REPORT

Tonkin+Taylor

Urban Cycleways Programme

Bay Connections, Evans Bay Parade - Issues Paper

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Wellington City Council
Prepared by
Tonkin & Taylor Ltd
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studiopacificarchitecture

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1 Introduction

1.1 Background

Wellington City's population of 200,000 people is forecast to grow by more than 25% over the next 30 years, placing extra pressure on the transport network. To reduce congestion, give people more transport choice, and make sure they can easily get to the central city and other important places around Wellington, the Wellington City Council (the Council) proposes to develop a safe and comprehensive cycleway network with the 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. Cycleway development will be supported by promotional and safety schemes.

Over recent years the Council has committed capital funding for cycleway development through its Long Term Plan and Annual Plan processes. Additionally, 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 (NLTF) are taken into account, some $37 million will be invested in cycling in Wellington City over the next three years (by 30 June 2019), with $4.0 million allocated to this Evans Bay section.

The Bay Connections –Evans Bay Parade cycle route will provide greater cyclist connectivity between the eastern suburbs (36,660 population, 1,056 commuter cyclists) and the central city, providing a flat route largely free of driveways. It is also likely to provide more recreation options for pedestrians and cyclists in extending the existing shared path at Oriental Bay forming part of the Greater Harbour Way. This route is already popular with recreational pedestrians and cyclists, including events such as the Round the Bays and other sporting events.

1.2 Purpose of this report

This issues paper is intended to provide the background information to develop and guide future assessment of improvement options for cycling along Evans Bay Parade.

This paper outlines the plans and policies applicable to the proposed cycleway route, current level of service for cyclists along this route, and the adequacy and safety of interactions between cyclists, pedestrians, buses and other vehicles. This includes understanding the existing use of this route and crash risk.

1.3 Study Area

The study area extends approximately 4 kilometres along Evans Bay Parade from Cobham Drive in the east to Carlton Gore Road in the west, including intersections with the local roads of Belvedere Road, Rata Road, Greta Point, Maida Vale Road and Carlton Gore Road. The study area does not include the intersection with Cobham Drive.

For ease of reference this report refers to the Cobham Drive as the eastern boundary of the study area. While technically it is to the south, cyclists use this Evans Bay route to travel between the eastern suburbs and the city centre to the west. This east-west terminology will be used throughout this report.

In the east the study area abuts separate study areas including the Bay Connections – Cobham Drive and Kilbirnie Connections, which will be delivered by others. In the west, the study area extends to the end of the existing shared path along the Oriental Parade promenade.

The study area is shown below in Figure 1:

Figure 1 - Study Area

1.4 Project Objectives

The Bay Connections – Evans Bay Parade Cycleways Project is part of the Council's investment in a safe and comprehensive cycle network to give people more transport choice, reduce congestion and emissions, and make Wellington a more attractive place to live, work and visit. The primary objective is to identify cycleway options which maximise benefits for all users and in particular improves the level of service for people who travel by bike.

Generally the proposed improvements are expected to:

- Improve the level of service for people on bikes along identified routes;
- Improve or maintain the level of service for people using buses along identified routes;
- Maintain or improve the level of service for pedestrians;
- Maintain an acceptable level of service for general traffic movements; and
- Minimise impacts to parking

1.5 Limitations

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. T+T has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared. The existing road corridor descriptions are based on a site visit undertaken on 26 January 2017 and the observations are correct as at that date.

The data contained in this report includes traffic count information obtained from the Council. It has been assumed that the information received is correct.

2 WCC Plans and Policies

The following plans and policies provide the long-term direction for cycling in Wellington, and support the development of a connected, integrated, high-quality and safer cycle network that fits within the appropriate urban environment.

2.1 Cycleways Programme Masterplan (2015)

The Masterplan is a high-level guide for the Council to deliver new cycling infrastructure that best meets the community's needs in order to maintain and continue the growth of cycling as an alternate transport mode in Wellington City. It outlines existing cyclist volumes, the level of support/demand for cycling and the actual and perceived safety of cyclists in Wellington City. Specifically, 76% of people in Wellington City would consider cycling given safe and separated cycling infrastructure, and 75% of people (which includes many non-cyclists) support the development of cycleways. Figure 2 indicates a significant increase in cyclist numbers once a safe, connected cycleway network is in place.

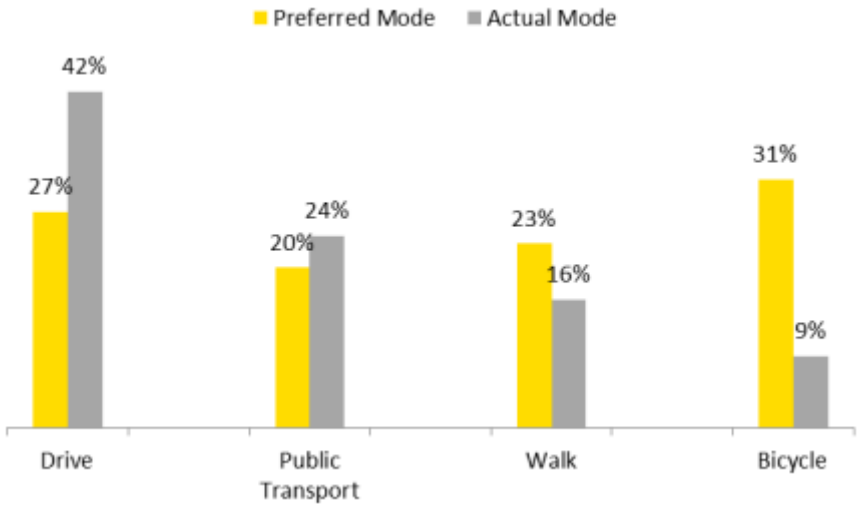

Figure 2 – Preferred and actual travel mode used in Wellington

2.2 Wellington City Cycle Network Strategic Case (2015)

The Strategic Case outlines the strategic context and case for investment in the Wellington cycleway network. It says investment in cycling will improve safety for cyclists, increase transport choice, and lessen environmental impact and traffic congestion by reducing the number of vehicles on the road. As a result, the cycleways programme has high strategic fit with stakeholder partners, including WCC, GWRC and NZTA in terms of economic growth, urban regeneration and improved accessibility.

The strategic case was provided in support of an application for funding to the NZ Transport Agency to develop a programme business case for the Wellington City cycle network.

2.3 Wellington Cycle Network Programme Business Case (2015)

The Programme Business Case further outlines the need for investment in cycling infrastructure, education and promotion to improve the current levels of cycling in a safe and efficient environment. Key problems identified in the strategic case were confirmed and the following investment objectives were identified:

- Achieve a high Level of Service for cyclists within an integrated transport network.

- Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience.
- Cycling is a viable and attractive transport choice.
- The crash rate, number, and severity of crashes involving people on bikes are reduced.
- Provide transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington.

Programme options were identified and assessed against the investment objectives. The assessment process identified Weighted Prioritisation (3E) as the preferred option for investment. The principles of Weighted Prioritisation are:

- Strategic routes (main corridors within catchment areas): Those corridors that are able to make the biggest contribution to network efficiency, effectiveness, and resilience based on forecast/potential demand.
- Level of Service gaps and deficiencies: Addressing the most severe and largest gaps in the desired level of service
- Equity: A principle to be applied when prioritising catchment areas, focusing on spreading investment in a reasonably equitable manner across catchment areas.

The programme business case was provided in support of an application for funding to the NZ Transport Agency to develop Indicative and detailed business cases for elements of the Wellington City cycle network.

2.4 WCC Cycling Framework (2015)

The cycling framework provides design guidelines and design principles for the implementation of a cycling network (what, where, when, how). It outlines the proposed citywide cycle network, and describes the alternate types of cycleways (quiet routes, shared zones, protected lanes, alternative paths) and their typical locations. Furthermore, it sets out decision-making thresholds for the delivery of each aspect of the cycle network.

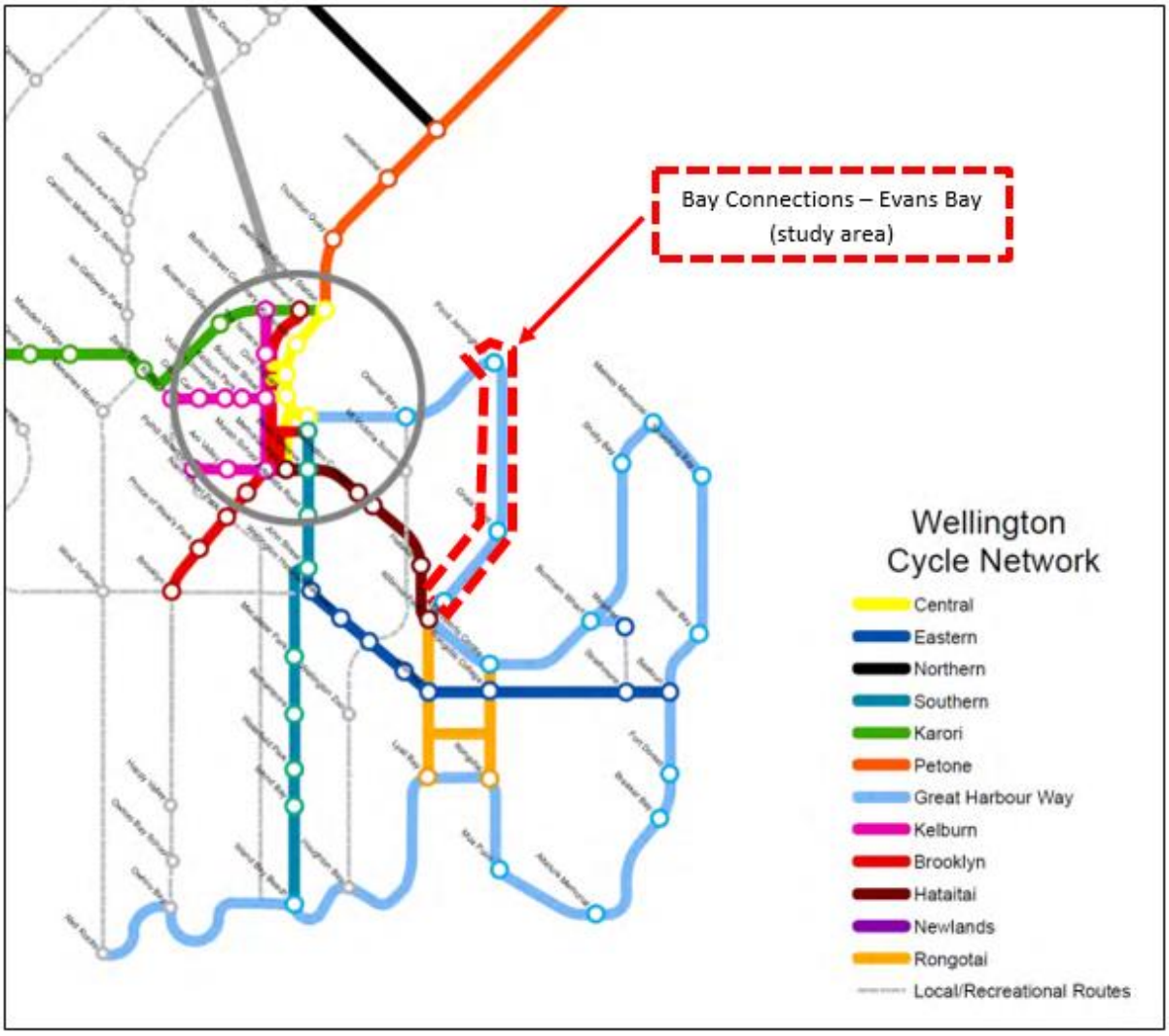

Figure 3 - Proposed Wellington Cycleway Network and study area

The Evans Bay Parade study area falls within the Great Harbour Way section of the citywide cycle network.

2.5 WCC Town Centres Policy (2008)

The Town Centres Policy sets out a hierarchy of town centres in Wellington City. Greta Point (Live/Work Area) is the only centre located in the study area. The role of a Live/Work Area in the Town Centre Policy includes employment activities, light industrial, commercial and business services, recreational and entertainment uses, residential activities and local community services.

One of the main objectives set out in the Centres Policy (Objective 7) is to improve the urban design quality of all centres and build on their sense of place. This objective should be considered during the design of Evans Bay cycleway route through Greta Point.

2.6 Urban Growth Policy (2015)

The Urban Growth Plan provides a framework to manage Wellington City's future growth while protecting the environment and heritage, and building on the things that make the city special.

It identifies Real Transport Choices as a key aspect of this plan, to improve conditions for walking, cycling, and public transport, improving our road network, and managing parking more efficiently.

The Bay Connections – Evans Bay Parade study area will support the aim to increase uptake of cycling by providing a safe cycling connection between the eastern suburbs and the central city. Additionally, this route will also increase recreational cycling opportunities as part of the Great Harbour Way.

2.7 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.

More recently Wellington City Council undertook an Engineering Investigation[1] to identify options for the Miramar to Waitangi Park Precinct section, which includes this study area. The investigation also produced a draft programme, indicative cost estimates, sketches of the options and cross-sections for public consultation.

Two options were assessed, both options included a nominal 5.0m wide path split with a 3.0m cycle path and 2.0m footpath. For Option A, the existing road infrastructure incorporating traffic lanes, parking and on-road cycle lanes would remain unaffected, with the path being built outwards from the existing sea-side kerb-line (including a cantilever deck structure, new seawalls and land acquisition where required). In contrast, Option B considers the development of the route within the existing road corridor, achieved by removal of on-road parking and/or cycle lanes, and lane narrowing where practical, bearing in mind the vehicle swept paths of large goods vehicles. Indicative cost estimates for Options A and B were estimated at $44 million and $13 million respectively.

[1] Great Harbour Way Investigations, AECOM New Zealand Limited, July 2016

2.8 Road Hierarchy

Evans Bay Parade and Oriental Parade are designated Principal Roads within the District Plan. Cobham Drive, at the eastern end of the study area, is an Arterial Road. Carlton Gore Road, at the western end of the study area, is a Collector Road. All other roads intersecting with Evans Bay Parade in the study area, including Belvedere Road, Rata Road, Greta Point and Maida Vale Road, are local roads within the District Plan.

The definition of these road categories is as outlined below[2];

- Arterial Road: high standard limited access roads designed to carry long distance through traffic (primary road). Traffic volume >7,000 vehicles per day (vpd).
- Principal Road: roads that provide access to motorways and to arterial roads having a dominant through-traffic function and carrying the major public transport routes (primary road). Traffic volume 3,000-7,000 vpd.
- Collector Road: roads that distribute traffic between and within local areas and form the link between principal and secondary roads (secondary road). Traffic volume 1,000-3,000 vpd.
- Sub-collector Road: roads that distribute traffic within the local area and form the link between collector and local roads (secondary road). Traffic volume 500-1,000 vpd.
- Local Road: roads that provide direct access to properties fronting the road and include both long and short cul-de-sacs (secondary road). Traffic volume 250-500 vpd.

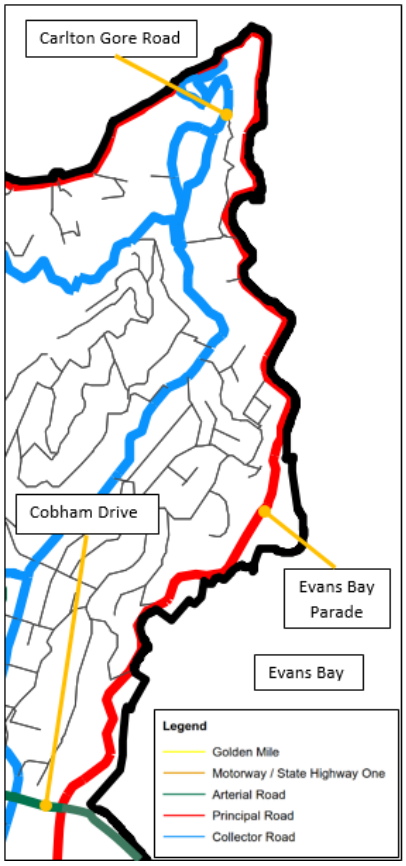

Figure 4 - Road Hierarchy

[2] Referenced from Table 1, Part C: Road Design and Construction of the WCC Code of Practice for Land Development (December 2012)

2.9 District Plan Zoning

The District Plan identifies land use zoning within the study area, as shown in Figure 5 (right).

Land use zoning adjacent to Evans Bay Parade, between Cobham Drive and Carlton Gore Road is typically Outer Residential or Open Space, with the exception of Greta Point which is in the Business 1 Zone.

