility by conducting training programs with Council officers, running media campaigns, collaborating with the business sector, disseminating the toolkit and advocating to key agencies such as VicRoads.

Recommendation 3 – Monitoring and evaluation

Monitor and evaluate the effectiveness of the recommendations by holding regular forums with users of the footpaths and shared paths; gathering information from businesses on the most effective way to enhance accessibility into their properties; and monitoring the scope and nature of complaints received by Council.

Recommendation 4 – Next steps

Maximise the effectiveness of this study by investigating how the findings may be applicable to users of other mobility equipment such as prams, crutches, white canes, shopping jeeps; and preparing mechanisms to disseminate information.



1 Introduction

Symplan, in collaboration with Planisphere, Aspect Studios and Scope were engaged by Knox City Council to investigate the accessibility of the footpath and shared path network within Knox, and to identify what improvements are required to cater for the travel needs of pedestrians using mobility equipment.

This report shares the insight provided by a number of pedestrians using mobility equipment about their individual experiences along the footpath and shared path network; where they travel on a regular basis; where they would like to travel and what impediments they face along the way.

The report also describes how planning and designing for this particular user group fits into the broader contextual and conceptual framework of the built environment.

2 Purpose of study

The primary purpose of this study is to identify a number of recommended improvements to the footpath and shared path network in order to make it easier, safer, more pleasant and more comfortable for people using mobility equipment to move around and access services and facilities.

The findings of the study have been used to develop the *Knox City Council Mobility Toolkit* which is a separate document accompanying this report. The Toolkit will provide information to a range of stakeholders involved in planning, designing and maintaining public places and spaces, and prioritisation of implementation measures. These stakeholders include:

- Council officers (planners, urban designers, engineers, landscape architects, customer relations)
- Developers
- Maintenance contractors
- Planners
- Urban designers
- Landscape architects
- Road and traffic engineers
- Civil engineers.

The study will support increased inclusiveness and equality for people using mobility equipment by identifying places where people would like to travel to but can't and formulating strategies to address issues people using mobility equipment face in the public realm on a day to day basis.

However, it is envisaged that the findings of this study can also be used to plan and design for people using a range of wheeled devices in the public realm including prams, scooters, skateboards, pushbikes, and children's toys.

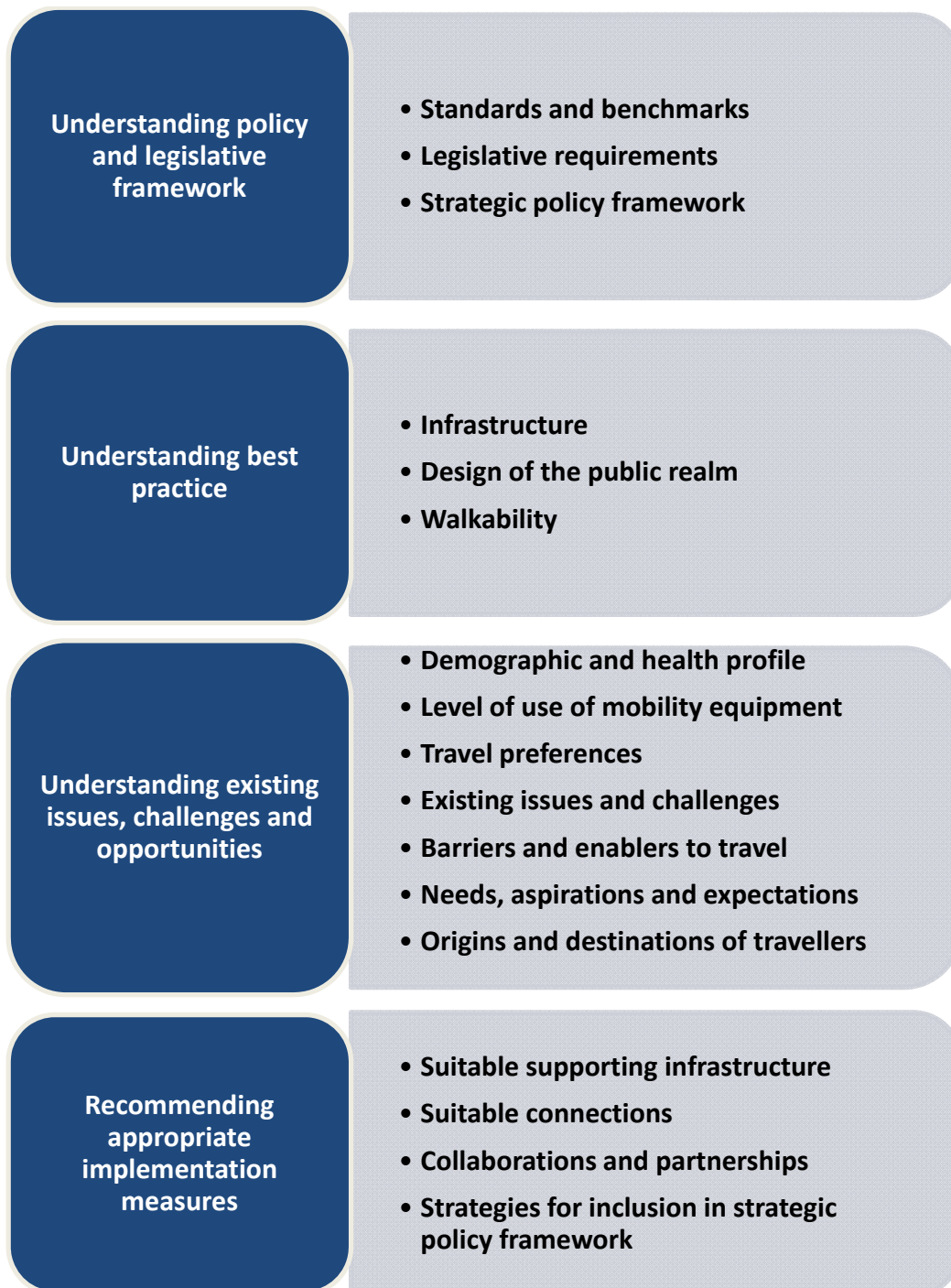


The broader purpose of this study, therefore, is to enhance the quality of the footpath and shared path network so that it provides opportunities for a wide range of users to engage in healthy lifestyles and engage in community life in a safe and secure way.

3 Scope of study

The scope of the study is depicted in Figure 1 below.

Figure 1 - Scope of Study



3.1.1 Focus of study

The study is focussed on the footpaths and shared paths under the jurisdiction of Knox City Council. It therefore has not included a detailed analysis of other paths and shared paths providing access to private services and facilities such as shopping centres, transportation nodes, schools, sporting facilities, hospitals and medical centres. It also does not cover entrances and exits to or interfaces between these services and facilities, and buildings that house them.

However, it is acknowledged that the subject of the study i.e. footpaths and shared paths are but one element involved in enhancing the inclusion and access of people using mobility equipment, and that this network serves as a connector between origins and destinations. Where relevant, therefore, the discussion includes some measures to enhance the overall accessibility of the public realm.

3.1.2 Limitations of study

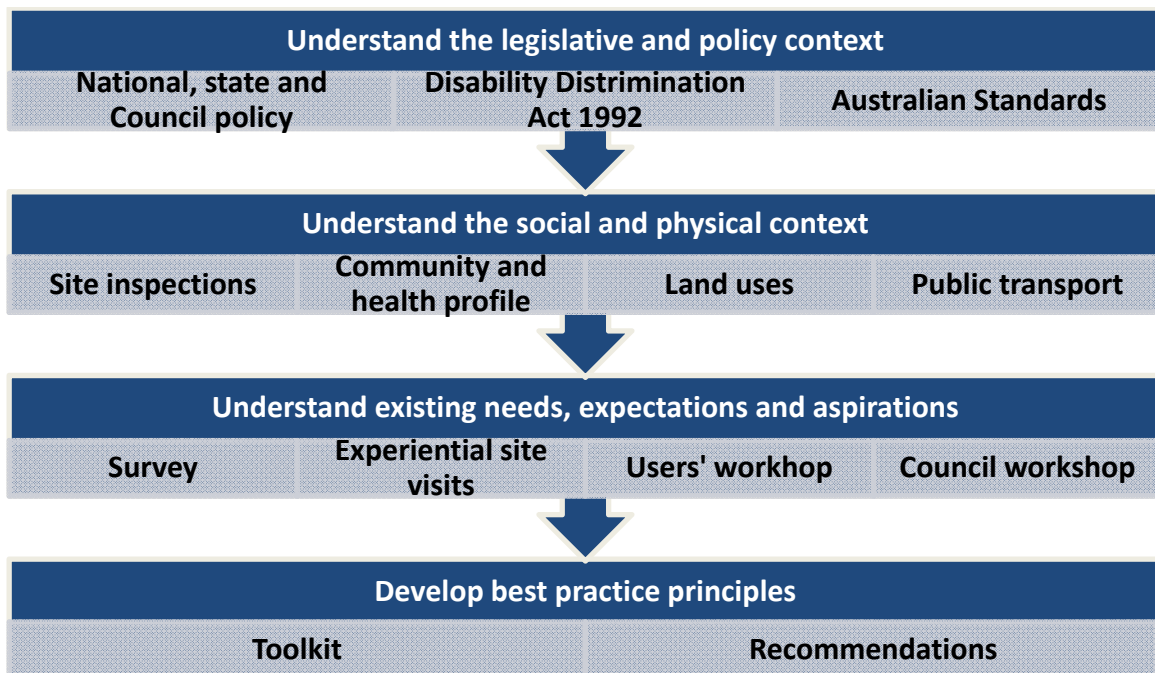
The findings of this study should be applied with the following limitations in mind:

- The study does not consider the needs of all those using the footpaths and shared path network. The recommendations therefore only focus on the needs of pedestrians using mobility equipment.
- The study does not address the accessibility of destinations and origins.
- The study does not consider the feasibility of the recommendations in terms of maintenance schedules, skills and experience of staff members, and available financial resources. However, it does identify a number of best practice principles that support these factors.

3.2 Methodology

The methodology used to undertake this study is presented in Figure 2 below.

Figure 2 – Methodology



3.2.1 Literature review

The scope of the literature focussed on three key concepts:

- Walkability
- Social planning for health and wellbeing
- Accessibility

These concepts were applied from the perspective of social planning, landscape architecture, urban design and inclusion of people with a disability.

A list of documents included in the literature review is provided in Appendix 1.

3.2.2 Stakeholder consultation

The following stakeholder engagement and community consultation activities were undertaken.

Surveys

An electronic version of the survey (refer to Appendix 2) was uploaded on Council's website. Hard copies of the survey were also distributed as follows:

- Retirement villages within Knox.
- Residents who have attended Council's Scooter Forums in the past.
- People using mobility equipment in some of Knox's shopping centres.
- The survey and consultation process were publicised to groups supporting people with disabilities in the City of Knox.

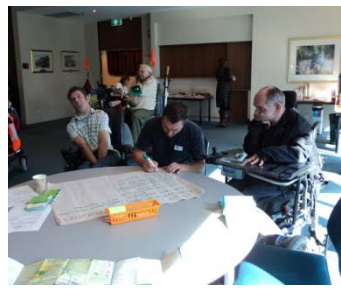
In addition, hard copies of the survey were distributed during the site inspections and accompanied site visits.

A total of 58 surveys were completed, 55 of which were completed within the consultation period and have therefore been analysed in detail.

Workshops

Two workshops were held:

1. 1st of April at Council's offices with residents, support people and interested organisations. A mapping exercise was undertaken with the participants to identify where people travelled to on a regular basis and what issues they experienced along the way. The feedback gathered during this workshop was used to develop the best practice elements discussed in Section 9 below, and identify the existing and desired movement patterns illustrated in Section 7.5 below.



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2. A workshop with Council officers held on the 4th of April 2011. Topics covered during this workshop included strengths and issues affecting people using mobility equipment; potential conflicting and competing uses, priorities and users; priorities and initiatives that have implications for the study.

Stakeholders invited to attend the workshop are listed in Appendix 3.

Experiential site visits

Four experiential site visits were undertaken with people using different mobility equipment. The participants were selected based on their age, their gender, their type of disability and the type of mobility equipment used.

The following experiential site visits were undertaken:

1. Ben and John from Coolibah House - John uses an electric wheelchair and travels between Coolibah House and Bayswater Station, including the shopping precinct.



John

2. Alana¹¹ who uses an electric wheelchair in Boronia, around the Station, suburbs, parks and Knox Leisureworks.



Alana

¹¹ Not her real name



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3. Leonie who uses an electric wheelchair and travels with her granddaughter around Boronia



4. Alan who uses one of his scooters to travel between Peppertree Hill Village in Rowville and around the local area.



The findings of the experiential site visits are presented in Appendix 7.

3.3 Case studies

Five case studies were undertaken to identify issues affecting people using mobility equipment. These case studies were:

1. Wantirna Mall, Knox Private Hospital
2. Knox City Shopping Centre, Ozone and Knox City Council offices
3. Bayswater Station and shopping precinct
4. Ferntree Gully Station
5. Stud Park shopping centre

The findings from the case studies have been integrated into the analysis presented in this report, particularly the discussion on the best practice principles and elements presented in Section 9 below.

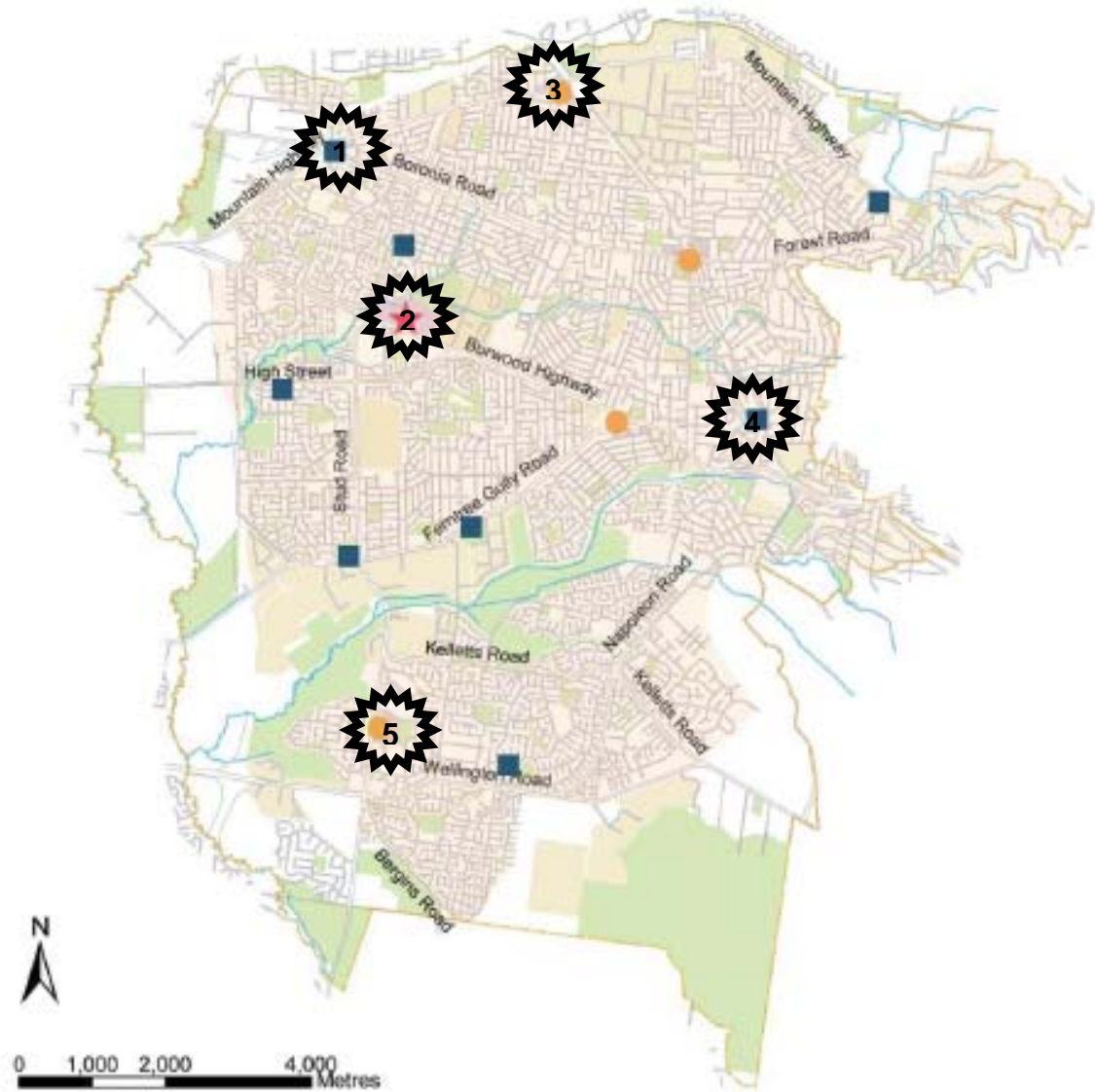
The case studies were selected on the basis of their mix of land uses, proximity to key **destinations** such as hospitals, shopping centres, public transport nodes; and **origins** such as retirement villages, residents of people with disabilities



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The location of the case studies is illustrated in Figure 3 below.

Figure 3 - Location of case studies



4 Understanding the role of the footpath and shared path network

Footpaths and shared paths provide the means by which pedestrians access the built and natural environment.

Footpaths are sealed or unsealed paths intended for use by pedestrians.

Shared paths are sealed or unsealed paths intended for use by both pedestrians and cyclists.

The following groups use footpaths and shared paths:

- cyclists
- pedestrians not using mobility equipment
- pedestrians using mobility equipment
- pedestrians using visual aids
- pedestrians who have a vision impairment using assistive devices
- pedestrians being supported by trained guide and assistance dogs
- pedestrians walking with companion and pet dogs
- support people walking with a person with a disability
- children under 12 on bicycles who are accompanied by a person over 12 on a bicycle
- pedestrians using electric scooters
- children on push bikes
- children and adults using scooters and skateboards
- children using toys with wheels

Footpaths and shared paths deliver benefits to broader community by¹²:

- Supporting equality and including by improving accessibility for people of all abilities and providing access to features not accessible via motorised vehicles.
- Enhancing environmental sustainability and reducing green house emissions by encouraging green transport and by providing safe, convenient and comfortable pedestrian and cycle access.
- Integrating communities through connecting paths and promoting community interaction within the municipality.
- Enhancing health and wellbeing. Research has found that humans may be dependent on nature for psychological, emotional and spiritual needs that are difficult to satisfy by other means. This research demonstrates that access to

¹² Knox City Council (2006) *Footpath and Shared Path Asset Management Plan* p3



nature plays a significant role in human health, wellbeing and development, particularly in cities¹³.

- Enhancing safety by providing a robust and safe pedestrian/cycling environment

In addition, the footpath and shared path network can support the specific needs of particular groups.

Older people

Walking and the use of mobility equipment is often the last mode of independent travel available to older people and so has particular importance in retaining a sense of dignity and independence¹⁴. A lack of mobility can prevent older people from participating in social activities and lead to low morale, depression and illness¹⁵. Pedestrian journeys may also be the main form of socialisation for older people living alone.

Walking as a form of regular exercise to maintain health is encouraged amongst older people and may also, with the use of mobility equipment, form part of a rehabilitation and recovery program following illness or surgery. In many circumstances, the local area surrounding a nursing home, rehabilitation centre or retirement village is the most suitable place to do these walks. People may choose a time of day to engage in this exercise when there is less traffic and the walking environment is considered safer.

Young people

“Time in nature is not leisure time; it’s an essential investment in our children’s health.”

Richard Louv, author of Last Child in the Woods

A walk to the park or playground with parents, friends or supporting adults is an enjoyable experience of childhood that has benefits for physical and mental health and personal development for all children. It gives the opportunity to enjoy the outdoor environment (as a way of dealing with stress) and to develop the skills and confidence associated with increasing independence in moving around in the community and socially to be part of the life of their community. Although, as children and young people with disabilities requiring mobility equipment, they are more likely to be accompanied by an adult (parent or support person), their experience of the path and shared path network will be through the senses of a child or young person. Accessible opportunities to enjoy being outside, interact with (touch, smell, see and possibly taste) elements of the built and natural environment, and to have the opportunity to develop their skills like any child or young person exploring gardens, parks and playgrounds throughout their day are therefore important.

Young people with disabilities may take more time to complete their daily tasks, and may spend more time on healthcare. This may limit their opportunities for

¹³ Maller, C. et al (2008) *Healthy parks, healthy people. The health benefits of contact with nature in a park context*. School of Health and Social Development, Faculty of Health, Medicine, Nursing and Behavioural Sciences, Deakin University.

¹⁴ David Locke Associates and PBAI (2005) *Knox Pedestrian Plan*

¹⁵ Somenahalli, S. and Taylor, M. (2007) *Social Research in Transport (SORT) Clearinghouse* “Elderly mobility: Issues, opinions and analysis of trip making in Adelaide”, Institute of Transport Studies, Monash University



spontaneous exploration of the outdoor and natural environment and also increases the importance of the local footpath and shared path network in providing easy access close to home independently as possible. Knox is rich in open green space, recreation facilities and playgrounds, green suburbs and a significant footpath and shared path network distributed across the municipality and this makes this much more achievable than in other places.

Young people using mobility equipment will also use the footpath and shared path network to access places used on a day to day basis by other young people such as schools, parks, playgrounds, recreation centres, shopping centres and transport interchanges. Measures that facilitate access in these high traffic areas such as wider paths, circulation spaces, accessible kerb ramps and safe drop off/pick up places are important in allowing them their legal right to request equal access in a safe and dignified manner. The fear of having to ask for help and risk of injury and public embarrassment in attempting to access places where access obstacles exist is often a deterrent to the independent participation of young people. Though hospitals and medical centres are generally used more frequently by older people, improved access conditions will also improve access and decrease stress for young people and their families who are likely to use these facilities to a greater extent than their contemporaries.

The abilities of children with disabilities are likely to be more restricted than those without, and the mobility equipment itself may be a source of restriction. A well designed, accessible path network can manage particular risks to young people using them that will have benefits for other users. In most cases, the capability of the young person will depend on their age, size and their type of impairment/s. There are also individual differences in the development and use of personal compensation strategies. However, the abilities of some adolescents with disabilities approach those without disabilities by the age of 18 years¹⁶. The use of mobility equipment (wheelchairs, crutches, walking frames) can further limit ability to reach and open gates & doors; reach and operate lift buttons and switches; be seen at high counters or above fences and vegetation. They may also place them at greater risk of being not seen by vehicles at crossings (wheelchair users) or of trips and falls and being knocked over on paths (crutches). These risks exist for adults using similar equipment but are increased as the average child and their equipment are smaller and lighter and less visible. Landscape designs and maintenance that enhance visibility and decrease trip and fall hazards are beneficial to these equipment users.

People convalescing from illness, injury and surgery

Getting back to nature, whether a vigorous activity such as hiking, or a gentle stroll in the park, can improve emotional and mental wellbeing as well as physical health¹⁷

Nature has been recognised for its restorative and therapeutic power on humans¹⁸. There is evidence to suggest that people can recover from surgery or deal with pain better if they are exposed to a natural environment¹⁹. Nature has the ability to

¹⁶ AS 1428.3(1) design for access & mobility adolescents and children

¹⁷ <http://www.suite101.com/content/mental-health-benefits-from-nature-a54608>

¹⁸ National Environmental Education Foundation *Improved health from the natural environment. Where's the Evidence?*

¹⁹ National Environmental Education Foundation *Improved health from the natural environment. Where's the Evidence?*



stimulate all five senses, providing distractions to people suffering pain and discomfort. In addition, engaging with nature has been found to improve motor coordination, stimulate creativity, support emotional coping and reducing stress, and increasing concentration and impulse control²⁰.

5 Conceptual framework

The conceptual framework informing study is drawn from a range of principles relating to social planning for health and wellbeing, urban design, landscape architecture and maximising the inclusion of people with disabilities.

5.1 Footpath and shared path

A footpath consists of a sealed or non-sealed surface intended for use by pedestrians. A shared path is a sealed or non-sealed surface intended for use by pedestrians and cyclists. It may be aligned with the road, or provide access through parks and public places.

Footpaths may or may not be separated from the road and other surfaces by landscaping such as grass, vegetation or a treated surface such as gravel.

5.2 Mobility equipment

For the purposes of this study, mobility equipment is considered to include the following:

- walking frame
- manual/'non-motorised/non-powered wheelchair
- electric/powerd/motorised wheelchair
- electric scooter
- walking sticks

However, in the broader context, mobility equipment may also include prams, shopping jeeps and assistive devices used by people who have a vision impairment e.g. white canes.

5.3 Pedestrian

A pedestrian is commonly understood to be someone travelling on foot. In the public realm, pedestrians typically travel along footpaths, inside shopping centres, through car parks, and through parks and reserves.

However, by law, pedestrians also include people using wheeled devices such as skateboards, rollerblades, wheelchairs and motorised mobility devices. A person pushing a bicycle is also considered to be a pedestrian²¹.

Therefore, a pedestrian includes the following:

- A person travelling on foot, either walking or running

²⁰ *Benefits of Nature for Children's Health* Fact Sheet #1, Children, Youth and Environments Centre for Research and Design, University of Colorado at Denver and Health Sciences Centre (2007)

²¹ <http://www.vicroads.vic.gov.au/Home/SafetyAndRules/RoadRules/Pedestrians.htm>



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- A person driving a motorised wheelchair
- A person in a non-motorised wheelchair
- A person pushing a motorised or non-motorised wheelchair
- A person in or on an electric scooter
- A person pushing a walking frame
- A person using a walking stick
- A person using crutches

Although people using mobility equipment are technically classified as pedestrians, their experience of the footpath and shared path network is very different from pedestrians not using mobility equipment. Apart from barriers to accessibility associated with their limited mobility and use of mobility equipment they may also experience the effects of other disabilities (physical, intellectual, cognitive, sensory) as well as the consequences of compromised physical health (e.g. pain and reduced endurance) and mental health.

Due to their limited mobility, barriers to accessibility and compromised physical health, their journey may therefore be associated with a level of frustration and discomfort.

