

Project Number: 5-C3532.00

# Te Ara Tupua

## Concept Design Road Safety Audit

26 July 2021

CONFIDENTIAL



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## Contents

<b>1</b>	<b>Background.....</b>	<b>4</b>
1.1	Safety Audit Procedure.....	4
1.2	The Safety Audit Team.....	5
1.3	Report Format.....	5
1.4	Scope of Audit.....	6
1.5	Documents Provided.....	6
1.6	Disclaimer.....	8
1.7	Project Description.....	8
1.8	Traffic Volumes, ONRC and Speeds.....	9
1.9	Nearby Projects.....	10
1.9.1	Petone to Melling Cycleway.....	10
1.10	Crash History.....	11
<b>2</b>	<b>Safety Audit Findings.....</b>	<b>14</b>
2.1	Parking Facilities.....	14
2.1.1	Ngauranaga.....	14
2.1.2	Honiana Te Puni Reserve.....	14
2.1.3	Mobility Scooter Parking.....	16
2.2	Connectivity at Petone.....	17
2.2.1	Connections to the Esplanade.....	17
2.2.2	Southbound Esplanade connection to Te Ara Tupua.....	17
2.2.3	Honiana Te Puni Reserve connection to The Esplanade.....	19
2.2.4	Connection to Remutaka Cycle Trail.....	20
2.2.5	Connection to Petone Underpass.....	22
2.2.6	Connectivity to the Petone to Melling Cycleway.....	24
2.2.7	Connectivity between Petone off ramp cyclists and Te Ara Tupua.....	25
2.3	Connectivity at Ngauranga.....	27
2.3.1	Hutt Road Tunnel.....	27
2.3.2	Continued Cycling on SH2 Northbound Shoulder.....	28

2.3.3	Pedestrian Facilities at the Hutt Road Intersection .....	28
2.3.4	Conflict Zone with Shared Path and Vehicles Exiting the Stock Effluent Disposal.....	31
2.3.5	Narrow Sections of Shared Path Areas .....	33
2.4	Wayfinding Signs .....	38
2.4.1	Hutt Road Tunnel .....	38
2.5	Construction .....	39
2.5.1	Construction Yard Access .....	39
2.6	Shared Path.....	42
2.6.1	Shared Path users .....	42
2.6.2	Cycle Operating Speeds.....	43
2.6.3	Shared Path Overbridge Fencing. ....	43
2.6.4	Bollards .....	44
2.6.5	Shared Path Access .....	45
2.7	General Accesses.....	46
2.7.1	Honiana Te Puni Restricted Accessways .....	46
2.8	Lighting .....	47
2.8.1	Honiana Te Puni Lighting .....	47
2.8.2	Shared Path Lighting.....	48
2.8.3	Construction Yard Lighting .....	48
3	<b>Audit Statement.....</b>	<b>49</b>

# 1 Background

## 1.1 Safety Audit Procedure

A road safety audit is a term used internationally to describe an independent review of a future road project to identify any safety concerns that may affect the safety performance. The audit team considers the safety of all road users and qualitatively reports on road safety issues or opportunities for safety improvement.

A road safety audit is therefore a formal examination of a road project, or any type of project which affects road users (including cyclists, pedestrians, mobility impaired etc), carried out by an independent competent team who identify and document road safety concerns.

A road safety audit is intended to help deliver a safe road system and is not a review of compliance with standards.

The primary objective of a road safety audit is to deliver a project that achieves an outcome consistent with Safer Journeys and the Safe System approach, that is, minimisation of death and serious injury. The road safety audit is a safety review used to identify all areas of a project that are inconsistent with a safe system and bring those concerns to the attention of the client in order that the client can make a value judgement as to appropriate action(s) based on the risk guidance provided by the safety audit team.

The key objective of a road safety audit is summarised as:

“To deliver completed projects that contribute towards a safe road system that is increasingly free of death and serious injury by identifying and ranking potential safety concerns for all road users and others affected by a road project”

A road safety audit should desirably be undertaken at project milestones such as:

- Concept Stage (part of Business Case);
- Scheme or Preliminary Design Stage (part of Pre-Implementation);
- Detailed Design Stage (Pre-implementation / Implementation); and
- Pre-Opening / Post-Construction Stage (Implementation / Post-Implementation).

A road safety audit is not intended as a technical or financial audit and does not substitute for a design check on standards or guidelines. Any recommended treatment of an identified safety concern is intended to be indicative only, and to focus the designer on the type of improvements that might be appropriate. It is not intended to be prescriptive and other ways of improving the road safety or operational problems identified should also be considered.

In accordance with the procedures set down in the “NZTA Road Safety Audit Procedures for Projects Guidelines - Interim release May 2013” the audit report should be submitted to the client who will instruct the designer to respond. The designer should consider the report and comment to the client on each of any concerns identified, including their cost implications where appropriate, and make a recommendation to either accept or reject the audit report recommendation.

For each audit team recommendation that is accepted, the client shall make the final decision and brief the designer to make the necessary changes and/or additions. As a result of this instruction the designer shall action the approved amendments. The client may involve a safety engineer to provide commentary to aid with the decision.

Decision tracking is an important part of the road safety audit process. A decision tracking table is embedded into the report format at the end of each set of recommendations to be completed by the designer, safety engineer and client for each issue documenting the designer response, client decision (and asset manager’s comments in the case where the client and asset manager are not one and the same) and action taken.

A copy of the report including the designer’s response to the client and the client’s decision on each recommendation shall be given to the road safety audit team leader as part of the important feedback loop. The road safety audit team leader will disseminate this to team members.

## 1.2 The Safety Audit Team

The road safety audit was carried out in accordance with the NZTA Road Safety Audit Procedure for Projects Guidelines - Interim release May 2013, by:

- **Section 9(2)(a)**, Transportation Engineer, WSP – Safety Audit Team Leader
- **Section 9(2)(a)**, Technical Director Transport, WSP – Safety Audit Team Member
- **Section 9(2)(a)**, Graduate Engineer – Safety Audit Team Member

The Safety Audit Team (SAT) met with the client (Karl Jackson, Kirstan O’Donoghue, Michael Siazon, Waka Kotahi) and designer **Section 9(2)(a)**, Aecom) on Tuesday 20 April at 12:00pm for a pre-audit briefing. The site visit was then conducted on Wednesday 28 April between 3:00pm and 7:00pm.

## 1.3 Report Format

The potential road safety problems identified have been ranked as follows:

The expected crash frequency is qualitatively assessed based on expected exposure (how many road users will be exposed to a safety issue) and the likelihood of a crash resulting from the presence of the issue. The severity of a crash outcome is qualitatively assessed based on factors such as expected speeds, type of collision, and type of vehicle involved.

Reference to historic crash rates or other research for similar elements of projects, or projects as a whole, have been drawn on where appropriate to assist in understanding the likely crash types, frequency and likely severity that may result from a particular concern.

The frequency and severity ratings are used together to develop a combined qualitative risk ranking for each safety issue using the Concern Assessment Rating Matrix in Table 1 below. The qualitative assessment requires professional judgement and a wide range of experience in projects of all sizes and locations.

Table 1 - Concern Assessment Rating Matrix

Severity (likelihood of death or serious injury)	Frequency (probability of a crash)			
	Frequent	Common	Occasional	Infrequent
Very likely	Serious	Serious	Significant	Moderate
Likely	Serious	Significant	Moderate	Moderate
Unlikely	Significant	Moderate	Minor	Minor
Very unlikely	Moderate	Minor	Minor	Minor

While all safety concerns should be considered for action, the client or nominated project manager will make the decision as to what course of action will be adopted based on the guidance given in this ranking process with consideration to factors other than safety alone. As a guide a suggested action for each concern category is given in Table 2 below.

Table 2 - Concern Categories

Risk	Suggested Action
Serious	A major safety concern that must be addressed and requires changes to avoid serious safety consequences.
Significant	Significant concern that should be addressed and requires changes to avoid serious safety consequences.
Moderate	Moderate concern that should be addressed to improve safety
Minor	Minor concern that should be addressed where practical to improve safety.

In addition to the ranked safety issues it is appropriate for the safety audit team to provide additional comments with respect to items that may have a safety implication but lie outside the scope of the safety audit. A comment may include items where the safety implications are not yet clear due to insufficient detail for the stage of project, items outside the scope of the audit such as existing issues not impacted by the project or an opportunity for improved safety but not necessarily linked to the project itself. While typically comments do not require a specific recommendation, in some instances suggestions may be given by the auditors.