Sites of significance (including Maori, heritage and special housing areas) within the study area include;

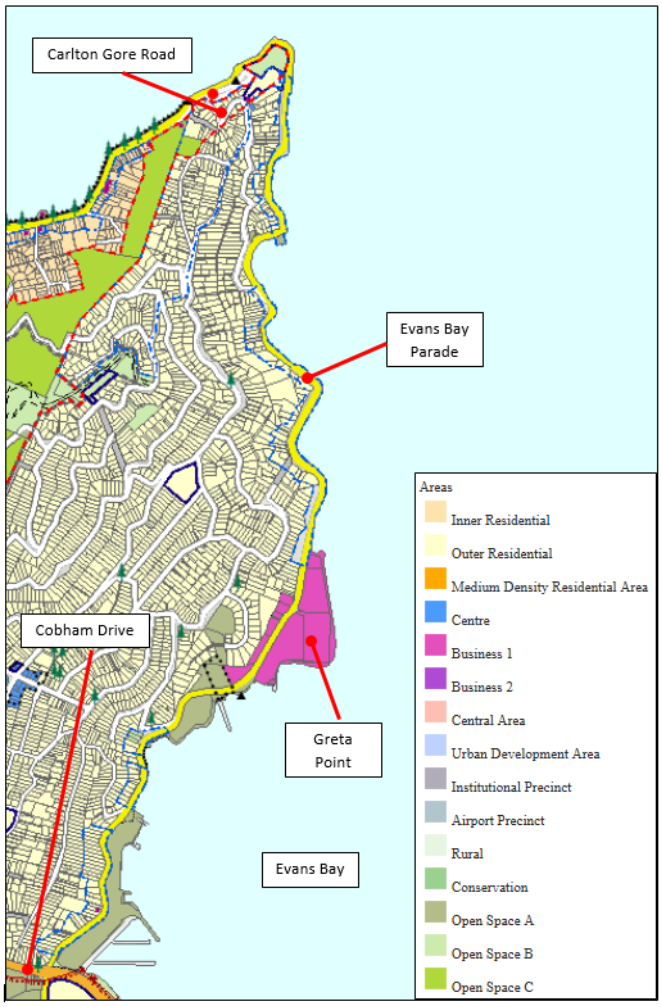

Figure 5 - District Plan Zoning

- Maori Site - Te Wai-hihere Pa, adjacent to the intersection with Carlton Gore Road (DP ref. M71)
- Heritage Object – Retaining Wall and Road 1920s, adjacent to the intersection with Carlton Gore Road (DP ref. 5)
- Heritage Object – Evans Bay Sea Wall, opposite 326 Evans Bay Parade (DP ref. 12)
- Heritage Building – House 1927, 492 Evans Bay Parade (DP ref. 110)
- Heritage Area – Evans Bay Patent Slip Area; Wharf and Jetty, 346 Evans Bay Parade (DP ref. 22)
- Coastal Edge – Special residential area, extended lengths of Evans Bay parade between Carlton Gore Road and Cobham Drive (DP ref. OR2)

A preliminary assessment of the Wellington District Plan suggests that there may be some activities associated with upgrading the cycleway/pedestrian route which would not require resource consent; this will require confirmation:

- Recreation activities are permitted in the Open Space A zone (Rule 17.1.1), provided that:
  - Noise levels don't exceed 45dB (LAEQ (15min)) – this is likely to be achieved as there is an existing pedestrian/cycleway way in the same area.
  - Dust is managed – this is likely to be achieved through route surfacing.
  - Lighting of outdoor areas not to exceed 8 lux at windows of residential buildings within any Residential areas. The route must have lighting at a minimum of 10 lux and no line of sight between any light source and a street or Residential Area – compliance is assumed, as this is a design matter.
- Any signage to have a maximum area of 4m^2, provided they relate to the open space site and they are for interpretive or directional purposes (Rule 17.1.4), else they are restricted to 1m^2.
- Landscaping planting (Rule 17.1.7).

- Upgrade and maintenance of existing formed roads (including earthworks) is a permitted activity (Rules 17.1.14).
- Damaging or removing indigenous vegetation (Rule 17.1.16).

The current development envelope is likely to involve works primarily within the formed road and as a result the overall consent status could be permitted, provided there is compliance with the relevant rules. There are activities that could require a resource consent – this will require confirmation:

- Earthworks within Open Space A zoned land on the seaward site of the road reserve, which may not meet either the height/depth limits or the area limits (Rule 30.2.1);
- Any changes to the Carlton Gore Road retaining wall (Heritage object 5) (Rule 21A.2.1).

The District Plan maps identify a site M71, in the vicinity of Carlton Gore Road – Te Wai-hihere Pa. This is identified as having high significance. Ngati Toa and Taranaki iwi have advised that consultation should be undertaken with iwi on all cycleway routes as there may be additional sites of significance to Maori not shown on the District Plan Maps, which could be affected by any proposed works. Any modification or destruction of this site would require a resource consent.

If further site investigations demonstrate there is contaminated land within the proposed route, consent may be required under the District Plan or under the National Environmental Standard for Assessing and Managing Contaminants in Soil to protect Human Health (2011).

2.10 District Plan Restrictions on Access

No restrictions on vehicle access in the study have been identified.

2.11 Regional Plan requirements

There are two relevant regional plans:

- Greater Wellington Regional Coastal Plan 2000 (GWRCP)
- Proposed Natural Resources Plan for the Wellington Region (PNRP)

2.11.1 Greater Wellington Regional Coastal Plan 2000 (GWRCP)

The GWRCP is operative and rules within this document could be relevant. There are few relevant features identified in the plan:

- The entire harbour is managed for Contact Recreation
- There are mooring areas at Greta Point
- Oriental Bay Sea Wall is of historic merit.

A preliminary assessment of the GWRCP suggests that there may be some activities which are permitted or controlled, however it isn't possible at this stage to confirm this with any certainty. If all works occur within the existing road, it is likely that resource consent would not be required. If works were proposed in the coastal marine area, then the overall consent status could be Discretionary Activity, including if reclamation was required to create a suitable route alignment. The Discretionary Activity consent status could be triggered by:

- Reclamation (Rule 4)
- Construction of a structure parallel to Mean High Water Springs (Rule 25)
- Destruction or disturbance of the foreshore or seabed (Rule 40)
- Deposition of substances on the foreshore or seabed (Rule 48)

- Potential for discharges associated with construction (Rule 61)

A further assessment will be required where then is a more detailed route design available.

2.11.2 Proposed Natural Resources Plan for the Wellington Region 2015 (PNRP)

The PNRP is not operative, but many of the rules have immediate legal effect on notification, as they relate to the protection of water, historic heritage and areas of significant habitats of significant indigenous fauna (Section 86B of the Resource Management Act 1991). Broadly speaking, the rules are similar to those of the GWRCP, although they are more detailed and in the case of reclamation, more onerous.

The coastal marine area has a number of features which are specifically recognised in the plan, which could influence potential consent requirements:

- Schedule B – Nga Taonga Nui a Kiwa - Te Whanganui-a-Tara
- Schedule F2c – habitat for indigenous birds in the CMA
  - Point Jerningham – Shelly Bay Road – six threatened or at risk indigenous bird species known to be resident or regular visitors – fluttering shearwater, variable oystercatcher, red-billed gull, little black shag, pied shag and white-fronted tern
  - Wellington Harbour – inland waters – little penguins, fluttering shearwater, red-billed gull, spotted shags, caspian tern and white-fronted tern
- Statutory Acknowledgement Areas – Wellington Harbour – Taranaki Whānui and Ngati Toa Rangatira

2.11.2.1 Consent requirements

A preliminary assessment of the PNRP suggests that there may be some activities which would not require resource consent, particularly if all works are contained within the existing formed road. If works extend into the coastal marine area, the overall consent status would likely be Discretionary.

The Discretionary Activity status could be triggered by:

- Need to discharge water or contaminants into the coastal marine area during construction (Rule R68)
- Removal or demolition of existing structures – restricted discretionary activity (Rule R152)
- New structures or alterations/additions to existing structures in the coastal marine area outside certain sites of significance (Rule R161)
- Replacement of structures – restricted discretionary activity (Rule R164)
- Occupation of the coastal marine area (Rule R184).
- General disturbance to the coastal marine area (Rule R194)
- Reclamation of the coastal marine area, as the combined pedestrian/cycleway is defined as a combined utility/recreation route in the Regional Land Transport Plan 2015 (Rule 214).

2.12 Climate Change

2.12.1 Climate Change Action Plan (2016)

The Action Plan 'Low Carbon Capital' 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 reduce Wellington's greenhouse gas emissions and minimise the City's vulnerability to extreme weather events and rising sea-levels, specifically with the three pillars of climate change action for Wellington:

1 Greening Wellington's Growth

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. The action plan aims to ensure that these positive features of Wellington are maintained and enhanced as the city develops.

2 Changing the way we move

There has been a rise in the number of people cycling in the city despite the current lack of supporting infrastructure. The action plan outlines 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. It aims to provide safe and efficient alternate transport options to further reduce the current dependence on private vehicles.

3 Leading by example

The Council owns, manages, and provides a range of services that directly or indirectly produce greenhouse gas emissions. The action plan outlines a target of an 80% reduction in emissions by 2050, by investing in energy savings, supporting education programmes, encouraging staff behaviour change and carbon management.

2.12.2 Sea Level Rise Options Analysis (2013)

The options analysis provides a high level risk assessment of Wellington City with regard to alternate climate change scenarios, including modelling to predict at-risk areas due to projected sea level rise. With respect to the study area, the options analysis concludes;

- Evans Bay Parade is expected to be affected by all sea level rise scenarios. If no remediation is undertaken, the current road would be flooded as a result of a 1.5m to 2.2m rise in sea level, and minor flooding is likely occur in some areas with sea level rise greater than 0.6m.
- Kio Bay, Greta Point and Evans Bay Parade from Greta Point to Cobham Drive are noted to have moderate liquefaction potential
- No flooding risks were noted in the study area
- Slopes above Kio Bay and Weka Bay were noted to have moderate-high slope failure severity, with other slopes within the study area typically low-moderate.

2.13 Structures

Wellington City Council maintain and regularly inspect retaining wall and sea wall assets along the project extent. Opportunities to integrate pedestrian and cycling improvements into any upgrade or renewal works for these assets should be investigated in the short term forward works programme.

2.14 Related Transport Projects

2.14.1 Kilbirnie Connections Cycleway Project

The Kilbirnie Connections cycleway project will identify improvements to the cycleway network within Kilbirnie and to adjacent suburbs including Lyall Bay, Rongotai and Newtown. The routes included in the Kilbirnie Connections study are shown below in Figure 6.

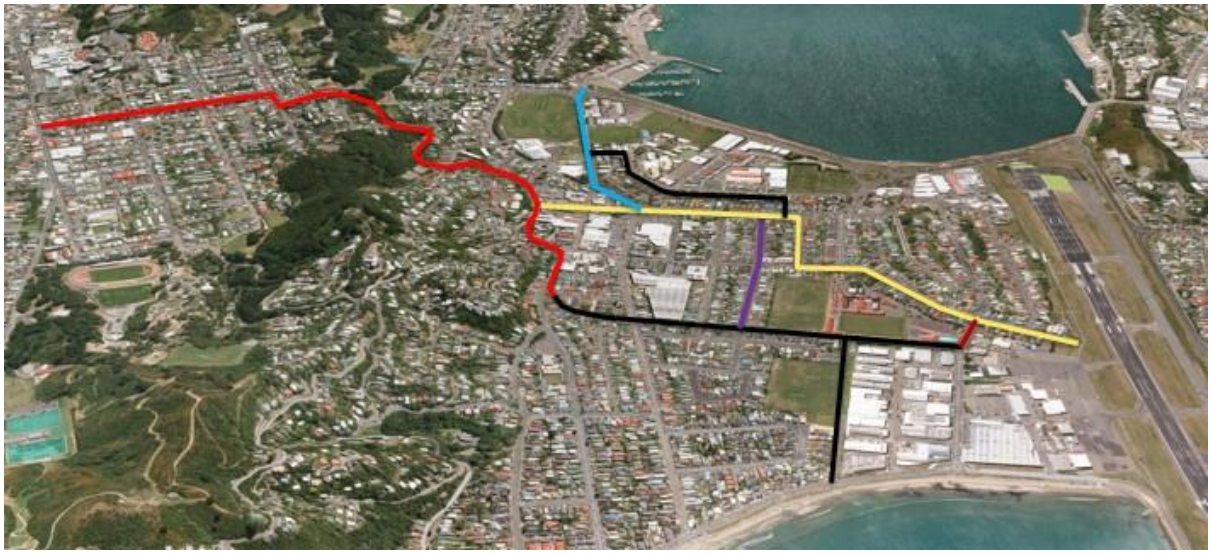

Figure 6 - Kilbirnie Connections cycleway project

2.14.2 Bay Connections – Cobham Drive cycleway project

The Bay Connections – Cobham Drive cycleway project will identify improvements to the cycleway network along Cobham drive between the Miramar Cutting and Wellington Road. This route is shown below in Figure 7.

Figure 7 - Bay Connections - Cobham Drive cycleway project

2.14.3 Bay Connections – Oriental Bay

The Bay Connections – Oriental Bay cycleway project will identify improvements to the cycleway network along Oriental Parade, between Freyberg Pool and Herd Street. This route is shown below in Figure 8.

Figure 8 - Bay Connections - Oriental Bay cycleway project

2.14.4 Ngauranga to Airport Corridor Strategy (2015)

The Ngauranga to Airport (N2A) corridor is bounded by Ngauranga interchange to the north, the Regional Hospital in Newtown to the south, and Wellington International Airport to the east (as shown in Figure 9 below). It includes State Highway 1, the local road network, the rail network terminating at Wellington station, and key routes for passenger transport, walking and cycling.

The key principles for development of the N2A transport corridor are:

- a high quality and high frequency passenger transport 'spine'
- a reliable and accessible 'ring' or bypass route for vehicles
- inter-connected, safe, and convenient local street, walking, cycling and passenger transport networks
- highly accessible and attractive 'activity' or shopping streets

Specific to this project, planned improvements include capacity, walking and cycling improvements along Ruahine Street and Wellington Road, and the duplication of the Mt Victoria Tunnel. This is the main alternate route to travel between the Eastern Suburbs and the city centre, and these improvements are likely to reduce traffic volumes along Evans Bay Parade. There may also be a reduction in the number of commuting cyclists who choose the Evans Bay route over the Mt Victoria Tunnel route to travel to the city.

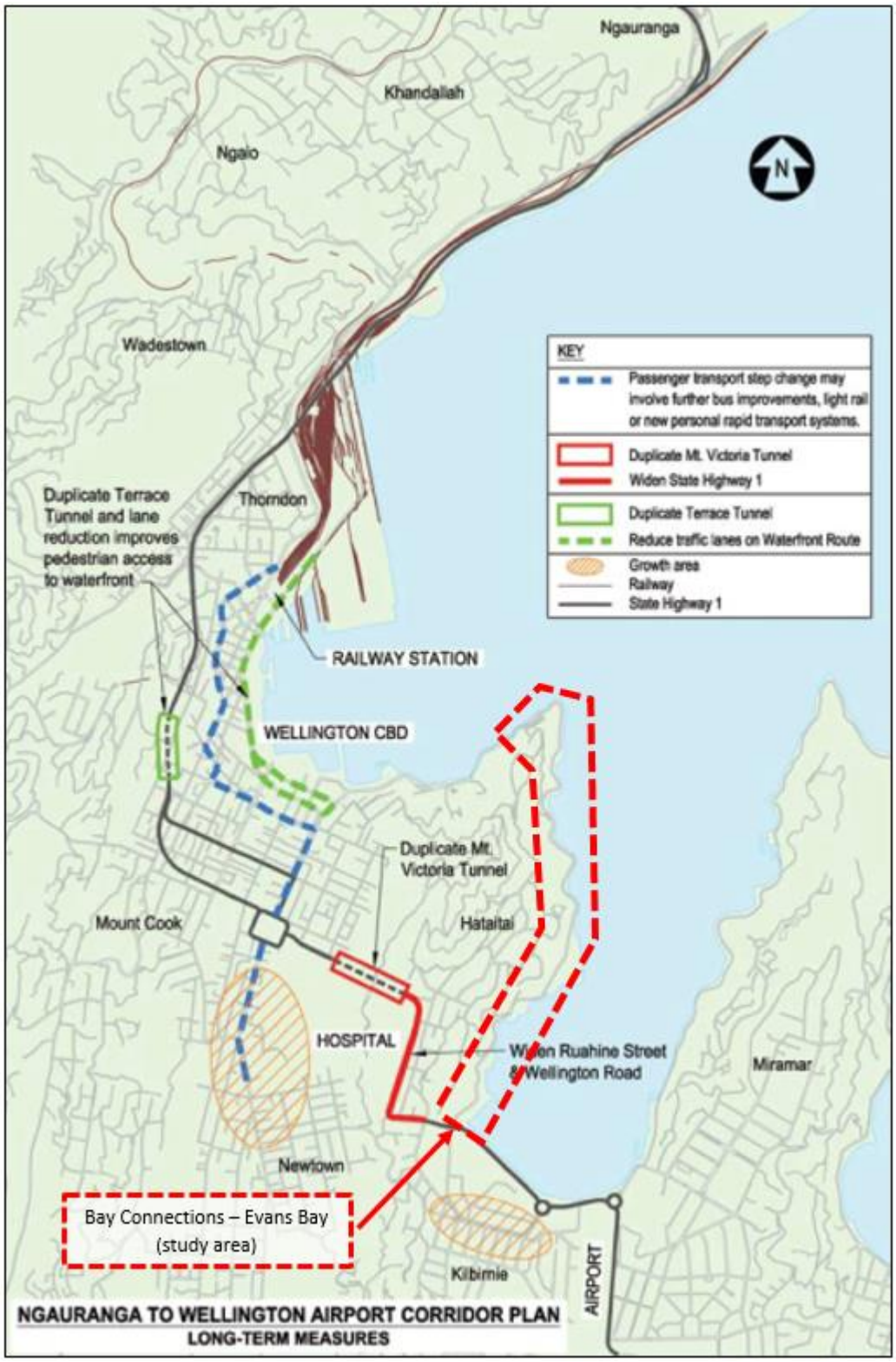

Figure 9 - Ngauranga to Airport Corridor - Measures that may be implemented (beyond 10 years).