The main points of difference between pedestrians using mobility equipment and those without are as follows:

- Pedestrians using mobility equipment may travel either much faster or much slower than pedestrians not using mobility equipment. Those pedestrians using motorised mobility equipment or wheelchairs may have the ability to travel much faster than pedestrians on foot. Those pedestrians using walking frames or walking sticks may travel more slowly.
- Those using mobility equipment may find it more difficult to avoid hazards because: it may take them longer to slow down (if travelling quickly in a motorised wheelchair); they may have physical and sensory limitations to ability to listen for or observe ahead, behind and to the side and have difficulty in identifying and anticipating hazards; they have to plan and execute a manoeuvre of a device in order to avoid the hazard as well as being generally less, physically able to respond and move out of the way of danger due to loss of ability to move or easily shift and regain balance. They may also have cognitive, intellectual and perceptual disabilities that make this process more challenging and time consuming.
- They may take up more space because as well as the size of the mobility equipment they are using, they may be also travelling with a support person that they may want or need to have walk beside them.
- They have limited choice in selecting the most convenient and comfortable route as they are confined to existing footpaths and shared paths where they know they will be able to manage any known hazards or where there is likely to be assistance they are comfortable with if they are not.



- Small imperfections, changes in level and the grooves in concrete footpaths are a source of discomfort to those in wheelchairs and a source of trips and falls for those using walking frames as these can cause walking frame wheels to catch. They may also experience difficulty negotiating curves and hazards at the same time as trying to control their mobility equipment.

In addition, those pedestrians using mobility equipment in the seated position have a very different experience of the footpath and shared path network than those travelling in an upright position. The visual outlook is different, and they may experience difficulty accessing physical infrastructure such as bins, buttons and drinking fountains. As noted above jolting when moving over joints and height differences in paths and kerb ramps often causes pain and discomfort. Loose surfaces when wet can increase the amount of dirt and abrasive material on the tyres of wheelchairs and particularly on the hands and hand protection of people propelling a wheelchair manually.

5.4 Disability

Section 5 of the *Disability Discrimination Act 1992* provides the following definition of disability.

"disability", in relation to a person, means:

- (a) total or partial loss of the person's bodily or mental functions; or
- (b) total or partial loss of a part of the body; or
- (c) the presence in the body of organisms causing disease or illness; or
- (d) the presence in the body of organisms capable of causing disease or illness; or
- (e) the malfunction, malformation or disfigurement of a part of the person's body; or
- (f) a disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction; or
- (g) a disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgment or that results in disturbed behaviour;

and includes a disability that:

- (h) presently exists; or
- (i) previously existed but no longer exists; or
- (j) may exist in the future (including because of a genetic predisposition to that disability); or
- (k) is imputed to a person.

The term disability has many definitions and dimensions, but may be considered as a condition that in some way hampers or hinders a person in terms of their ability to carry out day to day activities.

Disability is a complex concept to define for a number of reasons, including the following:



- Some disabilities are permanent, whilst others may be temporary, following an illness or injury.
- Some people with restricted mobility may be affected by both cognitive, psychological and physical disabilities, all of which contribute to the extent to which their mobility is impaired.
- Disabilities differ from individual to individual, and the range of disabilities may vary from conditions that are mild to severe.
- Disability is a multidimensional experience, affecting body structure and function, activity and participation.

This conceptualisation of disability recognises the different ways in which the disability affects mobility, and the role that the physical and social environment may play in enhancing or restricting the way in which people with disabilities are able to carry out their day to day activities.

5.5 Accessibility and mobility

Accessibility refers to the extent to which people are able to **reach** the services and facilities they need. Factors affecting accessibility include how the paths connect people to places they need to get to; whether or not they are able to cross the road where they need to; the length of their journey; the availability of suitable information about where the paths and shared paths lead to; and whether the paths and shared paths support their specific needs e.g. opportunities to rest along the way if necessary, ability to enter shops and services, ability to walk side by side with a companion.

Although the footpath and shared path network may facilitate movement without consideration of these factors, it cannot be assumed that it will enhance accessibility.

Mobility refers to the way in which people are able to **move around** in physical or social spaces. It can be understood to refer to the individual's ability to move their body as they choose; or use their body to move a piece of equipment; or use the equipment to move around a particular space; or to move around the community to be in contact with others. Mobility is a complex concept and can be addressed at a number of levels. This report refers to the last level and the factors that the footpath and shared footway network can enhance the ability of people with restricted mobility to move around Knox and gain access to services and facilities that satisfy their day to day needs.



6 Theoretical framework

6.1 Social planning for physical and mental health and wellbeing

Understanding health

Health is a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief or economic and social condition. WHO Constitution, 1994

This concept of health recognises that supporting all people in their right to achieve maximum health and wellbeing should be the starting point in planning and designing the built environment.

The social model of health

The social model of health recognises that there are a range of social, economic and physical factors, in addition to physiological factors that influence health and wellbeing. One of these factors includes social justice and equity, and the ability of all people to engage in society.

The design, quality and connectivity of the footpath and shared path network play a significant role providing access to services that enhance quality of life, maximising inclusiveness and supporting feelings of safety and security. Footpaths and shared paths also encourage healthy lifestyles, and provide opportunities for people of all abilities to engage in physical activity and community life. This role therefore is fundamental in supporting both mental and physical health and wellbeing.

6.2 Walkability

Walkability is the quality of the built environment that invites people to get around on foot, not because they have to but because they will feel like they are missing out if they don't. A community will enjoy the benefits of walkability when people want to walk and their environment allows people to walk. This requires two conditions to be met: people having the motivation to walk and an environment that provides the facilities to walk.

DLA Clause 56 Walkability Toolkit

This definition of walkability identifies two features that determine walkability, that is the desire to walk, and the ability to walk.

Motivation for walking is maximised when people enjoy the journey, feel safe and secure along their route and are able to use the footpaths and shared paths to safely, conveniently and comfortably access their day to day activities. The role of



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the physical environment comprising the footpaths and shared paths is to provide the necessary infrastructure to maximise this motivation.

The following “5 C’s” approach to ensuring the physical environment enhances walkability²² has been identified:

*Is the route **Connected**?* This looks at issues of connections and barriers – roundabouts, major roads, other barriers. Example: are there good connections to major origins and destinations, including public transport?



Footpath leads directly into car park!



Footpath on one side of the road only



Footpath at same height as bus entrance and edge of footpath clearly visible

*Is the route **Comfortable**?* This looks at issues of amenities, trips and slips, footpath width and quality. Example: are there good footpaths, lights, seats etc?



Hazards likely to cause trips and falls



Parked cars intrude onto footpath



No rollover kerb behind accessible car park

*Is the route **Convenient**?* This looks at road crossability, light responsiveness, crossing times, path and gate width, crossing capacity. Example: are there good and safe road crossings?



Wide, car dominated intersections feel unsafe



Pedestrian gate much narrower than vehicular gate



Barriers difficult to negotiate with mobility equipment

²² http://www.jagrant.com.au/ja_grant_2009.pdf



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Is the route **Convivial**? This looks at traffic volume, graffiti, maintenance, litter bins, street trees. Example: are the routes interesting and free from threats?



High traffic volume intersection

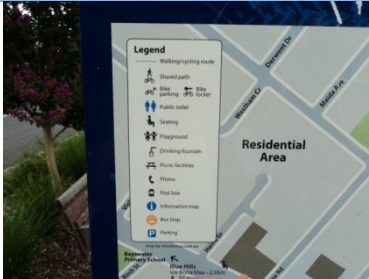


Attractive path



Attractive landscaping but encroaching over footpath

Is the route **Conspicuous**? This issue looks at signage – is there any, is the route obvious, are there maps. Example: is the route “signed” and easy to follow?



Wayfinding signage identifies location of key destinations and amenities



Edge of path clearly marked

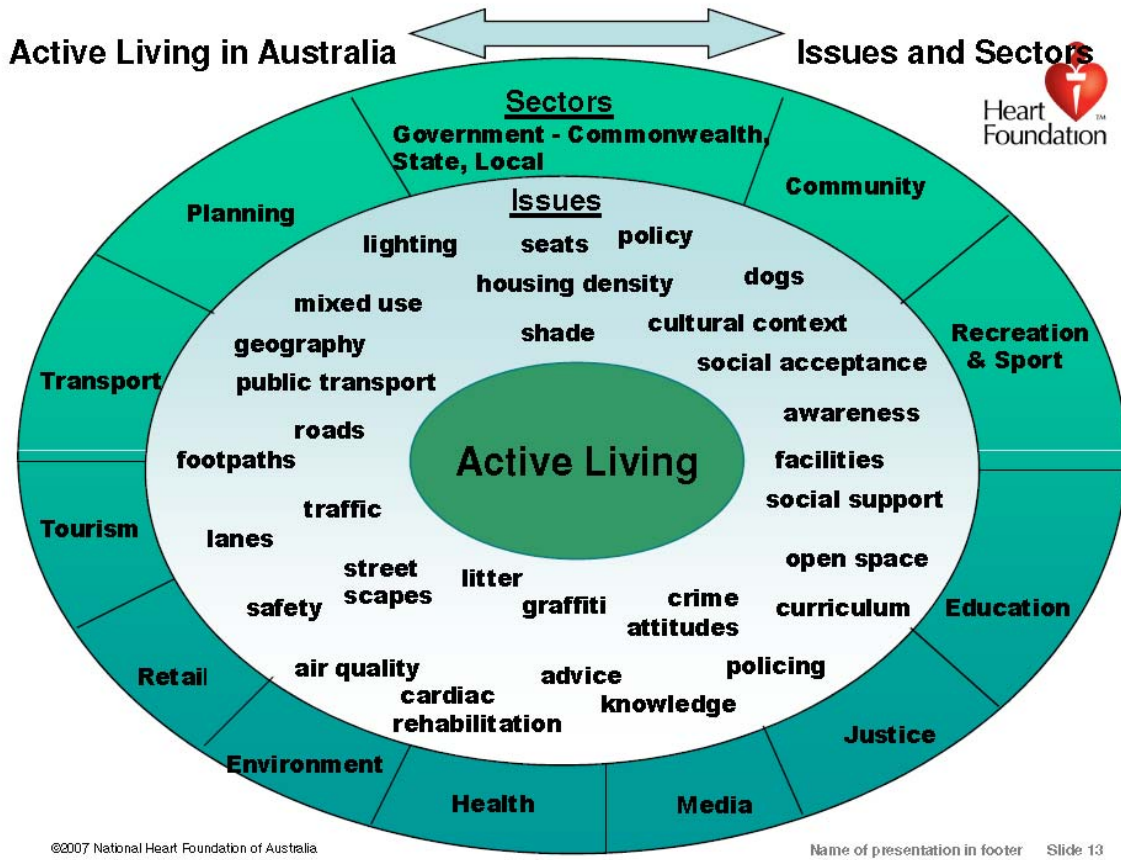


Pedestrian crossing clearly visible

Figure 4 below conceptualises the role that walking plays in promoting active living.



Figure 4 - Conceptualisation of the walking context²³



©2007 National Heart Foundation of Australia
C.Wright 2002

Name of presentation in footer Slide 13

6.3 Safety

A community's feelings of safety and security are determined by two interrelated factors:



If people do not feel safe and secure along a footpath, they will be reluctant to use it regardless of the actual number of accidents that take place. As a rule, if a pedestrian has to pass through an area that makes them feel unsafe or

²³ <http://www.planning.org.au/documents/item/1677>



uncomfortable, even though it might be a relatively small part of the journey, they are much less likely to take any part of the journey on foot²⁴.

Therefore, attention should be paid to enhancing perceived safety, focussing on the specific issues that affect how people feel when they use the paths and shared paths.

The majority of claims against Council occur on the footpath, compared with in buildings, on land, on the road or in sports grounds²⁵.

7 Strategic and legislative framework

7.1 Strategic

7.1.1 National and state

The National Health Priority initiative focuses of the health sector on diseases or conditions that have a major impact on the health of Australians²⁶. This initiative is a collaborative effort endorsed by all states, and covers the continuum of care from prevention and early detection, through to treatment and rehabilitation. One of the seven National Health Priority Areas is injury prevention and control.

Falls are one of the injuries that are addressed by these priorities. Footpaths and shared paths are one of the areas within which falls take place in the public realm, particularly among children, older people and people with limited mobility. Gentle exercise has been acknowledged as one of the key preventative factors for falls amongst older people. Government policies acknowledge that the environmental conditions of the public realm are of the risk factors contributing to the incidence of falls and injury, and the need to manage these risks to reduce their incidence.

7.1.2 Knox City Council

The following strategic documents are of relevance to this study.

Vision 2025

Council's vision for its community is that:

Knox City Council and the community: a partnership in progress, creating a safe, healthy and connected community with high-quality services transport options, facilities and culturally rich experiences; committed to protecting Knox's green, leafy neighbourhoods and natural environment, and enhancing economic sustainability for future generations.

Two challenges identified in this Plan that related directly to improving access and inclusion for people with disabilities are:

- Appropriate strategies employed by individuals, communities of interest, organisations and government to continue to strengthen community connections; and

²⁴ David Locke Associates and PBAI (2005) *Knox Pedestrian Plan* p48

²⁵ Knox City Council (2006) *Footpath and Shared Path Asset Management Plan 22*

²⁶ <http://www.health.vic.gov.au/nhpa/>



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- taking responsibility to foster and promote equal access to life's opportunities for those that are disadvantaged and removing barriers.

Knox Council Plan 2009-2013

Eight strategic objectives are identified in the Council Plan:

1. Healthy connected communities
2. Culturally rich and active communities – to provide and support opportunities for community members to participate in a vibrant community life;
3. Dynamic services and facilities – to continuously improve the capacity of Council's services and infrastructure to best meet the community's needs;
4. Accessible transport choices
5. Sustainable natural environment
6. Active and vibrant places
7. A prosperous and modern economy
8. A well governed and leading organisation

A number of issues concerning access and inclusion for people with disabilities arise in each of these eight strategic objectives. Issues specific to people with restricted mobility include:

- Creating an accessible Knox for all members of our diverse community
- Ensuring a wide range of sporting and leisure opportunities are readily available
- Planning, managing and maintaining appropriate facilities and infrastructure to meet the community's needs into the future
- Building partnerships and advocating for services and facilities to meet identified communities needs
- Planning for and delivering high quality and appropriate services and facilities that support transport choice in Knox
- Partnering and engaging with and on behalf of our community

Knox Health and Wellbeing Strategy 2009-2013

The Knox Community Health and Wellbeing Strategy seeks to enhance community health and wellbeing in Knox. It is structured around nine factors that influence and determine health and wellbeing in Knox. These are:

1. Healthy living – ability to live a quality life in quality built environments
2. Strong family and community – integration in social networks, community groups to build a sense of belonging
3. Education and lifelong learning – access to formal and information learning, training and skills
4. Work fulfilment – safe and rewarding work



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5. Economic capacity – ability to participate in and contribute to community life and meet basic costs of living
6. Housing choice – access to well located housing
7. Leisure and culture opportunities – active and passive participation
8. Mobile and accessible communities – integrated transport infrastructure, ease of travel, viable public and community transport, walkable neighbourhoods.
9. Safe community – safe neighbourhoods

Key issues identified in this Plan that are relevant to people with restricted mobility are:

- a major increase in the number of people with a profound or severe level of core activity limitation;
- forecast doubling in number of older residents with severe or profound disability;
- lack of information about the numbers of people with a disability experiencing restricted access to services; and
- restricted ability to participation in community activities and public transport due to physical access and need for upgrades to footpaths.

Key actions that will facilitate increased accessibility of people using mobility equipment are:

- advocate for increased funding and services for infrastructure;
- research the needs of people with disabilities;
- provide training, strategies and advice to Council staff to meet the needs and rights of people with disabilities;
- enhance access to information for people with disabilities;
- develop an accessibility toolkit for Council staff to ensure consistency and best practice regarding access to Council facilities;
- continue footpath renewal and upgrades and seek additional funding for shared pathways; and
- deliver local laws that promote inclusion and reduce hazards e.g. design and location of footpath trading.

Knox City Council Access and Inclusion Plan 2011-2015

Knox City Council is committed to creating a community that is accessible, welcoming and inclusive of everyone. It has a human rights approach that focuses on the way people with disabilities should be regarded and treated. This strategy aims to create a more socially inclusive society by promoting and protecting the rights of people with disabilities.

Key issues identified during the preparation of the Plan included participation in community activities, accessible transport options, access to buildings, parks and services, and access to information and resources.



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Key priorities include information and communication, buildings, open spaces and infrastructure and participation and inclusion.

Approximately 1 person in 5 in Knox has some form of disability i.e. 31,000 people.

The purposes of the Disability Action Plan are:

- reducing barriers to persons with a disability accessing goods, services and facilities;
- reducing barriers to persons with a disability obtaining and maintaining employment;
- promoting inclusion and participation in the community of persons with a disability; and
- achieving tangible changes in attitudes and practices which discriminate against persons with a disability.

Council provides a range of services and programs for people with a disability including Home and Community Care, community transport, parking permits and a retrofitting program to enhance access to council owned facilities.

The Knox Disability Advisory Committee (KDAC) was established by Council in 1999. Its role is to advise Council on strategic issues relating to people with disabilities in Knox, as well as assisting with the development of policy and action planning on issues of access and inclusion.

Knox City Council Pedestrian Plan 2005

This strategy recognises that walking is a sustainable form of transport, and an essential component of all trips by public transport. The strategy acknowledges that while it requires little investment in new infrastructure to make walking attractive, the benefits of encouraging walking include increasing access to affordable and equitable transport, contributing to increased local safety and amenity, and promoting social interaction and individual fitness.

The Vision for walking, as described by this Strategy is:

That the quality of life of the people of Knox and visitors to the City is optimised by opportunities to engage with each other and their surroundings by virtue of an attractive, enjoyable and distinctive walking environment

The objectives underpinning the Strategy are:

- To enable Council to develop policies to improve the walking environment
- To facilitate walking as both a method of travel and as a leisure/recreational activity
- To identify opportunities to promote and encourage walking through the promotion of a safe and attractive walking environment
- To assist in the establishment of a network of safe and enjoyable pedestrian routes for the widest range of community members
- To integrate walking with other appropriate transport infrastructure



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- To develop and promote appropriate programs that educate Council, stakeholders, residents and visitors to appreciate and respect pedestrian's needs

The strategy defines a convenient walking distance to destinations as being 400m. This distance is used as an indicator of a neighbourhood's liveability and social inclusiveness.

The strategy identifies the following key characteristics of a walkable environment:

- shared streets that control car drivers so cars do not dominate;
- interesting and attractive environments;
- supporting infrastructure e.g. signage, seating;
- continuous links between major destinations and public transport infrastructure;
- overlooked streets from shops and residential properties;
- frequent opportunities to meet, sit and rest; and
- Improved safety by lighting and footpath maintenance.

This strategy identifies the following benefits of walking:

- deeper engagement between people and their surroundings;
- greater independence of people with restricted mobility (children, older people, people with physical and mental disabilities);
- drivers that are more considerate and aware of pedestrians;
- reductions in greenhouse emissions;
- increased rates of physical activity (people may use their walking frames rather than a scooter) and illness (heart disease, diabetes type 2, opportunities to engage in physical rehabilitation following illness);
- improved liveability due to decreased traffic;
- enhanced safety due to more 'eyes on the street'; and
- increased opportunities for social interaction and engagement – particularly relevant for people with disabilities who might be living alone.

Ten pedestrian 'hot spots' were identified, including Knox City Shopping Centre, Stud Park Shopping Centre, Bayswater Station, Upper Ferntree Gully Station and Wantirna Mall.

Knox City Council Knox bicycle plan review

The vision of the Knox City Council bicycle plan review is:

That the City of Knox will, through well planned bicycle networks and programs, increase the use of bicycles for community and recreation in a safe, convenient and sustainable manner for residents and visitors.

One of the key aims of this Plan is to provide well designed shared paths and on-road lanes that link the Knox communities to public transport, activity centres and



recreation areas as well as regional destinations. A key priority identified by the community during the preparation of the plan was the need for improved on-road connectivity.

Implementation of the plan has led to the creation of more shared paths. In the plan period there was a reduction in crashes amongst the 13-17 age group but an increase in crashes in the 40-60 age group. Other recommendations included in the plan were that:

- Paths shared between pedestrians and cyclists should be a minimum of 2.5m wide.
- All paths must be DDA compliant.
- Priority be given to Bayswater Railway Station, particularly the separation of the shared path through the car park. This initiative was funded through a Local Area Access Program Grant.

Knox City Council (2006) Footpath and Shared Path Asset Management Plan

Council is committed to providing accessible connected communities within Knox and employing strategies to ensure sustainable and sound stewardship of the footpath and shared path networks. It has also recognised the importance of providing healthy and environmentally sustainable transport alternatives within the community. The key objectives of this Plan are to meet community expectations in a financially sustainable manner via improved risk management, legislative compliance and management processes, incorporating strategic delivery processes.

The Plan recognises the need to maintain footpath and shared path assets and proposes operational and strategic techniques to guide the management of these assets, including all life cycle requirements of these assets.

The goals and objectives included in this Plan are:

- risk management, compliance and integration (DDA, integrate with other council strategies);
- meeting community outcomes (standard of footpath, sustainability principles, future provision);
- improve management processes (identify key evaluation criteria for designing and constructing paths, path design, construction and renewal standards, data for gap analysis); and
- deliver financial sustainability (data collection).

Figure 5 below describes the assessment criteria used to assist in prioritising the construction of new paths. This figure illustrates that creating connections and providing access to commercial areas are the highest priority. Paths that will promote accessibility for people with restricted mobility are also given high priority, along with paths within a reserve, identified as key access, associated with accidents, and constructed of concrete.



Figure 5 - Assessment criteria and prioritisation of paths

Assessment criteria for proposed path	Grade
Path identified on Pedestrian Plan or Bicycle Plan priority list	20
Path location (one of)	
<i>Path located on a route identified as commercial access</i>	15
<i>Path located on a route identified as key access</i>	10
<i>Path identified on a route identified as local access</i>	5
<i>Path within a reserve</i>	10
Path identified as a DDA priority list	10
Unformed path is evident	5
Path subject to multiple insurance claims	10
5 or more customer requests for new path have been received	5
Low/no impact on surrounding environment	10
Linkage with shared path network	10
Ongoing maintenance costs incorporated into budget	5
Proposed construction material (one of)	
<i>Concrete</i>	10
<i>Asphalt</i>	5
<i>Unsealed</i>	2
<i>Other</i>	0

Missed Business

The *Missed Business Strategy* is a joint initiative of Knox City Council and the Human Rights and Equal Opportunities Commission. This strategy provides information to small businesses to help them increase access for people with a disability and thereby support their business. These strategies cover topics such as physical access, staff training and street trading under four topic areas:

1. Making it easy for people to find you (advertising, identifying entrances, avoiding obstructions, lighting, clear pathways).
2. Make it easy for people to get in (level access, design of doors and doorways, clear sightlines, access ramps).
3. Make it easy for people to move around (supporting people who have a mobility, vision or hearing impairment, location of chairs and tables, length of cords for EFTPOS machines).



4. Make the most of customer service (customer relations, communication style).

7.2 Legislative

Commonwealth Disability Discrimination Act (DDA) (1992)

The DDA protects everyone in Australia from discrimination based on disability. Under the DDA Council has an obligation to: ensure that persons with disabilities have equal rights; promote recognition and acceptance of people with a disability; and eliminate discrimination against persons in facilities and services and access to premises. The provisions in this legislation apply to existing places as well as places under construction. Under the legislation, people with a disability have the same right to access to every area, facility and service to which other members of the public also have access.

The Act states that in some cases, the cost of modifications to a building would cause unjustifiable hardship to the business or organisation. Before deciding that providing access is unjustified, a person or organisation is required to show evidence of having undertaken the following activities:

- A thorough consideration of how access might be provided;
- Obtained detailed costings of the modification required and shown that the cost of the modifications is disproportionate to the value of the building;
- Considered the financial resources of the organization;
- Considered the likely benefit or harm caused to the person or persons with a disability, the building owner or operator, or other building users;
- Having discussed this directly with the person involved; and
- Having consulted relevant experts for advice.

Although it is acknowledged that changes to the physical infrastructure may take time to implement, the DDA indicates that people with a disability should expect that these changes will be made. The Act also stipulates that a person with a disability has every right to complain when they are discriminated against if a place is inaccessible.

Standards²⁷

Under the *Disability Discrimination Act 1992* (DDA), the Attorney-General may make Disability Standards to specify rights and responsibilities about equal access and opportunity for people with a disability, in more detail and with more certainty than the DDA itself provides. The Commission has a function of advising the Attorney on making such standards. Standards can be made in relation to access to premises, assistance animals, goods, services and facilities, local government, public transport and sport.

It has long been acknowledged that the level of access required by the Building Code of Australia was not sufficient to meet the intent of the DDA. The degree to which access for persons with disabilities needs to be provided was inadequately defined. The Disability (Access to Premises – Buildings) Standard, which was

²⁷ http://www.hreoc.gov.au/disability_rights/standards/standards.html



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legislated under the DDA and came into force on 1 May, 2011 seeks to more fully define how and where access for persons with disabilities is to be provided.

In order to maximise access for people with different types of disability this Standard defines how and where access is to be provided to guide people who design, build, own, lease, operate or manage premises.

The areas covered include:

- carparks
- approaches and entrances
- ramps
- ground and floor surfaces
- controls
- furniture and fitments
- symbols and signs
- lighting
- background sound levels
- management and maintenance practices
- use of chemicals and materials
- Access to swimming pools
- Lift installations
- management and maintenance practices
- use of chemicals and materials

Under each topic an outline of the performance requirements that are to be achieved if equitable access for all users is to be provided.

In addition the Disability (Access to Premises – Buildings) Standard references a number of Australian Standards which define the details of how access is to be achieved

The first part of each section states a broad outcome that people should be trying to achieve if they wish to provide equitable access to all users. The Commission recognises that access requirements for individuals can be very different. However, in order to give certainty to building owners and developers, it is considered that were compliance with the Disability (Access to Premises – Buildings) Standards has been achieved, compliance with the DDA has also been achieved in those areas covered by the Disability (Access to Premises – Buildings) Standards.

The Attorney-General funds a DDA Standards Project established by disability community peak organisations to co-ordinate input by people with disabilities to standards development processes.



The Building Code of Australia

The Building Code of Australia (BCA) outlines the minimum mandatory requirements for the construction of buildings in Australia. It also references a number of Australian Standards that define how the requirements of the BCA are to be met.

