



PART B - APPROVALS RELATING TO RESOURCE MANAGEMENT ACT 1991

NZ Transport Agency Waka Kotahi
SH1 Wellington Improvements

Assessment of environmental effects

14 AUGUST 2026

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1 INTRODUCTION

1.1 Overview of the Project, RMA approvals and proposed conditions

1.1.1 Project overview

The State Highway 1 (SH1) Wellington Improvements project (the Project) is a Road of National Significance (RoNS) which will improve SH1 in Wellington City. The proposal includes the construction, operation and maintenance of improvements to SH1, extending approximately 5 km through the city from north of the Terrace Tunnel to near the intersection of Cobham Drive and Evans Bay Parade. The Project will improve efficiency and reliability on SH1 by providing second tunnels at The Terrace and Mt Victoria, a new layout at the Basin Reserve, and widening, intersection and layout improvements along the remainder of the SH1 corridor as illustrated in Figure 1 below.

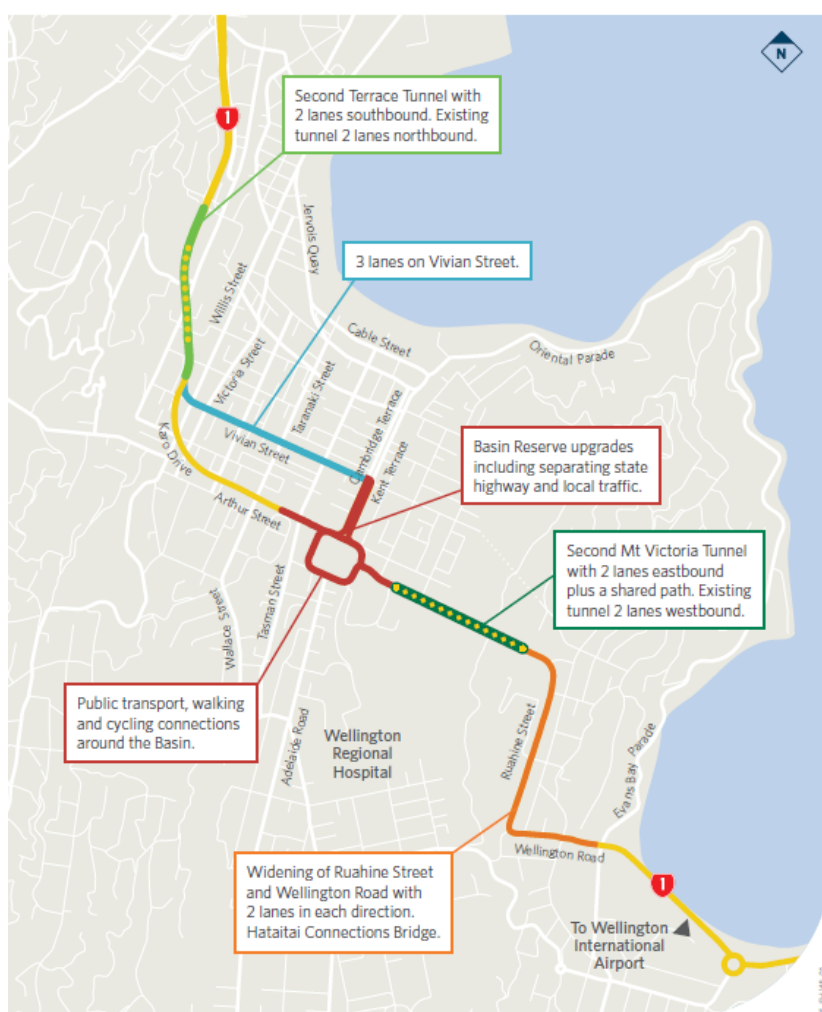


Figure 1 – Project overview

The Project aims to attract traffic onto SH1, reduce traffic on other key routes, alleviate critical bottlenecks on the state highway, maintain access for local movements and enable public transport growth.

SH1 through Wellington City is heavily congested at peak times, with forecast population growth across the region expected to increase travel demand further. The proposed package of improvements is expected to result in average travel time savings of 4 to 7 minutes¹ (including for key bus routes) during peak periods for key SH1 journeys, including to the central business district (CBD), hospital, and airport

¹ Note that higher peak travel time savings will be experienced

and includes travel time savings for key bus routes. Travel time reliability to these key transport destinations is expected to improve by around 40 percent.

Improvements to walking and cycling are also proposed through inclusion of a new shared path through the new Mt Victoria tunnel to replace the existing substandard path in the existing tunnel and a new shared path along Ruahine Street and Wellington Road (separated from highway traffic) to connect to existing walking and cycling facilities at Evans Bay Parade. Improvements near the Basin and in Hataitai are also proposed to improve connectivity.

For description purposes, the Project has been divided into the following five sections:

1. Terrace Tunnel (shown in light green on Figure 1)
2. Te Aro – Vivian Street / Karo Drive (shown in blue)
3. Basin Reserve (shown in red)
4. Mt Victoria Tunnel (shown in dark green)
5. Eastern Connections (shown in orange)

Chapter 3 of this report outlines the Project's indicative design and Chapter 4 provides indicative construction details, which are supported by engineering and landscape drawings to illustrate the proposal. The authors of the specialist technical assessment reports (in Part F of the Application) have used this information to assess the actual and potential effects on the environment and to identify measures to avoid, remedy, or mitigate adverse effects, where appropriate.

The indicative design and construction details remain subject to further development following the completion of the FTAA process. However, the RMA related approvals sought are intended to be subject to the imposition of appropriate conditions as proposed in this Application. The proposed conditions, included in Appendix A of this report, are outcome-based and are intended to establish environmental effects limits. Achieving these limits will mean environmental effects are appropriately avoided, remedied or mitigated, regardless of the design refinement during the detailed design phase of the Project and the final construction methodology adopted.

1.1.2 RMA-related approvals sought

Section 42(4) of the FTAA identifies the RMA approvals that can be sought via the FTAA process. NZTA seeks all necessary RMA approvals to construct, operate and maintain the Project as described in Chapter 5. The RMA approvals sought for the Project in this Application are:

- A notice of requirement for an alteration to the existing designation (numbered NZTA-1) for SH1 in the Wellington City 2024 District Plan: Appeals Version (District Plan)
- Regional resource consents under the Natural Resources Plan for the Wellington Region 2023 (NRP) and Proposed Plan Change 1 to the NRP (PC1) as follows:
 - Land use consents in accordance with section 9(1), 9(2) and 13(1) of the RMA
 - Water permits in accordance with section 14 of the RMA
 - Discharge permits to land, water and air in accordance with section 15 of the RMA
 - Coastal permit in accordance with section 12 of the RMA
- Regional land use consent, water permit and discharge permit under the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-F) in accordance with sections 9(1), 14 and 15 of the RMA
- District land use consent under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS) in accordance with section 9(1) of the RMA
- District land use consent for earthworks and vegetation removal within the Wellington Town Belt as part of proposed ecology offsetting works

NZTA is seeking to secure the RMA related approvals now to provide certainty that the Project can be built, and to enable construction of the Project to commence as soon as possible once construction funding is available.

To enable an assessment of the potential effects of the Project on the environment, the assumed construction start date is 2029, with a construction duration of 6-8 years. However, the actual timing of construction could be later than this date and the duration of the overall works could be longer, in the event the Project is built in stages, as funding becomes available. As such, construction duration is dependent on funding and the final construction methodology and staging. The application has been assessed on this basis, and the nature and scale of impacts is not expected to materially increase if the construction duration is extended.

Outline Plan(s) showing details of the Project works will be prepared closer to construction. In accordance with section 176A of the RMA, this will be supplied to Wellington City Council (WCC) for consideration at that time. Outline Plan(s) may be submitted in stages if the Project is implemented in a staged manner.

1.2 Legal interests in the land

Sections 43(2) and 13(4)(s) of the FTAA require a description of the applicant's legal interests in the land subject to the Application. The legal interests in land required to implement the Project are either currently held or will be acquired by the Crown. NZTA has been pursuing land acquisition for the Project on behalf of the Crown for many years. Many properties have already been acquired by the Crown.

Much of the land relevant to the RMA approvals sought (as generally illustrated by the proposed Designation Boundary) will need to be owned by the Crown to accommodate permanent works such as the state highway itself, tunnels, bridges, retaining structures and stormwater devices. However, there are a few areas where temporary occupation licences, easements or similar will be sufficient to allow construction to be undertaken, and there is no need for long term ownership by the Crown. The temporary occupation areas are predominantly located within section 2 (Basin Reserve) and section 5 (Eastern Connections) of the Project and impact the Wellington Town Belt and some commercial properties surrounding the Basin Reserve. There are also some earth nail easements (which allow nails and support structures to be inserted into the subsoil of the servient land) required for retaining structures within the Wellington Town Belt and at the northern portal of the Terrace Tunnel.

While these areas are generally captured within the proposed Designation Boundary to authorise land use activities under the RMA², temporary occupation licences or easements will be sufficient for the construction period, with the land to be returned to the owner following construction. Following completion of construction, the Designation Boundary would be rationalised as well to remove those parts of the Designation that are not required for the long-term operation, maintenance or mitigation of effects of the Project.

Coastal permits are also sought for small-scale activities in the common marine and coastal area, which cannot be owned.

All land acquisitions and licences to occupy are being or will be negotiated by Crown-accredited property consultants in accordance with Public Works Act 1981 (PWA) processes.

There are 756 properties either partially or fully within the proposed Designation Boundary. Of these, 90 properties are already within the existing designation. 246 are currently owned by the Crown, leaving a further 420 where interests are yet to be acquired. The land relevant to the RMA approvals sought is shown on drawings included in Appendix B. Property addresses, legal descriptions and owner details are set out in Part H of the Application. Part H shows all properties that the Crown owns and identifies those properties that it has not yet acquired an interest in and that are expected to be acquired under the PWA³.

NZTA will serve the relevant notices on landowners under the PWA, to provide for land acquisition under that Act if necessary.

² While most works requiring RMA approval are within the proposed Designation Boundary (which authorises land use activities otherwise requiring a resource consent under the District Plan), the earthworks and vegetation removal proposed for offset planting activities are sought to be authorised via district and regional land use consents on land outside of the proposed Designation Boundary

³ Section 13(4)(j)(viii) and section 43(2)FTAA

NZTA's current legal interest in land on which the Project will occur will not affect NZTA's future ability to undertake the work, as land acquisition will occur ahead of construction. NZTA may commence some works ahead of the full construction start date, utilising land that is in Crown ownership or control.

1.3 Mana Whenua partners

The Project is being developed in partnership with Taranaki Whānui ki Te Upoko o Te Ika and Ngāti Toa Rangatira, who are actively involved across the Project stages through structured engagement, embedded iwi integration roles, and formal governance mechanisms via a Mana Whenua Steering Group (MWSG). The MWSG membership comprises:

- Port Nicholson Block Settlement Trust, on behalf of Taranaki Whānui ki Te Upoko o Te Ika (Taranaki Whānui);
- Te Rūnanga o Toa Rangatira Incorporated, on behalf of Ngāti Toa Rangatira; and
- NZ Transport Agency

This partnership enables integration of Mana Whenua values, aspirations and feedback into project design. Chapter 4 in the Part A document and section 7.3 below provide more detail on this partnership.

2 DESCRIPTION OF THE EXISTING ENVIRONMENT

2.1 Overview

This section provides a description of the existing environment within which the Project will be constructed and operated. It provides an overview of the Project area, being the area within the proposed Designation Boundary and surrounds.

The "existing environment" includes the state of the environment as it exists now and as modified to consider the effects of possible future activities, where those activities can be done as of right because they are permitted, already consented, and/or subject to an existing designation and are likely to be done. Considering what the existing environment is, and whether potential future modifications are properly part of it, is relevant both to the site itself and the surrounding environment. The description below identifies the key land uses and features at a Project-wide level and within each of the five Project sections. Appendix C identifies the relevant planning notations that apply in each section.

The specialist technical assessment reports provide detailed descriptions of existing features relevant to each discipline. The description below incorporates information from those reports.

2.2 Project wide environmental features and land use

2.2.1 Geology and seismology

The geological environment of Wellington City and the Project area lie on a greywacke bedrock comprising sandstone, siltstone and argillite. It is this geology that has formed Wellington's hilly topography around the city. Lower lying parts of the city consist of Holocene alluvial valley-infill deposits and marine deposits and over time parts of the city have been subject to cut and fill which covers a significant portion of the low-lying areas.

There are several active faults within Wellington City of varying levels of activity. The Aotea Fault is an active fault located to the west of the Mt Victoria Tunnel and traverses the Te Aro and Basin Reserve sub-areas. To the east of Mt Victoria is another fault which intersects with the Project alignment at Ruahine Street. Outside of the Project area, there are several other faults including the active Wellington Fault, which runs to the west of and parallel to SH1 through the suburbs of Thorndon and Kelburn. Parts of the Project area are also subject to risks from ground shaking and its effects, including the potential for liquefaction, landslides, and damage to infrastructure and buildings.

2.2.2 Hydrogeology

There are five types of water bearing or confining geological formations across the Project area being fill (e.g. fine sand, silts and clay) with low permeability, Holocene swamp deposits (organic matter and peat interbedded with clay and silts) likely of low permeability, fine marine sediments, alluvial sediments, and fractured and competent bedrock. Annual rainfall in Wellington is approximately 1250mm with rainfall recharge of groundwater estimated to be 100mm/year in the low-lying urban areas, and up to 200mm/year in the hills around the city.

2.2.3 Air quality

As detailed in the Technical Report #18 Air Quality Assessment, there are a significant number of sensitive receptors within close proximity to the Project alignment that have varying sensitivities to air contaminants. The topography of the Project area is relatively flat with height increasing to the north and east of the Project.

The Meteorological Service of New Zealand (MetService) operates an electronic weather station measuring wind speeds located at Wellington International Airport. This station is located approximately 2km southeast of Mt Victoria Tunnel. This confirms the predominant wind directions at the airport are from the north and south. The winds from the northerly directions (northwest to northeast) occur approximately 63% of the time and the winds from the southerly directions (southeast to southwest) occur approximately 33% of the time. The average wind speed recorded is 6.9 m/s.

Whilst terrain changes will have a localised effect on the wind speed and direction within the Project area, wind directions and speeds will generally exhibit a similar pattern. That said, the Project area to the west of Mt Victoria may have lower wind speeds and slightly different wind directions at times, given the topography in that location.

The Project area is located within the gazetted Wellington Airshed, which is not considered to be a polluted airshed by Greater Wellington Regional Council (GWRC).

2.2.4 Noise and vibration

The existing environment along the Project alignment is characterised by high baseline noise levels. All PPFs⁴ within the Project area have long been exposed to significant traffic noise from the current SH1 alignment, supplemented by local roads and general urban activity. This elevated noise environment has persisted for many years and forms the basis for assessing future operational changes.

In terms of vibration, the current environment is typical of an urban setting with minimal perceptible vibration from normal traffic.

2.2.5 Network utilities

There are a range of network utilities located across the Project area that will be impacted by the Project, as detailed in Table 1 below.

Table 1: Existing network utilities impacted by the Project

Network utility	Operator	Details
Electricity distribution lines – overhead and underground	Wellington Electricity	Low and high voltage (33kV and 11kV) cables
High-pressure gas transmission or gas distribution lines	Powerco Gas	Local gas distribution and mains throughout the Project area
Communications network	Chorus	Fibre optic and other comms cables, cabinets, and pits throughout the Project area
	One NZ	
	Vital / Citylink	
Wastewater network	Tiaki Wai	Wellington Wastewater Interceptor (Main Trunk)
		Wastewater rising mains
		Local wastewater networks
Stormwater network	Tiaki Wai	DN375 ⁵ or larger stormwater pipes
		Local stormwater networks
		Existing open channels
Water supply network	Tiaki Wai	DN300 ⁶ or larger water supply mains
		Fire service mains
		Local water supply distribution networks

2.2.6 Stormwater discharge

Stormwater from the existing SH1 impervious surfaces within the Project area is largely untreated, except as provided by existing catchpits and by devices for water from the existing tunnels. This highway

⁴ Protected Premises and Facilities (relates to New Zealand Standard NZS 6803 and includes noise sensitive activities such as residences, schools, marae and parts of hospitals)

⁵ Refers to the nominal internal diameter of the pipe, in millimetres

⁶ Refers to the nominal internal diameter of the pipe, in millimetres

stormwater is collected and conveyed to the Tiaki Wai-owned reticulated stormwater network from where it then discharges into Wellington Harbour.

NZTA holds a region-wide global consent (WGN220179) for the discharge of stormwater to land where it may enter water and direct to water, which applies to all state highways in the region including SH1 through the Project area. This consent expires in 2027 and requires NZTA to undertake a suite of monitoring for the existing network and develop a long-term Stormwater Management Strategy for the state highway network. This is required to be submitted to GWRC by 13 February 2027 and an application for a replacement consent lodged prior to April 2027. The current consent does not authorise any material alterations or increases to state highway impervious surface or contaminants discharged under this existing approval (i.e. stormwater discharges from the SH1 as altered by the Project are not anticipated and enabled by the 2022 consent).

2.3 Terrace Tunnel

2.3.1 Built and social environment

The Project commences to the south of Aurora Terrace, predominantly within the existing NZTA-1 designation. The existing state highway forms the boundary between the central city to the east and the elevated residential suburb of Kelburn to the west. Victoria University is located at the southern end of Kelburn and the Botanic Gardens to the north. The Cable Car corridor runs diagonally beneath the state highway connecting Kelburn with Lambton Quay in the central city. Immediately adjoining the state highway to the east is the Clifton Car Park (owned and operated by WCC) accessed from Shell Lane and Rosina Fell Lane and an off-ramp provides access from the state highway onto The Terrace which runs parallel to the state highway. In this location, land use on The Terrace is high rise commercial and mixed-use buildings including apartment-based accommodation, including some specifically accommodating university students.

Further south, Kelburn Park is located immediately to the west of the Terrace Tunnel. The park is part of the Wellington Town Belt and several walkways from the park cross over the top of the existing tunnel providing access to the central city, including the City to Sea Walkway. To the east of the state highway, The Terrace continues but the character changes from commercial to residential buildings of medium to high density with these properties backing onto the state highway (albeit elevated above a vegetated embankment).

Above the Terrace Tunnel is the 'Woof Woof Ruff' dog exercise park and a community orchard. The existing tunnel control building is also located at the edge of this park, above the northern tunnel portal. Additional tunnel control buildings and associated infrastructure are located to the east of the southern tunnel portal beside the state highway corridor and fronting MacDonald Crescent. This southern end of the Tunnel is characterised by residential development to the west, and mixed use and commercial uses to the east, on the central city side.

2.3.2 Transport environment

The state highway from the Aurora Terrace overbridge to the median island south of the Terrace Tunnel is classified as a Transit Corridor in NZTA's One Network Framework. Beyond this point SH1 Wellington Urban Motorway is classified as an Urban Connector. Both sections feature one lane in the southbound direction and two lanes in the northbound direction. Along the state highway between Aurora Terrace and the median island to the south of the Terrace Tunnel, a variable speed limit applies from 50-100km/h in 10km/h intervals. A 50km/h speed limit applies from the median island south of the Terrace Tunnel to Willis Street in the southbound direction, in the northbound direction the variable speed limit extends to south of Buller Street.

There are several overbridges⁷ in this sub-area of the Project, providing access for pedestrians and vehicles between Kelburn and The Terrace. There are also existing off-road paths including one above the Terrace Tunnel within the dog park previously mentioned and another connecting Ghuznee Street with MacDonald Crescent and Willis Street.

⁷ Everton Terrace, Boulcott Street, Ghuznee Street, and Buller Street

2.3.3 Cultural and historical environment

The Terrace Tunnel sub-area is located within the Kumutoto catchment area. The piped Kumutoto Stream or awa lies parallel to the existing state highway, flows beneath the Shell Lane/Woodward Street pedestrian laneway, and continues through to Wellington Harbour. The stream is a culturally significant feature within this part of the Project area.

The Kumutoto Awa and the piped Waikoukou Awa are noted in the District Plan as Category A Sites of Significance to Māori within the Project area. Kumutoto Awa is located within the NZTA-1 designation and the surrounding environment, running from the Victoria University Campus in Kelburn, following Salamanca Road and The Terrace, and ending at Kumutoto Pā at Woodward Street.

Waikoukou Awa is piped under the NZTA-1 designation at The Terrace, just south of Salamanca Road, and extends across the proposed second tunnel at this location. It also crosses the western end of Ghuznee Street, close to the intersection with The Terrace. Waikoukou Awa is also piped under Karo Drive just south of the Ghuznee Street overbridge, within the NZTA-1 designation boundary. Both awa are piped streams throughout the Project area.

This section of the Project area is also an area with historic landscape values associated with settler colonial development as a prestigious place of residence, a centre of government and corporate life, and a place with ties to tertiary education. There are four buildings on The Terrace, adjacent to SH1, which are scheduled heritage buildings in the District Plan. A cluster of non-scheduled buildings also make an important contribution to the heritage values of this area.

This sub-area is a culturally rich and significant landscape, deeply connected to Mana Whenua history, narratives, and ongoing stewardship. Despite urban transformation, its cultural and ecological values remain central to project planning and Mana Whenua aspirations. The area above the Terrace Tunnel, including the Kumutoto culvert and forest, is highlighted by Mana Whenua as important for restoration and ecological connectivity.

Kelburn and The Terrace are identified as urban landscape character areas⁸ within the wider project area. The assessment describes this sub-area as a narrow motorway corridor flanked by vegetated embankments and Kelburn Park on one side and tall city buildings on The Terrace on the other, providing visual contrast between the natural and built edges of the corridor, with complex overbridges and open space above the northern portal. The tunnel is a primary city gateway emphasising a sense of arrival or departure.

2.3.4 Vegetation and ecology

This section of the Project is a modified urban environment interspersed with areas of vegetation. This includes the Kumutoto Forest which extends from Kelburn Park to the existing state highway.

Vegetation is fragmented and largely confined to narrow roadside margins, comprising mixed indigenous and exotic forest and scrub, mixed low-stature vegetation, and indigenous specimen trees. The forest and scrub vegetation includes a mixed canopy of indigenous and exotic species such as karaka, wattle, sycamore maple, red matipo, pine, and lancewood, with an understory dominated by rank exotic weeds. Indigenous specimen trees are predominantly semi-mature pōhutukawa occurring as isolated individuals or small groups, while low-stature vegetation consists mainly of exotic grasses and herbaceous species beneath trees and adjacent to built infrastructure.

Fauna use of the area is limited, with vegetation providing low-quality foraging or occasional nesting habitat for common indigenous bird species typical of urban environments, and potential low-quality habitat for indigenous skinks, although no skinks or geckos were recorded during site surveys. No Threatened or At-Risk plant species were identified.

2.3.5 Stormwater and flooding

At the northern portal, stormwater is collected into road catchpits and conveyed via a stormwater pipe (Kumutoto Awa) travelling north, parallel to SH1. An area of shallow flooding associated with an overland

⁸ These character areas are identified in Technical Report #7 - Landscape, Urban Form and Visual Amenity due to their distinct set of characteristics that set the area apart from neighbouring areas, reflecting the underlying natural landform, the urban form characteristics that represent the era in which they were developed, and the changes that have occurred over time as a result of urban development and infrastructure projects

flow path from Kelburn Park intersecting with the state highway occurs at the approach to the northern portal. Kumutoto Awa is a predominantly piped stream with tributaries associated with the stormwater infrastructure at Salamanca Road and Kelburn Parade, which combine at Kelburn Park, outside of the Project area. It is from this point the awa is culverted and then flows from the northern tunnel portal via the same stormwater pipe as the road catchpits mentioned above.

At the southern portal, stormwater drains to an area below the Ghuznee Street bridge, where there are existing flooding issues associated with infrastructure capacity constraints. Flooding of 1m deep in a 1% annual exceedance probability (AEP) rainfall event⁹ in this area has been identified. Stormwater then drains from this area eastwards to a pipe that travels down Ghuznee Street, connecting with stormwater infrastructure associated with the piped Waimapihi Awa at the intersection of Ghuznee and Cuba Streets. Waikoukou Awa (piped) is located between Boulcott Street and Ghuznee Street. The northern section of the awa appears to be associated with the stormwater infrastructure in Percival Street and Boulcott Street, and potentially Willis Street and Mercer Street. The southern branch of the awa does not clearly align with the existing stormwater infrastructure. No stormwater system from the existing state highway is connected to this awa, nor will stormwater be discharged to this awa as part of the proposed Project.

The District Plan identifies the approach to Tunnel at the northern end as a flood inundation area (low hazard).

2.3.6 Contaminated land

As part of technical work completed, locations within the Terrace Tunnel sub-area were identified with Selected Land Use Register (SLUR) Category I status (Verified Hazardous Activities and Industries List (HAIL)), one location with Category IV status (contamination acceptable, managed/remedied), and two locations not listed on the SLUR. The identified locations are as follows:

- Six locations on The Terrace documenting the presence or former presence of an above or underground storage tank for the storage of hydrocarbons, likely as a source of fuel for a building boiler or backup generator for offices and the James Cook Hotel
- One slurry filled underground location located at the intersection of SH1 southbound with Willis Street
- Three locations to the west of SH1 in Kelburn comprising a bowling green adjacent to Kelburn Park, the Mount Street cemetery and a former landfill below part of Kelburn Park
- One location on Allenby Terrace relating to fire damaged property and the presence of asbestos within the damaged property
- Two locations comprising electrical transformers located within the northern and southern tunnel control buildings (not listed on the SLUR)

2.4 Te Aro

2.4.1 Built and social environment

The Te Aro sub-area is a predominantly flat area of Wellington City which historically formed the edge of the original Wellington Harbour, prior to the suburb being uplifted by the 1855 Wellington earthquake.

Land use in Te Aro is mixed use with low to mid-rise buildings utilised for entertainment, hospitality, retail, and light industrial activities. Medium to high density residential development has occurred incrementally over several decades, with some adaptive reuse of older buildings in the suburb for mixed use development (ground-floor commercial and above-ground floor residential apartments). Cuba Street is a central feature of the suburb's identity.

Vivian Street runs the full length of the east-west extent of Te Aro and serves an important role for through-movement and cross-city traffic, not only as part of the state highway, but also as a key pedestrian route supported by verandah controls for buildings along the length of the street.

⁹ This is the probability of a specific flood size occurring in any single year, expressed as a percentage

2.4.2 Transport environment

The SH1 corridor through this sub-area consists of Vivian Street for traffic moving west to east (southbound traffic) towards Mt Victoria and Buckle Street / Arthur Street / Karo Drive (east to west) for northbound traffic through to the Terrace Tunnel and Wellington Urban Motorway. These corridors are all classified as Urban Connectors in the One Network Framework. The section of SH1 between Karo Drive and the western extent of Vivian Street is classified as a Transit Corridor in the One Network Framework. These corridors include through lanes and left and right turning lanes to local roads, such as Willis Street and Cuba Street. An overbridge crosses the northbound Wellington Urban Motorway at Buller Street.

Vivian Street is an area of low pedestrian amenity with kerb buildouts at key intersections (e.g. Vivian Street / Cuba Street). Verandahs (where present) provide shelter and improve pedestrian amenity. Traffic signals at crossroad intersections provide safe pedestrian crossing points. The Vivian Street / Cuba Street intersection is noted as an intersection with high pedestrian volumes, particularly at peak periods, which means space for pedestrians while waiting to cross the road can be limited. Along Karo Drive, signalised crossings are provided at all intersections (being Cuba Street, Abel Smith Street and Willis Street). Both sides of the corridor have provision for pedestrians, and there is provision for cyclists through a shared path facility which originates at Buller Street and continues along Karo Drive through to Pukeahu National War Memorial Park (swapping sides of the road at Cuba Street).

Parking is currently provided for along the length of Vivian Street as well as a taxi rank east of the Vivian Street / Cuba Street intersection. There are no mobility parking spaces or loading bays.

Cycling infrastructure is provided to varying levels in the Te Aro sub-area. Vivian Street does not provide dedicated cycle lanes, but advanced stop boxes are provided at some intersections. Intersecting streets, such as Victoria Street, do provide dedicated cycle lanes and Cuba Street is identified as a 'quiet route' for cyclists by GWRC. Karo Drive does not provide dedicated cycle lanes, but as noted above there is a shared path along the corridor.

In terms of public transport, there are currently 30 bus routes and 20 school bus routes that cross SH1 at various locations in the Te Aro sub-area, this includes four bus routes that travel along Vivian Street either for its full length or part of it. Other routes travel across Vivian Street along streets that run perpendicular to the corridor, for example nine bus routes and four school bus routes cross Vivian Street travelling northbound and southbound at the Taranaki Street intersection. There are numerous bus stops within a walking distance of Vivian Street, with many serving routes that interact with SH1.

2.4.3 Cultural and historical environment

The Te Aro sub-area represents the history of Wellington with historic landscape values associated with multi-cultural immigration, trade, commerce and labour, and its role in the city's social and cultural life.

This sub-area includes heritage and cultural features that are protected in the District Plan. Cuba Street is identified as a heritage area, running the full length of Cuba Street from Webb Street at its southern end through to Wakefield Street at the northern extent. The heritage area runs across SH1 at Karo Drive and Vivian Street, with buildings on the corners of these streets either individually listed or identified as 'contributing buildings'. Adjacent to the proposed Designation Boundary along Vivian Street, there are several buildings that are individually scheduled in the District Plan, with a cluster at Cuba Street. The scheduled buildings originate from the early-mid 1900s. The Waimapihi Awa, identified as a Site of Significance to Māori in the District Plan, is piped from the southern side of Karo Drive, under Vivian Street, and continuing northwards to Te Aro Pā in the vicinity of Manners Street, Wakefield Street and Taranaki Street.

Viewshafts are identified on Taranaki Street and Tory Street, which intersect with the existing NZTA-1 designation. These viewshafts relate to visual amenity - protecting views to Wellington Harbour from locations in the vicinity of Vivian Street with the planning rules managing intrusions into the viewshafts from buildings and structures, albeit the existing SH1 designation overrides these requirements for state highway activities.

The cultural landscape of Te Aro is defined by its deep ancestral connections, historical settlement and cultivation, significant waterways and wetlands, and enduring Mana Whenua stewardship.

The area is embedded with ancestral narratives, such as the story of the taniwha Ngake and Whātaītai, which explain the formation of Te Whanganui-a-Tara (Wellington Harbour) and its ridgelines. These narratives are reflected in place names and features throughout Te Aro and the wider region.

Te Aro Pā was a major site of Māori settlement, located at the intersection of present-day Taranaki Street and Courtenay Place. It was occupied by hapū from Taranaki iwi and surrounded by garden areas, forest resources, and wetlands that supported sustained occupation and food production.

Awa located in this sub-area include the piped Waimapihi and Waitangi awa, which were important for both ecological and cultural reasons, supporting food gathering and spiritual values.

2.4.4 Vegetation and ecology

This area of the Project is a heavily modified urban environment. While some specimen trees are present across the road corridors within this Project area, these are not expected to be impacted or altered as a result of the Project.

2.4.5 Stormwater and flooding

Stormwater runoff in the Te Aro sub-area discharges to the piped Waimapihi Awa, Moturoa Awa, and to the Tory Street stormwater network (to a lesser extent). In addition to the southern portal area which connects to the culverted Waimapihi Awa, sections of Vivian Street and Karo Drive are also part of the catchment. Along these culverted awa alignments there are existing flooding issues and infrastructure capacity constraints.

2.4.6 Contaminated land

The sites identified within the Te Aro sub-area that are HAIL sites are as follows:

- Vehicle mechanics workshops, depots or metal fabrication at 15 locations, with one site including electrical transformers
- One current and two former fuel service stations
- Bulk storage of chemicals and/or petroleum hydrocarbons at eight locations
- Land contaminated by accidental release of asbestos at one location
- Berm side electrical transformers located adjacent to apartment / high density residential buildings at two locations not listed on the SLUR, although one of these locations was listed on SLUR in relation to previous petroleum hydrocarbon storage

2.5 Basin Reserve

2.5.1 Built and social environment

The Basin Reserve sub-area includes Kent Terrace and Cambridge Terrace from Vivian Street through to the Basin Reserve itself. The land in this location is low-lying, on the edge of Te Aro, with the elevated suburbs of Mt Victoria and Mt Cook to the east and south-west respectively. The area is a significant transition point between the central city and the eastern and southern suburbs of Wellington.

The Basin Reserve itself is a significant cricket ground and events facility. Traffic passes around the outside of the facility in a clockwise direction so that the Basin Reserve is essentially the central component of a large gyratory. The grounds are open to the public on non-event days providing the primary north-south walking and cycling route, connecting to the surrounding local roads.

Kent and Cambridge Terraces essentially form a boulevard for northbound and southbound traffic linking the Central City to the Basin Reserve, with the Canal Reserve¹⁰ running between Kent and Cambridge Terraces providing streetscape amenity. Land use along the Kent / Cambridge corridor is predominantly commercial including several car dealerships, mid-rise office buildings, and apartment buildings. Bogarts Corner is an area of open space located on the southeast corner of Kent Terrace, opposite the Basin Reserve.

¹⁰ The Canal Reserve is part of the Wellington Town Belt

Dufferin Street lies on the eastern side of the Basin Reserve, and notable land uses in this location are the entrance to Government House / Wellington College and St Mark's School and Preschool to the south of Paterson Street. A dedicated drop off and pick up area and bus stop is provided for outside the school on Dufferin Street. The south edge of Mt Victoria lies to the north of Paterson Street on northeastern side of the Basin Reserve and includes Saint Joseph's Church which is slightly elevated above Dufferin and Paterson Streets.

To the south of the Basin Reserve, Rugby Street runs east to west and includes a mix of commercial and residential land uses and the links Dufferin and Sussex Streets with Adelaide Road.

To the northwest of the Basin Reserve, in the vicinity of the Arras Tunnel and the northern side of SH1 (Buckle Street), is the Pukeahu National War Memorial Park (Pukeahu). Pukeahu is located above and alongside the Arras Tunnel which conveys SH1 northbound traffic. The park is linear with several war memorials for New Zealand's allies from multiple wars and the historic Home of Compassion Crèche. It extends from Sussex Street through to Taranaki Street. The linear park opens to a wider open space above the Arras Tunnel and to the immediate west of Tory Street, linking Pukeahu with the Carillon and Massey University Campus.

On the western side of the Basin Reserve, between Sussex Street and Tasman Street, the predominant land use is medium to high density residential.

2.5.2 Transport environment

The road corridors within the Basin Reserve sub-area are all classified as 'urban connector' roads in the One Network Framework, except for Kent Terrace which is a 'main street' and Buckle Street between Cambridge Terrace and Kent Terrace which is a 'local street'. Cambridge Terrace is a two-lane, northbound corridor, while Kent Terrace is a four-lane corridor for southbound traffic. Dufferin Street, Buckle Street, Rugby Street and Sussex Street are all one-way corridors around the Basin Reserve each with a minimum of two lanes. The speed limit on all corridors is 50km/h however operating speed is lower during peak traffic periods, particularly around the nearby schools during drop off and pick up times¹¹.

On street carparking is provided within this sub-area, along Cambridge Terrace, Kent Terrace, in the vicinity of the Basin Reserve, the St Mark's School slip lane on Dufferin Street, Ellice Street, and Rugby Street. Private parking is also provided within the Basin Reserve cricket ground.

In terms of public transport, there are 17 bus routes that travel through the Basin Reserve sub-area, and a further 36 school bus routes. There are three bus stops located within the existing and proposed SH1 designation, with a further four located in the surrounding environment.

There is provision for walking and cycling across the Basin Reserve sub-area. This includes footpaths along both sides of Kent Terrace, Cambridge Terrace, the road corridor around the Basin Reserve and the shared path facility within the Basin Reserve. Shared paths are also provided on the southern side of Buckle Street, to the west of Sussex Street, and the eastern end of Pukeahu where it joins Cambridge Terrace. A dedicated shared path is provided through Pukeahu, and a bi-directional cycle lane is provided within the Cambridge Terrace corridor. Signalised crossings are also provided at key crossing points in the sub-area including at Adelaide Road/Rugby Street, Dufferin Street / Paterson Street, and along Kent Terrace and Cambridge Terrace.

2.5.3 Cultural and historical environment

The Basin Reserve sub-area is one of the most important and iconic parts of the city with historic landscape values across several themes and timescales. The key themes identified are:

- People / natural environment connections, through waves of Māori settlement and land use to the transformative 1855 earthquake that lifted the Basin
- Sports, with the Basin Reserve being one of New Zealand's most well-recognised and beloved cricket grounds, as well as a venue for multiple other sporting codes

¹¹ WCC is working to implement Land Transport Rule: Setting of Speed Limits 2024, which requires all councils to implement safe variable speed limits (30 km/h) within 150 metres of school gates by mid-2026 – this is expected to change speed limits around the schools within the Basin Reserve section of the Project

- Arts, entertainment, leisure and social life, with the Basin and Canal Reserve being important places for entertainment and leisure, and, with Government House and Pukeahu, significant as part of social commemorative practices and events
- Religion and social services, with Buckle Street's long association with the Catholic Church and the Sisters of Compassion, and the continued presence of Catholic and Anglican institutions and outreach in the vicinity
- Government and military institutions

The Home of Compassion Crèche, located at Pukeahu, is scheduled as a heritage building in the District Plan. The crèche was previously moved from its original location (further to the west) as part of the Arras Tunnel construction.

Though not directly affected by the Project, it is noted that the Basin Reserve is scheduled as a Heritage Area in the District Plan, as are several buildings and structures within the grounds.

There are several recorded archaeological sites within this sub-area, including the Basin Reserve itself and the Home of Compassion Crèche.

A notable tree is also located at Dufferin Street at the intersection with Paterson Street, within the current NZTA-1 designation.

The piped Waitangi Awa runs through the sub-area from Rugby Street, across the Basin Reserve and down Kent Terrace. The awa is scheduled as a Site of Significance to Māori in the District Plan. Within the Basin Reserve grounds, at the south-eastern corner, and adjacent to the SH1 corridor lies the Site of Significance to Māori 'Hauwai Mahinga Kai' (which overlaps slightly with the current NZTA-1 designation).

Culturally, the Basin Reserve is a unique area layered with rich Māori history and significant sporting and heritage sites. The area was originally part of Hauwai wetland which functioned as a mahinga kai area supporting tuna and other freshwater species, as well as wetland plants used in building and daily life. Streams from springs near present-day Wellington Hospital flowed through Hauwai into the Waitangi Stream and onward to Wellington Harbour. Waitangi Stream still sustains large populations of tuna within its piped reaches. The Hauwai wetland and historic streams are recognised through artistic interpretation and cultural markers within the urban environment.

In the early days of European settlement, there was a channel linking the harbour with a lagoon known as Basin Lake. There was a plan to turn the lagoon into a dock, however the 1855 Wairarapa earthquake uplifted the land by two metres which dramatically reshaped the natural and cultural landscape.

Today, the Basin Reserve is used primarily for recreation and sporting events such as cricket and rugby, serving as New Zealand's oldest Test cricket venue.

2.5.4 Vegetation and ecology

The vegetation within the Basin Reserve sub-area is predominantly specimen trees and mixed low-stature vegetation, with some specimen trees likely to be over 35 years old. This includes Pōhutukawa and exotic specimen trees which provide foraging opportunities for nectivorous birds (e.g. tūī) during the flowering season as well as general ecosystem services and amenity value.

2.5.5 Stormwater and flooding

Stormwater in the Basin Reserve sub-area discharges via two pipes that run beneath Cambridge Terrace and Kent Terrace to Lambton Harbour at Waitangi Park. Waitangi Awa, piped beneath the Basin Reserve in three separate pipes, connects to the Cambridge Terrace and Kent Terrace pipes.

The existing stormwater network is constrained in this sub-area for the 10% AEP rainfall event with several pipes under capacity which results in flooding at the eastern side of the Basin Reserve grounds and along Kent Terrace and Cambridge Terrace and surrounding environment to the east. The District Plan maps show the flood inundation (low hazard) overlay over part of the Basin Reserve and parts of the surrounding street network as well as the overland flow path overlay, which runs through the eastern side of the Basin Reserve and follows the Cambridge Terrace and Kent Terrace road corridor.

2.5.6 Contaminated land

There are 18 sites within the Basin Reserve sub-area that have HAIL status, as follows:

- Motor vehicle workshops and the current or former bulk storage of hydrocarbons and/or chemicals at nine locations in the block between Fifeshire Avenue, Tory Street, Cambridge Terrace and Buckle Street, including the current Gazley Mitsubishi site
- Five locations to the northeast of the Basin Reserve relating to vehicle maintenance workshops or bulk hydrocarbon fuel storage
- Four other sites which are not located near any proposed bulk earthworks

2.6 Mt Victoria Tunnel

2.6.1 Built and social environment

The Mt Victoria Tunnel sub-area extends from the Basin Reserve east of Dufferin Street, up Paterson Street, and through the Mt Victoria Tunnel to Hataitai in the vicinity of Taurima Street. The suburb of Mt Victoria lies to the north of Paterson Street with the land use in this location being predominantly medium to high density residential. Wellington East Girls' College and Wellington College are located on the southern side of Paterson Street, with the main access points to Wellington East Girls' College located above the Mt Victoria Tunnel at Austin Street / Paterson Street. Wellington College is located downhill from the Girls' College, adjacent to St Mark's School and Preschool (accessed from Dufferin Street with an exit out onto SH1 Paterson Street). The college sites are designated by the Minister of Education in the District Plan and extend up to the Town Belt.

The Matairangi sector of the Town Belt is key feature of this sub-area, elevated above the city and extending over the top of the Mt Victoria Tunnel to Hataitai. This area of the Town Belt is heavily vegetated with several walking and mountain bike trails which are heavily used by the community and can be accessed from the surrounding suburbs.

2.6.2 Landscape and visual environment

The Town Belt in this sub-area is identified as a Special Amenity Landscape in the District Plan, with the relevant values being natural science (moderate), sensory factors (high), and shared and recognised values (very high). The Ridgeline and Hilltop overlay applies to the area immediately north of the tunnel on the Mt Victoria side and extends over Hataitai Park to the east of Alexandra Road, and from there southwards. The Ridgelines and Hilltops overlay recognises the natural green backdrop and continuity of open space of the areas to which it applies.

2.6.3 Transport environment

SH1 through the Mt Victoria Tunnel is classified as an urban connector in the One Network Framework, with one eastbound lane and one westbound lane. Paterson Street runs parallel to the tunnel approach on the northern side and is a residential street. No parking is provided along the section of SH1 leading to/from the Tunnel, but there is parking along Paterson Street.

There are two vehicle access points to Wellington East Girls' College in this sub-area, one from Paterson Street and the other at the intersection of Paterson Street and Austin Street. Pedestrian access is also provided via a pedestrian link on the south side of Paterson Street.

An elevated, bidirectional, shared pedestrian and cycle path (1.4m wide) is provided in the Mt Victoria Tunnel itself, along the northern side, which provides a connection for active modes between the central city and the eastern suburbs.

Most public buses running between the central city and the eastern suburbs utilise the Hataitai Bus Tunnel located to the north of the Mt Victoria Tunnel (at the top of Pirie Street) with other routes using Crawford Road / Constable Street via Newtown. The Mt Victoria Tunnel is used by several school bus routes.

2.6.4 Cultural and historical environment

The Mt Victoria Tunnel sub-area has historic landscape values associated with early patterns of colonial settlement in the Mt Victoria suburb, religion and social service provision in the area (particularly the

association with the Catholic Church), education, and transport (associated with the 1931 tunnel). Two scheduled heritage buildings in the sub-area (which currently sit within the NZTA-1 designation) are impacted by the Project, being 19 Paterson Street¹² (Ettrick Cottage) and 140 Austin Street. Another building currently within the designation, 7 Paterson Street (Laureston), is not scheduled as a heritage building in the District Plan but is also identified as having high heritage values.

Ettrick Cottage and Laureston, along with two other buildings on Brougham Street, are also known archaeological sites as they pre-date 1900, and there is the potential for other archaeological sites to be located along Paterson Street. There are several other recorded archaeological sites within the sub-area.

Te Ranga a Hiwi is a Wāhi Tupuna Site of significance to Māori identified in the District Plan which applies across the Town Belt. The existing Mt Victoria Tunnel runs below the overlay, but the overlay does not extend to the tunnel portal.

Culturally, the Mt Victoria Tunnel and immediate surrounding area is a key link between the central city and the eastern suburbs which heavily influenced settlement and mobility patterns, transforming Hataitai and Kilbirnie from semi-rural areas into thriving residential suburbs.

The Town Belt provides significant habitat connectivity, refuge, and foraging opportunities for indigenous species within an otherwise built-up environment. The ridgeline and associated vegetation provide a natural corridor which support bird movement to surrounding areas, which is recognised by Mana Whenua as having important cultural value.

2.6.5 Vegetation and ecology

The predominant vegetation identified at the Mt Victoria Tunnel is regenerating broadleaf forest, which is contiguous with approximately 22 hectares of further regenerating broadleaf forest within the Town Belt. The area also consists of mixed indigenous-exotic forest and scrub, specimen trees, private gardens, and low-stature vegetation. Nine 'At Risk' Indigenous plant species have been identified in this location. Vegetation in this area also provides habitat for indigenous lizards and birds.

2.6.6 Stormwater and flooding

Stormwater runoff from the Mt Victoria tunnel typically drains to the stormwater network (refer to the Basin Reserve and Eastern Connections stormwater and flooding descriptions). During routine tunnel cleaning, however, flows are diverted to the wastewater network.

2.6.7 Contaminated land

There are no known HAIL sites within this sub-area.

2.7 Eastern Connections

2.7.1 Built and social environment

On the eastern side of the Mt Victoria Tunnel is the suburb of Hataitai. The Hataitai village centre is accessed from the tunnel via Taurima Street and includes several cafes, restaurants, a Four Square, and other small businesses supporting the wider suburb. Moxham Avenue runs parallel to SH1 (which is on Ruahine Street), and south of the village centre is predominantly residential in character. Kilbirnie School is located on the eastern side of Moxham Avenue, just south of Raupo Street.

Housing in the suburb is of medium to high density. Housing is located on the eastern slopes of Mt Victoria (to the north of the eastern tunnel portal) and extends east towards Evans Bay, and to Kilbirnie in the south (as well as north, towards Roseneath). Key social infrastructure in this sub-area includes Hataitai Park and the Badminton Wellington Centre, both of which are located within the Town Belt and accessed from Ruahine Street. Hataitai Park is a major recreational asset in Wellington with sports fields,

¹² It is noted that the heritage building at 19 Paterson Street is owned privately and is not owned by NZTA, who is the landowner for 19 Paterson Street. A lease is in place enabling the owner of the heritage building to accommodate their building on NZTA land, until such time as the land is required for state highway use

tennis courts, a velodrome and playgrounds. Hataitai Kindergarten is also located immediately to the north of the eastern tunnel portal within the Town Belt.

The suburb of Kilbirnie lies to the south of Hataitai, and on the southern side of Wellington Road. Kilbirnie includes a large mixed use commercial centre serving the eastern suburbs of Wellington. Several regional sporting facilities are in Kilbirnie including Kilbirnie Park (directly adjacent to SH1), Akau Tangi Sport Centre (ASB Sports Centre), Kilbirnie Recreation Centre, and the Wellington Regional Aquatic Centre. Wellington International Airport is located to the east of Kilbirnie. Housing in Kilbirnie is of low to medium density, with more recent low-rise apartments within the commercial centre. St Patrick's College is located adjacent to SH1 Cobham Drive, to the east of Kilbirnie Park.

2.7.2 Landscape and visual environment

In this sub-area, the Town Belt provides an important green backdrop to the city and eastern suburbs. The Special Amenity Landscape and Ridgelines and Hilltop Overlays of the District Plan also apply to the Town Belt in this sub-area. This notation reflects the high visibility this section of the Town Belt gained by being adjacent to the SH1 corridor, which is the primary route connecting the eastern suburbs with the rest of the city. Dense vegetation between the northern part of Ruahine Street and Hataitai Park and a grassed area to the south provide a green edge to the state highway. Large pōhutukawa trees are also located in the vicinity of Taurima Street. The vegetation has landscape value due to the amenity it provides and the role it plays in visually integrating the Mt Victoria Tunnel and associated cut faces and retaining wall structures with the green space of the Town Belt.

Evans Bay and foreshore is a high amenity and well used coastal open space.

2.7.3 Transport environment

From the Mt Victoria Tunnel to Cobham Drive, SH1 is classified as an 'Urban Connector' road in the One Network Framework. There is a single lane in each direction through to Hamilton Road, where two lanes are provided in each direction through to Cobham Drive. Taurima Street and Wellington Road have a posted speed limit of 50km/h while a 70km/h speed limit applies on Ruahine Street and Cobham Drive. Moxham Avenue has a posted 50km/h speed limit¹³.

There are multiple intersections along the SH1 corridor from south of Taurima Street through to Cobham Drive.

On-street carparking is provided within this part of the Project area on Ruahine Street and Wellington Road. There is additional on-street parking provided in the surrounding environment on Moxham Avenue and other local streets.

As noted above, the Hataitai Bus Tunnel is utilised for public buses travelling between the eastern suburbs and the central city which avoids the need for these buses to travel along the SH1 corridor in this sub-area. A total of 14 public bus routes and 15 school bus routes travel through the bus tunnel. The Bus Tunnel portal on the Hataitai side is accessed via Waitoa Road which is located to the north of the Hataitai village centre and the SH1 corridor. There are ten bus stops within the sub-area, with eight of these located along Hamilton Road / Kupe Street / Moxham Avenue and service bus routes that interact with SH1 at Wellington Road. WCC and GWRC are proposing changes to the bus stops along this section of the bus route which are shown on the drawings and factored into the design.

In terms of the walking network in this sub-area, there is a narrow footpath provided on the eastern side of Ruahine Street, from the Mt Victoria Tunnel and continuing to Wellington Road. A footpath is provided on the western side of the corridor between the Badminton Wellington Centre and Wellington Road. A pedestrian overbridge is provided at Taurima Street providing access to Hataitai Park from Ruahine Street and the wider Hataitai suburb. Pedestrian crossings are provided at-grade on Taurima Street and Moxham Avenue. Along Wellington Road, footpaths are provided on both sides of the corridor with signalised pedestrian crossings provided at the Wellington Road / Hamilton Road and the Wellington Road / Evans Bay Parade intersections.

¹³ The Moxham Avenue speed limit is expected to become a variable 30k/h limit when WCC implements the Land Transport Rule: Setting of Speed Limits 2024 requirements within the vicinity of the school located on this street

There are no cycling facilities along Ruahine Street, however cycle connections are provided to and from the Mt Victoria Tunnel shared path via Taurima Street. Moxham Ave is classified as a recreational / commuting route by GWRC. Cobham Drive has a protected bidirectional cycle path which connects to the wider eastern suburbs cycling network. There are also bike facilities north and south of SH1 Wellington Road on Evans Bay Parade.

2.7.4 Cultural and historical environment

The historic landscape values within the sub-area relate to its early patterns of suburban subdivision and settlement east of Mt Victoria in the former 'country acres', its important associations with sport and leisure both locally and for the region, and transportation developments in the city, including the two existing tunnels and the airport.

The heritage significance of the treed landscape of road reserve and Town Belt land in the sub-area is noted, particularly the clusters of mature pōhutukawa at the Ruahine / Taurima Street and Ruahine Street / Wellington Road intersections. Park Mews, a visually iconic multi-unit development designed by well-known architect Roger Walker and constructed in 1973, is located at 62 Moxham Avenue and is prominent in the landscape from Ruahine Street. Park Mews is not identified in District Plan list of heritage buildings.

Within the surrounding environment the Hataitai Village is scheduled as a heritage area in the District Plan and the All-Saints' Church at 129 Moxham Avenue is a scheduled heritage building. There are no scheduled heritage buildings or heritage areas within the proposed Designation Boundary in this section.

There are four recorded archaeological sites within the sub-area. Of these, one is impacted by the Project being the site of the former Kilbirnie Hotel.

The Te Ranga a Hiwi Site of significance to Mana Whenua mentioned in section 2.6.4 continues through this sub-area, to south of the Badminton Wellington Centre. The Badminton Wellington Centre is a valued sporting facility, located in Town Belt on the western side of Ruahine Street.

Within this area also sits Hataitai Park, which reflects the long-standing social and recreational culture of the area. Wellington Road and Cobham Drive is one of Wellington's more recognisable arrival and departure routes, connecting the city to the airport and Miramar Peninsula and characterised by views of Evans Bay and the exposed coastline, public art, and active transport corridors.

2.7.5 Vegetation and ecology

The vegetation within this sub-area is predominantly mixed indigenous-exotic forest and scrub, particularly at Hataitai Park where it connects into the wider Town Belt. Given this connection to the wider Town Belt in this area, some At-Risk plant species may also be present.

Three natural inland wetland areas have been identified within the Project area, and a fourth natural inland wetland area has been identified within 100m of the Project area. The wetlands have low ecological value.

Located at the southern end of Wellington Harbour and adjacent to the proposed Designation Boundary, Evans Bay is a highly modified environment with a marina, boat ramp, stormwater outlets, coastal protection and carparking. The proposed upgrades to the existing stormwater outfall are in the southwestern corner of the Bay, south of the Marina. The NRP identifies part of Evans Bay as a habitat with significant biodiversity values due to the presence of *Adamsiella* algal meadows and horse mussel beds which are known habitats for several species. The known location of these beds is not within the zone of influence of the Project, but the area features diverse rocky intertidal communities that are degraded by contamination and invasive species. Coastal avifauna are present in the area, including kororā (little penguin), marine fish, and several marine mammals.

2.7.6 Stormwater and flooding

Stormwater within the Eastern Connections sub-area discharges to the harbour at Evans Bay Marina via a large diameter stormwater pipeline associated with the piped Waipapa Awa. Parts of the network at this location are under capacity for the 10% AEP rainfall event which, when combined with topographic low points at the Ruahine Street / Goa Street intersection, results in significant flood risk of over 1m deep at that location.

The District Plan also identifies several natural hazard overlays in the sub-area, as follows:

- Ruahine Street is within the Inundation Area (Low Hazard Area), which relates to flood hazard risk in the area between Tapiri Street and just south of Goa Street. A stream corridor is also identified within the Project area near the vehicle access to Hataitai Park which is located within the Town Belt. An overland flowpath overlay also applies in areas outside the existing NZTA-1 designation
- At the intersection of Wellington Road / Hamilton Road / Kilbirnie Crescent, both the flood inundation and overland flowpath overlays apply
- A liquefaction hazard overlay applies within the existing NZTA-1 designation and adjoining properties from the intersection with Hamilton Road / Kilbirnie Crescent eastwards along Cobham Drive and surrounding properties
- A coastal inundation overlay (medium hazard area) applies at the eastern end of Kilbirnie Park, the intersection of Cobham Drive and Evans Bay Parade, and the length of Cobham Drive eastwards - this overlay applies within the existing NZTA-1 designation and adjoining properties
- A Tsunami Hazard Overlay (High Hazard Area) applies from the east end of Kilbirnie Park, across the Wellington Road / Evans Bay Parade / Cobham Drive intersection and eastwards along Cobham Drive

2.7.7 Contaminated land

HAIL land has been identified at five locations within the Eastern Connections sub-area:

- Current or former bulk storage of hydrocarbons at three locations including at the Church of Latter-Day Saints
- Former timber treatment at one location that has since been developed into medium density residential housing
- Land reclamation and filling of Kilbirnie Park
- Market gardens, a previous land use at the Church of Latter-Day Saints

3 DESCRIPTION OF THE PROJECT

A description of the Project, as relevant to the RMA approvals sought, is provided below in accordance with schedule 5, clause 5(1)(a) of the FTAA.

3.1 Project description

This section gives a description of the Project for the purposes of providing sufficient detail to assess the actual and potential effects on the environment and to identify measures to manage adverse effects. The description should be read in conjunction with the Drawing Set (Part G).

This section is also for the purpose of identifying the activities for which approvals are sought under the FTAA as necessary, including to the extent not already enabled by the existing NZTA-1 designation.

As the design is indicative, changes are anticipated at various stages of the Project. Any such changes are expected to be generally consistent with this project description, with final design details to be confirmed through future Outline Plan(s).

3.2 Indicative design description

3.2.1 Second Terrace Tunnel

The proposed above ground works within the Terrace Tunnel section will primarily affect land owned by the Crown for state highway purposes. Minimal amounts of land owned privately and by WCC will also be affected. Private properties will predominantly be affected by underground (sub-strata) impacts for the tunnel works.

The proposed works include:

Layout

- Reconfiguration of the existing lanes on the existing Shell Gully Bridge to provide an additional southbound lane (existing lanes' widths reduced to 3.3 m wide)
- Two southbound lanes are provided in the new Terrace Tunnel
- Reconfiguring the existing Terrace Tunnel to provide two northbound lanes

Structures

- Constructing a second Terrace Tunnel (approximately 460 m long and 14 m wide) to provide two southbound traffic lanes into the city
- Constructing cross passages between the new and existing tunnels to improve the fire life safety of both tunnels
- Installing a ventilation system, hydrant system, deluge system and drainage system for the new tunnel:
 - The tunnel deluge supply tanks will be located at the northern portal adjacent to the new SH1 southbound carriageway, south of Boulcott Street Bridge
 - A pump building is proposed to be located adjacent to the deluge supply tanks
 - The deluge drainage detention tanks will be located outside of the southern portal of the tunnel to the north of Ghuznee Street (east of SH1)
 - The drainage detention is sized to store fire deluge and hydrant water before it is discharged to either the stormwater or sewer networks
- Constructing two new tunnel control buildings (including substations) to control both the new and existing tunnels:
 - North portal (east of SH1 between Everton Terrace and Boulcott Street bridges)
 - South portal (east of SH1 north of Ghuznee Street)

- The existing tunnel control building located at the south portal of the existing tunnel will be removed; the existing control building at the northern portal will be decommissioned
- Visual screens will be incorporated around the tanks and tunnel control buildings on either side of the tunnel
- Construction of retaining structures along the eastern side of the SH1 southbound lanes, at the entrance and exits of the new Terrace Tunnel and around tunnel portals
- Replacing or extending the Ghuznee Street Bridge to accommodate for the widening of SH1, to allow two lanes in each direction to pass under the bridge from the new Terrace Tunnel – this new or extended bridge will replicate the width of the existing bridge (including pedestrian facilities) and tie into the existing road either side

Access and parking

- Construction of a maintenance access bay underneath the Boulcott Street and Everton Terrace bridges on the east side of SH1 southbound to provide additional access for maintenance and to provide a safe waiting area for over-dimension vehicles out of the traffic lanes
- Existing car parking (~17) underneath the Boulcott Street and Everton Terrace bridges will be removed (part of the Clifton Terrace car park)
- The existing Ghuznee Street maintenance access to the southern portal of the tunnels will be retained with new removable sections of barrier to access SH1 during tunnel maintenance activities

Active modes

- An existing recreational track on the east side of SH1 southbound that connects Kumutoto Lane with the grassed area above the northern tunnel portals will be removed
- The existing access path to a grassed area (that is used as a dog exercise park) accessed from The Terrace will be realigned
- An existing walking path at the southern end of the Terrace Tunnel from MacDonald Crescent to Willis Street will be removed, while another existing walking path from MacDonald Crescent to Ghuznee Street will be reinstated following construction of the new tunnel

Critical utility impacts

- An existing 300 mm fire service water main above the northern portal of the existing Terrace Tunnel is affected by the proposed slope cut works for the new tunnel portal so it will be diverted outside of the slope cut area
- An existing 1800 mm wastewater trunk main runs parallel to the Terrace Tunnel will interface with the Ghuznee Street bridge works and requires specific protection measures to be considered during detailed design

3.2.2 Te Aro

The proposed works for the indicative design within the Te Aro section will primarily affect land owned by the Crown for state highway purposes. There will also be works required on the verandahs attached to private buildings on Vivian Street.

The proposed works include:

Layout

- Reconfiguring Vivian Street to three lanes eastbound (currently two lanes) within the existing SH1 road corridor
- Minor kerb changes to provide consistent lane widths along Vivian Street, kerb changes will reduce footpath width by a small amount in some locations (minimum footpath widths of 2.4 m will be maintained)
- Reconfiguration of kerbs on Cuba Street at the intersection with Vivian Street to provide more waiting space and crossing width for pedestrians, including kerb build out on Cuba Street to signal the change from one-way to two-way

- Modifying signals and signs, and resealing and remarking the existing west-bound SH1 lanes at Arthur Street to restrict all turning movements into Cuba Street

Structures

It may be necessary to reduce the depth of some existing verandahs over the existing footpath along Vivian Street on both sides of the road, to provide adequate clearance for vehicles using the additional traffic lane on Vivian Street¹⁴. This proposed work is expected to affect the following locations:

Table 2: Summary of expected verandah changes

Location	Existing verandah depth (approx.)	Reduction to verandah depth (approx.)
191 Cuba Street (heritage building and within Cuba Street Heritage Area ¹⁵)	3.0 m	0.4 m
199 Cuba Street (heritage building and within Cuba Street Heritage Area ¹⁶)	2.8 m	0.3 m
150 Vivian Street	2.3 m	0.2 m
146 Vivian Street	2.5 m	0.2 m
142 Vivian Street	2.3 m	0.1 m
107-109 Vivian Street (heritage building ¹⁷)	2.7 m	0.3 m
105 Vivian Street	2.8 m	0.5 m

Access and parking

- Restricting southbound access from Vivian Street (SH1) onto Cuba Street
- Restricting southbound access onto SH1 (Kent Terrace) and Cambridge Terrace from Pirie Street
- Restriction of northbound access from Karo Drive / Arthur Street (SH1) onto Cuba Street
- Removal of all (approximately 76) carparks and a taxi stand with space for 5 vehicles from Vivian Street (between Victoria Street and Cambridge Terrace) and removal of 2 parking spaces on Cuba Street

3.2.3 Basin Reserve

The proposed works within the Basin Reserve section will primarily affect private land and land owned by the Crown for state highway purposes. Minimal land owned by WCC will be affected and will predominantly consist of existing road reserve land. A small section of Town Belt land is affected (where located in the 'Canal Reserve' between Kent Terrace and Cambridge Terrace). In addition, some WCC land surrounding the Basin Reserve is impacted (but not the Basin Reserve itself).

The proposed works include:

Layout

- Reconfiguration of westbound SH1 traffic to travel around the northern side of the Basin Reserve
- Grade separating SH1 westbound traffic from local north-south (two-way) traffic; SH1 (Buckle Street) will pass over an extended Sussex Street that ties into Cambridge Terrace south of Barker Street

¹⁴ This will also bring these verandahs into compliance with District Plan rule CCZS7(2)(e), which requires verandahs to be set back 450mm from the kerb

¹⁵ As per Schedules 1 and 3 of the District Plan

¹⁶ As per Schedules 1 and 3 of the District Plan

¹⁷ As per Schedule 1 of the District Plan

- Converting Sussex Street to two-way between Cambridge Terrace / Kent Terrace and Rugby Street with a one lane northbound slip lane onto SH1 northbound (towards the Arras Tunnel)
- Converting Rugby Street to two-way between Sussex Street and Adelaide Road
- Changing the direction of Rugby Street from westbound to eastbound between Adelaide Road and Dufferin Street
- Sussex Street will be placed in a trenched section, for this grade separation, which is approximately 16.4 m wide (between barriers) and is indicatively configured as 0.8 m shoulders, four x 3.2 m lanes and a 2.0 m median)
- Converting Dufferin Street from one-way southbound to one-way northbound between Rugby Street and SH1 (Paterson Street). Reconfiguring Dufferin Street to provide:
 - School bus stops along the western kerb (adjacent to the Basin)
 - A through traffic lane
 - A pick-up and drop-off lane (buffered from the through traffic lane along the eastern side of the street)
- Widening Adelaide Road to the west on the approach to Rugby Street to provide a right turn lane into Rugby Street east)

Structures and landscaping

- Constructing a road bridge that enables the SH1 grade separation – this is a single span structure, approximately 30 m long and 10 m wide, with a minimum vertical clearance of 4.9 m
- In addition, a land / green bridge is provided across the Sussex Street trench adjacent to the SH1 road bridge to provide active mode connections and extend the landform between Pukeahu and Cambridge Terrace. The land / green bridge is configured as two separate structures, which will be perceived as one structure from above:
 - A single span land bridge structure approximately 30 m long and 24 m wide, with a minimum vertical clearance of 4.9 m. The bridge depth includes an allowance for a planting medium for low-level planting and will provide a plaza area adjacent to the relocated former Home of Compassion Crèche
 - A single span active modes bridge approximately 35 m long and 4.5 m wide, with a minimum vertical clearance of 4.9 m
- Relocating the former Home of Compassion Crèche (indicatively to the east of the new land / green bridge¹⁸) to make way for the Sussex Street changes
- Construction of retaining structures to support the new trench, bridge and land / green bridge connecting down to Cambridge Terrace; the wall type will be primarily secant pile or contiguous wall with small sections of concrete cantilever wall and mechanically stabilised earth walls, utilising a concrete finish
- Stormwater treatment rain gardens will be included as part of the soft landscaping in this section of the Project

Access and parking

- Retaining left-in left-out access between Sussex Street northbound and Rugby Street (between Tasman Street and Sussex Street)
- Installing a new signalised intersection where the Sussex Street extension meets Cambridge Terrace and Kent Terrace
- Converting Hania Street to a cul-de-sac and providing left-in left-out access between SH1 eastbound and Ellice Street

¹⁸ Some limited flexibility as to location is proposed through a condition, subject to discussion with mana whenua and the Ministry for Culture and Heritage

- Installing a new signalised intersection where Dufferin Street meets SH1 (Paterson Street) which provides for left and right turn movements from Dufferin Street to SH1 in conjunction with dual pedestrian and bike crossings (no bike crossing of the right turn lane to SH1 southbound)
- Reconfiguring the Adelaide Road / Rugby Street intersection to provide for the changed layouts on Rugby Street (eastbound only east of Adelaide Road and two-way west of Adelaide Road)
- Changes to vehicle access around the Basin Reserve, including:
 - Traffic from the Mt Victoria Tunnel travels around the north side of the Basin and then continues through the Arras Tunnel or turns right onto Cambridge Terrace or left around the west side of the Basin to access Adelaide Road
 - Traffic from Adelaide Road heading north or west is similar to existing, traffic heading to the east (Mt Victoria Tunnel) turns right onto Rugby Street past the schools before turning right onto SH1 from Dufferin Street
 - Traffic from Kent Terrace heading to the east (Mt Victoria Tunnel) is similar to existing, traffic heading to the south or west travels around the west side of the Basin Reserve and then south onto Adelaide Road, or past the schools to turn left onto SH1 westbound (emergency vehicles will be able to u-turn from Kent to Cambridge Terrace)
- Removal of approximately 73 carparks along SH1 (Kent Terrace, Ellice Street, Rugby Street and Sussex Street) and 14 carparks along local roads (Rugby Street, Cambridge Terrace, Barker Street and Dufferin Street slip lane)
- Creation of a new private car park for the Seventh Day Adventist Church between Sussex Street and Tasman Street to replace parking lost as a result of the Project

Active modes and public transport

- Reconfiguring the Adelaide Road / Rugby Street intersection for the revised road layout includes dual pedestrian and bike crossings across all approaches
- Relocating the southbound bus stop north of the Basin Reserve to west of Cambridge Terrace, relocating the 'bus jump' (advance signal) to the Vivian Street / Kent Terrace intersection and removing the bus lane on Kent Terrace south of Vivian Street due to the layout changes of local roads within the Basin Reserve area; minor rerouting of bus services will be required
- Reconfiguring active transport mode connections due to the layout changes of the Basin Reserve, including:
 - To supplement the existing route through the Basin Reserve connecting Cambridge Terrace and Adelaide Road there will also be enhancement of the active mode infrastructure around the east side of the Basin Reserve on a widened facility (5 m wide, configured as 2.5 m for bikes and 2.5 m for pedestrians), including a new signalised dual crossing across SH1 north of the Basin Reserve
 - Maintaining existing pedestrian connectivity around the west side of the Basin Reserve (Basin Reserve side of street) between Adelaide Road and Cambridge Terrace
 - Providing a new active mode connection between Adelaide Road and Sussex Street along the south side of Rugby Street; the new facility will be a 3-5 m wide shared path. There will also be a pedestrian crossing of Rugby Street, being a zebra crossing on a raised safety platform
 - Reconfiguring the east-west shared path connection between Pukeahu and Cambridge Terrace / Kent Terrace, the connection will be 4 m wide with a direct route with steps and a series of zigzags which will provide an accessible route (max 8% grade with platforms every 0.75 m of vertical change) to provide for mobility impaired users
 - Providing a new active mode connection between Cambridge Terrace / Kent Terrace and the path through the new Mt Victoria Tunnel, the connection will be 5 m wide, configured as 2.5 m for bikes and 2.5 m for pedestrians between Kent Terrace and the Dufferin Street intersection, east of the Dufferin Street intersection the facility will reduce to a 4 m wide shared path; the crossing of Ellice Street will be on a priority controlled raised safety platform (priority to active modes)

- A new raised zebra crossing across Dufferin Street to provide safe access between the school bus stops and schools
- A new staircase between the northern side of Pukeahu and the northern / western side of the new Sussex Street extension to provide a continuous connection between Cambridge Terrace and Pukeahu
- New cycle crossings of Pirie Street and Kent Terrace at intersection to provide cycle access to Cambridge Terrace path from Pirie Street
- A cycleway connection from the Hania Street cul-de-sac to the adjacent shared path

Critical utility impacts

- An existing 300 mm water supply transmission main running along Buckle Street crossing Sussex Street will be affected by the proposed trench and bridge works. This pipe will need to be realigned
- An oval gravity brick trunk wastewater main runs along Sussex Street at the west side of the Basin Reserve (which serves as part of the Wellington Wastewater Interceptor conveying flow to the treatment plant disposal) will be affected by underground excavation at Sussex Street and so needs to be diverted
- An existing 450 mm wastewater rising main runs underneath the median between the Kent and Cambridge Terrace to the south, continuing along Buckle Street, where it connects to the trunk wastewater main at the intersection of Buckle Street and Sussex Street; this will be affected by the proposed Sussex Street trench and bridge works, and as such, a new rising main is to be diverted across the Sussex Street trench to connect to the wastewater trunk main
- An existing 750 mm stormwater pipe runs from west to east from Arras Tunnel and connects to an 1800 mm stormwater main near the intersection of Buckle Street and Cambridge Terrace; the existing mains section will be impacted by the proposed Sussex Street trench, and bridge works so will be diverted along the proposed trench and reconnected to the 1800 mm stormwater main under Cambridge Terrace
- An existing 450 mm stormwater main collects runoff from Old Buckle Street and discharges into the 1800 mm existing stormwater main at Buckle Street; the 450 mm main is affected by the proposed trench and bridge works and as such, will be abandoned, and the upstream 300 mm will be redirected to an existing main at Buckle Street
- Medium pressure gas distribution pipes in the Paterson Street area may require diversion or removal
- High voltage electricity cables will require diversion including 33 kV and 11 kV cables on Buckle Street and Sussex Street as they are impacted by the proposed Sussex Street trench
- Low voltage electricity cables on Cambridge Terrace and Buckle Street (impacted by the proposed Sussex Street trench) will require diversion or removal
- There are also two electricity distribution substations connected to the 11 kV network on the west side of Sussex Street that are within an area of buildings to be removed to enable the construction of the off-ramp connecting Sussex Street to the Arras tunnel; it is still to be confirmed whether these substations and the associated 11 kV network are to be relocated or abandoned/removed
- Communication lines, cables and associated communications assets are located throughout the Project area, with the Basin Reserve area expected to be a heavily impacted area, due to the nature of the Project works here; engagement with asset owners will occur during detailed design to confirm a methodology and plans for asset relocation, protection and/or removal

3.2.4 Mt Victoria Tunnel

The proposed works within the Mt Victoria Tunnel section will primarily affect land owned or managed by NZTA and WCC, which will consist predominantly of the Town Belt; there will also be sub-strata impacts on the Town Belt, private property on Austin Street and Terrace and Wellington East Girls' College land.

The proposed works include:

Layout

- Reconfiguring the existing Mt Victoria Tunnel to remove the existing shared use path and provide two widened northbound lanes
- A new Mt Victoria Tunnel (approximately 620 m long and 15 m wide) to provide two southbound lanes and a separated shared use path on the northern side of the new tunnel

Structures and landscaping

- Removal of the Hataitai Kindergarten building, which is located on the Town Belt
- Retrofitting the existing tunnel for fire life safety and undertaking improvement of the existing ventilation and operational controls
- Construction of two new tunnel control buildings (including substations) to control both the new and existing tunnels:
 - One located on the western side of the new tunnel (above the portal of the new tunnel)
 - One located on the eastern side of the new tunnel close to the current location of Hataitai Kindergarten (off Taurima Street)
- Constructing emergency cross passages between the two tunnels and installing new ventilation and deluge systems for both the new and existing tunnels:
 - The water supply deluge tanks will be located on the eastern side of the Mt Victoria Tunnel, buried under the realigned southbound SH1 lanes.
 - A pump building is proposed to be located adjacent to the eastern tunnel control building
 - The deluge drainage detention tank will be located at the western end of the new Mt Victoria Tunnel, near the intersection of Paterson Street and Brougham Street (buried under the SH1 eastbound lanes)
 - The drainage detention is sized to store fire deluge and hydrant water before it is discharged to either the stormwater or sewer networks
- The existing tunnel control buildings located at either end of the existing tunnel will be removed to provide for construction activities
- New temporary tunnel control buildings and substations will be constructed at both ends of the existing tunnel clear of the construction site, to maintain tunnel operations while the new tunnel and permanent tunnel control buildings are constructed
- Reconstruction of the public toilets on Taurima Street is proposed as part of the eastern tunnel control building works
- Construction of retaining structures along Paterson Street and the SH1 carriageways entering and exiting the tunnel portals and surrounding the tunnel portals
- Relocation of three buildings with heritage value to a reconfigured Paterson Street
- Removal of exotic trees and replanting with indigenous species on Town Belt land above, north of the tunnel as illustrated on the RMA approvals drawings in Appendix B as an offset for the impacted vegetation

Active modes

- The new tunnel includes a walking and cycling facility with 3.6 m clear width; the path will be separated by a wall from road traffic and will operate as a shared walking and cycling path
- The new walking and cycling facility will connect into proposed new shared paths on either side of the tunnel
- A footpath beside the tunnel control building to provide a safe path from Wellington East Girls' College to Paterson / Austin Streets

Access and parking

- Reconfiguring Paterson Street as one-way property access

- Removal of approximately 33 carparks along Paterson Street and Austin Street

Critical utility impacts

- An existing 450 mm stormwater main located north of Paterson Street is impacted by the Project works in this area so is expected to be diverted
- Medium pressure gas distribution pipes in the Paterson Street area may require diversion or removal; there is no expected impact on the intermediate pressure gas pipeline running from Ellice Street to above the existing Mt Victoria tunnel on Alexandra Road
- A 33 kV high voltage electricity cable passing through the existing Mt Victoria tunnel will be diverted to the new tunnel; low voltage cables feeding the existing tunnel control building will also be removed
- Communication lines, cables and associated communications assets are located throughout the Project area, with the Paterson Street area expected to be a heavily impacted area, due to the nature of the Project works here; engagement with asset owners will continue to occur during detailed design to confirm a methodology and plans for asset relocation, protection and/or removal

3.2.5 Eastern Connections

The proposed works within the Eastern Connections section will affect private property, Town Belt and Kilbirnie Park land managed by WCC and NZTA owned land, and part of the coastal marine area.

The proposed works include:

Layout

- Widening of road corridor along Ruahine Street west into the Town Belt to provide two lanes of general traffic in each direction between the Mt Victoria tunnels and Wellington Road
- Construction of a grade separated local road connection (Hataitai Connection bridge) across SH1 (south of Goa Street) from Moxham Avenue to Hataitai Park to provide access to the park, there will also be northbound on and off-ramps between SH1 and the new connection to provide improved access into and out of Hataitai and the park;
- Widening of road corridor along SH1 Wellington Road into the properties south of the road and into Kilbirnie Park to provide two or more lanes of general traffic in each direction and a service lane between Ruahine Street and Cobham Drive
- Mitigation to improve pedestrian safety along Moxham Avenue (because of the additional local Hataitai traffic movements arising from the Hataitai access changes); Mitigation measures include kerb and marking changes which require removal of parking in constrained locations to allow the road to function more efficiently¹⁹

Structures and landscaping

- Removal of the Badminton Wellington Centre building, which is located in the Town Belt
- Construction of retaining structures along SH1 carriageways, including cut slopes along Ruahine Street, Wellington Road, and embankments for the new Hataitai Connection bridge with an opening in the eastern approach is provided to enable overland flows to pass under the embankment
- A replacement Hataitai active modes bridge over Ruahine Street that connects Hataitai Park with Hataitai village and Ruahine Street, the bridge is widened to provide access for cyclists and pedestrians
- A new two-span Hataitai Connection bridge over SH1
- Removal of two small wetlands in the Town Belt adjacent to Ruahine Street; a larger wetland is not directly impacted but is expected to be drained as a result of the Project and no longer function as a wetland

¹⁹ WCC and GWRC are separately proposing changes to the bus stops along Moxham Avenue which are shown on the drawings and factored into the design

- Habitat enhancement works to support lizard relocation at release site(s) within Town Belt land²⁰ to the west of Ruahine Street

Access and parking

- Changes to access between SH1 and Hataitai, Kilbirnie, Evans Bay Parade and Hataitai Park as follows:
 - Closing access out of Taurima Street onto SH1 (access is provided from SH1 into Hataitai via Taurima Street)
 - Closure of access between SH1 and Moxham Avenue
 - Closure of access between SH1 and Walmer Street
 - Closure of access between SH1 and Goa Street
 - Northbound on and off ramps at the grade separation south of Goa Street, providing access to and from Hataitai and Hataitai Park
 - Restricting turning movements at the corner of Ruahine Street and Wellington Road to left off SH1 and left onto SH1 (emergency vehicles will be able to turn right from Wellington Road (west) to Wellington Road (SH1))
 - Realigning the existing intersection of SH1 with Evans Bay Parade with no right turns from the Evans Bay Parade approaches and removal of the slip lanes on the west side of the intersection
 - Realigning the existing intersection of SH1 with Kilbirnie Crescent and Hamilton Road with no right turns and no slip lanes on all approaches
- Installing service lanes (minimum 6 m width comprising 1.5 m contraflow bike lane, a 3 m access lane and 1.5 m footpath) along sections of Ruahine Street and Wellington Road to remove direct access to properties from SH1:
 - No parking would be permitted on the service lanes; however potential visitor parking areas may be able to be provided at some locations, which are noted on the drawings
- Proposed service lanes would service the following properties:
 - 6-20 Ruahine Street (nine properties) – two-way access from new access point off Moxham Avenue
 - 32-58 Wellington Road (10 properties) – two-way access from Moxham Avenue
 - 4-24 Wellington Road and 536 Evans Bay Parade (12 properties) – two-way access at Hamilton Road, eastbound exit only onto Evans Bay Parade (northbound)
- Removal of Ruahine Street vehicle access for the properties at 21 Goa Street and 126 Moxham Avenue; this is required as it would be difficult to safely construct a service lane to retain these access points without further impact on the Town Belt and both properties have alternative existing access
- Removal of approximately 56 carparks along SH1 (Ruahine Street and Wellington Road), 37 carparks along local roads (Taurima Street, Goa Street, Moxham Avenue, Hamilton Road and Evans Bay Parade) and 12 carparks within Hataitai Park

Active modes and public transport

- Replacing the existing wooden footbridge for active transport with a new Hataitai Park footbridge to carry active transport modes across the widened SH1
- Where service lanes do not exist, a 3 m wide shared path will be provided along the east / north side of SH1
- A new 3 m wide shared path will be provided between Ruahine Street and Moxham Avenue south of the new Hataitai Connection bridge

²⁰ Illustrated on the RMA approvals plan

- A new 3 m wide footpath will be provided on the south side of the new Hataitai Connection bridge
- A new footpath connection between Ruahine Street and Moxham Avenue at the northern access to the service lane on Ruahine Street
- A new footpath along the west side of Ruahine Street from Wellington Road to new Hataitai Connection bridge
- A footpath will be extended to cross the realigned Rugby Club access road

Critical utility impacts

- Existing 11kV and 33kV connections along Ruahine Street (north of Goa Street) will be affected by the fill and retaining structures in this location and so will be subject to protection and/or diversion
- An existing 1800 mm stormwater outfall to Evans Bay will be replaced in the existing location

3.3 State highway operations

3.3.1 Traffic capacity increase and wider network distribution

Currently, SH1 through Wellington is heavily congested at peak times, causing delays and unpredictable journey times and increasing traffic on local roads as people seek alternative routes. The Project's transport effects are reported in detail below. By way of a summary, the Project will alleviate congestion by constructing the new tunnels, upgrades around the Basin Reserve, and supporting improvements along the remainder of the corridor. The Project is expected to reduce daily traffic on local roads in Wellington, including around:

- 20% reduction in daily traffic on the Harbour Quays route (southbound direction)
- 35% reduction in daily traffic on Oriental Bay Parade (southbound direction)
- 15% reduction in daily traffic on Constable Street (westbound direction)

The additional capacity on SH1 will make trips to critical destinations including Wellington CBD, Wellington International Airport, and Wellington Hospital faster and more reliable. The Project will deliver future travel time savings of 4 to 7 minutes on average across the two 3-hour peak periods each day, and up to 10 minutes during the busiest part of the peak period for some of these key journeys. It will also see an approximately 40% improvement in travel time reliability.