2.14.5 Let's Get Wellington Moving

In the wake of the Basin Bridge decision an alliance has been established between Wellington City Council, the New Zealand Transport Agency and Greater Wellington Regional Council to develop an integrated multi-modal solution for Wellington's transport needs. The focus is on 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.

A number of these planned improvements and the new cycle network through the central city and to the southern suburbs will be informed by the Let's Get Wellington Moving programme. The number of cycle and vehicle movements along Evans Bay Parade may change if the outcomes from the Let's Get Wellington Moving project propose improvements to alternate routes and become more or less attractive for these transport users.

3 Existing Road Corridor

3.1 Road Layout

Evans Bay Parade is a Principal Road, typically providing local access to properties and leisure destinations, including Evans Bay beach, Cog Park, Greta Point and Balaena Bay beach. It also provides an alternative route to the SH1 route (along Wellington Road, Ruahine Street and the Mt Victoria Tunnel) between the central city and the eastern suburbs. For the study route, the posted speed limit is 50 km/hr within the study area. Some 80m west of the study area along Oriental Parade, the posted speed limit reduces to 40 km/hr. Evans Bay Parade is a designated over-dimension route and the alternative route for dangerous goods vehicles which cannot enter the Mount Victoria Tunnel.

The road is bounded to the east by the Wellington Harbour (Evans Bay) coastline, and the west by residential properties and the Mt Victoria hillside. The route follows the existing coastline and has frequent tight radius horizontal curves, especially towards the northern end of the study area, which limits the available sight distance in many locations.

North of the NIWA site in Greta Point, two traffic lanes (3.0-3.5m wide) are provided with pockets of on-street parking and vehicle accesses to properties. On road cycle lanes (1.2m width) are provided, but encroached upon in places by bus stops and parking areas. A footpath (varies in width between 1.5 to 3.0m) is provided on the seaward side. On the land side footpaths are intermittent. There are few formal crossing facilities for pedestrian or cyclist use.

South of NIWA, to Cobham Drive, a shared path (varied width between 2.5 to 5.0m) is provided on the seaward side of the road. A separate footpath is also maintained on the inland side. Parking is generally permitted on both sides of the road. A flush median extends from Rata Road to the northern end of Greta Point. No on-road cycle facilities are provided. Typical sections of the route are described in more detail below;

Figure 10 - View south at 461 Evans Bay Parade

Heading north from Cobham Drive, the existing shared path narrows from some 5.0m width. Evans Bay Parade has a carriageway width of approximately 12.5m, with un-restricted parking on both sides. Figure 10, above, shows a section of Evans Bay Parade. The shared path on the east side of the road in this location is formed to a 3.0m width, although the width reduces to 2.5m where objects such as road signs have been installed. At the outer edge of the shared path is the Evans Bay Yacht and Motor Boat Club carpark, the level of which sits some 1.0-2.5m below the footpath level. A footpath is also provided on the western side of the road.

Figure 11 - View south at 430 Evans Bay Parade, intersection between Evans Bay Parade and Belvedere Road

Belvedere Road (5.7m carriageway width) extends steeply down the Mt Victoria hillside to join Evans Bay Parade at a priority T-junction (stop controlled). Figure 11, above, shows the intersection of Evans Bay Parade with Belvedere Road. Sight distance to the south for vehicles exiting Belvedere Road is restricted to approximately 60m due to a horizontal curve. Sight distance to the north exceeds 100m. The safe intersection sight distance requirement for a 50km/h design speed in accordance with the Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections is 97m. No separate turning lane facilities are provided on Evans Bay Parade.

Figure 12 - View north at 410 Evans Bay Parade, Hataitai Beach

From Belvedere Road the carriageway width of 12.5m along Evans Bay Parade is largely maintained, with un-restricted parking on each side. Figure 12 above, shows Evans Bay Parade at Hataitai Beach. The shared path on the east side of the road reduces to between 2.0m and 2.5m in width. Hataitai Beach and the adjacent restrooms can be seen on the right hand side of the figure above. A marked pedestrian zebra crossing provides a formal crossing point to the beach from the western side of the road. At the outer edge of the shared path are seawalls varying between 0.5m and 3m in height. The footpath continues along the western side of the road.

Figure 13 - View south at 390 Evans Bay Parade, intersection between Evans Bay Parade and Rata Road

Rata Road (5.5m carriageway width) extends steeply down the Mt Victoria hillside to join Evans Bay Parade at a priority T-junction (give way controlled). Figure 13, above, shows the intersection of Evans Bay Parade with Rata Road. Sight distance to the south for vehicles exiting Rata Road is restricted to approximately 35m due to a horizontal curve. Sight distance to the north is approximately 75m. A turning bay in the centre of the road provides a refuge for right turning vehicles.

Figure 14 - View north across Cog Park at 397 Evans Bay Parade

Across Cog Park, the shared path diverges from the kerbside footpath. The 5.0m wide path is surfaced with a limestone chip and bordered with small trees. Figure 14, above, shows the existing shared path across Cog Park. A 1.5m wide footpath continues to follow the kerb line, with marked parking spaces (including one accessible space) and a 2.0-3.0m manoeuvring area provided along the eastern side of the road. On the western side of Evans Bay Parade, a Private Way (residents only) provides access to 10 residential properties and a walkway up the Mt Victoria Hillside to Treasure Grove. North of this, a marked pedestrian zebra crossing is located across Evans Bay Parade, crossing from where the shared path on the North side of Cog Park meets the kerbside footpath once more, across to the Cog Park dog exercise area.

Figure 15 - View south opposite 306 Evans Bay Parade, Greta Point

Through Greta Point the 3.0m wide shared path crosses a number of driveway entrances to the Greta Point Apartments and the National Institute of Water and Atmospheric Research (NIWA) Wellington offices. Figure 15, above, shows Evans Bay Parade through Greta Point. Other businesses on the western side of the road include warehousing, childcare and motel facilities, along with residential housing. At one location café seating occupies the shared path, reducing its useable width to around 1.5m, but the remaining length of the shared path is reasonably clear with lighting and signage either located kerbside or at the rear of the path.

In this area, parking along each side of Evans Bay Parade is time restricted for certain periods of the day for between 5 and 120 minutes. Pedestrian refuges (raised median islands) assist for pedestrian crossing movements, although no formal marked pedestrian crossings are provided. A flush median assists with crossing/turning movements for vehicle property access.

Figure 16 - Greta Point coastal track, view north from boat ramp at 374 Evans Bay Parade

An alternate unsealed pedestrian path provides access around the seaward edge of Greta Point, with varying widths of between less than 1.0m, up to 3.0m. Figure 16, above, shows this path around the seaward edge of Greta Point. Signs adjacent to the NIWA compound indicate a Little Blue Penguin (Koroa) nesting area, although no penguins were observed during the site visit. This route (at 650m) is approximately 200m longer than the 450m shared path along Evans Bay Parade through Greta Point. Additionally, to make this route suitable for large numbers of cyclists the path would need to widened and improved visibility around corners. This would likely require coastal encroachment to achieve the desired path width.

Figure 17 - View north at 291 Evans Bay Parade (NIWA), cycle crossing facility

The shared path ends at the northern edge of Greta Point. Figure 17, above, shows the cycle crossing facility provided at this location. A cycle ramp, central refuge (raised median) and hold bars assist northbound cyclists required to cross to the left hand side of Evans Bay Parade. North of this the 12.0m wide carriageway is divided into two 3.5m traffic lanes, with 1.5m wide cycle lanes on each side and intermittent 2.0m wide kerbside parking on either side. The footpath on the eastern side is maintained at 2.7m width. No footpath is provided on the western side of the road.

Figure 18 - View north opposite 226 Evans Bay Parade, Kio Bay

At Kio Bay the footpath narrows from 2.0m to 1.5m width beside an indented parking bay providing space for a bus stop and up to three parked cars on the eastern kerbside. Figure 18, above, shows Evans Bay Parade at Kio Bay. This parking encroaches into and can block the marked cycle lane, requiring southbound cyclists to move into the traffic lane. On the western side of the road parking and vehicle access to properties are interspaced, and a footpath is provided along the residential frontages only. Pedestrian access is provided to Kio Road further up the hillside.

A similar layout is provided in other residential pockets along Evans Bay Parade at Weka Bay and Balaena Bay, with a 1.5m eastern side footpath, 1.5m cycle lanes on each side, 3.0-3.5m wide traffic lanes and kerbside parking, where permitted, encroaching into the cycle lanes.

Figure 19 - View south opposite 160 Evans Bay Parade, Weka Bay

At Weka Bay a section of path has been upgraded to include seating and other street furniture. Figure 19, above, shows this section of Evans Bay Parade. A total width of 3.7m is available between the kerb and the seaside pedestrian barrier, split into three path levels. This facility is currently for pedestrian use only, and two 1.5m wide on-road cycle lanes are available for cyclists.

Figure 20 - View west from Evans Bay Parade, intersection between Evans Bay Parade and Maida Vale Road

Maida Vale Road (5.8m carriageway width) extends steeply down the Mt Victoria hillside to join Evans Bay Parade at a priority T-junction (give way controlled). Figure 20, above, shows the

intersection of Evans Bay Parade with Maida Vale Road. Sight distance to the south for vehicles exiting Maida Vale Road is restricted to approximately 45m due to a horizontal curve. Sight distance to the north exceeds 100m. No separate turning lane facilities are provided on Evans Bay Parade at this intersection.

Figure 21 - View north opposite 40 Evans Bay Parade

From Balaena Bay north to Jerningham Point there are a small number of residential accesses on the western side of Evans Bay Parade. Figure 21, above, shows this section of Evans Bay Parade. A low number of parking spaces are provided in pockets on both sides of the road. Carriageway widths vary between 10m and 12m, providing a continuation of two vehicle and cycle lanes in each direction. The footpath on the eastern side is 3.0m wide.

Figure 22 - View south along Oriental Parade, approximately 120m south of Point Jerningham

On Oriental Parade the footpath width varies between 2.0 and 2.5m. Figure 22, above, shows this section of Oriental Parade. Approximately 25 time restricted (P120) parking spaces are provided on the eastern side of the road. The marked cycle lanes narrow for short distances where the escarpment reduces the carriageway width to approximately 8.0m and hatched shoulders encourage a wider vehicle path around corners. There is no western side footpath or residential accesses along this part of the study area.

Figure 23 - View north opposite 360 Oriental Parade, intersection between Oriental Parade and Carlton Gore Road

Carlton Gore Road (6.1m carriageway width) extends steeply down the Mt Victoria hillside to join Oriental Parade at a priority T-junction (give way controlled). Figure 23, above, shows the

intersection of Evans Bay Parade with Carlton Gore Road. Sight distance to the north is approximately 75m, and to the south exceeds 100m. A left turn slip lane is also provided on Carlton Gore Road, and a separate right turn bay facility on Oriental Parade. Approximately 70m south of this intersection the posted speed limit on Oriental Parade changes to 40 km/hr.

3.2 Extent of Parking Provisions and Restrictions

The approximate extent of parking provisions and restrictions are shown in Figure 24 and Figure 25 below, including the estimated number of parking spaces available in each extent.

The existing number of on-street parking spaces totals approximately 450 spaces (420 unrestricted and 30 time limited). An additional 30 off-street public parking spaces are also available, as well as the Evans Bay Yacht and Motor Boat Club off-street carpark area.

Figure 24 – Extent of parking provisions and restrictions, northern section of study area

Figure 25 - Extent of parking provisions and restrictions, southern section of study area

3.3 Landscape and Urban Design Amenity

3.3.1 Landscape and Urban Context

The Wellington Cycleways Programme Master Plan identifies its purpose as to reduce congestion, give people more transport choice, and give people better access to and around the city by building a safe and comprehensive cycle network. The plan recognises that the focus is not just on cycle projects on their own but that the benefits to be gained are for all transport users and include improved safety and a more liveable city. The Master Plan is a guide for the Council to deliver new cycling infrastructure that best meets the community's needs.

To become a world-class city Wellington City Council needs to deliver projects that match their aspirations. As with other infrastructure like roads or public buildings, cycling infrastructure is a physical intervention into the city's built environment. And thus, in the interest of getting a high quality design outcome for Wellington, the WCC Cycleways Programme should be forefront of urban design and infrastructure best practice. This means facilitating a design which responds to the social, contextual and natural environmental conditions of the place.

In terms of world-class cities, Wellington has stiff competition. In 2016 Auckland Light Path won a World Architecture Award for Transport. This was recognition on a world stage of their exciting new vision for active transport being realised (in part). It showed how a cycling project can uplift the community and become a powerful place making tool in Auckland's vision to be the world's most liveable city. Auckland transport infrastructure still has a way to go before it can be regarded as a world-leader. Copenhagen, Denmark is a place where cycling infrastructure is well-developed and they are constantly adding to their network, building 500km of cycleways in one city - http://denmark.dk/en/green-living/bicycle-culture/cycle-super-highway/.

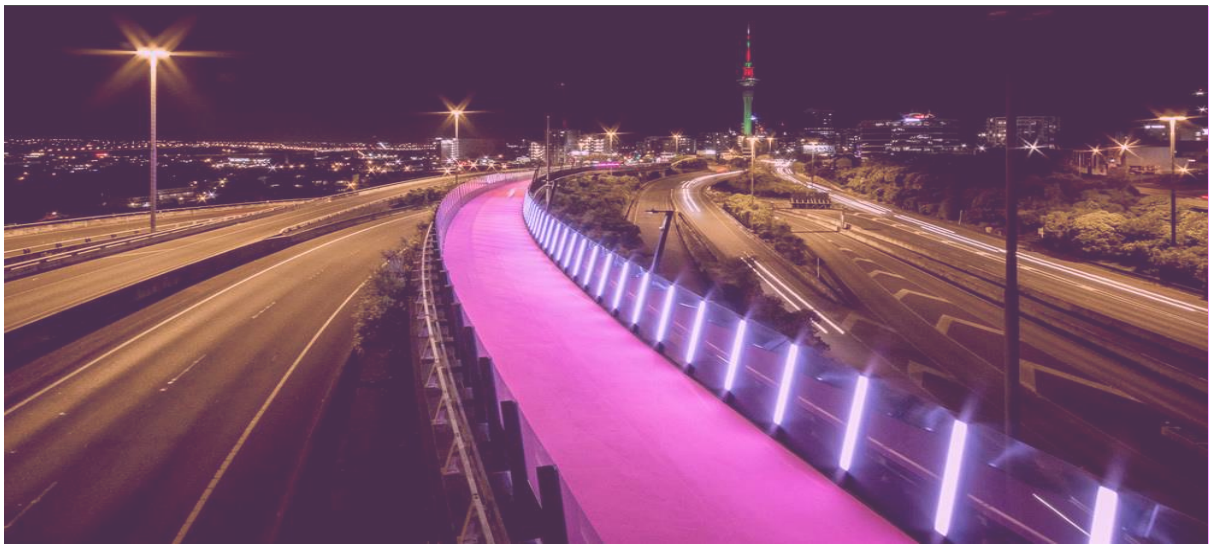

Figure 26 - Auckland Light Path – Winner of World Architecture Award for Transport. Image © LandLab

3.3.2 Landscape and Urban Design Themes

It is important that the Masterplan is treated as a "living document" and should be developed within the context of other WCC strategic plans and policies including, but not limited to, the following:

- WCC Strategic Vision – Wellington Towards 2040: Smart Capital
- WCC Urban Growth Plan 2014-2043
- WCC Long-term Plan 2015-2025

- WCC Our Natural Capital – Wellington Biodiversity Strategy and Action Plan 2015
- WCC Our Living City

Repeating themes and strategic goals run throughout the abovementioned documents in terms of landscape, urban design and quality of life. These include:

- The aim for Wellington residents to continue to enjoy a world-class quality of life
- The four main goals in the Long-term Plan for the city to become a:
  - People-centred city
  - Connected city
  - Eco-city
  - Dynamic central city
- Protecting and developing our urban nature, biodiversity and resilience
- Growing and enjoying our natural capital
- Transforming our economy and reducing impact
- Showing leadership
- Promoting Wellington as a biophilic city

Therefore, if the Urban Cycleways Masterplan is to satisfy the aspirations of the City's strategic plans and policies, its scope needs to needs to consider the following elements.

