THAMES COROMANDEL DISTRICT COUNCIL

ccs disability action
Including all people

WHANGAMATA ACCESSIBILITY AUDIT REPORT

taylored accessibility solutions

CCS DISABILITY ACTION

TAYLORED ACCESSIBILITY SOLUTIONS LTD

MAY 2014

Disclaimer

This report has been prepared for CCS Disability Action by Taylored Accessibility Solutions Limited. CCS Disability Action is not professionals in the road safety and building industries and therefore additional professional advice may be necessary before implementing any recommendations. CCS Disability Action does not accept any liability in relation to the implementation of any recommendations made in this report.

Revision History

Rev. No.	Prepared By	Description	Date
1.	Steve Taylor	Draft issued for CCS review	6/06/2014
2.	Steve Taylor	Draft issued for CCS review - costings	9/06/2014
3.	Steve Taylor	Amendments following CCS review	11/06/2014
4.	Steve Taylor	Draft issued for TCDC review	12/06/2014

Document Acceptance

Action	Name	Signed	Date
Prepared By			
Reviewed By			
Approved By			
On behalf of	CCS Disability Action		

EXECUTIVE SUMMARY

Thames-Coromandel District Council (TCDC) has requested an accessibility audit for the Central Business District (CBD) area of Whangamata, with particular emphasis for disabled and elderly residents. The audit covers:

- Mobility Parking spaces;
- Kerb ramps;
- Tactiles;
- Footpaths;
- Road crossings;
- Street Furniture;
- Temporary Traffic Management;
- Connection to Moana House; and
- Beach access.

While CCS Disability Action recognise that standards such as NZS 4121:2001 and the Department for Building and Housing Building Code Compliance Documents contribute to improving disabled access, there are often relatively small and inexpensive solutions that can remove significant barriers to access that are overlooked.

The town of Whangamata is sited on the southeast coast of the Coromandel Peninsula in the North Island of New Zealand. It is located 30 kilometres north of Waihi, to the north of the western extremity of the Bay of Plenty.

The population of Whangamata is currently 3516 with the population swelling to 25,000 during New Year's celebrations. The world famous Beach Hop Rock 'n' Roll Festival also sees the population explode upwards, in excess of 50,000 over the duration of the festival week.

168 residents in Whangamata (4.8% of the population) have a Mobility Parking Permit. An estimated 170 people in Whangamata use a mobility aid due to permanent disability. Some of these will have a Mobility Parking Permit and some will not.

CCS Disability Action is an organisation that supports people with disabilities to live independent lives. One of the many services CCS Disability Action provides is to work with communities to ensure that they are welcoming and inclusive of all people.

CCS Disability Action was chosen to conduct the audit as they make a significant contribution to mobility improvements in communities around New Zealand, and is an active partner in the Thames-Coromandel District Disability Strategy work.

An estimated 660,300 New Zealanders live with a disability, representing 17% of the total population.

In Whangamata, at the 2013 Census:

- 41.8% of people were aged 60 years and over. This is an increase from 37.1% in 2006, and compares to 19.3% for New Zealand as a whole.
- 16.8% of people were aged less than 17 years. This is a decrease from 17.6% in 2006, and compares with 24% for all of New Zealand.

The projected 2031 population of Thames-Coromandel District is 27,360, which is less than the current (2014) population. The proportion of people aged over 65 living in Thames-Coromandel District is predicted to increase to approximately 35% by 2013.

The boundaries for the Geographic area of interest are, and include:

- Hetherington Road – Martyn Road to Port Road/Hunt Road;
- Hunt Road;
- Barbara Avenue – Hunt Road to Beverly Terrace;
- Winifred Avenue – Barbara Avenue – Ranfurly Road;
- Ranfurly Road;
- Mooloo Crescent;
- Beverly Terrace – Barbara Avenue to Graham Street;
- Graham Street – Barbara Avenue to Esplanade Drive;
- Esplanade Drive – Graham Street to Lowe Street;
- Lowe Street – Esplanade Drive to Ocean Road;
- Ocean Road – Lowe Street to Port Road;
- Port Road – Mayfair Avenue to Aicken Road;
- Aicken Road – Port Road to Casement Road;
- Casement Road – Aicken Road to Martyn Road; and
- Martyn Road – Casement Road to Hetherington Road.

The audit boundary includes access to the beach at Hunt Road, Winifred Avenue, Mooloo Crescent, St Patricks Row, and Esplanade Drive.

Access from Moana House and Village to town was also assessed.

Council consultation with the disability community is continuously conducted with regular Disability Stakeholder Forums in Thames. A specific community meeting for this project was held on the 4th March 2014 at the Whangamata War Memorial Hall on Port Road.

Following this meeting, site visits were completed. Feedback from the initial Community Consultation Meeting and subsequent site visits identified access issues for Whangamata such as:

- Location of Mobility Spaces;
- Access from Mobility Spaces;
- Lips on kerb ramps;
- Lack of safe road crossing opportunities;
- Lack of footpaths;
- Crossings at intersections and pedestrian crossings;
- Steep kerb crossings;
- Street clutter (signage, wares for sale and alfresco dining furniture); and
- Access to the beach.

This report is intended to remain a 'living' document. In order to ensure the on-going success of investment in access improvements it is suggested that TCDC regularly review the recommendations included within this report.

CCS Disability Action recognises that while all recommendations are important to providing a usable accessible network, cost implications may require the recommendations to be considered in council's long-term planning processes.

Identified issues and recommendations are discussed throughout this report. For ease of reference and to assist in prioritisation of recommendations, all recommendations are listed in Section 16 according to considered priority for general and specific sites, and with indicative costs.

The specific recommendations are split into three categories:

- Serious Safety Risk – Where it is considered serious injury may occur
- Significant Concern – Major inconveniences
- Minor Concern – Minor inconveniences

The total estimated costs for the three categories are:

- Serious Safety Risk $40,000
- Significant Concerns $285,000
- Minor Concerns $310,000

Costs shown are indicative construction costs only and should only be used as a guide.They do not include Traffic Management Costs, consultation with affected parties, or design costs. All project costs will need to be finalised as design is completed for each.

The specific recommendations are split into three categories:

- Serious Safety Risk – Where it is considered serious injury may occur if the issue is not addressed
- Significant Concern – Major inconveniences
- Minor Concern – Minor inconveniences

It is recommended that the Serious Safety Risk recommendations are implemented first, and that Significant and Minor concerns are addressed as part of longer term planning. The total estimated cost for the Serious Safety Risk items is $40,000.

Costs shown are indicative construction costs only and should only be used as a guide. They do not include Traffic Management Costs, consultation with affected parties, costs of design or any other professional service fees.

In addition to immediate recommendations to do with infrastructure, a series of 'general recommendations' are presented. These have no capital cost but are likely to result in improved accessibility outcomes for the people of Whangamata through improved processes and practices more aligned with best-practice universal design and construction.

CONTENTS

LIST OF FIGURES

LIST OF TABLES

1 INTRODUCTION

1.1 THAMES-COROMANDEL DISTRICT

Thames-Coromandel District is located in the region east of the Firth of Thames on the Coromandel Peninsula, SE of Auckland. The population of the Territorial Authority rose by 0.9% between the 2006 census and 2013 census, to 26,181 residents[1]. This equates to approximately 0.6% of New Zealand's population. Main urban areas in the district include Coromandel, Pauanui, Tairua, Thames, Whangamata, and Whitianga[2].

1.2 WHANGAMATA TOWNSHIP[3]

The town of Whangamata is sited on the southeast coast of the Coromandel Peninsula in the North Island of New Zealand. It is located 30 kilometres north of Waihi, to the north of the western extremity of the Bay of Plenty.

The town, as gazetted on 20 February, 1873, consisted of 43 acres, divided into 20 lots, within what are now Harbourview Road, Beach Road and Port Road.

The 1890's to 1920's saw intense activity as gold mining in the Wentworth, Wharekawa and Parakawai Valleys developed establishing settlements of several hundred people.

Until the clay road was built in the mid 1920's the Otahu Estuary was used at low tide to travel to and from Waihi.

The population of Whangamata is currently 3516[4] with the population swelling to 25,000 during New Year's celebrations. The Beach Hop Rock 'n' Roll Festival also sees the population explode upwards, in excess of 50,000 over the duration of the festival week.

[1] Statistics New Zealand – 2013 census URPC Tables
[2] Waikato Regional Council – Community: Thames Coromandel
[3] Whangamata.co.nz/Brief History
[4] Thames-Coromandel District Council: Community Profile - population

1.3 CCS DISABILITY ACTION

CCS Disability Action is an organisation committed to supporting communities that include all people and ensure that they are welcoming and inclusive of everyone. This is achieved by using universal design principles in the built environment and including everyone in activities and events.

CCS Disability Action's role is to support people with disabilities to be 'in the driver's seat' of their life; to achieve their own dreams and aspirations. With sixteen offices around New Zealand, CCS Disability Action provides frontline support and services, and creates local awareness of and education around issues encountered by disabled people in their everyday lives.

CCS Disability Action works with government departments, local councils, building developers and owners on a range of issues that impact on the lives of disabled people. CCS Disability Action has expertise in ensuring public buildings, homes, amenities, walkways, streets and public transport more accessible for everybody.

2 STATISTICS

2.1 DISABILITY IN NEW ZEALAND[5]

The first results of the Disability Survey as part of the 2013 National Census is expected to be released in June 2014. As such, results from the 2006 census have been used.

An estimated 660,300 New Zealanders live with a disability, representing 17% of the total population (2006).

In the 2006 census, 82% of people with disability were adults living in households, 5% were adults living in residential facilities and 14% were children (under 15 years) living in households.

The percentage of people with disability increased with age, from 10% for children aged less than 15 years to 45% for adults aged 65 years and over.

The most common disability types for adults are physical and sensory disabilities. 27% of all adults aged 15 years and over have a physical, sensory, or intellectual disability.

2.2 MOBILITY PARKING IN NEW ZEALAND[6]

Because of their disability, an estimated 129,100 adults and 8,700 children needed to park close to their destination in 2006. Among adults, the need to park close increased with age.

There are 168 residents in Whangamata (4.8% of the population) that have a Mobility Parking Permit.

In the six months before the 2006 Disability Survey, an estimated 61,100 adults and 5,900 children had problems finding a carpark. The most common problems were:

- Finding a park close to their destination;
- Carparks meant for disabled people being used by non-disabled people; and
- The available carparks being too awkward to use.

31% of disabled adults and 15% of disabled children used taxis for short trips at least once in the 12 months prior to the 2006 Disability Survey. An estimated 1% of all disabled adults used taxis every day or almost every day.

[5] Statistics New Zealand – 2006 Disability Survey: Disability and Travel and Transport in New Zealand 2006
[6] Statistics New Zealand – 2006 Disability Survey: Disability and Travel and Transport in New Zealand 2006

The Total Mobility Scheme provides disabled people with vouchers for discounted taxi fares. At the time of the 2006 Disability Survey, parents/caregivers of 22% of disabled children and 34% of disabled adults had heard of the Total Mobility Scheme. An estimated 4% of disabled adults had used Total Mobility Scheme vouchers in the 12 months prior to the survey.

An estimated 8% of disabled children aged 5–14 needed special transport or help to get to school.

2.3 AGE IN THAMES-COROMANDEL DISTRICT

While mobility impairments are considered to primarily affect people with disabilities, older persons progressively experience a reduction in sensory and physical ability and children progressively develop decision making ability.

The median age (half are younger, and half older, than this age) for people in the Thames-Coromandel District is 46 years[7]. There were 36 people over the age of 85 living in Coromandel in 2013, with largest age group being 60 to 64 year olds[8].

The projected 2031 population of Thames-Coromandel District is 27,360, which is less than the 2013 Census Night population of 29,394. The proportion of people aged over 65 in Thames-Coromandel is predicted to increase from 27% in 2013 to 35% in 2031.

2.4 AGE IN WHANGAMATA

In Whangamata, at the 2013 Census:

- 42.6% of people were aged 60 years and over[9]. This is an increase from 37.1% in 2006, and compares to 19.3% for New Zealand as a whole[10].
- 16.8% of people were aged less than 17 years[11]. This is a decrease from 17.9% in 2006, and compares with 24% for all of New Zealand[12].

Based on analysis of age and gender-specific rates of disability, an estimated 170 people in Whangamata use a mobility aid due to permanent disability[13].

[7] Profile.id Community Profile – Thames-Coromandel District
[8] Profile.id Community Profile – Whangamata Service Age Group
[9] Profile.id Community Profile – Whangamata Service Age Group
[10] Statistics New Zealand – Interactive Population Pyramid
[11] Profile.id Community Profile – Whangamata Service Age Group
[12] Statistics New Zealand – Interactive Population Pyramid
[13] Estimation methods based on Burdett (2014) Measuring Accessible Journeys: A tool to enable participation *Municipal Engineer*, In Press

2.5 OLDER PERSONS

When comparing to the Thames-Coromandel District, Whangamata had a higher percentage of persons aged 60+ (42.6%, compared to 36.1% for the district), and a lower percentage of persons aged below 17 (16.8%, compared to 19.5% for the district). Overall, 34.1% of the population for Whangamata was aged 65 years and over, compared with 26.9% for the Thames-Coromandel District[14].

Many of these people are unable to access the community without some form of support, whether using mobility aids such as wheelchairs, mobility scooters etc., or simply requiring smooth, level surfaces to avoid tripping and falls. Some do not drive and therefore depend on safe and level footpaths to reach services essential to meet their everyday needs.

The Whangamata Community is working with the Coromandel Independent Living Trust to provide pensioner housing in Whangamata[15]. Currently there are 58 units provided for by the Trust in Thames, Coromandel and Whitianga.

Moana House and Village is an independent Rest Home, Hospital and Retirement Village located on the outskirts of Whangamata. This is situated at 353 Tairua Road and contains:

- 27 single rooms in the Rest Home;
- 4 serviced apartments in the James Watt Wing;
- 14 retirement units in the Willson Gardens; and
- 20 rooms in the Hospital Wing.

There are currently 60 residents and approx. 30 staff (2.6% of the population) at Moana House and Village.

The Organisation for Economic Co-operation and Development (OECD) published a report in 2001 focusing on the effects of Older Persons and traffic.

Mobility is the key issue for an ageing society. OECD concluded[16]:

- Infrastructure design focused on technical efficiency and low costs is no longer sufficient;
- Standards based on fit young males are inappropriate in an ageing society;
- Involvement of older persons is encouraged in policy development;
- In Western Europe, 45% of pedestrian fatalities are aged 65 or more;

[14] Profile.id Community Profile – Whangamata Service Age Group
[15] Whangamata Community Board Plan – December 2013
[16] Organisation for Economic Co-operation and Development – Ageing and Transport: Mobility Needs and Safety Issues.

- Have educational campaigns to promote maximum mobility and safety for older people;
- Provision is required for suitable transport alternatives to the private vehicle (accessible buses, taxis, Dial a Ride etc.);
- Provide safer roads to accommodate pedestrians and users of scooters and wheelchairs; and
- More forgiving and predictable road design should be used to reduce the need to make complex decisions and performed time related tasks.

OECD stated that improvements in infrastructure that benefit older persons will benefit everyone.

2.6 YOUNGER PERSONS

Overall, 14.3% of the population of Whangamata was aged between 0 and 14, compared with 16.3% for the Thames-Coromandel District[17].

For this age group, early childcare and schooling facilities are the main destination points for travel.

Three early education facilities are located in Whangamata:

- Bears Community Pre-School – 107 Casement Rd;
- Rainbow Cottage Early Child – 104 Mark St; and
- Whangamata Kindergarten – 200 Port Rd.

Whangamata Area School is situated on Port Road and caters for years 1-13[18].

A report commissioned by OECD in 2004[19] focused on keeping children safe in traffic. The areas the report focused on were:

- The scale and nature of the vulnerability of children in traffic environments;
- Children's behaviour, abilities, education, training, and publicity approaches;
- The role of the road environment in relation to child safety; and
- The role of legislation and standards in road safety equipment and vehicles.

OECD concluded that the best performing countries in keeping children safe have adopted a holistic approach using a wide variety of measures:

- Road Safety Policies include specific strategies and targets for improving child safety;
- Using education, practical training and publicity to encourage safe behaviour and providing young people with skills and strategies to manage risk; and

[17] Profile.id Community Profile – Whangamata Five Year Age Group
[18] www.school.nz
[19] Organisation for Economic Co-operation and Development – Keeping Children Safe in Traffic: 2004

- Shifting the focus of responsibility away from children to parents, schools, drivers, policy makers, planners, and traffic engineers.

OECD recommends for the built environment:

- Young children need space for congregation, playing and physical activity;
- Older children require safe and secure routes to access school, playgrounds and other recreational destinations, both as pedestrians and cyclists;
- Traffic Engineers and Planners should take children's needs and abilities into account and incorporate them into road plans and traffic designs; and
- Cyclists and pedestrians need more priority through the use of traffic calming and facilities for walking and cycling.

3 AUDIT PURPOSE

Thames-Coromandel District Council (TCDC) has requested an audit of Whangamata with particular emphasis for disabled and older residents. CCS Disability Action was chosen to conduct the audit as they make a significant contribution to mobility improvements in communities around New Zealand, and is an active partner in the Thames-Coromandel District Disability Strategy work.

This Audit comes from requests made by the community at the initial Thames Audit. During consultation for this audit, issues were raised about accessibility in other settlements on the Coromandel Peninsula, especially Coromandel and Tairua.

While CCS Disability Action recognise that standards such as NZS 4121:2001 and the Department for Building and Housing Building Code Compliance Documents contribute to improving disabled access, there are often relatively small and inexpensive solutions that can remove significant barriers to access that are overlooked.

It is envisaged that this audit will primarily be a tool for use by the Council. However, if accepted we suggest that it be made available to all interested parties.

4 GEOGRAPHIC AREA OF INTEREST

The geographic area of interest defined by TCDC covers the main Central Business District (CBD) of Whangamata. Trip origins from adjacent residential areas, with particular emphasis on facilities for the very young and the elderly, as well as for people with disabilities were also considered in the review.

The boundaries for the Geographic area of interest are, and include:

- Hetherington Road – Martyn Road to Port Road/Hunt Road;
- Hunt Road;
- Barbara Avenue – Hunt Road to Beverly Terrace;
- Winifred Avenue – Barbara Avenue – Ranfurly Road;
- Ranfurly Road;
- Mooloo Crescent;
- Beverly Terrace – Barbara Avenue to Graham Street;
- Graham Street – Barbara Avenue to Esplanade Drive;
- Esplanade Drive – Graham Street to Lowe Street;
- Lowe Street – Esplanade Drive to Ocean Road;
- Ocean Road – Lowe Street to Port Road;
- Port Road – Mayfair Avenue to Aicken Road;
- Aicken Road – Port Road to Casement Road;
- Casement Road – Aicken Road to Martyn Road; and
- Martyn Road – Casement Road to Hetherington Road.

A map of the geographic area for the audit is included as Appendix A.

The audit boundary includes access to the beach at Hunt Road, Winifred Avenue, Mooloo Crescent, St Patricks Row, and Esplanade Drive.

Access from Moana House and Village to town was also assessed.

5 AUDIT

5.1 COMMUNITY RELATIONSHIPS

It is evident that the Council have good working relationship with the residents of the town. The community clearly appreciates the efforts being made by Council to tackle social issues, and have pride in their community.

Shop owners take pride in the town by minimising footpath clutter and maintaining access routes. Council has contributed by installing a textured footpath surface on Port Road, and a bypass diverting traffic from the town centre has created a more pleasant shopping environment.

Figure 1: Port Road Improvements

5.2 CONSULTATION MEETINGS

Consultation with the community is vital for Council to gain an understanding of how the community use the facilities provided.

Council consultation with the disability community is continuously conducted with regular Disability Stakeholder Forums in Thames. A specific community meeting for this project was held on the 4th March 2014 at the Whangamata War Memorial Hall on Port Road.

The group of people that attended included a wide range of impairments. People with visual and intellectual impairments, as well as age and mobility issues were present. People using wheelchairs and mobility scooters also contributed to discussion on the day. A representative from TCDC also attended.

Following this meeting, site visits were completed. Feedback from the initial Community Consultation Meeting and subsequent site visits identified access issues such as:

- Location of Mobility Spaces;
- Access from Mobility Spaces;
- Lips on kerb ramps;
- Lack of safe road crossing opportunities;
- Lack of footpaths;
- Crossings at intersections and pedestrian crossings;
- Steep kerb crossings;
- Street clutter (signage, wares for sale and alfresco dining furniture); and
- Access to the beach.

A list of issues identified at the Community Consultation Meeting is included as Appendix B.

5.3 CO-OPERATION WITH NZTA

Even though the CBD of Whangamata is not on the State Highway Network due to the introduction of the bypass, TCDC should still liaise with NZTA for future funding opportunities in relation to any works in this area.

5.4 SITE INSPECTIONS

Following the consultation, site inspections were carried out in April 2014 by CCS Disability Actions' consultant, Taylored Accessibility Solutions Limited.

The audit inspected:

- Mobility spaces;
- Kerb ramps;
- Footpaths;
- Pedestrian crossing opportunities;
- Street furniture; and
- Access to the beach.

5.5 CONTINUATION OF PROCESS

This report is intended to remain a 'living' document. In order to ensure the on-going success of investment in access improvements it is suggested that TCDC regularly review the recommendations included within this report.

CCS Disability Action recognises that while all recommendations are important to providing a usable accessible network, cost implications may require the recommendations to be considered in council's long-term planning processes.

6 FURTHER INVESTIGATION

This report covers access in the geographic area of interest as stated in Section 4: Geographic Area of Interest.

Further investigation will be required outside of this area to improve accessibility in wider Whangamata and surrounding settlements.

