Supplementary Design Report

Evans Bay Parade Stage 2 (Greta Point to Cobham Drive)

Absolutely Positively
Wellington City Council
Me Heke Ki Pōneke

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Introduction

This is a supplementary design report to the overall Design Report[1] prepared for the Evans Bay Parade walking and biking project in November 2017. The whole project starts at the eastern end of Oriental Bay (near the Carlton Gore Road intersection) and finishes at the Cobham Drive intersection where it connects with the recently completed Cobham Drive bike path and footpath. The project has been split into two stages. This report considers Stage 2 which is the 1.7km section between Greta Point (north of NIWA) and the Cobham Drive intersection.

Figure 1: Evans Bay Stage 2 (Greta Point to Cobham Drive) whole route

Mana whenua Taranaki Whānui have gifted the name Te Haerenga Roa o Te Aro (long promenade or journey) for the section between Greta Point and Cobham Drive to acknowledge the journeys of the peoples of Te Aro from their arrival in Aotearoa, their journey to Taranaki, then from Taranaki to Wellington, and eventually to this point in the city.

The purpose of this supplementary report is to outline how design decisions have been reached through the concept design stage of the project. A draft was released prior to public consultation and has been updated after considering public feedback.

The report will report on the public consultation and engagement with stakeholders. The report also presents some data, updated from what was provided in the Issues Report published in June 2017.

As outlined in the 2017 Design Report, a two-way bike path and dedicated footpath on the harbour side of Evans Bay Parade was chosen as the best option for the whole route. This was agreed by the City Council's Strategy and Policy Committee in March 2018.[2]

Along the section of Evans Bay Parade between Greta Point and Cobham Drive (Stage 2), there is currently a shared path. This is inadequate due to:

- the narrowness of the path, creating the risk of conflict and potential safety issues for people on foot and riding bikes
- insufficient signs and markings at driveways
- the poor surface
- the growing numbers of people walking, running, scooting, and cycling, which further increases the risk of conflict.

Design assumptions

These design assumptions have been made for Stage 2. These have been taken from the overall Design Report and adjusted accordingly for Stage 2.

- The design will maintain a similar materials palette and so will look like the walking and biking paths on Cobham Drive and Evans Bay Parade Stage 1.
- The design will adhere, where practicable, to best practice facility design.
- The route extends from the northern end of Greta Point to the intersection of Evans Bay Parade and Cobham Drive.

[2] https://www.transportprojects.org.nz/assets/Modules/DocumentGrid/EVANS-BAY-Design-Report-DRAFT-Rev-4-p1-compressed.pdf

- Urban design and landscaping features will be integrated into the design where possible at regular points, but particularly in the Evans Bay Patent Slip area and Cog Park.
- The project works will remain within the formed road reserve area (except for Cog Park) and will not extend into the coastal marine area.
- The dedicated bike path will be at the same level and adjacent to the footpath and will include a buffer zone between the bike path and the road.
- The planned separated path is designed to make it safer and easier for people on foot and those on bikes, and to encourage more people of all ages and abilities to cycle. Confident riders and recreational group riders may still choose to ride on the road.
- Consultation on the draft design is planned and will provide an opportunity for the wider community and people who live, run businesses, commute this way, or use this area in other ways to learn more about the proposed changes and provide their thoughts. The proposed design incorporates some features that have been suggested during early discussions with businesses and organisations in this area.

In addition to the original Design Report, the project will incorporate mana whenua design principles, which are considered in Table 1 below:

Table 1: Mana whenua design principles for the project

Principle	Example	How considered for this project
Whakapapa – a sense of place	Storytelling of the past	We intend to incorporate storytelling into the design of Cog Park and the patent slip area
Wai-ora – respect the role of water	Managing run-off to the harbour	We investigated the possibility of rain garden treatment to manage road and paved surface run-off
Pūngao-ora – energy	Build in as sustainable a way as practicable	Construction methodology to be determined at a later stage
Hau-ora – optimising health and wellbeing	Provide healthy environments to sit in	We intend to provide more seats in the patent slip area and make it easier to access existing seating areas
Whakamahitanga – use of materials	Build with safe materials, recycle where possible	We intend to use sustainable materials and recycle where possible

Manaakitanga – support a just and equitable society	Make the route safe for users at all times of day	One of the key objectives of the project is to improve safety for all road and path users
Whakāhuatanga – celebrate beauty in design	Feature good design and public art where possible	We intend to incorporate public art that facilitates interpretation and storytelling at the patent slip area, and high-quality urban design

Calibre Consulting prepared the concept design for the traffic resolution and public consultation. Isthmus assisted with urban design, particularly in the patent slip area and Cog Park south of Greta Point.

Particular design locations and issues

Evans Bay Stage 2 has some interesting locations to be considered in the design which will be addressed in this report. The locations include:

- Cog Park
- Evans Bay Patent Slip
- Greta Point

The report also considers how we propose to address the following design issues:

- path widths
- driveways
- visibility
- bus stops
- pedestrian crossings and one combined pedestrian/cycle crossing
- seawalls and retaining walls
- street lighting
- accessibility improvements
- space for bike parking
- stormwater treatment and rain gardens
- trees and ecology.

Car parking is considered in the draft Parking Management Plan, which has been developed as part of the project and was also subject to consultation.

Engagement

The project team met with a range of groups and businesses in the area between November 2020 and January 2021 including:

- Heavy Haulage Association
- Wellington Cadet Centre
- Greta Point Café
- Bella Vista Motel
- NIWA
- Active Explorers Daycare
- High Five Daycare Centre
- Britannia Sea Scouts
- Volunteer Coastguard
- Evans Bay Marina Tenancy Association
- Evans Bay Yacht and Motor Boat Club
- Marrakech Café
- Greta Point Apartments

The purpose of these meetings was for the project team to gather local knowledge of the area and understand some of the desires and concerns. It was also an opportunity for these stakeholders to ask questions of the project team. The responses received have helped inform the concept designs.

Some of the issues with the current layout of Evans Bay Parade raised were:

- Conflict at driveways, particularly between people entering or exiting from driveways, and people cycling along the shared path
- High traffic speeds through Greta Point
- Difficulty in crossing the road at Greta Point
- Availability and turnover of car parking
- Narrowness of the existing shared path
- People cycling too fast on the shared path

Consultation

Public consultation on the concept designs, including proposed traffic resolutions, was undertaken from 14 September to 14 October 2021. Of the 1,032 submissions received, 63% are supportive or strongly supportive of the proposals. 33% oppose or strongly oppose. Most of the opposition to the project relates to the loss of parking.[3]

The project team considered feedback which resulted in some minor changes to the plans. The traffic resolution and designs were modified, including the following changes:

a. Space for an extra 13 on-street car parks being reinstated due to minor space reallocation through minor traffic lane and bike path narrowing.
    i. Two adjacent to the boat sheds on east side of road
    ii. Four opposite boat sheds on west side of road
    iii. Two opposite Yacht Club on west side of road
    iv. Two opposite public boat ramp on west side of road
    v. Three opposite southern end of marina on west side of road
b. Space for an extra two on-street car parks opposite Hataitai beach created by building into the reserve, proposed to be P10 to facilitate drop-off and pick-ups. Note that the grassed area is road reserve.
c. Relocation of pedestrian crossing near to Greta Point Café to a location further north, resulting in four additional car parking spaces.
d. Conversion of one on-street car park at Greta Point to provide an additional mobility parking space (P90).
e. Optimisation of the space available at the public boat ramp to provide more parking for recreational visitors to the area, particularly for water-based activities.
f. Improvements to the intersections of Rata Road and Belvedere Road to make them safe for all users, and accessible for people crossing them or accessing to or from the new pathway.

A committee paper was presented to the Pūroro Āmua / Planning and Environment committee meeting on 24 November and unanimously approved[4]. An amendment was put forward by Councillors for officers to investigate creating additional time-limited parking

[3] https://www.transportprojects.org.nz/assets/Evans-bay-stage-2/EvansBay-Engagement-Report-9Nov21.pdf

[4] Committee meeting minutes - https://wellington.govt.nz/-/media/your-council/meetings/committees/puuroro-aamua---planning-and-environment-committee/2021-11-24-minutes-papec.pdf

between Rata Road and the northern end of the dog park exercise area opposite Cog Park.

Special locations

Figure 2 shows the proposed route and overlays and zoning identified in the current District Plan. Works in the formed road are likely to be a permitted activity, which applies to most of the route. Earthworks outside the formed road, in the Open Space A zone, and the Evans Bay Patent Slip area, will likely require a resource consent as a Discretionary Activity.