### 1.4 Scope of Audit

The subject of this audit is the consented concept design drawings for a 4.5km shared path between Ngauranga to Petone, produced by Aecom for Waka Kotahi. The scope of works includes safe infrastructure for walking and cycling along SH2 Ngauranga to Petone, with connections at the Ngauranga train station and Honiana Te Puni reserve, Petone. The bulk of this report has a focus on the relevant safety matter at the two connection points. The extents of the project are shown below in Figure 1.

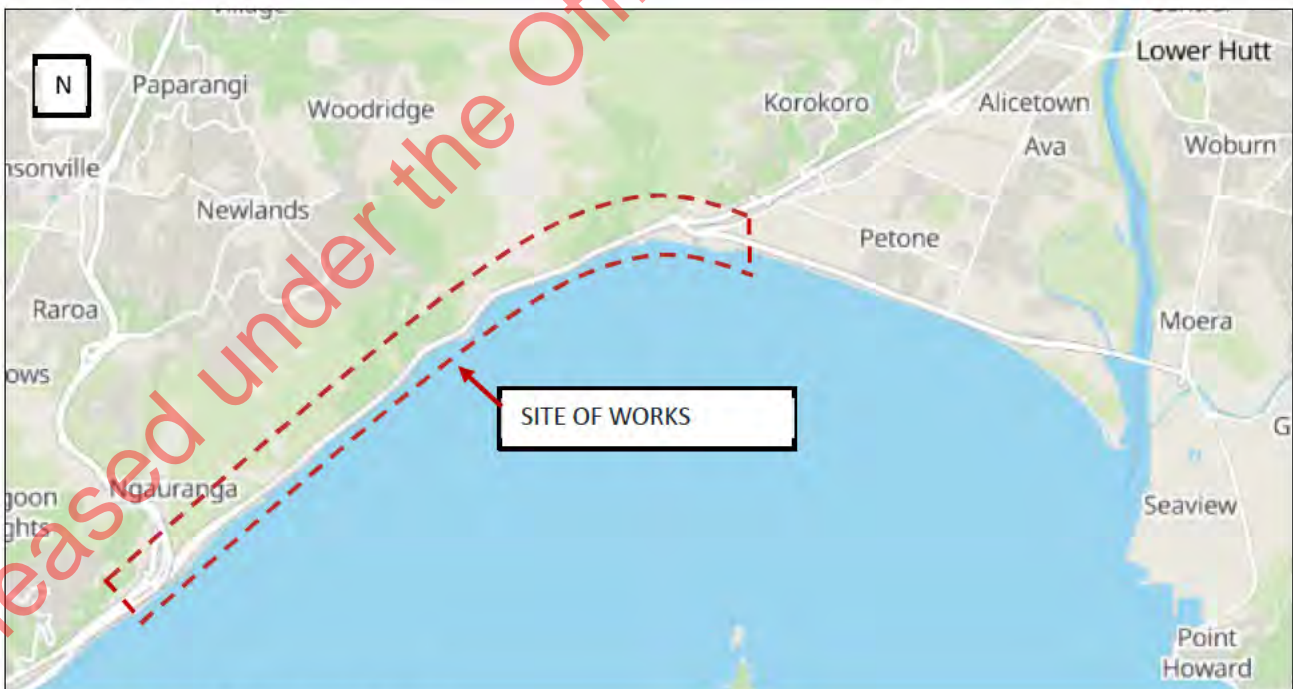


Figure 1: Location of the proposed works.

### 1.5 Documents Provided

The SAT has been provided with the following documents for this audit from the EPA website:

*Relevant Transport documents from Te Ara Tupua – Ngauranga to Petone shared path EPA website 2020 incorporating;*

*Application and notices of requirement documents*

- Management Plan Sequencing
- Management Plan Interrelationships
- Report of assessment of the effects of the project on the environment

*Technical reports*

- Strategic Transport Assessment
- Shared Path Demand Assessment and Design Review
- Integrated Transport Assessment (ITAR)
- Natural Hazards and Resilience
- Recreation Review Effects Assessment and Future Recreation Values
- Cultural Impact Assessment
- Coastal Processes Assessment
- Landscape, Visual and Natural Character Effects Assessment
- Ecological Assessment
- Erosion and Sediment Control Assessment
- Assessment of Air Quality Effects
- Noise and Vibration Assessment
- Historic Heritage Assessment
- Preliminary Site Investigation

*Comments from invited parties*

- Comments from Cycle Wellington
- Comments from Greater Wellington Regional Council
- Comments from Hutt City Council
- Comments from Hutt Cycle Network and others
- Comments from Wellington City Council
- NZTA response to comments – responses to comments from the invited parties on 18 December 2020

*Plans and Drawings*

- Project description
- Land Requirement Plans
- Notice of Requirement Plans
- Project Site and Adjacent Land Landowner and Occupier Plans
- Table of Key Facts and Figures
- Project Facts and Figures Plans
- General Arrangement Plans
- Coastal Occupation Plans
- Stormwater Drainage Plan and Sections
- Existing Utilities Plans
- Typical Cross Sections

*Cultural and Environmental Design Framework Chapters*

- Overview
- Contextual analysis
- Design details



- Plans and cross sections
- Illustrative views
- Photo simulations of finished pathway

## 1.6 Disclaimer

The findings and recommendations in this report are based on an examination of available relevant plans, the specified road and its environs, and the opinions of the SAT. However, it must be recognised that eliminating safety concerns cannot be guaranteed since no road can be regarded as absolutely safe and no warranty is implied that all safety issues have been identified in this report. Safety audits do not constitute a design review nor an assessment of standards with respect to engineering or planning documents.

Readers are urged to seek specific technical advice on matters raised and not rely solely on the report.

While every effort has been made to ensure the accuracy of the report, it is made available on the basis that anyone relying on it does so at their own risk without any liability to the safety audit team or their organisations.

## 1.7 Project Description

The audited project comprises of the consented concept designs for the proposed improvements for a 4.5 km cycle and walkway facility between SH2 Ngauranga to Petone. The scope of works includes the connections at the Ngauranga train station and the Honiana Te Puni reserve, per the diagram in Figure 1 above. The shared path from Ngauranga will include crossing the existing railway to the coastal side via a shared path bridge. The new facility aims to replace the current separated path on the southbound side of SH2 and reduce the number of cyclists using the SH2 northbound shoulder.

The project also involves providing new parking facilities, the construction of new buildings for a Marae, The Wellington Rowing Association, and The Wellington Water Ski Club. The proposed opening for the new facilities is set to be 2025.

The project has been split into the following three construction sectors, as shown in *Figure 2*;

Sector 1 – Ngauranga interchange via the shared path bridge crossing over the rail line

Sector 2 – Shared path along the SH2

Sector 3 – Shared path connections from Petone to Melling Station.

Released under the Official Information Act 1982

Hutt Road (north)	8,020 vpd (11%)	Arterial	80 km/h
Hutt Road (south)	7,910 vpd (5%)	Arterial	80 km/h
Stock Effluent Facility Road	120 vpd (28%)	Low Volume	50 km/h
Centennial Highway (north)	14,159 vpd (2.9%)	High Volume	80 km/h
Centennial Highway (south)	12,977 vpd (3.6%)	High Volume	80 km/h
Ngauranga on ramp	14,228 vpd (4.5%)	High Volume	80 km/h
Ngauranga off ramp	14,284 vpd (3.9%)	High Volume	80 km/h
SH2 Ngauranga to Petone (north)	36,632 vpd (4.5%)	High Volume	100 km/h
SH2 Petone to Ngauranga (south)	35,676 vpd (3.9%)	High Volume	100 km/h
Petone on ramp	14,621 vpd (4.6%)	High Volume	80 km/h
Petone off ramp	15,520 vpd (4.6%)	High Volume	80 km/h
The Esplanade (east)	Unknown	Unknown	50 km/h
The Esplanade (west)	Unknown	Unknown	50 km/h

## 1.9 Nearby Projects

### 1.9.1 Petone to Melling Cycleway

This project is being constructed as part of the wider Te Ara Tupua Project, aiming to create a cycle and walkway linking Wellington CBD to Lower Hutt. The planned off-road shared path from Petone to Melling is to join the Te Ara Tupua path as shown in Figure 3.



Figure 3: Wellington to Hutt Valley proposed cycle and walkway connections.<sup>4</sup>

The key elements of Petone to Melling cycle and walkway project includes:

- rail underpasses at Petone and Parliament Street (near Normandale overbridge)
- well-marked route through the Petone railway station car park
- cycle bypass for southbound cyclists at the Dowse interchange
- connection to the existing Hutt River Trail

The project commenced in January 2021 and is expected to finish at the end of 2021. The works for the rail underpass at Petone Station began on 26 December and finished 5 January.