The Project will increase capacity and efficiency on SH1 into and through Wellington. Traffic capacity in the Terrace Tunnel increases in the southbound direction and traffic capacity in the Mt Victoria Tunnel increases in both directions.

Traffic modelling comparing current SH1 traffic volumes with the predicted traffic volumes with the Project in place indicates that:

- The Terrace Tunnel will experience 34% more traffic in the morning peak period and 25% more traffic in the evening peak period once the new tunnel is opened
- Traffic volumes through Vivian Street will have 54% more traffic in morning peak period and 58% more traffic in the evening peak period once the Project is complete
- Volumes through the Mt Victoria Tunnel are forecast to increase by approximately 40% in morning peak period and 55% in evening peak period once the new tunnel is open
- Traffic volumes in both directions on Wellington Road are expected to increase by 39% during morning peak period and by 43% during evening peak period once the Project is complete

3.3.2 Speed limits

Existing speed limits along the SH1 corridor will likely be changed in some locations to reflect the change in the new and reconfigured infrastructure, as set out in the table below. Speed limit changes are subject to a separate statutory process and cannot be determined through the current Application.

Table 3: Summary of speed limit changes

Section	Current speed	Proposed speed
Paterson Street to Taurima Street	50 km/h	60 km/h
Taurima Street to Wellington Road	70 km/h	60 km/h

3.3.3 Signals

Traffic signals along SH1 through Wellington and on local roads are operated by WCC, working collaboratively with NZTA and GWRC, in a way that balances the varying needs of people using the transport network. Signals are optimised as necessary to reflect changing circumstances (including physical changes in the network).

As bottlenecks are removed on SH1 and additional vehicles are attracted onto that corridor, further optimisation of signals will be required; inevitably this will ensure efficient and reliable access on SH1 while maintaining safe crossings for active modes, efficient crossings for vehicles on local roads, and appropriate turning movements at key connector routes and public transport corridors.

Future optimisation of signals is a matter that NZTA will discuss on an ongoing basis with WCC and GWRC. An already-established NZTA, WCC and GWRC Network Planning Group (NPG) will be an appropriate forum for the discussion of the signal optimisation to take place, as the Project is delivered.

The transport effects of the Project have been modelled assuming signal phases that are as close as possible to the *status quo*, in terms of 'green time' allowing movements by pedestrians and vehicles across the SH1 corridor. If in future additional 'green time' is provided for movements along SH1, given the additional capacity for vehicles provided by the Project, this would likely increase the overall benefits of the Project presented in this Application.

3.3.4 Tolling

In line with Government Policy Statement on Land Transport 2024-34 (GPS) direction, NZTA is required to investigate tolling as a means of funding all major transport projects. Any decision to toll is made by the Minister for Transport (not NZTA), following a tolling-specific public consultation process. This consultation process is to be undertaken in the future. In the event a future decision is made by the Minister to toll the Project, this is expected to involve a toll being triggered when motorists pass through one or both of The Terrace and Mt Victoria tunnels (in either direction), via electronic detection devices and payment.

A tolled scheme could alter the traffic distribution reported in section 3.3.1 and elsewhere in the Application documents. Potential changes – the extent to which would vary depending on the amount of a toll – are summarised as follows:

- Some diversion to local roads to avoid paying the toll
- Some diversion to alternative modes of transport (public transport, walking and cycling) to avoid paying the toll
- If the toll amount varies throughout the day, there may be some people who choose to travel at different times to avoid paying higher tolls
- Some people may choose to avoid travelling entirely
- Reduced decreases (and potentially some increases) in traffic on some local roads relative to the un-tolled scenario
- Reduced increases in traffic along the SH1 corridor
- Increases in travel time savings along the SH1 corridor

3.4 Key project components

3.4.1 Tunnels

The proposal is for both the new tunnels at The Terrace and Mt Victoria to achieve a similar outcome to that described below. Any tunnel-specific differences are noted.

The new tunnels will enable traffic in each of the new and existing tunnels to operate in one direction rather than the current two-way movement. If an incident occurs in one tunnel, that tunnel will be closed to traffic, and it is expected (depending on the scale of the incident) that the other tunnel will continue to operate in its normal operation mode (i.e., with two lanes operating in the same direction). There will generally be no allowance for two-way traffic movements to occur in the remaining operational tunnel, except for significant maintenance activities carried out under strict traffic management controls.

A longitudinal ventilation strategy has been adopted for the tunnels to manage air quality during normal operations and smoke control in fire scenarios. Ventilation for all tunnels will be 100% via portal emissions, so the existing ventilation stacks for the Mt Victoria Tunnel will be decommissioned. Ventilation environmental measures include jet fans close to the daylight portals to manage dispersion. Jet fan silencers can be accommodated if needed to manage external noise limits. Jet fans will only be operated when necessary to meet in-tunnel air quality criteria.

New fire protection systems will be provided for in the new tunnels and upgrades will be undertaken for the existing tunnels. Fire protection systems will include a fire detection system and a fire suppression system (comprising deluge and fire hydrant systems).

The tunnel drainage systems for both new tunnels will include:

- Strip drainage between the temporary and permanent lining to control groundwater levels outside of the tunnel; these strip drains will connect into the tunnel drainage system internal to the tunnel (below)
- Drainage sumps in the shoulders, connecting into a new 375 mm diameter trunk main, running along the length of the new tunnels; these sumps will take any stormwater runoff, as well as deluge water (during testing and operations)
- New deluge detention tanks, to be located at the south of Terrace Tunnel and the west of Mt Victoria Tunnel, will store the water before it is discharged to either the stormwater or wastewater networks

In emergency situations the drainage system will collect potential liquid spills on the carriageways and fire system water runoff. During maintenance and testing, the drainage system will collect tunnel wash-down water. All water will be collected and attenuated in the tunnel drainage systems described above.

Other systems to be installed in the tunnels (and tunnel control buildings) include high and low voltage electricity, lighting, intelligent transport systems, public announcement systems, refuge help points, cross-passage connections, security systems and signage. The tunnel control buildings are described under the buildings section below.

The new walking and cycling facility in the new Mt Victoria Tunnel will be lit and include CCTV surveillance.

3.4.2 Bridges

The Project includes new and altered bridge structures, as summarised below.

Table 4: Summary of proposed bridges

Bridge description	Indicative length (approx.)	Indicative width (approx.)	Indicative minimum clearance
Ghuznee Street bridge	52 m	16 m 2 lanes (3.5 m), a 2.5 m wide median and a 3.0 m wide footpath on each side	Existing clearance over SH1 lanes below
SH1 Buckle Street bridge	30 m	10 m Carrying two lanes of vehicle traffic with shoulders and concrete barriers	4.9 m Over Sussex Street lanes below
Pukeahu land / green bridge – will be perceived as one structure from above with the Pukeahu active modes bridge (below)	30 m	24 m Carrying pedestrians and maintenance vehicles Landscaped as extension to Pukeahu	4.9 m Over Sussex Street lanes below
Pukeahu active modes bridge	35 m	4.5 m Carrying pedestrians, cyclists and maintenance vehicles	4.9 m Over Sussex Street lanes below
Hataitai active modes bridge	60 m	3.0m (clear width) Ramps to meet the requirements of NZ Building Code compliance document D1 for an accessible route	4.9 m Over SH1 lanes below
Hataitai Connection bridge	33 m	15 m Carrying three lanes of vehicle traffic with shoulders, shared-use path and concrete barriers	4.9m Over SH1 lanes below
Temporary construction access (at Clifton Terrace carpark)	Nominal 25 m	Carrying single lane of construction traffic	Over Wellington Cable Car below

3.4.3 Retaining walls

Details for the proposed retaining walls are summarised in the table and illustrated on the General Arrangement and Geotechnical Drawings.

Table 5: Summary of proposed retaining walls

Retaining wall location / name	Indicative length of wall and indicative reinforcement lengths (where applicable)	Indicative height
Terrace Tunnel Section		
Northern approach to Terrace Tunnel (south of Boulcott Street) (TT-GEO-001)	140 m long, 4 - 8 m soil nails	0.5– 8 m
Northern approach to Terrace Tunnel (TT-GEO-002)	80 m long, 12 m soil nails	8 – 23 m

Terrace Tunnel Northern Portal (TT-GEO-003)	20 m length wall, 9 m long soil nails	21 m total
Terrace Tunnel Southern Portal (TT-GEO-010)	20 m length wall, 10 m long soil nails	10 m
Southern approach to Terrace Tunnel (north of Ghuznee Street bridge) (TT-GEO-005)	30 m length wall, 10 m long ground nails	10 m
Southern approach to Terrace Tunnel (south of Ghuznee Street bridge, east side of SH1) (TT-GEO-006)	120 m length wall, 6 m long ground nails	0 – 6 m
Cut slope behind deluge tanks (TT-GEO-008)	60 m length wall, 4 – 8 m long ground nails	0 – 6 m
Ghuznee Street bridge abutment (TT-GEO-007)	20m length wall, up to 15m long wall reinforcement (geogrid or similar)	0 – 4 m
Wall parallel to Ghuznee Street east of bridge, north of road (TT-RW-001)	50m length wall, 5 m long wall reinforcement (geogrid or similar)	0 – 4 m
Basin Reserve Section		
Sussex trench approach western wall (BR-RW-01)	100 m length wall	0 – 6 m
Sussex trench bridge abutment west (BR-RW-02)	40 m length wall	6 – 7.5 m
Sussex trench approach eastern wall (BR-RW-11)	100 m length wall	0 – 6 m
Sussex trench bridge abutment east (BR-RW-12)	60 m length wall	6 – 7 m
Sussex Street embankment north (BR-RW-13)	70 m length wall, 9 m long wall reinforcement (geogrid or similar)	0 – 8 m
SH1 over Sussex St, embankment wall (BR-RW-14)	80 m length wall, 4 m long wall reinforcement (geogrid or similar)	0 – 4 m
Mt Victoria Tunnel Section		
Mt Vic Western approach. Wall behind shared path retaining realigned Paterson Street. CH660-730 (MV-RW-100)	70 m length wall, 4 – 6 m long ground nails	0 - 4 m
Mt Vic Western approach. Wall behind shared path retaining realigned Paterson Street. CH730-750 (MV-RW-105)	20 m length wall, 8 - 10 m long ground nails	4 - 6 m
Mt Vic Western approach. Wall behind shared path retaining realigned Paterson Street. CH750-800 (MV-RW-106)	50 m length wall, 1 m long ground nails	6 - 8.5 m
Mt Vic West soil nail cut for Cut and Cover Section – Temporary, during construction (MV-RW-102)	50 m length wall, 11 m long ground nails	8.5 - 15 m
Mt Vic West soil nail cut for Cut and Cover Section – Temporary, during construction (MV-RW-103)	50 m length wall, 11 m long ground nails	8.5 - 15 m
Mt Vic West soil nail cut for Cut and Cover Section – Temporary, during construction (MV-RW-107)	25 m length wall, 12 m long ground nails	15 m
Mt Vic Western Portal (MV-RW-110)	40 m length wall, 6 m long ground nails	3 - 12 m
Vertical retaining wall supporting property above local road section of Paterson Street (MV-RW-111)	30 m length wall	0 - 2.5 m
Mt Vic Eastern Portal approach cut slope (MV-RW-200) (top section)	100 m length	1 - 15 m

Mt Vic Eastern Portal approach almost vertical cut slope (MV-RW-201) (middle section)	80 m length wall, 15 m long ground nails	0 - 8 m
Mt Vic Eastern Portal approach cut slope (MV-RW-202) (bottom section)	100 m length wall, 15 m long ground nails	6 - 12.5 m
Mt Vic East Tunnel Portal wall (MV-RW-203) (bottom section)	35 m length wall, 12 m long ground nails	3 - 12.5 m
Mt Vic East Tunnel Portal cut slope above portal (MV-RW-204)	15 m long, 12 m long ground nails	0 - 5 m
Mt Vic East wall above pumping station (MV-RW-205)	30 m length wall	6 m
Eastern Connections Section		
Embankment to support pedestrian bridge approach (MV-RW-206)	20 m length wall, 3 m long wall reinforcement (geogrid or similar)	0 - 3 m
Embankment along east of Ruahine Street (MV-RW-207)	180 m length wall, 5 m long wall reinforcement (geogrid or similar)	0 - 5 m
Cut slope along Ruahine Street on Town Belt side (MV-RW-208)	320 m length wall, 2 m long wall reinforcement (geogrid or similar)	1 - 3 m
Cut slope along Ruahine Street on Town Belt side, supports car park (MVRW-210)	150 m length wall, 8 m long wall reinforcement (geogrid or similar)	1 - 8 m
Vertical wall supporting landscaped areas above Hataitai Park access (MV-RW-211)	80 m length wall	0 - 2 m
Vertical wall between shared path and SH1 along east side of Ruahine Street (MV-RW-215)	470 m length wall	1 m
Cut slope supporting bank above northbound off-ramp (MV-RW-217)	140 m length wall, 9 m long ground nails	0 - 2.5 m
Almost vertical wall supporting Hataitai Connection bridge approach from Moxham Avenue (MV-RW-18)	60 m length wall, 6 m long wall reinforcement (geogrid or similar)	1 - 6 m
Almost vertical wall supporting Hataitai Connection bridge approach from Moxham Avenue (MV-RW-19)	60 m length wall, 6 m long wall reinforcement (geogrid or similar)	1 - 6 m
Almost vertical wall supporting eastern Hataitai Connection bridge abutment (MV-RW-20)	50 m length wall, 12 m long wall reinforcement (geogrid or similar)	4 m
Almost vertical wall supporting western Hataitai Connection bridge abutment (MV-RW-21)	30 m length wall, 12 m long wall reinforcement (geogrid or similar)	5 m
Cut slope along Ruahine Street next to Badminton Wellington Centre (MV-RW-301)	110 m length wall, 9 m long ground nails	0 - 8 m
Cut slope around curve from Ruahine Street to Wellington Road (east side) (MV-RW-302)	160 m length wall, 3 m long ground nails	0 - 8 m
Cut slope along Wellington Road (west side) (MV-RW-303)	80 m length wall, 8 m long ground nails	0 - 6 m
Vertical wall along local section of Wellington Road (west side) (MV-RW-305)	80 m length wall	0 - 2 m
Embankment supporting road along Kilbirnie Park boundary (MV-RW-304)	150m length wall, 2 m long wall reinforcement (geogrid or similar)	0 - 2.5 m

The type of retaining structures and associated surface finish will vary depending on ground conditions and geometric requirements for each site, which is subject to further consideration during detailed design. The different types of retaining structures that are expected to be incorporated into the Project are:

- Mechanically Stabilised Earth (MSE) walls:
 - The height and depth of reinforced fill behind the wall facing varies depending on the geometry and location of the site
 - MSE walls are likely to be used in fill locations so that the reinforced earth can be placed and compacted during construction, and where there are few constraints on disruption of land behind the MSE wall
 - The facing and slope of MSE walls can vary (i.e. either be vegetated, or concrete/block faced)
- Soldier / secant pile walls:
 - Soldier / secant pile walls are expected for areas in the Project that have less construction room available and to limit the impact on neighbouring properties
- Concrete cantilever walls:
 - Concrete cantilever walls are expected for areas of the Project where filling has already been undertaken behind the wall or when soil properties behind the wall do not favour soil nails
- Soil nail cut slope:
 - Soil nail cut slopes will be likely to be used for high slopes (greater than 6 metres) and to minimise the impact to land ownership boundaries
 - Nail lengths, spacing and sizing will depend on the specific site of the cut slope, and the underlying geology
 - While this type of wall minimises the impact on the surface of adjacent property owners, there may need to be subterranean arrangements in place should the below-ground soil nails encroach on the neighbouring properties
 - These walls can have a concrete facing or can be meshed and hydroseeded if the rock type and slope is suitable
- Cut slope with erosion protection matting:
 - Cut slopes with erosion protection are expected in places where heights are less than 6 m, and without land ownership boundary constraints
 - They are designed as cut slopes without formal structural detail and can have a maximum of 1H:1V (45-degree batters), with erosion control measures (for example erosion protection matting or hydroseed spray)

3.4.4 Buildings

Former Home of Compassion Crèche

The former Home of Compassion Crèche is a 'Historic Place Category 1' building that will need to be relocated to make way for the Sussex Street extension. The Crèche is a masonry structure that was previously relocated as part of the Arras Tunnel construction. A concrete ring-beam was constructed around the base of the Crèche which was then slid and jacked along concrete running beams and lifting frames. A similar methodology is likely to relocate the Crèche as part of this Project. Two movements are expected. The final location of the Crèche is indicatively proposed to the south-east of the current location.

Other heritage buildings

Two other scheduled heritage buildings will be relocated to make way for the Project and reinstated following construction, being the buildings at 19 Paterson Street²¹ and 140 Austin Street. One non-scheduled building at 7 Paterson Street (Laureston) will be relocated and reinstated, in recognition of its archaeological and heritage values. The proposed new site for these buildings is adjacent to the realigned Paterson Street, near their existing location, as illustrated on the drawings. As final sites for these will not be available until the end of the Project construction (due to the space needed for construction), it is

²¹ This building is not owned by NZTA and will only be relocated within the project area as part of the Project if it has not been relocated to a new site by the owner.

expected that any buildings to be retained will need to be relocated off site for the duration of construction and returned when the areas are no longer required for construction.

Badminton Wellington Centre and Hataitai Kindergarten

Badminton Wellington Centre (1 Ruahine Street, also known as Badminton Hall) and Hataitai Kindergarten (8 Taurima Street), both located within the area of Town Belt land required for the Project, will be removed. NZTA has been working with WCC and the lessees of these buildings to explore alternative sites for the lessees.

Eastern Suburbs Cricket Club facilities

The existing cricket / football club pavilion building at Kilbirnie Park will be removed. NZTA has been working with WCC and the lessees responsible for the building to explore alternative options for these facilities.

Other existing buildings

Several buildings in other sections of the Project will need to be demolished or relocated to allow for the Project. These are listed in Table 6 below.

Table 6: Properties to be demolished or relocated for the Project

Street name and number	Current use
196 Willis Street	Terrace Tunnel control building (south)
75-78 Cambridge Terrace	Commercial
4, 20-22, 30, 40-44, 46, 48 Sussex Street	Residential, Motel
2, 4 Adelaide Road	Commercial
15-19 Ellice Street	Commercial
145, 147, 151 Brougham Street	Residential
3, 5, 7a, 9, 11, 17, 23 Paterson Street	Residential
Near corner of Paterson Street/Austin Street	Mt Victoria Tunnel control building (west)
138, 142 Austin Street	Residential
Along existing Mt Victoria Tunnel	Mt Victoria Tunnel ventilation buildings
North of Marist St Pats Rugby Club	Mt Victoria Tunnel control building (east)
32 Ruahine Street	Residential
72, 126A, 128, 130, 130A, 168, 170, 176 Moxham Avenue	Residential
37, 39, 41, 43, 45, 53, 55, 57, 57A, 59, 61, 63, 65, 66, 66A, 67, 68, 69, 70, 71, 72 Wellington Road	Residential
10 Kilbirnie Crescent	Residential

3.4.5 Vegetation removal

Table 7 below provides a summary of the indicative proposed vegetation removal for the Project, which includes vegetation removal within the Town Belt to accommodate tunnel portals. Based on the consenting design, a total of 4.73ha of vegetation and 105 specimen trees will be removed.

One notable tree²², an English elm on the corner of Paterson and Dufferin Streets (within the current NZTA-1 designation), will be removed to accommodate the Project.

²² Schedule 6 of the District Plan

Table 7: Summary of indicative proposed vegetation removal for Project

Vegetation type	Project area	Area (ha) / count present within the project area	Area (ha) / count impacted
Regenerating broadleaf forest	Mt Victoria Tunnel	1.08	0.93
Mixed indigenous-exotic forest and scrub	Mt Victoria Tunnel	0.16	1.47
	Eastern Connections	1.60	
	Terrace Tunnel	0.67	0.56
Mixed low-stature vegetation	Mt Victoria Tunnel	0.12	0.35
	Eastern Connections	0.34	
	Basin Reserve	0.48	0.48
	Terrace Tunnel	0.39	0.21
Private gardens	Mt Victoria Tunnel	0.30	0.73
	Eastern Connections	0.44	
TOTAL		5.56	4.73
Indigenous specimen trees	Mt Victoria Tunnel	17	67
	Eastern Connections	69	
	Basin Reserve	32	23
	Terrace Tunnel	25	15
TOTAL		143	105

3.4.6 Proposed planting and mahi toi

Landscape planting is proposed across the Project, as illustrated on the Indicative Landscape Plans. Table 8 below is a summary of the proposed planting within the areas disturbed for the Project. It should be noted that the areas below include all areas of vegetation including grass and vegetated slopes / walls.

Table 8: Summary of proposed planting

Section	V-A1 - Indigenous groundcover (ha)	V-A2 - Erosion Control (ha)	V-A3 - Indigenous shrubland (ha)	V-A4 - Indigenous broadleaf forest (ha)	V-SW - Vegetation – Stormwater (ha)
Terrace Tunnel	0.0390	0.3890	0.4850	0.0370	-
Te Aro & Basin Reserve	0.9010	-	0.1630	-	0.1560
Mt Victoria Tunnel & Eastern Connections	1.1610	0.7850	0.4670	1.4550	0.3050
TOTAL	2.1010	1.1740	1.1150	1.4920	0.4610

In addition to the planting set out in Table 8 above, a further 4.5 ha to 6.5 ha of offset planting is proposed

within the Mt Victoria area of the Town Belt, as noted above in section 3.2.4.

The Indicative Landscape Drawings also show potential locations for proposed mahi toi²³, which may include artwork, sculptures and pou²⁴ as examples. The works will be developed in partnership with Mana Whenua.

3.4.7 Earthworks

Table 9 below provides a summary of the indicative proposed earthworks for the Project.

Table 9: Summary of indicative proposed earthworks

Section	Cut to fill m ³	Cut to waste m ³	Import fill from offsite m ³
Terrace Tunnel	N/A**	79,600	66,100
Te Aro	N/A*	N/A*	N/A*
Basin Reserve	N/A**	33,600	7,900
Mt Victoria Tunnel	N/A**	143,200	4,200
Eastern Connections	N/A**	58,400	14,900
TOTAL	N/A**	314,800***	93,100

* No bulk earthworks required – minor pavement resurfacing will be needed

** A conservative current assumption is that all cut is to waste, and all fill is imported

*** Cut volumes are directly exported from 3D model, and these volumes do not account for bulking factors, which varies depending on soil type. This will be refined in future design stages.

3.4.8 Spoil disposal

A small amount of the material excavated may be able to be used as fill for various parts of the wider Project, however at this stage volumes and sequencing have not been defined in detail to be able to realise this opportunity. It has therefore conservatively been assumed that all material (estimated at 270,000 m³ to 375,000 m³) will be cut to waste and disposed of off-site, with the disposal site(s) yet to be determined.

Table 10 provides a summary of spoil disposal sites that have been identified as potential locations. Exact sites will be confirmed through the construction process; no resource consents or other approvals are sought in this application to place spoil in these locations.

Table 10: Summary of spoil disposal sites that could be used

Potential site	Potential volume available (m ³)	Site owner
Transmission Gully Fill Site Toomeys 1	90,000	NZTA
Transmission Gully Fill Site - BOI Fill Site 4 (199)	250,000	NZTA
Macalister Park	150,000	WCC
Ian Galloway Park	100,000	WCC
Paekākāriki sand borrow	115,000	NZTA

²³ Cultural markers that recognise mana whenua values

²⁴ Carved upright pole

3.4.9 Ground improvements, managing settlement effects, and groundwater management

Ground improvement works are required at locations across the Project to reduce the risk of movement of structures (e.g. improve potentially liquefiable soils). To mitigate structure settlement effects, it may also be necessary to undertake measures pre- or post-construction to specific structures. Some groundwater management techniques are also required to reduce the risk of artesian pressures causing uplift on some geotechnical structures. This is expected to involve the following:

- Ground improvements near the Ghuznee Street Bridge, and the Terrace Tunnel southern portal to limit lateral and vertical displacement of the bridge abutments and tunnel control buildings. These works will be designed to avoid the existing wastewater interceptor near Ghuznee Street Bridge
- Groundwater pressure relief wells are proposed north-west of the Basin Reserve along the local road alignment, within and just north of the Sussex Street trench. These are required during construction and will remain as a permanent solution and connect into a drainage blanket beneath the pavement surface to remove uplift pressures

Also, in the north-west of the Basin Reserve there are expected to be Holocene swamp deposits up to approximately 2 m below the finished road level. This unsuitable material is proposed to be undercut and removed and replaced with a structural fill with basal reinforcement. These works are illustrated on the Geotechnical Drawings.

Settlement management activities could include techniques like underpinning or soil grout injection of structures to reduce differential settlement. This may be required for structures above or near the Terrace and Mt Victoria Tunnels or in the surrounding area of the Sussex Street trench.

3.4.10 Stormwater management

The Project will generally be constructed in brownfield areas and there will be an increase in impermeable surface areas in some sections of the Project. Where this occurs, additional stormwater infrastructure is proposed to manage runoff and this approach is intended to avoid exacerbating existing flood risk within the surrounding network and receiving environment.

Additionally, where traffic volumes are expected to increase, the level of contaminant load is also expected to increase, subsequently increasing quantities of contaminants entering the piped stormwater system. Where there is adequate space, stormwater treatment devices are proposed to be installed to treat stormwater contaminants prior to discharge to Wellington Harbour. The following sections describe the proposed stormwater management in further detail, and the works are illustrated on the Drainage Drawings contained within Part G of the Application documents.

Terrace Tunnel

The Terrace Tunnel area (including approaches but excluding the tunnel itself) increases the impermeable catchment area by approximately 6,900 m². This will result in approximately 90 L/s additional runoff in a 10% AEP storm event. At the northern end of the tunnel, a storage tank is proposed to provide attenuation for stormwater flows. Due to space constraints that limit the use of bioretention systems, proprietary stormwater treatment devices are proposed to provide water quality treatment for the upgraded road catchments before flows enter the downstream network.

In addition, a new 375 mm diameter pipeline is proposed to convey deluge water and runoff. Runoff generated from the tunnel carriageway is expected to contain sediments, hydrocarbons, heavy metals from brake and tyre wear, and pollutants from accidental spills and tunnel washdowns. The peak deluge flow is estimated at 200 L/s and will be conveyed through the tunnel to a sump located just south of the tunnel. A pump station is proposed to transfer stormwater from the sump to the detention tanks located east of the Terrace Tunnel, in the existing Upper Willis Street carpark area. At the tank outlet, a valve chamber is provided to direct flow either to the sewer network or to the stormwater system, depending on contaminant levels. A proprietary device is proposed for treatment purposes if flows are discharged to the stormwater network. All existing and new catchpits in the catchment are proposed to be retrofitted with catchpit filters to reduce contaminants.

Te Aro

The impermeable catchment area remains unchanged in the Te Aro section of the Project. As a result, there will be no increased flow volume, and a new network is not required. The carriageway will be

reconfigured, with small areas of kerb to be moved. New catchpits and catchpit leads are proposed in these areas, which will connect into the existing WCC-owned network. Existing catchpits are proposed to be retrofitted with catchpit filters.

Basin Reserve

The Basin Reserve section increases the impermeable catchment area by approximately 800 m². This will increase stormwater runoff slightly, resulting in approximately 10 L/s of additional runoff in a 10% AEP storm event.

A water sensitive urban design approach to water quality treatment in the Basin Reserve area is proposed using bioretention devices such as rain gardens supported by proprietary devices in some areas. These devices will provide water quality treatment through removal of contaminants including heavy metals such as zinc and copper through physical and biological processes. Three raingardens are proposed around the Basin Reserve portion of the Project, including one in the median strip between Cambridge and Kent Terrace, one at the corner of Hania and Ellice Streets, and the third on the corner of Paterson and Dufferin Streets. Due to space constraints and the presence of the existing large stormwater culverts in areas around the Basin Reserve, notably the Kent Terrace and Cambridge Terrace stormwater culverts, some road catchments are proposed to be treated using a proprietary stormwater treatment system prior to discharge to the existing stormwater network.

Mt Victoria Tunnel

A proposed separate stormwater network has been sized to a 375 mm diameter pipe to accommodate deluge water from the tunnel. Deluge water will be conveyed via the new pipeline to a below ground detention tank located beneath the southbound lanes of SH1 west of the tunnel, where it will be temporarily stored to provide initial attenuation. At the outlet, a valve chamber is provided to direct flow either to the sewer or stormwater system, depending on contaminant levels. Before any discharge to the stormwater network a proprietary device is proposed, and this is consistent with the treatment approach adopted for the Terrace Tunnel.

Eastern Connections

East of Mt Victoria, there is an additional impermeable catchment area of approximately 16,000 m². This will result in approximately 260 L/s additional runoff in a 10% AEP storm event. An additional stormwater network and alterations to increase the size of an existing outfall in Evans Bay are proposed to accommodate the additional SH1 stormwater generated by the Project.

The proposed new stormwater network consists of a 1,500 mm diameter pipe running along Ruahine Street, following the SH1 corridor and continuing west-east along Wellington Road. The new network will discharge into a stormwater proprietary device, located within the landscaped area on the southern side of Wellington Road, near the intersection with Kilbirnie Crescent. The new network will eventually discharge into the existing network, upstream of the existing outfall at Evans Bay. This involves upgrading the existing outfall from an 1,800 mm diameter pipe outfall to a 2,100 mm diameter pipe outfall in the same location. This outfall structure is expected to be submerged during normal and flood conditions.

As part of the outfall replacement, penguin nest boxes, fencing and planting are proposed to be installed at the outfall location.

4 CONSTRUCTION METHODOLOGY

4.1 Introduction

Section 13(4)(e) of the FTAA requires a description of the anticipated commencement and completion dates for construction activities. Construction commencement for the Project is subject to funding availability. Indicatively, construction may take place within the 2027-2038 National Land Transport Plan (NLTP) periods, subject to funding decisions, or potentially it could be later than this. Notwithstanding this, having consents and the altered designation in place by 2027 will enable the Project to be implementation ready, when funding is confirmed. Securing consents and the alteration to the designation by 2027 will also provide for route protection and certainty on its location and form.

Section 13(4)(f)(i) of the FTAA also requires an indication on whether it is planned to implement the Project in stages. Again, decisions on implementation methods have not been made as this is subject to future funding decisions. Accordingly, assumptions have been made through development of an indicative construction methodology, to enable assessment of construction effects.²⁵

This section describes the indicative construction methodology for the Project, developed to inform this AEE and the specialist technical assessments completed. It gives detail of the main construction elements that are expected to be undertaken as part of the Project. The construction methodology also informs the activities for which approvals under the FTAA are sought as necessary. This section is a summary of Technical Report #2 prepared by David Hoffman and Morgan Harris of Hoff Consultants Ltd.

The information provided in this section, and the full Technical Report, is indicative only and is intended to provide sufficient detail of the proposed construction activities to confirm the Project can be constructed, to identify key areas where multiple construction techniques may be practicable, to enable an assessment of the potential construction related effects on the environment, and to assist with identifying any necessary measures to manage effects.

Construction of the Project will be influenced by several factors, including:

- The detailed design of the Project, which will occur at a future date once the designation has been confirmed and resource consents have been granted
- The construction timing, staging and duration
- The procurement method adopted for construction of the Project; and
- Technological advances in construction techniques and methodologies

The actual methodology will be determined by the Contractor appointed to deliver the works and the indicative construction methodology will be further refined and developed. Differing approaches may be preferred by different contractors to match their skills, experience and equipment. Some elements of the Project have many possible methods that would achieve similar outcomes. Refinement of the construction methodology will be undertaken in compliance with any conditions of the designation and resource consents and other approvals that manage the effects of the construction activities.

Any timeframes provided are approximate and are intended only to provide a guide of likely durations for certain activities such that short and long term effects can be identified.

4.2 General construction

This section outlines the construction aspects that are generally consistent across the Project. While the Project construction is expected to be staged, specific staging is not known at this time.

4.2.1 Project enabling works

Project enabling works (or establishment activities) may be undertaken in advance of the main construction works contract(s) by a separate contractor to facilitate more efficient project delivery and

²⁵ For the avoidance of doubt, this substantive application is for the entirety of the Project

reduce overall impacts on the community. Enabling works will target activities that reduce programme risk, deconflict high-intensity work areas, or shorten the duration or severity of later impacts, and/or works that are physically or logistically independent of the primary construction sequence. These activities may also be scheduled to align with utility shutdown windows, address assets requiring extended planning, or avoid periods of high demand or congestion, such as school terms, sporting seasons, or major events.

Works will commence only where land acquisition, access arrangements, environmental approvals, and utility coordination are in place. Project enabling works and/or early main construction activities may include:

- Site investigations (e.g. geotechnical boreholes and test pits)
- Baseline monitoring (e.g. vegetation surveys)
- Vegetation clearance for access and investigations
- Demolition and removal of buildings and structures
- Construction yard establishment and access works
- Utility protection and relocation of utility services (such as electrical, wastewater, stormwater, and communications infrastructure)
- Implementation of erosion and sediment and control mitigation measures
- Management (e.g. initial preparation and relocation offsite) of heritage structures
- Existing tunnel stabilisation, removal of existing tunnel control buildings and establishment of temporary control buildings clear of the tunnel work sites
- Environmental mitigation measures (such as advanced planting for offset areas); and
- The construction of the Ghuznee Street Bridge

4.2.2 Construction yards

Construction yards will be established to support construction activities. They will be located near key work areas and may require relocating as work progresses. Construction yards will support construction activities by providing space for temporary facilities, equipment, and materials, with a focus on minimising their footprint and ensuring safety—especially near sensitive locations like schools and community spaces. The yards will typically range from 500 m² to 2,500 m², use existing hard surfaces where possible, and include facilities such as offices, welfare amenities, storage, short term stockpiling of materials, workshops, plant parking and maintenance.

Construction yards will have varying types of perimeter fencing based on location risk and requirements for noise or dust control. These range from temporary low fences to solid hoardings or high wire fences, with enhanced solid barriers at urban interfaces and tunnel sites to control noise, light, dust, and separate the public from construction activities.

The majority of construction yards support typical day works and will be closed outside of normal working hours. Construction yards at the Terrace and Mt Victoria tunnel portals will operate 24/7 to support tunnelling operations.

Indicative location details for construction yards expected in each section of the Project are described in section 4.4 below.

4.2.3 Hours of operation

Construction activities will generally be undertaken during standard daytime hours except for tunnelling activity which is anticipated to operate 24/7. However, due to the scale and location of the Project, some activities may require extended or out-of-hours work to minimise disruption to traffic, adjacent businesses, schools, community facilities and stakeholders or to meet consent conditions. Typical working hours required for the Project in terms of construction noise will be:

- Standard daytime works: Monday to Saturday, 6:00 am – 6:00 pm
- Night works (as required): Typically, 6:00 pm – 6:00 am, subject to specific traffic management and noise control measures

- Sunday or public holiday works (by exception): May be undertaken for critical activities such as traffic switches, major concrete pours, or utility outages

These working hours allow for set up and pack down activities and can be assumed to be when the access gate opens and the first person arrives, to gate closed after the last person leaves site at the end of the day.

Work hours required for tunnel mining will differ due to the critical path for progress with high value specialist equipment that is more efficient when working hours are maximised. Tunnelling activities are likely to be 3x 8-hour production shifts per day or 2x 10-hour production shifts and a 4-hour maintenance period. The advance length is typically tailored such that a full cycle of excavation, mucking out of material and support installation can be achieved in every shift. Where blasting is used as the advance method, it is anticipated that a blast will occur near shift change over, with either 2 or 3 blasts per day to match the shift cycle, although given the various interconnected activities required for drill and blast excavation, including tunnel closures, evacuations and inspections, two blasts per day would be considered most likely. Conditions restricting blasting may further limit the number or timing of blasts and result in reduced efficiency and longer construction times.

4.2.4 Vegetation clearance

The main larger areas of vegetation clearance required will be carried out as each area of works progresses to allow vegetated land to be retained as long as possible. However, if there are seasonal restrictions on removal of vegetation, clearance will be planned in advance, and removal work will take place during the appropriate season in advance of works.

4.2.5 Bulk earthworks

Bulk earthworks excavation will be undertaken to form tunnel approaches, road alignments, and modify the landform around bridge structures. The indicative volume of earthworks for each section of the Project is set out in section 3.4.7 above. Works will involve stripping of topsoil, excavation of subsoil or rock, benching of slopes, and hauling of material to stockpile or disposal areas. As noted above, it is expected most spoil will be carted offsite to bulk fill disposal locations in the greater Wellington area. Earthworks will follow erosion and sediment control staging plans and be sequenced to minimise exposure of disturbed ground.

4.2.5.1 Material disposal sites and heavy truck movements

Across the Project there will be excavated material to dispose of. The use of disposal sites will need to be coordinated, including in terms of access to these including via managed haul routes for heavy vehicles transporting materials.

Typical spoil cartage rates assume trucks arriving at bulk earthworks and tunnelling sites every 10 to 15 minutes throughout the working shift with maximum peak rates of up to a 2.5-minute truck arrival frequency. Full details of anticipated heavy vehicle movements and modification factors for scenarios are available in the full constructability report.

4.2.5.2 Earthworks around potentially contaminated land and in urban areas

Earthworks have the potential to encounter ground contaminated by historical light industrial activity or former reclamation material. Activities such as trenching, piling or excavation in certain areas of the Project will apply specific controls to safely manage potentially contaminated materials and soil. These controls will apply whether material is being removed, stockpiled or disposed of offsite. Excavated materials will be assessed, contained, and transported using procedures that avoid environmental discharge and health exposure.

Ground disturbance may also require working around buried infrastructure or unstable fill. The Project area has many years of urban use, and it is likely there will be unmapped or abandoned services or previous building foundations in work areas that may not be discovered until they are exposed during earthworks. Generally, this risk can be managed by typical construction processes but high-risk services such as gas, electrical and high-volume water assets will be investigated early to confirm locations.

4.2.5.3 Stockpiling

Stockpiling of excavated materials may be required if materials are being re-used and will occur at sites located away from sensitive areas such as overland flowpaths, stormwater inlets, kerbs and waterways. On constrained urban sites, stockpiles may need to be placed on designated hardstand areas or

contained in bins made of concrete walls. Stabilisation of stockpiles depends on the storage duration. However, as high turnover is likely on constrained sites it is unlikely to be appropriate to stabilise stockpiles during these works.

Entry and exit routes will be stabilised with compact gravel or paved hardstand and wheel wash stations adopted, where necessary, to avoid tracking fines onto the roading network where vehicles travel over areas of exposed earth.

If spoil is derived from different sources or potentially contaminated land, segregation may be necessary until testing confirms suitability for refuse or disposal. These materials may require additional lining or containment to prevent potential contaminant migration.

4.2.6 Erosion and sediment control

Erosion and sediment control measures are critical to prevent runoff and protect water quality during earthworks and construction given the extensive cutting, trenching and potential need for stock piling near sensitive receivers and urban drainage systems. The specific control methods to be adopted for specific sites will be determined by the contractor in accordance with any consent condition requirements. Further details regarding erosion and sediment control are discussed in section 6.14 of this report.

4.2.7 Ground improvements

Ground improvements such as cutter soil mixing and jet grouting may be required in areas where soft or liquefaction prone soils are present near surfaces. Ground improvements may be required for bridge abutments, around areas of soft ground for the trench proposed at the Sussex Street and for improving the ground where settlement or movement may be an issue. Due to the expense and complexity of ground improvement the contractor may suggest design refinements or excavating out material and replacing it with competent, compact, granular material instead of completing ground improvements.

4.2.8 Potential closures of SH1 and major routes

Most of the construction activities will allow for the same number of existing SH1 traffic lanes in both directions to stay open during the works. However, certain activities cannot occur while SH1 remains in its current configuration, especially when traffic needs to be redirected between different stages of the Project. Many of these activities are of short duration and can utilise night or off-peak works to minimise traffic disruption (while also managing potential adverse effects associated with night works).

The following activities require or would significantly benefit from closure of SH1 or a major route:

- Mt Victoria Tunnel for portal strengthening and tunnel services modifications
- Ruahine Street for new Hataitai Connection bridge
- Mt Victoria Tunnel when blasting is proposed
- General traffic switches between stages of work
- Demolition of the existing Ghuznee Street Bridge
- Cross-passage breakthrough (applies to both Mt Victoria and Terrace tunnels)
- Potential lane reduction at Bogarts Corner

General traffic switches between stages of works will involve transferring live traffic from an existing carriageway onto a newly constructed pavement, temporary diversion or revised lane arrangement. Generally, these fall into 3 scenarios: Night shift closure (8 – 10 hours), short full closures (30 minutes) and route modification or temporary alignment paving with multiple short closures (2 x 30 minutes).

4.2.9 Traffic management and workforce parking

Across the Project, different areas present distinct traffic management challenges based on their location, road classification, and level of urban activity. Traffic management will be designed to provide safe and efficient operation of both the local road network and SH1, with special consideration given to freight, emergency access, active modes, and public transport routes. All traffic management activities will be carried out in accordance with the New Zealand Guide to Temporary Traffic Management, in conjunction with the relevant WCC and NZTA corridor access protocols.

During construction, the workforce required to deliver the Project will increase pressure on existing inner city car parking. The approximate maximum number of construction workers required per shift in each area of works is shown in Table 11 below. The construction crew sizes reflect workers carrying out construction on site, plant operators, supervisors, site managers, on-site engineering, health & safety, survey and quantity surveying staff. These numbers exclude the design staff, delivery drivers, corporate and support roles that will likely be housed elsewhere in existing offices.

While there are public transport and options for active modes of transportation, most workers are expected to commute in private vehicles, which may also be used throughout the day to move between work areas. As construction crews typically start work shifts at 7 am, prior to office workers in adjacent urban areas, they will likely occupy parks that may otherwise have been used by office workers. Many public parking spaces in central Wellington have time limitations and are not suitable for full day worker parking. The site compounds may at times provide parking space for some workers, but this cannot be relied upon, particularly in the congested Terrace Tunnel, Basin Reserve and Mt Victoria works areas.

The impact from construction worker parking will increase as works approach completion as the size of construction yards reduces (reducing onsite parking) and typically more labour-intensive tasks are undertaken (increasing workers present). During low labour demand activities and particularly during night shift, the number of workers present is likely to be closer to 10 – 30 personnel per site per shift. Dual shift operations for tunnel construction will result in increased parking demands and activity at yards at changeover times. However, 24/7 work is anticipated to predominantly occur during low total labour demand times.

The management of construction phase parking relies on staged closures, advance notice, coordination with local authorities, mitigation measures (such as temporary restrictions and alternative parking), active on-site management, and ongoing monitoring. The goal is to minimise disruption, maintain access, and provide clear communication to affected users throughout the construction period. The range in the number of parking spaces unavailable for public use is dependent on the staging of works.

Table 11: Approximate maximum number of construction workers per shift in each area of the project

Section	Approximate number of workers per shift ²⁶
Terrace Tunnel	100 ²⁷
Te Aro	30
Basin Reserve	50
Mt Victoria Tunnel	150
Eastern Connections	50

The key transport routes situated throughout the Project area are listed in Table 12 and will be largely maintained during the Project.

Table 12: Key routes to be maintained during construction

Package	Key routes
Terrace Tunnel	Retain existing capacity (except for in limited periods)
Te Aro	- Provide two lane capacity on Vivian Street and Karo Drive - Provide two lane capacity on Ghuznee Street Bridge
Basin Reserve	Provide two northbound SH1 lanes between Paterson Street and Taranaki Street

²⁶ Assume a variation of 30% to allow for variations in the construction method and crew assignments

²⁷ The Ghuznee St bridge will add an additional ~30 staff to the Terrace Tunnel section if carried out simultaneously with tunnel construction

	• Provide minimum one lane in each direction between Adelaide Road and Kent / Cambridge Terrace (shared with SH1 lanes in some directions) • Retain two southbound lanes on SH1 along Kent Terrace
Mt Victoria Tunnel	• Retain existing capacity through Mt Victoria Tunnel • No pedestrian and cycle access through Mt Victoria Tunnel during some stages of tunnel / portal construction - total timeframe could be up to three years and may possibly be undertaken over multiple periods
Eastern Connections	• One lane in each direction on Ruahine Street and Wellington Road (with additional turning lanes and signalised intersections where practical)

Other local access routes will be maintained as far as practicable during construction, however some local access routes may be changed or restricted (e.g. one way or one lane only) for extended periods. Wherever practical, access to businesses and residences will be maintained (noting that this will require use of alternative routes at times).

4.2.10 Noise and vibration

Construction activities for the Project will generate noise and vibration, particularly during enabling works, earthworks, piling, and tunnel construction. These effects, and methods for managing noise and vibration effects are considered in section 6.3 of this report.

4.3 Tunnel construction

Construction of the tunnels will be a complex operation with a need to remove material from constrained sites and access points. Both tunnel construction sites are immediately adjacent to residential properties. The tunnelling equipment required for the second Mt Victoria Tunnel and Terrace Tunnels will depend on the geology and excavation method adopted. At this stage, roadheader excavation is expected to be the primary advance method with the potential for a 'drill-and-blast' method to be used in the Mt Victoria Tunnel in some areas where rock is harder.

Tunnelling operations and the subsequent fit out require a yard at the portals that service the construction. As tunnelling progresses, temporary services will be run from these yards to the advance face and incrementally extended as tunnelling progresses along a service bank against a tunnel wall. This includes lighting, water supply, water extraction, dust extraction, ventilation, and power supply monitoring equipment.

4.3.1 Portals

It is anticipated that the portals will be excavated 'top down' in stages using large excavators. As each excavation bench is stripped, the retaining rock anchors and concrete facing will be placed, providing support for the next excavation layer. The portals around each tunnel are likely to be constructed from in-situ reinforced concrete and the interfaces with existing portals where the new tunnel is close to the existing will need to be coordinated.

A cut and cover section at the southern portal of the Terrace Tunnel and western portal of the Mt Victoria Tunnel is required to transition between excavation of soils and fractured material into hard rock mining. The length of cut and cover is anticipated to be specified to allow hard rock mining from the face. It is expected that open excavations will be supported with temporary buried and abandoned soldier pile walls with ground anchors or a shotcrete and ground anchor wall. Once excavation reaches formation level, a reinforced in-situ concrete tunnel arch will be constructed to span the opening. The structure will then be backfilled using low-strength concrete or controlled fill. Temporary props above the arch may also be used depending on the design requirements.

4.3.2 Road header excavation

A road header will be appropriate for soft to moderately hard rock conditions and is likely to be used for most of the tunnelling for both tunnels. This system offers controlled excavation with less chance of

overbreak, and a comparatively lower level of noise and vibration compared to drill-and-blast. This method may be combined with the use of heavy excavators, particularly at portals where access is less restricted.

Two levels of excavation are likely, a top heading followed by a bench. A top heading height of approximately 7 m and bench of 2 m allows for typical equipment sizes. Split headings (where one side of the tunnel is mined in advance of the other) may be used where required by ground conditions but is likely to be less efficient for construction. There could be up to 4 mining passes in each area of the tunnel if split headings were to become a design requirement.

The geometry and use of different heading arrangements will likely need to be coordinated between the designer and constructor as machinery size dictates some excavation height limits while the staging and stability effect ground settlement.

This method requires:

- A high-capacity electrical connection and trailing cable to power the roadheader, possibly including a small electrical area near the portal
- Dust suppression, ventilation and dust extraction system at the advance face. Likely to be a combination of water misting and airborne dust removal
- A conveyor mounted to the road header to deposit spoil from in front of the machine into dumpers waiting behind
- Tunnel dump trucks for hauling from the advance face to the spoil handling area outside of the portal
- Drainage and water control for both groundwater and dust suppression to capture water at the advance face. Pumped or gravity fed into containment and treatment tanks located beyond the portal

4.3.3 Drill-and-blast

Some areas of rock in the Mt Victoria Tunnel route may require the drill-and-blast method to be used. The assessment of rock quality at the Terrace Tunnel suggests that drill-and-blast will not be required. The areas of drill-and-blast in the Mt Victoria Tunnel are anticipated to be near the middle half of the tunnel where harder rock is more likely to be encountered that may reduce the advance rate of roadheader mining to a point where drill-and-blast is required. On the basis that hard rock mining has an estimated time frame of around 1 year and around a quarter of the length may require drill-and-blast, it can be assumed that drill-and-blast effects will have a duration of multiple months (if required).

This method involves sequential cycles of drilling, controlled blasting, ventilation, spoil removal ("mucking out"), and primary lining ground support (e.g. shotcrete, rock bolts, mesh). Works will be accessed from the portals and carried out progressively along the tunnel alignment.

Prior to blasting, the existing Mt Victoria and new tunnels are cleared of people and equipment, followed by a warning siren and the blast itself. After blasting, ventilation clears fumes, and inspections confirm completion and check for misfires or tunnel damage. Once safe, the existing tunnel is reopened.

Full closure of the existing Mt Victoria Tunnel during blasting operations and for inspection following is anticipated to be between 30 min and 1 hour per blast. There is a residual risk that damage is identified that results in immediate unexpected closure of the Mt Victoria Tunnel. While collapse of the existing tunnel is extremely unlikely, cracking or spalling of lining could pose a risk to traffic using the tunnel (as a piece of lining could fall on or near traffic). The contractor will have a plan to address this risk and a pre-approved repair method and equipment on site for this to occur as quickly as practical.

4.3.4 Spoil handling

Spoil is anticipated to be deposited into heavy construction dump trucks at the advance face before being driven to and dumped in the spoil handling area outside of the portal. The spoil handling area at the Mt Victoria western portal and northern portal at the Terrace Tunnel is anticipated to be enclosed to allow works to progress 24/7 with less noise, dust and light emission while mitigating effects of weather on production rates. From here it is stockpiled until it is carted offsite by road going trucks, which can be loaded on hardstand and are less likely to require wheel wash and can be loaded in all weather conditions.

4.3.5 Cross passages

Cross passages between the new and existing tunnels will be constructed to provide emergency egress and to support tunnel systems during operation. The cross passages will be constructed, once the new tunnels have advanced past each of the passage locations.

The initial construction phase for cross passages involves mined tunnelling, installation of primary lining, and temporary support at the face to be broken through later. Preparatory work will include forming the portal, installing fire doors and partial service connections at the new tunnel end, and adding containment measures like steel mesh to prevent damage during breakthrough. After the new tunnel is operational and traffic is diverted, cross passage connections are completed from the existing tunnel.

4.3.6 Tunnel lining

Primary lining

After each tunnel excavation advance, primary ground support is installed to stabilise exposed surfaces and maintain tunnel geometry using rock bolts and shotcrete. Rock bolts are drilled and grouted into the tunnel crown and walls, sometimes tensioned with steel plates, while shotcrete (sprayed concrete) is applied in layers (200 – 300mm thick), often reinforced with fibre, mesh, or lattice girders, especially in larger or less stable areas. These works are carried out progressively, with anchor group spacing typically matching the tunnel advance length of 1.5 to 2 metres.

Secondary lining

After the primary support is completed, the tunnel will receive a secondary structural concrete lining, typically placed in sections using mobile formwork, with waterproofing achieved through a membrane system and drainage. The installation method and materials may vary based on design development, and alternatives such as a permanent shotcrete lining could also be considered at later design stages. The process ensures groundwater management and minimises contamination risks during construction.

4.3.7 Tunnel systems and control buildings

New tunnel control buildings and associated systems will be constructed to manage operation at both tunnel sites including essential services like ventilation, fire suppression, stormwater detention, lighting, communications, and backup power. Buildings will use conventional construction methods and materials, typically single or two-storey rectangular structures. Deluge and stormwater tanks will require deep excavation (where buried) and craneage, and services will be progressively installed and commissioned. Temporary systems may be needed until permanent facilities are operational, depending on site access and timing.

4.3.8 Dewatering, groundwater control and stormwater treatment

During excavation of the tunnels, groundwater present in the rock or from seepage through the rock will likely be encountered. Interception of groundwater and active dewatering will be required to maintain safe and dry working conditions. Dewatering systems will include submersible pumps, sump pits, and collection pipelines to manage inflows during excavation and lining. Collected water will be temporarily stored and treated on-site to remove sediment, and other contaminants, before discharge. Pumps will likely be located near the tunnel portals with pipelines to the advance face and treatment area within an adjacent site compound.

Tunnel construction will require onsite treatment and temporary storage of groundwater, which will be discharged into existing wastewater or stormwater systems depending on contamination levels. Dewatering involves pumps and pipelines, and treated water must meet consent condition and management plan requirements. Potential contaminants include sediment, pH adjustment chemicals, blasting residues (such as nitrates and ammonium from explosives like ANFO), hydrocarbons, and other construction fluids. Controls like diversion bunds and earth protection at tunnel portals will help prevent cross-contamination and manage surface water inflow.

4.4 Sector specific construction

This section outlines the construction aspects that are specific to sections of the Project, as described in sections 4.2 and 4.3 above. While this section refers to sequencing, this is only for the purpose of

highlighting the interdependencies of tasks that need to occur within each section of the Project discussed. There are no confirmed construction packages or staging proposed at this stage and the Project sections referred to in this summary, and in Technical Report #2 which has informed it, are not intended to indicate any construction packages or staging or the order in which the Project might be built.

4.4.1 Second Terrace Tunnel

Sequence of works

The new tunnel control buildings, deluge water supply and stormwater tanks are likely to be built after most tunnel works are complete due to space constraints and are required to be commissioned prior to opening the new tunnel. The existing tunnel control building at the southern portal needs to be open and accessible for maintenance prior to refurbishment of the existing tunnel. Due to conflict between this and the permanent new southbound alignment a temporary in corridor detour is required prior to the existing building's removal. Construction of the new tunnel will advance from the northern portal southwards. Once tunnelling, lining and commissioning activities are complete traffic is switched to the new tunnel and modifications are made to the existing tunnel.

Specific construction activities

In addition to standard construction activities, this area is expected to include the installation of a temporary bridge over the Cable Car tracks within the Clifton carpark.

Traffic disruption

It is expected that SH1 functionality can be maintained, with minimal closures as summarised below:

- At peak times and during weekdays the existing capacity of two northbound lanes and one southbound lane can be maintained (except as noted below)
- Staging for tie-ins and bridge works can be adopted to avoid long-term lane reductions
- The tunnel will be constructed offline and will advance from the northern portal southwards
- The primary work site will be located on the northern side of the tunnel
- Once the tunnel is complete, traffic will be switched to the new tunnel, and modifications will be made to the existing tunnel
- The tunnel works will need to be integrated with adjacent activities as access points are constrained, so there may be a requirement for off-peak and night work windows and integration with works at Ghuznee Street Bridge
- Site access may be provided on the southbound approach, but expected volumes of construction vehicles are not sufficient to affect existing congestion
- Access from the site will be provided onto the local road network
- Cross passage completion and modifications to the existing Terrace Tunnel will be carried out once the new tunnel is operational and carrying SH1 traffic
- Works to replace barriers on the Shell Gully Bridge to the north of the tunnel may require reduced highway speed limits, impacting northbound travel
- Construction of the new Ghuznee Street Bridge is likely to require closure of Ghuznee Street in one direction and potential for reduced speeds, and staging to minimise impacts
- Ghuznee Street Bridge beam installation over SH1 lanes is expected to be completed during night closures
- Traffic and services will be transferred onto the new Ghuznee Street Bridge structure once complete

Parking disruption

Approximately 245 to 422 parking spaces will be unavailable from time to time during construction, with approximately 195 parking spaces expected to be closed for the duration of construction and 327 parking spaces intermittently unavailable (at least 50 reserved for construction crew vehicles). The following reduction in parking capacity can be expected:

- Southern end of Clifton Car Park (~120 parking spaces) required for construction yard space
- If the Clifton north slip lane from SH1 southbound is used as a construction access, an additional area of parking within the Clifton Car Park will be required including Clifton upper parking level (~72 parking spaces minimum, ~142 maximum); alternatively, some of this area may be used for site office or welfare facilities
- Below Boulcott Street/Everton Terrace bridges (~15 parking spaces) required for construction activities from the commencement of works to provide construction yard space and access to the new north tunnel portal. All these parks will be removed as part of the permanent works
- Clifton Car Park for work on SH1 Shell Gully Bridge will involve ~150 parking spaces being closed in groups of approximately 50 parking spaces to allow for works to be carried out above the car parking areas; the restriction of movement throughout the car park from area closures may result in additional parking space closures due to lack of access
- Upper Willis Street Car Park (~60 parking spaces) will be impacted from commencement of works to provide construction yard space and access to new south tunnel portal. Some of these parks are permanently removed as the car park space is utilised for the tunnel control building and stormwater detention tanks
- MacDonald Crescent (~35 parking spaces) is an alternative detour route when one lane of Ghuznee Street may be closed for the duration of the bridge replacement

Construction yards

Three construction yard locations have been identified as being necessary for this section of the Project:

- A northern portal yard, which will serve as the main site for facilities, material stockpiling, enclosed spoil handling and groundwater treatment. Activity in this yard will be 24/7 during tunnel mining operations
- The Clifton Car Park access and yard, includes the land between the Terrace off-ramp (SH1) and the Cable Car tracks. Continuous access may require a temporary bridge to improve truck movements, or vehicle access via Kumutoto Lane and a slip lane from SH1. Northern access is also available through Shell Lane, Dalmuir Lane and Rosina Fell Lane. Site office facilities, parking and some storage and maintenance activities are expected
- A southern portal and Ghuznee Street yard, which will function as the primary site facility for the southern portal, tunnel control building and Ghuznee Street bridge works. Continuous 24-hour access to the tunnel control building is needed for maintenance and emergencies, restricting the main Willis Street / Ghuznee Street entrance to temporary loading and site access. Some access will be available from Ghuznee Street, with possible entry from MacDonald Crescent

4.4.2 Te Aro

Sequence of works

There are no strict interdependencies between areas of work in this section, although progressing works from one end of Vivian Street to the other would minimise localised disruption and be efficient for construction.

Specific construction activities

In addition to the general construction activities, works in this area will also include the reconstruction of verandahs where the existing structures overhang into lane clearance envelopes.

Traffic disruption

Careful staging and lane reconfiguration will be required to maintain flow in this section of the Project, which will rely on maintaining two open lanes during the works. Also, relevant here will be:

- Construction commencing in one lane on one side then switching to the other side before completing the central pavement reconstruction (where required)
- Two lanes retained during the day, lane and full road closures at night used for demolition, constructing foundations adjacent to live traffic
- Increased side friction and reduced travelling speeds for road users

- Traffic impacts of the road widening on Vivian Street are expected due to the potential for reduced speeds and increased side friction
- The traffic impacts for construction of the Cuba Street intersection works on Karo Drive / Arthur Street are minimal as there will be no reduction in capacity

Parking disruption

Approximately 10 to 36 parking spaces will be unavailable during construction. All street parking spaces on Vivian Street are proposed to be permanently removed as part of the Project, therefore as works progress the availability of these parking spaces will be reduced. Pavement works may make parking accessed from Arthur Street along SH1 northbound unavailable for a time resulting in a maximum of 91 parks being closed. The following parking disruption is expected:

- Vivian Street route (~75 parking spaces and 5 to 6 taxi spaces within 30 m long taxi stand) it is anticipated that works through this area will be staged with approximately 10 to 20 parks at any one time unable to be used due to construction activities for periods between weeks to 6 months. Length of time and number of parks impacted depends on staging and other restrictions imposed. It is anticipated that all the parks within one block (10 to 20 parking spaces) will be closed during each stage to accommodate construction working space and equipment in addition to those already permanently closed in completed blocks
- Arthur Street (~16 parking spaces) limited access at times. It is anticipated that all 16 parking spaces will be restricted for construction activities, for a short period, to allow for pavement and utility works to be carried out

Construction yards

Two construction yards are planned for this section of the Project:

- A Ghuznee Street yard, located between the southern portal of the Terrace Tunnel and Willis Street, is expected to house the site office, welfare facility, and equipment staging area, though it is shared with the Terrace Tunnel section and may not be available if both sections of the Project proceed simultaneously. Access is via Willis Street corner
- A Martin Square yard, on the south side of Martin Square, is expected be used primarily for storing equipment and materials and as a staging area during construction works. Access is via Taranaki Street

4.4.3 Basin Reserve

Sequence of works

The sequence of works will be critical to maintaining access for construction and for the public through the site. Many activities require others to be completed prior to them being able to be undertaken without resulting in significant disruption.

Key sequence constraints include:

- Diverting strategic services away from the Sussex Street trench
- Completing the new Cambridge Terrace alignment and the Sussex Street trench to opening Sussex Street under the new SH1 overbridge to public traffic
- Opening new SH1 alignment north of the Basin, reducing traffic flow on Cambridge Terrace and allowing it to operate in two directions. Southbound traffic on Sussex Street and operating the new SH1 northbound alignment allows Dufferin Street to be made one way
- Minor traffic switches complete works around the southern and eastern sides of the Basin during which time traffic volumes through this area of site should be significantly reduced due to northern routing of SH1 northbound traffic

Specific construction activities

In addition to the general construction activities, works in this area will also potentially include groundwater reinjection during the Sussex Street trench excavation.

Traffic disruption

The following disruption is expected during construction of this section of the Project:

- Maintaining two northbound and southbound SH1 lanes between the Mt Victoria Tunnel and Vivian Street / Arras Tunnel
- Providing one local traffic lane in each direction between Adelaide Road and Kent / Cambridge Terrace (shared with SH1 lanes in some sections)
- Minor local road intersection closures or turn restrictions as required
- Pedestrian and cycle access restrictions through Pukeahu and around the Basin Reserve while providing a minimum of one north / south and one east / west route around the Basin Reserve for pedestrians and cyclists
- Site access will be required to/from SH1 lanes at times, but construction traffic volumes will not be sufficient to affect existing congestion
- There will be restricted access to/from local roads during construction, increased side friction and reduced speeds

Parking disruption

Approximately 29 to 65 parking spaces will be unavailable during construction. Approximately 29 parking spaces are expected to be closed for the duration of construction and 108 parking spaces will be intermittently unavailable. It is assumed that sequencing will result in construction on only one side (out of four) of the Basin Reserve at any one time.

As stages are completed, reduction in parking capacity is expected as traffic lanes are realigned and existing roadside parking is converted to traffic lanes:

- Rugby Street, Basin South (~27 parking spaces) access restricted at times. The extent or duration of impact is not yet certain, but it is likely that access to these can be managed in stages leaving either 8 or 19 spaces available for public use while the others are closed
- Sussex Street, Basin West (~20 parking spaces) removed from commencement of works
- Ellice Street, Basin East (~9 parking spaces) removed from commencement of works
- Hania Street, Ellice Street corner Basin East (~9 parking spaces) removed from commencement of works. These parks are understood to currently be on leased land at Bogarts Corner and will become part of the permanent works alignment
- Cambridge Terrace, Basin North (~15 parking spaces) access to these parks will be restricted at the time of pavement works for the realignment of the Terraces
- Kent Terrace, Basin North (~30 parking spaces) access to these parks will be restricted at the time of pavement works for the realignment of the Terraces
- Basin Reserve / Cricket Museum parking (~36 parking spaces) multiple temporary restrictions with durations of weeks to months that will restrict access to this parking and loading zone location

Construction yards

Four construction yards are identified for this section of the Project:

- A Cambridge Terrace yard - the area's primary use will be material handling and access from the existing Sussex Street, Cambridge Terrace or Barker Street and a secondary site office with toilets and lunchrooms will likely be located here
- A Sussex Street yard, located between Sussex Street, SH1, Tasman Street, and Rugby Street, will function as the main site office and welfare facility - the use of the area will reduce once new slip lanes are operational and then access is expected to be primarily via Tasman Street
- An Ellice Street yard with access via Hania Street and Ellice Street, which will also be used for the Mt Victoria tunnel upgrades, will mainly provide temporary storage and staging space, adapting as road realignments occur and supporting other works around the Basin

- A Rugby Street yard will be a small area intended to be used to expand the intersection at Adelaide Road to Rugby Street

4.4.4 Mt Victoria Tunnel

Sequence of works

The new tunnel will advance from the western portal uphill towards the east. For traffic to be able to use the new tunnel, pavement works, adjacent road realignments and changes to grade need to be completed first. On the western side this likely extends to the Paterson Street to Dufferin Street Intersection. On the eastern side this extends to the approximate position of the existing pedestrian bridge over Ruahine Street. Some of these works are included in the adjacent Basin and Eastern Connections sections.

The sequence of work would be to allow for the new tunnel to be constructed first then, once works at both approaches are complete, switch two-way traffic to the new tunnel. The existing tunnel could then be upgraded before the final traffic arrangement is achieved with one-way, two-lane traffic in each tunnel.

Specific construction activities

In addition to the general construction aspects, works in this area will include the following specific construction activities:

- Construction of temporary service connections and tunnel control buildings
- Decommissioning of the existing tunnel control building and services
- Construction of new tunnel control building services, deluge fire supply and stormwater detention tanks
- Modification of existing portals (structural, service and pedestrian access)
- Backfill of the existing pilot tunnel with flowable fill
- Strengthening of the existing tunnel
- Decommissioning of the existing Mt Victoria ventilation shafts
- Rockfall protection

Traffic disruption

The following disruption is expected during construction of this section of the Project:

- Tunnel to be constructed offline, with the primary worksite on the western side
- Existing lane provisions to be retained during the day, except for Taurima Street which is expected to be closed
- Site access may be provided on the westbound approach, but traffic volumes are not sufficient to affect existing congestion
- Access from the site will be provided onto the local road network
- Removal of pedestrian and cycle access through Mt Victoria Tunnel

While there will be no reduction in tunnel traffic capacity during construction of the new tunnel, walking and cycling will be significantly disrupted by the closure of the Mt Victoria Tunnel shared path.

Parking disruption

Approximately 90 parking spaces will be unavailable from construction commencement until the completion of the realigned Paterson Street. Approximately 26 of these parking spaces will be permanently removed as part of the Project:

- Austin Street (~10 parking spaces) assumed no parking during construction to facilitate two-way traffic from commencement of works, parking may be restored once realigned Paterson Street is constructed, and the cut and cover tunnel section is completed near completion of works
- Paterson Street (~32 parking spaces) removed from commencement of works

- Hania Street / Ellice Street / Brougham Street access route to Mt Victoria western portal construction yard - ~48 parking spaces in total comprising ~ 29 spaces on Hania Street, ~10 spaces on Ellice Street, and ~9 spaces on Brougham Street, assuming that parking is restricted to one side, on this route to provide additional width for vehicles to pass
- Wellington East Girls' College: parking within school grounds is likely to be impacted as access to the school's two driveways may be restricted at times, potentially for multiple weeks on at least two occasions for vehicle traffic, depending on staging of western portal works (~60 defined parking spaces and an additional ~25 to ~40 spaces on netball courts which are used as overflow parking); these potential impacts are being carefully worked through with the school and will need to be agreed to be timetabled in a way that does not unacceptably impact school operations
- Hataitai Netball Pavilion parking (~15 parking spaces): this area could likely be used during construction as a site office and work area for the new pedestrian overbridge as part of the Taurima Street construction yard - the extent and number of parks impacted (if any in this location) is highly dependent on the specific arrangement of the construction yard

Construction yards

Three construction yard sites have been identified for the section of the Project:

- A western portal yard, currently on residential land between Austin Street, Ellice Street, SH1, and Brougham Street - this yard will support most construction activities for the new and existing tunnels and includes an enclosed spoil handling area, groundwater treatment facility, new tunnel control building, site office, plant and equipment maintenance, parking and storage; activity in this yard will be 24/7 during tunnel mining operations
- An eastern portal yard located between the eastern portal, SH1, and Taurima Street will be used to support excavations of the eastern portal; access into the site will be via a slip lane off SH1 with potential exits provided via Taurima Street, Moxham Avenue to Goa Street or Hamilton Road
- A Taurima Street yard located on land between Taurima Street, SH1, and Moxham Avenue will be used with the eastern portal yard, especially during portal cut excavations when space is limited; access to site will be via a SH1 slip lane, with exits potentially provided via Taurima Street, Moxham Avenue to Goa Street or Hamilton Road

During construction, access to and from Hataitai will be temporarily altered with alternative access between Hataitai and SH1 as outlined in the following section, changes to travel routes and increased travel times are expected during this period.

4.4.5 Eastern Connections

Sequence of works

The construction of the new stormwater main from Ruahine Street near Goa Street to Evans Bay will need to be carried out early in the construction process to limit disruption and allow for continuous operation of stormwater assets. The construction is likely to utilise trenchless techniques with launch pits off the alignment near Hataitai Park, Kilbirnie Park and Evans Bay where the pipe is expected to be deep below surface. Where the new pipe is shallower open trenching is expected to be used.

The Hataitai Connection bridge and interchange will be completed (or an alternative access provided) prior to removing the Taurima Street and existing Goa Street access points to maintain traffic flows and turn options, particularly for access from Hataitai to SH1 once access via Taurima Street is no longer available. During the closure of Taurima Street, temporary access from SH1 to Hataitai is likely to be provided via the service lane to be constructed between Moxham Avenue and Ruahine Street properties.

The Hataitai Connection bridge could be constructed and opened prior to removing the Hataitai Park pedestrian bridge at Taurima Street, which would maintain continuous grade separated access for pedestrians.

The works along Wellington Road will generally progress within the permanent road alignment with multiple traffic switches to maintain access to properties and intersections. The modifications at Kilbirnie Park can be completed at any time.

Alternative construction sequences are also possible, including working on separate sections, i.e. separating the Wellington Road works from those along Ruahine Street (where practical), and this may reduce disruption on sporting facilities at Hataitai and Kilbirnie Parks.

Specific construction activities

In addition to the general construction aspects, works in this area will include the following specific construction activities:

- Kilbirnie Park sports field restrictions and reinstatement
- Kilbirnie Park Cricket Club building demolition
- Construction of a new Evans Bay stormwater outfall
- Removal and reconstruction of the Hataitai active modes bridge

Traffic disruption

The following disruption is expected during construction of this section of the Project:

- While two lanes will be maintained on Ruahine Street, there will be increased side friction, reduced speeds and restricted access during construction
- Site access will be required to / from SH1 lanes at times, but volumes of construction vehicles will not be sufficient to affect existing congestion
- There is potential for short term closures of Ruahine Street for construction of bridge components and may require night works with appropriate mitigation for adjacent residential areas
- There is potential for short term periods of high disruption (reduced capacity) during upgrades of existing signalised intersections on Wellington Road
- Haul routes and spoil removal will need to be managed to mitigate sensitive times and routes and may require night works with appropriate mitigation for adjacent residential areas

Access to and from Hataitai will be temporarily disrupted during construction, particularly due to restrictions on local road connections and changes to SH1 access, resulting in altered travel routes and potential increases in travel times.

Parking disruption

The effect on parking during construction is expected to be highly variable as works progress in this section. Approximately 105 parking spaces will be removed at the commencement of construction (assuming works on Ruahine Street and Wellington Road occur concurrently). There will also be short duration closures affecting an additional ~16 to 19 parking spaces, periodically.

For a brief period, access to Hataitai Park may be restricted to allow reconfiguration of the Hataitai Park access road preventing access to ~264 parking spaces. This will need to be managed with users to align the planned closure with a period of low use.

Permanent works in this section of the Project include the removal of approximately 56 carparks along SH1 (Ruahine Street and Wellington Road) and 37 carparks along local roads (Taurima Street, Goa Street, Moxham Avenue, Hamilton Road and Evans Bay Parade) and 12 parking spaces within Hataitai Park. The following construction specific parking impacts are expected:

- Taurima Street, approximately 4 to 12 parking spaces from the commencement of works and up to 27 at times to allow for modification of existing alignment
- Ruahine Street on-street parallel parking (~32 parking spaces) to be permanently removed from commencement of works - these parks provide the primary parking locations for many of the adjacent houses accessed from Ruahine Street
- Hataitai Park temporary disruption during transition between work stages for new Ruahine Street overpass, a total of ~264 parking spaces expected to be impacted due to a single closure of the only access, with a duration of weeks to months
- Goa Street / and Hataitai Park access between Hataitai Park courts and Ruahine Street (~42 parking spaces impacted to construct soil nail slope, some ~23 spaces of which are to be permanently removed)

- Badminton Wellington Centre (~ 42 parking spaces) to be permanently removed from commencement of works
- Wellington Road between Hamilton Road and Evans Bay Parade (~16 parking spaces) to be restricted at times during works
- Moxham Avenue (~ 12 parking spaces) to be permanently removed from commencement of works to allow for lane modifications and restrict parking at new intersection

Construction yards

Three construction yards are planned for this section of the Project:

- A yard located on the Town Belt at the site of the Badminton Wellington Centre is expected to serve as the main welfare and site office area. Access may become challenging as retaining walls are constructed. Access via Ruahine Street and possible temporary slip lanes along the future permanent northbound alignment is expected to be possible
- A Wellington Road yard, situated between Ruahine Street and Kilbirnie Crescent, to be used for material handling, equipment storage, and vehicle maintenance. As the Wellington Road realignment works progress, this site will not be suitable for temporary buildings or welfare facilities. Access via slip lane from SH1, Hamilton Road, Kilbirnie Road, Moxham Avenue or Wellington Road will likely change regularly as work progresses, and traffic switches occur
- A Kilbirnie Park yard, at the current Eastern Suburbs cricket club / Marist AFC clubrooms and a strip in Kilbirnie Park, will provide temporary construction space and staging adjacent to the Wellington Road widening works at this location. Access would be via Kilbirnie Crescent, Evans Bay Parade and a temporary access route in the park. The footprint of this temporary construction area will be minimised and used only when adjacent construction tasks occur

5 RMA APPROVALS

A description of the RMA approvals sought for the Project is provided below in accordance with section 13(4)(t), section 43(2), and schedule 5, clauses 5(1)(f) and 12(a) of the FTAA. For the avoidance of doubt, NZTA seeks all necessary RMA approvals to construct, operate and maintain the Project as described in this section of the Application and/or as otherwise identified through the consenting process for the Project.

5.1 Alteration to an existing designation

5.1.1 Designation alteration – new land

The operation, maintenance, and improvement of SH1 through Wellington city is enabled by an existing designation in the Wellington District Plan, numbered NZTA-1. The underlying purpose of the designation is *“to construct, operate, maintain, and improve a state highway and associated infrastructure”*.

Notwithstanding the highly enabling nature of this existing designation, NZTA proposes to alter existing designation NZTA-1, both in terms of its spatial extent and in respect of the conditions applying to the designation, in order to deliver the Project.

The nature of sites to which the proposed alteration to designation NZTA-1 relates are identified in Table 13 below and on the RMA approvals drawings in Appendix B.

Table 13: Summary of properties within new permanent designation

Current ownership	Area (Ha)	Nature of alteration (Ha)
His Majesty the King (NZTA)	0.5614	Permanent land requirement
Wellington City Council	5.6293 ²⁸	Permanent land requirement (3.1926) Sub-strata land requirement (0.8130) Temporary occupation requirement (1.6237) Easement (0.0741) - under land required for temporary occupation
His Majesty the King (Minister of Education)	0.7376	Sub-strata land requirement (0.7246) Temporary occupation requirement (0.013)
Legal Road (Local Road)	3.1671	Designation only (no land required)
Private ownership	3.7685	Easement (0.0062) Permanent land requirement (1.7213) Sub-strata land requirement (1.1289) Temporary occupation requirement (0.9121)

The proposed changes to the spatial extent of the existing NZTA-1 designation are shown on the drawings in Appendix B and summarised in Table 14 below.

²⁸ Total excludes easement area located directly under the temporary occupation area

Table 14: Summary of changes to designation NZTA-1

Designation status	Area (Ha)
Existing designation area	37.3574
New land required (above ground)	5.4753
New substrata land required	2.6665
New easement required	0.0062
New likely temporary occupation requirement	2.5488
Designation requirement affecting local roads (no requirement for land acquisition)	3.1671
TOTAL	51.2240

As can be seen from Table 14, a sizeable majority of the Project area is already designated for the purpose of (among other things) *“improv[ing] a state highway and associated infrastructure”*. In addition, the designation is a below ground designation, i.e. substrata designation, in the locations for the new tunnels. The substrata designation areas comprise the following:

- An operational area for the tunnel infrastructure – this is necessary to allow for the construction of the excavated tunnels and for the operation and maintenance of the tunnels and SH1 within the tunnels. The Crown will acquire fee simple strata title to this area
- A protection area – this is necessary to ensure that activities that take place in the subsoil above the tunnels do not compromise the integrity and operation of the tunnels. The protection area portion of the designation applies a limit on all activities from 7 metres below ground level or most properties impacted. In the case of properties at either ends of the tunnels, the protection areas are more restrictive, limiting activities from 2 metres below ground level (refer Table 15), or for some properties at the western end of the Mt Victoria Tunnel, activities below ground level that could increase tunnel loading or impact on the stability of the tunnel (refer Table 16)

Some of the properties at either end of the tunnels will have parts of the properties that are subject to the designation and different depths to protection areas. For the purpose of the application, the depth to the protection area has been simplified to only show the minimum depth to protection areas (except for some large properties as indicated). Further details for individual properties will be agreed between the applicant and property owners through the acquisition process.

Table 15: Properties with a minimum 2 m depth to the protection areas

Property reference ²⁹	Tunnel	Address
41-45	Terrace	230 The Terrace, Wellington Central
46	Terrace	234 The Terrace, Wellington Central
47-48	Terrace	236 The Terrace, Wellington Central
137	Terrace	141 Dixon Street, Te Aro
138	Terrace	139 Dixon Street, Te Aro, Wellington
139	Terrace	26 Macdonald Crescent, Te Aro
140	Terrace	24 Macdonald Crescent, Te Aro
141	Terrace	22 Macdonald Crescent, Te Aro
142	Terrace	20 Macdonald Crescent, Te Aro

²⁹ Refer Part H of the Application for maps and legal descriptions for these properties

Property reference ²⁹	Tunnel	Address
143	Terrace	18 Macdonald Crescent, Te Aro
358	Terrace	28 MacDonald Crescent, Te Aro, Wellington
362	Terrace	32 MacDonald Crescent, Te Aro, Wellington
368	Terrace	222 The Terrace, Wellington Central
369	Terrace	240 The Terrace, Wellington Central
487	Terrace	226 The Terrace, Wellington Central
306	Mt Victoria	Austin Terrace Access
307	Mt Victoria	7 Austin Terrace, Mt Victoria, Wellington
308	Mt Victoria	Austin Terrace Access
309	Mt Victoria	8 Austin Terrace, Mt Victoria, Wellington
310	Mt Victoria	Austin Terrace Access
325	Mt Victoria	Wellington Town Belt - Ruahine St ³⁰
1227	Mt Victoria	4 Austin Street, Mt Victoria
1228	Mt Victoria	5 Austin Terrace, Mt Victoria
1229-1230	Mt Victoria	6 / 6A Austin Terrace, Mt Victoria

Table 16: Properties with no separation from the protection areas

Property reference ³¹	Tunnel	Address
298	Mt Victoria	123 Austin Street, Mt Victoria, Wellington
300 & 303	Mt Victoria	1 Austin Terrace, Mt Victoria, Wellington
301	Mt Victoria	2 Austin Terrace, Mt Victoria, Wellington
302	Mt Victoria	3 Austin Terrace, Mt Victoria
304	Mt Victoria	Austin Terrace Access
305	Mt Victoria	Austin Terrace Access
311	Mt Victoria	131 Austin Street, Mt Victoria ³²

Outside of strata designation areas, it is further noted that approximately 2.6 hectares of land to be designated may only be required during the construction phase of the Project. Following completion of construction and related construction condition compliance, NZTA currently intends to remove the designation for locations within the Project area where it is not required for long term operation, maintenance and mitigation of effects, pursuant to section 182 of the RMA.

5.1.2 Designation alteration – Replacement of existing conditions

In addition, NZTA proposes to alter the conditions of existing designation NZTA-1 within the altered extent of designation NZTA-1 shown on the drawings in Appendix B.

Currently, two parts of existing designation NZTA-1 within the Project area are not subject to any conditions. Those areas are:

³⁰ The Town Belt includes areas with 2m and 7m depth to protection areas

³¹ Refer Part H of the Application for maps and legal descriptions for these properties

³² The MOE property includes areas with no depth, 2m depth and 7m depth to protection areas

- From the southern end of the Terrace Tunnel, to the north – i.e., where the designation enables the current Terrace Tunnel and SH1 to the north of the Terrace Tunnel (up to and including Shell Gully Bridge)
- From the Basin Reserve, to the east – i.e., Paterson Street, where the designation enables the existing Mt Victoria Tunnel, Ruahine Street, Wellington Road, and to Cobham Drive

Conditions do currently apply to NZTA-1 within the section of SH1 between the southern end of the Terrace Tunnel and the Basin Reserve, which are set out below:

The following conditions apply to the section of State Highway 1 between the Basin Reserve and the southern end of the Terrace tunnel:

Landscaping

1. *Landscape shall be designed and maintained to achieve the following objectives:*
 - a. *The provision of safe and aesthetically pleasing amenities for pedestrians and residents*
 - b. *Providing for a range of public uses (pedestrians, cyclists, open space)*
 - c. *Assisting with the retention of the character of the relocated buildings in their new surroundings*
 - d. *Assisting with the integration of the arterial road within the built environment*
 - e. *Remedying or mitigating adverse effects of the arterial road*
 - f. *Providing a contrast with the built edge*

Noise

2. *The NZ Transport Agency shall comply with the processes and requirements of NZS6806:2010 Acoustics – Road-traffic Noise – New and Altered Roads (or subsequent version) when altering (as defined in Section 1.5 of NZS6806:2010) an existing road within the designation*

Lighting and Signage

3. *Appropriate lighting and signage shall be provided and maintained for the road, cycle path, and footpath in accordance with the New Zealand Transport Agency's standard for lighting and signage*
4. *Permanent lighting shall be designed, screened and maintained to minimise the amount of lighting overspill and illumination of residential areas*

These conditions will be replaced by new conditions covering the construction, operation and maintenance of the Project across the whole Project area, as discussed at section 1.1.2 and set out in full in Appendix A of this report.