The BCA is published annually and in May 2011, it was updated and now includes the same requirements of the Disability (Access to Premises – Buildings) Standard and the Australian Standards which it references.

7.3 Transport Integration Act 2010

The *Transport Integration Act 2010* requires bodies which make decisions that impact the transport system to have regard to the Act's vision, transport system objections and decision-making principles. The Act recognises that transport and land use decisions made by both 'transport bodies' such as the Director of Public Transport and VicRoads, and 'interface bodies' such as local government authorities and land managers have regard to the principles and vision of the Act.

One of the principles embodied in the Act covers social and economic inclusion. Section 8 of the Act states that:

The transport system should provide a means by which persons can access social and economic opportunities to support individual and community wellbeing including by –

- (a) minimising barriers to access so that so far as is possible the transport system is available to as many persons as wish to use it;
- (b) providing tailored infrastructure, services and support for persons who find it difficult to use the transport system.

7.4 Victorian Charter of Human Rights

Human rights are considered to be the basis entitlements that belong to each person, regardless of background, ability or belief. These rights are the cornerstone of strong, healthy communities where everyone can participate and be included.

The Victorian Charter of Human Rights and Responsibilities outlines the basic human rights of all people in Victoria. These twenty basic rights which are intended to build a fairer, more inclusive community are **freedom, respect, equality** and **dignity**. All tiers of government and public authorities are required to consider these values and rights when they create laws, develop policies and deliver their services.

The Rights relating to **equality** are most relevant to this study²⁸:

Recognition and equality before the law: Everyone is entitled to equal and effective protection against discrimination, and to enjoy their human rights without discrimination.

Taking part in public life: Every person has the right to take part in public life. For example, every eligible person has the right to vote or get a job in government.

²⁸

http://www.victorianhumanrightscommission.com/www/index.php?option=com_k2&view=item&layout=item&id=905&Itemid=520#Equality



8 Council's role

Council plays a number of different roles in enhancing accessibility for people with disabilities in addition to the provision of services such as home care, home maintenance, respite, community transport and housing assistance. Figure 6 below illustrates that these roles include advocating for changes to legislation, collaborating with agencies and other service providers, ensuring that the built environment supports specific needs through maintenance and design.

Figure 6 - Council's role in enhancing accessibility for people with disabilities



Council is committed to maximising opportunities for the engagement and inclusion of people with disabilities in all aspects of community life. In 2009 Knox City Council launched the RECHARGE scheme at the scooter forum held in 2009.

The RECHARGE Scheme²⁹ supports people who use an electric scooter or wheelchair by providing points where people can recharge the batteries on their mobility equipment. These two RECHARGE points are located at the Council offices and Knox Shopping Centre. It also encourages businesses and other organisations to participate in the program by designating power points allocated to recharging electric scooters and wheelchairs. These RECHARGE points are usually identified through a standard sticker which is placed above or near the designated power points.

Council has organised a highly popular Scooter Safety Forum for the last 4 years to coincide with Senior's week and Community Safety Month. Information sessions were delivered with the aim of increasing safety for mobility equipment users. Free safety checks were available and the forum provided an opportunity for discussion of scooter issues and sharing of knowledge by participants and speakers.

9 Context

9.1 Physical context

9.1.1 Location and physical form

The City of Knox is an urban fringe municipality located 25 km east of Melbourne CBD. In 2006, Knox's 151,000 residents lived in eleven suburbs, located between the nearby foothills of the Dandenong Ranges and the Shire of Yarra Ranges to the east and the eastern metropolitan municipalities of Monash, Whitehorse, Maroondah, Greater Dandenong and Casey to the west, north and south.

The municipality's topography is mostly gently undulating, with the flatter areas in the western part and the relatively hilly parts located to the east. The geographic form is defined mostly by hills and creeks.

9.1.2 Footpath and shared path network

Existing infrastructure

Knox has an extensive footpath and shared path network extending over 1,250km. Figure 7 below provides a breakdown of the existing footpath and shared path network.

²⁹ www.rechargescheme.org.au



Figure 7 - Knox's footpath and shared path infrastructure, 200630

Path type	Length (km)	Material	Average width	Location	Replace - ment value
Footpaths	1,204	concrete, asphalt, crushed rock, pavers	1.4m	Property frontages, reserves, community facilities, shopping centres	\$86.3M
Shared paths	70	Concrete, asphalt, crushed rock, pavers	2.4m	Reserves, property frontages, declared main roads	\$8.2M

Figure 8 below illustrates that the majority of footpaths and shared paths are sealed, with 96.6% of footpaths being constructed of concrete and 84.01% of shared paths are constructed of asphalt. A higher percentage of footpaths are constructed of crushed rock than shared paths.

Figure 8 - Material type, footpaths and shared path³¹

Material type	% of network	
	Footpath	Shared path
Concrete	96.96	15.03
Asphalt	0.75	84.01
Pavers	0.32	0.01
Crushed rock	1.87	0.68
Other	0.02	0.27
Unformed	0.08	0
Total	100	100

The footpath hierarchy provided in Figure 9 below categorises each footpath according to location, usage and potential risk exposure for Council. This figure illustrates that the vast majority of the network is footpaths that provide local access and that shared paths are a greater proportion of the network than paths in reserves.

³⁰ Knox City Council (2006) *Footpath and Shared Path Asset Management Plan* p4

³¹ Knox City Council (2006) *Footpath and Shared Path Asset Management Plan* p29



Figure 9 - Footpath hierarchy³²

Hierarchy classification	Length (km)	% of Network)	Volume of pedestrian traffic	Width (m)
Commercial access	13.06	1.3	High	2.5m
Key access	76.49	5.8	Medium	2.0-2.5m
Local access	1,083.26	81.4	Low	1.4m
Reserves	31.27	2.7		
Shared paths	69.79	8.8		
Total	1,273.97	100		

Existing conditions

Defects in the footpath and shared path network may be due to poor workmanship, age, environmental or external factors, and may be classified as:

local i.e. confined to a small, isolated area within the network, e.g. potholes, edge breaks, vertical displacement, heaving, ponding, displaced pavers, gaps between pavers

or

global i.e. affect a large proportion of the asset, usually more than 50% e.g. cracking, edge drops, polishing, rutting, longitudinal displacement, erosion

The main causes of footpath hazards include tree roots, followed by subsidence, vehicle damage and ageing of the asset. Shared path hazards are caused mainly by inadequate preventative maintenance, followed by tree roots and ageing assets. Vandalism of signage is a significant problem on shared paths.



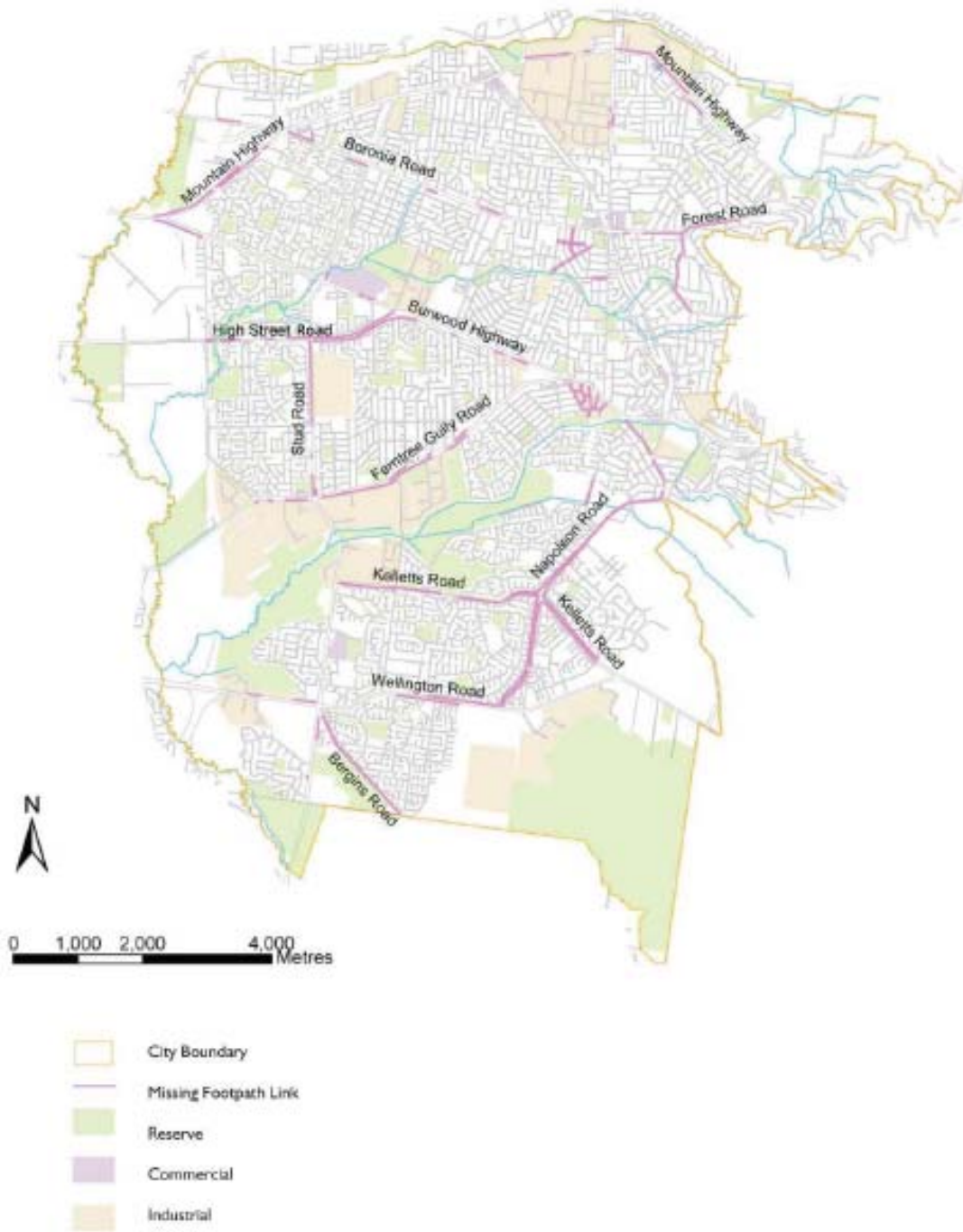
Missing and disconnected paths

Figure 10 below illustrates that, in general, the footpaths in Knox are connected. However, there are specific areas within the municipality where connectivity is compromised due to missing and disconnected footpaths.

³² Knox City Council (2006) *Footpath and Shared Path Asset Management Plan* p29



Figure 10 - Missing and disconnected footpaths



Users and stakeholders

Figure 11 below depicts the way paths and footpaths may typically be used.

Figure 11 - Users of Knox's footpaths and shared paths

Users	Interest					
	pedestrian access to properties	vehicle access to roads	active transport	access to public transport	leisure	exercise
pedestrians	✓		✓	✓	✓	✓
cyclists	✓		✓	✓	✓	✓
motorists		✓				
community and service providers	✓	✓				
business operators	✓	✓				
public transport providers				✓		

Other stakeholders with an interest in the footpath and shared path network include public transport providers, emergency services, Australia Post and VicRoads.

9.1.3 Older persons' residential and care facilities

Appendix 4 provides a full list of disability services, retirement villages, hostels and nursing homes in Knox. These facilities catering for the needs of older people are dispersed throughout Knox and in some cases are located in close proximity to facilities such as shopping centres, public transport interchanges and main roads.

It is likely that there will be concentrations of people using mobility equipment around these facilities, and along the footpaths and shared paths between these facilities and supporting social infrastructure.



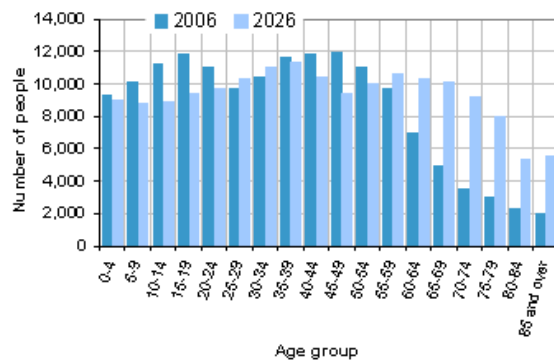
9.2 Community profile

9.2.1 Age

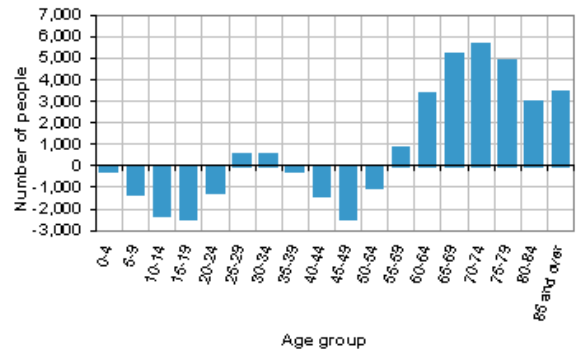
Figure 12 below illustrates that Knox residents have been ageing, and that this trend is projected to continue in the future. This is likely to result in an increase in the number of people using mobility equipment in the future.

Figure 12 - Age profile, 2006-202533

Population by five-year age group, 2006 and 2026



Population change by five-year age group, 2006 to 2026



Appendix 5 illustrates that there are relatively high concentrations of people aged 65+ in Rowville, Scoresby, Knoxfield, Bayswater and Boronia, and particularly high concentrations of people aged 75 + in Rowville, Wantirna South, Bayswater, Boronia and Bayswater North.

9.2.2 Relative disadvantage

Appendix 5 illustrates that communities experiencing greatest disadvantage are located in the east and north east of the municipality in suburbs including Bayswater North, Bayswater and Boronia. There are also pockets of disadvantage in Wantirna South and Knoxfield.

9.2.3 Health profile

Disability

Figure 13 below illustrates that Knox has a slightly lower proportion of people needing assistance relative to the Eastern Region and the Melbourne Statistical Division. A slightly higher proportion of people with disabilities in the 5-14 age group is countered by lower proportions in the 65 plus age group.

³³ http://www.dpcd.vic.gov.au/_data/assets/pdf_file/0014/32225/Knox.pdf Victoria in the Future



Figure 13 – Core activity need for assistance, Knox, 200634

Age group	City of Knox		Eastern Region	Melbourne Statistical Division
	no.	%	%	%
0 to 4 years assistance needed	89	0.1	0.1	0.1
5 to 14 years assistance needed	484	0.3	0.2	0.2
15 to 19 years assistance needed	128	0.1	0.1	0.1
20 to 24 years assistance needed	127	0.1	0.1	0.1
25 to 34 years assistance needed	247	0.2	0.2	0.2
35 to 44 years assistance needed	287	0.2	0.2	0.2
45 to 54 years assistance needed	406	0.3	0.3	0.3
55 to 64 years assistance needed	578	0.4	0.4	0.5
65 to 74 years assistance needed	606	0.4	0.5	0.6
75 to 84 years assistance needed	1,062	0.7	0.9	1.0
85 years and over assistance needed	1,065	0.7	0.9	0.8
Assistance needed total	5,079	3.5	3.7	4.0

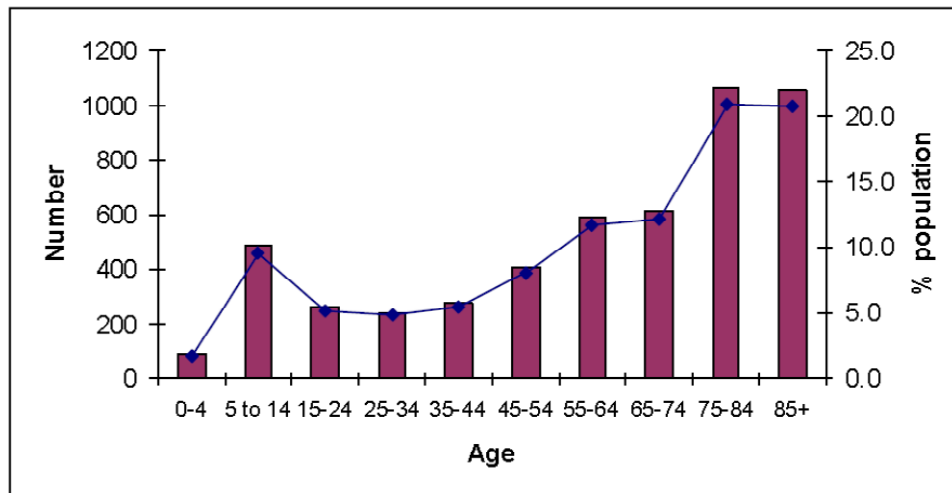
In 2010, an estimated 20% of people in Knox were classified as having a disability. The share of the population with a profound or severe level of disability (needing help with one or more core activities – self-care, mobility or communication) has grown more rapidly than the share of the community with moderate or mild limitations. Of these, 53.7% were older than 64 and 46.2% were young than 65. There are more males than females with a disability.

Figure 14 below illustrates the relationship between advancing age and prevalence of disability, both in terms of each age group with a major disability and numbers. It is estimated that, by 85+, 21% of all people have a major disability.

³⁴ <http://profile.id.com.au/Default.aspx?id=114&pg=125&gid=10&type=enum>



Figure 14- People with a disability by age, Knox, 2006³⁵



The likelihood of disability increases significantly by middle age (50-64). In 2006, the population in Knox aged 55 or more comprised 22% of the population but 65% of people with major disability. While only 10% of Knox’s population was aged over 65, this group made up 54% of the total number of people in Knox with a major disability.

Support people play a significant role in the lives of people with a disability, assisting them with tasks including moving around. In 2006, 9.6% of people aged 15 and over were providing unpaid assistance to a person with a disability, the majority of people providing this assistance were women.

Appendix 5 illustrates that there are high concentrations of people requiring assistance in Knoxfield, (south of Burwood Highway), Ferntree Gully, Boronia (along Boronia Road) and Bayswater. These areas also align with communities experiencing high levels of socio-economic disadvantage.

It must be remembered that the figures presented in this section do not necessarily take into account the number of older people and people who do not require assistance with core tasks and but still rely on mobility equipment for their independence.

It is therefore likely that the total number of people using mobility equipment is higher than the number of people needing assistance presented in this table.

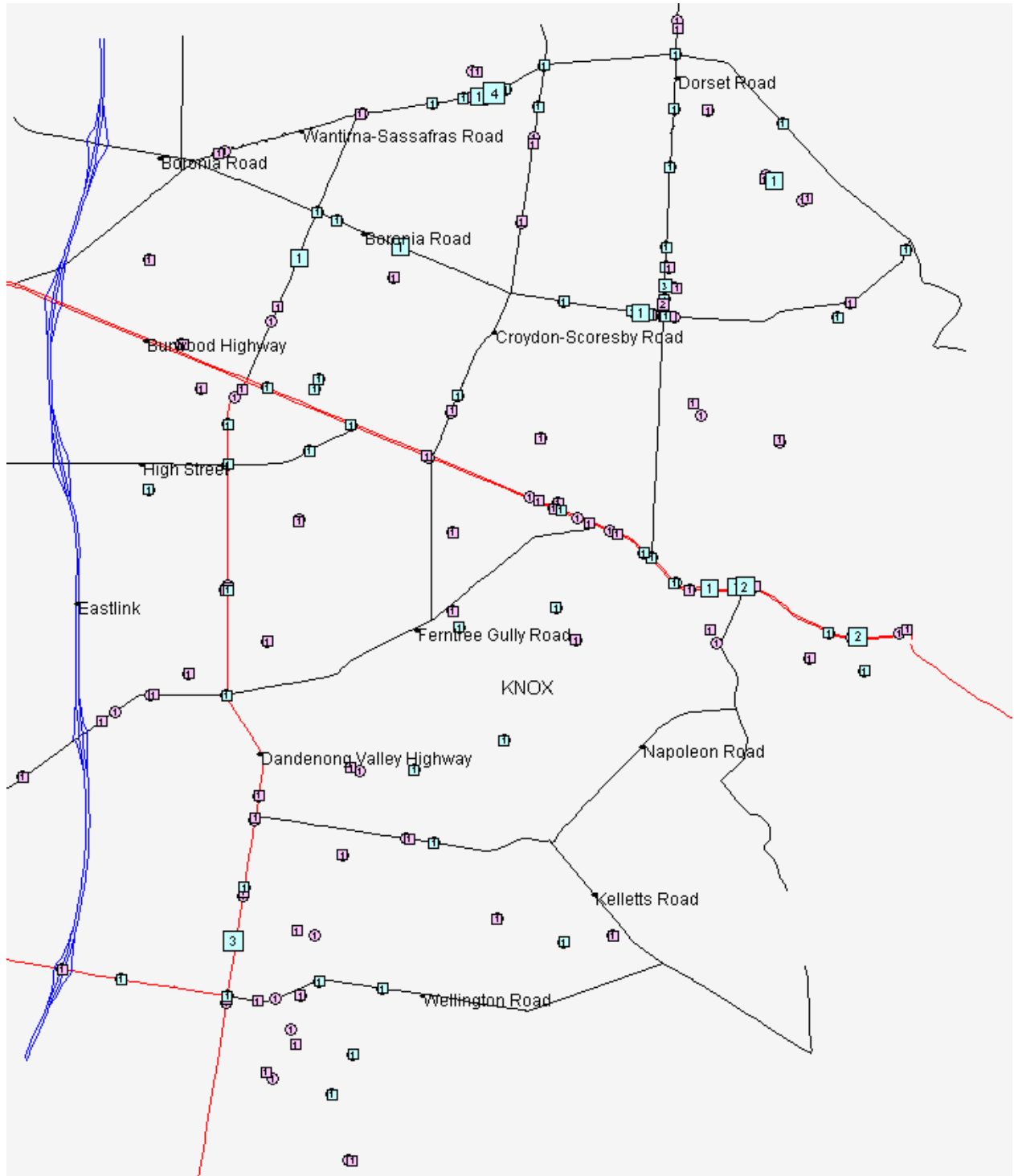
Accidents

Figure 15 below illustrates that the pedestrian accidents are predominantly concentrated near the main shopping centres and transportation nodes in Ferntree Gully, Wantirna and Bayswater. People using mobility equipment are likely to be represented in these casualty accident figures due to the fact that they are classified as pedestrians and are more likely to be involved in a pedestrian accident due to their restricted mobility.

³⁵ Knox City Council (undated) *Access and Inclusion Plan 2011-2015* p14



Figure 15 – Pedestrian Casualty Accidents – All ages, 1 July 2004-30 June 2009³⁶



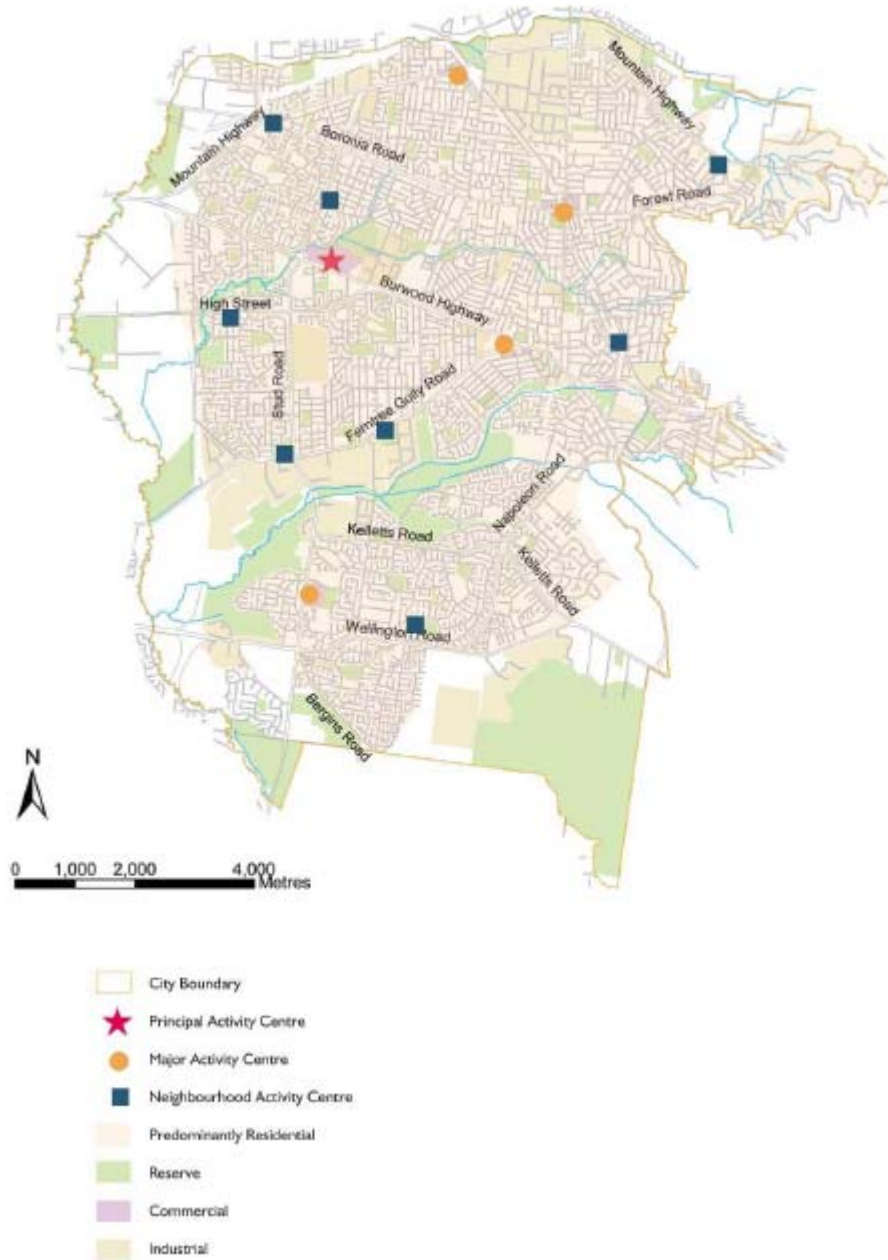
³⁶ <http://crashstat1.roads.vic.gov.au/crashstats/crash.htm>



9.3 Key destinations

Figure 16 below illustrates that a number of key destinations are dispersed throughout Knox.