### 1.10 Crash History

The following crash history was obtained using the Waka Kotahi NZ Transport Agency Crash Analysis System (CAS). The analysed site includes a 20m buffer of SH2 Petone to Ngauranga for the period between 2010-2020 and 2021 to date. The site includes; the Petone on ramp, Ngauranga off ramp, Hutt Road intersections, Petone off ramp, and Petone roundabout.

There was a total of 23 cyclist crashes within the audit site, between the period 2010-2020 to date, comprising of 1 fatal crash, 5 serious injury crashes, 13 minor injury crashes and 4 non-injury crashes as shown in Table 4.

Table 4: Crashes per year by severity.

Year	Fatal	Serious	Minor	Non-Injury
2010	0	0	2	1
2011	0	2	1	0
2012	0	0	1	0
2013	0	0	2	0
2014	0	1	1	0
2015	0	1	1	0
2016	0	0	2	0
2017	0	1	1	1
2018	0	0	0	1
2019	0	0	0	1
2020	1	0	0	0
2021	0	0	2	0
<b>Total</b>	<b>1</b>	<b>5</b>	<b>13</b>	<b>4</b>

Table 5: Injury crashes by movement type and severity.

Type	Fatal	Serious	Minor

<sup>4</sup><https://www.nzta.govt.nz/assets/projects/wellington-to-hutt-valley-walking-and-cycling-link/w2hvc-overview2.pdf>

<b>Lost control straight road</b>	Off roadway to left	0	0	1
<b>Merging</b>	Left turn in	0	0	1
	Right turn in	0	1	0
<b>Obstruction</b>	No vehicular obstruction (including animals)	0	1	0
<b>Other Ped</b>	Entering or leaving vehicle	0	0	1
<b>Overtaking</b>	Pulling out or changing lanes to right	0	1	0
	Cutting in or changing lane to left	1	0	3
	Weaving in heavy traffic	0	0	1
	Other	0	1	2
<b>Rear End</b>	Slower vehicle	0	1	2
<b>Same Direction Vs Turning</b>	Rear of left turning vehicle	0	0	1
<b>Crossing not turning</b>	Right angle	0	0	1
<b>Total</b>		1	5	13

Table 6: Injury crash locations - intersection/midblock.

Location	Fatal	Serious	Minor	Total
Intersection	0	2	5	7
Midblock	1	3	8	12
<b>Total</b>	1	5	13	19

Figure 4 displays the collision diagram for all cyclist crashes between the Hutt road intersection, SH2, and Petone roundabout

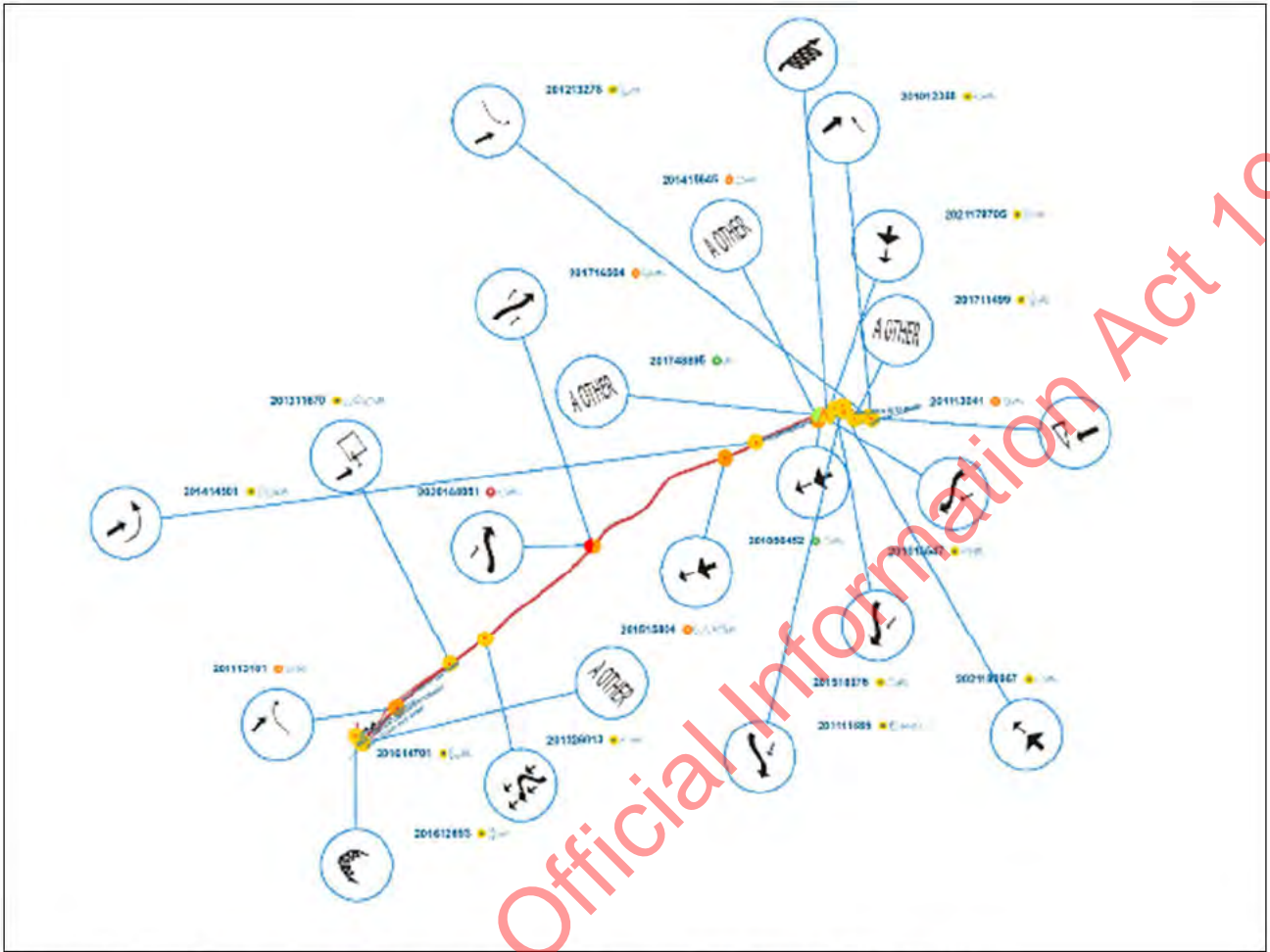


Figure 4: Collision diagram for cyclist crashes occurred between 2010-2020 and 2021 to date.

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## 2 Safety Audit Findings

### 2.1 Parking Facilities

#### 2.1.1 Ngauranga

Moderate

The Ngauranga Train Station currently accommodates approximately 12 ‘park and ride’ vehicle spots. The ITA report states “the estimated parking demand in 2025 at the Ngā Ūranga seaside land will be 14 on a weekday and 7 during a weekend”. The ITA reports that any excess parking will be satisfied by the informal parking on Hutt Road.

With consideration of the current parking demand and forecasted shared path users we believe the parking demands for Ngauranga have been underestimated. Due to high volumes of vehicles already using the train station and informal parking on Hutt Road, the excess demand will likely lead to vehicles parking on Jarden Mile. Inadequate parking facilities will result in traffic circulating at slow speeds to find parking spaces. This will result in increased congestion and conflict in this area and potentially vehicles parking in unsafe locations nearby as demand exceeds supply.

#### Recommendation(s):

- 1 Reconsider the estimated post construction parking demands at the Ngauranga connection side

Frequency:	Severity:	Rating:
<i>Crashes are likely to be Occasional</i>	<i>Death or serious injury is Likely</i>	<i>The safety concern is Moderate</i>
<b>Designer Response:</b>	The subject area is outside of the extents of the project and out of scope. The concerns raised will be shared with the appropriate authorities responsible for the design of the connection between this project and Hutt Road. There are other ways to manage parking demand which can explored with our Council partners.	
<b>Safety Engineer:</b>	Agree with SAT, parking demand needs to be assessed and consulted on with local RCA as part of the project. This will allow for better planning of additional parking needs prior to construction.	
<b>Client Decision:</b>	<i>The area is outside the scope of this project. The concerns raised by the SAT have been shared with the team involved in the adjacent section of Te Ara Tupua (WHV link) being progressed by the Let’s Get Wellington Moving Thorndon Quay Hutt Rd project – Waka Kotahi is a joint partner in this project.</i>	
<b>Action Taken:</b>	[	

#### 2.1.2 Honiana Te Puni Reserve

Moderate

The Honiana Te Puni Reserve currently has approximately 103 car park spaces across six parking areas, as shown in Figure 5. The ITA Report states the current peak parking demands on a typical weekday is approximately 45 vehicles. On typical sunny weekends the parking demand is approximately 85 vehicles, increasing to 110 vehicles on Sundays when the boating club is operation. Item 25.1 states “there will be 66 parking spaces in the Reserve post construction of the shared path, it is likely that parking demand at the Reserve will exceed supply throughout the year after the shared path is open.” It is proposed that overflow parking will be directed to the Petone Train Station parking area.



