OPUS

Absolutely Positively
Wellington City Council
Me Heke Ki Pōneke

Northern Connection - Thorndon

Draft Issues Paper

March 2017
Version 1

Contents

Quality Assurance

Version	Prepared:	Reviewed	Approved
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1. Introduction

1.1. Background

Over recent years Wellington City Council (the Council) has committed capital funding for cycleway development through its Long Term Plan and Annual Plan processes. The investments aim to contribute towards cycling becoming “safer and more convenient” (Cycling Policy Nov 2008) by increasing the level of service for people who use bikes.

The Urban Cycleways Programme (UCP) has provisionally allocated $9.5 million to the Council for investment by 30 June 2019. When contributions from rates and the National Land Transport Fund (NLTF) are taken into account, $37.5 million will be invested in cycling in Wellington by 30 June 2019, of which $4.0 million has been allocated to the Northern Connection – Thorndon route (1 of 2 projects on the Northern Connection route).

This next phase of work is to identify and evaluate treatment types along the routes and will involve engagement with affected parties and wider stakeholders.

1.2. Previous Studies

A number of previous studies have been undertaken in the area including:

- Thorndon Quay Sustainable Transport Study, December 2015;
- Hutt Road Sustainable Transport Study, December 2015;
- Wellington to Hutt Valley Walking and Cycling Study, 2014; and
- Hutt Road (construction in 2017).

These previous studies have formed the basis of the information presented in this issues paper.

1.3. Purpose of this report

The purpose of this report is to:

- Gather and review background information, and identify gaps in existing data which may need to be filled;
- Outline the current level of service for people on bikes and the adequacy and safety of provisions for people walking, biking, driving, parking and using buses along the identified routes;
- Provide the wider transport context, details of other projects/ studies, e.g. Let’s Get Wellington Moving, Wellington Network Operating Framework, as well as details of other cycling projects and report on how this study will fit within the context of these wider reports; and
- Identify issues, constraints and opportunities for constructing cycleways along the route.

The Council is developing the overall programme and individual projects using the NZ Transport Agency’s business case process. To date the ‘strategic’, ‘programme’ and ‘indicative’ business case stages have been completed. This issues paper forms part of the evaluation required to compile the Detailed Business Case. The Detailed Business Case is the basis of the Council’s request for funding from the UCP and NLTF for the Northern Connection - Thorndon Cycleway project.

This paper only considers the issues associated with the Thorndon Quay route from Aotea Quay to Waterloo Quay.

This paper is a draft pending review by the yet to be formed Thorndon Quay Working Group.

1.4. Study Area

Figure 1 below shows the extent of the study area:

- Hutt Road from Aotea Quay to Tinakori Road;
- Thorndon Quay from Tinakori Road to Mulgrave Street;
- Featherston Street from Mulgrave Street to Bunny Street; and
- Bunny Street from Featherston St to Waterloo Quay.

Figure 1: Study Area

1.5. Project Objectives

The Council objectives for this project include:

- Improve the level of service for people on bikes along identified routes;
- Improve or maintain the level of service for people using buses;

- Maintain or improve the level of service for pedestrians;
- Maintain an acceptable level of service for general traffic movements; and
- Minimise impacts to on-street parking and increase parking supply if feasible.

These objectives will be developed and expanded on by the yet to be formed Thorndon Quay Working Group.

2. WCC Plans and Policies

2.1. Cycleways Programme Masterplan

The Wellington Cycleways Programme Master Plan (approved by Council in August 2015) is a guide for the Council to deliver new cycling infrastructure that best meets the community's needs. It outlines the cycling infrastructure and safety, and engagement activities that are proposed, with a focus on work to be done in the first three years. It also explains how the Council will prioritise the development of the cycle network, how it will connect key locations throughout the city, and how it will increase the number of people who choose to get around by bike.

The Master Plan was developed concurrently with the Programme Business Case to support the development of the programme options and to identify the scope, scale and type of interventions that could be developed into an investment programme. The Master Plan and Programme Business Case were developed with Councillors, Council Officers and NZ Transport Agency representatives through a series of workshops. The Master Plan was endorsed by Councillors at the September 2015 Transport and Urban Development (TUD) Committee meeting.

Through the development of the Master Plan and Programme Business Case, the cycle network was agreed to consist of a range of infrastructure, facilities and non-asset investments to improve participation in cycling and address safety issues concerning cycling in Wellington. The cycling transport infrastructure would involve a range of solutions (i.e. protected lanes or shared paths outside the road corridor) as well as supporting facilities such as bike corrals.

Due to Wellington's topography and geographical structure six catchment areas (north, south, east, west, CBD and Wellington Hutt corridor) were identified and used as the basis for understanding the current and potential demand for cyclists. A need to develop a hierarchy of routes (primary, secondary and tertiary) was agreed with councillors and stakeholders with this occurring in the subsequent stages of the network's development.

2.2. WCC Cycling Framework 2015

In June 2015, the Council adopted the Cycling Framework, which includes a plan of the Wellington Cycle Network, and principles that set out decision-making thresholds for the delivery of each aspect of the network.

2.3. Centres Policy

Council's Centres Policy (August 2008) sets out a hierarchy of Centres. The Northern Connection cycleway provides the primary link to directly and indirectly connect the following Centres with the CBD and wider city.

- Sub-Regional Centres (Johnsonville);
- Town Centres (Tawa);
- District Centres (Churton Park, Khandallah and Newlands); and
- Neighbourhood Centres (Ngaio, Lincolnshire Farm, Linden).

In addition the Northern Connection cycleway will connect a number work and live/work areas around Kaiwharawhara / Ngauranga and beyond.

2.4. Urban Growth Plan

Wellington City's population is expected to grow by around 50,000 people with 22,000 new homes planned over the next 30 years. The Urban Growth Plan (approved by Council in June 2015) sets

out how the Council will ensure new houses, transport networks and services are provided where needed in a sustainable and integrated way.

The guiding principles behind the Plan are to:

- Keep the City compact, walkable and supported by an efficient transport network;
- Maintain features that support residents' high quality of life;
- Protect the City's natural setting and reduce the environmental impacts of development and transport; and
- Make the City more resilient to natural hazards, such as earthquakes and the effects of climate change.

The Strategy is to direct urban growth where it will benefit the City most and is supported by a quality transport network, around selected suburban centres which can support intensification.

The Urban Growth Plan sets out the need to provide a safe cycle network that will encourage people of all ages to cycle and includes dedicated actions to make Wellington a better City for Cycling.

Johnsonville, Lincolnshire Farm and Stebbings Valley (between Tawa and Churton Park) have been identified as areas for transformational growth (3300+ new dwellings) in the northern suburbs. The Northern Connection cycleway provides the primary link to directly and indirectly connect these growth areas with the CBD and wider city.

Areas in Newlands and Khandallah have also been identified as areas for investigation for growth.

2.5. The Great Harbour Way

The Great Harbour Way -Te Aranui o Poneke (GHW) is the name adopted to a concept which involves the development and marketing of a continuous shared cycle and pedestrian route around the coastline of Wellington Harbour. The 67km route stretches from Pariwhero/Red Rocks to Pencarrow Head and the aim is for it to be located immediately beside the harbour edge as far as is practicable.

In 2008 a number of groups decided to combine their efforts into the Great Harbour Way Coalition. The Coalition proposed to develop the concept further and to seek support from the various agencies and organisations that control and administer the harbour edge and the immediate environs, and to chart a direction to move the GHW from a concept into reality. As a first step, the Coalition commissioned The Great Harbour Way - Te Aranui o Poneke Report by Boffa Miskell, which establishes the Great Harbour Way Coalition's vision and objectives. Funding for the study came from Wellington City Council (WCC), Greater Wellington Regional Council (GWRC) and the New Zealand Transport Agency (NZTA), all of whom have implemented cycle and pedestrian initiatives and physical works along the proposed route. The GHW concept seeks to integrate these into a route that has its own identity and can be marketed as an overall corridor.

2.6. Road Hierarchy

Figure 2 below shows the road hierarchy along the route.

All of the route (except for Bunny Street) is defined as a Principal Road.

The WCC code of practice for land development states that the purpose of a Principal Road is:

- Principal roads provide access to arterial roads and to motorways;
- They have a dominant through vehicular movement and carry the major public transport routes;
- Access to property may be restricted and rear serving facilities may be required. Long distance vehicular traffic should be channelled on to arterial roads; and

- Parking is provided on separate parking lanes.

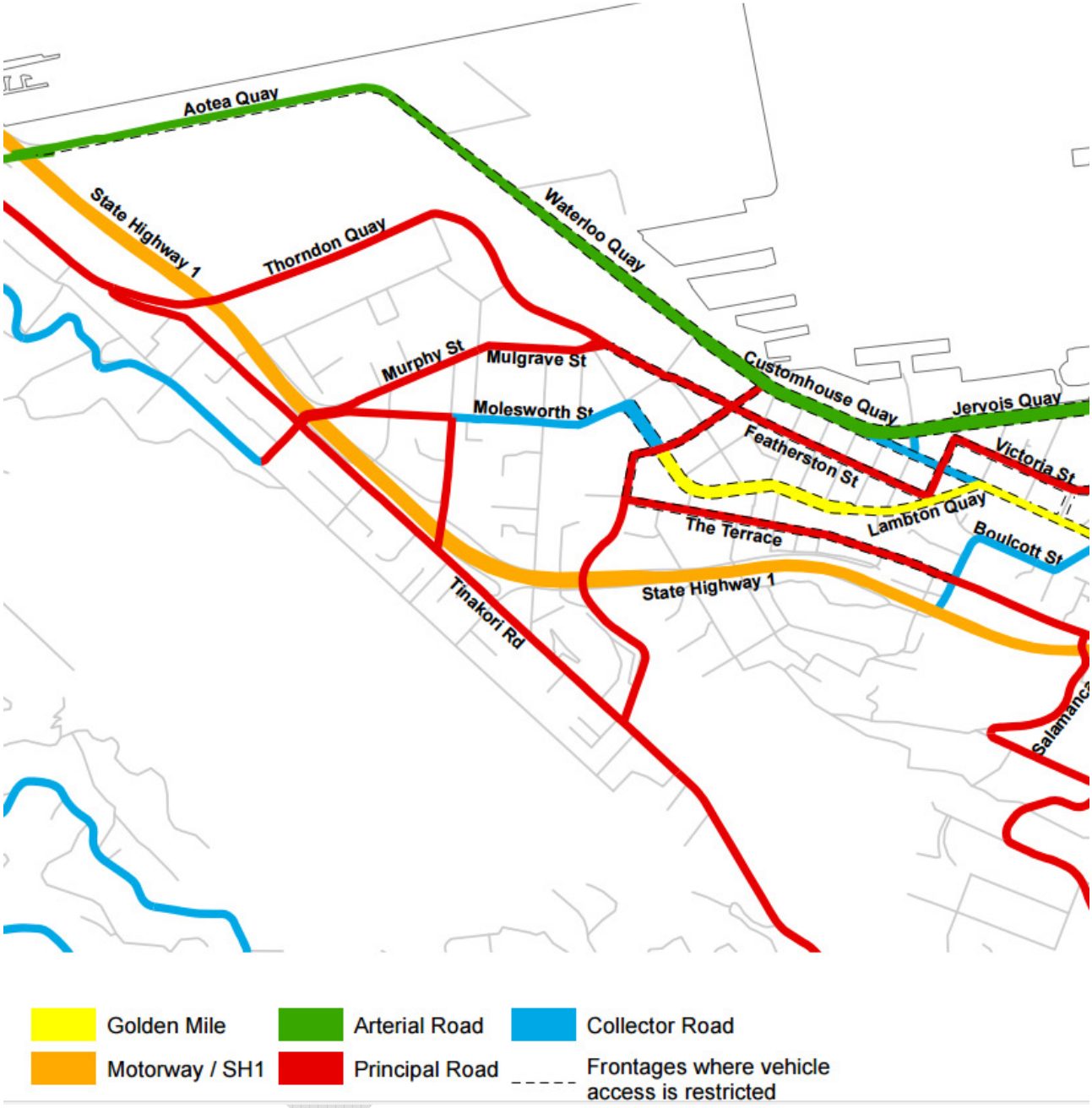


Figure 2: Road Hierarchy (Source Wellington City District Plan)

2.7. District Plan Land Zoning

Figure 3 below shows the district plan zoning and other features along the corridor and can be further summarised as predominantly Central Area zoning with small sections of Business 1 (Hutt Road section), Open Space B (Railway Station Frontage on Bunny Street) and Inner Residential (Tinakori Road) directly adjacent to the route.

A number of Maori Sites and the Pipitea Precinct (around the Pipitea Marae) are adjacent to the corridor:

- Huka's Hill (medium significance), M58 (Sar Street);

- Tiakiwai Kainga (settlement, important significance), M62 (181 Thorndon Quay); and
- Te rae Kaihau (medium significance) M63 (121 Thorndon Quay).

A number of Heritage Buildings are also adjacent to the corridor:

- Railway Station (Ref #44);
- Thistle Inn (Ref #222);
- House, Tinakori Road (ref #303);
- The WoolStore (Ref #454);
- Vector Sub-station building and eastern service court (ref #455);
- Government Buildings (Ref #179);
- Shed 21 (Ref #334); and
- Waterloo Hotel (Ref #338).

Hazard areas in close proximity are identified as including:

- Ground shaking (majority of the route); and
- Fault line (crossing the corridor between Tinakori Road and Sar Street.

Other key areas include:

- The Port Redevelopment Area; and
- The Railway Yards.

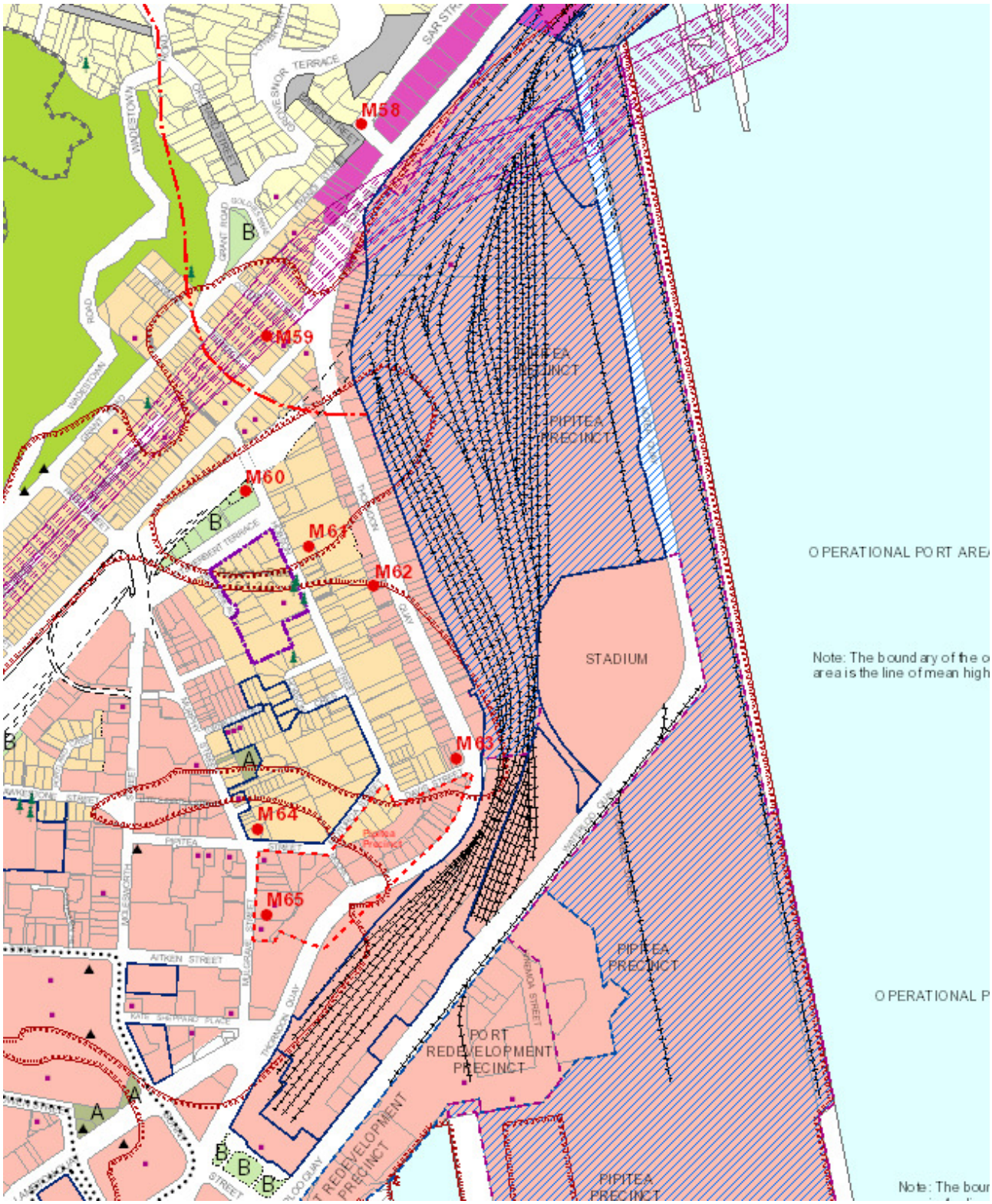


Figure 3: District Plan Map

2.8. District Plan Restrictions on Access

Frontage access restrictions exist on Featherston Street as shown previously in Figure 2 above.

2.9. Climate Change

The Council's Climate Change Action Plan (revised in 2013) 'Low Carbon Capital'10 sets out what the Council is doing to enable Wellington to thrive in a future of growing carbon constraints and climate impacts. The plan sets out how the Council intends to take action to cut Wellington's greenhouse gas emissions and reduce the City's vulnerability to extreme weather events and rising sea-levels.

The Council's investments towards making cycling "safer and more convenient" (Cycling Policy Nov 2008) are directly aligned with the three pillars of climate change action for Wellington.

Greening Wellington's Growth

The action plan notes that Wellington already has the country's highest proportion of people walking, cycling and using public transport for journeys to and from work and that this, together with other factors such as the city's compact form, contributes to Wellington's lower carbon footprint.

Changing the way we move

The action plan notes that there has been a rise in the number of people cycling in the city despite the current lack of supporting infrastructure and refers to the Council's commitment to investment in cycling and the importance of it in relation to other modes as set out in the Sustainable Transport Hierarchy and the accompanying Long Term and Annual Growth Plans.

Leading by example

The action plan notes that the Council owns, manages, and provides a range of services that directly or indirectly produce greenhouse gas emissions and that it will work towards achieving its target of an 80% reduction in emissions by 2050. The action plan further states that the Council will be reducing the size of their light vehicle fleet and encouraging staff to walk, cycle, or take public transport. It is further noted that the Council already has a fleet of pool bikes which has recently been expanded to include e-bikes that staff can use for business journeys.

2.10. Related Transport Projects

Let's Get Wellington Moving

In the wake of the Basin Bridge decision an alliance has been established between Wellington City Council, the Transport Agency and Greater Wellington Regional Council to develop an integrated multi-modal solution for Wellington's transport needs. The focus is the area from Ngauranga Gorge to the Airport, encompassing the Wellington Urban Motorway and connections to Wellington Hospital and eastern and southern suburbs.

Called Let's Get Wellington Moving this alliance has a programme to develop and consult on recommended scenarios.

While this is being progressed, all previously planned improvements on key parts of the network have been placed on hold, including the Mt Victoria Tunnel Duplication project.

Wellington network operating framework

Being developed as part of the Let's Get Wellington Moving project.

Urban cycleway programme

The Urban Cycleways Programme (UCP) has provisionally allocated $9.5 million to Wellington City for investment by 30 June 2019. When contributions from rates and the National Land Transport Fund are taken into account, some $37.5 million will be invested in cycling over the next three years (by 30 June 2019).

The Council is developing the overall programme and individual projects using the NZTA's business case process. To date the 'strategic' and 'programme' stages have been completed for the wider network with the 'indicative' and 'detailed' business cases complete in draft form for the Northern Connection route. The Council's Transport and Urban Development has approved routes for improvement along with some other changes identified during the programme refresh on the 11th August 2016.

Directly relevant packages to this work are:

- Hutt Road (construction in 2017);
- Wellington to Hutt Valley Walking and Cycling Link (Transport Agency); and
- Central City – route treatment & other wrap-around schemes.

Future Bus Network

Greater Wellington is making a range of improvements to provide affordable, reliable bus services that people want to use. These improvements are listed below.

- A new bus network for Wellington City so there are more services, more often for more people. 75% of Wellington City residents will be within 1 km of a high frequency bus route. The changes are based on public feedback. The new network should be up and running by January 2018
- A new bus fleet to replace the retiring trolley buses and oldest diesels from mid-2017 onwards. Greater Wellington is exploring higher capacity, environmentally sustainable options, considering their cost and environmental impact. New low emission diesel buses will come into service first, with the aim of moving towards a fully electric fleet
- Introducing integrated fares and ticketing (IFT) so one ticket takes you anywhere on the Metlink network by bus train or ferry irrespective of the operator. IFT means faster, cashless, seamless travel. Greater Wellington Regional Council is also reducing the number of different tickets and rewarding more people for frequent public transport use
- Performance-based contracts that encourage bus operators to provide better service to their customers

3. Existing Road Corridor

Figure 4 below shows the location of key features along the road corridor.