No lapse period applies to an altered designation, as the designation is already in effect.

5.2 Resource consents sought

5.2.1 Construction works

The construction phase resource consents sought for the Project are summarised in Table 17 below³³. A full analysis of the applicable national environmental standards and regional plan rules is provided in Appendix E.

A 20-year lapse period³⁴ is sought for all construction-related resource consents. A 35-year duration is sought for all construction phase resource consents.

³³ The consents sought as listed in this table include regional and district consents for the terrestrial offset site and the lizard release/habitat enhancement site (both are outside the proposed designation) as described in section 3 project description above

³⁴ Lapse period to be determined by panel, as per section 87(2)(b) and schedule 5, clause 26 FTAA

Table 17: Resource consents required for the construction of the Project

Resource consents	Activity
Resource consents required under the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-F) – regional land use consent, water permit and discharge permit in accordance with sections 9(1), 13(1), 14(1) and 15(1) of the RMA	
Construction of specified infrastructure (Regulation 45(1)) – <i>discretionary activity</i>	Vegetation clearance within, or within a 10m setback from, a natural wetland for the purpose of constructing specified infrastructure
Construction of specified infrastructure (Regulation 45(2)) – <i>discretionary activity</i>	Earthworks or land disturbance within, or within a 10m setback from, a natural wetland for the purpose of constructing specified infrastructure
Construction of specified infrastructure (Regulation 45(3)) – <i>discretionary activity</i>	Earthworks or land disturbance outside a 10m, but within a 100m setback
Construction of specified infrastructure (Regulation 45(4)) – <i>discretionary activity</i>	Taking, use, damming, diversion, or discharge of water within, or within a 100m setback from, a natural wetland for the purpose of constructing specified infrastructure
Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS) – district land use consent in accordance with section 9(1) of the RMA	
Disturbing soil (Regulation 11) – <i>discretionary activity</i>	Disturbance of potentially contaminated soil that is not classified as a permitted activity, controlled activity or restricted discretionary activity ³⁵
Resource consents required under the NRP and PC1	
Activities in wetlands - land use consent, water permit and discharge permit in accordance with sections 9(2), 13(1), 14(1) and 15(1) of the RMA	
NRP <i>Rule R118: Activities in natural wetlands – non-complying activity</i>	Undertaking construction activities in a natural wetland including diverting water, land disturbance, reclamation and discharge of sediment, which is a non-complying activity under rule R118
Discharge to air - discharge permit to air in accordance with section 15(2A) of the RMA	
NRP and PC1 <i>Rule R42: All other discharges – discretionary activity</i>	The discharge of contaminants into air associated with the handling of bulk solid materials including from the activities of quarrying, mining, cleanfilling, blasting, extraction, crushing, screening, processing, stockpiling, handling, conveying, sorting, and storage that is not permitted, controlled, discretionary, non-complying or prohibited is a discretionary activity
Earthworks and vegetation clearance - land use consent and discharge permit in accordance with sections 9(2) and 15(1) of the RMA	
NRP <i>Rule R107: Earthworks and vegetation clearance – discretionary activity</i>	The use of land, and the associated discharge of sediment into water or onto or into land where it may enter water from earthworks, and vegetation clearance on erosion prone land that is not permitted by Rules R101, R102, R104 and R105, and not controlled by Rule R103, or not restricted discretionary by Rule R106 requires consent as a discretionary activity, pursuant to rule R107

³⁵ A preliminary site investigation (PSI) has been completed identifying two potentially contaminated sites within the project area. The proposed earthworks in these locations are expected to be above the permitted volume of 25 m³ per 500 m², soil taken away may exceed 500m³ per year and the duration of the activity will exceed two months. In addition, a detailed site investigation (DSI) may not be available at the time of consenting, so it is assumed that the activity will not meet the requirements of Regulation 9 or 10, and so consent is required as a discretionary activity under Regulation 11

PC1 <i>Rule WH.R25: Earthworks – non-complying activity</i>	Earthworks, and the associated discharge of sediment into a surface water body or coastal water or onto or into land where it may enter a surface water body or coastal water from earthworks, including via a stormwater network, that does not comply with Rule WH.R24(b) relating to winter earthworks is a non-complying activity, pursuant to rule WH.R24
Dewatering - water and discharge permits in accordance with sections 14(1) and 15(1) of the RMA	
NRP <i>Rule R160: Dewatering – restricted discretionary activity</i>	The take of groundwater and the associated diversion and discharge of that water for the purpose of construction phase dewatering including groundwater diversion during tunnel and trench construction is not permitted by Rule R159 as conditions related to dewatering duration and Hazardous Activities and Industries List (HAIL) land within the project area are unable to be met, so dewatering is a restricted discretionary activity under rule R160
Maintenance, repair, additions and alterations to existing structures – coastal permit in accordance with section 12(1) of the RMA	
NRP <i>Rule R181: New structures, additions or alterations to structures outside Schedule C, Schedule F4, Schedule F5 or Schedule J sites – discretionary activity</i>	Alteration to a stormwater outfall structure within the coastal marine area is a discretionary activity under rule R181
Resource consents required under the Resource Management Act – district land use consents, in accordance with section 9(3) of the RMA	
Land use consent for earthworks and vegetation removal within the Town Belt as part of the vegetation offsetting proposal³⁶	
District Plan <i>Rule WTBZ-R8</i> <i>Any other activity not otherwise provided for as a permitted activity, restricted discretionary activity or discretionary activity</i>	Vegetation removal is not listed in the Wellington Town Belt Zone chapter. While conservation activities are permitted under WTBZ-R3, vegetation removal is not expressly included in this definition. Accordingly, consent is sought on a precautionary basis for vegetation removal associated with the proposed terrestrial offsetting as a discretionary activity under rule WTBZ-R8
District Plan <i>Rule NFL-R3</i> <i>Any activity within special amenity landscapes not otherwise listed as permitted, restricted discretionary, or non-complying</i>	Vegetation removal is not otherwise listed as permitted, restricted discretionary or non-complying within the special amenity landscapes. Consent is therefore sought as a restricted discretionary activity under rule NFL-R3
District Plan <i>Rule EW-R7</i> <i>Earthworks within Sites and Areas of Significance Category A and Category B</i>	The site is located within a Category A Area of Significance therefore consent is required for any earthworks associated with the proposed terrestrial offsetting activity as a restricted discretionary activity under rule EW-R7
District Plan <i>Rule EW-R12.2</i>	Given the scale of the terrestrial offsetting proposal (approximately 6 hectares), it is expected that the 200m ² permitted limit for earthworks within special amenity landscapes in rule EW-R12.1 may be exceeded, therefore consent is required as a restricted discretionary activity under rule EW-R12.2

³⁶ This work is proposed outside the altered NZTA-1 designation extent and is not permitted under the District Plan

<i>Earthworks within special amenity landscapes</i>	
District Plan <i>Rule EW-R14.3</i> <i>Earthworks within the ridgeline and hilltops overlay or within the ridgetop area of the Upper Stebbings and Glenside West Development Area</i>	Given the scale of the terrestrial offsetting proposal (approximately 6 hectares), it is expected that the 200m ² permitted limit and 500m ² restricted discretionary limit for earthworks within the ridgeline and hilltops overlay may be exceeded, therefore consent is required as a discretionary activity under rule EW-R12.3

5.2.2 Operation phase

The operation and maintenance phase resource consents sought for the Project are summarised in Table 18. A full analysis of the applicable national environmental standards and regional plan rules is provided in Appendix D.

A 20-year lapse period is sought for these operational resource consents. A 35-year duration is sought for these resource consents.

Table 18: Resource consents required for operation of the Project

Resource consents	Purpose
Resource consents required under the NRP and the PC1	
Operational stormwater discharges – coastal permit to discharge and discharge permit in accordance with sections 12(3) and 15(1) of the RMA	
NRP <i>Rule R50: Stormwater from new subdivision and development – restricted discretionary activity</i>	The discharge of stormwater from a redeveloped state highway into water, or onto or into land where it may enter a surface water body or coastal water, including through an existing local authority or state highway stormwater network, that is not permitted by Rule R49 is a restricted discretionary activity, pursuant to Rule R50
New and redeveloped impervious areas and associated stormwater discharge - land use consent and discharge permit in accordance with sections 9(2) and 15(1) of the RMA	
PC1 <i>Rule WH.R11: Stormwater from new and redeveloped impervious surfaces – discretionary activity</i>	The use of land and the associated discharge of stormwater into water, or onto or into land where it may enter water, from a local authority or state highway stormwater network, where the area of redeveloped impervious surfaces to support the Project will exceed the permitted activity standards in WH.R5 and the controlled activity standards in Rule WH.R7 and therefore requires consent under rule WH.R11, as a discretionary activity
Permanent diversion of groundwater – water permit in accordance with section 14(2) of the RMA	
NRP <i>Rule R151: General rule for damming and diverting water – discretionary activity</i>	The damming or diverting of groundwater from permanent groundwater changes associated with new tunnels, the Sussex Street trench, and the Ruahine Street / Wellington Road stormwater system is a discretionary activity pursuant to rule R151
Passive discharges from contaminated land – discharge permit in accordance with section 15(1) of the RMA	
NRP <i>Rule R83: Investigation of, or discharges from</i>	The discharge of contaminants from selected land use register (SLUR) Category III land or SLUR Category IV land where a contaminant may enter water, that is not permitted by Rule R82 is a discretionary activity pursuant to Rule R83

<i>contaminated land – discretionary activity</i>	
NRP <i>Rule R94: All other discharges – discretionary activity.</i>	The discharge of water or contaminants into water or onto or into land where it may enter water that is not ... (permitted, controlled restricted discretionary or non-complying activity under any other rule in the plan or a discretionary activity under Rules R55, R56, R58, R65, R 83 or R90). This rule may be triggered with discharges from potentially contaminated land within the Project area where full DSIs are not available. This activity requires consent as a discretionary activity under Rule 94
New coastal structure – coastal permit in accordance with section 12(1) and (2) of the RMA	
NRP <i>Rule R181: New structures, additions or alterations to structures outside Schedule C, Schedule F4, Schedule F5 or Schedule J sites – discretionary activity</i>	Occupation, use and maintenance of the modified stormwater outfall structure is a discretionary activity under rule R181

5.2.3 Bundling of activities

Where there are a group of activities requiring resource consent for a Project where the effects overlap, or where the activities are intrinsically linked (such that one activity could not occur without the others), it is appropriate for them to be considered holistically as a single bundle according to the most stringent activity status.

It is noted that while the proposed wetland activities are identified as a non-complying activity in the NRP, this status effectively does not apply to the Application by virtue of schedule 5, clause 17(1)(b) of the FTAA as decision-makers cannot consider the RMA section 104D 'gateway test' for this proposal, which is ordinarily applied to non-complying activities under the standard RMA process. Accordingly, the resource consents required for the Project are effectively considered as a discretionary activity, without reference to section 104D of the RMA.

5.3 Permitted activities

Schedule 5, clause 5(5)(a) FTAA requires identification of permitted activities that are part of the proposal to which the consent application relates. Also required is a description that demonstrates that the activity complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A of the RMA).

Generally, there are few relevant permitted activities in the NRP and District Plan, as the permitted activity thresholds are set much lower than the scale of works for the Project. However, there are a few relevant permitted activities set out in Table 19 and assessed in detail in Appendix D.

In addition to the enabling works activities identified in Table 19 as being permitted in the District Plan, the following activities which may be required outside of the existing designation or proposed designation are also assessed as permitted in Table 19. For example, local road tie in works that are shown outside of the designation as permitted works on the drawings in Appendix B are assessed to be permitted activities under the District Plan.

5.3.1 Permitted activity enabling works

Prior to commencement of the main construction activities for the Project, enabling works may be undertaken to support more efficient delivery of subsequent works and to reduce overall impacts on the community. Examples of potential enabling works for the Project were outlined in section 4.2.1 above. These works are intended to reduce risks, minimise effects, and enable effective sequencing of the Project's construction.

Accordingly, NZTA may progress enabling works in advance of the approvals being obtained for the main Project, where the required works can satisfy permitted activity conditions under the NRP and District Plan and/or where an Outline Plan can be lodged (if needed) because the works are within the existing designation³⁷.

These permitted activities are relevant to the Panel's decision on NZTA's application more generally.

Accordingly, at Table 19, permitted activity rules have been set out for enabling works that may be undertaken, depending on the overall sequencing and delivery of the Project.

Table 19: Permitted enabling works – No approval sought

Permitted activities under the Resource Management Act	
Permitted activity	Purpose
NES-CS <i>Regulation 8(2) – Sampling soil</i> <i>Regulation 8(3) – Disturbing soil</i>	Any investigation-related soil sampling (including any related soil disturbance) is expected to comply with the permitted activity standards specified in Regulation 8(2) and 8(3). Accordingly, these activities may be conducted during enabling works as permitted activities, where any soil is able to be reinstated to an erosion-resistant state within 1 month of sampling, soil is only be taken for the purpose of laboratory analysis, and the volume of disturbance of soil will not be greater than 25m ³ per 500m ²
District Plan <i>EW-R1(1) – Permitted Activity</i> <i>Earthworks for the purposes of piling, trenching, maintaining sports fields, undertaking geotechnical investigations and grave digging, the replacement or removal of underground petroleum storage systems</i>	Geotechnical investigations (including bores) are permitted under Rule EW-R1 of the District Plan, provided conditions on dust nuisance and stabilisation are met
District Plan <i>EW-R4(1) – Permitted Activity</i> <i>General earthworks</i>	Minor ancillary earthworks required to establish access to investigation sites, site establishment activities and local road tie ins may be undertaken as a permitted activity, provided conditions of this rule are met
District Plan <i>NOISE-R2(1) – Permitted Activity</i> <i>Noise from construction, maintenance, earthworks, and demolition activities</i>	Enabling work construction, earthworks and demolition activities can be carried out in accordance with the applicable noise standard, which applies the relevant NZ construction noise standard. This in turn sets construction noise levels and where these cannot be satisfied, a consultation and best practicable option process is triggered. This can be readily satisfied through effective engagement with nearby neighbours where noise levels are predicted to be high. Any permitted activity works undertaken can be managed to occur during the hours of 7.30 am to 6.00 pm Monday to Saturday
District Plan <i>INF-R9 – Navigational aids, sensing and environmental monitoring equipment (including air quality and meteorological)</i>	The installation of environmental monitoring equipment (noise and vibration monitoring, air quality, ecological surveys) required for enabling works, including data collection or to conduct baseline environmental monitoring, can be carried out as a permitted activity under the District Plan

³⁷ Also, enabling works could be delivered under the RMA approvals sought through this application (once approved)

District Plan <i>HRZ-R10 – Demolition or removal of buildings and structures</i> <i>MRZ-R10 – Demolition or removal of buildings and structures</i> <i>WTBZ-R9 – Demolition or removal of buildings and structures</i> <i>SARZ-R14 – Demolition or removal of buildings and structures</i> <i>OSZ-R12 – Demolition or removal of buildings and structures</i> <i>LCZ-R18 – Demolition or removal of buildings and structures</i>	The demolition and removal of buildings and structures located within the: High Density Residential Zone, Medium Density Residential Zone, Special Purpose Wellington Town Belt Zone, Sport and Active Recreation Zone, the Open Space Zone and Local Centre Zone may be carried out as part of enabling works, as a permitted activity (other than scheduled heritage buildings)³⁸
District Plan <i>INF-R1 – Operation, maintenance and repair or removal of existing above and underground infrastructure and ancillary vehicle access tracks</i>	Where any removal of redundant structures is required for the Project, this is expected to be able carried out in accordance with the conditions of this permitted activity rule
District Plan <i>INF-R3 – Upgrading of existing aboveground infrastructure</i>	Enabling activities associated with the upgrading of existing aboveground infrastructure such as establishment of erosion and sediment control measures can be managed to comply with permitted activity standards INF-S1(Health and Safety), INF-S3 (Earthworks), INF-S4 (upgrading of existing aboveground infrastructure) and INF-NG-S1 (Buildings, Structures and Activities in the National Grid Yard). In addition, construction work for minor safety improvements on local roads (e.g. Moxham Avenue, kerb works on Cuba Street, etc where proposed outside the footprint of the altered designation are permitted under Rule INF-R3
District Plan <i>INF-R6 – Temporary infrastructure</i>	If required, temporary infrastructure for enabling works can be established as a permitted activity if the infrastructure ceases operating and is removed from the site within 12 months of the work commencing and complies with the relevant standards of this rule
NRP <i>Rule R165: Investigation and monitoring bores – Permitted Activity</i> <i>The use of land and the associated diversion and discharge of water or contaminants for the drilling, construction or alteration of a bore for the purpose of investigation or monitoring the conditions below the ground surface is a permitted activity, provided the conditions are met</i>	Geotechnical monitoring bores typically comply with the relevant regional plan diversion, discharge and drilling permitted activity conditions under Rule R165 of the NRP
NRP and PC1 <i>Rule R101: Earthworks – permitted activity</i>	If minor works are required for enabling works, such as to establish site access, relocate existing above ground utilities and the like, they can be expected to comply

³⁸ Demolition of buildings is not permitted where located within the City Centre Zone as it is anticipated that the conditions of permitted Rule CCZ-R22 may not be satisfied (demolition carried out within the existing NZTA-1 designation would bypass this rule though)

<i>Rule WH.R23: Earthworks – Permitted Activity</i> <i>Earthworks is a permitted activity, provided the conditions are met</i>	with the permitted activity conditions under Rule R101 and Rule WH.R23(c), including limits on earthworks area, stabilisation within six months, and implementation of erosion and sediment controls as required. Any permitted earthworks must not be undertaken within 5m from a surface water body or coastal marine area
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6 ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

6.1 Overview

This chapter summarises the actual and potential environmental effects of the Project, in accordance with the requirements of section 13(4)(h), section 43(2), and schedule 5, clauses 5(4), 6, 7 and 12(b) of the FTAA. This assessment has been informed by specialist technical assessment reports, submitted in support of the Application.

6.1.1 Mitigation embedded in Project design

The assessment of effects commences with a summary of the mitigation measures that have been embedded into the Project design (as shown in the Drawing Set) because of mitigation recommendations made by specialists during the iterative design and effects assessment process undertaken during preparation of this Application. Embedded mitigation measures were also:

- Allowed for in the initial design, informed by past studies, Mana Whenua input and the design team's understanding of environmental values and constraints within the Project area
- Developed in response to public, key stakeholder and landowner engagement carried out prior to lodgement

The embedded mitigation measures are summarised in Table 20 and are outlined in Technical Report #4 – Design Assessment. Some of these mitigation measures have been assessed by the relevant experts to provide a material positive effect (for example, the Pukeahu land bridge, which has been assessed to deliver positive heritage, urban form, landscape and visual effects).

Table 20: Environmental mitigation measures embedded in Project design

Mitigated effect	Description of mitigation	Relevant source(s) of mitigation recommendation
* Indicates mitigation measure was requested through engagement		
Terrace Tunnel		
Construction effects and cost associated with accommodating additional capacity on the Shell Gully Overbridge	Reconfigured the Shell Gully Overbridge to accommodate four lanes on the northern approach to the Terrace Tunnel, maximising use of the existing structure and improving cost efficiency by reducing the extent of new infrastructure required	Initial design
Te Aro		
Impacts on Cuba Street at Vivian Street	Widened pedestrian crossing across east side of Vivian Street. Increased pedestrian waiting areas at crossing on east side of Vivian Street including incorporation of key cultural elements (including seating) Reduced pedestrian crossing distance across Cuba Street north and south of Vivian Street	Heritage specialist Urban design, landscape and visual specialist
Basin Reserve		
Safety concerns about visibility to pedestrian crossing and vehicles performing u-turns in the vicinity of the Government House entrance	Changed planting area to back of path to improve sight lines and reduce potential for illegal parking Converted eastern section of Rugby Street to one-way eastbound to improve intersection performance and remove potential for u-turning vehicles	Transport specialist
Impact on leftover property along Sussex Street	The space was reconfigured to maximise the leftover property by removing the cycle provision. This change enabled the opportunity for future development in this location Access to the development sites can be provided from Rugby or Tasman Streets	Urban design, landscape and visual specialist
Basin Reserve operations - feasibility	The design team has been working with the Basin Reserve Trust and Cricket Wellington to show how events could operate with the new layout. Several changes have been made to the design following this process, the most significant of these has been to realign the slip lane from Buckle Street to Cambridge Terrace to provide more space north of the Basin	Stakeholder feedback *
Seventh Day Adventist Church – loss of parking	The design team has identified a solution which uses some adjacent property (which is otherwise required for the Project) to retain the same level of parking as the church currently has	Stakeholder feedback *

Mitigated effect	Description of mitigation	Relevant source(s) of mitigation recommendation * Indicates mitigation measure was requested through engagement
CPTED (Crime Prevention through Environmental Design) around green bridge	The design now includes a staircase from Pukeahu down to the Sussex Street extension in this location to make it a through route for able bodied pedestrians	Urban design, landscape and visual specialist *
Cycle access from Pirie Street	Cycle crossings of Pirie Street and Kent Terrace have now been proposed in the design to provide the cycle access	Stakeholder feedback *
Landscape Mitigation	Changes were made to remove initially proposed vegetation at the intersection of Rugby Street and Adelaide Road to activate a new building edge and to add vegetation between Sussex Street and the southbound slip lane around the west side of the Basin	Urban design, landscape and visual specialist *
Effects on the Basin Reserve Heritage Area	Optimised the design to avoid impacts on the Basin Reserve boundary fence and associated trees, maintaining the heritage and landscape values of the Basin Reserve Heritage Area	Initial design
Safety and connectivity for pedestrians and cyclists around the Basin Reserve	Provided a separated active mode path around the eastern side of the Basin Reserve to improve walking and cycling connectivity, while enhancing safety and CPTED outcomes during events and at night	Initial design
Construction disruption, property impacts and severance effects along Sussex Street	Lowered Sussex Street beneath the proposed SH1 lanes north of the Basin Reserve, reducing construction disruption and property impacts while creating opportunities for improved connections between Pukeahu and the Basin Reserve	Initial design
Severance and urban form effects between Pukeahu and the Basin Reserve	Incorporated a landscaped land bridge connecting Pukeahu, Cambridge Terrace and the Basin Reserve to improve connectivity and reduce severance effects	Initial design
Accessibility and local connectivity around the Basin Reserve	Retained access to Ellice Street, provided direct access between Adelaide Road and the Mt Victoria Tunnel, and maintained pedestrian connections between Pukeahu and Cambridge Terrace via the land bridge	Initial design

Mitigated effect	Description of mitigation	Relevant source(s) of mitigation recommendation * Indicates mitigation measure was requested through engagement
Mt Victoria Tunnel		
Heritage and landscape / visual impacts on Paterson Street	The design includes retention of Laureston House (likely the 1868 elements) at 7 Paterson Street, in addition to the two scheduled buildings at 19 Paterson St ³⁹ and 140 Austin St, along with an area for future development. The tunnel control building has been relocated to above the tunnel portal	Heritage and archaeology specialists Urban design, landscape and visual specialist
Eastern Connections		
Flooding between Ruahine Street and Moxham Avenue	The design has now included a flood bypass culvert through the embankment of the new Hataitai Connection bridge to retain similar flood permeability to the existing conditions	Stormwater specialist
Moxham Avenue - transport impacts	Mitigation measures were adopted to provide improved pedestrian and public transport access and safety on Moxham Avenue. A continuous bike route from the new Mt Victoria Tunnel to Evans Bay Parade alongside SH1 on Ruahine Street and Wellington Road as an alternative to Moxham Avenue. This bike provision takes the form of shared paths, low volume / low speed service lanes and contraflow bike lanes A shared path has been added on the south side of the Hataitai Connection bridge to connect Ruahine Street with Moxham Avenue, which improves active mode permeability and access Sharrows⁴⁰ have been added to Taurima Street to provide clarity on the route for people on bikes accessing the Hataitai town centre from the new path through the tunnel	Transport specialist *
Hataitai-Newtown - pedestrian connections	The design now includes a continuous footpath from the western end of Wellington Road to the new Hataitai Connection bridge, which provides a grade separated pedestrian connection over SH1 between Hataitai and Newtown	Social impact specialist *
Property and urban form effects in Hataitai	Refined the design to minimise direct and indirect effects, including shading, on properties along Ruahine Street and Wellington Road, supporting amenity and urban form outcomes	Initial design

³⁹ Assuming this building remains in place at the time of acquisition (currently this building is privately owned)

⁴⁰ Shared lane road markings consisting of a bicycle symbol with two chevron arrows to remind motorists to expect people on bikes

Mitigated effect	Description of mitigation	Relevant source(s) of mitigation recommendation * Indicates mitigation measure was requested through engagement
Town Belt impact	The design has been amended to reduce the width of the slip lane off Ruahine Street towards Hataitai Park to reduce the impact on the Town Belt	Stakeholder feedback *
Project area		
Emergency services - access	Two locations were identified where maintaining access would be beneficial to not impact on the accessibility of emergency services. These two locations were a u-turn from Kent Terrace to Cambridge Terrace at the intersection with the Sussex Street extension and from the west end of Wellington Road onto Wellington Road eastbound. Both access points have been incorporated into the design	Stakeholder feedback *
Tunnel Control Building – Visual Impact	The design for both locations has been amended to lower the building into the landscape to reduce the prominence of the building	Urban design, landscape and visual specialist *
Retaining wall treatments - consistency	The retaining wall treatment / finish has been changed in two locations (Basin and Hataitai Connection bridge) from a vegetated finish to a concrete finish	Urban design, landscape and visual specialist *
Tunnel Water Tanks – Visual Impact	The design for both locations was amended to visually screen the tanks (a similar outcome could also be achieved by a different form / configuration of tanks, if these change during further design development)	Urban design, landscape and visual specialist *
Effects on water quality in receiving environments	Incorporated stormwater treatment measures to maintain or improve water quality in piped awa and harbour receiving environments	Initial design, responding to Mana Whenua values

6.1.2 Structure of the assessment

The following sub-sections in chapter 6, identified in Table 21 below, summarise the assessment of the Project (including embedded mitigation) undertaken by specialists for the key topic areas and sets out, where applicable, further mitigation (and offset / compensation) recommendations documented in the technical reports.

Table 21: Effects on the environment assessment topics

AEE section	Topic	Technical report #
6.2	Transport effects	Technical report #5
6.3	Noise and vibration effects	Technical report #6
6.4	Landscape, urban form and visual amenity effects	Technical report #7
6.5	Historic heritage effects	Technical report #8
6.6	Archaeological effects	Technical report #9
6.7	Ecology – Terrestrial effects	Technical report #10
6.8	Ecology – Freshwater effects	Technical report #11
6.9	Ecology – Marine effects	Technical report #12
6.10	Geotechnical, natural hazards, and resilience effects	Technical Report #13
6.11	Groundwater effects	Technical report #14
6.12	Stormwater effects	Technical report #15
6.13	Soil contamination effects	Technical report #16
6.14	Erosion and sediment control effects	Technical report #17
6.15	Air quality effects	Technical report #18
6.16	Cultural effects	Technical report #19 and #20
6.17	Social and recreation effects	Technical report #21
6.18	Network utility impacts	N/A

6.2 Transport effects

6.2.1 Introduction and assessment methodology

This section summarises the findings of Technical Report #5 (Integrated Transport Assessment), which evaluates the Project's effects on the transport environment, including impacts on traffic flows, parking, property access, public transport, active modes (walking, cycling, and micromobility), and overall road user safety.

The assessment methodology included a combination of desktop analysis, modelling and site observations. The desktop analysis considered relevant documents including:

- Review of crash history data from the Crash Analysis System (CAS) (covering the period 1 July 2020 to 30 June 2025)
- Review of traffic modelling outputs developed by the Wellington Transport Analytics Unit
- Review of Project drawings and supporting design information

Site visits consisted of both driving and walking along the Project route and key parallel roads, undertaken on multiple occasions at various times, including morning and evening peak periods and off-peak periods, to observe existing operating conditions, constraints and travel behaviours.

Transport modelling formed a key component of the assessment, using outputs from the Wellington Strategic Transport Model and Aimsun micro-simulation models prepared by the Wellington Transport Analytics Unit to assess future 'Do Minimum' (without the Project) and 'Project Option' scenarios for the 2033 and 2053 assessment years, including effects on traffic flows, journey times, reliability and mode share. This method enables an assessment of the effects of the Project over time, factoring in likely changes to Wellington's population.

6.2.2 Transport effects

The effects of the Project on transport are characterised by both very significant benefits for Wellington's transport network and localised / specific adverse impacts along the route, requiring specific mitigation.

The Project increases the capacity of SH1, improves journey time reliability, and enhances network resilience in fundamentally beneficial ways. These benefits include:

- Increased capacity along the SH1 corridor between Aotea Quay and Calabar Road with up to 40% higher flows through central Wellington compared to the reference case
- Travel time savings of 4 to 7 minutes on average across the two 3-hour peak periods each day, and up to 10 minutes during the busiest part of the peak period for some key journeys
- An approximately 40% improvement in travel time reliability through the corridor
- The additional infrastructure capacity supports city growth via infill development, as it enables land use intensification that would otherwise be constrained
- A faster SH1 route with additional capacity means drivers will choose SH1 over alternative routes, reducing delays and creating opportunities for future transport investment, including improved public transport and/or provision for active modes of transport
- Estimated daily traffic reductions on local roads in Wellington include:
 - 20% reduction in daily traffic on the Harbour Quays route (southbound direction)
 - 35% reduction in daily traffic on Oriental Bay Parade (southbound direction)
 - 15% reduction in daily traffic on Constable Street (westbound direction)
- Improved road safety and network resilience, for example, through duplicated tunnels and median separation at SH1 Ruahine Street, which remove the potential for head-on and turning collisions, and through grade separation of the access to Hataitai Park
- Improved provision for active transport users with the 3.6 metre wide vehicle separated shared path through the new Mt Victoria tunnel, replacement of the timber bridge connecting Hataitai with Hataitai Park, and new/upgraded shared paths linking the tunnel to Miramar / the airport
- Existing scheduled bus services that operate north-south through the Basin Reserve will experience high benefit through less congestion, improved journey times and journey time reliability, as a result of being grade separated from the primary conflicting traffic flow

Significant improvements to an operational transport network through a busy urban environment will give rise to adverse effects during construction, and the operation of the Project could have localised adverse effects requiring mitigation. The further discussion below addresses these potential adverse effects and the mitigation proposed.

Construction effects

Terrace Tunnel

Construction of the Project will temporarily impact the road network through lane closures, reduced speeds, temporary traffic management, and (at times) detours, which will result in increased congestion, delays and longer travel times for some users. While most impacts will be short-term and are therefore considered of low or negligible level overall, certain locations within the Project area will experience more noticeable effects.

Construction of the second Terrace Tunnel is to occur mainly off-line to minimise transport effects. However, there are some activities that will result in a low level of disruption. The creation of the cross-passage works will require a reduction in speed limit through the current tunnel, impacting journey times. In addition, the replacement of the Ghuznee Street Bridge will require demolition which would require the closure of SH1 for short periods (multiple 48 hours and overnight) in order to ensure the safety of drivers. This is similar to maintenance activities in the existing tunnel and would cause a low level of disruption.

At Ghuznee Street, the staged demolition and reconstruction of the bridge will create localised delays and congestion, resulting in a moderate adverse effect on the surrounding local road network. Similarly, short-term lane and intersection closures during traffic switch phases will require detours and increase travel times, leading to moderate adverse effects on local connectivity. Property access along Ghuznee Street will face short-term restrictions, though these are considered to have a negligible adverse effect.

Parking availability within and around work areas during construction will be reduced. In most locations, these effects are assessed as low or negligible because only a relatively small number of spaces are affected and alternative parking is generally available nearby. However, moderate impacts are expected at the Terrace Tunnel, where 195 spaces will be closed for the entire construction period, with intermittent restrictions on about 327 additional spaces across Clifton Car Park, the Upper Willis Street Car Park, and MacDonald Crescent.

Bus services crossing the area (including Metlink routes 18 and 21 and school bus routes using Ghuznee Street) are expected to experience some delay during periods of lane closures and detours, generally assessed as a moderate adverse effect. Active transport users will be affected by temporary closures of pedestrian paths and the Locky Dock facility, as well as detours, resulting in a low adverse effect.

Te Aro

Construction works along Vivian Street will involve block-by-block widening, narrowed lanes, and reduced speeds, which will have a negligible effect on through traffic. During construction, parking availability will progressively reduce as all 76 on-street spaces and a 30m long taxi stand are permanently removed, resulting in a low adverse effect. Property access disruptions will be short-term and managed on-site, resulting in a negligible effect.

Public transport effects are expected to be limited in this area because Vivian Street does not carry scheduled city bus routes; however, the corridor is used by school bus routes (five school bus routes travel eastbound on Vivian Street and four school bus routes travel westbound on Buckle Street), and these services may experience some delay during periods of traffic management, resulting in low adverse effects.

For active transport, pedestrians will be accommodated via temporary footpath management (including localised closures and diversions), and effects are assessed as negligible if safe alternative routes are provided, while cyclists will experience reduced operating width, increased interaction with general traffic flow and a heightened risk of close passes through works areas resulting in low adverse effects.

Basin Reserve

Construction at the Basin Reserve will involve complex staging and traffic switches to maintain movements through a constrained and high-demand area, and is expected to involve temporary lane reductions and/or detours of highway traffic onto local roads and (at times) stop-go traffic management which will lead to low to moderate adverse effects on local connectivity and travel times during some stages.

Parking will be impacted for extended periods, with 36 spaces closed for the entire duration of construction and up to 94 spaces intermittently unavailable, resulting in a low adverse effect.

Property access for Basin Reserve, schools, and Government House will face temporary restrictions, creating low to moderate adverse effects. Public transport will experience temporary bus stop relocations and delays during peak periods, leading to a low adverse effect. Active transport users will encounter short-term closures and detours, but these will be staged and brief, resulting in a negligible effect.

Mt Victoria Tunnel

The intermittent closures of the existing tunnel and the full closure of Paterson Street will have a low effect on the road network operation and connectivity at a city-wide level, but there will be a moderate local effect on property access for Wellington East Girls' College (which has vehicle accesses from Paterson

Street and from the Paterson Street / Austin Street intersection, as well as a pedestrian connection to the south side of the western tunnel approach).

Parking impacts include the loss of 32 on-street parking spaces on Paterson Street and 10 spaces at Austin Street. It is also possible that up to 15 spaces may be unavailable at the Hataitai Netball Pavilion parking area if this section is used as a site office and work area for the new pedestrian overbridge. The overall impact of these temporary losses is considered negligible.

Minimal public transport impacts are expected in the western portal (low effect) area with the closure of Paterson Street as primary bus services for the school are expected to continue using the Ellice Street bus stop throughout construction. On the eastern side of the Tunnel, detours and congestion associated with closure of Taurima Street are expected to affect bus routes that use Moxham Avenue, resulting in low adverse effects on bus journey time and reliability at times.

Active transport will be most affected, with the closure of the shared path through the tunnel for 3 years removing a key link and causing a very high adverse effect for pedestrians and cyclists.

Eastern Connections

Construction will involve a series of staged works including multiple traffic shifts and detours which will create low adverse effects on local traffic and intersection performance. Parking impacts will include the removal of approximately 105 spaces and short term loss of access to 264 spaces in Hataitai Park.

During the period of closure of Taurima Street, access will need to be maintained to the properties on this street. Temporary traffic management will need to allow for continued pedestrian access where possible and staged works will help maintain business operations and residential access, causing a low effect.

Property access for Taurima Street and 23 properties on SH1 and Walmer Street within the works footprint for the SH1 alignment between Wellington Road and Kilbirnie Crescent will experience temporary restrictions, however these can be managed such that only negligible effects will result.

Construction of the stormwater infrastructure will involve traffic management measures, but overall traffic movement is expected to remain largely unaffected except at specific localised points.

Active transport will be impacted by the removal of the existing pedestrian bridge until the replacement or the new Hataitai connection (Hataitai Connection Bridge) is complete, eliminating a key crossing over Ruahine Street and access to Hataitai Park, which would create a moderate adverse effect.

Operational effects

Terrace Tunnel

The second Terrace Tunnel and the separation of northbound and southbound traffic lanes will improve overall safety with the elimination of head-on collision risk.

There is, though, some remaining risk as southbound traffic approaches the Willis Street intersection, that faster-moving vehicles could encounter the back of queued traffic, raising the potential for rear-end collisions.

Overall, a moderate safety improvement is confirmed for this section of the Project.

Te Aro

The Te Aro section faces several adverse operational effects, including changes to kerbside activity, local connectivity and the pedestrian environment. The removal of all on-street parking along Vivian Street, including 76 parking spaces and a 30 m long taxi rank, requiring drivers to rely on off-street parking is assessed as a low effect due to the nature of the SH1 corridor and availability of alternative on and off-street parking nearby. The loss of ability to undertake loading activities on Vivian Street is assessed as a high adverse effect.

Intersection reconfiguration and changes to turning movements (notably around the Cuba Street intersections with SH1) would reduce route choice and force some local trips onto more indirect paths, resulting in a moderate effect for local vehicle circulation.

Property access will also become more challenging, as the increase of traffic lanes and narrower lanes make turning in and out of driveways more difficult.

For pedestrians, while footpaths remain, longer crossing distances at some locations (e.g., across multi-lane approaches such as at Taranaki Street) and the loss of parked vehicles as a buffer would reduce amenity; however, the overall adverse pedestrian amenity effect is generally negligible to low. The increased mean journey speeds and higher traffic flows through Vivian Street are likely to raise the risk for vulnerable road users, such as pedestrians and cyclists, due to reduced reaction times and higher collision speeds resulting in a moderate level of effect.

Basin Reserve

The operational effects are primarily positive here. Adverse effects, without mitigation, at the Basin Reserve are most pronounced in terms of vehicle accessibility and pedestrian safety, road network connectivity, and parking supply.

Pedestrian access to the northern end of the Basin Reserve will be provided via a signalised crossing that is sufficient to accommodate pedestrian movements on event days.

Vehicle access to the Basin Reserve car parking area will remain available from all directions; however, the reconfigured road network will require vehicles approaching from most directions to travel additional distance to access the car park. This reduces the directness and convenience of access for users and is assessed as a low adverse operational effect.

In addition, the closure of direct access to Hania Street from SH1 and the removal of the Pirie Street connection onto Kent Terrace will result in increased journey times for road users accessing and egressing Hania Street. While alternative routes remain available, the increased travel distance represents a low adverse unmitigated operational effect on the road network.

The Project will also result in a reduction in the number of available car parking spaces within the wider Basin Reserve area. While alternative parking remains available in surrounding locations, the reduction in parking supply reduces convenience for drivers and is assessed as a low adverse unmitigated operational effect.

Mt Victoria Tunnel

For the Mt Victoria Tunnel section, the effects are primarily positive in terms of removing the one lane bottleneck in each direction and the significant shared path upgrade included in the new tunnel. Adverse effects include changes to public transport access and parking. The permanent removal of 21 on-street parking spaces on Paterson Street is considered have a negligible effect due to the localised nature of the loss and the availability of alternative parking nearby.

Changes to access from Ellice Street into the Basin Reserve may increase journey times for school buses and other vehicles, resulting in a low level of adverse effect. Although the second tunnel improves capacity and safety for vehicles, the transition period and new traffic patterns could introduce confusion and minor delays for users adjusting to the new layout. The overall adverse effects in this section are negligible.

Eastern Connections

The operational adverse effects in the Eastern Connections section are primarily associated with increased traffic volumes on local roads, the loss of parking, and public transport performance. The widening of SH1 along Ruahine Street and Wellington Road requires the removal of on-street parking, resulting in a net loss of 26 car parking spaces on SH1 Ruahine Street, 24 car parking spaces on SH1 Wellington Road and others at Taurima Street and Moxham Avenue. These reductions in parking availability reduce convenience for residents and visitors and are each assessed as low adverse operational effects.

Changes to traffic volumes on Moxham Avenue, resulting from the reconfigured network, will have the effect of making Moxham Avenue southbound flows busier from vehicles travelling toward the Hataitai Connection Bridge to get to SH1 and reduced northbound flows as traffic diverts onto the bridge and SH1. However, travel times on Moxham Avenue are expected to significantly improve in the AM peak and negligible change is expected in the PM peak. The Project is therefore expected to have no adverse effects on bus travel times through this corridor. Additionally, implementing only left-in/left-out access to and from Newtown via Constable Street would remove the existing right-turn movements (and associated safety risk), but would result in traffic rerouting for trips between Newtown and the airport (via Mt Victoria Tunnel or Kilbirnie) and for trips between Hataitai and Newtown (via Kilbirnie), leading to increased travel

distances and journey times. This effect has been assessed as a moderate adverse effect on route efficiency and accessibility for affected road users.

6.2.3 Mitigation

Specific mitigation has been recommended in the transport assessment, and a number of general mitigation measures (such as the preparation and implementation of a Construction Traffic and Transport Management Plan) will be effective in managing adverse transport, traffic safety and network efficiency impacts caused by the construction of the Project.

NZTA, WCC and GWRC have established a NPG as a mechanism to structure NZTA, WCC and GWRC's transport operations coordination during the Project. The NPG is a multi-party working group facilitated by NZTA, focused on collaborative planning and delivery to minimise disruption. Its functions include forward work programme coordination, construction scheduling, signal optimisation, journey management information, and travel demand management communications. Through this coordinated approach, the NPG aims to proactively manage and reduce construction-related impacts on the transport network.

Construction

For the Terrace Tunnel, mitigation focuses on advance notice to road users, careful management of detour routes, and temporary changes to parking and intersection priorities to maintain capacity and reduce delays. Construction should be scheduled to avoid overlapping major parking closures, and temporary traffic management should maintain property and pedestrian/cyclist access. Adjustments to intersection controls are recommended during single lane closures for works such as the Ghuznee Street bridge.

For the works on Ghuznee Street, mitigations will be required to support access during the works. These include advance notice of the works, management of the key detour routes, including considering management of parking to improve the capacity of those routes, amended priorities and controls for intersections along the routes and the scheduling of the works to minimise effects.

The temporary closure of the shared walking and cycling path through the Mt Victoria Tunnel for a period of up to 3 years is a key construction effect. The prolonged loss of this strategic active mode connection would, without mitigation, be a very high adverse effect. Recommended mitigation measures include early and ongoing communication with affected users, improving the safety, attractiveness and legibility of alternative walking and cycling routes, and providing public transport alternatives, including consideration of enhanced and subsidised bus services through the Hataitai bus tunnel. With these measures in place, the overall construction effect on walking and cycling is assessed as moderate adverse.

Impacts on bus services, including increased delays and reliability issues on Moxham Avenue during construction, will be managed through active monitoring of bus performance. Where monitoring identifies adverse effects, responsive measures, such as adjustments to signal phasing and temporary bus priority measures can be implemented where practicable. Where on street parking is removed to facilitate road widening and construction activities, advance notice and clear wayfinding will be provided to inform users of changes to parking availability and direct them to alternative parking options. Temporary alternative routes are also to be provided and clearly signposted for walking and cycling where existing facilities are disrupted, maintaining connectivity for active modes.

NZTA proposes to address these measures as far as practicable through a Construction Traffic and Transport Management Plan (CTTMP) and Loading Area Plan conditions included in Appendix A, working alongside WCC and GWRC to minimise the adverse effects identified in the Integrated Transport Assessment. The specific active mode mitigation measures recommended by the specialist have not been confirmed at this stage, but will be refined through collaboration with WCC and GWRC via the NPG, in conjunction with the appointed contractor, and then implemented through the CTTMP.

With these mitigation measures in place, the Integrated Transport Assessment (Technical Report #5) concludes that the overall level of construction effect is moderate adverse.

Operational

Mitigation is recommended for Te Aro, focussing on managing increased traffic flows and safety for vulnerable users within a highly pedestrianised environment. A Safe System Audit undertaken as part of the Project's design development recommended coordinated traffic signals and active speed management outside peak periods to discourage excessive speeds through Vivian Street. These measures aim to

prevent adverse safety effects, particularly for pedestrians crossing the corridor and have been assessed as resulting in an overall low level of effect.

In order to mitigate the effects on the ability to undertake loading activities on Vivian Street due to the parking bay removal, it is recommended that consideration is given to providing alternatives through engagement with WCC to reallocate spaces on local side roads and/or off-peak state highway loading bays be provided. In this case, NZTA has determined that local side road loadings areas are a suitable mitigation method, subject to agreement with WCC.

A reduced or variable low speed zone past the Dufferin Street school pick-up and drop-off area is recommended and will be implemented as a matter of course due to the Land Transport Rule: Setting of Speed Limits 2024 requirements for speed limits past schools.

Table 22 below summarises the actual and potential effects of the Project, outlines the proposed mitigation measures, and identifies the resulting overall level of effect following mitigation.

Table 22: Summary of actual and potential transport effects

Location	Effect description	Level of effect (unmitigated)	Measures incorporated into consent design	Mitigation recommendations adopted by NZTA	Level of effects (mitigated)
Construction effects					
Terrace Tunnel	On Ghuznee Street, there is reduced access and disruption due to construction	Moderate		• Advance notice of works • Management of key detour routes • Management of parking on MacDonald Crescent to improve efficiency of detour routes • Amended controls for intersections along the routes • Schedule of works to minimise effects	Low
Terrace Tunnel	During construction, the loss of parking in the Terrace Tunnel section results in limited parking availability in the area	Moderate		• Considering the timing of the closure periods so that the period where parking is removed from MacDonald Crescent is when there is minimal impact on Clifton Car Park	Low
Mt Victoria Tunnel	Disruption to active modes due to the closure of Mt Victoria Tunnel path during construction	Very High		• Consideration of active mode mitigation measures for displaced users of the existing Mt Victoria shared path during construction • Consideration of measures (e.g. temporary ventilation) to reduce the period of closure • Clear communication / engagement and advance notice to determine any additional needs of typical users	Moderate
Eastern Connections	Limited access to Hataitai Park and associated parking loss during construction	Moderate		• Construction methodology that keeps closure of Hataitai Park access to a short duration	Low

Location	Effect description	Level of effect (unmitigated)	Measures incorporated into consent design	Mitigation recommendations adopted by NZTA	Level of effects (mitigated)
	Effect on Buses through Hataitai during construction	Moderate		- Plan construction activities affecting Hataitai bus routes in partnership with GWRC and WCC - Consider bus routes in the detailed intersection construction plan, including ability to maintain the cross movement between Kilbirnie Crescent and Hamilton Road. Monitor bus journey times and adjust signal phasing, consider temporary bus lanes if required	Low
Operational effects					
Te Aro	On Vivian Street, increased lanes, higher mean journey speed, and increase in traffic flows increases safety risk to vulnerable users crossing	Moderate		Implement Safe System Audit recommendations to utilise coordination of traffic signals and outside of peak periods use signals to actively discourage excess speeds	Low
	On Vivian Street the loss of Loading bays impacts business efficiency	High		Investigate reallocating some parking bays on side roads in Te Aro and consider off peak loading bays on Vivian Street should there remain evidence of issues for loading	Moderate
Basin Reserve	Outside of St Mark's School, increases in traffic past school PUDO area reducing safety for vulnerable road users crossing the road	Low	Change to one way flow northbound. Table crossing located to be visible for approaching traffic	Provide reduced/variable low speed zone past the school pick-up and drop-off area	Negligible
Eastern Connections	Increased safety risk to active mode users, and disruption to bus services, due to	Moderate	Design updated to provide traffic calming features including intersection realignment, improved crossing and kerb		Low

Location	Effect description	Level of effect (unmitigated)	Measures incorporated into consent design	Mitigation recommendations adopted by NZTA	Level of effects (mitigated)
	increased traffic on Moxham Avenue		buildouts on Moxham Avenue		

6.2.4 Summary

With the implementation of the mitigation measures outlined above, including the measures incorporated into the design and further measures recommended in the Integrated Transport Assessment and adopted by NZTA, the Project's operational and construction related adverse transport effects are mitigated, to the extent practicable.

Operationally, potential adverse effects associated with increased traffic volumes, changes to access arrangements, parking removal, and safety risks to vulnerable users are effectively mitigated through Safe System design, traffic signal management, provision for loading and enhanced pedestrian, cycling, and public transport journeys. As a result, residual operational effects are generally assessed as low or moderate in the case of the loss of loading opportunities on Vivian Street, with no high-level residual effects.

During construction, temporary adverse effects will occur, particularly in relation to access, parking availability, public transport reliability, and active mode connectivity. These effects are mitigated through construction management measures. Following mitigation, construction effects are generally low across most locations. The temporary closure of the Mt Victoria Tunnel shared path results in a moderate residual effect due to the length of the closure, even with adoption of the recommendation for provision of alternative routes and public transport measures. The final mitigation solution(s) for this impact is only able to be determined closer to construction, in consultation with WCC, GWRC and the appointed Contractor.

Overall, the positive transport effects of the Project are significant, including long-term benefits in journey time savings, reliability, safety and network resilience. The residual adverse transport effects of the Project are an inevitable consequence of delivering major improvements to the existing transport network and are considered acceptable.

6.3 Noise and vibration effects

6.3.1 Introduction and assessment methodology

This section summarises the findings of Technical Report #6, which addresses potential construction and operational noise and vibration effects arising from the Project. The assessment also includes recommendations to avoid, remedy, and mitigate adverse effects.

The assessment methodology included a combination of desktop review, site observations, and computer modelling. The desktop review established the assessment framework using key standards and guidelines, including:

For construction noise and vibration:

- NZS 6803:1999 Acoustics – Construction Noise, which sets airborne noise limits for construction activities, and BS 5228:1:2009 for construction noise data
- NZTA Construction and Maintenance Noise and Vibration Guide (2019) (NZTA Construction Guide), which provides a structured approach for managing construction noise and vibration on state highway projects
- BS 5228-2:2009 for vibration control of human amenity, and DIN 4150-3:2016 for building protection vibration thresholds
- Wellington City District Plan rules (NOISE-S2.2) which sets peak noise levels from blasting

For operational traffic noise:

- NZS 6806:2010 Acoustics – Road-traffic noise – New and altered roads, supported by the NZTA Traffic Noise Guide, which set noise criteria categories for the assessment of traffic noise
- Wellington City District Plan rules (NOISE-S7) to assess compliance with local requirements for mechanical noise related to tunnel operations

Short duration noise level surveys were undertaken between December 2025 and January 2026 between 10am and 1pm in the vicinity of the Project to derive an indicative 24-hour traffic noise level. Long duration noise level surveys were undertaken between February and March 2026 at three locations adjacent to the Project using loggers which measured noise levels continuously to determine 24-hour noise levels.

Construction assessment

Computer modelling was used to predict construction noise and vibration. Sound power levels for proposed equipment and activities were sourced from previous measurements and international databases, including BS 5228-1. Indicative setback distances were calculated to identify potential compliance risks, and indicative noise contour maps were prepared for high-noise activities such as concrete breaking, piling, and road works. Construction vibration was assessed using regression curves derived from BS 5228-2 and DIN 4150-3. Blasting vibration was predicted supplemented by blasting data from the US Bureau of Mines and AS 2187-2:2006.

Operational assessment

For operational effects, the noise assessment divided the receivers potentially affected by the Project into five distinct areas: Terrace Tunnel, Te Aro, Basin Reserve, Mt Victoria Tunnel and Eastern Connections. For each area, Protected Premises and Facilities (PPFs) within 100 metres of the designation boundary are identified, in accordance with NZS 6806:2010 Acoustics – Road-traffic noise – New and altered roads, for urban environments. Given the urban environment of the Project, apartments in multi storey apartment buildings were identified as separate PPFs. The PPFs for each area are listed in Table 23 below:

Table 23: Noise assessment areas

Area	Number of PPFs
Terrace Tunnel	416
Te Aro	321
Basin Reserve	105
Mt Victoria Tunnel	106 (+ three relocated PPFs)
Eastern Connections	315

The report assessed the change in operational noise levels by comparing predicted traffic noise across several scenarios:

- Existing noise environment
- Future do-nothing scenario (2053 traffic volumes without the Project)
- Future do-minimum scenario (this is the Project built without any specific noise mitigation with 2053 traffic volumes)
- Future Project with noise mitigation (2053 traffic volumes)

Using computer modelling (SoundPLAN with CoRTN algorithms), LAeq(24h) noise levels were calculated for all PPFs within 100 metres of the alignment. These results were analysed against NZS 6806:2010 noise categories (A, B, and C) and interpreted in terms of perceptible changes, referencing research on subjective responses to noise level differences. This two-pronged approach considers compliance with standards while also considering real-world amenity effects.

The noise categories used are defined in Table 24 below.

Table 24: Noise category limits at all buildings

Category	Altered Road dB LAeq(24h)
A (Primary external noise category)	≤ 64
B (Secondary external noise category)	64 - 67
C (Internal noise category)	40

6.3.2 Existing environment

The existing environment along the Project corridor is characterised by high baseline noise levels. All PPFs within the Project area have long been exposed to significant traffic noise from the current SH1 alignment, supplemented by noise from local roads and general urban activity. This elevated noise environment has persisted for many years and forms the basis for assessing future noise changes.

In terms of vibration, the current environment is typical of an urban setting with minimal perceptible vibration from normal traffic.

6.3.3 Noise and vibration effects

Construction effects

General construction activities throughout the Project area will generate high noise and vibration levels.

Construction activities associated with the Terrace Tunnel, including tunnelling support works, portal construction, demolition, excavation and road works, would generate high construction noise levels near adjacent sensitive receivers. Without mitigation, daytime noise levels at some building façades could exceed 70 dB L_{Aeq} and, during the noisiest activities, may exceed 90 dB L_{Aeq} when works are undertaken immediately adjacent to buildings. These exceedances would be temporary but potentially frequent as works progress through constrained urban locations and would result in noticeable to disruptive effects on residential and commercial amenity, particularly for lower floors with direct line-of-sight to construction activities. Night-time works, if required, would result in materially higher adverse effects due to increased sensitivity of residential receivers.

Unmitigated vibration effects are predicted to be comparatively limited relative to other sections of the Project. Indicative modelling shows no buildings predicted to receive vibration levels that exceed either NZTA Construction Guide Category A (1 mm/s PPV) or Category B (5 mm/s PPV) vibration criteria during impact piling in this area. Notwithstanding this, vibration may still be perceptible at some receivers during tunnelling and associated construction activities, which may give rise to temporary disturbance and concern among occupants, particularly during night-time periods.

The Te Aro section is highly constrained, with buildings located immediately adjacent to the construction footprint. Unmitigated construction noise from road works, demolition, excavation, piling and bridge works (including the Ghuznee Street overbridge) would regularly exceed the daytime construction noise criterion of 70 dB L_{Aeq} at numerous receivers. Noise levels more than 75 dB L_{Aeq} , and at times exceeding 90 dB L_{Aeq} , could occur at building façades during high-noise activities such as concrete breaking and piling. These levels would result in significant disruption to residential and commercial activities, with effects becoming particularly severe where exposure is prolonged or where works are required at night next to residential buildings.

For the Te Aro section, indicative vibration assessment predicts approximately 115 buildings potentially receiving vibration levels exceeding NZTA Construction Guide Category A vibration criteria and one building receiving vibration levels potentially exceeding Category B criteria during impact piling in the Te Aro section. In the absence of mitigation, vibration will be clearly perceptible, could disturb occupants, disrupt sensitive activities, and raise concern regarding potential building damage. Special consideration will be given to heritage structures which will need to be assessed for their vibration sensitivity.

Construction at the Basin Reserve, including retaining wall construction, trenching along Sussex Street, road realignment and general earthworks, would generate substantial construction noise. Without mitigation, multiple sensitive receivers would fall within noise setback distances, and daytime noise levels exceeding 70 dB L_{Aeq} would be common. During peak activities, façade noise levels may exceed 80 dB L_{Aeq} , resulting in highly disruptive effects for adjacent residential, recreational and community facilities.

The Basin Reserve area represents one of the highest vibration risk sections of the Project due to the extensive piling activities that may be required. Indicative modelling predicts approximately 188 buildings potentially receiving vibration levels exceeding NZTA Construction Guide Category A vibration criteria and 21 buildings potentially receiving vibration levels exceeding Category B criteria during impact piling. Without mitigation, vibration levels could be clearly felt and, in some locations, approach the building protection thresholds where cosmetic building damage may occur, necessitating careful management to avoid adverse outcomes.

Construction noise effects at Mt Victoria would primarily arise from tunnelling, portal works and associated road works. Without mitigation, high construction noise levels would occur near tunnel portals, with potential façade noise levels exceeding 70 dB L_{Aeq} during daytime. Blasting activities, while limited in duration and extent, can generate high short-term noise effects and ground borne noise that travels through the ground into the buildings. This may be unsettling to nearby receivers if undertaken without prior communications.

Unmitigated vibration effects at Mt Victoria are principally associated with tunnelling and blasting. While blasting is expected to be limited spatially and temporally, vibration would be perceptible at nearby receivers and could cause concern among occupants.

For the Eastern Connections section, without mitigation, construction noise would frequently exceed daytime criteria at adjacent dwellings, with noise levels potentially exceeding 75 dB L_{Aeq} during high-noise activities. Given the linear nature of the works, receivers would experience elevated noise levels as construction progresses along the corridor, resulting in intermittent but repeated disturbance.

Indicative assessment predicts approximately 154 buildings potentially receiving vibrations levels exceeding NZTA Construction Guide Category A vibration criteria and seven buildings potentially receiving vibration levels exceeding Category B criteria during impact piling (should this be used) in the Eastern Connections area. Without mitigation, vibration may be clearly perceptible and, in some cases, unsettling for occupants, with an increased risk of exceedances of the Category B building protection criteria.

Table 25 below shows the implications of the anticipated construction noise, at varying levels for both outdoor and indoor settings.

Table 25: Potential noise effects for varying noise levels

External façade noise level dB L _{Aeq}	Potential daytime effects outdoors	Corresponding internal noise level dB L _{Aeq}	Potential daytime effects Indoors
Up to 65	Conversation becomes strained, particularly over longer distances	Up to 45	Noise levels would be noticeable but unlikely to interfere with residential or office daily activities
65 to 70	People would not want to spend any length of time outside, except when unavoidable through workplace requirements	45 to 50	Concentration would start to be affected. TV and telephone conversations would begin to be affected
70 to 75	Businesses that involve substantial outdoor use (for example garden centres) would experience considerable disruption	50 to 55	Phone conversations would become difficult. Personal conversations would need slightly raised voices. Office work can generally continue, but 55 dB is considered by the experts to be a tipping point for offices. For residential activity, TV and radio sound levels would need to be raised
75 to 80	Some people may choose hearing protection for long periods of exposure. Conversation would be very difficult, even with raised voices	55 to 60	Continuing office work would be very difficult and become unproductive. In a residential context, people would actively seek respite
80 to 90	Hearing protection would be required for prolonged exposure (8 hours at 85 dB) to prevent hearing loss	60 to 70	Untenable for both office and residential environments. Unlikely to be tolerated for any extent of time

Table 26 provides guidance on potential night-time effects inside sensitive spaces, depending on external noise level and façade glazing type. Green indicates levels that are typically experienced as acceptable, orange indicates where sleep disturbance arises for some occupants, and red causes sleep disturbance for most people.

Table 26: Potential night-time noise effects in bedrooms of dwellings

External noise level (dB L _{Aeq})	Estimated internal noise level (dB L _{Aeq})			
	Sealed glazing (30 dB reduction)	Openable windows (modern building) (25 dB reduction)	Openable windows (older style building) (20 dB reduction)	Open windows (15 dB reduction)
70 – 75	40 – 45	45 – 50	50 – 55	55 – 60
65 – 70	35 – 40	40 – 45	45 – 50	50 – 55
60 – 65	30 – 35	35 – 40	40 – 45	45 – 50
55 – 60	25 – 30	30 – 35	35 – 40	40 – 45
50 – 55	20 – 25	25 – 30	30 – 35	35 – 40
45 – 50	15 – 20	20 – 25	25 – 30	30 – 35

Operational effects

Traffic noise effects on PPFs within 100m of the indicative alignment have been assessed in Technical Report #6, divided into existing, do-nothing, and do-minimum scenarios. The scenarios are described as follows:

- Existing noise environment: this consists of the current road layout and traffic volume (for this Project for the year 2018 based on available data as a conservative representation of current volumes)
- Future Do-nothing scenario: consists of the existing SH1 at the design year (2053), with (increased) Design Year traffic volume
- Future Do-minimum scenario: consists of the modified SH1 at the Design Year (2053), but without any specific noise mitigation. This scenario means that the only barriers included are solid safety barriers, which are required for reasons other than noise mitigation. Local roads that are not proposed to be altered by the Project are not included in the assessment
- Future Project with mitigation: consists of the modified SH1 road at the design year and includes mitigation that is designed specifically to reduce noise levels as described in section 6.3.4 Mitigation below

Table 27 confirms the overall changes to road noise exposure for the four modelled scenarios.

Table 27: Number of PPFs in each noise criteria category

Situation	Category A	Category B	Category C
Existing	989	85	192
Do-nothing (2053)	966	63	237
Do-minimum (2053)	962	80	227
Potential mitigation option (2053)	974	83	212

For the Terrace Tunnel, the majority of PPFs would receive noise levels within Category A, and the number of PPFs within Category C would remain largely unchanged with the Project in place.⁴¹ Average overall noise levels would reduce by 1 dB across all PPFs in the area. Only 17 PPFs of the 416 assessed are predicted to receive a perceptible noise level increase of 3 to 4 dB and one in the 5-8 dB category. The majority of PPFs would receive no perceptible change in noise levels, and the character of the noise will not change.

In the Te Aro area, predicted noise levels would remain similar to if the Project were to not go ahead. For the do-nothing scenario, 85 PPFs are predicted to receive noise levels in Category C, which increases to 92 PPFs with the do-minimum scenario. Of the 321 PPFs, 27 PPFs are predicted to receive a perceptible noise level increase of 3 to 4 dB. One PPF is predicted to receive a noticeable noise level increase of 5 to 8 dB, however the character of the noise will not change.

For the Basin Reserve, existing noise levels vary depending on line of sight between PPFs and surrounding roads, ranging from approximately 50 dB for well shielded receivers to the mid to high 70 dB range for properties fronting the road network. No noticeable change is predicted when comparing the existing and do-nothing scenarios. With the Project, the number of PPFs in Category C would reduce from 20 to 15. While the majority of PPFs would experience noise levels similar to the do nothing scenario, 23 PPFs would receive reductions ranging from perceptible to significant. Only two PPFs would experience perceptible noise increases of 3-4 dB and two have to noticeable noise level increases of 5 to 8 dB, with no change in noise character.

In the Mt Victoria Tunnel area, the majority of PPFs are predicted to experience noise levels within Category A across all three scenarios. With the Project in place, only one PPF is expected to receive noise levels in Category B (and none in Category C), indicating that mitigation is unlikely to be required. This one PPF, together with two other PPFs, will be relocated to their new positions inside the designation. Under the do nothing scenario, traffic noise levels are not expected to change significantly over time, and similar noise levels would be experienced by the vast majority of PPFs with the Project operational. Of the remaining PPFs, two are predicted to experience increases of approximately 3–4 dB, with only one PPF expected to receive noticeable increases of up to 7 dB. The character of the noise would remain unchanged.

In the Eastern Connections area, most PPFs are currently predicted to experience noise levels within Category A, although 40 PPFs receive noise levels in Category C. Under the do nothing scenario, a slight increase in noise levels of an average of 1 dB is predicted, resulting in only minor changes to the overall distribution of noise categories. With the Project in place, but no specific mitigation, noise levels would reduce for some PPFs and increase for others 15 just perceptible (3-4 dB and 16 noticeable (5-8 dB) and three about double as loud (9-11 dB), with a small overall reduction in the number of PPFs within Category C, decreasing to 28.⁴²

6.3.4 Mitigation

Construction

Where construction activities present a risk of not meeting required noise and vibration criteria, management and mitigation measures are recommended to be implemented through a Construction Noise and Vibration Management Plan (CNVMP) and supporting Schedules. The CNVMP will contain all general mitigation that will be implemented, including aspects such as common best practices, communication and consultation requirements, survey requirements, how complaints are dealt with and how noise barriers are to be used and placed. Site and activity specific Schedules will be prepared throughout construction to manage noise or vibration effects where relevant limits cannot be complied with using normal best practice measures. These Schedules are flexible to any issues identified during preparation and consultation with affected residents, providing mitigation measures that take into account affected party feedback as far as practicable.

Recommended mitigation measures include choosing low noise and vibration inducing methodologies (e.g. bored piling rather than impact piling), avoiding night-time blasting where practicable and limiting blast windows at night-time, applying lower vibration criteria where heritage buildings are identified as particularly vibration-sensitive due to their architectural features, and undertaking building condition

⁴¹ 91 PPFs under the do-nothing scenario, 92 PPFs under the (with Project) do-minimum

⁴² And a broadly corresponding increase in the number of Category B receivers

surveys both prior to and following high-vibration activities so any potential damage can be appropriately addressed.

Construction methodology design should be informed by the noise contours and setbacks identified in Technical Report #6 and should result in the adoption of the best practicable option. This would be supported by general best-practice measures, building condition surveys, blast management procedures, and implementation of the CNVMP and associated Schedules as a framework contained within the designation conditions. The construction noise and vibration mitigation recommendations have been incorporated into NZTA's proposed conditions (in Appendix A).

Operational

For the operational phase of the Project, a low-noise pavement (LN3⁴³ or LN5⁴⁴) has been recommended by the technical specialist as the preferred mitigation measure for operational noise where it is practicable.

The specialist also recommends investigation of building modification mitigation in accordance with NZS6806 for those dwellings that receive very high external noise levels (i.e. above 67 dB LAeq(24h) and therefore within 'Category C' in accordance with NZS 6806) to achieve a suitable internal noise environment as well as fresh air intake and thermal comfort. Applying this approach, all sensitive receivers subject to high external noise levels (whether existing or in the future) would be investigated to reduce adverse noise effects.

In considering the specialist's recommendations, NZTA has considered the location and zoning of PPFs, the outcomes of the BPO assessment required under NZS6806 and NZTA policy, and the characteristics of the existing urban environment. On this basis, NZTA has adopted the following approach in terms of road surface:

- That the epoxy-modified porous asphalt (LN5) can reliably be applied to the relatively flat and straight section of Ruahine Street, adjacent to established residential activities in the Hataitai area, where its application is expected to provide measurable reductions to existing noise levels experienced
- In other locations across the Project, LN3 or LN5 low-noise pavement will be implemented if it is confirmed to be practicable during detailed design. The performance of low-noise pavement in other locations across the Project is less certain due to generally low vehicle speeds, frequent braking and acceleration, the presence of numerous intersections, and tight horizontal curves. Further investigation will confirm whether low-noise surfacing will perform to the required standards in other locations. If it proves suitable, it will be adopted by NZTA, and operational noise effects would then be expected to generally reduce at affected PPFs

Low-noise pavement may not be practicable for much of the Project, which means that some PPFs would continue to receive high operational noise effects (i.e. Category C level), and in some cases, increased noise. Opportunities for noise walls have been considered, but are constrained by the urban environment and associated adverse effects on visual amenity, urban design, CPTED, maintenance, overland flow paths, road user safety, and connectivity. Accordingly, barriers are not considered practicable and have not been recommended by the specialist.

Consistent with NZS6806 and NZTA policy, the specialist, together with the Project team, undertook a BPO process to consider whether the Project would achieve external noise levels below 67 dB LAeq(24h) for PPFs within 100 m of the Project. Where these levels are exceeded following the implementation of practicable low-noise road surfacing, NZS6806 recommends building modification mitigation to address internal noise environments, irrespective of whether the Project makes existing noise levels worse or not.

NZTA has carefully considered the approach to building modification mitigation. Low-noise surfacing (LN5) provides reductions of approximately 5dB relative to standard dense asphalt surfacing and has been confirmed as practicable on Ruahine Street, at an estimated cost of \$1.33 million. With this mitigation in place, the number of Category C PPFs requiring building modification under NZS6806 is 212, at an indicative cost estimate of \$19.1 million. Indicative costs for building modification mitigation are based on a standard figure of \$90,000 per PPF, which is based on NZTA experience across the country. It is not specific to a highly urban environment, so may not correctly indicate the cost of building modification mitigation for the current Project.

⁴³ Low-noise road surface that reduces the acoustic footprint by approximately 3dB compared to conventional dense-graded asphalt

⁴⁴ Low-noise road surface that reduces the acoustic footprint by approximately 5dB compared to conventional dense-graded asphalt

In this case, the Project area is already subject to high noise levels including from the existing highway and local roads, and the Project does not necessarily make this worse⁴⁵.

Given the significant cost, as well as risk and uncertainty of the practicality of implementing building modification mitigation across the Project, and noting that NZS6806 recommends building modification mitigation even where the Project would not make noise effects worse, NZTA determined that allowing for building modification in all situations was not warranted. Accordingly, NZTA has proposed to only mitigate where the Project would result in a 1dB or higher noise level increase, i.e. where the Project is predicted to cause an adverse noise effect.

In addition to this, building modification is not proposed for the 195 Category C PPFs within the City Centre Zone⁴⁶, including for the 86 Category C PPFs where the Project would result in a 1 dB or higher noise level increase. Of these, 73 will receive a non-perceptible increase (1-2 dB), 13 will receive a just perceptible increase (3-4 dB). None will receive a 'noticeably louder' level of noise (5-8 dB).

The proposed mitigation approach reflects the long-established high-noise environment and the District Plan framework, which requires residential development in this zone to incorporate appropriate internal noise insulation and ventilation, i.e. the receiver is responsible for noise mitigation under the District Plan.

It is estimated that 76 of the 86 City Centre PPFs that will experience some level of increased noise as a result of the Project, but which are not proposed to receive building modification mitigation, are apartments. It is therefore considered likely that many of the City Centre Zone PPFs already include some level of acoustic treatment. In this context, additional building modification is not considered necessary or appropriate to impose on NZTA as they are proximate to many high noise activities including busy local roads. The building modification mitigation, if applied to the Project is expected to have high and uncertain cost obligations for NZTA in this location. This is because of the high-rise nature of many buildings in this zone and the potential for noise modifications to also trigger structural works. Therefore, no additional mitigation is proposed for PPFs within the City Centre Zone, other than best endeavours to utilise LN3 or LN5 low noise paving, where practicable, as outlined above.

Outside of the City Centre Zone, building modification investigation is proposed for PPFs that are predicted to receive noise levels in Category C and where the Project would result in a noise level increase. That applies to 5 Category C PPFs. A condition has been drafted to give effect to this mitigation framework.

With the implementation of low-noise surfacing where practicable, and targeted building modification, operational noise effects are generally reduced across the Project corridor. Overall, the residual operational noise effects are assessed to be low to moderate for PPFs outside the City Centre Zone, and potentially moderate to high within the City Centre Zone (reflecting existing elevated noise levels).

Table 28 below summarises the level of unmitigated construction and operation effects, the recommended mitigation measures that NZTA propose to implement, and the level of effect following implementation of mitigation.

⁴⁵ For 121 Category C PPFs located within 100 m of the alignment, there is no noise increase

⁴⁶ As per the WCC District Plan zoning map

Table 28: Summary of potential noise and vibration effects of the Project

Description	Effect to be mitigated	Scale of effect without mitigation	Mitigation recommendations / approach adopted by NZTA	Overall level of effect (mitigated)
Construction effects				
General construction works/demolition	Noise and vibration from road and pavement surface demolition as well as existing building demolition	High	CNVMP, Schedules, BPO on and off site such as communication, timing etc	Low to Moderate
Piling	Vibration and noise effects from piling activities for construction of bridges and retaining walls	High	Use bored piling rather than vibro or impact piling – to be considered further in development of CNVMP(s) and Schedules	Low
In tunnel blasting (Mt Victoria Only)	Sequential cycles of drilling and controlled blasting along the tunnel alignment	Moderate	Avoid night-time blasting as far as practicable, prior notification of occupiers in the vicinity	Low
High vibration activities	Vibration from construction activities (e.g. compaction, impact piling, vibropiling, blasting) resulting in reduction in amenity (human annoyance) and building damage	Moderate to High	Choosing low vibration inducing methodologies (e.g. bored piling rather than impact piling), where there is a risk vibration criteria may not be met Applying lower vibration criteria where heritage buildings are identified as particularly vibration-sensitive due to their architectural features Building condition surveys	Low
Operational effects				
Traffic on the public roads (this is an existing effect that remains largely unchanged due to the Project)	Changes in operational noise from traffic along public roads	Moderate to High	Low noise road surface (LN5) on Ruahine Street	Low
		Moderate to high	Low noise road surface (LN3 or LN5) on any other part of the Project where it is practicable	Low, where found to be practicable
		High	Building modification mitigation for all PPFs outside of the Central City Zone that would receive noise levels above 67dB LAeq(24h) and receive at least a 1dB noise level increase from the Project	Low

Description	Effect to be mitigated	Scale of effect without mitigation	Mitigation recommendations / approach adopted by NZTA	Overall level of effect (mitigated)
		High	No mitigation for PPFs within the City Centre Zone that would receive increases in noise levels above 67dB $L_{Aeq(24h)}$	Considered acceptable, particularly on the basis of the minor effect of the Project compared to existing/future noise exposure without the Project
In tunnel ventilation	Mechanical noise from ventilation fans to support tunnel construction	Low	Attenuators (already allowed for in the design), to reduce noise breakout	Low

6.3.5 Summary

Through implementation of good practice management and mitigation under the CNVMP, construction noise and vibration can generally be managed to reasonable levels at all receivers, with construction noise and vibration effects being temporary and manageable through standard controls that will be set out prior to construction in Schedules required by proposed consent conditions.

Traffic noise will remain largely unchanged, and will reduce for some PPFs, though further mitigation such as low noise road surface on more of the Project – which will be implemented if practicable – would result in a generally improved outcome. Other traffic noise sources such as bridge joints and audible tactile profiles should be considered at the detailed design stage, as well as design that may minimise braking noise. Mechanical tunnel equipment can be designed and operated to that it does not cause adverse noise effects.

The Project can be operated to not result in increased noise levels at most PPFs, with operational traffic noise effects generally assessed as low as there is little change predicted due to the Project. In some areas noise effects are reduced with the Project in place, primarily where the alignment moves away from sensitive receivers, the road is shielded via retaining walls, or where mitigation such as low noise road surfacing or building modification mitigation is to be implemented. While a small number of PPFs experience noise increases, these effects are limited.

6.4 Landscape, urban form and visual amenity effects

6.4.1 Introduction and assessment methodology

This section summarises the findings of Technical Report #7 (Assessment of Urban Form, Landscape and Visual Effects). The assessment covers matters relating to both the natural and built environment, including effects on urban form, landscape and visual effects and effects on natural character where relevant.

The assessment methodology includes desktop analysis, site visits, mapping and modelling.

Desktop analysis involved a comprehensive review of Project documentation, such as the proposal description, engineering and design drawings, and relevant planning provisions from the RPS and District Plan. This review also incorporated spatial data and previous urban and landscape character studies, combined in GIS to define character areas and inform the nested scale approach.

The assessment aligns with the principles and terminology of Te Tangi a te Manu – Aotearoa New Zealand Landscape Assessment Guidelines (2022) and CPTED best practice, ensuring consistency with national standards.

Modelling and visualisations supported the assessment by illustrating the spatial relationship of proposed works with the existing environment. InfraWorks 3D models and GIS analysis were used to test visibility and outlook changes from key vantage areas with a set of visual simulations prepared from fourteen representative public viewpoints. Shading studies were undertaken in relation to adjoining properties along Ruahine Street. These tools informed judgements on visual prominence, shading and effect magnitude.

6.4.2 Existing environment context

The six key areas used in the assessment are summarised in Table 29 below.

Table 29: Summary of urban landscape character

Areas		Characteristics
Terrace Tunnel	• Includes the northern motorway approach corridor narrowing near the Terrace Tunnel • The northern tunnel portal location and overlying open space • Central motorway trench environment • Ancillary tunnel infrastructure zones (areas accommodating new and existing tunnel control buildings venting structures, operational yards) • Southern tunnel portal area • Ghuznee Street Bridge and gateway interface • Adjacent receiving environments	• Key characteristics: The Terrace Tunnel section is a constrained urban motorway corridor forming a key northern gateway to the Wellington central city, comprising a low-lying trenched highway, tunnel portals, retaining walls, ancillary infrastructure, and overlying public open space, closely flanked by the residential and institutional areas of The Terrace and Kelburn • Sensitivity factors: Sensitivity is generally low within the established transport corridor but increases where works interface with public open space, pedestrian routes, gateway locations and nearby residential properties, particularly above and adjacent to tunnel portals where visibility, recreation use and residential amenity elevate sensitivity to change
Te Aro	• Vivian Street as the SH1 southbound route through the central city • Intersections with Cuba Street and Kent/Cambridge Terraces • Dense mixed-use environment with high pedestrian activity, heritage buildings and active streetscape interfaces	• Key characteristics: A dense central city street environment where SH1 passes through a fine-grained mixed-use area primarily along Vivian Street and Arthur Street/Karo Drive, characterised by continuous built frontage, heritage and contemporary buildings, narrow footpaths, building verandahs, high pedestrian activity, and strong east–west and north–south connections within the central city grid • Sensitivity factors: High urban form and streetscape sensitivity due to intensive pedestrian use, active ground-floor frontages, heritage values, and its role as a key walking and public-space corridor. Sensitivity is greatest at intersections such as Cuba Street, where pedestrian volumes, amenity expectations and visibility are highest, while sensitivity remains elevated throughout the corridor due to limited footpath width and close interface between traffic and people

Areas		Characteristics
Basin Reserve	• Pukeahu, the Basin Reserve and surrounding street quadrants, including Kent and Cambridge Terraces, Dufferin Street, Adelaide Road, and Sussex Street • Heritage and civic spaces, nearby residential, school and institutional environments, and areas of public open space and street corridors where state highway infrastructure, local traffic, and walking and cycling routes converge between Te Aro, Mt Victoria, Mt Cook and Newtown	• Key characteristics: Nationally significant cricket ground; mature pōhutukawa trees; historic gates; surrounding quadrants include schools and Government House access • Sensitivity factors: High cultural and recreational value due to the strong visual identity, heritage features, fragmented urban form and severance from past highway works and uncertainty around the future form of transport infrastructure
Mt Victoria Tunnel – Western Portal	• Includes the existing and proposed tunnel portal locations, approach lanes between the Basin Reserve and Paterson Street • The reinstated Paterson Street edge, adjacent residual land, and interfaces with the southern edge of the Mt Victoria residential neighbourhood • Nearby schools and open space, where the state highway is closely integrated with a fine-grained urban and residential environment	• Key characteristics: Paterson Street defines southern edge of Mt Victoria; trenched SH1 corridor; Wellington East Girls' College and heritage buildings nearby; strong visual link to Town Belt • Sensitivity factors: High sensitivity due to gateway prominence, proximity to homes and schools, strong public visibility, limited separation between infrastructure and residential amenity and further erasure of historic urban form
Mt Victoria Tunnel – Eastern Portal and Ruahine Street	• Town Belt frontage • Hataitai Park • Residential properties along Ruahine Street • Mt Victoria Tunnel emerges into the eastern suburbs, including the proposed and existing tunnel portals, approach and departure lanes, Taurima Street interface, and adjoining areas of the Town Belt and Hataitai Park • It includes nearby residential areas of Hataitai, local streets, pedestrian and cycling connections, and areas of open space where the state highway closely interfaces with steep landforms, recreational landscapes, and residential environments	• Key characteristics: SH1 runs along Ruahine Street between Town Belt and Hataitai; includes Hataitai Park and vegetated slopes forming green backdrop • Sensitivity factors: Special Amenity Landscape status applies to the Town Belt, recreational value, visual prominence on airport arrival route, proximity to residential properties and connections and interface with Hataitai local centre

Areas		Characteristics
Eastern Connections – Ruahine Street, Wellington Road to Evans Bay	• Kilbirnie Park • Wellington Road corridor • Evans Bay foreshore environment • A mix of residential, recreational, open space and coastal environments	• Key characteristics: Wellington Road separates the Town Belt from Kilbirnie Park; corridor transitions to Cobham Drive along Evans Bay foreshore with popular walking and cycling paths • Sensitivity factors: High recreational and visual amenity, coastal natural character, community open space, strong landscape identity and residential amenity

6.4.3 Landscape, urban form and visual effects

The Project traverses highly sensitive and prominent parts of Wellington's urban and natural environment, including the Town Belt, Basin Reserve, and central city streets.

These areas have significant cultural, recreational and heritage values, as well as high levels of public use and visibility. The Project involves major changes which will permanently alter landform, vegetation, and the spatial structure of key urban blocks.

While the Project has been assessed to have some adverse urban form, landscape and visual effects, it has also been assessed to have a range of positive effects. This includes the green space extension of Pukeahu through to Cambridge Terrace which is considered to deliver a high positive urban form, landscape and visual effect.

Construction effects

Technical Report #7 provides a full description of the expected construction effects of the Project. Set out below is a high-level summary of these effects, focussing on any effects assessed as moderate or higher.

Construction at the Terrace Tunnel will result in moderate to high visual effects. These effects will arise from the widening of the highway corridor, construction of the northern tunnel portal, and works around the southern portal. Proximity of works to nearby residential properties, and temporary occupation of rear yards at 214 and 216 The Terrace, will impact residential amenity. Visual disruption will be pronounced during the Ghuznee Street bridge replacement, affecting nearby properties and motorists, with distant views affected to a lesser degree.

The most significant construction impacts in the Te Aro section occur where Cuba Street and Vivian Street intersect. In this location, high adverse effects on pedestrian amenity will result from kerb line changes and verandah reinstatement works. Elsewhere along Vivian Street, effects are moderate to low, reflecting less disruption and lower sensitivity compared to the Cuba Street key pedestrian node.