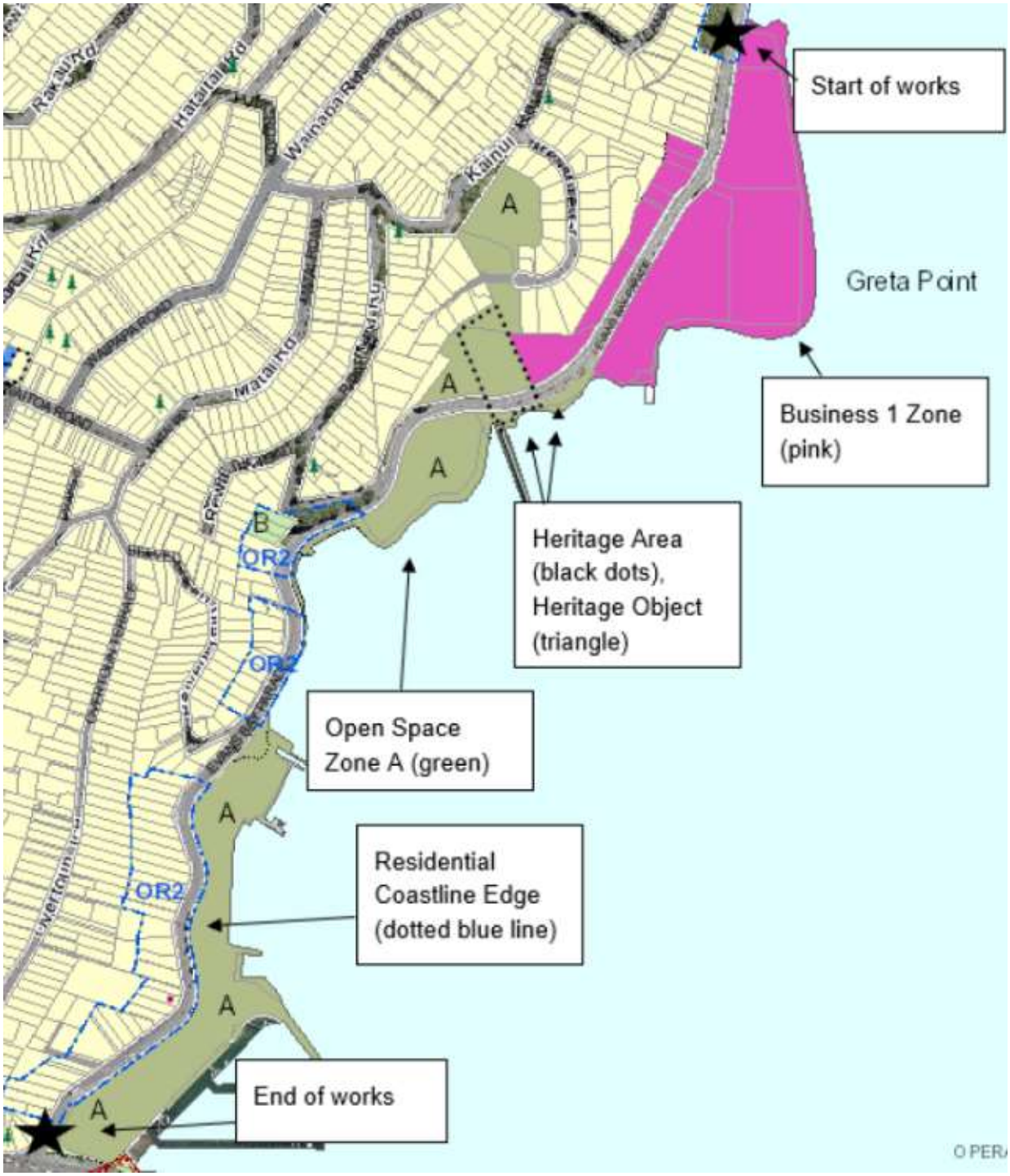

Figure 2: Wellington City Council District Plan

Cog Park Reserve

Cog Park is a medium-sized reserve on Evans Bay Parade located between Hataitai Beach and Greta Point. The Wellington Cadet Centre is based here, as well as several storage sheds for boats, kayaks, etc. It provides active and passive recreation opportunities, as well as access to the water. It has a tennis/basketball court and is the location for a circus some years.

Cog Park is also the site of the historic flying boat jetty (bottom of image below) where flights operated to and from Sydney in the 1950s.

Figure 3: Aerial imagery of Cog Park

There is a lime-chip shared path through the middle of the park, a paved footpath around the road edge, and a gravel path around the harbour edge. The area was most recently landscaped in 2007.

The park is busy on warm, sunny, still summer days, but relatively quiet otherwise. An observational study was undertaken over four days in December 2020.

The image below indicates how the park space was used on the busiest day of the survey period. The western part of the park closest to the road is relatively quiet compared to the eastern part where people of all ages participate in a range of passive and active activities.

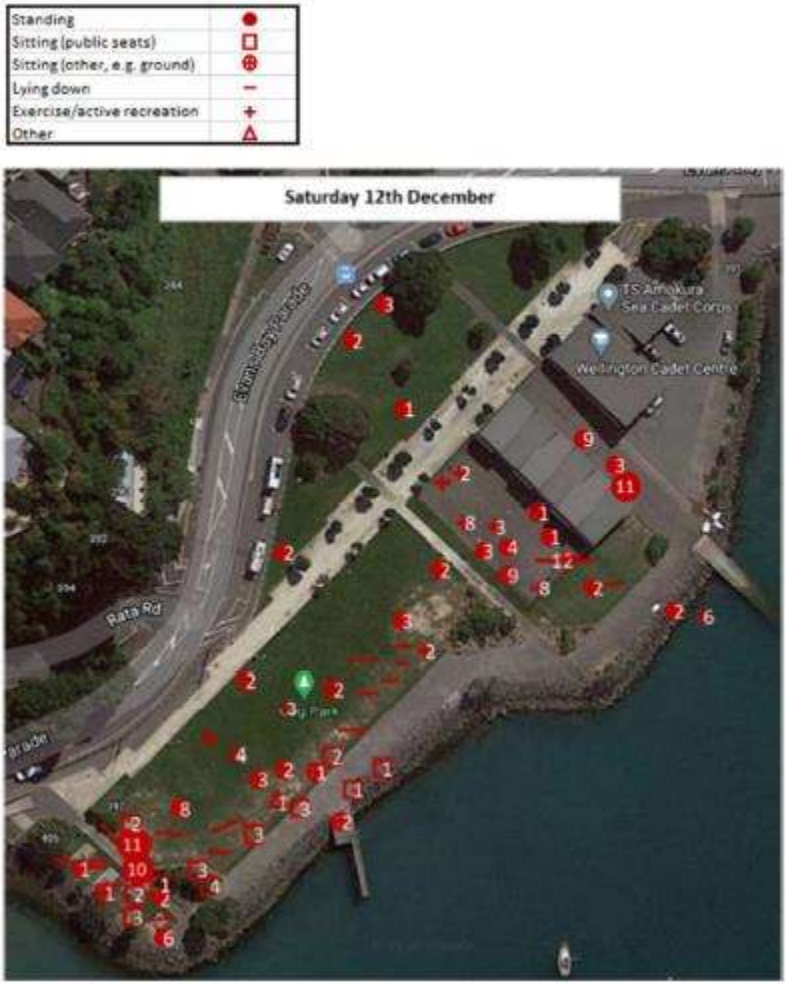

Figure 4: Usage of Cog Park on a sunny Saturday in December 2020

The study also included a count of people travelling through the park. Most were walking along the central path, with reasonable numbers of people cycling and running.

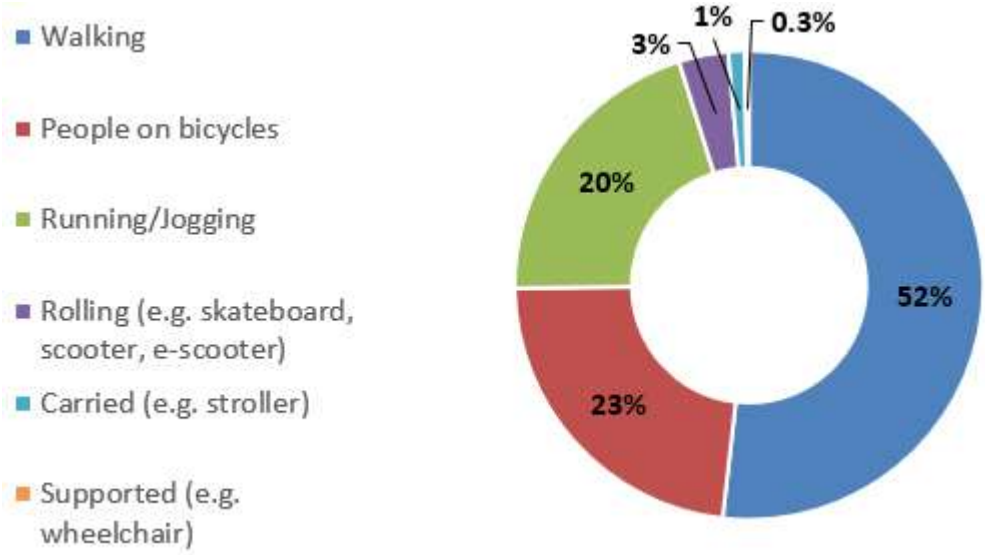

Figure 5: Cog Park users travelling through the park

The central path was the most common choice for people cycling through the park, as shown below.

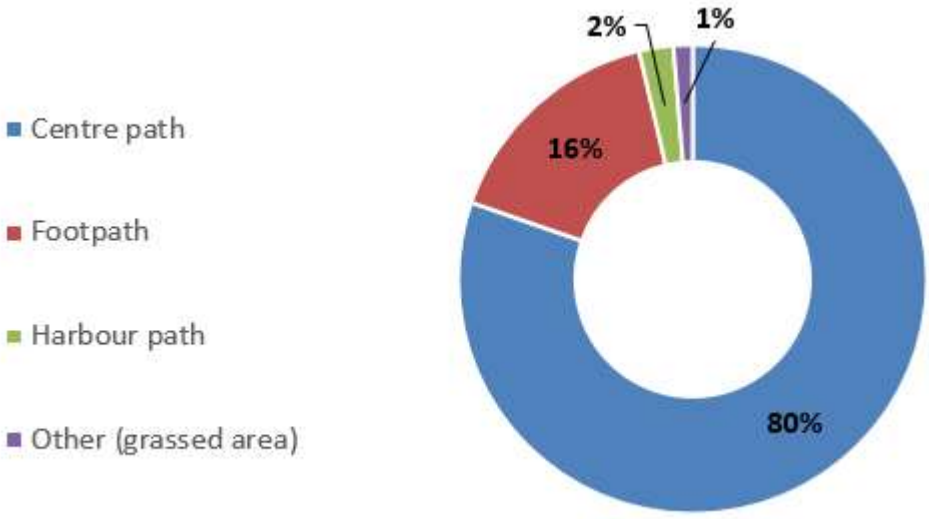

Figure 6: Cycling routes through Cog Park during survey period

There were eight possible options for the bike path through or around Cog Park which the project team has considered. These options are outlined below, alongside the decision whether to short-list or not.

Table 2: Options for Cog Park bike path alignment

Option	Progress to short-list?	Reason to discount
1. Around roadside perimeter of park – remove car parking	Yes	
2. Around roadside perimeter of park – encroachment into park	No	Too much damage to mature pohutukawa trees, potentially leading to removal
3. Around roadside perimeter of park – move car parking closer to traffic lanes to create space	Yes	
4. Through Cog Park – pave existing shared path	No	Existing path too narrow to safely provide for people on foot and on bikes now and in the future. Inconsistent with rest of route.
5. Through Cog Park – widen and pave shared path	Yes	

6. Through Cog Park – two-way bike path separated from the existing lime chip path, which becomes a footpath	Yes	
7. Split direction; northbound around perimeter, southbound through Cog Park	No	Not clear for park users, or people walking/cycling through
8. Around coastal perimeter of park	No	Indirect route More disruptive to Cadet Centre etc operations

The short-list of options was then considered by the wider project team in April 2021 and it was decided that option 6 would be the preferred option to take to public consultation. This was with the expectation that it could be designed in a way that would encourage people to ride slower than on other sections of the route.

Isthmus was tasked with preparing a suitable design for this option. Their objectives were to come up with a design that:

- encourages people cycling or scooting to ride at a reduced speed (under 20 km/h) through the park without discouraging them from riding the path at all
- uses surface treatment and markings to highlight conflict areas where the bike path crosses a footpath
- considers the layout of pohutukawa trees and their impact on the bike path and footpath
- considers natural stormwater treatment such as rain gardens and swales.

Final designs will depend on cost and how easy or feasible it is to construct, as well as input from the public during the consultation phase.

Patent slip and around

Evans Bay is a large, sheltered inlet housing Aotearoa New Zealand's first patent slip, which operated from 1873 as the centre of Wellington's large-scale shipping maintenance and harbour infrastructure.