Figure 16 - Land uses³⁷



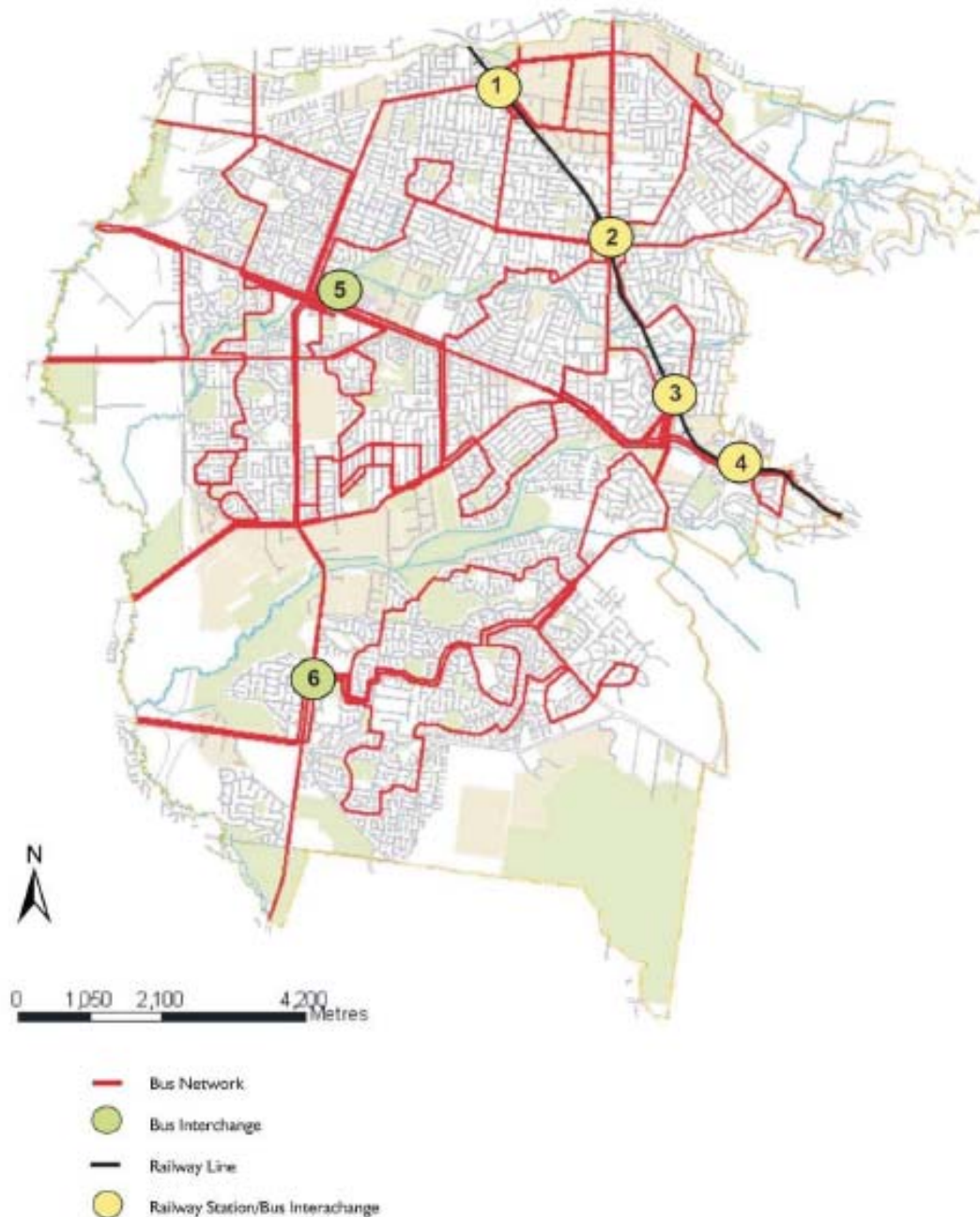
³⁷ David Locke Associates and PBAI (2005) *Knox Pedestrian Plan*



9.4 Public transport

Figure 17 below illustrates that the train network predominantly serves the north-eastern sections of Knox. Two bus interchanges are located at Knox City Shopping Centre and Stud Park Shopping Centre. This figure also illustrates that some suburbs are better served by the bus network than others.

Figure 17 - Public transport corridors³⁸



³⁸ David Locke Associates and PBAI (2005) *Knox Pedestrian Plan*



9.5 Movement patterns

9.5.1 Existing

Feedback from the community indicated that they are currently travelling to the following destinations on a regular basis:

Wantirna and Knoxfield

- Studfield Shopping Centre
- Orana Neighbourhood House
- Knox Council Offices
- Knox City Shopping Centre
- Wantirna Retirement Village
- Villa Maria
- Knox Village Retirement Village
- Park in Mowbray Avenue
- Swinburne TAFE

Boronia

- Boronia Primary School
- Boronia Central Shopping Centre
- Boronia Junction Shopping Centre
- Boronia Basketball Stadium
- Tormore Reserve
- Knox Leisureworks
- Boronia Station

Rowville

- Lakeside Reserve
- Rowville Lakes Shopping Centre
- Waterford Valley Lakes Retirement Village
- Pepper Tree Hill Retirement Village
- Stud Park Shopping Centre
- Rowville Primary and Secondary School
- Wellington Village Shopping Centre
- Eildon Park
- Jells Park



Bayswater

- Bayswater Primary School
- Guy Turner Reserve
- Bayswater West Primary School
- Bayswater Village Shopping Centre
- Bayswater South Primary School
- Bayswater Station
- Glen Park

Ferntree Gully

- Ferntree Gully Station
- Shops
- Knox Community Health
- Wally Tew Reserve
- Wattle Club
- Mountaingate Shopping Centre

Scoresby

- Shopping centre
- Lakewood Lake

Ringwood

- Eastland
- Ringwood Station

Other

- Chadstone
- Melbourne CBD
- Dandenong Station
- Doctors in Beaumaris
- Belgrave and Lilydale Stations



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9.5.2 Desired

The community indicated that they would like to travel to the following key destinations but are unable to, for the following reasons:

Desired destinations and suburbs	Issues
Knox City Shopping Centre	<ul style="list-style-type: none"> • road crossings too wide • heavy traffic • inadequate accessible car parking • limited crossing time on Stud Road • <i>“bushes overhang and get in the way”</i>
Caribbean Gardens	<ul style="list-style-type: none"> • no road crossings • inadequate footpaths on the market side of the road
Ferntree Gully Village Shopping Centre	<ul style="list-style-type: none"> • kerbs don't have smooth edges • no bike paths
Wantirna Mall	<ul style="list-style-type: none"> • <i>“risky traffic at the intersection of Boronia Road and Mountain Highway”</i> • <i>“inadequate crossing at Boronia Road and Yorkminster Street”</i>
Ringwood shops	<ul style="list-style-type: none"> • inadequate public transport
Knox City Council offices	<ul style="list-style-type: none"> • ramp too steep • ramp surface slippery when wet
Stud Road	<ul style="list-style-type: none"> • inadequate footpaths, particularly near Kelletts Road in Rowville • kerbs too high
Carrington Park Leisure Centre	<ul style="list-style-type: none"> • too far away
Knox Private Hospital	<ul style="list-style-type: none"> • public transport difficult to use
Rowville	<ul style="list-style-type: none"> • inadequate footpaths
Knoxfield	<ul style="list-style-type: none"> • heavy traffic along Ferntree Gully Road • no traffic lights along High Street, near Lakewood Drive • footpaths are uneven near Lakewood Reserve



9.6 Existing issues

Figures 18, 19, 20, 21 and 22 below illustrate the feedback gathered during the focus group held with residents on the 1st of April 2011. This information relates to key destinations, popular routes and specific issues encountered along the way.



Figure 18 - Existing issues, Knox Shopping Centre, Wantirna

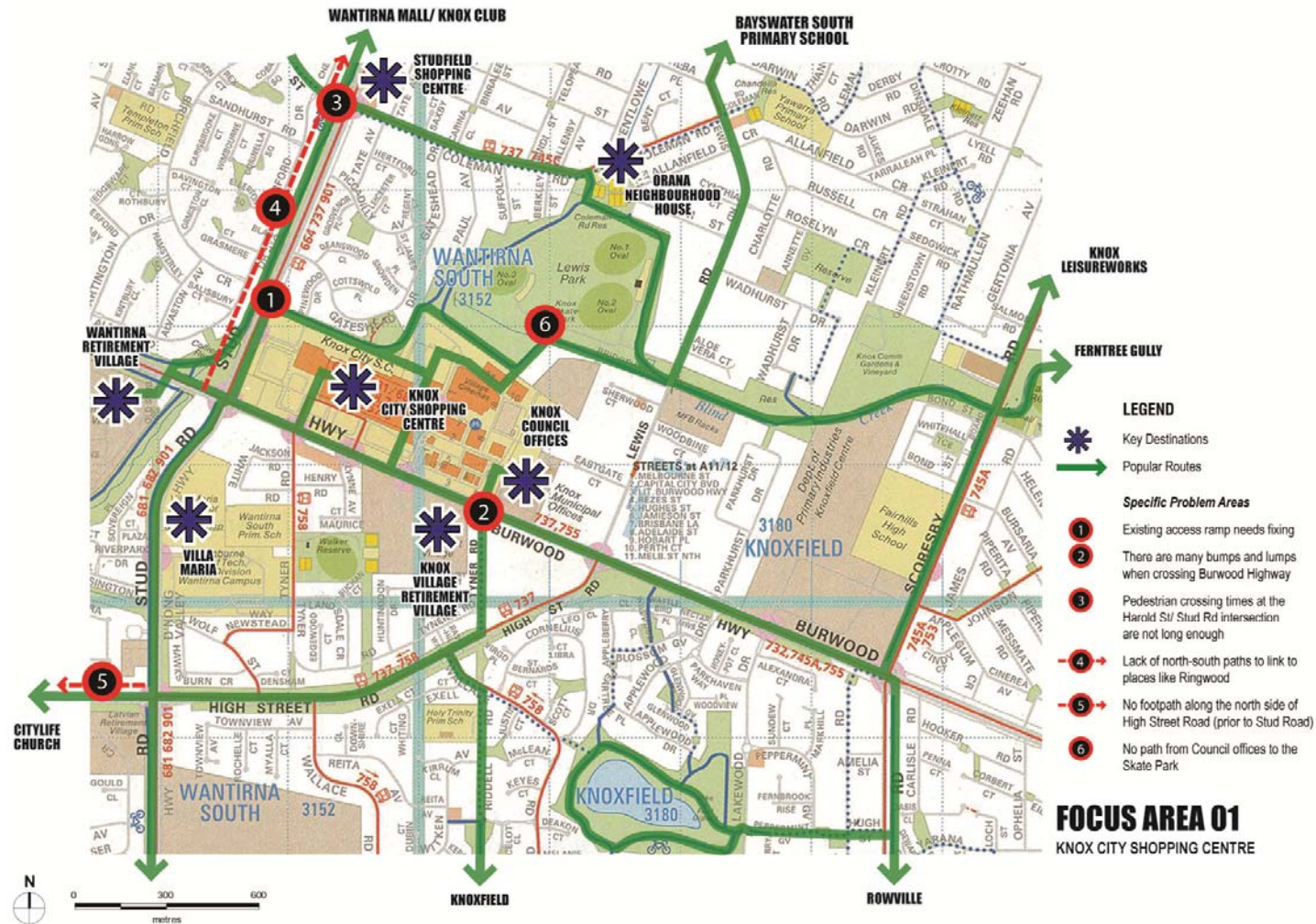


Figure 19 - Existing issues, Boronia Mall, Boronia

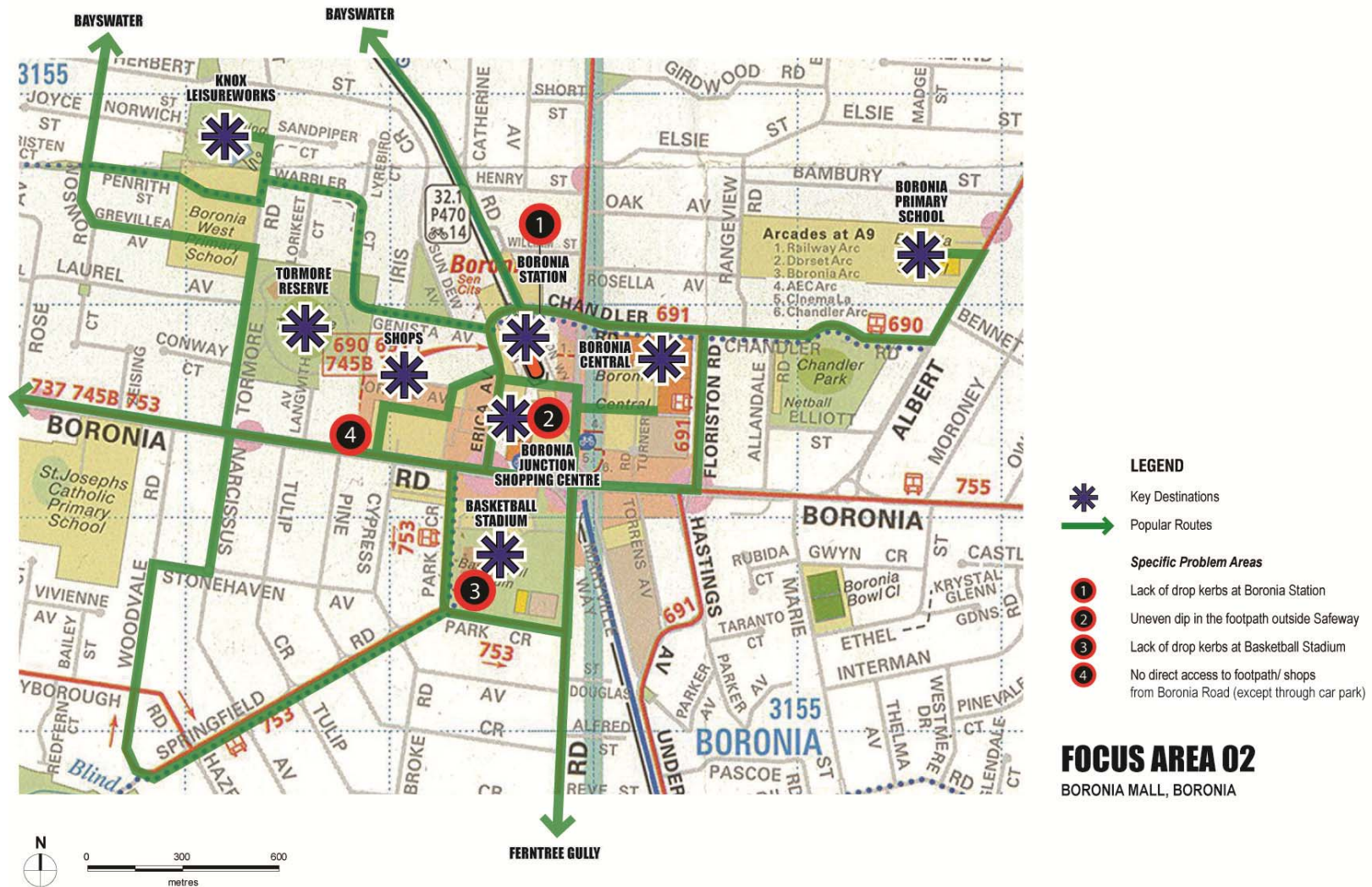
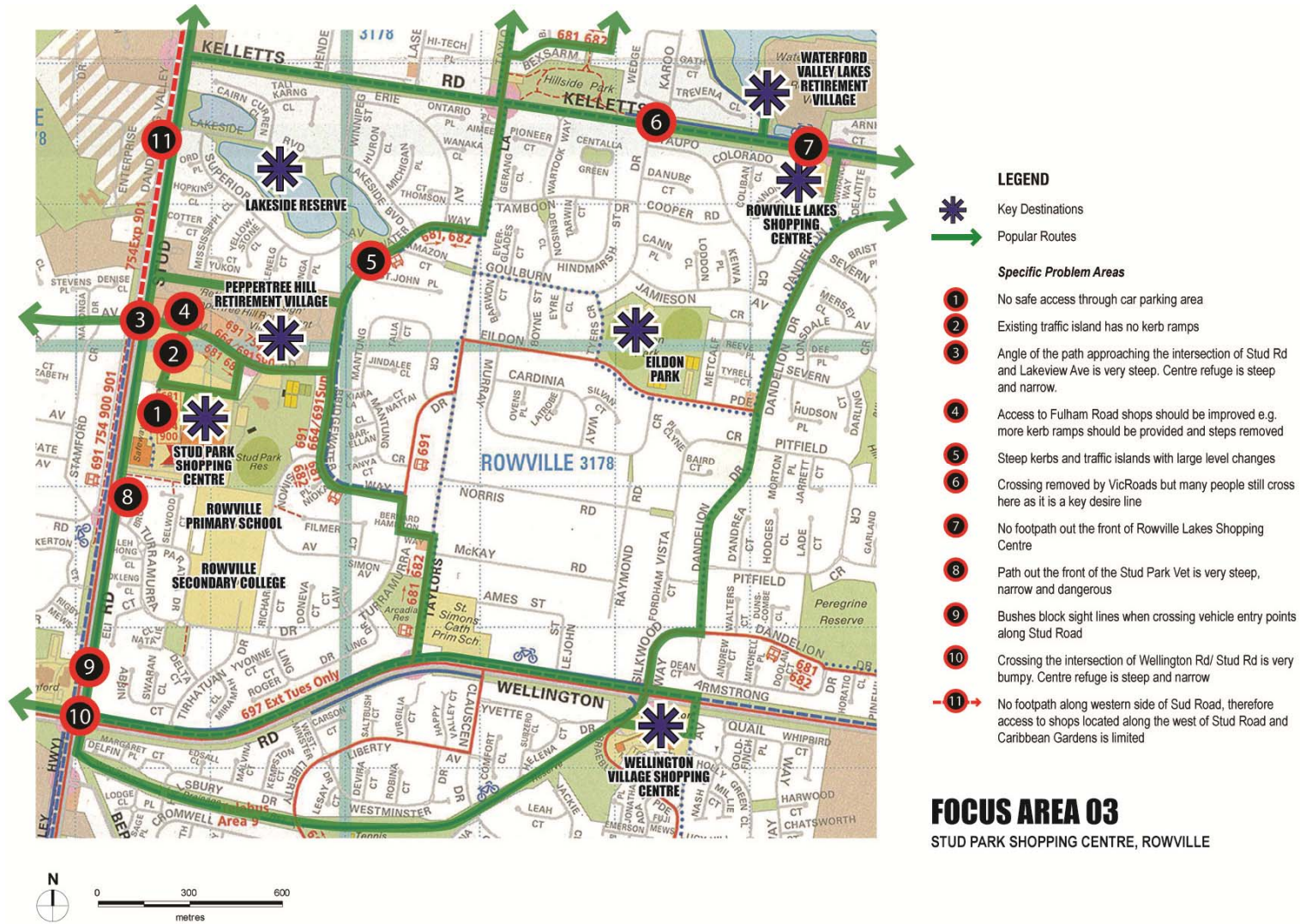


Figure 20 - Existing issues, Stud Park Shopping Centre, Rowville



FOCUS AREA 03
STUD PARK SHOPPING CENTRE, ROWVILLE



Figure 21 - Existing issues, Bayswater Shopping Centre

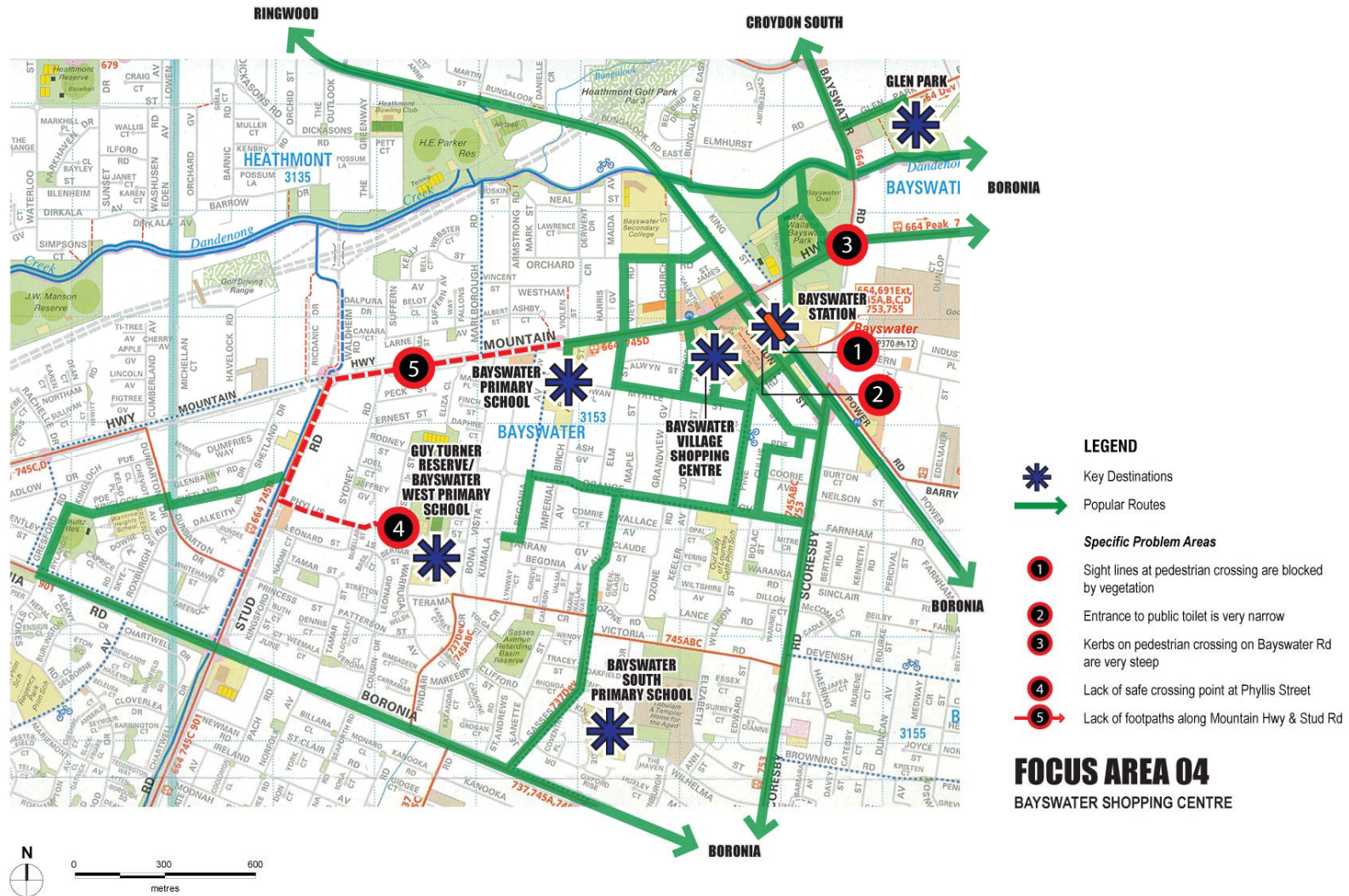
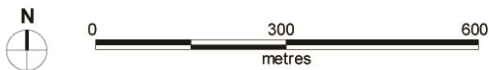
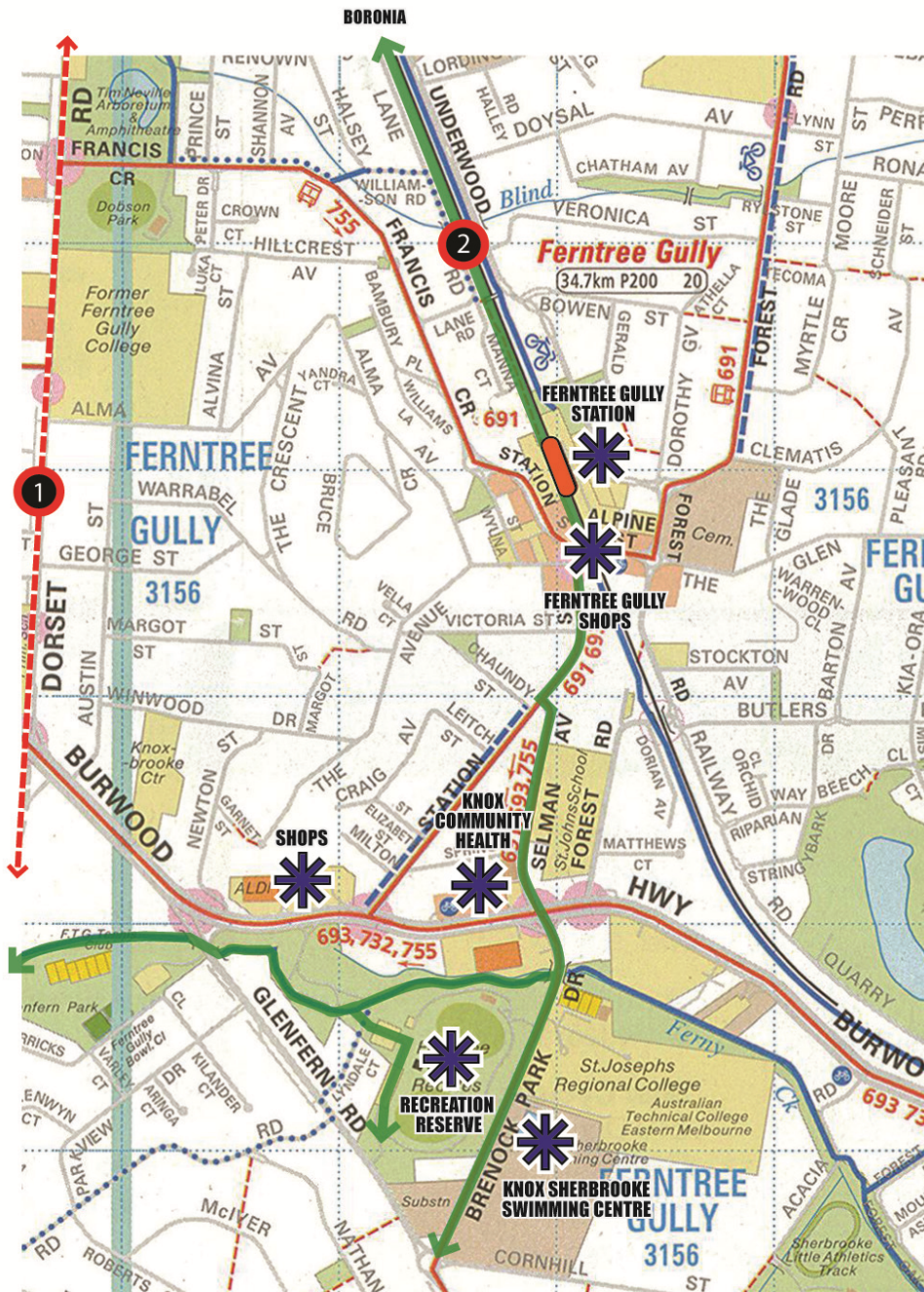


Figure 22 - Existing issues, Ferntree Gully Station



- LEGEND**
- Key Destinations
 - Popular Routes
 - Specific Problem Areas**
 - Lack of footpaths along Dorset Rd
 - Subtle ramp gradients along the shared path network are difficult to see, and present a trip hazard

FOCUS AREA 05
 FERNTREE GULLY STATION



9.7 Implications for mobility and accessibility

The environmental scan has identified the following strengths, weaknesses, opportunities and threats that will influence Council's potential to enhance the role that footpaths and shared paths play in enhancing accessibility for people using mobility equipment. This analysis may be used to inform the implementation of Council's strategies and maintenance programs.