3.3.3 Environmental Quality

WCC's Urban Growth Plan recognises the importance of Wellington's natural environment. "*Wellington's unique natural environment is critically important to the city's liveability and attractiveness. Its landscape, ecological and recreational values support both health and wellbeing and well-functioning environmental systems. This plan acknowledges the value of our closeness and connection to nature, how this makes Wellington unique, and aims to maximise the benefits of this setting*. "

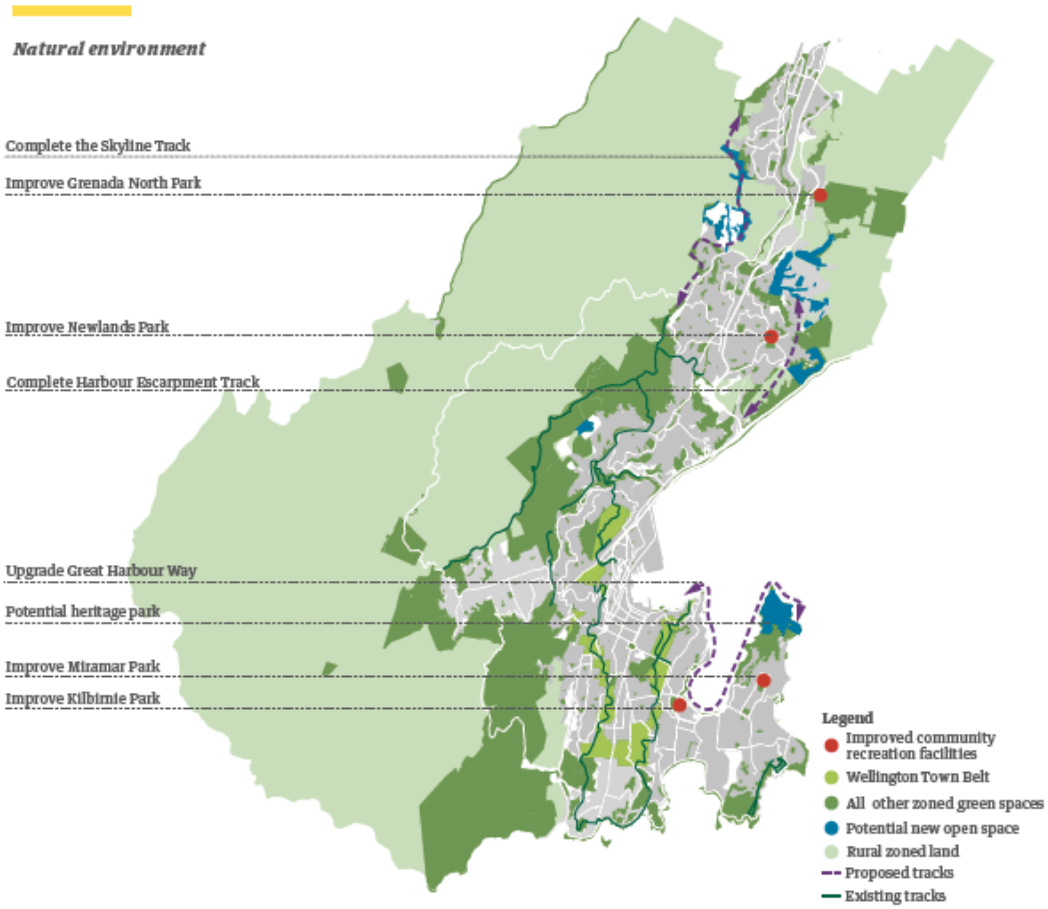

Figure 27 - WCC map identifying upgrade to Great Harbour Way, from the Natural Environment section of WCC Urban Growth Plan.

The current proposed WCC Cycling Programme must reference the WCC Urban Growth Plan and contribute to the improvement in the quality of the natural environment.

3.3.3.1 Biophilic Cities

In 2013 Wellington became a partner city to the global *Biophilic Cities* movement. This confirmed WCC's desire to embrace the biophilic principles and recognise the city as one that:

- Values, protects and actively restores local biodiversity
- Takes steps to actively support the conservation of global nature such as limiting the impact of resources use on nature and biodiversity
- Invests in the social and physical infrastructure that helps make people connect with and understand nature

According to Wellington Biophilic Cities, "much work is needed to find creative and effective means for incorporating it into urban environments".

Figure 28 - Waitangi Park: A water sensitive urban design (WSUD) and biophilic response to urban public open space. Image © Simon Devitt

One project that has been a multi-award winner and recognised for its design integration of ecology, recreation, water sensitive urban design, civic amenity and place making is Waitangi Park. However, the park opened ten years ago and Wellington needs to keep building upon its legacy.

3.3.3.2 Harbour /Water

Creating Wellington's 'Blue Belt' is a WCC initiative that embodies the principles of Our Living City – a project to improve Wellington's quality of life by strengthening urban-nature connections and building economic opportunities from a healthy environment.

According to the Greater Wellington Council's *State of the Environment Study* the Evan's Bay water body has one of the highest level of contaminants from urban storm water runoff. Evan's Bay is a principal road on average carrying some 12,000 vehicles per day and issues exist related to the roading infrastructure where heavy metals from high-volume traffic roads contaminate water flowing directly into the harbour.

3.3.3.3 Water Sensitive Urban Design (WSUD)

The Urban Growth Plan is the Council's Strategy to manage growth sustainably and to integrate transport planning. One of the guiding principles of the Plan is to "*protect the City's natural setting and reduce the environmental impacts of development and transport."*

The Natural Environment section of the Plan describes how, to reduce the environmental impact of urban development and transport, we need to "*enhance and improve access to the city's natural "blue" environment; and take opportunities to increase the city's green infrastructure*." This includes reducing contaminants within the city's water systems and making water-sensitive design common practice for all public works.

3.3.4 Urban Character and Visual Amenity

To improve the quality and safety of the transport routes, consideration needs to be given to the urban design of the cycleway in a holistic approach.

When considering the cycleway options and their merits, design principles including character, scale, legibility and amenity should be taken into account. Consideration needs to be given to how the design can enhance the existing urban character of the sections of the cycleway; and how the cycleway design can provide a legible navigation tool through the city. What is the experience along the route and how do people navigate their way through transition points and junctions? Liaising with adjacent WCC Cycling Programme Package teams will be required to ensure that there is a shared vision in terms of the look and feel of the cycleway.

3.3.5 Access – Adjacent Land Use, Transport Modes, Amenities, Sea/Shoreline

Access is a principal consideration in the development of a successful cycleway scheme. Elements to consider include:

- Ease of entry and egress to the cycleway for people on bikes
- Ease of crossing the cycleway for people on foot
- Adjacent land uses and how the cycleway may affect their access
- Access to the sea and associated amenities and recreational facilities along the shoreline (for people on all modes of transport – walking, cycling and in vehicles)
- Accessibility for all ages and abilities

Appendix A contains a location plan and urban environment maps highlighting these existing elements and features of the area.

3.3.6 Historic Features and Cultural Values

As part of the urban design approach, consideration should be given to the local historic features and cultural values of the area and how a narrative of these can be told in the design of the cycleway and its associated features. This could be done through material and plant species selection and by including elements such as gateways/thresholds for example.

3.3.7 Cycleway Urban Design

Along with those elements described above, the cycleway design needs to consider the following factors:

- Speed – linked with accessibility, e.g. from slow (small children, families, sightseers) to medium-paced commuters, to faster confident cyclists.
- Width – recommended minimum widths and how these fit with site constraints
- Continuity – a hugely important part of good cycleway design, critical to the success of a transport network
- Space – allocated for cycle parking at destinations, waiting areas at traffic lights, turning lanes at busy junctions, etc.
- Access – how junctions, transitions, priorities etc. are defined

3.4 Existing Utilities and Services

A review of the WCC GIS database[3] identified the approximate locations and extent of services along Evans Bay Parade and Oriental Parade.

Potable Water

A potable water pipe is shown within Evans Bay Parade and Oriental Parade for the entire project extent, providing potable water to the adjacent properties.

Storm water

Storm water is discharged into the sea throughout the extent of the study area. Each pipe serves a small catchment of adjacent properties; there will also be collection and discharge of all the catchments on the west side of the road extending to the top of the Mt Victoria ridge and Carlton Gore Road, which discharges into the adjacent coastal environment. There is no known treatment of storm water that occurs prior to discharge.

Wastewater

Wastewater in the northern part of the study area (from approximately 168 Evans Bay Parade) is gravity fed to a pump station at the northern end of Balaena Bay. The wastewater is then pumped around Point Jerningham to Oriental Parade.

In the southern part of the study area, pump stations located at Weka Bay and Rata Road pump wastewater towards Cobham Drive. In addition to the properties along Evans Bay Parade, the wastewater catchment also includes properties above Evans Bay on the Mount Victoria hillside.

Other services

Other services, such as power, gas and telecommunications, are not shown in the WCC database. The locations and extents of these services will be confirmed where required during the design stage.

Wellington Water manage three waters infrastructure in the Wellington Region. Wellington City Council maintain a complaints register, from which water related issues are recorded and passed to wellington Water for investigation. It is recommended Wellington Water and other service providers are consulted during the design process to identify any existing issues or future infrastructure upgrades proposed for the study area.

3.5 Ground Conditions

The published geology of the area[4] indicates that the basement geology consist of grey sandstone-mudstone (greywacke) of the Torlesse Supergroup formation. Generally the road has been constructed as a fill platform built over the original greywacke wave platform. In places, particularly around head lands it is a cut to fill platform. The inland side is cut into the toe of the original sea cliff.

As noted previously in Section 2.12.2, Kio Bay, Greta Point and Evans Bay Parade from Greta Point to Cobham Drive are noted to have moderate liquefaction potential especially where land has been reclaimed. Slopes above Kio Bay and Weka Bay were also noted to have moderate-high slope failure severity, with other slopes within the study area typically low-moderate.

[3] http://wellington.govt.nz/webmap/wccmap.html

[4] Begg, J.G., Johnston, M.R. (compilers) 2000: Geology of the Wellington area. Institute of Geological & Nuclear Sciences 1:250,000 geological map 10. 1 sheet + 64 p. Lower Hutt, New Zealand. Institute of Geological & Nuclear Sciences Limited.

The Evans Bay Volunteer Coastguard site (shown below in Figure 29) is identified in Greater Wellington Regional Council's Strategic Land Use Register (SLUR) as a potentially contaminated site where activities involving hazardous substances (vehicle refuelling, service and repair) have taken place. This site is outside the road corridor, within the Evans Bay marina area. The impact on any cycleway improvements may need to be re-confirmed during design stage, depending on the final layout. No other sites within the study area are identified in the SLUR.

Figure 29 – Evans Bay Volunteer Coastguard potentially contaminated site in GWRC SLUR register

3.6 Crash Analysis

Crash records were obtained from the NZTA Crash Analysis System (CAS) database for the five year period from 2012 to 2016 (inclusive). A full description of reported crashes is provided in Appendix B.

Of the 38 crashes reported during the analysis period, 12 involved cyclists. Two crashes were reported involving pedestrians. Cyclists are over represented in the crash history (8% of traffic but 32% of crashes)

As shown in Appendix B, the cycle crashes are evenly distributed through the study area, although it is noted that no cycle crashes were reported in the Greta Point business zone. With the exception of two crashes at the intersection of Oriental Parade and Carlton Gore Road, all cyclist crashes occurred in mid-block locations.

Crashes involving cyclists resulted in a total of

- 92% (11) of crashes involving cyclists resulted in injuries (two serious and 12 minor injuries). No fatal and one non-injury cyclist crash were reported.
- Pedestrian crashes resulted in one additional serious injury (injuries for the cyclist/pedestrian crash have been included above).
- Four crashes occurred when a cyclist crashed into a parked vehicle, one crash due to a car door being opened into the path of an oncoming cyclist.
- Seven crashes where a result of conflict between moving vehicles and cyclists, as a result of the driver not observing the cyclist.

- One crash between a cyclist and pedestrian was reported on the existing shared path south of Greta Point. The cyclist intentionally crashed as a result of road rage.
- One crash between a pedestrian and a vehicle was reported, also at the intersection of Oriental Parade and Carlton Gore Road, resulting in one serious injury. The pedestrian was hit while crossing heedless of traffic.
- Both cyclist crashes at the Oriental Parade / Carlton Gore Road intersection involved on-road cyclists travelling west towards the city. Both cyclists were cut-off by vehicles turning into Carlton Gore Road during the weekday morning peak. This indicates a potential traffic safety issue with this movement.

The existing crash rate for cyclists of 2.4 crashes per year is significantly higher than the Land Transport New Zealand Research Report 289 (2006) predicted cyclist crash rate of 0.90 crashes per year. Improvements to the cycle facilities throughout the study area are recommended to address this relatively high accident risk. The identified crash cluster at the intersection of Oriental Parade and Carlton Gore Road should be considered, and where possible mitigated, in any future cycleway development in this location.

The 26 vehicle only crashes reported during the analysis period involved:

- Rear end crashes due to vehicles slowing to enter driveways or turn at intersections;
- Loss of control crashes on corners;
- Crash into vehicles manoeuvring into parking spaces; and
- Crossing/turning type crashes with vehicles failing to give way entering/exiting driveways and undertaking U-turns.

The existing crash rate for all road users of 3.4 injury crashes per year is marginally higher than the NZTA Economic Evaluation Manual (2013) predicted crash rate of 2.9 injury crashes per year. Some 71% of these crashes have rear end/obstruction (50%) and loss of control (21%) as the crash type. The rear end/obstruction crashes appear more related to property access and U-turn manoeuvres rather than intersection turning movements. The loss of control crashes appear to be focussed near the reverse curves adjacent to the Evans Bay Yacht and Motor Boat Club, and Balaena Bay (near the off-street carpark).

A collision diagram, showing the extent of the study area, is attached in Appendix B.

4 People Walking

As a means of measuring the achievement of key strategic objectives of Council's Transport Strategy, Wellington City Council commissions annual monitoring surveys in order to provide empirical data on pedestrian flows, cycle flows and vehicle occupancy levels in and around the city. The latest survey was undertaken in March 2017[5], although commuter and recreational pedestrian data was only available from the previous survey undertaken in November 2015[6].

The monitoring surveys assessed pedestrian, cycle and vehicle occupancy in the Wellington Central Business District (CBD) as well as at city fringe and Central and Eastern locations. A summary of the relevant pedestrian surveys recorded is outlined below.

4.1 CBD Cordon Surveys

These surveys recorded the numbers of pedestrians and cyclists entering and leaving the CBD at 28 separate locations during the weekday morning peak period. The survey was undertaken during the five working days from Monday 6 March to Friday 10 March 2017, between the hours of 7:00am and 9:00am.

At Oriental Parade, north of Herd Street, an average of 638 pedestrians were recorded during the two hour daily monitoring period. Of these, 481 (75%) were travelling west towards the city, and the remaining 157 (25%) eastbound towards the study area. It is likely that pedestrian numbers reduce over the 1.3km (refer Figure 29 below) between the survey location and the study area, but this extent is unknown.

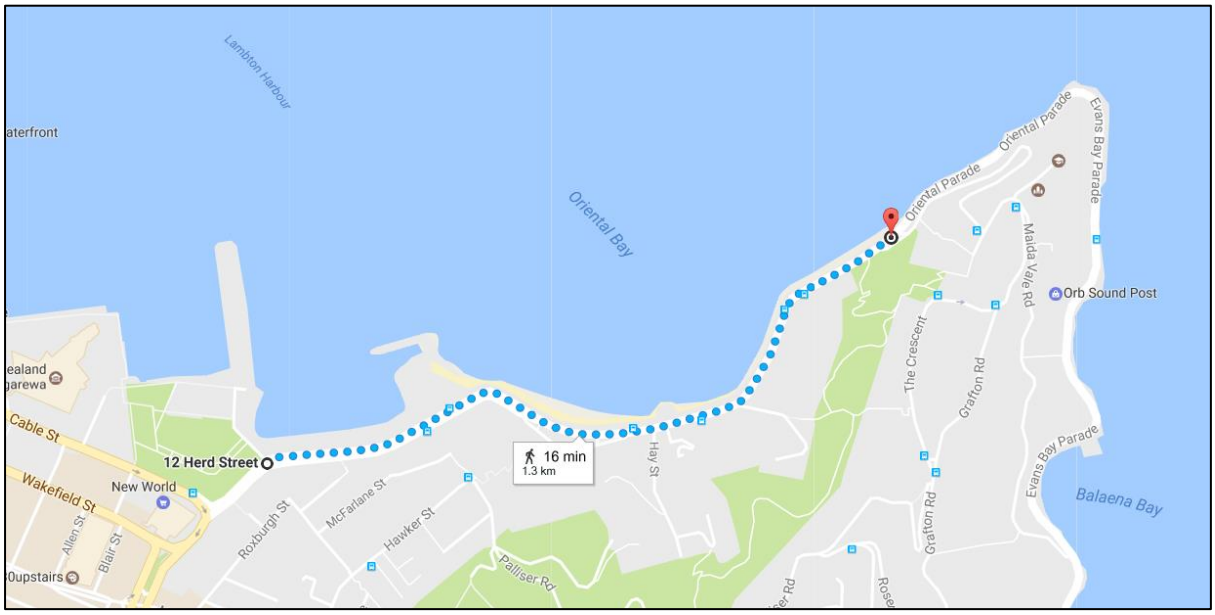

Figure 29 – CBD Cordon Survey Location

4.2 Commuter Pedestrian Survey

These surveys recorded the movements of pedestrians at five intersections beyond the CBD. The surveys were conducted during the weekday morning peak from Monday 2 November to Friday 13

[5] Wellington City Council Transport Monitoring Surveys - March 2017 Survey Results, Traffic Design Group, March 2017
[6] Wellington City Council Transport Monitoring Surveys – November 2015 Survey Results, Traffic Design Group, January 2016

November 2015, between the hours of 7:00am and 9:00am. This survey was undertaken at the intersection of Evans Bay Parade, Wellington Road and Cobham Drive.

On the Evans Bay Parade approach, an average of 20 pedestrians were recorded during the two hour daily monitoring period. Of these, 10 (50%) were travelling southbound towards the intersection, and the remaining 10 (50%) northbound toward Belvedere Road.

4.3 Recreational Pedestrian Survey

These surveys recorded the movements of pedestrians at three locations beyond the CBD. The surveys were conducted on weekends between the hours of 9:00am and 1:00pm on Saturday 14 November and Sunday 15 November 2015. This survey was undertaken at the intersection of Evans Bay Parade, Wellington Road and Cobham Drive.

On the Evans Bay Parade approach, an average of 35 pedestrians were recorded during the four hour daily monitoring period. Of these, 15 (40%) were travelling southbound towards the intersection, and the remaining 21 (60%) northbound toward Belvedere Road.