The first large-scale underwater jetty construction in Aotearoa New Zealand, Evans Bay Patent Slip consists of two slipways built in 1873 and 1922 to accommodate the hauling of large ships onto land for maintenance and repairs. A remarkable feat of Victorian engineering and early Wellington city's development aspirations, the patent slip was planned in the mid-1860s – responding to a predicted increase in international shipping traffic due to the proposed construction of the Suez and Panama Canals – and operational from May 1873 when the 316-tonne barque Cyprus rode up the slipway for the first time.

A well-used part of Te Whanganui-a-Tara Wellington Harbour, with many hundreds of vessels repaired and maintained at the slipway for just over 100 years until its decommission in 1980; the 200-tonne, 55-metre cradle ran on wheels along tracks to the water, with a larger 62-tonne chain for hauling vessels up and a smaller 8-tonne chain for lowering vessels off the slipway, both on a seven-cogwheel winch powered by two 25-horsepower steam engines. The former heavy maritime industrial complex that had developed around the slip: the winch houses and boiler rooms, associated dwellings, store, mess-room, inspector's office, carpenter's shop, and blacksmith's shop have all since been demolished, with a high-density residential area developed on the hill above, by Kainui Reserve.

Remnants of the two timber jetties and the two concrete slipways and iron railings are still visible inclining out of the sea and continue on the far side of the road. A row of timber posts indicating the line of the No. 1 slipway (with interpretation panels on them) and the main cog of the No. 1 slipway engine, a reinstated feature of the interpretation, along with two dollys that used to run on the rails, evoke the huge scale of the slip operations.

Even in its vestigial form, Evans Bay Patent Slip is recognised for its maritime, engineering and historical significance on local, national and international levels: Heritage New Zealand Pouhere Taonga has listed the site as a Category 2 for its historic significance;

the New Zealand Archaeological Association has the site listed under R27/140; the Greater Wellington Regional Council has protections over the No. 1 and No. 2 slipways (within the Coastal Marine Area) and the remaining piles and jetty; and Wellington City Council has protected the land-based Evans Bay Heritage Area and structures under the current District Plan.

Figure 7: Aerial imagery of patent slip area

The Council is intending to remove part, or all, of the patent slip No.2 jetty for health and safety reasons.

The area's known Māori history is relatively sparse. There is evidence of settlement on the ridge lines above the patent slip, predating the arrival of Taranaki Whānui. Early maps show an unnamed pā roughly where the present day Kainui Reserve is situated. However, there is no evidence of occupation along the beaches. This may be because prior to the 1855 earthquake the beach was not wide, and the prevailing winds hit the area more than they do the eastern side of the Miramar Peninsula where there were beachside

settlements. The area would have been used for food gathering to support the pā on the ridge lines.

The colonial-era construction of the patent slip from the beach inland and from the beach into the sea would have had some impact on Māori. From the beach into the sea there would have been disturbance of a food gathering area but one that had already been unsettled by the 1855 earthquake.

There is no written interpretation on the seaward (eastern) side of the road, although the rails of patent slip No.2 are visible on the footpath, as pictured below. Unfortunately, the footpath is substandard where it intersects with the slipway and this is something we want to address as part of the project. The location of the rails of patent slip No.1 is represented by a line of tactile markers.

Figure 8: Footpath over patent slip No.2

We recognise this area as being a key location for investing in creating an attractive and inviting place. As part of this project, we propose to create a more desirable space here for people to linger and find out more about the history of the patent slip and the wider area, or to simply enjoy the harbour views. The improvements will include:

- interpretation (through artistic treatment and/or information panels)
- paving or decking to make the space more attractive and accessible

- new seats
- bike and e-scooter parking
- wayfinding to direct people across the road to see more of, and learn more about, the patent slip
- landscaping
- other possible amenities including drinking fountains and rubbish bins.

The image below demonstrates what might be possible.

Figure 9: Rendered plan illustrating possibilities for patent slip area

We are collaborating with Te Aro Pā Trust and Port Nicholson Block Settlement Trust to understand more about mana whenua history in the area, and how this can be included in the design.

Improvements of the patent slip and dog park areas on the hill side of the road are out of scope for this project. However, wayfinding or other such treatments on the seaward side will encourage people to cross the road and explore the rest of the patent slip area.

Greta Point

Greta Point has changed considerably in the last 20 years. It is a mixture of residential and commercial development and is home to NIWA's Wellington office and research facility. Most of the businesses and organisations we met with are based at Greta Point.
Because of the changing land use, there is much more activity in the area than previously. Reducing speed limits was out of scope for this project, but we do propose to implement a 'Slow Zone'. This will be similar to the one recently implemented on The Esplanade at Island Bay. It is a reminder to motorists to reduce their speed as they travel through a more built-up area, and that they can expect to see more people.

Figure 10: Island Bay example of a 'Slow Zone' - road marking and signage

There will be three raised pedestrian crossings through the Greta Point 'Slow Zone' to reduce speeds and enable people to cross more easily from one side to the other.

The area is of contemporary significance for Taranaki Whanui. Te Aro Pā Trust has its papakāinga housing located at Greta Point. Descendants of Taranaki Whanui settled at Te Aro Pā at what is now the northern end of Taranaki Street. By a land swap they gained land at Waimapihi/Polhill Gully. Eventually what was left was a holding which was swapped with the Council. In return, land at Greta Point was received land at Greta Point. Here, a papakāinga has been built, to house descendants of Taranaki Whānui.

Design considerations

Widths

The widths of different elements of the project are outlined in the overall Design Report (2017). The table below is from that report.

Element of Design	Design Dimensions	Recommended Dimensions from Design Guidance		
		Absolute Minimum	Desirable Minimum	Guidance
Footpath	**Seaward side:** 1.8–5.6 m **Hill side:** 1.2[3]–2.1 m	1.8 m	2.0 m	WCC
		1.5 m	2.7 m	NZTA (PPDG)
		1.5 m	2.0 m	Austroads
Cycle path (two-way)	2.0–3.0 m	2.5 m	--	WCC
		2.0 m	2.5 m	Austroads
		3.0 m	3.5 m	CCC
Buffer zone (to traffic lane)	0.3–0.5 m	0.6 m	--	WCC
		0.6 m	1.0 m	Austroads
		0.85 m	1.0 m	CCC
Buffer zone (to parallel parking)	0.8–1.5 m	1.0 m	1.2 m	WCC
		--	1.0 m	Austroads
		0.85 m	1.0 m	CCC
Traffic lane	3.3–3.8 m; allowing for widening around curves	--	3.5 m	WCC
		--	3.5 m	NZTA
		3.3 m	3.5 m	Austroads
Parallel parking	Typically 2.1 m	--	2.5 m	WCC
		2.0 m	2.5 m	NZTA
		2.1 m	2.5 m	Austroads
Bus stop	Bus box width: 2.5 m Bus box length: 15 m Lead-in length: 9 m Lead-out length: 5 m	Bus box width: 2.5 m Bus box length: 15 m Lead-in length: 9 m Lead-out length: 5 m	Bus box width: 2.5 m Bus box length: 15 m Lead-in length: 15 m Lead-out length: 9 m	GWRC[4]
		--	Bus box width: 2.5 m Bus box length: 13.5 m Lead-in length: 8 m Lead-out length: 5 m	NZTA

Figure 11: Screenshot of table of widths from Evans Bay Parade Cycleway Design Report 2017

Note that official design guidance may have been updated since these were published. Exceptions or deviations from these widths are described below.

Footpaths

The minimum footpath width of 1.8m is the width available to walk without obstruction. Obstacles such as street lighting and power poles are outside of what is considered walkable footpath.

There are some locations where the minimum width of 1.8m is not sufficient:

- outside Marrakech Cafe, where they put out tables and chairs, and where there is currently a streetlight pole and bike parking. It is a place where people may potentially linger as they meet others or wait for takeaways

Figure 12: Marrakech Cafe where wider than minimum footpath width required

- Hataitai Beach public toilets and changing rooms, which are very popular during summer. Extra space is needed here for people to linger and cross the road, as well as possible bike parking.

Figure 13: Hataitai Beach where wider than minimum footpath width required

- outside Sea Scouts Hall, where it can be busy with lots of young people congregating before and after meetings and activities. Extra space would also be required for bike parking.

Figure 14: Sea Scouts Hall where wider than minimum footpath width required

Bus stop dimensions

National guidance on bus stop dimensions has changed. This is discussed more in the section on bus stops.

Vehicle tracking

As part of the concept design work, we have checked the tracking of large vehicles along Evans Bay Parade. The tracking vehicle used is a 17m-long semi-trailer truck travelling at 30km/h. Evans Bay Parade is an important route for heavy freight vehicles as the Mt Victoria Tunnel is too small and cannot take vehicles carrying dangerous goods. To enable this size of vehicle to travel along Evans Bay Parade without crossing the centre line at 30km/h, a standard traffic lane width of 3.4m is required. At pinch points this can be reduced to 3.2m, and around corners traffic lane widths will be wider to accommodate turning movements.

Evans Bay Parade is also an over-dimension (OD) and heavy haulage route. It is the only such route servicing the southern and eastern suburbs. OD routes require 11m of clear road width and 6.5m of clear height to transport buildings (road signs must be easy to remove temporarily).

Driveways

There will be eight driveways intersecting with the bike path and footpath once this project is completed. There are currently seven active driveways and one inactive driveway, which is no longer required and will be removed as part of the project. The extra driveway will be constructed as part of NIWA's campus redevelopment.

Table 3: Driveways along project route

Driveway #	Location	Address	Entry / exit?	Usage (guess)	Type of usage	Particular issues
1	Future NIWA staff car park	291-295 EBP	Entry and exit	100+ vehicles per day	Staff/ visitor parking, mainly light vehicles	New driveway
2	Existing NIWA driveway and future access driveway for delivery etc only	291-295 EBP	Entry and exit	Current: 100-200 vehicles per day Future: 30-40 vehicles per weekday	Current: mix of staff/visitor parking (light vehicles) and larger delivery vehicles	Visibility issues, large vehicles

3	Northern Greta Point Apartments driveway	305 EBP	Entry and exit	About 150 vehicles per day	Residents, mainly light vehicles	Visibility issues
4	Southern Greta Point Apartments driveway	305 EBP	Entry and exit	About 150 vehicles per day	Residents, mainly light vehicles	Major visibility issues raised by road safety audit
5	Cog Park Cadet Centre	391-393 EBP	Entry and exit (single lane)	Less than 20 vehicles per day	Cadet Centre members. Controlled by bollards for which a key is required. Also used by people parking informally near jetty (this will not be permitted in future).	Shares drop kerb with adjacent zebra crossing
6	Evans Bay Yacht Club	447 EBP	Entry and exit	Less than 100 vehicles per day (higher on event days)	Vehicles towing trailers	Major visibility issues due to closeness of on-street parking, and steepness of driveway. Re-design required at detailed design phase.
7	Boat ramp	461 EMP	Entry and exit	Less than 100 vehicles per day (higher on event days)	Vehicles towing trailers	Visibility issues due to closeness of on-street parking.
8	Marina	497-517 EBP	Entry and exit	Less than 100 vehicles per day (higher on event days)	Vehicles towing trailers, caravans, and campervans	Provides access to marina and freedom camping site.
9	Coastguard (unused)		NA	0	NA	Not currently used and not required for future use. Will

						be designed out and removed as part of project.