Many issues raised during consultation were regarding footpaths and kerbs. It is suggested that consideration be given to a more formal method of setting priorities for the provision of kerb ramps and maintenance of footpaths. By identifying a risk and condition rating, a profile target can be developed that allows limited resources to address the most critical barriers first. Poor condition can be tolerated where there is little or no likelihood of use by the disabled and older persons.

Risk Modified Condition Assessment methodology prioritises upgrades to footpaths and kerb ramps so that those on routes used by the disabled on a regular basis are upgraded first. Refer to Appendix C for the calculation assessment.

This assessment designates footpaths and all potential kerb ramp locations within accessible routes a risk profile of Low, Medium or High as a high priority. A relatively simple set of KPI's can be formulated with condition ratings used to determine the profile.

Recommendation 1 Adopt the Risk Modified Condition Assessment methodology as a tool for future maintenance prioritisation.

6.1 MEASURING ACCESSIBLE JOURNEYS

In order to prioritise access improvements, it would be helpful for TCDC to collect data about the way people travel around Whangamata. Although many Road Controlling Authorities collect traffic data, information about other modes of travel (particularly pedestrian trips) is rarely collected to the same level.

One method of data collection that can help to inform, justify and prioritise investment in accessible infrastructure is to count all people on a footpath or at a road crossing, and to include the proportion of those people who use mobility aids[20]. As stated, the estimated number of people using a mobility aid for permanent disability in Whangamata is 170, or 4.5% of the town population. By counting people

[20] Estimation methods based on Burdett (2014) Measuring Accessible Journeys: A tool to enable participation *Municipal Engineer*, In Press

on the streets of Whangamata, TCDC can determine whether or not this proportion is reflected in pedestrian trips.

Recommendation 2 Select count sites in Whangamata urban area to conduct regular pedestrian counts, including the proportion of people who use mobility aids.

7 MOBILITY PARKING

7.1 THE NEED FOR ACCESSIBLE CAR PARKING[21]

Most people with impaired mobility depend on the use of a privately owned motor vehicle or a designated maxi-taxi for their transport needs. Both forms of transport are essential to enable them to participate fully in the everyday working, recreational, educational and social life of the community.

Many wheelchair users are able to drive a car either while still in their wheelchair or by transferring to the driver's seat. When transferring out of the wheelchair and into the driver's seat, the manual wheelchair is either carried inside the car or mounted on a roof hoist. However, a wider than normal car parking space is needed so that space is available to reassemble the wheelchair, if necessary, and place it alongside the car door so that the driver can then transfer to it from the driver's seat.

People who drive their vehicle while seated in their wheelchair generally access their vehicle either by using a side ramp which deploys to the adjacent footpath or by a rear hoist. A side ramp requires an area beside the car which is free from street furniture or other vehicles while a rear hoist requires the length of the hoist and manoeuvring space of the wheelchair behind the parked vehicle.

A pedestrian route that a wheelchair user can travel along without assistance (defined as an 'accessible route') is also needed from the parking space to the associated destination.

7.2 MOBILITY PARKING PERMIT ELIGIBILITY[22]

Having a medical condition or disability does not automatically entitle a person to a mobility parking permit.

The following criteria are used by medical professionals in determining the need for a mobility parking permit:

- The applicant is unable to walk and always require the use of a wheelchair; or
- The ability to walk distances is severely restricted by a medical condition or disability. For example, the applicant requires the use of mobility aids, experiences severe pain or breathlessness; or
- The applicant has a medical condition or disability that requires physical contact or close supervision to safely get around and cannot be left unattended.

[21] Department of Housing and Building with Barrier Free Trust: Accessible car parking spaces
[22] mobilityparking.org.nz/about-mobility-parking-permits/eligible-for-a-permit

7.3 MOBILITY PARKING IN WHANGAMATA

TCDC has provided 10 public Mobility Spaces to service the shopping precinct on Port Road. This includes the Mobility Spaces out of the geographic area of interest on Port Road (1) and Lincoln Road (2). The number recorded as public Mobility Spaces does not include the Mobility Spaces at the Thames-Coromandel District Service Centre and Public Library.

One Mobility Space is located at Beach Access No.5 on Hunt Road.

7.4 PARKING REQUIREMENTS[23]

Section 47A of the Building Act covers the need to provide car parks, parking buildings and parking facilities. Parking facilities or premises, whether private or public, shall provide the required number of accessible car park spaces.

Where parking is provided, spaces for people with a mobility permit should be provided to meet requirements defined in NZS 4121:2001. The standard recommends the following parking space ratio is to be provided to meet compliance with the Building Code:

Total number of car parks	Number of mobility spaces
1 - 20	Not less than 1
21 - 50	Not less than 2
For every additional 50 car parking spaces	Not less than 1

Table 1: Mobility parking ratio requirements[24]

There are approximately 400 formal carparks located at:

- Port Road – Mayfair Avenue to Tuck Road (Hunt Road to Tuck Road is not in the geographic area of interest);
- Ocean Road – Port Road to Barbara Avenue;
- Barbara Avenue – Carpark north of Ocean Road;
- Aicken Road – Port Road to Rutherford Road, including the Carpark between Aicken Road and Lincoln Road.
- Lincoln Road – Port Road to Charleston Avenue (not in the geographic area of interest);
- Casement Road – Port Road to Rutherford Road; and
- Winifred Avenue – Port Road to Barbara Avenue.

[23] NZS 4121:2001 Section 5: Car parks
[24] NZS 4121:2001 Section 5: Table 1

Using Table 1 above, this meets the requirements in NZS 4121:2001.

Figure 2: Mobility Space on Port Road

There are approx. 33 formal carparks and approx. 23 informal parks at Beach Access No.5 on Hunt Road, making a total of approx. 56 carparks including one Mobility Space.

Using Table 1 above, an extra two Mobility Spaces are required to meet the requirements of NZS 4121:2001.

7.5 LOCATION OF MOBILITY SPACES

Port Road is considered the main street of Whangamata. Town Central is situated along Port Road, from Ocean Road to Hunt Road/Hetherington Road.

The Mobility Spaces that service this area are located:

- Port Road – three – Hunt Road to Ocean Road - one on the east side (outside 650 Port Road) and two on the west side (419 and 619 Port Road);
- Port Road - north of Hunt Road on the east side (outside the geographic area of interest);
- Winifred Ave – north side outside 100 Winifred Avenue;
- Lincoln Road – Two on south side between Port Road and Charleston Avenue – outside 103 Lincoln Road (out of geographic area of interest); and
- Aicken Road/Lincoln Road Carpark (google picture)

Figure 3: Lincoln Road/Aicken Road Carpark

The locations of the Mobility Spaces provide good access for accessibility customers. The maximum distance between the Mobility Spaces are within 200m of each other.

The Community Consultation Meeting attendee's requested a Mobility Space near Lindsay Road at the Shopping Centre. This is located in the west of Whangamata on Martyn Road/Aicken Road and Casement Road.

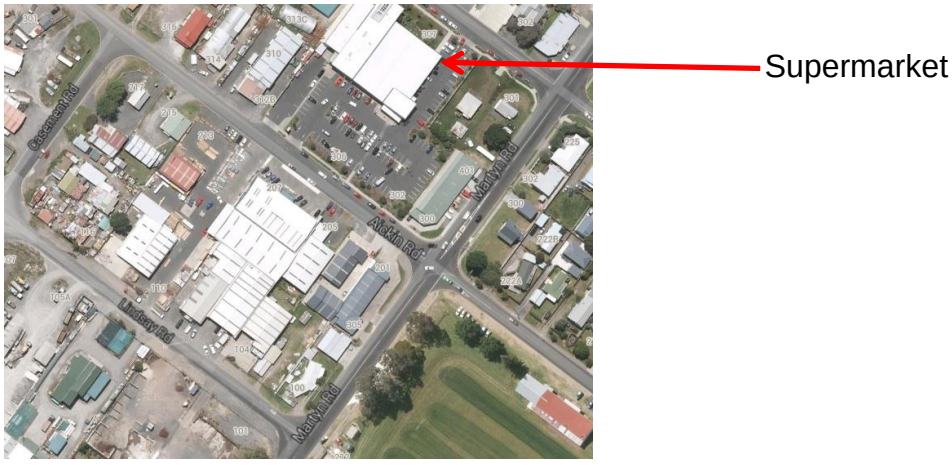


Figure 4: Shopping Centre at Aicken Road

The shopping centre includes a supermarket, building warehouse, veterinary hospital etc. the majority of the businesses have off-street parking, allowing for access users to park near the shop entrance. This can cause a concern if, for example, parking and shopping at the supermarket, then needing to shift the vehicle to access the Vet. Installing Mobility Spaces in the road reserve will improve access for access customers to these shops without the need for moving their vehicle.

Recommendation 3 Install a Mobility Space on Aicken Road and Casement Road, between Martyn Road and Casement Road.

Beach Access No.5 on Hunt Road has one Mobility Space. This is located at the NW end of the 90° formal carparks

One type of mobility space does not fit all users. Access to the vehicle for an access user can be via the drivers' seat, front passenger seat, rear passenger seat, or rear entry to the vehicle. As such, a combination of parallel and angle parking is advised to cater for as many users as possible.

The ideal locations for the Mobility Spaces are:

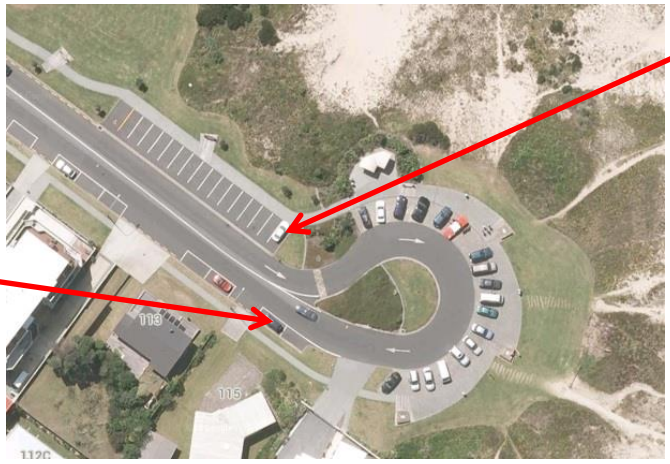


Figure 5: Proposed Mobility Space locations at Beach Access 5, Hunt Road

Mobility Space location A – Replace two 90° carparks with one Mobility Space. Installing a Mobility Space in this location will improve access to the boardwalk and the Public Toilets.

Mobility Space location B – Replace two parallel carparks with one Mobility Space. This will provide another option for Mobility Space users who prefer this type of parking. Users for this type include passenger side door users that need the extra space that the berm provides. Replacing two carparks will provide the length to rear loading vehicles to safely access the site without loading and unloading in the live traffic lane.

To complete the mobility parking at Beach Access 5, install a concrete pad at the western side of the Mobility Space to improve the usage for side loading users.

Recommendation 4 Install two Mobility Spaces as shown Figure 5 at Beach Access No.5 on Hunt Road.

As TCDC cannot control the turnover of businesses in a specific site, as part of the consent process, TCDC can explore the options of developers providing Mobility Spaces if the business is considered to have the potential for access customers. Types of businesses that may attract access customers (but not limited to):

- Supermarkets and Fruit and Vegetable Shops;
- Specialist Health Care Centres, Medical Centres, and Chemists;
- Banks;
- Cafes; and
- NZ Post Offices.

Recommendation 5 Consider Mobility Space placement during the consenting process.

7.6 CONNECTION TO FOOTPATH

A common concern with mobility spaces is the lack of access to the footpath. Easy access is important as the user can quickly move to the safety of the footpath.

By installing full length kerb ramps, all types of access users will be able to access the footpath quickly and safely, limiting the time needed to use the live traffic lane. Full length kerb ramps also allow vehicle passengers to safely transfer to their wheelchair without risk of 'tip-over' as all wheelchair wheels are able to be placed on a level surface. Drainage channels often prevent wheelchairs from having all four wheels safely on a level surface as wheelchairs frequently move during transfer, even when brakes have been applied.

Three of the four Mobility Spaces have full length kerb ramp access to the footpath. These are situated at:

- 419 Port Road – Whangamata Furniture & Bedding;
- 607 Port Road – Whangamata Real Estate Ltd; and
- 650 Port Road – Garuda Clothing and Jewellery.

Due to the style, the kerb ramps have grades of around 5 to 8%. While this is steep, it is within tolerance levels.

Figure 6: Mobility Space with full length access to footpath on Port Road

Recommendation 6 Install full length kerb ramps at the remaining Mobility Spaces in Whangamata to provide quick, easy access to the footpath.

7.7 DIMENSIONS

There is a conflict of standards between NZS 4121:2001 and the Traffic Control Devices (TCD) Manual when determining the dimensions of a mobility parking space.

NZS 4121:2001 requires an angle parking width of 3.5m[25] and a length of 5m[26]. For vehicles that operate a rear-mounted hoist, a further 1000 – 1300mm is required. The width allows the car and the wheelchair to be on the same level when a person is transferring from one to the other.

The TCD Manual allows a 3.0m wide angle space, which does not allow for transferring to the wheelchair, and 5.4m length[27].

For parallel parking, the TCD Manual has adopted the NZS 4121:2001 minimum allowance of 5m in length, and recommends 6m in length as good practice[28].

[25] NZS 4121:2001 – Section 5.5.1.2: Angle Parking
[26] NZS 4121:2001 – Section 5.5.2: Length
[27] TCD Manual Part 13: Parking Control – Section 5.3.2 – Table 5.3
[28] TCD Manual Part 13: Parking Control – Section 5.3.1 – Table 5.2

There are four commonly used methods of transporting people who use wheelchairs:

- Wheelchair user transfers from wheelchair to driver position (independently drives);
- Wheelchair user transfers from wheelchair to front passenger position;
- Wheelchair user remains in wheelchair and uses passenger side entrance to enter vehicle (ramp or hoist); and
- Wheelchair user remains in wheelchair and uses rear of vehicle to enter vehicle (most commonly by hoist).

By planning and designing a range of mobility spaces which allow for these four methods, barriers and hazards can be minimised for the wheelchair user. Allowance for these methods can be achieved by lengthening parallel parks, widening parking spaces, removing obstacles beside the carpark (gardens, street furniture, signs etc.) and, for angle parking, allowing space between the rear of the vehicle and the live traffic lane.

Recommendation 7 Adopt the recommended minimum length in the TCD Manual Part 13: Parking Control of 6m for parallel parking with a further 1.5m allowance for the hoist.

Recommendation 8 Adopt the recommended minimum width in NZS 4121:2001 of 3.5m and the minimum recommended length in the TCD Manual Part 13: Parking Control of 5.4m for angle parking. Allowance of at least 1.5m should be considered between the parking space and the live traffic lane to provide safety for wheelchair users who use rear loading vehicles.

The Mobility Spaces on Port Road are below the recommended 3.5m in width. These are located outside at 607 Port Road (2.9m) and 650 Port Road (3.3m). Widening the spaces to 3.5m will greatly improve access for wheelchair users to quickly and safely access the footpath.

Figure 7: Mobility Space outside Whangamata Real Estate

Recommendation 9 Widen the two Mobility Spaces at 607 Port Road and 650 Port Road to meet the requirements of NZS 4121:2001.

7.8 MARKINGS

The Land Transport Rule: TCD Amendment 2010 allows a road controlling authority to mark, on an area of roadway that is reserved for parking by the holders of approved disabled persons' parking permits, a blue surface texture or colour[29].

A report in The Gisborne Herald concluded an approximate 50% reduction was achieved in mobility parking infringements once the blue colouring was installed and infringement fee increased[30]. A similar result was achieved in Hamilton and other district councils have reported similar trends.

While full blue coverage is preferred for marking mobility parking spaces, in the interest of maintenance and costs, consideration could be given to only partially colouring the mobility space as shown in Figure 8.

A 1m strip for the length of the road edge of the carpark will provide visual notice to road users, reduce installation costs, and reduce the need for repair when replacing kerb and channel etc.

During the consultation process where this was suggested, concern was raised about visibility of the mobility parking space from the footpath. Installing a blue coloured metal plate or a blue strip on the top of the kerb will aid pedestrians to 'police' the spaces.

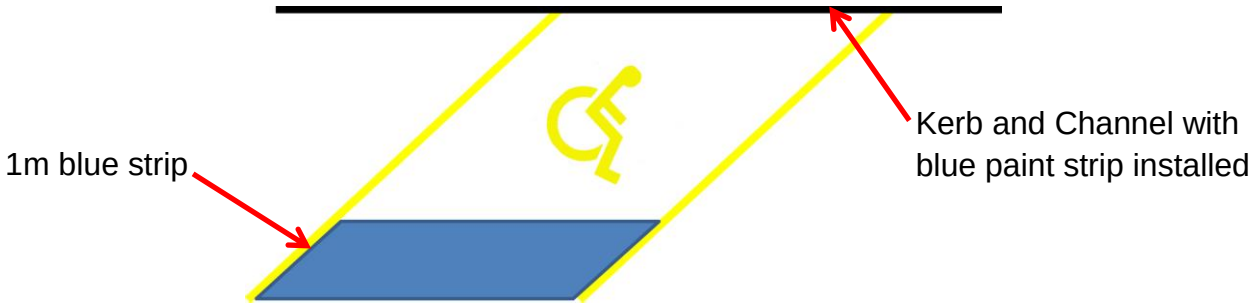


Figure 8: Mobility Space with blue surfacing design

Note: This recommendation is already being implemented based on recommendations in the Thames Central Business District Accessibility Report.

[29] TCD Amendment 2010 Rule 54002/4 – Sections 2.6 and 2.19
[30] Gisborne Herald – 18th June 2012

Recommendation 10 Continue the programme to mark Mobility Spaces with blue surfacing. Installing blue marking as per figure 8 will aid with maintaining a non-slip surface with the colour of both the surface and the marking to comply with Land Transport Rule: Traffic Control Devices 2004.

7.9 SURFACE

NZS 4121:2001 states the surface for a Mobility Space shall provide a stable, firm, slip resistant flat surface with a slope not exceeding 1 in 50 (2%)[31]. This slope on on-street spaces is difficult to achieve, so an absolute maximum grade of 1 in 12 (8.3%) should be adhered to.

Overall, the condition of the Mobility Spaces provided in Whangamata is good with crossfall measuring between 2 and 5.5%, well within the absolute maximum grade.

[31] NZS 4121:2001 Section – 5.6 – Surface

8 KERB RAMPS

Footpaths for mobility impaired users are just like roads are for vehicles. If one road does not connect to another road, the purpose of the footpath is decreased. Kerb ramps are used just as intersections are used for roads.

Kerb ramps are a vital component for mobility access. As they provide access to the safety of the footpath, a relatively small fault can become a serious hazard. Without them, mobility scooters, pushchairs, and wheelchair users are often forced into live traffic lanes to the nearest driveway before accessing the footpath.

When designing kerb ramps, it is important to ensure that[32]:

- If there is a kerb ramp on one side of the roadway, there is also one on the other to prevent pedestrians being 'stranded' on the roadway itself; and
- There are no low points in the gutter where water and silt can collect.

The Pedestrian Planning and Design Guide (PPDG) states the following guidelines when designing kerb ramps[33]:

- Ramp – Normal maximum gradient 1 in 12 (8.33%), Maximum gradient 1 in 8 (12.5%). A gradient of 12.5% should only be considered for constrained situations where the vertical rise is less than 75mm;
- Maximum crossfall of 2%; and
- Minimum width of 1m, 1.5m is recommended. Maximum width to equal the width of the approaching footpath.

While these guidelines provide a good starting point, some are still not accessible by disabled people with impaired mobility.

While 1 in 12 is recommended by the PPDG, manual wheelchair users still struggle to manage this grade. A desirable maximum grade of 1 in 14 is more usable. A grade of 1 in 8 is not usable by most people using mobility devices so an absolute maximum of 1 in 12 should be adopted instead of 1 in 8.

For the kerb and channel itself:

- Maximum gradient is 5%. Anything greater can cause wheelchair users to lose their balance at the transition; and
- Transition between kerb and channel and ramp or carriageway should be smooth with no vertical face. Milling of the carriageway at the channel may need to be performed so this does not inadvertently happen when the roadway has been resurfaced.

[32] Pedestrian Planning and Design Guide – Section 15.6.1: Kerb ramps
[33] Pedestrian Planning and Design Guide – Table 15.2

Kerb flares (transition from full kerb face to cut-down kerb) is to have a maximum gradient of 1 in 6 (16%).

The PPDG recommends kerb crossings should be installed wherever a footpath crosses an intersection and at every pedestrian crossing point[34]. Kerb ramps should be installed at every kerb crossing where the grade changes as pedestrians step onto the roadway. They should guide pedestrians to the safest place to cross.

Tactile paving should be used at kerb crossings so that visually impaired pedestrians are aware of the change from footpath to roadway.

The width of 1.8m for the cut down allows the user to access the footpath without the need for slowing down in the carriageway to negotiate footpath access, particularly if the crossing direction is at an angle to the kerb.

Recommendation 11 Adopt the Pedestrian Planning and Design Guide for Kerb Ramps with the following changes:

- Ramp – Normal maximum gradient to be 1 in 14 (7.14%), with the absolute maximum gradient to be 1 in 12 (8.33%); and
- Minimum cut down width of 1.8m.

Note: Tactiles form an integral part of kerb ramp quality and effectiveness. Tactiles will be discussed in Section 9: Tactiles.

8.1 INTERSECTIONS

People with impaired mobility rely on kerb ramps to safely cross the road. They provide the vital link from one footpath to the other. Without them, the link between footpaths is broken.