The strengths and weaknesses are factors that are the most straightforward to take into consideration when formulating strategic directions. Threats are limitations resulting from physical form and past strategic decisions that have the potential to reduce the effectiveness of these strategies. Opportunities are latent factors that provide the potential to enhance the role that paths and footpaths play in maximising access for people using mobility equipment, and may inform the prioritisation of the strategic directions.

9.7.1 Strengths

- existing Council consultation and engagement processes such as the KDAC and Scooter Forum are providing useful information and can assist with ongoing feedback and monitoring;
- Council is focussing on accessibility issues in some activity centres such as Wantirna Mall;
- Council is engaging with local traders and community agencies to enhance access for people with disabilities to their businesses as a business development activity;
- Some footpaths and shared paths are able to reasonably accommodate the needs of people using mobility equipment;
- Active frontages in some activity centres such as Boronia Mall and Bayswater enhance natural surveillance;
- Attractive landscape setting in many parts of Knox, with both exotic and native trees;
- Visually attractive streetscapes with a mix of architectural styles, mix of long and short views, useable and vibrant open spaces;
- Highly valued recreational assets including footpaths along the creeks e.g. Lysterfield Park, Knoxfield Park and lake;
- Key multi-use destinations in older more established parts of the municipality, some of which are linked by the footpath and shared path network;
- Council's proactive program includes grinding of footpaths and cycle paths to remove bumps and imperfections
- Social groups that encourage and support walking e.g. Knox Mall Walkers who organise walks around Knox City and its surroundings; and
- Dedicated footbridges that provide crossings over waterways.



9.7.2 Weaknesses

- Semi-rural areas have missing, disconnected or unsealed footpaths;
- New residential areas often have footpaths only on one side of the road;
- Crossing times at controlled intersections that do not prioritise pedestrians, particularly those with restricted mobility;
- Limited public transport network
- Poor natural surveillance on shared paths and footpaths that connect through industrial, commercial and residential areas that reduce perceptions of safety and security;
- Residential interfaces along busy roads where the houses face away from the road and paths in order to reduce noise and visual intrusion;
- Difficulties identifying boundaries between public and private spaces, particularly in recreation and leisure areas;
- Maintenance and inspection programs are undertaken on a yearly cycle causing delays in identification of hazards and remediation; and
- Existing hazards on the footpaths and shared paths include deteriorated surface (concrete, asphalt, brick and unsealed), deteriorated edges, graffiti, dirt/debris, litter and illegible or missing signage.

9.7.3 Opportunities

- Older suburban areas have wide road reserves and concrete footpaths on both sides of the road;
- Potential for local laws to increase requests to property owners to maintain vegetation and prevent overhanging onto the footpath;
- Opportunities for planners and designers to integrate key principles discussed in Section 9 of this report during the preliminary stages of a project;
- Opportunities for collaboration between key stakeholders;
- Existing unsealed footpaths and shared paths can be improved to maximise accessibility;
- Accessibility issues can be incorporated into open space and recreation strategies;
- Infill developments such as the Austral Bricks site on Stud Road provide opportunities to maximise accessibility and mobility for people using mobility equipment;
- Strong relationships between Council and contractors which enhances opportunities for sharing of information; and
- Shared paths and footpath network, some of which are moving into the deterioration phase of their life³⁹, providing good opportunities for retrofitting.

³⁹ Knox City Council (2006) *Footpath and Shared Path Asset Management Plan* p4



9.7.4 Threats

- Knox is a large municipality with a substantial number of footpaths and shared paths that may potentially require retrofitting;
- Size of municipality limits walkability for people with limited mobility;
- Undulating topography makes it difficult for people using mobility equipment to manage steep gradients in parts of the municipality;
- Standards do not necessarily maximise comfort and convenience e.g. gradients
- Major arterial highways that act as barriers to movement as they segregate land uses and carry high volumes of traffic;
- Current designs of traffic calming mechanisms such as chicanes and roundabouts are often difficult to negotiate for people using mobility equipment;
- Road network is under different jurisdictions restricting Council's potential influence over enhancing accessibility for people with restricted mobility;
- Cul-de-sacs and courts reduce access and egress and limit permeability through the suburbs;
- Isolated street lighting results in long, dark and shadowed distances along pedestrian routes;
- Wide intersections can be difficult to cross;
- Costs involved in maintaining and retrofitting footpaths;
- Entrances to businesses and services which are in private ownership often do not provide access for people using mobility equipment;
- VicRoads will contribute to upgrading of infrastructure but not maintenance;
- Undulating terrain makes it difficult to provide footpaths in some areas;
- There is currently insufficient space along some arterials such as Mountain Highway in Boronia to construct a footpath;
- Evidence of inadvertent creation of hazards by incomplete or poorly executed maintenance work; and
- Large, fragmented shopping centres that are dominated by car parks with limited pedestrian linkages.



10 Consultation findings

A detailed analysis of the survey results is presented in Appendix 6. The main points arising out of this analysis are discussed below.

Issue	Finding
Type of mobility equipment	<p>The main type of mobility equipment used by respondents was the walking frame (25), followed by a manual wheelchair (18). The same amount of respondents used both an electric scooter and a walking stick (16).</p> <p>More female respondents used manual wheelchairs (13 compared to 3 males), walking frames (14 compared to 9 males) and walking sticks (11 compared with 5 males).</p>
Extent of accompanied travel	<p>Most people were likely to travel with a support person sometimes (19) compared with always (17) and never (16).</p> <p>Respondents using electric scooters were less likely to travel with a support person (7 reported never travelling with a support person), whereas people using a manual wheelchair and walking frame were more likely to travel with a support person either sometimes or always (16 and 19 respectively).</p> <p>For those respondents aged 45 plus, age did not appear to determine whether or not they travelled with a support person. However, all respondents under the age of 24 travelled with a support person.</p>
Length of time using mobility equipment	<p>The majority of respondents using each of the different types of mobility equipment have been using their mobility equipment for more than five years.</p> <p>The responses indicate that the longer people have been using their mobility equipment, the less likely they are to travel with a support person. However, this could also be due to the fact that people who have been using mobility equipment longer are also older and therefore more independent.</p> <p>The responses may also indicate that people who are not independent in their use of mobility equipment or have been using it for a shorter period are less likely to use the equipment on the path network.</p>
Most common form of transport	<p>The majority of respondents (50) travelled in a private car, either as a passenger (36) or a driver (14), followed by taxi (18) and walking (13). Although the respondents did not indicate whether walking included all types of mobility equipment, it is assumed that walking refers to using a walking frame, as this is the most common form of mobility equipment used by the respondents.</p> <p>The forms of public transport used least were bicycle (1), public</p>



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	bus (10) and train (11).
Duration of journey using mobility equipment	<p>The majority of respondents using all the different types of mobility equipment travelled for more than 30 minutes (27). This includes respondents using non-motorised mobility equipment such as walking frames (15) and walking sticks (8).</p> <p>The length of journey did not appear to determine whether or not people travelled with a support person.</p>
Factors making journey easier	<p>The most important factors that makes journeys easier related to the quality of the path, path alignment, and real and perceived safety i.e. smooth surfaces (50), freedom from obstacles (48), traffic lights with longer crossing times (45), wide paths (45), paths that are connected (44) and crossings that are in a straight line (43).</p> <p>Factors that were least significant in making the journeys easier related to amenities and path design i.e. places to stop and rest (30), straight paths (30), handrails (29) and different colours for different parts of the path (12).</p> <p>Width of paths was a particular issue for people using manual wheelchairs.</p>
Factors making journey more enjoyable and pleasant	<p>The most important factors that make the journey more pleasant included related to path design, safety and information i.e. paths that connect to destinations (37), lighting (37), paths that make the journey quicker (35) and good signage (34).</p> <p>Factors least important in making the journey more pleasant included amenities and the quality of the surrounding environment i.e. toilets (6), features of interest (12), drinking fountains (15) and attractive scenes and points of interest (24).</p>
Suggestions	<ul style="list-style-type: none"> • Increase the width of some existing paths. • Maintain paths to eliminate impediments and hazards such as bumps, debris, cracks and uneven edges. • Construct footpaths on both sides of the road. • Install signage that is easy to read and low maintenance • Use signage to indicate that people using mobility equipment are also present on the paths. • Monitor and regulate use of accessible car parks, perhaps through the use of identification. • Broaden public transport network. • Provide direct access for people using mobility equipment to businesses, shops, leisure and recreation areas. • Raise awareness within the community about the need to take care when entering and exiting private property in order



to avoid injuring a pedestrian using mobility equipment.

- Enhance lighting along paths, under bridges.
- Raise awareness within the community about the need to ensure bins, cars and other structures do not block the footpaths and shared paths.
- Provide public telephones along main routes.

11 Best practice

11.1 Key principles

The following key principles should be used as a 'starting point' in formulating and implementing the strategies.

These key principles underpin the strategies presented in the elements below.

- Equal accessibility is a fundamental human right.
- All trips commence and conclude with walking.
- All stakeholders share responsibility for enhancing access for people using mobility equipment.
- Desire lines reflect people's preferences and choices.
- Users know best what factors make most difference to their experience of the footpath and shared path network.
- Footpaths and shared paths are a means to an end, connecting people to places they use on a day to day basis.
- How safe people feel is as much a function of how pleasant the journey is i.e. **perception of safety** as it is about the absence of hazards i.e. incidences of **real safety**.
- Design outcomes should seek to minimise maintenance.
- Competing interests of those using the footpath and shared path network have the potential to create conflict. This conflict can be avoided by considering the needs of all users during the design and planning stage.
- People may use different combinations of mobility equipment for different types of journey or parts of the journey. The infrastructure must therefore accommodate these needs.

11.2 Elements

The information presented in the tables below detail a number of factors relating to enhancing accessibility for people using mobility equipment. These factors are categorised under a number of key elements i.e. path design, path surface, road crossings, path interfaces, infrastructure and amenities. The discussion integrates the key principles of walkability described under Section 4.2 above, the issues identified from an analysis of the case studies and best practice principles derived



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from the literature review that informed the conceptual and theoretical framework described in Sections 3 and 4 above.

The information presented in these tables has been used to inform the contents of the *Knox City Council Mobility Toolkit*.



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Path design

“Sometimes when bins are emptied they are left lying right across the path making me have to go on the road to get around. Perhaps garbage contractors can try to make sure the bins are standing when they finish.”

“There is no access to the bus stop except over the grass but the people that live in the house park their car on the grass making it very muddy.”

Element	Principle	Rationale	Issues	Best practice principles
Path network	Connectivity Convenience	Enhances accessibility to activities, services and amenities.	<p>Lack of paths/ missing connections in key locations throughout Knox (e.g. leading to/ from bus stops).</p> <p>Paths that run for long distances then end suddenly.</p> <p>Paths that run in front of shops but lead to stairs, or to dead ends with insufficient space for turning.</p> <p>Lack of kerb ramps/ crossover points in desirable locations (e.g. across service roads).</p> <p>Paths that are only on one side of the road.</p>	<p>Follow desire lines and prioritise paths that link to key destinations and origins e.g. shopping centres, medical centres, parks, schools, public transport routes.</p> <p>Provide flat, wide paths (similar to the shared path along Stud Road) in more locations throughout Knox.</p> <p>Ensure that the path network provides links between key origins and destinations throughout Knox.</p> <p>Provide path connections to all bus stops throughout Knox.</p> <p>Provide incentives for property owners to install footpaths in front of their shops/houses.</p>



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Element	Principle	Rationale	Issues	Best practice principles
Path alignment	Connectivity Convenience Comfort and safety	Minimises travel time, preserving batteries. Maximise legibility, enhancing safety and convenience. Maximise natural surveillance.	Curved paths with tight turns are hard to navigate and slow down journey times. Disjointed crossing points that don't connect from one side of the road to the other.	<p>Observe Australian Standards in the construction of kerb ramps.</p> <p>Follow desire lines when designing paths.</p> <p>Ensure road crossings align.</p> <p>Ensure straight sight lines along paths when approaching potential points of danger e.g. road crossing points and car parking areas.</p> <p>Encourage gently meandering paths along long stretches to increase interest.</p> <p>Ensure that where kerb ramps are provided, there is a corresponding kerb ramp on the opposite side of the road with a smooth, straight continuous path of access between them.</p> <p>Locate footpaths and shared paths in locations where they are overlooked by homes and shops.</p> <p>Where possible reduce height of walls and fences on major footpaths and shared paths to</p>



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Element	Principle	Rationale	Issues	Best practice principles
Path width	Comfort Safety Convenience	Minimise conflict between users. Maximise safety and amenity for all users. Provide opportunities for informal socialisation.	Support people are not able to walk next to people using mobility equipment as the path is too narrow. Shared paths are intended for people travelling at different speeds and therefore require space to 'overtake' safely. Narrow paths are hard to navigate and slow down journey times, particularly if there are also hazards. Changes in adjoining surface heights (i.e. large drops from path to naturestrip). Large gaps between grassed naturestrip and paths causes wheels to get stuck/ spin.	enhance visual access for safety, particularly where paths intersect and where vehicles cross paths. Narrow paths are hard to navigate and slow down journey times. Changes in surface heights (i.e. large drops from path to naturestrip). Large gaps between grassed naturestrip and paths causes wheels to get stuck/spin.
Path gradients	Comfort Safety	Gentle gradients are easier for people with reduced physical fitness to use. Gentle gradients prolong the life of	Steep surfaces add to the risk of scooters/ wheelchairs tipping over. Propelling a wheelchair up a steep slope is very strenuous, and there is a risk of slipping backwards down the slope if the person fatigues and has no	Remove steep gradients from paths wherever possible, or provide an alternative route for scooters and wheelchairs.



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		batteries thereby extending the potential length of the journey for people using motorised mobility equipment.	place to stop and rest. Wheeling or guiding a manual wheelchair or walking frame down a steep slope places the person at risk of losing control of the mobility equipment if they have insufficient strength and balance.	
Element	Principle	Rationale	Issues	Best practice principles
Free from obstacles	Safety	Prevents people from being injured Enhances visibility for all users	Obstacles such as benches, street furniture, retail goods, advertising boards, bins, parked cars introduce 'clutter' on the footpaths making it difficult for people using mobility equipment to navigate the obstacles. Some people avoid the obstructed paths by travelling on the roads, endangering themselves and the other road users. Gates that are closed or partly closed Vehicles parked across driveways block access and compromise safety of scooter/ wheelchair users. Lack of safe alternative routes for scooters and wheelchairs where construction is being undertaken.	Disseminate information to private land owners, businesses, building contractors and refuse removal contractors regarding the importance of ensuring that footpaths and shared paths remain free from obstacles at all times.
Hand rails and safety	Safety Comfort	People who are unsteady on their feet	Narrow spacing between fence barriers that separate pedestrians and cyclists	Install handrails with midrails and kerbrails on steep paths,



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barriers

require handrails to prevent slips and falls, particularly on paths with steep gradients.

Midrails and kerb rails increase safety for those using wheelchairs and wheeled walking frames on steep gradients, particularly where there is a significant drop on the side of the path.

are often difficult for people using mobility equipment to negotiate.

Lack of safety barriers/ rails along main roads and on train platforms detract from real and perceived safety.

Lack of safety rails or hand rails where there is a significant drop on the side of a path.

especially where there is a significant drop at the edge of the path.



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Path surface

“Pathways should be smoother. You feel a jolt through the wheelchair of uneven areas.”

“I don’t like going to the shopping centres as they mostly have highly polished tiles. I have had many falls and am now frightened I will slip over.”

“Smooth footpaths it gives people a jolt or injury to come to an unexpected stop.”

“Even paths make pushing a frame much easier and less likely to fall over.”

“You have to negotiate the pathway and drive your wheelchair to try to push bushes out of the way and make sure you don’t run into a hole or something. Very dangerous - all of this is made worse if it’s raining or has been raining then you get whacked in the face or head with the branches.”

Element	Principle	Rationale	Issues	Best practice principles
Colours	Safety	Identifies hazards such as steep edges.	People with limited mobility or visual impairment may not be able to identify hazards along the path or path edges.	<p>In high risk areas, highlight path edges in a contrasting colour such as yellow or reflective paint.</p> <p>Consider the use of a path material and colour that contrasts with that of the adjoining ground.</p>
Path maintenance	Safety	<p>Prevents trips and slips.</p> <p>Minimises damage to mobility equipment.</p> <p>Decreases jolting and vibration experienced as painful by wheelchair users.</p>	<p>Uneven path surfaces/ lips/ cracks/ bumps.</p> <p>Tree roots shift and lift path surfaces</p> <p>Cracks/ joints in footpaths fill with weeds.</p> <p>Join lines on cement surfaces are bumpy and rough.</p>	<p>Maintain paths on a regular basis.</p> <p>Avoid using asphalt to repair paths.</p> <p>Continue to smooth out uneven surfaces on existing paths.</p> <p>Provide a system of monitoring/</p>



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		<p>Prevents people using the road to avoid hazards.</p> <p>Prolongs the battery life and supports longer journeys and greater accessibility.</p>	<p>Broken/ shifted tactile paving.</p> <p>Paths that have undergone flooding need repair/ improvements.</p> <p>Construction impacting on quality of footpaths.</p> <p>Tree roots lifting and shifting path and road surfaces.</p> <p>Vegetation often obstructs/ blocks sight lines, making it dangerous to cross</p> <p>Wet grass clippings/ leaf litter causes wheels to spin.</p> <p>Water channels across paths are hard to navigate and cause wheels to become unbalanced.</p>	<p>inspection to ensure all engineering works meet the requirements of all users.</p> <p>Encourage residents to maintain paths free of vegetation and leaf litter.</p> <p>Use landscape design to plan paths & drainage so that paths are kept clear of water and are not crossed by water channels.</p>
Element	Principle	Rationale	Issues	Best practice principles
Surfaces with grip	Safety	Prevents trips and slips	Surfaces such as tiles or polished concrete may become slippery when wet and are particularly hazardous on steep paths or paths with sharp curves.	Use materials that are textured to reduce risk of slip & trip. Consider use of colour and material contrast to indicate changes of gradient, edges of paths and directions of travel.
Tactile indicators	Safety	Well located and well maintained tactile indicators enhance the safety of people who have a vision impairment. When these are well maintained, the	Tactile indicators require dor people with vision impairment may introduce a tripping hazard for people using mobility equipment if they are damaged, located on kerbs that are not level with the road or located on paths with steep gradients and sharp curves.	Ensure tactile indicators are well maintained. Aim to minimise the creation of a trip hazard in the location and installation of tactile indicators. Where paths at road crossings are 2000mm, install the indicator



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risks for people using mobility equipment is reduced.

on one side of kerbramp the close to the traffic light request button (minimum width 1000mm) and leave the remaining 1000mm wide path free of tactile indicators.



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Road crossings

“It is hard to negotiate kerbs that are too high.”

“I would not risk crossing Stud Road traffic because of the limited traffic signal timing.”

“I have filled this in as my husband’s carer as he had a stroke. He likes to travel by scooter around the local streets but he can only go up and down near our house because someone needs to be with him due to the small scooter wheels that tip over footpaths that have a lip onto the road.”

“We cannot travel round the block due to no footpath between Joan and Chestnut. To get over that problem we travelled on the road only to find we could not get back and to the footpath along the length of Joan and Honder due to very high kerbs on every person’s driveway.”

Element	Principle	Rationale	Issues	Best practice principles
Kerbs and kerb ramps	Safety	Kerbs and kerb ramps that have smooth edges on the roads i.e. have no lips or ‘bull noses’ make it easier for people to move into and off the road.	Raised kerbs make it difficult for people using mobility equipment to access the footpath or road crossings, particularly if the path has a steep gradient or a sharp kerb.	Continue to smooth out uneven surfaces/ high kerbs on existing road crossings
Pedestrian refuges	Safety	Refuges in the middle of large intersections provide opportunities for people to rest and enable them to cross the road at safe speeds Refuges enhance the perception of safety in large intersections.	Refuges that are higher in the centre of the road than the crossing (requiring going up and down a kerb ramp) or are too small or narrow increase the perception of fear, particularly if the length of the traffic lights is not sufficient. This makes it difficult for people to move off or onto the kerb ramp as it is not level with the road.	Design centre refuges as ‘cut outs’ in the central traffic island (level with the road surface), removing the requirement for scooters/ wheelchairs to have to drive up or down. Ensure centre refuges are large enough to accept two scooters side by side and long enough to avoid scooters overhanging.



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Traffic lights	Safety	Crossing times that are set at speeds suitable for people with restricted mobility enhance the perception of safety	Short crossing times discourage people travelling relatively slowly from crossing the road, or tempt them to 'rush', making the journey less pleasant or unsafe. This is particularly relevant if the centre refuge is too narrow or too high.	Ensure buttons are accessible i.e. at the right height and aligned with the road crossing. Ensure crossing times provide sufficient time to cross for people with limited mobility Extend pedestrian 'green phases' during peak hours and in key crossing locations i.e. wide intersections, in close proximity to concentrations of older people, shopping centres and medical centres.
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Path interfaces

“Disabled car spaces are not always available. I don’t need to be at a shop door but I do need space wide enough to fully open the door and fit myself, the carer and the chair between two cars. My carer lifts me in and out of the car. Many people use disabled stickers belonging to relatives who are not in the car or deceased, or when their condition has improved.”

Element	Principle	Rationale	Issues	Best practice principles
Entrances to buildings and public places	Inclusiveness Safety	Paths that connect entrances of shops and services enhance inclusiveness and accessibility.	<p>Many entrances to shops and services are not wide enough to accommodate a person using a mobility aid, particularly if they are accompanied by a support person.</p> <p>Many entrances to shops and services do not have ramps which prevent people using mobility equipment from entering easily, safely or at all.</p>	<p>Issue guidelines regarding the provision of adequate space for scooter/ wheelchair movements to businesses.</p> <p>Encourage the renovation of shopfronts to incorporate accessible entrances.</p> <p>Ensure pedestrian access gates are left open during daylight hours and where this is not possible (e.g. childcare centre) an accessible means of requesting and having the gate opened (e.g. intercom & remote release).</p> <p>Advocate the removal of unnecessary physical barriers (such as gates) for public pedestrian access in public locations.</p>
Accessible car parks	Convenience Comfort and	Accessible car parks that are well-located in relation to footpaths and	Existing accessible car parking bays often do not provide enough space at the rear of vehicle to allow	Ensure safe marked zones are provided to the rear of accessible car parking bays.



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	safety	<p>have a designated safe level and continuous path of travel to the footpath enhance safety, amenity and connectivity.</p> <p>Paths that are suitably located, marked and aligned in car parking areas enhance safety and amenity for pedestrians & motorists.</p>	<p>safe access for wheelchairs/ scooters.</p> <p>People without accessible car parking permit often park in accessible spaces.</p> <p>Accessible car parking permits are sometimes used inappropriately by other people for journeys when the person to whom or for whom the permit was issued is not travelling in the vehicle.</p>	<p>Ensure penalties are enforced for vehicles not displaying an accessible car parking permit.</p> <p>Educate permit holders and support people about the conditions of use of the permits and that inappropriate use of these disadvantages other people with disabilities. Consider suitable strategies to discourage inappropriate use.</p>
Element	Principle	Rationale	Issues	Best practice principles
Access safety ramps	Safety	<p>Access ramps to public transport infrastructure, shops and other facilities that have a suitable gradient and are constructed from materials that prevent slipping enhance accessibility for people using mobility equipment.</p>	<p>Unexpected and unmarked changes in slope gradients add to the risk of tripping and falls, even for people not using mobility equipment.</p> <p>Narrow, winding access ramps are difficult to navigate.</p>	<p>Where possible use maximum gradients for footpaths and shared footways throughout Knox of 1:20.</p> <p>Where appropriate, in areas with high pedestrian volumes, use ramps with gradients between 1:14 and 1:20; provide kerbrails and handrails on ramps in accordance with Australian Standards AS1428:1.2009</p> <p>Ensure the crossfall of all pathways and ramps does not exceed 1:40 but is sufficient to avoid pooling of water on the path.</p>



The current Australian Standard and Building Code of Australia requires the path of travel to be 1000mm minimum within a property boundary. This is considered a minimum and greater widths in compliance with AS1428.2 is recommended, including a 1200mm minimum wide path for a single wheelchair access and a 1500mm minimum wide path to allow a person using a wheelchair and another pedestrian to pass.

Ensure ramps on local access footpaths are at least 1200mm wide. (1400mm is the width of existing local access footpaths in Knox).

For ramps on Key access footpaths which are 2000mm – 2500mm wide in Knox - consider provision of 1200mm minimum width to allow single access for a person using a wheelchair or 1500mm minimum for a pedestrian who uses a wheelchair and another



pedestrian to pass.

Commercial access footpaths are 2500mm wide in Knox - consider provision of 1200mm minimum width to allow single access for a person using a wheelchair or 1500mm minimum for a pedestrian who uses a wheelchair and another pedestrian to pass.

Ramps on shared footways
Shared footways in Knox are 2400mm wide. As shared footways are used by cyclists as well as pedestrians they are a special case. Where the ramp is to be used by all and there is no alternative for cyclists or pedestrians the ramp should be a minimum of 2400mm wide.



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Infrastructure and amenities

“The bus stop at Stud Road and Ferntree Gully road is very narrow for walking, and getting on and off the busses.”

“I can’t get to Knox City and back again because I would have to recharge my battery in between.”