Figure 5: Current available parking areas at Honiana Te Puni.

During the site visit, it was noticed that the parking provided at Honiana Te Puni was almost at capacity as shown in Figure 6, Figure 7, and Figure 8. With consideration of increased demands post construction, we believe the parking demands have been underestimated. Inadequate parking will lead to increased congestion and conflicts within the carpark as traffic circulates in search of vacant parks, and with vehicles potentially parking in less safe locations as a result.



Figure 6: Carpark occupancy in Section E during site visit.



Figure 7: Carpark occupancy in Section E continued.





Figure 8: Carpark occupancy in Section B during site visit

**Recommendation(s):**

- 1 Reconsider the estimated post construction parking demands at the Honiana Te Puni Reserve
- 2 Ensure adequate signage is present to inform public of the excess parking areas available at the Petone Train Station.

<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
<i>Crashes are likely to be Occasional</i>	<i>Death or serious injury is Likely</i>	<i>The safety concern is Moderate</i>
<b>Designer Response:</b>	1. The capacity of the car parking for the Honiana Te Puni Reserve area has been assessed and approved through the consenting process. The concerns raised will be considered and re-evaluated during the detailed design. There are other ways to manage parking demand which can explored with our Council partners  2. Statutory signage and wayfinder signage will be determined during the detailed design. This is being developed in conjunction with adjacent projects.	
<b>Safety Engineer:</b>	1. Agree with SAT, parking demand needs to be assessed and consulted on with local RCA as part of the project. This will allow for better planning of additional parking needs prior to construction.  2. Agree with Designer comments, detailed design to include statutory and wayfinder signage	
<b>Client Decision:</b>	<i>Through the detailed design process the parking demand and provision will be reviewed and discussed with the owners and managers of the reserve.</i>	
<b>Action Taken:</b>	[	

2.1.3 *Mobility Scooter Parking*

**Comment**

During the site inspection we noted electric scooters deserted near the grassed areas in the reserve as shown in Figure 9. The ITAR anticipates 181 Transport device users across the shared path on weekdays and 272 on weekends in 2025. Therefore, a designated area should be provided to park these devices to avoid obstructions to walkers, cyclists and vehicles.



Figure 9: Mobility scooter left at Honiana Te Puni

**Recommendation(s):**

- 1 In the detailed design stage consider providing designated parking area for shared micromobility devices at the Honiana Te Puni Reserve and the Ngauranga Train Station parking areas.

## 2.2 Connectivity at Petone

### 2.2.1 Connections to the Esplanade

Figure 10 shows the proposed cyclist connections as suggested by ITA report.



Figure 10: Cyclists connections to The Esplanade

### 2.2.2 Southbound Esplanade connection to Te Ara Tupua

Moderate

The green line shows the suggested path for a southbound cyclist to access the shared path. The existing westbound cycle path is narrow and has a pinch point where safe hit posts have been erected, as shown in Figure 11.



Figure 11: Safe hit posts at the cycle path pinch point. (Westbound on The Esplanade)

The pinch point jeopardises existing cyclists’ safety and may deter new users from using this cycle path. With increased cyclists accessing the shared path from The Esplanade the narrow cycle path may result in vehicles and cyclists in close proximity, increasing the risk of cyclist crashes.

**Recommendation(s):**

- 1 Increase cycle path width along westbound direction of The Esplanade.

<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
<i>Crashes are likely to be Occasional</i>	<i>Death or serious injury is Likely</i>	<i>The safety concern is Moderate</i>
<b>Designer Response:</b>	The subject area is outside of the extents of the project area. The Esplanade is a local road controlled by Hutt City Council, who will be advised of the SAT concerns and recommendation. The new cycle path through the reserve connects to/from the existing cycle path that runs parallel to The Esplanade, and forms the link between this and the new cyclepath running alongside the rail corridor (north to the Hutt and south to Ngauranga) See inserted sketch below (route highlighted in blue).	
<b>Safety Engineer:</b>	Agree with both SAT and Designer comments. Though this may fall outside of the scope of the project, it is important to communicate the need identified with the local RCA, who may wish to address this deficiency prior to project construction.	
<b>Client Decision:</b>	<i>Agreed, the project provides a safer alternate route within the adjacent reserve. The SAT concerns will be shared with the RCA Hutt City Council who are reviewing options for improvements to the connection between the Eastern Bays Shared Path and Te Ara Tupua.</i>	
<b>Action Taken:</b>	[	



**2.2.3 Honiana Te Puni Reserve connection to The Esplanade**

**Significant**

The blue line in Figure 10 above shows the proposed connection path for cyclists from Honiana Te Puni Reserve to The Esplanade. The proposed left turn is due to the Reserve having a right turn movement ban for exiting vehicles. The red line shows an illegal cycle path movement out of the Reserve. Alternatively, the ITA report suggests cyclists can travel along the Pito-One foreshore before finding an appropriate opportunity to cross and then cycle east along The Esplanade.

Commonly, cyclist crashes at roundabouts involve circulating cyclists being struck by entering vehicles who fail to see the cyclist<sup>5</sup>. The suggested legal movement from the Reserve to the Esplanade is a difficult movement which puts cyclists in a considerably long conflict zone. This reduces cyclist safety and increases the risk of cyclist crashes. Figure 12 shows the long conflict zone.



Figure 12: Conflict zone for cyclists at roundabout.

No pedestrian facilities have been provided on The Esplanade near the Reserve. With increased attraction, more pedestrians will cross The Esplanade to access the Reserve, increasing the risk for pedestrian crashes.

**Recommendation(s):**

- 1 Re-evaluate cycle connectivity for cyclists travelling out of the reserve and wanting to travel east on The Esplanade.

<sup>5</sup><https://www.nzta.govt.nz/walking-cycling-and-public-transport/cycling/cycling-standards-and-guidance/cycling-network-guidance/designing-a-cycle-facility/intersections-and-crossings/roundabouts/>

- 2 Provide crossing facilities for cyclists and pedestrians on The Esplanade near the Reserve for users wanting to cross and travel east along The Esplanade.

<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
<i>Crashes are likely to be Common</i>	<i>Death or serious injury is Likely</i>	<i>The safety concern is Significant</i>
<b>Designer Response:</b>	The subject area is outside of the extents of the project area. Connectivity for cyclist to the reserve area and beyond is catered for from the north (Hutt Road) through the connection beneath the Petone interchange to the Petone to Melling (P2M) path, and to the east along the existing cycle and footpath. The nearest controlled crossing over The Esplanade is at the Victoria Street intersection approx. 800m east of the reserve entrance. The Esplanade is a local road controlled by Hutt City Council, who will be advised of the SAT concerns and recommendation. Refer also to the sketch inserted for item 2.2.2.	
<b>Safety Engineer:</b>	Agree with SAT. An additional crossing facility to the east of the reserve entrance will improve connectivity. Consideration may be given to a pedestrian refuge with kerb extensions and cycle rails, linking the proposed shared path within the reserve (blue pathway as per figure 2.2.2) with services and amenities across the esplanade. Consultation regarding connectivity should form part of this project.	
<b>Client Decision:</b>	<i>Agreed, the project is providing new or improved links for these connections. The concerns raised by the SAT will be passed onto the RCA Hutt City Council who are reviewing options for improvements to the connection between the Eastern Bays Shared Path and Te Ara Tupua.</i>	
<b>Action Taken:</b>	[	

2.2.4 Connection to Remutaka Cycle Trail

Significant

The Petone Foreshore path that connects to the Remutaka Cycle Trail at the eastern end of the foreshore, begins within Section E carpark area as shown in Figure 13. During the site visit it was observed that cyclists were cycling through the existing car park to access the Petone Foreshore path as shown in Figure 14. With expected increases in parking demand and traffic through the car park areas, cyclists will have greater exposure to manoeuvring vehicles increasing the risk of cyclist crashes within the carpark.



Figure 13: Beginning of Remutaka Cycle Trail at Section E carparking area.