A steeply graded kerb ramp or a lip in the channel is often as bad as not having one at all. As stated above, if the grade is to steep, then people in wheelchairs and mobility scooters are not able to safely and quickly negotiate the obstacle. A lip in the channel is when a small vertical face is situated at the invert of the channel and prevents users from being able to use the kerb ramp.

This is particularly important at intersections where drivers have to be aware of multiple actions.

Recommendation 12 Replace all kerb ramps as required during the maintenance programme to a minimum width of 1.8m.

[34] Pedestrian Planning and Design Guide – Section 6.4.5: Kerb crossings

8.2 PORT ROAD/HUNT ROAD/HETHERINGTON ROAD

The Port Road/Hunt Road/Hetherington Road intersection has a roundabout controlling the movement of vehicles in this location. There are kerb ramps available for crossing all three roads.

The NW corner of this intersection has steep grades for crossing Hetherington Road and Port Road:

- Crossing Port Road – grade measured at 1 in 6.5 (15.4%); and
- Crossing Hetherington Road – grade measured at 1 in 9.3 (10.8%).

Similarly, the grade crossing Hetherington Road at the SW corner was measured at 1 in 9.3 (10.8%).

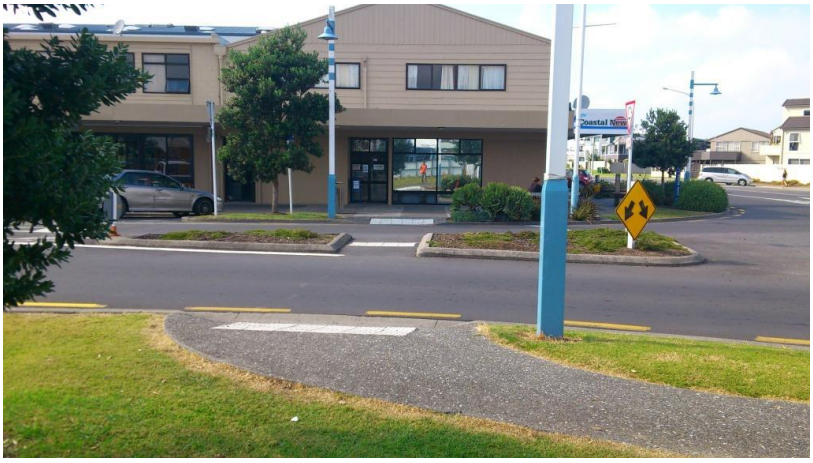


Figure 9: Crossing Port Road north of Hunt Road/Hetherington Road

Replacing the kerb ramps with a maximum grade of 1 in 14 (7.1%) will improve safety access for mobility scooters and wheelchair users crossing at this intersection.

Recommendation 13 Replace the kerb ramps on the NW corner (crossing Hetherington Road and Port Road) and the SW corner (crossing Hetherington Road) at the Port Road/Hetherington Road/Hunt Road intersection to a maximum grade of 1 in 14 (7.1%).

8.3 PORT ROAD/OCEAN ROAD

Like the intersection of Port Road/Hetherington Road, this intersection has a roundabout that controls the vehicles entering the main shopping area.

The kerb ramps crossing Ocean Road are not in alignment and have grades of 1 in 6.9 (14.5%) for the NE corner and 1 in 7.5 (13.3%) for the SE corner. Alignment is critically for visually impaired users and this is discussed further in Section 9: Tactiles.

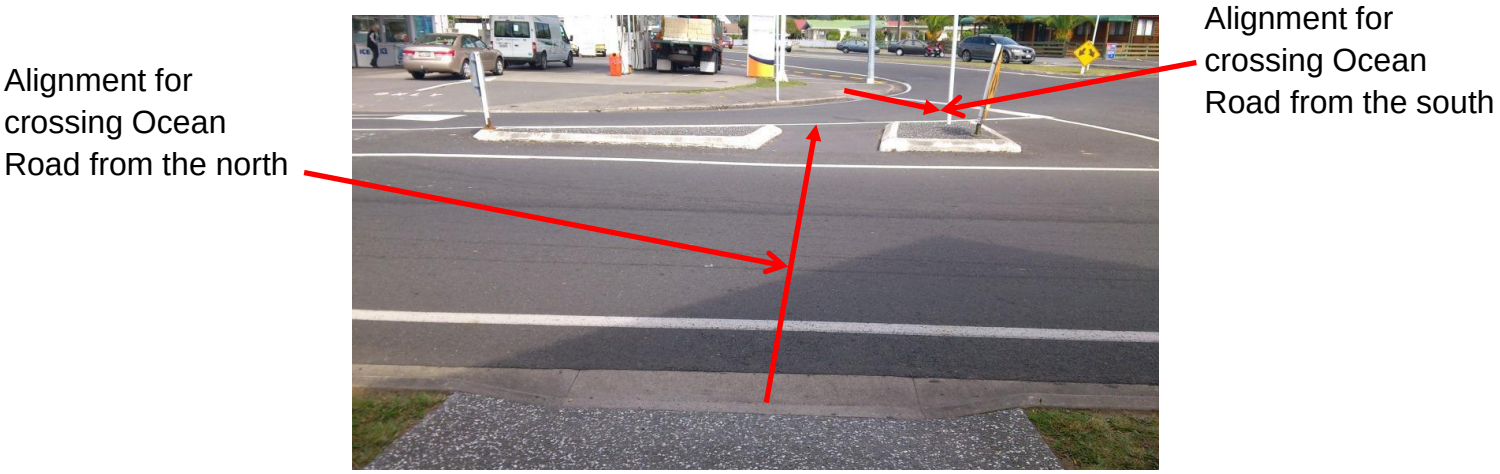


Figure 10: Port Road/Ocean Road crossing point.

Replacing the grade of the NE corner kerb ramp with a maximum grade of 1 in 14 (7.1%) in the same location will save the need for changing the splitter island. Correct the alignment by re-locating the kerb ramp on the SE corner only.

Recommendation 14 Replace the kerb on the NE corner of Port Road/Ocean Road intersection crossing Ocean Road to a maximum grade of 1 in 14 (7.1%). Re-locate the SE corner of the same intersection crossing Ocean Road to the correct alignment and with a maximum grade of 1 in 14 (7.1%).

8.4 PORT ROAD/CASEMENT ROAD

Casement Road and Aicken Road provide links from the main shopping area to the Supermarket and shopping centre near Martyn Road.

The kerb ramps crossing Casement Road at the Port Road/Casement Road intersection were measured at:

- NW corner Casement Road – 1 in 10.6 (9.4%); and
- SW corner crossing Casement Road – 1 in 7.9 (12.6%).

Figure 11: Crossing Casement Road at Port Road

Re-grading the kerb ramps to a maximum of 1 in 14 (7.1%) will improve the use and safety of this intersection for mobility scooters and wheelchair users.

Recommendation 15 Re-grade the kerb ramps crossing Casement Road at the Port Road/Casement Road intersection to a maximum grade of 1 in 14 (7.1%).

8.5 PORT ROAD/PHILOMEL ROAD

This intersection is on the accessible route from Mayfair Avenue to the centre of Whangamata.

The kerb ramps crossing Philomel Road had the following grades:

- SW corner – 1 in 6.5 (15.4%); and
- NW corner – 1 in 7.4 (13.5%).

Figure 12: Port Road/Philomel Road intersection

Recommendation 16 Replace the kerb ramps at the Port Road/Philomel Road intersection to have a maximum grade of 1 in 14 (7.1%).

8.6 PORT ROAD/CHARTWELL AVENUE

Like at Port Road/Ocean Road intersection, the kerb ramp on the SE crossing Chartwell Avenue is not in alignment while the NE kerb ramp has a grade of 1 in 10.4 (9.6%). Alignment is critically for visually impaired users and this is discussed further in Section 9: Tactiles

Figure 13: Crossing Chartwell Avenue at Port Road

Replacing the grade of the NE corner kerb ramp with a maximum grade of 1 in 14 (7.1%) in the same location will save the need for changing the splitter island. Correct the alignment by re-locating the kerb ramp on the SE corner only.

Recommendation 17 Replace the kerb on the NE corner of Port Road/Chartwell Avenue intersection crossing Chartwell Avenue to a maximum grade of 1 in 14 (7.1%). Re-locate the SE corner of the same intersection crossing Chartwell Avenue to the correct alignment and with a maximum grade of 1 in 14 (7.1%).

8.7 HETHERINGTON ROAD/MARTYN ROAD

This intersection has a roundabout installed with kerb ramps crossing Hetherington Road (east) and Martyn Road (north) only.

The kerb ramps for crossing Martyn Road are in an extremely dangerous location. The location of the ramps forces the access user into the live traffic lane of the roundabout.

Figure 14: Kerb ramps at Martyn Road force users into the live traffic lane

Re-locating the kerb ramps past the intersection onto Martyn Road will improve safety at this location.

Recommendation 18 Re-locate the kerb ramps crossing Martyn Road at the intersection of Hetherington Road and Martyn Road onto Martyn Road, north of the intersection.

The NE kerb ramp crossing Hetherington Road east of Martyn Road has a maximum grade of 1 in 8.3 (12%). Replacing this kerb ramp to a maximum grade of 1 in 14 (7.1%) will improve usability for the access user.

Recommendation 19 Replace the kerb ramp on the NE corner of Hetherington Road/Martyn Road (crossing Hetherington Road) to a maximum grade of 1 in 14 (7.1%).

8.8 HETHERINGTON ROAD/RUTHERFORD ROAD

Hetherington Road has a footpath on the north side only. As such, the intersection of Hetherington Road and Rutherford Road has kerb ramps crossing Rutherford Road. The kerb ramp grades measured were:

- NW corner – 7.9%; and
- NE corner – 1 in 10 (10%).

Replacing the kerb ramps to a maximum grade of 1 in 14 (7.1%) will improve the link to the north end of town and Beach Access No.5 for residents from Moana House using mobility scooters.

Figure 15: Hetherington Road/Rutherford Road intersection

Recommendation 20 Replace the kerb ramps at the Hetherington Road/Rutherford Road intersection to have a maximum grade of 1 in 14 (7.1%).

8.9 BARBARA AVENUE/WINIFRED AVENUE

Barbara Avenue runs parallel of Port Road on the east side. It provides a link from Hunt Road to Ocean Road without having to go into the town. Beach Access No. 6 cuts through the middle of Barbara Avenue. There is a footpath on the west side only.

At the Barbara Avenue/Winifred Avenue intersection:

- The NE kerb ramp crossing Barbara Avenue is a grade of 1 in 9.4 (10.6%);
- The NW kerb ramp crossing Barbara Avenue is a grade of 1 in 8.5 (11.7%);
- The NW kerb ramp crossing Winifred Avenue is a grade of 1 in 8.4 (11.9%); and
- The SW kerb ramp crossing Winifred Avenue is a grade of 1 in 7 (14.2%).

Figure 16: Crossing Winifred Avenue at Barbara Avenue.

The crossing of Winifred Avenue is out of alignment. Relocating the kerb ramps will improve this intersection for visually impaired users.

Recommendation 21 Relocate the kerb ramps for crossing Winifred Avenue to align with the splitter island. Replace the kerb ramps crossing both Barbara Avenue and Winifred Avenue to a maximum grade of 1 in 14 (7.1%).

8.10 OCEAN ROAD/GRAHAM STREET

Graham Street provides a link to Beach Access No.8 from Ocean Road. There is one footpath on Ocean Road and a footpath on each side of Graham Street. Kerb ramps are available to cross Graham Street.

The grades measured for these kerb ramps are:

- NE corner crossing Graham Street – 1 in 5.6 (17.9%); and
- NW corner crossing Graham Street – 1 in 6.5 (15.5%).

Improving the grades of the kerb ramps to a maximum grade of 1 in 14 (7.1%) will aid in access users from the south to access the beach near this location.

Recommendation 22 Replace the kerb ramps crossing Graham Street at the intersection with Ocean Road to a maximum grade of 1 in 14(7.1%).

8.11 RE-SEALING

Re-sealing the carriageway can create a small lip where joining the kerb channel. This can require a wheelchair user to stop in the channel before negotiating the barrier. Milling the seal edge before re-sealing can eliminate this problem.

Figure 17: Seal edge join after re-sealing

Recommendation 23 Adopt the practise of milling seal edges at the join of the seal and the kerb channel, especially at areas where a flush kerb cut down is present, in maintenance contracts.

9 TACTILES

9.1 USE OF TACTILES[35]

Tactile ground surface indicators (Tactiles) provide pedestrians with visual and sensory information. The two types of Tactiles are Warning Indicators and Directional Indicators.

Warning Indicators alert pedestrians to hazards in the continuous accessible path of travel. They are used to indicate that pedestrians should stop to determine the nature of the hazard before proceeding further. They do not indicate what the hazard will be.

Directional Indicators give directional orientation to blind and vision-impaired people and designate the continuous accessible path of travel when other tactile or environmental cues are insufficient.

When combined with other environmental information, Tactiles assist blind and vision-impaired people with their orientation and awareness of impending obstacles, hazards and changes in the direction of the continuous accessible path of travel.

9.2 VISUAL CONTRAST[36]

Research by Bentzen et al (Accessible design for the blind, May 2000) indicated that the colour 'safety yellow' is so salient, even to persons having very low vision, that it is highly visible even when used in association with adjoining surfaces having a light reflectance value differing by as little as 40%. Their research found that safety yellow Tactiles having a 40% contrast from new concrete was subjectively judged to be more detectable than darker Tactiles having an 86% contrast with new concrete.

Figure 18: Tactiles on Hetherington Road

[35] RTS 14 Guidelines for Facilities for Blind and Vision-Impaired Pedestrians
[36] RTS 14 Guidelines for Facilities for Blind and Vision-Impaired Pedestrians – Section 4.3: Visual Contrast

Safety yellow is the recommended standard colour for Tactiles and should be the only colour used.

Recommendation 24 When installing Tactiles, ensure the Tactiles are safety yellow as recommended by the RTS 14 Guidelines for Facilities for Blind and Vision Impaired Pedestrians.

The following locations need to have the Tactiles replaced to a safety yellow standard:

- Port Road/Hetherington Road/Hunt Road – all Tactiles;
- All mid-block crossing points on Port Road;
- Port Road/Winifred Avenue – crossing Winifred Avenue;
- Port Road/Casement Road – crossing Casement Road;
- Port Road/Aicken Road – crossing Aicken Road;

Figure 19: Port Road/Aicken Road intersection

- Port Road/Lincoln Road – crossing Lincoln Road;
- Port Road/Ocean Road – crossing Port Road; and
- Casement Road/Rutherford Road – crossing Casement Road.

9.3 INSTALLATION OF WARNING INDICATORS[37]

Warning Indicators alert people who are blind or vision-impaired to pending obstacles or hazards on the continuous accessible path that could not reasonably be expected or anticipated using other tactile and environmental cues.

[37] RTS 14 Guidelines for Facilities for Blind and Vision-Impaired Pedestrians – Section 4.4: Where are Tactiles installed

Warning Indicators shall be installed to inform blind and vision-impaired people of:

- Life threatening hazards where serious falls may occur;
- All pedestrian kerb crossing points (both formal and informal), paths cut through medians, and other places where the footpath is not separated from the roadway by an abrupt change of grade of at least 12.5% (or 1:8) or with a vertical kerb more than 70mm high;
- The presence of level railway crossings; and
- Overhead impediments or hazards other than doorways (e.g., wall mounted objects and archway structures), with a clearance of less than 2m from ground level, in an accessible open public space with no clearly defined continuous accessible path of travel.

Warning Indicators may also be installed to inform blind and vision-impaired people of:

- Vehicle hazards at busy vehicle crossing points such as: Shopping Centres, Bus Stations and large public car parks; and
- Street furniture inappropriately located in the continuous accessible path of travel and not detectable by a vision-impaired person using the aid of a white cane.

Warning Indicators shall be installed across the full width of all pedestrian kerb crossings (excluding cut down transitions) and paths cut through medians to ensure that all blind and vision-impaired people using these facilities encounter the Warning Indicators. They must also be installed with the front and back edges perpendicular to the crossing direction so that the domes are aligned with the direct line of travel across the road. This will enable blind and vision-impaired people to align themselves correctly with the crossing.

Warning Indicators shall be installed[38]:

- Across the full width of all pedestrian kerb crossings (excluding kerb flares);
- Through medians to ensure that all blind and vision-impaired people using these facilities encounter the warning indicators;
- With the front and back edges perpendicular to the crossing direction to enable blind and vision-impaired people to align themselves correctly;
- So that the domes are aligned with the direct line of travel across the road;
- So that the front edge of the Warning Indicator is no closer than 300mm from the back of kerb;

[38] RTS 14 Guidelines for Facilities for Blind and Vision-Impaired Pedestrians – Section 4.5.1: Warning Indicators.

- So that the front edge of the Warning Indicator is no further than 1000mm from the back of kerb, or to a point where a pedestrian could inadvertently bypass the Warning Indicator and enter the hazard (whichever is closer); and
- To a recommended depth of 600mm (This depth is required to prevent a pedestrian from inadvertently stepping over the Tactiles.)

9.4 INSTALLATION OF DIRECTIONAL INDICATORS

Directional Indicators shall be used to provide directional guidance where a person must deviate from the continuous accessible path of travel to gain access to:

- A road crossing point;
- Public transport access point; and
- Significant public facility e.g. public toilets or information centre.

Where other environmental cues are insufficient, Directional Indicators may also be used to provide directional guidance:

- Across open space from one point to another; or
- Around obstacles in the continuous accessible path of travel (where warning tiles are not sufficient).

Where required, Directional Indicators shall be installed in conjunction with warning indicators where a road crossing point is not located in the continuous accessible path of travel and directional guidance is required.

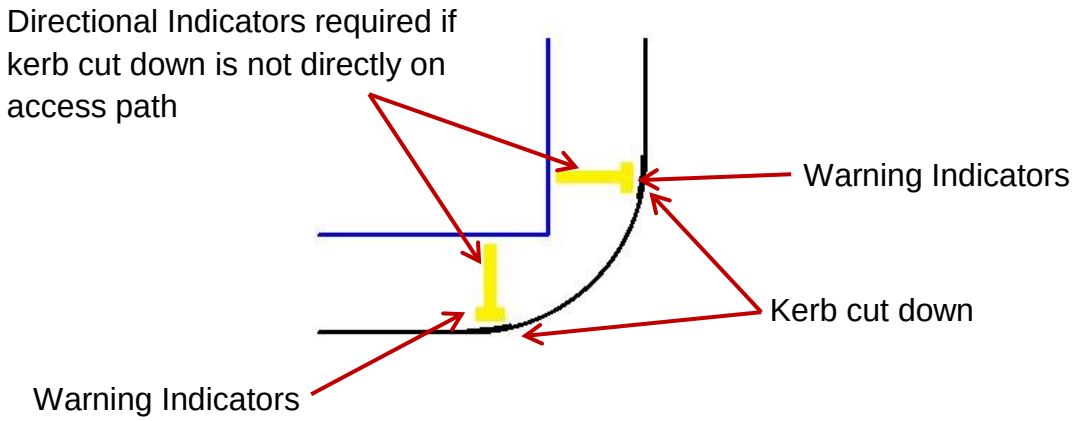


Figure 20: Preferred Layout of crossing points with Tactile Paving

Where required, Directional Indicators shall be installed[39]:

[39] RTS 14 Guidelines for Facilities for Blind and Vision-Impaired Pedestrians – Section 4.5.2: Directional Indicators.

- In conjunction with Warning Indicators where a road crossing point is not located in the continuous accessible path of travel and directional guidance is required; and
- Across the full width of the path, with a minimum depth of 600mm to indicate a change in direction of the continuous accessible path of travel.

9.5 MID-BLOCK CROSSING POINTS

Warning Indicators shall be provided at all mid-block crossing points. Directional Indicators are almost certainly required at all mid-block crossing points, unless the crossing point is on the continuous accessible path of travel. In most cases, the footpath will run parallel to the roadway and thus the crossing point will not be on the continuous accessible path of travel.

Where Warning Indicators are installed in medians, they shall cover the full width of the median cut through or kerb ramp. The layout of the Tactiles in the median will vary depending on the depth of the median and shape of the island cut through.

Recommendation 25 Install Warning Indicators at all pedestrian crossings points and refuge islands. This includes at intersections and mid-block pedestrian crossings.

Recommendation 26 Install Directional Indicators as per RTS 14 Guidelines at all pedestrian crossings points where a road crossing point is not located in the continuous accessible path of travel and directional guidance is required.

9.6 PORT ROAD

The following locations on Port Road require the installation of Warning Indicators only:

- Port Road/Chartwell Avenue – both sides crossing Chartwell Avenue and splitter island;
- Port Road/Philomel Road – both side crossing Philomel Road; and
- Port Road/Leander Road – both sides crossing Leander Road.

The following locations on Port Road require the installation of Directional Indicators only:

- Port Road/Hunt Road/Hetherington Road – NW corner crossing Hetherington Road, NE and SE corner crossing Port Road and Hunt Road, and SW corner crossing Port Road and Hetherington Road;
- Mid-block crossing point between Casement Road and Aicken Road – both sides;
- Mid-block crossing point between Aicken Road and Lincoln Road – both sides;
- Mid-block pedestrian crossing between Lincoln Road and Ocean Road; and
- Port Road/Ocean Road – crossing Port Road (both sides).

The intersection of Port Road/Ocean Road (both sides crossing Ocean Road) requires the installation of both Warning Indicators and Directional Indicators.

Figure 21: Tactile at a crossing point on Port Road

Recommendation 27 Install Warning Indicators on Port Road at the following locations:

- Port Road/Chartwell Avenue – both sides crossing Chartwell Avenue and splitter island;
- Port Road/Philomel Road – both side crossing Philomel Road; and
- Port Road/Leander Road – both sides crossing Leander Road.