Construction will have high to very high adverse visual and streetscape amenity effects in the western quadrants of the Basin Reserve area due to the clearance of buildings and trench works at Sussex Street and Barker Street, lasting several years. These works will dominate the visual environment of Sussex Street, Buckle Street, and parts of Pukeahu. To the south, high urban form and visual effects will occur at Adelaide Road and Rugby Street, which will be localised to the immediate area. The Kent and Cambridge Terrace areas will experience high-moderate urban form and visual effects associated with the realignment and reconfiguration of the state highway. Pedestrian streetscape amenity effects will be moderate also during construction works through the Basin Reserve section of the Project.

The Mt Victoria Tunnel western portal and Paterson Street will experience very high to high adverse visual effects during construction of the second tunnel, widened SH1 corridor, and the realignment of Paterson Street. Demolition of all Paterson Street properties and ancillary infrastructure works will impact views from adjoining residential areas and Wellington East Girls' College. Wider views from Pukeahu and elevated suburbs will experience moderate to low visual effects.

The construction of the Mt Victoria Tunnel eastern portal and Taurima Street will result in high to very high adverse landscape and visual effects, driven by extensive earthworks and vegetation clearance in the Town Belt for the new tunnel portal and control building. Properties along Ruahine and Taurima Streets will experience a high degree of visual disruption, with elevated Hataitai locations also affected.

For the Eastern Connections area, there will be high to moderate visual effects on Ruahine Street properties associated with road construction. High to very high adverse visual effects are expected at Hataitai Park and Wellington Road corner due to large-scale earthworks, vegetation clearance and Badminton Hall demolition. Demolition of residential properties for new access roads and construction of the new Hataitai pedestrian overbridge will result in major levels of disturbance to outlook and boundary conditions for immediately adjoining properties. Visual, urban form and landscape impacts will be more moderate for viewing audiences of the Kilbirnie Park and Evans Bay foreshore work areas. There will also be adverse amenity effects associated with restricted access to public spaces during construction through the Eastern Connections section of the Project.

Operational effects

Permanent effects for the Terrace Tunnel area are assessed as very low for urban form, given corridor widening remains within the existing designation and avoids property acquisition. Landscape effects are low to moderate, resulting from large cut slopes and reduced vegetated buffers. Visual effects range from low to moderate for adjoining properties, particularly 214 and 216 The Terrace, and moderate for motorists approaching the new tunnel portal, while wider public views experience a range of impacts ranging from low-moderate to very low effects. Elsewhere along the Terrace Tunnel section, including the southern portal and associated ancillary infrastructure, effects are assessed as low, with tunnel portals, and retaining walls designed to integrate closely with existing infrastructure. Overall, permanent adverse effects are limited, not visually dominant, and are expected to reduce over time as landscape mitigation becomes established.

For the Te Aro area, operational effects are minimal. Urban form and streetscape effects are negligible to very low, limited to the effects on pedestrian amenity from reduced pedestrian space and minor canopy trimming along Vivian Street, as well as the increase in proximity of moving vehicles to people on the footpath. Visual effects are avoided along Vivian Street, and the Project avoids impacts on the protected sightline to the harbour at Taranaki Street. Overall, the Project has no more than very low permanent adverse operational effects in Te Aro and maintains the function and amenity of this central city environment.

The proposed Basin Reserve green space extension to Pukeahu National War Memorial is assessed as being of regional significance as a place-shaping enhancement. It will extend the existing green space through to Cambridge Terrace and improve the setting of the National War Memorial. This is important given the national significance of the Park and its role in ceremonial occasions, including ANZAC Day commemorations and wreath-laying ceremonies involving visiting dignitaries and delegations from overseas.

Notwithstanding the very significant positive effects associated with the land/green bridge part of the Project specifically, there will be some permanent adverse urban form effects in the Basin Reserve area ranging from low to high.

Low to moderate adverse effects will occur at Bogart's Corner, Kent and Cambridge Terraces and parts of the Canal Reserve due to corridor widening, altered road geometry and the creation of residual land, which will further alter the original street grid and built form definition at the northern edge of the Basin Reserve.

High adverse urban form effects will persist along the existing section of Sussex Street (between Rugby and Buckle Streets) where permanent corridor widening and property acquisition lead to the loss of continuous built frontage and reduced streetscape activation, representing a lasting change to the urban structure at the western edge of the Basin Reserve. These effects are expected to reduce somewhat where and when redevelopment of suitable residual land occurs. It is noted that there are areas of Sussex Street where no redevelopment is feasible, and for these areas the adverse effects are permanent.

Operational visual effects within the Basin Reserve area are assessed as low to moderate, with localised moderate effects where widened road corridors, new intersections and exposed infrastructure increase the visual dominance of transport infrastructure. These effects are most apparent along Sussex Street, Kent Terrace, parts of Cambridge Terrace and the Canal Reserve, where changes to road alignment and loss of built form result in reduced visual coherence and containment. Visual effects are lower in other areas due to distance, intervening buildings and vegetation, and the large scale of the surrounding urban context.

Landscape effects in the Basin Reserve area range from very low to moderate adverse, arising from permanent modification of the Canal Reserve and surrounding streets to accommodate new road alignments and intersections. Landscape effects include the loss of mature trees, changes to the formal boulevard composition of Kent and Cambridge Terraces, and alterations to existing open space patterns at the edges of the Basin Reserve. These changes result in a permanent alteration to landscape character in parts of the Basin Reserve, particularly where transport infrastructure occupies a greater proportion of the available public space.

Within the Mt Victoria section of the Project, the active mode connection through the new Mt Victoria Tunnel is assessed as regionally significant in terms of positive urban form effects and placemaking

benefits. Operational adverse effects from the western portal of the Mt Victoria Tunnel and widened corridor are low, reflecting the compact alignment and integration with the existing street grid.

Urban form and visual effects at the western portal are assessed as very low to low, with localised low adverse effects in closer-range views from Paterson Street, the Basin Reserve and nearby residential properties due to increased visibility of widened road infrastructure, retaining walls and portal elements. In more distant and elevated views from Te Aro, Pukeahu, and surrounding hill suburbs, the widened corridor and portal infrastructure form a relatively small component of broader urban and landscape views, resulting in very low adverse visual effects.

Landscape effects at the eastern portal are assessed as high due to permanent modification of the Town Belt from large-scale earthworks, vegetation clearance, retaining walls and exposed cut slopes. These changes permanently alter landform and landscape character, increasing engineered elements and reducing the continuity of the vegetated hillside. While effects are localised to the portal and adjoining slopes, they represent a significant and lasting change to landscape character at this gateway between the central city and eastern suburbs.

The visual effects at the eastern portal are assessed as moderate to high for close-range views for state highway users and nearby residential properties due to the prominence of the tunnel portals, and scale of steep cut faces and retaining walls within the Town Belt slopes. Permanently exposed engineered slopes are visually prominent in views from Taurima Street and parts of the Hataitai local centre. In more distant views from elevated residential areas, effects reduce to moderate, with hillside modification and infrastructure clearly visible but not dominant within wider panoramic views, although remaining evident due to their scale. Visual effects will reduce to low to moderate in the long term (10 years plus) once the revegetated hill slopes and mitigation planting are established, reducing the visual prominence of the road infrastructure, cut face and retaining walls.

Urban form effects for the Eastern Connections section have been assessed as very low to low resulting from the removal of residential properties along parts of Ruahine Street and Wellington Road to enable corridor widening and maintain local access.

Landscape effects range from low to high in this section with high adverse landscape effects at the edge of Hataitai Park and the Town Belt where permanent earthworks, vegetation clearance and cut faces alter landform and landscape character. These effects reduce to moderate in the long term (10 years plus) with proposed native revegetation. Moderate effects occur along Ruahine Street and parts of Wellington Road where engineered surfaces and reduced vegetated buffers increase the dominance of transport infrastructure, reducing to low or very low effects toward Kilbirnie Park and Evans Bay.

Visual effects range from low to high, with high adverse visual effects at the edge of Hataitai Park and the Town Belt. Visual effects for adjoining residential properties along Ruahine Street range from moderate for properties at the northern end to low to moderate elsewhere along the corridor. Visual effects reduce eastward along Wellington Road and toward Evans Bay to very low or negligible levels reflecting the more readily integrated changes of works proposed at this end of the corridor.

6.4.4 Mitigation

The recommended mitigation measures focus on reducing the scale and visibility of adverse effects through design integration, landscape treatments, and urban form improvements. As identified in Table 30 below these include the use of high-quality architectural finishes for tunnel portals and retaining walls, extensive revegetation and slope grading to soften cut faces, and landscape planting to restore green buffers and screen infrastructure.

Streetscape enhancements, footpath widening and active mode improvements aim to maintain pedestrian comfort and connectivity. These measures will help integrate the large-scale transport infrastructure into sensitive urban and natural context, protect visual amenity, and uphold the character and functionality of surrounding neighbourhoods and public spaces.

NZTA proposes to implement these mitigation measures as recommended. Table 30 below summarises the actual and potential effects of the Project (excluding effects associated solely with the construction phase), outlines the proposed mitigation measures, and identifies the resulting overall level of effect following mitigation.

Table 30: Summary of visual, urban and landscape effects

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Terrace Tunnel	Adverse visual and urban form and landscape effects from new retaining walls	High	- Retaining walls to be of concrete construction, with a height, slope and form that is sympathetic to existing walls and integrates with the established character of this section of motorway - Indicative material finishes that match those of existing, a cohesive design with existing walls to be retained, and a comparable high degree of visual interest viewed up close	Further design development of retaining walls treatment, including height, form, materials and finishes and any integrated cultural design expression opportunities, to integrate with existing retaining walls and tunnel portals, achieve a high level of visual amenity, and recognise the central city gateway function	Low
	Adverse urban form and visual effects of new tunnel portals and visual disconnection between new and existing tunnel portals	Moderate	Tunnel portal design including scale and form that closely integrates with and relates to the existing tunnel portal	Further details to be provided as part of the Outline Plan/s on architectural treatment, materials and finishes of new tunnel portals, including any integrated cultural design to achieve a high level of visual amenity, in recognition of central city gateway function	Negligible
	Landscape effects and loss of visual amenity from earthworks and exposed cut slopes	High	Slope design enables planting and indicative areas of planting proposed to revegetate cut slopes to provide greenery	Design development to seek to reduce extent of permanently exposed cut slopes and shotcrete treatment and enable planted slopes as much as possible	Low to moderate
	Visual effects on adjoining residential properties (214, 216 [and 228] The Terrace)	High	Sufficient space and slope design to enable planting and provision of planted buffer areas at the boundary with adjoining residential properties	N/A	Moderate

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	Landscape and visual effects from vegetation removal at southern portal	Moderate	- Retention of as much vegetation as possible to minimise the adverse visual effects - Proposed replacement trees and planting within southern portal area to re-establish following completion of construction	Retain as many existing trees as possible; undertake early replacement planting for faster landscape and visual mitigation	Very low
	Visual amenity and CPTED effects of ancillary infrastructure	Low-Moderate to Very Low	- Located new tunnel control buildings within the existing designation adjacent to the highway to avoid or minimise adverse effects on the surrounding environment - Reduced the height of the southern Tunnel Control Building to lessen visual impacts - Screening of fire hydrant and water tanks to minimise visual effects - Not reinstating the Willis Street public access path, as it would traverse a confined area between the highway and operational land with poor passive surveillance, entrapment risk, and low visual amenity - Planted buffers and screening to reduce visibility of operational areas from public streets and	- Design development that demonstrates how visual impact of tanks is mitigated through screening, materiality or other measures, to address visibility from elevated viewpoints, including nearby bridges, tall buildings, and surrounding residential areas - Details of fencing and gate design through the Outline Plan(s), including heights, materials, and finishes, to minimise visual amenity and CPTED effects given the proximity of public spaces and overlooking from surrounding areas	Very Low - Negligible

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
			neighbouring properties, managing potential visual effects		
	Adverse urban form (connectivity) effects from removal of existing paths	Moderate	Reinstatement of public access pathway between Ghuznee Street and MacDonald Crescent	Further design development of reinstated pathway to address CPTED matters including planting and fencing design to support safe use	Negligible
	Adverse urban form and visual effects from alignment and design of Ghuznee Street replacement bridge	Low – Moderate	N/A	Further design development of bridge to refine alignment and geometry to align with street grid as much as possible to best reflect historical Ghuznee Street alignment through to The Terrace	Negligible
Te Aro	Adverse urban form and streetscape amenity effects from changes in kerblines to provide three travel lanes on Vivian Street	Very Low	- Kerb build outs and footpath extensions to all four street corners on Cuba Street (net enhancement to pedestrian amenity) - Reinstated heritage park bench on the northeastern corner - Modifications to the existing raised planter on the northeastern corner to increase pedestrian space at intersection	Investigate the potential for relocation of existing signal control box on northeastern corner to reduce streetscape clutter and maximise standing room for people waiting to cross	Negligible
	Adverse urban form and streetscape amenity effects from removal of existing verandahs	Moderate	- Maximised the width of reinstated verandahs within clearance requirements of new kerblines - Reinstated verandahs to re-use and/or match existing materials and finishes to maintain the built heritage and character values	Further details to be provided as part of the Outline Plan/s of the architectural treatment dimensions, materials and finishes of the reinstated verandahs to match existing, ensure pedestrian shelter is maintained and adverse effects on building form are avoided or minimised	Very Low

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
			Avoided impacts on verandahs and building canopies further along Vivian Street		
Basin Reserve	Hania and Ellice Street highway widening and side street access change effects on urban form and streetscape amenity	Low to moderate	Planting areas including trees to treat the permanent residual land, define the edge of the streetscape and provide buffering	N/A	Low
	Landscape effects from removal of notable English elm tree	Very low	Provision for replacement specimen tree in garden bed to natural ground in the vicinity of the notable tree	Replacement to be large grade specimen appropriate as mitigation for loss of notable tree	Negligible
	Dufferin and Rugby Street effects on streetscape amenity from access changes to support school pick up / drop off	Avoids	Access changed to one-way traffic flow to achieve a better spatial fit and integration at the street edges including increase in pedestrian space at Adelaide Road corner, and increased space for planted areas outside Government House and around to pedestrian crossing	N/A	Avoids
	Property acquisition and widened intersection at Adelaide Road resulting in urban form and visual effects from loss of street corner	High	Minimised permanent corridor widening on the western side of Adelaide Road to maximise future development opportunities, improve pedestrian amenity, align the western crossing with the Basin Reserve south gate, and enhance intersection design	N/A	Moderate

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
			Replaced the proposed landscaped corner treatment with hard-surfaced footpath space to support future development of adjoining residual land, improve corner activation, passive surveillance, and pedestrian amenity		
	Sussex Street corridor widening resulting in loss of land for redevelopment and curved corridor alignment	High (urban form effects)	- Reduced permanent corridor widening on the western side of Sussex Street to lessen urban form effects and increase the redevelopment potential of residual land - Provision for future redevelopment of residual land where site size, shape, and access from Tasman Street make development viable - Landscape mitigation where residual land is not suitable for redevelopment - Provision for low groundcover planting along the eastern streetscape to integrate road infrastructure, increase street greening, and reduce the visual dominance of hard infrastructure	Landscape treatments should seek to positively define the edge of the streetscape as well as visually screen the exposed boundary conditions of adjoining properties, while maintaining good sightlines and promoting passive surveillance to ensure planting does not create a potential CPTED risk in future	High (urban form) effects
	Urban form, visual and streetscape amenity effects. CPTED and activation issues along Sussex Street	Low to moderate (urban form and visual effects)	Provision of a footpath along the northern street edge to support pedestrian access and encourage activation of future redevelopment sites	Design and integrate the stair connection with the footpath environment to promote pedestrian movement, passive surveillance, and CPTED outcomes	Low to moderate urban form and visual effects.

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	extension through to Cambridge Terrace	Significant CPTED risks	• Provision of a stair connection to Pukeahu to integrate with the wider pedestrian network, encourage through-movement, improve passive surveillance, and reduce the potential for crime and anti-social behaviour • Locating bus stop on the southern side of the street extension to increase pedestrian activity and passive surveillance • Design of triangular 'dead corner' area on approach to underpass that mitigates high retaining walls and discourage people lingering in area that lacks activation and passive surveillance	• Maintain clear sightlines around stair planting to support passive surveillance and avoid creating CPTED risks	Low CPTED risks
	Urban form, landscape and visual effects of Sussex Street extension on Pukeahu National War Memorial Park	High	• Land bridge to mitigate the urban form and potential physical landscape effects as well as visual effects of the street extension cutting across the edge of the existing Pukeahu National War Memorial Park • Incorporate accessible ramped pathways and direct stair connections that integrate with and reflect the scale of the existing pedestrian network • Provide extensive tree and mass planting on the land bridge to reinforce its green space character	• Restore landscape to "like for like" condition for disturbed areas of Pukeahu	Positive effects

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
			and screen views of the adjacent underpass and state highway infrastructure		
	Adverse urban form, landscape and visual effects on Canal Reserve, Cambridge and at Kent Terraces and north entrance to Basin Reserve	High to moderate	- Aligning SH1 northbound lanes as far north as practicable to maximise plaza space at the Basin Reserve north gate - Provision for a straighter northbound SH1 alignment into the Arras Tunnel to integrate with Pukeahu Park, the land bridge, and the northwestern edge of the Basin Reserve - Locating north–south and east–west pedestrian crossings at the Canal Reserve termination to reinforce the Kent and Cambridge Terrace boulevard character and improve urban form - Wide active mode crossing between the north gate plaza and Canal Reserve to accommodate high pedestrian and cyclist demand - Straightening the Kent Terrace kerblines and traffic lane geometry to improve streetscape quality and expand open space contiguous with the Canal Reserve - Replacement tree planting within the extended Canal Reserve to mitigate the effects of the new	Design open space to balance through movement and gathering activities including through the extent and layout of hard and soft landscape treatments and the definition of active mode pathways, to mitigate potential conflicts between walking and cycling movements and public gathering within this space	Low to moderate

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
			intersection and the loss of mature trees over time		
Mt Victoria Tunnel	Urban form and visual effects of reinstated Paterson Street and residual land	Moderate to high	- Relocate the tunnel control building and ancillary infrastructure to avoid adverse urban form and residential amenity effects - Minimise permanent corridor widening and land take by providing a narrow one-way Paterson Street and maximising residual land available for redevelopment - Align reinstated Paterson Street with the Mt Victoria street grid to maintain consistency with neighbourhood character - Remove the proposed berm on the northern side of Paterson Street to keep the street narrow, retain historic streetscape character, and maximise redevelopment potential - Provide for redevelopment of residual land, including relocated heritage buildings and new development, to create a continuous built frontage along the northern side of Paterson Street	- Retain existing mature trees where possible - Landscape design around relocated heritage buildings to form defined front, side, and rear yards to all three relocated heritage buildings to ensure they continue to present a residential character to the neighbourhood irrespective of future use - Allocate residual land that does not have sufficient depth to support future built form into the curtilage of relocated houses, to reinforce residential character, rather than be developed as a standalone landscape area within the road reserve with no purpose or mitigation function	Low

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	Western Portal and Paterson Street retaining wall - Visual dominance of retaining walls	Moderate	- Design the tunnel portal to integrate with the existing portal through a compatible scale, form, and appearance - Provide a near-vertical concrete retaining wall that reflects the natural hillside gradient and integrates with the established character of the southern edge of the Mt Victoria neighbourhood	Develop the tunnel portals and retaining walls using materials, finishes, and cultural design elements that integrate with existing portals, enhance visual amenity, and reinforce the site's central city gateway function	Low
	Western Portal Visual effects (tunnel control building and ancillary infrastructure)	Moderate to high	- Bury tanks beneath the highway to avoid adverse visual effects - Relocate and lower the height of the tunnel control building to avoid adverse effects on adjoining residential properties and reduce visual impact - Provide mitigation planting and landscape screening around the tunnel control building and hardstand areas to buffer views from public streets, neighbouring properties, and the state highway	All required fencing and gates to operational areas, including heights, materials and finishes to manage the potential for adverse visual amenity and CPTED effects noting the proximity of publicly accessible areas and visual prominence of this location directly above the tunnel portal	Very low
	Eastern Portal and Retaining Wall- Visual and landscape effects of tunnel portal and retaining walls	High	- Tunnel portal design including scale and form that closely integrates with and relates to the existing tunnel portal - Retaining wall to be of concrete construction, with a slope and form that is close to vertical, with	Design development of tunnel portals and retaining wall, including materials and finishes and any integrated cultural design expression opportunities, to integrate with existing portals, achieve a high level of visual amenity and recognise the central city gateway function	Low to moderate

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
			height, and materials to tie in with the tunnel portal		
	Eastern Portal - landscape and visual effects of exposed cut faces		- Above the base retaining wall, cut slopes and landscape treatment to maximise revegetation, using hydroseeding and shotcrete only where planting is not practicable - Grading upper slopes as gently as practicable to integrate with existing landform and maximise opportunities for tree and shrub planting - Reinstating a continuous vegetated ridgeline character to reduce permanent landscape and visual effects and maintain a green interface with adjoining residential properties	Further design development to seek to reduce extent of shotcrete and prioritise greening solutions, to address visual amenity in recognition of the central city gateway function	
	Eastern Portal – Visual effects of ancillary infrastructure.	Very low	- Relocated the tunnel control building outside the elevated Town Belt to avoid adverse effects on Town Belt character and visual amenity - Co-located tank storage with the replacement public toilet block to reduce the visual clutter of ancillary buildings and infrastructure along Taurima Street	Architectural form and treatment of ancillary buildings, and any required fencing and gating to address visual amenity and CPTED considerations recognising these adjoin a prominent street accessway into Hataitai	Negligible

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
			- Reinstated public access to the Town Belt via a replacement path - Landscape planting to screen and buffer operational buildings from adjoining properties while ensuring the tunnel control building and toilet block front and address Taurima Street and the active mode path		
Eastern connections	Visual effects of replacement Hataitai active modes bridge	Low-moderate	- Retaining the overbridge in its existing general location to maintain a clear and legible pedestrian connection between Hataitai Park, Taurima Street, Hataitai town centre, and Ruahine Street - Extensive tree and landscape planting around the ramp and stair approaches to integrate the overbridge into the surrounding landscape and reduce visual effects	- Develop the bridge architecture, structure, materials, finishes, and cultural design elements to achieve a high level of visual amenity, integrate with its setting, and reinforce the central city gateway function - Incorporate CPTED principles into the bridge design by providing clear sightlines and opportunities for passive surveillance	Negligible
	Visual effects on adjoining properties from Taurima Street to Wellington Road intersection from highway works, including loss of existing open space buffer and visual screening afforded by	Varies from low to moderate-high, depending on location	- Provision for landscape buffers where space allows including at property boundary interface on the straight of Ruahine Street through to corner - Provision for large trees where space allows on permanent residual land around corner with Wellington Road	Provide opportunities for planting at property boundary interfaces including vertical greening, and, where applicable, retaining wall interfaces between the edge of the highway and access lanes, to mitigate adverse visual effects	Very low to low to moderate

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	the mature pohutukawa trees, and adverse visual effects, and potential shading effects, from corridor widening				
	Hataitai Park landscape and visual effects of earthworks, vegetation clearance, new access roads, bridge and associated retaining and cut slopes	High, reducing to moderate after 10 years	Cut slope design to provide for planting as visual mitigation where practicable without incurring increased land take and physical landscape effects on the Town Belt	- Further design development to seek to increase the areas of planting and provision for large trees along the edge of the park entrance roads - Bridge abutment and retaining wall materials and finishes, including any incorporated cultural design expression opportunities, to ensure the detailed design achieves a high level of visual amenity, in recognition of Town Belt entry and central city gateway functions	High to moderate, reducing to low to very low after 10 years
	Visual effects of new bridge structure on adjoining properties	Moderate	Provide for landscape planting zone at boundary of new road reserve to provide screening and manage the potential for adverse visual effects on adjoining property	Details of final proposed levels, retaining walls and fencing as well as landscape mitigation planting at or near the boundary interface with adjoining properties, to seek to reduce adverse visual effects on adjoining properties wherever practicable	Low to moderate

Location	Effect	Level of effect (unmitigated)	Mitigation measures incorporated into consent design	Additional mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	Adverse effects on urban form from the loss of the residential properties on southern side of Wellington Road between Kilbirnie Park and the Town Belt, and associated widening of highway	Moderate-high	Creation of landscape buffer strip to edge of widened highway to rear boundary interface with Henry Street properties and green space network link	Design development to determine extent of any public access pathways to be provided within green space buffer, taking account of CPTED considerations	Low
	Adverse landscape and visual effects on Kilbirnie Park	Low-moderate	Addressed level change with retaining wall hard to widened road reserve to edge of footpath to minimise intrusion into playing fields	Balustrade to top of retaining wall at park edge to be visually porous, to avoid adverse visual effects and ensure sightlines between park and road edge including passive surveillance	Low
	Adverse natural character and visual effects on reserve and foreshore from Evans Bay stormwater outfall	High	- Minimised extent of intrusion of new outfall structure on foreshore and CMA - Reinstatement of disturbed areas of foreshore reserve	Reinstate 'like for like' landscape treatment of disturbed areas of foreshore reserve	Very low

6.4.5 Residual effects

Even with mitigation, some residual effects will remain. These include permanent changes to urban form where property acquisition and corridor widening creates voids or reduces spatial definition, particularly at Adelaide Road and Sussex Street.

Landscape character will be altered in areas of the Town Belt and Canal Reserve due to unavoidable vegetation loss and exposed cut faces, although these impacts will lessen over time as planting matures.

Visual effects will persist for up-close viewing audiences at the tunnel portals and major intersections, and CPTED risks may remain in areas with limited activation ahead of redevelopment of residual land, despite proposed design responses.

Overall, residual effects range from low to moderate in most locations but remain high in two locations, where fundamental changes to street grid and land use patterns cannot be fully mitigated (Sussex Street and Hataitai Park, however, for Hataitai Park, those effects will reduce to low to very low 10 years following construction).

6.4.6 Summary

Overall, the Project will have a range of positive effects in several locations across the Project area. It delivers city-shaping benefits through improved active mode connectivity, enhanced public spaces, and expanded green networks, particularly around the Basin Reserve and Pukeahu.

However, the Project will also result in some unavoidable adverse impacts on urban form, landscape, and visual amenity in sensitive areas such as the streets surrounding the Basin Reserve, and the Town Belt at Hataitai. While mitigation measures will reduce many impacts, and some permanent adverse effects will reduce over time, some residual effects, especially changes to street patterns and built form definition on Sussex Street, and landscape character on the edge of the Town Belt at Hataitai Park, will remain, but are overall at an acceptable level.

6.5 Historic heritage effects

6.5.1 Introduction and assessment methodology

This section summarises the findings of Technical Report #8 (Historic Heritage Assessment). The report provides an assessment of the effects that the Project is likely to have on the Project area and receiving environments, in relation to historic heritage.

The assessment methodology used for the Historic Heritage Assessment included desktop analysis and site visits. The assessment has regard to the RPS and District Plan planning context, NZTA publications / guidance documents, and established heritage industry best practice models / management guidance.

Previous reports on the Basin Bridge Proposal and the Let's Get Wellington Moving (LGWM) initiative were also reviewed, and the scope and approach were informed by the Basin Bridge Board of Inquiry (2014) decision. The process considered planning context, statutory requirements, and heritage management models.

A thematic values-based approach was used to evaluate both historic landscapes and individual heritage sites, applying a systematic framework to analyse impacts, scale, duration, and mitigation strategies. Area-wide and site-specific heritage significance was addressed, supporting robust recommendations for managing change.

6.5.2 Existing environment

The five sections of the Project each have distinct historic and socio-cultural landscape values. The Terrace Tunnel features Victorian and Edwardian villas, corporate and government buildings, and mixed-use areas reflecting its colonial and educational history. The Terrace Tunnel itself also shapes the landscape but is experienced separately from the historic streetscape above it.

Te Aro is notable for its multicultural heritage, working-class roots, and social significance, particularly the Cuba Street Heritage Area including the Cuba / Vivian Street intersection and individual scheduled buildings along Vivian Street.

The Basin Reserve is a key city landmark, shaped by events like the 1855 earthquake and linked to sports, religious and social services, and commemorative institutions, with important physical anchors such as the Basin Reserve itself, Canal Reserve, Pukeahu Park, Government House and pōhutukawa trees.

The Mt Victoria Tunnel area, in particular Paterson Street and its surrounds, is defined by historic settlement patterns, educational institutions, and the 1931 tunnel. The tunnel enabled establishment of the Eastern Suburbs and continues to define movement through the area.

The Eastern Connections (Hataitai) is shaped by its geography and early rural and transport history, with cohesive early twentieth century housing, prominent sports and recreation areas, and notable features like pōhutukawa trees and the Park Mews apartments by Roger Walker.

6.5.3 Historic heritage effects

The Project design responds to heritage issues by firstly identifying and retaining many significant historic heritage attributes within the Project area, and secondly, by providing some key benefits related to historic heritage (material/physical and visual/connections). In particular, the extension of Pukeahu Park is assessed as a notable heritage benefit, which will reconnect Pukeahu Park, Basin Reserve and Canal Reserve. The Project design also identifies and mitigates adverse effects on historic heritage values where they arise.

Most historic heritage effects relate to permanent effects resulting from the construction of the Project and its permanent footprint. As such, unless an identified effect is specifically noted as temporary (i.e. only associated with construction), the historic heritage effects are considered permanent.

The effects assessment considers the adverse effects on identified heritage values (historical landscape values and individual place values) and the scale of the identified impacts.

Without mitigation, the Project has potential to cause some high adverse effects on historic heritage values of the Project area.

The main issues from a historic heritage perspective are:

- Severance of the Cuba Street Heritage Area
- Streetscape modifications at the Cuba / Vivian Street intersection, including verandah cutbacks on Vivian Street
- Historical and contextual impacts from the Home of Compassion Crèche relocation, as well as functional challenges with siting
- Severance and distortion effects of the Basin / Canal Reserve intersection, including loss of Polskie Dzieci Square and historic trees
- Full loss of the existing historical residential Paterson Street, including the relocation of two scheduled heritage houses at 19 Paterson Street and 140 Austin Street and the historically significant Laureston building
- Removal of historic pōhutukawa trees along Taurima and Ruahine Streets

Other heritage effects and potential effects will arise also, which are outlined in Table 31 below.

6.5.4 Mitigation

The severity of effects on historic heritage values within the Project area is expected to be reduced through the implementation of mitigation measures during both construction and operation, as summarised in Table 31 below. Technical Report #8 identifies that the majority of recommended mitigation measures are already incorporated into the Project design which have been relied upon for this assessment of effects. In addition, the assessment identifies additional mitigation opportunities that are not incorporated into the Project and have not been relied upon by the specialist in the assessment of effects, so are not discussed further here.

NZTA proposes to implement the mitigation measures incorporated into the Project design that are summarised in Table 31, which collectively seek to avoid, remedy or mitigate adverse effects on historic heritage values, buildings, structures, landscapes and features.

Table 31 summarises the actual and potential historic heritage effects, together with the corresponding mitigation measures and the anticipated residual level of effect following implementation of those measures.

Table 31: Summary of potential historic heritage effects of the Project subject to recommended mitigation measures

Location	Effect to be mitigated	Scale of effect without mitigation	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Terrace Tunnel	Potential physical impacts from construction, vibration etc during construction works in the vicinity of Franconia (District Plan #452) and Shell House (District Plan #291), below at the Rosina Fell Lane car park	Potential high	Heritage Standard Management Protocol	Negligible
	Potential physical impacts from construction, vibration etc relating to: Soil anchors at the following locations: - Within the property boundaries of 214 The Terrace (District Plan #296) and 216 The Terrace (not scheduled) - Near to the western boundaries of 192 (District Plan #294), 202, 206, 208, 212 The Terrace Construction works including cut slopes along rear boundaries from 186-226 The Terrace A construction working area abutting the rear of 208. 212 and 214 The Terrace	Potential high		Negligible
	Reduction of backyard of 214 The Terrace (District Plan #296) and 216 The Terrace due to cutting required for Tunnel. Shotcrete facing in very close proximity to northeastern property boundaries. Removal of vegetation and reduction of extent of current bush backdrop from full length of 186 - 226 The Terrace	Moderate	Revegetate per the Indicative Landscape Plans, from Boulcott Street to the 'Woof Woof Ruff' dog exercise park above the tunnels with indigenous erosion control vegetation. Maintain connection from Terrace properties to the dog exercise park and beyond to Kumutoto Forest	Moderate
	Excavation for the new parallel Terrace Tunnel below properties from 216 The Terrace to south of MacDonald Crescent, directly or in close	Potential high	Heritage Standard Management Protocol	Negligible

Location	Effect to be mitigated	Scale of effect without mitigation	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	proximity to 230 The Terrace (District Plan #298), 236 The Terrace (HNZPT covenant), 244 The Terrace (District Plan #300), 258 The Terrace (District Plan #301), 274 and 276 The Terrace (District Plan #302), in the root zone of Notable Tree 1 (255 The Terrace), 143 Dixon Street (District Plan #249) and the Dixon Street Steps (District Plan Heritage Area 3)			
Te Aro	Severance of the Cuba Street Heritage Area by three-lane SH1 at Vivian / Cuba Street intersection	High	• Enlarge pedestrian footpath space at the Cuba / Vivian Street intersection, remove turns into Cuba Street from SH1 to enhance pedestrian experience, as per the Indicative Landscape Plans • Intersection streetscape shall be subject to further detail at Outline Plan stage via a ULDMP	Moderate
	Temporary removal, modification (narrowing) and reinstatement of verandahs along Vivian Street to accommodate SH1 corridor widening, including scheduled buildings at 191-195 Cuba Street (Patrick's Building, District Plan #87), 197-199 Cuba Street (Morgan's Buildings, District Plan #89.1), and 105-107 Vivian Street (District Plan #320)	High	• Remove, restore and reinstate existing verandahs on affected buildings, with minimal modifications to original designs (as per the Vivian Street Verandah Plans) • Verandah modifications shall be subject to further detail at Outline Plan stage, including engagement of suitably qualified persons to undertake architectural design and detailing in accordance with each verandah's original appearance, as well as temporary removal and modified reinstatement	Low
	Streetscape modifications at the Vivian / Cuba Street intersections, requiring the relocation of the Chrissy Witoko and Carmen Rupe memorial benches and Chrissy Witoko crossing lights	Potential high	• Remove benches from site and store in a secure weathertight location. Return benches post-construction and rededicate in consultation with connected whānau and communities. Retain and reactivate the Chrissy Witoko crossing lights on Cuba Street	Negligible

Location	Effect to be mitigated	Scale of effect without mitigation	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	Potential for further severance of the Cuba Street Heritage Area and heritage buildings on Karo Drive and Arthur Street by additional traffic on northbound SH1	Low	As per Project design, remove turns into Cuba Street (northbound and southbound) from SH1 Arthur Street westbound to enhance pedestrian priority within the heritage area	Low
Basin Reserve	General works in the immediate vicinity of the Basin Reserve itself	Low	Heritage Standard Management Protocol	Low
	Relocation of Home of Compassion Crèche within Pukeahu Park	High / moderate	- Relocate Crèche building within Pukeahu Park and retain original north-south orientation. Prepare a Conservation Plan and Heritage Management Plan at Outline Plan stage, including engagement of suitably qualified persons for building/site recording, discovery and incident management (noting that the building / site has been previously archaeologically addressed); methods for long term removal, storage and protection, relocation methodology, and architectural reinstatement design, detailing and landscape approach - Improve building interpretation re its links with the Catholic Church, Mother Suzanne Aubert and the ongoing work of the Sisters of Compassion	Low
	Change of SH 1 configuration within the Canal Reserve, including the curved vehicular connection from Sussex Street into Kent Terrace, segmenting Polskie Dzieci Square, and removal of four mature trees including one pōhutukawa and three exotic deciduous	High	- Remove the Polskie Dzieci memorial from site and store in secure weathertight location. Relocate and rededicate post-works, in an agreed location in consultation with Polish community - Maintain strong visual continuity and active mobility from the Basin to the Canal Reserve via linear walking/cycling path and use surface treatment at path/road intersections to highlight the importance of these junctions and active mode locations Replant in the modified southern portion of the Canal Reserve in	Moderate

Location	Effect to be mitigated	Scale of effect without mitigation	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
			conjunction with the rain garden, as per Indicative Landscape Plans The Canal Reserve will be subject to further detail at Outline Plan stage via a ULDMP	
	Roadworks in Sussex Street directly adjacent to the Basin Reserve Museum Stand, which may cause damage, ground settlement or increased loading, plus temporary closure of the Museum during construction	Potential very high	- Undertake a pre-condition survey and ongoing monitoring for the Project duration and in following years. Create an exclusion zone for heavy vehicles and large compaction equipment, plus Heritage Standard Management Protocol - Maintain reasonable access to the Museum as much as practicable through the Project works, in partnership with the New Zealand Cricket Museum and Basin Reserve Trust	Low
	Roadworks in the immediate vicinity of the Basin Reserve's perimeter ring of pōhutukawa, which may cause damage to this treescape	Potential high	Heritage Standard Management Protocol	Negligible
	Reconfigured road layout on Dufferin Street, including works within the immediate vicinity of the historic entrance to Government House and Wellington College - potential damage to the brick walls and gates at Government House and St Mark's School	Potential high	Heritage Standard Management Protocol for brick walls and gates for the duration of the Project works	Negligible
	Sussex Street – complete demolition of the western side to allow for SH1 modifications, including demolition of three pre-1900s houses.	Moderate	Undertake archaeological recording and monitoring in accordance with Project's archaeological assessment	Moderate
	Widened intersection at the Rugby Street / Adelaide Road, including demolition of a pre-1900s shop/house			

Location	Effect to be mitigated	Scale of effect without mitigation	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Mt Victoria Tunnel	Loss of existing Paterson Street for second tunnel and construction of new Paterson Street access lane to reduced number of properties on northern side above the tunnel Demolition of 10 houses including the full length of Paterson Street (excepting relocations), 145-151 Brougham Street and 142 Austin Street. Removal and relocation of the Wellington East Girls' College Gates and 3 historic houses – 140 Austin Street (District Plan #474), Ettrick House at 19 Paterson Street (District Plan #18) and Laureston House at 7 Paterson Street	High	- Retain and relocate 140 Austin Street, 19 Paterson Street (Ettrick), and 7 Paterson Street (Laureston – the remaining 1868 portion only). Revegetate around relocated buildings with indigenous groundcover. Retain and relocate the Wellington East Girls' College gates to front the school's main entrance. The new Paterson Street landscape shall be subject to further detail at Outline Plan stage via a ULDMP - Prepare a Conservation Plan and Heritage Management Plan for each relocated building and the Wellington East Girls' College gates at Outline Plan stage, including engagement of suitably qualified persons for building/site recording, discovery and incident management; architectural reinstatement design and detailing; long-term removal, storage and protection; relocation processes and monitoring	Moderate
Eastern Connections	Extensive removal of mature pōhutukawa trees and other vegetation at the Taurima / Ruahine Street intersection to enable new tunnel and other SH1 changes	High	Revegetate with indigenous broadleaf forest, allowing for species that will create substantial canopy over time, as shown in the Indicative Landscape Plans. Landscape detailing shall be subject to further detail at Outline Plan stage via a ULDMP	Low

Location	Effect to be mitigated	Scale of effect without mitigation	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	Project works including cut slopes and embankments on Ruahine Street, directly adjacent to Park Mews (62 Moxham Avenue)	Potential high	- Heritage Standard Management Protocol - Replant embankment with indigenous groundcover – retaining visibility between Park Mews, Town Belt and SH1 (as shown on Indicative Landscape Plans) - Provide a ramped pedestrian access from Tapiri Street to Ruahine Street	Low
	Project works in the vicinity of the Second World War memorial within the Town Belt (north of the Badminton Wellington Centre on Ruahine Street)	Potential high	Heritage Standard Management Protocol (particularly impact protection and exclusion zone)	Low
	Full demolition of all houses on the south side of Wellington Road (from Ruahine Street to Kilbirnie Crescent) and on the Ruahine Street / Wellington Road corner on the north side, and at two other locations on Ruahine Street to enable widened SH1	Moderate	Create new linear park along Wellington Road, per the Indicative Landscape Plans	Moderate
	Demolition of the house at 39 Wellington Road as part of SH1 widening	Moderate	None, but a mitigation opportunity was identified in the specialist report	Moderate.
	Demolition of (1) the Badminton Wellington Centre within the Town Belt and (2) Kilbirnie Park Sport Pavilion within Kilbirnie Park, to make way for SH1 widening	Moderate	The specialist report notes that NZTA is progressing discussions regarding alternative locations with WCC and lessees and that if an alternative location is agreed, this would reduce the level of effect further	Moderate

Location	Effect to be mitigated	Scale of effect without mitigation	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	Removal of mature pōhutukawa trees and other vegetation along the modified SH1 route, particularly at the Ruahine Street / Wellington Road intersection	Moderate	Retain existing trees along Ruahine Street where the land is not required for construction activity. Retain tree coverage at the intersection of Ruahine Street and Wellington Road. Replant along the new SH1 configuration, within the Town Belt and new linear park as shown on Indicative Landscape Plans, including with indigenous broadleaf forest	Low
	Construction of the Hataitai Connection bridge, a grade-separated local road connection across SH1 to the Town Belt, south of Goa Street and in proximity of the brick boundary walls of All Saints Church at 90 Hamilton Road (District Plan #220)	Moderate	Heritage Standard Management Protocol for the church's brick walls on Moxham Avenue	Low

6.5.5 Residual effects

The Historic Heritage Assessment considered residual effects based on incorporation of all recommended mitigations. With the implementation of the recommended mitigation measures, the majority of the residual historic heritage effects of the Project will be low, except for effects identified in the above table as having moderate post-mitigation effects.

6.5.6 Summary

The Project has potential to cause some high adverse effects on historic heritage values, however, the mitigation measures proposed present opportunities to reduce these impacts such that heritage values are largely retained. In addition, the Project has potential to provide some benefits related to historic heritage. Overall, it is considered that the Project has appropriately provided for historic heritage values.

6.6 Archaeological effects

6.6.1 Introduction and assessment methodology

This following section summarises the findings of Technical Report #9 (Archaeological Assessment) which describes the archaeological values associated with the Project area and assesses the effects of the Project.

The assessment was undertaken using the guidance of HNZPT's guidelines for writing archaeological assessments. The assessment involved researching the area's history to identify possible site types, reviewing previous archaeological investigations, undertaking a site visit to assess the possibility of unrecorded sites, evaluating known and potential sites using HNZPT guidelines, and identifying options for mitigation.

Data for the assessment was gathered from a range of sources, including the ArchSite database for recorded archaeological sites, statutory heritage lists such as HNZPT's Rarangi Kōrero, the District Plan, and key published historical texts about Wellington. Additional information was drawn from historical photographs in the Alexander Turnbull Library, previous archaeological assessments and investigations, including major roading projects like the Wellington Inner City Bypass and Pukeahu, and historic maps and survey plans held by Land Information New Zealand. Notably, Thomas Ward's late 19th-century city surveys provided detailed records of buildings and street layouts in Wellington's inner city.

6.6.2 Existing environment

The Project area encompasses a diverse range of recorded and potential archaeological sites. In Te Aro, numerous sites along Vivian Street reflect historic domestic and commercial occupation, including remnants of 19th-century buildings, wells, brick drains, and artefacts. While many original structures have been replaced by modern buildings, some archaeological fabric may persist, particularly in less disturbed parcels. The Basin Reserve and Mt Victoria sections of the Project area feature sites of significant historical value, such as early residential buildings, the Home of Compassion Crèche, and rare wooden cobbles. These sites collectively illustrate Wellington's urban growth, infrastructure development, and changing social landscape. In the Eastern Connections section of the Project, there is much lower potential for archaeological sites, with the Kilbirnie Hotel site standing out for its potential subsurface remains.

Overall, the Project area's archaeological landscape has been heavily modified, mainly due to Wellington City's development throughout the 19th and 20th centuries. Whilst there was substantial Māori occupation of the Project area and wider region, there is a low probability of pre-contact Māori archaeological sites remaining in the area due to probable destruction by subsequent urban development.

6.6.3 Archaeological effects

Project activities during the construction phase have the potential to modify or destroy archaeological sites, including pre-1900 structures, drains and subsurface features; there are no adverse effects from operation. Any work that may affect known or suspected archaeological sites requires an archaeological authority under the Heritage New Zealand Pouhere Taonga Act 2014, which in this case is being sought as a concurrent application through the FTAA pathway.

The Archaeological Assessment states that the potential cumulative effects of these works involve loss or disturbance of archaeological fabric during earthworks or demolition. The cumulative effect is of a moderate adverse scale as none of the sites (except Laureston and the Crèche) are considered to hold greater than local significance. Laureston is recognised as having regional significance and the Crèche is recognised as having national significance; both of these buildings will be retained by the Project.

Construction along Vivian Street and Kent/Cambridge Terrace may disturb shallow archaeological features such as historic rubbish pits, drains, house piles, and garden elements. While most pre-1900 buildings have been demolished, one pre-1900s Victorian building at 134–138 Vivian Street is standing but is avoided by the Project. Brick barrel drains and other historic infrastructure are present but are unlikely to be impacted due to shallow Project excavation depths.

Works around the Basin Reserve and through Mt Victoria will result in the demolition of several pre-1900 houses on Sussex Street, Adelaide Road and Brougham Street. However, pre-1900 buildings with particular value will be retained and relocated/repositioned as part of the Project works. This includes Ettrick Cottage, an 1870s cottage, which has already been moved once and which will be relocated to a new location on the reformed Paterson Street. Also, the Home of Compassion Crèche, which has already been moved once, will be repositioned to a new position within Pukeahu Park. The Project will also impact on Laureston, a house built in 1869, located at 7 Paterson Street. Laureston house stood alone on Town Acre 673 for over 30 years following its construction and is much older than other buildings in the Paterson Street area, and has considerable significant historical associations with Mt Victoria and Wellington. This house will be repositioned on the same land parcel by the Project, therefore the main adverse effect arises from earthworks at this site, rather than from direct effects on the house itself.

Earthworks may disturb domestic archaeological deposits beneath Sussex and Paterson Streets, and historic features such as wooden cobbles and brick drains could be exposed during construction.

Road widening along Ruahine Street and Wellington Road poses a lower archaeological risk, as this eastern part of the city was developed after 1900. However, the former Kilbirnie Hotel site may contain subsurface features such as cellars, foundations, and rubbish pits that could be destroyed during earthworks.

6.6.4 Mitigation

Technical Report #9 recommends several mitigation measures to manage adverse effects on archaeological values. These include monitoring during Project earthworks to record, recover and analyse in-situ archaeological features and materials, installing archaeological interpretation where practicable (including storyboards, artefact displays, and the use of historic photographs and maps), and reinstating some pre-1900 buildings with particular values, (i.e. Ettrick Cottage, the Crèche and Laureston House) following construction to retain aspects of archaeological and historical value.

NZTA proposes to implement these mitigation measures as recommended. Collectively, these measures are expected to reduce the severity of effects on archaeological values within the Project area through avoidance, mitigation, and remediation during construction.

Table 32 summarises the actual and potential effects of the Project, and the recommended mitigation measures proposed to be implemented by NZTA and identifies the overall level of effect following mitigation.

Table 32: Summary of archaeological effects and overall level of effect post-mitigation

Location	Known and potential archaeological features	Effect	Level of effect (unmitigated)	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Construction effects					
Te Aro	Potential in-ground archaeology on Vivian Street	Any feature present likely to be shallow and will be destroyed by construction work	High	Monitor construction earthworks, investigate, record and analyse revealed features	Moderate
Basin Reserve	• 2 Adelaide Road • 30 Sussex Street • 46 Sussex Street • 48 Sussex Street	Demolition of houses / buildings	High	Record interior and exterior of house to level 2 of HNZPT buildings recording standard. Monitor cleared site after house removal, investigate, and analyse any revealed features	Moderate
	Potential in-ground archaeology on Sussex Street beneath demolished buildings	Earthworks likely to reveal and destroy in-ground archaeological features such as domestic rubbish pits, piles, drains	High	Monitor earthworks for presence of archaeological sites and features associated with prior buildings on site, investigate, record and analyse revealed features	Moderate
	Home of Compassion Crèche building only (noting it is already moved from its original location)	Relocation of houses / buildings	Negligible	No archaeological monitoring is required for the relocation as the area has already been substantially modified for construction of Arras tunnel approach Review on-site interpretation to tell the story of the Crèche, its association with social services and community, and with the “Catholic Precinct”	Negligible

Location	Known and potential archaeological features	Effect	Level of effect (unmitigated)	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	Wooden cobbles, corner Dufferin and Rugby Streets	Earthworks likely to reveal and destroy cobblestones present within area of work	High	Monitor earthworks for presence of insitu cobbles, and either record and remove, or leave insitu if possible	Moderate
Mt Victoria	- Laureston, 7 Paterson Street - Ettrick Cottage, 19 Paterson Street	Relocation and reinstatement of buildings / houses	High	After Laureston house removal, monitor earthworks on the site and investigate, record and analyse any features found. Reinststate the house north of its current location, as per Indicative Landscape Plans, to maintain connections to Mt Victoria and the Catholic Precinct Interpretation opportunity to share the history of Mt Victoria's changing social and economic landscape After Ettrick Cottage house removal, monitor the site for signs of prior occupation (not Ettrick Cottage, as it has already been relocated). Reinststate the house near its original site (corner of realigned Paterson and Brougham Streets) to maintain its connection to Mt Victoria	Moderate
	145 Brougham Street 147 Brougham Street	Demolition of houses / buildings	High	Record interior and exterior of house to level 2 of HNZPT buildings recording standard. Monitor cleared site after house removal, investigate,	Moderate

Location	Known and potential archaeological features	Effect	Level of effect (unmitigated)	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
				record and analyse any revealed features	
	Potential in-ground archaeology on Paterson Street within footprints and in sites of relocated buildings	Earthworks likely to reveal and destroy in-ground archaeological features such as domestic rubbish pits, piles, drains	High	Monitor earthworks for presence of archaeological sites and features associated with prior buildings on site, investigate, record and analyse any revealed features	Moderate
Eastern Connections	Kilbirnie Hotel site	Earthworks may reveal in-ground remains of hotel including basement and cellar, piles, domestic rubbish pits, and rubbish deposits	High	Monitor earthworks for presence of subsurface cellars, rubbish pits, foundations, piles, drainage pipes, investigate, record and analyse any revealed features Opportunity for interpretation on site, such as storyboards about the history of the hotel, growth of the eastern suburbs, and the need for social facilities	Moderate

6.6.5 Summary

The Archaeological Assessment has confirmed there are several known and probable archaeological sites, including buildings, in-ground brick barrel drains, wooden cobbles, and other potential sites, that may be impacted by the Project. These sites can offer insights into Wellington City's development, resource use, social needs, and infrastructure changes over time. While most sites are considered only locally significant, the Laureston building stands out for its regional significance due to its pre-1900 historical associations with notable individuals and the 'Catholic Precinct' near the Basin Reserve, and the Crèche is recognised as having national significance.

Mitigation is recommended and provided for in the proposed conditions of the archaeological authorities which are sought for the Project (refer Part C of the application). These conditions include the requirement to carry out the Project works in accordance with an archaeological management plan, which has also been prepared and provided with the application. With these mitigation measures, the overall adverse effects on archaeology are assessed as moderate, while the specialist also notes that there may be some positive effects, given the new information that may come to light as these sites are uncovered and researched through the Project works.

6.7 Ecology - Terrestrial effects

6.7.1 Introduction and assessment methodology

The following section summarises the findings of Technical Report #10 (Terrestrial Ecology Assessment) which describes the ecological values associated with terrestrial environments across the Project area and assesses the effects of the Project on them. It includes recommendations to avoid, remedy, and mitigate effects on ecological values, and proposed offsets / compensation measures for residual effects.

The assessment methodology for the report includes desktop analysis, field work and modelling.

Desktop analysis included the review of publicly available databases and GIS layers from GWRC and WCC as well as other key sources of information. Field surveys for the assessment included vascular plant surveys, habitat assessments, and vegetation mapping using aerial imagery. Avifauna were recorded through visual and auditory observations. Lizard surveys included spotlighting, tracking tunnels, and habitat mapping. Bat surveys were not undertaken due to the absence of recorded bats within 25 km of the site.

Biodiversity offsetting and accounting models were used to quantify restoration and offset requirements associated with residual vegetation loss and habitat impacts.

The assessment followed the Ecological Impact Assessment Guidelines 2018 (EcIA Guidelines) framework to evaluate ecological values, magnitude of effects, and overall level of effect.

6.7.2 Existing ecological value

The Project largely traverses a densely developed urban environment; the ecological assessment has focused on the relatively few areas of higher ecological value.

The terrestrial vegetation survey undertaken across the Project showed a mix of vegetation species including regenerating broadleaf forest, mixed indigenous and exotic forest, low stature vegetation, private gardens, and indigenous and exotic specimen trees within or adjacent to the project area.

The Terrestrial Ecology Assessment identified that the vegetation with the highest ecological values is located at the eastern end of the Mt Victoria Tunnel and consists of regenerating broadleaf forest providing for high-quality habitats for indigenous birds and lizards. This area is also contiguous with the Wellington Town Belt which features diverse indigenous vegetation species, with mixed indigenous-exotic forest and scrub and indigenous specimen trees being characterised by moderate ecological value. The Terrace Tunnel area features mixed indigenous and exotic forests and scrub with limited connectivity and a dominance of exotic species with low ecological value. Large indigenous specimen trees in Te Aro have been assigned a moderate ecological value due to the provision of foraging habitat for nectivorous bird species and general ecosystem services. The Basin Reserve has indigenous specimen trees and low-stature vegetation with limited habitat connectivity and is subject to recent disturbance resulting in low to moderate ecological value.

All other areas, such as private gardens, were identified as having low ecological value.

Nine nationally 'At Risk' indigenous plant species were identified in the desktop assessment within the Town Belt, with three confirmed as present within the Project area during site surveys.

Overall, seventeen bird species with a national conservation status of 'Threatened', 31 'At Risk', and 24 'Not Threatened' bird species have been recorded via databases within 10 km of the Project. One copper skink has been detected in surveys at the Mt Victoria Tunnel Project area, and one skink (likely a Northern grass skink) has been detected at the Evans Bay stormwater outfall. A total of seven lizard species have been assessed as potentially present within the Project area, the author of the Terrestrial Ecology Assessment conservatively estimates that the combined population of indigenous lizards within the works footprint could be between 20-100 individuals.

6.7.3 Terrestrial ecological effects

Potential terrestrial ecology effects relate primarily to works within the Town Belt, which supports native birds, lizards, and indigenous vegetation. These habitats provide biodiversity, ecological connectivity, and services such as water filtration and flood regulation. The effects relate to the Terrace Tunnel, Basin Reserve, Mt Victoria Tunnel and the Eastern Connections sections of the Project.

Construction effects

The Terrestrial Ecology Report identifies the following construction effects (without mitigation)

- Permanent loss of terrestrial vegetation and habitat for indigenous fauna (birds and lizards)
- Permanent loss of threatened plant species
- Injury or mortality of indigenous fauna during vegetation clearance
- Disturbance effects on indigenous fauna during vegetation clearance and construction

The Project consent design affects a total of 4.73 ha of terrestrial vegetation habitat (comprising a mix of indigenous and exotic vegetation) and 105 indigenous specimen trees (which have been assessed as moderate value). 2.4 ha of the 4.73 ha of terrestrial vegetation affected will be high value regenerating broadleaf forest (at the Mt Victoria section) and moderate value mixed indigenous-exotic forest and scrub (at the Mt Victoria and Eastern Connection sections). The remainder of the affected vegetation habitat area across the Project area has been assessed as Low value. Unmitigated vegetation clearance effects have been assessed as high.

Overall, the Mt Victoria Tunnel section is subject to the highest existing ecological values. In particular, the clearance activities there will result in the loss of high and moderate value vegetation, and will also have potential impacts to nine 'at risk' plant species and one naturally uncommon plant.

Clearance and construction activities pose a risk of disturbance, injury or mortality to birds and lizards over the entire Project area. Without mitigation or offsetting, the effects would be moderate to very high.

Operational effects

Operational effects mainly involve edge impacts such as weed invasion, altered light, wind and temperature exposure, and disturbance from noise and vibration. These factors can degrade vegetation and reduce habitat quality for indigenous flora and fauna, though most areas are already affected by the existing SH1 infrastructure. The removal of vegetation is anticipated to have minimal effects on the vegetation that remains following clearance.

Other terrestrial operational effects commonly associated with roading projects, including habitat fragmentation, barriers to fauna movement, vehicle related fauna mortality, noise and visual disturbance, artificial lighting effects, and long-term maintenance related vegetation modification, are expected to be negligible in the context of this Project.

6.7.4 Mitigation

Technical Report #10 has recommended implementation of various mitigation measures, including:

- Vegetation clearance: clearance of vegetation may continue to be minimised where practical through detailed design (with residual effects addressed by the replacement of lost vegetation with indigenous species in key locations and biodiversity offsetting, discussed below)

- Specimen trees: a replacement ratio of 1:3 is recommended to address the ecological effects of losing mature specimen trees
- Threatened plant species: undertake targeted surveys, implement an accidental discovery protocol, apply translocation protocols, and use a replacement planting offset for species that cannot be relocated (also discussed below)
- Avifauna: implement measures to avoid / minimise harm to birds during construction, including timing of works outside the peak breeding season and conducting nest surveys prior to vegetation clearance, with the details to be set out in an Avifauna Management Plan (to be drafted prior to construction)
- Lizards: provide salvage and relocation procedures for indigenous lizards, habitat enhancement at release sites, and pest control measures to support population persistence. The details are set out in the Lizard Management Plan that is provided in draft form with the application, noting the intention that it will be approved through this FTAA process and be attached to the wildlife approval relating to lizards
- Monitoring and compliance: establish monitoring protocols to confirm the effectiveness of mitigation and offset actions, ensuring adaptive management occurs if targets are not met

Table 33 below provides a summary of the actual and potential terrestrial effects of the Project, considering the proposed mitigation recommended in the report. Section 6.7.5 below discusses the proposed offsetting approach for the management of residual effects.

6.7.5 Residual effects and offsetting

The Project will result in residual adverse ecological effects, primarily associated with vegetation clearance and habitat loss. Around the Mt Victoria Tunnel and in the Eastern Connections section, approximately 2.4 ha of high value regenerating broadleaf forest and mixed indigenous and moderate value exotic forest and scrub will be removed.⁴⁷ Even after mitigation, the residual effects are assessed as moderate to high. All of this vegetation is within the Wellington Town Belt.

To address the residual loss of terrestrial vegetation and habitat, biodiversity offsetting is proposed, with the recommended offset being revegetation planting across the Mt Victoria section of the Wellington Town Belt, as illustrated below.



Figure 2 - Proposed vegetation and habitat offset areas

⁴⁷ Exotic forest and scrub at the Terrace Tunnel section has been assessed as low value

This location has been recommended because:

- It is made up of exotic pine/eucalypt forest with good potential for ecological restoration
- It is in close proximity to the impact sites, allowing biodiversity gains to be realised close to the point of impact
- The offset sites are owned and maintained by WCC, which allows any offset outcomes to be secured for as long as the impacts occur
- The proposed offset actions align with the Town Belt Management Plan

The specialist has utilised a Biodiversity Offsetting and Accounting Model (BOAM) to devise and recommend offsetting measures. The modelling considers the quantum of revegetation or restoration planting required to achieve specified biodiversity outcomes, including both no net loss and net gain scenarios. Three timing scenarios have also been evaluated, where offset planting is implemented either in advance of, or at the time of, impact.

The BOAM modelling indicates that achieving a no net loss outcome for the loss of 2.40 ha of vegetation would require approximately 4.4 ha of offset planting if established 10 years prior to impact, increasing to approximately 7 ha if implemented at the time of impact. To achieve a net gain outcome, between approximately 5 ha and 9 ha of offset planting would be required over the same timeframes.

The terrestrial biodiversity offset is proposed to be implemented by NZTA. The offsetting would be delivered through the following:

- Securing the agreement of WCC for the use of the offset locations within the Wellington Town Belt
- Terrestrial revegetation/restoration planting focussing on establishing appropriate indigenous ecosystems which enhance the ecology and biodiversity of the Wellington Town Belt
- Weed control, implemented prior to planting and for a minimum of 5 years following planting
- Revegetation/restoration planting for a period of 5 years
- Addition of habitat features and pest animal control during vegetation establishment, targeted at increasing habitat suitability for indigenous birds and

If in the unlikely event the proposed offsetting scheme is not able to be implemented, the proposed conditions provide for offsetting will be carried out at alternative area(s) of the same type and size and achieving at least the same ecological outcome.

NZTA considers that a no net loss outcome represents an appropriate and sufficient level of offset for terrestrial ecological effects for the Project, in a way that provides for cost-effective and responsible use of public funds. For the reasons set out below, a no net loss outcome is considered appropriate in the circumstances of this Project and is consistent with the NPS-IB's overarching Objective 1, which seeks to maintain indigenous biodiversity so that there is 'at least no overall loss'.

Firstly, the effects management hierarchy has been applied rigorously before reaching the question of offset quantum. Avoidance of all indigenous vegetation loss was not practicable given the location of the existing state highway and tunnels, which dictate where works must occur. The Project has minimised clearance through the consent design, and replacement planting of indigenous species is proposed throughout the Project area.

Secondly, the context of the affected vegetation is relevant to the appropriate level of offset. None of the vegetation to be offset is located within a significant natural area. The affected areas are at the urban edge of the Wellington Town Belt, within and immediately adjacent to an established transport corridor that has already shaped the ecology of those areas. In this context, a no net loss outcome is a proportionate and sufficient response to the residual effects.

Thirdly, the Project is a RoNS delivering significant benefits to the Wellington region and to New Zealand. The FTAA requires the Panel to give greatest weight to the facilitation of infrastructure with significant national and regional benefits. In the context of weighting the FTAA's purpose, the additional planting obligation would be disproportionate to the specific effects being addressed.

For these reasons, a no net loss offset outcome appropriately addresses the terrestrial ecological residual effects of the Project in a way that is consistent with the NPS-IB's overarching objective, satisfies the

effects management hierarchy, and provides for cost the cost-effective and responsible use of public funds in the delivery of nationally significant infrastructure.

Additional effects arise from the removal of 105 indigenous specimen trees, with effects ranging from low to high in the short term. These effects are expected to reduce to low over time as replacement planting, proposed at a 3:1 ratio and to be incorporated within the offset area, establishes and matures (approximately 10–25 years).

Within the Mt Victoria Tunnel area, nine nationally 'At Risk' plant species and one naturally uncommon species may also be affected. With the implementation of targeted surveys, translocation protocols, and replacement planting, residual effects on these species are assessed as low. Residual effects on indigenous birds and lizards, associated with the risk of injury or disturbance during construction, are also expected to be low to very low with the implementation of Avifauna and Lizard Management Plans, including salvage and relocation measures where required.

Table 33 summarises the ecological values, and the actual and potential unmitigated effects of the Project. It then summarises the recommended mitigation and offset measures proposed to be implemented by NZTA and identifies the overall level of effect following mitigation.

Table 33: Summary of the actual and potential terrestrial ecology effects of the Project

Effect	Feature	Location	Ecological value	Magnitude of effect (unmitigated)	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Permanent loss of terrestrial vegetation and habitats	Regenerating broadleaf forest	Mt Victoria Tunnel – 0.93 ha	High	High	- Minimise vegetation clearance through detailed design process - Landscape planting associated with the Project is recommended to replace indigenous and exotic vegetation with appropriate indigenous species in key locations throughout the Project - A replacement ratio of 1:3 is proposed to address the ecological effects of losing mature specimen trees	High, but subject to an offset which will deliver a no net loss outcome
	Mixed indigenous-exotic forest and scrub	Mt Victoria Tunnel and Eastern Connections – 1.47 ha	Moderate			Moderate, but subject to an offset which will deliver a no net loss outcome
		Terrace Tunnel – 0.56 ha	Low			Low
	Mixed low-stature vegetation	Mt Victoria Tunnel and Eastern Connections – 0.35 ha	Low			Low
		Basin Reserve – 0.48 ha	Low			Low
		Terrace Tunnel – 0.21 ha	Low			Low
	Private Gardens	Mt Victoria Tunnel and Eastern Connections – 0.73 ha	Low			Low
	Indigenous specimen trees	Mt Victoria Tunnel and Eastern Connections – 67	Moderate			Low (Long term)
		Terrace Tunnel – 15				
	Basin Reserve – 23					

Permanent loss of threatened plant species	• 9 x 'At Risk' indigenous plants • 1 x 'Not Threatened' but naturally uncommon plant	Mt Victoria Tunnel	High	Moderate	• Minimise vegetation clearance where possible through detailed design process • A site survey to identify and confirm presence of At-Risk species within the Wellington Town Belt is recommended • If identified, it is recommended these species are incorporated into the residual effects management plan planting schedules to promote the ongoing survival of these species • A replacement ratio of 1:3 is proposed to address the ecological effects of losing threatened plants	Low
Disturbance effects on indigenous fauna during construction. Injury or mortality of indigenous fauna.	• 1 regionally 'Threatened', 4 'At Risk', and 13 'Not Threatened' indigenous birds • 7 x 'Not Threatened' or 'Not At Risk' indigenous lizard species including barking gecko, ngahere gecko, Raukawa gecko, copper skink, glossy brown skink, ornate skink, and northern grass skink	Mt Victoria Tunnel Basin Reserve Terrace Tunnel	Low - high	Moderate	• Minimise vegetation clearance through detailed design process, taking opportunities to avoid fauna habitat where possible • It is recommended avifauna management measures be set out in the EMP to minimise the risk of killing or injuring birds, particularly in nesting birds during peak bird breeding season (September to January) as a condition of consent • A Lizard Management Plan has been prepared to support the application for Wildlife Approval, detailing how requirements of Schedule 7 of the FTAA will be met. Measures to salvage lizards from the works area and relocate them to a release site in accordance with best-practice methodologies are provided	Low - very low

6.7.6 Summary

With the mitigation in place, the overall terrestrial ecological effects of the Project are assessed as low or very-low, with the exception of the permanent loss of terrestrial vegetation and habitats within the Mt Victoria Tunnel and Eastern Connections areas. These effects will be appropriately offset to ensure there is no net loss of extent and value of this habitat.

6.8 Ecology – Freshwater and wetland effects

6.8.1 Introduction and assessment methodology

The following section summarises the findings of Technical Report #11 (Freshwater and Wetland Ecology Assessment). This assessment describes the ecological values associated with the identified freshwater bodies and wetland environments situated within the Project area. It includes recommendations to avoid, remedy, mitigate, and offset adverse effects on these environments.

The assessment methodology consisted of numerous site visits and desktop analysis that examined publicly accessible information, databases, and GIS layers obtained from GWRC and WCC, as well as data from additional key sources.

This assessment was guided by best practice guidelines including the EclA Guidelines regarding terrestrial and freshwater ecosystems, Wetland delineation hydrology tool for Aotearoa New Zealand and Essential Freshwater 2022: Wetland delineation protocols.

6.8.2 Existing environment and ecological value

No above-ground streams will be directly affected by the Project.

The following piped awa / streams have been considered within this assessment:

- Kumutoto Awa which is located near the northern Terrace Tunnel portal
- Waikoukou Awa which is located near the southern Terrace Tunnel portal
- Waimapihi Awa which flows beneath sections of Karo Drive and Vivian Street
- Moturoa Awa which flows beneath Taranaki Street towards Lambton Harbour
- Waitangi Awa which flows under the Basin Reserve and beneath Kent/Cambridge Terrace
- Waipapa Awa which flows under the suburb of Hataitai and beneath Moxham Ave

Below in Table 34 is a summary of the piped awa / stream ecological values.

Table 34: Summary of piped awa / stream ecological values

Piped Awa / stream	Ecological value
Kumutoto Awa	Moderate
Waikoukou Awa	Low
Waimapihi Awa	Moderate
Moturoa Awa	Moderate
Waitangi Awa	Low
Waipapa Awa	Moderate

Three wetland areas have been identified within the Project area (Wetland 1, 2 and 4) and a fourth wetland (Wetland 3) has been identified within 100 m of the Project area. All of these wetlands are located to the west of Ruahine Street, in the Town Belt, and have been assessed as natural inland wetlands in terms of the NPS-FM. A small intermittent stream has been identified from Wetland 3 leading to a culvert behind the Badminton Wellington Centre. The stream will not be impacted as part of the Project.

All areas of natural inland wetland constitute a similar composition of highly degraded exotic herbland, grassland, and rushland, with dominant species including *Juncus articulatus*, floating sweet grass and fools watercress. The location of these wetlands corresponds to low areas at the toe of hillslopes with assumed low permeability soils where surface run-off collects and does not immediately drain away. In consideration of the criteria for ecological values, the following applies:

- Representativeness: low. The composition is sub-typical of indigenous wetlands with expected species absent. Indigenous species absent or present in low numbers
- Rarity/distinctiveness: moderate. The wetlands are small in size and dominated by non-indigenous herbs, grasses, and rushes, however, wetland ecosystems have regional and national scarcity
- Diversity and pattern: low. The wetlands are dominated by exotic vegetation
- Ecological context: low. Provide minor infiltration services. Provide potential foraging habitat for common indigenous wetland birds such as pūkeko and spur-winged plover, but these species are not reliant on this and have not been observed on site

Overall, the wetland areas have been assigned an ecological value of low. Further details of the identified wetlands and the associated ecological values are provided in Table 35 below.

Table 35: Wetland, vegetation type and total area

Wetland area ID	Vegetation type	Area (m ²)	Ecological value
Wetland 1	Exotic herbland, grassland, and rushland	75	Low
Wetland 2		730	
Wetland 3		56	
Wetland 4		81	

6.8.3 Freshwater and wetland ecology effects

Construction effects

The assessment identified potential construction effects from the temporary discharge of contaminants to waterways. Construction runoff, stormwater and spills include may contain sediment, nutrients, hydrocarbons, concrete leachate and heavy metals which could enter piped away through connected drainage networks. Without mitigation, these contaminants could reduce water quality and affect freshwater fish and macroinvertebrates, resulting in a short-term high magnitude of effect and a moderate overall unmitigated effect on piped away, based on their low to moderate ecological value, if not appropriately mitigated. The proposed alignment directly impacts the full extent of two natural wetlands (Wetland 1 and 4) and up to 80% of Wetland 2 will be impacted by changes to groundwater conditions resulting in dewatering. It has been assumed on a conservative basis, for the purposes of Technical Report #11 that the full extent of Wetland 2 will be lost due to the Project resulting in the permanent loss (total area 885 m²) of wetland.

Wetland 3 is outside of the Project footprint and will not be adversely affected by the construction of the Project.

While small and of low ecological value, the loss of wetland extent has been assessed as having a very high magnitude of effect as these wetland areas will be permanently lost and the presence of wetland ecosystems in the wider environment is generally rare. Considering this, a low ecological value combined with a very high magnitude of effect results in an overall moderate level of effect applying the EclA Guidelines.

Operational effects

Following completion of construction, changes to overall road area and road catchments could increase contaminant discharges to piped away across the Project area, associated with increased traffic use and

impermeable surface areas. The Waikoukou Awa is not expected to receive altered stormwater discharge, either contaminants or volume, and is therefore not considered further.

Without mitigation, modelling indicates all other piped awa would receive proportional increases in contaminant loads as a result of the Project. Although these increases are small compared with the total catchment area, they have the potential to affect the health and diversity of freshwater fish and macroinvertebrate communities. As discussed below, Technical Assessment #14 (Stormwater) recommends operational stormwater management / treatment. Those measures, which are reflected in the Project design, are part of the 'baseline' for the assessment of operational effects on freshwater and wetland ecology. With those measures in place, there will be a localised increase in loads of some contaminants to Moturoa Awa. The magnitude of effect is considered to be low. The other awa are likely to benefit from the Project through a modelled reduction in contaminant deposition across most contaminants. The magnitude of effect is therefore considered to be positive, resulting in an overall net gain. No further effects management measures are necessary.

Small increases in impervious surfaces are expected in Kumutoto Awa, Waimapihi Awa, and Waipapa Awa catchments. The remaining stormwater catchments, including the Moturoa awa and Waitangi awa catchment, will experience no change to impervious surface cover because of the Project. No additional mitigation measures for base flow effects are proposed, and the overall level of effect is assessed as very low to low.

6.8.4 Mitigation

Technical Report #11 recommends mitigation measures to reduce ecological impacts during construction and operation of the Project.

To address potential adverse effects relating to temporary discharge of contaminants to waterways during construction, industry, standard erosion and sediment controls, spill controls, and materials and plant management measures are recommended, as set out in Technical Assessment Report #17 (Erosion and Sediment Control Assessment). These measures are to include construction discharge monitoring and contingency measures if trigger levels are exceeded. With those measures in place, construction discharges effects are considered to have a negligible magnitude of effect resulting in a very low overall level of effect.

Updates to the Project design have been considered to avoid and minimise impacts on natural inland wetlands where practicable, including reducing the design footprint and extent of impact on Wetland 2. However, due to groundwater-related concerns identified in the hydrogeology assessment, a conservative assessment has been adopted that assumes the permanent loss of Wetland 2, in addition to the loss of Wetlands 1 and 4. As these effects cannot be mitigated, ecological compensation is recommended to address the residual effects associated with the permanent loss of wetland extent and values, as discussed in section 6.8.5 below.

6.8.5 Residual effects and compensation

Residual effects requiring further management relate to the permanent loss of Wetlands 1, 2 and 4 within the Eastern Connections area, resulting from the loss of 885m² of low-value natural inland wetland.

Although the affected wetlands are highly degraded and dominated by exotic vegetation, their loss represents a permanent loss of wetland extent and values. As these effects cannot be avoided, minimised or remedied, further residual effects management is required.

Offsetting has been considered in accordance with the effects management hierarchy but has been determined not to be feasible. A biodiversity wetland within the Project designation was initially considered; however, hydrogeological investigations confirmed that the proposed location was unsuitable due to expected groundwater dewatering, small catchment size, and insufficient supporting hydrology. No other suitable wetland creation locations were identified within or close to the Project area.

Compensation is therefore proposed to address the residual wetland effects. The preferred compensation approach is terrestrial gully habitat restoration at the nearby Mātai Moana Reserve, involving restoration planting, weed control and pest mammal management across areas of pasture or exotic vegetation within a gully system. This "trading out" approach is intended to compensate for the loss of wetland habitat through restoration of a different ecosystem type, while delivering biodiversity uplift within the broader ecological landscape connected to the Wellington Town Belt, Zealandia and Mātai Moana Reserve. A

model has been used to inform the required compensation quantum. The model adopts a conservative approach, recognising the regional and national scarcity of wetlands despite their low ecological value within the Project area, and accounting for the permanent nature of the loss and trade-out approach. Based on the model, a total restoration area of 0.5 ha is proposed at Mātai Moana Reserve. Implementation details will be confirmed through consultation with the managers of this reserve the Mātai Moana Charitable Trust. The Trust includes representatives from Taranaki Whānui, the Department of Conservation (DoC) and WCC⁴⁸.

Table 36 summarises the actual and potential effects, the proposed mitigation and the overall level of effect following the mitigation and compensation to be implemented by NZTA.

⁴⁸ Written approval from the trustees for the proposed compensation works is provided in Appendix F4

Table 36: Summary of effects on freshwater and wetland ecology values

Effect to be mitigated	Ecological feature	Location	Ecological value	Scale of effect without mitigation	Recommended mitigation adopted by NZTA	Overall level of effect (mitigated)
Permanent loss of wetland extent	Wetland 1	Eastern Connections	Low	Very high	Wetland 3 is outside of the Project footprint and not impacted but is within 100 m. The remaining wetlands are unlikely to be avoided due to design constraints Mitigation is not practicable and compensation is recommended to address the loss of wetland extent and values	Moderate, but subject to compensation
	Wetland 2		Low	Very high		Moderate, but subject to compensation
	Wetland 3		Low	Low		Very Low, but subject to compensation
	Wetland 4		Low	Very high		Moderate, but subject to compensation
Temporary discharge of contaminants to waterways	Kumutoto Awa	Terrace Tunnel	Moderate	High	Mitigation will include implementation of industry standard erosion and sediment, and spills controls as well as materials and plant management, as detailed in Technical Report #17 – Erosion and Sediment Control Assessment	Very low
	Waikoukou Awa		Low			
	Waimapihi Awa	Te Aro	Moderate			
	Moturoa Awa	Te Aro	Moderate			
	Waitangi Awa	Basin Reserve	Low			
	Waipapa Awa	Mt Victoria and Eastern Connections	Moderate			
	Kumutoto Awa	Terrace Tunnel	Moderate	N/A		Low (Moturoa Awa)

Effect to be mitigated	Ecological feature	Location	Ecological value	Scale of effect without mitigation	Recommended mitigation adopted by NZTA	Overall level of effect (mitigated)
Effects on water quality resulting from changes to discharged contaminants	Waikoukou Awa		Low		The Project design includes the implementation of stormwater treatment devices at specific locations within the Project area are expected to mostly reduce contaminant loading via stormwater to piped awa. As such, no additional mitigation is required	Net gain (other Awa)
	Waimapihi Awa	Te Aro	Moderate			
	Moturoa Awa	Te Aro	Moderate			
	Waitangi Awa	Basin Reserve	Low			
	Waipapa Awa	Mt Victoria and Eastern Connections	Moderate			
Effects on base-flow water levels resulting from changes to impervious surfaces and stormwater design	Kumutoto Awa	Terrace Tunnel	Moderate	Low	To the extent practicable in the context of the Project, impervious surface areas have been reduced through design, and temporary access areas required during the construction of the Project will be returned via landscape design to natural landscapes. No additional mitigation measures are proposed for this effect	Very low to low
	Waikoukou Awa		Low			
	Waimapihi Awa	Te Aro	Moderate			
	Moturoa Awa	Te Aro	Moderate			
	Waitangi Awa	Basin Reserve	Low			
	Waipapa Awa	Mt Victoria and Eastern Connections	Moderate			

6.8.6 Summary

The existing freshwater and wetland ecological values within the Project area range from low to moderate. Adverse effects on these ecological values have been identified as varying from low to very high, if they were to remain unmitigated.

Impacts to freshwater ecological features, including piped awa, across the Project, will be mitigated through the installation of sediment and stormwater treatment devices. These measures are anticipated to improve the quality of discharged contaminants to waterways associated with the Project. Potential impacts to piped awa due to changes in impervious surface areas within Project awa catchments have been considered; however, these are unlikely to result in adverse effects, such as changes to base-flow water levels, given the small proportional change in impervious surface cover across the Project area.

After the implementation of mitigation measures, the overall level of effect on freshwater ecological values is considered low. However, residual effects remain following efforts to avoid, minimise, and remedy impacts, particularly in relation to the permanent loss of wetlands. These residual effects are addressed through proposed compensation.

6.9 Ecology - Marine effects

6.9.1 Introduction and assessment methodology

The following section summarises the findings of Technical Report #12 (Marine Ecology Assessment). This assessment describes the ecological values associated with the two receiving marine environments (Evans Bay and Lambton Harbour) and assesses the effects of the Project on them. It includes recommendations to avoid, remedy, and mitigate effects on ecological values, and proposed compensation measures for residual effects.

The assessment methodology included desktop analysis, field work, stormwater contaminant load modelling (carried out by others) and biodiversity compensation modelling. Desktop analysis included the review of publicly available databases and GIS layers from GWRC and WCC in addition to other key sources of information.

Field work was focused on the Evans Bay environment and included benthic invertebrate sampling, sediment quality sampling, protected species dog surveys for kororā / little penguins, and habitat mapping at three potential stormwater outfall locations. Benthic core samples were collected and analysed for invertebrate diversity and sediment contaminants. Observations of flora, fauna, and coastal birds were recorded over a full tidal cycle. No fieldwork was undertaken at Lambton Harbour due to the availability of sufficient existing data and because no new structures are required at this location.

Stormwater contaminant load modelling was used to estimate changes in water quality parameters, including total suspended solids, hydrocarbons, zinc, and copper. The model incorporated traffic volumes and road surface data to simulate pre-and post-project contaminant loads to inform the assessment of potential effects on the marine receiving environments.

The assessment followed the EclA Guidelines framework to evaluate ecological values, magnitude of effects, and overall level of effect.

6.9.2 Existing environment and ecological value

The Marine Ecology Assessment focuses on the two primary marine receiving environments for stormwater discharges; Evans Bay and Lambton Harbour. At Evans Bay, the Project also includes replacing an existing outfall structure, which will have actual and potential effects on intertidal and subtidal habitats, water quality, and species including coastal birds, marine fish, and Kororā / little penguins.

The marine habitats in Evans Bay consist of diverse soft sediment and rocky intertidal and subtidal communities that are somewhat degraded by contamination and invasive species, particularly in areas close to stormwater outfalls and vessel berths. Lambton Harbour's marine habitats generally have low ecological value due to heavy modification and contamination. A summary of existing ecology and habitats within the Zone of Influence (ZOI) of the Project in these areas is provided in Table 37 below.