Figure 14: Cyclist travelling through carpark to Remutaka Cycle Trail

Recommendation(s):

- 1 Re-evaluate cycle and pedestrian connectivity from the Te Ara Tupua path to the Remutaka Cycle Trail.

Frequency:	Severity:	Rating:
Crashes are likely to be Common	Death or serious injury is Likely	The safety concern is Significant

<b>Designer Response:</b>	Refer to the sketch inserted under item 2.2.2. The new path through the reserve east of Korokoro will run to the north of the car park segregated from the access road and the car parking areas. It will also be signed accordingly. Where the path crosses the car park access road a raised table is included in the preliminary design to act as traffic calming. Lining and signing will be provided to alert drivers and path users.
<b>Safety Engineer:</b>	Agree with Designer comment. Connectivity between Te Ara Tupua path and the Remutaka Cycle path appears to be considered.
<b>Client Decision:</b>	<i>Agree with the comments above</i>
<b>Action Taken:</b>	[

**2.2.5 Connection to Petone Underpass**

Significant

There is limited sight distance around the corner to and from the Reserve to Petone via the Petone Bridge underpass as shown in Figure 15. The underpass is currently unlit limiting sight distance and visibility. The space also poses a personal safety risk for walkers and cyclists, especially at night as shown in Figure 16 and Figure 17.



Figure 15: Limited sight distance at the Bridge underpass.



Figure 16: Personal safety risk in the space of the Petone underpass. Facing Petone (left), facing the Reserve (right).



Figure 17: Limited visibility and increased personal safety risk beneath the unlit Petone underpass.

During dark hours, the unlit bridge over the Korokoro Stream at the Petone underpass limits visibility and sight distance. This increases difficulty for walkers and cyclists to identify oncoming foot traffic or cyclists as shown in Figure 18. Cyclists at speed are also unlikely to see the vertical crest of the bridge. The dark area also poses a personal safety risk for those using this path.



Figure 18: Limited visibility over the Korokoro stream bridge. (Looking towards the Petone roundabout)

**Recommendation(s):**

- 1 Install lighting through the underpass to increase visibility and increase personal safety.
- 2 Investigate crime prevention methods through environmental design.



<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
<i>Crashes are likely to be Common</i>	<i>Death or serious injury is Likely</i>	<i>The safety concern is Significant</i>
<b>Designer Response:</b>	Lighting to P3 standard is to be provided. CCTV is also to be provided along Te Ara Tupua, N2P continuing the system currently under construction on P2M. The proposed path alignments remove some of the visibility issues raised (see inserted sketch below (routes highlighted in blue)). The CPTED assessment undertaken for the consenting design will also inform the detailed design.	
<b>Safety Engineer:</b>	Agree with Designers comment.	
<b>Client Decision:</b>	<i>Agree with the comments above</i>	
<b>Action Taken:</b>	[	

2.2.5 - Connection to Petone Underpass



2.2.6 Connectivity to the Petone to Melling Cycleway

Minor

The Petone underpass connects to the shared path on the Hutt Road, Petone as shown in Figure 19. The Petone to Melling shared path is to be constructed from this point. Although it is stated that Te Ara Tupua is to connect with the Petone to Melling shared path, there is no explicit design of how the two shared paths will connect.



Figure 19: Current connection from the underpass to the Petone to Melling cycle path.

**Recommendation(s):**

- 3 Provide explicit explanation for the connectivity between Ngā Ūranga ki Pito-One sand the Petone to Melling shared path.

<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
<i>Crashes are likely to be Occasional</i>	<i>Death or serious injury is Unlikely</i>	<i>The safety concern is Minor</i>
<b>Designer Response:</b>	The details for the connection along Hutt Road to the P2M section of Te Ara Tupua will form part of the detailed design phase.	
<b>Safety Engineer:</b>	Agree with Designer comment.	
<b>Client Decision:</b>	<i>Agree with the comments above</i>	
<b>Action Taken:</b>	[	

**2.2.7 Connectivity between Petone off ramp cyclists and Te Ara Tupua**

**Significant**

Cyclists who will continue to travel along the northbound shoulder of SH2 and use the Petone off ramp will require a path to connect to Te Ara Tupua. The current connectivity provided for Te Ara Tupua is relatively unclear. Currently cyclists wanting to travel to the Esplanade must cross the Hutt Road slip lane to the refuge before re-entering the roundabout traffic lane as shown in Figure 20. As the most common cyclist crash at a roundabout involves circulating cyclists being struck by entering vehicles who fail to see the cyclists<sup>6</sup>, this manoeuvre reduces cyclist safety.



Figure 20: Current cyclist facilities for cyclists on the Petone off ramp who want to access The Esplanade or the Reserve

**Recommendation(s):**

- 1 Provide safe and clear options for cyclists from the Petone off ramp to access The Esplanade and Te Ara Tupua path.

<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
<i>Crashes are likely to be Common</i>	<i>Death or serious injury is Likely</i>	<i>The safety concern is Significant</i>
<b>Designer Response:</b>	The layout of the path connection to the nearside slip lane will be considered and upgraded as part of the detailed design process. Signage will also be provided to direct cyclists to use the routes through the reserve and along the path parallel to the Esplanade.	
<b>Safety Engineer:</b>	Agree with SAT and Designer comments. Provide safe and clear options to inform users. Promoting cyclists to continue eastbound until they've reached a safer crossing point will reduce exposure to the risks posed by cycling within the roundabout. Eg: crossing at the Hutt Road pedestrian refuge, following the footpath around onto the Esplanade, and onto a new crossing point east of the reserve entrance.	
<b>Client Decision:</b>	<i>Agree with the comments above. Hutt City Council will also be consulted on this.</i>	
<b>Action Taken:</b>	[	

## 2.3 Connectivity at Ngauranga

### 2.3.1 Hutt Road Tunnel

Significant

The proposed road markings and additional signage to mitigate conflict arising at the entrance to the Hutt Road Tunnel can be seen in Figure 21, as taken from the ITA report.



Figure 21: Proposed road markings and additional signage at Hutt Road Tunnel to mitigate increased conflict.

The entrance of the Hutt Road tunnel will become a major point of conflict as the number of tunnel users, cyclists and pedestrians increase. Vehicles turning right from the northbound lane on Hutt Road must cross two live traffic lanes, the bus lane and two cycle paths (the on-road cycle path as well as the off-road cycle path.) Left turning traffic from the Hutt Road southbound lane will be required to navigate safely across two cycle paths. A vehicle waiting to turn as shown in Figure 21, will also obstruct a bus from entering the bus path and thus block the on-road cycle path and traffic lane leading to increased congestion in this area.

#### Recommendation(s):

- 1 Remove the right turn facility into the tunnel on the northbound Hutt Road to reduce conflict in front of the tunnel.

Frequency:	Severity:	Rating:
Crashes are likely to be Common	Death or serious injury is Likely	The safety concern is Significant
<b>Designer Response:</b>	The subject area is outside of the extents of the project and out of scope. The concerns raised will be shared with the appropriate authorities responsible for the design of the connection between this project and Hutt Road.	
<b>Safety Engineer:</b>	Agree with SAT and Designer comments. Consultation on this needs to be undertaken as part of the project.	
<b>Client Decision:</b>	<i>The area is outside the scope of this project. The concerns raised by the SAT have been shared with the team involved in the adjacent section of Te Ara Tupua (WHV link) being</i>	

	<i>progressed by the Let's Get Wellington Moving Thorndon Quay Hutt Rd project – Waka Kotahi is a joint partner in this project.</i>
<b>Action Taken:</b>	[

**2.3.2 Continued Cycling on SH2 Northbound Shoulder**

**Significant**

Post construction, some cyclists may choose to continue to use the northbound shoulder on SH2. Although it is expected that the number of cyclists travelling through the northbound shoulder will decrease, those continuing to ride this path will experience a reduced 'safety in numbers' factor. Therefore, provisional methods need to be made to ensure motorists are aware cyclists will continue to use the SH2 shoulder.

**Recommendation(s):**

- 1 Provide provisional measures to ensure motorists are aware some cyclists will continue to ride the SH2 shoulder.