Recommendation 28 Install Directional Indicators on Buffalo Beach Road at the following locations:

- Port Road/Hunt Road/Hetherington Road – NW corner crossing Hetherington Road, NE and SE corner crossing Port Road and Hunt Road, and SW corner crossing Port Road and Hetherington Road;
- Mid-block crossing point between Casement Road and Aicken Road – both sides;
- Mid-block crossing point between Aicken Road and Lincoln Road – both sides;
- Mid-block pedestrian crossing between Lincoln Road and Ocean Road; and
- Port Road/Ocean Road – crossing Port Road (both sides).

Recommendation 29 Install both Warning and Directional Indicators at the intersection of Port Road/Ocean Road (both sides crossing Ocean Road).

9.7 OCEAN ROAD

The following locations on Port Road require the installation of Warning Indicators only:

- Ocean Road/Barbara Avenue – both sides crossing Barbara Avenue;
- Ocean Road/Short Road – both sides crossing Short Road; and
- Ocean Road/Graham Street – both sides crossing Graham Street (NW and NE).

Figure 22: Ocean Road/Graham Street intersection

Recommendation 30 Install Warning Indicators on Ocean Road at the intersections with Barbara Avenue, Short Road, and Graham Street.

9.9 HETHERINGTON ROAD (PORT ROAD TO MARTYN ROAD)

The intersection of Hetherington Road/Rutherford Road (crossing Rutherford Road) requires the installation of Warning Indicators only.

The intersection of Hetherington Road/Martyn Road requires the installation of Directional Indicators only at the crossing points of Martyn Road (north of roundabout) and Hetherington Road (east of Roundabout). Extra Warning Indicators are also required crossing Hetherington Road (discussed in Section 9.16 Width of Warning Indicators).

Figure 23: Crossing Hetherington Road at Martyn Road

Recommendation 31 Install Warning Indicators at Hetherington Road/Rutherford Road intersection and extra Warning Indicators at Hetherington Road/Martyn Road intersection (east side crossing Hetherington Road).

Recommendation 32 Install both Warning and Directional Indicators at the Hetherington Road/Martyn Road intersection, crossing Martyn Road north of the roundabout.

9.10 HUNT ROAD/BARBARA AVENUE

Hunt Road requires Warning Indicators to be installed at the intersection with Barbara Avenue, both sides crossing Barbara Avenue.

Recommendation 33 Install Warning indicators at Hunt Road/Barbara Avenue intersection (both sides crossing Barbara Avenue).

9.12 AICKEN ROAD

Aicken Road requires Warning Indicators at Aicken Road/Rutherford Road intersection and Directional Indicators at the refuge island on Martyn Road, north of Aicken Road. The installation of Warning Indicators is required in the refuge island while the Warning Indicators on the kerb ramps at the refuge island will need replacing due to sinking of the tiles.

Figure 24: Refuge Island on Martyn Road, north of Aicken Road

Recommendation 34 Install or replace Warning Indicators at Aicken Road/Rutherford Road intersection and the refuge island on Martyn Road, north of Aicken Road. Install Directional Indicators at the refuge island on Martyn Road.

9.13 WINIFRED AVENUE/BARBARA AVENUE

Warning Indicators are required in the splitter island on Winifred Avenue (see figure 16) while Directional Indicators are required for the kerb ramps crossing Barbara Avenue.

Recommendation 35 Install Warning Indicators in the splitter island on Winifred Avenue and Directional Indicators on the kerb ramps crossing Barbara Avenue.

9.14 BEVERLY TERRACE/GRAHAM STREET

The intersection of Beverly Terrace and Graham Street require the installation of Warning Indicators only, crossing Beverly Terrace.

Recommendation 36 Install Warning Indicators at Beverly Terrace/Graham Street intersection, crossing Beverly Terrace.

9.15 WIDTH OF WARNING INDICATORS

It is important that the Warning Indicators are across the full width of the crossing point. Any gaps and the Warning Indicators could be missed, along with the vital information they provide.

As all kerb ramps at the intersections are under the recommended width, as recommendation 12 is carried out, Warning Indicators should be installed to the full width of the kerb ramp.

Recommendation 37 Ensure all Warning Indicators are installed to the full width of the kerb ramp as required in Recommendation 11.

9.16 ALIGNMENT OF TACTILES

As mentioned above, correct alignment of Tactiles enables blind and vision-impaired people to align themselves correctly with the crossing.

The alignment of the existing Tactiles is of a good standard

Recommendation 38 Ensure all Tactiles installed in future works align the user to the crossing alignment.

Of the intersections with Tactiles already installed, the following need to have the alignment corrected:

- Port Road/Hetherington Road/Hunt Road – Crossing Hunt Road, Port Road and Hetherington Road; and

Figure 25: Crossing Hunt Road and Port Road

- Barbara Avenue/Winifred Avenue – crossing Winifred Avenue (see figure 16).

9.17 OTHER VISUAL CUES

Sometimes it is necessary to provide contrasting visual guidance without the need for installing Warning or Directional Indicators. A yellow guideline at the boundary of the Z Service Station at the Port Road/Ocean Road intersection and Liquor King at the Port Road/Hunt Road intersection will provide delineation of the footpath for visually impaired users.

Figure 26: Truck parked on footpath at Z Service Station at the intersection of Port Road and Ocean Road

Figure 27: Vehicle parked on footpath at Liquor King (Port Road/Hunt Road intersection)

A yellow guideline has been used effectively at Beach Access No.6 crossing the Service Lane (see figure 52).

Recommendation 39 Install yellow lines at the Z Service Station at the Port Road/Ocean Road intersection and Liquor King at the Port Road/Hunt Road intersection to delineate the footpath at the boundary.

10 FOOTPATHS

10.1 PROVISION OF FOOTPATHS

Footpaths enable pedestrians to get to and from their place of work or school and move around the community to meet in social, sporting, work or cultural events. A safe and effective footpath with continuous connectivity provides good access to the community for the mobility impaired.

A number of improvements have been made to the footpaths in the main shopping centre of Whangamata. As a result, a combination of Asphaltic Concrete with exposed aggregate concrete patterns has been laid to create a softer, more appealing environment.

Figure 28: Excellent footpath surface on Port Road

A very common practise in smaller urban settlements in New Zealand is to install footpath on one side only of the road. This is considered as the minimum provision and the road controlling authority should be able to demonstrate clearly why walking is not expected in that area. In the case of new developments, this responsibility passes onto the developer. Retro-fitting is costly to TCDC, so the preferred standard is to install them in any new developments.[40]

[40] Pedestrian Planning Design Guidelines Section 14.1: Where Footpaths Should Be Provided

The PPDG provides guidance for providing footpaths:

Land Use	Footpath Provision			
	New Roads		Existing Roads	
	Preferred	Minimum	Preferred	Minimum
Commercial & Industrial	Both Sides		Both Sides	
Residential (on Arterials)				
Residential (on Collector roads)				
Residential (on Local Streets			Both Sides	One Side

Table 2: When to Provide Footpaths[41]

For the mobility impaired user, having a footpath on one side often means having to use the road for access. Ideally, footpaths should be provided on both sides of the road for full accessibility. In situations where a footpath is only on one side, regular connections should be made available for access to the footpath.

The roads assessed in the geographic area of interest have the following footpath provisions:

Road Name	Road Hierarchy	Provision of Footpath
Hetherington Road	Collector	South side – Top of hill to Moana House North side – Port Road to Moana House
Martyn Road	Collector	West side – no footpath East side – full length
Ocean Road	Collector	North side – Port Road to Lowe Road South side – Achilles Avenue to Graham Street

[41] Pedestrian Planning Design Guidelines Table 14.1: When to Provide Footpaths

Port Road	Collector	East side – full length West side – Chartwell Place to Hetherington Road
Aicken Road	Local	North side – full length South side – Port Road to 107 Aicken Road
Barbara Avenue	Local	West side only
Beverly Terrace	Local	No footpath
Casement Road	Local	North side – Port Road to 108 Casement Road South side – Port Road to Martyn Road
Diana Avenue	Local	No footpath
Graham Street	Local	Both sides – Ocean Road to Esplanade Drive
Hunt Road	Local	Both sides – full length
Mooloo Crescent	Local	No footpath
Ranfurly Road	Local	No footpath
St Patricks Row	Local	No footpath
Short Road	Local	No footpath
Winifred Avenue	Local	North side South Side – Port Road to Barbara Avenue

Table 3: Provision of Footpath in the Geographic Area of Interest

As Hetherington Road, Martyn Road, Ocean Road and Port Road are Collector roads, and given their location, installing a footpath on both sides of the road will greatly improve access along these roads.

When considering installing footpaths on the local roads, consideration should be given to achieving access to the existing footpath from the other side of the road and side roads.

Given the locality and traffic volumes along these roads, installing footpaths on both sides of local roads would be deemed a low priority, long term plan. The short term plan should be to ensure sufficient access across the road can be achieved.

Figure 29: Mother and child using the berm

Recommendation 40 Install footpaths on both sides of the road on the Collector Roads (Hetherington Road, Martyn Road, Ocean Road, and Port Road).

Recommendation 41 Create a long term plan to install footpaths on all Local Roads in the geographic area of interest with the following priority:

- Beverly Terrace and St Patricks Row;
- Ranfurly Road and Mooloo Crescent;
- Diana Avenue;
- Short Road;
- Casement Road – north side Martyn Road to 108 Casement Road;
- Aicken Road – south side Martyn Road to 107 Aicken Road; and
- Winifred Avenue – Barbara Avenue to Ranfurly Road.

10.2 FOOTPATH WIDTH

Footpath width is often under-rated for accessibility. A wider footpath provides a safer passage of use for mobility scooters, wheelchairs, and pushchairs eliminating the requirement to use an uneven surface, such as a grass berm.

The PPDG provides the following guidelines for the through route of footpaths:

Location	Maximum pedestrian flow	Through route width
Arterial roads in pedestrian districts; CBD; alongside parks and schools; other major pedestrian generators	80 p/min	>2.4m
Local roads in pedestrian districts; Commercial/ industrial areas outside the CBD; Collector roads	60 p/min	1.8 m
Local roads in residential areas	50 p/min	1.5 m
Absolute minimum*	50 p/min	1.5 m

Table 4: Minimum Footpath Dimensions

*Note: The absolute minimum width is only acceptable in existing constrained conditions and where it is not possible to reallocate road space.

Most of the footpaths in the geographic area of interest are below the absolute minimum of 1.5m. A narrow footpath creates difficulty for mobility scooters and pushchairs to pass. With a steep crossfall, a narrow footpath can also limit recovery time if an access user loses control of their scooter or wheelchair.

Below is a table showing the recommended width of footpath for each road inside the geographic area of interest:

Road Name	Road Hierarchy	Current Footpath Width	Footpath Width in Terms of PPDG
Hetherington Road	Collector	≤1.5m	1.8m
Martyn Road	Collector	≤1.5m	1.8m
Ocean Road	Collector	≤1.5m	1.8m
Port Road – Hunt Road to Mayfair Avenue	Collector	>2.0m	1.8m
Aicken Road	Local	≤1.5m	1.5m
Barbara Avenue	Local	≤1.5m	1.5m
Beverly Terrace	Local	No footpath	1.5m
Casement Road	Local	≤1.5m	1.5m

Diana Avenue	Local	No footpath	1.5m
Graham Street	Local	≤1.5m	1.5m
Hunt Road	Local	>1.5m	1.5m
Mooloo Crescent	Local	No footpath	1.5m
Ranfurly Road	Local	No footpath	1.5m
St Patricks Row	Local	No footpath	1.5m
Short Road	Local	No footpath	1.5m
Winifred Avenue	Local	≤1.5m	1.5m

Table 5: Required Footpath Widths

Recommendation 42 Replace footpaths to the widths as stated by the Pedestrian Planning Design Guide when footpaths are upgraded as part of the maintenance programme.

10.3 VEGETATION

When narrower than standard footpaths are provided, extra consideration is required to maintain width by managing vegetation. Also, low hanging branches can cause injury or restrict sight visibility.

Vegetation at Whangamata was not a concern at the time of the audit, however there is a possibility of visibility for vehicles and pedestrians being reduced at the crossing facilities on Port Road. Maintaining the vegetation at these locations is vital in ensuring a safe crossing facility is always provided. Good practise is to limit the height of the vegetation for gardens at crossing facilities to ground cover (max. 300mm high) for the length of a mobility scooter from the kerb face.

Recommendation 43 Monitor vegetation overgrowth that can reduce the footpath widths and visibility at the crossing facilities on Port Road. Liaise with adjoining land owners to trim vegetation extending from the boundary over the footpath as required.

10.4 SURFACE

An uneven surface of concrete and asphaltic concrete, due to tree roots, underground service work and basecourse failure can cause potential tripping hazards. This can also create ponding issues which create a slippery surface.

Throughout the site investigation, defects in the footpath were marked for repair. This was very pleasing to see as it shows TCDC has a good maintenance programme in place.

Figure 30: Broken footpath identified for repair

10.5 LONGITUDINAL GRADIENT

Longitudinal gradient is a major concern for users with mobility devices.

As with kerb ramps, design standards regard longitudinal grades greater than 1 in 20 (5%) on footpaths as ramps[42]. CCS Disability Action considers '1 in 8 (12.5%) as an absolute maximum' too steep and unable to be independently and safely used by mobility scooters and wheelchairs. An absolute maximum grade of 1 in 12 (8.5%) is permissible on existing key pedestrian routes as grades steeper than this are generally not able to be negotiated.

Recommendation 44 Adopt an absolute maximum longitudinal grade of 1 in 12 (8.3%) for existing grades with a desirable maximum grade of 1 in 14 (7.1%) for future proposed works.

10.6 CROSSFALL

As with longitudinal gradients, crossfall is a major concern for users with mobility devices. Design standards recommend a crossfall of between 1% and 2%[43]. A grade of greater than 1% requires people using wheelchairs and walking frames to use extra energy to resist the sideways forces. As the majority of footpaths drain to the road, this can lead to the user dropping over the kerb and into the live traffic lane.

[42] NZS 4121:2001 Section 6.2.3: Footpaths as ramps
[43] Pedestrian Planning and Design Guidelines Section 14.5: Crossfall and NZS 4121:2001 Section 6: Footpaths, Ramps, and Landings

The majority of footpaths in the geographic area of interest had a crossfall of greater than 2%.

Recommendation 45 Adopt 1% as the crossfall standard, and upgrade existing footpaths to this grade when replaced.

10.7 VEHICLES PARKING ON FOOTPATH

Cars parking on the footpath are always a concern for mobility users. Not only can they reduce the usable width of the footpath, but they also create sight line issues for people in wheelchairs and mobility users.

Pedestrians require differing spaces within which to manoeuvre. Newer wheelchairs are increasingly wider than their predecessors and this should be considered when designing for pedestrians. Mobility scooters are usually longer but the same width as manual wheelchairs.

Figure 31: Car parking on the footpath at Liquor King

A clear width of 1000 mm is adequate for people with ambulant disabilities. It just allows passage for 80 percent of people who use wheelchairs. People who use wheelchairs require a clear width of 1.2 metres[44] (see figure 35).

The main area of concern for vehicles parking on the footpath is outside Liquor King at the Port Road/Hunt Road/Hetherington Road intersection.

Recommendation 46 Regularly control car parking on the footpath to maintain a clear, usable footpath.

[44] Pedestrian Planning & Design Guide Section 3.3: Physical Space Required

11 STREET CROSSINGS

11.1 PROVISION OF CROSSINGS[45]

Pedestrians cross the road an average of two to three times on every walking trip. Perceptions of the walking experience are focused on difficulties crossing roads. Any problems with this can cause delays and create a sense of insecurity. By providing effective crossings, the walking experience is enhanced and becomes more user-friendly.

There are four main reasons for installing pedestrian crossing facilities:

- Level of service – The crossing opportunities available to pedestrians;
- Safety – Crash records show that specific pedestrian crashes may be reduced by providing crossing assistance, or that perceptions of poor safety are discouraging walking;
- Specific access provisions – A particular group (e.g. young children, vision and mobility impaired people) crossing; and
- Integration – Part of integrating and reinforcing a wider traffic management plan for the area.

11.2 LEVEL OF SERVICE

The level of service for pedestrians is calculated by the time taken to safely cross the road, the volume of traffic, and physical aids to improve crossings. The longer it takes, the more frustrated pedestrians become, and the more likely they are going to take risks.

NZTA has developed a Pedestrian Crossing Facilities Calculation Spreadsheet and is attached as Appendix D. The spreadsheet is also available on NZTA's website.

There are a number of pedestrian crossing facilities that are available to provide safe and effective opportunities for pedestrians to cross the road.

[45] Pedestrian Planning and Design Guidelines – Section 15: Crossings

The Pedestrian Crossing Facilities Calculation Spreadsheet considers the following methods of providing safety when crossing the road:

- Without Crossing Facility;
- Platform;
- Kerb extensions;
- Median Refuge;
- Combining Kerb extensions and median refuge;
- Zebra crossings;
- Traffic signals; and
- Grade separation.

The Pedestrian Crossing Facilities Calculation Spreadsheet is available from the NZTA website.

Recommendation 47 Adopt the Pedestrian Crossing Facilities Calculation Spreadsheet for use when determining pedestrian crossing facilities.

11.3 KERB EXTENSIONS[46]

Kerb extensions are created by widening the footpath at intersections or mid-blocks, and extending it into and across parking lanes to the edge of the traffic lane. This improves visibility of pedestrians by traffic and reduces the distance to cross the road.

Advantages for kerb extensions are:

- Pedestrian safety is improved by kerb extensions – with an estimated pedestrian crash reduction of 36 percent (twice that of pedestrian islands alone). This is because pedestrians are more visible to oncoming drivers and pedestrians get a better view of approaching traffic;
- Pedestrian delay is reduced due to the shorter crossing distance and, therefore, crossing time which permits pedestrians to select a smaller gap (but to a much lesser extent than pedestrian islands);
- They can be retrofitted to existing roads;
- They create space for pedestrians to wait without blocking others walking past;
- They create space for installing kerb ramps;
- They physically prevent drivers from parking (and blocking) the crossing point;

[46] Pedestrian Planning Design Guide: Section 6.7.3 – Kerb Extensions

- Road berms gain additional space which can be used for landscaping, cycle racks and street furniture (as long as visibility is maintained);
- The can help slow vehicle speeds;
- They ensure that car parking does not obscure visibility for vehicles at intersections; and
- Signs and traffic signal displays can be located where they are easily seen by approaching traffic.

Disadvantages for kerb extensions are that they:

- Reduce on-street parking;
- Can force cyclists closer to motorised traffic on narrow roads;
- Can create drainage problems and rubbish can accumulate;
- Can create an obstruction that may be struck by cyclists and motorised vehicles.

Kerb extensions have particular safety benefits and also result in less delay for pedestrians. They will be most beneficial on roads with flows less than 500 vehicles per hour. They can be used on any class of road and can be retrofitted as necessary.

They are particularly useful when combined with pedestrian platforms, zebra crossings, traffic signals and, where there is sufficient room, pedestrian refuge islands.

11.4 PEDESTRIAN PLATFORMS[47]

Pedestrian platforms are raised and sometimes specially textured areas of roadway that act as a focus for crossings. However, they are part of the roadway and pedestrians have to give way to vehicles unless the platform is also marked as a zebra crossing.

Advantages of Pedestrian Platforms include:

- Emphasising pedestrian movements at the expense of vehicular traffic;
- Helping to focus traffic on pedestrians crossing;
- Being aesthetically pleasing;
- Reinforcing the slow speed message to drivers;
- Being highly effective at reducing vehicle speeds;
- Eliminating grade changes from the pedestrian route and, therefore, the need for kerb ramps; and
- More drivers yielding to pedestrians.

[47] Pedestrian Planning Design Guide: Section 6.7.4 – Pedestrian Platforms

Disadvantages for Pedestrian Platforms are that they:

- Only work effectively when vehicle speeds can be reduced to where drivers are able and prepared to slow or stop;
- Although still part of the roadway, may cause confusion as to who has the right of way;
- Can create discomfort for vehicle occupants, especially those in heavy vehicles (while platforms are less suited to bus routes, they can be designed to accommodate buses);
- Should preferably not be used in isolation; but form part of a larger (area-wide) scheme;
- May increase noise as vehicles brake, slow, pass over them and accelerate; and
- Vision impaired pedestrians and children may not be aware they are entering the roadway on a raised platform, so there needs to be clear discrimination between the road and footpath.

Platforms are generally installed on local roads and sometimes on collector roads. They are not installed on arterial roads except in major shopping areas where the need for traffic calming and pedestrian assistance exceeds the arterial function. They can be retrofitted at both intersections and mid-block and are particularly useful in traffic calmed areas (where they serve the same purpose as road humps). Where motorists need to stop and give way, the platforms should be marked as zebra crossings. In areas where heavy vehicles are part of the traffic, careful design and liaison will be necessary.

Do not use where traffic approach speeds exceed 50 km/h.

11.5 PEDESTRIAN REFUGE ISLANDS[48]

Pedestrian Refuge Islands are elongated, raised portions of pavement within the roadway that provide a place for pedestrians to wait before crossing the next part of the road. Crossing pedestrians only need to find a gap in one stream of traffic, meaning larger and more frequent gaps and significantly reduced crossing times.

Advantages for Refuge Islands are:

- Reduce the crossing area where pedestrians are in conflict with traffic;
- Can considerably reduce delays for pedestrians (by up to 90 percent);
- Can be retrofitted to existing roads;
- Are particularly helpful to pedestrians unable to judge distances accurately or who have slower walking speeds;

[48] Pedestrian Planning Design Guide: Section 6.7.1 – Pedestrian Islands

- Can improve safety with an estimated pedestrian crash reduction of 18% (or 32% when combined with kerb extensions);
- Pedestrians on the island are more visible to oncoming drivers, and pedestrians can see oncoming traffic better; and
- The localised roadway narrowing encourages lower vehicle speeds.