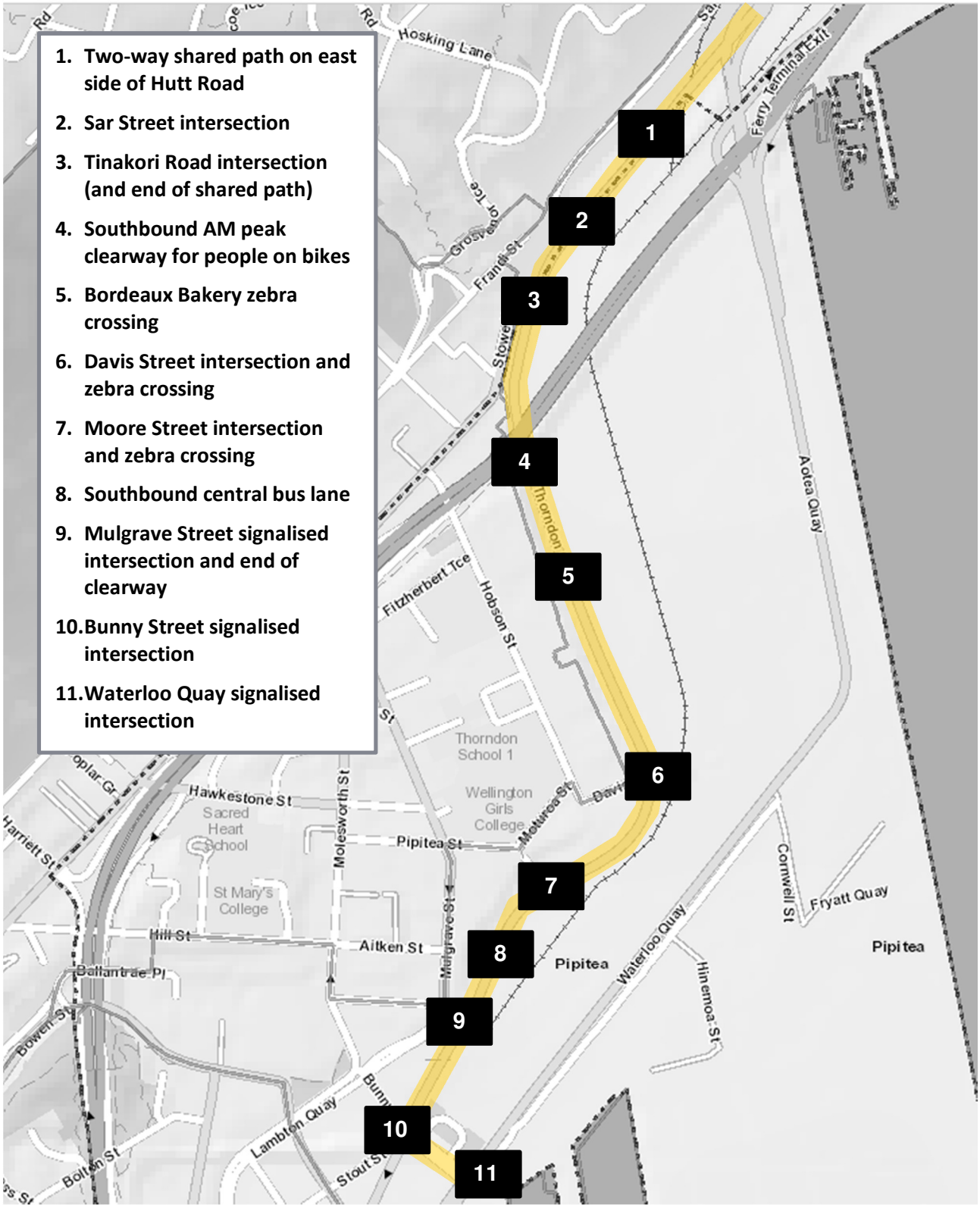


Figure 4: Study Area

3.1. Road Layout

The route typically comprises one lane in each direction for general traffic with a posted speed limit of 50km/h. The following points describe the other facilities provided along the route:

- ~460m of two lanes southbound (kerbside lane is a clearway which operates in the AM peak) and a flush median on Hutt Road between Aotea Quay and Sar Street;
- Right and left turn bays on Hutt Road at the Sar Street intersection;
- Right turn bay on Hutt Road at the Tinakori Road intersection;
- Right turn bay on Thorndon Quay at the Davis Street intersection;
- Right turn bay on Thorndon Quay at the Moore Street intersection;
- ~210m of southbound bus lane in the centre of the road on approach to the Mulgrave Street intersection;
- ~120m of two southbound lanes on the Thorndon Quay approach to the Mulgrave Street intersection;
- ~50m of two northbound lanes on the Featherston Street approach to the Mulgrave Street intersection (only one exit lane marked);
- Two lanes southbound on Featherston Street with a left turn bay at the approach; and
- Multiple turning lanes at the intersections at either end of Bunny Street.

3.2. Intersection Layouts

The following sections show the current layout of the intersections along the route. The route is shown in yellow.

Sar Street intersection with Hutt Road

Tinakori Road intersection with Hutt Road (north) and Thorndon Quay (south)

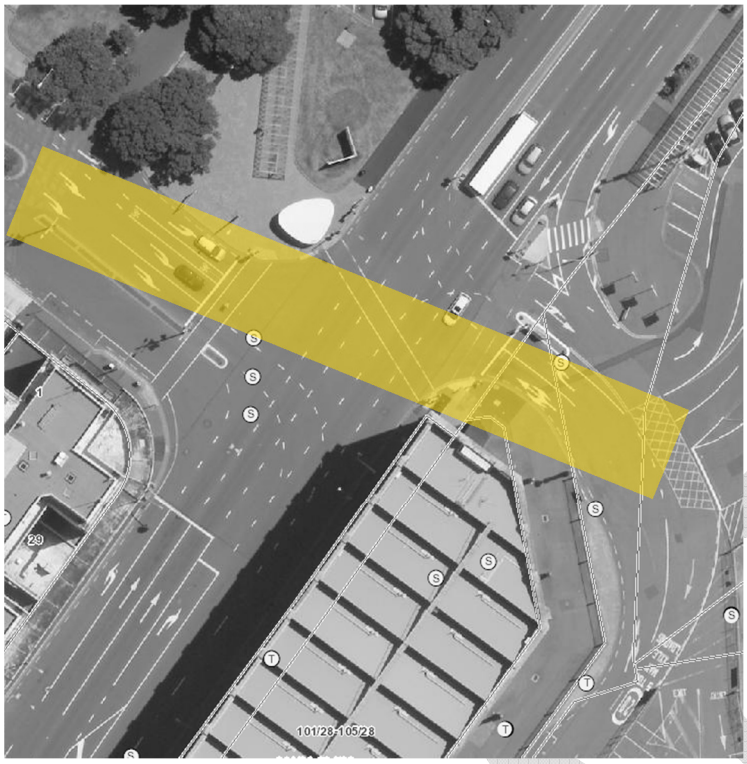
Davis Street intersection with Thorndon Quay

Moore Street intersection with Thorndon Quay

Mulgrave Street intersection with Thorndon Quay (north) and Featherston Street (south)

Bunny Street (east-west) intersection with Featherston Street (north-south)

Waterloo Quay (east-west) intersection with Waterloo Quay (north-south)



3.3. Bus Infrastructure

The existing bus infrastructure is described below and bus data is shown in Appendix G.

Bus Routes

The project corridor is served by the bus routes shown below.

Figure 5: Bus Routes using the Corridor

The buses on the corridor predominantly serve the northern suburbs (Johnsonville, Churton Park, Grenada) and the suburbs that border the western side of the route (Ngaio and Khandallah). There are also buses that serve Porirua and Eastbourne that use this route. All of the buses travel through the CBD via the bus terminal except for some of the peak hour routes which travel via Featherston Street and terminate at Brandon Street.

Figure 6: Bus stops and other infrastructure below shows the location of key bus infrastructure along the corridor.

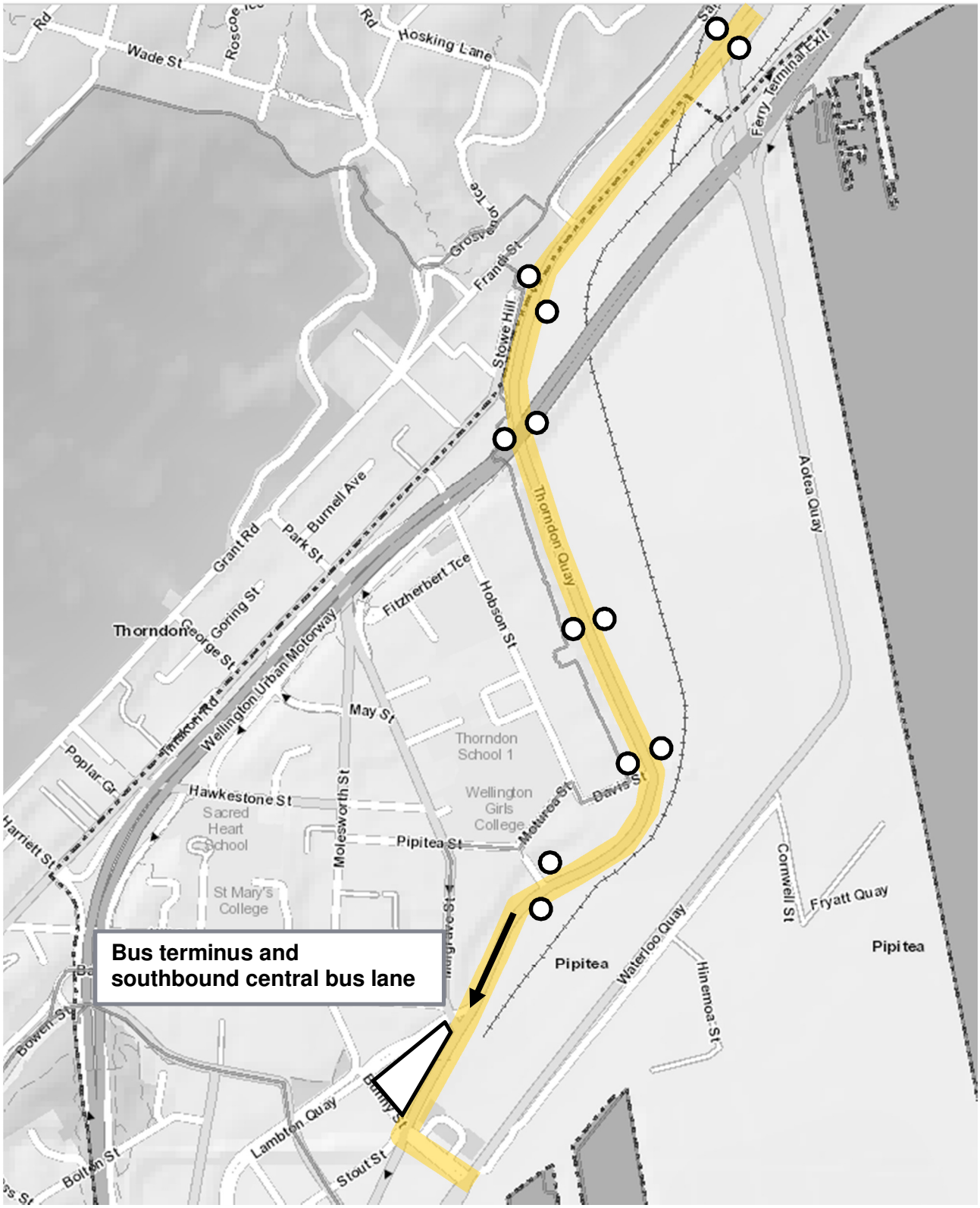


Figure 6: Bus stops and other infrastructure

Bus Stops

There are a significant number of bus stops along this corridor, the characteristics of these stops are described in the table below.

Table 1: Bus Stop Characteristics

Location	Northbound	Southbound
Aotea Quay	5026 - Wide shoulder and shelter north of Aotea Overbridge *33 buses in PM Peak hour*	5488 - In-lane stop with shelter north of Aotea Overbridge *46 buses in AM Peak hour*
Sar Street / Tinakori Road	5024 - Wide shoulder no shelter between Sar Street and Tinakori Road *33 buses in PM Peak hour*	5490 - Wide shoulder no shelter south of Tinakori Road *46 buses in AM Peak hour*
Thorndon Overbridge (Motorway)	5022 - Wide shoulder and shelter under Thorndon Overbridge (has RTI) *33 buses in PM Peak hour*	5492 - Wide shoulder and shelter under Thorndon Overbridge (has RTI) *46 buses in AM Peak hour*
Bordeaux Bakery	5022 - Wide shoulder no shelter opposite Bordeaux *33 buses in PM Peak hour*	5494 - Wide shoulder no shelter outside Bordeaux *46 buses in AM Peak hour*
Davis Street	5020 – Wide shoulder no shelter north of Davis Street (has RTI) *33 buses in PM Peak hour*	5496 - Wide shoulder with shelter north of Davis Street (has RTI) *46 buses in AM Peak hour*
Moore Street	5018 - Wide shoulder with shelter north of Moore Street (has RTI) *33 buses in PM Peak hour*	5498 - Wide shoulder with shelter south of Moore Street (has RTI) *46 buses in AM Peak hour*
Lambton Quay / Featherston Street	5016 - Channelised bus bays and shelters in Bus terminus (has RTI) *33 buses in PM Peak hour*	5499 - Wide shoulder no shelter outside stadium walkway steps *3 buses in AM Peak hour* 6000-6003 - Channelised bus bays and shelters in Bus terminus (has RTI) *43 buses in AM Peak hour*

Bus Priority

The only bus priority that exists are the central bus lane on Thorndon Quay South of Moore Street and the eastbound AM peak bus lane on Kaiwharawhara Road.

Figure 7: Central Bus Lane

3.4. Parking Provisions

The following parking capacities have been identified for each section:

Location	Total	Time restricted (pay) <2 hours	Time restricted (pay) >2 hours	Unrestricted	Special	Time restricted (free) <2 hours	Clearway
Hutt Road from Aotea Quay to Sar Street	84		47	8		29	47
Thorndon Quay from Tinakori Road to Davis Street	263	189	49	2	9	14	89
Thorndon Quay from Davis Street to Moore Street	90	16	70			4	66
Thorndon Quay from Moore Street to Mulgrave Street	51	47	0		1	3	25
Sar Street	15					15	
Davis Street	13		3		8	2	
Mulgrave Street	7	7	0				7
Total	**523**	**259**	**169**	**10**	**18**	**67**	**234**

Please note the following with regard to the parking categories:

- Time restricted (pay) <2 hours are pay and display areas with a maximum parking duration of two hours.
- Time restricted (pay) >2 hours are pay and display areas with a maximum parking duration of ten hours.
- Unrestricted are parks with no restrictions and included non-marked parks and private parking that expands onto the road reserve.
- Special are parks that don't fit into other categories and include; loading zones, residents parking, special vehicle parking and mobility impaired parking.
- Time restricted (free) <2 hours are parks with restrictions less than two hours (including but not limited to P5, P10, P15, P30, P60 and P120).
- Clearway parks are the number of parks (from any of other categories that are subject to clearway restrictions.

Please note the following comments for specific locations:

- Sar Street has a marked capacity of less than that stated above but regularly accommodates more vehicles in unmarked spaces.

3.5. Facilities for Pedestrians and Cyclists

Figure 8: Pedestrian and cyclist facilities below shows the location of key pedestrian and cyclist facilities along the corridor, with the associated description of each facility following.

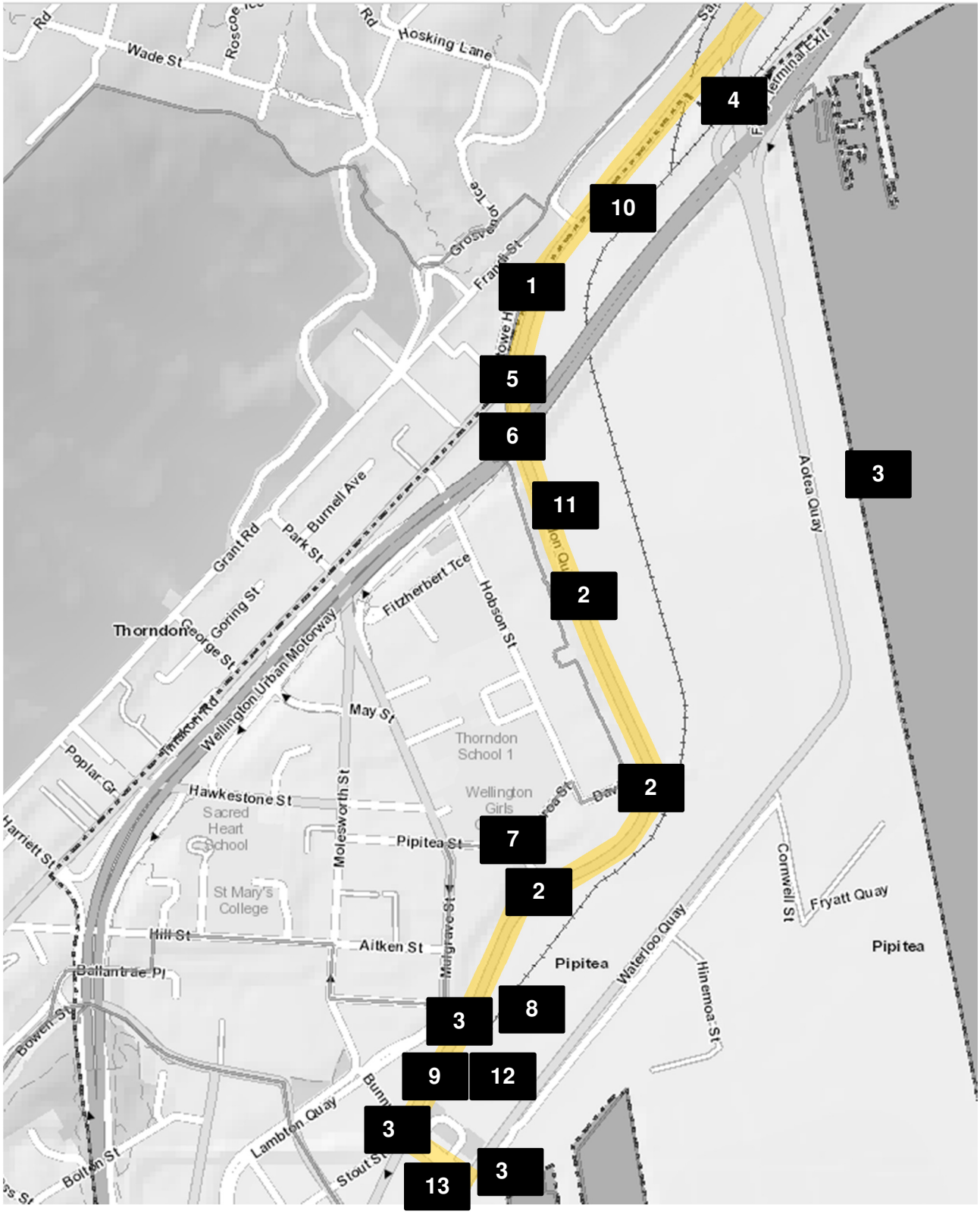


Figure 8: Pedestrian and cyclist facilities

Facilities for Pedestrians

Footpath facilities are provided on both sides of the route from Aotea Quay to Waterloo Quay with the exception of a short section on the west side of Featherston Street.

Pedestrian crossing facilities are provided at the following locations:

1. Tinakori Road intersection (no priority for people on foot);
2. Bordeaux Bakery, Moore Street and Davis Street intersections (zebra crossings); and
3. Mulgrave Street, Bunny Street, and Waterloo Quay intersections (signalised crossings).

Other key facilities for people on foot along the route include:

4. Path connecting Hutt Road with Aotea Quay on the Aotea Quay Overbridge;
5. Path connecting Thorndon Quay with Tinakori Road (opposite the Woolstore building);
6. Path connecting Thorndon Quay with Hobson Street under the Thorndon Overbridge (SH1);
7. Steps at the end of Moore Street connecting Thorndon Quay with Moturoa Street (key access for high school students and businesses in the area);
8. Pedestrian concourse connecting Thorndon Quay with Wellington Station, the Stadium and Waterloo Quay; and
9. Underpass between Wellington Station and the bus interchange.