Table 37: Summary of existing ecological features and ecological value

Location	Ecological feature	Ecological value
Evans Bay	Marine habitats Moderately high diversity of marine species but sediments are mildly contaminated, and invasive kelp <i>Undaria pinnatifida</i> is common	Moderate
	Coastal avifauna Several coastal bird species present within the bay and the potential presence of six very high value species: - Black-fronted tern (<i>Chlidonias albobristatus</i>) – Nationally endangered - Caspian tern (<i>Hydroprogne caspia</i>) – Nationally vulnerable - Pacific reef heron (<i>Egretta sacra</i>) – Nationally endangered - Salvin's albatross (<i>Thalassarche salvini</i>) – Nationally critical - Spotted shag (<i>Phalacrocorax punctatus</i>) – Nationally vulnerable - White heron (<i>Ardea modesta</i>) – Nationally critical	Low to very high
	Kororā / little penguin At risk / declining and confirmed use of the ZOI	High
	Marine fish Mostly not threatened; rare scaly gurnard present	Moderate
	Marine mammals NZ Fur Seal may be present	Low
Lambton Harbour	Marine habitats Highly modified and degraded environment of the marina and waterfront	Low
	Coastal avifauna Several coastal bird species present within the area and potential presence of five very high value species: - Caspian tern (<i>Hydroprogne caspia</i>) – Nationally vulnerable - Hutton's shearwater (<i>Puffinus huttoni</i>) – Nationally vulnerable - Northern royal albatross (<i>Diomedea sanfordi</i>) – Nationally vulnerable - Pacific reef heron (<i>Egretta sacra</i>) – Nationally endangered - Spotted shag (<i>Stictocarbo punctatus</i>) – Nationally vulnerable	Low to very high
	Kororā / little penguin At risk / declining and confirmed use of the ZOI	High
	Marine fish Mostly not threatened; some threatened sharks in wider harbour	Moderate
	Marine mammals	Low to very high

Location	Ecological feature	Ecological value
	Potential presence of threatened transient species within the ZOI: • Orca (<i>Orcinus orca</i>) – Nationally critical • Bottlenose dolphin (<i>Tursiops truncatus</i>) – Nationally endangered • Southern right whale (<i>Eubalaena australis</i>) – At risk – recovering	

6.9.3 Marine ecology effects

The proposed works involve a stormwater outfall upgrade at Evans Bay and changes to discharges into the coastal receiving environment which supports important ecological values (including threatened fauna), despite existing modification. Construction and operational activities can alter water quality, sediment characteristics, and habitat structure, potentially causing short-term and long-term ecological impacts.

Evans Bay outfall replacement effects

Construction activities at Evans Bay will involve replacing the existing stormwater outfall with a larger pipe to increase capacity, removing and replacing a rubble revetment, and disturbing both intertidal and subtidal sediments and bedrock. Temporary structures, such as a causeway, coffer dam, or piling, may be installed if work cannot be completed in dry conditions.

Technical Report #12 identifies key ecological effects including the loss of rubble and revetment that serve as habitat for coastal birds, with confirmed kororā / little penguin burrows present. This results in a very high overall level of unmitigated effect for penguins due to burrow loss within the construction footprint (albeit that the footprint is of small scale). Marine habitats (soft sediments and hard substrates hosting benthic communities) near the outfall will experience disturbance and injury or loss of species, and there is a risk of spreading invasive species such as *Undaria* during outfall removal, posing a biosecurity risk.

Coastal birds roosting on the gravel beach and revetment may be temporarily displaced, and machinery tracking or temporary causeways could smother benthic habitats. The magnitude of effects on marine habitats are assessed as moderate (unmitigated) due to localised disturbance, species and habitat loss, and sediment disturbance near the outfall replacement.

In summary, the magnitude of effects on coastal birds, marine fish, and marine mammals from outfall replacement in Evans Bay are expected to be low to moderate (unmitigated). The exception remains effects on kororā / little penguin, which are assessed as very high (unmitigated) due to burrow loss within the (small) outfall construction footprint.

There will be no direct construction effects on marine ecology values at Lambton Harbour.

Construction discharges effects

There will be indirect effects from discharges from earthworks and the road, tunnelling and stormwater network construction works in the catchments of both Lambton Harbour and Evans Bay. Construction discharge effects are mainly associated with sediment disturbance during earthworks, which may release contaminants and increase turbidity in the marine environment. Benthic habitats near the outfall will be affected by these discharges without mitigation. The magnitude of effects from construction discharges in both receiving environments are assessed as low to high (unmitigated) due to the spatially limited impacts but with high unmitigated effects for marine habitats.

Operational effects

Technical Assessment #14 (Stormwater) recommends operational stormwater management / treatment. Those measures, which are reflected in the Project design, are part of the 'baseline' for the assessment of operational effects on marine ecology values.

As a result of stormwater treatment upgrades, contaminant loads to the marine receiving environment will be mitigated, and it is expected that contaminant loads at the majority of outfalls will be reduced. Most of the improvements in stormwater treatment are captured within the discharge to Evans Bay and from the

Basin Reserve (Waitangi Stream) into Lambton Harbour. In the Hataitai area, significant flood hazard improvements are anticipated due to the upgrading of existing stormwater infrastructure.

An increase in impervious area will still cause minor changes in hydrology which may slightly alter salinity, turbidity, and nutrient levels, causing a slight increase in scour (particularly near the Evans Bay outfall) and potentially affecting benthic communities and species composition.

While kororā / little penguin burrows will not be physically impacted post-construction, freshwater inputs and contaminant loads could degrade feeding habitats. Without the stormwater treatment upgrades already included in the Project design. With the stormwater upgrades in place, the magnitude of these effects are assessed as negligible for Kororā / little penguin. In respect of marine habitats, the Project is assessed as having a possible negligible adverse effect, or even positive effects due to improved stormwater treatment and water quality design. The Project's effects on coastal avifauna, marine fish, and marine mammals are assessed as being negligible in magnitude, with no significant ecological shifts anticipated.

Given the highly modified state and natural flushing capacity of the harbour, these changes are expected to have minimal influence on benthic habitats and water quality.

6.9.4 Mitigation

Technical Report #12 recommends mitigation measures to reduce ecological impacts during construction and operation.

To manage short-term effects during outfall replacement construction works the following mitigation is recommended:

- Avoid and minimise plant and equipment being used in the coastal marine area (CMA) and minimise CMA works footprint
- Careful removal and appropriate disposal of old materials from the CMA
- Marine biosecurity protocols for invasive species such as Undaria attached to the old outfall structure which should be removed and disposed of in land-based facilities
- A Kororā Management Plan detailing measures to avoid / mitigate effects on kororā during construction, in accordance with industry accepted practice, and a Wildlife Approval to facilitate relocation of any non-breeding and non-moulting Kororā found within the works footprint (if necessary)
- A Coastal Works Construction Management Plan, which will (among other things) include methods to minimise disturbance and discharge of contaminants to the CMA, methods to control noise and protect marine fauna and habitat, and a marine biosecurity management procedure in respect of pest organisms

To manage short-term effects from discharges from the road construction the following mitigation is recommended:

- Erosion and sediment control measures to minimise sediment discharge during earthworks and land disturbance
- Trigger-level based inspections if monitoring shows elevated turbidity or sediment deposition in the CMA, with an ecologist inspecting the marine receiving environment and recommending additional treatment if necessary

Stormwater treatment upgrades included in the Project design will significantly reduce contaminant loads entering Evans Bay and Lambton Harbour (from some outfalls) during operation. These upgrades include:

- Biomedia filtration
- Storage tank to attenuate peak stormwater flows
- Catchpit filters and catchpits
- Proprietary treatment devices
- Gross pollutant traps

- Deluge system to manage high intensity rainfall
- Rain gardens
- Constructed wetlands

NZTA proposes to implement these mitigation measures as recommended. Table 38 below summarises the actual and potential marine ecology effects of the Project, the mitigation measures proposed to be implemented by NZTA, and the resulting level of effect after mitigation. The residual effects and recommended compensation are discussed in section 6.9.5 below.

Table 38: Summary of the actual and potential marine ecology effects

Effect	Feature	Location	Magnitude of effect (unmitigated)	Recommended mitigation adopted by NZTA	Overall level of effect (mitigated)
Effects from construction of new stormwater outfall at Evans Bay	Marine habitats	Evans Bay	Moderate (but small spatial scale and some effects temporary)	- Avoid and minimise plant in the CMA and minimise CMA works footprint - Careful removal of old materials from CMA - Industry standard erosion and sediment control measures - Biosecurity controls - Noise and disturbance controls - Implementation of Kororā Management Plan	Very low to low
	Coastal avifauna		Low (other feeding and roosting locations close by)		Very low to low
	Little Penguin / Kororā		Very high (at the scale of the ZOI)		Low to very high, but subject to compensation
	Marine fish		Moderate (small spatial and temporal scale and effects localised to species present in the immediate surrounds of the outfall. Fish can move away to similar habitats nearby)		Low
	Marine mammals		Low (small spatial scale and alternative foraging habitat for NZ fur seal nearby)		Very low
Construction discharge effects from earthworks and stormwater	Marine habitats	Evans Bay	Moderate to high (short term but potential for variation due to weather events)	- Industry standard erosion and sediment control measures - Construction discharge monitoring and contingency measures	Low
	Coastal avifauna		Moderate (but short term)		Very low to low

Effect	Feature	Location	Magnitude of effect (unmitigated)	Recommended mitigation adopted by NZTA	Overall level of effect (mitigated)	
	Little Penguin / Kororā		Moderate		Very low	
	Marine fish		Moderate		Low	
	Marine mammals		Low		Very low	
Operational discharge effects from stormwater	Marine habitats	Evans Bay	Negligible to positive	• No further effects management required	N/A	
	Coastal avifauna					
	Little Penguin / Kororā					
	Marine fish					
	Marine mammals					
Construction and operational discharge effects from earthworks and stormwater	Marine habitats	Lambton Harbour	Construction: High	• No further effects management required for operational discharge effects (beyond those included in Project design) • Industry standard erosion and sediment control measures • Construction discharge monitoring and contingency measures	Very low	
			Operational: Negligible to positive			
	Coastal avifauna		Construction: Moderate			Very low to low
			Operational: Negligible			
	Little Penguin / Kororā		Construction: Moderate			Very low
			Operational: Negligible			
	Marine fish		Construction: Moderate			Low
			Operational: Negligible			

Effect	Feature	Location	Magnitude of effect (unmitigated)	Recommended mitigation adopted by NZTA	Overall level of effect (mitigated)
	Marine mammals		Construction: Moderate		Very low to low
			Operational: Negligible		

6.9.5 Residual effects management

Following recommended mitigation, most residual ecological effects are assessed as very low to low, but kororā / little penguin remains an exception and is assessed as having a very high residual effect due to confirmed burrows within the construction footprint that will be lost and cannot be fully mitigated (but can be compensated).

To address this, Technical Report #12 provides recommended compensation measures that focus on creating safe and suitable alternative habitats as close as possible to the impact site and supporting long-term species conservation. Proposed actions include the provision of 6 replacement nest boxes in secure locations outside of (but as close as possible to) the construction footprint to maintain roosting and moulting opportunities and provide for potential nesting opportunities. Additional recommended measures involve habitat enhancement through 60 m² of planting and associated fencing, educational kororā and dog control signage, and leveraging the existing predator control programs along the Wellington coastline to improve breeding success.

Furthermore, the recommended ecological compensation package includes ongoing maintenance and monitoring of kororā / little penguin populations and the newly provided habitat, to assess the effectiveness of new burrows against compensation modelling predictions, and support collaboration with parties engaged in penguin conservation. These measures will compensate for the loss of burrows and penguin habitat and contribute to the resilience of kororā / little penguin populations in the region.

As discussed in section 6.9.4 above, NZTA proposes to implement these measures as recommended.

In particular, the compensation measures (along with mitigation measures including relocation of kororā during construction) are detailed in the Kororā Management Plan, which has been provided with the application. The intention is that the Kororā Management Plan will be finalised during this FTAA process, and will attach to the wildlife approval for kororā.

Figure 3 below shows the relevant 'impact site' for kororā, as well as the proposed relocation site (mitigation for effects during construction), and the proposed compensation site, which overlaps with the impact site.



Figure 3 - Site overview as relevant to kororā impact, mitigation and compensation

6.9.6 Summary

With mitigation in place, the marine ecological effects of the Project are assessed as low to very low for marine habitats and most fauna. Localised construction impacts will be temporary, and stormwater treatment upgrades are expected to deliver positive long-term benefits, including improved water quality and potential positive effects for marine habitats in some locations. The only significant residual effect relates to kororā / little penguin, which is to be addressed through compensation measures including replacement burrows and habitat enhancement to support a predicted net gain biodiversity outcome.

6.10 Geotechnical effects, natural hazards, and resilience

6.10.1 Introduction and assessment methodology

This section summarises the findings of Technical Report #13 (Geotechnical, Natural Hazards, and Resilience Assessment), which evaluates the actual and potential effects relating to geotechnical and natural hazard risks and identifies measures to avoid, remedy, or mitigate adverse effects. The methodology comprised desktop review of existing information, site investigations, and technical analysis to characterise ground conditions and predict potential effects.

The assessment was informed by relevant NZTA guidance, including the Bridge Manual (4th Edition), the Risk Management Practice Guide – Minimum Standard Z/44, and Technical Advice Note TAN #24-02: Seismic resilience of new State Highway bridges and Soil Structures, together with industry guidance including the GNS Science (2022) National Seismic Hazard Model, MBIE/NZGS (2021) Geotechnical Modules, NZGS draft guidance on ground anchors, slope stability and climate change considerations, and NZSEE (2023) Designing for Uncertainty.

Baseline information also included geological mapping and fault databases, prior Wellington hazard and resilience studies, and relevant WCC and GWRC mapping including geomorphology, flood hazard layers and tsunami evacuation zones.

The assessment also relied on specialist input and preliminary design information, supported by numerical modelling of tunnel-related subsidence and flood modelling for critical low-lying areas. Resilience was assessed for both operational events and natural hazards across three event levels: business-as-usual, Low Impact–High Probability and High Impact–Low Probability.

Site visits undertaken in October 2025 and February 2026 included walkovers and inspections of key locations which also informed the assessment.

6.10.2 Geotechnical effects, natural hazards, and resilience

The construction and operation of the Project have the potential to give rise to geotechnical, natural hazard, and resilience effects, including impacts of ground conditions that may affect nearby buildings, structures, and infrastructure.

Construction effects

Tunnelling activities have the potential to cause ground subsidence and damage to overlying buildings, roads and services through excavation and removal of ground for the tunnel and changes in groundwater conditions.

Excavation and removal of ground to form a tunnel can induce relaxation of the surrounding ground mass towards the tunnel void. This deformation may propagate upwards through the ground profile and result in downward movement of the ground surface, giving rise to surface subsidence. In addition, where tunnelling results in a lowering of groundwater levels due to drainage, increased effective stress within compressible soils can occur, potentially leading to consolidation and subsidence at the ground surface.

For the Terrace Tunnel, numerical modelling indicates that construction of the proposed second tunnel would result in ground subsidence primarily near the tunnel portals, with predicted maximum settlements of approximately 60 mm at the northern portal and 115 mm at the southern portal. The observations of ground subsidence during the construction of the existing tunnel have been considered alongside the modelling.

In particular, the observations during excavation of the existing tunnel indicated that the Terrace Fault has the potential to influence both the magnitude and distribution of subsidence, potentially increasing effects where the tunnel crosses the fault and affecting a wider range of properties. While the modelling suggests subsidence would be broadly symmetrical about the tunnel alignment, experience from construction of the existing tunnel indicates that subsidence may be asymmetrical and extend further to the west. The fault location and extent will be further defined during detailed design and construction, enabling the area potentially affected by subsidence to be refined and appropriately managed.

Subsidence effects are a recognised consequence of tunnel construction. While some uncertainty remains regarding their precise magnitude and distribution, effects can be effectively managed through modern tunnelling techniques, construction controls, and monitoring to limit risks to overlying buildings and services.

In the Te Aro area, construction will be undertaken in generally poor ground conditions comprising soft and loose alluvial soils overlying bedrock with artesian groundwater pressures. These conditions have the potential to give rise to construction-related effects, including ground instability, excavation-induced deformation, and groundwater management challenges, particularly in proximity to adjacent large buildings. Construction in the Basin Reserve area will occur in a geologically complex environment characterised by variable alluvial deposits, presence of faults, high groundwater levels, and highly liquefiable soils.

Construction of the Sussex Street trench and associated structures has the potential to result in ground deformation, groundwater drawdown, and construction-related ground deformation that could affect adjacent land, buildings, and buried services, including deep brick stormwater infrastructure. Embankment construction on very poor ground north–northwest of the Basin Reserve could result in ground settlement extending beyond the embankment footprint.

Construction in the Mt Victoria Tunnel area will likewise occur in a structurally complex geological setting characterised by fault related geomorphic lineaments and faulted and crushed greywacke bedrock, indicating the presence of both active and inactive fault zones within the construction area. These conditions have the potential to result in construction related effects including ground instability, variable rock mass behaviour, and localised zones of weakness affecting excavation and tunnel support performance.

Construction of the second Mt Victoria Tunnel near the existing tunnel also introduces the potential for interaction effects, requiring careful management of ground behaviour and stability to avoid adverse effects on the operational tunnel. While excavation is anticipated to be undertaken primarily using a roadheader, localised blasting may be required in stronger or less fractured rock, which could result in temporary closures of the existing tunnel and construction-related vibration effects, with vibration effects addressed separately in section 6.3 above.

Operational effects

In major hazard events, the assessment identifies that both tunnels (new and old) are expected to perform well overall, but the corridor's operational performance is strongly influenced by fault rupture susceptibility at the Terrace Fault crossing (with potential for damage and outage in extreme events) and by the stability and reliability of the tunnel approaches, where earthquake / storm-induced slope failures could still cause disruption of access to the tunnels.

The presence of the new Terrace Tunnel also has the potential to constrain future development of the overlying land and therefore represents an effect on the built environment. Certain forms of development, particularly deep basements, high rise structures, and the use of deep pile foundations, may interact with the tunnel and have the potential to affect its integrity and long term performance. While the relatively shallow depth to bedrock is expected to limit the extent of these effects, areas of shallow overburden and localised areas of weaker rock associated with the Terrace Fault remain a consideration and may influence the nature and extent of future development in some locations.

Operational performance in the Basin Reserve area remains sensitive to natural hazard exposure, including liquefaction-prone, compressible and high-groundwater conditions and the presence of the Aotea Fault. This poses the potential for disruption and recovery demands in large earthquake scenarios.

The second Terrace Tunnel and Mt Victoria Tunnel deliver a substantial operational resilience benefit by providing redundancy on the SH1 corridor. Two tunnels enable traffic and emergency services to be

maintained through at least one tunnel if the other is closed due to an incident or maintenance activities, improving network reliability, safety, and incident response capability.

Both tunnels are expected to perform well overall during major earthquakes and storm events. However, some residual operational risks remain due to geological and geotechnical conditions. The existing tunnel has an older, unreinforced lining, which is more susceptible to cracking and localised spalling under severe seismic shaking, potentially affecting post-event operability.

The tunnel alignment intersects the Mt Victoria East Fault, which is assessed as capable of generating horizontal fault rupture displacements of approximately 0.5–1.0 metres, with smaller potential vertical displacements. While the likelihood of fault rupture at this location is rare, such displacement could result in localised tunnel lining damage and temporary operational outages requiring inspection and repair.

At the eastern approach to the Mt Victoria tunnel, steep cut slopes exceeding 30 metres in height, with proposed slope angles of up to approximately 65 degrees and additional cuttings above the portal, introduce a further operational risk following strong ground shaking in earthquakes or large storm events. Fault-related zones of weakened and highly fractured rock may control slope stability, potentially reduce the effectiveness of slope reinforcement and increase the risk of slope deformation or failure. Locally complex groundwater conditions associated with faulted zones may further contribute to instability. In a worst-case scenario, slope failure or debris runout could temporarily restrict access to the eastern portal and affect access to both tunnels following a major seismic event.

Notwithstanding these residual risks, the new dual tunnel system represents a significant improvement over the existing single-tunnel configuration, particularly in terms of redundancy, emergency response capability, and overall network resilience.

Within the Eastern Connections area, Ruahine Street is subject to localised flooding, however, flood modelling for the Project indicates that flooding is generally shallow, with the road expected to remain passable by vehicles at reduced speeds. Accordingly, flooding is not expected to materially affect operational resilience and would be no worse than existing baseline conditions.

The proposed local road connections via Moxham Avenue and Kupe Street, together with associated links such as Taurima Street and Goa Street, provide an important operational resilience benefit. These connections introduce alternative routes that enable traffic to bypass incidents or temporary closures on SH1 along Ruahine Street. This improves network redundancy and enhances the ability to maintain access to and from the Wellington Airport when the Ruahine Street section of SH1 is disrupted.

6.10.3 Mitigation

The assessment determines that the identified effects can be appropriately managed through the integration of resilience and effects management measures into detailed design and Project delivery. This includes adopting highly robust design solutions, at the detailed design stage, where ground and hazard conditions are most challenging, including at fault crossings, in poor or variable ground, within liquefaction and artesian pressure environments, and at high cut slopes and portal areas. It also includes designing key structures, particularly tunnels and their approaches, to accommodate fault rupture and enable efficient post-event reinstatement.

In addition, the report recommends implementing a subsidence and ground-movement effects management framework for tunnelling⁴⁹ and other ground-sensitive works, including pre-works surveys, monitoring, and trigger/action response processes. It also recommends using planning and land-protection mechanisms, including subsurface protections and easements, to manage long-term risks to tunnel integrity from future development.

NZTA proposes to implement these mitigation measures as recommended.

Table 39 summarises the actual and potential effects of the Project, the mitigation measures proposed to be implemented by NZTA, and the resulting level of effect after mitigation.

⁴⁹ This can be captured in the GSMCP recommended in the previous section on groundwater effects

Table 39: Summary of geotechnical effects

Effect	Location	Level of effect (unmitigated)	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Construction effects				
Risk of damage to properties and services due to subsidence of the ground	Terrace Tunnel and Mt Victoria Tunnel (but to a lesser extent)	Moderate / low	Implement appropriate tunnel construction methodologies, carry out pre-construction surveys of potentially affected buildings and services, carry out underpinning of critical buildings, undertake monitoring, set alarm levels and carry out repairs to any affected buildings where necessary Implement a Trigger Action Response Plan, as part of a wider Groundwater and Settlement Monitoring Contingency Plan (GSMCP)	Negligible - low
Operational effects				
Future development (e.g. excavation or additional load) above the tunnels could impact on tunnel stability and integrity.	Terrace Tunnel	Moderate	A protection area is incorporated into the designation alteration and subsurface easements are recommended to protect the tunnels from future development effects	Low
Resilience benefits from duplicated tunnels and grade separation of the arterial Cambridge / Kent Terrace – Adelaide Road connection from the state highway traffic	Terrace Tunnel and Mt Victoria Tunnel	N/A	New tunnels to include an allowance for fault rupture via tunnel linings with movement joints and strengthening, to minimise downtime and resilience of access	Regionally significant high positive effects

6.10.4 Residual effects

While tunnel construction methods and monitoring can manage ground behaviour, the assessment notes that the magnitude, distribution and consequences of tunnelling induced subsidence cannot be predicted with certainty, and some residual risk of localised damage to buildings and services remains especially where the tunnels intersect weak fault zones.

The assessment also recognises that fault rupture is rare, but if rupture occurs on faults crossing the corridor it may still result in damage and temporary outage, albeit with the expectation that recovery can be facilitated through design allowances.

Liquefaction induced ground deformation and Aotea fault rupture risks in the Basin Reserve area will remain, but access can be quickly restored by keeping the road predominantly at grade, so that access can be quickly restored.

Finally, some locations, notably the Mt Victoria eastern approach, are subject to ongoing investigation and refinement, meaning a residual element of uncertainty remains regarding the precise scale of potential slope instability and associated disruption under major earthquake or storm event from existing and proposed cut slopes.

6.10.5 Summary

The overall level of geotechnical and resilience effects of the Project are significantly positive and the remaining risks identified in the specialist report can be managed to a low or negligible level.

6.11 Groundwater effects

6.11.1 Introduction and assessment methodology

Technical Report #14 (Groundwater Assessment) provides an assessment of actual and potential effects on groundwater and land settlement from the Project, and sets out monitoring requirements and measures to avoid, remedy, or mitigate adverse effects.

The assessment methodology for this report included a literature and desktop review of existing data, site investigations, technical analysis and modelling to understand groundwater conditions and predict potential effects.

Fieldwork included a site walk over and inspections of key sites and existing monitoring wells near the proposed alignment. In addition, drilling works and hydraulic testing to confirm soil and rock permeabilities was undertaken at various locations.

The methodology focused on gathering and analysing existing geological, hydrogeological, and environmental data relevant to the project area. This included interpreting historical site investigations, regional datasets, and technical reports to establish baseline conditions and inform the development of conceptual models.

Conceptual hydrogeological models were developed to represent groundwater systems, and form the basis of numerical groundwater modelling tools (Seepage Analysis using Seep/W and Analytical Aquifer Simulator; AnAqSim) developed for the Project to quantify groundwater drawdown and flow changes. The numerical modelling was undertaken in accordance with relevant technical guidelines and supported by collaboration with other Project technical specialists to integrate design and environmental considerations.

6.11.2 Hydrogeological effects

Construction and operational activities associated with the Project have the potential to interact with groundwater systems, resulting in groundwater drawdown, altered flow paths resulting in groundwater quality effects, stream and wetland baseflow reduction effects, and land settlement.

Construction effects

Construction of the new Terrace Tunnel will require excavation below the groundwater table and temporary dewatering. However, the groundwater table is predominantly located within fractured greywacke bedrock, which has very low compressibility. Groundwater drawdown during construction is therefore not expected to induce settlement of overlying soils. As such, no groundwater-induced land

settlement is expected during construction, and the unmitigated settlement effect from groundwater drawdown is assessed as negligible. Mechanical settlement related to tunnelling construction may still occur but is addressed separately in section 6.10 (Geotechnical Assessment).

Changes to groundwater flow at the Terrace Tunnel are expected to be localised around the tunnel alignment and there is no evidence of groundwater contaminations in concentrations above background levels near the tunnel that could be drawn into the temporary dewatering systems. Potential water quality effects could, however, arise if naturally slightly acidic groundwater becomes highly-alkaline when it comes into contact with the tunnel liner materials, and is drawn into the temporary dewatering system, which is subsequently discharged to stormwater. All stormwater is discharged to the sea and any contaminants in them could affect marine water quality.

The Kumutoto Stream flows directly adjacent to the existing Terrace Tunnel and the proposed new southbound tunnel to the east. The Kumutoto Stream is piped downstream of the northern Terrace tunnel portal and only the upstream part is considered a natural stream. Groundwater drawdown by the drainage system of the new tunnel could potentially reduce baseflows to nearby surface water. However, because the upstream part of the Kumutoto Stream is hydraulically disconnected from groundwater, the impact of the Project on the baseflow of the Kumutoto Stream is assessed as 'negligible'.

Construction of the Sussex Street trench will require temporary dewatering and depressurisation within shallow, compressible sediments, including marine sediments and Holocene swamp deposits. Groundwater drawdown of up to approximately 2 m at a distance of 10 m from the trench is predicted during construction. Unmitigated groundwater drawdown during construction could result in land settlement of up to approximately 35 mm. This level of settlement could cause slight damage, such as minor cracking, to nearby buildings and structures (including the Cricket Stand), which would generally be repairable. Accordingly, the unmitigated construction-phase settlement effect at the Basin Reserve is assessed as low.

Without mitigation, the temporary dewatering and depressurisation will alter local groundwater flow paths. This could potentially mobilise contaminants if present, resulting in contaminants being drawn into the dewatering systems and subsequently discharged to the stormwater system. However, contaminated land and groundwater quality investigations for the Project show the risks of groundwater contaminants affecting surface water due to the Project in the construction phase are negligible.

The construction of the Mt Victoria Tunnel will involve excavation through fractured greywacke bedrock, with groundwater inflows expected to be limited and localised to fracture zones. Temporary dewatering during construction will largely extend existing drainage effects associated with the current tunnel.

Soils susceptible to groundwater-induced settlement are largely absent in this area, and groundwater drawdown occurs mainly within low-compressibility bedrock. Consequently, groundwater-induced land settlement during construction is assessed as negligible. Mechanical settlement risk is addressed above in section 6.10.

Potential groundwater quality effects could occur if high-alkalinity groundwater or nitrogen residues from blasting are captured by the temporary dewatering system flows, and are subsequently discharged to stormwater, potentially affecting marine water quality.

Construction activities within the Eastern Connections section will require temporary dewatering at up to four launch and receiving pits, with drawdowns of up to approximately 14 m at the deepest pit. Groundwater drawdown is predicted to extend laterally, with measurable drawdowns at nearby properties.

Unmitigated groundwater drawdown during construction could result in settlement of up to approximately 21 mm within 15 m distance of the deepest pit and up to approximately 6 mm at 50 m distance. This could result in very slight to slight damage to nearby buildings, such as minor cracking, which would generally be repairable. The unmitigated construction-phase settlement effect is therefore assessed as low.

There are four natural wetlands within or in close proximity to the Project footprint, to the west of Ruahine Street. The proposed alignment directly impacts the full extent of two natural wetlands (Wetland 1 and 4) and up to 80% of Wetland 2 will be impacted by changes to groundwater conditions resulting in dewatering.

Wetland 2 is referred to as 'the Ruahine Street wetland' in Technical Report #14 (Groundwater Assessment). The report explains that temporary reduction in groundwater inflow to the Ruahine Street wetland is expected during construction. This effect has been assessed as moderate. Notably, though,

and as discussed above, has been assumed on a conservative basis for the purposes of Technical Report #11 (freshwater and wetland ecology) that the full extent of Wetland 2 will be lost due to the Project resulting in the permanent loss (total area 885 m²) of wetland.

Operational effects

Operation of the new Terrace Tunnel and the Mt Victoria Tunnel will involve permanent groundwater drainage, consistent with the existing tunnels. Groundwater drawdown is expected to be localised and largely confined to fractured greywacke bedrock. Changes to groundwater flow are expected to be limited to the immediate vicinity of the tunnel alignment.

No groundwater-induced land settlement is expected during operation for either of the new tunnels, as the groundwater table is predominantly located within low-compressibility fractured bedrock.

Potential groundwater quality effects could, however, arise if contaminated naturally slightly acidic groundwater becomes highly-alkaline when it comes into contact with the tunnel liner materials, and or high alkalinity groundwater is drawn into the dewatering system, which is subsequently discharged to stormwater, potentially affecting marine water quality.

The Sussex Street trench will involve permanent groundwater drainage within shallow, compressible sediments, including marine sediments and Holocene swamp deposits. This will result in ongoing groundwater drawdown and permanent alteration of local groundwater flow paths within the Basin Reserve area. Potential groundwater quality effects could arise if contaminated groundwater is intercepted by the drainage system and discharged to the stormwater network. These effects have been assessed as low.

Permanent groundwater drawdown associated with operation of the Sussex Street trench could result in land settlement of up to approximately 50 mm within compressible sediments in the operational phase. This level of settlement could cause minor, repairable cracking to nearby buildings and structures. The unmitigated groundwater-induced settlement effects are therefore assessed as low.

Operational activities along Ruahine Street and Wellington Road include permanent groundwater drainage associated with cut slopes constructed for road widening and access. This drainage will result in localised lowering of groundwater levels and permanent alteration of groundwater flow paths. Permanent drainage at cut slopes downgradient of the Ruahine Street wetland is expected to reduce groundwater contributions to the wetland. This impact is assessed as high. Again, the conservative approach in ecology terms has been to assume that the wetland will be entirely 'lost'.

Groundwater drawdown associated with permanent cut-slope drainage could result in localised land settlement within weathered greywacke. Settlement is expected to be limited in extent and unlikely to extend to nearby buildings. The unmitigated groundwater-induced settlement effects are assessed as low.

6.11.3 Mitigation

Mitigation is important to prevent adverse outcomes from groundwater interactions during construction and operation. Activities such as dewatering and permanent drainage can alter groundwater levels and flow paths, potentially mobilise contaminants, and affect water quality. Without mitigation, these changes could lead to adverse environmental effects and structural damage.

The report has recommended site specific mitigation measures such as the implementation of a Groundwater and Settlement Monitoring and Contingency Plan (GSMCP) including damage repair of affected nearby buildings and structures. Stormwater monitoring is recommended to confirm if the quality of stormwater collected by the drainage systems in the tunnels and Sussex Street trench is suitable for discharge to the environment and treatment of the tunnel drainage water if it does not meet the guideline values. Also recommended is the installation of secant pile walls and the lining of the ceiling arch in the tunnels to reduce groundwater ingress.

Spray irrigation could be considered as a temporary measure to mitigate impacts on the nearby Ruahine Street wetland in the construction phase. However, that measure is not being adopted, given the wetland is likely to be subject to permanent dewatering. Effects on this wetland (also referred to as Wetland 2) were assessed above at section 6.8, and subsequently addressed (through ecological compensation) on the conservative basis that the entire wetland will be lost.

These mitigation measures are detailed in Table 40 below, along with an overall level of mitigated effects.

Table 40: Summary of pre and post mitigation groundwater effects

Location	Effects	Magnitude of effect (unmitigated)	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Construction effects				
Terrace Tunnel	Damage to nearby buildings and structures from groundwater induced land settlement from temporary dewatering	Negligible (however mechanical settlement effects could arise)	GSMCP monitoring (because of mechanical settlement effects) and mitigation measures such as damage repair	Negligible
	Groundwater or drainage water in receiving surface water may be affected by high alkaline drainage water which discharge to stormwater	High	Lining of ceiling arch to reduce groundwater inflows and stormwater monitoring and water treatment where required	Low
Basin Reserve	Damage to nearby buildings and structures from groundwater induced settlement	Low	Secant pile walls to reduce groundwater inflows and GSMCP monitoring (because of mechanical settlement effects) and mitigation measures such as damage repair	Negligible
	Groundwater or drainage water receiving surface water may be affected by high alkaline drainage water or contaminants being drawn into the groundwater drainage system which discharge to stormwater	High	Secant pile walls to reduce groundwater inflows and stormwater monitoring and water treatment where required	Low
Mt Victoria	Damage to nearby buildings and structure from groundwater induced land settlement from temporary dewatering	Negligible (however mechanical settlement effects could arise)	GSMCP monitoring (because of mechanical settlement effects) and mitigation measures such as damage repair	Negligible

	Groundwater or drainage water receiving surface water may be affected by high alkaline drainage water which discharge to stormwater	High	Lining of ceiling arch to reduce groundwater inflows and stormwater monitoring and water treatment where required	Low
Ruahine Street / Wellington Road	Damage to nearby buildings and structures from groundwater induced land settlement from temporary dewatering	Low	GSMCP monitoring and mitigation measures such as damage repair	Negligible
	Damage to nearby buildings and structures from groundwater induced land settlement due to cut slopes	Low	GSMCP monitoring and mitigation measures such as damage repair	Negligible
	Stream and wetland baseflow reduction due to groundwater drawdown at Ruahine wetland	Moderate	Temporary spray irrigation during construction is possible, however given the wetland is likely to be subject to permanent dewatering, this mitigation is not proposed to be adopted by NZTA	Moderate; but will be addressed through biodiversity compensation
Operational effects				
Terrace Tunnel	Damage to nearby buildings and structures from groundwater induced land settlement from permanent groundwater drainage	Negligible (however mechanical settlement effects could arise)	GSMCP monitoring (because of mechanical settlement effects) and mitigation measures such as damage repair	Negligible
	Groundwater or drainage water receiving surface water may be affected by high alkaline drainage which discharge to stormwater	High	Lining of ceiling arch to reduce groundwater inflows and SMP monitoring and mitigation measures such as water treatment	Low
Basin Reserve	Groundwater or drainage water receiving surface water may be affected by high alkaline drainage which discharge to stormwater	High	Secant pile walls to reduce groundwater inflows and SMP monitoring and mitigation measures such as water treatment	Low

Mt Victoria Tunnel	Damage to nearby buildings and structures from groundwater induced land settlement from temporary dewatering	Negligible (however mechanical settlement could arise)	GSMCP monitoring (because of mechanical settlement effects) and mitigation measures such as damage repair	Negligible
	Stream and wetland baseflow reduction in Ruahine Street area, due to groundwater drawdown within Mt Victoria Tunnel area	Negligible	None	Negligible
	Groundwater or drainage water receiving surface water may be affected by high alkaline drainage water which discharges to stormwater	High	Lining of ceiling arch to reduce groundwater inflows and SMP monitoring and mitigation measures such as water treatment, as allowed for in the design.	Low
Ruahine Street / Wellington Road	Damage to nearby buildings and structures from groundwater induced land settlement due to cut slopes	Low	GSMCP monitoring and mitigation measures such as damage repair	Negligible
	Stream and wetland baseflow reduction due to groundwater drawdown at Ruahine wetland due to cut slopes	High	Refer to freshwater ecology assessment	Refer to freshwater ecology assessment; effects on this wetland will be addressed through biodiversity compensation

6.11.4 Summary

The overall level of effect, assuming mitigation measures are implemented, is assessed as low to negligible, except for the impacts on the Ruahine Street wetland / 'Wetland 2'. Effects on that wetland will be addressed through biodiversity compensation, as set out in section 6.8.5.

6.12 Stormwater effects

6.12.1 Introduction and assessment methodology

The following section summarises the findings of Technical Report #15 (Stormwater Assessment). The report provides an assessment of the effects the Project is likely to have on receiving environments, in relation to stormwater runoff from the Project.

The report describes the proposed stormwater management system, which is the principal means of avoiding, remedying and mitigating the hydrological and stormwater contaminant effects of the Project. The report describes how potential stormwater quality and flooding effects have been minimised through the concept stormwater design and recommends maintenance and operational measures to ensure the ongoing effectiveness of the proposed stormwater management system.

There are various stormwater design and hydrological guidelines and standards that have been developed by NZTA and others to manage the potential adverse stormwater effects of development. These have been adopted in the design of stormwater treatment infrastructure for the Project and include best-practice guidelines by Tiaki Wai and Austroads drainage guides. The assessment methodology used for the report includes desktop analysis, site visits, and modelling of stormwater treatment systems and flooding. Desktop analysis included the review of rainfall, hydrological and flood mapping information from online sources.

A site walkover was undertaken with the Project design team to understand the terrain and constraints. Contaminant loads in runoff were modelled for two scenarios: for the present-day traffic on the existing highway, and for expected future traffic on the upgraded highway. The traffic contaminants modelled are total suspended solids (TSS), copper, zinc and total petroleum hydrocarbons (TPH). Load reduction factors for proposed treatment devices were included in the modelling, and the comparative results of the two modelled scenarios were assessed to determine the mitigated effects on water quality, arising from discharges from the Project. The flooding assessment has used Tiaki Wai's InfoWorks Integrated Catchment Model (ICM). The pre- and post-Project flood extents and levels have been assessed for the 10% and 1% AEP events with a Representative Concentration Pathway (RCP) 6.0 climate change scenario⁵⁰ (per NZTA P46 Specification, 2025).

6.12.2 Existing environment

The Project area is located within the highly urbanised area of central Wellington, where surfaces are predominantly impermeable and comprise existing roads, paved areas, footpaths, parking areas and buildings. Stormwater runoff from the Project area is largely untreated, except for existing catchpits and treatment devices for water from the existing Terrace and Mt Victoria tunnels. Runoff is generally conveyed by the Tiaki Wai stormwater network, or flows overland where network capacity is exceeded, before discharging to Te Whanganui-a-Tara (Wellington Harbour). Runoff from The Terrace, Te Aro, the Basin Reserve and Mt Victoria Tunnel discharge to Lambton Harbour, while runoff from the Eastern Connections area discharges to Evans Bay.

Several piped streams / awa are located within the stormwater network in the vicinity of the Project, including Kumutoto, Waikoukou, Waimapihi, Moturoa, Waipapa and Waitangi awa. These generally convey stormwater to Lambton harbour except for the Waipapa awa, which conveys stormwater to Evans Bay. Technical Report #15 also notes that Waikoukou awa does not receive stormwater from the state highway.

The existing stormwater infrastructure is significantly constrained, with limited downstream pipe capacity and low points in the terrain contributing to existing flood hazard across the Project area. Stormwater

⁵⁰ RCP 6.0 is a climate stabilisation scenario identified by the Inter-governmental Panel on Climate Change. This scenario anticipates increased CO2 emissions until 2080, and then a decline in emissions. For this scenario GWRC anticipates approximately 0.5° C increase in mean temperature in central Wellington by 2040, and approximately 1° C by 2090

modelling indicates that the downstream piped infrastructure in all areas does not have capacity to convey 10% AEP flows, and these constraints are expected to increase with more regular rainfall events associated with climate change. Overall, the current environment is characterised by largely untreated road runoff, constrained and aging stormwater infrastructure, and existing flood hazard, which together present key challenges for managing water quality and flood risk.

6.12.3 Stormwater and hydrological effects

Stormwater effects include changes in water quality and flooding once the Project is built and is operational. Increased traffic volumes and changes in impervious areas can increase contaminant loads, alter runoff patterns and affect flood hazard. If unmitigated, these effects have the potential to reduce the quality of stormwater discharges to piped away, and coastal receiving environments, affecting cultural values associated with those away, and compromise the ability to meet relevant stormwater management and water quality expectations under applicable planning documents.

Technical Report #15 describes the existing stormwater quality and flooding within the Project area. Without the treatment and flood management measures incorporated into the design, the report assesses the Project as having an overall Moderate level of adverse effect on water quality and a generally low adverse effects on flooding. This information has been summarised in Table 41 and Table 42 below.

6.12.4 Mitigation

The Stormwater Assessment has identified mitigation measures to manage stormwater quality and flooding effects during operation of the Project. These measures are incorporated into the concept stormwater design and are intended to reduce contaminant loads in road runoff and manage potential flood effects associated with changes in impervious area, ground levels and stormwater infrastructure.

Table 41 and Table 42 below summarise the proposed mitigation measures for each Project area. For water quality, the design adopts a water sensitive design approach where practicable within an overall best practicable option (BPO) framework, recognising the constraints of the existing urban environment. The proposed treatment includes filter inserts in all existing and new catchpits within the Project area, bioretention devices (rain gardens) where space and levels allow, and proprietary treatment devices where rain gardens are not practicable, particularly in approach areas either side of the new Terrace Tunnel portals and in Hataitai, but levels allow connection to the stormwater network.

The mitigation / design measures are designed to improve the overall quality of stormwater discharged from the Project area to Te Whanganui-a-Tara (Wellington Harbour), with modelled overall reductions of approximately 39% in TSS, 12% in zinc, 23% in copper, and 31% for TPH compared with the present-day scenario.

For flooding, the design includes targeted new stormwater infrastructure and geometric design measures. In the Eastern Connections section, this includes a new 1500 mm diameter stormwater pipeline along the Project alignment, discharging to an upgraded Evans Bay outfall, storage tanks, and a flood conveyance opening under the ramp to Hataitai Connection bridge. These measures are expected to reduce flooding and overland flow in the Eastern Connections area.

In other areas, the geometric design has been developed to minimise flood impacts associated with changes in ground levels, with further refinement expected during detailed design.

Technical Report #15 also recommends stormwater devices are regularly maintained in accordance with Tiaki Wai guidance and manufacturer requirements, and that a Stormwater Maintenance Plan is prepared to set out operation and maintenance requirements for the long-term management of the stormwater system.

With the proposed stormwater treatment and flood management measures incorporated into the design, Technical Report #15 concludes that the Project will result in an overall Low Positive effect on stormwater quality and flooding.

NZTA proposes to implement these mitigation measures as recommended.

Table 41 and Table 42 below summarises the actual and potential effects for each area, the mitigation proposed to be implemented by NZTA, and the resulting level of effect after mitigation.

Table 41: Summary of water quality effects

Water quality						
Location		Unmitigated project effect	Level of unmitigated effect	Mitigation recommendations adopted by NZTA	Mitigated project effect	Overall level of mitigated effect
Culverted awa	Coastal receiving environment					
Kumutoto Awa	Lambton Harbour	Increase in TSS: +16% Increase in zinc: +18% Increase in copper: +18% Increase in TPH: +18%	Moderate effect	Terrace Tunnel northern portal: Catchpit filters and proprietary treatment devices, at northern tunnel portal to treat tunnel deluge water treating 100% of Project area	Decrease in TSS: -24% Decrease in zinc: -2% Decrease in copper: -8% Decrease in TPH: -15%	• Low positive effect
Waimapihi Awa	Lambton Harbour	Increase in TSS: +7% Increase in zinc: +15% Increase in copper: +11% Increase in TPH: +9%	Moderate effect	Terrace Tunnel / Te Aro: Catchpit filters and proprietary treatment devices, at southern tunnel portal to treat tunnel deluge water treating 100% of Project area	Decrease in TSS: -15% Increase in zinc: +8% Decrease in copper: -2% Decrease in TPH: -6%	• Low adverse effect at point of discharge • Negligible at marine outfall
Moturoa Awa	Lambton Harbour	Increase in TSS: +30% Increase in zinc: +34% Increase in copper: +34% Increase in TPH: +34%	Moderate effect	Te Aro / Vivian Street: Catchpit filter inserts to treat tunnel deluge water treating 100% of Project area	Decrease in TSS: -2% Increase in zinc: +20% Increase in copper: +18% Increase in TPH: +10%	• Low adverse effect at point of discharge • Negligible at marine outfall

Tory Street stormwater network	Lambton Harbour	Increase in TSS: +45% Increase in zinc: +50% Increase in copper: +50% Increase in TPH: +50%	Moderate effect	Te Aro / Vivian Street: Catchpit filter inserts to treat tunnel deluge water treating 100% of Project area	Increase in TSS: +9% Increase in zinc: +35% Increase in copper: +32% Increase in TPH: +22%	• Low adverse effect at point of discharge • Negligible at marine outfall
Waitangi Awa	Lambton Harbour	Increase in TSS: +26% Increase in zinc: +22% Increase in copper: +22% Increase in TPH: +21%	Moderate effect	Basin Reserve: Catchpit filters, proprietary treatment devices and rain gardens treating 100% of Project area	Decrease in TSS: -48% Decrease in zinc: -26% Decrease in copper: -36% Decrease in TPH: -40%	• Moderate positive effect
Waipapa Awa	Evans Bay	Increase in TSS: +28% Increase in zinc: +32% Increase in copper: +32% Increase in TPH: +32%	Moderate effect	Eastern Connections: Catchpit filters and proprietary treatment devices, treating 100% of Project area	Decrease in TSS: -59% Decrease in zinc: -18% Decrease in copper: -42% Decrease in TPH: -54%	• Moderate positive effect
Project totals		TSS: +22% Zinc: +23% Copper: +27% TPH: +22%	Moderate effect	A Stormwater Maintenance Plan is recommended to support the ongoing performance of treatment devices	TSS: -39% Zinc: -12% Copper: -23% TPH: -31%	• Low positive effect overall

Table 42: Summary of actual and potential flooding effects

Flooding				
Location	Effect	Level of effect (unmitigated)	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Terrace Tunnel	Reduction in flooding of up to 0.5m on northbound lanes and new flooding of up to 0.75m on new southbound lanes	Negligible	Pump flood waters to proposed tunnel deluge storage tanks (1,200m ³ capacity)	Low to negligible adverse effect
Te Aro	No increase in impervious surfaces. Minor changes to ground level	Negligible	Design avoids material changes to existing flow paths along Vivian Street and Karo Drive, with only minor changes to ground levels and no increase in impervious surface, so existing drainage patterns are maintained and flooding is not exacerbated	Negligible effect
Basin Reserve and Mt Victoria Tunnel	Localised increases in flood levels, particularly near new Sussex Street trench connection to Cambridge Terrace and in northeast corner of Basin traffic system(northbound and southbound), associated with lowered ground levels. Minor flood depth reductions are modelled along Kent Terrace and in some areas north/south of Basin	Low	No specific stormwater infrastructure is proposed: detailed geometric design to minimise localised flood level increases and avoid exacerbating flood hazard outside the Project area	Low adverse effect (some areas of both reduced and increased flood levels)
Eastern Connections	Increased stormwater runoff could (without mitigation) have worsened existing flood hazard Embankment associated with overpass from Moxham Avenue displaces flood storage and intercepts overland flow path from north to south	Not specified	Proposed new 1500 mm pipe beneath Ruahine Street and along Wellington Road connecting with the existing network and discharge at Evans Bay Marina outfall to increase capacity of existing stormwater infrastructure	Moderate positive effect

	Increased flood depths could have arisen between Kilbirnie Crescent and Evans Bay Parade (as well as to the south of Wellington Road junction) Increased depths would have been associated with new lanes for the widened highway to the west of the Junction (i.e. Wellington Road)		Design includes flood conveyance path through Hataitai Connections bridge embankment to provide floodplain continuity	
Overall effects		Low effect		Low positive effect overall

6.12.5 Residual effects

Residual adverse effects after mitigation are expected to be limited. Some areas, particularly Te Aro (Moturoa awa and Tory Street stormwater network), receive limited treatment (filter inserts in catchpits) due to space constraints, resulting in an overall low adverse level of effect on stormwater quality in the immediate discharge location, but negligible in the harbour.

Localised flood level increases are identified in places. These increases are generally associated with changes in road levels or floodplain interaction, are largely contained within the designation, and will be further considered and effects refined through detailed design refinement of the geometric design of the road.

6.12.6 Summary

Overall, the impact on stormwater quality and flooding will be beneficial, with improvements more than compensating for reduced water quality from some Project areas and limited localised increased flood depths.

The proposed stormwater design incorporates a water sensitive design approach implemented through a BPO approach to the stormwater design⁵¹, recognising the constrained urban environment.

For water quality, treatment measures are designed to reduce contaminant loads from SH1 through the Project area to Te Whanganui-a-Tara (Wellington Harbour) by approximately 39% in TSS, 12% in zinc, 23% in copper, and 31% for TPH. The specialist report recommends that a Stormwater Maintenance Plan is prepared to support the ongoing performance of treatment devices.

For flooding, targeted stormwater infrastructure upgrades are proposed, most notably in the Eastern Connections.

6.13 Soil contamination effects

6.13.1 Introduction and assessment methodology

The following section summarises the findings of Technical Assessment #16 (Contaminated Land Assessment) which provides an assessment of actual and potential effects of contaminated land disturbed by the Project, and sets out measures to avoid, remedy, or mitigate adverse effects.

The assessment methodology used supporting information from a Preliminary Site Investigation (PSI) and Detailed Site Investigations (DSIs) of HAIL land at two locations, prepared in general accordance with the requirements set out in the Ministry for the Environment's Contaminated Land Management Guideline No 1 (Reporting on contaminated sites in New Zealand) and No 5 (Site investigation and analysis of soils) and as referenced in the NES-CS.

The Contaminated Land Assessment used the PSI and DSIs to undertake a qualitative assessment of effects relating to identified HAIL land and other contaminated land affected by the Project, informed by a generalised Conceptual Site Model which considered the following:

- Source – The location, nature and concentration of contaminants in HAIL land and other contaminated land that will be subject to ground disturbance by the Project. This included land contaminated as the result of the migration of contaminants from contaminated land adjacent to the Project alignment into the Project alignment, which includes HAIL land
- Pathway – Migration pathways to people and the environment arising from ground disturbance within HAIL land and / or other contaminated land within the Project alignment. Pathways include dermal contact, ingestion and inhalation of contaminants in soil, groundwater and air by human receptors, and the discharge/migration of contaminants to the environment via groundwater, stormwater and streams. A pathway exists only where ground disturbance for the Project occurs within affected HAIL land or other contaminated land and receptors are present
- Receptor – Location and nature of human and environmental receptors that could be exposed to contaminants mobilised during ground disturbance for the Project. Human receptors principally comprise Project construction workers, with secondary receptors comprising members of the

⁵¹ The design approach is discussed further in Technical Report #4 – Design Assessment

public in the vicinity of ground disturbance works. Environmental receptors principally comprise streams, Wellington Harbour and Evans Bay from the discharge of contaminants in stormwater runoff or from discharges to the ground, passive discharges of contaminants in groundwater and stormwater from dewatering activities as part of the Project

A complete source, pathway and receptor (SPR) linkage requires the presence of all the SPR elements and indicates potential effects on (risk to) human health and / or the environment. These effects are categorised as Negligible to Very High. An incomplete pathway indicates Negligible effects.

Visual assessments of the relevant sites were conducted from publicly accessible locations, typically footpaths. Privately held properties were not entered as part of the visual assessments, except for the Gazley Mitsubishi Dealership property located at 75-78 Cambridge Terrace. A site walkover of Kilbirnie Park was also carried out. Extensive use was made of historical and current aerial photographs and existing environmental reports to identify potential contaminated land features.

6.13.2 Existing environment

HAIL land was identified at 65 locations in total, being 58 locations based on Selected Land Use Register (SLUR) records and seven locations that were not recorded on the SLUR, identified from historical aerial photographs, visual assessment and other information reviewed.

Overall, 63 locations identified as HAIL land within the Project area were assessed as having negligible effect on human health and the environment because it was assessed that no ground disturbance works would be occurring, either on identified HAIL land or on land subject to ground disturbance that may have been affected by the migration of contaminants from HAIL land.

Two locations (the Gazley Mitsubishi Dealership and Kilbirnie Park) were identified as HAIL land directly affected by ground disturbance (bulk earthworks) during construction. Low to moderate effects on human health and the environment were assessed for these two HAIL sites based on the findings of the PSI. The details of these two sites are provided in Table 43 below.

Table 43: HAIL land deemed sites of potential contamination within the Project alignment

HAIL site	Details
SLUR site SN/05/230/02 Kirk Motors Ltd (currently Gazley Mitsubishi) 75-78 Cambridge Terrace.	- Proposed works involve demolishing the Gazley Mitsubishi property and undertaking bulk earthworks to create the SH1 northbound overbridge connection to the extended Sussex Street, including a trenched section connecting to Cambridge Terrace south of Barker Street - Trench excavation will require dewatering - The site is likely associated with HAIL F7⁵² and HAIL F4⁵³ based on past land use - Contaminated soil and groundwater may be encountered during earthworks, resulting in potential discharges of contaminants to land and water and human exposure to contaminants - Likely contaminants: heavy metals, petroleum hydrocarbons and volatile and non-volatile organic compounds - The SPR linkage at Gazley Mitsubishi was assessed as complete
SLUR site SN/05/012/02 Kilbirnie Park SH1 Kilbirnie	- Proposed works involve demolishing the existing cricket club rooms and undertaking bulk earthworks to widen and realign SH1 (prior to Cobham Drive) which will encroach onto the northern part of Kilbirnie Park - Kilbirnie Park is listed on GWRC SLUR (HAIL G3⁵⁴) due to historic fill (1937 – 1939)

⁵²HAIL F7: Vehicle refuelling, service and repair - Service stations, including retail or commercial refuelling facilities

⁵³HAIL F4: Vehicle refuelling, service and repair - Motor vehicle workshops

⁵⁴ HAIL G3: Landfill sites

HAIL site	Details
	• Previous investigations found contaminated fill including refuse (bricks, glass, metal) under the former bowling club near the Aquatic Centre to the south of the Project area • Likely contaminants: heavy metals, PAHs and asbestos • Contaminated soil (including anthropogenic wastes and contaminated groundwater), may be encountered during earthworks, resulting in potential discharges of contaminants to land and water and human exposure to contaminants • The SPR linkage at Kilbirnie Park was assessed as complete

The DSI undertaken at the Gazley Mitsubishi Dealership indicated that the surficial fill across the site is contaminated by polycyclic aromatic hydrocarbons (PAH), potentially derived from coal tar, but the site does not appear to be affected by contaminants associated with HAIL F4 and HAIL F7. Further investigations are recommended following building demolition and prior to the commencement of earthworks on this site. The DSI undertaken at Kilbirnie Park indicated that the disposal of anthropogenic wastes to land did not occur within the northern area of the park that will be directly affected by the Project. The effects on human health and the environment from these two HAIL sites without mitigation is assessed, based on the DSI results, as negligible to low.

Additionally, the assessment identified non-HAIL and other potentially contaminated land within the Project alignment, which are discussed in Table 44 below.

Table 44: Non-HAIL and other potentially contaminated land

Location	Details
Commercial and residential houses – Wellington Road / SH1	• Demolition of commercial and residential buildings, including medium-density homes on Sussex Street (Basin Reserve) and low-density homes on Paterson Street, Moxham Avenue, and Wellington Road/SH1 near Kilbirnie Park, some dating back to 1938 • Soils may contain lead from historic paints and asbestos from building materials • SPR linkage for land disturbed at building demolition sites as potentially complete • The effects on human health and the environment without mitigation is assessed as negligible to low
Roadside berms soils	• Previous investigations show contamination from vehicle particulates, including heavy metals and polycyclic aromatic hydrocarbons within berm soils on Ruahine Street. Berm soils in Ruahine Street will be disturbed for the Project. Other SH1 berm soils are also likely to be contaminated and will be disturbed for the Project. These include: ○ Berm soils at the northern and southern portals of the Terrace Tunnel ○ Berm soils to be removed for the Ghuznee Street bridge ○ Berm soils at the western and eastern portals of the Mt Victoria Tunnel • soil excavation along the western berm of Ruahine Street • SPR linkage for disturbed berm land is potentially complete • The effects on human health and the environment without mitigation is assessed as negligible to low
Unclassified fill at various locations	• Backfill required for retaining walls, pavements, and stormwater outfall install/upgrades

Location	Details
	• Locations and contamination status of unclassified fill are unknown, though large volumes are unlikely • Unclassified fill may include reclamation material near the Evans Bay outfall, so contaminated soils could be encountered during stormwater realignment works • SPR linkage for land disturbed containing unclassified fill is potentially complete • The effects on human health and the environment without mitigation is assessed as negligible to low
Localised ground contamination	• Potential for localised contamination from the migration of contaminants along preferential pathways such as services trenches into areas of the Project subject to ground disturbance. • None identified but cannot be ruled out • SPR linkage for land impacted by localised contamination is potentially complete • The effects on human health and the environment without mitigation is assessed as negligible
Coal tar	• Some coal tar could be present in roading materials in some locations. • SPR linkage for disturbed roading materials containing coal tar is assessed as potentially complete • The effects on human health and the environment without mitigation is assessed as low to moderate

6.13.3 Soil contamination effects

Construction effects

Construction soil contamination effects mainly involve the discharge of contaminants from the disturbance of contaminated land during construction works, posing risks to the environment and human health, including construction workers and the public. Contaminant discharges to the environment include:

- Discharge to land and/or water of contaminated soil or groundwater
- Discharge of contaminants to stormwater and the receiving environment (Wellington Harbour/Evans Bay)
- Discharge to air of contaminated dust and/or vapour

Such effects may occur during soil disturbance within identified HAIL land at Gazley Mitsubishi and Kilbirnie Park. These effects without mitigation are currently assessed as negligible to low. A potential for effects from contaminated groundwater migration from the former landfill / cemetery sites at Kelburn Park and Mount Street Cemetery during dewatering activities associated with the construction of the second Terrace Tunnel was also identified. Subsequent groundwater analysis has shown no contamination and that the effects are therefore negligible.

Additionally, similar low to moderate effects may arise, without mitigation, where coal tar is disturbed within sections of the existing carriageway and from negligible to low effects without mitigation in other contaminated land to be disturbed identified above in Table 44 above.

Operational effects

Operational soil contamination effects primarily relate to the discharge of contaminants from disturbance of contaminated land which may arise during periodic maintenance works associated with the maintenance of the road and landscaped areas, where there may be an effect on the environment and on human health, including workers and the public.

Contaminated land may still be present at the two HAIL land sites post-construction, however it is considered that the nature and extent of remaining contamination will have been established as part of the Project construction and documented in a Works Completion Report.

Overall, the operational effects on human health and the environment without additional mitigation are low.

6.13.4 Mitigation

Technical Report #16 recommends the following mitigation measures.

Construction effects

- Develop a Contaminated Site Management Plan (CSMP) informed to avoid, remedy or mitigate effects during construction works affecting HAIL Land at Gazley Mitsubishi property. The CSMP should be informed by further site investigations undertaken at Gazley Mitsubishi following removal of the existing buildings
- If dewatering is required for Project works within Kilbirnie Park, develop a CSMP to avoid, remedy or mitigate effects from discharges from dewatering during construction works. The CSMP should include procedures for managing accidental or unexpected discoveries during construction work
- Encountering coal tar within roading material should be included in the unexpected contamination discovery protocol for the Project (see below). Where coal tar is encountered, a management plan is recommended to manage the effects of this contaminant
- All structures built prior to the year 2000, or where asbestos containing materials are likely to be present, requiring demolition as part of the Project should be surveyed for the presence (concentrations) of asbestos by a licensed asbestos assessor to meet statutory obligations set out in the Health and Safety at Work (Asbestos) Regulations 2016. The assessment should be undertaken following demolition. Site-Specific Contaminated Soil Management Plans (SS-CSMPs) should be prepared if significant concentrations of asbestos and lead remain in soils
- The Project Constructor's general works plan should include methods setting out measures for identifying other contaminated or potentially contaminated soils, including the berm soils and unclassified fill soils. This should provide general measures to manage the soils to manage effects of offsite discharges and include an unexpected discovery protocol

Operational effects

- Prepare Long Term Site Management Plans (LTSMPs) as necessary, setting out management procedures for contaminated soil and / or groundwater likely to be encountered during operation on the HAIL land to mitigate operational effects of the Project. These operational effects relate principally to discharges from dewatering, and the presence of potential residual soil contamination at Gazley Mitsubishi property. Maintenance teams should be provided with the LTSMPs prior to undertaking operational maintenance works. The requirements for and scope of the LTSMPs should be assessed following completion of Project construction works
- Encountering coal tar within roading material should be included in the unexpected contamination discovery protocol within operational maintenance plans. Where coal tar is encountered, a management plan is recommended to manage the effects of contaminant discharges
- Develop Site Specific Contaminated Site Management Plans (SS-SMP) if residual asbestos and / or lead are present above background levels and / or human health criteria at building demolition sites, setting out management of residual contamination and distributed to affected parties, as required

NZTA proposes to implement these mitigation measures as recommended.

Table 45 below summarises the actual and potential effects of the Project, the mitigation measures proposed to be implemented by NZTA, and the resulting level of effect after mitigation.

Table 45: Summary of potential soil contamination effects of the Project

Effect to be mitigated	Contaminant source area / type	Scale of effect without mitigation	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Discharge of contaminants to the environment from HAIL land during construction	HAIL land at Kilbirnie Park SLUR site SN/05/012/02: mixed including metals, petroleum hydrocarbons	Negligible	Preparation of Contaminated Soil Management Plan (CSMP) based on DSI results and the nature of land disturbance for the Project. Additional investigations at Gazley Mitsubishi following building demolition	Negligible
	HAIL land at Gazley Mitsubishi SLUR site SN/230/02: principally petroleum hydrocarbons	Negligible to low		
	Coal Tar in roading materials: high concentrations of PAH	Low to moderate	Preparation of unexpected discovery protocol for the Project. Coal tar management plan to be prepared if coal tar encountered	Negligible
	Building demolition locations: ACM and lead	Negligible to low	Assessment of asbestos and lead in soils following demolition, followed by site specific site management plan (SS-SMP) to be prepared if significant concentrations of asbestos and lead remain	Negligible
	Berm soils and unclassified fill: including metals and hydrocarbons	Negligible	Site Management Plan (SMP) covering procedures for identifying and managing these soils when encountered	Negligible
Discharge of contaminants to the environment from HAIL land and non-HAIL and other contaminated land during operation (i.e. long-term risk)	HAIL land at Gazley Mitsubishi SLUR site SN/230/02: principally petroleum hydrocarbons	Low	Long Term Site Management Plan (LTSMP) setting out management procedures for contaminated soil and / or groundwater encountered LTSMP to be informed by a Soil Validation Report prepared following construction works documenting the likely nature and location of residual contamination	Negligible

Effect to be mitigated	Contaminant source area / type	Scale of effect without mitigation	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
	HAIL land at Kilbirnie Park SLUR site SN/05/012/02: mixed including metals, petroleum hydrocarbons	Low	LTSMMP setting out management procedures for contaminated soil and / or groundwater encountered LTSMMP to be informed by Soil Validation Report prepared following construction works documenting the likely nature and location of residual contamination	Negligible
	Coal Tar in roading materials: high concentrations of PAH	Negligible to low	Measures to identify and manage coal tar based on information gained during the Project construction works to be included in an Operational Coal Tar Management Plan (CTMP) Management procedures to be based on Industry best practice guidance	Negligible
	Building demolition locations: ACM and lead	Negligible to low	Preparation of post construction works validation reports. If residual asbestos and lead are present above background levels and / or human health soil contaminant standards, Site specific Site Management Plans (SS-SMP) should be prepared setting out management of residual contamination	Negligible
	Berm soils and unclassified fill: including metals, PAH	Negligible	Works are likely to be infrequent and localised, and subject to NZTA standard work practices	Negligible

6.13.5 Summary

All potential contamination areas in the Project area have been considered and mitigation measures outlined such that the Project contamination effects are expected to have negligible effects during both the construction and operational phases of the Project with the recommended mitigation measures adopted. NZTA has reflected these recommendations in the proposed conditions in Appendix A.

6.14 Erosion and sediment control effects

6.14.1 Introduction and assessment methodology

This section summarises the findings of Technical Report #17 (Erosion and Sediment Control Assessment). The report provides an assessment of the potential and actual adverse effects that the Project may have within the Project area and receiving environments in relation to earthworks activities. Erosion and sediment controls and mitigation measures are recommended to manage and control high sediment loads, sediment-laden run-off and water quality, to minimise effects on sensitive environments.

The assessment was undertaken in general accordance with the GWRC Erosion and Sediment Control Guide for Land Disturbing Activities (2021) and relevant objectives and policies of the NRP with

consideration of experience on other projects. A toolbox approach was adopted focusing on three key principles:

- Implementing erosion control measures to minimise or avoid generation of sediment
- Implementation of sediment control measures to minimise the discharge of sediment from the works
- Receiving environment monitoring, to confirm the effectiveness of the measures and to ensure measures adapt to minimise the generation and discharge of sediment

Desktop analysis was the primary method for the assessment. Key information sources included Project-specific design documents, including the Stormwater Assessment – Technical Report #15. Detailed information on the nature and scale of the proposed earthworks was provided, enabling identification of sediment generation risks and potential discharge pathways.

A risk-based approach was used to determine the level of management required for each area of the Project. This involved evaluating the sensitivity of the receiving environments (Lambton Harbour and Evans Bay), the scale and extent of earthworks, and site-specific constraints such as confined urban spaces and tunnel portal locations. The methodology focused on identifying areas where conventional controls may be insufficient and where advanced treatment systems would be necessary.

6.14.2 Existing environment

The Project area is located within a highly modified urban setting dominated by impervious surfaces and limited natural drainage. Established stormwater networks discharge into Lambton Harbour and Evans Bay, which are the primary receiving environments.

The topography along the route consists of a mix of flat land and gentle slopes, with steep-sided slopes near tunnel portals. Surrounding land uses include dense residential and commercial development, creating a constrained environment for managing runoff.

The Project area covers typical Wellington landscapes, with the two tunnels and their approaches situated on elevated, faulted greywacke rock, while other sections pass through lower valleys filled with alluvium, colluvium, and marginal marine soils. Groundwater levels vary significantly across the Project, ranging from 15–20 metres above the tunnel crowns at the Terrace and Mt Victoria Tunnels, to between 0 and 4.5 metres below ground level in areas such as the Basin Reserve, Cambridge Terrace valley, and Ruahine Street.

Sediment will be discharged (following treatment) into the existing stormwater system and will flow into the receiving environments at various outfalls located in Lambton Harbour and Evans Bay. Evans Bay is a shallow, north-facing embayment with limited tidal mixing and a history of reclamation and infrastructure development, while Lambton Harbour is deeper, highly urbanised, and subject to existing contamination from heavy metals and organic pollutants. As discussed above, the ecological value of marine habitats has been assessed as moderate in Evans Bay and low in Lambton Harbour.

6.14.3 Erosion and sediment effects

If not managed effectively, construction activities could result in the discharge of sediment-laden water to the receiving environment. Increased sediment deposition around the outfall and within the harbour could smother existing species and change the nature of the habitat, leading to potential impact on the suitability for specific species. Toxicity effects on marine species may arise due to sediment discharges and changes in pH levels.

The construction of the Terrace Tunnel is expected to generate sediment-laden runoff from bulk earthworks and tunnel spoil handling, along with elevated pH risks associated with grouting and piling activities. These discharges would enter the stormwater network and ultimately reach Lambton Harbour, resulting in a high level of effect without mitigation due to the large volume of earthworks and tunnel water requiring management.

Minimal earthworks are expected for Te Aro resulting in a low risk for sedimentation. Minor runoff from road construction could still carry fine sediments into stormwater systems discharging to Lambton Harbour. The level of unmitigated effects is considered low.

Moderate sediment generation is expected from trench excavation, and ground improvement works at the Basin Reserve, with slurry water from the secant wall and grouting posing a risk of elevated pH. Discharges are expected to enter the stormwater system and ultimately Lambton Harbour. The level of effect is assessed as moderate to high without mitigation.

Construction at the Mt Victoria Tunnel is expected to generate high potential for sediment discharge from steep excavations and tunnel spoil handling, along with high-pH runoff from stabilisation and grouting activities. These discharges are expected to enter both Evans Bay and Lambton Harbour, resulting in a high level of effect, without mitigation.

A moderate to high level of effect, without mitigation, has been assessed for construction effects for the Eastern Connections area, primarily from sediment laden runoff from road widening and slope stabilisation works. Potential high pH runoff from soil and shotcrete is also expected. Runoff will enter drains and ultimately be discharged to Evans Bay.

In summary, without mitigation, the greatest risks occur at tunnel portals, Basin Reserve trenching and cuts in the Eastern Connections area due to large earthworks and confined sites.

6.14.4 Mitigation

The Erosion and Sediment Control Assessment proposes several mitigation measures to manage the effects outlined above. The key method to avoid or minimise effect is through the effective implementation of erosion and sediment control measures in accordance with an Erosion and Sediment Management Plan (ESMP) and site-specific Erosion and Sediment Control Plans (SSESCPs) developed for each stage of work.

For both new tunnels, mitigation focuses on managing large volumes of spoil and tunnel waters with highly constrained sites. Containerised treatment systems are recommended to be used where insufficient space is available for the use of sediment retention ponds to treat sediment laden water and adjust pH through chemical dosing before discharging to reticulated systems and sensitive receiving environments. A Construction Water Treatment Plan (CWTP) is proposed to set out the treatment details of this system, once a contractor is appointed. Stockpiling of soil will also be bunded with runoff areas directed to treatment devices.

Ground improvement works may be required where soft or liquefaction prone soils are present near surface with areas around the bridge abutments and Sussex Street trench. Soil stabilisation is commonly undertaken using a Cutter Soil Mixing methodology where the in-situ soils are mixed with a cementitious slurry using a rotating cutter head or the use of jet grouting. Mitigation for trenching and ground improvement works include allowing water to pond in trenches and pumping it to a sediment treatment device or a sediment retention ponds where space allows. Where space is limited, portable treatment units (e.g., silt busters) are then deployed. High pH water from grouting and piling can then be treated in dedicated tanks prior to discharge.

For road widening and minor works, mitigation would rely on standard erosion and sediment controls outlined in the ESMP and SSESCPs.

General controls are recommended across all work areas to minimise erosion and sediment discharge. These include installing silt fences and filter socks around exposed earthworks, using temporary bunds to divert clean water away from disturbed zones, covering stockpiles to prevent sediment-laden runoff and ensuring stockpiles are kept clear of watercourses. Where feasible, progressive stabilisation of exposed surfaces should also be implemented to reduce erosion risk. It is recommended that works in all Project sections adopt an adaptive approach with continuous monitoring of discharges for TSS⁵⁵ ($\leq 100 \text{ g/m}^3$) using turbidity as a proxy following confirmation of the relationship between turbidity and TSS and pH (6–9).

Automated diversion to the sewer system is being sought in the event that treatment limits cannot be met or there is insufficient capacity within the treatment system. Any discharge to the sewer system would only be during heavy rainfall where the capacity of the Project treatment system is exceeded with no ability to hold water on-site or there is potential for failure of the treatment system. It is not anticipated that regular discharges to the sewer system would occur. In the event that approval to the sewer system is not obtained, additional contingency storage will need to be provided. A contingency response plan is

⁵⁵ Total suspended sediment

recommended which would include visual inspections, in-field monitoring, and escalation to a marine ecologist if non-compliance or unexpected discharges occur.

NZTA proposes to implement these mitigation measures as recommended.

Table 46 below summarises the actual and potential effects for each area, the mitigation proposed to be implemented by NZTA, and the resulting level of effect after mitigation.

Table 46: Summary of potential erosion and sediment control effects of the Project

Location	Scale of earthworks and spoil	Effect	Level of effect (unmitigated)	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Construction effects					
Terrace Tunnel	• Significant cut required at tunnel portals • Largest volume of spoil across project	Sediment laden runoff from tunnelling and portal earthworks entering stormwater and discharging to marine environment Risk of contamination from chemicals and construction materials entering stormwater and discharging to the marine environment	High	• Implementation of ESMP and SSES CP • CWTP • Monitoring discharges • Contingency measures	Low
Te Aro	No bulk earthworks required	Low risk of sediment laden runoff entering stormwater	Low	Implementation of ESMP	Very low
Basin Reserve	• Moderate earthworks with some trenching undertaken • Moderate volume of spoil	Sediment laden runoff from earthworks entering stormwater and discharging to marine environment Risk of contamination from chemicals and construction materials entering stormwater and discharging to the marine environment	Moderate to high	• Implementation of ESMP and SSES CP • CWTP • Monitoring discharges • Contingency measures	Low
Mt Victoria	• Significant cuts required including cut and cover tunnel. • Large volumes of spoil	Risk of contamination from chemicals and construction materials entering stormwater and discharging to the marine environment	High	• Implementation of ESMP and SSES CP • CWTP • Monitoring discharges • Contingency measures	Low
Eastern Connections	• Some cut undertaken • Moderate volumes of spoil		Moderate to high	• Implementation of ESMP and SSES CP • CWTP • Monitoring discharges • Contingency measures	Low

6.14.5 Residual effects

Even with the mitigation measures recommended in the specialist report implemented across all work areas, some residual effects, such as sediment-laden runoff and changes to water quality, may still occur during the construction phase.

However, with the application of the ESMP, SSESPPs, water treatment and the adaptive monitoring and contingency measures, these residual effects are expected to have a low impact on the receiving environments.

6.14.6 Summary

Overall, subject to adherence with the ESMP, SSESPPs, CWTP and the effective implementation of the recommended controls and monitoring procedures, the potential residual adverse effects from sediment discharges during construction of the Project are assessed as low.

6.15 Air quality effects

6.15.1 Introduction and assessment methodology

This section summarises the findings of the assessment of actual and potential effects on air quality arising from the construction and operation of the Project, as presented in Technical Report #18 (Air Quality Assessment). This assessment describes the existing air quality environment and evaluates the potential effects of the Project on the environment. It also recommends measures to avoid, remedy, and mitigate adverse effects.

The assessment methodology followed is consistent with industry best practice and NZTA guidance documents, utilising both desktop analysis, site visits along the Project alignment and modelling.

Construction impacts were evaluated qualitatively, focusing primarily on dust as the main pollutant, while also considering the potential for odours from activities like asphalt placement and soil disturbance. The assessment reviewed specific site construction activities to determine the risk of nuisance dust impacting nearby sensitive locations, considering factors such as the nature and duration of activities, the proximity and sensitivity of receptors, prevailing weather conditions, and the availability and effectiveness of mitigation measures.

The construction phase assessment generally followed the Ministry for the Environment (MfE) Good Practice Guide for Assessing and Managing Dust (MfE GPG Dust) and the Guide to assessing air quality impacts from road transport projects v3 (NZTA Guide) to evaluate air quality values, magnitude of effects and overall level of effect.

For operational effects, the air quality assessment assessed emissions from vehicles using the road, and portal and stack emissions from the tunnels. The operational effects were analysed using detailed atmospheric dispersion modelling (CALPUFF and the CAL3QHCR module of CALROADS), supported by traffic emission data and meteorological inputs. This included a detailed technical assessment involving atmospheric dispersion modelling and site-specific input data.

The detailed vehicle emissions assessment considered multiple scenarios (current, opening year, and 20 years post-opening) and assessed impacts on a range of sensitive receptors, including residences, schools, and public spaces, selected to represent areas most likely to be affected. Traffic assumptions, such as vehicle flows, fleet composition, and speeds, were based on forecasted transport modelling data to ensure realistic modelling of potential air quality impacts.

The assessment of the existing air quality environment for the Project area focused on three main vehicle-related pollutants: NO₂, PM₁₀, and PM_{2.5}. Background concentrations were estimated for these three criteria pollutants within the Project area and background data was used to assess cumulative concentrations, i.e. road contribution plus background contributions, from all other activities. The monitoring data considered the current emissions from vehicles within the Project area and as a result the cumulative concentrations may have overpredicted the actual concentrations. The predicted air quality impacts from the Project were combined with the background air quality to determine whether the air quality criteria are likely to be exceeded.

The air quality guideline criteria used for the assessment are summarised in Table 47 and Table 48 below.

Table 47: Key ambient air quality criteria for road transport relating air pollutants

Pollutant	Concentration (µg/m³)	Averaging period	Protection	Standard / guideline
PM ₁₀	50	24-hour	General population	NES-AQ
	20	annual	General population	NZAAQG
PM _{2.5}	25	24-hour	General population	NZAAQG
NO ₂	200	1-hour	General population	NES-AQ
	100	24-hour	General population	NZAAQG
	40	annual	General population	2005 WHO AQG

Table 48: NZTA Air Quality Significance Criteria

Pollutant	Limit (µg/m³)	Averaging period	Project contribution	Cumulative contribution
PM ₁₀	50	24-hour	10%	90%
NO ₂	40	Annual	10%	90%

6.15.2 Existing environment

The environmental setting relevant to the assessment of air quality effects is described in relation to the following aspects:

- Land use and topography
- Meteorology
- Background (i.e. existing) air quality

The Project alignment traverses the city centre, residential, special purpose and open space land. There are a significant number of sensitive receptors within proximity to the Project alignment that have varying sensitivities to air contaminants. The topography of the Project area is relatively flat with height increasing to the north and east of the Project.

Met Service operates an electronic weather station measuring wind speeds located at Wellington International Airport. This station is located approximately 2 km southeast of Mt Victoria Tunnel. This confirms the predominant wind directions at the airport are from the north and south. The winds from the northerly directions (northwest to northeast) occur approximately 63% of the time and the winds from the southerly directions (southeast to southwest) occur approximately 33% of the time. The average wind speed recorded is 6.9 m/s.

Whilst terrain changes will have a localised effect on the wind speed and direction within the project area, wind directions and speeds will generally exhibit a similar pattern, however the Project area to the west of Mt Victoria will be similar but may have lower wind speeds and slightly different wind directions at times.

The Project area is located within the gazetted Wellington Airshed, which is not considered to be a polluted airshed by GWRC.

6.15.3 Air quality effects

Construction

The primary air quality effects resulting from construction will be those of dust nuisance and could include excessive dust depositing on residential and commercial buildings, cars and laundry.

Key construction activities that could produce dust, if not properly managed, include topsoil removal and storage, excavation, rock drilling and blasting, placement and stockpiling of soil materials, movement of vehicles over unsealed areas, demolition works, and site rehabilitation.

Within this context, construction of the Project has been assessed as having the potential to cause nuisance dust emissions in distinct areas due to the scale of earthworks required and proximity to sensitive receptors. These areas include:

- Where construction zones are within 50 m of high sensitivity areas (mainly residential, public space and childcare centres), without mitigation, the potential for dust nuisance effects to be experienced by people and property from the Project is high
- Where construction zones are located more than 50 m from sensitive receivers, the potential for construction dust to have nuisance effects would be low

It is unlikely that the Project will result in any other air quality effects, such as any material increase in vehicle emissions from construction.

Overall, based on relevant NZTA guidance, the assessment considers a risk for potential nuisance dust impacts could arise for sensitive receptors up to 200 metres from the working areas without mitigation implemented. With mitigation, the potential nuisance dust effects typically reduce to 50 metres.

Operational

The assessment of potential adverse air quality effects during the operation of the Project has predicted ambient concentrations of NO₂, PM₁₀ and PM_{2.5} from vehicle emissions arising from use of the improved road for the opening year (2033) and 20 years after opening (2053).

The concentrations for the “With Project” scenario are slightly higher than the “Without Project / Do Minimum” for all contaminants, however this change in concentration is not significant when compared to MfE’s significance of change criteria. Across all the sections of the Project, the modelling identified that the highest concentration for all contaminants occurs in the base year, with the concentrations decreasing for 2033 and 2053, due to expected upgrades to the vehicle fleet.

The assessment showed that the predicted concentrations of all pollutants are less than the relevant health impact assessment guidelines and the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (NES-AQ) limits (as summarised in the tables in section 6.15.1 above) at the identified sensitive receptors.

Overall, the operational effects of the Project are unlikely to result in any adverse health effects and any change in concentration is unlikely to be experienced at the sensitive receptor location, due to the change being less than the MfE’s significance of change criteria (see Table 48 above).

6.15.4 Mitigation

Operational

Technical Report #18 concludes that when the Project is operational, concentrations of contaminants are predicted to be below the applicable assessment criteria, therefore the Project is not expected to result in any significant degradation of air quality and mitigation of operational effects is not required.

Construction

A range of mitigation and monitoring measures have been recommended for the construction air quality effects of the Project, to minimise emissions of dust at sensitive locations. These measures are to be detailed in a Construction Air Quality Management Plan (CAQMP), as recommended by the NZTA Guide. The CAQMP will identify the highest-risk areas and activities for dust effects and establish appropriate mitigation measures.

The Project will establish several construction yards across the area to serve as staging points for materials and personnel, with the number and locations determined by construction staging. These yards will have either sealed or metalled surfaces, and it is recommended that dust suppression, using water carts or sprinklers, be implemented as needed based on activities carried out on-site. Haul roads are recommended to be managed and maintained to prevent dust emissions and minimise dust spreading onto public roads.