4.4 March 2017 Survey

Further pedestrian, cyclist and parking surveys were undertaken specifically for this project on Thursday 30 March (7.00am-9.00am and 3.00am-6.00pm) and Saturday 1 April 2017 (7.00am-9.30am and 11.00am-2.00pm). Pedestrian surveys were undertaken at three locations along Evans Bay Parade (shown below in Figure 30).

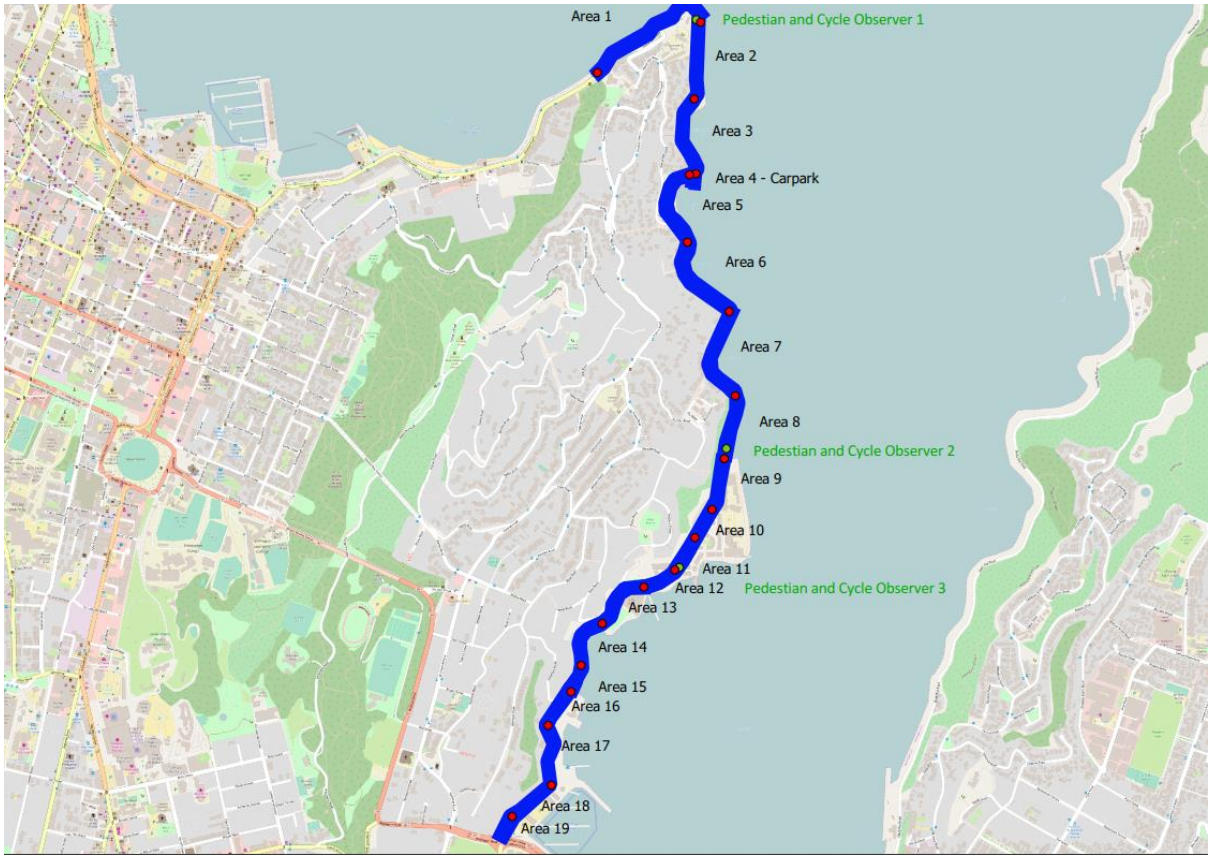

Figure 30 - Pedestrian, cyclist and parking survey locations

The results of the pedestrian surveys undertaken are summarised below in Table 1.

Table 1 - Pedestrian survey results

Day	Survey Period	Northbound (towards Oriental Bay)	Southbound (towards Kilbirnie)	Using shared path (eastern side)
Observer 1, south of Oriental Parade [Note 1]				
Thursday (30/03/17)	Morning (7.00am-9.00am)	42 (58%)	31 (42%)	
	Evening (3.00pm-6.00pm)	62 (38%)	103 (62%)	
Saturday (1/04/17)	Morning (7.00am-9.00am)	61 (39%)	96 (61%)	
	Midday (11.00am-2.00pm)	97 (41%)	141 (59%)	
Observer 2, north of Greta Point [Note 1]				
Thursday (30/03/17)	Morning (7.00am-9.00am)	20 (51%)	19 (49%)	
	Evening (3.00pm-6.00pm)	44 (42%)	61 (58%)	
Saturday (1/04/17)	Morning (7.00am-9.00am)	52 (52%)	48 (48%)	
	Midday (11.00am-2.00pm)	61 (44%)	77 (56%)	
Observer 3, south of Greta Point [Note 2]				
Thursday (30/03/17)	Morning (7.00am-9.00am)	38 (58%)	28 (42%)	53 (95%)
	Evening (3.00pm-6.00pm)	64 (55%)	73 (45%)	125 (91%)
Saturday (1/04/17)	Morning (7.00am-9.00am)	57 (47%)	64 (53%)	108 (89%)
	Midday (11.00am-2.00pm)	104 (50%)	102 (50%)	147 (71%)
Notes; 1 – Footpath on eastern side only 2 – Footpath on western side, shared path on eastern side				

In summary;

- Between 20 and 79 pedestrians per hour were recorded walking along Evans Bay Parade.
- A similar proportion of pedestrians recorded travelled in either direction.
- More pedestrians were recorded during the weekend.
- At observer location 3, most pedestrians walked on the 3.0m wide shared path on the eastern (sea) side of Evans Bay Parade, rather than on the 1.5m wide footpath on the western side of the road.

5 People Riding Bikes

Monitoring surveys, as described in Section 4, observed pedestrian, cycle and vehicle occupancy in the Wellington Central Business District (CBD) as well as at city fringe and Central and Eastern locations. A summary of the relevant cycle surveys recorded is outlined below.

5.1 CBD Cordon Survey

These surveys recorded the numbers of pedestrians and cyclists entering and leaving the CBD at 28 separate locations during the weekday morning peak period. The survey was undertaken during the five working days from Monday 6 March to Friday 19 March 2017, between the hours of 7:00am and 9:00am.

At Oriental Parade, north of Herd Street, an average of 277 cyclists were recorded during the two hour daily monitoring period. Of these, 242 (87%) were travelling west towards the city, and the remaining 35 (11%) eastbound towards the study area. The survey location is shown above in Figure 29.

5.2 Commuter Cycle Survey

These surveys recorded the movements of cyclists at five intersections beyond the CBD. The surveys were conducted during the weekday morning peak from Monday 27 February to Friday 3 March 2017. This survey was undertaken at the intersection of Evans Bay Parade, Wellington Road and Cobham Drive.

On the Evans Bay Parade approach, an average of 135 cyclists were recorded during the two hour daily monitoring period. Of these, 42 (19%) were travelling southbound towards the intersection, and the remaining 226 (81%) northbound toward Belvedere Road.

5.3 Recreational Cycle Survey

These surveys recorded the movements of cyclists at three locations beyond the CBD. The surveys were conducted in a similar manner to the commuter cycle surveys, but between the hours of 9:00am and 1:00pm on Saturday 11 March and Sunday 12 March 2017. Cyclist volumes are also shown for the previously recorded survey undertaken on Saturday 12 March and Sunday 13 March 2016. These surveys were undertaken at the intersection of Evans Bay Parade, Wellington Road and Cobham Drive.

March 2017

> On the Evans Bay Parade approach, an average of 8 cyclists were recorded during the four hour daily monitoring period. Of these, 4 (50%) were travelling southbound towards the intersection, and the remaining 4 (50%) northbound toward Belvedere Road.

March 2016

> On the Evans Bay Parade approach, an average of 234 cyclists were recorded during the four hour daily monitoring period. Of these, 90 (38%) were travelling southbound towards the intersection, and the remaining 144 (62%) northbound toward Belvedere Road.

Weather conditions during the March 2017 survey were wet, with approximately 60mm of rainfall recorded over the two days[7]. This gave rise to a noticeable reduction in the recreational cycle volumes compared with previous years, as can be seen in the above recorded volumes from March 2017 and March 2016 respectively.

[7] Recorded location; Hataitai at old post office (source - http://graphs.gw.govt.nz)

5.4 March 2017 Survey

Further pedestrian, cyclist and parking surveys were undertaken specifically for this project on Thursday 30 March (7.00am-9.00am and 3.00am-6.00pm) and Saturday 1 April 2017 (7.00am-9.30am and 11.00am-2.00pm). Cyclist surveys were undertaken at three locations along Evans Bay Parade (refer Figure 30, Section 4.4). The results of the cyclist surveys undertaken are summarised below in Table 2.

Table 2 - Cyclist survey results

Day	Survey Period	Northbound (towards Oriental Bay)	Southbound (towards Kilbirnie)	Using path
Observer 1, south of Oriental Parade [Note 1]				
Thursday (30/03/17)	Morning (7.00am-9.00am)	117 (90%)	13 (10%)	1 (1%)
	Evening (3.00pm-6.00pm)	12 (7%)	157 (93%)	5 (3%)
Saturday (1/04/17)	Morning (7.00am-9.00am)	40 (29%)	96 (71%)	1 (1%)
	Midday (11.00am-2.00pm)	42 (43%)	55 (57%)	-
Observer 2, north of Greta Point [Note 1]				
Thursday (30/03/17)	Morning (7.00am-9.00am)	116 (90%)	14 (10%)	-
	Evening (3.00pm-6.00pm)	13 (7%)	133 (93%)	3 (3%)
Saturday (1/04/17)	Morning (7.00am-9.00am)	46 (32%)	100 (68%)	-
	Midday (11.00am-2.00pm)	46 (45%)	56 (55%)	-
Observer 3, south of Greta Point [Note 2]				
Thursday (30/03/17)	Morning (7.00am-9.00am)	111 (88%)	15 (12%)	13 (10%)
	Evening (3.00pm-6.00pm)	10 (7%)	138 (93%)	34 (23%)
Saturday (1/04/17)	Morning (7.00am-9.00am)	45 (32%)	97 (68%)	11 (8%)
	Midday (11.00am-2.00pm)	44 (45%)	54 (55%)	46 (47%)
Notes; 1 – Footpath on eastern side only, on road cycle lanes 2 – Footpath on western side, shared path on eastern side, no on road cycle lanes				

In summary;

- Between 32 and 65 cyclists per hour were recorded cycling along Evans Bay Parade.

- A similar number of cyclists were recorded at each of the survey locations, indicating most cycle trips use Evans Bay Parade as a route between the city and the eastern suburbs, rather than local trips to destinations such as Greta Point or Hataitai Beach.
- Weekday cycle trips were very directional, with the majority of cyclists recorded travelling toward the city in the morning and vice versa in the evening. This indicates a large proportion of trips are for commuting to the city centre.
- Less cyclists were observed during the weekend.
- At observer location 3, most cyclists cycled on the road rather than on the 3.0m wide shared path on the eastern (sea) side of Evans Bay Parade.
- At observer locations 1 and 2, a small number of cyclists (illegally) cycled along the footpath rather than using the on road cycle lanes.

5.5 Cyclists LOS Using the Danish Method

The estimated Cyclist Level of Service (LOS) has been calculated using the Danish Method. This method measures how well roads accommodate pedestrian and bicycle travel. Variables that influence the level of satisfaction include motorized traffic volume and speed; urban land uses; rural landscapes; the types and widths of pedestrian and bicycle facilities; the numbers and widths of the drive lanes; the volumes of pedestrians, bicyclists, and parked cars; and the presence of median, trees, and bus stops. A breakdown of each of the parameters assumed for analysis is attached in Appendix C.

The study area was separated into three distinct sections for analysis;

- Evans Bay Parade, between Cobham Drive and Greta Point, has a 3.0m shared path, residential areas and no on-road cycle facilities. The LOS of C indicates that most cyclists would be a little satisfied with this route.
- Evans Bay Parade, within Greta Point, has a 3.0m shared path, mixed use areas and no on-road cycle facilities. The LOS of C indicates that most cyclists would be a little satisfied with this route.
- Evans Bay Parade, between Greta Point and Carlton Gore Road, has 1.5m on-road cycle lanes, residential areas and no off-road cyclist facility. The LOS of D indicates that most cyclists would be a little dissatisfied with this route.

6 People Using Buses

Existing bus services along Evans Bay Parade are limited to weekday peak and daytime services between 6am and 8pm, terminating at Miramar Heights to the east and Wellington Station to the west. Destinations served by this route include Wellington Station, Lambton Quay, Te Papa, Oriental Bay, NIWA, Evans Bay Marina and the Kilbirnie Shops. Bus frequency is detailed below in Table 3.

From 2018, bus routes in Wellington will change significantly to provide 'more routes, more often, with more options for customers'. For Evans Bay Parade, the proposed changes will provide a weekday evening peak and weekend services in addition to the current weekday morning peak and daytime services.

Table 3 - Existing and proposed bus frequency in minutes (Source – GWRC)

Time Period	Bus Frequency (minutes)	
	Current Service (Route 24)	Proposed Service (Route P)
Weekday Morning Peak	10-20	10-20
Weekday Daytime	60	60
Weekday Evening Peak	-	60
Weekend	-	60

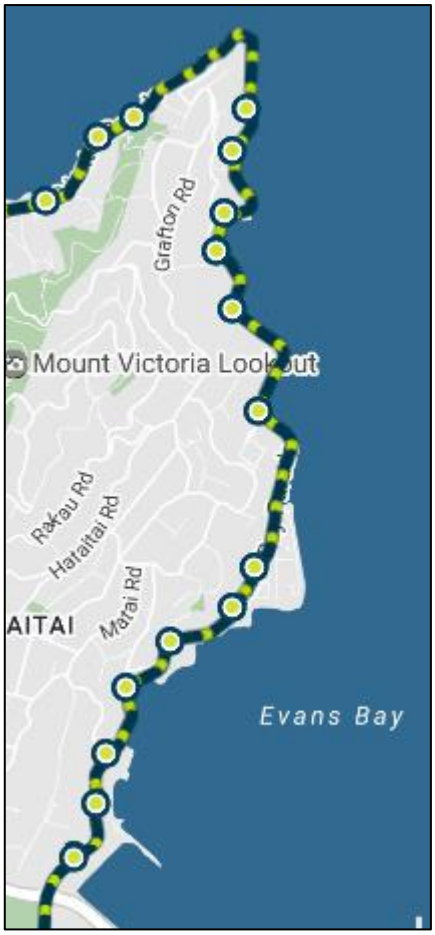

Figure 31 - Bus route along Evans Bay Parade (Source – GWRC)

The proposed Wellington Future Bus Network, showing the route along Evans Bay Parade, is attached in Appendix D.

Bus patronage data for 2015 obtained from GWRC[8] shows nearly all (98%) of trips are made to/from the city centre. At each stop up to 23 passengers per day board the bus to head towards the city, compared with up to 5 passengers per day boarding to head towards Kilbirnie/ Miramar. However, these numbers are for the existing weekday daytime service and may not be representative of the proposed weekend service, where directional split/volume may change.

As most bus passengers board the bus on the western (hill) side of Evans Bay Parade, conflict between cyclists and bus passengers on the eastern (coastal) side of Evans Bay Parade will be mostly limited to passengers departing the bus, which reduces the bus waiting time and has a lesser effect on cyclists.

[8] Bus patronage cube data obtained from Snapper and bus ticket records for stops; 6519, 6550, 6551, 6552, 7519, 7543, 7550, 7551 and 7552.

7 People Using Vehicles

7.1 Existing Traffic Volumes

Traffic volumes and speeds have been obtained from tube count data supplied by WCC for the study area, and are provided below in Table 4:

Table 4 - Recorded Traffic Volumes (Source – WCC)

Road	Count Location	Existing Two-way Traffic Volume (vehicles/day)	Peak Hour Two-way Traffic Volume (vehicles/hour)	85th Percentile Speed (km/hr)	Count Date
Evans Bay Parade	50m south of Belvedere Road, Outside #440.	12,446	1,183 (5.00-6.00pm)	53	Oct 2015
Belvedere Road	120m west of Evans Bay Parade, Outside #39	412	50 (8.00-9.00am)	39	Oct 2015
Rata Road	20m east of Rewa Road, Outside #43A.	1,092	132 (8.00-9.00am)	41	Oct 2015
Evans Bay Parade	600m north of Rata Road, Outside #288.	9,921	993 (5.00-6.00pm)	59	Apr 2014
Maida Vale Road	30m north of Lindum Terrace, Outside #10.	2,429	261 (8.00-9.00am)	34	Jun 2014
Evans Bay Parade	300m south of Oriental Parade, Outside #24.	11,480	1,187 (8.00-9.00am)	60[1]	Oct 2016
Carlton Gore Road	100m north of Oriental Parade.	2,904	284 (8.00-9.00am & 5.00-6.00pm)	44	Jun 2014
Oriental Parade	70m north of Grass Street, Outside #290[2].	14,470	1,396 (8.00-9.00am)	46	Oct 2011

[1] Southbound speed reported only

[2] Posted speed limit 40 km/hr

Intersection turning movement counts have not been obtained, however given the recorded two-way traffic volumes capacity is not considered to be an issue for these intersections.