These driveways are low-to-medium-level use and pose a risk to people using the existing shared path. This project presents an opportunity to reduce the risk for people on foot through this section of Evans Bay Parade by improving visibility from driveways. For people on bikes, which are moving at a faster speed than pedestrians, a separated path that is not directly adjacent to the driveways will give drivers more time and space to give way. We will incorporate best practice design[5] for the driveways so the visibility is as good as it can be for all users within the constraints of the space, and people walking and cycling clearly have right of way. The image below is from the Waka Kotahi Design Guidance Note on high-use driveway treatment for cycle paths and shared paths.

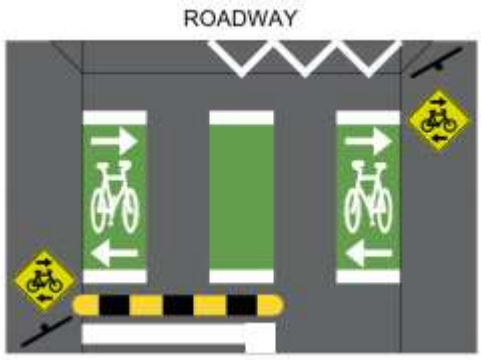

Figure 15: Recommended bike path treatment across driveways

However, even with these physical treatments, there may still be some conflict as motorists will likely have to partially wait on the bike path while looking for a gap to enter the traffic flow. It is unrealistic for drivers to be able to spot a gap and react to it in time from behind the footpath when exiting a driveway, even with good levels of visibility. It should be a rarity that a vehicle would entirely block the bike path for a long period of time. We have designed the paths such that most vehicles will not block the whole bike path while waiting for a gap, still allowing riders to get past, as illustrated below.

[5] https://www.nzta.govt.nz/assets/resources/road-traffic-standards/docs/rts-06.pdf

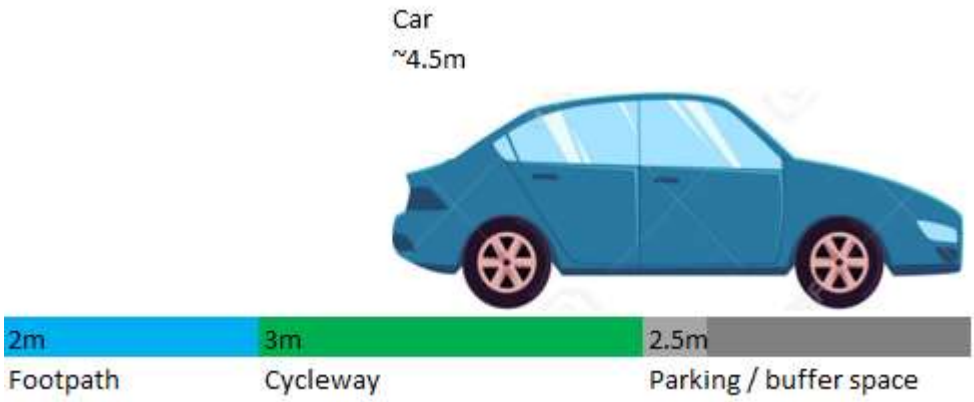

Figure 16: Exiting car from driveway position over bike path

Visibility

We have followed the Road Traffic Standards (RTS) 6: Guideline for Visibility at Driveways[6] to determine the minimum level of safe visibility from driveways. There are three elements important to determining safe visibility: driveway usage, road classification, and operating speed. Table 4 below demonstrates how this has been considered for the Evans Bay Parade driveways.

Table 4: RTS6 guidelines as applied to Evans Bay Parade Stage 2 (NIWA to Cobham Dr)

	RTS 6 guideline	Evans Bay Parade situation
Driveway usage	Driveways with more than 200 vehicle movements per day on average are considered high use.	No formal measurements have been undertaken, but it has been assumed that all driveways have less than 200 vehicle movements per day on average and have therefore all been considered low use.
Road classification	The higher the road classification, the greater the visibility requirements.	Evans Bay Parade is an arterial road. For visibility purposes, it is appropriate to treat as a collector road, as the driveways are low use.
Operating speed	85th percentile speed	The speed limit is 50km/h while the 85th percentile speed at two locations is 45-48km/h. However, we have decided to consider the target design speed which is 40km/h. Thus

[6] https://www.nzta.govt.nz/assets/resources/road-traffic-standards/docs/rts-06.pdf

		the desirable sight distance between driveways and traffic lanes is 35m.
Presence of obstacles	RTS6 considers that parking can be ignored for low-use driveways, and only permanent obstacles be considered.	Parking occupancy rates post-project are expected to be very high, therefore parking is considered an obstacle. Bus stops however are not considered in determining visibility.

There are two aspects to measuring visibility: sight distance and lines of clear sight. Sight distance measurement is the stopping distance for a vehicle to see and react to a vehicle entering or waiting to enter a driveway. These are the lines AC and BD in the diagram below.

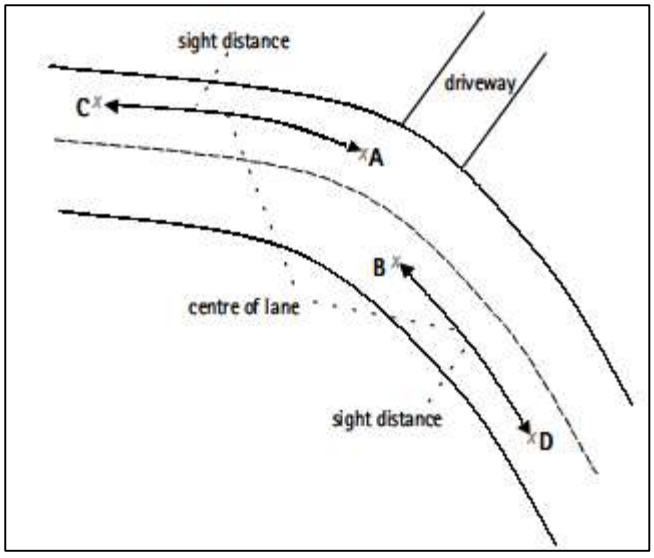

Figure 17: Sight distance measurement from RTS6 guidelines

Lines of clear sight is the distance between the driver waiting to exit a driveway and a travelling vehicle on the road they are entering. These are the lines CE and DE in the image below.

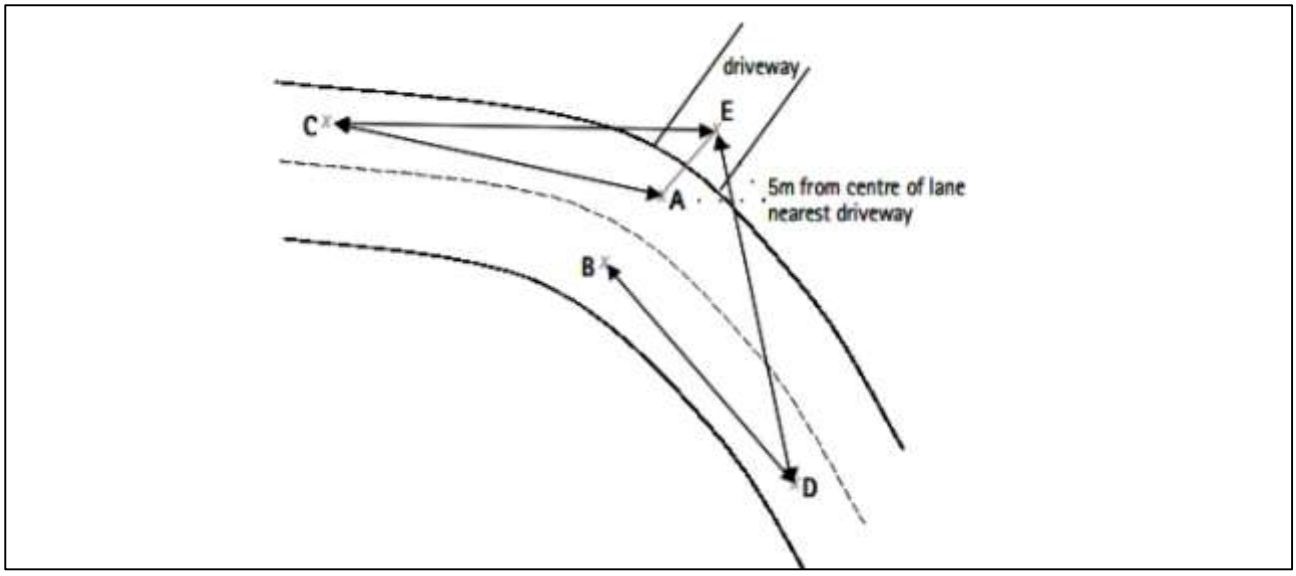

Figure 18: Lines of clear sight measurements from RTS6

There will be no parking within the lines of clear sight as measured above. That means that there will be no parking intersecting the CE and DE lines. These measurements are important in some driveway locations as they determine the amount of on-street car parking that can be provided.

Bike path and footpath visibility

RTS6 was published in 1993 and does not consider separated bike path treatment. We have determined that as well as considering visibility between the driveways and the traffic lanes, we also need to provide sufficient visibility between the driveways and the bike path and the footpath. We have determined those distances based on advice from Auckland Transport.[7]

Table 5: Bike path and footpath sight distances

Desirable sight distance between driveway and….	Bike path	Footpath
	25m	2.5m x 5m splay

Figure 19 shows the preferred visibility splay from driveways to the footpath. Given the splay is largely within private land, this project has a limited amount of influence.

[7] Advice provided 29 March 2021

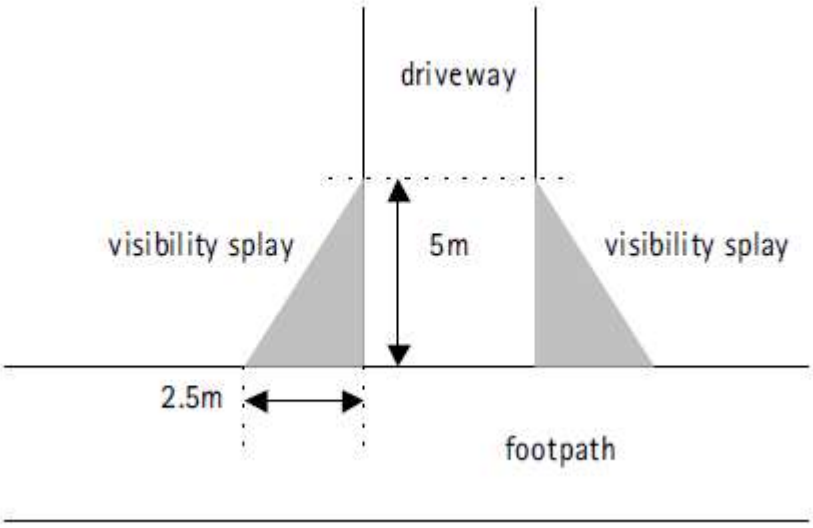

Figure 19: Visibility splay required for driveway to footpath visibility, RTS6 guidelines

At some driveway locations, the visibility is poor due to walls or vegetation on private land. We will work with property owners to address these issues if possible or necessary.