“They have put a new bus stop near Knox Private Hospital but I can’t disembark off the bus so have to travel to Wantirna Road to get off then backtrack to the hospital.”

“It would be nice to have a point somewhere along the way in case of emergency e.g. breakdown. I don’t have a mobile phone and need to rely on others to contact emergency services in case of need.”

Element	Principle	Rationale	Issues	Best practice principles
Public transport	Convenience	Enhances accessibility	Footpaths do not provide direct and convenient access to bus stops.	<p>Provide footpaths that maximise accessible connections to bus stops and train stations.</p> <p>Provide well designed bus shelters that are located and oriented to enhance accessibility i.e. transparent walls to maximise natural surveillance and perceptions of safety.</p>
Landscaping	Comfort and safety Convivial	Enhances and amenity	<p>safety Overhanging vegetation reduces visibility and is a safety hazard for people who are unable to easily avoid the hazard.</p> <p>Some paving surfaces such as asphalt and pavers are more likely to be damaged by traffic and action of trees, and are difficult to remediate.</p> <p>Garden beds next to footpaths may subside, creating holes and gaps that</p>	<p>Consider installation of drinking fountains at appropriate locations along shared footways and paths throughout Knox</p> <p>Select paving and landscape elements and construction techniques that will have longevity, minimise maintenance and the creation of hazards.</p>



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			<p>catch wheels and cause tripping hazards.</p> <p>Leaf and landscaping debris blocks paths.</p> <p>Tree roots protruding above the ground at the base of trees in narrow high volume areas may cause tripping hazards and reduce the width of the path.</p> <p>Low, overhanging trees and branches encroach on footpaths, blocking access.</p> <p>People with restricted mobility are less able to move to sheltered places nearby and may be more susceptible to the impacts of climate extremes (heat, cold, rain, wind).</p> <p>Overhanging vegetation restricts visibility for people reversing out of driveways.</p>	<p>Ensure landscaping and vegetation in public places is maintained.</p> <p>Disseminate information to private property owners on the importance of maintaining vegetation along footpaths</p> <p>Locate suitable shade trees to the north and west of stopping places (bus shelters, seating areas, crossing points).</p> <p>Remove and maintain vegetation that impedes on sight lines, particularly at crossing points.</p>
Element	Principle	Rationale	Issues	Best practice principles
Lighting	Comfort and safety	<p>Adequate and well located lighting enhances the real and perceived safety of the footpaths and shared paths.</p> <p>Distances and time estimates on lamp posts helps people</p>	<p>People use paths in the dark (particularly in winter in the early evening or early morning), some of which are not lit.</p> <p>Lack of wayfinding signage/ maps in some key areas such as shopping centres, trains stations.</p> <p>Lack of information that provides details of distances/ times/ locations (e.g. 500m to shopping centre, You are Here etc.)</p>	<p>Provide/ enhance lighting along major pathways throughout Knox intended for use after dark.</p> <p>Provide lighting in underpasses and overpasses intended for use after dark.</p>



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		judge a journey pace for themselves, and gives a location reference point of calling for assistance.	Small text size on new wayfinding signage is hard to read.	
Resting points	Convivial	Provide opportunities for people convalescing or with long term mobility issues with opportunities to break up their journey while engaging in physical activity and increasing their fitness levels	Lack of seating/ resting points may discourage people with temporary or permanent impaired health from using the footpaths and shared paths to exercise regularly.	Provide frequent 'pause' spaces directly adjoining footpaths that incorporate formal and informal seating, shade and landscaping. Ensure direct visual access from pause spaces to activity places such as footpaths and open spaces. Locate seating near places of interest e.g. corners, parks, gardens. Locate seating alongside paths with steeper gradients.
Element	Principle	Rationale	Issues	Best practice principles
Drinking fountains	Convivial	Enhances enjoyment of journey and therefore perception of safety and motivation to walk	Lack of drinking fountains may discourage people from using the footpaths and shared paths during warmer months or periods of illness. The design of some drinking fountains restricts accessibility for some people,	Consider provision of suitable and accessible drinking fountains at suitable locations on shared footways and in parks and recreation areas.



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			depending on the nature of their disability.	
Signage	Conspicuous Safety	Increases legibility of path network Increases safety	<p>Signage does not indicate that people with restricted mobility are also likely to be using footpaths and shared paths.</p> <p>Lack of wayfinding signage/ maps in some areas.</p> <p>Lack of information that provides details of distances/ times/ locations (e.g. 500m to shopping centre, You are Here etc.).</p> <p>Small text size on new wayfinding signage is hard to read.</p>	<p>Provide signage that indicates the paths are used by a range of users, including people with restricted mobility.</p> <p>Indicate to users to stay on the left side of the path.</p> <p>Indicate changes in gradient and any hazards ahead (winding path, road or path junction, maintenance).</p> <p>In high traffic areas paint a line on the paths to direct people to move safely and remain on the left hand side of the path.</p> <p>Advocate for bikes to have and use bells.</p> <p>Provide travel distance and time information at intervals on key shared paths and footpaths using symbols and text that is easy to read.</p>
Element	Principle	Rationale	Issues	Best practice principles
Toilets	Comfort	Increases amenity and enjoyment of journey.	<p>Lack of public toilet facilities throughout Knox.</p> <p>Some toilets may be difficult to access, depending on the type of mobility</p>	Provide new and accessible public toilet facilities in strategic locations.



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			equipment used and the nature of the disability.	
Litter bins	Comfort Safety	Increases amenity and enjoyment of journey for all users	Absence of litter bins can detract from the amenity of the public realm	Provide more public rubbish bins in strategic locations along paths.
Recharge points	Convenience	Facilitates longer journeys using mobility equipment thereby enhancing accessibility	Electric scooters and wheelchairs have a finite battery life but long distances, steep gradients and rough surfaces drain the battery and therefore may reduce the distance people are able to travel.	Where possible, provide recharge points (powerpoints) at convenient locations, such as shopping malls, shopping strips, medical centres.
Element	Principle	Rationale	Issues	Best practice principles
Features of interest	Comfort Conviviality	Enhances enjoyment of journey and therefore perception of safety and motivation to walk	Some features of interest may be vandalised or represent barriers and hazards.	<p>Provide features of interest that minimise vandalism and function as landmarks, destinations, or a point of reference.</p> <p>Where possible use existing buildings, views, trees and vistas including murals on appropriate walls.</p> <p>Where landscape structures (e.g. rotunda, arbor) or sculptures are concerned consider access, visual surveillance; durability and context.</p>



12 Recommendations

The following recommendations have been drawn from the findings of the research presented in this Report.

12.1 Council's role

Figure 6 above illustrates that Council plays a significant and varied role in enhancing accessibility and inclusion of people with disabilities. Although Council is responsible for the design and maintenance of footpaths and shared paths, it is important to remember that these footpaths and shared paths are enablers, providing access to a range of services and facilities such as shopping centres, schools, medical facilities, public transport and sports and recreation services. The accessibility of the broad built environment for people with disabilities is therefore the collective responsibility of a number of different stakeholders such as VicRoads, Metlink, shopping centres, private land owners, building contractors and health care providers.

Therefore, although this study has focussed on measures that Council can implement and facilitate in relation to footpaths and shared paths, Council also plays a significant role in collaborating with all stakeholders who are responsible for ensuring that this network enhances accessibility for people with disabilities.

12.2 Prioritisation

Knox is a very large municipality with established neighbourhoods and existing infrastructure. In addition, upgrade (retrofit) and maintenance schedules and associated budgets are likely to determine the extent to which Council can influence the quality and design of the footpath and shared path network. Furthermore, there are a number of areas within Knox that currently lack footpaths or where the footpaths are not connected.

It will therefore be necessary for Council to prioritise their efforts to improve the footpath and shared path network in order that they have the greatest impact on people using mobility equipment.

The four principal criteria guiding the selection of footpaths and shared paths should be:

- areas where there are no footpaths or shared paths, or where existing footpaths and shared paths are not connected (refer to Figure 10 above);
- areas demonstrating the highest proportions of people with a disability and older people (refer to Appendix 5);
- paths between key origins and destinations such as shopping strips, shopping centres, medical centres, transportation nodes and bus stops, retirement villages, social housing, sporting grounds (refer to Section 7.3 and 7.4 above);
- locations in the focus areas identified as having specific issues (refer to Section 7.5 above); and



- destinations identified during the consultation process as not being accessible (refer to Section 7.6 above).

In addition, the following secondary criteria may also inform the selection of priorities:

- existing desire lines i.e. informal tracks along street reserves and within parks;
- routes which complement or supplement the existing network to enhance connectivity;
- routes which will result in widening and upgrading of existing footpaths and shared paths;
- areas which will benefit the greatest number of users, including those not using mobility equipment but some other equipment e.g. pram, shopping cart;
- routes where upgrade (retrofitting) to enhance accessibility can be incorporated into the routine or planned maintenance tasks.

12.3 Information dissemination, advocacy and collaboration

The built environment is planned, designed and used by a number of different agencies and stakeholders, each with their particular expertise and experience. One of the key findings arising from the stakeholder engagement and community consultation process was the fact that it is often ignorance rather than disinterest that creates some of the issues facing people using mobility equipment on a day to day basis. It is highly likely that, given the chance, many individuals and agencies would welcome the opportunity to 'make a difference' by instituting small changes to their practices.

It is therefore recommended that the information be disseminated as follows:

- Conducting regular training programs for Council officers that raise awareness of issues experienced by people using mobility equipment, and the benefits associated with enhancing accessibility for people with restricted mobility.
- Media campaigns regarding the need to address issues such as overhanging branches, parked cars, discarded bins and other structures and their impact on people using mobility equipment. The timing of these media campaigns should be strategic and coincide with key events e.g. spring when vegetation begins to grow most rapidly; transitions between winter and summer sports and prior to major events.
- Preparation of a succinct brochure (based on the *Knox City Council Mobility Toolkit*) that describes how all the different stakeholders can 'make a difference'.
- Where appropriate, raise awareness through signage that the needs of people using mobility equipment are also to be considered on the footpaths and shared paths.
- Raise awareness within the business community about the potential economic and social benefits of increasing access to their properties for people using mobility equipment. Council may wish to work with interest groups about different and cost effective ways of enhancing this access e.g. by training staff to assist customers using mobility equipment and providing RECHARGE



points inside private businesses and suggesting model internal layouts for stores that enhance accessibility. Council may also wish to provide grants to cover the costs of these initiatives.

- Provide information on Council's website and a simple printed brochure highlighting existing opportunities for people using mobility equipment e.g. most convenient and safe routes, services and support, public transport services etc. for dissemination through appropriate channels that would refer people to the website. A publicity poster for display on noticeboards in the community would serve to disseminate this information more thoroughly in the community. A publicity campaign that could include: the Knox Metro Access Worker; a feature in the local paper and a mailout with rate notices, brochures provided at the libraries and sent to retirement villages, medical centres, community health and community rehabilitation centres as well as community agencies providing support to older people and people with disabilities. Libraries may also assist people who have difficulty accessing the internet to get information tailored to their interests from the website. Suitably trained experts may also deliver talks and training sessions to occupational therapists, receptionists and other staff at aged care facilities, hospitals, rehabilitation centres, hospitals and medical centres, neighbourhood houses, schools and other community facilities that are used by people with disabilities.
- Advocate to VicRoads, Department of Transport, and other stakeholders about the need to improve pedestrian crossings and public transport infrastructure so that the built environment prioritises pedestrians using mobility equipment. Suggestions include lengthening crossing times, reassessing the location of magnetic loops on some intersections, location of bus shelters in relation to footpaths and shared path, installation of superstops and use of low floor buses.
- Advocate for the ongoing review of legislation and standards to ensure that they achieve the highest possible benchmark in supporting the needs of people using mobility equipment.

12.4 Monitoring and evaluation

It is recommended that Council monitor and evaluate the effectiveness of the findings presented in this report through the following mechanisms:

- assessing the feasibility of implementing the findings in this report in maintenance and upgrading/retrofitting programs;
- holding regular forums and workshops with consultative committees and users of mobility equipment to gather feedback on whether the recommendations have improved their experience of the footpath and shared path network;
- gathering information from businesses on the most effective and efficient ways to enhance accessibility to their properties;
- monitoring the scope, content and number of complaints received from the community regarding issues experienced on the footpath and shared path network; and



- reporting to Council annually on progress.

12.5 Next steps

This study has focussed on one aspect relating to the role that footpaths play in enhancing and supporting healthy lifestyles and inclusive communities. However, it is recommended that the following 'next steps' be implemented to increase the influence of this study.

- Investigate how the findings of this study may apply to other users such as support people pushing prams, people using shopping jeeps.
- Investigate the feasibility of providing recognition and training to businesses who wish to increase accessibility to their premises for pedestrians using mobility equipment.
- Prepare mechanisms to disseminate key findings of study to relevant agencies and stakeholders.

12.6 Application of findings

The findings presented in this report may be applied by the different stakeholders as follows.

Stakeholder	Relevance
Council officers	<ul style="list-style-type: none"> • maintenance schedules (upgrading of footpaths and shared paths, trimming of vegetation, sweeping of footpaths and shared paths); • urban design; • landscape architecture; • assessment of planning applications; • engineering; • amendment schemes; • enforcement; • advocacy; • information and awareness; and • stakeholder engagement and community consultation.
Developers	<ul style="list-style-type: none"> • design of neighbourhoods, open spaces and recreation areas; • design of linear paths; and • maximising width of footpaths and minimising gradients.
Builders	<ul style="list-style-type: none"> • avoiding placing construction materials or parking vehicles in such a way that they block footpaths and shared paths.
Private property	<ul style="list-style-type: none"> • attention when reversing out of driveways;



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owners	<ul style="list-style-type: none"> • avoiding parking over footpaths and shared paths; and • maintaining vegetation to prevent overhanging.
Public transport providers	<ul style="list-style-type: none"> • locating bus shelters and other infrastructure along existing or planned paths; • installation of accessible ramps; • information and awareness; • increasing the use of accessible vehicles and smartbuses; and • customer relations.
Businesses	<ul style="list-style-type: none"> • enhancing access through installation (permanent or temporary) of ramps; and • location of tables, chairs, advertisements and produce to maintain a clear path of travel along the shopfronts.
Sports, leisure and recreation clubs	<ul style="list-style-type: none"> • raising awareness of implications of spectators parking over footpaths and shared paths; • providing accessible car parking areas with marked transfer zones behind and beside spaces and direct level marked access routes to footpaths; • maintaining accessible paths, entrances, exits and access to clubrooms and spectator areas; • providing resting places and other amenities such as drinking fountains, accessible toilets; and • landscaping to maximise natural shade along paths.
Waste management contractors	<ul style="list-style-type: none"> • ensuring bins are not left on footpaths and shared paths; and • awareness of needs of pedestrians using mobility equipment.



12.7 Finding the right balance

The scope of this study has focussed on a specific group of pedestrians using footpaths and shared paths i.e. those using wheelchairs, scooters, walking frames and walking sticks. However, it is acknowledged that the findings of this research will be applied in a broader context and will therefore need to take account of the potentially conflicting and divergent needs of all users. It is also acknowledged that recommendations presented in this report are likely to have some negative implications for other users.

Implementation of these recommendations will therefore need to strike a balance between the following potential conflicts:

- people with visual impairment who rely on features such as tactile paving for orientation and people using mobility equipment who may find these features difficult to negotiate;
- different travel speeds e.g. cyclists using the shared paths as a travel mode who wish to travel fast and pedestrians using mobility equipment as a form of leisure and gentle exercise;
- young people looking for opportunities to add interest to their experience of footpaths and shared paths such as rails, bumps and sharp turns which may inhibit the ease of movement for people using mobility equipment;
- the potential 'trade off' between gentler gradients and length of paths;
- the need to provide for adequate drainage along the edges of paths and difficulties negotiating raised kerbs;
- the need to strike a balance between aesthetics and utility e.g. clear paths facilitate movement for pedestrians using mobility equipment but may reduce visual interest; and
- the need for clear access across the line of shopfronts for access as well as infrastructure that provides opportunities to rest and enhance the comfort of the journey but may take up space on footpaths that is required by business owners.



Appendix 1 – Bibliography and references

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Appendix 2 - Survey instrument



Knox City Council Mobility Study

Knox City Council is conducting a study on how to improve the footpaths and shared paths (bike and walking) for people using mobility aids. Please take a few minutes to share your knowledge.

**PLEASE RETURN THIS SURVEY TO:
SYMPPLAN, REPLY PAID, PO BOX 2204, CAULFIELD JUNCTION,
VIC, 3161**

1. Are you male or female?

- Male Female

2. How old are you?

- 5-12 13-18 19-24 25-44
 45-54 55-64 65-74 75+

3. What type of mobility aid/s are you currently using? If you use a combination of mobility aids, you can answer more than one.

- Electric wheelchair Manual wheelchair
 Electric scooter Walking frame
 Walking stick Other _____

4. Do you travel with a carer or support person?

- Always Sometimes Never

5. How long have you been using your mobility aid? If you use a combination of mobility aids, you can answer more than one.

	0-6 months	6-12 months	between 1 and 5 years	more than 5 years
Electric wheelchair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manual wheelchair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electric scooter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walking frame	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walking stick	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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6. Please tell us how often you use any of the following forms of transport. You can answer more than one.

	Always	Often	Hardly ever	Never
Private car (as driver)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Private car (as passenger)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public bus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community bus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Taxi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Train	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bicycle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Can you tell us how long your average journey using your mobility aid takes?

- | | |
|---|---|
| <input type="checkbox"/> Up to 10 minutes | <input type="checkbox"/> 20-30 minutes |
| <input type="checkbox"/> 10-20 minutes | <input type="checkbox"/> More than 30 minutes |

8. For each of the journeys you take on a regular basis with your mobility aid, please tell us:

- a. Where you travel to with your mobility aid (e.g. Bayswater Station)
- b. Where you leave from (street address)
- c. Which is your preferred route (e.g. down Station Street)

Journey 1 a) _____
 b) _____
 c) _____

Journey 2 a) _____
 b) _____
 c) _____

Journey 3 a) _____
 b) _____



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c) _____

Journey 4 a) _____

b) _____

c) _____

Journey 5 a) _____

b) _____

c) _____

9. Please tell us:

a. Which places you would like to travel to with your mobility aid but can't

b. Why this is so?

E.g.

a. *Knox City Shopping Centre*

b. *Because the road crossings are too big.*

Place 1 a) _____

b) _____

Place 2 a) _____

b) _____

Place 3 a) _____

b) _____

Place 4 a) _____

b) _____

Place 5 a) _____

b) _____



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10. What factors make your journey EASIER? You can answer more than one.

	Very important	Important	Not important
Wide paths	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Straight paths	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smooth surfaces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Different colours for different parts of the path	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places to stop and rest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Free from obstacles (benches, branches)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kerbs with smooth edges on the road	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No kerbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surfaces with grip	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crossings that are in a straight line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places to stop in the middle of an intersection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paths that are connected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Traffic lights with longer crossing times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signage that is easy to understand and read	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Handrails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide entrances/gates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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11. What factors make your journey MORE PLEASANT? You can answer more than one.

	Very important	Important	Not important
Lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resting points	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drinking fountains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More shade trees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Features of interest e.g. sculptures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Litter bins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being around other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not too much traffic on the road	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signage to give me information about my journey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attractive scenes and points of interest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paths that connect to lots of places I use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paths that make my journey quicker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Please tell us how you think the footpaths and shared paths (bike and walking paths) should be improved to make it easier for you to move around.

Suggestion 1

Suggestion 2

Suggestion 3

Suggestion 4

Suggestion 5



Appendix 3 – Stakeholders engaged

The following stakeholders were invited to attend the Council workshop held on the 1st of April 2011 at Council's offices.

Access for all Abilities

Knox Community Health Service

Scope

Villa Maria

Council officers:

Assets

HACC

Engineering

Construction

Operations

Community Safety, Building

Planning, Sustainability

Community Transport

Community Access & Inclusion



Appendix 4 – Disability services and older persons' residential and care facilities

Services for people with disabilities

A full list of services available for people with disabilities may be found at http://www.knox.vic.gov.au/Files/Knox_DisabilityServices09.pdf.

Knox City Council provides the following services for people with disabilities:

- Children's services inclusion support facilitators
- Disabled persons car parking permits
- Family day care
- Home and Community Care (HACC)
- Knox community transport
- Community and neighbourhood houses

Older persons residential and care facilities

Flats and villages

Balmoral Gardens Retirement Village	Ridge Road, Wantirna South
Boronia Flats	3 Rosella Avenue, Boronia
Glengollan Village	97 Underwood Rd, Ferntree Gully
Knox Retirement Village	466 Burwood Highway, Wantirna South
Latvian Retirement Village	60 Fraser Crescent, Wantirna South
Martin Luther Homes Boronia Inc	67 Mount View Road, The Basin
Peppertree Hill Retirement Village	15 Fulham Road, Rowville
Tabulam and Templer Homes for the Aged Inc	31 - 41 Elizabeth St, Bayswater
Villa Maria Society - Independent Living Units	Villara Units, 357 Stud Road, Wantirna
Wantirna Village	2 Old Stud Road, Wantirna South
Waterford Park Retirement Living	10 Waterford Park Ave, Knoxfield
Waterford Park Retirement Resort	10 Waterford Park Ave, Knoxfield
Waterford Valley Lakes Retirement Village	175 Kelletts Road, Rowville

Hostels (low care needs)

- Adare Aged Care Facility (Wantirna)
- Amaroo Gardens (Ferntree Gully)



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Clarendon Grange Hostel (Bayswater)
Ferntree Gardens Supported Residential Service (Ferntree Gully)
Ferntree Manor (Ferntree Gully)
Glengollan Hostel - Violet Lambert House (Ferntree Gully)
Hazelwood Boronia Supported Residential Services (Boronia)
Isomer Retirement Home (Lysterfield)
Latvian Retirement Village Hostel (Wantirna South)
Martin Luther Homes Boronia Inc (The Basin)
Maryville Hostel for the Aged (Boronia)
Polish Retirement Home (Bayswater)
Salford Park Community Village (Wantirna)
Tabulam and Templer Homes for the Aged Inc (TTHA) (Bayswater)
Villa Maria Aged Care Facility - Wantirna (Wantirna)
Westley Garden Supported Residential Service (Ferntree Gully)
Willowbrooke Aged Care Hostel (Upper Ferntree Gully)

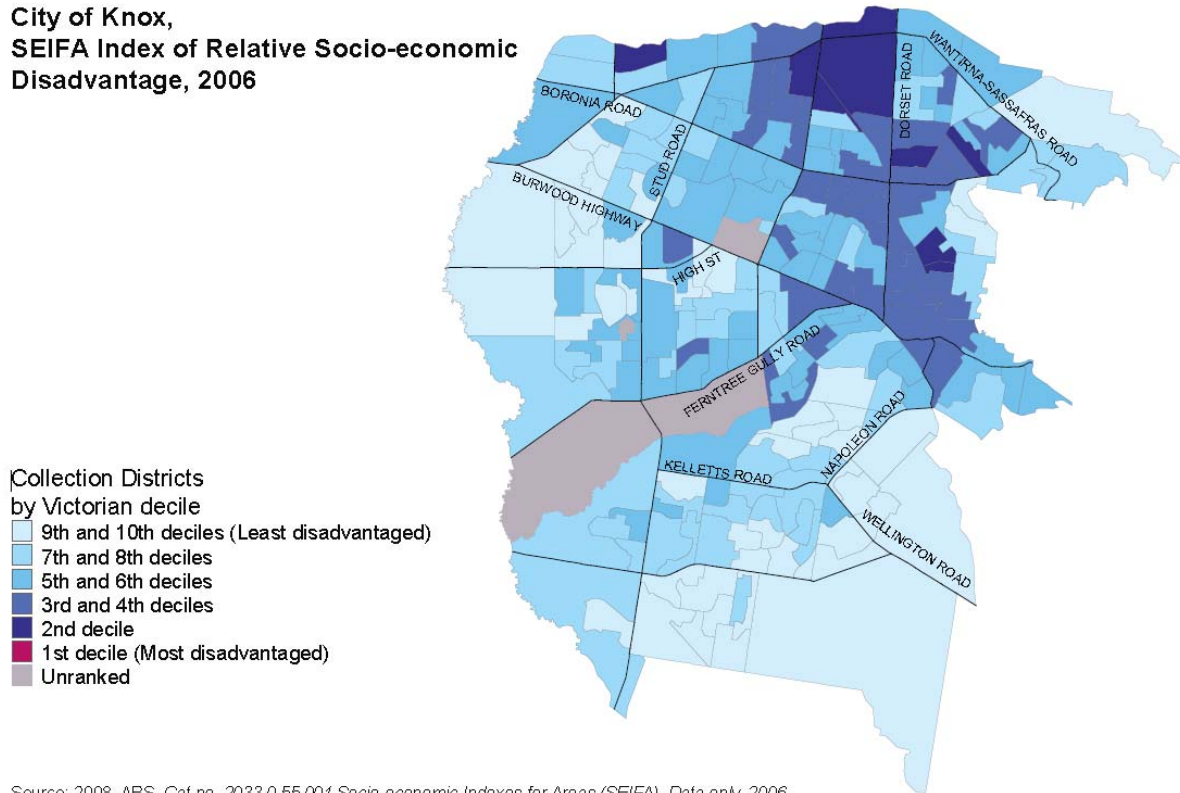
Nursing homes (high care needs)

Centennial Lodge Nursing Home (Wantirna South)
Clovelley Cottage (Boronia)
Coogee Aged Care Facility (Boronia)
Edward Street Nursing Home (Upper Ferntree Gully)
Glengollan Village Nursing Home (Ferntree Gully)
Martin Luther Homes Boronia Inc (The Basin)
Salford Park Community Village (Wantirna)
Sherbrooke Private Nursing Home (Upper Ferntree Gully)
Tabulam and Templer Homes for the Aged Inc (TTHA) (Bayswater)
Villa Maria Aged Care Facility - Wantirna (Wantirna)



Appendix 5 – Community profile

City of Knox,
SEIFA Index of Relative Socio-economic
Disadvantage, 2006



Source: 2008, ABS, Cat no. 2033.0.55.001 Socio-economic Indexes for Areas (SEIFA), Data only, 2006