Facilities for Cyclists

The following cycle facilities are currently provided along the route:

10. Shared path along the eastern side of Hutt Road between Aotea Quay and Tinakori Road;
11. Cycle markings and AM peak clearway along Thorndon Quay (southbound direction);
12. Southbound cycle lane on east side of Featherston Street between Mulgrave Street and Bunny Street (including provision for cyclists at the limit lines in both directions); and
13. Eastbound cycle lane on the north side of Bunny Street (between Featherston Street and Waterloo Quay (including provision for cyclists at the limit lines in both directions).

3.6. Landscape and urban design amenity

There is currently little in the way of landscape and urban design amenity along the route (with the exception of the area outside the Railway Station.

The section of the route from Mulgrave Street to Aotea Quay was subject to a Landscape and Urban Design Assessment. The assessment identified a number of key character areas along the route based on the history of the area and the existing landscape.

The key character areas and a brief description are provided below, with Figure 9 (following) showing the location of these features. Note that these landscape character area descriptions are not linked to the character areas defined in the District Plan.

Waka Landing (1)

The Waka Landing is the node around the intersection of Thorndon Quay with Mulgrave Street and Featherston Street. Historic imagery identifies the original shoreline in this area prior to reclamation. The Thistle Inn can also be seen. Constructed in 1840, and largely rebuilt after a fire in 1866, the Thistle Inn catered for working men and sailors. Renowned Ngāti Toa chief Te Rauparaha is reputed to have visited it by waka in the 1840s, and writer Katherine Mansfield featured it in her 1907 story ‘Leves Amores’. Another interesting link to the Ngāti Toa chief Te Rauparaha is that he composed Ka Mate at Opotaka on the shores of Lake Rotoiara near Turangi.

Pipitea Marae (2)

The Pipitea Marae defines the area outside the Capital Gateway complex. Pipitea Marae and Wilson carpark border the western side of Thorndon Quay and the Capital Gateway complex borders the eastern side.

Across the road from Pipitea marae in the Capital Gateway complex carpark there is a pouwhenua dedicated to Tumatuenga (God of War) and the 28th Maori Battalion. This area also marks the beginning of Te Ara o Nga Tupuna Heritage Trail, a trail extending around the coastal areas of Wellington to Owhiro Bay.

The original shoreline in Wellington City ran along Thorndon Quay, Lambton Quay and down Wakefield Street. Over the years, reclamation has added over 155 hectares to the inner-city area, markedly changing the shape of Wellington Harbour and destroying many traditional Maori kai moana (sea food) beds and food sources. Pipitea used to have an abundance of pipi's and potato cultivations were common on the Thorndon Flats.

Railway Walk (3)

The Railway Walk defines the area between the northern end of the Capital Gateway complex and Davis Street. The east side of Thorndon Quay is visually open to the railway tracks. A concrete block and brick wall with wire mesh fence on top prevents physical access between the footpath and the railway tracks.

The Straight (4)

The Straight defines the area between Davis Street and the Thorndon Overbridge. This stretch of Thorndon Quay has built up commercial and industrial form on both sides of the road. The character of this area is now strongly influenced by industry. Now and in the past, activities here include those related to food, farming, interior design, craftsmanship, accommodation amongst others.

The Underpass (5)

The Underpass defines the node where Thorndon Quay passes under the SH1 motorway on the Thorndon Overbridge. This node forms a gateway to Thorndon Quay.

The Esplanade (6)

The Esplanade defines the area from the Thorndon Overbridge to Sar Street. Prior to the reclamation and esplanade existing along the original shoreline. The Kennards storage building is where the historic Esplanade Hotel once stood.

Other elements in this area include the Woolstore building and the Wellington Water pump house buildings. The mature Pohutukawas along Tinakori Road provide a gateway presence into Thorndon.

The Zig-zag Terrace (7)

The Zig-zag defines the area between Sar Street and Aotea Quay. The industrial buildings on the western side of Thorndon Quay have a zig-zag roof pattern, the eastern side of the area is more open and includes a rail shunting line and the Humes storage yard.

Gateway to Petone (8)

The Gateway to Petone is the node around the Aotea Quay and Johnsonville Rail Overbridges and is the closest point to the harbour along the route assessed.

Figure 9 below shows the location of these key features along the corridor.

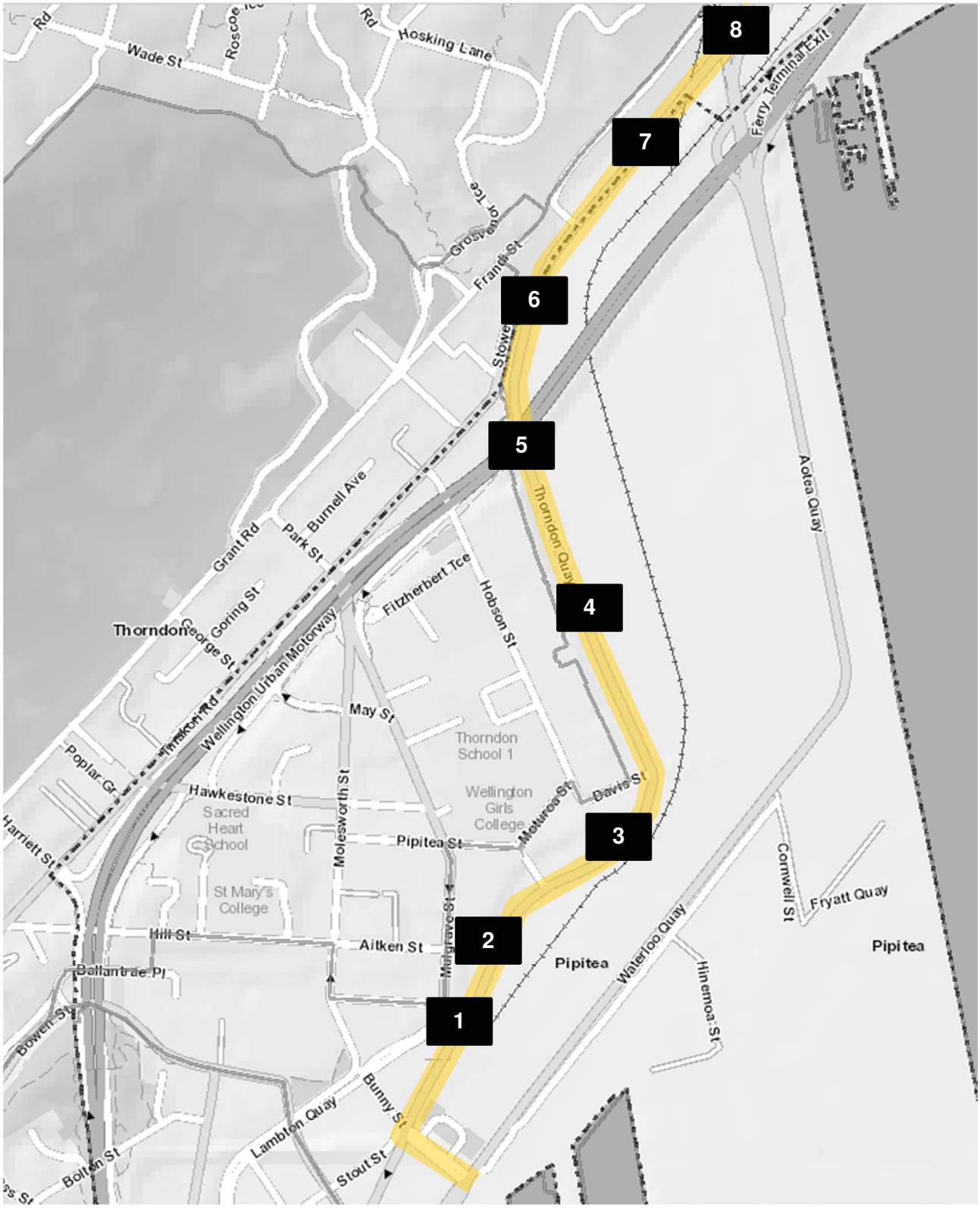


Figure 9: Landscape and urban design amenity

3.7. Crash Analysis

General

The following figures provide an overview of the crashes along the route (2011-2016) with more detail provided in the following text.

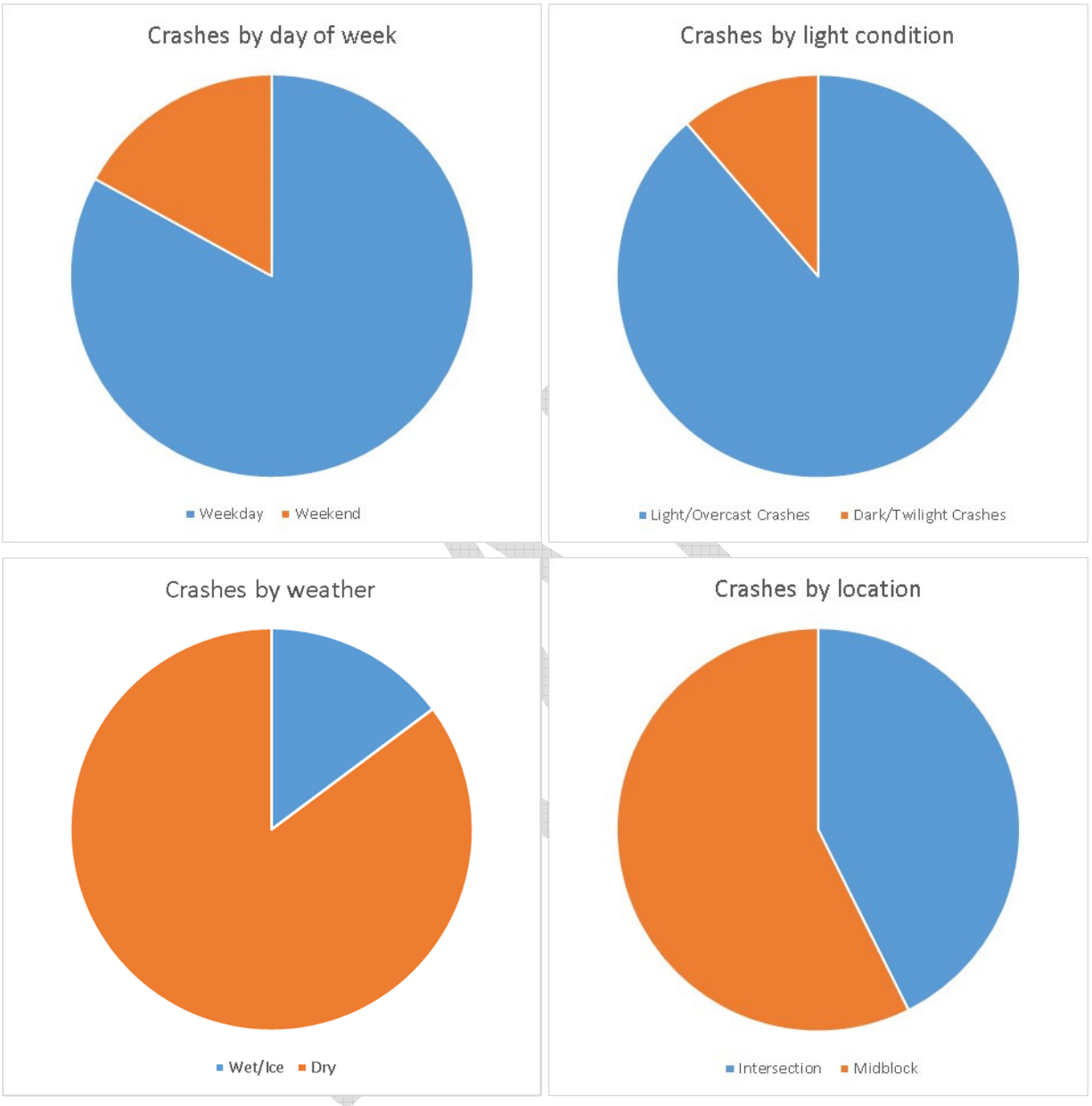
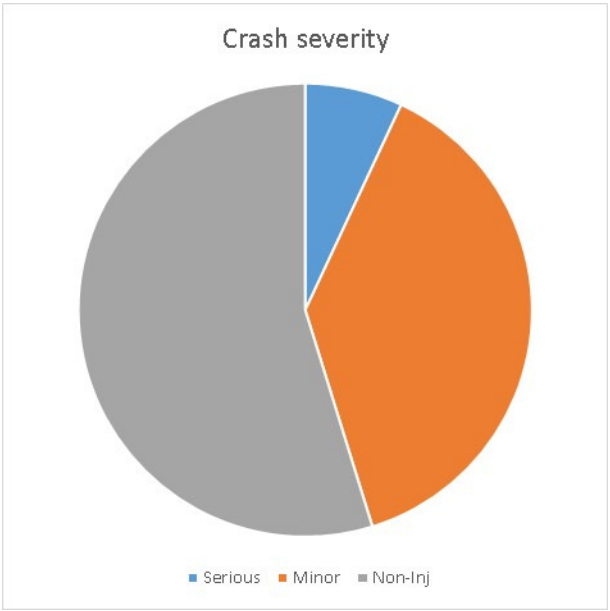
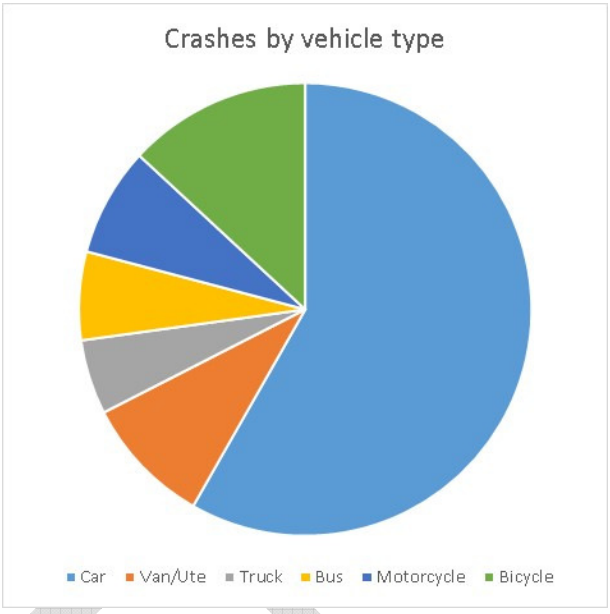


Figure 10: Graphs showing general crash statistics





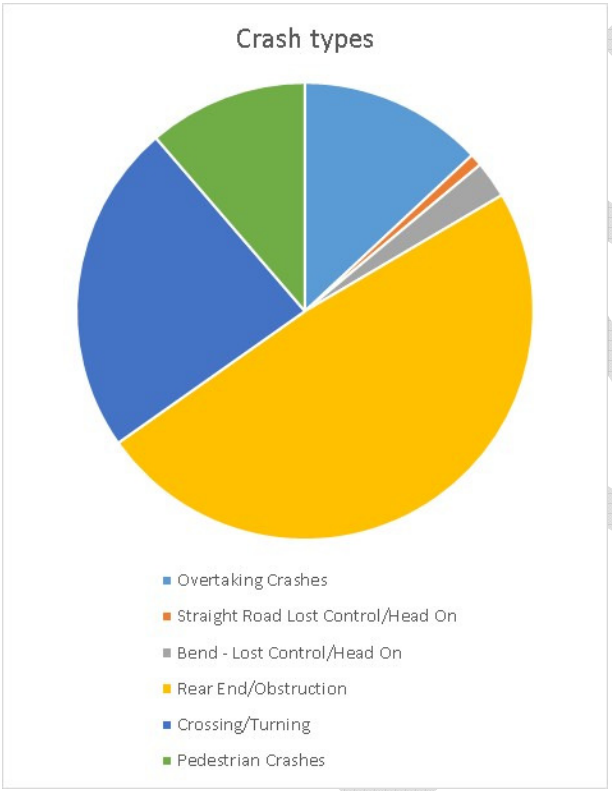


Figure 11: Graphs showing general crash statistics

Figure 12: Location of crashes (2011-2016)

People Walking

There have been 13 reported pedestrian crashes along the route between 2011 and 2015, one serious and 12 minor injury. Seven of the crashes involved pedestrians crossing the road heedless of traffic or walking on the road.

Three of the crashes involved cyclists (on Thorndon Quay and Kate Shepard Place), one of the crashes involved a bus (on Mulgrave Street) and two of the crashes involved a moped / motorcycle (on Bunny Street). The remaining six crashes involved a car or van (two each on Bunny Street, Thorndon Quay and Waterloo Quay).

People Riding Bikes

There have been 23 reported cyclists crashes along the route between 2011 and 2015, four serious and 16 minor injury. There have also been four additional crashes in 2016 (up to June), all minor injury.

Three of the crashes occurred at the intersection of Bunny Street and Featherston Street, two minor injury and one non-injury. The crash types were colliding whilst turning and a cyclist failing to stop for a red signal.

Six of the crashes occurred at or near the intersection of Bunny Street and Waterloo Quay, one serious, four minor injury and one non-injury. Two of the crashes (including the serious crash) involved doors being opened into the path of a cyclist. Two others involved parties failing to give-way at a red signal. The final two crashes involved a cyclist overtaking a left turning car on the left and a cyclist riding on the footpath being hit by a car at a property access.

Four of the crashes occurred on Hutt Road, two involving turning cars at the intersection with Sar Street and two north of Sar Street (one involving a turning vehicle and one involved a manoeuvring vehicle). All of the crashes involved northbound cyclists on the road and all were minor injury.

One minor injury crash involved a pedestrian crossing the road on Kate Sheppard Place.

The remaining 13 crashes all occurred on Thorndon Quay:

- Three crashes involved (including one serious crash) involved doors being opened into the path of a cyclist;
- Four crashes (all minor injury) involved cyclists being sideswiped by cars turning left;
- Two crashes (one serious / one minor involved cyclists hitting a pedestrian crossing the road; and
- Four crashes (one serious, two minor and one non-injury) involved cyclists being hit by cars turning right or undertaking U-turns.

People Using Buses

There have been 12 reported crashes involving buses along Thorndon Quay between 2011 and 2015. Three of the crashes were minor injury with the remaining nine non-injury.

Four of the crashes occurred at the intersection of Thorndon Quay and Mulgrave Street. Two were head-on crashes between buses entering the bus interchange and cars turning left onto Thorndon Quay. One was a bus hitting a pedestrian crossing the road and one was a bus failing to give-way when merging with northbound traffic heading onto Thorndon Quay.

Four of the crashes involved bus vs car crashes on the median bus-lane between Mulgrave Street and Moore Street. Three were right-turning / U-turning crashes and one was a car overtaking.

The four remaining crashes included:

- Bus hitting a U-turning van;
- Bus hitting a parked car;
- Bus hitting a manoeuvring car; and
- Bus changing lanes hit a car.

People Using Vehicles

There have been 63 reported crashes that have only involved motor vehicles (excluding pedestrians, cyclists and buses) along the route between 2011 and 2015. Two of the reported crashes resulted in serious injuries and 14 in minor injuries. There have also been four additional crashes in 2016 (up to June), two serious, one minor and one non-injury.

Nine crashes occurred at or near the intersection of Bunny Street and Waterloo Quay (one serious, two minor and four non-injury):

- Three rear-end type crashes;
- One merging type crash;
- One loss of control (serious crash – moped);
- Two lane changing type crashes;
- One U-turning type crash; and
- One vehicle hitting a parked car.

Fourteen crashes occurred at or near the intersection of Bunny Street and Featherston Street (two minor and 12 non-injury):

- Four crashes involved manoeuvring / parked cars;
- Four rear-end type crashes;
- Two merging type crashes;
- One lane changing type crash;
- One turning type crash; and
- Two crashes involving vehicles reversing along the road.

Nine crashes occurred at or near the intersection of Thorndon Quay and Tinakori Road (one minor and eight non-injury):

- Three rear-end type crashes; and
- Four turning type crashes.

Five crashes occurred at or near the intersection of Mulgrave Street and Featherston Street (one serious, two minor and two non-injury):

- One rear-end type crash;
- One crash involving vehicles reversing along the road; and
- Three turning type crashes (all failing to stop at a red signal), includes the serious crash.

Four of the crashes occurred on Hutt Road, two involving turning cars at the intersection with Sar Street (one of which was serious) and two north of Sar Street (one involving a car hitting a parked car and one involving a truck rear-ending a car.

The remaining 22 crashes all occurred on Thorndon Quay:

- Five of the crashes were rear-end type crashes (one minor injury);
- Six crashes involved manoeuvring / parked / parking cars (one minor injury);
- Four crashes involving lane changing / overtaking (two minor injury);
- Four crashes involved cars turning right onto Thorndon Quay (failing to give-way), one minor injury;
- Two crashes involving southbound motorcyclists southbound on Thorndon Quay hitting cars U-turning (one serious injury); and
- One side-swipe crash when turning left (minor injury).