Disadvantages of Refuge Islands are that they:

- Restrict vehicle access to adjacent driveways;
- Can force cyclists closer to motorised traffic on narrower roads;
- Can disrupt drainage causing water to pond within the island or adjacent kerb ramps;
- Need a wide roadway to ensure adequate space after installation;
- Can be an obstacle which may be struck by motorised traffic if not particularly conspicuous.

Because the main effect of pedestrian islands is reduction in pedestrian delay, they are most useful where traffic flows exceed 500 vehicles per hour.

Pedestrian islands are nearly always highly cost effective in improving pedestrian safety and reducing delay. They can be incorporated whenever a raised island is created as part of a roading scheme, for example deflection and splitter islands.

Pedestrian islands can be combined with kerb extensions and platforms.

Flush medians should include regular pedestrian islands to reduce inappropriate motor vehicle use of the medians and to improve pedestrian feelings of security on them. Although they can be retrofitted, they should be considered as a matter of course in all new/improved roading schemes.

Pedestrian refuge islands should ideally be at least 1.8 metres wide (narrow refuge islands put pedestrians at risk of being hit by truck side mirrors) and can be part of an un-signalised pedestrian crossing[49]. This width also allows for a mobility scooter to fully park on the refuge island (most mobility scooters range from 1.3m to 1.5m in length).

Figure 32: Ideal pedestrian refuge island crossing facility

[49] International Road Assessment Programme – Road Safety Toolkit

Pedestrian refuge islands can be used where there is a demand for pedestrians to cross the road, but where the numbers of pedestrians are not high enough to warrant a signalised pedestrian crossing[50].

11.6 PEDESTRIAN ZEBRA CROSSINGS[51]

A pedestrian zebra crossing is a section of roadway running from kerb to kerb and marked with longitudinal markings. Drivers are required to give way to pedestrians on both sides of all zebra crossings unless the crossing is divided by a raised traffic island.

Advantages of a zebra crossing are that they:

- Provide the least delay for pedestrians;
- Can be retrofitted to existing roads;
- Create a clear focus for crossings; and
- If raised (as a platform), slow vehicle speeds and can improve safety.

Disadvantages are:

- On their own, do not improve pedestrian safety and may even decrease it;
- Can lead to an increase in 'nose-to-tail' vehicle accidents.
- Drivers may not stop when pedestrians expect them to.
- High pedestrian flows can dominate the crossing and cause severe traffic disruptions.
- Wide markings can be slippery when wet for cyclists and motorcyclists.
- Pedestrians may step out without checking properly whether approaching vehicles are too close to stop.

Zebra crossings need to be combined with other measures to enhance their safety. Do not use zebra crossings on roads with speed limits over 50 km/h unless approval is obtained from Land Transport NZ as required by the Traffic Control Devices Rule.

Do not use zebra crossings for locations with fewer than 50 pedestrians per hour.

11.7 MID BLOCK PEDESTRIAN SIGNALS[52]

Mid-block pedestrian signals are installations that stop traffic so pedestrians can cross unimpeded. The signals are activated by pedestrians, vehicles are stopped, pedestrians cross and then vehicles are allowed to proceed.

[50] International Road Assessment Programme – Road Safety Toolkit
[51] Pedestrian Planning Design Guide: Section 6.7.5 – Pedestrian zebra crossings
[52] Pedestrian Planning Design Guide: Section 6.7.6 Mid-block Pedestrian Signals

Mid-block pedestrian signals can include intelligent features, such as extending the pedestrian phase for slow pedestrians and detecting that pedestrians have already crossed prior to the pedestrian phase being displayed.

Advantages for Mid-block Pedestrian Signals:

- Clearly show when to cross;
- Balance the delays to pedestrians and traffic;
- Can reduce community severance;
- Are very safe for pedestrians when used properly. Signals take the decision on when it is safe to cross away from the pedestrian. Pedestrians group together, rather than crossing intermittently.

Disadvantages for Mid-Block Pedestrian Signals include:

- Delaying pedestrians more than zebra crossings;
- Being more costly to install, operate and maintain than other crossing types;
- Being more disruptive to traffic flows than other crossing types apart from zebra crossings;
- Being more dangerous when crossing near the signals or against the signals.
- Slower pedestrians may find it difficult to cross within the allotted time. Intelligent features can assist this.
- Signal timings are frequently based on minimising vehicle delays which results in a poor level of service to pedestrians. Pedestrians having to wait for what seems to them an excessive time will take risks and cross against the signals. If all pedestrians have crossed before receiving a green signal, vehicles are required to stop anyway. Intelligent features can reduce this.

Figure 33: Pedestrian crossing warning sign

Use a traffic signals analysis package to model the expected delays to pedestrians and other users under signal operation. Compare the delay and safety performance with other options calculated using the Pedestrian crossing facilities calculation spreadsheet.

While pedestrian traffic signals would greatly enhance safe crossing, the practicalities of installing signals would be a huge investment by TCDC.

An alternative solution would be the installation of an electronic pedestrian warning sign. Similar to cycle warning signs, the pedestrian warning signs can be activated by the pedestrian to warn on-coming motorists.

A number of options are available, and any sign installed would need to be approved by NZTA before installation.

11.8 DECISION PROCESS

There are four main reasons for choosing to improve facilities for pedestrians to cross roads[53]:

- Level of service: the crossing opportunities available to pedestrians are below the desired level of service.
- Safety: crash records show that specific pedestrian crashes may be reduced by providing crossing assistance, or that perceptions of poor safety are discouraging walking.
- Specific access provisions: a particular group (e.g. young children, vision and mobility impaired people) needs the improvements.
- Integration: it is part of integrating and reinforcing a wider traffic management plan for the area.

When considering how to best provide for pedestrians, consider the following questions (in this order):

- What is the road environment and the land use context, and who uses it?
- What are the appropriate physical aids to crossing?
- Is the control of the crossing point appropriate?
- How do we design the facility to fit into the environment?

This approach should be followed in all cases when providing crossing assistance for children.

11.9 VOLUME OF TRAFFIC IN WHANGAMATA

The volume of traffic is a major contributor to the safety of pedestrians crossing the road. The higher the volume, the fewer gaps are available for pedestrians.

Average Daily Traffic (ADT) volume are recorded by TCDC in RAMM and NZTA. These record either an estimate or actual measurement of vehicles over a period of 7 days, which is then calculated for the whole year.

As the Coromandel Peninsula is a holiday destination in the summer months, these figures can be distorted. Residents at the Community Consultation Meeting stated traffic is considerably higher over November to March, than during the rest of the year.

[53] Pedestrian Planning Design Guide: Section 6.5 – Selecting the appropriate crossing facility.

Consideration is therefore required when analysing traffic volume data to gain a true reflection of traffic behaviour in the area.

Recommendation 48 Measure traffic volumes in the summer months to determine peak traffic volumes when calculating new crossing opportunities.

11.10 EXISTING CROSSING OPPORTUNITIES

There are three different designated road crossing opportunities in the geographic area of interest:

- Kerb ramps at intersections (discussed in Section 8: Kerb Ramps and Section 9: Tactiles);
- Pedestrian refuge/splitter islands (alignment discussed in Section 9: Tactiles); and
- Pedestrian zebra crossings.

As discussed earlier, a splitter and refuge island should be 1.8m wide as a mobility scooter varies from 1.3m to 1.5m in length. Mothers with pushchairs also require the extra length for safety.

Recommendation 49 As splitter and refuge islands are replaced under normal maintenance, ensure they are replace with islands that are at least 1.8m wide.

11.11 NEW CROSSING OPPORTUNITIES

Crossing opportunities provide linkage for pedestrians to each side of the road. In some cases, they complete links between footpaths, particularly if the street has a footpath on one side only. By providing kerb ramps, pedestrian refuge islands, and/or pedestrian crossings, safer connectivity can be provided for mobility impaired pedestrians.

The Community Consultation Meeting raised the following concerns regarding crossing the road in Whangamata:

- Crossing Port Road is difficult near Sands Café;
- Create walking route loops;
- Crossing point gradients are too steep;
- The distance is too great from the pedestrian crossing at Sands to the Post Office pedestrian crossing; and
- Limited pedestrian crossing points on Port Road.

The site inspection noted the following locations that require the investigation of new crossing opportunities:

- Hetherington/Rutherford Road intersection – crossing Hetherington Road;
- Port Road/Mayfair Avenue intersection – crossing Port Road;
- Ocean Road – at the intersections of Tamaki Road, Short Road, Achilles Avenue, Graham Street, and Lowe Street – all crossing Ocean Road;
- Casement Road/Rutherford Road intersection – crossing Casement Road; and
- Aicken Road/Rutherford Road intersection – crossing Aicken Road.

11.12 HETHERINGTON ROAD/RUTHERFORD ROAD

A crossing opportunity at this intersection will provide a safe connection from Rutherford Road to the footpath on Hetherington Road.

The ADT volume for Hetherington Road is approx. 2139 veh./day so it is highly likely kerb ramps will be sufficient, but a calculation using the Pedestrian Crossing Facilities Calculation Spreadsheet will determine the most suitable crossing facility.

Figure 34: Hetherington Road

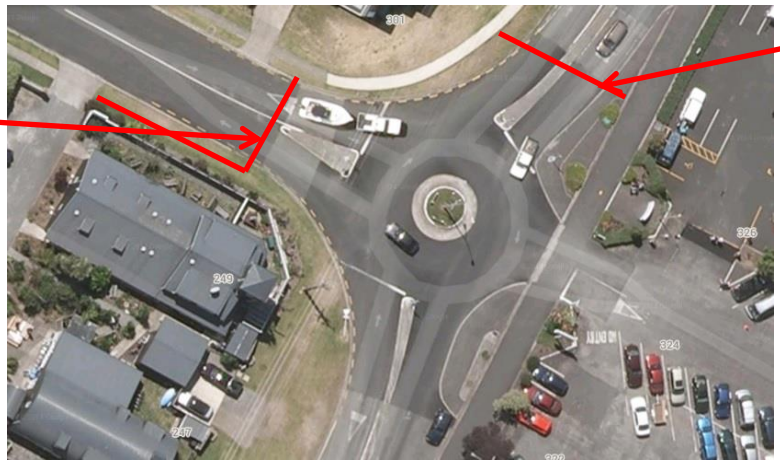
Recommendation 50 Use the Pedestrian Crossing Facilities Calculation Spreadsheet to determine the best pedestrian crossing facility at the Hetherington Road/Rutherford Road intersection.

Recommendation 51 Once Recommendation 49 is completed, install a pedestrian crossing facility at the Hetherington Road/Rutherford Road intersection.

11.13 PORT ROAD/MAYFAIR AVENUE

Mayfair Avenue is at the southern of the geographic area of interest. A roundabout is located at this intersection and a footpath is located on the eastern side of Port Road and both sides of Mayfair Avenue.

Proposed crossing location of Mayfair Avenue at Port Road



Proposed crossing location of Port Road at Mayfair Avenue

Figure 35: Port Road/Mayfair Avenue intersection

As there is already splitter islands at the roundabout, a flush refuge point and kerb ramps on either side will complete the connection of the footpath on the north side of Mayfair Avenue to the east footpath on Port Road.

Extend the footpath on the south side of Mayfair Avenue approx. 25m towards the intersection with Port Road, and provide kerb ramps for crossing Mayfair Avenue.

Recommendation 52 Install kerb ramps and pedestrian refuge points on Port Road and Mayfair Avenue to complete connections of footpaths.

11.14 OCEAN ROAD

Ocean Road is a Collector Road with an estimated ADT volume of 2746 veh./day. It provides a linkage to town from the south of Whangamata.

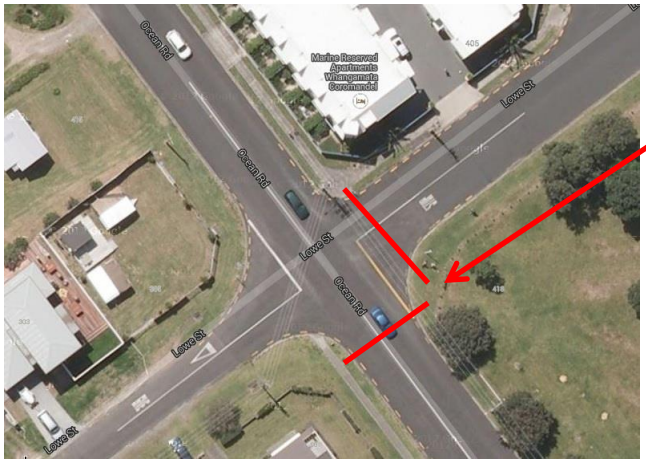
Installing kerb ramps at the intersections with the side roads will provide connection to the footpath on the north side of Ocean Road.

Recommendation 53 Install kerb ramps for crossing Ocean Road at the intersections of Tamaki Road, Short Road, Achilles Avenue, and Graham Street to complete connections to the footpath.

The footpath changes sides at Lowe Street, switching from the north side of Ocean Road to the south side. Installing a refuge island on Ocean Road at this intersection will provide connection between the footpaths as well as managing traffic speed on

Ocean Road. Install kerb ramps on the SE corner for crossing both Ocean Road and Lowe Street, and a kerb ramp on the SW corner for crossing Ocean Road.

Figure 36: Ocean Road/Lowe Street intersection



Proposed crossing location at Ocean Road to connect footpaths

Figure 37: Proposed crossing location at Ocean Road/Lowe Street intersection

Recommendation 54 Install a refuge island on Ocean Road and kerb ramps on the SW and SE corner for crossing Ocean Road and Lowe Street.

11.15 RUTHERFORD ROAD INTERSECTIONS WITH CASEMENT ROAD AND AICKEN ROAD

Installing kerb ramps at the Casement Road/Rutherford Road intersection and Aicken Road/Rutherford Road intersections will provide connection crossing Rutherford Road.

Recommendation 55 Install kerb ramps for crossing Rutherford Road at the intersections with Casement Road and Aicken Road.

12 STREET FURNITURE

Well-designed public spaces play a decisive role in the comfort and safety of users. Street furnishings support people walking, cycling and those taking rest on their journey[54].

Street furniture should avoid interrupting pedestrian desire lines and be carefully selected and positioned to avoid cluttering the street. It needs to be mounted at a height that is usable for all users.

Street furniture includes rubbish bins, light and power poles, signage, seats, bus shelters, fencing etc.

12.1 PERMANENT SIGNAGE[55]

Signage plays a key role in access in the community. It provides confidence to the user that they are heading in the right direction and informs them of access conditions.

All road users need helpful guidance and direction to inform and warn them of the environment ahead. As pedestrians have different characteristics and routes from other road users, the following four specific measures are required:

- Providing directional information to pedestrians;
- Channelling pedestrian flows;
- Informing other road users of the presence of pedestrians; and
- Indicating to pedestrians and other road users who has priority at crossing points.

A planned and cohesive strategy for pedestrian signage usually reduces the number of signs and locations and minimises maintenance costs, clutter/obstruction and visual blight. Signage strategies should be based on locating signs at the following specific ‘decision points’ on the pedestrian network:

- Likely trip origins, that is, places where people join the pedestrian network such as transport interchanges/stops, car parks and key approaches.
- Likely trip destinations, as when visits to these locations are over they become trip origins. Examples include tourist attractions, community facilities and retail areas.

[54] North Shore City Council – Design of Streets: How should street furnishings be incorporated into street design?
[55] Pedestrian Planning and Design Guide – Section 16:Measures to Guide Pedestrians

- Locations with possible route ambiguity, including major junctions and open areas.
- On long routes where pedestrians may be uncertain that they have chosen the correct direction and need confirmation.

It can be used to identify barriers and inform users of other ways of accessing their destination.

A walking and cycling signage strategy can provide direction for the implementation and installation of signage, including location, height and font type/size criteria. Consultation with interested parties will assist in the implementation of such a policy.

Recommendation 56 Adopt a Pedestrian Signage Policy to inform users of their choices in accessing destination points.

12.2 TEMPORARY SIGNAGE, STOCK and AL-FRESCO DINING

Visually impaired access users require a clear access path to successfully negotiate an area. They generally use building and boundary lines to guide their way.

Businesses along Port Road regularly install street signage, stock and tables and chairs outside of their premises. This has implications for people with significant visual impairment as they frequently use environmental cues such as buildings to navigate around a community and they won't necessarily see stock that are low to the ground, they become a trip hazard.

Figure 38: Al-fresco dining on Port Road

By having obstacles on the shop boundary, visually impaired people are forced to use the kerb line as a navigation aid.

Recommendation 57 Liaise with business owners to retain clear access route widths and keeping the building line clear of al-fresco dining furniture, signage and stock for sale.

12.3 SEATING

There is a good amount of seating in the geographic area of interest. Seating is helpful for access users who are unsteady on their feet.

The availability of seating areas is generally viewed as a necessary urban feature for older people. It is difficult for many older people to walk around their local area without somewhere to rest[56].

The Inclusive Design for Getting Outdoors suggests the following requirements are beneficial for older persons[57]:

- The seat itself – There is a range of guidance on the style of seat and the appropriateness of a seat in meeting user needs especially given that users in public spaces will be so varied. There is a general consensus about: the provision of a back rest; mixture of seating with and without arm rests; the height of the seat from the floor (450 to 475mm, plus other heights where multiple seating permits this); constructed from a material which does not retain heat / cold; colour and luminance to contrast with the background environment.
- Positioning of the seat – The seating should be set back from a footway such that it does not cause an obstruction; there should be space for a wheelchair user to pull up alongside a companion; end parking on a firm surface for a wheelchair or scooter. The Department for Transport (UK) (2007) suggests that seating should be located where there is good lighting and natural surveillance because it can sometimes attract anti-social behaviour, and that consideration should be given to pedestrian desire lines.

Figure 39: Public seating on Port Road

[56] World Health Organisation – Global Age-Friendly Cities: A Guide
[57] Inclusive Design for Getting Outdoors: Design Guidelines

Recommendation 58 Adopt the Inclusive Design for Getting Outdoors as part of its design for public seating.

For seating along Beach Access routes, refer to Section 15: Beach Access

12.4 LIGHT POLES

The major concern at the existing crossing opportunities on Port Road was the lack of sight distance caused by Light Poles at some of the crossings. Obstacles placed on the side that traffic approaches from cause difficulty for pedestrians to see the traffic.

Figure 40: Light Pole affecting sight distance at Port Road/Ocean Road intersection

The placement of Light Poles at the crossings inhibits the line of sight for both wheelchair and mobility scooter users and approaching vehicles.

Figure 41: Light Poles on the wrong side of the pedestrian crossing on Port Road

Recommendation 59 Combine the Light Pole and black and white Beacon Pole and/or re-locate the Light Poles at the pedestrian crossing facilities to the other side of the crossings to improve visibility of vehicles and pedestrians.

13 TEMPORARY TRAFFIC MANAGEMENT

Where work activities in the road corridor affect pedestrians or cyclists, the Temporary Traffic Management (TTM) must ensure that[58]:

- Pedestrians are not led into direct conflict with the work operation or traffic moving through or around the worksite.
- If pedestrians are directed into live lanes they should be adequately protected from traffic by delineation and/or barriers and suitable warning signs.
- Safe impediment free temporary paths are provided where footpaths are blocked by the activity.

Pedestrians, including those with impaired vision or wheelchair users must be considered as part of the design, preparation, approval and implementation of the Traffic Management Plan (TMP).

Pedestrian management of the Code of Practise for Temporary Traffic Management (CoPTTM) is a nationwide problem which NZTA focuses on when training users of this manual. It was pleasing to see at the time of the audit that there were no serious instances of non-compliance in the geographic area of interest. This, however, is just one moment in time, and continued enforcement is necessary to maintain best practise.

Recommendation 60 Enforce Code of Practice for Temporary Traffic Management standards for pedestrian control as part of the TMP approval process and supervision.

Recommendation 61 Conduct regular 'random' audits of Temporary Traffic Management as part of the supervision process of Traffic Management Plans.

[58] Code of practice for temporary traffic management (COPTTM): Part 8 of the Traffic Control Devices manual (TCD Manual)

14 CONNECTION TO MOANA HOUSE

14.1 OVERVIEW

Moana House and Village is situated on Tairua Road (SH.25), approx. 2.3km from the centre of Whangamata.

Issues were raised at the Community Consultation Meeting regarding the connection to town for residents from Moana House. Currently the majority of mobility scooter users use the footpath on the north side of Harry Watt Drive to a refuge island approx. 270m west of Hetherington Road/Martyn Road intersection. The user then travels to Casement Road through the reserve, and connects to the supermarket or Town.

The access route can be split into three sections:

- Tairua Road (SH.25)/Harry Watt Drive;
- Reserve from Hetherington Road to Casement Road; and
- Casement Road.

14.2 TAIRUA ROAD/HARRY WATT DRIVE

The first obstacle for Moana House residents is having to negotiate crossing SH.25 immediately east of Moana House.

Figure 42: Crossing SH.25 at Moana House

There are three ways to help mitigate the issues of this crossing point:

- Install a refuge island;
- Lower the speed limit from 70km/hr to 50km/hr; or
- Construct a footpath on the same side as Moana House to the top of the hill, and provide a splitter island at the intersection of Tairua Road (SH.25)/Harry Watt Drive.

Installing a new footpath will be the most expensive item as a new bridge over the stream will need to be constructed and could be considered in the long term programme for Whangamata.