Western side of Evans Bay Parade

There are current visibility issues along driveways and intersections along Evans Bay Parade. We do not propose to fix existing visibility issues on the western (hill) side of the road, but the proposed changes are not expected to make any visibility problems worse.

Bus stops

Bus stop spacing

It is an objective of Greater Wellington Regional Council (GWRC) to provide a high quality, high frequency core public transport network that improves journey times and reliability[8]. An intervention to help achieve this is to optimise service levels and spacing of bus stops in relation to demand. The Wellington Regional Public Transport Plan (RPTP) states as a Service Delivery Threshold to have public transport within a 5-10 minute walk of passengers.

[8] http://www.gw.govt.nz/assets/Uploads/J001366-Public-Transport-Plan-v5-web.pdf

Waka Kotahi is preparing national guidance which includes advice on bus stop spacing. This guidance, not yet published, states that the most efficient spacing between bus stops has some overlap between walking catchments. Bus stops too close together will reduce the operating efficiency of the bus, increase bus travel times, and cost more money to maintain. The ideal stop spacing is usually close to twice the distance passengers are willing to walk to the bus stop, meaning most people will be within easy walking distance of one or the other. This translates to roughly 400-800 metres between public transport stops. Note that people are willing to walk further for a higher quality service.

As part of the project, in collaboration with GWRC, we propose to undertake some bus stop rationalisation. Rationalisation is the removal of bus stops that are considered to be too close together and allows us to make sure that the remaining bus stops are best positioned to serve the surrounding catchment of bus users. This also allows the Council to ensure that the remaining bus stops are fit for purpose, being fully accessible for buses and bus users as well as having appropriate customer facilities at each bus stop. We propose removing three pairs of bus stops: essentially every second pair. This plan for bus stops has been developed in collaboration with GWRC, which has responsibility for public transport. Ultimately this rationalisation will contribute to a faster and more reliable bus service on this route as well as ensuring that the remaining stops provide a higher level of service for users.

There is one bus route operating along Evans Bay Parade, the number 24 Johnsonville to Miramar Heights route. This service operates every 15-30 minutes at peak times, every 30 minutes weekday off-peak, and every hour at the weekends.

There are currently seven bus stop pairs between Greta Point and Cobham Drive. Figure 20 below shows the average daily boardings and alightings at each bus stop pair.[9]

[9] Data from May 2019

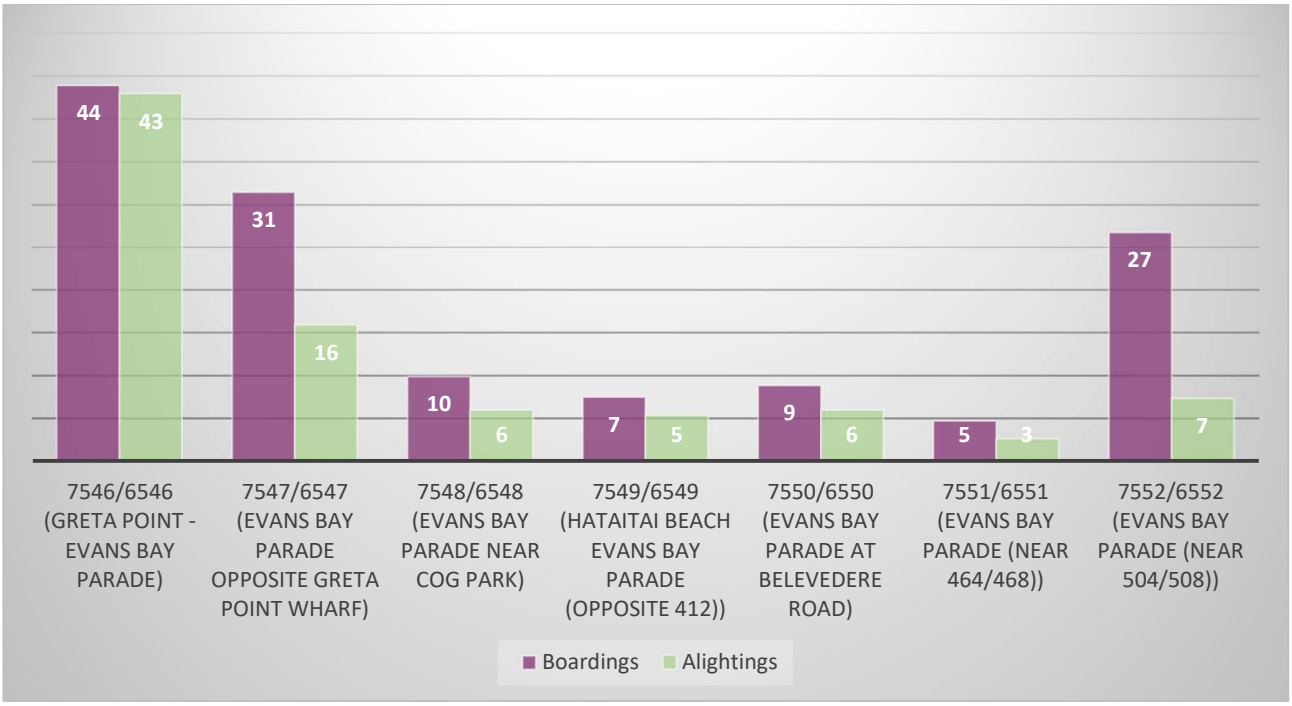

Figure 20: Bus patronage between Greta Point and Cobham Drive

The table below lists the northbound bus stops, and the proposed distances between them before and after project completion.

Table 6: Northbound bus stops

Bus stop no	Bus stop description	To be removed? (Y/N)	Current distance to next stop (m)	Proposed distance to next stop
7552	Evans Bay Parade (near 504)	N	225	435
7551	Evans Bay Parade (near 468)	Y	160	NA
7550	Evans Bay Parade at Belvedere Road	N	280	510
7549	Hataitai Beach (opposite)	Y	230	NA
7548	Cog Park (opposite)	N	260	420
7547	Evans Bay Parade opposite Greta Point Wharf	Y	160	NA
7546	Greta Point (near 310)	N	607	No change

The next table lists the southbound bus stops, and the proposed distances between them before and after project completion.

Table 7: Southbound bus stops

Bus stop no	Bus stop description	To be removed? (Y/N)	Current distance to next stop (m)	Proposed distance to next stop
6546	Greta Point - Evans Bay Parade	N	240	400
6547	Evans Bay Parade (near 331)	Y	160	NA
6548	Evans Bay Parade near Cog Park	N	330	565[10]
6549	Evans Bay Parade (opposite 412)	Y	235	NA
6550	Evans Bay Parade opposite Belvedere Road	N	145	460
6551	Evans Bay Parade (opposite 464)	Y	275	NA
6552	Evans Bay Parade (opposite 508)	N	489	No change

The image below shows the current and rationalised five-minute walking catchments[11] for all northbound bus stops along Evans Bay Parade. The darker areas represent the overlap in catchments; that is the areas from where people can access more than one bus stop within a five-minute walk. Removing stops #7547, #7549 and #7551 results in less overlap and bus stop spacing which more closely aligns with GWRC guidelines.

[10] Note that this distance reflects the distance using the road-adjacent footpath. The distance via Cog Park is slightly shorter.

[11] Average walking speed varies according to slope and intersections

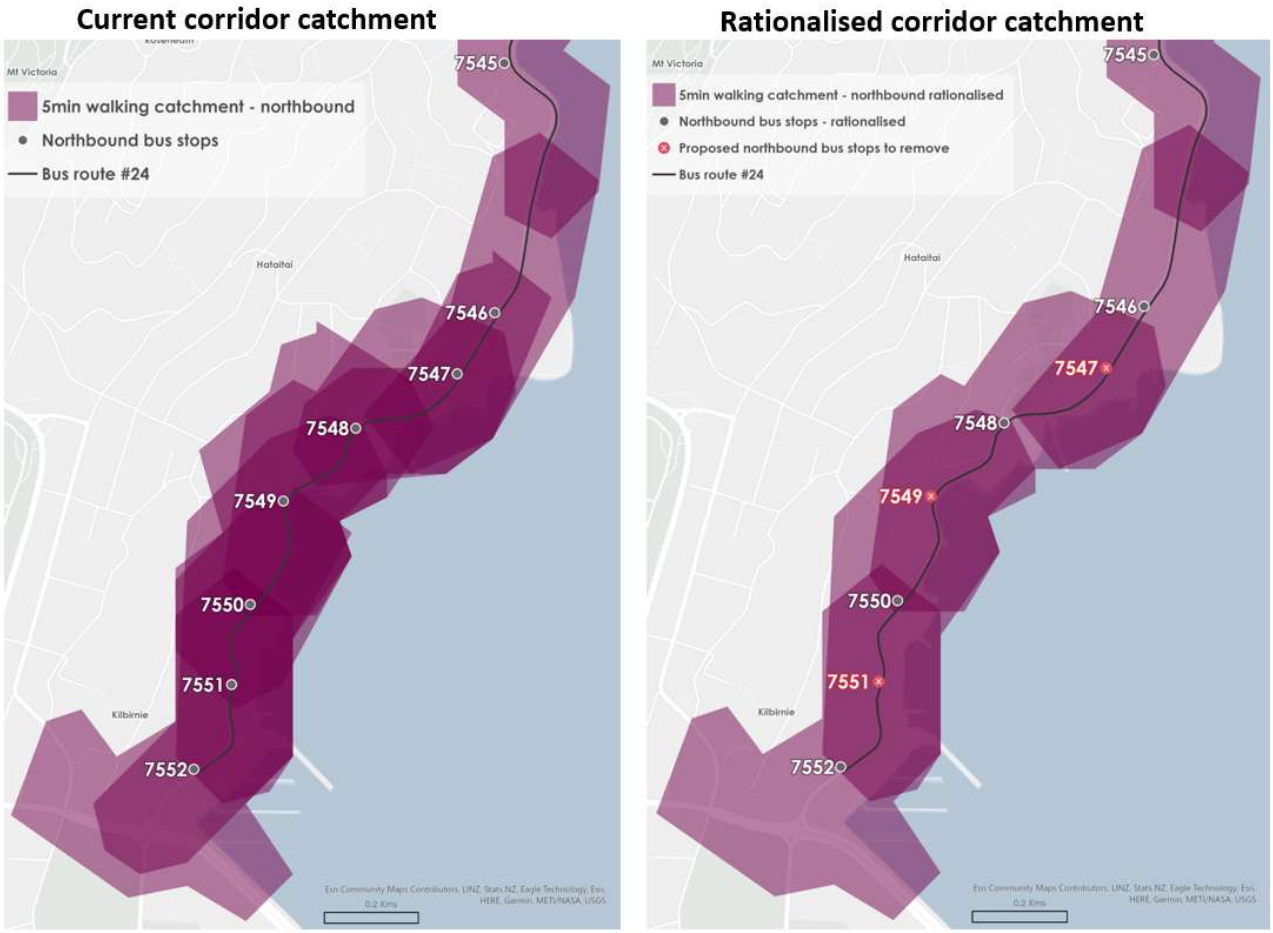

Figure 21: Current and proposed bus stop five-minute walking catchments for northbound services

The image below shows the current and rationalised five-minute walking catchments[12] for all southbound bus stops along Evans Bay Parade. The darker areas represent the overlap in catchments; that is the areas from where people can access more than one bus stop within a five-minute walk. Removing stops #6547, #6549 and #6551 results in less overlap and bus stop spacing which more closely aligns with GWRC guidelines.