A speed limit review was undertaken for the Thorndon Quay Sustainable Transport Study, December 2015 that concluded:

- "Too fast" crashes on Thorndon Quay at a significantly lower rate than the national / city average.
- The Setting of Speed Limits process calculates that the average rating (development / roadway) for the whole of Thorndon Quay is 19.6 with higher ratings occurring in the northern section between the SH1 Overbridge and Davis Street. As such the process has identified that a 50km/h speed limit is justified and notes that lower limits "are generally not suitable for roads serving a significant collector or arterial function".
- The existing daytime 85th percentile speeds are typically below 48 km/h with night time speeds typically below 55km/h. Similarly the daytime means speeds are typically below 45 km/h with nigh time speeds typically below 50 km/h.

3.8.Summary of key issues

The following key issues have been identified in the above section of the report:

- Safety is an issue for all modes through this section of Wellington roading network.

4. People Walking

4.1. Current demands

The two-way peak hour pedestrian link demands north of Aotea Quay and north of Mulgrave Street are shown in Figure 13 below

Figure 13: Peak Hour Pedestrian Link Demands (2015 count data)

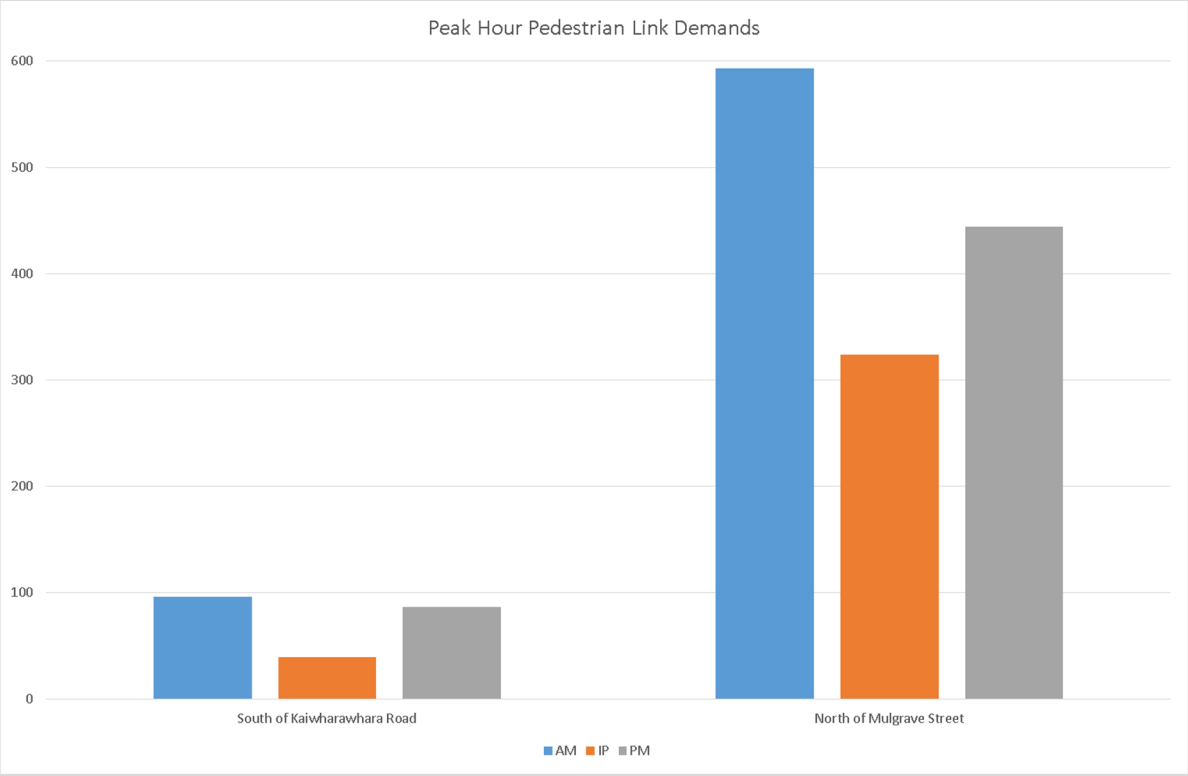


Figure 13: Peak Hour Pedestrian Link Demands (2015 count data)

The March 2016 Transport Monitoring Surveys showed the following information:

- Average weekday peak hour demand on Thorndon Quay south of Tinakori Road is 144 pedestrians (from pedestrian cordon surveys); and

The peak hour pedestrian crossing movements along the corridor are shown in Figure 14 below.

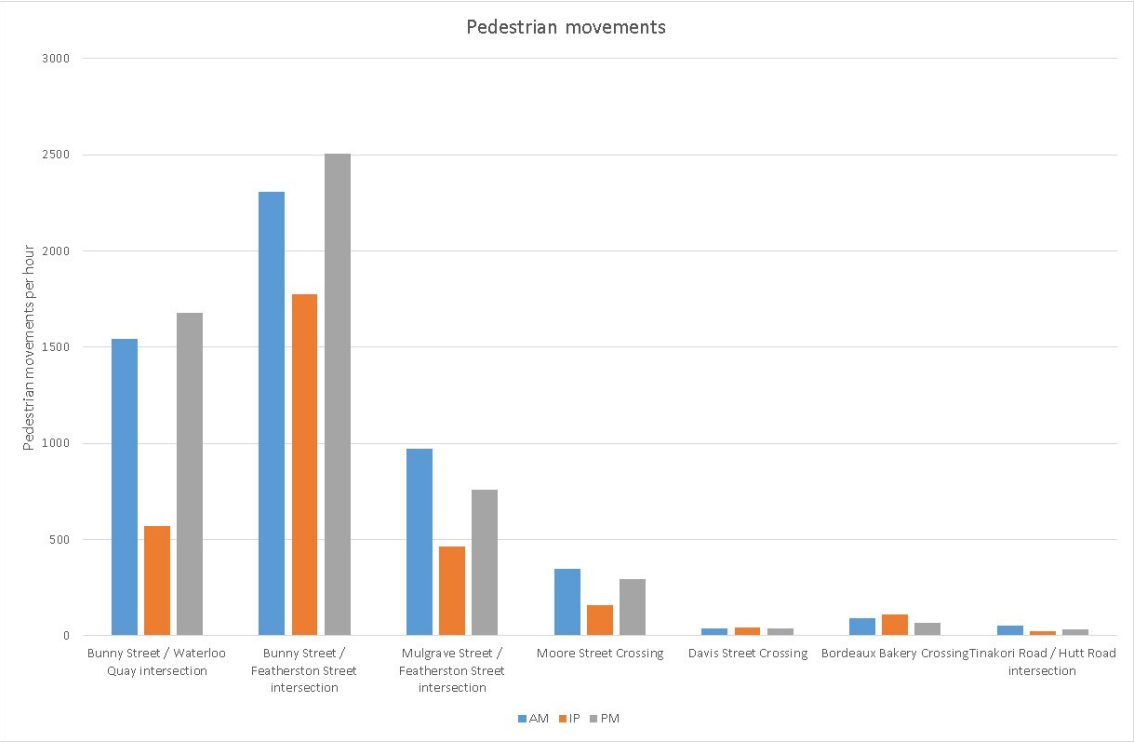


Figure 14: Peak Hour Pedestrian Movements (2015 / 2016 count data)

The movements at the Bunny Street / Waterloo Quay intersection are very busy in the peak periods which reflects the link between the Bus Terminus / Railway Station and the routes around waterfront to the northern CBD.

The movements at the Bunny Street / Featherston Street intersection are extremely busy at all times as it provides a critical link between the Bus Terminus / Railway Station, Pipitea Campus, Parliament and the CBD.

The movements at the Featherston Street / Mulgrave Street intersection are very busy in the peak periods which is understandable given the link between the Railway Station, Bus Terminus, Stadium access and surrounding land-uses.

The crossing near Moore Street is heavily utilised during the AM Peak. The high demand at this location is partly from the adjacent bus stop and partly from south (assumed to be from Wellington Station as the pattern of the demand has distinct peaks). The demand includes a high proportion of high school students accessing Wellington Girls College and others in the area. The demand at this crossing in the PM peak is significantly reduced, partly because the northbound bus stop does not require use of the crossing and partly because the students depart earlier in the afternoon.

There is a relatively low demand for pedestrians crossing north of Moore Street. The crossings at Bordeaux Bakery and Davis Street predominantly cater for access between car parking and commercial / retail premises. The demand at Davis Street is low, which likely reflects the predominantly long-stay parking south of this location (PM data was not collected at this location).

Intersection counts undertaken for the Ngauranga to Airport in 2016 are appended to this report.

4.2. Current level of service

Danish Method

The existing link level of service (LOS) has been calauclated using the Danish method and indicates the following:

- Average (LOS D and E) on Hutt Road;
- Average to poor (LOS D to F) on Thorndon Quay;
- Poor (LOS F) on Featherston Street (no footpath provided) – in reality alternatives exist through the railway station and bus terminal; and
- Good (LOS B) on Bunny Street.

Path Widths

The guidance in the NZTA Pedestrian Planning Design Guide is shown in Table 2 below.

For the corridor, that corresponds to a recommended 1.8m through route width (total 3.6m width).

The through route widths are generally already achieved in these locations so no potential improvements are required to meet the recommendd width except for localised pinch points.

Table 2: Extract from NZTA Pedestrian Planning Design Guide

Location	Maximum pedestrian flow	Zone				Total
		Kerb	Street furniture #	Through route	Frontage	
Arterial roads in pedestrian districts	80 p/min	0.15 m	1.2m	2.4 m +	0.75 m	4.5 m
CBD						
Alongside parks, schools and other major pedestrian generators						
Local roads in pedestrian districts	60 p/min	0.15 m	1.2 m	1.8 m	0.45 m	3.6 m
Commercial/ industrial areas outside the CBD						
Collector roads	60 p/min	0.15 m	0.9 m	1.8 m	0.15 m	3.0 m
Local roads in residential areas	50 p/min	0.15 m	0.9 m	1.5 m	0.15 m	2.7 m
Absolute minimum*		0.15 m	0.0 m	1.5 m	0.0 m	1.65 m
# Consider increasing this distance where vehicle speeds are higher than 55 km/h.						
* Only acceptable in existing constrained conditions and where it is not possible to reallocate road space.						

Crossing Facilities

Based on Table 6 in the NZTA Guidelines for the Selection of Pedestrian Facilities, the average delay for vehicles in the AM peak hour at the zebra crossings is as shown in Table 3. Flows are based on the 2031 flows from the Ngauranga to Aotea Quay project modelling, which may be underrepresented.

Table 3: Average Vehicle Delay

Location	Pedestrian Flow (pph)	Northbound Flow (vph)	Southbound Flow (vph)	Northbound Delay (s)	Southbound Delay (s)
Bordeaux Bakery Crossing	200	136	595	1.0	2.0
Davis Street Crossing	55	265	630	0.3	0.9
Moore Street Crossing	630	265	630	4.2	16

The Moore Street Crossing results in a relatively high delay for through vehicles and potentially warrants a signalised crossing.

4.3. Summary of key issues

The following key issues have been identified in the above section of the report:

- Very high pedestrian crossing demands are observed at the four southern-most intersections (Moore Street, Mulgrave Street, Bunny Street and Waterloo Quay);
- There are delays for vehicles especially at the Moore Street zebra crossing at peak times; and
- The LOS for pedestrians along Thorndon Quay is assessed as average.

5. People Riding Bikes

5.1. Current demands

The two-way peak hour cycle link demands north of Aotea Quay and north of Mulgrave Street are shown in Figure 15 below.

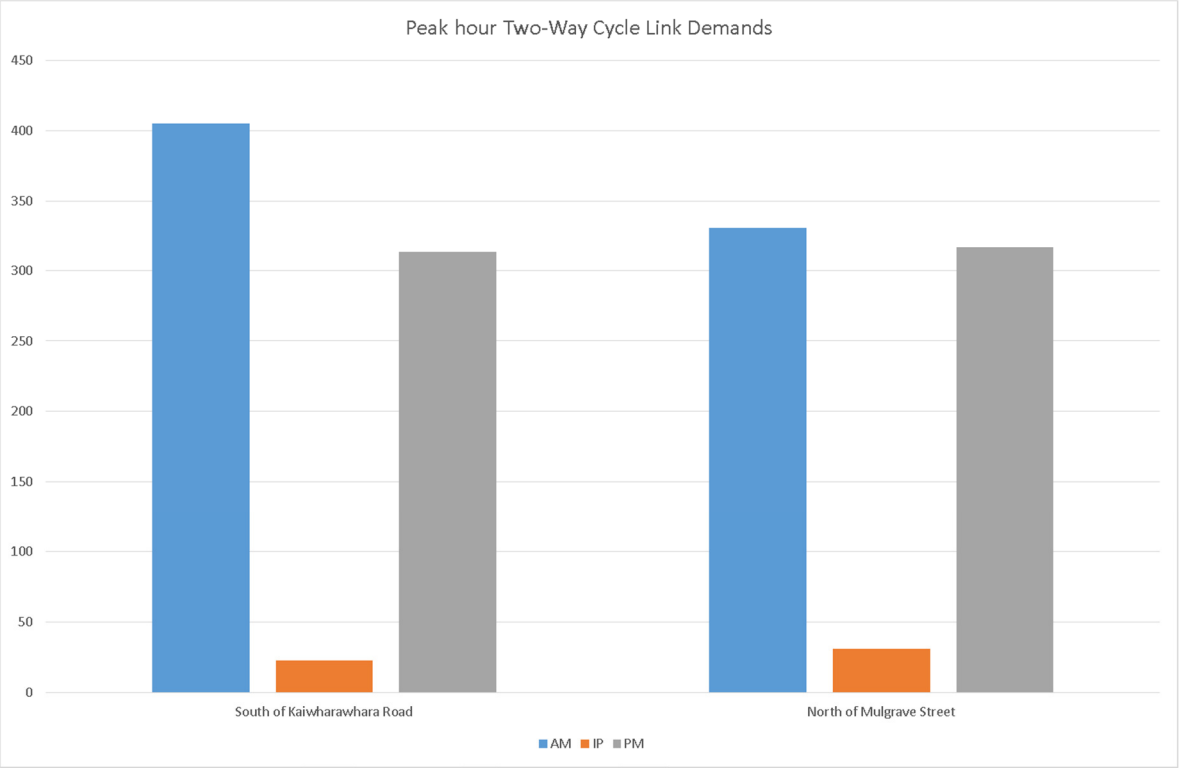


Figure 15: Cycle Link Demands (2015 count data)

The cycle link demand is consistently high in the commuter peaks and low at other times. There is a notable drop between Kaiwharawhara Road and Mulgrave Street in the AM peak that is not reflected in the PM peak.

The March 2016 Transport Monitoring Surveys (appended to this report) showed the following information:

- Average weekday peak hour demand at the intersection of Thorndon Quay and Tinakori Road is 335 cyclists (from commuter cycle surveys); and
- Average weekend peak hour demand at the intersection of Thorndon Quay and Tinakori Road is 81 cyclists (from recreational cycle surveys);

The two-way peak hour cycle crossing demands at Tinakori Road from the Thorndon Quay Sustainable Transport Study are shown in Figure 16 below.

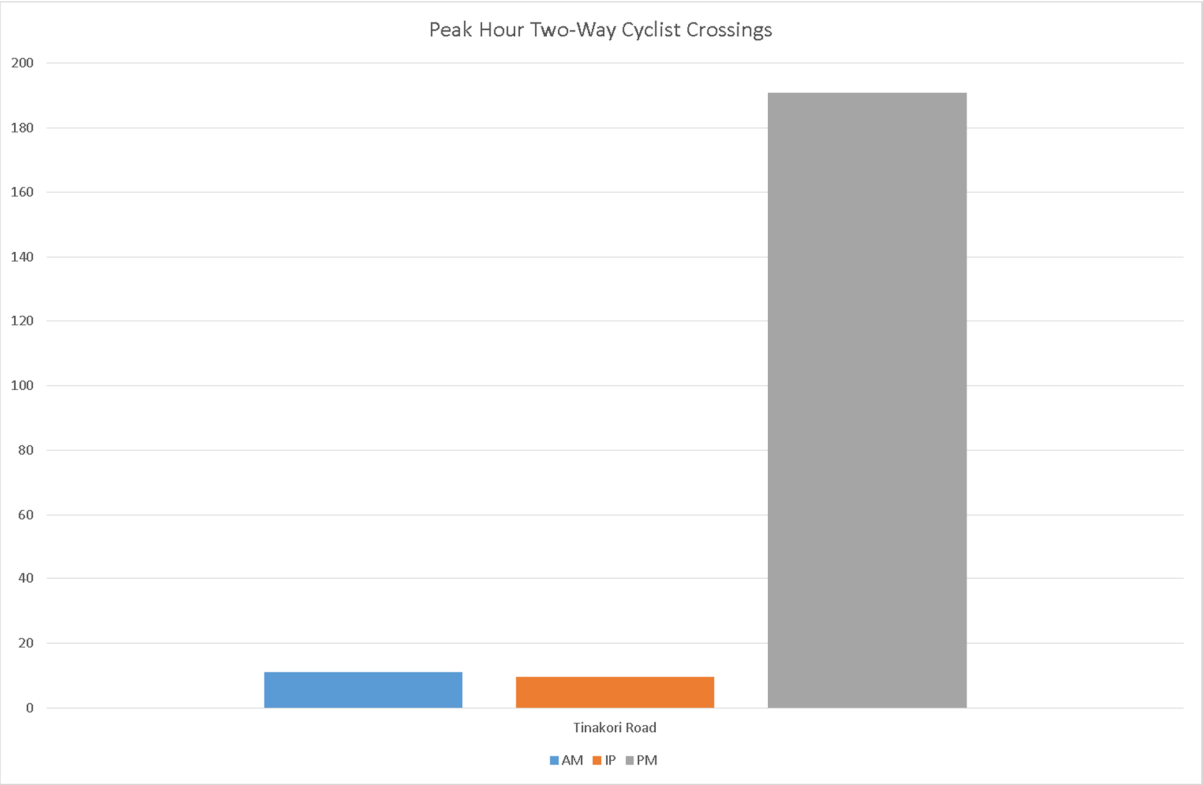


Figure 16: Peak Hour Cyclist Crossing Demands (2015 count data)

The number of crossings at Tinakori Road may be optimistic as it assumes that all of the northbound and turning cyclists that use the path south of Kaiwharawhara cross onto the shared path where it begins at Tinakori Road. In reality cyclists are observed to cross over when gaps present themselves in the traffic flow from Tinakori Road northwards.

Intersection counts undertaken for the Ngauranga to Airport in 2016 are appended to this report and are summarised below:

- ~260 cyclist movements in the peak hour at the intersection of Aotea Quay and Hutt Road;
- ~280 cyclist movements in the peak hour at the intersection of Tinakori Road and Thorndon Quay;
- ~260 cyclist movements in the peak hour at the intersection of Mulgrave Street and Thorndon Quay;
- ~280 cyclist movements in the peak hour at the intersection of Bunny Street and Featherston Street; and
- ~130 cyclist movements in the peak hour at the intersection of Bunny Street and Waterloo Quay.

The background growth in commuter cyclists over the past 10 years is shown in Figure 17 below. The trend lines indicate that growth is increasing at an average per annum rate of 6.5% (~20 new cyclist each year).

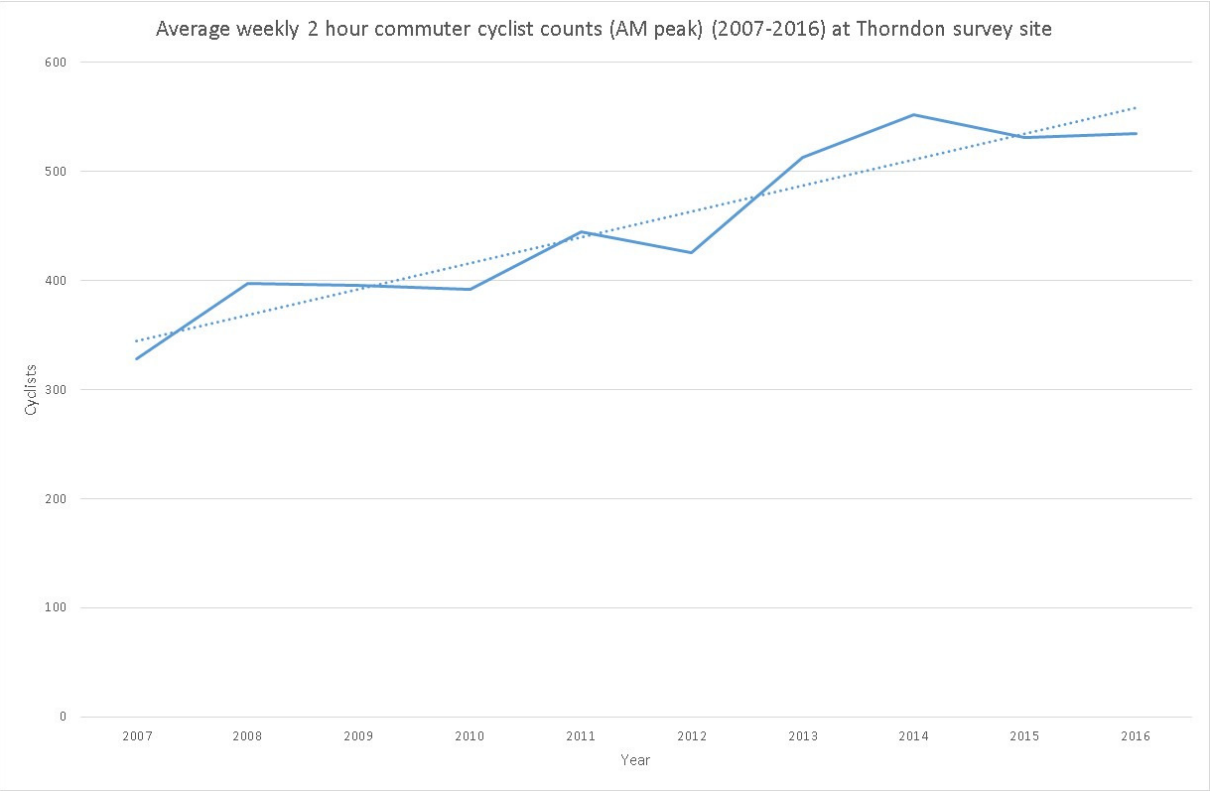


Figure 17: Background Peak Hour Commuter Cycle Growth 2007-2016 (sourced from TDG surveys)

5.2. Current level of service

The existing link level of service (LOS) has been calauclated using the Danish method and indicates the following:

- Good (LOS A) southbound and poor (LOS F) northbound on Hutt Road;
- Average to good (LOS B to C) on Thorndon Quay;
- Average (LOS D) on Featherston Street; and
- Good (LOS A) on Bunny Street.