Installing a 1.8m wide refuge island at the existing crossing point and extending the 50km/hr speed zone west approx. 175m will greatly improve the safety of the crossing facility. The refuge island will complement the speed change in the area by narrowing down the traffic lanes and giving a sense of urban change to the vehicle driver.

Recommendation 62 Install a 1.8m wide refuge island at the existing crossing and extend the 50km/hr speed zone west by approx. 175m to provide a safer crossing environment at this location.

The footpath on either side of Tukere Drive has the following grades:

- West of Tukere Drive – 1 in 8 (12.5%); and
- East of Tukere Drive – 1 in 11 (9.1%)

Re-grading the footpath to a maximum of 1 in 14 (7.1%) will improve safety as grades greater than 1 in 12 (8.33%) can cause users to tip out.

Figure 43: Footpath west and east of Tukere Drive

Recommendation 63 Re-grade the footpath west and east of Tukere Drive to a maximum grade of 1 in 14 (7.1%).

There is a section of footpath west of Moana Anu Anu Avenue is extremely steep and should not be used in its current grade of 1 in 5.9 (17%).

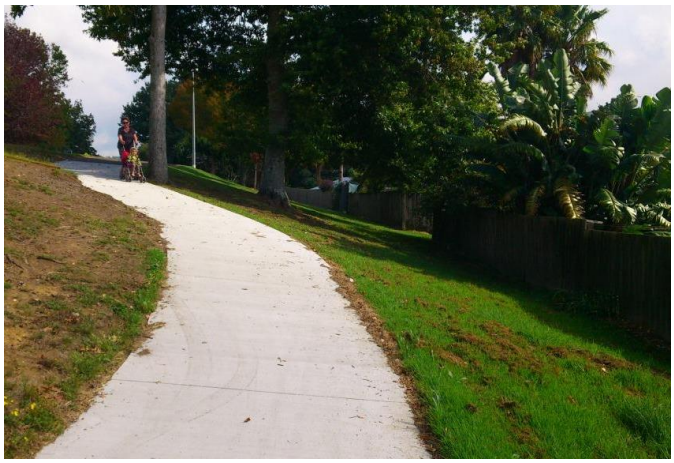


Figure 44: Steep grade of footpath west of Moana Anu Anu Avenue

Re-grading the footpath to a maximum grade of 1 in 14 (7.1%) will enhance the safety at this section of footpath.

Recommendation 64 Re-grade the footpath west of Moana Anu Anu Avenue to a maximum grade of 1 in 14 (7.1%).

A bridge over the estuary links Harry Watt Drive to the township of Whangamata. A footpath is included on the north side of Harry Watt Drive. This is extremely narrow with a mobility scooter just fitting on the path.

Figure 45: Bridge footpath on Harry Watt Drive

Widening the footpath by providing clip-ons onto the bridge is an expensive option and should be considered after monitoring the usage of the footpath.

A short term solution is to provide waiting areas at each end of the bridge or a passing bay in the middle of the bridge. Small build outs will need to be constructed at each end or in the middle to accommodate this. For extra improvement, electronic

signage with push buttons to alert users that someone is on the bridge will aid users with limited vision.

Recommendation 65 Install waiting areas at each end of the bridge or provide a passing bay in the middle of the bridge and monitor the usage to determine whether widening the footpath is required.

14.3 RESERVE

A newly constructed refuge island and footpath has been constructed in the reserve, linking Hetherington Road with Casement Road. This has become a popular connection to the supermarket and a worthwhile investment for TCDC.

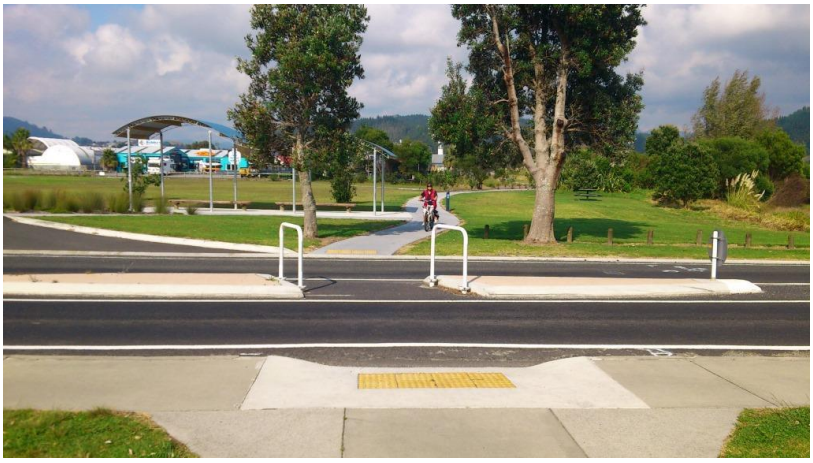


Figure 46: Newly constructed Refuge Island and footpath linking Hetherington Road and Casement Road

14.4 CASEMENT ROAD

While the connection to the path at the Hetherington Road is excellent, the connection to Casement Road is poor.

Figure 47: Connection from Reserve to Casement Road

Installing a footpath at the Casement Road end for approx. 70m east on the north side, then install kerb ramps to connect to the footpath on the south side. This will complete the link to the Supermarket from the Reserve.

Figure 48: Mobility scooter using the carriageway on Casement Road

Recommendation 66 Install a footpath on the north side of Casement Road for approx. 70m east from the Reserve, then install kerb ramps to connect to the footpath on the south side.

15 BEACH ACCESS

15.1 OVERVIEW

Whangamata is located on the east side of the Coromandel Peninsula. The geographic area of interest covers Beach Access No.5 to 9.

15.2 COMMUNITY REQUEST

The Community Consultation Meeting raised questions about access to the beach. Access onto the beach creates its own problems for wheelchair and mobility scooters due to the soft sand. The attendees recognised this problem, and requested the opportunity to at least see the waves. Grass walkways, sand dunes and private properties prevent the ability to see the ocean.

The preferred Beach Access was at the Surf Club, which is Beach Access No.9.

15.3 BEACH ACCESS NO.5

Beach Access No.5 is located at the end of Hunt Road. A public toilet and good seating is available in this location.

Mobility parking at this location is discussed in Section 7: Mobility Parking.

Figure 49: Beach Access No.5

By providing a 1.5m concrete path to the seats at the each of the sand dune, access will be improved.

Recommendation 67 Install a 1.5m concrete path to the seating at the edge of the sand dunes at Beach Access No.5 to provide access for access users.

15.4 BEACH ACCESS NO.6

Beach Access No. 6 provides connection from the centre of town to the Beach, approx. 500m east of Port Road. This walk utilises concrete path walkways and joins the beach at Mooloo Crescent.

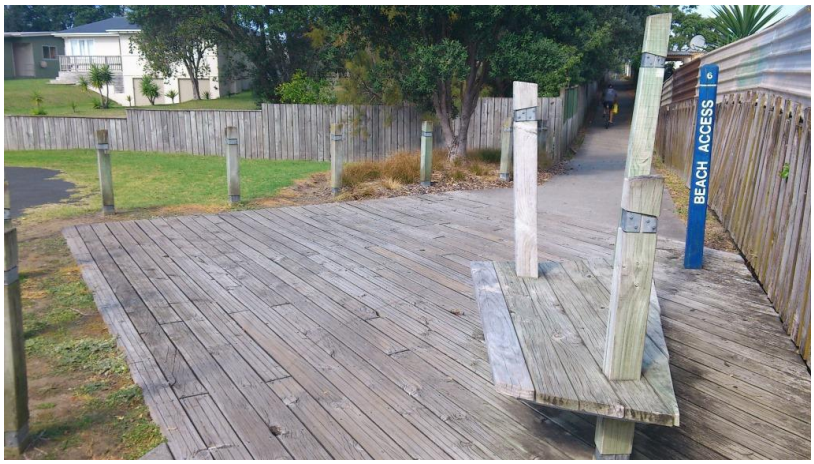


Figure 50: Beach Access No.6

A 2.5m concrete path is the absolute minimum for a shared cycle path/walkway. Widening the path to 2.5m (3m preferred) will improve the path for sharing with all users.

Widening the chicane barriers to a minimum 1.5m will aid mobility scooter users and mothers with pushchairs to use this path. Painting the barriers and bollards along the route yellow will aid visually impaired users.

Figure 51: Chicane barrier at Mooloo Crescent

Recommendation 68 Widen the chicane barriers to 1.5m spacing and paint the barriers and bollards yellow for visually impaired users.

Recommendation 69 Widen the path at Beach Access No.6 to a minimum of 2.5m.

An area of concern is at the Public toilets near the Port Road end of the walkway. A narrow footpath and steep crossfall makes this section difficult to negotiate.

Widening the footpath by reducing the radius of the curve will improve the crossfall at this point.

Figure 52: Walkway at Public Toilets near Port Road

Recommendation 70 Reduce the radius of curve at the Public Toilets near Port Road to improve width and crossfall of the walkway.

Installing a concrete pad at the top of the sand dune with seating as advised in Section 12: Street Furniture, access will be completed.

15.5 BEACH ACCESS NO.7

Beach Access No. 7 is located off St Patricks Row. By installing a footpath on Beverly Terrace and St Patricks Row, access to this part of the Beach will be improved. Extending the footpath (see Recommendation 43) to the sand dunes and providing an area for viewing will complete this Access.

Figure 53: Beach Access No.7 at St Patricks Row

Recommendation 71 Install a 1.5m concrete path with a concrete pad the end to improve access at Beach Access No.7

15.6 BEACH ACCESS NO.8 AND 9

Beach Access No. 8 and 9 are situated off Esplanade Drive near the Surf Club. Public Toilets are available at this location and there is a raised grassed area between Esplanade Drive and the beach. This was the preferred location for access to the beach by the attendee's at the Community Consultation Meeting.

Figure 54: Beach Access No.9 from Lowe Street

Figure 55: Raised grassed area between Esplanade Drive and the beach

Extending the footpath from Lowe Street to the Surf Club and installing a 3m wide path along the raised grassed area to Beach Access No.8 (with associated connection to the footpath from Graham Street at Beach Access No.8) will provide a great viewing area for access users.

Recommendation 72 Extend the footpath from Lowe Street to the Surf Club, install a 3m wide concrete path along the raised grass area, and connect to the footpath on Graham Street to provide access to the Beach.

16 RECOMMENDATIONS

The following tables list the recommendations in order as set out in the report. Table 6 shows the general recommendations while Tables 7, 8, and 9 showing the site specific recommendations.

The specific recommendations are split into three categories:

- Serious Safety Risk – Where it is considered serious injury may occur
- Significant Concern – Major inconveniences
- Minor Concern – Minor inconveniences

The total estimated costs for the three categories are:

- Serious Safety Risk $40,000
- Significant Concerns $285,000
- Minor Concerns $310,000

Consideration should be given to a more formal method of setting priorities for provision of kerb ramps and maintenance of footpaths over a wider area as members of the disability community will clearly have preferred routes into the areas covered by this report. By identifying a risk and condition rating, a profile target can be developed that allows limited resources to address the most critical barriers first. Poor condition can be tolerated where there is little or no likelihood of use by the disabled and elderly.

We suggest TCDC designate footpaths and all potential kerb ramp locations within a risk profile of minor, significant or serious with accessible routes as high priority. A relatively simple set of KPI's could then be formulated with condition ratings say 1 - 5 used to determine the profile.

Costs shown in Tables 7, 8, and 9 are indicative construction costs only and should only be used as a guide[59].They do not include Traffic Management Costs, consultation with affected parties, or design costs. All project costs will need to be finalised as design is completed for each.

[59] Costs are based on rates from Rawlinsons New Zealand Construction Handbook 2013/14 – 28th Edition

16.1 GENERAL RECOMMENDATIONS

Table 6: General Recommendations

It is recommended TCDC:

No.	Pg.	Description
1.	13	Adopt the Risk Modified Condition Assessment methodology as a tool for future maintenance prioritisation.
4.	20	Consider Mobility Space placement during the consenting process.
6.	22	Adopt the recommended minimum length in the TCD Manual Part 13: Parking Control of 6m for parallel parking with a further 1.5m allowance for the hoist.
7.	22	Adopt the recommended minimum width in NZS 4121:2001 of 3.5m and the minimum recommended length in the TCD Manual Part 13: Parking Control of 5.4m for angle parking. Allowance of at least 1.5m should be considered between the parking space and the live traffic lane to provide safety for wheelchair users who use rear loading vehicles.
9.	24	Continue the programme to mark Mobility Spaces with blue surfacing. Installing blue marking as per figure 8 will aid with maintaining a non-slip surface with the colour of both the surface and the marking to comply with Land Transport Rule: Traffic Control Devices 2004.
10.	26	Adopt the Pedestrian Planning and Design Guide for Kerb Ramps with the following changes: • Ramp – Normal maximum gradient to be 1 in 14 (7.14%), with the absolute maximum gradient to be 1 in 12 (8.33%); and • Minimum cut down width of 1.8m.
11.	26	Replace all kerb ramps as required during the maintenance programme to a minimum width of 1.8m.
22.	33	Adopt the practise of milling seal edges at the join of the seal and the kerb channel, especially at areas where a flush kerb cut down is present, in maintenance contracts.
24.	35	When installing Tactiles, ensure the Tactiles are safety yellow as recommended by the RTS 14 Guidelines for Facilities for Blind and Vision Impaired Pedestrians.
24.	38	Install Warning Indicators at all pedestrian crossings points and refuge islands. This includes at intersections and mid-block pedestrian crossings.
25.	38	Install Directional Indicators as per RTS 14 Guidelines at all pedestrian crossings points where a road crossing point is not located in the continuous accessible path of travel and directional guidance is required.

No.	Pg.	Description
36.	43	Ensure all Warning Indicators are installed to the full width of the kerb ramp as required in Recommendation 11.
37.	43	Ensure all Tactiles installed in future works align the user to the crossing alignment.
41.	50	Replace footpaths to the widths as stated by the Pedestrian Planning Design Guide when footpaths are upgraded as part of the maintenance programme.
42.	50	Monitor vegetation overgrowth that can reduce the footpath widths and visibility at the crossing facilities on Port Road. Liaise with adjoining land owners to trim vegetation extending from the boundary over the footpath as required.
43.	51	Adopt an absolute maximum longitudinal grade of 1 in 12 (8.3%) for existing grades with a desirable maximum grade of 1 in 14 (7.1%) for future proposed works.
44.	52	Adopt 1% as the crossfall standard, and upgrade existing footpaths to this grade when replaced.
46.	54	Adopt the Pedestrian Crossing Facilities Calculation Spreadsheet for use when determining pedestrian crossing facilities.
47.	61	Measure traffic volumes in the summer months to determine peak traffic volumes when calculating new crossing opportunities.
48.	61	As splitter and refuge islands are replaced under normal maintenance, ensure they are replace with islands that are at least 1.8m wide.
55.	66	Adopt a Pedestrian Signage Policy to inform users of their choices in accessing destination points.
57.	68	Adopt the Inclusive Design for Getting Outdoors as part of its design for public seating.
59.	69	Enforce Code of Practice for Temporary Traffic Management standards for pedestrian control as part of the TMP approval process and supervision.
60.	69	Conduct regular ‘random’ audits of Temporary Traffic Management as part of the supervision process of Traffic Management Plans.

16.2 SPECIFIC RECOMMENDATIONS

Table 7: Specific Recommendations – Serious Safety Risks

It is recommended TCDC:

No.	Pg.	Description	Indicative Cost
13.	28	Replace the kerb on the NE corner of Port Road/Ocean Road intersection crossing Ocean Road to a maximum grade of 1 in 14 (7.1%). Re-locate the SE corner of the same intersection crossing Ocean Road to the correct alignment and with a maximum grade of 1 in 14 (7.1%).	$1,000
17.	31	Re-locate the kerb ramps crossing Martyn Road at the intersection of Hetherington Road and Martyn Road onto Martyn Road, north of the intersection.	$1,000
38.	44	Install yellow lines at the Z Service Station at the Port Road/Ocean Road intersection and Liquor King at the Port Road/Hunt Road intersection to delineate the footpath at the boundary.	$500
45.	52	Regularly control car parking on the footpath to maintain a clear, usable footpath.	$0
56.	67	Liaise with business owners to retain clear access route widths and keeping the building line clear of al-fresco dining furniture, signage and stock for sale.	$0
58.	68	Combine the Light Pole and black and white Beacon Pole and/or re-locate the Light Poles at the pedestrian crossing facilities to the other side of the crossings to improve visibility of vehicles and pedestrians.	$8,000
61.	71	Install a 1.8m wide refuge island at the existing crossing and extend the 50km/hr speed zone west by approx. 175m to provide a safer crossing environment at this location.	$25,000
63.	72	Re-grade the footpath west of Moana Anu Anu Avenue to a maximum grade of 1 in 14 (7.1%).	$4,500

Total: $40,000

Table 8: Specific Recommendations – Significant Concerns

It is recommended TCDC:

No.	Pg.	Description	Indicative Cost
5.	21	Install full length kerb ramps at the remaining Mobility Spaces in Whangamata to provide quick, easy access to the footpath.	$5,000
8.	23	Widen the two Mobility Spaces at 607 Port Road and 650 Port Road to meet the requirements of NZS 4121:2001.	$1,000
12.	27	Replace the kerb ramps on the NW corner (crossing Hetherington Road and Port Road) and the SW corner (crossing Hetherington Road) at the Port Road/Hetherington Road/Hunt Road intersection to a maximum grade of 1 in 14 (7.1%).	$1,500
14.	29	Re-grade the kerb ramps crossing Casement Road at the Port Road/Casement Road intersection to a maximum grade of 1 in 14 (7.1%).	$1,000
15.	29	Replace the kerb ramps at the Port Road/Philomel Road intersection to have a maximum grade of 1 in 14 (7.1%).	$1,000
16.	30	Replace the kerb on the NE corner of Port Road/Chartwell Avenue intersection crossing Chartwell Avenue to a maximum grade of 1 in 14 (7.1%). Re-locate the SE corner of the same intersection crossing Chartwell Avenue to the correct alignment and with a maximum grade of 1 in 14 (7.1%).	$1,500
18.	31	Replace the kerb ramp on the NE corner of Hetherington Road/Martyn Road (crossing Hetherington Road) to a maximum grade of 1 in 14 (7.1%).	$500
19.	32	Replace the kerb ramps at the Hetherington Road/Rutherford Road intersection to have a maximum grade of 1 in 14 (7.1%).	$1,000
20.	33	Relocate the kerb ramps for crossing Winifred Avenue to align with the splitter island. Replace the kerb ramps crossing both Barbara Avenue and Winifred Avenue to a maximum grade of 1 in 14 (7.1%).	$1,000
21.	33	Replace the kerb ramps crossing Graham Street at the intersection with Ocean Road to a maximum grade of 1 in 14(7.1%).	$1,000

No.	Pg.	Description	Indicative Cost
26.	39	Install Warning Indicators on Port Road at the following locations: • Port Road/Chartwell Avenue – both sides crossing Chartwell Avenue and splitter island; • Port Road/Philomel Road – both side crossing Philomel Road; and • Port Road/Leander Road – both sides crossing Leander Road.	$3,500
28.	40	Install both Warning and Directional Indicators at the intersection of Port Road/Ocean Road (both sides crossing Ocean Road).	$1,000
29.	40	Install Warning Indicators on Ocean Road at the intersections with Barbara Avenue, Short Road, and Graham Street.	$3,500
30.	41	Install Warning Indicators at Hetherington Road/Rutherford Road intersection and extra Warning Indicators at Hetherington Road/Martyn Road intersection (east side crossing Hetherington Road).	$2,000
31.	41	Install both Warning and Directional Indicators at the Hetherington Road/Martyn Road intersection, crossing Martyn Road north of the roundabout.	$2,000
32.	41	Install Warning indicators at Hunt Road/Barbara Avenue intersection (both sides crossing Barbara Avenue).	$1,000
33.	42	Install or replace Warning Indicators at Aicken Road/Rutherford Road intersection and the refuge island on Martyn Road, north of Aicken Road. Install Directional Indicators at the refuge island on Martyn Road.	$2,000
34.	42	Install Warning Indicators in the splitter island on Winifred Avenue and Directional Indicators on the kerb ramps crossing Barbara Avenue.	$1,500
35.	42	Install Warning Indicators at Beverly Terrace/Graham Street intersection, crossing Beverly Terrace.	$1,000
39.	48	Install footpaths on both sides of the road on the Collector Roads (Hetherington Road, Martyn Road, Ocean Road, and Port Road).	$215,000

No.	Pg.	Description	Indicative Cost
51.	63	Install kerb ramps and pedestrian refuge points on Port Road and Mayfair Avenue to complete connections of footpaths.	$3,000
52.	63	Install kerb ramps for crossing Ocean Road at the intersections of Tamaki Road, Short Road, Achilles Avenue, and Graham Street to complete connections to the footpath.	$2,000
53.	64	Install a refuge island on Ocean Road and kerb ramps on the SW and SE corner for crossing Ocean Road and Lowe Street.	$15,000
62.	71	Re-grade the footpath west and east of Tukere Drive to a maximum grade of 1 in 14 (7.1%).	$10,000
65.	74	Install a footpath on the north side of Casement Road for approx. 70m east from the Reserve, then install kerb ramps to connect to the footpath on the south side.	$6,000
67.	76	Widen the chicane barriers to 1.5m spacing and paint the barriers and bollards yellow for visually impaired users.	$500
69.	77	Reduce the radius of curve at the Public Toilets near Port Road to improve width and crossfall of the walkway.	$2,500