Traffic demand along Evans Bay Parade can vary dependent on the season, with the summer months bringing more demand for visits to the Oriental Bay and Evans Bay areas, particularly in the weekend, which also coincides with increased active mode trips. Evans Bay Parade is also used as an alternate route to the Airport and eastern suburbs, particularly in the event of congestion or delays on the State Highway 1 route through the Mt Victoria Tunnel. Evans Bay Parade is a designated over-dimension route and the alternative route for dangerous goods vehicles which cannot enter the Mount Victoria Tunnel, and is the only available over-dimension route for eastern and southern areas including the Miramar Peninsula, Kilbirnie and Island Bay.

Traffic volumes along Evans Bay Parade were recorded in 2009, 2011 and 2015 (source – WCC). These volumes show an annual average growth rate of 0.8%. Specifically, continued traffic growth at this rate would by 2030 result in 13,900 vehicles per day travelling along Evans Bay Parade (50m south of Belvedere Road, Outside #440, refer Table 4 above), an increase of approximately 1,400 vehicles per day (or approximately two vehicles per minute during the peak periods). The proportion of heavy vehicles has remained reasonably static at 8%.

As noted in Table 4 above, vehicle speeds were recorded on Evans Bay Parade at two count locations; 300m south of Oriental Parade (outside #24), and 600m north of Rata Road (outside #288). While the highest speeds tended to occur in the early morning (between midnight and 7.00am), average vehicle speeds exceed the 50 km/hr posted speed limit throughout the day. Figure 32, below, shows the hourly 50th and 85th percentile speeds recorded on Evans Bay Parade over a 24 hour period.

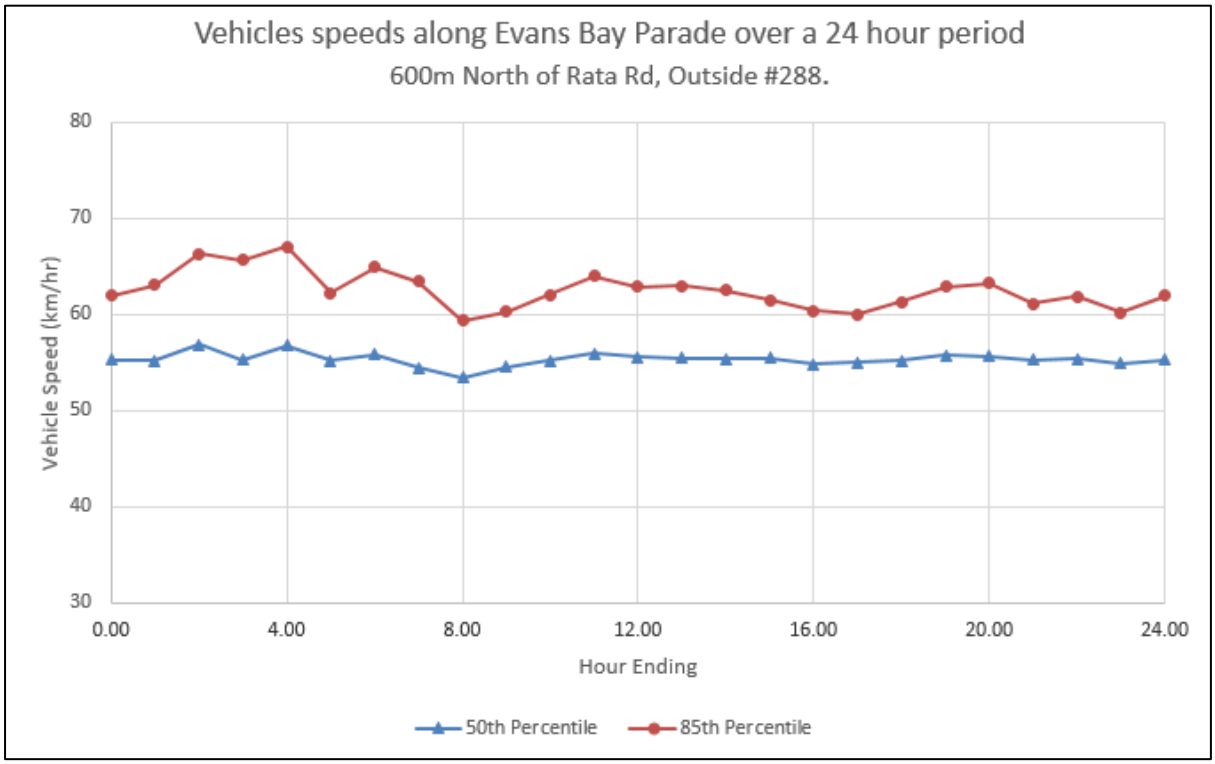

Figure 32 - Vehicle speeds along Evans Bay Parade (source - WCC)

7.2 Vehicle Parking

Evans Bay Parade has a mix of time limited, and unrestricted all day kerbside parking. Off-street parking also exists in other areas outlined in Section 3.2.

Parking surveys were undertaken specifically for this project on Thursday 30 March (7.00am-2.00am) and Saturday 1 April 2017 (7.00am-2.00am). The study area was divided into 19 sections along Evans Bay Parade and Oriental Parade. These sections are shown in Figure 30, Section 4.4. The survey results for Thursday and Saturday are shown below in Table 5 and Table 6 respectively.

Table 5 - Vehicle Parking, Thursday 30/03/17

Time	Area																			Grand Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
2:00:00 a.m.	33	11	8	0	16	1	14	0	11	41	10	0	9	9	11	5	13	19	19	230
7:00:00 a.m.	34	13	7	9	29	40	6	11	32	8	12	10	10	14	18	8	8	269	8	269
8:00:00 a.m.	34	19	5	9	13	21	5	8	30	10	9	11	9	11	16	6	7	223	7	223
9:00:00 a.m.	35	21	6	8	6	23	5	8	28	8	10	10	11	9	15	6	6	215	6	215
10:00:00 a.m.	35	23	6	6	4	16	6	10	27	11	11	12	10	12	14	5	7	215	7	215
11:00:00 a.m.	35	25	6	5	4	16	5	12	26	11	8	12	11	14	15	6	6	217	6	217
12:00:00 p.m.	36	27	5	6	1	13	5	12	25	11	12	16	13	15	15	7	7	226	7	226
1:00:00 p.m.	34	28	5	6	1	12	6	11	26	12	14	17	11	11	16	5	7	222	7	222
2:00:00 p.m.	34	28	6	7	1	12	6	14	25	12	8	14	11	11	12	6	8	215	8	215
3:00:00 p.m.	34	23	6	6	1	10	7	14	34	7	12	17	12	12	10	6	7	218	7	218
4:00:00 p.m.	32	22	9	6	1	10	4	12	32	10	11	14	12	10	9	6	5	205	5	205
5:00:00 p.m.	32	18	8	9	1	10	5	13	35	7	12	9	11	14	13	9	7	213	7	213
6:00:00 p.m.	31	11	7	8	1	11	2	7	31	6	19	7	11	14	15	7	9	197	9	197

Table 6 - Vehicle Parking, Saturday 1/04/17

Time	Area																			Grand Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
2:00:00 a.m.	29	0	13	6	18	16	0	0	0	11	32	10	11	8	10	8	29	13	3	217
7:00:00 a.m.	29	5	10	3	1	20	7	9	8	1	37	13	10	8	11	3	26	9	7	217
8:00:00 a.m.	29	6	10	3	1	19	9	8	5	1	36	13	20	10	11	2	27	8	7	225
9:00:00 a.m.	27	8	10	5	1	19	8	7	9	1	34	13	13	9	9	4	22	7	6	212
10:00:00 a.m.	27	4	11	6	1	18	9	8	6	1	27	12	18	9	8	4	21	6	7	203
11:00:00 a.m.	30	5	8	8	1	22	12	3	7	1	28	13	14	5	11	4	20	10	7	209
12:00:00 p.m.	31	5	8	7	1	13	12	4	6	1	29	11	17	6	10	7	21	7	7	203
1:00:00 p.m.	30	13	6	7	1	13	12	3	7	1	27	10	16	8	11	6	21	5	8	205
2:00:00 p.m.	33	6	8	5	1	14	12	4	6	1	27	11	15	10	8	7	24	11	11	214
3:00:00 p.m.	35	5	10	7	1	13	9	6	5	1	26	8	15	9	8	10	20	9	11	208
4:00:00 p.m.	30	4	9	5	1	13	8	6	5	1	23	8	16	4	9	13	23	9	10	197
5:00:00 p.m.	27	1	10	3	1	11	12	3	5	1	26	10	12	7	11	12	25	9	11	197
6:00:00 p.m.	27	1	9	6	1	8	11	4	5	1	29	9	10	5	10	6	25	11	9	187

Figure 33, below, shows the length of time that non-residential vehicles were parked on Evans Bay Parade between 7.00am and 6.00pm on Thursday 30 March and Saturday 1 April 2017.

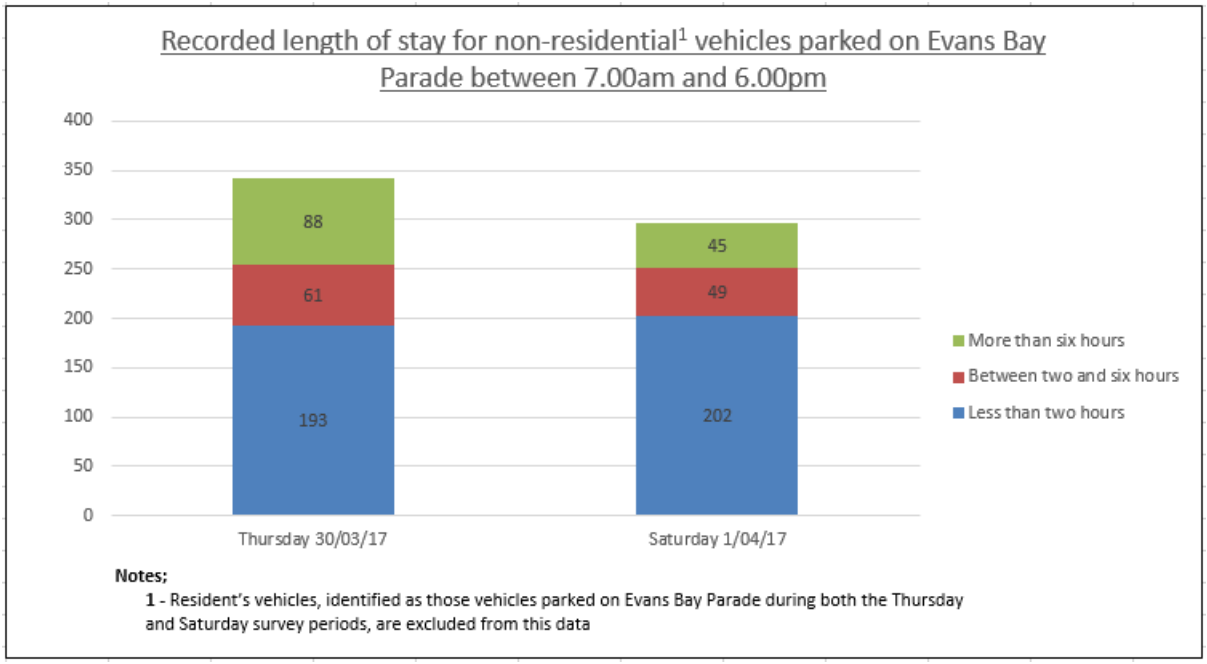

Figure 33 - Recorded length of stay for non-residential vehicles parked on Evans Bay Parade between 7.00am and 6.00pm

Figure 33 shows that the majority of non-residential parking demand on Evans Bay Parade is for less than two hours. A total of 88 non-residential vehicles were recorded as parked for more than six hours during the Thursday survey period, which is likely a mixture of parking for employees of businesses along Evans Bay Parade and commuter parking.

If specific areas are identified for parking removal in the short listed cycleway options, further analysis of the data can determine the residential parking demand and recorded length of stay for non-residential vehicles within these specific areas to inform detailed design.

In summary;

- The total parking demand varied between 187 and 269 spaces, not exceeding 50% of the approximately 450 parking spaces available.
- Of this, background residential parking demand is approximately 220 spaces along Evans Bay Parade.
- Parking demand at the northern end of the study area (between Balaena Bay and Carlton Gore Road) was highest on Thursday, with approximately 70% parking occupancy. This area has an estimated residential demand of some 50 spaces (50% occupancy). The results indicate some demand by people commuting to work in the central city, especially in Area 2 where limited residential parking demand was recorded.
- There appears to be little commuter parking demand south of Balaena Bay.
- Parking occupancy between Greta Point and Balaena Bay was highest on Saturday, when parking demand was around 50% of the available spaces. This indicates that some parking could be removed with minimal impact on the availability of parking for users.
- Parking demand in Greta Point was up to 100% of the available spaces on Thursday, and approximately 60% on Saturday. Removal of parking would impact users in this location.
- Parking occupancy at the southern end of the study area (adjacent to the Evans Bay Marina) was highest on Saturday, when parking demand was around 50% of the available spaces. This

indicates that parking could be removed with minimal impact on the availability of parking for users.

7.3 Future Changes in Transport Demand due to Land Development

There are no known developments proposed within the study area, although infill residential housing projects are expected to continue.

Related transport projects, including cycleways (Kilbirnie, Bay Connections- Cobham Drive and Bay Connections – Oriental Bay) Let's Get Wellington Moving and N2A, are expected to change the vehicle and cyclist movements along Evans Bay Parade. These proposals have been outlined in Section 2.14.

Further changes in traffic volumes may result from long term developments including proposed housing developments in Miramar and Kilbirnie, and the proposed Wellington Airport runway extension. It is likely that the majority of traffic generated by these proposed developments will be accommodated by State Highway 1 through the Mt Victoria Tunnel, although this will be confirmed during the consenting process for these proposals.

7.4 Vehicle Queuing at Intersections

There are no known queuing issues at intersections within the study area, although restricted sight distance at these intersections may cause minor delays for some drivers.

7.5 Turning Counts

No vehicle turning movement surveys have been undertaken for inclusion in this issues paper. As noted above, the recorded traffic volumes indicates that capacity is not expected to be an issue at these intersections. Any changes to the cycle facilities around these intersections are unlikely to result in significant delays for drivers at these intersections.

8 Issues and Opportunities

The Urban Cycleways Programme is clearly not just about cyclists. Its aims are much greater – *to provide benefits to all transport users, to best meet the needs of the community and create a more liveable city*.

The issues and opportunities identified to date for the Evans Bay Parade cycleway corridor are summarised as follows. It is envisaged that further issues will be identified through engagement with the local community and key stakeholders.

Section	Issue/Opportunity
WCC Plans and Policies	A number of previous investigations have been undertaken for various sections of The Great Harbour Way shared pedestrian and cycleway around the coastline of Wellington Harbour. Investigation of options for this study shall look for opportunities to integrate with the Great Harbour Way proposal where appropriate, to give effect to that vision and reduce redundant work.
	Other adjacent cycle projects such as the Kilbirnie Connections, Cobham Drive, Oriental Bay projects, and the outcomes from the Ngauranga to Airport Corridor Study will also have an influence on option investigation for this study. Liaising with adjacent WCC Cycling Programme Package teams will be beneficial to ensure that there is a shared vision in terms of the look and feel of the route treatments
	The Ngauranga to Airport study planned improvements may include capacity, walking and cycling improvements along Ruahine Street and Wellington Road, and the duplication of the Mt Victoria Tunnel. This could also lead to improved facilities on Cambridge and Kent Terrace. This is the main alternate route to travel between the Eastern Suburbs and the city centre, and these improvements are likely to impact traffic volumes along Evans Bay Parade. There may also be a reduction in the number of commuting cyclists who currently choose the Evans Bay route over the Mt Victoria Tunnel route to the city.
	There are noted sites of significance (including Maori, heritage and special housing areas) within the study area that should be noted during option selection and design stages.
	If works were proposed in the coastal marine area, then the overall consent status could be Discretionary Activity, including if reclamation was required to create a suitable route alignment. The Discretionary Activity consent status could be triggered by: • Reclamation (Rule 4) • Construction of a structure parallel to Mean High Water Springs (Rule 25) • Destruction or disturbance of the foreshore or seabed (Rule 40)

	• Deposition of substances on the foreshore or seabed (Rule 48) • Potential for discharges associated with construction (Rule 61) A further assessment will be required where then is a more detailed route design available
	Evans Bay Parade is expected to be affected by all sea level rise scenarios. If no remediation is undertaken, the current road would be flooded as a result of a 1.5m to 2.2m rise in sea level, and minor flooding is likely occur in some areas with sea level rise greater than 0.6m.
Existing Road Corridor	Opportunities to integrate pedestrian and cycling improvements into any upgrade or renewal works for retaining walls and sea walls along the project extent should be investigated in the short term forward works programme with Wellington City Council's structures team.
	Kio Bay, Greta Point and Evans Bay Parade from Greta Point to Cobham Drive are noted to have moderate liquefaction potential. No flooding risks were noted in the study area.
	Slopes above Kio Bay and Weka Bay were noted to have moderate-high slope failure severity, with other slopes within the study area typically low-moderate.
	The biggest geotechnical/engineering issue is washout of backfill from behind seawalls, due to tides or waves causing rapidly changing pressures within the fill leading to internal erosion of backfill, or damage to seawalls from storm events and erosion.
	Evans Bay Parade, with its north-south orientation is one of the windiest spots in Wellington, being in the extra high wind zone. The high winds funnelling down Evans Bay Parade can be dangerous for users.
	A number of the side road intersections, coming down from the western (Mt Victoria) side of the corridor are noted as having restricted sight distance to oncoming vehicles and on-road cyclists at the intersection.
	Outside of the Greta Point residential/commercial area, which has a high concentration of driveway crossings, some with relatively high traffic volumes (i.e. Niwa); the seaside (eastern) side of Evans Bay Parade has minimal driveway crossings, representing a significant opportunity for a facility with little vehicle interaction.
	Provision of turn lanes along Evans Bay Parade varies, an opportunity exists to investigate turn movement volumes and warrants for removal of turn lanes to re-allocate road space for other users.