5.3. Summary of key issues

The following key issues have been identified in the above section of the report:

- High (and growing) demand people on bikes along the route.
- Average LOS for people on bikes along route.

6. People Using Buses

6.1. Current Demands

Corridor Patronage

Figure 18 below shows that buses carry a comparable number of people as motor vehicles along the corridor even though the number of buses is a very small fraction of the number of motor vehicles. The Thorndon Quay / Hutt Road route is the region's busiest patronage corridor (excluding the Golden Mile).

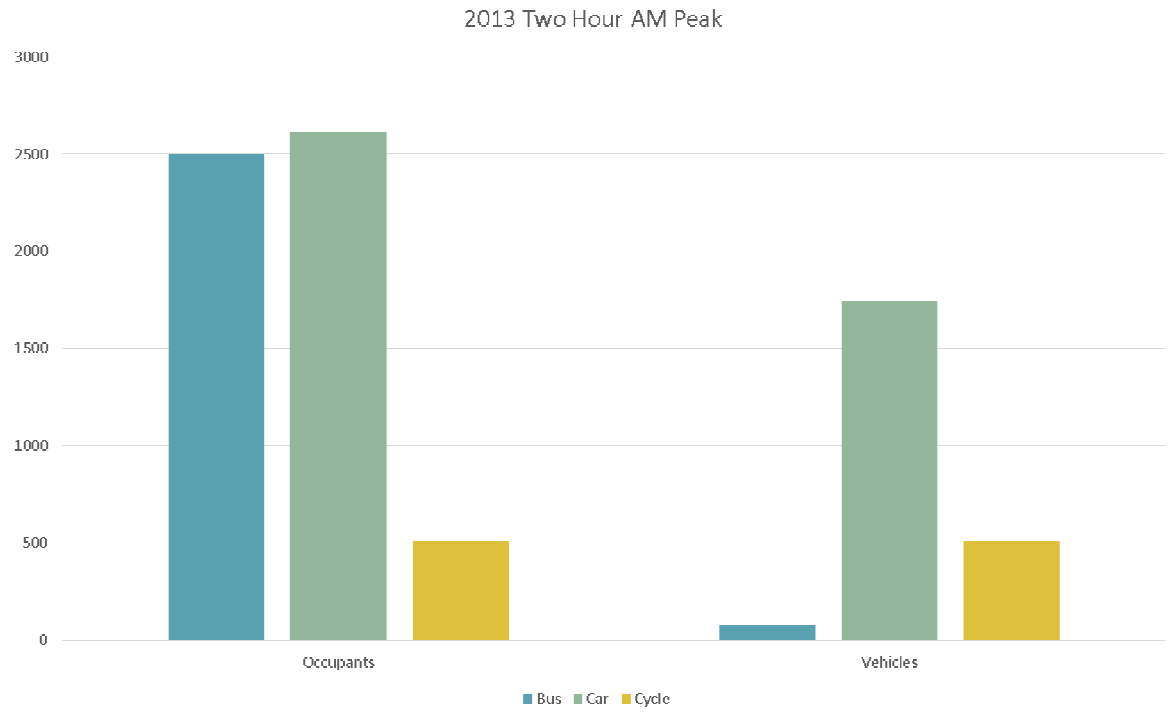


Figure 18: Volume / Patronage Analysis

Bus Numbers

The peak hour bus flows are shown in Appendix G and Figure 19 below.

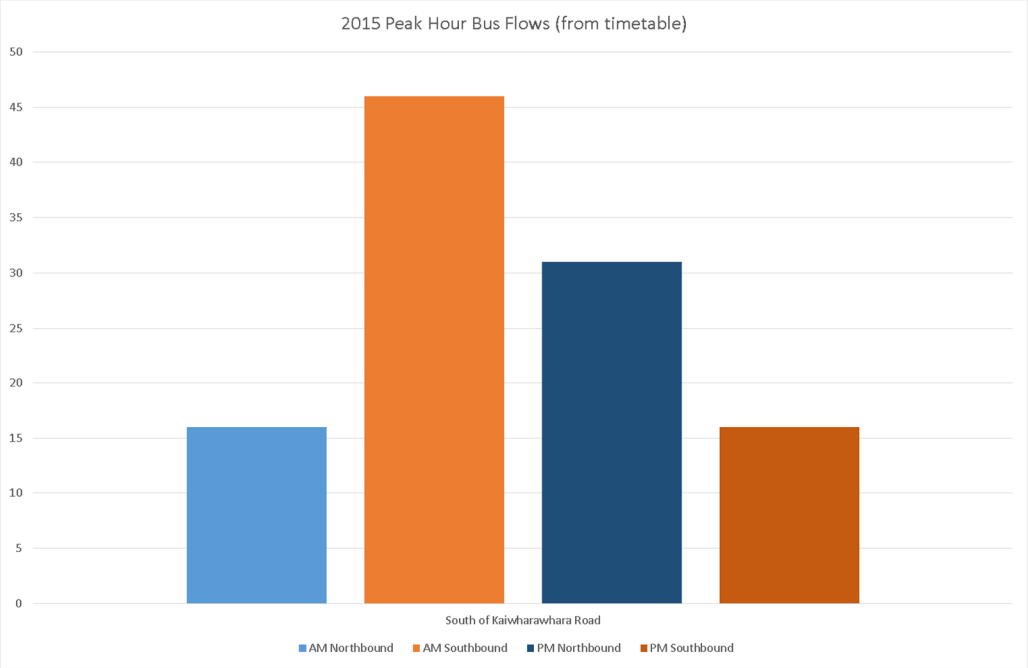


Figure 19: Peak Hour Bus Flows

In the AM peak hour there are 46 buses travelling southbound south of Kaiwharawhara Road and 16 buses travelling northbound. In the PM peak hour there are 16 buses travelling southbound south of Kaiwharawhara Road and 31 buses travelling northbound.

Bus Stop Demands

Figure 20 below shows the bus stop boarding data along the corridor for an average month. Only the boarding data is available, however, as a rough guide the alighting trends can be assumed to be the reverse.

The following trends can be observed:

- In the southbound direction, boarding demands are relatively consistent with a notable peak at Bordeaux.
- In the northbound direction, the boarding demands are more variable with very high demands at Capital Gateway and under the motorway. There are pedestrian paths to Pipitea Street and Tinakori Road respectively at these locations which provide easy access to the Thorndon catchment.

The only high demand stop without an adjacent pedestrian crossing facility is the stops under the Motorway.

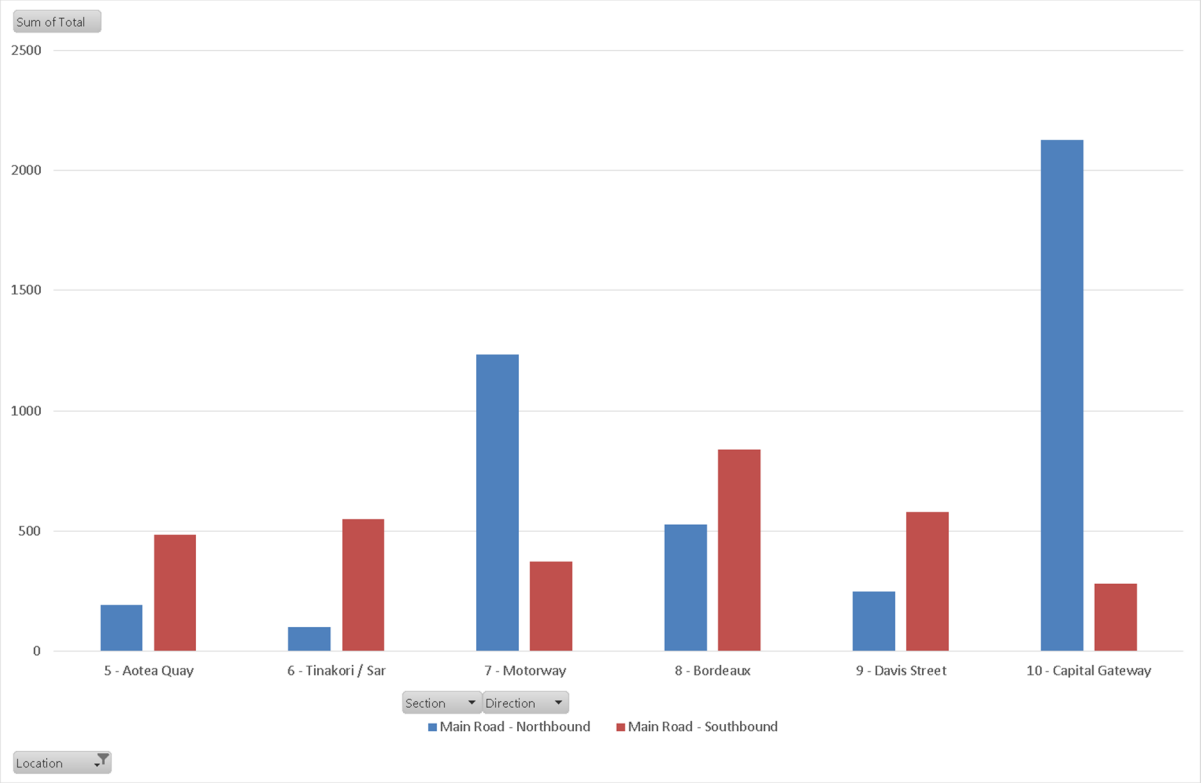


Figure 20: Bus Stop Boarding Data

6.2. Current level of service

The existing performance is based on the analysis of the weekday RTI data provided by GWRC.

The data provided includes the difference in time between all stops along the route. The times are assumed to be arrival times at the stop. The following journey times include intersection delay and dwell times in addition to link times (the data does not differentiate if a bus stops or not).

The information provided includes three months of data from March to May 2014. The data has been cleaned to remove extreme outliers and incomplete routes.

Average Speeds (Main Corridor)

The following two graphs show the average speeds over the Hutt Road / Thorndon Quay corridor based on the No. 54 route (Wellington to Churton Park).

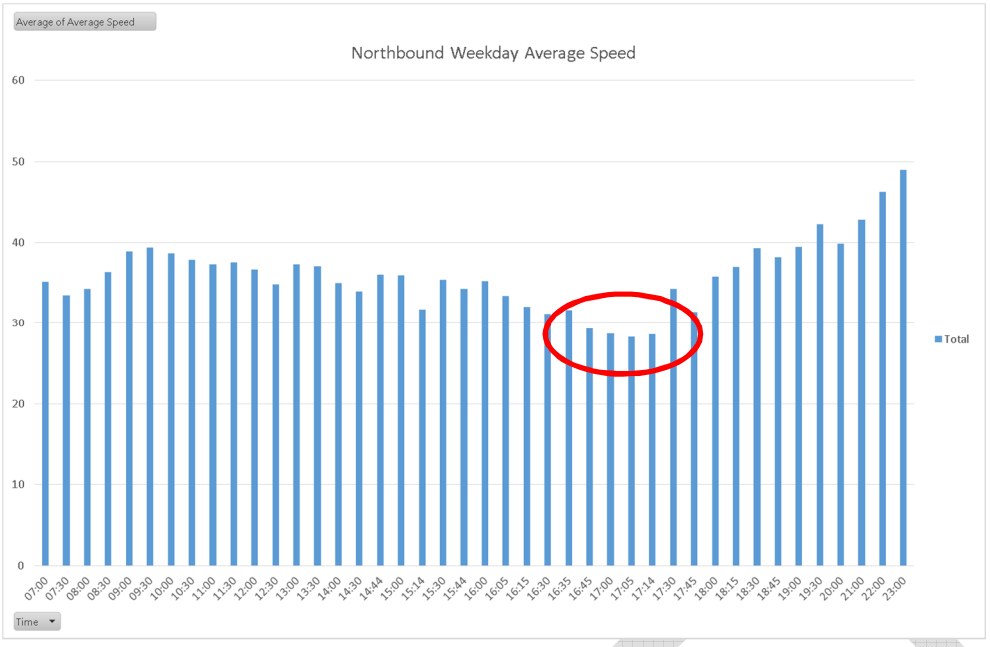


Figure 21: Northbound Weekday Average Bus Speed

In the northbound direction the slowest speeds occur in the PM peak (as expected).

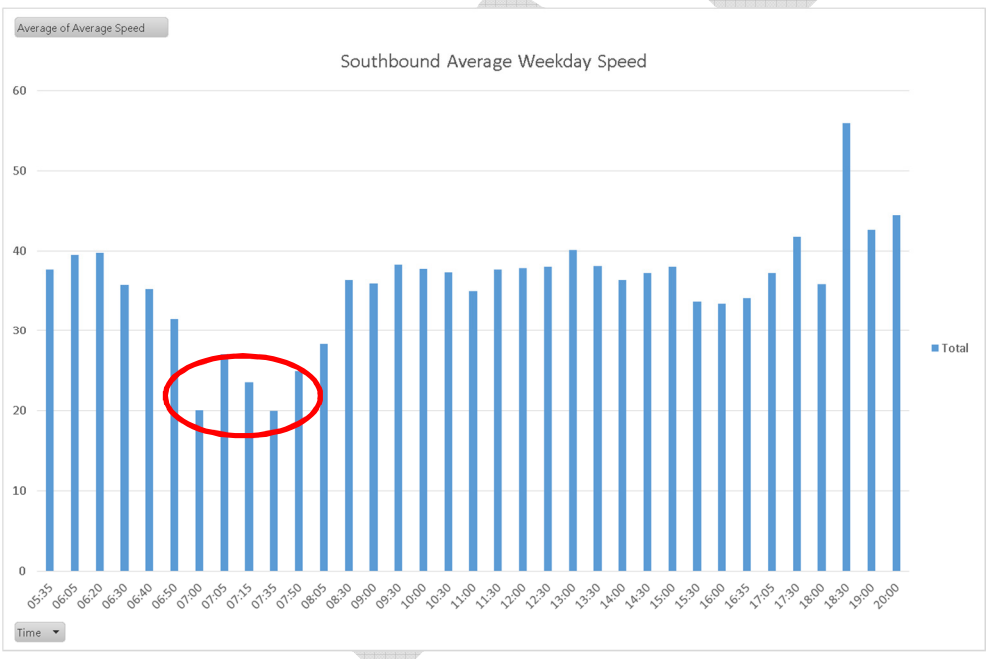


Figure 22: Southbound Weekday Average Bus Speed

In the southbound direction the slowest speeds occur in the AM peak (as expected).

The following two graphs show the average speeds over the different posted speed limit zones based on the No. 54 route.

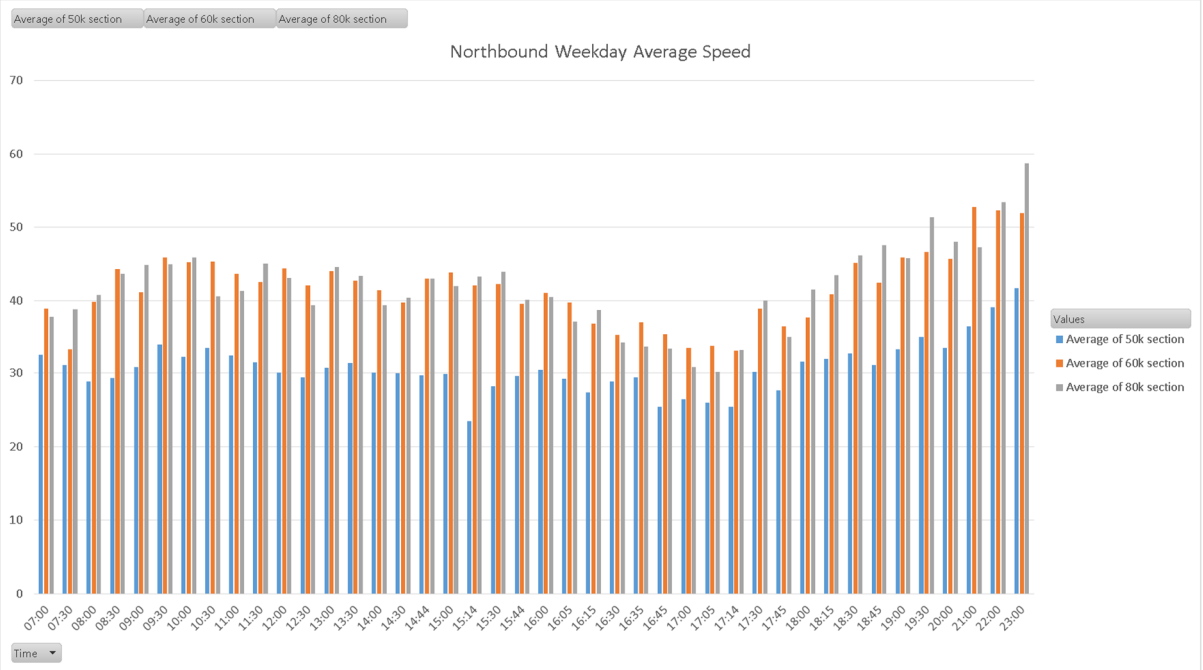


Figure 23: Northbound Weekday Average Bus Speed by Speed Zone

In the northbound direction the average speeds through the 50km/h zone are reasonably constant throughout the day. The variance in speeds in the 60/80km/h zones is more pronounced than in the 50km/h zone.

There is also little difference in the average speed between the 60 and 80km/h zones. The average speeds in the 60/80km/h zones is consistently around 10km/h higher than the 50km/h zone.

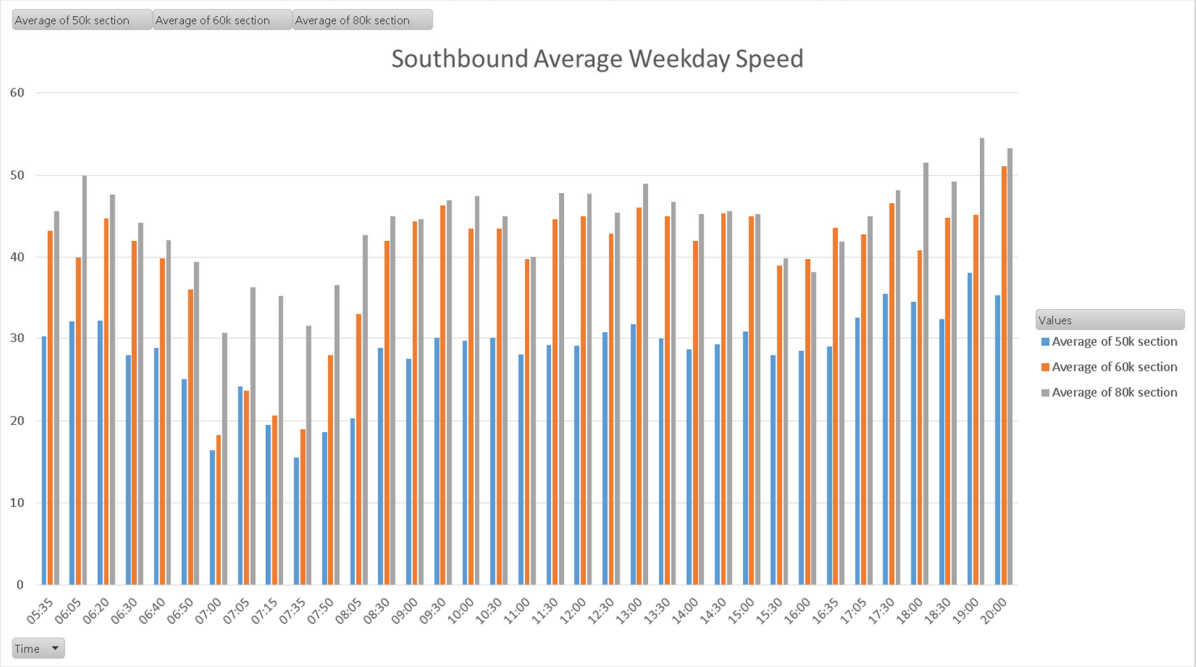


Figure 24: Southbound Weekday Average Bus Speed by Speed Zone

In the southbound direction the average speeds through the 50km/h zone are reasonably constant throughout the day with a noticeable drop in the AM peak. The variance in speeds in the 60/80km/h zones is more pronounced than in the 50km/h zone.