Total: $285,000

Table 9: Specific Recommendations – Minor Concerns

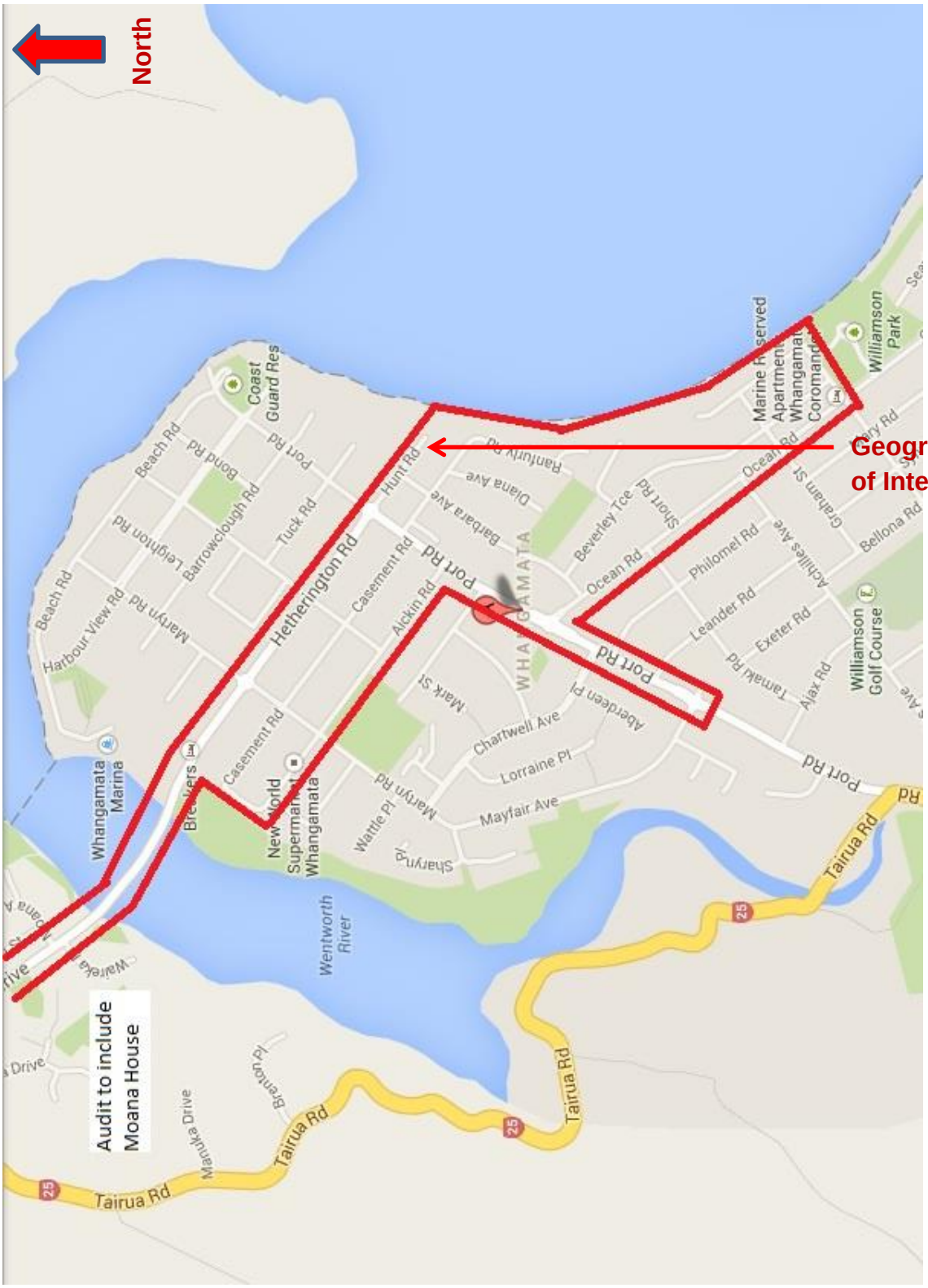
It is recommended TCDC:

No.	Pg.	Description	Indicative Cost
2.	18	Install a Mobility Space on Aicken Road and Casement Road, between Martyn Road and Casement Road.	$2,000
3.	19	Install two Mobility Spaces as shown Figure 5 at Beach Access No.5 on Hunt Road.	$4,000
27.	40	Install Directional Indicators on Buffalo Beach Road at the following locations: • Port Road/Hunt Road/Hetherington Road – NW corner crossing Hetherington Road, NE and SE corner crossing Port Road and Hunt Road, and SW corner crossing Port Road and Hetherington Road; • Mid-block crossing point between Casement Road and Aicken Road – both sides; • Mid-block crossing point between Aicken Road and Lincoln Road – both sides; • Mid-block pedestrian crossing between Lincoln Road and Ocean Road; and • Port Road/Ocean Road – crossing Port Road (both sides).	$7,000
40.	48	Create a long term plan to install footpaths on all Local Roads in the geographic area of interest with the following priority: • Beverly Terrace and St Patricks Row; • Ranfurly Road and Mooloo Crescent; • Diana Avenue; • Short Road; • Casement Road – north side Martyn Road to 108 Casement Road; • Aicken Road – south side Martyn Road to 107 Aicken Road; and • Winifred Avenue – Barbara Avenue to Ranfurly Road.	$210,000
49.	62	Use the Pedestrian Crossing Facilities Calculation Spreadsheet to determine the best pedestrian crossing facility at the Hetherington Road/Rutherford Road intersection.	$0

No.	Pg.	Description	Indicative Cost
50.	62	Once Recommendation 49 is completed, install a pedestrian crossing facility at the Hetherington Road/Rutherford Road intersection.	$10,000
54.	64	Install kerb ramps for crossing Rutherford Road at the intersections with Casement Road and Aicken Road.	$1,000
64.	73	Install waiting areas at each end of the bridge or provide a passing bay in the middle of the bridge and monitor the usage to determine whether widening the footpath is required.	$4,000
66.	75	Install a 1.5m concrete path to the seating at the edge of the sand dunes at Beach Access No.5 to provide access for access users.	$2,000
68.	76	Widen the path at Beach Access No.6 to a minimum of 2.5m.	$15,000
70.	78	Install a 1.5m concrete path with a concrete pad the end to improve access at Beach Access No.7	$5,000
71.	78	Extend the footpath from Lowe Street to the Surf Club, install a 3m wide concrete path along the raised grass area, and connect to the footpath on Graham Street to provide access to the Beach.	$50,000

Total: $310,000

APPENDIX A: LOCATION MAP



WHANGAMATA GEOGRAPHIC AREA OF INTEREST

Date: April 2014

Scale: Not to Scale

APPENDIX B: COMMUNITY CONSULTATION MEETING MINUTES

Minutes of Public Consultation Meeting at Whangamata War Memorial Hall

Date: 4th March 2014

Time: 10am.

A large number of local residents attended the public meeting today to discuss accessibility in the settlement of Whangamata.

The issues raised for consideration in the access report include:

1. Public toilets are located at Surf Club, Hunt Road, and Island Bay Park.
2. Check the timing of the door sensor at Hunt Road Public Toilet.
3. Preferred access to beach is at Surf Club
4. A service lane behind the Information Centre connects town centre with beach
5. Crossing Port Road is difficult near Sands Café
6. Create walking route loops
7. Install mobility spaces by Lindsay Road Shopping Centre
8. Check the toilets are wheelchair accessible with signs.
9. Backfill when creating footpaths – gaps between footpath and grass.
10. Access from mobility spaces onto the footpath is difficult – install a grate over the kerb to manoeuvre wheelchairs.
11. Widen the entrance to the beach at the end of Hinemoa St so elderly car passengers can see the breaking waves.
12. Upgrade the playground at the carpark of Hinemoa St.
13. You need one leg shorter than the other to use the footpath on Achilles Ave.
14. Crossing point gradients are too steep.
15. Water sits in the base of kerbs at crossing points.
16. Mobility scooters are grounding at crossings.
17. The library door is too heavy to use.
18. Shop doorways are too difficult to access with sliders etc.
19. The distance is too great from the pedestrian crossing at Sands to the Post Office pedestrian crossing.
20. Limited pedestrian crossing points on High Street.
21. The mobility space is situated too far away from the toilet block at Hunt Road.
22. Older adults with mobility issues cannot see the ocean.
23. Beach access is not accessible.
24. Install better access to playgrounds and main parks.

APPENDIX C: RISK MODIFIED CONDITION PROFILE

RISK MODIFIED CONDITION PROFILE

In order to provide a performance measure of the condition of footpaths and kerb ramps, it is necessary to combine the condition rating with a risk assessment to ensure the limited resources available achieve the maximum benefit for residents and other users.

The risk ratings are defined as follows:

Risk Level	Definitions	Risk Multiplier, R (%)
High	High level of foot traffic (commercial centre). Regular presence of people using walking aids, scooters or wheelchairs. Part of an accessible route for the disabled. Possible use by visually impaired	100
Medium	Regular presence of people using walking aids, scooters or wheelchairs. Presence of community facilities likely to be accessed by pedestrians. Part of an accessible route for the disabled.	60
Low	Very low pedestrian use. Absence of community destinations. No through traffic or low traffic count. Alternative routes available (e.g. opposite side of road)	30

Table 10: Risk Ratings

There are two measures to be analysed, being the footpaths and kerb ramps, with a minimum of 100 locations, selected in the same proportions as those within the defined risk categories, with the locations being chosen at random for assessment. Footpath sections should be at least 10m in length and kerb ramps should include the adjacent waiting area. Where a kerb ramp or footpath (for all or any part of a 10m section), is desirable but not built, a condition rating of 5 applies.

The profile score Pf for footpaths or Pk for kerb ramps for the defined area, with a total of “n” assessed sites is determined as follows:

$$Pf = \Sigma(1...n) / n \left| \frac{R_1}{C_1} ..... \frac{R_n}{C_n} \right| \times 100\%$$

The maximum score will depend on the proportions of sections within the various risk categories and a further normalisation can be undertaken if desired. For example with a 40/30/30 % allocation to the high medium and low risk categories, the maximum score would be 67% (0.4x100% + 0.3x60% +0.3x30%) and normalisation could be undertaken to set the maximum at 100%.

FOOTPATH CONDITION RATING

Table 11: Footpath Condition Rating

Rating	Conditions
1	• Surface in good condition; • Kerb well defined; • Surface in good condition; • No trip hazards; and • No attention required.
2	• Good surface; • Minor Wear and Tear; • Crossfall evident; and • No immediate concerns.
3	• Surface adequate; • Trip hazard removed; • Minor defects; and • No immediate attention required.
4	• Poor surface condition; • Limited width; • Cracks appearing; and • No major trip hazards.
5	• Concrete cracked and likely to lift; • Surface Poor; and • Potential for trip hazards.

KERB RAMP CONDITION RATING

Table 12: Kerb Ramp Condition Rating

Rating	Conditions
1	• Good surfaces; • No trip hazards; and • No defects.
2	• Generally Complies with DBH D-1 Fig 9 and NZS 4121; • Minor wear and tear on concrete; and • No immediate attention required.
3	• Good level crossing; • Minor repair required; and • No immediate concerns.
4	• Rough concrete surface; • Steep ramp; • Inadequate waiting space; and • No major trip hazards.
5	• Poor surface condition • No defined waiting area • Potential trip hazards • Excessive slopes

APPENDIX D: NZTA PEDESTRIAN CROSSING FACILITIES CALCULATION SPREADSHEET

Pedestrian Crossing Facilities Survey Sheet

Page _____ of _____

Survey Location: _____
Surveyor(s): _____
Survey Date: _____
Uninterrupted/Interrupted Traffic Flow (Circle one)
85th % Vehicle Speed est/measured: _____
General Comments: _____

Drawing (include cross section, lanes, median, parking, etc)

Pedestrian Crossing Facilities Survey Sheet

Survey Location: _____

Survey Date: _____

Page _____ of _____

Time of Day (15min Intervals)	Vehicle Volume		Pedestrian Flow			Comments:
	Direction 1:	Direction 2:	Adults	Children (<12years)	Elderly/ Sensitive	

Pedestrian Crossing Facilities Calculation Spreadsheet

Summary Sheet

Project Name		**Date of Assessment**	
Project Location			

Field Data

Road Layout	(select an option)
Speed Limit (Environment)	(select an option)
Approach Speed (85th Percentile)	(select an option)

	Traffic Volume Average Peak (veh/hr)	No. of Trafficked Lanes	Flow Type	Crossing Distance, Without Aids (m)	Pedestrian Volume Average Peak Hour (ped/hr)
Direction 1	EnterNo.	(select an option)	select an optior		
Direction 2		(select an option)	select an optior		
Total	EnterNo.	(select an option)	select an optior		EnterNo.

Traffic Volume (AADT)		veh/day	Pedestrian Volume	peds/day

Physical Aid Benefits

	Total Crossing Distance (m)	Mean Pedestrian Delay (sec/ped)	LOS	NPV Pedestrian Delay Cost	NPV Safety Cost Saving	NPV Geometric Vehicle Occupant Delay	Appropriateness for Road Type & Speed
Without Crossing Facility					-	-	-
Platform					elect and optic		(select an option)
Kerb Extensions					elect and optic	-	(select an option)
Median Refuge						-	(select an option)
Kerb Extensions & Median Refuge						-	See result for individual facilities above

Facility Considered	(select an option)
NPV Total Benefits for Facility Considered	(select an option)
Construction Cost for Facility Considered	$ -
Benefit Cost Ratio for Facility Considered	

Zebra Crossings

Does the crossing meet the minimum volume requirement of 50 peds/hr?	Yes
Does the crossing meet the requirement of having less than two lanes in each direction?	(select an option)
Appropriateness of Zebra for Road Type & Speed	(select an option)

	Mean Pedestrian Delay (sec/ped)	NPV Safety Cost Saving	NPV Geometric Vehicle Occupant Delay	Appropriateness of Zebra, & of Physical Aid for Road Type & Speed
Without Crossing Facility		-	-	-
Zebra Only	-	select and optior	-	Yes
Zebra + Platform	-	select and optior		See result for individual facilities above
Zebra + Kerb Extensions	-	select and optior	-	See result for individual facilities above
Zebra + Median Refuge	-		-	See result for individual facilities above
Zebra + Kerb Extensions & Median Refuge	-		-	See result for individual facilities above

Facility Considered	(select an option)
NPV Total Vehicle Occupant Delay	
NPV Total Benefits for Facility Considered	(select an option)
Construction Cost for Facility Considered	$ -
Benefit Cost Ratio for Facility Considered	

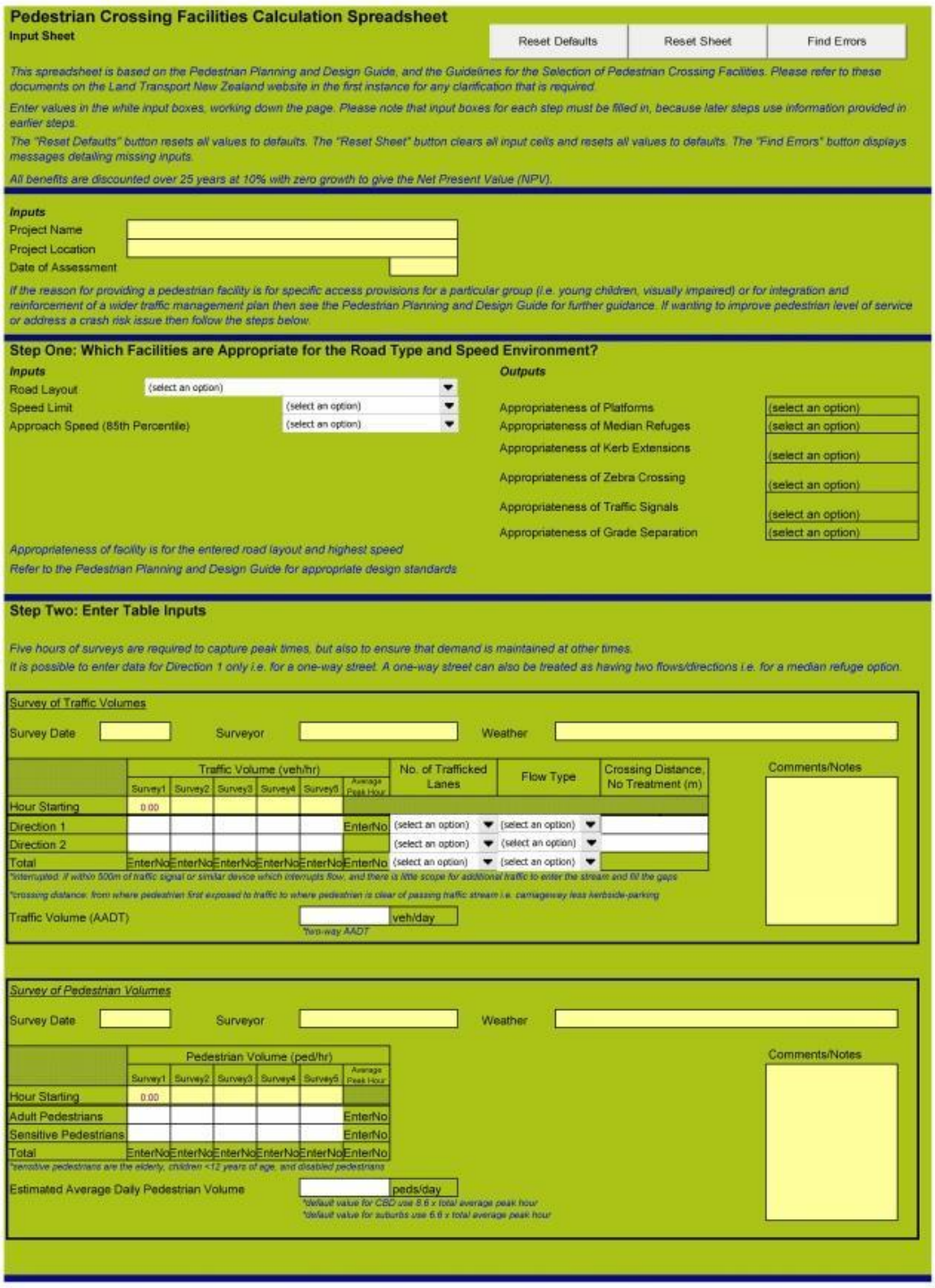
Traffic Signals

Appropriateness for Road Type & Speed	(select an option)	
Pedestrian Delay (Average Peak)		hours/hour
Vehicle Occupant Delay (Average Peak)		hours/hour
NPV Pedestrian Delay Without Facility		
NPV Pedestrian Delay With Signals		
NPV Vehicle Occupant Delay With Signals		
NPV Safety Cost Savings With Signals	(select an option)	
NPV Total Benefits for Traffic Signals		
Benefit Cost Ratio for Facility Considered		

Grade Separation

Appropriateness for Road Type & Speed	(select an option)

Pedestrian Crossing Facilities Selection Guideline Spreadsheet Version 1.2 February 2007



Pedestrian Crossing Facilities Calculation Spreadsheet

Input Sheet

Reset Defaults | Reset Sheet | Find Errors

This spreadsheet is based on the Pedestrian Planning and Design Guide, and the Guidelines for the Selection of Pedestrian Crossing Facilities. Please refer to these documents on the Land Transport New Zealand website in the first instance for any clarification that is required.

Enter values in the white input boxes, working down the page. Please note that input boxes for each step must be filled in, because later steps use information provided in earlier steps.

The "Reset Defaults" button resets all values to defaults. The "Reset Sheet" button clears all input cells and resets all values to defaults. The "Find Errors" button displays messages detailing missing inputs.

All benefits are discounted over 25 years at 10% with zero growth to give the Net Present Value (NPV).

Inputs

Project Name

Project Location

Date of Assessment

If the reason for providing a pedestrian facility is for specific access provisions for a particular group (i.e. young children, visually impaired) or for integration and reinforcement of a wider traffic management plan then see the Pedestrian Planning and Design Guide for further guidance. If wanting to improve pedestrian level of service or address a crash risk issue then follow the steps below.

Step One: Which Facilities are Appropriate for the Road Type and Speed Environment?

Inputs

Road Layout (select an option)

Speed Limit (select an option)

Approach Speed (85th Percentile) (select an option)

Outputs

Appropriateness of Platforms	(select an option)
Appropriateness of Median Refuges	(select an option)
Appropriateness of Kerb Extensions	(select an option)
Appropriateness of Zebra Crossing	(select an option)
Appropriateness of Traffic Signals	(select an option)
Appropriateness of Grade Separation	(select an option)

Appropriateness of facility is for the entered road layout and highest speed

Refer to the Pedestrian Planning and Design Guide for appropriate design standards

Step Two: Enter Table Inputs

Five hours of surveys are required to capture peak times, but also to ensure that demand is maintained at other times.

It is possible to enter data for Direction 1 only i.e. for a one-way street. A one-way street can also be treated as having two flows/directions i.e. for a median refuge option.