<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
<i>Crashes are likely to be Common</i>	<i>Death or serious injury is Likely</i>	<i>The safety concern is Significant</i>
<b>Designer Response:</b>	The subject area is outside of the extents of the project. The concerns raised will be shared with the appropriate authorities responsible for SH2 (Waka Kotahi Road Safety team) and the design of the connection between this project and Hutt Road/Jarden Mile/Centennial Highway (LGWM and WCC). It is not clear what is intended by 'provisional methods'.	
<b>Safety Engineer:</b>	Agree with SAT. Consideration may be given to increasing cycle infrastructure to raise awareness along SH2. Provisional methods of raising awareness may include additional use of cycle pavement markings, cycle rails etc.	
<b>Client Decision:</b>	<i>Agree with the comments above. To be considered internally within Waka Kotahi</i>	
<b>Action Taken:</b>	[	

**2.3.3 Pedestrian Facilities at the Hutt Road Intersection**

**Significant**

Those who park on Jarden Mile, when parking at Ngauranga Train Station and Hutt Road are at capacity, will need to cross the Hutt Road intersection to access the shared path. Currently there are no pedestrian facilities at this intersection as shown in Figure 22. During the site inspection it was noted that pedestrians are regularly crossing prior to and at the intersection at current to access the bus stops and footpaths in the vicinity as shown in Figure 23 and Figure 24.

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Figure 22: Only cyclist crossing facilities provided at the Hutt Road intersection.



Figure 23: Pedestrians and cyclists crossing Hutt Road



Figure 24: Pedestrians crossing across Centennial Highway, to get from and to the bus stops

With increased pedestrians and cyclists post construction pedestrian facilities need to be catered for to ensure the intersection can be navigated safely. These pedestrian facilities will especially be required by the elderly, small children and mobility impaired users who may not be able to weave through traffic or cross at speed.

We are aware that there are improvements planned at this intersection including pedestrian and cycling improvements as part of other planned projects in this area; however the timing of delivery of these projects alongside the timing of the Te Ara Tupua path is critical.

**Recommendation(s):**

- 1 Improve connectivity by considering installing appropriate pedestrian facilities to ensure the shared path, bus stops and shops in the vicinity can be reached safely.
- 2 Install wayfinding signage as appropriate to allow for easy navigation.

<b>Frequency:</b> <i>Crashes are likely to be Common</i>	<b>Severity:</b> <i>Death or serious injury is Likely</i>	<b>Rating:</b> <i>The safety concern is Significant</i>
<b>Designer Response:</b> The subject area is outside of the extents of the project and out of scope. The concerns raised will be shared with the appropriate authorities responsible for the design of the connection between this project and Hutt Road/Jarden Mile/Centennial Highway. The timing of projects will be closely monitored.		

<b>Safety Engineer:</b>	Agree with SAT. Project team to consult and coordinate works as much as possible.
<b>Client Decision:</b>	<i>The area is outside the scope of this project. The concerns raised by the SAT have been shared with the team involved in the adjacent section of Te Ara Tupua (WHV link) being progressed by the Let's Get Wellington Moving Thorndon Quay Hutt Rd project – Waka Kotahi is a joint partner in this project.</i>
<b>Action Taken:</b>	[

**2.3.4 Conflict Zone with Shared Path and Vehicles Exiting the Stock Effluent Disposal**

Moderate

The current separated cycle path intersects with the exit from the train station/stock effluent disposal. A yellow stop line and raised table are currently present, as shown in Figure 25, to indicate cyclists and walkers have right of way. At present vehicles waiting to join the traffic lanes are waiting on the raised table as shown in Figure 26.

With expected increases in parking demand and shared path users, this area will become a major conflict zone, decreasing safety for cyclists and walkers on the path as they must manoeuvre past vehicles.



Figure 25: Yellow stop line and raised table for the existing shared path.





Figure 26: Vehicle exiting Train Station/ Stock Effluent Disposal waiting on the raised table to turn into traffic lane.

It is also important to note that during the site inspection we witnessed several cars queue jumping from this area. It was assumed that vehicles were turning into the Hutt Road Tunnel to join SH2 off ramp traffic and skip the red traffic signals on Hutt Road.

**Recommendation(s):**

- 1 Increase the width of the raised table to allow users to navigate behind vehicles waiting to turn
- 2 Place yellow 'keep clear' hatching on the SH2 off ramp lanes to allow vehicles to re-join traffic lanes quickly.

Frequency:	Severity:	Rating:
Crashes are likely to be Occasional	Death or serious injury is Likely	The safety concern is Moderate
<b>Designer Response:</b>	The subject area is outside of the extents of the project and out of scope. The concerns raised will be shared with the appropriate authorities responsible for the design of the connection between this project and Hutt Road/Jarden Mile/Centennial Highway.	
<b>Safety Engineer:</b>	Agree with SAT. Designers to consider consultation on items raised.	
<b>Client Decision:</b>	<i>The area is outside the scope of this project. The concerns raised by the SAT have been shared with the team involved in the adjacent section of Te Ara Tupua (WHV link) being progressed by the Let's Get Wellington Moving Thorndon Quay Hutt Rd project – Waka Kotahi is a joint partner in this project.</i>	

Action Taken:

[

2.3.5 Narrow Sections of Shared Path Areas

Significant

There are several sections of the shared path in the Ngauranga connection area with very narrow width. With an increase in the variety of user groups, these narrow areas may become conflict zones.

The shared path has pinch points at the motorway underpass, within the motorway underpass tunnel, and at the connection to the Hutt Road shared path as shown in Figure 27, Figure 28, and Figure 29.



Figure 27: Shared path pinch point at the start of the urban motorway underpass.



Figure 28: Narrow path through the motorway underpass tunnel.



Figure 29: Narrow path at the connection to the Hutt Road shared path.

Some regions at this connection also have limited forward visibility, as shown in Figure 30, increasing the risk of collisions at these points.



Figure 30: Limited forward visibility from the Hutt Road through the motorway underpass tunnel.

The narrow sections of the shared path may become an area of conflict when the number of path users increases. The increased conflict at this point will increase the risk of crashes between cyclists and collisions between pedestrians and cyclists. The ITA suggests the following road markings, as shown in Figure 31, Figure 32, and Figure 33, be installed to mitigate the increased conflict.



Figure 31: Shared path markings at narrow section of shared path at the motorway underpass.



Figure 32: Shared path markings as suggested by the ITA.



Figure 33: Shared path marking at the connection to Hutt Road shared path as suggested by the ITA and area of vegetation to be removed.

Installing these markings can often give cyclists a false sense of priority and fails to mitigate congestion issues on the path.

During the site visit it was noted that there are areas of land being underutilised as shown in Figure 34. These areas could undergo vegetation removal and be used to widen the shared path to minimise conflict.



Figure 34: Underutilised land at the Ngauranga connection.

In the sections of shared path which cannot be widened, red coloured bars, as shown in Figure 35, could be marked on the pathway to indicate users of the conflict zones to be consistent with treatments of other conflict areas on shared paths and cycle paths around Wellington.



Figure 35: Existing red coloured surfacing bars at conflict zone along the Hutt Road

**Recommendation(s):**

- 1 Reconsider the line markings as suggested in the ITA.
- 2 Consider placing red coloured surfacing bars to notify users of the conflict areas.
- 3 Vegetation removal to increase the visual appeal of the area and to increase site distance.
- 4 Widen the shared path in areas where possible such as the connection between the underpass tunnel and the Hutt Road shared path.

Frequency:	Severity:	Rating:
Crashes are likely to be	Death or serious injury is	The safety concern is

Common	Likely	Significant
<b>Designer Response:</b>	The subject area is outside of the extents of the project and out of scope. The concerns raised will be shared with the appropriate authorities responsible for the design of the connection between this project and Hutt Road/Jarden Mile/Centennial Highway.	
<b>Safety Engineer:</b>	Agree with SAT. Designers to consult on items.	
<b>Client Decision:</b>	<i>The area is outside the scope of this project. The concerns raised by the SAT have been shared with the team involved in the adjacent section of Te Ara Tupua (WHV link) being progressed by the Let's Get Wellington Moving Thorndon Quay Hutt Rd project – Waka Kotahi is a joint partner in this project.</i>	
<b>Action Taken:</b>	[	

## 2.4 Wayfinding Signs

### 2.4.1 Hutt Road Tunnel

### Comment

To improve user experience appropriate wayfinding signs should be installed encourage to new users to use the shared path and connected paths. The wayfinding signs should be consistent with current wayfinding signs found at Ngauranga and Petone. Some examples are shown in Figure 36 and Figure 37 to allow users to navigate easily.



Figure 36: Ngauranga wayfinding signs.



Figure 37: Petone way finder signage.

**Recommendation(s):**

- 1 Install appropriate way finder signage and consider way finder signage designs in the detailed design stage

**2.5 Construction**

**2.5.1 Construction Yard Access**

Moderate

Figure 38 and Figure 39 show the current Kiwi Rail access points which will be used as the ingress and egress to the construction yard for the duration of the Te Ara Tupua project. The accessway is also used by off road and on road cyclists. The ingress is via a private access way and has a raised table prior to the construction yard entrance gate as shown in Figure 40.