	Evans Bay Parade has a dominant through-traffic function and carries public transport. Speed restrictions along the route could be considered, the principles of the road hierarchy and Evans Bay Parade's role in the wider transport network shall also be balanced when considering speed restrictions.
	Evans Bay Parade is a designated over-dimension route. Design options should take into account the requirements to maintain over-dimension vehicle access.
	Sections of Evans Bay Parade have undergone some form of previous improvements to active mode facilities, however overall the route is inconsistent in terms of its treatment, with a mix of on-road facilities and shared path provision of varying width. Some sections of shared path have restricted width, particularly at the Hataitai Beach area.
	There is a lack of side road pedestrian and cyclist connections across Evans Bay Parade to the eastern side facilities.
	There is less than adequate signage of the existing shared path along the route. Clarity of the rights of cyclists to use different routes (i.e. shared paths, cycle lanes, and off-road routes is required.
	The Cog Park shared path is unsealed and the surface potentially undesirable for some users.
	There is no obvious way to increase the existing corridor road space unless construction of a seaside structure in the CMA, or excavation of the hillside escarpment is undertaken.
	According to the Greater Wellington Council's *State of the Environment Study* the Evan's Bay water body has one of the highest level of contaminants from urban storm water runoff. Evan's Bay is a principal road on average carrying up to 12,000 vehicles per day and issues exist related to the roading infrastructure where heavy metals from high-volume traffic roads contaminate water flowing directly into the harbour.
	A holistic urban design approach is needed to bring the WCC Cycling Programme in line with WCCs' wider urban design policy objectives. In particular, water sensitive urban design (WSUD) and ecological renewal could be incorporated into the Master Plan to ensure the WCC Cycling Programme addresses Wellington's natural environment issues.
	The WCC Cycling Programme address some aspects of the WCC Urban Growth Plan, however, the project should not be limited to transport improvements alone. ***"Protecting the City's natural setting and reducing the environmental impacts of development and transport"*** needs to be considered**.**

	As part of the urban design approach, consideration should be given to the local historic features and cultural values of the area and how a narrative of these can be told in the design of the cycleway and its associated features.
People Walking	There are areas of different concentrations of pedestrian activity, with both commuter and recreational movements along the route, as well as sites of congregation for shorter trips within residential and commercial areas. Most pedestrians walk on the shared path on the eastern (sea) side of Evans Bay Parade, rather than on the footpath on the western side of the road. This pedestrian demand on the shared path results in conflict with other path users.
	Areas of the western side of Evans Bay Parade have short sections of footpaths for residential dwellings adjacent to on-street parking. These sections of footpath are not linked to a continuous facility, nor are there many facilities for pedestrians crossing Evans Bay Parade to cross to the facilities on the eastern side.
People Riding Bikes	There are different types of cyclist which travel along the route, both commuter and recreational, and within these groups varying levels of experience and confidence, ranging from children up to the experienced road cyclist. Each of these users have different trip purpose, travel speeds and preference for facilities; one user may prefer an on-road facility where the other would prefer a shared path or off-road cycle facility. It is likely there is a suppressed demand of less confident cyclists. Consideration of the different user types when investigating options for cyclists will need to take into account the different desires of these users, and the potential increase in demand of less confident cyclists as a result of facility improvements.
	Evans Bay Parade, between Cobham Drive and Greta Point, and within Greta Point, has a LOS of B, which indicates that most cyclists would be moderately satisfied with this route. Evans Bay Parade, between Greta Point and Carlton Gore Road, has a LOS of D, which indicates that most cyclists would be a little dissatisfied with this route.
	Further cyclist counts are recommended to provide more detailed commuter and recreational cyclist numbers at locations within the study area. Two locations identified for cyclist counts are; • Point Jerningham • Greta Point
	The current on-road cycle lanes are narrow and in places, adjacent to narrow kerbside parallel parking with no buffer zone to opening car doors.

	Most cycle trips use Evans Bay Parade as a route to commute between the city and the eastern suburbs, rather than local trips to destinations such as Greta Point or Hataitai Beach. As a result, weekday cycle trips were very directional; the majority of cyclists travel toward the city in the morning and vice versa in the evening.
	Where the shared path is provided south of Greta Point, most cyclists chose to cycle on the road rather than on the shared path.
	A small number of cyclists (illegally) cycle along the footpath rather than using the on road cycle lanes where there is no shared path available.
	Cyclists are over represented in the crash history (8% of traffic but 32% of crashes).
	Both cyclist crashes at the Oriental Parade / Carlton Gore Road intersection involved on-road cyclists travelling west towards the city. Both cyclists were cut-off by vehicles turning into Carlton Gore Road during the weekday morning peak. This indicates a potential traffic safety issue with this movement.
People Using Buses	As most bus passengers board the bus on the western (hill) side of Evans Bay Parade, conflict between cyclists and bus passengers on the eastern (coastal) side of Evans Bay Parade will be mostly limited to passengers departing the bus, which reduces the bus waiting time and has less pedestrian/cyclists interaction at stops on shared paths.
	The proposed Wellington Future Bus Network indicates an extension of the bus services to now introduce weekday evening peak and weekend services. However these are generally considered low frequency services.
	The current bus patronage data shows low patronage at the stops on the eastern side of Evans Bay Parade. This may represent an opportunity to liaise with GWRC to review bus stop numbers, locations and walking catchments along the route.
	The majority of the current bus stop locations are in-lane stops, which require vehicles to stop and wait for a bus to load/unload, whilst the bus is also parked across the cycle lane. Bus stop layout improvement options could be investigated to remove the conflict with through traffic, and the integration with pedestrian and cyclist facilities along the route
People Using Vehicles	Parking at the northern end of the study area (between Balaena Bay and Carlton Gore Road) is partly occupied during the week by people commuting to work in the central city. However, there appears to be little commuter parking demand south of Balaena Bay.

	Up to 20% of the existing parking between Greta Point and Balaena Bay, and adjacent to the Evans Bay Marina, could be removed with minimal impact on the availability of parking for users.
	Parking demand in Greta Point is high, and removal of parking would impact users in this location.
	Average vehicle speeds on Evans Bay Parade exceed 50 km/hr throughout the day. Speed control measures could be investigated to reduce vehicle speeds and improve the safety of vulnerable road users along this route
	Areas of existing kerbside parking have been shown to encroach into the on-road cycle lane, requiring cyclists to enter the traffic lane when passing the parked vehicles.
	Evans Bay Parade carries reasonably high traffic volumes. Traffic demand along Evans Bay Parade can vary dependent on the season, with the summer months bringing more demand for visits to the Oriental Bay and Evans Bay areas, particularly in the weekend, which also coincides with increased active mode trips. Evans Bay Parade is also used as an alternate route to the Airport and eastern suburbs, particularly in the event of congestion or delays on the State Highway 1 route through the Mt Victoria Tunnel, which is consistent with its purpose in the road hierarchy. The future use of Evans Bay Parade should be investigated (in relation to the N2A and Let's Get Wellington Moving studies) to determine operational requirements and opportunities for change along the route for drivers.
	The existing vehicle crash rate is marginally higher than the predicted crash rate. Some 71% of vehicle crashes have rear end/obstruction (50%) and loss of control (21%) as the crash type. The rear end/obstruction crashes appear more related to property access and U-turn manoeuvres rather than intersection turning movements. The loss of control crashes appear to be focussed near the reverse curves adjacent to the Evans Bay Yacht and Motor Boat Club, and Balaena Bay (near the off-street carpark).

Additional issues and opportunities identified by working group participants, and members of the public that have not been covered previously within this report are attached in Appendix E.

9 Applicability

This report has been prepared for the exclusive use of our client Wellington City Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

Tonkin & Taylor Ltd

Report prepared by:

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Billy Rodenburg

Transportation Engineer

.....

Ryan Dunn

Senior Transportation Engineer

Authorised for Tonkin & Taylor Ltd by:

.....

Bruce Symmans

Project Director

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Appendix A : Location Plan & Urban Environment Maps

North

Scale @ A4
1:16000

Scale Bar:
0 100 250 500m

LOCATION PLAN - CYCLEWAY EXTENTS

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KEY

- M71 Maori Sites (District Plan)
- Heritage Buildings (District Plan)
- Heritage Sea Walls (District Plan)
- Heritage Tree (District Plan)
- Car parks
- Education
- Recreation facilities
- Commercial
- Residential properties with access onto Evans Bay Parade
- Pedestrian crossing point
- Vehicle entry/exit point
- Existing off-road shared cycle/pedestrian path
- Existing on road cycle lane
- Existing beach access

Omaru Kai-kuru
Point Jerningham

Roseneath School

Carlton Gore Road

M71 Te Wai-hihere Pa

Oriental Parade

Evans Bay Parade

Dog off leash area

Little Karaka Bay

Balaena Bay

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North

Scale Bar:
0 25 50 100m

Maida Vale Road

Balaena Bay

Weka Bay

Snapper Point

Kio Bay

Grafton Road

Evans Bay Pde

KEY

- M71 Maori Sites (District Plan)
- Heritage Buildings (District Plan)
- Heritage Sea Walls (District Plan)
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North

Scale Bar:
0 25 50 100m

KEY

- M71 Maori Sites (District Plan)
- Heritage Buildings (District Plan)
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- Vehicle entry/exit point
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- Existing on road cycle lane
- Existing beach access

Evans Bay Pde

Island in Median strip for bike crossing point

End of existing bike path

NIWA

Island in Median strip for crossing point

Greta Point

Evans Bay Patent Slip (Former)

Cog Park Dog Exercise Area

Island in Median strip for crossing point

Evans Bay Sea Wall

Zebra Crossing Point

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North

Scale Bar: 0 25 50 100m

Cog Park

Rata Road

Zebra Crossing Point

Hataitai Beach Toilet and Changing Rooms

Evans Bay Boatsheds

Overtoun Tce

Belvedere Road

Evans Bay Pde

Evans Bay Yacht and Motor Boat Club

Evans Bay Mooring Area and Boat Storage Facility

Evans Bay Marina

Campervan Park

KEY

- M71 Maori Sites (District Plan)
- Heritage Buildings (District Plan)
- Heritage Sea Walls (District Plan)
- Heritage Tree (District Plan)
- Car parks
- Education
- Recreation facilities
- Commercial
- Residential properties with access onto Evans Bay Parade
- Pedestrian crossing point
- Vehicle entry/exit point
- Existing off-road shared cycle/pedestrian path
- Existing on road cycle lane
- Existing beach access

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North

Scale Bar: 0 25 50 100m

Appendix B: Crash Reports

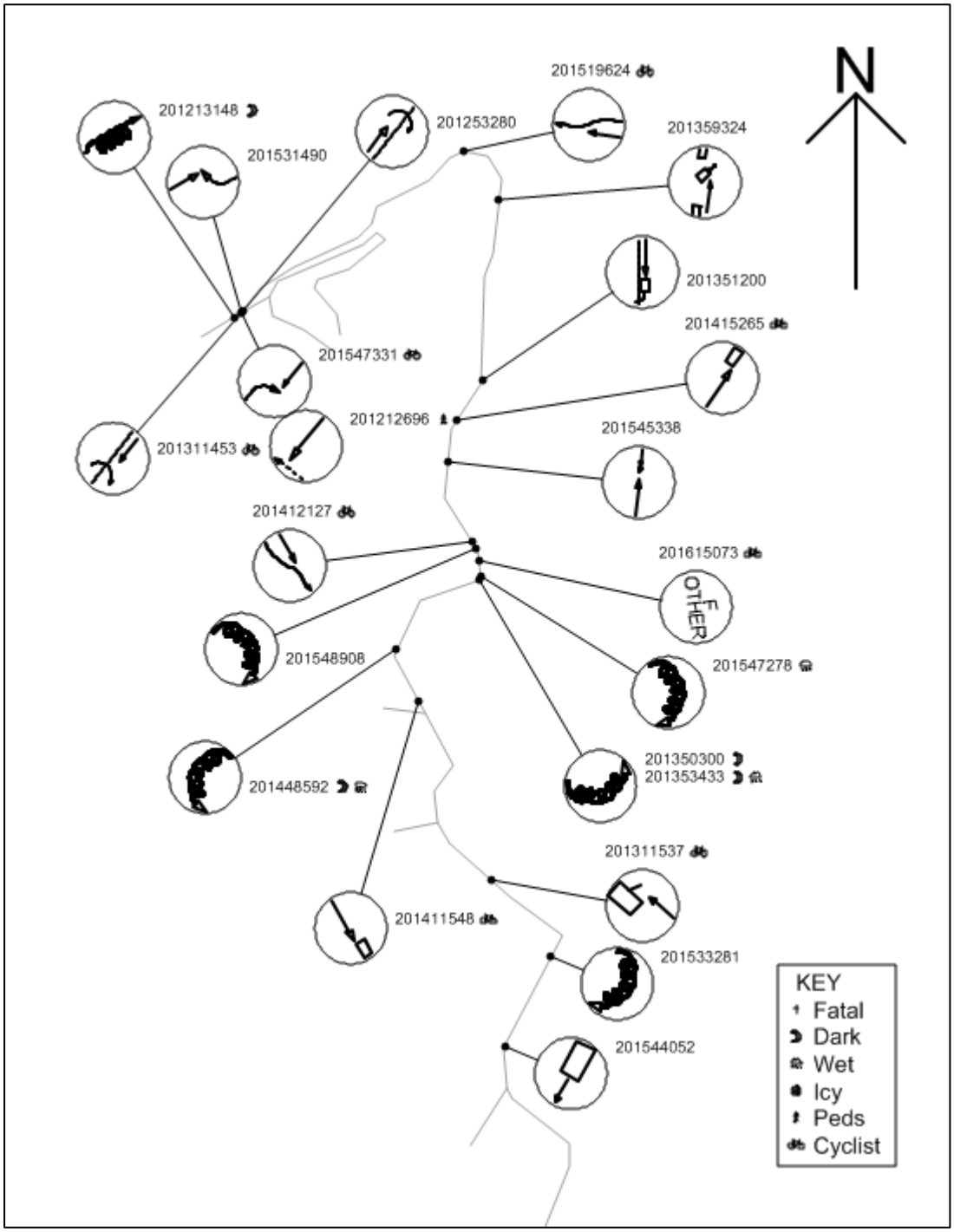


Figure 34 - Collision diagram (north end of study area)

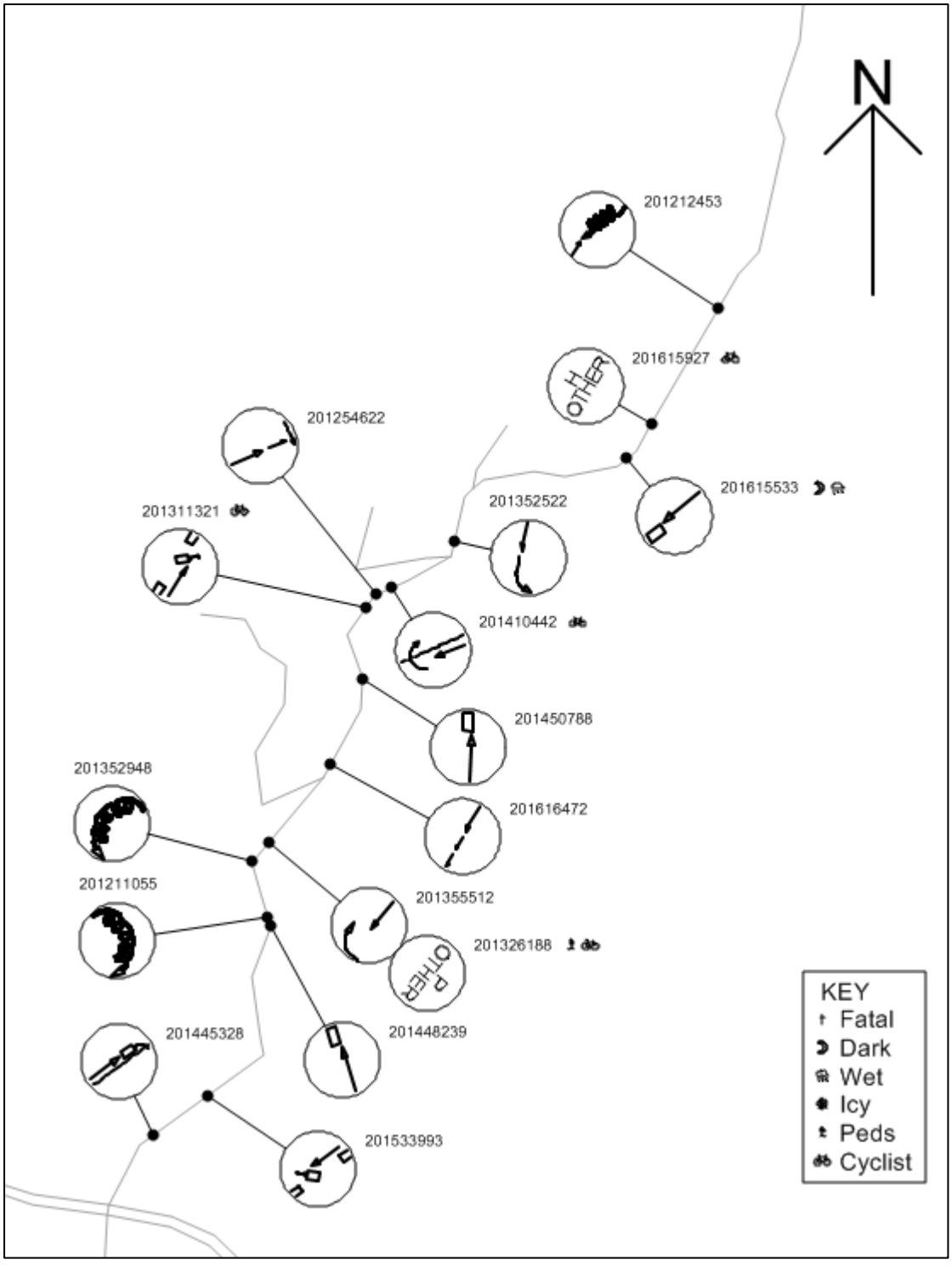


Figure 35 - Collision diagram (south end of study area)