Source: http://www.dpcd.vic.gov.au/data/assets/pdf_file/0020/30872/Knox.pdf

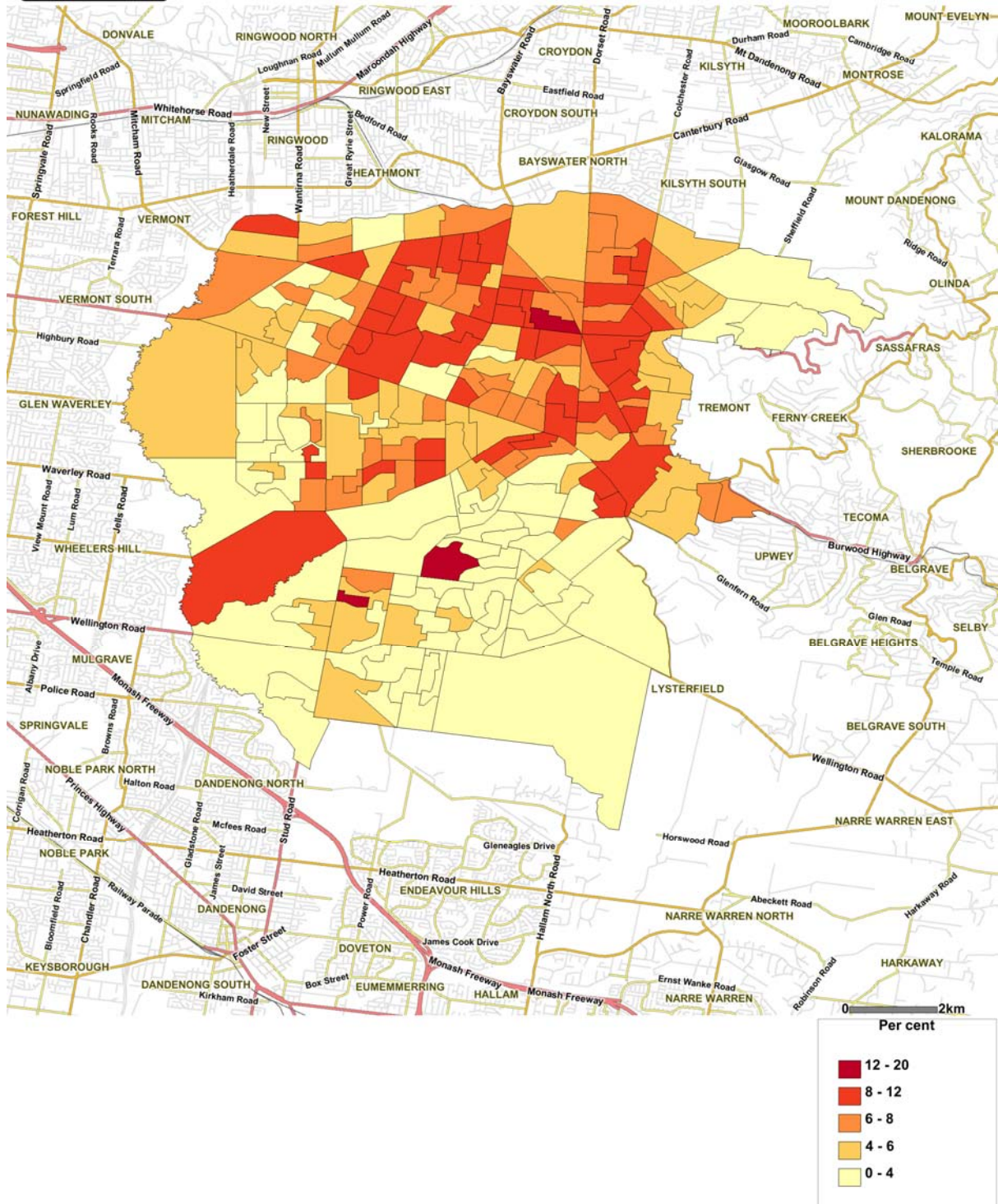


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People aged 65-74 years

As a percentage of the total population
Based on Place of Usual Residence, 2006
Knox (C) (Local Government Area) by Census Collection District



SOURCE: ABS Census of Population and Housing

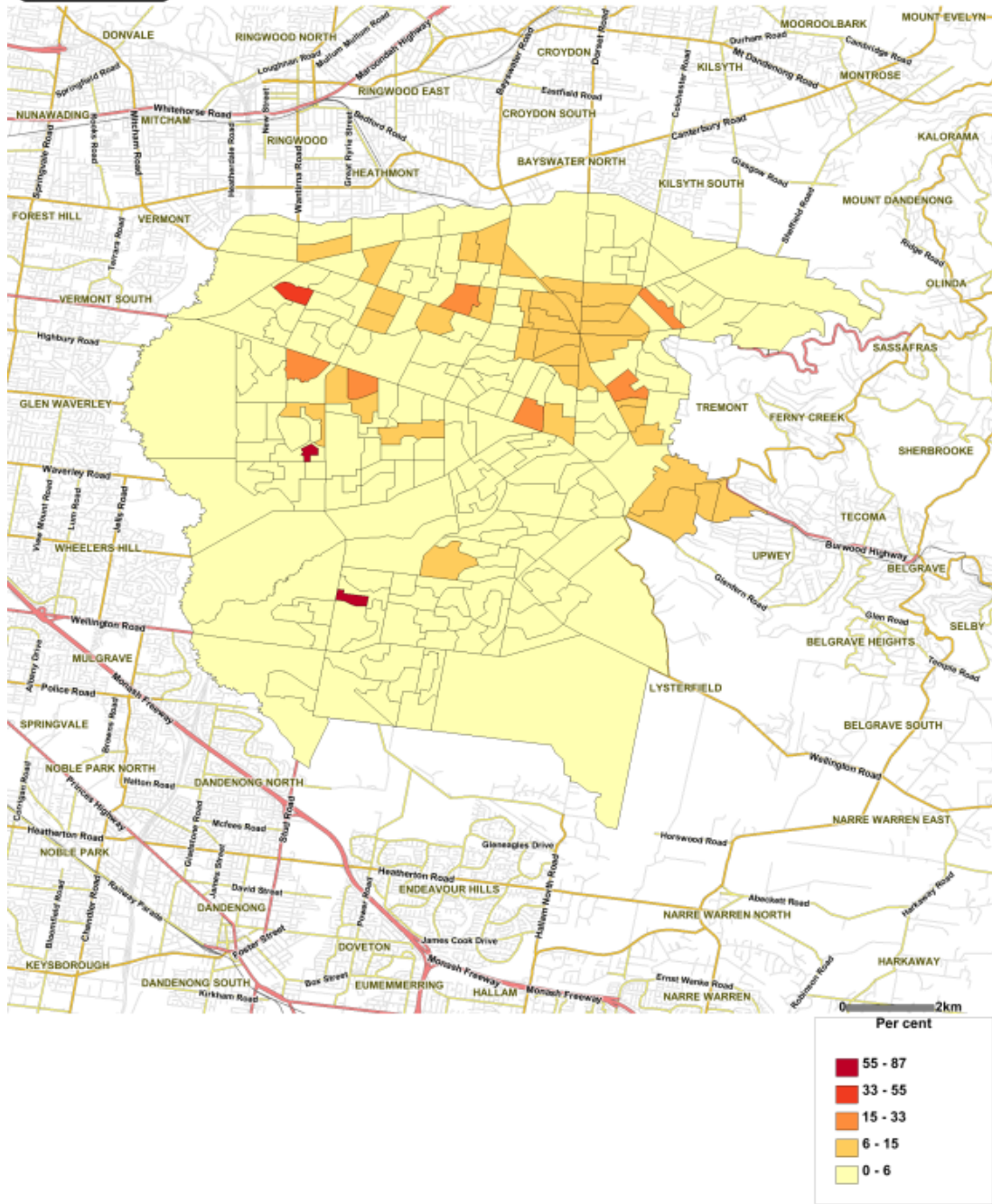


Knox City Council Mobility Study



People aged 75 years and over

As a percentage of the total population
Based on Place of Usual Residence, 2006
Knox (C) (Local Government Area) by Census Collection District



SOURCE: ABS Census of Population and Housing

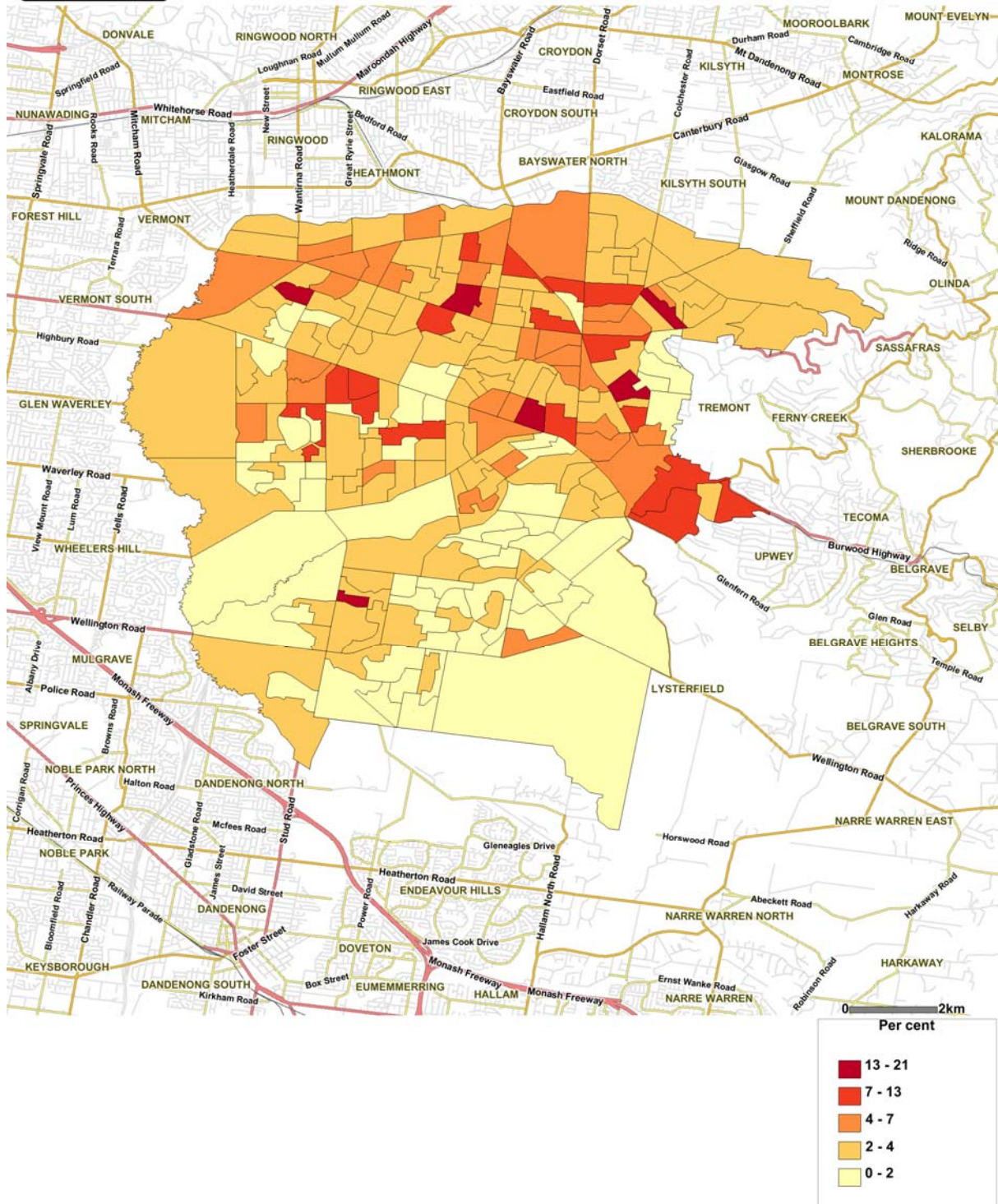


Knox City Council Mobility Study



People who need Assistance

As a percentage of the total population
Based on Place of Usual Residence, 2006
Knox (C) (Local Government Area) by Census Collection District



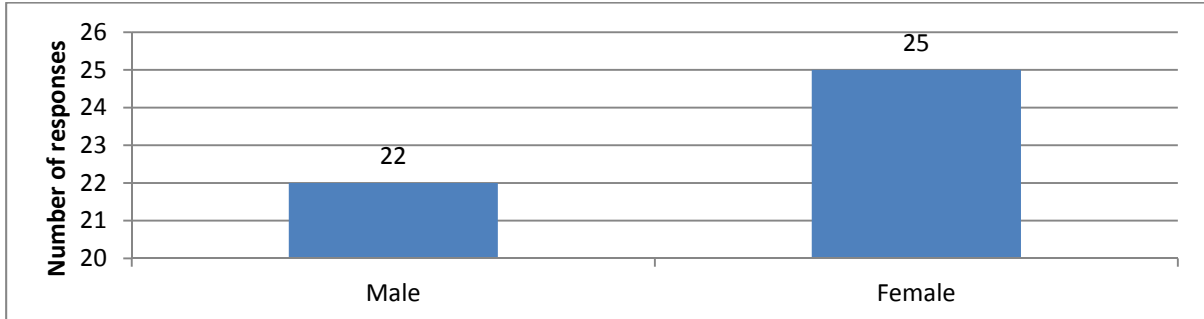
SOURCE: ABS Census of Population and Housing



Appendix 6 - Survey results

Question 1: Are you male or female?

Similar proportions of males and females responded (46.8% and 53.2% respectively).



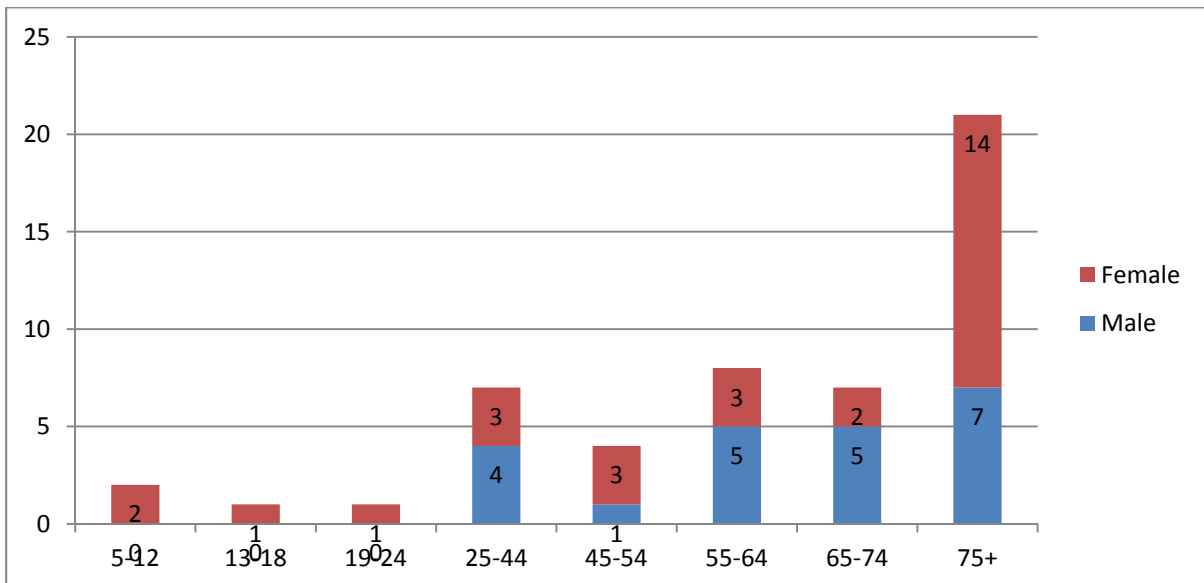
Question 2: How old are you?

The majority of people who responded were 75+, reflecting the fact that higher proportions of older people are likely to use mobility equipment due to ageing or illness.

All respondents under 25 were female.

The majority of respondents 55-74 were female.

The majority of respondents over 75 were male.



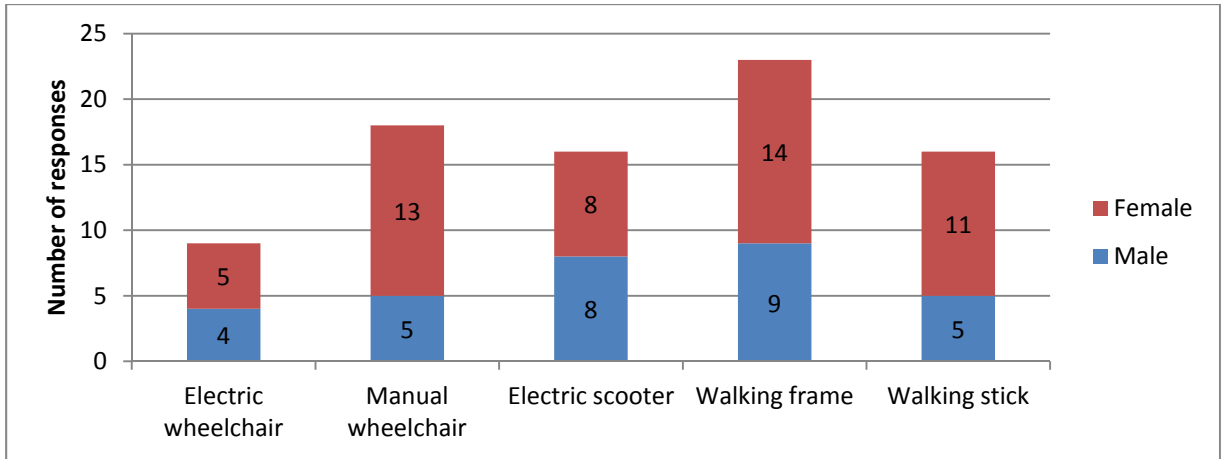
Question 3: What types of mobility equipment/s are you currently using?

The main type of mobility equipment used by respondents was the walking frame, followed by a manual wheelchair. The same amount of respondents used both an electric scooter and a walking stick.

More female respondents used manual wheelchairs, walking frames and walking sticks.

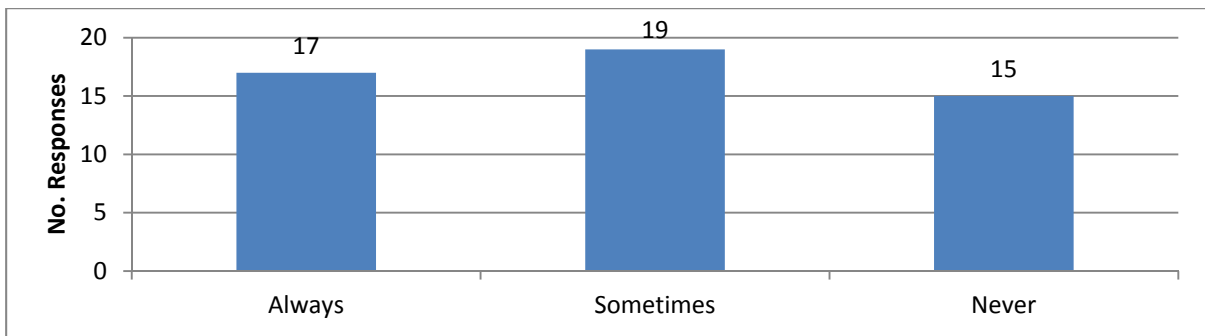


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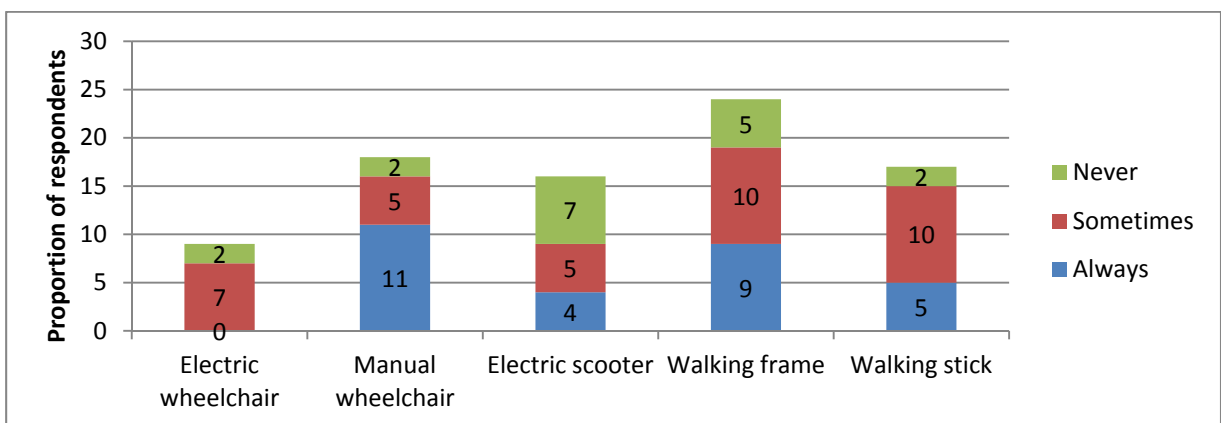


Question 4: Do you travel with a support person?

Most people were likely to travel with a support person sometimes compared with always and never.



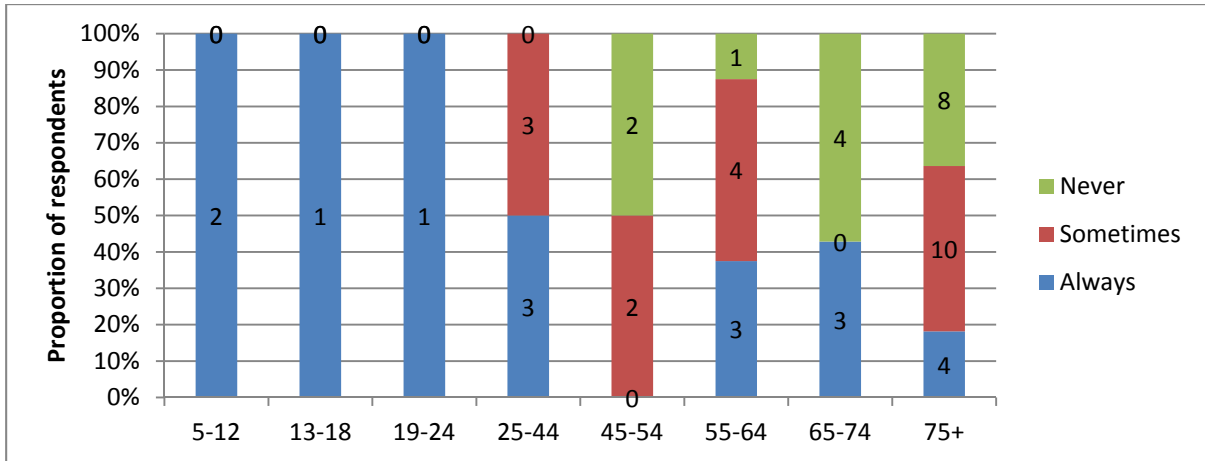
Respondents using electric scooters were less likely to travel with a support person, whereas people using a manual wheelchair and walking frame were more likely to travel with a support person. Although no respondents using an electric wheelchair indicated that they always travel with a support person, they were likely to sometimes travel with a support person.



For those respondents aged 45 plus, age did not appear to determine whether or not they travelled with a support person. However, all respondents under the age of 24 travelled with a support person.

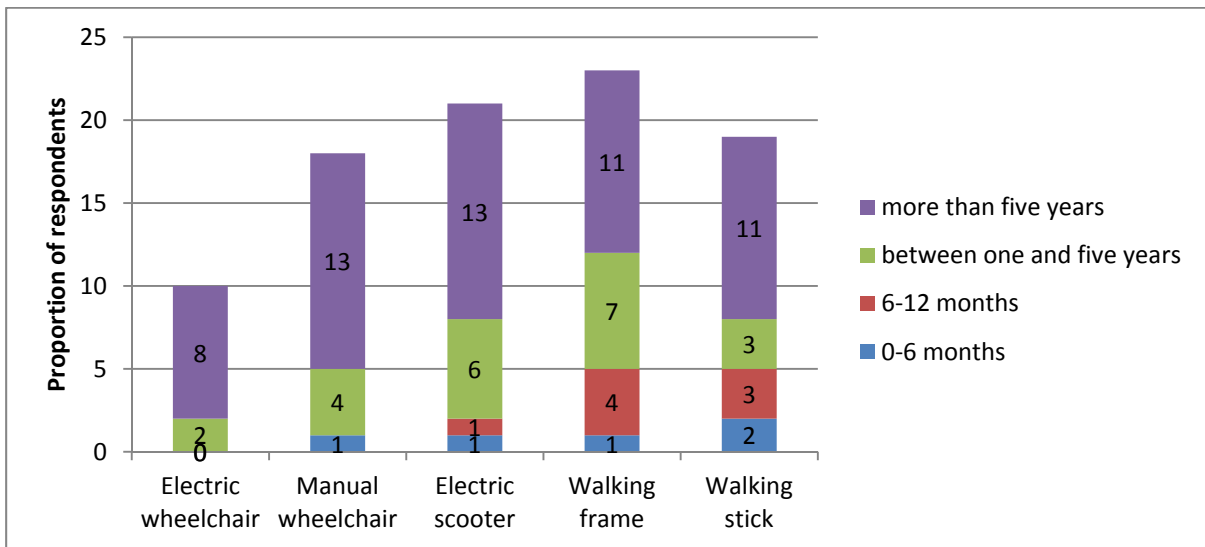


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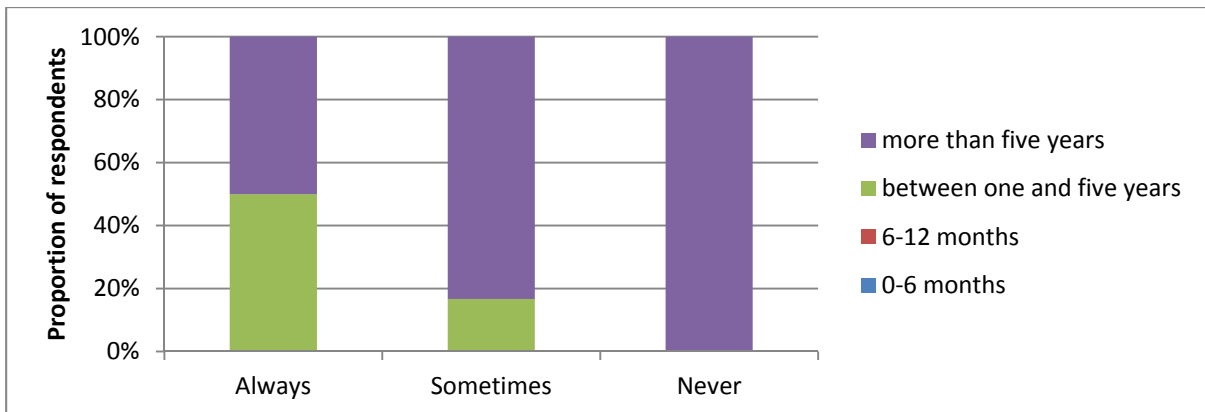


Question 5: How long have you been using your mobility equipment?