Figure 38: Construction yard ingress from southbound lane on SH2 and signage prior to the access way.





Figure 39: Construction yard egress and current shared path.



Figure 40: Construction yard ingress and raised table at the connection point of on road and off-road riders.

Section 6.3 of the Assessment of Environmental Effects states “staff will generally arrive on site between 06:45am and 07:00am and will generally leave site between 17:30pm and 19:00pm” with the “normal hours of work during construction for all activities likely to be between 7:00am to 6:30pm during daylight savings, and 7:00am to 5:30pm at other times.”

Construction from the Ngauranga side has been split into three stages. The suggested cycle path layouts during stage one, two, and three of construction are as shown in Figure 41 and Figure 42. The green is the active user path, the red boundary shows the private access to be used by trucks, the light blue boundary indicates the construction yard, and the dark blue shows the egress from the construction yard.

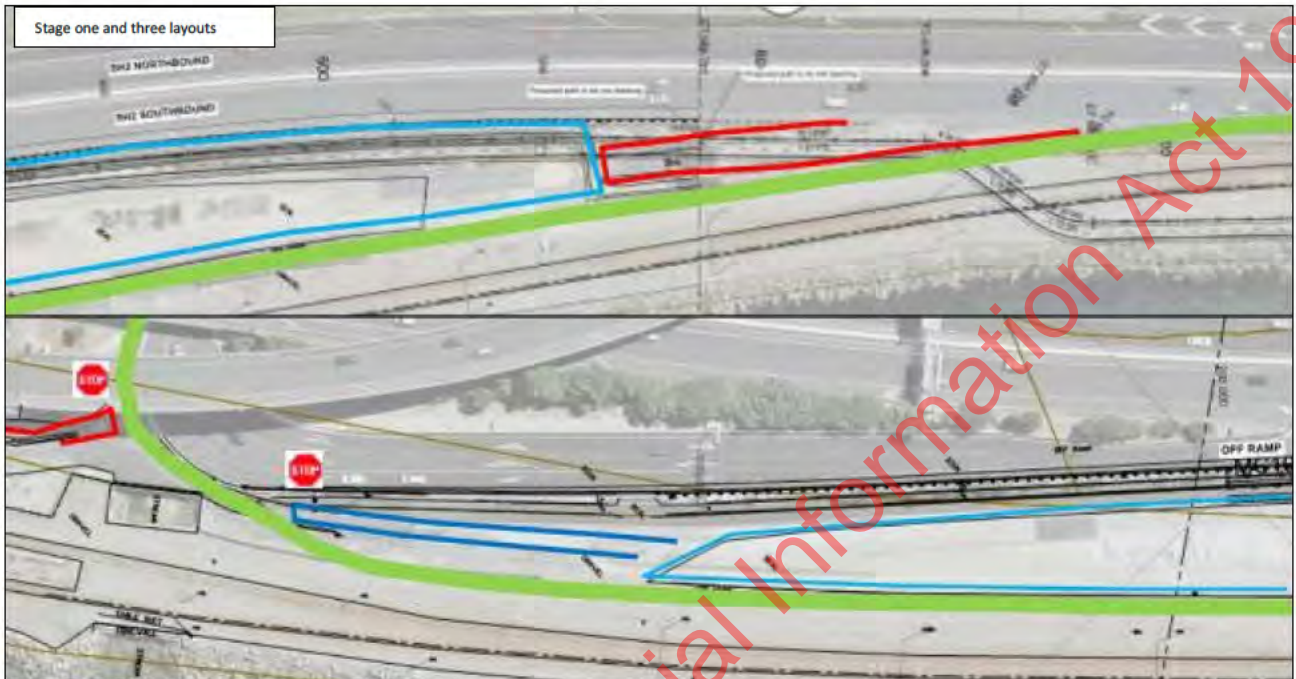


Figure 41: Stage one and three layout of construction yard and active user path.

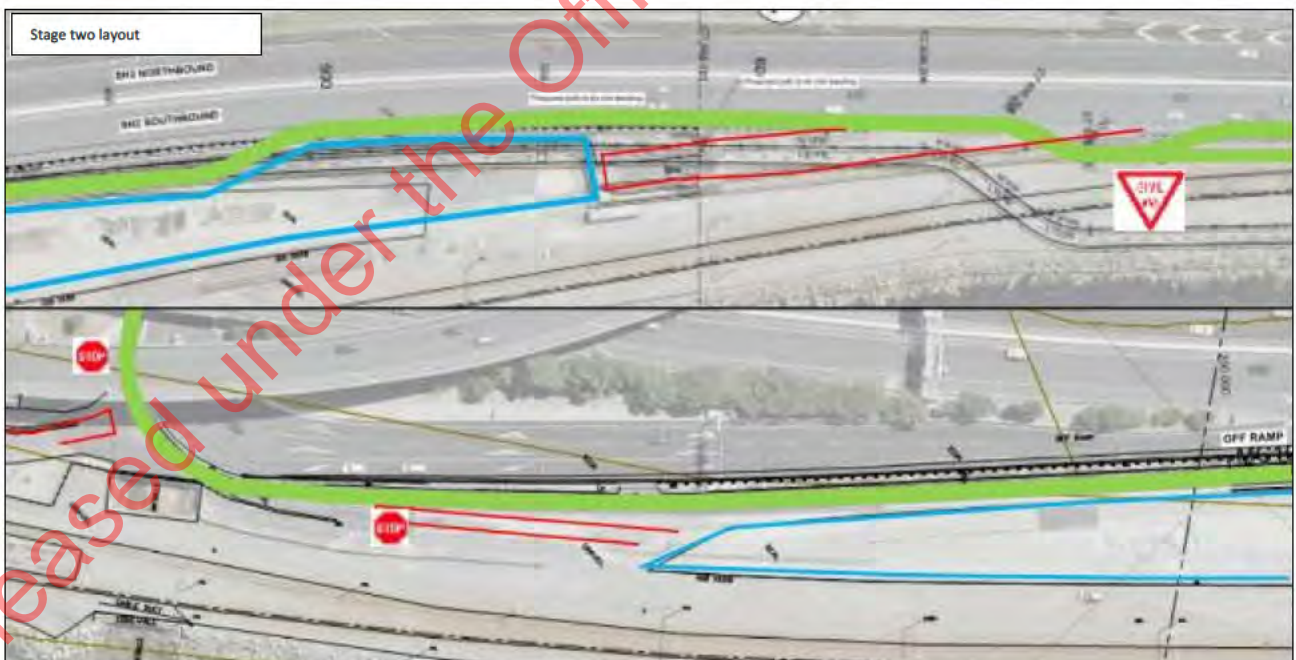


Figure 42: Stage two layout of construction yard and active user path.

The stage one and three layouts remove conflict between path users and trucks at the ingress to the construction site. However, as trucks and other vehicles will be approaching the ingress at speed, the installation of a physical barrier, such as safe hit posts, could improve cyclist safety.

Conflict at the construction yard ingress at stage two will remain. As vehicles will be travelling at speed on the southbound lanes of SH2, a physical barrier could be installed between the active path and State Highway lanes to increase user safety, especially for those who normally ride off road and do not feel safe doing otherwise.

**Recommendation(s):**

- 1 Install safe hit posts between the active user path and vehicle ingress path during stage one and three construction.
- 2 Install safe hit posts between the active user path and SH2 southbound lanes path during stage two.

<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
<i>Crashes are likely to be Infrequent</i>	<i>Death or serious injury is Likely</i>	<i>The safety concern is Moderate</i>
<b>Designer Response:</b>	The continued use of the SH2 access(es), path and connection to the existing path at Ngauranga has been recognised as a conflict zone which requires careful consideration and management by both the designers and the constructors. The details for the temporary management arrangements throughout each stage of the construction in these areas will be the responsibility of the Alliance and will subject to the relevant design standards and safety audit procedures.	
<b>Safety Engineer:</b>	Agree with SAT and Designer comment. Item to be addressed appropriately during detailed design and construction phases. Vulnerable user movements to be separated from construction activity, and where conflict remains, vulnerable users should be given priority through appropriate signage / devices / markings.	
<b>Client Decision:</b>	<i>Agree with the comments above. This will be considered in the detailed design and planning of the works, by the designers, the constructors and the RCA</i>	
<b>Action Taken:</b>	[	

**2.6 Shared Path**

**2.6.1 Shared Path Users**

**Significant**

The unpredictability of dogs increases obstructions faced by cyclists. Leashed dogs risk cyclists from being clotheslined and seriously injured. Dogs on the shared path reduce cyclist’s safety and may discourage cyclists from using the path. The prohibition of dogs will also reduce disturbances to the penguin habitats near the shared path.