Appendix C: Cyclist LOS using the Danish Method

Tonkin+Taylor **Cyclist Level of Service (LOS) - Danish Method***

*Model as detailed in *Pedestrian and Bicycle Level of Service on Roadway Segments* , Jensen, 2007

Evans Bay Parade (Cobham Drive to Greta Point)			
Parameter	**Value**	**Unit**	**Description**
AREA	0.0557		type of roadside development or landscape (residential = 0.0557, shopping = -0.3400, mixed = -0.0334, rural fields = -0.0196, rural forest = 0.3369)
MOT	1074		number of motor vehicles per hour in both directions
LBUF	2	m	width of buffer area between bicycle facility and drive lane on the nearest roadside
SPEED	54	km/hr	average motor vehicle speed
PED	54		passed pedestrians per hour on nearest roadside at 20 km/h riding speed
PARK	12		number of parked motor vehicles on nearest roadside per 100 m
PATH	1.5	m	width of bicycle path/track on nearest roadside[1]
ULAN	0	m	width of bicycle lane/paved shoulder (at least 0.9 m wide) on nearest roadside in urban areas
RSHO	0	m	width of bicycle lane/paved shoulder (at least 0.9 m wide) on nearest roadside in rural areas
DBL	4	m	width of nearest drive lane including bicycle lane/paved shoulder of less than 0.9 m width
RBUF	0	m	width of buffer area between footpath and bicycle facility/drive lane
SW	1		footpath on nearest roadside = 1, no footpath = 0
BUS	1		bus stop on road = 1, no bus stop = 0
LANE	0		4+ traffic lanes = 1, one to three lanes = 0

10%	10%	Very satisfied
39%	29%	Moderately satisfied
68%	28%	Little satisfied
84%	16%	Little dissatisfied
96%	11%	Moderately dissatisfied
100%	4%	Very dissatisfied

LOS **C**

Notes;

1 - This LOS model does not include a parameter for shared paths. For this LOS calculation, the 3.0m wide shared path has been approximated by a 1.5m wide cycle path (PATH) and a 1.5m wide foopath (SW), with no buffer between the cycle path and the footpath (RBUF)

Tonkin+Taylor **Cyclist Level of Service (LOS) - Danish Method***

*Model as detailed in *Pedestrian and Bicycle Level of Service on Roadway Segments* , Jensen, 2007

Evans Bay Parade (Greta Point)			
Parameter	**Value**	**Unit**	**Description**
AREA	-0.0334		type of roadside development or landscape (residential = 0.0557, shopping = -0.3400, mixed = -0.0334, rural fields = -0.0196, rural forest = 0.3369)
MOT	1355		number of motor vehicles per hour in both directions
LBUF	2	m	width of buffer area between bicycle facility and drive lane on the nearest roadside
SPEED	59	km/hr	average motor vehicle speed
PED	50		passed pedestrians per hour on nearest roadside at 20 km/h riding speed
PARK	12		number of parked motor vehicles on nearest roadside per 100 m
PATH	1.5	m	width of bicycle path/track on nearest roadside[1]
ULAN	0	m	width of bicycle lane/paved shoulder (at least 0.9 m wide) on nearest roadside in urban areas
RSHO	0	m	width of bicycle lane/paved shoulder (at least 0.9 m wide) on nearest roadside in rural areas
DBL	3	m	width of nearest drive lane including bicycle lane/paved shoulder of less than 0.9 m width
RBUF	0	m	width of buffer area between footpath and bicycle facility/drive lane
SW	1		footpath on nearest roadside = 1, no footpath = 0
BUS	1		bus stop on road = 1, no bus stop = 0
LANE	0		4+ traffic lanes = 1, one to three lanes = 0

10%	10%	Very satisfied
39%	29%	Moderately satisfied
67%	28%	Little satisfied
84%	17%	Little dissatisfied
95%	12%	Moderately dissatisfied
100%	5%	Very dissatisfied

LOS **C**

Notes;

1 - This LOS model does not include a parameter for shared paths. For this LOS calculation, the 3.0m wide shared path has been approximated by a 1.5m wide cycle path (PATH) and a 1.5m wide foopath (SW), with no buffer between the cycle path and the footpath (RBUF)

Evans Bay Parade & Oriental Parade (Greta Point to Carlton Gore Road)			
Parameter	**Value**	**Unit**	**Description**
AREA	0.0557		type of roadside development or landscape (residential = 0.0557, shopping = -0.3400, mixed = -0.0334, rural fields = -0.0196, rural forest = 0.3369)
MOT	1412		number of motor vehicles per hour in both directions
LBUF	0	m	width of buffer area between bicycle facility and drive lane on the nearest roadside
SPEED	60	km/hr	average motor vehicle speed
PED	80		passed pedestrians per hour on nearest roadside at 20 km/h riding speed
PARK	5		number of parked motor vehicles on nearest roadside per 100 m
PATH	0	m	width of bicycle path/track on nearest roadside
ULAN	1.5	m	width of bicycle lane/paved shoulder (at least 0.9 m wide) on nearest roadside in urban areas
RSHO	0	m	width of bicycle lane/paved shoulder (at least 0.9 m wide) on nearest roadside in rural areas
DBL	3.5	m	width of nearest drive lane including bicycle lane/paved shoulder of less than 0.9 m width
RBUF	0	m	width of buffer area between footpath and bicycle facility/drive lane
SW	1		footpath on nearest roadside = 1, no footpath = 0
BUS	1		bus stop on road = 1, no bus stop = 0
LANE	0		4+ traffic lanes = 1, one to three lanes = 0

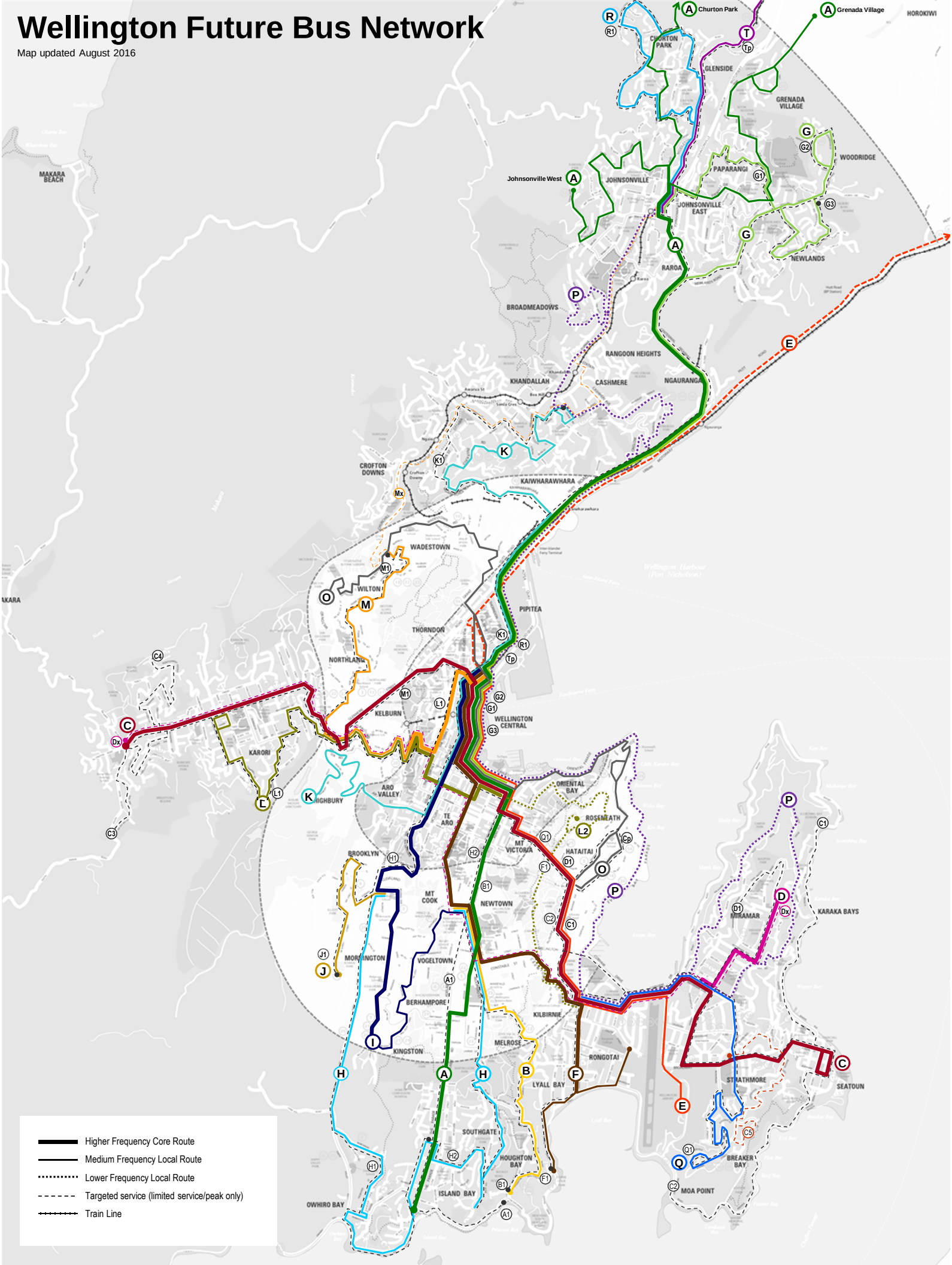
2%	2%	Very satisfied
13%	10%	Moderately satisfied
32%	19%	Little satisfied
54%	22%	Little dissatisfied
83%	29%	Moderately dissatisfied
100%	17%	Very dissatisfied

LOS **D**

Appendix D: GWRC Bus Route Information

Wellington Future Bus Network

Map updated August 2016



P) Broadmeadows, Khandallah, Evans Bay and Maupuia

P: Johnsonville – Broadmeadows – Khandallah East – Wellington – Oriental Bay - Evans Bay - Kilbirnie - Maupuia - Miramar

Local bus route serving Broadmeadows, Khandallah East, Evans Bay and Maupuia providing access to Johnsonville, Wellington and Kilbirnie.

Johnsonville Rd, Moorefield Rd, Burma Rd, Johns Sims Dr, Rajkot Tce, Kanpur Rd, Nalanda Cres, Rajkot Tce, John Sims Dr, Burma Road, Box Hill, Nicholson Rd, Dekka St, Ganges Rd, Everest St, Ranui Cres, Cashmere Ave, Mandalay Tce, Homebush Rd, Onslow Rd, Hutt Rd, Thorndon Quay, Lambton Quay, Willis St, Manners St, Courtenay Pl, Cambridge Tce, Wakefield St, Chaffers St, Cable St, Oriental Parade, Evans Bay Parade, Bay Rd, Rongotai Rd, Troy St, Cobham Dr, Miramar Ave, Maupuia Rd, Akaroa Dr, Kaikoura St, Akaroa Dr, Main Rd, Nevay Rd, Awa Rd, Para St, Miramar Ave.

How many minutes between buses?

	Weekday				Saturday		Sunday	
	Morning peak	Daytime	Afternoon peak	Evening	Daytime	Evening	Daytime	Evening
P	10-20	60	10-20	60	60	60	60	60

Appendix E: Community Identified Issues and Opportunities

To facilitate discussion on proposed improvements along Evans Bay Parade with interested members of the public, WCC have undertaken public engagement open days for the projects in the eastern study area (also including Kilbirnie, Miramar and Cobham Drive). The open days were held at the ASB Sports Centre in Kilbirnie on Wednesday 15 March between 5.00 pm and 8.00 pm and Saturday 18 March between 9.00 am and 5.00 pm.

Following these workshops a WCC facilitated community working group was formed to further discuss the proposed improvements along Evans Bay Parade. Two workshops were held to identify issues and opportunities for road users on Evans Bay Parade, occurring on the evenings of Thursday 6 April and Friday 28 April.

Community feedback has also been received via the WCC website and email services.

Table 7, below, details the additional issues and opportunities identified by members of the public within the open days, workshops and community feedback that have not been covered previously within this report.

Table 7 - Community Identified Issues and Opportunities

1	**Values**
1.1	Evans Bay Parade is highly scenic along a rocky coastline. Lookouts/pause points should be considered.
1.2	One of the best road rides in Wellington – don't want to lose the ability to ride fast. No traffic signals. Free flow for cycling – no stopping Fast/safe commute route. Confident cyclists enjoy using the road
1.3	Opportunity to create link/path along coast through the marina
1.4	Soften the urban environment – water sensitive design and rain gardens
1.5	Cyclist and pedestrian growth – ensure infrastructure will cater for future demand and developing users such as bicycle tourism, e-bikes and croc bikes
1.6	Evans Bay Parade is popular for fishing, such as at Point Jerningham.
1.7	Yacht and Kayak Clubs, Sea Scouts
1.8	Beach, swimming areas (Balaena Bay, Hataitai Beach)
1.9	Dog park
1.10	Commercial activity (Cafes, Day-care Centres, NIWA)
2	**General**
2.1	Facilities need to cater for mobility scooters
2.2	There is poor street lighting, especially in the morning and past Balaena Bay/Karaka Bay
2.3	Little funding is currently available, limiting the opportunity to undertake ambitious options such as road widening.
2.4	There are limited facilities, including cycle parking, pedestrian seating, rubbish bins and toilets, available along the route. This can create nuisance problems
2.5	Signage and markings for cyclists are limited, important to ensure all road users understand where they are supposed to be within the road environment.

2.6	The route is exposed to weather, and changing winds can cause sudden change in speed and uncontrollable sideways movement for cyclists.
3	**Paths**
3.1	There are many different users of the shared path including; pedestrians, people using businesses (Greta Point), runners, dogs walkers, fast cyclists and slower cyclists. There is conflict between people with different requirements using the path, and pedestrians can be unpredictable and veer into the path of cyclists. As a result, some fast cyclists feel safer on road.
3.2	Footpath is variable in width and often narrow, especially between Little Karaka Bay and Balaena Bay. Vegetation overgrowth and utilities on footpath, such as the café tables at Greta Point, also limit visibility and reduce usable space.
3.3	Low pedestrian connectivity across Evans Bay Parade, especially to the housing pockets in bays north of Greta Point. Locations include; Balaena Bay, Weka Bay, Kio Bay, Belvedere Road, at bus stops
3.4	Pedestrian refuge islands create pinch points for on-road cyclists
3.5	There is conflict at vehicle crossings between path users and vehicles accessing properties. It is important to show cyclists/ path users have priority.
3.6	Pavement surface is variable. Surface condition on shared path not as good as on road (Greta Point). Chip seal is not a good option for a cycleway surface. Boardwalks are slippery when wet. Concern was raised about the state of the cycle lanes rough surface, drain covers, and the debris left from slope rockfall on the hill side cycle lanes. Ponding occurs following wet weather due to the uneven surface.
4	**Bicycles**
4.1	Driver visibility to oncoming vehicles and cyclists at intersections and access ways are also a concern due to vegetation, embankments and acute angle of intersection with Evans Bay Parade, such as 288 Evans Bay Parade.
4.2	More frequent transition points are required between the carriageway and shared path. Transitions need to be appropriate design that allows cyclists to transition without needing to slow significantly. Consider redesign on cycle crossing north of Greta Point.
4.3	Existing on-road cycle lanes are narrow and cyclists feel squeezed between passing vehicles and parked cars (into the door zone) or the kerb. This is especially an issue on corners where drivers cut to get around. Car versus cyclist mentality ‘us vs them’
4.4	On road cycle facilities are not consistent (intermittent) and may be reduced or stopped in some locations to accommodate parking (such as at Weka Bay) and bus stops. There is also conflict between buses and cyclists travelling along this route.
5	**Vehicles**
5.1	Evans Bay Parade is used as through route, not destination (rat run). Traffic volumes on Evans Bay Parade (up to 14,000 vpd) are greater than that of the road hierarchy guidance (Principal Road, 3,000-7,000 vpd)
5.2	The VMS sign on Cobham Drive was discussed as it can change a driver’s route choice based on the time shown. It was observed that if the time was too long drivers would often take the Evans Bay route as opposed to the Mt Victoria Tunnel.
5.3	The right turn lane Cobham Drive traffic lights receives green during each cycle, which limits the amount of time drivers have to wait to turn onto Evans Bay Parade as an alternate route to SH1.
5.4	Not enough parking in Greta Point. Parking in Greta Point problematic for passing cyclists
5.5	Commuter parking occupies available parking spaces.

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