Other recommended mitigation measures include wetting unpaved surfaces during dry conditions, metalling or chemically stabilising roadway surfaces, revegetating exposed areas post-construction, washing down vehicles, preventing overloading of vehicles, enforcing speed limits near sensitive areas, establishing odour event protocols, limiting and managing works during dry and windy conditions, suppressing and covering dust during earthworks and tunnelling, and implementing a community liaison, monitoring and complaints procedure.

The effectiveness of the proposed construction mitigation measures will be monitored throughout the duration of the Project to ensure effective implementation. Weather stations and PM₁₀ monitors are recommended within the vicinity of the key tunnel portals with a high air quality risk. The stations will be used to track wind speeds at 5–10 metres height. When trigger thresholds are exceeded (e.g. average wind speeds above 5 m/s or gusts over 10 m/s), alerts will be sent to designated personnel so immediate mitigation can be actioned.

A visual dust monitoring programme has been developed as per Table 49 below. While a typical frequency of monitoring is defined, particulate monitoring/inspection should also occur if wind speeds are greater than 10 m/s, if discharges of dust across the site boundary occur, or when a complaint is received.

Table 49: Dust monitoring programme

Monitoring activities	Frequency
Check weather forecasts for strong winds and rainfall to plan appropriate dust management response	Daily
Inspect land adjacent to the site, construction exits and adjoining roads for the presence of dust deposits	Daily
Site walkover with observations detailed in a log sheet	Daily (in the afternoon)
Observe weather conditions, wind via observations and data outputs from weather stations and presence of rain	Daily and as conditions change
Inspect all unsealed surfaces for dampness and to ensure that surface exposure is minimised	Daily and as conditions change
Inspect stockpiles to ensure enclosure, covering, stabilisation or dampness. Ensure stockpile height is less than 5 m or appropriately stabilised	Weekly and at times of expected high winds
Inspect dust generating activities to ensure dust emissions are effectively controlled	Daily and as new activities are commenced
Inspect watering systems (sprays and water carts) to ensure equipment is maintained and functioning to effectively dampen exposed areas	Weekly
Additional monitoring of dust generating activities and water application rate	In winds over 5 m/s (11 knots or a Beaufort scale number of 3)
Inspect site access and egress points to ensure effective operation of wheelwash / truckwash systems and/or judder bars (if installed)	Weekly
Ensure site windbreak fences, if used, are intact	Weekly

Table 50 below summarises the suggested mitigation trigger levels for total suspended particulate, Table 51 summarises the suggested mitigation trigger levels for PM₁₀.

Table 50: Suggested mitigation trigger levels for total suspended particulate (TSP)

Trigger	Averaging period	Sensitivity of receiving environment		
		High	Moderate	Low
Short term	5 min	250 µg/m ³	n/a	n/a
Short term	1 hour	200 µg/m ³		n/a
Daily	24 hours (rolling average)	60 µg/m ³	80 µg/m ³	100 µg/m ³
Wind warning	1 minute	10 m/s (during two consecutive 10-minute periods)		
Rain warning	12 hours	There has been no rain the previous 12 hours		
Visible Dust	Instantaneous	Visible dust crossing the boundary		

Table 51: Suggested mitigation trigger levels for PM₁₀

Trigger	Averaging period	Sensitivity of receiving environment		
		High	Moderate	Low
Short term	1-hour	150 µg/m ³	n/a	n/a

NZTA proposes to implement these mitigation measures as recommended.

Table 52 below summarises the actual and potential air quality (dust) effects of the Project, the mitigation measures proposed to be implemented by NZTA, and the resulting level of effect after mitigation

Table 52: Summary of the potential air quality effects of the Project

Effect to be mitigated	Scale of effect without mitigation	Mitigation recommendations adopted by NZTA	Overall level of effect (mitigated)
Dust generation	Moderate - high	Preparation and implementation of a Construction Air Quality Management Plan (CAQMP) and regular visual dust monitoring including: • Potential stop work requirement when winds are high or allow for confinement structures in high-risk locations (e.g. tunnel material handling locations) • Real-time PM₁₀ monitoring adjacent to the northern portal of the Terrace Tunnel, including a weather station to monitor when wind speeds at a height of 5-10 m exceed specific mitigation trigger values that can result in increased dust generation (e.g. average wind speeds >5 m/s or wind gusts >10 m/s) • Real-time PM₁₀ and wind monitoring adjacent to R19 (church) on Moxham Avenue and adjacent to the western portal of the Mt Victoria Tunnel • Dust suppression measures, including water carts, sprinklers and/or fog cannons on exposed surfaces and haul routes • Visual dust monitoring and routine site inspections • Environmental monitoring and management by suitably qualified personnel • Complaints management and community liaison procedures • Odour management measures where required	Low - moderate

6.15.5 Summary

The construction phase of the Project presents potential effects on local air quality, primarily due to nuisance dust from construction activities. The sensitivity of the surrounding environment to dust varies across the proposed construction areas. Consequently, a high standard of dust control is being adopted by NZTA to ensure that sensitive receptors located within 50 metres of construction activities are not subject to nuisance dust effects.

For the construction phase, with the mitigation measures outlined above in place, the overall air quality effects are anticipated to be low to moderate. The mitigated dust effects are unlikely to be considered offensive or objectionable.

For the operational phase, predicted concentrations of contaminants are expected to remain below the relevant assessment criteria. As such, significant degradation of air quality is not anticipated, and mitigation of operational effects is considered unnecessary.

6.16 Cultural effects

6.16.1 Introduction and assessment methodology

The following section summarises the findings of Technical Report #19 (Cultural Impact Assessment by Taranaki Whānui ki Te Upoko o Te Ika (Taranaki Whānui)) and Technical Report #20 (Cultural Impact Assessment by Ngāti Toa Rangatira (Ngāti Toa)) which evaluate the Project's effects on Mana Whenua cultural values. The assessment methodology included a combination of a Kaupapa Māori informed assessment approach grounded in Kaitiakitanga and Mana Whenua knowledge of place. Data for the assessment was gathered from historical and archival sources, relevant technical and ecological reports, and Mana Whenua values and perspectives.

The partnership between NZTA and Mana Whenua was established during the early stages of the LGWM programme and has continued to evolve throughout this Project. It is characterised by structured, ongoing engagement, including regular hui and workshops, supported by iwi integration leads and technical specialists working alongside the design and consenting teams. A Mana Whenua Steering Group has also been established to provide strategic direction, cultural leadership, and joint oversight to the Project.

Through this collaborative approach, NZTA understands that Mana Whenua values and aspirations have been integrated into the consent design, assessments, and mitigation, including matters relating to community wellbeing, hauora, freshwater and coastal ecosystems, cultural and historical landscapes, environmental stewardship, and intergenerational outcomes.

6.16.2 Existing environment

The Project area is situated within a culturally rich landscape shaped by the histories and ongoing connections of Mana Whenua. The corridor traverses land that once featured pā (fortified villages), kāinga (settlements), Māra kai, mahinga kai, wetlands, and waterways (awa), many of which have been significantly altered through colonisation and urban development. Despite this, these sites remain of central importance to Mana Whenua and continue to underpin obligations of kaitiakitanga (guardianship).

Sites of cultural significance within the wider cultural landscape include historic waka landing places such as Waititi Landing, the present-day pouwhenua, the sacred urupā area now located at Bolton Street Cemetery, Te Raukura – Te Wharewaka o Pōneke and the Kupe statue, as well as remnants of whare from Te Aro Pā and the Waitangi Lagoon and Stream. These reflect the enduring presence and significance of Mana Whenua heritage in the area.

Multiple urban streams, now largely piped, traverse the Project corridor. These include Kumutoto, Waikoukou, Waimapihi, Moturoa, Waitangi, and Waipapa Awa. While these waterways have been extensively modified, they retain ecological and cultural importance, supporting species such as tuna (eels) in places and maintaining connections between Mana Whenua and their ancestral landscapes.

6.16.3 Cultural effects

The two reports demonstrate strong alignment on Mana Whenua aspirations and values, including the central role of kaitiakitanga, protection of mauri and culturally significant freshwater and wetland systems, and the need to recognise the Project area as a living cultural landscape associated with pā, kāinga, wetlands and awa. Ngāti Toa request the Project is considered not only as a transport proposal, but as an intervention in a place shaped by whakapapa, raupatu, ahi kā, cultural redress, and ongoing kaitiaki responsibilities.

Both reports emphasise that managing adverse effects on waterways and stormwater networks (including maintaining ecological function such as for fish passage) is a key cultural and environmental aspiration, and both identify opportunities for ongoing Mana Whenua involvement and integration of cultural narratives and expression within the Project design.

Taranaki Whānui places particular emphasis on achieving long-term, measurable environmental and cultural improvements beyond mitigation while Ngāti Toa focuses on safeguarding sites and rangatiratanga through careful processes (including discovery protocols) and continued conversations.

Construction effects

Unmitigated construction activities have the potential to significantly impact both the cultural environment and sites of historical importance to Mana Whenua within the Project area.

The Taranaki Whānui assessment identifies concerns regarding unmanaged stormwater discharges during construction, which could adversely affect terrestrial, wetland, freshwater and marine environments. Such impacts could threaten the integrity of culturally significant landscapes, including awa, by degrading their ecological functions and diminishing their cultural and spiritual values.

These changes could undermine both the ecological and cultural significance of the streams, which are central to Mana Whenua identity and values. Heavy metals, hydrocarbons, microplastics, and sediment introduced into freshwater and coastal environments during construction can degrade water quality and diminish the Mouri (life force) of the awa and wetlands, eroding their importance to Mana Whenua.

The Project will result in the loss of terrestrial vegetation and wetland areas, leading to the removal of habitat for indigenous flora and fauna and changes to existing ecological patterns. Vegetation clearance and construction activities could, without appropriate management, present a risk of injury or mortality to indigenous birds and lizards, as well as temporary disturbance from noise, vibration, and dust.

Construction may also fragment habitats, undermining restoration efforts and disrupting ecological connectivity for indigenous bird species and other wildlife. In areas such as the Kumutoto Forest and Hataitai Town Belt, this fragmentation can have lasting effects on biodiversity and the ability of Mana Whenua to exercise kaitiakitanga (guardianship) over their ancestral landscapes.

Taranaki Whānui also identified that construction activities may temporarily further disrupt or obscure sites of historical and spiritual significance, limiting access to culturally important places. The loss of access and potential disconnection from ancestral relationships with land, water, and marine environments could threaten the ongoing cultural and spiritual connections of Mana Whenua to these sites. Temporary and localised effects on harbour and coastal ecosystems during construction can compound these impacts, further diminishing the cultural environment and the significance of key sites within the Project footprint.

Ngāti Toa highlighted the need to manage effects on hauora (the health and wellbeing of Whānau) and confirmed their understanding of the measures incorporated in the Project design and/or conditions to manage health related matters such as:

- Safety risks for kaumātua and tamariki crossing roads, particularly Vivian Street
- Potential impacts on local businesses and services
- Potential for air, light and noise pollution affecting whānau health
- Accessibility to key health services including Pōneke Medical Centre (within Whakamaru, a Wellington City Mission facility at 4-8 Oxford Terrace, Mt Cook)
- Loss of green spaces, particularly within the Town Belt.

Ngāti Toa also identified a risk of potential disturbance of previously unidentified cultural and archaeological material, including artefacts, structural remnants, or kōiwi not recorded in existing databases or planning maps. Accidental discovery will be managed via proposed conditions of the Archaeology Authorities sought for the Project, which includes input from Mana Whenua.

Operational effects

The unmitigated operational effects of the Project could result in a high level of effect on cultural values within the Project area.

Taranaki Whānui identified the presence and function of infrastructure may further obscure or alter views and accessibility of sites central to Mana Whenua, like the potential effects discussed in respect of the construction phase, albeit to a more permanent degree.

Over time, the continued existence of the road infrastructure may further disrupt the cultural landscape, weakening the relationship between Mana Whenua and their ancestral lands. This loss of connection is not only physical, through restricted access or altered landscapes, but also spiritual, as the sites form an essential part of ongoing cultural practices and identity. The reduction in opportunities for engagement with these places can erode the cultural and spiritual values that underpin Mana Whenua obligations to care for their environment.

Furthermore, omitting cultural expression from the Project would pose a risk of disconnecting Mana Whenua from their ancestral environment. Without incorporating visible and meaningful cultural elements, the Project may fail to acknowledge and celebrate the enduring heritage and significance of the project area.

The Project has the potential to result in adverse effects on cultural values if long-term stormwater management does not achieve improvements in water quality above the existing baseline for the awa and harbour receiving environment.

The Ngāti Toa assessment requests their continued involvement in detailed design, construction planning, monitoring and operational review, as well as involvement with the Urban and Landscape Design Management Plan to ensure cultural expression and interpretation to recognise places such as Hauwai and historic awa. This assessment indicates support for ecological enhancement measures within Town Belt.

Technical Reports #19 and #20 provide a detailed assessment of the unmitigated cultural effects and the proposed mitigation or aspirations to manage those effects. This information has been summarised in Table 53 below.

Table 53: Summary of cultural effects and recommended mitigation

Feature	Potential effect	Mitigation recommendations and aspirations adopted by NZTA
Construction effects		
General Project area	Disturbance of previously unidentified cultural and archaeological material	Adoption and implementation of an Archaeology Authority sought through the Application, in a manner that upholds tikanga and provides for timely engagement with Mana Whenua, including when previously unidentified cultural and archaeological material is found
	Increased air, light, and noise emissions, with consequential effects on the health and wellbeing of whānau	Proposed mitigation measures captured in air quality and noise management plans, and continued partnership with Mana Whenua during detailed design and Project implementation
	Increased safety risks for kaumātua and tamariki associated with crossing roads	Proposed mitigation measures including a construction traffic management plan to address safety and related effects during construction, and continued partnership with Mana Whenua during detailed design and Project implementation
Town Belt and Hataitai Park	Loss of terrestrial vegetation and wetland areas: - Removal of habitat for indigenous flora and fauna - Changes to existing ecological patterns - Risk injury or mortality to indigenous birds and lizards - Temporary disturbance effects from noise, vibration, and dust	- Reinforce existing ecological corridors through indigenous revegetation and long-term habitat enhancement/connectivity - Offset planting (proposed within the Town Belt) - Compensation for Town Belt wetland loss (proposed within Miramar Peninsula at Mātai Moana (or elsewhere if necessary)) - Ongoing pest management - Restoration planting (including the establishment of new specimen trees and enhancement of ecological linkages with the Town Belt) - Enhanced support for indigenous birds and lizards

Lambton Harbour and Evans Bay	Localised disturbance to coastal environment during construction: • Sediment mobilisation • Loss of marine organisms attached to existing structures ○ Direct impacts on kororā through the removal of burrows at Evans Bay	• Improve overall condition of the harbour (water quality, ability to support marine species/habitats, ability of future generations to use and rely on coastal environments) • Provide replacement burrows for kororā away from a stormwater outfall • Inclusion of stormwater treatment upgrades across catchments draining to Evans Bay and Lambton Harbour
Basin Reserve	Accessibility to key health services, including the Pōneke Medical Centre	• Construction traffic management plan and continued partnership with Mana Whenua during detailed design and implementation
Operational effects		
General Project area	Omission of cultural expression: • Disconnect for Mana Whenua from their ancestral environment • Without incorporating visible and meaningful cultural elements, the Project may fail to acknowledge and celebrate the enduring heritage and significance of the Project area	• The Project should integrate cultural expression into its design to mitigate the loss of cultural visibility and ensure the SH1 corridor reflects its significance as part of a living cultural landscape • The Urban and Landscape Design Management Plan should be developed in partnership with Mana Whenua to incorporate Mana Whenua narratives, place names, and cultural markers into the Project
Freshwater awa and coastal receiving environments: • Kumutoto • Waikoukou • Waimapihi	Unmanaged stormwater discharges: • Carry heavy metals, hydrocarbons, microplastics, and sediments into waterways • Affect indigenous fish moving through the system • Disrupt recreation	• NZTA is investigating opportunities for enhancing recognition of the waterways with Mana Whenua • Implement comprehensive stormwater management and treatment strategies to safeguard freshwater and coastal environments from contaminants, including the development of a stormwater maintenance plan

• Moturoa • Waitangi • Waipapa • Lambton Harbour • Evans Bay	• Limit future restoration potential • Degrade ecological values • Exacerbate existing flood risk	to set out the operation and maintenance requirements of the system, which shall be prepared in consultation with MWSG • Mitigate flooding risks and address flood impacts along the Project corridor
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6.16.5 Summary

Overall, the remaining cultural effects of the Project identified by both Taranaki Whānui and Ngāti Toa are expected to be appropriately managed and reduced through the implementation of proposed mitigation measures and continued partnership with Mana Whenua during detailed design and implementation. As discussed further in chapter 7.3, both iwi have confirmed in-principle support for the Project provided it meaningfully integrates Mana Whenua values and expectations, and NZTA continues to work in good faith towards this outcome.

6.17 Social and recreation effects

6.17.1 Introduction and assessment methodology

This section summarises the findings of Technical Report #21 Social and Recreation Impact Assessment (SRIA). This report assesses the actual and potential social and recreational impacts of the Project's construction and operation on the existing and likely future environment and identifies the positive impacts.

The SRIA was prepared in accordance with industry-accepted guidelines and the People, Place and Environment Series: Social Impact Guide prepared by Waka Kotahi (2016). The assessment reviewed all relevant policy, strategy and plan documents from GWRC, WCC and Nuku Ora including the NPS-UD, RPS, Wellington City Spatial Plan, District Plan, and the Wellington Town Belt Act.

Community and stakeholder consultation undertaken for the Project has informed the SRIA. Consultation undertaken of relevance to this SRIA included the following groups and stakeholders:

- The owners and occupiers of land directly affected by the Project (i.e. whose land is intended to be acquired, wholly or in part, by the Crown for the Project)
- Owners and occupiers of adjacent land
- Key stakeholders include government agencies, emergency services, social infrastructure providers such as schools, sporting groups, and community and advocacy groups
- Regional sporting groups that regularly use Kelburn Park, Kilbirnie Park, and Hataitai Park
- The wider community

To understand the current social environment within the Project area, community profiles were developed to assess the Project at the Local Study Area scale. The local areas are where the Project has the potential to have the highest direct and indirect impacts. The community profiles helped identify the social characteristics of the suburbs and communities likely to be impacted during both the construction and operational phases of the Project. An audit of social and recreation infrastructure within the Local Study Area, as well as regional and national social and recreation infrastructure that the Project may affect, was undertaken.

6.17.2 Existing environment

The Project route passes through or by seven distinct suburbs or communities, as well as nearby areas that may also be influenced by changes from the Project. The seven Local Study Area community profiles are presented in the SRIA and cover Kelburn, Wellington Central, Te Aro, Mt Cook, Mt Victoria, Hataitai and Kilbirnie.

The Project is near social and recreational infrastructure of regional and national significance, attracting visitors from across Wellington. These facilities include the Wellington Town Belt, Kelburn Park, Hataitai Park, and Kilbirnie Park. These areas are key open spaces and recreation facilities within Wellington, each serving important roles in the city's social and sporting life.

The Town Belt offers extensive scenic and recreational areas. Kelburn Park is a major subregional venue, attracting large numbers for sports matches and trainings, and features woodland along its western boundary. Hataitai Park, set within the Town Belt, functions as a regional sports hub, hosting various codes and high-performance training, while Kilbirnie Park, located between the airport and city, is a destination park supporting several sports clubs and drawing visitors from across the region.

The District Study Area has been defined as the WCC area, which features several nationally and regionally significant destinations for travel including:

- The Central Business District (CBD)
- Centreport – a freight and logistics hub located next to Aotea Quay and Waterloo Quay
- The ferry terminals that provide connections between the North and South Islands
- Wellington Cruise Ship Port
- Wellington Regional Hospital
- Wellington International Airport – New Zealand’s third busiest airport
- Tertiary Education, including Victoria University and Massey University
- Museum of New Zealand, Te Papa Tongarewa
- Hnry (formerly Sky) Stadium
- Waitangi Park and the Wellington Waterfront

The SH1 corridor connects all these destinations while also catering for significant volumes of commuter and other local traffic. Access to these facilities is often time sensitive, with a heavy reliance on the roading network to move both freight and people. These destinations are critical to the region's economic and social well-being, and well-designed transport corridors with efficient, reliable connections must support them. Keeping people and goods moving is (and will continue to be) a key driver of economic growth.

The Regional Study Area has been defined as the administrative boundary of GWRC, as the Project will have direct and indirect benefits for and adverse effects on residents across the Greater Wellington Region. This represents the region’s social, cultural, and economic reach.

6.17.3 Social and recreational effects

The social and recreation effects of the Project are characterised by significant benefits and localised adverse impacts along the route.

Social and recreational benefits

The benefits (i.e. positive social and recreational effects) of the Project include:

- Improved access to key destinations, such as the CBD, Wellington Airport, and Wellington Hospital – this is assessed as a very high positive social effect of national significance
- Improved network resilience will yield more reliable trip times - this is assessed as a very high positive social effect of regional significance
- The improvements in journey times and reliability are expected to encourage road users to use SH1 rather than local roads, enhancing the amenity of local roads for residents and active-mode users (a moderate positive social effect)
- There will be positive effects arising from construction activity, including potential employment opportunities on the Project and flow-on effects to local communities arising from local expenditure by construction workers, a high positive social effect
- There will be improvements to the legibility and condition of the pathway across the Terrace Tunnel connecting the Terrace to Kelburn Park, which will create a low positive effect on residents in the area who regularly travel between the City, Kelburn, and Victoria University
- The entrance to Cuba Street from Vivian Street will be reconfigured to widen the footpaths at the corner on both sides of Cuba Street - a low positive social effect
- The change in traffic movements around the Basin Reserve will reduce congestion and create more space, improving connections between the social infrastructure that defines the area – this is assessed to have a high positive social effect

- New segregated walking/cycling facilities are proposed around the Basin Reserve, replacing existing shared-use paths in some places – these are assessed as wider, better separated from traffic, and more comfortable for all active mode users, creating a moderate positive effect
- The visitor experience at the Basin Precinct will be improved for pedestrians accessing the Basin Reserve from the City via the new green link and additional space will also be created in front of the Basin for events - collectively a moderate positive effect
- The new Mt Victoria Tunnel shared path for pedestrians and cyclists will be an improved connection for active travel and is assessed as a moderate positive effect
- The existing footbridge into Hataitai Park will be replaced and widened for walking and cycling, making it more comfortable for shared use and improving access to the Town Belt, assessed to have a high positive effect
- The proposed Hataitai Connection bridge will enable easier ingress and egress for vehicles and improve accessibility for pedestrians and cyclists. It will also improve access from Hataitai Village to the City and from Hataitai to Hataitai Park. This is assessed to have a high positive effect
- Removing the properties along Wellington Road will allow the vegetation behind them to be integrated into the road corridor, creating a green connection between Kilbirnie Park and the Town Belt / Mt Victoria. Proposed changes to the Wellington Road intersection will make it easier for pedestrians to cross from Kilbirnie to access the Town Belt. By enabling public access to this vegetated area, this is assessed as having a high positive effect
- Active travel from Evans Bay through to the Mt Victoria Tunnel will be improved along Ruahine Street and Wellington Road, via a combination of a shared pathway and service lanes. There will also be upgraded pedestrian/cyclist crossings at the Kilbirnie Crescent, Evans Bay Parade and Wellington Road intersections. The active travel pathways will improve connections to recreation facilities in Kilbirnie and Hataitai. Together these are assessed as having a high positive effect

Construction effects

Adverse effects relating to construction of the Project will be temporary and the works are expected to be undertaken in stages, however some works may continue for an extended period. Anxiety, stress, and fatigue may arise before and during construction of the Project, particularly for residents and adjacent businesses.

Construction activities are expected to disrupt travel, access, and connectivity throughout the Project area, resulting in impacts that may influence the amenity and quality of life across all suburbs within each section of the Project. Extensive work within the existing roading corridor will impact people's way of life, their access to and use of community services, facilities, and social networks, community cohesion, and perceptions of safety. Changes to roading networks during construction could also affect emergency services' access and response times to call-outs.

Many private properties within the Project area will need to be fully or partially acquired to enable construction of the Project. Due to property acquisition being undertaken in accordance with the PWA (which includes full compensation, including additional payments under Part 2A of the PWA due to this Project qualifying as 'critical infrastructure'), the SRIA has not provided an assessment of individual effects but rather provides an assessment of the social impact of property acquisition on each community. The distribution of the required properties along the corridor means that the Project's effects are not concentrated in one area, reducing the likelihood of significant social change in a community and limiting impacts on the area's established character.

Construction of the Project will result in the relocation of recreational facilities, including the Hataitai Kindergarten, Badminton Wellington Centre, and Eastern Suburbs Cricket Club / Marist AFC clubroom facilities. This can be mitigated through the PWA process, which supports the provision of new facilities in the local area. The aim will be to have these facilities available before the permanent acquisition of the existing facilities, enabling a seamless transition with no net loss of facilities. There will also be some loss of open space within Kilbirnie Park.

Temporary closure of the Mt Victoria Tunnel shared path will affect pedestrians and cyclists who use the route as part of their commute. Given the anticipated length of the tunnel's closure, this could create longer-term changes in travel behaviour (e.g., fewer cyclists and pedestrians), thereby impacting people's health and wellbeing.

Operational effects

Potential adverse social effects include impacts on residents along The Terrace from noise, vibration, air quality, and visual changes. These residential properties are currently affected by the existing tunnel. Although the new tunnel may increase the magnitude of some of these effects, the technical assessments have confirmed that for most of these properties, the change is not significant and would generally be unnoticeable.

Loss of parking in Te Aro will impact the customer experience, requiring customers to walk farther to reach businesses from other available parking spaces. Business operations may also be affected by the loss of loading zones in direct proximity to their properties.

People in the suburb of Hataitai will experience adverse impacts from the Project (as well as benefit from it). Regular travel routes will be changed to accommodate the second tunnel portal and widening of Wellington Road; there is a loss of Town Belt land that is a defining feature of the suburb, loss of open space along Ruahine Street, an increase of traffic on local roads that has the potential to impact local amenity and has created safety concerns around the Kilbirnie School. Conversely, Hataitai residents will benefit from the Project in various ways summarised in Part A of this Application, including improved access and travel-time reliability via SH1, and significantly improved access for vehicles and active transport modes between the suburb and Hataitai Park/the Town Belt.

6.17.4 Mitigation

Technical Report #21 identifies a range of measures to avoid, remedy or mitigate the adverse social effects arising from the construction and operation of the Project. These measures include both those specifically recommended by the social impact assessment and those embedded within the Project design or arising from other technical disciplines. Implementation of these measures reduces the magnitude of effects that would otherwise occur, with the recommended mitigation and resulting post-mitigation effects summarised in Table 54 and Table 55 below.

Table 54: Summary of potential social and recreational effects during construction

Location	Effect	Stakeholder	Level of effect unmitigated	Mitigation recommendations adopted by NZTA	Level of effect mitigated
Whole Project alignment	Nightworks in residential areas	Residential areas including The Terrace, Mt Victoria and Hataitai	Very high	Implementation of recommendations in the Noise Assessment regarding nighttime work	Moderate
	Disruption to travel patterns due to changes in traffic movement and road closures	All road corridor users	High	Implementation of recommendations from the Integrated Transport Assessment Regular communication regarding changes to traffic arrangements Construction vehicles should avoid using local roads to minimise disruption to local traffic	Moderate
	Changes to the road network could affect access to emergency facilities, causing delays in callouts	Emergency service providers	High	Regular communication with emergency service providers to ensure awareness of changes to traffic arrangements	Moderate
	Temporary loss or restricted access to private property	Private properties along the Project corridor	High	Loss of access to private property should be avoided. If restrictions or loss are required, consultation with the affected landowner should be conducted	Moderate
	Long-term stress and construction fatigue from an extended period of construction	Local residents, workers and visitors	High	Staging of the Project to consider minimisation of longer-term impacts to specific stakeholders Ongoing communication and engagement with the community so that they are informed about potential adverse effects	Moderate
	Fear and uncertainty regarding the effects on property acquisition	Impacted landowners, businesses and adjacent properties	High	Regular and ongoing communication with impacted owners and residents and adjacent properties regarding Project timing and construction methodology	Moderate
Terrace Tunnel	Maintain access to the Terrace walkway and Designated Dog Exercise Area	Local residents along The Terrace	Low	Pedestrian access from The Terrace to Kelburn Park using the walkway across the top of the Terrace Tunnel is maintained	Negligible

Location	Effect	Stakeholder	Level of effect unmitigated	Mitigation recommendations adopted by NZTA	Level of effect mitigated
				Construction hoarding is erected around any work on top of the Terrace Tunnel so that the area can continue to be used as designated dog exercise area	
	Construction compounds and works reduce access between the City and Kelburn, including Kelburn Park and Victoria University	Local residents, workers and university students	Moderate	Construction should be phased to minimise impacts on bridge connections across the Terrace Tunnel The Construction Traffic Management Plan should identify suitable pedestrian and cyclist routes that provide safe access with minimal conflicts with vehicular traffic Appropriate signage should be installed to inform the public of the pedestrian and cycling diversions. Any diversions should add minimal additional travel distance compared to the existing pathways	Low
Te Aro	Construction work obstructs or restricts access to businesses for customers and deliveries	Vivian Street businesses	High	Ongoing consultation with businesses to maintain access to their properties as much as possible. Site signage and hoardings should be used to promote businesses during construction work	Moderate
	Impact on pedestrian amenity from works that restrict access and affect sections of the footpath	Visitors to Vivian Street	Moderate	Vivian Street works are to be undertaken in stages to minimise impact on the pedestrian environment Traffic Management Plan to enable pedestrian movements to be safely maintained during construction Consideration to temporary relocation of some street furniture, where practical, to maximise pedestrian access. This could include the benches and rubbish bins	Low
Basin Reserve	Impacts on access to St Mark's and Wellington College	Staff, parents and students of St Mark's School and Preschool and Wellington College	Moderate	Traffic Management Plan to maintain access to the schools and ensure appropriate management during school drop-off and pick-up times. There should also be regular communication with each school to distribute to students and parents, advising them of any changes in traffic near the schools	Low

Location	Effect	Stakeholder	Level of effect unmitigated	Mitigation recommendations adopted by NZTA	Level of effect mitigated
	Public events held in the Basin Reserve Precinct are restricted in their ability to accommodate large numbers of visitors	Visitors to events at the Basin Reserve	High	The construction programme should take into consideration any significant events occurring at the Basin Reserve and the National War Memorial. There will need to be ongoing communication with event organisers. The Traffic Management Plan must include an event plan to manage increased pedestrian and visitor volumes at the Basin Reserve. A temporary access route through Pukeahu near the construction site of the Sussex Street trench may be required, as indicated in the Constructability Report	Moderate
	Impact on the visitor experience at the National War Memorial	Visitors to the National War Memorial	Moderate	Access to the National War Memorial will be maintained during construction, with sensitive management of sites within the memorial grounds. Access pathways may be temporarily changed, but this will be managed with clear wayfinding	Low
	Access arrangements to Government House may change, impacting the travel movements of dignitaries who have specific security requirements	Dignitaries attending events at Government House	Moderate	Ongoing communication with Government House to advise on any change in traffic arrangements and seek advice of any events that will have specific security requirements	Low
	Loss of parking at the Seventh-day Adventist Church	Patrons of the church	Low	Residual property parcels adjacent to the Church to provide equivalent parking and incorporate into the remaining car park	Negligible
Mt Victoria Tunnel	Fear that construction work in the Town Belt creates permanent damage	Mt Victoria and Hataitai residents	High	Implementation of recommendations made in the landscape and visual assessment Any land temporarily occupied within the Town Belt should be restored to its existing condition. All work undertaken within the Town Belt should be in accordance with the Town Belt Management Plan	Moderate
	Impact on trails within Mt Victoria Town Belt	Broader Wellington community	High	Maintain trail access whenever possible during construction. If trails are obstructed, then appropriate diversion routes should	Moderate

Location	Effect	Stakeholder	Level of effect unmitigated	Mitigation recommendations adopted by NZTA	Level of effect mitigated
				be provided. These should be clearly marked to reduce impacts on Town Belt vegetation A temporary access path should be provided connecting to Hinau Road and Hataitai Park, if practicable, replicating the existing track linkages	
	Impact to vehicular, access to Wellington East Girls' College during construction	Staff, parents and students at Wellington East Girls' College Community users of the aquadome	Very high	Vehicle access is maintained through Austin Street. If further vehicle restrictions are required, then these are to occur outside of school term or after school hours, with access maintained by single vehicle access, or if for an extended period, by a temporary bridge	Moderate
	Closure of the Mt Victoria Tunnel Shared Path	Pedestrians and cyclists	High	Upgrade of the existing Hataitai to City Walkway to improve its overall amenity Free shuttle bus service that can transport pedestrians and cyclists (and their bikes) through either side of the Mt Victoria Tunnel	Moderate
	Acquisition of Hataitai Kindergarten	Hataitai residents	Very high	PWA compensation entitlements. NZTA to continue supporting the Hataitai Kindergarten to provide suitable premises within the suburb so that there is no net loss of childcare. The aim should be for the new facility to be operational prior to the existing facility's closure	Negligible
	Temporary loss of Hataitai Footbridge	Hataitai community	High	The Hataitai Connection bridge should be completed before the footbridge is closed or other provision made for safe crossing of Ruahine Street by pedestrians A communication campaign should be undertaken, with clear signage, to inform the public of the bridge closure and to provide information about alternative access routes to Hataitai Park. These include the Hataitai Connection bridge and tracks and trails through the Town Belt, such as those from Alexandra Road	Moderate

Location	Effect	Stakeholder	Level of effect unmitigated	Mitigation recommendations adopted by NZTA	Level of effect mitigated
Eastern Connections	Loss of Badminton Wellington Centre	District-level badminton players	Very high	PWA compensation entitlements. NZTA to continue working with WCC and Badminton Wellington to identify location options for a new facility. The aim should be to create a facility within the region before the permanent acquisition of the current Badminton Wellington Centre, enabling a seamless transition with no net loss of competition-level courts. WCC is currently undertaking an alternative site assessment	Negligible
	Temporary loss of vehicular access to Hataitai Park prevents sporting groups from hosting training or competition	Broader Wellington community	Very high	Vehicular access to the Park is closed for up to two weeks, and the closure occurs between sporting seasons and sufficient notice (at least six months) is provided so sporting groups can schedule around the closure And/or, where vehicular access to the Park closed for hours or a day, that the closure occurs on a weekday before 3 pm and sufficient notice (at least one month) is provided so sporting groups can schedule around the closure	Moderate to Negligible, depending on closure arrangements
	Loss of open space in Kilbirnie Park	District-level cricket players	Low	Continue working with WCC on the reconfiguration of Kilbirnie Park Cricket fields	Low
	Loss of clubrooms and cricket practice net facility	Marist AFC and Eastern Suburbs Cricket Club	High	PWA compensation entitlements. NZTA to continue working with WCC and clubs to identify location for a new facility at Kilbirnie Park. Recreating clubrooms and provide sufficient time for the new facility to be established prior to the demolition of the existing facility	Negligible
	Temporary reduction in parking in Hataitai Park	Broader Wellington community	High	There should be communication with the regional sporting bodies to advise facility users of changes to parking arrangements and to encourage alternative access to the Park, including carsharing, public transport, or use of the footbridge	Moderate
	Temporary impact on events in Kilbirnie Park	Broader Wellington community	High	Major community sporting events, such as the Weetbix Kiwi Kids Triathlon and Round the Bays, should be considered in the construction programme to minimise disruptions	Moderate

Table 55: Summary of potential adverse social and recreational effects during operation

Location	Effect	Stakeholder	Level of effect unmitigated	Mitigation	Level of effect mitigated
Te Aro	Pedestrian amenity and safety on Vivian Street	Visitors to Vivian Street	Moderate	The proposed kerb build-outs and relocation of street furniture will provide additional pedestrian waiting areas	Low
	Impact on business operations resulting from the loss of areas available for delivery vehicles.	Vivian Street businesses	Moderate	Consideration should be given to converting parking bays on the side road into loading bays and allowing loading on Vivian Street during off-peak periods	Low
	Decreased access for residents with mobility impairments due to loss of parking	Residents with mobility impairments	Negligible	Demand on mobility parking part of the Council's general parking management in Te Aro	Negligible
	Changes affect the character and place identity of the area, detracting from Cuba Street's reputation as a vibrant pedestrian shopping and nightlife strip	Visitors to Vivian Street	Low adverse	As per Heritage Assessment	Negligible
Basin Reserve	Confusion regarding changes in traffic movements around the Basin	Private vehicles using The Basin	Low adverse	A communication campaign, supported by clear road signage, will be needed to educate the community about changes in traffic flow around the Basin	Negligible
	Loss of Town Belt land in the Canal Reserve	Broader community	High	Loss of land is to be compensated for in consultation with WCC and Mana Whenua Any surplus street space along Kent Terrace to be reallocated to the centre of the street so that it is contiguous with the Canal Reserve	Low
Mt Victoria Tunnel	Changes to the road network increase travel time for residents' daily journeys	Residents in Mt Victoria and Hataitai	Moderate	A communication campaign, supported by clear road signage, will be needed to educate the community about changes to the local road network	Low
	Impact on the character of the suburb of Mt Victoria	Mt Victoria residents	Moderate	Relocation and reinstatement of heritage properties on the realigned Paterson Street	Low

Location	Effect	Stakeholder	Level of effect unmitigated	Mitigation	Level of effect mitigated
	Impact on the Town Belt around the Hataitai Tunnel Portals	Recreation users of the Town Belt, Wellington residents	Very high	Loss of land to be compensated for in consultation with WCC and Mana Whenua Impacted mountain biking and walking trails to be reestablished. Their reinstatement should comply with the Recreation Aotearoa Outdoor Accessibility Design Guidelines Vegetation impacted during construction will also need to be rehabilitated to its existing condition	High
Eastern Connections	Changes to the Town Belt affect the character of Hataitai	Hataitai residents	High	Loss of land to be compensated in consultation with WCC and Mana Whenua along with mitigation measures in Urban Form, Landscape, and Visual Assessment and Ecology Assessment	Moderate
	Safety concerns for students accessing Kilbirnie School	Hataitai residents	High	Safety improvements made to Moxham Avenue including improved visibility to the pedestrian crossing and installation of kerb build outs	Negligible
	Loss of open space along Ruahine Street	Hataitai residents	Low adverse	Loss of land to be compensated in consultation with WCC and Mana Whenua Vegetation affected by construction will need to be rehabilitated to its pre-construction condition	Negligible

6.17.5 Summary

Construction of the Project has the potential to give rise to some very high adverse social effects, which will require careful management. With recommended mitigation measures in place, it is expected that these will mostly be reduced to low or moderate adverse effects.

Once operational, the Project will deliver significant social benefits, including reduced congestion on residential roads and improved traffic flows around the Basin Reserve. Walking and cycling infrastructure across the corridor will improve with new segregated walking and cycling facilities around the Basin Reserve, a 3.6m-wide shared path through the new Mt Victoria Tunnel, and the construction of a wider footbridge into Hataitai Park. Access to regional sporting facilities at Hataitai Park will also be improved through the construction of the Hataitai Connection bridge.

There will be some adverse social effects once the Project is operational. These adverse effects are predominantly assessed as low adverse; mitigation recommendations have been made in other technical reports to address them. The Project will have significant effects on the Wellington Town Belt. While full compensation for Town Belt land acquired for the Project is provided for under the Wellington Town Belt Act 2016, it will also be important that vegetation affected by construction is rehabilitated and recreation trails reinstated.

Overall, with the implementation of the recommended mitigations, the Project is anticipated to deliver social benefits at the national, regional, and local levels once constructed.

6.18 Network utility impacts

6.18.1 Introduction

This Project is located within a highly urbanised area along a major transport corridor and therefore contains many existing network utilities and associated infrastructure.

The impacted existing utilities have been identified by the Project design team, and they range from local service connections to critical electricity, gas, communications, and water infrastructure. Direct and indirect impacts on existing utilities are expected, and will be of varying levels of significance, including:

- Effects associated with temporarily or permanently relocating existing network utilities for the construction and operation of the Project
- Effects on network utilities from construction of the Project including dust, ground settlement and the accidental striking of services

The Project design team is currently consulting with network utility operators to understand the implications of the Project on their infrastructure, assess how the Project aligns with their future work programmes, evaluate the feasibility of required new infrastructure and service connections (such as stormwater, tunnel power, and water supply) and to discuss any necessary relocations of existing utilities, and clarify requirements for new connections or relocations. It is expected that consultation with operators will continue during the life of the Project and that an appropriate methodology to manage any adverse effects will be developed in conjunction with the operators, which may typically involve methodologies for providing protection or relocation of impacted utilities.

Relocation and/or protection of network infrastructure is a normal part of construction for a project of this scale. There are well-established procedures across the industry associated with the relocation and/or protection of network utilities.

6.18.2 Asset identification

The information and sources used to identify assets in the Project area are summarised in Table 56⁵⁶. They are listed in order of precedence where sources contain overlapping information.

⁵⁶ Only critical assets have been assessed at this stage

Table 56: Information used for asset identification

Source	Data	File type	Notes
LGWM 3D Data 2024	Combined Utilities Data	Shapefile (points, lines, polygons)	Localised areas of detailed utilities investigations. Limited supporting detail on method of investigation and interpretation of findings
LGWM 3D Data 2025	Combined Utilities Data	Geopackage file (points, lines, polygons)	
Tiaki Wai	Stormwater, Wastewater, Potable Water	Shapefile (points, lines, polygons, attributes)	Exported from publicly available GIS platform
BeforeUDig	Gas features (Powerco)	DWG	Powerco gas assets drawing received from Powerco. Sept 2025
BeforeUDig	Power (Wellington Electricity)	PDF	No geospatial files available from Power providers at this stage
BeforeUDig	Communications (Chorus, One NZ, Vital)	PDF	No geospatial files available from Communications providers at this stage
Underground Asset Register	Stormwater, Wastewater, Potable Water, Power, Gas, Communications (Chorus)	Online GIS portal	Used for identification purposes only. No geospatial information could be extracted from this register

6.18.3 Design approach

To minimise the complexity and cost of relocating existing utilities, combined services trenches are proposed as an indicative solution, where this is practical and appropriate. By consolidating multiple utility services into a single trench, this method helps to reduce the footprint of utility relocations, which is especially beneficial where space is limited, such as in urban environments.

Combined services trenches are of most benefit in addressing shallow services (i.e. watermain, gas main, electric cables, and telecommunications). Gravity-based utility services will be assessed individually due to the variation of pipe size and invert levels. In addition, certain utility relocations may be complex and require alternative alignments. These will be agreed upon with the relevant operators and addressed through specific design considerations during future design phases to make sure the relocation of services within the trench will comply with all horizontal and vertical clearance requirements for each utility.

The design of new utility connections for Project infrastructure will be undertaken at later design phases and will be developed in consultation with operators.

6.18.4 Network utility effects

Potable water

Throughout the Project area, there are potable water (water supply) pipes, fire service mains, and associated infrastructure owned and operated by Tiaki Wai. This assessment is based solely on council records and does not account for any privately owned water supply pipes that may exist in the area. There are several critical water supply mains that will be impacted by the Project. These include an existing 300 mm water transmission main along Buckle Street and a 300 mm fire service main adjacent to Terrace Tunnel.

Basin Reserve

There is an existing 300 mm water transmission main that runs parallel to Buckle Street and connects to the main on Tory Street. The transmission main at the intersection of Buckle Street and Sussex Street will

be affected by the proposed trench and bridge works and require realigning the pipe to connect back to the existing water transmission main. Additionally, parallel to the existing 300mm water transmission main, an older 150mm water main (noted as critical due to its age, based on discussions with Tiaki Wai) will also be impacted by the Sussex Street works and will be diverted.

Terrace Tunnel Area – North Portal

The existing 300 mm fire service main (owned by NZTA) is placed above the north portal of the existing Terrace Tunnel. The existing pipe alignment will be affected by the proposed slope cut works for the construction of new tunnel portal. A diverted water main will be placed outside of the slope cut area.

Local connections

Several local water supply connections will be impacted by the Project. These will largely become redundant where existing houses are removed. However, there will still be several new connections or relocations required. These new connections will generally follow the alignment of the proposed roads and proposed ground level. Detailed alignment will be determined as the design progresses.

Designing the water main diversions in accordance with the Tiaki Wai Regional Standard and Regional Specification and ongoing consultation with Tiaki Wai will facilitate the management of any potential adverse effects on water supply infrastructure.

Wastewater

Throughout the Project area, there are wastewater pipes, rising mains, and associated infrastructure owned and operated by Tiaki Wai. This assessment is based solely on council records and does not account for any privately owned wastewater connections that may exist in the area. Several critical wastewater mains will be impacted by the Project, including the wastewater gravity trunk main and rising main near the Basin Reserve area.

Basin Reserve

A 600 x 900mm to 700 x 1050 mm oval gravity brick trunk main runs along Sussex Street at the west side of the Basin Reserve. The brick trunk main serves as part of the Wellington Wastewater Interceptor and conveys flow to the downstream Moa Point Wastewater Treatment Plant for treatment and disposal. The existing brick trunk main will be affected by significant underground excavation at Sussex Street. Therefore, the affected section along the Sussex Street trench will need to be diverted.

The existing 450 mm rising main runs underneath the Canal Reserve between the Kent and Cambridge Terrace to the south, continuing along Buckle Street, where it connects to the downstream trunk main at the intersection of Buckle Street and Sussex Street mains. The existing pipe alignment will be affected by the proposed trench and bridge works. As such, a new rising main is likely to be required and reconnected to the diverted wastewater trunk main. The design and methodology for relocating and protecting these assets will be developed during later design stages for the Project.

Terrace Tunnel Area - Ghuznee Street

An existing 1800 mm wastewater trunk main runs in parallel to the Terrace Tunnel. The trunk main receives flows from a 450 mm main and an 800 mm trunk main at Ghuznee Street. This trunk main will interface with the proposed Ghuznee Bridge and is recognised as a critical asset by Tiaki Wai. The Project team will continue to work with relevant disciplines to develop design and methodology for protecting the wastewater trunk main assets during later design stages for the Project.

Local connections

There are also several local wastewater connections that will be impacted by the Project. These will largely become redundant where existing houses are removed. However, there will still be several new connections or relocations required, for example to the relocated Crèche near the Basin Reserve. These new connections will generally follow the alignment of the proposed roads and proposed ground level. Detailed alignment will be determined as the design progresses.

Designing wastewater diversions in accordance with the Tiaki Wai Regional Standard and Regional Specification and ongoing consultation with Tiaki Wai will facilitate the management of any potential adverse effects on wastewater infrastructure.

Existing pre-1900 brick drains

Multiple pre-1900 brick drains are located within the Project area. Based on a desktop study and as noted in the summary of the archaeology assessment at section 6.6.3 above, pre-1900 brick drains are unlikely to be affected by the proposed works. However, due to the absence of comprehensive digital records for these assets, it cannot be guaranteed that all potentially affected drains have been identified from the desktop assessment so these will continue to be considered as the design progresses for the Project.

Stormwater

Throughout the Project area, there are stormwater pipes, channels, rising mains, and associated infrastructure owned and operated by Tiaki Wai. Although there may be further unknown private stormwater infrastructure in the Project area, this assessment does not include stormwater infrastructure outside of that available on council records.

There are several critical stormwater mains that will be impacted by the Project. These include the stormwater mains near the Basin Reserve, in Mt Victoria Tunnel, and in the Hataitai area.

Basin Reserve

The existing 750 mm stormwater pipe runs from west to east from Arras Tunnel and connects to the 1800 mm existing stormwater main at the intersection of Cambridge Terrace and Buckle Street. The existing pipe will be impacted by the proposed trench and bridge works. To address this, the affected stormwater pipe will be diverted along the proposed trench and reconnected to the 1800 mm stormwater main.

The existing 450 mm stormwater main collects runoff from Old Buckle Street and discharges into the 1800 mm existing stormwater main at Buckle Street. The 450 mm main is affected by the proposed trench and bridge works. As such, the affected 450 mm main will be abandoned, and the upstream 300 mm main will be redirected to the existing 300 mm stormwater main at Buckle Street. The flow will eventually discharge into the 750 mm stormwater pipe described above.

Mt Victoria Tunnel

The existing 450 mm stormwater main is located north of Paterson Street flowing west, and discharges into the 450 mm main at Brougham Street. The existing main impacted by the proposed geotechnical works and is likely to be diverted. The capacity of the downstream pipe will be confirmed and an appropriate diversion methodology for this main will be developed during later design stages of the Project.

Gas

Throughout the Project area, there are gas distribution mains and associated assets owned and operated by Powerco. The gas distribution mains are predominantly medium pressure distribution pipes, with the only critical gas main being an intermediate pressure pipeline running from Ellice Street to above the existing Mt Victoria tunnel on Alexandra Road. The key areas where existing gas pipelines are impacted and may require diversion or removal are at the Basin Reserve and on Paterson Street. There is no expected impact on the intermediate pressure gas main on Alexandra Road (above Mt Victoria tunnel).

Consultation with Powerco will be undertaken during later design phases, to confirm the impact on existing gas assets and ensure coordination with any future planned works. Further engagement will also be undertaken to confirm the methodology and plans for asset relocation, protection, and removal.

Electricity

Throughout the Project area, there are both high voltage and low voltage underground cables, overhead lines, and other distribution assets owned and operated by Wellington Electricity.

High voltage cables of note include existing 33 kV and 11 kV cables that are present along the extents of the Project, with key impacted areas being at the Terrace Tunnel, Basin Reserve, Mt Victoria tunnel and Ruahine Street. High voltage cables that will require diversion include the existing 33 kV and 11 kV cables on Buckle Street and Sussex Street (impacted by the proposed trench), and the 33 kV cables passing through the existing Mt Victoria tunnel. 33kV and 11kV cables on Ruahine Street will need diversion or protection. Existing 11 kV cables will also need to be diverted at the southern portal of the new southbound Terrace Tunnel, across the Ghuznee Street bridge, and in Hataitai.

Similarly, the key impacted areas for the low voltage cables are also at the Basin Reserve and Mt Victoria tunnels. Low voltage cables that will require diversion or removal include the low voltage cables on Cambridge Terrace and Buckle Street (impacted by the proposed trench), and the low voltage cables feeding the existing tunnel control building on the Mt Victoria tunnel east portal.

There are also distribution substations present in the Project area. Two substations connected to the 11 kV network on the west side of Sussex Street will be impacted. These substations appear to be within an area with buildings to be removed to enable the construction of a ramp connecting Sussex Street to the Arras tunnel. It is still to be confirmed whether these substations and the associated 11 kV network are to be relocated or abandoned/removed.

Initial engagement with Wellington Electricity has commenced, with key areas of discussion being the impacted critical power assets, power requirements and interface at tunnels, and coordination with Wellington Electricity's future planned works. It is expected that consultation with Wellington Electricity will continue to develop the methodology and plans for asset relocation, protection, and removal will be finalised during the next design phase.

Communication lines

Throughout the Project area, there are communications lines, cables (including fibre optic cables) and associated communications infrastructure owned and operated by Chorus, Vital (Citylink), and One NZ. Existing communications assets in the project area are considered critical as they may serve government agencies, large national and international corporations and carry critical fibre connections between Wellington and other cities. Although there will be impacts on existing communications assets, key areas that may be more heavily impacted are at the Basin Reserve and on Paterson Street.

Consultation with Chorus, Vital (Citylink), and One NZ will be undertaken to confirm the impact on existing communications assets and ensure coordination with any future planned works. Further engagement with each asset owner will be required during the next design phase to confirm the methodology and plans for asset relocation, protection, and removal.

6.18.5 Summary - managing impacts on network utilities

The Project seeks to minimise impacts on existing utilities wherever possible and practicable. Key utilities will be diverted early to maintain operational continuity and reduce future disruptions, while other utilities will also be diverted as required. Redundant utility connections will be removed or abandoned. Ongoing consultation with network utility operators will be maintained throughout duration of the Project to develop effective management strategies to avoid or mitigate any adverse effects. This will ensure that all utility relocations, removals, or protections meet utility operator requirements and are coordinated with future plans of operators, to the extent reasonably practicable. Therefore, overall effects on utilities will be low, because of the planned management strategies.

6.19 Summary of environmental effects of the Project and proposed mitigation

This assessment for the Project has identified a wide range of actual and potential adverse effects on the environment which are summarised in Table 57 below. This table also provides a summary of the proposed mitigation measures to be adopted by NZTA to appropriately manage the effects of the Project, as outlined earlier above. The effects, proposed mitigation and where applicable, proposed condition references are set out in Table 57 below. Full sets of proposed resource consent conditions and designation conditions are included as Appendix A.

Positive effects were also identified in the specialist effects assessments and are set out in a summary form in Chapter 10 of the Part A document, as Project benefits.

Table 57: Summary of actual and potential environmental effects of the Project following proposed mitigation

Actual or potential environmental effects	Proposed mitigation	Condition #
Transport effects		
On Ghuznee Street, there is reduced access and disruption due to construction	• Advance notice of works • Management of key detour routes. • Management of parking on MacDonald Crescent to improve efficiency of detour routes • Amended controls for intersections along the routes • Schedule of works to minimise effects	DC.9 – Construction Traffic and Transport Management Plan (CTTMP) Mitigation also secured through road controlling authority approval process and refined via the established NPG. Conditions not required for these additional measures, as already in place
During construction, the loss of parking in the Terrace Tunnel section results in limited parking availability in the area	• Considering the timing of the closure periods so that the period where parking is removed from MacDonald Crescent is when there is minimal impact on Clifton Car Park	DC.9 – Construction Traffic and Transport Management Plan (CTTMP) Mitigation will also be refined through agreements made by the NPG
Disruption to active modes due to the closure of Mt Victoria Tunnel path during construction	• Consideration of active mode mitigation measures for displaced users of the existing Mt Victoria shared path during construction • Consideration of measures (e.g. temporary ventilation) to reduce the period of closure • Clear communication / engagement and advance notice to determine any additional needs of typical users	DC.9 – Construction Traffic and Transport Management Plan (CTTMP) The specific active mode mitigation measures recommended by the specialist have not been confirmed at this stage, but will be refined through collaboration with WCC and GWRC via the NPG, in conjunction with the appointed contractor, and then implemented through the CTTMP
Limited access to Hataitai Park and associated parking loss during construction	• Construction methodology that keeps Hataitai Park closure to a short duration	DC.9 – Construction Traffic and Transport Management Plan (CTTMP) DC.10 – Access to Hataitai Park
Effect on buses through Hataitai during construction	• Engage and plan construction in partnership with GWRC and WCC • Consider bus routes in the detailed intersection construction plan, including ability to maintain the cross movement between Kilbirnie Crescent and	DC.9 – Construction Traffic and Transport Management Plan (CTTMP) The CCTMP must be prepared in consultation with GWRC and WCC

Actual or potential environmental effects	Proposed mitigation	Condition #
	Hamilton Road. Monitor bus journey times and adjust signal phasing, consider temporary bus lanes if required	Mitigation will be refined through the NPG process also
On Vivian Street, increased lanes, higher mean journey speed, and increase in traffic flows increases safety risk to vulnerable users crossing	Implement Safe System Audit recommendations to utilise coordination of traffic signals and outside of peak periods use signals to actively discourage excess speeds	No condition required, part of normal NZTA project delivery
On Vivian Street the loss of carparks (used for loading) may impact business efficiency	Investigate reallocating some parking bays on side roads in Te Aro and consider off peak loading bays on Vivian Street should there remain evidence of issues for loading	DC.14 Loading Area Plan for parking bays on side roads No condition is required for monitoring whether illegal loading is causing a highway efficiency issue sufficient to warrant provision for off-peak (evening) loading on Vivian Street, as this is part of NZTA's responsibility as the road controlling authority for SH1
Outside of St Mark's School, increases in traffic past school PUDO area reducing safety for vulnerable road users crossing the road	Provide reduced/variable low speed zone past the school pick up area	No condition required, as must be implemented in any case under the Land Transport Rule: Setting of Speed Limits 2024 applicable due to the schools located here
Increased safety risk to active mode users due to increased traffic on Moxham Avenue	Design includes provision of traffic calming features including intersection realignment, improved crossing and kerb build-outs on Moxham	DC.1 – In General Accordance
Noise and vibration effects		
Noise and vibration from road and pavement surface demolition as well as existing building demolition	- CNVMP - Schedules - BPO on and off site such as communication, timing etc	DC.20-22 Noise and Vibration Criteria DC.23 – Construction Noise and Vibration Management Plan DC.24-26 – Schedules
Vibration and noise effects from piling activities for construction of bridges and retaining walls	Use bored piling rather than vibro or impact piling where practicable – to be considered further in development of CNVMP(s) and Schedules	DC.22 - Vibration Criteria DC.23 – Construction Noise and Vibration Management Plan
Sequential cycles of drilling and controlled blasting along the Mt Victoria Tunnel alignment	Avoid night-time blasting as far as practicable	DC.21 - Blasting Noise Criteria

Actual or potential environmental effects	Proposed mitigation	Condition #
	• Prior notification of occupiers in the vicinity	DC.23 – Construction Noise and Vibration Management Plan
Vibration from construction activities (e.g. compaction, impact piling, vibropiling, blasting) resulting in reduction in amenity (human annoyance) and building damage	• Choosing low vibration inducing methodologies (e.g. bored piling rather than impact piling), where there is a risk vibration criteria may not be met • Applying lower vibration criteria where heritage buildings are identified as particularly vibration-sensitive due to their architectural features • Building condition surveys	DC.22 - Vibration Criteria DC.23 – Construction Noise and Vibration Management Plan
Changes in operational noise from traffic along public roads	• Low noise road surface (LN5) on Ruahine Street • Low noise road surface (LN3 or LN5) on any other part of the Project where it is practicable • Building modification mitigation for all PPFs that would receive noise levels above 67 dB LAeq(24h) following the installation of all structural mitigation and receive at least a 1dB noise level increase from the Project, outside the City Centre Zone	DC.1 – In General Accordance DC.27-34 – Operational Noise Effects Conditions
Mechanical noise from ventilation fans to support tunnel construction	• Attenuators allowed for in Project design to reduce noise breakout	DC.1 – In General Accordance
Landscape and urban form and visual amenity effects		
Adverse visual and urban form and landscape effects from new retaining walls within Terrace Tunnel area	• Retaining walls to be of concrete construction, with a height, slope and form that is sympathetic to existing walls and integrates with the established character of this section of motorway • Indicative material finishes that match those of existing, a cohesive design with existing walls to be retained, and a comparable high degree of visual interest viewed up close • Further design development of retaining walls treatment, including height, form, materials and	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
	finishes and any integrated cultural design expression opportunities, to integrate with existing retaining walls and tunnel portals, achieve a high level of visual amenity, and recognise the central city gateway function	
Adverse urban form and visual effects of new tunnel portals and visual disconnection between new and existing tunnel portals	• Tunnel portal design including scale and form that closely integrates with and relates to the existing tunnel portal • Further details to be provided as part of the Outline Plan/s on architectural treatment, materials and finishes of new tunnel portals, including any integrated cultural design to achieve a high level of visual amenity, in recognition of central city gateway function	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Landscape effects and loss of visual amenity from earthworks and exposed cut slopes	• Slope design enables planting and indicative areas of planting proposed to revegetate cut slopes to provide greenery • Design development to seek to reduce extent of permanently exposed cut slopes and shotcrete treatment and enable planted slopes as much as possible	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Visual effects on adjoining residential properties (214, 216 The Terrace) of the Terrace Tunnel	• Sufficient space and slope design to enable planting and provision of planted buffer areas at the boundary with adjoining residential properties	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Landscape and visual effects from vegetation removal at southern portal	• Retention of as much vegetation as is possible to minimise the adverse visual effects • Proposed replacement trees and planting within southern portal area to re-establish following completion of construction	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
	• Retain as many existing trees as possible; undertake early replacement planting for faster landscape and visual mitigation	
Visual amenity and CPTED effects of ancillary infrastructure	• Located new tunnel control buildings within the existing designation adjacent to the highway to avoid or minimise adverse effects on the surrounding environment • Reduced the height of the southern Tunnel Control Building to lessen visual impacts • Screening of fire hydrant and water tanks to minimise visual effects • Not reinstating the Willis Street public access path, as it would traverse a confined area between the highway and operational land with poor passive surveillance, entrapment risk, and low visual amenity • Planted buffers and screening to reduce visibility of operational areas from public streets and neighbouring properties, managing potential visual effects	DC.1 - In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Adverse urban form (connectivity) effects from removal of existing paths	• Reinstatement of public access pathway between Ghuznee Street and MacDonald Crescent • Further design development of reinstated pathway to address CPTED matters including planting and fencing design to support safe use	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Adverse urban form and visual effects from alignment and design of Ghuznee Street replacement bridge	• Reinstatement of public access pathway between Ghuznee Street and MacDonald Crescent • Further design development of bridge to refine alignment and geometry to align with street grid as much as possible to best reflect historical Ghuznee Street alignment through to The Terrace	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
Adverse urban form and streetscape amenity effects from changes in kerblines to provide three travel lanes on Vivian Street	• Kerb build outs and footpath extensions to all four street corners on Cuba Street (net enhancement to pedestrian amenity) • Reinstated heritage park bench on the northeastern corner • Modifications to the existing raised planter on the northeastern corner to increase pedestrian space at intersection • Investigate the potential for relocation of existing signal control box on northeastern corner to reduce streetscape clutter and maximise standing room for people waiting to cross	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Adverse urban form and streetscape amenity effects from removal of existing verandahs	• Maximised the width of reinstated verandahs within clearance requirements of new kerblines • Reinstated verandahs to re-use and/or match existing materials and finishes to maintain the built heritage and character values • Avoided impacts on verandahs and building canopies further along Vivian Street • Further details to be provided as part of the Outline Plan/s of the architectural treatment dimensions, materials and finishes of the reinstated verandahs to match existing, ensure pedestrian shelter is maintained and adverse effects on building form are avoided or minimised	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Landscape effects from removal of notable English elm tree	• Provision for replacement specimen tree in garden bed to natural ground in the vicinity of the notable tree • Replacement to be large grade specimen appropriate as mitigation for loss of notable tree	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
Property acquisition and widened intersection at Adelaide Road resulting in urban form and visual effects from loss of street corner	• Minimised permanent corridor widening on the western side of Adelaide Road to maximise future development opportunities, improve pedestrian amenity, align the western crossing with the Basin Reserve south gate, and enhance intersection design • Replaced the proposed landscaped corner treatment with hard-surfaced footpath space to support future development of adjoining residual land, improve corner activation, passive surveillance, and pedestrian amenity	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Sussex Street corridor widening resulting in loss of land for redevelopment and curved corridor alignment	• Reduced permanent corridor widening on the western side of Sussex Street to lessen urban form effects and increase the redevelopment potential of residual land • Provision for future redevelopment of residual land where site size, shape, and access from Tasman Street make development viable • Landscape mitigation where residual land is not suitable for redevelopment • Provision for low groundcover planting along the eastern streetscape to integrate road infrastructure, increase street greening, and reduce the visual dominance of hard infrastructure • Landscape treatments should seek to positively define the edge of the streetscape as well as visually screen the exposed boundary conditions of adjoining properties, while maintaining good sightlines and promoting passive surveillance to ensure planting does not create a potential CPTED risk in future	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Urban form, visual and streetscape amenity effects. CPTED and activation issues along Sussex Street extension through to Cambridge Terrace	• Provision of a footpath along the northern street edge to support pedestrian access and encourage activation of future redevelopment sites	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
	• Provision of a stair connection to Pukeahu to integrate with the wider pedestrian network, encourage through-movement, improve passive surveillance, and reduce the potential for crime and anti-social behaviour • Locating bus stop on the southern side of the street extension to increase pedestrian activity and passive surveillance • Design of triangular 'dead corner' area on approach to underpass that mitigates high retaining walls and discourage people lingering in area that lacks activation and passive surveillance • Design and integrate the stair connection with the footpath environment to promote pedestrian movement, passive surveillance, and CPTED outcomes • Maintain clear sightlines around stair planting to support passive surveillance and avoid creating CPTED risks	Managed through Outline Plan
Urban form, landscape and visual effects of Sussex Street extension on Pukeahu National War Memorial Park	• Restore landscape to "like for like" condition for disturbed areas of Pukeahu • Land bridge to mitigate the urban form and potential physical landscape effects as well as visual effects of the street extension cutting across the edge of the existing Pukeahu National War Memorial Park • Incorporate accessible ramped pathways and direct stair connections that integrate with and reflect the scale of the existing pedestrian network • Provide extensive tree and mass planting on the land bridge to reinforce its green space character and screen views of the adjacent underpass and state highway infrastructure	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
Adverse urban form, landscape and visual effects on Canal Reserve, Cambridge and at Kent Terraces and north entrance to Basin Reserve	• Design open space to balance through movement and gathering activities including through the extent and layout of hard and soft landscape treatments and the definition of active mode pathways, to mitigate potential conflicts between walking and cycling movements and public gathering within this space • Aligning SH1 northbound lanes as far north as practicable to maximise plaza space at the Basin Reserve north gate • Provision for a straighter northbound SH1 alignment into the Arras Tunnel to integrate with Pukeahu Park, the land bridge, and the northwestern edge of the Basin Reserve • Locating north–south and east–west pedestrian crossings at the Canal Reserve termination to reinforce the Kent and Cambridge Terrace boulevard character and improve urban form • Wide active mode crossing between the north gate plaza and Canal Reserve to accommodate high pedestrian and cyclist demand • Straightening the Kent Terrace kerbline and traffic lane geometry to improve streetscape quality and expand open space contiguous with the Canal Reserve • Replacement tree planting within the extended Canal Reserve to mitigate the effects of the new intersection and the loss of mature trees over time	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Urban form and visual effects of reinstated Paterson Street and residual land	• Retain existing mature trees where possible • Landscape design around relocated heritage buildings to form defined front, side, and rear yards to all three relocated heritage buildings to ensure they	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
	continue to present a residential character to the neighbourhood irrespective of future use • Allocate residual land that does not have sufficient depth to support future built form into the curtilage of relocated houses, to reinforce residential character, rather than be developed as a standalone landscape area within the road reserve with no purpose or mitigation function • Relocate the tunnel control building and ancillary infrastructure to avoid adverse urban form and residential amenity effects • Minimise permanent corridor widening and land take by providing a narrow one-way Paterson Street and maximising residual land available for redevelopment • Align reinstated Paterson Street with the Mt Victoria street grid to maintain consistency with neighbourhood character • Remove the proposed berm on the northern side of Paterson Street to keep the street narrow, retain historic streetscape character, and maximise redevelopment potential • Provide for redevelopment of residual land, including relocated heritage buildings and new development, to create a continuous built frontage along the northern side of Paterson Street	
Western Portal and Paterson Street retaining wall – Visual dominance of retaining walls	• Design the tunnel portal to integrate with the existing portal through a compatible scale, form, and appearance • Provide a near-vertical concrete retaining wall that reflects the natural hillside gradient and integrates with the established character of the southern edge of the Mt Victoria neighbourhood	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
	• Develop the tunnel portals and retaining walls using materials, finishes, and cultural design elements that integrate with existing portals, enhance visual amenity, and reinforce the site's central city gateway function	
Western Portal Visual effects (tunnel control building and ancillary infrastructure)	• Bury tanks beneath the highway to avoid adverse visual effects • Relocate and lower the height of the tunnel control building to avoid adverse effects on adjoining residential properties and reduce visual impact • Provide mitigation planting and landscape screening around the tunnel control building and hardstand areas to buffer views from public streets, neighbouring properties, and the state highway • All required fencing and gates to operational areas, including heights, materials and finishes to manage the potential for adverse visual amenity and CPTED effects noting the proximity of publicly accessible areas and visual prominence of this location directly above the tunnel portal	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Eastern Portal and Retaining Wall – Visual and landscape effects of tunnel portal and retaining walls	• Tunnel portal design including scale and form that closely integrates with and relates to the existing tunnel portal • Retaining wall to be of concrete construction, with a slope and form that is close to vertical, with height, and materials to tie in with the tunnel portal • Design development of tunnel portals and retaining wall, including materials and finishes and any integrated cultural design expression opportunities, to integrate with existing portals, achieve a high level of visual amenity and recognise the central city gateway function	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
Eastern Portal – landscape and visual effects of exposed cut faces	• Above the base retaining wall, cut slopes and landscape treatment to maximise revegetation, using hydroseeding and shotcrete only where planting is not practicable • Grading upper slopes as gently as practicable to integrate with existing landform and maximise opportunities for tree and shrub planting • Reinstating a continuous vegetated ridgeline character to reduce permanent landscape and visual effects and maintain a green interface with adjoining residential properties • Further design development to seek to reduce extent of shotcrete in preference to greening solutions, to address visual amenity in recognition of the central city gateway function	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Eastern Portal – Visual effects of ancillary infrastructure.	• Relocated the tunnel control building outside the elevated Town Belt to avoid adverse effects on Town Belt character and visual amenity • Co-located tank storage with the replacement public toilet block to reduce the visual clutter of ancillary buildings and infrastructure along Taurima Street • Reinstated public access to the Town Belt via a replacement path • Architectural form and treatment of ancillary buildings, and any required fencing and gating to address visual amenity and CPTED considerations recognising these adjoin a prominent street accessway into Hataitai • Landscape planting to screen and buffer operational buildings from adjoining properties while ensuring the tunnel control building and toilet block front and address Taurima Street and the active mode path	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
Visual effects of replacement Hataitai active modes bridge	• Retaining the overbridge in its existing general location to maintain a clear and legible pedestrian connection between Hataitai Park, Taurima Street, Hataitai town centre, and Ruahine Street • Extensive tree and landscape planting around the ramp and stair approaches to integrate the overbridge into the surrounding landscape and reduce visual effects • Develop the bridge architecture, structure, materials, finishes, and cultural design elements to achieve a high level of visual amenity, integrate with its setting, and reinforce the central city gateway function • Incorporate CPTED principles into the bridge design by providing clear sightlines and opportunities for passive surveillance	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Visual effects on adjoining properties from Taurima Street to Wellington Road intersection from highway works, including loss of existing open space buffer and visual screening afforded by the mature pohutukawa trees, and adverse visual effects, and potential shading effects, from corridor widening	• Provision for landscape buffers where space allows including at property boundary interface on the straight of Ruahine Street through to corner • Provision for large trees where space allows on permanent residual land around corner with Wellington Road • Provide opportunities for planting at property boundary interfaces including vertical greening, and, where applicable, retaining wall interfaces between the edge of the highway and access lanes, to mitigate adverse visual effects	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Hataitai Park landscape and visual effects of earthworks, vegetation clearance, new access roads, bridge and associated retaining and cut slopes	• Cut slope design to provide for planting as visual mitigation where practicable without incurring increased land take and physical landscape effects on the Town Belt	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
	• Further design development to seek to increase the areas of planting and provision for large trees along the edge of the park entrance roads • Bridge abutment and retaining wall materials and finishes, including any incorporated cultural design expression opportunities, to ensure the detailed design achieves a high level of visual amenity, in recognition of Town Belt entry and central city gateway functions	
Visual effects of new bridge structure on adjoining properties	• Provide for landscape planting zone at boundary of new road reserve to provide screening and manage the potential for adverse visual effects on adjoining property • Details of final proposed levels, retaining walls and fencing as well as landscape mitigation planting at or near the boundary interface with adjoining properties, to seek to reduce adverse visual effects on adjoining properties wherever practicable	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Adverse effects on urban form from the loss of the residential properties on southern side of Wellington Road between Kilbirnie Park and the Town Belt, and associated widening of highway	• Creation of landscape buffer strip to edge of widened highway to rear boundary interface with Henry Street properties and green space network link • Design development to determine extent of any public access pathways to be provided within green space buffer, taking account of CPTED considerations	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Adverse landscape and visual effects on Kilbirnie Park	• Addressed level change with retaining wall hard to widened road reserve to edge of footpath to minimise intrusion into playing fields • Balustrade to top of retaining wall at park edge to be visually porous, to avoid adverse visual effects and ensure sightlines between park and road edge including passive surveillance	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
Adverse natural character and visual effects on reserve and foreshore from Evans Bay stormwater outfall	- Minimised extent of intrusion of new outfall structure on foreshore and CMA - Reinstatement of disturbed areas of foreshore reserve - Reinstate 'like for like' landscape treatment of disturbed areas of foreshore reserve	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Historic heritage effects		
Potential physical impacts from construction, vibration etc during construction works in the vicinity of Franconia (District Plan #452) and Shell House (District Plan #291), below at the Rosina Fell Lane car park Potential physical impacts from construction, vibration etc relating to soil anchors within the property boundaries of 214 The Terrace and 216 The Terrace, and near the western boundaries of 192, 202, 206, 208, 212 The Terrace Construction works including cut slopes along rear boundaries from 186-226 The Terrace A construction working area abutting the rear of 208, 212 and 214 The Terrace	- Heritage Standard Management Protocol - Despite the potential for high impacts should building integrity be compromised, the protection measures (particularly stabilisation, impact protection and monitoring measures) will mean that potential effects on these receptors will be avoided	DC.15 – Heritage Standard Management Protocol
Reduction of backyard of 214 The Terrace (District Plan #296) and 216 The Terrace due to cutting required for Tunnel. Shotcrete facing in very close proximity to northeastern property boundaries. Removal of vegetation and reduction of extent of current bush backdrop from full length of 186 - 226 The Terrace.	Revegetate per the Indicative Landscape Plans, from Boulcott Street to the 'Woof Woof Ruff' dog exercise park above the tunnels with indigenous erosion control vegetation. Maintain connection from Terrace properties to the dog exercise park and beyond to Kumutoto Forest	DC.1 - In General Accordance
Excavation for the new parallel Terrace Tunnel below properties from 216 The Terrace to south of MacDonald Crescent, directly or in close proximity to 230 The Terrace (District Plan #298), 236 The Terrace (HNZPT covenant), 244 The Terrace (District Plan #300), 258 The Terrace (District Plan #301), 274 and 276 The	- Heritage Standard Management Protocol - Despite the potential for high impacts should building integrity be compromised, the protection measures (particularly pre-construction condition surveys and	DC.15 – Heritage Standard Management Protocol

Actual or potential environmental effects	Proposed mitigation	Condition #
Terrace (District Plan #302), in the root zone of Notable Tree 1 (255 The Terrace), 143 Dixon Street (District Plan #249) and the Dixon Street Steps (District Plan Heritage Area 3)	monitoring measures) will mean that potential effects on these receptors will be avoided	
Severance of the Cuba Street Heritage Area by three-lane SH1 at Vivan / Cuba Street intersection	• Enlarge pedestrian footpath space at the Cuba / Vivian Street intersection, remove turns into Cuba Street from SH1 to enhance pedestrian experience, as per the Indicative Landscape Plans • Intersection streetscape shall be subject to further detail at Outline Plan stage via a ULDMP	DC.1 - In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Temporary removal, modification (narrowing) and reinstatement of verandahs along Vivian Street to accommodate SH1 corridor widening, including scheduled buildings at 191-195 Cuba Street (Patrick's Building, District Plan #87), 197-199 Cuba Street (Morgan's Buildings, District Plan #89.1), and 105-107 Vivian Street (District Plan #320)	• Remove, restore and reinstate existing verandahs on affected buildings, with minimal modifications to original designs (as per the Vivian Street Verandah Plans) • Verandah modifications shall be subject to further detail at Outline Plan stage, including engagement of suitably qualified persons to undertake architectural design and detailing in accordance with each verandah's original appearance, as well as temporary removal and modified reinstatement	DC.1 – In General Accordance DC.19 – Retention of historic heritage features Managed through Outline Plan
Streetscape modifications at the Vivian / Cuba Street intersections, requiring the relocation of the Chrissy Witoko and Carmen Rupe memorial benches and Carmen Rupe crossing lights	• Remove benches from site and store in a secure weathertight location. Return benches post-construction and rededicate in consultation with connected whānau and communities • Retain and reactivate the Carmen Rupe crossing lights on Cuba Street	DC.19 – Retention of historic heritage features Managed through Outline Plan
Potential for further severance of the Cuba Street Heritage Area and heritage buildings on Karo Drive and Arthur Street by additional traffic on northbound SH1	• None	N/A

Actual or potential environmental effects	Proposed mitigation	Condition #
General works in the immediate vicinity of the Basin Reserve itself	Heritage Standard Management Protocol	DC.15 – Heritage Standard Management Protocol
Relocation of Home of Compassion Crèche within Pukeahu Park	- Relocate Crèche building within Pukeahu Park and retain original north-south orientation. Prepare a Conservation Plan and Heritage Conservation Management Plan at Outline Plan stage, including engagement of suitably qualified persons for building/site recording, discovery and incident management (noting that the building / site has been previously archaeologically addressed); methods for long term removal, storage and protection, relocation methodology, and architectural reinstatement design, detailing and landscape approach. - Improve building interpretation re its links with the Catholic Church, Mother Suzanne Aubert and the ongoing work of the Sisters of Compassion	DC.1 – In General Accordance DC.16 – Heritage Construction Management Plan DC.17 – Home of Compassion Crèche relocation
Change of SH 1 configuration within the Canal Reserve, including the curved vehicular connection from Sussex Street into Kent Terrace, segmenting Polskie Dzieci Square, and removal of four mature trees including one pōhutukawa and three exotic deciduous	- Remove the Polskie Dzieci memorial from site and store in secure weathertight location. Relocate and rededicate post-works, in an agreed location in consultation with Polish community - Maintain strong visual continuity and active mobility from the Basin to the Canal Reserve via linear walking/cycling path and use surface treatment at path/road intersections to highlight the importance of these junctions and active mode locations - Replant in the modified southern portion of the Canal Reserve in conjunction with the rain garden, as per Indicative Landscape Plans - The Canal Reserve will be subject to further detail at Outline Plan stage via a ULDMP	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan DC.19 – Retention of historic heritage features Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
Roadworks in the immediate vicinity of the Basin Reserve's perimeter ring of pōhutukawa, which may cause damage to this treescape	Heritage Standard Management Protocol	DC.15 – Heritage Standard Management Protocol
Roadworks in Sussex Street directly adjacent to the Basin Reserve Museum Stand, which may cause damage, ground settlement or increased loading, plus temporary closure of the Museum during construction	- Undertake a pre-condition survey and ongoing monitoring for the Project duration and in following years. Create an exclusion zone for heavy vehicles and large compaction equipment, plus Heritage Standard Management Protocol - Maintain reasonable access to the Museum as much as practicable through the Project works, in partnership with the New Zealand Cricket Museum and Basin Reserve Trust - Protective wrap from dust and debris and solid hoarding for impact protection	DC.15 – Heritage Standard Management Protocol
Reconfigured road layout on Dufferin Street, including works within the immediate vicinity of the historic entrance to Government House and Wellington College - potential damage to the brick walls and gates at Government House and St Mark's School	Heritage Standard Management Protocol for brick walls and gates for the duration of the Project works	DC.15 – Heritage Standard Management Protocol
Complete demolition of the western side of the Basin Reserve to allow for SH1 modifications, including demolition of three pre-1900s houses	Undertake archaeological recording and monitoring in accordance with Project's archaeological assessment	AA1-11
Widened intersection at the Rugby Street / Adelaide Road, including demolition of a pre-1900s shop/house		
Loss of existing Paterson Street for second tunnel and construction of new Paterson Street access lane to reduced number of properties on northern side above the tunnel Demolition of 10 houses including the full length of Paterson Street (excepting relocations), 145-151 Brougham Street and 142 Austin Street. Removal and relocation of the Wellington East Girls' College Gates	Retain and relocate 140 Austin Street, 19 Paterson Street (Ettrick), and 7 Paterson Street (Laureston – the remaining 1868 portion only). Revegetate around relocated buildings with indigenous groundcover. Retain and relocate the Wellington East Girls' College gates to front the school's main entrance. The new Paterson Street landscape shall be subject to further detail at Outline Plan stage via a ULDMP	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan DC.16 – Heritage Construction Management Plan DC.18 – Heritage relocation Managed through Outline Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
and 3 historic houses – 140 Austin Street (District Plan #474), Ettrick House at 19 Paterson Street (District Plan #18) and Laureston House at 7 Paterson Street	Prepare a Conservation Plan and Heritage Construction Management Plan for each relocated building and the Wellington East Girls' College gates at Outline Plan stage, including engagement of suitably qualified persons for building/site recording, discovery and incident management; architectural reinstatement design and detailing; long-term removal, storage and protection; relocation processes and monitoring	
Extensive removal of mature pōhutukawa trees and other vegetation at the Taurima / Ruahine Street intersection to enable new tunnel and other SH1 changes	Revegetate with indigenous broadleaf forest, allowing for species that will create substantial canopy over time, as shown in the Indicative Landscape Plans. Include minimum four large specimen trees within the shrubland / groundcover. Landscape detailing shall be subject to further detail at Outline Plan stage via a ULDMP	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Project works including cut slopes and embankments on Ruahine Street, directly adjacent to Park Mews (62Moxham Avenue)	- Heritage Standard Management Protocol - Replant embankment with indigenous groundcover – retaining visibility between Park Mews, Town Belt and SH1 (as shown on Indicative Landscape Plans) - Provide a ramped pedestrian access from Tapiri Street to Ruahine Street	DC.1 - In General Accordance DC.15 – Heritage Standard Management Protocol DC.8 – Urban and Landscape Design Management Plan
Project works in the vicinity of the Second World War memorial within the Town Belt (north of the Badminton Wellington Centre on Ruahine Street)	Heritage Standard Management Protocol (particularly impact protection and exclusion zone)	DC.15 – Heritage Standard Management Protocol
Full demolition of all houses on the south side of Wellington Road (from Ruahine Street to Kilbirnie Crescent) and on the Ruahine Street / Wellington Road corner on the north side, and at two other locations on Ruahine Street to enable widened SH1	Create new linear park along Wellington Road, per the Indicative Landscape Plans	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan DC.15 – Heritage Standard Management Protocol