There is also little difference in the average speed between the 60 and 80km/h zones. The average speeds in the 60/80km/h zones is consistently around 10-15km/h higher than the 50km/h zone except in the AM peak where the 50 and 60km/h zones are very similar.

Peak Hour Journey Times (Main Corridor)

The following two graphs show the average journey times against distance for four peak hour period runs along with an evening run for the full Hutt Road / Thorndon Quay corridor.

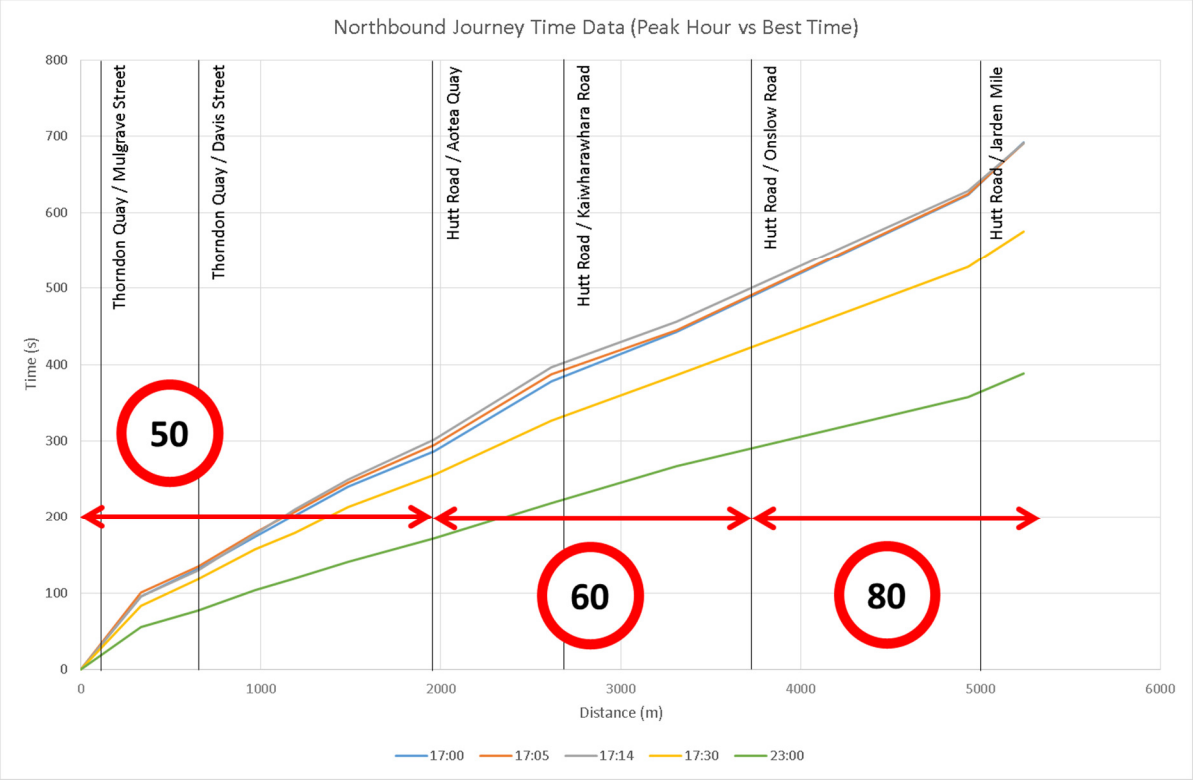


Figure 25: Northbound Bus Journey Time Data

In the northbound direction the slowest section of the journey is the first one which is leaving the bus-terminus and joining Thorndon Quay. This is expected to be due to high boarding numbers at the bus terminus, congestion associated with other buses and intersection delays at the Mulgrave Street intersection.

The remainder of the journey is at a relatively constant speed with noticeable slow points around the Kaiwharawhara Road intersection and the Jarden Mile Intersection.

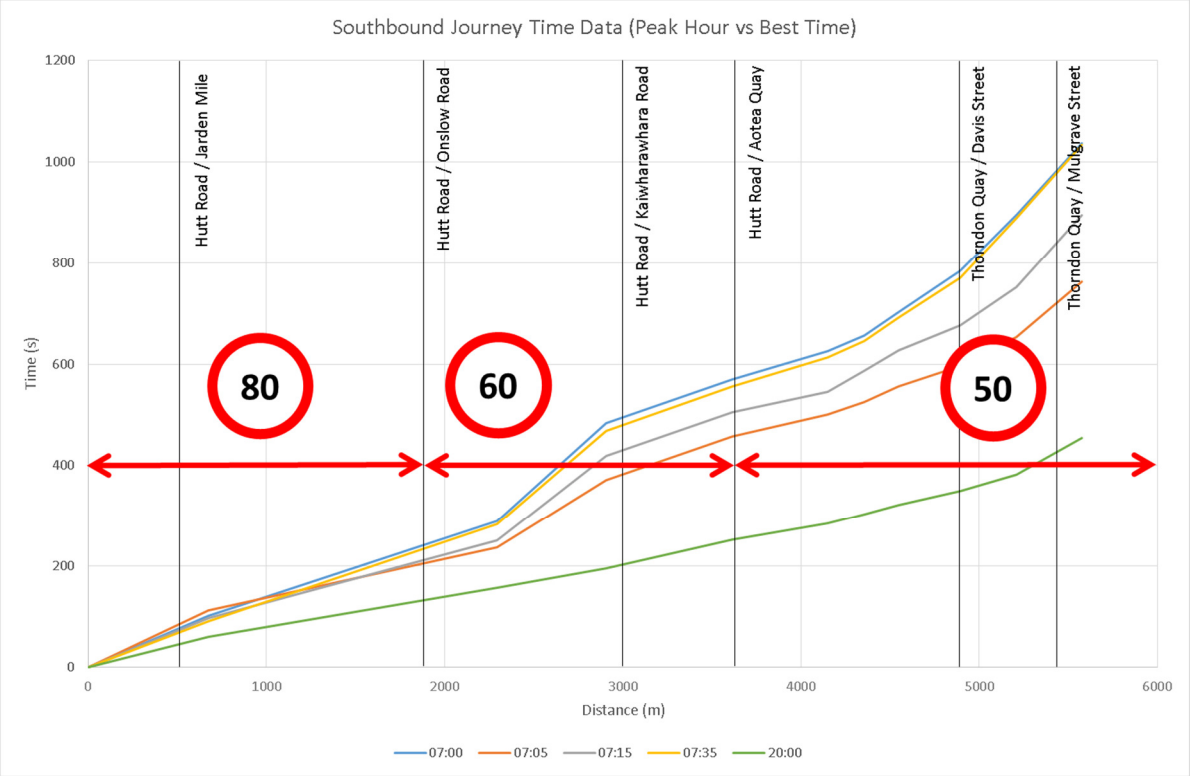


Figure 26: Southbound Bus Journey Time Data

In the southbound direction the slowest section of the journey is around the Kaiwharawhara Road intersection (approximately two and a half minutes additional delay when comparing the average worst peak trip against the average best trip). The Thorndon Quay section of the route is also noticeably slower than the remainder of the route.

Peak Hour Journey Speeds (Main Corridor)

Further to the graphs shown above the following table present the average speeds / travel times for the peak hour routes.

Table 4: Northbound Bus Peak Hour Journey Speeds

Northbound	Speeds (km/h)				Journey Times
	50	**60**	**80**	**All**	
Average Worst Peak Trip	26	34	30	**28**	11 minutes 31 seconds
Average Best Trip	42	52	59	**49**	6 minutes 28 seconds
Worst Trip	26	12	8	**12**	26 minutes 35 seconds
Best Trip	47	58	67	**56**	5 minutes 36 seconds

In the northbound direction the average worst peak trip speed and journey time is around double the average best trip. The worst trip recorded during the three month period was almost five times the best trip recorded. The worst trip occurred on Wednesday 12 March on the 5.00pm run. During the three month period there were 30 trips which took longer than 15minutes.

Table 5: Southbound Peak Hour Bus Journey Speeds

Southbound	Speeds (km/h)				Journey Times
	80	**60**	**50**	**All**	
Average Worst Peak Trip	31	18	16	**20**	17 minutes 16 seconds
Average Best Trip	53	48	38	**45**	7 minutes 24 seconds
Worst Trip	37	13	8	**13**	25 minutes 9 seconds
Best Trip	67	51	43	**53**	5 minutes 14 seconds

In the southbound direction the average worst peak trip is more than double the average best trip. The worst trip recorded during the three month period was almost five times the best trip recorded. The worst trip occurred on Wednesday 16 April on the 7.50am run.

Comparison to Intersection Performance

The intersection performance in the previous section identified the following average delays for bus movements.

Table 6: Existing Bus Intersection Performance

Location	Northbound delay PM Peak (sec/veh)	Southbound delay AM Peak (sec/veh)
Tinakori Road (Thorndon Quay)	0	0
Mulgrave Street (Thorndon Quay)	31.1	38.5

The magnitude of delays identified in Table 6 above are consistent with the delays indicated in the average journey time graphs earlier.

Specific analysis of the Mulgrave Street intersection has identified the following performance issues for buses.

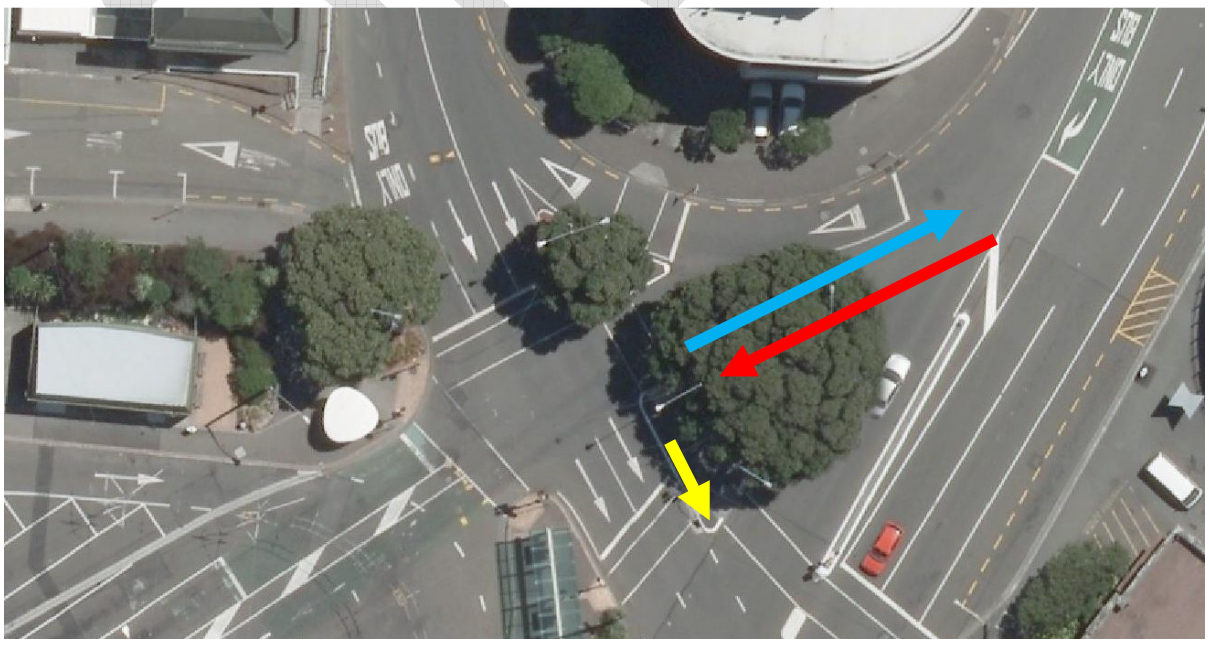


Figure 27: Bus Issues at Mulgrave Street Intersection

- The intersection currently operates on a two phase cycle with one phase for Mulgrave Street traffic and one phase for Thorndon Quay and Bus Terminus traffic;
- In peak times buses can only generally cross (red arrow in figure above) or merge (blue arrow in figure above) with northbound traffic when the Mulgrave Street phase is operating and northbound flow is stopped;
- There is limited stacking space (~20m) for buses entering waiting to enter the bus terminus, typically two buses squeeze into the space and then can proceed when the phase changes, if a third bus arrives they typically have to wait for another signal cycle;
- Similarly, once buses exit the terminus there is limited stacking space (~20m) for them on the other side until the phase changes and they can safely merge, if a third bus arrives they typically have to wait for another signal cycle; and
- To further complicate matters if more than one vehicle stops at the second limit line (yellow arrow in figure above) then either the buses waiting to enter or both bus movements have to wait for another signal cycle.

Discussion

Based on the assessment of the available information the following conclusions can be drawn:

Northbound

- On the main route heading northbound there does not appear to be any significant pinch points. The average speed in the PM peak period is around 5km/h slower than average speeds throughout the rest of the day.
- There are delays occurring in the PM peak moving from the Bus Terminus to Thorndon Quay, this is likely partly because of buses arriving early the terminus and waiting for their scheduled departure time and partly due to delays at the Mulgrave Street intersection as described above.

Southbound

- On the main route heading southbound significant delays are incurred along Thorndon Quay. The average speed in the AM peak period is around 15km/h slower than average speeds throughout the rest of the day.
- In the AM peak there are significant delays incurred between Davis Street and the Bus Terminus, despite the existence of a dedicated bus lane through most of this section. These delays are likely partly attributed to the long dwell time at the capital gateway stop (high alighting demand), use of the Moore Street crossing and partly due to delays at the Mulgrave Street intersection as described above.

6.3. Summary of key issues

The following key issues have been identified in the above section of the report:

- There is a significant patronage and vehicle numbers of people using buses.
- High bus stop demands occur at Capital Gateway and under the Motorway.
- Delays to people on buses northbound in the PM peak between the bus terminus and Capital Gateway.
- Significant delays to people on buses southbound in the AM peak between Davis Street and the bus terminus.

7. People Using Vehicles

7.1. Current demands

There are various sources for the existing link flows along the corridor, the following figures compares the Wellington Traffic Model (WTM) base year (2011) peak hour demand flows against the latest available count information.

Figure 28 and Figure 29 show the following:

- Reasonable correlation between the WTM and actual counts in the off peak direction;
- An over-prediction of southbound AM peak demand and an under-prediction of northbound PM peak demand by the WTM compared with actual counts; and
- Demand over the threshold for a dual lane link (1600-1800vph) north of Tinakori Road for southbound traffic.

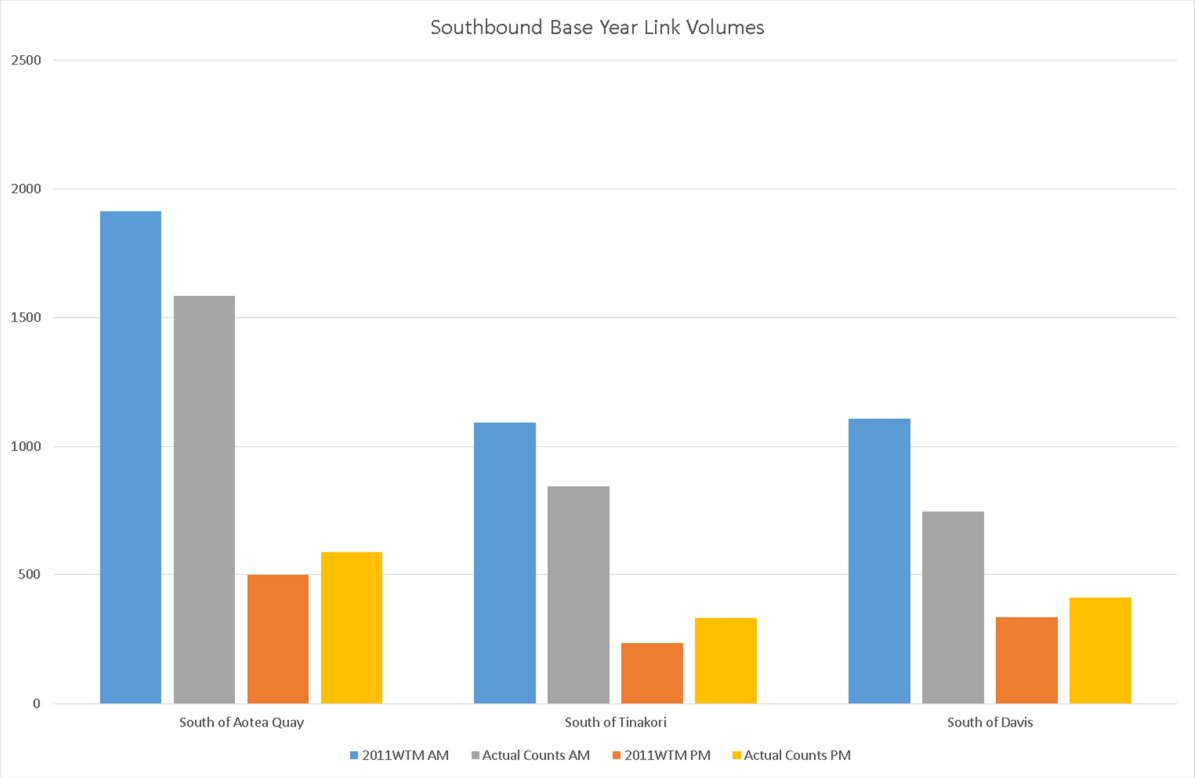


Figure 28: Southbound Base Year Link Volumes Comparison

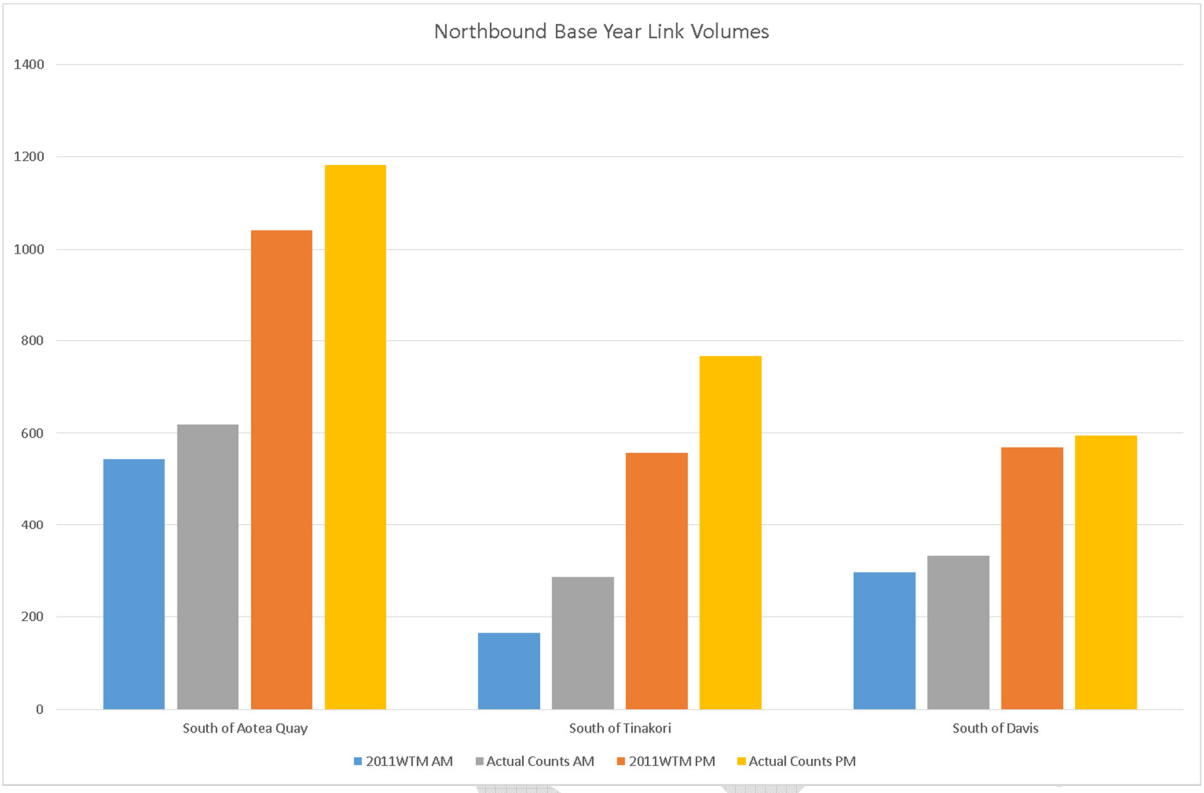


Figure 29: Northbound Base Year Link Volumes Comparison

The March 2013 counts undertaken for Wellington City Council by TDG identifies the following vehicle occupancy statistics for the inbound AM peak:

- Thorndon Quay (south of Tinakori Road) the average vehicle occupancy is 1.5. The split of occupancy was 58% single occupancy, 36% dual occupancy and 6% with three or more people per vehicle.
- Aotea Quay (south of the SH1 off-ramp) the average vehicle occupancy is 1.4. The split of occupancy was 69% single occupancy, 27% dual occupancy and 4% with three or more people per vehicle.