Survey of Traffic Volumes

Survey Date | Surveyor | Weather

	Traffic Volume (veh/hr) Survey1	Survey2	Survey3	Survey4	Survey5	Average Peak Hour	No. of Trafficked Lanes	Flow Type	Crossing Distance, No Treatment (m)
Hour Starting	0.00								
Direction 1						EnterNo	(select an option)	(select an option)	
Direction 2							(select an option)	(select an option)	
Total	EnterNo	EnterNo	EnterNo	EnterNo	EnterNo	EnterNo	(select an option)	(select an option)	

**Interrupted: if within 500m of traffic signal or similar device which interrupts flow, and there is little scope for additional traffic to enter the stream and fill the gaps*

**Crossing distance: from where pedestrian first exposed to traffic to where pedestrian is clear of passing traffic stream i.e. carriageway less kerbside parking*

Comments/Notes

Traffic Volume (AADT) veh/day

**two-way AADT*

Survey of Pedestrian Volumes

Survey Date | Surveyor | Weather

	Pedestrian Volume (ped/hr) Survey1	Survey2	Survey3	Survey4	Survey5	Average Peak Hour
Hour Starting	0.00					
Adult Pedestrians						EnterNo
Sensitive Pedestrians						EnterNo
Total	EnterNo	EnterNo	EnterNo	EnterNo	EnterNo	EnterNo

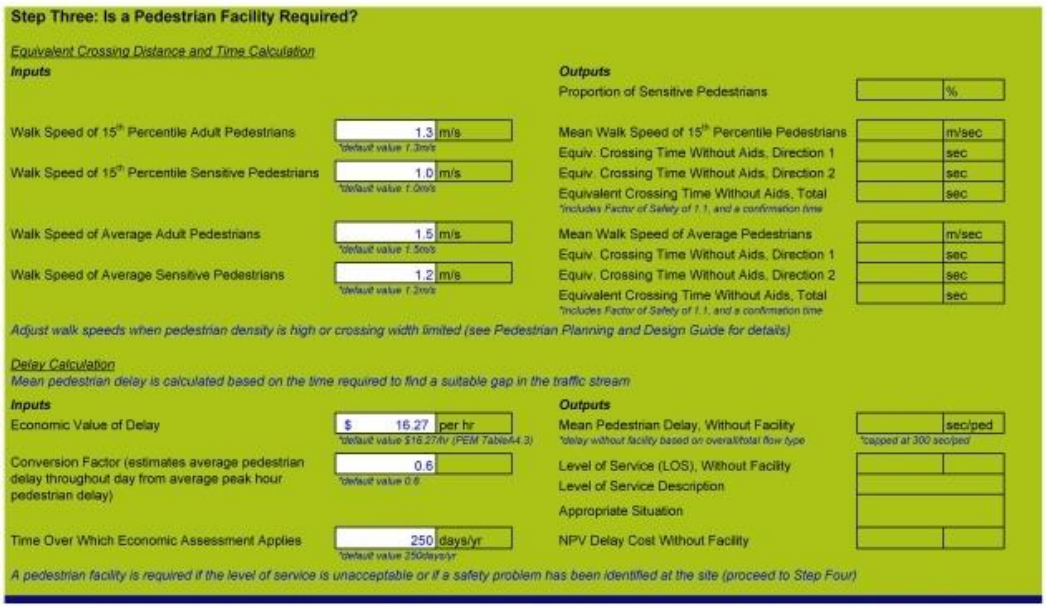
**sensitive pedestrians are the elderly, children <12 years of age, and disabled pedestrians*

Comments/Notes

Estimated Average Daily Pedestrian Volume peds/day

**default value for CBD use 8.8 x total average peak hour*

**default value for suburbs use 6.6 x total average peak hour*



Step Three: Is a Pedestrian Facility Required?

Equivalent Crossing Distance and Time Calculation

Inputs			***Outputs***		
			Proportion of Sensitive Pedestrians		%
Walk Speed of 15th Percentile Adult Pedestrians	1.3 m/s *default value 1.3m/s		Mean Walk Speed of 15th Percentile Pedestrians		m/sec
			Equiv. Crossing Time Without Aids, Direction 1		sec
Walk Speed of 15th Percentile Sensitive Pedestrians	1.0 m/s *default value 1.0m/s		Equiv. Crossing Time Without Aids, Direction 2		sec
			Equivalent Crossing Time Without Aids, Total *Includes Factor of Safety of 1.1, and a confirmation time		sec
Walk Speed of Average Adult Pedestrians	1.5 m/s *default value 1.5m/s		Mean Walk Speed of Average Pedestrians		m/sec
			Equiv. Crossing Time Without Aids, Direction 1		sec
Walk Speed of Average Sensitive Pedestrians	1.2 m/s *default value 1.2m/s		Equiv. Crossing Time Without Aids, Direction 2		sec
			Equivalent Crossing Time Without Aids, Total *Includes Factor of Safety of 1.1, and a confirmation time		sec

Adjust walk speeds when pedestrian density is high or crossing width limited (see Pedestrian Planning and Design Guide for details)

Delay Calculation

Mean pedestrian delay is calculated based on the time required to find a suitable gap in the traffic stream

Inputs			***Outputs***		
Economic Value of Delay	$ 16.27 per hr *default value $16.27/hr (PEM Table A4.3)		Mean Pedestrian Delay, Without Facility *delay without facility based on overall/total flow type		sec/ped *capped at 300 sec/ped
Conversion Factor (estimates average pedestrian delay throughout day from average peak hour pedestrian delay)	0.6 *default value 0.6		Level of Service (LOS), Without Facility		
			Level of Service Description		
			Appropriate Situation		
Time Over Which Economic Assessment Applies	250 days/yr *default value 250days/yr		NPV Delay Cost Without Facility		

A pedestrian facility is required if the level of service is unacceptable or if a safety problem has been identified at the site (proceed to Step Four)

Step Four: Will a Physical Aid Solve the Problem?

Safety Calculation

Inputs

Number of Years of Crash History: 5 years (*default value 5 years*)

Number of Pedestrian Injury Crashes Reported over Crash History Period: crashes

Average Cost of Pedestrian Crashes: $ 204,064 per crash (*based on historic proportion of injury crashes & FEM costs; default value $204,064 per crash*)

Are the Pedestrian Crashes Suppressed? (select an option) (*suppressed when predicted cost > actual crash cost and good reason to believe that perceptions of danger are suppressing crashes*)

Outputs

Number of Reported Injury Accidents	per year
Predicted Suppressed Pedestrian Crashes from Crash Model (Over Previous 5 Years)	crashes/yr
NPV Predicted Suppressed Cost of Pedestrian Crashes	
NPV Reported Injury Pedestrian Crash Cost	

Benefit Calculation

Inputs

Vehicle Occupancy: 1.2 persons/veh (*default value 1.2*)

Conversion Factor (estimates average delay to all vehicle occupants throughout day from average peak hour vehicle occupant delay): 0.4 (*default value 0.4*)

Outputs

Platform

It is assumed that there are no delay savings to pedestrians for a platform on its own. Geometric delay to all vehicles has been included, and is based on that required to slow to a platform negotiation speed. The platform approach speed will be influenced by the implementation of a wider traffic management scheme.

Platform Approach Speed (Average): (select an option)

Platform Negotiation Speed (Average): (select an option)

Expected Crash Reduction: 60 % (*default value 60%*)

NPV Geometric Vehicle Occupant Delay	
NPV Safety Cost Savings	(select and option)
NPV Delay Savings After Treatment	$ -

Kerb Extensions

Total Crossing Distance After Treatment: m

Expected Crash Reduction: 36 % (*default value 36%*)

NPV Safety Cost Savings	(select and option)
Mean Pedestrian Delay After Treatment (*delay without facility based on overall/total flow type*)	sec/ped (*capped at 300 sec/ped*)
Level of Service After Treatment	
Level of Service Description After Treatment	
NPV Delay Cost After Treatment	
NPV Delay Savings After Treatment	

Median Refuge

Crossing Distance After Treatment, Direction 1: m

Crossing Distance After Treatment, Direction 2: m

Expected Crash Reduction: 18 % (*default value 18%*)

NPV Safety Cost Savings	
Mean Pedestrian Delay After Treatment	sec/ped (*capped at 300 sec/ped*)
Level of Service After Treatment	
Level of Service Description After Treatment	
NPV Delay Cost After Treatment	
NPV Delay Savings After Treatment	

Kerb Extensions & Median Refuge

Crossing Distance After Treatment, Direction 1: m

Crossing Distance After Treatment, Direction 2: m

Expected Crash Reduction: 32 % (*default value 32%*)

NPV Safety Cost Savings	
Mean Pedestrian Delay After Treatment	sec/ped (*capped at 300 sec/ped*)
Level of Service After Treatment	
Level of Service Description After Treatment	
NPV Delay Cost After Treatment	
NPV Delay Savings After Treatment	

Benefit Cost Ratio Calculation

Inputs

Type of Facility Considered: (select an option)

Expected Construction Cost:

Outputs

Typical Construction Cost for Facility Considered	(select an option)
NPV Geometric Vehicle Occupant Delay	(select an option)
NPV Total Safety Cost Savings for Facility Considered	(select an op
NPV Total Delay Savings for Facility Considered	(select an option)
NPV Total Benefits for Facility Considered	(select an option)
Benefit Cost Ratio for Facility Considered	

Check appropriateness of facility from Step 1, or refer to the "Summary Sheet"

If Benefit Cost Ratio is unacceptable then consider Zebra crossing (proceed to Step Five)

Step Five: Will a Zebra Crossing Solve the Problem?

Inputs

Outputs

Is the crossing likely to be self enforcing (recommended numbers crossing >50ped/hr)?	Yes
Does the crossing meet the requirement of having less than two lanes in each direction?	(select an option)

Do not use zebra crossing if inappropriate (see Step 1), or if the above requirements are not met. Outputs are not provided if the above requirements are not met. Zebra crossings should not be used in isolation, and should only be used as part of an integrated traffic management plan. See Pedestrian Planning and Design Guide for details.

Benefit Calculation

Inputs

It has been assumed that there is no delay to pedestrians for a zebra crossing

Outputs

NPV Total Pedestrian Delay Savings	
NPV Vehicle Occupant Delay	

Zebra Only

Crash Reduction	-28 %	*default value -28%
NPV Safety Cost Savings	(select and option)	
Vehicle Delay (Average Peak)		sec/veh
NPV Benefits After Treatment		

Zebra + Platform

Crash Reduction	88 %	*default value 88%
NPV Safety Cost Savings	(select and option)	
NPV Geometric Vehicle Occupant Delay		
Vehicle Delay (Average Peak)		sec/veh
NPV Benefits After Treatment		

Zebra + Kerb Extensions

Crash Reduction	44 %	*default value 29%
NPV Safety Cost Savings	(select and option)	
Vehicle Delay (Average Peak)		sec/veh
NPV Benefits After Treatment		

Zebra + Median Refuge

Crash Reduction	18 %	*default value -6%
NPV Safety Cost Savings		
Vehicle Delay (Average Peak)		sec/veh
NPV Benefits After Treatment		

Zebra + Kerb Extensions & Median Refuge

Crash Reduction	32 %	*default value 13%
NPV Safety Cost Savings		
Vehicle Delay (Average Peak)		sec/veh
NPV Benefits After Treatment		

Benefit Cost Ratio Calculation

Inputs

Type of Facility Considered	(select an option)
Expected Construction Cost	

Outputs

Typical Construction Cost for Facility Considered	(select an option)
NPV Total Pedestrian Delay Savings	
NPV Total Vehicle Occupant Delay	
NPV Total Safety Cost Savings for Facility Considered	(select an option)
NPV Total Benefits for Facility Considered	(select an option)
Benefit Cost Ratio for Facility Considered	

Check appropriateness of facility(ies) from Step 1, or refer to "Summary Sheet"
If Benefit Cost Ratio is unacceptable then consider traffic signals (proceed to Step Six)

Step Six: Will Mid-block Traffic Signals Solve the Problem?

If traffic signals are not appropriate (Step 1) then use physical aids or retain existing situation.
Traffic signals should not be used in isolation, and should only be used as part of an integrated traffic management plan. See Pedestrian Planning and Design Guide for details.
Where there is a need for special provision for the vision impaired and where a signalised mid-block crossing would get insufficient use, consider signalising a nearby intersection.
Consider mid-block signals (co-ordinated where appropriate) where the distance to an adjacent intersection exceeds 150m to 200m, otherwise consider signals at the intersection.

Traffic Signal Benefit Calculation

Analyse the peak performance using a model such as aaSIDRA, and weight the delay to reflect average levels of vehicle occupancy

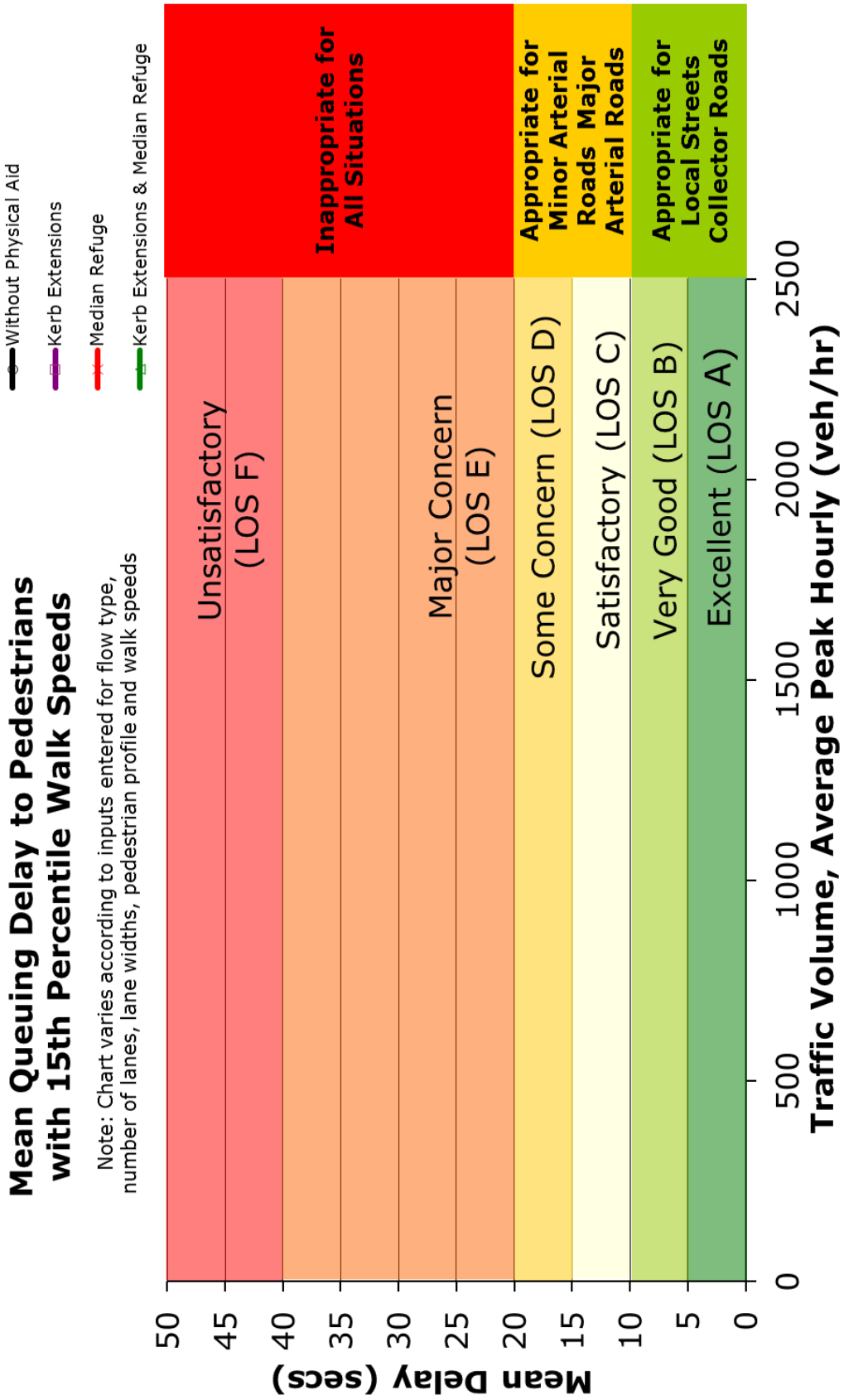
Inputs			***Outputs***		
Pedestrian Delay (Average Peak)		hours/hour	NPV Pedestrian Delay Without Facility		
Vehicle Occupant Delay (Average Peak)		hours/hour	NPV Pedestrian Delay With Signals		
Conversion Factor (estimates average delay to all users throughout day from average peak hour delay to all users)	2.5 *default value 2.5		NPV Vehicle Occupant Delay With Signals		
Expected Crash Reduction	64 % *default value 45%		NPV Safety Cost Savings With Signals	(select an option)	
Expected Construction Cost			NPV Total Benefits for Traffic Signals		
			Benefit Cost Ratio for Traffic Signals		

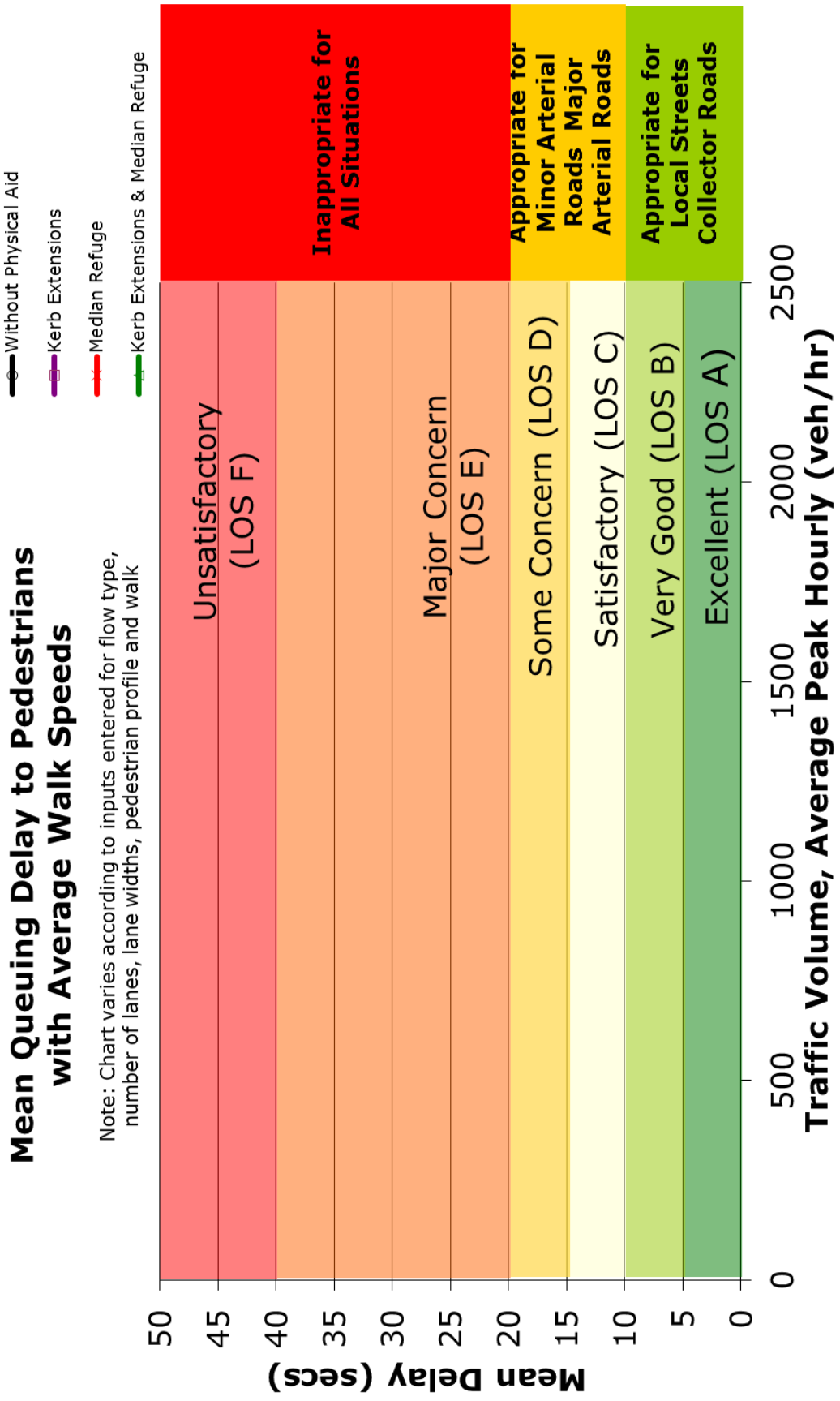
If Benefit Cost Ratio is unacceptable then consider grade separation (proceed to Step Seven)

Step Seven: Will Grade Separation Solve the Problem?

For grade separation (overbridges and underpasses) a full economic analysis is required
Expected crash reductions are 60%, and 70% with barrier fencing
To be more effective the path length at grade should be more than 2.5 to 3 times the path length using the facility
See the Pedestrian Planning and Design Guide for further guidance

Pedestrian Crossing Facilities Selection Guideline Spreadsheet Version 1.2 February 2007


Mean Queuing Delay to Pedestrians with 15th Percentile Walk Speeds
Note: Chart varies according to inputs entered for flow type, number of lanes, lane widths, pedestrian profile and walk speeds
Without Physical Aid
Kerb Extensions
Median Refuge
Kerb Extensions & Median Refuge
Inappropriate for All Situations
Appropriate for Minor Arterial Roads Major Arterial Roads
Appropriate for Local Streets Collector Roads
Unsatisfactory (LOS F)
Major Concern (LOS E)
Some Concern (LOS D)
Satisfactory (LOS C)
Very Good (LOS B)
Excellent (LOS A)
Mean Delay (secs)
0
5
10
15
20
25
30
35
40
45
50
0
500
1000
1500
2000
2500
Traffic Volume, Average Peak Hourly (veh/hr)


Mean Queuing Delay to Pedestrians with Average Walk Speeds
Note: Chart varies according to inputs entered for flow type, number of lanes, lane widths, pedestrian profile and walk
Without Physical Aid
Kerb Extensions
Median Refuge
Kerb Extensions & Median Refuge
Inappropriate for All Situations
Appropriate for Minor Arterial Roads Major Arterial Roads
Appropriate for Local Streets Collector Roads
Unsatisfactory (LOS F)
Major Concern (LOS E)
Some Concern (LOS D)
Satisfactory (LOS C)
Very Good (LOS B)
Excellent (LOS A)
Mean Delay (secs)
0
5
10
15
20
25
30
35
40
45
50
Traffic Volume, Average Peak Hourly (veh/hr)
0
500
1000
1500
2000
2500