Actual or potential environmental effects	Proposed mitigation	Condition #
Removal of mature pōhutukawa trees and other vegetation along the modified SH1 route, particularly at the Ruahine Street / Wellington Road intersection	- Retain existing trees along Ruahine Street where the land is not required for construction activity - Retain tree coverage at the intersection of Ruahine Street and Wellington Road - Replant along the new SH1 configuration, within the Town Belt and new linear park as shown on Indicative Landscape Plans, including with indigenous broadleaf forest	DC.1 - In General Accordance DC.8 – Urban and Landscape Design Management Plan Managed through Outline Plan
Demolition of (1) the Badminton Wellington Centre within the Town Belt and (2) Kilbirnie Park Sport Pavilion within Kilbirnie Park, to make way for SH1 widening	NZTA progressing discussions for alternative locations with WCC and lessees regarding possible new locations	No condition proposed, as being managed through PWA process
Construction of the Hataitai Connection Bridge, a grade-separated local road connection across SH1 to the Town Belt, south of Goa Street and in proximity of the brick boundary walls of All Saints Church at 90 Hamilton Road	- Heritage Standard Management Protocol for the church's brick walls on Moxham Avenue - Despite the potential for moderate impacts should the church's wall be compromised, the protection measures (particularly impact protection and monitoring measures) will mean potential effects on the Church property will be avoided	DC.15 – Heritage Standard Management Protocol
Archaeological effects		
Any feature present likely to be shallow and will be destroyed by construction work within Te Aro area	Monitor construction earthworks, investigate, record and analyse revealed features	AA1-11
Demolition of houses / buildings within Basin Reserve area (on Sussex Street and Adelaide Road)	- Record interior and exterior of house to level 2 of HNZPT buildings recording standard - Monitor cleared site after house removal, investigate and analyse any revealed features	AA1-11
Earthworks likely to reveal and destroy in-ground archaeological features such as domestic rubbish pits, piles, drains within the Basin Reserve area	Monitor earthworks for presence of archaeological sites and features associated with prior buildings on site, investigate, record and analyse revealed features	AA1-11

Actual or potential environmental effects	Proposed mitigation	Condition #
Relocation of the Creche, within Basin Reserve area	- No archaeological monitoring is required for the relocation as the area has already been substantially modified for construction of Arras tunnel approach - Review on-site interpretation to tell the story of the Crèche, its association with social services and community, and with the “Catholic Precinct”	AA1-11
Earthworks likely to reveal and destroy cobblestones present within area of work within Basin Reserve area	Monitor earthworks for presence of insitu cobbles, and either record and remove, or leave insitu if possible	AA1-11
Relocation and reinstatement of buildings / houses within Mt Victoria Tunnel area (on Austin Street and Paterson Street)	- After Laureston house removal, monitor earthworks on the site and investigate, record and analyse any features found. Reinstall the house north of its current location, as per Indicative Landscape Plans, to maintain connections to Mt Victoria and the Catholic Precinct. Interpretation opportunity to share the history of Mt Victoria’s changing social and economic landscape - After Ettrick Cottage house removal, monitor the site for signs of prior occupation (not Ettrick Cottage, as it has already been relocated). Reinstall the house near its original site (corner of realigned Paterson and Brougham Streets) to maintain its connection to Mt Victoria	AA1-11
Demolition of houses / buildings within Mt Victoria Tunnel area (on Brougham Street and Paterson Street)	Record interior and exterior of house to level 2 of HNZPT buildings recording standard.88 Monitor cleared site after house removal, investigate, record and analyse any revealed features	AA1-11
Earthworks likely to reveal and destroy in-ground archaeological features such as domestic rubbish pits, piles, drains within Mt Victoria Tunnel area	Monitor earthworks for presence of archaeological sites and features associated with prior buildings on site, investigate, record and analyse any revealed features	AA1-11
Earthworks may reveal in-ground remains of hotel including basement and cellar, piles, domestic rubbish	Monitor earthworks for presence of subsurface cellars, rubbish pits, foundations, piles, drainage	AA1-11

Actual or potential environmental effects	Proposed mitigation	Condition #
pits and rubbish deposits within Eastern Connections area	pipes, investigate, record and analyse any revealed features • Opportunity for interpretation on site, such as storyboards about the history of the hotel, growth of the eastern suburbs, and the need for social facilities	
Ecology – Terrestrial effects		
Permanent loss of terrestrial vegetation and habitats	• Minimise vegetation clearance through detailed design process • Landscape planting associated with the Project is recommended to replace indigenous and exotic vegetation with appropriate indigenous species in key locations throughout the Project • A replacement ratio of 1:3 is proposed to address the ecological effects of losing mature specimen trees	DC.37 – Town Belt Vegetation and Habitat Offset
Permanent loss of threatened plant species	• Minimise vegetation clearance where possible through detailed design process • A site survey to identify and confirm presence of At-Risk species within the Wellington Town Belt is recommended • If identified, it is recommended these species are incorporated into the residual effects management plan planting schedules to promote the ongoing survival of these species • A replacement ratio of 1:3 is proposed to address the ecological effects of losing threatened plants	DC.36 – Threatened Plant Species Survey – Mt Victoria Tunnel DC.37 – Town Belt Vegetation and Habitat Offset
Disturbance effects on indigenous fauna during construction	• Minimise vegetation clearance through detailed design process, taking opportunities to avoid fauna habitat where possible	DC.1 – In General Accordance DC.35 – Avifauna Management Plan DC-38 Lizard Management Plan
Injury or mortality of indigenous fauna	• It is recommended avifauna management measures be set out in the EMP to minimise the risk of killing or injuring birds, particularly in nesting birds during peak	

Actual or potential environmental effects	Proposed mitigation	Condition #
	bird breeding season (September to January) as a condition of consent A Lizard Management Plan has been prepared to support the application for Wildlife Approval, detailing how requirements of Schedule 7 of the FTAA will be met. Measures to salvage lizards from the works area and relocate them to a release site in accordance with best-practice methodologies are provided	
Ecology – Freshwater effects		
Permanent loss of wetland extent	Mitigation is not practicable and so compensation is recommended to address the loss of wetland extent and values	RC.23 – Town Belt Wetland Compensation
Temporary discharge of contaminants to waterways	Implementation of industry standard erosion and sediment, and spills controls as well as materials and plant management, as detailed in the Technical Assessment Report #17 – Erosion and Sediment Control Assessment	RC.10 – Erosion and Sediment Management Plan (ESMP) RC.11 – Site Specific Erosion and Sediment Control Plan(s) RC.12 – 14 - ESCP conditions RC.15 – Construction Water Treatment Management Plan (WTMP) RC.16 - Stabilisation RC.17 – Spill Management Protocols
Effects on water quality resulting from changes to discharged contaminants	The Project design includes the implementation of stormwater treatment devices at specific locations within the Project area are expected to mostly reduce contaminant loading via stormwater to piped awa. As such, no additional mitigation is required	RC.27-31 – Stormwater Quality Management conditions
Effects on base-flow water levels resulting from changes to impervious surfaces and stormwater design	To the extent practicable in the context of the Project, impervious surface areas have been reduced through design, and temporary access areas required during	DC.1 – In General Accordance RC.32 – Flooding

Actual or potential environmental effects	Proposed mitigation	Condition #
	the construction of the Project will be returned via landscape design to natural landscapes	
Ecology – Marine effects		
Effects from construction of new stormwater outfall at Evans Bay	• Avoid and minimise plant in the CMA and minimise CMA works footprint • Careful removal of old materials from CMA • Industry standard erosion and sediment control measures • Biosecurity controls • Noise and disturbance controls • Implementation of Kororā Management Plan	RC.10 – Erosion and Sediment Management Plan (ESMP) RC.11 – Site Specific Erosion and Sediment Control Plan(s) RC.12 – 14 - ESCP conditions RC.18-20 – Coastal Works Construction Management RC.21 - Kororā Management Plan RC.22 – Kororā Burrows and Habitat Compensation
Construction discharge effects from earthworks and stormwater at Evans Bay	• Industry standard erosion and sediment control measures • Construction discharge monitoring and contingency measures	RC.10 – Erosion and Sediment Management Plan (ESMP) RC.12 -14 ESCP conditions RC.16 - Construction Water Treatment Management Plan (WTMP)
Operational discharge effects from stormwater	• No further effects management required	RC.27 - 31 – Stormwater Quality Management
Construction and operational discharge effects from earthworks and stormwater at Lambton Harbour	• Industry standard erosion and sediment control measures • Construction discharge monitoring and contingency measures • No further operational effects management required	RC.10 – Erosion and Sediment Management Plan (ESMP) RC.11 – Site Specific Erosion and Sediment Control Plan(s) RC.12 – 16 - ESCP conditions
Geotechnical effects		
Risk of damage to properties and services due to subsidence of the ground	• Implement appropriate tunnel construction methodologies, carry out pre-construction surveys of potentially affected buildings and services, carry out underpinning of critical buildings, undertake	DC.1– In General Accordance RC.2 – In General Accordance RC.24-26 – Groundwater and Settlement Conditions

Actual or potential environmental effects	Proposed mitigation	Condition #
	monitoring, set alarm levels and carry out repairs to any affected buildings where necessary Implement through a Trigger Action Response Plan, as part of a wider Groundwater and Settlement Monitoring Contingency Plan (GSMCP)	
Future development (e.g. excavation or additional load) above the tunnels could impact on tunnel stability and integrity.	A protection area is incorporated into the designation alteration and subsurface easements are recommended to protect the tunnels from future development effects	No condition required, part of normal NZTA project delivery
Resilience benefits from duplicated tunnels and grade separation of the arterial Cambridge / Kent Terrace – Adelaide Road connection from the state highway traffic	New tunnels to include an allowance for fault rupture via tunnel linings with movement joints and strengthening, to minimise downtime and resilience of access	No condition required, part of normal NZTA project delivery
Groundwater effects		
Damage to nearby buildings and structures from groundwater induced land settlement from temporary dewatering (operational and construction) within Terrace Tunnel area	GSMCP monitoring (because of mechanical settlement effects) and mitigation measures such as damage repair	RC.24-26 – Groundwater and Settlement Conditions
Groundwater or drainage water in receiving surface water may be affected by high alkaline drainage water which discharge to stormwater within Terrace Tunnel area	Lining of ceiling arch to reduce groundwater inflows and monitoring and mitigation measures such as water treatment, as allowed for in the design	RC.2 - In General Accordance
Damage to nearby buildings and structures from groundwater induced settlement within Basin Reserve area	Secant pile walls to reduce groundwater inflows and GSMCP monitoring (because of mechanical settlement effects) and mitigation measures such as damage repair	RC.24-26 – Groundwater and Settlement Conditions
Groundwater or drainage water receiving surface water may be affected by high alkaline drainage water or contaminants being drawn into the groundwater drainage system which discharge to stormwater within Basin Reserve area	Secant pile walls to reduce groundwater inflows and monitoring and mitigation measures such as water treatment	RC.15 – Construction Water Treatment Management Plan RC.24-26 – Groundwater and Settlement Conditions RC.31 – Tunnel /trench discharge water quality standard

Actual or potential environmental effects	Proposed mitigation	Condition #
Damage to nearby buildings and structure from groundwater induced land settlement from temporary dewatering within Mt Victoria Tunnel area	GSMCP monitoring (because of mechanical settlement effects) and mitigation measures such as damage repair	RC.24-26– Groundwater and Settlement Conditions
Groundwater or drainage water receiving surface water may be affected by high alkaline drainage water which discharge to stormwater within Mt Victoria Tunnel area	Lining of ceiling arch to reduce groundwater inflows and SMP monitoring and mitigation measures such as water treatment	RC.15 – Construction Water Treatment Management Plan RC.31 – Tunnel /trench discharge water quality standard (this condition will necessitate suitable design such as lining the ceiling arch so groundwater can be collected and managed to meet this standard)
Damage to nearby buildings and structures from groundwater induced land settlement from temporary dewatering within Eastern Connections area	GSMCP monitoring and mitigation measures such as damage repair	RC.24-26– Groundwater and Settlement Conditions
Damage to nearby buildings and structures from groundwater induced land settlement due to cut slopes within Eastern Connections area	GSMCP monitoring and mitigation measures such as damage repair	RC.24-26 – Groundwater and Settlement Conditions
Damage to nearby buildings and structures from groundwater induced settlement within Basin Reserve area	Secant pile walls to reduce groundwater inflows and GSMCP monitoring (because of mechanical settlement effects) and mitigation measures such as damage repair	RC.24-26 – Groundwater and Settlement Conditions
Stormwater effects - Flooding		
Reduction in flooding of up to 0.5m on northbound Terrace Tunnel lanes and new flooding of up to 0.75m on new southbound lanes	Reduction in flooding of up to 0.5m on northbound Terrace Tunnel lanes and new flooding of up to 0.75m on new southbound lanes	RC.2 – In General Accordance RC.32 – Flooding
No increase in impervious surfaces within Te Aro area. Minor changes to ground level	No increase in impervious surfaces within Te Aro area. Minor changes to ground level	RC.2 – In General Accordance RC.32 – Flooding
Localised increases in flood levels, particularly near new Sussex Street underpass connection to Cambridge Terrace and in northeast corner of Basin traffic system (northbound and southbound) associated with lowered ground levels	Localised increases in flood levels, particularly near new Sussex Street underpass connection to Cambridge Terrace and in northeast corner of Basin traffic system (northbound and southbound) associated with lowered ground levels	RC.2 – In General Accordance RC.32 – Flooding

Actual or potential environmental effects	Proposed mitigation	Condition #
Minor flood depth reductions are modelled along Kent Terrace and some areas north/south of Basin	Minor flood depth reductions are modelled along Kent Terrace and some areas north/south of Basin	
Increased stormwater runoff will worsen existing flood hazard within Eastern Connections area. Embankment associated with overpass from Moxham Avenue displaces flood storage and intercepts overland flow path from north to south. Increased flood depths between Kilbirnie Crescent and Evans Bay Parade (as well as to the south of Wellington Road junction). Increased depths are associated with new lanes for the widened highway to the west of the Junction (i.e. Wellington Road)	Increased stormwater runoff will worsen existing flood hazard within Eastern Connections area. Embankment associated with overpass from Moxham Avenue displaces flood storage and intercepts overland flow path from north to south. Increased flood depths between Kilbirnie Crescent and Evans Bay Parade (as well as to the south of Wellington Road junction). Increased depths are associated with new lanes for the widened highway to the west of the Junction (i.e. Wellington Road)	RC.2 – In General Accordance RC.32 – Flooding
Soil contamination effects		
Discharge of contaminants to the environment from HAIL, non-HAIL and other potentially contaminated land during construction, associated effects for human health	- Preparation of Contaminated Soil Management Plan (CSMP) based on DSI results and the nature of land disturbance for the Project - Additional investigations at Gazley Mitsubishi following building demolition - Preparation of Site Specific Soil Management Plans where asbestos and/or lead is present in soils	WCC.2-9
Discharge of contaminants to the environment from coal tar in roading materials	Preparation unexpected discovery protocol for the Project. Management plan to be prepared if coal tar is encountered	WCC.7 – Unexpected Contamination Discovery Protocol
Discharge of contaminants to the environment from HAIL land during operation	- Preparation of Long Term Site Management Plans where known or suspected contaminated soil or risks remain - Preparation of unexpected discovery protocol	WCC.7 – Unexpected Contamination Discovery Protocol WCC.9 – Long Term Site Management Plans

Actual or potential environmental effects	Proposed mitigation	Condition #
Erosion and sediment control effects		
Sediment laden runoff from tunnelling and portal earthworks entering stormwater and discharging to marine environment	• Implementation of ESMP and SSES CP • Construction water treatment plan • Monitoring of discharges • Contingency measures	RC.10-14 – Erosion and Sediment Control Conditions
Risk of contamination from chemicals and construction materials entering stormwater and discharging to the marine environment		RC.15 – Construction Water Treatment Plan
		RC.17 – Spill Management Protocols
Air quality effects		
Dust generation	• Preparation and implementation of a Construction Air Quality Management Plan (CAQMP) and regular visual dust monitoring including: • Real-time PM₁₀ monitoring adjacent to the northern portal of the Terrace Tunnel, including a weather station to monitor when wind speeds at a height of 5-10 m exceed specific mitigation trigger values that can result in increased dust generation (e.g. average wind speeds >5 m/s or wind gusts >10 m/s) • Real-time PM₁₀ and wind monitoring adjacent to R19 (church) on Moxham Avenue and adjacent to the western portal of the Mt Victoria Tunnel	RC.8 – Construction Air Quality Management Plan
		RC.9 – Real-time dust monitoring at specific locations
Cultural effects		
Unmanaged stormwater discharges: • Carry heavy metals, hydrocarbons, microplastics, and sediments into waterways • Affect indigenous fish moving through the system • Disrupt recreation • Limit future restoration potential • Degrade ecological values • Exacerbate existing flood risk	• Investigate opportunities for enhancing recognition of the waterways with Mana Whenua • Implement comprehensive stormwater management and treatment strategies to safeguard freshwater and coastal environments from contaminants, including the development of a stormwater maintenance plan • Mitigate flooding risks and address flood impacts along the project corridor	DC.1 and RC.2 - In General Accordance
		DC.6 and RC.6 – Mana Whenua Steering Group
		DC.8 – Urban and Landscape Design Management Plan
		RC.27 – Stormwater Quality Management
		RC.28-29 – Stormwater Treatment Devices
		RC.30 – Stormwater Maintenance Plan
		RC.32 – Flooding

Actual or potential environmental effects	Proposed mitigation	Condition #
Loss of terrestrial vegetation and wetland areas: • Removal of habitat for indigenous flora and fauna • Changes to existing ecological patterns • Risk injury or mortality to indigenous birds and lizards • Temporary disturbance effects from noise, vibration, and dust	• Reinforce existing ecological corridors through indigenous revegetation and long-term habitat enhancement/connectivity • Offset planting (particularly within the Town Belt, Hataitai, Miramar Peninsula, and Kumutoto Forest) • Compensation for Town Belt wetland loss • Ongoing pest management • Restoration planting (including the establishment of new specimen trees and enhancement of ecological linkages with the Town Belt) • Enhanced support for indigenous birds and lizards	DC.35 – Avifauna Management Plan DC.37 – Town Belt Vegetation and Habitat Offset DC.38 – Lizard Management Plan RC.23 – Town Belt Wetland Compensation
Localised disturbance to coastal environment during construction: • Sediment mobilisation • Loss of marine organisms attached to existing structures • Direct impacts on kororā through the removal of burrows at Evans Bay	• Improve overall condition of the harbour (water quality, ability to support marine species/habitats, ability of future generations to use and rely on coastal environments) • Provide replacement burrows for kororā away from the stormwater outfall. Inclusion of stormwater treatment upgrades across catchments draining to Evans Bay and Lambton Harbour	RC.10-14 and 16 – Erosion and sediment controls RC.18 – Coastal Works Construction Management Plan RC.21 Kororā Management Plan RC.22- Kororā Burrows and Habitat
Omission of cultural expression: • Disconnect for Mana Whenua from their ancestral environment. • Without incorporating visible and meaningful cultural elements, the project may fail to acknowledge and celebrate the enduring heritage and significance of the Project area	• The Project should integrate cultural expression into its design to mitigate the loss of cultural visibility and ensure the SH1 corridor reflects its significance as part of a living cultural landscape • A cultural design plan should be developed to incorporate Mana Whenua narratives, place names, and cultural markers into the Project	DC.1 - In General Accordance DC.6-7 and RC.6-7– Mana Whenua Conditions DC.8 – Urban and Landscape Design Management Plan
Reduced accessibility to key health services, including the Pōneke Medical Centre	• Construction traffic management plan and continued partnership with Mana Whenua during detailed design and implementation	DC.9 – Construction Traffic and Transport Management Plan (CTTMP)

Actual or potential environmental effects	Proposed mitigation	Condition #
		DC.6 and RC.6 – Mana Whenua Steering Group
Disturbance of previously unidentified cultural and archaeological material	Adoption and implementation of an Archaeology Authority sought through the Application, in a manner that upholds tikanga and provides for timely engagement with Mana Whenua	AA1-11 DC.6-7 and RC.6-7– Mana Whenua Conditions
Increased air, light, and noise emissions, with consequential effects on the health and wellbeing of whānau	Proposed mitigation measures captured in air quality and noise management plans, and continued partnership with Mana Whenua during detailed design and Project implementation	DC.20-26 Construction noise conditions DC.27-34 Operational noise conditions RC.8-9 Air quality conditions DC.6-7 and RC.6-7– Mana Whenua conditions
Increased safety risks for kaumātua and tamariki associated with crossing roads	Proposed mitigation measures including a construction traffic management plan to address safety and related effects during construction, and continued partnership with Mana Whenua during detailed design and Project implementation	DC.8- Urban and Landscape Design Management Plan DC.9 – Construction Traffic and Transport Management Plan (CTTMP) DC.6 and RC.6– Mana Whenua Steering Group
Social and recreational effects		
Nightworks in residential areas	Implementation of recommendations in the Noise Assessment regarding nighttime work	DC.20-26 – Construction Noise and Vibration
Disruption to travel patterns due to changes in traffic movement and road closures	- Implementation of recommendations from the Integrated Transport Assessment - Regular communication regarding changes to traffic arrangements - Construction vehicles should avoid using local roads to minimise disruption to local traffic	DC.9 – Construction Traffic and Transport Management Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
Changes to the road network could affect access to emergency facilities, causing delays in callouts	Regular communication with emergency service providers to ensure awareness of changes to traffic arrangements	No condition required, part of normal NZTA project delivery
Temporary loss or restricted access to private property	Loss of access to private property should be avoided. If restrictions or loss are required, consultation with the affected landowner should be conducted	DC.9 – Construction Traffic and Transport Management Plan
Long-term stress and construction fatigue from an extended period of construction	- Staging of the Project to consider minimisation of longer-term impacts to specific stakeholders - Ongoing communication and engagement with the community so that they are informed about potential adverse effects	DC.9 – Construction Traffic and Transport Management Plan DC.1 - In General Accordance RC.2 – In General Accordance No communication condition required, part of normal NZTA project delivery.
Fear and uncertainty regarding the effects on property acquisition	Regular and ongoing communication with impacted owners and residents and adjacent properties regarding Project timing and construction methodology	No condition required, part of normal NZTA project delivery
Maintain access to the Terrace walkway and Woof Woof Ruff (dog exercise area)	- Maintain pedestrian access from Terrace properties to the dog park - Construction hoarding is erected around any work on top of the Terrace Tunnel so that the area can continue to be used as designated dog exercise area	DC.1 - In General Accordance DC.8- Urban and Landscape Design Management Plan
Construction compounds and works reduce access between the City and Kelburn, including Kelburn Park and Victoria University	- Construction should be phased to minimise impacts on bridge connections across the Terrace Tunnel - The Construction Traffic Management Plan must identify suitable pedestrian and cyclist routes that provide safe access with minimal conflicts with vehicular traffic - Appropriate signage should be installed to inform the public of the pedestrian and cycling diversions. Any	DC.8- Urban and Landscape Design Management Plan DC.9 – Construction Traffic and Transport Management Plan No communication condition required, part of normal NZTA project delivery.

Actual or potential environmental effects	Proposed mitigation	Condition #
	diversions should add minimal additional travel distance compared to the existing pathways	
Construction work obstructs or restricts access to businesses for customers and deliveries within Te Aro area	• Ongoing consultation with businesses to maintain access to their properties as much as possible. Site signage and hoardings should be used to promote businesses during construction work	DC.9 – Construction Traffic and Transport Management Plan
Impact on pedestrian amenity from works that restrict access and affect sections of the footpath within Te Aro area	• Vivian Street works are to be undertaken in stages to minimise impact on the pedestrian environment • Traffic Management Plan to enable pedestrian movements to be safely maintained during construction • Consideration to temporary relocation of some street furniture, where practical, to maximise pedestrian access. This could include the benches and rubbish bins	DC.8- Urban and Landscape Design Management Plan DC.9 – Construction Traffic and Transport Management Plan
Pedestrian amenity and safety on Vivian Street	• The proposed kerb build-outs and relocation of street furniture will provide additional pedestrian waiting areas	DC.1 – In General Accordance DC.8- Urban and Landscape Design Management Plan
Impact on business operations within Te Aro area resulting from the loss of areas available for delivery vehicles	• Consideration should be given to converting parking bays on the side road into loading bays and allowing loading on Vivian Street during off-peak periods	DC.14 – Loading Area Plan
Impacts on access to St. Mark's and Wellington College	• Traffic Management Plan to maintain access to the schools and ensure appropriate management during school drop-off and pick-up times. There should also be regular communication with each school to distribute to students and parents, advising them of any changes in traffic near the schools	DC.9 – Construction Traffic and Transport Management Plan
Public events held in the Basin Reserve Precinct are restricted in their ability to accommodate large numbers of visitors	• The construction program should take into consideration any significant events occurring at the Basin Reserve and the National War Memorial	DC.9 – Construction Traffic and Transport Management Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
	There will need to be ongoing communication with event organisers. The Traffic Management Plan must include an event plan to manage increased pedestrian and visitor volumes at the Basin Reserve. A temporary access route through Pukeahu near the construction site of the Sussex Street trench may be required, as indicated in the Constructability Report	No condition required, part of normal NZTA project delivery.
Impact on the visitor experience at the National War Memorial	- Access to the National War Memorial will be maintained during construction, with sensitive management of sites within the memorial grounds - Access pathways may be temporarily changed, but this will be managed with clear wayfinding	DC.9 – Construction Traffic and Transport Management Plan
Access arrangements to Government House may change, impacting the travel movements of dignitaries that have specific security requirements	Ongoing communication with Government House to advise on any change in traffic arrangements and seek advice of any events that will have specific security requirements	DC.9 – Construction Traffic and Transport Management Plan No communication condition required, part of normal NZTA project delivery
Loss of Town Belt land in the Canal Reserve	- Any loss of land is to be compensated in consultation with WCC and Mana Whenua - Any surplus street space along Kent Terrace to be reallocated to the centre of the street so that it is contiguous with the Canal Reserve	Loss of land not required to be managed under FTAA approvals; compensation to be agreed via PWA process DC.8 – Urban and Landscape Design Management Plan
Fear that construction work in the Town Belt creates permanent damage	- Implementation of recommendations made in the landscape and visual assessment - Any land temporarily occupied within the Town Belt must be restored to its existing condition. All work undertaken within the Town Belt is to be in accordance with the TBMP	DC.1 – In General Accordance DC.8 – Urban and Landscape Design Management Plan DC.11 – Access to and along existing Town Belt trails during construction DC.12 – Reinstatement of trails in Town Belt
Impact on trails within Mt Victoria Town Belt	Maintain trail access whenever possible during construction. If trails are obstructed, then appropriate diversion routes should be provided. These should	DC.9 – Construction Traffic and Transport Management Plan

Actual or potential environmental effects	Proposed mitigation	Condition #
	- be clearly marked to reduce impacts on Town Belt Vegetation - A temporary access path should be provided connecting to Hinau Road and Hataitai Park, replicating the existing track linkages	DC.11 – Access to and along existing Town Belt trails during construction DC.12 – Reinstatement of trails in Town Belt
Impact to vehicular, access to Wellington East Girls' College during construction	- Vehicle access is maintained through Austin St - If further vehicle restrictions are required, then these are to occur outside of school term or after school hours, with access maintained by single vehicle access, or if for an extended period, by a temporary bridge	DC.9 – Construction Traffic and Transport Management Plan
Closure of the Mt Victoria Tunnel Shared Path	- Upgrade of the existing Hataitai to City Walkway to improve its overall amenity - Free shuttle bus service that can transport pedestrians and cyclists (and their bikes) through either side of the Mt Victoria Tunnel	DC.9 – Construction Traffic and Transport Management Plan
Acquisition of Hataitai Kindergarten	Support for the Hataitai Kindergarten to provide suitable premises within the suburb so that there is no net loss of childcare. The new facility should be operational prior to the existing facility's closure	Loss of facility not required to be managed under FTAA approvals; mitigation/compensation to be agreed via PWA process and ongoing engagement with WCC (as landowner)
Temporary loss of Hataitai Footbridge	- The Hataitai Connection bridge should be completed before the footbridge is closed or alternative arrangements made for safe crossing by pedestrians of Ruahine Street - A communication campaign should be undertaken, with clear signage, to inform the public of the bridge closure and to provide information about alternative access routes to Hataitai Park. These include the Hataitai Connection bridge and tracks and trails through the Town Belt, such as those from Alexandra Road	DC.13 – Signal controlled or grade-separated crossing to be maintained during construction No communication condition required; part of normal NZTA project delivery.

Actual or potential environmental effects	Proposed mitigation	Condition #
Changes to the road network associated with the Mt Victoria Tunnel will increase the travel time for residents' daily journeys	A communication campaign, supported by clear road signage, will be needed to educate the community about changes to the local road network	No communication condition required; part of normal NZTA project delivery.
Impact on the character of the suburb of Mt Victoria	Relocation and reinstatement of heritage properties on the realigned Paterson Street	DC.1 – In General Accordance DC.16 – Historic Heritage Management Plan DC.18 – Heritage relocation
Impact on the Town Belt around the Hataitai Tunnel Portals	- Any loss of land is to be compensated in consultation with WCC and Mana Whenua - Impacted mountain biking and walking trails to be reestablished. Their reinstatement should comply with the Recreation Aotearoa Outdoor Accessibility Design Guidelines - Revegetation	Loss of land not required to be managed under FTAA approvals; compensation to be agreed via PWA process Revegetation captured by DC1 – In General Accordance and DC.8 – Urban and Landscape Management Plan DC.12 – Reinstatement of trails in Town Belt
Demolition of Badminton Wellington Centre	- NZTA should work with Council and Badminton Wellington to identify location options, on public recreation land, for a new facility (funded in part by PWA compensation) - The aim should be to create a facility within the region before the permanent acquisition of the current Badminton Wellington Centre, enabling a seamless transition with no net loss of competition-level courts	Loss of facility not required to be managed under FTAA approvals; mitigation/compensation to be agreed via PWA process and through ongoing engagement with operator and WCC (as landowner)
Temporary loss of vehicular access to Hataitai Park prevents sporting groups from hosting training or competition	- Where vehicular access to the Park is closed for up to two weeks, the closure occurs between sporting seasons and sufficient notice (at least six months) is provided so sporting groups can schedule around the closure - Where vehicular access to the Park closed for hours or a day, that the closure occurs on a weekday before 3 pm and that sufficient notice (at least one month) is	DC.9 – Construction Traffic and Transport Management Plan DC.10 – Access to Hataitai Park DC.13 – Signal controlled or grade-separated crossing to be maintained during construction from Hataitai to Hataitai Park

Actual or potential environmental effects	Proposed mitigation	Condition #
	provided so sporting groups can schedule around the closure	
Loss of open space in Kilbirnie Park	WCC is working to reconfigure Kilbirnie Park Cricket Fields as part of the Kilbirnie Park masterplan, and the loss of open space due to the Project is not expected to have any material effect (such as loss of a cricket pitch)	Loss of facility not required to be managed under FTAA approvals; ongoing engagement with WCC (as landowner), including as to compensation under the PWA
Loss of club rooms and cricket practice net facility within the Eastern Connections area	- NZTA should work with Council and clubs to identify location for a new facility at Kilbirnie Park - The PWA process should be able to provide sufficient time for the new facility to be established prior to the demolition of the existing facility	Loss of facility not required to be managed under FTAA approvals; mitigation/compensation to be agreed via PWA process and through ongoing engagement with clubs and WCC (as landowner)
Reduction in parking in Hataitai Park	There should be communication with the regional sporting bodies to advise facility users of changes to parking arrangements and to encourage alternative access to the Park, including carsharing, public transport, or use of the footbridge	DC.10 – Access to Hataitai Park
Impact on events in Kilbirnie Park	Major community sporting events, such as the Weetbix Kiwi Kids Triathlon and Round the Bays, should be considered in the construction program to minimise disruptions	DC.9 – Construction Traffic and Transport Management Plan
Changes to the Town Belt affect the character of Hataitai	- Any loss of land is to be compensated in consultation with WCC and Mana Whenua - Support recommendations made in the Urban Form, Landscape, and Visual Assessment and Ecology Assessment	DC.1 – In General Accordance DC.6-7 and RC.6-7– Mana Whenua ConditionsDC.8 – Urban and Landscape Management Plan
Safety concerns for students accessing Kilbirnie School	Safety improvements made to Moxham Avenue including improved visibility to the pedestrian crossing and installation of kerb build outs	DC.1 – In General Accordance

7 ENGAGEMENT AND CONSULTATION

7.1 Introduction

NZTA has engaged widely in developing the Project.

The following chapter identifies and summarises the engagement and consultation with the relevant entities, agencies, iwi or hapū, persons and groups likely to be affected by the Project, as required by section 11 (read together with section 29(1)) and section 13(4)(j), (k) and (ka) (read together with section 43(2)) of the FTAA, as set out in Table 58.

A summary of wider public consultation and engagement undertaken, which has informed the Project design and this Application, is also provided.

Table 58: FTAA consultation requirements and identified stakeholders

FTAA section	Requirement (summarised)	Stakeholder or group
Section 11 (1)(a)	Consult with relevant applicant groups with applicants for customary marine title under the Marine and Coastal Area (Takutai Moana) Act 2011	- Te Rūnanga o Toa Rangatira Inc (the Rūnanga) - Te Ātiawa ki te Upoko o te Ika a Māui Pōtiki Trust (Te Ātiawa Trust)
Section 11 (1)(b)(i)	Notify in writing the relevant local authorities	- Wellington City Council (WCC) - Greater Wellington Regional Council
Section 11 (1)(b)(ii)	Notify in writing the relevant iwi authorities, hapū and Treaty Settlement entities	- Port Nicholson Block Settlement Trust on behalf of Taranaki Whānui ki Te Upoko o Te Ika (Taranaki Whānui) - The Rūnanga on behalf of Ngāti Toa Rangatira (Ngāti Toa)
Section 11 (1)(b)(iii)	Notify in writing the relevant administering agencies	- Heritage New Zealand Pouhere Taonga (HNZPT) - Department of Conservation (DoC)
Section 13(4)(j), (k) and (ka)	Provide a list of the persons and groups the applicant considers are likely to be affected by the project and a summary of any consultation/notification undertaken (including under section 11) and how the consultation/responses provided have informed the project The persons likely to be affected may include (in addition to those already referred to above):	
Section 13(4)(j)(v) and (vii)	Relevant protected customary rights groups and customary marine title groups Relevant applicant groups under the Marine and Coastal Area (Takutai Moana) Act 2011	- There are no relevant protected customary rights groups or customary marine title groups - The relevant applicant groups (including for both protected customary rights as well as customary marine title) are as listed above – the Rūnanga and Te Ātiawa Trust

FTAA section	Requirement (summarised)	Stakeholder or group
Section 13(4)(j)(viii)	Persons with a registered interest in land that may need to be acquired under the Public Works Act 1981 (PWA)	• Owners and occupiers of private properties to be acquired, including: • Ministry of Education and Wellington East Girls' College / St Patrick's College • WCC and lessees of WCC-owned land in Town Belt and Kilbirnie Park • Ministry for Culture and Heritage (in respect of the Crèche within Pukeahu Park, as well as a key stakeholder in terms of effects on Pukeahu Park more generally) • Polish Embassy (in respect of Polskie Dzieci memorial)
Section 13(4)(k)	Other persons and groups who may be affected by the Project	• Owners and occupiers of adjacent land, including Basin Reserve Trust and Cricket Wellington, Museum of New Zealand Te Papa Tongarewa, and The Embassy of the People's Republic of China • Utility providers • Health NZ Te Whatu Ora (Wellington Hospital) • Emergency Services • Wellington International Airport Limited • Regional sporting groups • Transport industry bodies, public transport and active transport advocacy groups

7.2 Marine and Coastal Area (Takutai Moana) Act 2011 (MACA) applicants

Given the Project includes works within the Wellington Harbour coastal marine area, section 11(1)(a)(i) of the FTAA requires consultation with any relevant applicant groups with applications for customary marine title under the Marine and Coastal (Takutai Moana) Act 2011 (MACA). In addition, section 13(4)(j)(vii) refers to relevant applicant groups more broadly (i.e. also including protected customary rights applicant groups). For completeness, there are no relevant protected customary rights or customary marine title groups in Wellington Harbour at the current time, as the relevant applications are awaiting Court hearing or consideration by the Crown under MACA.

The entities with MACA applications relevant to the Project area are:

- Te Rūnanga o Toa Rangatira Inc (the Rūnanga) (on behalf of Ngāti Toa Rangatira)
- Te Ātiawa ki te Upoko o te Ika a Māui Pōtiki Trust (Te Ātiawa Trust) (on behalf of Te Ātiawa, which is affiliated with Taranaki Whānui)

Engagement with Mana Whenua has been via a partnership approach, including through the establishment of a Mana Whenua Steering Group (MWSG), which includes representatives of the Rūnanga as well as the Port Nicholson Block Settlement Trust (PNBST) on behalf of Taranaki Whānui. Further details on this partnership approach are provided below.

Nevertheless, a formal notification letter has been sent to the Rūnanga, as both MACA applicant, Treaty settlement entity and iwi authority for Ngāti Toa Rangatira.

Te Ātiawa Trust is closely associated with the PNBST, which is the Treaty settlement entity and iwi authority for Taranaki Whānui. NZTA has written separately to Te Ātiawa Trust to seek the Trust's views on the aspects of the Project that affect the common marine and coastal area and is currently awaiting any feedback.

As there are no customary marine title orders in the Project area, there is also no planning document applicable to the Project area prepared by a customary marine title group under section 85 of MACA. Accordingly, no assessment of the Project is required against such a document.

7.3 Relevant iwi authorities, hapū and Treaty Settlement entities

7.3.1 Treaty settlement information

The Treaty settlement legislation for Taranaki Whānui is the Port Nicholson Block (Taranaki Whānui ki Te Upoko o Te Ika) Claims Settlement Act 2009. This settlement provides for Statutory Acknowledgements which are relevant to the Project area.

The Treaty settlement legislation for Ngāti Toa is the Ngāti Toa Rangatira Claims Settlement Act 2014. This settlement provides for Statutory Acknowledgements and poutiaki redress which enables Ngāti Toa to prepare a poutiaki plan and lodge it with relevant councils, following which relevant councils must take the plan into account to the extent it has a bearing on RMA issues of relevance to the coastal marine area. Ngāti Toa have not so far prepared a poutiaki plan.

7.3.2 Statutory Acknowledgements

Statutory Acknowledgements are a formal Crown recognition of the cultural, spiritual, historic, and traditional associations of Mana Whenua with a specific geographic area.

Clause 5(1)(b) Schedule 5 of the FTAA requires a description and map of the project site to confirm whether it is within or adjacent to a statutory area as defined in a relevant Treaty Settlement Act. Figure 4 illustrates the Project area along with the nearby Statutory Acknowledgement areas, as they are mapped in the District Plan and referred to in schedules to the NRP.

The only statutory acknowledgement area which intersects with the Project footprint is the Wellington Harbour location. A Kelburn statutory acknowledgement site is not within or adjoining the Project area.

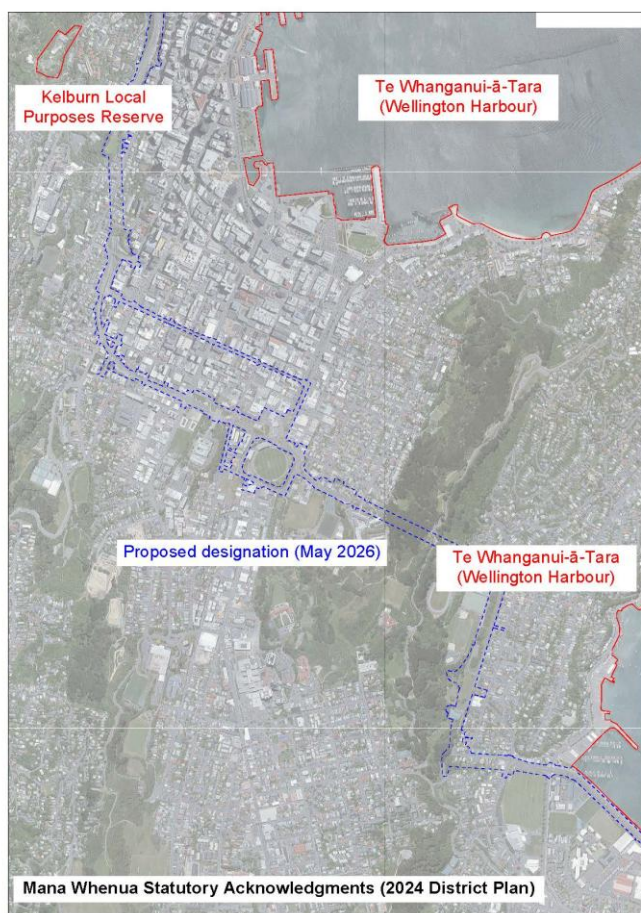


Figure 4 - Mana Whenua statutory acknowledgement areas

7.3.3 Mana Whenua partnership

NZTA is developing and intends to deliver this Project in partnership with the following iwi, who hold Mana Whenua interests in Wellington:

- Taranaki Whānui ki Te Upoko o Te Ika (Taranaki Whānui), represented by PNBST; and
- Ngāti Toa Rangatira (Ngāti Toa), represented by Te Rūnanga o Toa Rangatira Incorporated

Both PNBST and the Rūnanga are Treaty settlement entities and iwi authorities and as such, NZTA provided formal notification of the intent to lodge this Application in July 2026. Both entities were well aware of the upcoming lodgement date given the partnership approach and regular engagement that has occurred through the Project's development.

These iwi have been engaged with regularly at all Project levels throughout the development of the Project, including through the Project Sponsor, Project Director, and the Project team. The following sections describe the letters of support that have been provided by both iwi, and the mechanisms that have been put in place to provide for Mana Whenua participation in the Project's development, including the opportunity for both iwi to provide cultural impact assessments.

7.3.4 Letters of support

Both Mana Whenua partners have confirmed in-principle support for the Project through letters from Taranaki Whānui (dated 7 April 2026) and Ngāti Toa (dated 13 April 2026)⁵⁷. These letters recognise the importance of working constructively with NZTA as Te Tiriti partners. Mana Whenua involvement focuses on protecting community wellbeing, environmental stewardship, and sustainable long-term outcomes

⁵⁷ Copies are included in Appendix F4

within their takiwā. While discussions with NZTA are ongoing and some matters are still being worked through, NZTA's Mana Whenua partners continue to engage in good faith to ensure their values and responsibilities are reflected in the Project. Overall, Mana Whenua provide in-principle support for the Project and remain committed to working collaboratively with NZTA.

7.3.5 Operational support

At the request of Mana Whenua, the NZTA Project team has established three roles: two Iwi Integration Leads (one supporting Taranaki Whānui and one supporting Ngāti Toa) and an Iwi Technical Specialist. These roles have been invited to relevant Project meetings and workshops and provided with draft application materials for comment (including Project description, technical reports and draft conditions). This has provided iwi with direct visibility and insight into the Project's development, as well as the opportunity to communicate feedback and any Mana Whenua concerns directly to the NZTA Project team.

Operational support for Taranaki Whānui was established on 7 March 2025. Weekly hui have been in place, at Taranaki Whānui's request, since 9 July 2025, with additional meetings held as needed.

Operational support for Ngāti Toa was established in March 2026, a point opted for by Ngāti Toa. Prior to that date, there was high-level engagement between Ngāti Toa and NZTA on the Project's development and an open invitation by NZTA to be more closely involved.

These mechanisms have provided iwi with the ability to provide real time feedback on the development of the Project. Key discussions have centred on safeguarding Mana Whenua values; protecting and restoring freshwater and coastal ecosystems; acknowledging cultural and historical landscapes; and delivering intergenerational benefits.

7.3.6 Mana Whenua Steering Group

A Mana Whenua Steering Group (MWSG) has been established, with its first hui held on 24 April 2026. The MWSG provides strategic direction, cultural leadership, and joint oversight of the Project, reflecting the partnership between Mana Whenua and NZTA. The purpose of the MWSG is:

- A formal governance forum that ensures Mana Whenua aspirations, values, interests, and cultural responsibilities are recognised and integrated into the Project's planning, design, consenting, and delivery
- To support a partnership approach that gives practical effect to Te Tiriti o Waitangi and enables early, ongoing, and meaningful Mana Whenua participation in Project matters

NZTA is represented by the Project Sponsor and Project Director, ensuring engagement at a strategic leadership level and that agreed actions are recorded and managed. The MWSG meets monthly or as required by its members for the duration of the Project.

The MWSG is a mechanism that has been used very successfully by NZTA and its Mana Whenua partners on other major projects in the region, in particular the Ngā Ūranga ki Pito-one section of Te Ara Tupua (a coastal resilience and walking / cycling facility that recently opened) and Te Awa Kairangi / Riverlink (currently under construction in Lower Hutt).

7.3.7 Cultural Impact Assessments

Taranaki Whānui has prepared a Cultural Impact Assessment for the Project. This assessment outlines several priority recommendations to ensure the Project aligns with Mana Whenua values and delivers lasting cultural and environmental benefits:

- Demonstrate partnership with Mana Whenua in practice
- Contribute to improved freshwater and harbour conditions
- Advance restoration of culturally significant awa (streams)
- Improve recognition of the cultural landscape
- Support Mana Whenua-led involvement in planting, restoration, and monitoring
- Demonstrate improvement through monitoring

These recommendations are designed to ensure the Project not only avoids or mitigates adverse effects but actively contributes to the restoration and enhancement of cultural and environmental values, in partnership with Mana Whenua.

Te Rūnanga o Toa Rangatira as the mandated iwi authority for Ngāti Toa has also prepared a Cultural Impact Assessment for the Project. The Cultural Impact Assessment has been developed to ensure that cultural values are embedded from early design through to long-term operation. The report identifies three main areas of interest for Ngāti Toa for the Project as follows:

- Ngā mātāpono me ngā uaratanga – principles and values of Ngāti Toa Rangatira
- Ngā take – key historical and environmental issues
- Ngā huanga – cultural and environmental outcomes and aspirations

The report traverses outcomes highlighted below, amongst others identified:

- Recognising and considering the awa that flow into the harbour as whānau and taonga
- The cultural landscape
- Opportunities for Ngāti Toa Rangatira to exercise kaitiaki responsibilities, alongside Taranaki Whānui, and
- Sustainability, resilience and the quality of the urban environment

Cultural effects are discussed further in chapter 6.16 above.

7.4 Relevant local authorities

The relevant local authorities that have jurisdiction over the proposed designation alteration and the resource consent approvals sought are:

WCC – Wellington City Council

GWRC – Greater Wellington Regional Council

A complete list of NZTA's meetings with WCC and GWRC is provided in Appendix F1. In many instances, meetings were held with both authorities. The following sections provide an overview of the engagement with each local authority and a summary of the key topics of interest.

In addition to the specific engagement that NZTA has carried out with WCC and GWRC on this Project, it is relevant to note that elements of the Project are heavily informed by earlier investigations carried out through the LGWM partnership, which included NZTA, WCC and GWRC as programme partners.

7.4.1 Wellington City Council

NZTA has maintained regular engagement with WCC throughout the development of the Project and the preparation of the Application. Formal engagement in the current phase of the Project commenced in September 2025 and continued through to lodgement.

The meetings included briefings for both council staff and elected members at various stages of the design process. These sessions provided an overview of the Project, including its scope, anticipated benefits, and potential staging, as well as an outline of the fast-track approvals process. This included discussion of the associated effects, assessments and proposed mitigation measures under the FTAA, alongside an introduction to the proposed approach for community and landowner engagement.

To date, there have been 53 meetings with WCC⁵⁸. The topics of discussion were generally as follows:

- **Project Overview & Consenting** - general overview and outline of the Project, FTAA consenting / consent discussions
- **Transport & Network Planning** - network integration and transport system performance, public transport, intersection deep dive discussions, in particular regarding Basin Reserve and Eastern Connections sections

⁵⁸ As at 31 July 2026

- **Urban Development & Growth** – potential for the Project to support urban regeneration and land use, regional and housing growth
- **Urban Design and Landscape** – approach for working through specific urban design, landscape, placemaking, amenity and CPTED considerations in detailed design
- **Ecology impacts** - Including stormwater outfall works (including penguin habitat impacts), terrestrial ecology and lizard relocation
- **Environment & Resilience** - considerations regarding integration with three waters and other utilities, natural-hazard resilience and flood/liquification design responses
- **Property & Land Use** - property impacts, including Town Belt matters (including Canal Reserve, offset options), potential acquisition of unused WCC property
- **Construction Impacts and Spoil Disposal** – including condition of spoil, spoil disposal locations and transportation logistics. Construction impacts across the corridor including minimising impacts to traffic movement, maintaining access to businesses and local schools and minimising construction work within Kilbirnie Park
- **Community & Stakeholder Matters** – including the engagement approach generally and engagement with specific Town Belt lessees and Kilbirnie Cricket Club / Marist AFC, and other matters relevant to the Social Impact Assessment (including access to Hataitai Park)

Prior to lodgement, NZTA provided copies of its draft design drawings and proposal details, along with draft technical assessments undertaken to inform the RMA approvals. This engagement satisfied (and indeed far exceeded) the pre-lodgement consultation requirements of sections 11 and 29 of the FTAA. These reports included details of the anticipated effects of the Project and proposed mitigation measures to address those effects. WCC engaged in the pre-lodgement review process providing feedback on the information provided and key issues.

A series of 13 specialist workshops were undertaken to discuss the technical assessments in detail and these were attended by WCC, GWRC, DoC and HNZPT where relevant to the statutory functions of these parties. The topics for the workshops included:

- Groundwater
- Landscape, urban design and visual
- Transport
- Contaminated land
- Geotech / hazards
- Air quality
- Noise & vibration
- Design, constructability & alternatives
- Heritage & archaeology
- Terrestrial ecology
- Marine & freshwater ecology
- Stormwater & erosion and sediment control
- Other – planning, cultural, etc

WCC raised various matters regarding information adequacy and several substantive issues during this engagement. These concerns, together with those raised by GWRC, are summarised in Appendix G along with NZTA's response to the feedback.

More broadly, WCC's key interests and feedback has related to impacts on operation of the local road network, in particular local access, construction disruption effects, urban form and impact on further urban development potential, along with seeking to minimise the impact of the Project on Town Belt land and values.

Engagement with WCC is ongoing and will continue throughout the future implementation phases of the Project.

7.4.2 Greater Wellington Regional Council

NZTA has also maintained ongoing communication and engagement with GWRC throughout the development of the Project and preparation of the Application. NZTA's engagement with GWRC has covered regulatory matters related to the regional resource consents being sought, as well as wider GWRC functions, particularly in relation to its role as the public transport provider within the Project area. As with WCC, NZTA has made Project details available to GWRC to support their review and assessment ahead of lodgement.

NZTA's regular engagement with GWRC is often in conjunction with WCC. This engagement commenced in September 2025 with an initial Project briefing and has continued through to lodgement. To date, 33 meetings have been held with GWRC⁵⁹, beginning with establishing a shared understanding of the Project scope, benefits, and context. The general topics discussed included:

- Project overview and requirements
- Fast-track briefing – outline of the fast-track approvals process
- Walking and cycling
- Construction disruption
- Regional and housing growth
- Public transport
- Intersection deep dives, including the Eastern Connections and Kilbirnie area
- Consent design updates, including wetland viability and offset, and urban design principles

NZTA provided the same pre-lodgement information to GWRC as for WCC above, comprising the draft technical assessments, proposal and design information to support pre-lodgement engagement requirements (under sections 11 and 29 FTAA). This process outlined the potential effects of the Project and proposed mitigation responses.

GWRC also attended some of the 13 technical workshops where they expressed an interest (these were joint sessions as outlined in the previous section). Concerns raised by GWRC are summarised in Appendix G along with NZTA's response to the feedback, which primarily related to information detail in the draft specialist environmental reports.

The ongoing engagement with GWRC has also informed the Project's transport operational and construction aspects. These have included:

- Investigating provision for express bus services and bus stops along the route, which includes the usage of the tunnel for buses
- Travel time reliability is a key consideration for all buses affected by the Project, with a focus on ensuring bus travel times are better off or no worse than they currently are
- Bus changes have been proposed by WCC and GWRC along Moxham Avenue. The updated bus stop locations have been incorporated into the design
- The design has considered regional transport and broader city connectivity, particularly regarding places of interest such as Wellington Hospital and Wellington International Airport
- Consideration has been given to the impact of construction on regional transportation routes to minimise disruption. This included identification of alternate routes and detours when required

A letter of support has been received from Metlink, the GWRC public transport authority for the Wellington region, operating public transport under the Metlink brand. Metlink supports the opportunity the Project presents to provide quicker and more reliable express bus services along the SH1 corridor once the upgrade is complete. Metlink also note the Project will result in changes to traffic patterns on parts of the local road network and sees this as a promising opportunity to reduce bus volumes through Moxham

⁵⁹ As at 31 July 2026

Avenue and the Hataitai Bus Tunnel while maintaining high quality public transport services for Hataitai and the eastern suburbs. A copy of this letter is included in Appendix F4.

7.4.3 SH1 Wellington Improvements Network Planning Group

The SH1 Wellington Improvements NPG has been established to provide a regular forum for the NZTA Project Team to share information with WCC and GWRC on road network disruption interests associated with the Project. The purpose of the NPG is to proactively manage potential construction disruption and improve collaborative network operations for the future. The NPG will hold regular meetings (monthly or as otherwise agreed) during the detailed design stage of the Project and throughout the construction works until at least six months after completion of construction. The NPG is governed by Terms of Reference that have been approved between NZTA, WCC and GWRC. The Terms of Reference confirm that the NPG is required to operate in close alignment with Wellington's established Network Activity Planning function, which is led by WCC and brings together NZTA, GWRC, utilities and other stakeholders to coordinate planned activities and manage cumulative impacts on the transport network.

7.5 Relevant administering agencies

7.5.1 Heritage New Zealand Pouhere Taonga

HNZPT is the administering agency for the archaeological authorities sought for the Project. HNZPT will be invited by the panel to provide a report under section 51 of the FTAA regarding whether the authority should be granted with conditions or declined. HNZPT will also be invited to comment on the application generally (including the RMA approvals) under section 53 of the FTAA.

The Project has the potential to destroy or affect known and probable archaeological sites (including pre-1900 buildings, in-ground drains, and potential sites such as rubbish pits). NZTA has held a series of meetings with HNZPT to understand their concerns and identify mitigation measures to incorporate into the Project. These meetings were held on 18 November 2025, 5 March 2026, 18 March 2026, and 1 May 2026. The meeting held on 18 March included a site visit to Paterson Street to understand the potential impacts on the heritage buildings.

Heritage sites which have been discussed with HNZPT are listed in Table 59.

Table 59: Heritage sites the focus of discussion with HNZPT

Study area	Heritage site
Terrace Tunnel	• 136 The Terrace – Franconia • 192 The Terrace – Somerled House • 230 The Terrace – Mckellar/Devine House • 236 The Terrace – Villa Roma • 244 The Terrace – Barnett/Ritchie House
Te Aro	• Cuba Street Heritage Area, including the Cuba/Vivian Street intersection • Individual scheduled buildings along Vivian Street
Basin Reserve	• Pukeahu National War Memorial Park • Home of Compassion Crèche (former) • Basin Reserve Heritage Area • Government House and Walls – 1 Rugby Street
Mt Victoria Tunnel	• 7 Paterson Street – Laureston • 19 Paterson Street – Ettrick Cottage • 140 Austin Street

Study area	Heritage site
	Wellington East Girls' College – Gates and Main Building
Eastern Connections	- Ruahine Street – Park Mews - Moxham Avenue – All Saints Church

Prior to lodgement, NZTA provided HNZPT with the archaeological assessment, the cultural impact assessment by Taranaki Whānui (the Ngāti Toa assessment was not available at that time) and heritage assessment. HNZPT provided feedback on the archaeological and heritage assessments. The feedback included suggestions for mitigation and clarification regarding the level of impact on each heritage item, as well as information requirements. HNZPT also attended the heritage and archaeology pre-lodgement meeting following receipt of feedback, alongside WCC.

The detailed comments from the pre-lodgement engagement with HNZPT, as well as NZTA's responses to the matters raised, are set out in Part C of the Application (Application for Archaeological Authority).

7.5.2 Department of Conservation

DoC is the administering agency for the wildlife approvals being sought. DoC will be invited by the panel convener to provide a report under section 51 of the FTAA regarding the Project's effects on protected wildlife and related matters, including any conditions that should be imposed. DoC will also be invited to comment generally on the Project under section 53 of the FTAA.

The Project has the potential to have adverse effects on protected wildlife and ecological values. NZTA has had a series of meetings with DoC throughout the preparation of the Application. These meetings were held on 19 February 2026, 13 March 2026, 16 March 2026, 29 April 2026 and 4 May 2026. The purpose of these meetings was to discuss potential impacts on protected fauna (lizards and penguins/kororā), broader ecology effects such as habitat impact, as well as the mitigation and proposed fauna management approach.

A package of ecology reports, including Technical Report #7 Ecology - Terrestrial Effects, Technical Report #8 Ecology – Freshwater Effects, Technical Report #9 Ecology – Marine Effects, the draft Lizard and Kororā Management Plans and the Cultural Impact Assessment by Taranaki Whānui, were submitted to DoC on 27 March 2026. Feedback was provided to the NZTA Project Team on 13 April 2026. DoC attended the ecology focused pre-lodgement workshops alongside the councils. The detailed comments from the pre-lodgement engagement with DoC, as well as NZTA's responses to the matters raised, are set out in Parts D and E of the Application (Applications for Wildlife Approvals).

7.6 Persons with a registered interest in the land

7.6.1 Owners and occupiers of private properties proposed to be acquired

There are 319⁶⁰ landowners directly affected by the Project because of land requirements necessitating full or partial land acquisition within the proposed designation boundary. Most directly affected landowners were notified by letter in November 2025⁶¹ and invited to contact NZTA to discuss the proposal in more detail. Affected landowners were also invited to attend any of the six community information sessions (public open days) for the Project that ran over a four-week period from mid-November to December 2025 in different locations in Wellington city. Accredited property specialists were available at these sessions to meet with property owners and answer questions about how their property is affected and any acquisition process. Several directly affected property owners attended these sessions.

All directly affected occupiers of properties were notified by letter in November 2025. The letters were distributed by addressed mail to the identified property. The letter informed the occupant that a letter had been sent to the owner of the property and encouraged the occupier to reach out to the owner regarding the property. The occupiers were invited to stay informed about the Project by registering their details with

⁶⁰ Landowner numbers as of 31 July 2026; this number does not align with property (i.e. parcel) numbers cited in section 1.2, as some private owners hold more than one title

⁶¹ Additional directly affected landowners were identified as a result of design changes post November 2025; these additional owners were notified in late July/early August 2026

the NZTA Project team and referencing the Property ID Number that was issued with their letter. Clause 12(1)(f) of Schedule 5 of the FTAA requires NZTA to include the names and addresses of owners and make reasonable inquiries to identify occupiers of directly affected and adjacent land. The names of the directly affected landowners and (where available) occupiers and their addresses are provided in Part H - Directly affected and adjoining property details⁶².

To date, NZTA and accredited property specialists have separately met with or corresponded with 195⁶³ property owners to discuss the Public Works Act process, answer questions, and commence initial discussions regarding the Project's land requirements.

General feedback from most directly affected landowners is that they are willing to negotiate the acquisition of their property. There has been some less positive feedback received from owners within the Terrace Tunnel, Basin Reserve and Mt Victoria Tunnel sections, where the concerns raised have been in relation to the potential impacts of both tunnels on the affected properties and a request for more information to provide certainty in terms of the stability of the land post-construction. Other owners/occupiers have raised concerns about the impact of the Project and have requested that the design be reconsidered to avoid their own, or their family member's principal place of residence. A summary of feedback received from landowners/occupiers and the response from NZTA is provided in Appendix F2 (Tables 2).

Engagement with affected property owners and occupiers has enabled the recommendation of mitigation measures to be incorporated into the Construction Noise & Vibration Management Plan (CNVMP).

One notable design change was made in response to feedback received regarding the proposed property acquisition of the Wellington Seventh-Day Adventist Church at 27 Tasman Street. Originally, the full property was requested for acquisition. However, following feedback, a review of the design was undertaken, and it was modified to minimise impact on the property. It was determined that only land within the existing church car park was required, avoiding the need for full acquisition of the property. To mitigate the impact of losing the parking area, a new car parking area will be created from the residual property parcels adjacent to the Church that will be acquired for the Project.

NZTA wrote to all adjoining owners, known occupiers and physical addresses again in late July/early August 2026 to advise them of the proposed lodgement of this Application.

7.6.2 Ministry of Education, Wellington East Girls' College / St Patrick's College and other schools

The Minister of Education (MOE) is the requiring authority for designated school sites within and directly adjacent to the proposed designation. There are two school sites that will require property acquisition and temporary occupation during construction. Project works will not be able to take place within these existing designations without the Minister of Education's written consent under s176(1)(b) and s177(1)(a) of the RMA. These sites include St Patrick's College, Wellington, and Wellington East Girls' College (WEGC).

At St Patrick's College, the Project designation will encroach very slightly into the boundary of the site.

At WEGC, the Project will require the acquisition of sub-strata land rights, as well as temporary acquisition for a temporary tunnel control building. Access to the school will also be impacted during construction due to the temporary closure of Paterson Street and the loss of 8-10 car parking spaces for the temporary tunnel control building. Permanent impacts will include relocating the heritage gates on Paterson Street and changing school bus routes due to access changes around the Basin Reserve. The WEGC Supported Learning Class is located in the north-west corner of the property and may be affected by construction noise and vibration.

Other properties subject to MOE designation that are close to the Project or indirectly impacted by the Project include Mt Cook School, Clyde Quay School, Kilbirnie School and Wellington College. Impacts discussed with the MOE and the schools include:

- Mt Cook School – no direct impact
- Clyde Quay School – changes to traffic flows on Elizabeth Street

⁶² NZTA made reasonable efforts to identify occupiers by seeking information from property owners and also sending letters to the physical address of the properties - only limited property occupiers have responded with their details

⁶³ As of 31 July 2026

- Kilbirnie School - changes to parking and traffic flows on Moxham Avenue
- Wellington College – changes to Dufferin Street affecting traffic flows, school bus stops, and pick up/drop off facilities

In addition, St Mark's School is a private school that is adjacent to the Project. The site is not subject to an MOE designation. However, a record of discussions with the school is provided here due to its proximity to Wellington College.

A series of meetings has been held with MOE officials and the affected schools. For St Patrick's College and WEGC, meetings have been held to seek written consent for the works to proceed within the existing designated land. For the other schools, it is important to maintain communication so that the school community are aware of the works and the potential impacts, particularly during construction. Table 60 provides an overview of meetings held with the Ministry of Education and the schools. For any meetings where the Ministry of Education was not in attendance, a copy of the meeting minutes was provided to the Ministry following the meeting.

Table 60: Meetings held with the MOE and schools directly or indirectly affected by the Project

Date	Attendees	Point of discussion
1 December 2025	MOE, NZTA	Update MOE on engagement with schools so far, including concerns and issues raised Confirmed ongoing MOE involvement
14 November 2025	Wellington East Girls' College Principal, NZTA	Briefing to update the school on the Project. Questions were raised about student access during and after construction, as well as the level of disruption during construction
18 November 2025	St Patrick's College, NZTA	Briefing to update the school on the Project and outline the PWA process. Discussion focused on the land requirement and potential impacts during construction
19 November 2025	St Mark's School Principal and Board Chair, NZTA	Briefing to update the school on the Project and understand potential concerns or impacts to the school
20 November 2025	Kilbirnie School Principal, Kilbirnie School Board of Trustees, MOE, NZTA	Briefing to update the school on the Project. Obtain information on school operations, including the number of students and staff, access to the school, and use of the Hamilton Road entrance and the Moxham Avenue pedestrian crossing
20 November 2025	Wellington College Headmaster, NZTA	Briefing to update the school on the Project. Concerns were raised regarding current access to the school site, particularly from the access driveway on Paterson Street, as well as the lack of parking at school pickup
16 December 2025	Clyde Quay School, NZTA	Briefing to update the school. Concerns raised included traffic speed outside the school and additional traffic
27 January 2026	Wellington College Headmaster, MOE, NZTA	Briefing to update the school on the Project. Obtain information about school operations, including the number of students and staff, projected levels of growth, access to the school, particularly during school drop-off and pickup, parking and loading areas, and use of the school by community groups
29 January 2026	Wellington East Girls' College Headmaster, MOE, NZTA	Briefing to update the school on the Project. Obtain information on school operations, including the number of students and staff, access to the school, particularly during school drop-off and pickup from Paterson Street, and the use of public transport. Discussion also included after-hours use of the school, including public use of the pool and sports centre

Date	Attendees	Point of discussion
		Concerns were raised regarding the safety of school students during construction
12 February 2026	Kilbirnie School Board of Trustees, WCC Councillor (Jonny Osborne)	Meeting to discuss questions/ concerns from Kilbirnie School around potential impacts from SH1 Wellington Improvements on student safety and school operations from projected changes in traffic volumes in Hataitai
5 March 2026	St. Mark's School Principal, NZTA	Briefing to update the school on the Project. Obtain information about school operations, including the number of students and staff, access to the school, parking and loading areas, and the use of the school by community groups. The concern was raised about changes to legislation on Early Childhood Care regarding the impact of noise, vibration, and air particles. There was a request to monitor the boundary of the preschool site as part of the construction monitoring
25 March 2026	MOE, NZTA	Impacts on Wellington East Girls' College. This includes land requirements as well as temporary and permanent effects of construction. Items for discussion included access to the school site, temporary buildings, changes to parking and bus routes, and potential construction effects such as noise, vibration, and air quality
1 April 2026	St Patrick's School, MOE, NZTA	Briefing to update the school on the Project. Obtain information about school operations, including how students and staff access the school, parking areas, development plans for the school, and the use of the school after hours by community groups
30 April 2026	Wellington East Girls' College, MOE, NZTA	Discuss the potential temporary and permanent effects on Wellington East Girls' College from the Project. This included access to the site (permanent and temporary changes) as well as construction impacts such as noise, dust and vibration
30 May 2026	Wellington East Girls' College, MOE, NZTA	Discussion regarding construction impacts, including noise, vibration and air quality, including impacts to the Supported Learning Class that is located near the tunnel opening. Maintaining safe and functional access to the school is a significant concern; different options were discussed regarding site access and traffic management
25 June 2026	MOE, NZTA	NZTA provided an overview of where the Project currently stands and what is still in development. Discussed timeline of when information will be available (or developed) to share with MOE and impacted schools. Discussed approach to working with MOE to get in-principle support for the Project

In addition to the above meetings, a response was received during the public engagement period from Kilbirnie Public School, formally documenting their concerns about the Project. The submission expressed concern about the implications of the construction and eventual operation of the roads around the school and at the school entrance. Key concerns expressed in the submission included:

- Operation of Goa Street as access to the Northbound tunnel
- Increased vehicular activity on Moxham Avenue, particularly around the pedestrian zebra crossing
- Increased use of Hamilton Road to access Kilbirnie and the Eastern Suburbs
- Noise and air quality during construction

- Additional congestion and traffic management during construction
- Ability for students to cross Wellington Road from Hamilton Road to access facilities in Kilbirnie
- Communication with the school before and after construction starts

Table 61 outlines the design changes and mitigation requirements included in the Application following engagement with the MOE and the schools.

Table 61: Changes to the design and mitigation requirements following engagement with the Ministry of Education and the schools

School	Design change
St Patrick's College	Concern that traffic moving closer to the school would impact the structural integrity of a buried pile wall. A structural engineer was engaged to assess any risks and has confirmed that the works would have no direct effect on the pile wall
Mount Cook School and Clyde Quay School	There are no direct impacts on these schools. The Construction Traffic Management Plan will consider traffic movements around these schools and school pick-up and drop-off times
Wellington East Girls' College	A commitment has been made to continue to work with WEGC to maintain vehicle access to the school during construction. Options are currently being discussed with WEGC, these include converting Drive A to two-way, establishing a bus bay in front of the school on Paterson, and removing parking on both sides of Austin Street. None of the options under consideration is precluded by the current design. The approach to maintaining vehicular access will be determined as part of the confirmation of the construction methodology. Noise, air quality and vibration impacts will be monitored throughout the construction programme particularly during school hours
St Mark's School and Wellington College	Changes have been made to Dufferin Street to improve the pickup and drop-off zones. These changes included additional pick-up and drop-off spaces (protected from through traffic), additional bus-stopping spaces, and the reconfiguration of kerbs and paths. Noise, vibration and air quality management plans will manage effects on St. Mark's Preschool as a sensitive receiver
Kilbirnie School	Changes have been made to Moxham Avenue to improve safety for school students accessing the school. These changes include improved crossing facilities and improved bus stop accessibility. In addition, a parking space is proposed to be removed to improve sight lines at the pedestrian crossing

7.6.3 Lessees of WCC-owned land in Town Belt and Kilbirnie Park (Wellington Badminton Centre, Hataitai Kindergarten, Eastern Suburbs Cricket Club / Marist Football Club)

NZTA requires the acquisition of properties on WCC land that have been subject to long-term leases to social infrastructure providers. These facilities provide services to the local and regional community. Any loss of these facilities has social and recreational effects if they cannot be relocated to suitable alternative facilities. Engagement with these stakeholders has been undertaken to understand these potential effects and explore mitigation options. NZTA has been working with these lessees (and WCC where appropriate) to explore potential alternative locations for these facilities. NZTA has also, through accredited property agents, been discussing a suitable compensation approach under the PWA. Table 62 provides an overview of engagement with the lessees of WCC land that will be acquired under the PWA.

Table 62: Overview of engagement with lessees of WCC land that will be acquired under the PWA

Property	Stakeholder	Summary of engagement
Badminton Wellington Centre , 1 Ruahine Street	Badminton Wellington Centre	Two meetings have been held with the Badminton Wellington Centre on 12 December 2025 and 5 March 2026. The meetings have discussed the Project's impact on the Wellington Badminton Centre and the replacement property options under consideration. Discussions will continue with NZTA and WCC to explore suitable locations for a new badminton court facility
Hataitai Kindergarten, 8 Taurima Street	Whānau Manaaki	A meeting with Whānau Manaaki was held on 18 December 2025 to discuss the impact to the Hataitai Kindergarten. The Hataitai Kindergarten have been aware of the Project for some time and the need for relocation. They have been investigating other locations in the Hataitai area. Discussions will continue with NZTA and WCC regarding the relocation
Eastern Suburbs Cricket Club, 1 Kilbirnie Crescent	Eastern Suburbs Cricket Club Marist AFC	Three meetings (12 December 2025, 19 March 2026 and 14 April 2026) have been held with the Eastern Suburbs Cricket Club, Marist AFC and Cricket Wellington regarding the impact of the Project on the Cricket/Football Pavilion. Discussions focused on an alternative location for the Pavilion within Kilbirnie Park, which includes an alternative field layout. This alternative location and layout will require a new lease between WCC and these parties

7.6.4 Ministry for Culture and Heritage

The Ministry for Culture and Heritage (MCH) manages the Pukeahu National War Memorial Park. Impacts to the Pukeahu National War Memorial Park include:

- Permanent relocation of the Home of Compassion Crèche
- Temporary relocation of the Pacific Islands Memorial
- Permanent relocation of the influenza memorial
- Impacts on the management of commemoration and ceremonial events during construction

Engagement with MCH has been undertaken to identify suitable locations for relocating the Crèche and the memorials and to understand events in Pukeahu that could impact construction activities. Table 63 provides a summary of the meetings held with MCH.

Table 63: Summary of engagement with MCH regarding impacts on the Pukeahu War Memorial Park

Date of meeting	Summary of discussion
13 November 2025	MCH received an update on the designs for the Basin Reserve section. The discussion included relocating the Crèche, landscaping the park as a green link, and the impact of noise on the park
27 March 2026	Discussion regarding potential locations for the Home of Compassion Crèche. MCH detailed current uses of the Crèche that would need to continue during construction, particularly its function as a visitor centre. Alternative Crèche locations were discussed. Discussions around the temporary relocation of the Pacific Islands Memorial confirmed that the memorial was constructed in a way that it could be moved if required

Date of meeting	Summary of discussion
17 April 2026	Discussion regarding the approach to engagement regarding the temporary relocation of the Pacific Island Memorial. The Pacific Island memorial is a cultural diplomacy project funded by the NZ government through the Ministry of Foreign Affairs and Trade (MFAT) to acknowledge the contributions of Pacific Island soldiers in international conflicts. MCH needs to keep the Pacific Islands Head of Mission and Pacific Division of MFAT informed of the proposal
6 July 2026	Further discussion regarding location of the creche. NZTA explained that while the application would include an indicative location for the Crèche, a proposed condition would allow appropriate time to explore other options with MCH and Mana Whenua. MCH signalled their interest in exploring locations further to the west (closer to ANZAC square and National War memorial), if feasible, as it would enhance their ability to use the Crèche as a visitor centre. Agreed on a joint NZTA/MCH engagement approach with Pacific islands Heads of Mission regarding temporary relocation of Pacific Island Memorial

A response was received from MCH during the public consultation and engagement period which acknowledged the discussions and raised the following concerns:

- Emphasis on preserving the peaceful character of the Park, including managing traffic and construction noise
- The existing concrete panels provide effective acoustic shielding and a request for extending similar treatments where the road edge changes
- Request for ongoing engagement on landscaping and visual connections to Pukeahu (including completion of adjacent terrace landscaping)

The Home of the Compassion Crèche will be relocated within Pukeahu National War Memorial Park, to the location proposed in the application drawings. Although this location has not been opposed by any stakeholders, there are concerns that it will require two movements for the building. NZTA has committed to ongoing discussions with key parties to determine whether an improved location exists that would require only one movement for the building.

The Project design recognises the importance of maintaining a peaceful environment at the park. Noise specialist input has informed the Project design in this location. Currently, SH1 passes through a cut under Tory Street and Pukeahu National War Memorial Park, where existing concrete panels provide acoustic shielding. NZTA has confirmed that existing noise panels between the edge of Pukeahu National War Memorial Park and the state highway, if removed during construction, will be reinstated.

Consultation will continue with MCH as custodians of Pukeahu National War Memorial Park regarding landscaping and interface matters.

7.6.5 Polish Embassy

The Polskie Dzieci memorial, which is located within the Canal Reserve between Kent and Cambridge Terraces, will need to be removed during construction. The intention is to relocate and rededicate the memorial following the works, either close to its current location or at an alternative site in a way that respects its cultural, historical and community significance. WCC is the owner of the memorial and has advised that discussions regarding the memorial should include the Polish Embassy.

NZTA met with the Polish Embassy on 12 June 2026 to discuss the potential effects of the Project on the Polskie Dzieci memorial. The Polish Embassy provided information about the memorial and clarified that the original intention was for the memorial to be a named place within Wellington City that would honour the story of the Polish children and the connection between Poland and New Zealand. The current location is inaccessible and does not provide sufficient space for gathering. The Embassy considers the relocation to be an opportunity to find a site that better reflects the Polish Community's aspirations. There is no requirement for the site to remain at the Basin Reserve, and the Embassy mentioned that other areas of significance are the Waterfront and Newtown. The Ambassador will raise the matter with the Wellington Mayor at an upcoming meeting and emphasise the Embassy's willingness to work with NZTA and WCC on alternative options.

7.7 Other persons and groups who may be affected by the Project

7.7.1 Private properties adjacent to the approval area

There are 2605 properties (with individual landowners) and an unknown number of occupiers of properties adjacent to the directly affected land (i.e., the land to which the substantive application relates, that is the land subject to the RMA approvals, wildlife approvals and archaeological authorities being sought in this FTAA application). 'Adjacent land' is land that is near or next to the directly affected land. This could include land that has a common boundary or is contiguous with directly affected land or is close enough to be considered to form part of the context of the application land⁶⁴.

Clause 12(1)(f) of Schedule 5 of the FTAA requires NZTA to include the names and addresses of owners and make reasonable inquiries to identify occupiers of directly affected and adjacent land. The names of the adjacent landowners and their addresses are provided in Part H - Directly affected and adjoining property details. Occupier names and contact details are generally not known, despite efforts to identify such persons as explained below.

NZTA directly notified all adjacent property owners and occupiers in November 2025 by sending notification letters addressed to both the owner and occupier of the relevant addresses⁶⁵. The letter advised recipients about the Project, including the opportunity to attend any of the six community information sessions held across the city and share their feedback on the Project. Landowners and occupiers were also invited to register their contact details to receive property updates⁶⁶.

Several adjacent property owners attended the community information sessions and spoke with members of the NZTA project team, to understand what is proposed and the potential effects of the Project. Adjacent landowners also responded to the feedback survey (online questionnaire) or provided written feedback via the dedicated Project email address. NZTA has also met with adjacent landowners/occupiers where requested. These meetings were attended by members of the Project team to answer specific questions about how the Project might impact their property and to provide clarity about the process.

Feedback received from adjacent landowners and occupiers has been gathered from meeting minutes, emails, and survey responses. In analysing this data, we have protected the privacy of individual landowners by analysing the feedback either by section or, where possible, at the street level. Email responses were received from body corporate and strata bodies on behalf of the owners and occupiers. They have been responded to in detail because the personal details of individual owners cannot be identified. Appendix F3 (Table 3) provides a summary of the feedback received across the different Project sections, and, where possible, specific streets or strata properties. The table also provides NZTA's response on how the feedback has been considered.

7.7.2 Basin Reserve Trust and Cricket Wellington

The Project involves works on WCC-owned land surrounding the Basin Reserve, some of which is to be acquired permanently (including land already occupied by SH1) and some temporarily. The land identified for acquisition is not subject to the lease from WCC to the Basin Reserve Trust. However, the Basin Reserve Trust and Cricket Wellington remain impacted stakeholders because the Project may affect the operations of the Basin Reserve Cricket Ground.

A joint response from the Basin Reserve Trust and Cricket Wellington was received during the 4-week public consultation and engagement process. Although this response expressed support for the Project, it also raised some operational concerns, which include:

- Loss or constriction of the northern entrance of the Basin Reserve presents crowd safety risks
- Any reduction in broadcast functionality directly threatens future content allocation to Wellington
- Substantial reduction in car parking removes the Basin's ability to close surrounding roads for events and manage surrounding movements

⁶⁴As defined by the EPA in: https://www.epa.govt.nz/assets/Uploads/Documents/Fast-track-consenting/FTC_GUIDANCE_MATERIAL_Identifying_Adjacent_Land.pdf

⁶⁵ Additional adjacent properties were identified as a result of design changes post November 2025; these additional owners and occupiers were notified in late July/early August 2026

⁶⁶ NZTA made reasonable efforts to identify occupiers by seeking information from property owners and also sending letters to the physical address of the properties - only limited property occupiers have responded with their details

- Removal or constraint of existing areas used for food and beverage vendors, equipment storage, back of house operations, and temporary event infrastructure
- Impact on the placement of vendors and existing mid-wicket hospitality zones as well as general seating and banking capacity

A series of meetings has been held with the Basin Reserve Trust and Cricket Wellington to understand potential impacts, particularly regarding how the area functions on event days. A list of meetings is provided in Table 64. The meetings include a site visit on 10 December when the Basin Reserve was in full operational mode during Day One of the Blackcaps v West Indies Test Match.

Table 64: Meetings held with the Basin Reserve Trust and Cricket Wellington

Date of meeting	Summary of discussion
8 December 2025	The Basin Reserve Trust aims to collaborate with NZTA to maintain the venue as a top-tier facility and prepare it for marquee events, including future World Cups, by improving accessibility, crowd flow, hospitality, and broadcasting infrastructure. Key priorities include managing safe entry/exit for large crowds, resolving transport and carpark conflicts, and creating a turn-key venue capable of hosting up to 15,000 attendees
10 December 2025	Walk around the Basin Reserve during an event day (NZ vs West Indies Test) to understand current operations and challenges during large events
19 March 2026	NZTA organised this session to present on the Project's findings/assessment of the joint submission from the Basin Reserve Trust and Cricket Wellington. NZTA prepared and presented three different scenarios using information provided by the Basin Reserve Trust. These included small, medium, and large events, with explanations on the number of people entering/exiting, vendor location and operation, transport, lighting, and broadcast trucks
2 April 2026	This was a secondary working session in which NZTA presented their revised modelling and findings on attendee access to the Basin Reserve, the location and operation of broadcast equipment, and general operational requirements

The NZTA Project Team has been working closely with the Basin Reserve Trust and Cricket Wellington to change elements of the design to improve function on event days. In particular, the alignment of the slip lane from Buckle Street (SH1) around the west side of the Basin (southbound) has been adjusted in response to this feedback to provide more event management space outside the Basin.

7.7.3 Museum of New Zealand Te Papa Tongarewa

The Museum of New Zealand Te Papa Tongarewa Collection storage building on Tory Street is adjacent to the Project area. The building contains historical materials and artefacts (taonga) that are of national significance. The taonga within the Tory Street Collection Storage facility have specific storage conditions. Given the proximity of construction activities to the facility, engagement was undertaken with the Museum of New Zealand Te Papa Tongarewa to understand any potential impacts that the construction work could have on the collection storage building.

A meeting was held with Te Papa on 27 November 2025. Concerns were expressed regarding the impact of construction, particularly vibration, dust (external and internal) and proximity of traffic and related vibration to sensitive collections. It was acknowledged that there were no known issues during the construction of the Arras Tunnel (2014-2015). A request was made to meet with the noise and vibration specialists to understand recommended mitigations to reduce potential impacts to the collections.