[12] Average walking speed varies according to slope and intersections

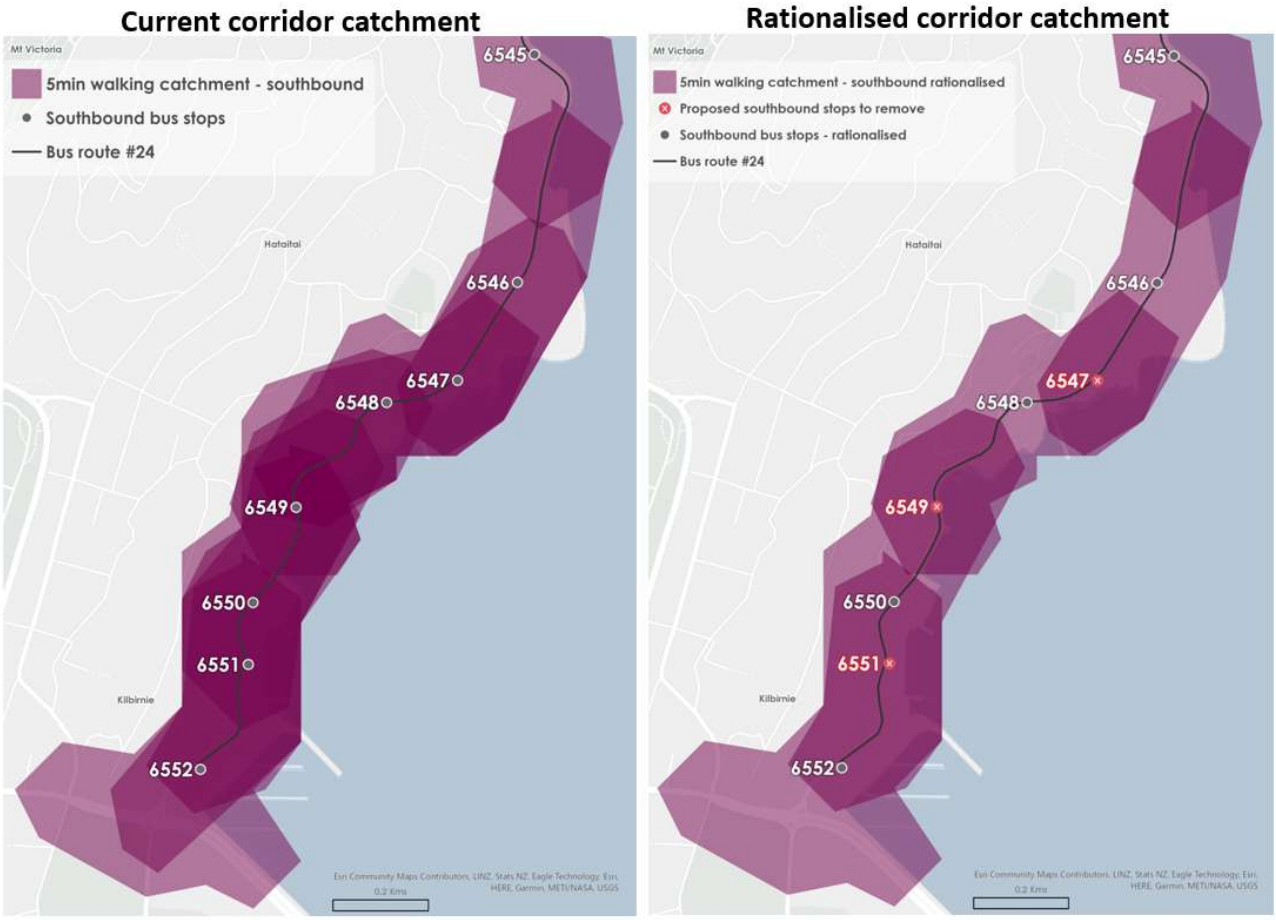

Figure 22: Current and proposed bus stop five-minute walking catchments for southbound services

Removing bus stop pairs 7547/6547, 7549/6549 and 7551/6551 results in approximately 55 properties falling outside a five-minute walk time to the nearest bus stop on route number 24.[13] However, all these properties are within a five-minute walk of an alternative bus stop on route number 14 (Kilbirnie – Hataitai – Wellington).

[13] Note that there are more households affected by northbound bus stop removal due to slope. It is quicker to walk downhill, therefore more properties are affected. This assumes possible passengers from these households are using the bus to go into the city centre, rather than towards Miramar.

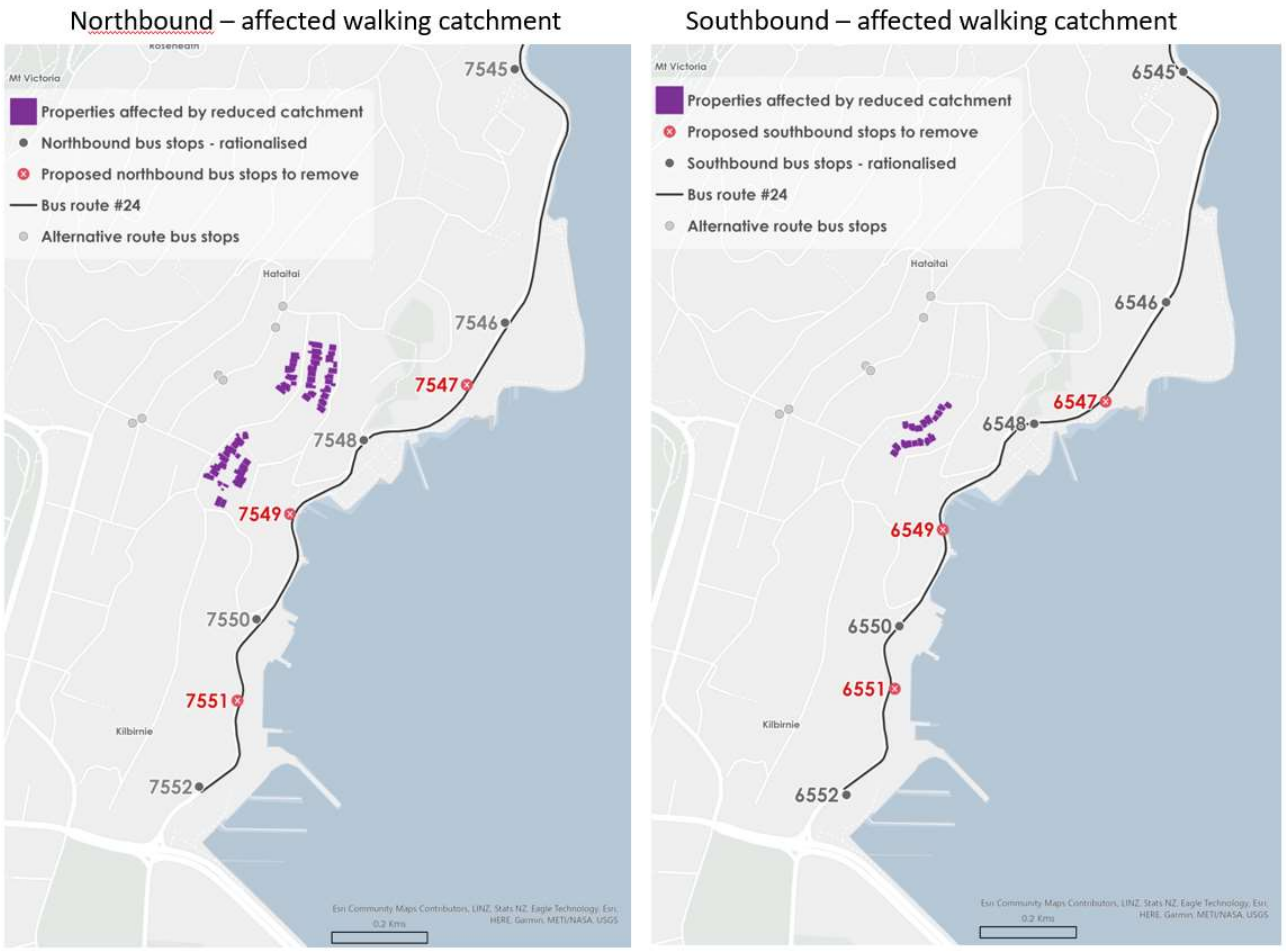

Figure 23: Properties outside five-minute walking catchment of route #24 following bus stop removal

Bus stop design

We propose to improve remaining bus stops by ensuring that they have the correct dimensions, and entry/exit tapers. This will ensure that drivers can access the kerb, making passenger boarding and alighting much easier and safer.

Waka Kotahi's draft bus stop design guidelines suggest the following dimensions for standard bus stops.

Table 8: Bus stop design dimensions

	Length
Bus box width	2.5m
Bus box length	15m
Lead-in length	15m
Lead-out length	9m

Bike path interaction with bus stops

The designs will incorporate the latest Public Transport Design Guidance, currently being prepared by Waka Kotahi. At least 1.2m of buffer space will be provided between the bike path and where the bus stops, allowing for passengers to board or get off the bus.

Bus shelters

Decisions about bus shelters and their location have yet to be made. At the detailed design stage, we will work with GWRC in considering the installation of a bus shelter at each of the remaining bus stops, prioritising those in the northbound direction.

Pedestrian crossings and one pedestrian/cycle crossing

Currently, there are two pedestrian crossings between Greta Point and the Cobham Drive intersection. There are two pedestrian refuges through Greta Point.

We propose to convert all crossings to raised pedestrian crossings. This is to reduce vehicle speeds and make it safer and easier for people to cross this busy road. This is particularly pertinent through Greta Point where there are more people on foot.