The majority of respondents using each of the different types of mobility equipment have been using their mobility equipment for more than five years.



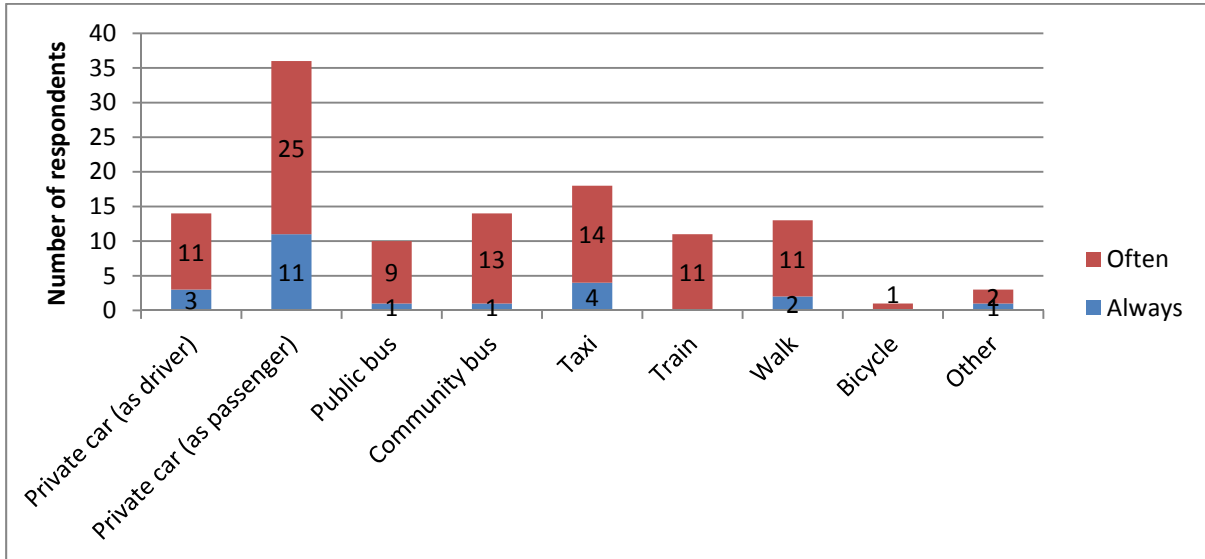
The responses indicate that the longer people have been using their equipment, the less likely they are to travel with a support person. However, this could also be due to the fact that people who have been using aids longer are also older and therefore more independent.



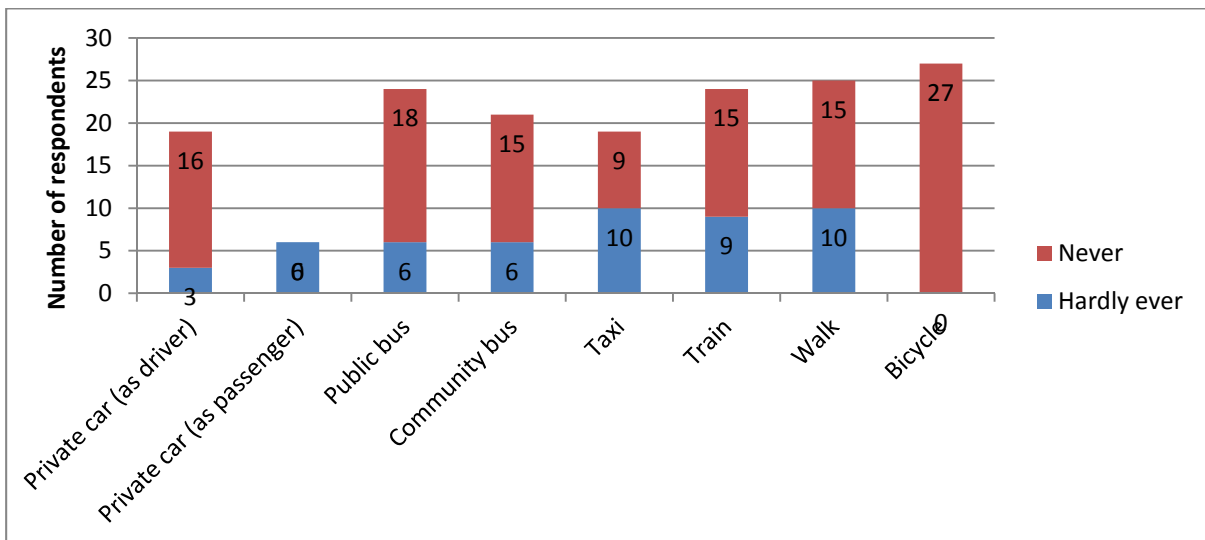
Knox City Council Mobility Study

Question 6: Please tell us how often you use any of the following forms of transport.

The majority of respondents travelled as a passenger in a private car, followed by taxi and walking. Although the respondents did not indicate whether walking included all types of mobility equipment, it is assumed that walking refers to using a walking frame, as this is the most common form of mobility equipment used by the respondents.



The forms of public transport used least were bicycle, public bus, train and private car as driver.



Knox City Council Mobility Study

What type of mobility equipment are you currently using? (If you use a combination of mobility equipment, you can answer more than one)						
Answer Options	Electric wheelchair	Manual wheelchair	Electric scooter	Walking frame	Walking stick	Response Count
Private car (as driver)						
Always	0	2	0	1	1	
Often	4	3	3	3	4	
Hardly ever	0	1	0	3	2	
Never	2	5	9	7	2	
	6	11	12	14	9	31
Private car (as passenger)						
Always	1	7	4	6	5	
Often	4	8	5	12	10	
Hardly ever	1	1	5	4	0	
Never	0	0	0	0	0	
	6	16	14	22	15	39
Public bus						
Always	1	1	0	0	0	
Often	4	1	0	2	1	
Hardly ever	2	1	2	3	3	
Never	2	8	10	9	5	
	9	11	12	14	9	31
Community bus						
Always	0	0	0	1	0	
Often	1	1	2	10	7	
Hardly ever	0	2	5	4	3	
Never	3	7	7	6	3	
	4	10	14	21	13	32
Taxi						
Always	0	1	3	2	1	
Often	4	3	4	6	5	
Hardly ever	3	5	5	3	2	
Never	0	4	4	5	2	
	7	13	16	16	10	35
Train						
Always	0	0	0	0	0	
Often	5	3	1	2	3	
Hardly ever	2	4	3	3	2	



Knox City Council Mobility Study

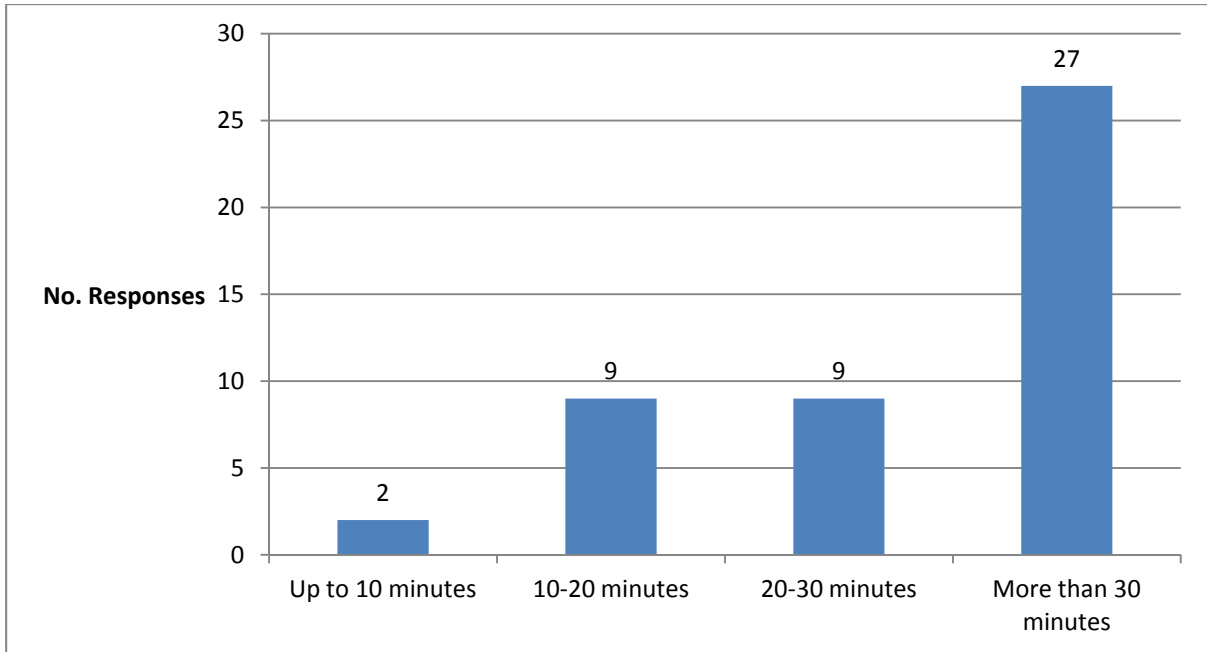
Never	2	5	9	9	5	
	9	12	13	14	10	33
Walk						
Always	0	1	0	1	2	
Often	1	2	1	5	4	
Hardly ever	0	2	3	6	5	
Never	5	8	8	6	3	
	6	13	12	18	14	35
Bicycle						
Always	0	0	0	0	0	
Often	0	0	1	1	0	
Hardly ever	0	0	0	0	0	
Never	5	10	11	11	7	
	5	10	12	12	7	25
Other						
Always	0	0	1	0	0	
Often	0	0	1	2	0	
Hardly ever	0	0	0	0	0	
Never	0	1	1	1	1	
	0	1	3	3	1	6
Other - please describe						8

Question 7: Can you tell us how long your average journey using your mobility equipment usually takes?

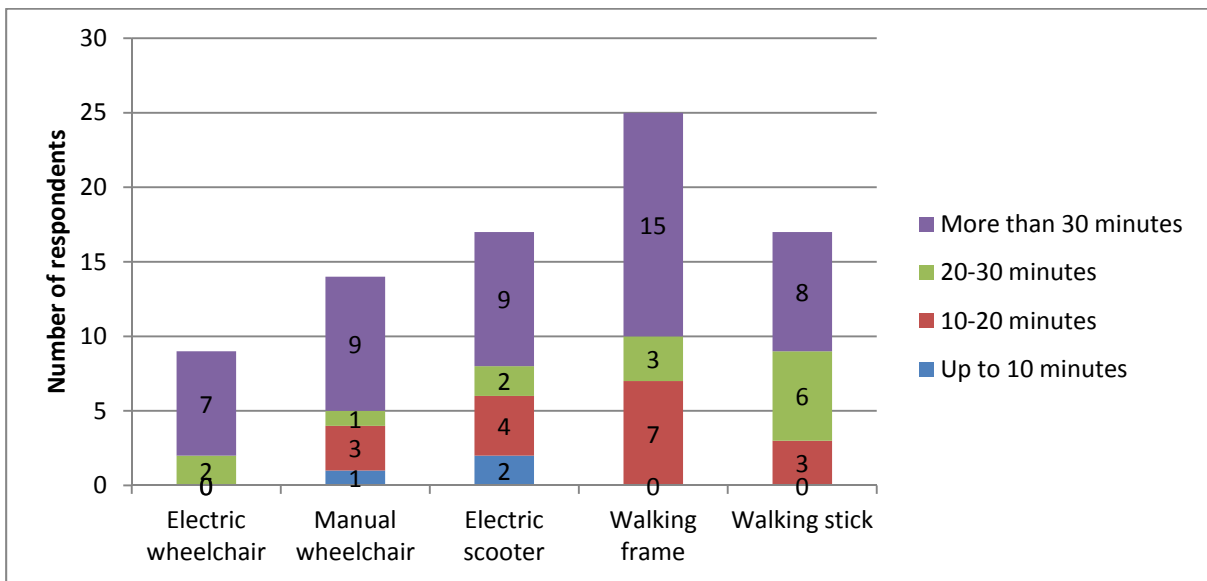
People using mobility equipment tend to travel for long distances and spend a long time using their equipment. The majority of people using the different mobility equipment travelled for more than 30 minutes.



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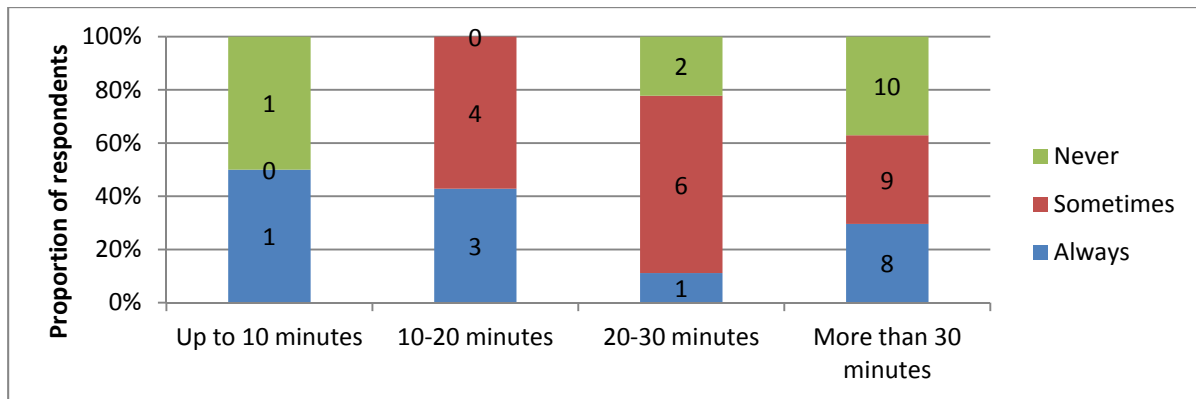
This includes respondents using non-motorised mobility equipment such as walking frames and walking sticks.



The length of journey did not appear to determine whether or not people travelled with a support person, with equal proportions of people travelling the longest time being accompanied by a support person.



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Question 8: Can you tell us which journeys you take on a regular basis, where you leave from and which is your preferred route?

The following specific areas visited most frequently by the community:

Wantirna and Knoxfield

- Studfield Shopping Centre
- Orana Neighbourhood House
- Knox Council Offices
- Knox City Shopping Centre
- Wantirna Retirement Village
- Villa Maria
- Knox Village Retirement Village

Boronia

- Boronia Primary School
- Boronia Central Shopping Centre
- Boronia Junction Shopping Centre
- Boronia Basketball Stadium
- Tormore Reserve
- Knox Leisureworks
- Boronia Station

Rowville

- Lakeside Reserve
- Rowville Lakes Shopping Centre
- Waterford Valley Lakes Retirement Village
- Pepper Tree Hill Retirement Village
- Stud Park Shopping Centre
- Rowville Primary and Secondary School



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- Wellington Village Shopping Centre
- Eildon Park

Bayswater

- Bayswater Primary School
- Guy Turner Reserve
- Bayswater West Primary School
- Bayswater Village Shopping Centre
- Bayswater South Primary School
- Bayswater Station
- Glen Park

Ferntree Gully

- Ferntree Gully Station
- Shops
- Knox Community Health
- Wally Tew Reserve

Question 9: Please tell us which places you would like to travel to with your mobility equipment but can't, and why this is so.

Please refer to Section 7.5.2 in the main report.

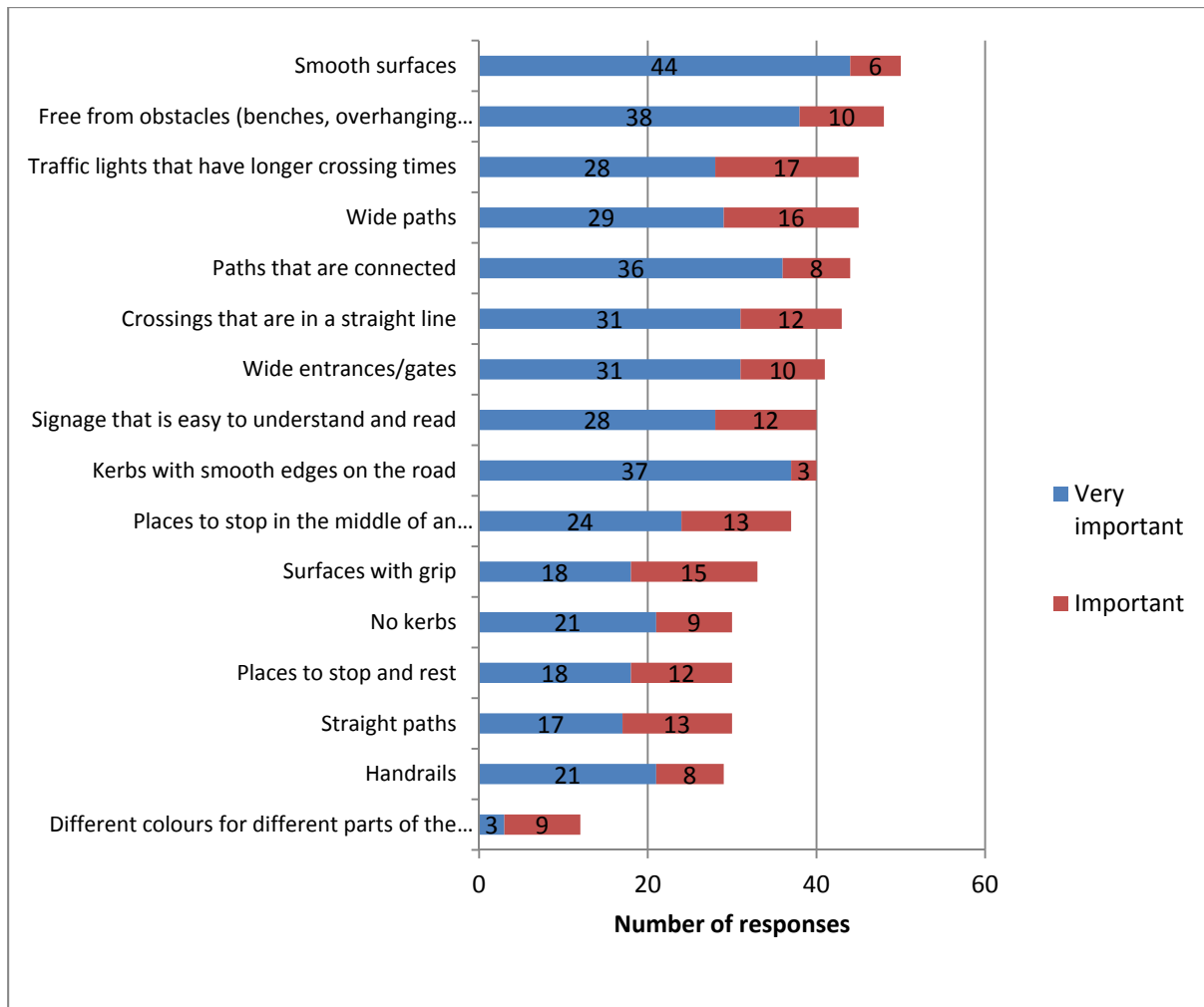
Question 10: What factors make your journey easier?

The most important factors that makes journeys easier related to the quality of the path, path alignment, and real and perceived safety (i.e. smooth surfaces, freedom from obstacles, traffic lights with longer crossing times, wide paths and paths, paths that are connected and crossings that are in a straight line.

Factors that were least significant in making the journeys easier related to amenities and path design (i.e. places to stop and rest, straight paths, handrails and different colours for different parts of the path.)



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Wide paths were very important for people using manual wheelchairs

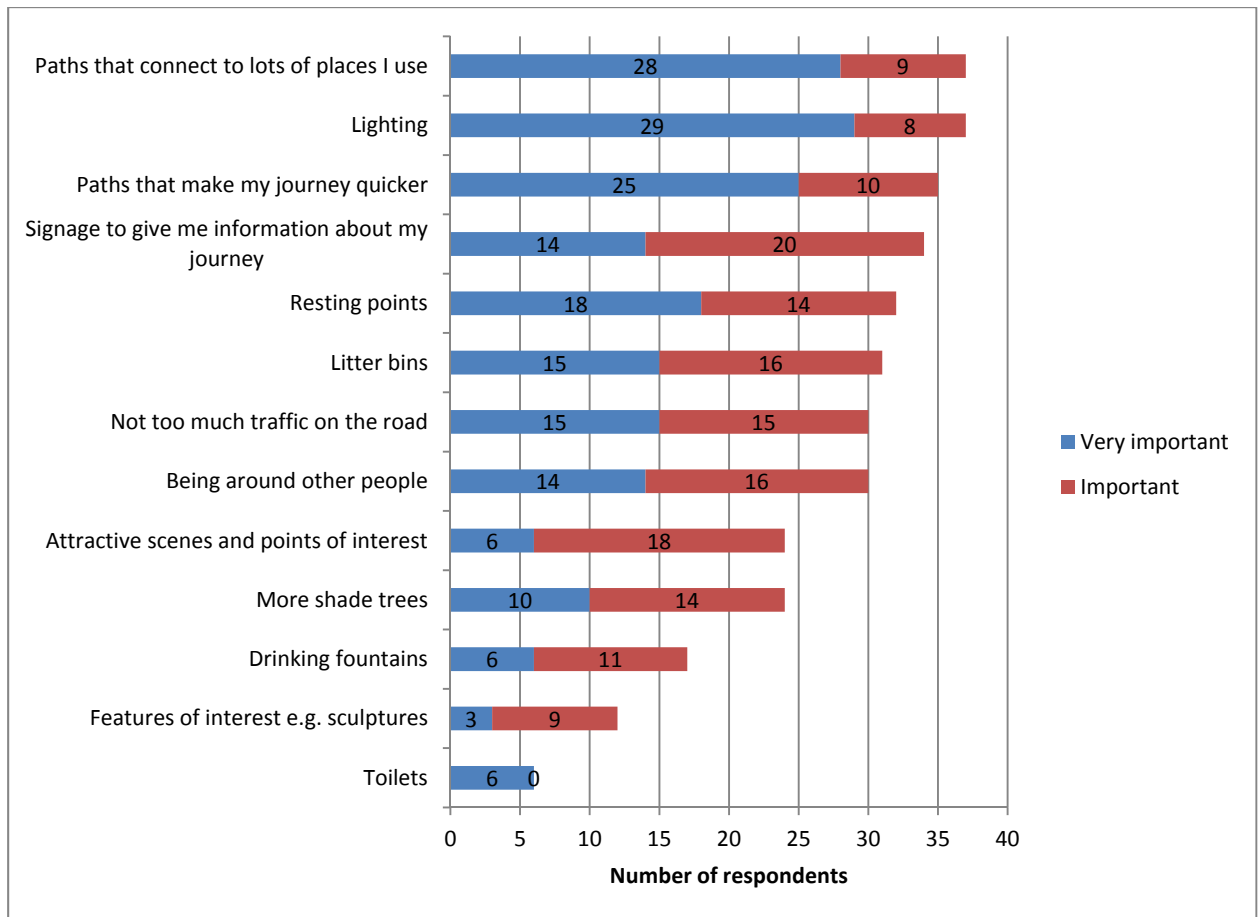
Question 11: What factors make your journey more pleasant?

The most important factors that make the journey more pleasant included related to path design, safety and information (i.e. paths that connect to destinations, lighting, paths that make the journey quicker and good signage).

Factors that were least important in making the journey more pleasant included amenities and the quality of the surrounding environment (toilets, features of interest, drinking fountains and attractive scenes and points of interest.)



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Question 12: Please tell us how you think the footpaths and shared paths should be improved to make it easier for you to move around.

The following additional suggestions were made by the respondents:



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- Path design**
- Install footpaths on both sides of the road
 - Widen paths at bus stops
 - Provide space outside doctors and shops to park the scooter.
 - Construct ramps at entrances to shops instead of stairs.
 - Make sure paths are wide enough to accommodate a few people across.
 - Paint lines on the path to encourage pedestrians and cyclists to remain on the left hand side of the road.
 - “Bike paths are great but there is no point if the scooter can’t access them. We cannot travel around the block due to no footpath. To get over that problem we travelled on the road only to find we could not get back a to the footpath due to very high kerbs on every person’s driveway – very dangerous”
 - “All road crossings should be laid with a supervisor present to ensure that the slope is smooth and without the 50mm step. Ensure that all gages or sloping fence sections have 1,400mm clear access. When designing access ways for scooters etc use common sense and look at the big picture. Some paths are designed by an idiot. THINK, THINK, THEN LOOK!!!
- Path surface**
- “Even paths make pushing a frame much easier which means I am less likely to fall over”
 - “You feel a jolt through the wheelchair on uneven areas”
 - “Smooth footpaths it gives people a jolt or injury to come to a unexpected stop”
 - “Maintaining paths where the roots have lifted the footpath making it dangerous with angles. Wheelchairs can tip over if there are 2-3 different angles [like the corner of Virginia Way and Rankin Rd]”
 - Cement surfaces are preferable.
- Path interfaces**
- Promote low cut hedges so that people using mobility equipment can be seen by motorists reversing out of their driveways.
 - Provide elongated accessible car parks in shopping centres for rear access wheelchair vans so that unloading is safe and does not take place in the traffic path.
- Infrastructure and amenities**
- Install signage indicating that paths are also used by people with disabilities.
 - “Signs are cattle fodder – if you put signs on the path and they won’t be touched”.
 - “Install barrier fencing between footpath and roadway”



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Install lights under bridges

Install resting places along steep paths.

“It would be nice to have a point somewhere along the way in case of emergency as I didn’t have a mobile phone and need to rely on others to contact emergency services in case of need.

Information dissemination

Disseminate information to walkers’ groups and individuals.

Better advise cyclists/ratepayers of needs of wheelchair and scooter users

“Sometimes when bins are emptied they are left lying right across the path, making me have to go on the road to get around. Perhaps garbage contractors can try to make sure the bins are standing when they finish”

Have radio programs that discuss issues related specifically to pathways



Appendix 7 – Experiential site visits