The turning flows at the key intersections (from a variety of sources) are appended to this report.

The following commentary can be made with regard to those intersections.

Tinakori Road

- In the AM peak, the high southbound flows (~1600vph) are relatively evenly split between Tinakori Road and Thorndon Quay; and
- In the PM peak the pattern is reversed, again with a relatively evenly split between northbound traffic from Tinakori Road and Thorndon Quay.

Mulgrave Street

- In the AM peak the flows on Mulgrave Street are almost double the southbound flows on Thorndon Quay; and
- In the PM peak the same pattern exists with the predominant flows on Mulgrave Street.

Bunny Street

- In the AM peak, the southbound flow on Featherston (~1600vph) makes up 2/3 of all traffic at the intersection; and

- In the PM peak the southbound flow on Featherston is still predominant, but is a smaller proportion of the total flows.

Waterloo Quay

- In the AM peak the highest flows are north-south with a strong demand between Bunny Street and Waterloo Quay south; and
- In the PM peak the same patterns exist with higher demands than in the AM peak.

7.2. Current level of service

The existing intersection performance is presented below. The following definitions apply to the tables:

- Delay: Average Delay per vehicle (seconds)
- LoS: (Level of Service)
- Queues: 95% Back of Queue (Vehicles)

Tinakori Road

The following results are from an uncalibrated SIDRA6 model using 2013/2015 loop counts and turn proportions from 2011 counts.

Table 7: Tinakori Road Existing Intersection Performance

Approach	AM Peak			PM Peak		
	Delay	**LoS**	**Queue**	**Delay**	**LoS**	**Queue**
Thorndon Left Turn	6.5	A	0	6.6	A	0
Thorndon Through	0	A	0	0.1	A	0
Hutt Through	0	A	0	0	A	0
Hutt Right Turn	7.1	A	5.3	10.9	B	1.9
Tinakori Left Turn	6.3	A	1.2	21.5	C	9.5
Tinakori Right Turn	121.5	F	1.4	30.6	D	0.4
Overall	**4.4**		**5.3**	**8.0**		**9.5**

The intersection performs at an acceptable level in both peaks except for the right turn out of Tinakori Road in the AM peak. This movement is only made by 20 vehicles in the peak hour.

Mulgrave Street

The following results are from an uncalibrated SIDRA6 model using 2013/2015 loop counts on Mulgrave Street & Thorndon Quay, Bus Timetable data & WTM turn split.

Table 8: Mulgrave Street Existing Intersection Performance

Approach	AM Peak			PM Peak		
	Delay	**LoS**	**Queue**	**Delay**	**LoS**	**Queue**
Featherston Through	30.2	C	4.8	28.4	C	8.4
Thorndon Through	34.4	C	14.2	27.9	C	6.6
Thorndon Bus	*38.5	*D	1.5	*38.7	*D	0.4
Mulgrave Left Turn	13.3	A	0.9	15.5	A	1.8
Mulgrave Through	16.8	B	19.0	16.4	B	9.4
Mulgrave Right Turn	14.1	B	0.6	15.8	B	0.2
Bus Terminal Through	*33.2	*C	0.5	*31.1	*C	1.0
Overall	**23.7**	**C**	**19.0**	**22.6**	**C**	**9.4**

Items with an * have had additional delay added to take into account the delays incurred by buses crossing / merging with the northbound traffic flow on Thorndon Quay.

The intersection performs at an acceptable level in both peaks.

Bunny Street / Featherston Street

The following results are from an uncalibrated SIDRA6 model using 2016 turn counts.

Table 9: Bunny Street / Featherston Street Existing Intersection Performance

Approach	AM Peak			PM Peak		
	Delay	**LoS**	**Queue**	**Delay**	**LoS**	**Queue**
Stout Left Turn	9.0	A	0.1	11.1	B	0.3
Stout Through	4.6	A	2.1	7.9	A	6.5
Stout Right Turn	33.8	C	0.6	21.3	C	1.0
Bunny Left Turn	43.0	D	7.1	32.4	C	8.5
Bunny Through	38.4	D	7.1	28.8	C	8.5
Bunny Right Turn	42.5	D	6.2	31.6	C	6.8
Featherston Left Turn	10.6	B	9.4	13.0	B	8.3
Featherston Through	14.9	B	40.0	9.3	A	13.8
Featherston Right Turn	19.2	B	40.0	14.9	B	13.8
Overall	**16.8**	**B**	**40.0**	**14.2**	**B**	**13.8**

The intersection performs at an acceptable level in both peaks.

Bunny Street / Waterloo Quay

The following results are from an uncalibrated SIDRA6 model using 2016 turn counts.

Table 10: Bunny Street / Waterloo Quay Existing Intersection Performance

Approach	AM Peak			PM Peak		
	Delay	**LoS**	**Queue**	**Delay**	**LoS**	**Queue**
Waterloo (S) Left Turn	22.5	C	8.3	26.3	C	11.4
Waterloo (S) Through	22.0	E	25.9	162.0	F	118.3
Waterloo (S) Right Turn	66.1	C	3.6	60.9	E	0.8
Waterfront Left Turn	65.7	E	0.3	68.8	E	2.7
Waterfront Through	61.1	E	0.3	64.2	E	2.7
Waterfront Right Turn	65.7	E	0.3	68.8	E	2.7
Waterloo (N) Left Turn	4.4	A	0.0	4.4	A	0.0
Waterloo (N) Through	67.8	E	76.2	33.7	C	45.1
Waterloo (N) Right Turn	78.2	E	7.4	102.2	F	12.3
Bunny Left Turn	53.0	D	7.4	52.4	D	6.4
Bunny Through	48.4	D	7.4	47.8	D	6.4
Bunny Right Turn	57.6	E	10.1	60.8	E	11.1
Overall	**49.3**	**D**	**76.2**	**91.0**	**F**	**118.3**

The intersection performs at a poor level in both peaks.

Travel Times

Two southbound travel times were recorded using GPS on Tuesday 2 June 2015 for the full Hutt Road / Thorndon Quay corridor from south of Jarden Mile intersection to south of Mulgrave Street. Speed disruption occurring at the following locations:

- a vehicle parked in the clearway south of Aotea Quay (Hutt Road section); and
- the pedestrian crossings at Bordeaux Bakery and Moore Street.

It should be noted that the sample size here is not enough to be representative, however, it correlates well with typical conditions expected along the corridor.

7.3. Forecast Traffic demands

The WTM base year (2011) peak hour demand flows have been compared against the demand flows from the 2031 option model for the Ngauranga to Aotea Quay Transport Agency project and the actual count flows. The 2031 modelling is based on a seven laning (four northbound and three southbound) scenario.

- In the southbound direction in the AM south of Aotea Quay the 2031 scenario results in reduced flows when compared with both the actual counts and the 2011 base model.
- In the southbound direction in the PM peak the 2031 scenario correlates well with both the actual counts and 2011 base model flows south of Kaiwharawhara.
- In the northbound direction in the AM peak the 2031 scenario, the 2011 base model and actual counts have similar flows.

- In the northbound direction in the PM peak the 2031 scenario results in significantly higher flows south of Tinakori Road when compared with both the actual counts and the 2011 base model. The 2031 scenario model is significantly under predicting flows on Tinakori Road in the same period which explains the change here.
- Demand greater than the threshold for a single lane link (1600-1800vph) north of Tinakori Road for southbound traffic and between Aotea Quay and Onslow Road for northbound traffic.

In summary, the 2031 scenario will result in little change in traffic flows when compared with the actual counts. The only change of significance is in the southbound AM peak flows south of Aotea Quay.

7.4. Parking demands

The following terms used in this section are defined below:

- Short Stay (same number plate collected in one or two beats, indicating a stay less than two hours);
- Medium Stay (same number plate collected in three or four beats, indicating a stay longer than two hours but less than 4 hours); and
- Long Stay (same number plate collected in five or more beats, indicating a stay longer than four hours).

Unique Vehicles

The following table identifies the number of unique vehicles recorded during each 12 hour period:

Location	Capacity	Weekday			Weekend		
		Total	Medium Stay	Long Stay	Total	Medium Stay	Long Stay
Hutt Road from Aotea Quay to Sar Street	84	133	19	43	103	12	25
Thorndon Quay from Tinakori Road to Davis Street	263	604	73	56	826	113	53
Thorndon Quay from Davis Street to Moore Street	90	192	22	51	187	32	23
Thorndon Quay from Moore Street to Mulgrave Street	50	106	10	6	144	15	2
Sar Street	15	31	3	12	10	2	1
Davis Street	13	30	4	8	16	1	8
Mulgrave Street	7	24	1	0	22	7	0

The following conclusions can be drawn from the information above:

- On Thorndon Quay the proportion of short and medium stay parking demand increases in the weekend compared to the weekday with long term parking remaining highest on the weekday.
- The side streets generally have a higher turnover on the weekday when compared to the weekend.

Peak Demand

The following table identifies the maximum number vehicles recorded at any time during each 12 hour period:

Location	Capacity	Weekday			Weekend		
		Total	**Medium Stay**	**Long Stay**	**Total**	**Medium Stay**	**Long Stay**
Hutt Road from Aotea Quay to Sar Street	84	50	5	38	35	4	20
Thorndon Quay from Tinakori Road to Davis Street	263	137	18	49	184	41	42
Thorndon Quay from Davis Street to Moore Street	90	84	8	48	64	10	21
Thorndon Quay from Moore Street to Mulgrave Street	50	27	6	6	42	10	2
Sar Street	15	15	2	11	7	2	1
Davis Street	13	13	2	8	8	1	7
Mulgrave Street	7	6	1	0	6	3	0
Total	**522**	**332**	**42**	**160**	**346**	**71**	**93**

The following conclusions can be drawn from the information above:

- There is also a high proportion of long stay parking demand (>100) compared to the total demand on Thorndon Quay likely to be made up of commuters and employees of the businesses along this section of the corridor.
- The peak demand for the northern section of Thorndon Quay is on the weekend. It is also noted that there appears to be a lot of medium stay (Between two and four hours) parking in this section although any medium to long term capacity is likely to be fully occupied by long term parking. This indicates a potential enforcement issue as the other than the long-stay parks the remainder of the capacity is limited to two hour maximum stay.

Hourly Demand

The following table identifies the demand / capacity throughout the weekday:

Location	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Aotea to Sar	65%	70%	46%	54%	57%	60%	54%	60%	56%	49%	36%	25%
Tinakori to Davis	24%	20%	32%	41%	47%	51%	52%	48%	37%	38%	25%	24%
Davis to Moore	38%	17%	48%	88%	93%	74%	81%	80%	68%	57%	44%	33%
Moore to Mulgrave	40%	8%	6%	32%	32%	36%	50%	54%	38%	28%	36%	20%
Sar Street	73%	87%	100%	73%	87%	100%	80%	80%	60%	47%	40%	73%
Davis Street	62%	77%	77%	77%	92%	100%	31%	31%	38%	23%	46%	31%
Mulgrave Street	73%	85%	85%	85%	85%	85%	80%	80%	80%	32%	32%	0%

The red numbers indicate that clearways were operating in these periods and the as such the utilisation numbers are the demand / available capacity with the clearway operating.

The following conclusions can be drawn from the information above:

- Thorndon Quay has identifiable peak periods ranging from later morning to early afternoon. Only the middle section (between Davis Street and Moore Street) has a consistent period where demand is more than 50% of capacity; and
- Sar and Davis Streets reach capacity at various times throughout the day.

The following table identifies the demand / capacity throughout the weekend:

Location	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Aotea to Sar	35%	29%	32%	32%	42%	42%	36%	40%	32%	26%	15%	13%
Tinakori to Davis	6%	11%	40%	65%	70%	67%	66%	67%	59%	41%	14%	14%
Davis to Moore	11%	9%	32%	43%	66%	71%	67%	51%	43%	34%	20%	13%
Moore to Mulgrave	8%	10%	24%	56%	80%	84%	62%	58%	44%	36%	20%	14%
Sar Street	0%	0%	0%	0%	0%	0%	27%	47%	33%	20%	13%	0%
Davis Street	46%	38%	38%	31%	31%	31%	54%	62%	62%	62%	46%	62%
Mulgrave Street	14%	14%	29%	0%	29%	71%	43%	86%	71%	57%	86%	0%

The following conclusions can be drawn from the information above:

- The northern section of Thorndon Quay has an identifiable peak from 10:00 to 14:00 where demand is around 70% of capacity; and
- Mulgrave and Davis Streets exceed 50% of demand over capacity at various times throughout the day.

The information above is presented along the route in Figure 30 to Figure 33 below.