Through Greta Point, we propose to remove the central flush median to create space for the two-way bike path. This means there will be no room for a pedestrian refuge, which also necessitates the provision of pedestrian crossings.

It is noted that raised platforms can create noise for residents and be uncomfortable for drivers and passengers. Given the arterial classification of this road, platforms will be designed accordingly. They will not be too high or with too sharp an angle. This will be assessed more closely during the detailed design stage.

Visibility is a crucial factor in implementing pedestrian crossings. Evans Bay Parade is a winding road where visibility is poor in places. Waka Kotahi's Pedestrian Planning and

Design Guidance[14] outlines the minimum sight distance for vehicles approaching a pedestrian crossing. The minimum sight distance is met in all directions on all crossings for the 40km/h design speed.

Table 9: Approach sight distance to pedestrian crossings

Speed	Approach sight distance (assuming reaction time of 1.5s)
40km/h design speed	30m
50km/h speed limit	40m

Pedestrian crossing 1: 302 Evans Bay Parade

It is proposed that the pedestrian refuge located here will be replaced by a zebra crossing raised to about footpath height.

The crossing serves the busiest bus stop pair on Evans Bay Parade. It will also make it easier for people to get safely across the road to the day care facilities, and for these centres to take children on excursions on the seaward side, which is difficult for them now.

Figure 24: Existing pedestrian refuge and proposed pedestrian crossing at 302 Evans Bay Parade

[14] https://www.nzta.govt.nz/assets/resources/pedestrian-planning-guide/docs/chapter-15.pdf

Pedestrian crossing 2: 316 Evans Bay Parade

It was initially proposed that the pedestrian refuge located near Greta Point Café will be replaced by a zebra crossing raised to about footpath height to connect to the wooden boardwalk, as shown in Figure 25. Car parking spaces would have had to be removed to make space for a safe crossing and kerb buildouts.

Figure 25: Existing pedestrian refuge and previously proposed pedestrian crossing at 326 Evans Bay Parade

Following public consultation and meeting with Greta Point Café, the project team decided that a better location for the pedestrian crossing would be about 70m to the north. While this location would not connect the existing boardwalk, it would offer better visibility for motorists and it means that the three pedestrian crossings through Greta Point are more evenly spaced.

Figure 26: Proposed new pedestrian crossing at 316 Evans Bay Parade

Pedestrian crossing 3: Patent slip area

The pedestrian crossing here connects Cog Park to the dog park and the patent slip heritage and reserve area and interpretation panels. It is proposed to raise this crossing to about footpath height to reduce vehicle speeds.

Figure 27: Existing pedestrian crossing connecting Cog Park to dog park and patent slip

This crossing currently shares a kerb ramp with the Cadet Centre driveway, which is not best practice, although the driveway is low use. It is also a tricky location due to it being where the bike path and footpath come together again. We have explored solutions, as outlined in Table 10.

Table 10: Options for patent slip pedestrian crossing

	Option	Pros	Cons	Indicative cost
1	Remove pedestrian crossing	Simplifies design	Reduced level of service for pedestrians. Reduced safety as people visiting dog park are more likely to cross using flush median.	$
2	Alter driveway position, leave pedestrian crossing in same place	Separates pedestrian crossing from driveway	Awkward manoeuvring for vehicles using driveway. Makes using this area more difficult (and possibly less safe).	$$
3	Leave pedestrian crossing and driveway in current location	Given relatively low use of driveway and pedestrian crossing, there may not be a great need to separate	Not best practice	$
4	Build out kerb and move pedestrian crossing behind the bus stop,	Possibly the most effective solution	Most expensive option. Negative perception of in-lane bus stops (but we have them elsewhere and	$$$

	which can be brought into an in-lane position		they are expected to become more common citywide and bus stop is relatively low-use	

With the designers and traffic engineers we have agreed that for now, at concept design stage, option 3 is the best choice. This is subject to public consultation and further development at detailed design stage, where option 4 is likely to be looked at more closely.

Pedestrian crossing 4: Hataitai Beach

The pedestrian crossing here serves people connecting to Hataitai Beach. It is proposed to raise this crossing to about footpath height to reduce vehicle speeds.

Figure 28: Hataitai Beach pedestrian crossing, existing and proposed

Dual pedestrian/cycle crossing 5: Left-turn slip lane to Cobham Drive

There is currently no safe crossing across the left-turn slip lane from Evans Bay Parade to Cobham Drive. This is despite the high demand from people on foot and those on bikes. We propose to construct a dual pedestrian/cycle crossing across the slip lane to improve walking and cycling access from the path to Kilbirnie and Hataitai.

Figure 29: Evans Bay Parade slip lane into Cobham Drive, existing and proposed

Sea walls and retaining walls

The seawalls and retaining walls bordering the marina, boat ramp, Yacht Club and boat sheds were inspected by Robert Bird Group (RBG) in January and February 2021. The resulting Structural Assessment Report found most of the walls are in an average to poor condition. Their condition could be exacerbated by the heavy machinery likely to be used during construction of the walking and biking paths.

During the next stage of design, we will be investigating ways in which remedial work on the walls can occur as part of this project to minimise disruption. This will add complexity and extra planning and construction time to the project.

Street lighting

Lighting levels

A lighting assessment was undertaken along the proposed route in May/June 2021. The subsequent report highlighted some existing issues with lighting that can be remedied immediately, while there were other issues that will need to be taken into consideration at the detailed design stage. This includes issues such as insufficient lighting though Cog Park and on the footpath over the patent slip, and shadowing.

Lighting columns

Lighting columns may have to be moved to allow more space on the footpath, and new ones may be required. This will be assessed more closely at the detailed design stage.

Accessibility improvements

Accessibility has been a key consideration in the design process. Accessibility improvements will include:

- a bike path separated from the footpath which will reduce the likelihood of conflict with people cycling or using other wheeled devices
- a separate bike path provides opportunity for those who find cycling easier than walking
- raised pedestrian crossings reduce the level changes required for people to cross the road, and make people using them more visible
- additional pedestrian crossings offer more opportunities to cross the road
- steps near the patent slip will be replaced with a ramp, although this may be reconsidered due to the relocation of the pedestrian crossing
- improvement to lighting.

Bike parking

There is currently limited bike parking along Evans Bay Parade, although three racks have recently been installed at Cog Park, adjacent to Hataitai Beach.

As part of the project to improve facilities for people cycling, we propose to install bike parking in locations where there is demand. This includes the patent slip area, Cog Park and Hataitai Beach. Specific locations will be determined during the detailed design stage. We will also offer cycle racks for businesses and other organisations to install on their premises if they wish. Where there is no space on their premises, we will find adjacent space.

In public areas, cycle racks will match the design for the Evans Bay Stage 1 and Cobham Drive projects, as shown below.

Cycle racks
Timber & corten (to match adjacent stages)

Figure 30: Example of cycle racks especially designed for Evans Bay and Cobham Drive upgrade projects

Stormwater treatment and rain gardens

The Council has worked with Wellington Water to identify possible areas for rain garden stormwater treatment. Seven possible areas were assessed for viability, as shown in Figure 31 below.

Figure 31: Map of possible stormwater treatment sites

The areas in pink were initially considered the most viable. However, after further analysis, none were considered feasible due to insufficient space available and low catchment areas.

The project will impact on stormwater. This will be modelled during the detailed design stage. The changes likely to have the biggest effects on stormwater flows are:

- raised pedestrian crossings
- paving of surfaces which are currently pervious, particularly around or through Cog Park.

The detailed design will provide solutions and ensure these changes are sufficiently mitigated.

Arboricultural assessment

An assessment by an arborist was undertaken in September 2020. The arborist inspected all the trees on or adjacent to the proposed footpath and bike path. Recommendations were made for their protection and management as well as possible transplants. There are over 60 trees or groups of trees along the proposed route. Of those trees, the arborist recommends the removal of eight trees and possible relocation of others. Most trees that it is recommended be removed are self-seeded and growing in retaining walls.

Cog Park

The arborist inspected the route based on early drawings which showed the bike path going around Cog Park, encroaching into the edge of the park. The arborist advised on the risk of significant damage to two large trees close to the perimeter of the park. These are too large to be transplanted. The project team decided not to progress this option for this reason.

The wider project team subsequently decided to consult on the option to align the bike path through the park. We are not anticipating having to remove the trees that currently line the lime-chip path through the park, but the arborist has advised that they are of an age and size that means they could be easily transplanted if that does prove necessary. We will have to consider the impact of the trees on both bike and footpaths, especially as they grow bigger, potentially damaging the paths with their roots and blocking out natural and artificial light.

Yacht Club and boat sheds

Several trees have self-seeded in the retaining wall adjacent to the boat sheds and the Evans Bay Yacht Club's slipway. The arborist recommends that these trees be removed because they have damaged the footpath and have possibly damaged the retaining wall. The subsequent structural assessment report (discussed earlier) confirms that the trees are damaging the walls and need to be removed at some stage.

We will replace any trees that we do need to remove in a different location. We will identify alternative locations close to the area where we can plant replacement trees. If tree planting or replanting cannot occur along the route, we will find another suitable location in the city.

Ecological assessment

An ecological assessment was undertaken in January 2021. The purpose of this assessment was to investigate the possibility of ecological impacts of the project. All the recommendations are for appropriate management during construction. There is nothing to consider at the concept design stage.

Data

Cycle counts

A cycle counter is located on the shared path at the southern end of Evans Bay Parade, close to Cobham Drive. This counter was out of action during construction of the Cobham Drive bike path and footpath, so we do not have data for July 2019 to June 2020.

Figure 32: Monthly cycle counts, Evans Bay Parade

Over the three-and-a-half-year period from January 2018 – June 2021, there is a daily average of 217 cycle trips; 283 during weekdays and 221 during weekends. This is just cycle trips on the shared path and does not include on-road cycle trips. Other counts indicate that most cycle trips on this part of Evans Bay Parade occur on-road rather than the shared path.

A count of people cycling on Evans Bay Parade just south of Greta Point was undertaken in March 2017. Results are presented in the Issues Report[15]. The counts show that most cycle trips along this section of Evans Bay Parade are on the road rather than the shared path.[16]

Table 11: March 2017 cycle counts Evans Bay Parade

	Thurs 7am-9am	Thurs 3pm-6pm	Sat 7am-9am	Sat 11am-2pm
Northbound road	111	10	45	44
Southbound road	15	138	97	54
Shared path (both directions)	13	34	11	46
Total	139	182	153	144
Road percentage	91%	81%	93%	68%

These results cannot be directly compared to the automatic counts due to the different location.

Every year, cycle counts are undertaken at the intersection of Evans Bay Parade, Cobham Drive and Wellington Road. Weekday morning peak counts have been steadily increasing over the last ten years, while weekend peak counts have increased slightly over the same period.