**Recommendation(s):**

- 1 Consider prohibiting dogs along the shared path and ensuring appropriate signage is in place to inform dog walkers.

<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
<i>Crashes are likely to be Common</i>	<i>Death or serious injury is Likely</i>	<i>The safety concern is Significant</i>

<b>Designer Response:</b>	Acknowledged. The safety of all potential path users and implications for local wildlife will be considered. Any restrictions or controls on use will then be determined by the owners/operators of the path.
<b>Safety Engineer:</b>	Agree with Designer comment. Item needs to be considered and consulted on as part of this project.
<b>Client Decision:</b>	<i>Agree with the comments made above</i>
<b>Action Taken:</b>	[

### 2.6.2 Cycle Operating Speeds

Comment

Section 7.1.1 and 7.1.2 of the Shared Path Demand Assessment and Design Review explains that the design width for the shared path (with a few areas of exception) will be 5m in width. With pedestrians on the seaward side, it is expected that cyclists can safely travel the path at speeds between 25-35 km/h. It is expected that cyclists going above these speeds will continue to use the northbound shoulder on SH2. Further consideration should be taken to determine how the operating speeds will affect sight stopping distance.

#### Recommendation(s):

- 1 Check the effect the proposed cyclists operating speeds will have on sight distance and sight stopping distance along the shared path.
- 2 Consider the effect of cyclists travelling southbound on the shared path at speeds above 35 km/h.

### 2.6.3 Shared Path Overbridge Fencing.

Moderate

The design for the fence line for the overbridge bridge is as illustrated in Figure 43 from the Cultural and Environmental Design Details. Further consideration should be taken to determine if the fencing design of the bridge will be a snagging hazard and limit sight distances.



Figure 43: Shared path bridge fencing design.

#### Recommendation(s):

- 1 Determine the sight distance required for cyclists on the bridge section and determine if adequate sight distance is provided once fencing is installed.
- 2 Consider if adequate sight distance is available for cyclists travelling at high speeds.

<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
<i>Crashes are likely to be Occasional</i>	<i>Death or serious injury is Likely</i>	<i>The safety concern is Moderate</i>
<b>Designer Response:</b>	The consenting design alignment of the bridge deck includes for localised widening at the top of each ramp. Consideration of all design requirements will be reviewed during the detailed design phase.	
<b>Safety Engineer:</b>	Agree with Designer comment. Snagging potential and sight distances to be considered during detailed design.	
<b>Client Decision:</b>	<i>Agree, the detailed design will consider and address.</i>	
<b>Action Taken:</b>	[	

2.6.4 Bollards

Moderate

Currently there are single bollards present at the beginning of the connection from Honiana Te Puni to the Petone SH2 onramp as shown in Figure 44. When multiple cyclists are travelling behind one another, typically only the first cyclist will see and manoeuvre around the bollard in time, sending cyclists behind straight into the bollard. Surface markings prior to bollards, as shown in Figure 45, should be used to decrease the risk of this hazard.



Figure 44: Bollards present at the connection from Honiana Te Puni to Petone SH2 onramp.



Figure 45: Surfacing markings on approach to single bollards.

**Recommendation(s):**

- 1 Install surface markings to indicate to cyclists of single bollards ahead.

<b>Frequency:</b>	<b>Severity:</b>	<b>Rating:</b>
Crashes are likely to be Occasional	Death or serious injury is Likely	The safety concern is Moderate
<b>Designer Response:</b>	Consideration of all design requirements in terms of lining, signing and furniture will be reviewed during the detailed design phase.	
<b>Safety Engineer:</b>	Agree with Designer comment.	
<b>Client Decision:</b>	Agreed	
<b>Action Taken:</b>	[	

2.6.5 Shared Path Access

Comment

The Hutt City Council gate as shown in Figure 46 is said to have the following opening hours;

- 7:00 am – 6:00 pm between April and September
- 7:00 am – 9:30 pm between October and March

It should be noted that the shared path will likely be used by commuters who travel to and from work therefor would require access to the path prior to 7:00 am and past 6:00 pm.



Figure 46: Hutt City Council owned and operated gate

### Recommendation(s):

- 1 Contact Hutt City Council to discuss and reconsider the operational hours of the shared path and gate closure times.
- 2 Install appropriate lighting to ensure the gate is visible when closed so commuters do not collide into the closed gate.

## 2.7 General Accesses

### 2.7.1 Honiana Te Puni Restricted Accessways

Significant

During the site visit it was noticed that there were several accesses restricted with chains as in Figure 47. During dark hours, the lighting at Honiana Te Puni Reserve does not allow cyclists and micromobility device users to see the chains from afar. This may result in users riding straight into the chain causing them to be thrown off their transportation device and seriously injured.



Figure 47: Access way restricted by chain at Honiana Te Puni Reserve.

### Recommendation(s):

- 1 Consider installation of removal bollards instead of chains to restrict accessways.
- 2 Improve the lighting conditions around Honiana Te Puni Reserve so cyclists, micromobility users and pedestrians are aware of the chains at the restricted accessways.

Frequency:	Severity:	Rating:
Crashes are likely to be Common	Death or serious injury is Likely	The safety concern is Significant
Designer Response:	Acknowledged. Lighting through the reserve path is to be provided to P3 standard. The hazards identified will be raised with the landowners and operators of the reserve	
Safety Engineer:	Agree with Designer comments.	
Client Decision:	Agreed	
Action Taken:	[	

## 2.8 Lighting

### 2.8.1 Honiana Te Puni Lighting

Significant

During the site visit it was noticed the lighting at Honiana Te Puni Reserve was insufficient, as shown in Figure 48. This limits user visibility and increases the risk of collisions with bollards and other objects.



Figure 48: Honiana Te Puni with flash on left and without flash on the right

#### Recommendation(s):

- 1 Ensure lighting design is considered in the detailed design stage

Frequency:	Severity:	Rating:
Crashes are likely to be	Death or serious injury is	The safety concern is



Common	Likely	Significant
<b>Designer Response:</b>	Lighting to P3 standard is to be provided to the new car parking and new paths	
<b>Safety Engineer:</b>	Agree with SAT. Lighting design in accordance with current Waka Kotahi and AS/NZ standards implemented to match the needs of the users.	
<b>Client Decision:</b>	<i>Agreed</i>	
<b>Action Taken:</b>	[	

**2.8.2 Shared Path Lighting**

**Comment**

Lighting is an integral requirement for the shared path however we are aware the lighting design has yet to be considered for the path. The lighting design should take into consideration light spill over onto the state highway and disturbances to the penguin habitats.

**Recommendation(s):**

- 1 Consider ground mounted or kerb mounted lighting on the seaward side facing in toward the path for lighting design.
- 2 Lighting designs for the shared path should be considered in the detailed design stages.

**2.8.3 Construction Yard Lighting**

**Comment**

The layout and lighting for the construction yards will be considered and finalised once the contractor is engaged further. The lighting design should take into consideration light spill over onto the state highway and disturbances to the penguin habitats.

**Recommendation(s):**

- 1 Consider the appropriate lighting design for the construction yard once contractor has been engaged.

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### 3 Audit Statement

We certify that we have used the available plans, and have examined the specified roads and their environment, to identify features of the project we have been asked to look at that could be changed, removed or modified in order to improve safety. The problems identified have been noted in this report.

Signed: ..... **Section 9(2)(a)** ..... Date: 2021-06-18

**Section 9(2)(a)**, BE (Civil)  
Graduate Civil Engineer, WSP

Signed: ..... **Section 9(2)(a)** ..... Date: 2021-06-18

**Section 9(2)(a)**, BE (Civil) First Class Hons  
Transportation Engineer, WSP

Signed: ... **Section 9(2)(a)** ... Date: 2021-06-18

**Section 9(2)(a)**, NZCE BE MSc PhD  
Technical Director-Transport, WSP

**Designer:** Name **Section 9(2)(a)** Position AECOM Associate Director.

Signature **Section 9(2)(a)** Date 25/06/2021....

**Safety Engineer:** Name Etienne La Grange Position Snr Safety Engineer,

Signature  Waka Kotahi  
Date 28/06/2021

**Project Manager:** Name Michael Siazon Position Principal Transport Planner

Signature  Date 26 July 2021

**Action Completed:** Name..... Position.....

Signature..... Date.....

*Project Manager to distribute audit report incorporating decision to designer, Safety Audit Team Leader, Safety Engineer and project file.*

Date: .....



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