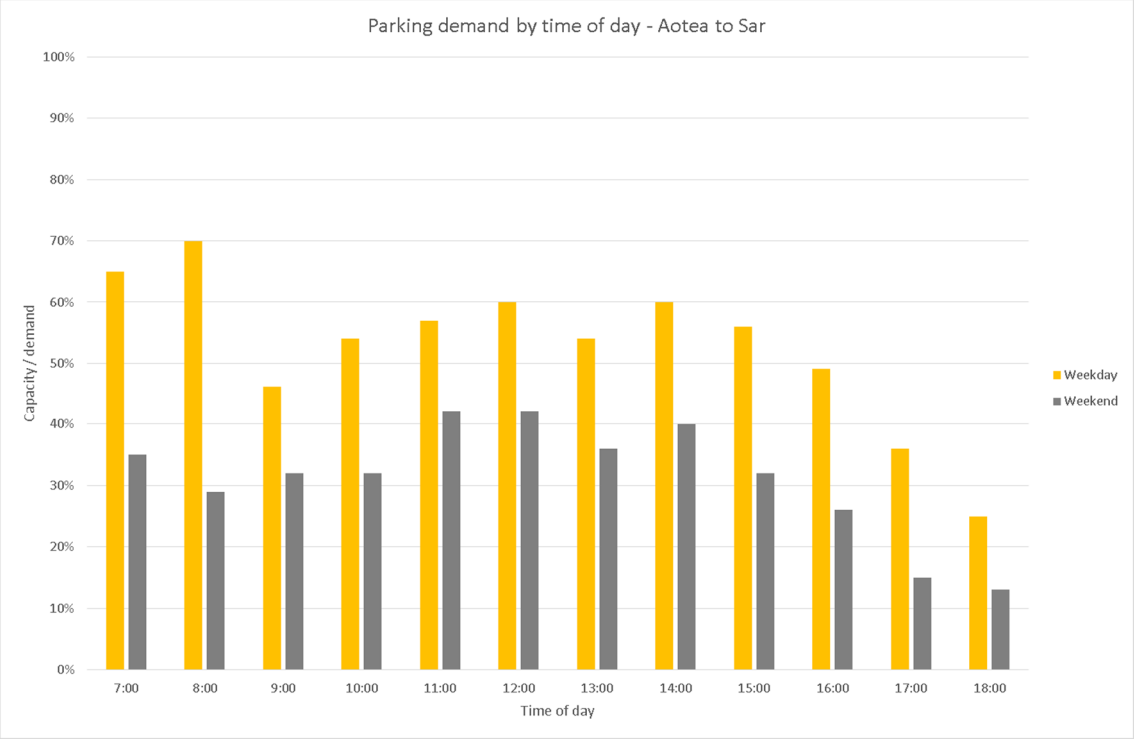


Figure 30: Parking demand by time of day - Aotea to Tinakori

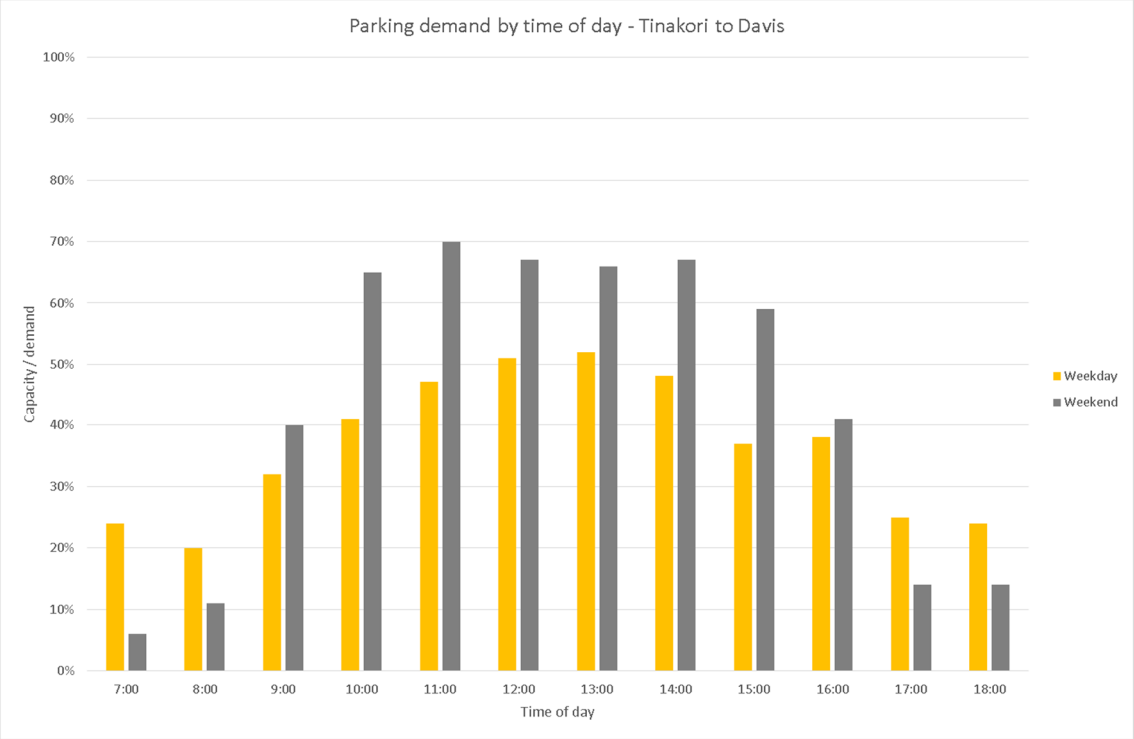


Figure 31: Parking demand by time of day - Tinakori to Davis

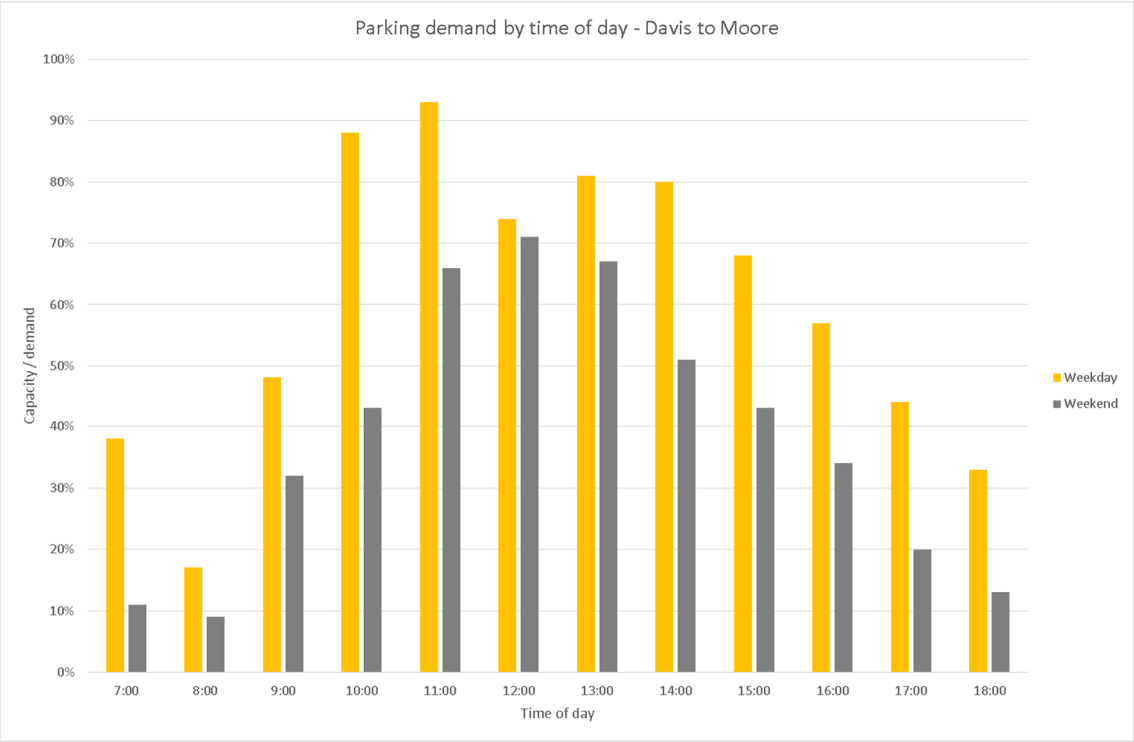


Figure 32: Parking demand by time of day - Davis to Moore

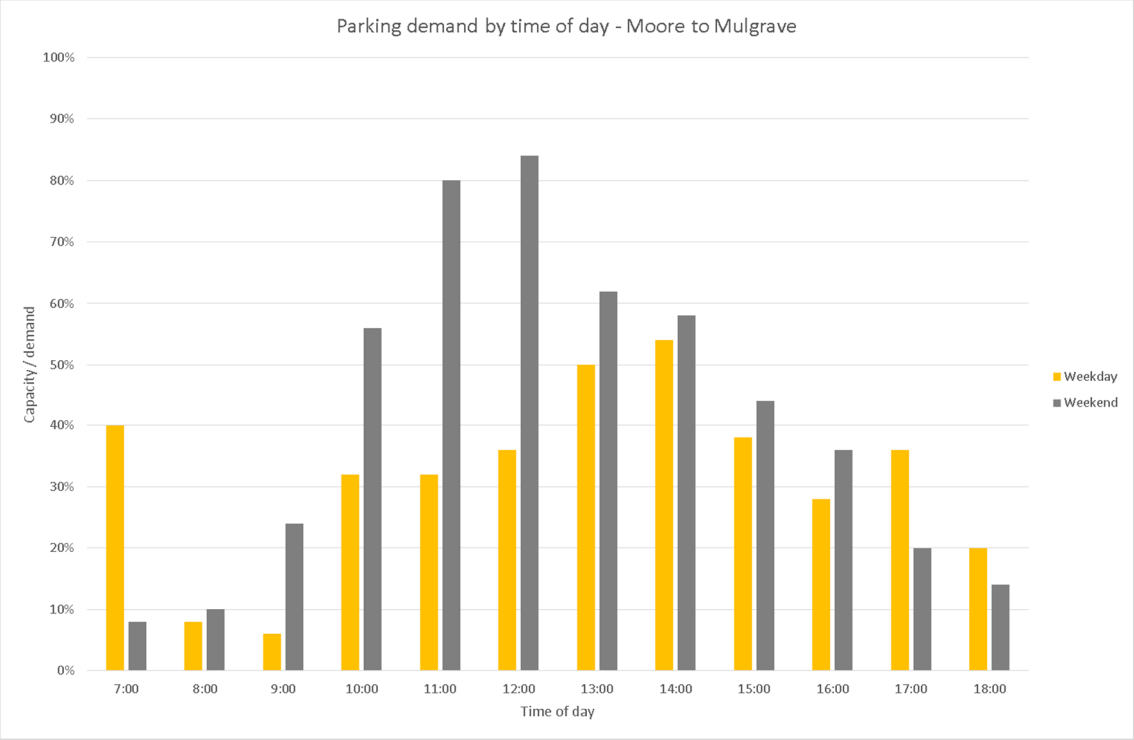


Figure 33: Parking demand by time of day - Moore to Mulgrave

Overnight Demand

The following table identifies the overnight demand.

Location	Capacity	Weekday 0:00	Weekday 4:30	Weekend 0:00	Weekend 4:30
Aotea to Sar	84	14	16	19	15
Tinakori to Davis	263	18	16	30	28
Davis to Moore	90	2	2	13	12
Moore to Mulgrave	50	1	1	5	4
Sar Street	15	0	4	0	0
Davis Street	13	8	8	11	12
Mulgrave Street	7	0	1	1	1

The following conclusions can be drawn from the information above:

- The overall demand for overnight parking is low.
- Areas where shift workers park while at work (from Aotea Quay to Sar Street) are relatively busy.
- Sections adjacent to residential areas; Davis Street and Thorndon Quay (from Tinakori Road to Davis Street) are also relatively busy.

Peak 15 Minute Parking Analysis

The following tables identify the parking demand during 15 minute periods in the interpeak and late afternoon.

Interpeak Period: 11:00 – 13:00

Location	Capacity	Unique Vehicles	Average Stay (mins)	Max Vehicles (15 min)	Max Vehicles (daily)
Aotea to Sar	84	68	79	46	50
Tinakori to Davis	263	338*	40*	148	137
Davis to Moore	90	107	88	83	84
Moore to Mulgrave	50	69	51	35	27
Sar Street	15	17	103	15	15
Davis Street	13	17	76	13	13
Mulgrave Street	7	9	47	6	6

Please note the following with regard to the table above and below:

- The average stay figures in the table above are not a true representation of average stay as they do not take into account vehicles that were parked before the count began or after the count finished.

- * A collection error meant that data was not collected for the full two hour Interpeak period in some locations of Thorndon Quay between Tinakori Road and Davis Street.
- Max vehicles is the maximum number of vehicles at any one time, (15 min) from the 15 minute counts and (daily) from the hourly surveys.

Afternoon Period: 15:00 – 17:00

Location	Capacity	Unique Vehicles	Average Stay (mins)	Max Vehicles (15 min)	Max Vehicles (daily)
Aotea to Sar	84	77	70	47	50
Tinakori to Davis	263	288	43	114	137
Davis to Moore	90	82	73	61	84
Moore to Mulgrave	50	49	53	24	27
Sar Street	15	19	69	13	15
Davis Street	13	18	60	10	13
Mulgrave Street	7	9	53	4	6

The following conclusions can be drawn from the information above:

- There is a very high turnover of vehicles during both periods analysed on Thorndon Quay between Tinakori Road and Davis Street and between Moore Street and Mulgrave Street.
- Similar trends to the hourly (all day counts) with regard to long stay vehicles.
- Maximum vehicle demand at a point in time higher than captured in the hourly surveys at several locations during the Interpeak period (Thorndon Quay between Tinakori Road and Davis Street and between Moore Street and Mulgrave Street).

Pay and Display Data

Average annual occupancy data has been sourced from the Pay and Display ticketing machines along the corridor for the 2014 calendar year. The table below shows the available data.

Location	Capacity	Average Annual Occupancy (%)	Average Occupancy Weekday (%)
Hutt Road from Aotea Quay to Sar Street	47	10%	48%*
Thorndon Quay from Tinakori Road to Davis Street	238	22%	37%
Thorndon Quay from Davis Street to Moore Street	84	61%	61%
Thorndon Quay from Moore Street to Mulgrave Street	47	23%	31%

* Includes demand from both sides of the road (only one side has pay and display machines)

As the occupancy figures are annual average percentages they are not directly comparable to the surveyed figures, however, similar trends can be identified between the data sources. Note that the capacities provided with the data are out of date and the actual capacities have been used to calculate these figures.

- High utilisation of long stay parking areas (Davis Street to Moore Street);
- Medium levels of occupancy at the northern and southern ends of Thorndon Quay; and

- Low utilisation of Hutt Road between Tinakori Road and Aotea Quay.

7.5. Parking level of service

The high occupancy rates shown in the tables above indicate that at times parking is fully utilised making it difficult to find a space.

7.6. Summary of key issues

The following key issues have been identified in the above section of the report:

- High proportion (~60%) of single occupancy trips in the AM peak.
- The Waterloo Quay / Bunny Street intersection performs poorly during both weekday peak periods.
- The right turn out of Tinakori Road incurs significant delays in the AM peak but this is a low demand movement.
- There is a high proportion of long stay parking demand (>100) compared to the total demand on Thorndon Quay likely to be made up of commuters and employees of the businesses along this section of the corridor.
- The peak demand for the northern section of Thorndon Quay is on the weekend.
- There is a very high turnover of car parking during peak periods analysed on Thorndon Quay between Tinakori Road and Davis Street and between Moore Street and Mulgrave Street.

8. Open Day Feedback

An information gathering Open Day was held on the evening of 6 March 2017 where some background information was presented and feedback from the public sought on the issues along the route.

The information collected is presented in Appendix B. A summary is listed below.

- Various feedback on potential cross-sections presented;
- Various feedback on adjacent areas outside the project area;
- Issues with parking and shared path between Tinakori Road and Aotea Quay;
- Issues with cyclists leaving / joining the shared path at Tinakori Road intersection;
- Issues with bus / cycle interactions and parking between Tinakori Road and Davis Street;
- Issues with visibility and safety at Moore Street pedestrian crossing;
- Issues / conflicts with buses entering / exiting bus terminus;
- Issues with cyclists entering Bunny Street west;
- General concerns with cycling safety on Thorndon Quay;
- Issues / concerns with safety of angle parks; and
- Support for a northbound cycle clearway as an interim solution.

9. Summary of key issues

The following key issues have been identified in the report:

- Safety is an issue for all modes through this section of Wellington roading network.
- Very high pedestrian crossing demands are observed at the four southern-most intersections (Moore Street, Mulgrave Street, Bunny Street and Waterloo Quay).
- There are delays for vehicles ,especially at the Moore Street zebra crossing at peak periods.
- High (and growing) number of people on bikes (more than 500 in the morning peak) along the route (busiest route in Wellington).
- LOS for people on bikes along route is assessed as average.
- There is a significant patronage and vehicle numbers of people using buses, with around 2,500 occupants in buses on the corridor during the 2 hour AM peak period.
- High bus stop demands occur at Capital Gateway and under the Motorway.
- Delays to people on buses northbound in the PM peak between the bus terminus and Capital Gateway.
- Significant delays to people on buses southbound in the AM peak between Davis Street and the bus terminus.
- High proportion (~60%) of single occupancy trips in the AM peak.
- The Waterloo Quay / Bunny Street intersection performs poorly during both weekday peak periods.
- The right turn out of Tinakori Road incurs significant delays in the AM peak but this is a low demand movement.
- There is a high proportion of long stay parking demand (>100) compared to the total demand on Thorndon Quay likely to be made up of commuters and employees of the businesses along this section of the corridor.
- The peak demand for the northern section of Thorndon Quay is on the weekend.
- There is a very high turnover of car parking during peak periods analysed on Thorndon Quay between Tinakori Road and Davis Street and between Moore Street and Mulgrave Street.

Appendix A: Transport Count Data

Appendix B: Open Day Feedback

Feedback on indicative cross-sections:

- Car doors (from parking in clearway / bus lane) open onto cycleway in some options).
- Potential for conflict with bus passengers and bikes.
- Support for dedicated spaces for different modes and inclusion of some greenery.
- Suggestion of using floating bus stops with some options.
- Support for protected on-road cycle lanes each side.
- Cycle lanes each side provide easier access to shops.
- Support for two-way protected on road cycle path.
- Preference for plastic safe-hit posts to separate cyclists.
- Existing angle parking too steep, consider making parallel or lower angle.
- Support for shared bus / cycle clearways for commuter cyclists but unlikely to attract new cyclists.
- Two-way cycle path at footpath level provides good continuity with Hutt Road but has similar issues with getting people on/off it at the end.

Location specific feedback on plans:

Outside study area

- Spotlight only has a southbound exit, where can you safely turn around?
- Like the flush median on northern Hutt Road, need to extend this under Johnsonville Rail line to allow turns into 85/87 Hutt Road.
- Branches overgrown and NIMT Rail Bridge create pinch points between Ngauranga and Caltex.
- Tree roots are cracking the shared path near Ngauranga.
- Too many long signs – we don't have time to read while driving – uncomplicated it.
- Got hit by a car outside Spotlight on my bike. Appalling intersection, should be fixed with traffic lights.
- Conflicts under "Interislander" bridge - three-way junction of pedestrians and cyclists.
- Consider a stand-along bike path clipped onto the highway (above or below).
- Make it easier to get to the ferry on foot or bike.
- Ferry area and motorway – Venice solution flyover exit on ramp parking.
- Commuter parking on Hutt Road footpath – people park there all day and walk/ridge into town. Rush hour on path is messy.
- Ngaio gorge / Kaiwharawhara / Spotlight intersection – accidents with south going traffic and existing spotlight customers wanting to and turning north across south traffic. There is a no-turning sign, a roundabout would be better / 4-way intersection.
- Two-way cycle path on Aotea Quay.
- Communal carparks on Aotea Quay – lessen congestion in city.
- Tough for cyclists to ride up Tinakori Road (very narrow).
- Desire for a bus route along Tinakori Road.
- Davis Street / Hobson Street / Moturoa Street intersections too narrow to safely accommodate school buses, cyclists and other vehicles. Safer to ride on footpath.

Aotea Quay to Tinakori Road

- Slalom and bollards under Aotea Quay overbridge are a hazard for cyclists and pedestrians.
- Like that pedestrians and cyclists are generally in harmony despite the narrow rough track.
- Dislike lamp posts, unevenness and narrow bikes path.
- Request to shift light columns to inside of path.
- Slalom under Aotea Overbridge is crazy to ride.
- Difficult to turn right out of Glengarry's with parked vehicles (especially trucks) because of road camber and height of vehicles.
- The path surface is not good so people ride on the road.
- No decent signage for people getting off the bus on Hutt Road trying to get to ferry terminal.
- Diabolical "near accidents" constant. Nowhere to stop to get in/out of gun-city carpark (85-87 Hutt Road). It holds up traffic in both directions when there are trucks parked in car parking. Private driveway – vision is terrible – many close calls.
- I like bus and bike lane, they are both going in the same direction and is kept clean.
- Not enough commuter parking spots (need more).
- North of and under Johnsonville railway overbridge the footpath is constantly covered in sludge. I have several times rung to have it fixed. They clean it but never fix it. I have rung several times. It's sludged again!!!
- Hutt Road path is the safest place for southbound cyclists.
- Narrow median to create wide lane for shared vehicle / cycle use northbound.
- Suggest residents parking on Hutt Road to cater for apartments created there.

Tinakori Road to Davis Street

- Complex interface between cyclists, angle parks, turning traffic around Tinakori Road intersection.
- Difficult for cyclists to cross onto the Hutt Road path and look for vehicles reversing out of angle parks.
- Difficulty crossing to the Hutt Road path puts people off cycling.
- Way too dangerous to cross Thorndon Quay to the Hutt Road at peak.
- Student parking required for sewing classes 5.30-8pm (students bring sewing machines).
- Uncontrolled pedestrian crossing at Bordeaux Bakery – insufficient gaps in traffic.
- Buses squeeze cyclists to avoid cars turning right into Davis Street.
- Dislike crossing the road to access the safe cycle lane.
- Have to cross yellow lines northbound to get to Hutt Road path.
- Merge paint shop (Guthrie Bowron) bus stop with the one under the motorway.
- Dislike having to ride into bus stop southbound.
- Dislike bus stop right at the postilion where the Hutt Road path enters the road.
- Nowhere to cross at Tinakori Road intersection, the bikers hit you or pedestrians get run over. Cyclists have to get between road and Hutt Road path.
- Traffic never used to back-up along Tinakori Road when there was a merging lane onto Hutt Road northbound. Either a roundabout or merging lane needed.
- Shoulder is the safest place for northbound cyclists.
- Parked cars too close to intersection (Sar Street or Tinakori Road) create barrier for cyclists riding north.
- Desire to extend the handrail all the way along the stairway between Tinakori Road and Thorndon Quay.
- Cyclists should have a separate lane between the footpath and carparks on street, not behind parked cars (especially angle parks).

Davis Street to Bunny Street

- On-demand signal controlled crossing at Moore Street would be way safer.
- Uncontrolled pedestrian crossing with a high volume of students crossing (Moore Street crossing).
- Visual pollution around Moore Street crossing obstructs view of crossing.
- Queues turning into Capital Gateway extend across Moore Street crossing.
- Advance stop box for cyclists on Featherston Street approach to Mulgrave Street requested.
- Confusion around access into Bunny Street west (contradictory signs – no right turn but cyclists allowed).
- Access for cyclists desired along Bunny Street west.
- Cyclist priority desired on southbound approach to Mulgrave Street intersection to allow them to get ahead of traffic to access the advanced stop boxes at Bunny Street.
- Queuing buses (into and out of terminus) block lanes.
- Dislike very tight Mulgrave Street approach to Featherston Street intersection – no room for cyclists.
- Buses run red lights at Mulgrave Street intersection.
- Pedestrians crossing across northern arm of Bunny Street / Featherston Street intersection (no crossing exists). Need a solution for pedestrians – maybe mid-block crossing between Bunny Street and Mulgrave Street or footbridges?
- Need a no-right turn except for cyclists on northern approach to Featherston / Bunny Streets intersection and advanced stop box as it is the safest way to get to Lambton Quay.
- Advanced stop boxes wanted at Bunny Street / Waterloo Quay intersection.
- Moore Street northbound bus stop is a conflict point for buses and cyclists (bus drivers cutting cyclists off).
- Cyclists need to watch for pedestrians at Moore Street crossing.
- Reinstate overbridge near Davis Street, this went in 2001 by Thorndon residents in stadium gardens.
- Conflict between northbound cyclists and buses turning into terminus.
- Sump at intersection of Mulgrave Street and Featherston Street intersection (LHS Mulgrave Street approach) ready to catch cyclists coming down Mulgrave Street.
- Left turn from Featherston into Bunny Street is dangerous for cyclists, pedestrians and vehicles.
- Taxis going straight ahead from Bunny Street east to Bunny Street west are using the right lane and cut-off cyclists on their left turning right.

General feedback on plans:

General

- Generally dislike current cycle path along Thorndon Quay –very dangerous due to angle parking, poles on cycle path, businesses parking on cycle path illegally.
- Driveways on Thorndon Quay need judder bars to slow drivers from speeding across the cycle path.
- Is it possible to insert a cycle path behind Thorndon Quay (between Railway and buildings)?
- Commuter cyclists travelling at speed don't need to stop.
- How do you get northbound users onto a two-way path?
- Buses driving with wheels in cycle lane in multiple places along length.
- Separated cycle paths using kerbs are preferred.
- I dislike the dangerous car parks and shopping places where cars and vans exist and enter without being able to see cyclists.
- I like the places I can ride my bike completely separated to the cars (i.e. the current shared path)
- Behaviour change promotion for all road users – teach people how to cycle lanes / bus lanes etc, this would help in this and other areas.
- Need protected cycle lane – I don't want to die while riding Hutt Road / Thorndon Quay.
- Separated cycleway required on both sides – done properly for a change.
- Preference A – clearway, preference B – angle parking.
- Separated cycleway will encourage more people as much safer and nicer.
- Good idea to have more pedestrian crossings.
- Not a good idea to have more pedestrian crossings with kerb extensions – very dangerous for cyclists.
- Cycle lanes are problematic for access into our buildings on Thorndon Quay.
- Don't like the idea of cycle lane inside parked cars. Makes getting out of cars and going into retail dangerous for people and cyclists.
- VTNZ now does driver training.
- Protected cycle lane sin both directions please.
- Buses and cyclists cross-over at every bus stop.
- I strongly suggest separated cycle paths each side of the road (parking on the outside of them – parallel parking separated by bollards or line of kerbs.
- Could try out a 30km/h speed limit so safer for everyone. Commuters would choose an alternate route.

Parking

- Angle parking is hazardous.
- Bike racks on cars in angle parks are a hazard for cyclists (common around the cycle shop).
- Consider parallel parking
- Change angle parking to parallel parking.
- Consider reverse-in angle parks
- Existing angle parking too steep, consider making parallel or lower angle.
- Parking situation across footpath and in other areas is worse than it used to be – need better enforcement.
- I like angle parking as there is likely to be a park.
- Angle parking is dangerous for both cyclists and drivers (due to lack of visibility when vehicles backing out into traffic lane). Ban all angle parking.
- As a driver I can't see through cans and SUV's with dark windows to exit safely out of angle parks. As a cyclist, I can't see past large vans or see drivers to know who might be pulling out of angle parks.
- Lots of trade vans in angle parks with ladders / pipes / van-boots extending into safe cycling space.
- Poor visibility northbound due to angle parks.
- As a car driver I dislike backing out of Thorndon Quay angle parks, they are too steep and I cannot see cyclists or traffic
- Angle parking drivers cannot see anything (+1)
- I dislike angle parking, I have had many near misses on my bike with people backing out unable to see me.
- Angle parking is worse than a door zone. Terrible visibility for all. Remove all the way along.
- Need to have a common parking area / less angle and individual parks.

Clearways

- Northbound clearway needed as interim improvement.
- PM peak clearway.
- AM / PM peak clearways work well and provides flexibility for buses and cyclists.
- AM / PM peak clearways don't help at other times (need a 24 hour solution to keep all road users safe).
- Consider clearway in afternoon.
- For commuting the swapping AM/PM clearways would provide for buses and cyclists.
- PM clearway northbound.
- Suggest do clearway both-ways immediately as an interim solution.