[15] https://www.transportprojects.org.nz/assets/Documents/Evans-Bay-Parade-Draft-Issues-Report-V4-Final-Issue.pdf

[16] The count was undertaken just south of Greta Point.

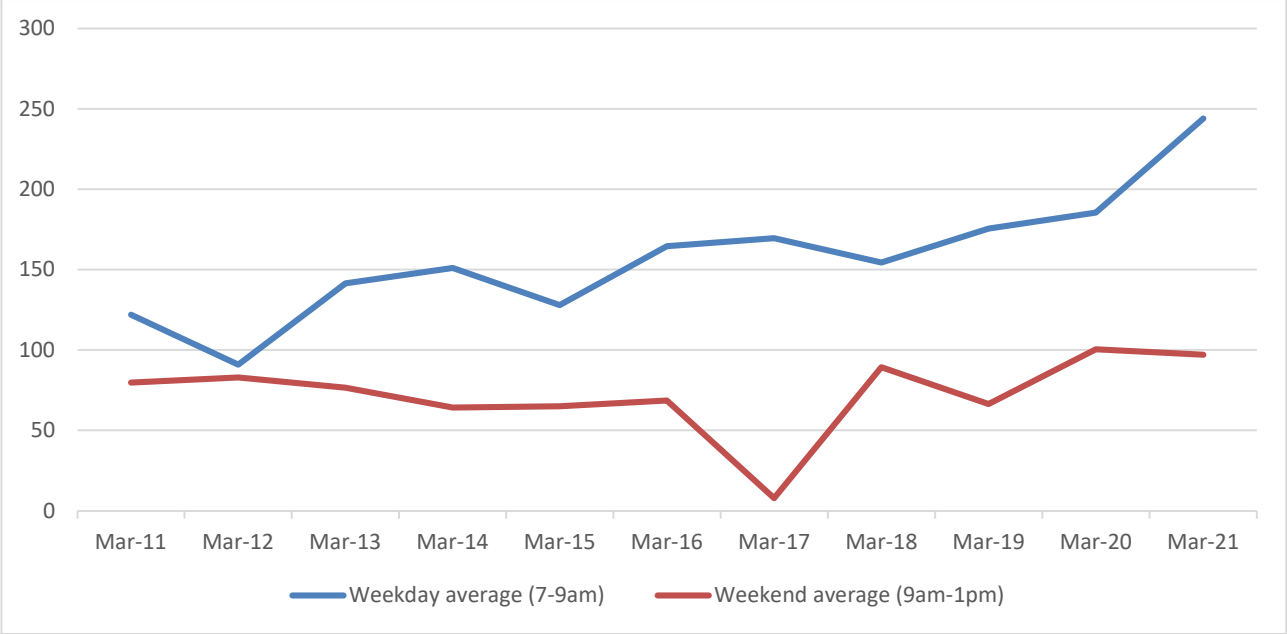

Figure 33: Morning peak average hourly count of people cycling - Evans Bay Parade / Cobham Drive / Wellington Road intersection

Safety data

Evans Bay Parade between NIWA and Cobham Drive is relatively safe compared to other arterial roads. It has a collective risk rating of medium and a personal risk rating of low-medium according to Waka Kotahi's MegaMaps tool. As of June 2021, there have been no road fatalities on this stretch of road since 1980.

Figure 34: Collective and personal risk on and around Evans Bay Parade

Despite this, vulnerable road users, especially people on bikes, are over-represented in crash statistics. From 2011-2020[17] there have been 54 recorded crashes, 20 of which were injury crashes. 14 of all recorded crashes involved people cycling, while over half of injury crashes involved people on bikes.

Table 12: Evans Bay Parade between Greta Point and Cobham Drive crashes 2011-2020

	Injury crash	All crashes
All road user types	20	54
All crashes involving cyclists	11	14

[17] Retrieved from Crash Analysis System 21 June 2021.

Figure 35 below indicates a relatively even spread of crashes along the route over the last 10 years.

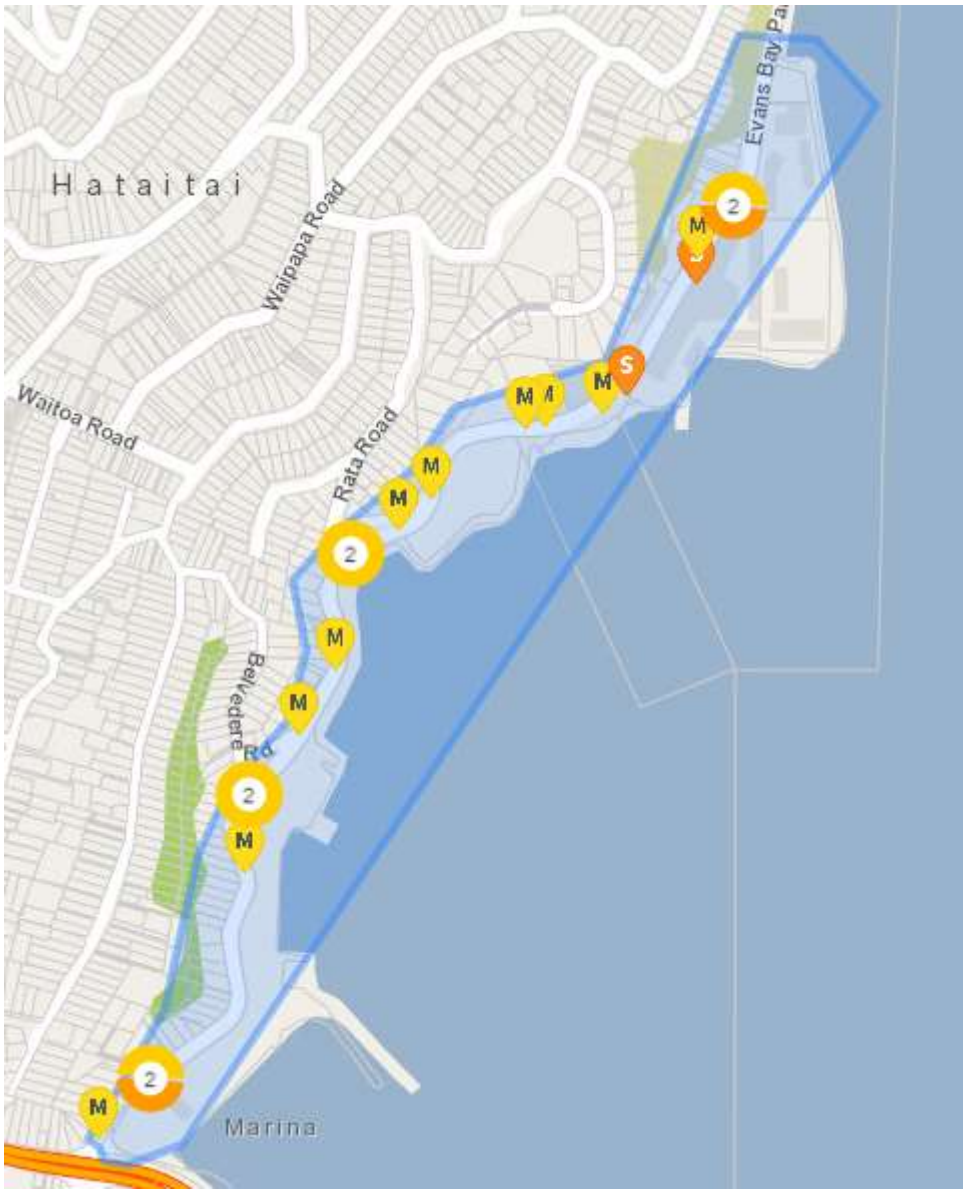

Figure 35: Spread of injury crashes along Evans Bay Parade between Greta Point and Cobham Drive

Over half of all crashes are ‘rear end/obstruction’ crashes. However, ‘pedestrian vs vehicle’, ‘lost control/head on’ and ‘crossing/turning’ crashes are much more likely to result in injury.

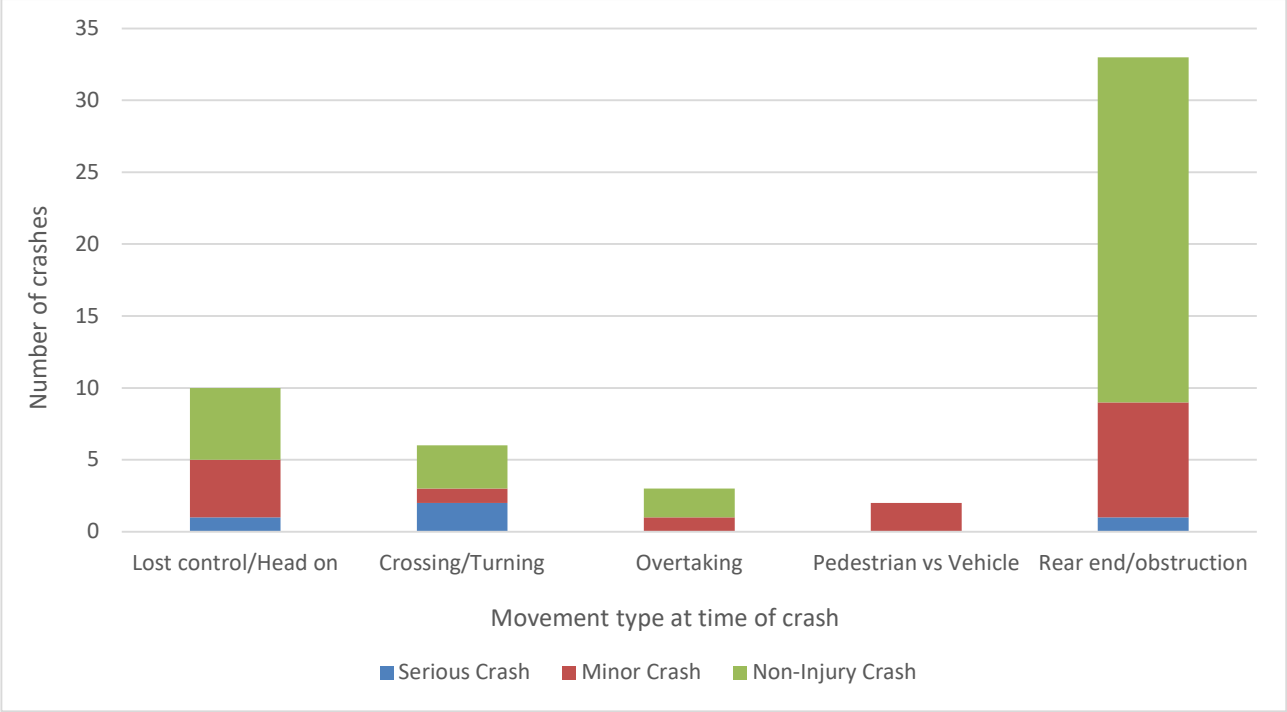

Figure 36: 2011-2020 crash movement types