7.7.4 The Embassy of the People's Republic of China in New Zealand

The Embassy of the People's Republic of China in New Zealand owns a site on Rugby Street, adjacent to the Basin Reserve, that is currently under development. The Project team has had discussions with MFAT regarding the Project and its potential effects on adjacent properties, such as the Chinese Embassy

site. A meeting with representatives from the Embassy of the People's Republic of China was held on 16 June 2026 to raise awareness of the Project and understand any potential impacts or concerns.

7.7.5 Te Runanga o Toa Rangatira, 45 Rugby Street

Te Runanga o Toa Rangatira own 45 Rugby Street which is currently operated by Ngāti Toa as the Poneke Medical Centre. It was originally identified for potential acquisition to widen Rugby Street for a shared pathway. Following changes in the design, the property was no longer considered necessary to acquire for the Project. The site is now an adjacent property and no specific impacts on the property will arise. It is noted that the Poneke Medical Centre has recently relocated to Oxford Terrace, Mt Cook.

7.8 Other stakeholders

7.8.1 Utility providers

Tiaki Wai and Wellington Electricity are the two utility providers identified as having specific critical assets that need to be relocated as part of the Project works. For this reason, these providers have been a focus of engagement during this phase. The Project design is not yet detailed enough to confirm the extent of impact on other utilities. Notwithstanding this, letters were sent to other utility providers (Chorus, Transpower, Powerco, etc.). No responses were received during the public consultation and engagement process. It is anticipated that there will be more active engagement with these providers in later phases.

A series of meetings was held with Wellington Electricity (7 November, 17 November, and 21 November 2025) to discuss the potential impacts on Wellington Electricity assets, including the high-voltage lines through the Mt Victoria Tunnel and the Basin Reserve, as well as transformers supplying the two tunnels. The discussions focused on the 33KV routes, relocation protocols, and the Tunnel Systems interface.

A series of meetings was held with Wellington Water as the predecessor to Tiaki Wai (6 November, 12 November, 21 November 2025) to discuss potential impacts on wastewater and stormwater assets near Ghuznee Bridge, wastewater assets near the Basin Reserve, and new stormwater assets proposed within the Project area. Concerns were raised regarding the proposed stormwater alignment at Hataitai, Basin, and Terrace; potential utility clashes; current maintenance requirements; and potential asset ownership.

A workshop was held with Wellington Water on 18 May 2026 to review the feedback raised by Wellington Water on the Project consent design. During this workshop, it was confirmed that there were no significant issues with the proposed design that could not be resolved at later phases in the Project as it moves into detailed design and construction staging. Correspondence from Wellington Water was received on 22 June 2026 confirming that, based on a review of the material that was provided by the Project Team, Wellington Water has not identified any issues that would require them to oppose the application.

NZTA notes that on 1 July 2026, Wellington Water was disestablished and its assets and functions transferred to the new water services entity, Tiaki Wai. NZTA is continuing to engage with Tiaki Wai as required to discuss the matters of interest.

In summary, there have been no specific design changes arising from engagement with these utility providers; instead, the discussions confirmed there would be no unmanageable adverse impacts on utility infrastructure. In addition, protocols for the construction team were discussed. Both Tiaki Wai and Wellington Electricity have been provided with a draft Design Pack for their review and detailed feedback.

7.8.2 Health NZ Te Whatu Ora (Wellington Hospital)

A meeting was held with Health NZ (Te Whatu Ora) on 5 November 2025. The purpose of the meeting was to provide an update on the Project and identify potential concerns, particularly regarding its potential impacts on Wellington Hospital. Health NZ is a major employer in the region and wants to be kept informed about the impacts the proposal could have on staff getting to work and on hospital operations.

A further meeting with Wellington Hospital was held on 12 August 2026. The discussion covered working with Wellington Hospital to identify journeys for patients/staff that may be impacted by construction, noting the Hospital currently undertake regular (approximately annual) travel surveys that inform travel provision (e.g. buses) and can provide more details to help maintain priority movements during construction.

Wellington hospital reiterated their support for the Project and for opportunities to provide improved journeys (private vehicle, bus and active modes) to the hospital.

7.8.3 Emergency Services

NZTA has engaged with emergency services to understand their interests regarding the construction and operation of the Project. These stakeholders include Fire and Emergency Services NZ (FENZ), Wellington Free Ambulance, and New Zealand Police.

Meetings with FENZ were held on 25 November 2025 and 12 December 2025. Key elements of the discussions included:

- How the design may impact FENZ operations
- The strategy behind the current design for Fire Life Safety in the Tunnels
- Discussion on how elements of the design may impact FENZ operations and current tunnel operation in an emergency scenario

As part of the meetings with FENZ a review was undertaken of the fire safety of both the proposed Terrace Tunnel and the proposed Mt Victoria Tunnel. FENZ confirmed that there are no fundamental fire-related flaws with the proposed new tunnels. They would like to remain involved in the detailed design and construction phases. Concerns were raised regarding the loss of the right turn into Newtown from Wellington Road as this has the potential to cause emergency response delays.

A meeting was held with Wellington Free Ambulance on 29 January 2026. Issues discussed included changes in the road network that might impact access to and from the hospital. Wellington Free Ambulance raised the importance of considering emergency vehicle manoeuvrability. This included having sufficient corner sweep, appropriate kerb heights, and avoiding features such as bollards or restrictive layouts that could hinder access or crew safety. They supported exploring design solutions that allowed emergency-only flexibility (e.g. mountable kerbs or controlled access areas) while restricting general traffic use. During construction, they requested that restrictions on emergency service access and night closures be communicated to ambulance teams so they are aware of changes to travel routes.

NZTA met with New Zealand Police on 29 July 2026. They were generally supportive of the Project, focused on safe and effective incident response and any potential protest activity. No major concerns were identified and feedback focused on ensuring the design supports safe and effective incident response, particularly through the tunnel sections and areas where median barriers may limit access across lanes.

Police would value ongoing involvement as the Project progresses, particularly around construction staging, traffic management and potential impacts on the wider network. NZTA explained that emergency access points were being considered and suggested that these operational requirements continue to be factored into the design as it develops. The discussion highlighted opportunities for future collaboration with the appropriate Police staff.

Following the engagement with FENZ and Wellington Free Ambulance, the design was amended to include allowance for emergency services to make right turns from Wellington Road (west) to Wellington Road (SH1) under sirens/lights, and from Kent Terrace to Cambridge Terrace at the intersection with Sussex Street extension. This means that the design of these corners will be sufficiently wide to enable emergency vehicles to access and perform this manoeuvre.

7.8.4 Wellington International Airport Limited

Wellington International Airport Limited provided feedback on the Project as part of the public consultation and engagement process. The airport expressed support for the Project. The airport is a major infrastructure provider, an emergency utility lifeline, and a major local business. According to the feedback provided, Wellington Airport is the gateway to the lower North Island, hosting over five million travellers per year. The airport generates over 14,500 jobs and \$2 billion in GDP for the Wellington regional economy. While the improvements in travel time to and from the airport were welcomed, the most valuable was the 40% improvement in travel time reliability, which will be a significant benefit for people accessing the airport by private vehicle, taxi/rideshare, and bus.

The response provided also expressed concern about the management of impacts during construction, particularly access to and through the CBD and to the airport. Management of traffic impacts, such as staging and minimising disruptions, will be required to reduce journey-time impacts.

7.8.5 Regional sporting groups

NZTA conducted a series of interviews between 5 February and 20 February 2026 with regional sporting groups that regularly use Kelburn Park, Kilbirnie Park, and Hataitai Park. These parks will be affected by the Project's construction and operation. The purpose of these interviews was to understand each sporting group's use of the parks during their respective on- and off-seasons, for competition and training. Details of the consultation are provided in Technical Report #21 Social and Recreation Impact Assessment (Part F of the application material).

Information from this engagement enabled mitigations on the following issues to be proposed in Technical Report #21 and reflected in the following conditions:

- At least one signal-controlled or grade-separated crossing for pedestrians and cyclists over Ruahine Street from Hataitai Village to Hataitai Park shall be maintained during Construction Works
- The Construction Traffic Management Plan is to include management of the transport effects (including when occurring at the same time as other activities, events such as sporting events, or other works on the network)
- Temporary closure of vehicular access to Hataitai Park, if required, to be planned in consultation with relevant regional sports bodies, sporting clubs and facilities operators, with consideration given to the best timing for any closures

7.8.6 Transport industry bodies, public transport and active transport advocacy groups

Transport industry bodies that provided feedback on the Project as part of the public consultation and engagement process, representing the transportation, heavy haulage, and vehicle sectors expressed support for the Project. These organisations recognised the benefits the Project will bring to the freight industry through reduced congestion and additional routes for their vehicles. Responses from associations that advocate for public transport and active transport were not as supportive of the Project expressing a view that investment would be better spent on improving public and active transport infrastructure.

A summary of the submissions received across the transport Industry sector is provided below.

A meeting with la Ara Aotearoa on 8 December 2025 discussed some concerns that were also raised in their response, including:

- A commitment to investing in the Project as a complete corridor – la Ara Aotearoa does not support progressing the Project in a piecemeal staged approach
- There are several signalised intersections on Vivian Street, Kent Terrace, and Karo Drive that will result in congestion. A recommendation was made to utilise traffic monitoring systems across the corridor
- Funds paid by road users through Road User Charges, fuel excise and vehicle registration fees should predominantly be used to pay for road construction and maintenance, Commercial Vehicle Safety Team enforcement, and low-level subsidies of public transport operating costs
- Tolling should be used sparingly and only on roads with appropriate roading assessments and a rigorous cost-benefit analysis

Two meetings with the Automobile Association on 7 November 2025 and 1 April 2026 predominantly discussed the issues raised in their submission, which included:

- Support for more improvements for cyclists and pedestrians, noting the 2013 proposal had a shared path/slow vehicle lane along Ruahine Street and Wellington Road
- A query whether there is sufficient space for a pedestrian/cyclist bridge at Taranaki Street and at Basin Reserve

- A request for retention of turning movements out of Hataitai and Evans Bay Parade so that they can be used during off-peak times
- Concern about loss of parking on Vivian Street and Kent Terrace. The submission queried if parking could be permitted during off-peak periods

A further meeting was held on 3 August 2026. The discussion covered the NZTA actions taken in response to the issues previously raised by the AA. The Project team confirmed:

- That a cycling and pedestrian facility was now included from Taurima Street to Evans Bay Parade, made up of service lanes and shared paths to provide a continuous facility that minimises impact on the Town Belt
- A pedestrian/cyclist grade separation (bridge or underpass) at the Basin Reserve was considered but not progressed due to the space, cost, CPTED and visual impact of these structures
- Right turn movements were reconsidered but no change made due to the safety and efficiency outcomes
- The AA identified off-peak turns were currently allowed at Riddiford Street, but NZTA noted that safety and efficiency impacts would still occur during off-peak periods if included at the intersections within the Project where this had been requested
- NZTA had considered loading or parking on Vivian Street during off-peak periods, but this solution had a negative impact on efficiency
- There was also discussion on the relationship between the WCC Harbour Quays bus project and the current Project and it was confirmed that this had been considered in the assessment of the Project and that NZTA understood that WCC was soon to make a decision on their project

Responses received from active transport advocacy groups identified the following concerns related to design elements of the Project:

- Concern that the shared paths are too narrow to safely accommodate the projected numbers of pedestrians and cyclists
- Safety concerns for students at WEGC and schools around the Basin due to the number of roads that they would be required to cross to access education facilities
- Concern that the proposed changes to cycling infrastructure around the Basin would decrease the comfort and amenity for cyclists, as well as increase journey time due to changes in cyclists' crossings and the removal of the cycle lane from Rugby Street to Adelaide Road
- Traffic increase along Moxham Avenue increases safety concerns for cyclists as well as students accessing Kilbirnie Public School
- Concern regarding space around the Basin to manage crowds on event days by both the South and Northern entrances
- A concern that change to vehicular access on Pirie Street will increase traffic outside Clyde Quay School

Changes to the design that have been made in response to this feedback include:

- The slip lane from Buckle Street to Sussex Street has been realigned to provide additional space in front of the Basin for events, improving access for pedestrians and crowd movements
- Improvements have been made to cycle connections around the Basin. These include the provision of a bike/cycle connection from Hania Street cul-de-sac to the adjacent shared path, as well as cycle crossings on Pirie Street and Kent Terrace at the intersection to provide cycle access to the Cambridge Terrace path from Pirie Street
- The pedestrian environment provided as part of the Project design has also been improved by the inclusion of kerb build-outs at the Cuba / Vivian Street intersection
- A footpath is now proposed beside the Mt Victoria western tunnel control building to provide a safe path from WEGC to Paterson / Austin Streets

- The Project now includes provision for walking and cycling along Ruahine Street and Wellington Road, to connect the new Mt Victoria Tunnel shared walking and cycling path to existing facilities on Evans Bay Parade
- A commitment to investigating new loading zones for businesses along Vivian Street is reflected in proposed conditions

7.8.7 Wellington Chamber of Commerce

The Wellington Chamber of Commerce represents Wellington businesses. A letter of support for the Project is included in Appendix F4 and confirms strong public backing for progress. The Chamber of Commerce consider second Mt Victoria and Terrace tunnels and improvements around the Basin Reserve address three of the most significant transport bottlenecks in the capital and are critical to improving how people, freight and services move into and through Wellington.

7.9 Wider community engagement

The Project webpage⁶⁷ is the primary source of information for the public and includes background project information, information about the 4-week community engagement period in 2025 and the feedback NZTA received, current project activities (e.g. geotechnical and hydrogeological investigations required for the consenting stage), and key programme updates. The proposed design (as it was at the time of the community engagement in November-December 2025) was and remains available for viewing on a dedicated page, along with a fly-through video of an artist's impression of the proposed design. The public can also subscribe to the Project's e-newsletter to receive latest news with more detail, which is sent out when substantive Project updates and information become available. There are currently over 2400 subscribers to the Project e-newsletter⁶⁸.

Community engagement on the Project commenced on Monday 17 November 2025 and shared the proposed design and the transport outcomes of the Project. The 4-week engagement period was promoted prior to and during engagement through online advertising, print advertisements in The Post, radio advertisements on two stations, social media posts on NZTA's channels as well as paid social media advertisements. This information included when engagement was starting and ending, promoting the community information sessions, and where to find more.

Six community information sessions were held across Wellington city - in Central Wellington, Kilbirnie, Hataitai, Mt Victoria, and Te Aro. These sessions were held at different times of day and throughout the week to encourage attendees to learn more and share their views. Members of the NZTA Project team were available at each session to meet directly with the community, answer questions and explain the Project in more detail. Approximately 850 people attended these information sessions. At each information session, the engagement brochure summarising the Project was available for attendees to take away, larger-scale pull-up banners were on display to summarise this information, and large-scale maps were provided on long display tables for people to discuss with the NZTA Project team. At the indoor venues, the fly-through video of the Project route was playing. The same video and engagement brochure were also available on the Project website.

The public could share feedback via an online survey which closed on 14 December 2025. Hard copies of the survey were also available at the information sessions. A total of 2,432 responses were received through the survey and email submissions. These responses came from individuals, organisations, and businesses, and the feedback was wide-ranging and covering several key themes. An analysis of the feedback received during the community engagement period, and a summary, is available on the Project website⁶⁹. The following sections provide a summary of the key feedback provided by Project section.

7.9.1 Terrace Tunnel

For the Terrace Tunnel proposal, the feedback included general support for the changes in terms of their impact on traffic flow and congestion relief, improved regional access and connectivity, safer journeys,

⁶⁷ SH1 Wellington improvements | NZ Transport Agency Waka Kotahi

⁶⁸ As at May 2026

⁶⁹ <https://www.nzta.govt.nz/assets/projects/sh1-wellington-improvements/sh1-wellington-improvements-community-engagement-report-mar-2026.pdf>

benefits for local roads and the community. Several respondents also commented that the improvements in this area were long overdue.

Specific concerns and questions raised regarding the Terrace Tunnel proposal included:

- The width of the traffic lanes to accommodate emergency vehicles and oversize freight
- The extent to which public and active transport were considered as more cost-effective solutions
- Whether travel demand management, such as congestion charging, tidal flows or signal optimisation, was considered as an alternative solution
- Opportunities for ecological restoration of the Kumutoto Stream and an improvement of community facilities above the Terrace Tunnel

Design changes required in response to consultation with the community and stakeholders within the Terrace Tunnel section were minimal. The feedback primarily concerned options discussed in the Alternatives Report. Regarding facilities above the Terrace Tunnel, the Project will realign the pedestrian pathway that connects the Terrace to the dog exercise area and community orchard and undertake revegetation of the indigenous shrubland. These works will improve the walkway's condition and enhance pedestrian connectivity.

7.9.2 Te Aro

The feedback included general support for the proposal in Te Aro section, including improved traffic flow and reduced congestion, acceptance of parking removal as necessary, and economic and freight benefits.

Specific concerns and questions raised regarding Te Aro proposal included:

- Consideration of grade separating the traffic to reduce the number of intersections and improve traffic flow
- Suggestions for using travel demand management to reduce the need for investment, including congestion charging/pricing and signal optimisation
- Suggestions for mitigating the loss of on-street parking include building new parking facilities, allowing off-peak parking, and preserving some loading zones
- Suggestions for alternative lane arrangements, dedicated turning lanes, intersection reconfigurations, and removal of certain turning movements to reduce congestion and improve flow

Feedback that has influenced the design includes the suggestion regarding loading zones, which is currently under investigation. The pedestrian environment has also been improved by the inclusion of kerb build-outs at the Cuba / Vivian Street intersection.

7.9.3 Basin Reserve

The feedback received showed both agreement and concerns regarding the proposed changes around the Basin Reserve. In comments indicating agreement, upgrades in the Basin Reserve area were viewed as long overdue, future-focused, and supportive of Wellington's growth. The design was considered to reduce congestion, enhance reliability, and make movements more intuitive. Respondents also anticipated safer conditions for school children, pedestrians, and cyclists through fewer conflict points and improved crossings.

Specific concerns and questions raised regarding the Basin proposal included:

- Recommendations for grade separation of modes, such as pedestrian over or under passes
- Suggestions to modify road layouts and road configurations
- Improvements to public transport with bus priority lanes
- Recommendations were made for improved access to the Basin Reserve as well as drop-off and pick-up zones around the schools
- Improvements to active travel facilities with dedicated cycleways and footpaths
- Protection of heritage buildings, memorials and trees

- Requests to minimise disruption during construction, particularly to manage noise, dust and vibration
- Suggestions were made for alternative approaches to investment, including mass rapid transit solutions and travel demand management

Design changes undertaken since the consultation period include improvements to the pick-up and drop-off zones on Dufferin Street. These changes allowed for additional pick-up and drop-off spaces (protected from through traffic), additional bus-stopping spaces, and the reconfiguration of kerbs and paths. Following consultation with the Basin Reserve Trust and Cricket Wellington, the alignment of the slip lane from Buckle Street (SH1) around the west side of the Basin (southbound) has been adjusted to provide more event management space outside the Basin.

7.9.4 Mt Victoria Tunnel

Feedback showed both agreement and concerns with the proposal for the second Mt Victoria Tunnel. In comments indicating agreement with the proposed changes, the second Mt Victoria Tunnel was viewed as long overdue, critical infrastructure to ease chronic congestion and deliver more reliable, predictable travel times. It was also seen as significantly improving safety, both because traffic would be separated with one direction in each tunnel and because the shared walking and cycling path would be fully separated from traffic.

Specific concerns and questions raised regarding the Mt Victoria Tunnel included:

- Suggestions for investment in or prioritisation of public transport
- Requests for improvements in active travel, including physical separation between cyclists and pedestrians
- Improvements in safety and comfort within the tunnel, such as acoustic screens, improved ventilation, and CCTV
- Suggestions were also made for different tunnel alignments and configurations

Design changes made in response to consultation with the community and stakeholders within the Mt Victoria Tunnel section were minimal. The feedback primarily concerned options discussed in the Alternatives Report. The cycleway through the Mt Victoria Tunnel is considered sufficient by NZTA and it is a significant upgrade on the existing tunnel, with increased space and separation from the vehicle lanes, leading to reduced noise and air pollution levels.

7.9.5 Eastern Connections

Feedback showed both agreement and concerns with the proposed changes within the suburbs of Hataitai and Kilbirnie. In comments indicating agreement with the proposed changes in this Project section, respondents supported improvements in traffic flow, the removal of dangerous intersections, and improved access to Hataitai Park.

Specific concerns and questions raised included:

- Requests to retain the right turns at key junctions
- Requests for dedicated, continuous and safe cycleways
- Assurance that facilities within the Town Belt would be maintained or relocated
- Mitigations to address the increase in traffic, noise and amenity impacts to residential properties
- Consideration to be given to alternative investments such as improvements to public transport or active travel
- Suggestions for the use of travel demand management and signal optimisation to decrease congestion

Design changes in response to community engagement include the provision for walking and cycling along Ruahine Street and Wellington Road, to connect the new Mt Victoria Tunnel shared path to the existing facilities at Evans Bay Parade. Pedestrian access improvements have also been included along Moxham Avenue, including outside Kilbirnie School. An improved pedestrian footpath connection from the

Wellington Road intersection to Hataitai Park on the western side of Ruahine Street has also been included.

8 STATUTORY ASSESSMENT

8.1 Overview of key RMA planning documents

As required under clause 5(1)(h) and (2) of schedule 5 of the FTAA, below is an assessment of the Project against the relevant provisions of RMA planning documents.

8.1.1 National Policy Statement for Infrastructure 2025

The NPS-I came into force on 15 January 2026. It is intended to be directly enabling of infrastructure developments, such as the Project. As set out in its explanatory note, the NPS-I recognises infrastructure as a matter of national significance under the RMA, and provides national direction to support the development, maintenance and upgrade of infrastructure across New Zealand. The NPS-I applies broadly to "all infrastructure activities and infrastructure supporting activities" and therefore applies directly to all elements of the Project as follows:

- The NPS-I applies the RMA definition of the term "*infrastructure*",⁷⁰ which includes (relevant to this Project): "*structures for transport on land by cycleways, rail, roads, walkways, or any other means*".⁷¹
- "*Infrastructure activities*" is defined in the NPS-I as "*the construction, operation, maintenance, upgrade and removal of infrastructure and all ancillary infrastructure activities, unless otherwise specified, and include all physical components and assets associated with the infrastructure activity*".
- "*Ancillary infrastructure activities*" is in turn defined as "*an activity that supports and is subsidiary to an infrastructure activity, including but not limited to:*
 - *Vegetation clearance and tree trimming;*
 - *Earthworks and land disturbance;*
 - *Construction, maintenance, repair and upgrading of access tracks, bridges and culverts;*
 - *Power supply and telecommunications.*"
- "*Infrastructure supporting activities*" is defined to mean "*activities that are not ancillary infrastructure activities but that are needed to directly support infrastructure activities, and may include quarrying activities.*"

The NPS-I therefore applies directly to the highway and associated physical structures and assets, such as the proposed tunnels, grade separation structures and new stormwater infrastructure, as the primary infrastructure.

It also applies to all other components of the Project as ancillary infrastructure activities that will facilitate the infrastructure development, for example the vegetation and wetland clearance, earthworks and associated discharges.

In the context of this Project, key infrastructure supporting activities include the transportation supplies and materials associated with construction of the Project, including spoil disposal associated with tunnelling.

An analysis of the Project against the objective and relevant policies of the NPS-I is provided below.

Objective

The objective of the NPS-I is to:

- (a) *Ensure the national, regional and local benefits of infrastructure are provided for;*
- (b) *Enable infrastructure to support the social, economic and cultural wellbeing of people and communities and their health and safety;*
- (c) *Enable infrastructure to support the development and change of urban and rural environments to meet the diverse and changing needs of present and future generations;*

⁷⁰ Clause 1.4 NPS-I

⁷¹ s2 RMA

- (d) *Ensure infrastructure is well-functioning, resilient and compatible, as far as practicable, with other activities; and*
- (e) *Ensure infrastructure is delivered in a timely and efficient manner while managing adverse effects from or on infrastructure.*

The Project is directly aligned with all elements of the objective, as follows:

- (a) The Project will deliver national, regional and local benefits, as set out Part A Chapter 8 – these include travel time savings, improvements to travel time reliability, safety benefits, improved network resilience benefits, improvements to walking, cycling and public transport and opportunity to unlock additional housing development, particularly in the eastern suburbs. The monetised benefits brought by the Project are estimated at \$3.33 billion in the Economic Assessment (Technical Report #3)
- (b) In delivering those benefits, the Project will support the social, economic and cultural wellbeing of people and communities and their health and safety, through better and safer transport infrastructure that will address existing congestion, provide new local jobs during construction and consequential confidence from the significant investment this Project will bring to the city. The Project will also deliver broader social and cultural benefits as described in Part A through, for example, the green bridge which will improve connections between Pukeahu Park, the Basin Reserve and Canal Reserve
- (c) The Project will support the development and change to the urban environment, to meet the needs of present and future generations by resolving constraints on a key connection that cannot serve current demand without unreliable and extended travel times
- (d) The Project will be well-functioning and resilient as outlined in the Geotechnical, Hazards and Resilience report, as well as the Economic Assessment which quantifies the benefits of the second tunnels in terms of earthquake disruption and closure from traffic accidents by removing the potential for head-on collisions. The Project will be compatible with other activities, as far as practicable. The Project will of course have some adverse effects on other activities, as described in Chapter 6, but those effects have been carefully assessed and will be addressed through the measures proposed by NZTA and set out in conditions
- (e) Granting the approvals sought for the Project, on the conditions proposed by NZTA, will facilitate its timely and efficient delivery of this significant infrastructure. The effects management measures proposed by NZTA will appropriately manage the actual and potential adverse effects of the Project, while not unnecessarily delaying timely and efficient delivery

Policy 1: Providing for the benefits of infrastructure

Policy 1(1) requires decision-makers to *"ensure that the national, regional or local benefits of infrastructure, relative to any localised adverse effects on the environment, are recognised and provided for"*.

This is a directive requirement, employing the *"recognise and provide"* for language used in section 6 of the RMA. Policy 1 requires the localised actual and potential adverse effects of the Project to be contextualised against the Project's benefits.

The Project will deliver national, regional and local benefits for present and future generations inclusive of economic benefits, travel efficiency and reliability benefits, and safety and resilience benefits. These benefits are significant and must be recognised and provided for. While the Project will have some adverse environmental effects, these effects are localised and will be managed through appropriate mitigations, including measures to protect significant heritage values, urban form and amenity, and the local natural environment. The Project has also been designed to be resilient to natural hazards and climate change, ensuring that the infrastructure remains fit for purpose in the long term. This demonstrates consistency with Policy 1.

Policy 1(2) requires decision makers to recognise the benefits of infrastructure, including:

- a. *Providing for the social, cultural and economic wellbeing of present and future generations*
- b. *Creating, supporting and enhancing well-functioning urban and rural environments*
- c. *Supporting sufficient development capacity to meet demand for housing and business land*

- d. *Providing services that are essential to support human life and the development, growth and functioning of districts, regions, New Zealand and the economy*
- e. *Helping to protect and restore the natural environment*
- f. *Supporting New Zealand's emissions reduction targets and mitigating the effects of climate change; and*
- g. *Reducing the risks from, and improving resilience to, natural hazards and climate change*

The Project will deliver significant social, cultural and economic benefits for present and future generations. These include reduced congestion on local roads, improved traffic flows, improved active transport routes, and improved overall corridor resilience. SH1 is critical to the region's economic and social wellbeing, with well-designed transport corridors being essential to support existing and future generations.

The Project has the potential to support urban regeneration, land use, and regional housing growth. Improved network resilience and improved active transport provide an opportunity to unlock additional housing development, particularly in the eastern suburbs. Modern duplicated tunnels provide for improved resilience and improved protection of human life during hazard events such as earthquakes, particularly during the recovery phase, as SH1 is a critical route for Wellington, as detailed in Technical Report #13.

Further, the proposed habitat restoration as part of effects management measures help to protect and restore the natural environment. The improved active transport links will make walking and cycle travel between the city and eastern suburbs more appealing and so assist in supporting New Zealand's emissions reduction targets, mitigating the effects of climate change. The Project stormwater design has also incorporated measures to avoid increasing the risks from natural hazards (specifically flooding risk) both on the state highway itself and the surrounding environment.

For the reasons listed above, the Project aligns with Policy 1(2).

Policy 1(3) requires decision makers to recognise:

- a. *The significant risks to, and impacts on, public safety, the wellbeing of people and communities, and the environment that may occur when infrastructure services are compromised; and*
- b. *That infrastructure networks can be both independent and interconnected*

The second Terrace Tunnel and Mt Victoria Tunnel will significantly improve operational resilience, enabling traffic and emergency vehicle services to be maintained if the other is closed due to an incident or maintenance activities.

Geotechnical, natural hazard, and resilience risks are present within the Project area, but effects are mitigated through the Project design, and a ground subsidence effects management plan (including monitoring, alarm levels and response measures using a Trigger Action Response Plan).

As the Project spans approximately 5 km through Wellington City and includes upgrades including a new layout around the Basin Reserve, widening, intersection, and layout improvements, the Project is a key interconnected transport network. However, traffic reductions along other key routes and enabling public transport growth demonstrates the independent benefits of the Project.

Therefore, the Project aligns with Policy 1(3).

Policy 2: Operational or functional need

Policy 2 requires decision makers to "*recognise that infrastructure may have an operational need or functional need to operate in, be located in, or traverse particular locations and environments.*"

Elements of that operational or functional need, in respect of infrastructure, are set out in Policy 2(2) as including, but not limited to:

- a. *Provide services to people and communities in a timely, effective and efficient manner*
- b. *Operate effectively and efficiently as linear and/or interconnected infrastructure networks within and across district and regional boundaries*
- c. *Access or connect to particular natural or physical resources, including other infrastructure*
- d. *Be accessible so infrastructure activities can be undertaken effectively and efficiently*
- e. *Locate where the services are required, including in areas at risk to natural hazards, whether the infrastructure has been spatially identified in advance; and*
- f. *Manage risks from natural hazards*

The Project has a clear functional and operational need to traverse particular environments, due to the location of the existing highway, as confirmed through Technical Report #1 - Consideration of Alternatives. This includes necessary impact on Wellington Town Belt land including low value wetland areas. Alternative design options have been considered to avoid the wetlands; however, those alternatives would involve taking private property as the Project is constrained by the location of the existing state highway. The Project objective cannot be achieved without either impacting the wetlands or causing a very significant property impact, so it is considered that the loss of wetlands is effectively unavoidable, noting also that all are of low ecological value, so impacts on property and the communities living there would be disproportionate to the benefits offered by wetland avoidance in this instance.

Of note and as discussed elsewhere in the application, consideration of functional need is also relevant to the analysis of the Project against the NPS-FM in respect of impacts on wetlands. The more specific direction as to the consideration of functional need for infrastructure projects in policy 2 of the NPS-I must be reflected in the analysis carried out under the NPS-FM also.

Policy 3: Considering spatial planning

The Project is aligned with key strategic planning documents.

The second Mt Victoria Tunnel and Basin Reserve upgrades are identified as significant activities in the Wellington Regional Land Transport Plan (RLTP) 2021. The second Terrace Tunnel, Te Aro upgrades, and Eastern Connections were recently confirmed by GWRC in May 2026 as RLTP additions, such that the full Project scope aligns with the regional transport plan for the Wellington Region. SH1 from Wellington CBD to the airport, including the second Mt Victoria Tunnel and Basin Reserve upgrades are noted in the 2024-2027 National Land Transport Programme. They are listed as supporting a reduction in congestion, an improvement to safety, supporting housing development, and boosting economic growth.

The Wairarapa-Wellington-Horowhenua Future Development Strategy 2024-2054 (FDS) is the spatial plan for the wider region. The FDS illustrates key strategic transport projects which includes '*Transport improvements including Basin Reserve upgrade and second Mt Victoria tunnel*', confirming the Project is directly aligned with the FDS and the growth plans for the region. The Project therefore demonstrates consistency with policy 3 relating to strategic alignment and infrastructure location.

Policy 4: Enabling the efficient and timely operation and delivery of infrastructure activities

Of direct relevance to the Project, Policy 4(1)(a) requires decision-makers to "enable the efficient and timely delivery of infrastructure activities". Policy 4(1)(c) and Policy 4(1)(f)(ii) are also directly relevant to the Project. As outlined elsewhere in this Application, NZTA's consenting approach for the Project is to provide flexibility for innovation in the construction phase which demonstrates consistency with Policy 4(1)(c). One of the key drivers behind the Project and key benefits it will deliver is to improve the resilience of the SH1 network, demonstrating consistency with Policy 4(1)(f)(ii).

Policy 4(2)(a) goes on to require decision-makers to "recognise it is the role of the infrastructure provider to identify the preferred location for the infrastructure activity". NZTA has carefully assessed where the Project should be located. It is not for the decision-maker to substitute its own judgment in respect of that investment decision.

Policy 5: Recognising and providing for infrastructure supporting activities

The definition of "*infrastructure supporting activities*" is set out above, for the Project the relevant activities include the transportation supplies and materials associated with construction of the Project, including spoil disposal associated with tunnelling. The wider construction activities which NZTA acknowledges will cause a level of disruption in the city, must similarly be provided for sufficient to facilitate safe and economically efficient construction methods to be adopted. Policy 5 emphasises that these activities must also be enabled, to appropriately enable the Project itself.

Policy 6: Recognising and providing for Māori interests

As outlined in this Application, NZTA has been working alongside Taranaki Whānui and Ngāti Toa since the early stages of the Project. NZTA intend to continue working with Mana Whenua throughout all stages of the Project, aligning with Policy 6, recognising and providing for Māori interests.

Policy 7: Assessing and managing the effects of proposed infrastructure activities

The assessment of alternatives for the Project has considered environmental effects, Project requirements (including inherent technical and operational requirements and constraints), existing infrastructure impacts, and relevant standards. Mitigation measures and consent conditions have been developed for the Project that are proportionate to the scale of effects. Therefore, the Project aligns with Policy 7.

Policy 9: Managing the effects of new infrastructure and major upgrades

Policy 9(1) directs that decision-makers must enable new infrastructure in all environments. Policy 9(2) provides that where infrastructure activities are proposed to locate in or are likely to have adverse effects on environments and values provided for in section 6 of the RMA, the provisions of Policy 9 must be read alongside other relevant national direction. Policy 9(3) provides that in all other areas, adverse effects of infrastructure must be, where practicable, avoided, remedied or mitigated. Development of the Project has considered likely environmental effects of the Project on environments and values provided for in section 6 of the RMA, alongside national direction and regional and district planning frameworks and in accordance with Policy 9. These effects are assessed comprehensively in Chapter 6. To summarise the assessments in these sections; the Project avoids significant heritage effects, and mitigates, offsets and compensates for effects on natural values including the coastal environment, wetlands and Town Belt vegetation. It manages landscape and urban form impacts through suitable design and manages construction disruption, noise and other amenity related effects as far as practicable. The assessments undertaken and the mitigation proposed demonstrate alignment with Policy 9.

In summary, for the above reasons, the Project is consistent with the relevant objective and policies of the NPS-I. Given this policy document is directly relevant to all aspects of the Project, it offers the most directive guidance for the Panel on the RMA approvals sought for the Project: the NPS-I weighs strongly in favour of the applications for approvals being granted.

8.2 Identification of relevant objectives and policies of other RMA planning documents

Further RMA planning documents relevant to the consideration of the Project are identified below. The objectives and policies from these statutory documents have been grouped into resource management themes (further below) for the purposes of this statutory assessment. The full text of the referenced provisions is set out in Appendix D.

8.2.1 National Policy Statement for Natural Hazards 2025

The National Policy Statement for Natural Hazards 2025 does not apply to the Project as section 1.3.2 of states this policy document does not apply to infrastructure, so is not considered further.

8.2.2 New Zealand Coastal Policy Statement 2010

The New Zealand Coastal Policy Statement (NZCPS) provides guidance on managing New Zealand's dynamic coastal environment sustainably, by setting policies that implement the RMA for coastal areas, focusing on protecting natural character, ecosystems, water quality, and managing development and hazards while allowing for community well-being. It is relevant to the construction phase and operational stormwater discharges, where the coastal marine area is the receiving environment for such discharges. It is also relevant to the proposed coastal outfall upgrade proposed within Evans Bay.

8.2.3 National Policy Statement for Indigenous Biodiversity 2023

The overarching objective of the National Policy Statement for Indigenous Biodiversity 2023 (NPS-IB) is to maintain indigenous biodiversity across New Zealand so that there is 'at least no overall loss in indigenous biodiversity after the commencement date'. The NPS-IB applies to the terrestrial environment only. Policy direction for biodiversity in the coastal marine area (CMA) and freshwater is provided by the NZCPS and the NPS-FM respectively.

8.2.4 National Policy Statement for Freshwater Management 2020

The National Policy Statement for Freshwater Management (NPS-FM) sets a consistent national framework for how freshwater is to be managed. The NPS-FM applies to all freshwater (including groundwater and wetlands) and, to the extent they are affected by freshwater, to receiving environments.

8.2.5 National Policy Statement on Urban Development 2020

The NPS-UD seeks to ensure New Zealand's towns and cities are well-functioning urban environments that meet the changing needs of diverse communities. It aims to remove barriers to development to allow growth 'up' and 'out' in locations that have good access to existing services, public transport networks and infrastructure. While primarily relevant to urban development, the general goal is to ensure a well-functioning urban environment for all people, communities and future generations, thus it has some relevance to the current Project in so far as highlighting the need for integration of land use with transport and other infrastructure.

8.2.6 Regional Policy Statement for the Wellington Region

The RPS was made operative on 24 April 2013. The RPS sets out the resource management issues for the management of the region's natural and physical resources and objectives, policies, and methods to address those issues. The RPS addresses a range of resource management topics including air quality, coastal environment (including public access), energy, infrastructure and waste, freshwater (including public access), historic heritage, indigenous ecosystems, landscape, natural hazards, regional form, design and function, resource management with tangata whenua, and soils and minerals.

8.2.7 Proposed Change 1 and Variation 1 to the RPS – Appeals Version

Proposed Change 1 to the RPS (Change 1) was publicly notified in August 2022. Change 1 makes changes to the operative RPS primarily in anticipation of increases in urban development activity as the NPS-UD and the medium density residential standards take effect in the region. Change 1 includes several amended and new policies relating to freshwater management, climate change adaptation, resilience, and indigenous biodiversity. Parts of the proposed change were notified under the Freshwater Planning Process and have been made fully operative. The remaining parts of the proposed change were notified under the standard Part 1, Schedule 1 RMA process and these parts are subject to several appeals. As such, those provisions are not 'fully operative'.

8.2.8 Natural Resources Plan for the Wellington Region

The NRP became operative on 28 July 2023. It is an integrated regional plan prepared under the RMA. The NRP sets out objectives, policies and methods (including rules) for the management of the region's natural and physical resources. The concept of integrated catchment management (ki uta ki tai) underpins the resource management approach of the NRP.

8.2.9 Plan Change 1 to the Natural Resources Plan for the Wellington Region

PC1 was notified on 30 October 2023 and proposes amendments to the NRP primarily to give effect to the NPS-FM, including the implementation of the prescribed National Objectives Framework within Te Awarua-o-Porirua and Te Whanganui-a-Tara whaitua (catchments) of the Wellington Region. Only Te Whanganui-a-Tara whaitua is relevant for the Project. The plan change also includes updates to region-wide rules for the beds of lakes and rivers, air quality, and Schedule F (sites and habitats with significant biodiversity values).

Hearings commenced for PC1 in November 2024; however, the plan change was paused effective from 26 June 2025 due to anticipated central government direction on amendments to the NPS-FM. The notified version of PC1 remains in effect until such time as the process resumes. The exception is where provisions are subject to Variation 1.

Variation 1 to PC1 was notified on 1 December 2025. The purpose of the variation was to resolve implementation issues relating to stormwater provisions as drafted while the plan change process is paused. The variation is limited to changes to the permitted activity rules P.R5 and WH.R5 (stormwater from new and redeveloped impervious surfaces) and Schedule 30 (collection of financial contributions).

8.2.10 Wellington City 2024 District Plan: Appeals Version

The Wellington City 2024 District Plan (District Plan) was publicly notified on 18 July 2022. Hearings occurred between February 2023 and November 2024. Decisions on the District Plan have been issued, with some provisions now subject to appeal. Some appeals have been resolved via consent order. Provisions which are not subject to appeal are considered operative.

It is understood that there are no relevant provisions subject to appeal in relation to the proposed Project works.

8.3 Theme based evaluation of other RMA planning documents

8.3.1 Nationally and regionally significant infrastructure

The following objectives and policies are assessed within this theme:

- RPS – Policy 39
- NRP – Objective O9, Objective O10, Policy P11, Policy P13
- District Plan – Objective SCA-O1, Objective SCA-O4, Objective SCA-O5, Objective SCA-O6, Objective INF – O1, Objective INF-O2, Policy INF-P1, Policy INF-P6, Policy INF-CE-P5, INF-CE-P8, INF-CE-P9

Under the regional and district planning documents, the objectives and policies relating to regionally significant infrastructure (RSI) are focussed on recognising the benefits of RSI and managing the effects of RSI on the environment. Existing and proposed state highways form part of the strategic transport network and are recognised as RSI in these documents.

RPS Policy 39 and NRP Objective O9 and Policy P11 all seek that the social, economic, cultural and environmental benefits of RSI are recognised. The District Plan similarly includes Objectives SCA-O4 and SCA-O5 which seek that the social, cultural, economic and environmental benefits of existing and new RSI are recognised and provided for.

Chapter 8 of the Part A document sets out the benefits arising from the Project. There are significant social and economic benefits to be derived from the Project due to travel time savings and travel reliability improvements with the upgrading of the existing state highway, as well as wider economic benefits due to improved corridor resilience, and agglomeration benefits of increased employment and labour productivity. Decongestion of local roads because of the Project will also provide social and environmental benefits to residents. The Project design also includes improved access for walking and cycling at Pukeahu Park via the green land bridge and through the proposed new Mt Victoria Tunnel.

NRP Objective O10 seeks to enable RSI in appropriate places to meet the needs of present and future generations and Policy P13 directs decision-makers to provide for RSI in appropriate locations by having regard to a range of matters including (amongst other things) consideration of the location of existing infrastructure, and the strategic integration of infrastructure and land use. The Project is an upgrade to existing SH1, and the objective of the Project is to provide more efficient and reliable access on SH1 to support regional economic growth. The Project will enable better use of existing infrastructure to move people where they need to go.

RPS Policy 39 also requires consideration of RSI benefits that contribute to reducing greenhouse gas emissions and providing for climate change mitigation, climate change adaptation, and climate-resilience. While not directly delivered through this Project, the Project design will support provision of public transport and active modes on local roads, by diverting traffic onto the upgraded state highway network. The Project will enable rerouting of express buses onto SH1, if desired by public transport operators, particularly those traveling to and from the airport and eastern suburbs, as congestion will be relieved. Grade separation at the Basin Reserve will relieve congestion to improve travel for public transport to and from the southern suburbs of Newtown, Berhampore and Island Bay. This will support efforts to encourage the use of modes other than the private motor vehicle for local trips and contribute to a reduction in greenhouse gas emissions and climate change mitigation. The design incorporates measures to address the likely effects of climate change and support climate-resilience including through the proposed approach to stormwater management.

District Plan Objective SCA-O6 and Objective INF-O2, and supporting Policy INF-P6, seek the management of the adverse effects of infrastructure, while recognising the economic, social, environmental and cultural benefits and the functional and operational needs of infrastructure. NRP Policy P13 also requires consideration of the functional and operational requirements associated with developing, operating, maintaining and upgrading RSI.

The adverse effects of the Project have been assessed, mitigation measures have been incorporated into the Project design, and conditions have been proposed, as set out in Appendix A, to effectively manage adverse effects. A range of alternative design options have been assessed throughout the design phases of the Project, taking into consideration environmental effects, cost, and engineering design requirements. However, the Project as proposed is an upgrade to the existing SH1 which means the location of the works, and associated effects, are inherently influenced by the location of the existing state highway. There are specific locations where adverse effects are unavoidable. The functional and operational need for the Project in these locations and management of effects have been separately assessed within the relevant policy themes later in this statutory assessment. However, in summary, SH1 provides a critical national link to and through Wellington and as the regional population and travel demand increases, travel times and reliability will worsen unless the improvements are made. This, together with the location of the existing SH1, establishes a functional and operational need for the Project.

Policy INF-P1 directs providing for significant upgrades to, and the development of new, infrastructure as well as providing for the functions and responsibilities of infrastructure as lifeline utilities. The Project involves a significant upgrade to the existing Wellington SH1 corridor delivering local, regional and national benefits as outlined above. As a state highway, this corridor is also an important lifeline utility providing access to the Wellington Regional Hospital and direct access to and from the City and Wellington airport. The Project will provide increased resilience for the state highway through the provision of additional lanes and the second tunnels, which will support this important lifeline utility, particularly following an earthquake, as the new tunnels will be built to modern engineering standards.

District Plan Policy INF-CE-P5 enables the upgrade of existing infrastructure where it is located within the coastal environment, but outside of high coastal natural character areas and outside of coastal and riparian margins. Policies INF-CE-P8 allows for the upgrade of existing infrastructure within the coastal environment and within coastal and riparian margins of specific zones, relevantly in this case residential zones. Policy INF-CE-P9 provides for upgrading of existing infrastructure within the coastal environment of Open Space and Recreation Zones where the infrastructure is within coastal and riparian margins and is within an existing road reserve.

A small part of the Project is located within the Coastal Environment at Cobham Drive, and part of this section is located within the coastal margin (being all land within a horizontal distance of 10 metres landward from the coastal marine area). Works on the coastal (Evans Bay) side of Cobham Drive, including those within the coastal margin, are located within the existing NZTA-1 designation, other than where the stormwater outfall upgrade extends into the CMA (and outside the jurisdiction of the District Plan). On the southern side of Cobham Drive, and further west along Wellington Road, works are located within the coastal environment, but outside the coastal margin. The existing NZTA-1 designation is proposed to be widened along the southern side of this corridor. The Project is not located within any identified areas of high coastal natural character. The Project is consistent with these policies because this section of the Project is within a highly modified urban environment and the existing designation is already partially within the coastal margin. There will be no further encroachment into the coastal margin as part of this application.

8.3.2 Land use and transport integration

The following objectives and policies are assessed within this theme:

- NPS-UD – Objective 1, Policy 1(c) and (d), Policy 6(a)-(c)
- RPS – Objective 22, Policy 57
- District Plan – Objective CC-O2, Objective INF-O5, Policy INF-P9

The land use and transport integration objectives and policies are focussed on providing well-functioning urban environments including good accessibility for employment, housing, social and recreational needs, and improved connectivity through transport network upgrades.

The Project will improve the efficiency of travel to, and within, Wellington City, improve access to employment and opportunities for new businesses, supporting improved productivity. A key benefit will be reduced congestion at key points of the corridor and redirecting traffic from local roads onto the upgraded state highway. These improvements will deliver social and economic benefits to the Wellington urban environment and wider Wellington Region consistent with Objective 1 and Policy 1 of the NPS-UD as well as Objective CC-O2(1) of the District Plan.

The RPS and District Plan objectives and policies seek to retain Wellington's compact urban form, protect natural and built form values, promote a range of transport modes, and deliver improved safety for all modes. The Project involves upgrades to an existing state highway corridor, through an existing urban environment that is topographically constrained. Infill development within the residential areas adjoining and accessed by the Project is enabled by the District Plan rules (e.g. permissive height limits and a significant reduction in the scale of previous character areas which prevented infill development within inner city suburbs) and the Project will support the City as it grows, through infill development, to continue to function as a compact city.

The Technical Transport Assessment also notes that access for all transport modes that are currently provided for within the corridor is retained, and in some areas enhanced (such as the Mt Victoria active mode shared path) and there remain opportunities for future projects to enhance that access and facilitate mode shift. The Transport Assessment has also demonstrated that overall safety of the corridor is expected to improve, particularly where traffic is separated at the second tunnels and the changes to the Ruahine Street road layout where the new grade separation structure is proposed to provide safer and more efficient access and connectivity in this location.

Policy 57(e) of the RPS seeks to enable a rapid transport network and the (urban) growth corridors of the Wellington Region including the listed locations of Tawa to Levin, Hutt to Masterton and the LGWM growth corridor. It is acknowledged that the LGWM partnership was dissolved in 2023 and while the Project does not comprise a rapid transport network, it does directly relate to a key urban growth corridor referred to (through LGWM) in this policy. Furthermore, the SH1 capacity improvements that will be achieved through the Project are necessary (as they were under the LGWM scheme) for any new public transport investment to serve the southern and eastern suburbs of Wellington. Grade separation at the Basin Reserve is needed to separate the local north-south movements from the west-east SH1 traffic to ease current congestion impacting bus services here, before material improvement to public transport service to the southern suburbs can occur.

In addition, the additional lane and tunnel capacity is needed to improve public transport to the east. NZTA's modelling of the transport implications of planned urban growth on SH1 and the wider Wellington transport network indicates the Hataitai single lane bus tunnel is expected to reach capacity by 2035, reducing public transport reliability and growth from the eastern suburbs. The Project will relieve this by providing greater SH1 capacity. This provides Metlink with the option to reroute buses to this route and an opportunity for high occupancy transit lanes on the state highway if this was warranted and aligned with Government transport priorities in the future.

Overall, the Project is well aligned with the relevant objectives and policies relating to land use and transport integration.

8.3.3 Ecology and biodiversity

The following objectives and policies are assessed within this theme

- NZCPS – Objective 1, Policy 11
- NPS-IB – Objective 1, Policy 3, Policy 4, Policy 8, Policy 13, Policy 14, Policy 15
- NPS-FM – Objective 1, Policy 6
- RPS – Objective 3, Objective 7, Objective 13 Objective 16, Objective 16A, Policy 37, Policy 40, Policy 40A, Policy 47, Policy IE.2, Policy IE.2A
- NRP – Objective O19, Objective O28, Policy P30, Policy P34, Policy P38, Policy P39, Policy P42, Policy P44, Policy P145
- District Plan – Objective ECO-O1, ECO-O2 and ECO-P9

The objectives and policies relating to ecology and biodiversity focus particularly on maintaining indigenous biodiversity generally and protecting identified significant natural areas as well as indigenous biodiversity in the coastal environment. The provisions recognise the importance of these areas in providing habitat for indigenous flora and fauna and supporting ecosystem processes in both the terrestrial, freshwater, and coastal environments.

Ecology and biodiversity are an important consideration for the Project with the alignment intersecting or interacting with terrestrial, freshwater, and coastal environments where these values are present.

Terrestrial ecology

There are no significant natural areas⁷² affected by the Project, however there are areas where indigenous vegetation is proposed to be removed or where indigenous fauna is likely to be disturbed (including at-risk species), some of which results in high ecological effects without mitigation or offsetting as detailed in section 6.4 of this report. Mitigation and offsetting are therefore proposed to address these effects.

Policy 3 of the NPS-IB seeks the adoption of a precautionary approach when considering adverse effects on indigenous biodiversity. Consistent with this, the Project has sought to minimise vegetation clearance as far as practicable through the design process. Further, where possible, replacement planting of indigenous species is proposed to mitigate the loss of indigenous and exotic vegetation at key locations.

Residual effects on terrestrial ecology values have been assessed in the Terrestrial Ecology Assessment. Proposed offsetting measures include revegetation/restoration planting, pest mammal management, and weed control to support the establishment of vegetation. These measures will also assist in supporting resilience to the effects of climate change (NPS-IB Policy 4) maintaining indigenous biodiversity outside of significant natural areas (SNAs) (NPS-IB Policy 8), and the restoration of indigenous biodiversity (NPS-IB Policy 13).

NPS-IB Policy 14 seeks to promote increased indigenous vegetation cover in urban and non-urban environments. The Terrestrial Ecology Assessment identifies that the Mt Victoria Tunnel and Eastern Connections sections are the only areas where a material loss of indigenous vegetation will occur, specifically regenerating broadleaf forest and mixed indigenous–exotic forest and scrub. A no net loss outcome is proposed through the biodiversity offset described in section 6.7.5.

While Policy 14 encourages net gain, a no net loss outcome is the appropriate and proportionate level of offset in the circumstances of this Project, for three reasons. First, the effects management hierarchy has been applied rigorously; avoidance of all indigenous vegetation loss was not practicable given the location of the existing state highway and tunnels, and clearance has been minimised through the consent design with replacement planting proposed throughout the Project area. Second, the affected vegetation is not located within a significant natural area; it sits at the urban edge of the Wellington Town Belt, within and immediately adjacent to an established transport corridor that has already shaped the ecology of those areas. Third, the Project is a RoNS delivering significant national and regional benefits, and under the FTAA the Panel must give greatest weight to facilitating infrastructure of this kind; requiring a net gain

⁷² as defined in the NPS-IB

obligation beyond no net loss would be disproportionate to the specific effects being addressed. A no net loss outcome is consistent with NPS-IB Objective 1, which itself seeks to maintain indigenous biodiversity at 'at least no overall loss', and appropriately addresses the residual terrestrial ecological effects of the Project.

There are no identified areas of highly mobile fauna within the Project extent (NPS-IB Policy 15). Similarly, there are no identified areas of significant biodiversity value within the terrestrial or freshwater areas of the Project (RPS Policy 47). However, Policy IE.2A of the RPS requires indigenous biodiversity in the terrestrial environment, that does not have significant indigenous biodiversity values and is not on Māori land, to be maintained. Clause (b) requires the application of the effects management hierarchy for managing any significant adverse effects on indigenous biodiversity. As noted, there is permanent loss of mixed indigenous-exotic forest and scrub, and indigenous specimen trees which has been assessed as having a high and moderate magnitude of effects, respectively, without mitigation. Similarly, the Project will disturb areas of indigenous fauna which may result in injury or mortality, assessed as a moderate magnitude of effect.

ECO-O1 and ECO-O2 of the District Plan seek to maintain indigenous biodiversity across Wellington City, including outside identified SNAs, as is the case here, while recognising the need to achieve a well-functioning urban environment. ECO-P8 (currently under appeal) gives effect to these objectives by requiring adverse effects on indigenous biodiversity outside SNAs to be managed through the effects management hierarchy where significant adverse effects may arise, and otherwise minimised. Terrestrial ecology effects are rated as high in section 6.7 but are proposed to be offset through restoration planting nearby in the Wellington Town Belt, which is aligned with District Plan policy direction.

The effects management hierarchy has therefore been applied as set out in Table 65 below.

Table 65: Effects management hierarchy assessment - significant effects on indigenous biodiversity (RPS Policy IE.2A(b))

Step	Assessment
Avoid	Removal of mixed indigenous-exotic forest and scrub and indigenous specimen trees, and associated disturbance of indigenous fauna, cannot be completely avoided given their location near the existing state highway corridor and existing tunnels. It is not practicable to completely avoid these areas due to the existing and widened corridor alignment and the design requirements for the new tunnels and altered road layout at the Basin Reserve. Alternative options have been considered throughout the design process, but all options to widen the state highway involve some level of impact on Town Belt vegetation, due to the location of the existing state highway and tunnel which dictate the location of the proposed works
Minimise	The Project has sought to minimise the loss of indigenous vegetation cover and disturbance of areas of indigenous fauna as far as practicable. It is proposed to provide replacement planting to mitigate the loss of vegetation where possible. Ecological management plans will be implemented setting out methods for minimising vegetation clearance, avoiding harm to avifauna, and relocation of lizards along with habitat enhancement and pest control measures for lizard populations
Offset	More than minor residual adverse effects remain, and so some biodiversity offsetting is proposed to address these effects as set out in section 6.7.5

Wetlands

Policy 6 of the NPS-FM directs no loss of extent of natural inland wetlands. Objective 13 of the RPS directs that the region's wetlands support health functioning ecosystems, and Policy 40A sets out the matters that must be considered where use and development within a natural inland wetland is proposed. Policy 40A mirrors the requirements of Clause 3.22(b) of the NPS-FM which prescribes the policy wording for regional plans.

The Project will result in the complete loss of two natural inland wetlands, both close to the existing SH1, and the loss of another due to expected groundwater changes brought about by necessary realignment of a Hataitai Park access road. Clause 3.22(b) of the NPS-FM and Policy 40A of the RPS set out the circumstances where the loss of extent of natural inland wetlands may be acceptable, as follows:

- The activity is necessary for the purpose of the construction or upgrade of specified infrastructure
- The specified infrastructure will provide significant national or regional benefit
- There is a functional need for the specified infrastructure in that location
- The effects of the activity are managed through applying the effects management hierarchy

The Project meets the definition of specified infrastructure for the purpose of the NPS-FM and the RPS, and as set out in Part A of the application the Project will deliver significant national and regional benefits. In terms of functional need, alternative design options have been considered to avoid the wetlands, however those alternatives would involve taking private property as the Project is constrained by the location of the existing state highway. The Project objective cannot be achieved without either impacting the wetlands or causing a very significant property impact, so it is considered that the complete loss of two wetlands is effectively unavoidable, noting also that both wetlands are of low ecological value, so impacts on property and the communities living there would be disproportionate to the benefits offered by wetland avoidance in this instance.

It is also worth noting that following on-site assessment, updates to consent design were implemented to avoid direct impacts to the third wetland through realigning the proposed access route. However, it was subsequently established that while the wetland location has been avoided through redesign, likely loss of baseflow will occur, so the assumption is the third wetland will also be impacted, at least to some extent through changes to groundwater flow. Options to mitigate this risk through use of sheet piling to manage groundwater flow were investigated but deemed to be unfeasible.

In accordance with clause 3.22(b)(iv) of the NPS-FM, the effects management hierarchy has been applied as set out in Table 66.

Table 66: Effects management hierarchy assessment - Ruahine Street wetlands

Step	Assessment
Avoid	It is not practicable to avoid the loss of wetland extent in this location due to the spatial constraints and the existing corridor alignment and accessways into Hataitai Park. Alternative design options have been considered, as set out above, however those options have been discounted due to the significant additional property and Town Belt disruption this would add to the Project relative to the moderate ecological effect of wetland loss
Minimise	For the reasons set out above the loss of three wetlands cannot be avoided. Options to minimise impacts on the one wetland were investigated as far as practicable. There are residual adverse effects which are more than minor as the magnitude of effect of the loss of wetlands has been assessed as moderate
Offset / compensation	No suitable wetland offset sites were found within or near the Project area. Compensation is therefore proposed through restoration of 0.5 ha of terrestrial gully habitat at nearby Mātai Moana Reserve. This will include restoration planting, weed control and pest mammal management within areas of pasture and exotic vegetation. While involving restoration of a different ecosystem type, this approach will provide biodiversity uplift within the wider ecological landscape connected to the Wellington Town Belt, Zealandia and Mātai Moana Reserve

In terms of Objective 13 of the RPS, it is considered the proposed offsetting will support healthy functioning ecosystems of the remaining wetlands in this area.

Coastal environment

The Lambton Harbour and Evans Bay coastal environments are relevant to the Project due to the existing and proposed stormwater discharges at both locations and the construction of a new stormwater outfall at Evans Bay. As noted in section 6.9.2, the Evans Bay marine habitat is degraded due to contamination and invasive species, and Lambton Harbour's marine habitats have low ecological value due to heavy modification and contamination. The construction of the new outfall structure at Evans Bay could affect intertidal and subtidal habitats, water quality and species such as coastal birds, marine fish, and kororā/little penguins.

The following NRP overlays are relevant to the Project in relation to coastal environment ecology and biodiversity:

- Schedule B, Ngā Taonga Nui a Kiwa – Te Whanganui-ā-Tara (Wellington Harbour). Schedule B sites represent the large freshwater and coastal entities from which Mana Whenua derive cultural and spiritual identity, their status as Mana Whenua and the associated responsibilities that come with that including those of kaitiaki. These places are the larger rivers and harbours that have a long history of multiple and complex resource use associated with large populations. Ngā Taonga Nui a Kiwa emphasises the importance of Mana Whenua relationships with rivers, lakes, harbours and estuaries
- Schedule C, Sites with Significant Mana Whenua values – Te Aro Pā, located in the location of the existing Lambton Harbour stormwater outfall. Tauranga waka and mahinga kai are the identified significant values for this site
- Schedule F2c, Significant habitats for indigenous birds in the coastal marine area. Two locations within Wellington Harbour (Port Nicholson) are identified:
 - Inland waters, which covers Lambton Harbour. The Operative NRP states there are five threatened or at-risk species known to be resident or regular visitors to this area being Kororā /little penguin, fluttering shearwater red-billed gull, Caspian tern and white-fronted tern. The harbour also provides foraging habitat for most of the regional population of spotted shags. PC1 proposes changes to this schedule, stating there are ten nationally threatened or at-risk species at this site, and includes the black shag, Caspian tern, little black shag, little penguin, pied shag, reef heron, variable oystercatcher in addition to those of the Operative NRP
 - Point Jerningham to Point Halswell, which covers Evans Bay. The Operative NRP states six threatened or at-risk indigenous bird species are known to be resident or regular visitors to this habitat: fluttering shearwater, variable oystercatcher, red-billed gull, little black shag, pied shag and white-fronted tern. PC1 also identifies the little black shag, little penguin, pied shag, and the red-billed gull
- While Schedule F5 (habitats with significant indigenous biodiversity values in the coastal marine area) of the NRP identifies algal beds at Evans Bay, the Marine Ecology Assessment notes that algal beds are not present at the location of the proposed stormwater outfall
- PC1 also identifies horse mussel beds as an additional site with significant indigenous biodiversity values (Schedule F4) at Evans Bay

The relevant objectives and policies for the coastal environment all generally seek to protect significant indigenous biodiversity values within the coastal environment.

Policy 11(a) of the NZCPS and Policy P38(a) of the NRP seek to avoid adverse effects of activities on indigenous biodiversity within the coastal environment that are classified as threatened, at risk, or rare. Table 37 in section 6.9 sets out the existing ecological features and ecological values within the Evans Bay and Lambton Harbour areas and identifies their status under the New Zealand Threat Classification System. Nationally threatened species are those identified as nationally critical, nationally endangered, and nationally vulnerable.

NRP Policy P39 provides a pathway for the operation, maintenance, upgrade and extension of existing regionally significant infrastructure (which includes local authority stormwater networks) within a site that meets the criteria in Policy P38(a)(i)-(v) or included in Schedule F5 where (in summary):

- There is a functional need or operational requirement
- There is no practicable alternative on land
- The activity provides for the maintenance and, where practicable, the enhancement or restoration of the affected significant indigenous biodiversity values and attributes

The new stormwater outfall at Evans Bay is located in part of the coastal marine area that does not include the algal bed habitat identified in Schedule F5 of the NRP, notwithstanding that the plan maps this area as a potential location for those beds. The Marine Ecology Assessment confirms that the horse mussel beds noted in Schedule F4 under PC1 are likewise not present within the Project area at Evans Bay.

The principal biodiversity concern arising from the outfall replacement is the loss of rubble and revetment that currently provides habitat for coastal birds, including confirmed kororā / little penguin burrows, an at-risk species. This effect is assessed as very high prior to compensation, reflecting the confirmed presence of active burrows within the small construction footprint. However, avoidance is not practicable given the functional need to replace and upgrade the outfall at its existing location and the absence of any practicable land-based alternative, satisfying the pathway in NRP Policy P39. A comprehensive compensation package has been developed, comprising six replacement nest boxes in secure locations as close as possible to the construction footprint, 60 m² of associated planting and fencing to enhance habitat quality, educational and dog-control signage, and integration with existing predator control programmes along the Wellington coastline to improve long-term breeding success. Ongoing monitoring of kororā populations and the newly provided habitat is also proposed to verify compensation outcomes.

The Marine Ecology Assessment concludes that these measures will support a net gain biodiversity outcome for kororā / little penguin, delivering a result that goes beyond the avoidance of net loss, and is directly consistent with the policy direction in NZCPS Policy 11 and NRP Policy P38 to maintain and enhance the values of significant coastal habitats for at-risk species.

Overall, the Project is consistent with the relevant statutory objectives and policies relating to ecology and indigenous biodiversity.

8.3.4 Stormwater and groundwater

The following objectives and policies are assessed within this theme:

- NZCPS – Objective 1, Policy 21, Policy 22, Policy 23
- NPS-FM – Objective 1, Policy 1, Policy 3, Policy 5
- RPS – Objective 6, Objective 12, Policy 40
- NRP – Objective O17, Objective O18, Objective O37, Objective O38, Policy P9, Policy P66, Policy P78, Policy P83, Policy P84, Policy P132, Policy P133, Policy P143
- PC1 – Objective WH.O3, Objective WH.O6, Policy WH.P5, Policy WH.P7, Policy WH.P8, Policy WH.P9, Policy WH.P10, Policy WH.P14, Policy WH.P29, Policy WH.P30, Policy WH.P31
- District Plan – Objective NE-O2

Stormwater quality

The objectives and policies relating to water quality focus on managing the effects of stormwater discharges on the quality of coastal water and freshwater including consideration of water recreation activities, Māori customary use, and ecosystem health. The intent of these provisions is for individual activities (in this case discharges to and from the state highway stormwater network) to contribute to maintaining or, where water quality is degraded, progressively improving the quality of freshwater and coastal water.

Stormwater from the Project will discharge via the WCC and state highway stormwater networks to coastal water at Lambton Harbour and Evans Bay. NZCPS Objective 1, RPS Objective 6, NRP Objective O17, and PC1 Objective WH.O3 seek that coastal water quality is maintained or, where deteriorated, is enhanced. RPS Policy 40(b) requires water quality in the CMA to be managed to maintain and, where degraded, protect and enhance the health and well-being of coastal waterbodies and the health and wellbeing of marine ecosystems. The Lambton Harbour and Evans Bay outfalls are located within Te Whanganui-a-Tara coastal water management unit (CMU) under PC1 of the NRP. Neither the Operative NRP nor PC1 provide numeric coastal water quality objectives (targets) for this area. The NRP and PC1 objectives are harbour-wide objectives, so individual projects are not solely responsible for achieving them. The Project must instead show how the approach to stormwater management contributes towards achieving the narrative objective to ‘maintain or improve’ the key relevant coastal water parameters of sedimentation rate and zinc and copper levels (in sediment), as set out Table 8.1 of PC1.

The coastal environment and coastal marine area are already modified environments with existing stormwater discharges. The existing state highway network does not currently include stormwater

treatment; however, the Project will introduce stormwater treatment for all widened sections of state highway within the project area, using a combination of bioretention devices, proprietary devices, and stormwater network upgrades. Catchpit filters will be introduced through other parts of the alignment where space for treatment devices is not available. The Stormwater Assessment has concluded that the stormwater treatment measures will achieve an overall improvement in the quality of stormwater discharged to the coastal receiving environments. The proposed mitigation measures are best practice measures and are consistent with the requirements of Operative NRP Policy P83 and PC1 Policy WH.P9 and Policy WH.P10.

Some existing SH1 areas within the Project are unable to be treated to a greater degree due to technical or logistical constraints. This results in residual effects due to increases in zinc and copper contaminants in isolated locations. However, the Stormwater Assessment notes that overall, the Project delivers a level of improvement to stormwater discharge quality that outweighs the adverse effects in areas of less treated stormwater discharge. The Marine Ecology Assessment also identifies likely increases in contaminant loads from construction activities which could have adverse effects on coastal habitats and ecosystem health. While operational activities have the potential to generate contaminant loads, the incorporation of comprehensive stormwater treatment means that operational discharges are assessed as having negligible to positive effects on marine habitats. Any adverse effects will be addressed through mitigations such as minimising the outfall footprint, limiting disturbance within the CMA, removing and landfilling contaminated materials and biosecurity risk species, managing discharges in accordance with an ESCP and ESMP, monitoring, trigger-based responses and adaptive management (NRP Objective O37).

The Project does not involve any discharges to freshwater bodies and therefore an assessment of the relevant provisions under the NPS-FM and relevant regional freshwater provisions has not been undertaken. However, the discharges from the state highway network will travel via piped awa (streams) to the coastal receiving environments. While piped water is not defined as 'water' for the purposes of the RMA, in assessing environmental effects, the Stormwater Assessment has assessed the effects on these piped awa, in recognition of their significance to Mana Whenua. The assessment shows that effects on water quality in piped awa following stormwater treatment is predominantly positive. It is therefore acknowledged the Project contributes to an overall improvement in water quality.

Groundwater

NRP Policy P132 seeks to manage groundwater takes and ground disturbance so that there is no cross-contamination between aquifers or water-bearing layers resulting in adverse effects on water quality. Risks to water quality from dewatering activities for the Project construction have been assessed in Technical Report #14 and a range of measures will be in place during construction works to manage these risks as set out in section 6.11. With these measures in place the dewatering activities are expected to meet Policy P132.

NRP Policy P133 directs that localised land subsidence resulting from dewatering that affects structures shall be avoided. In addition, that more than minor adverse effects on ecosystem functioning of connected water bodies, reliability of supply for existing surface and groundwater users, the quality of surface or groundwater, and the contamination of land and water be avoided, remedied, or mitigated. Land settlement because of groundwater drawdown during or following tunnel construction and trenching activities has been assessed. These construction effects will be managed through the implementation of a Groundwater and Settlement Monitoring and Contingency Plan with any damage to buildings and structures because of land settlement to be repaired where works have resulted in damage. In specific areas, such as at the Basin Reserve, site-specific measures will be implemented to minimise groundwater inflows into work areas such as the proposed trench. While there remains the risk of effects, such that complete avoidance of effects on structures may not be achieved, the scale of effects following implementation of the mitigation and remedial measures is expected to be low and the effects will be minimised. In terms of the policy direction to avoid, remedy or mitigate more than minor effects on the other matters listed in Policy P133, it is noted that the Project may result in wetland drainage which is expected to cause an impact the ecosystem functioning of the wetland, as discussed in the previous ecology assessment above.

With reference to WH.O6 and Policy P133, there are no other nearby surface water bodies affected by the groundwater changes. Wetland ecosystems have been considered in the groundwater assessment. Aquifer pressure changes and consolidation are addressed and will be managed through the monitoring and contingency plan, Accordingly, Objective WH.O6 is satisfied.

Stormwater quantity

NRP Policy P84 requires the management of stormwater runoff volumes and peak flows to avoid or minimise scour of coastal margins and to not increase risks to human health, inundation, erosion or damage to property or infrastructure. This policy seeks to retain pre-development hydrological conditions, as far as practicable. The Project involves an increase in impervious surfaces and has been designed to manage the increase in stormwater volumes to minimise flooding impacts, including through upgrades to existing stormwater infrastructure to increase capacity and water sensitive urban design measures. These measures are expected to minimise scour and erosion of coastal margins when discharged to the coastal environment and risks of flood damage to adjoining properties or infrastructure (NRP Policy P84).

8.3.5 Heritage

The following objectives and policies are assessed within this theme:

- RPS – Objective 15, Policy 46
- District Plan – Objective HHSASM-O1, Objective HHSASM-O4, Objective HHSASM-O5, Policy INF-OL-P1, Policy HH-P9, Policy HH-P10, Policy HH-P11

The objectives and policies relating to the heritage theme focus on the identification and protection of historic heritage values and seek to manage land use and development activities that may have adverse effects on those values. The Project traverses a large urban area where a range of heritage values and archaeological features are, or are likely to be, present as set out in the Technical Report #9 on Archaeology and Technical Report #8 on Heritage.

The District Plan provisions apply to historic heritage identified in the relevant schedules of the District Plan. The Project has been designed to retain significant historic heritage features and avoids demolition of scheduled heritage buildings. However, it is proposed to relocate the Home of Compassion Crèche onto the new land bridge and to temporarily relocate two scheduled heritage buildings on Paterson Street (Ettrick Cottage) and Austin Street during construction.

The Heritage Assessment concludes that the proposed relocations are appropriate because suitable protection mitigations for removal and relocation will be in place, and the buildings are proposed to be relocated to sites near their existing locations. This ensures consistency with Policies HH-P9 and HH-P10. In addition, it is relevant that both the Crèche and Ettrick Cottage have previously been relocated. Further mitigation measures are proposed including fully integrating the relocated Crèche into the new landscaping as an extension of Pukeahu and interpretation is proposed to explain the history and legacy of the Crèche. The Heritage Assessment notes that with these mitigations in place, moderate effects remain and as such clause (b) of Policy INF-OL-P1 requires an assessment of the appropriateness of the works against Policy INF-P6 which is a general policy within the Infrastructure chapter of the District Plan.

Policy INF-P6 acknowledges that the extent to which adverse effects can be avoided, remedied or mitigated may be constrained by functional or operational needs of the infrastructure – and regard should be had to this when considering the adverse effects of infrastructure. In the case of this Project, there is an operational need for the relocation of the heritage listed buildings because the Paterson Street land is required to enable construction of the second Mt Victoria Tunnel and to enable the tunnel to connect directly into the road network at both the Basin Reserve and Ruahine Street ends. Other design options were investigated to avoid effects on these heritage buildings, specifically two diagonal tunnels were considered prior to the investment case stage. These options impacted the school sites on the southern side of the existing tunnel and connected directly into Wellington Road. A single, longer diagonal tunnel was also considered. However, the alignment proposed as part of the Project was chosen as it had less disruption overall and was less costly than the alternatives. Importantly, the Project avoids any direct effects on the Basin Reserve heritage area. On this basis it is considered the Project is consistent with Policies INF-OL-P1, Policy HH-P10, and Policy INF-P6.

RPS Policy 46 requires consideration on historic heritage values generally and is not limited to identified (scheduled) historic heritage. The Heritage Assessment has identified heritage landscape values in all five sections of the Project, which includes a broader range of heritage features than those specifically scheduled and protected in the District Plan. The assessment notes that the scheduled places within each

Project section provide anchor points for the broader identified heritage values. The assessment also highlights opportunities to strengthen specific elements through the Project through the proposed mitigation measures. As such, the appropriateness test in Policy 46 is met given the retention of the scheduled heritage buildings and heritage areas within the Project extent.

On this basis, the Project is consistent with RPS Objective 15 and Policy 46.

8.3.6 Natural character and coastal environment

The following objectives and policies are assessed within this theme:

- NZCPS – Policy 13
- RPS – Objective 4, Objective 12, Policy 35
- NRP – Objective O14, Objective O45, Policy P24
- District Plan – Policy INF-CE-P5

The objectives and policies relating to natural character seek to protect and manage effects on the natural character of the coastal environment and freshwater.

These provisions relate to the protection of the natural character of the coastal environment. A small part of the Project is located within the coastal environment at Evans Bay as identified in the Wellington City District Plan. There are no identified areas of outstanding natural character in this area, nor does the District Plan identify this area as displaying high or very high natural character values. Therefore NZCPS Policy 13(b) applies, which directs avoidance of significant adverse effects on natural character in all other areas of the coastal environment. This area of coastal environment is highly modified being part of a predominantly urban area where the existing SH1 is located. While the Project involves some widening of the existing road corridor within the coastal environment and a stormwater upgrade within the adjacent CMA, no significant adverse effects of on natural character will arise given the existing environment is highly modified and the infrastructure changes are minor. Effects on ecology and biodiversity, factors that contribute to natural character, have been addressed above.

Objective 12(d) of the RPS and Objective O14 of the Operative NRP also require consideration of the effects on natural character of water bodies within the project area. The Project will result in the loss of extent of natural inland wetlands and therefore is not consistent with policy direction to preserve natural character of water bodies in this regard. However, the proposed compensation for the loss of wetland extent, will address this loss of natural character through native planting within the Matai Moana Reserve, which is supported by Mana Whenua.

In relation to Objective O45 of the NRP, the proposed stormwater outfall at Evans Bay will be in the CMA. There is a functional need for the outfall to be located here due to the role of the outfall in managing stormwater and flood risk in the city. The outfall will direct excess surface water to the coast.

8.3.7 Landscape amenity values

The following objectives and policies are assessed within this theme:

- RPS – Objective 18
- NRP – Policy P52
- District Plan – Objective NE-O5, Policy INF-NFL-P5, Policy INF-NFL-P6, Policy INF-NFL-P4, Policy INF-NFL-P9, Policy INF-NFL-P11

The relevant landscape amenity policy direction for this Project is derived from the special amenity landscape (SAL) values and the ridgeline and hilltops of the Wellington Town Belt in relation to the eastern portal for the second Mt Victoria tunnel and widening of the road corridor into the Town Belt at Ruahine Street. The natural features and landscapes within the coastal environment are also an important consideration. There are no identified outstanding natural features or landscapes within the project area.

RPS Objective 18 and District Plan Objective NE-O5 seek to maintain and enhance special amenity landscapes. The eastern portal of the proposed second Mt Victoria tunnel is located within the 'Mt Victoria Special Amenity Landscape' area as identified in Schedule 11 of the District Plan.

District Plan Policy INF-NFL-P11 directs new infrastructure within SALs may only be allowed where certain criteria are met. While adverse landscape effects have been identified with the new tunnel portal it is noted that these effects are localised in terms of overall extent of the SAL in this area. The values associated with this SAL listed in Schedule 11 of the District Plan (natural science, sensory, shared and recognised) will remain predominant following the Project's completion, with many of the key aspects contributing to those values (such as the open space and network of walking tracks) being retained throughout construction and operation.

Policy INF-NFL-P5 and INF-NFL-P6 relate to upgrades to existing infrastructure within SALs. The proposed widening of Ruahine Street to the west to accommodate a grade separated access to Hataitai, and into the Town Belt, is located within the Mt Victoria SAL. Policy INF-NFL-P6 provides for aboveground existing infrastructure upgrades located outside an existing legal road within SALs where the activity is of a scale that maintains or restores the identified values of the SAL and any adverse effects on the identified values will be avoided, remedied, or mitigated. In this case, while the works will extend over a large section of the Town Belt frontage at Ruahine Street, the Project includes native revegetation planting which will mitigate the visual and landscape effects of this permanent modification to the Town Belt, such that over time the landscape, rather than the infrastructure, will predominate in this area. Policy INF-NFL-P5 provides for upgrades to existing infrastructure upgrades located underground and within an existing legal road within SALs. Underground works particularly in relation to the Mt Victoria Tunnel where it intersects with the Town Belt and SAL is allowed for under this policy.

Both Policy INF-NFL-P6 and INF-NFL-P11 require an assessment of whether there is a functional need or operational need for the Project to be located within the SAL. The Project is located within an existing urban environment, and the primary purpose is to upgrade the existing SH1 corridor, which already intersects with the Town Belt and SAL at the existing tunnel location. Alternatives to the second tunnel, Ruahine Street widening, and Hataitai access were considered in earlier stages of the Project, as set out in the Alternatives Assessment report, however these have been discounted due to their logistical and operational constraints, costs, or due to other environmental effects. The Project therefore has an operational need to locate within the SAL.

The Ruahine Street widening will also encroach on the Mt Victoria Ridgeline and Hilltop overlay to the south of the Badminton Wellington Centre. Policy INF-NFL-P4 allows for the upgrading of existing infrastructure within this overlay provided the activity is compliant with the general infrastructure provisions and any adverse effects on the visual amenity and landscape values are managed. As this application is for a notice of requirement to alter an existing designation, an assessment of compliance with the general infrastructure rules is not required. Adverse effects on the visual amenity and landscape values of this overlay will be managed through the landscaping proposed as part of the design.

The Mt Victoria Ridgeline and Hilltop overlay also applies at the Mt Victoria tunnel. Policy INF-NFL-P5 and INF-NFL-P9 are therefore relevant. However, at this location the works will not impact the ridgeline and hilltop because the works are subterranean to establish the second Mt Victoria Tunnel. As such, these policies are met.

Based on this assessment, the Project is consistent with the relevant objectives and policies relating to landscape amenity values.

8.3.8 Natural hazards

The following objectives and policies are assessed within this theme:

- RPS – Objective 19, Objective 20, Objective 21, Policy 51
- NRP – Objective O16, Policy P25
- District Plan – Objective INF-NH-P1, Objective NH-O1, Objective NH-O2

The relevant objectives and policies within the natural hazards theme seek to address the risks associated with natural hazards and climate change including risks to infrastructure. The Project is in areas subject to flood hazard and coastal hazard overlays in the District Plan. In terms of flooding, the Project has been designed to limit the potential of exacerbating flood risk through geometric design, stormwater pipe upgrades, maintaining existing overland flow paths, and designing the road alignment and elevation to direct stormwater runoff to the stormwater network and prevent ponding effects. The Stormwater Assessment notes that localised flood level increases are possible in the vicinity of the Ruahine Street grade separation structure and as such adverse effects will not be completely avoided. However, RPS Policy 51 directs that the risks and consequences of natural hazards on people, communities, their property and infrastructure shall be avoided or minimised. Overall, the project design minimises the adverse effects associated with the potential for increase flooding through appropriate mitigation measures which is consistent with Policy 51.

The Project also traverses areas with identified coastal hazard risks in the Eastern Connections section. NRP Objective O16 seeks the avoidance of inappropriate use and development in high hazard areas and supporting Policy P25 directs that use and development in high hazard areas is managed. Regarding Objective O16, guidance is provided through RPS Policy 51 for the assessment of whether an activity is inappropriate. The high hazard risk that applies to the Project is tsunami, with this overlay applying to a localised area in the vicinity of the intersection of Evans Bay Parade, Wellington Road, and Cobham Drive. This is an existing area of state highway with the Project proposing minor upgrades to this section of the corridor, and no substantial upgrades that would increase risk exposure. Accordingly, the Project will not exacerbate the risks associated with the tsunami hazard beyond what already exists in this location (Policy 51(a)-(e)). Policy 51(f) directs the avoidance of subdivision, use or development and hazard sensitive activities in high hazard areas unless there is a functional or operational need to be located in that area. District Plan Policy INF-NH-P1, clause 3, also requires consideration of functional or operational need. As noted previously, this is a section of existing state highway and as such there is a functional and operational need for the upgrades to occur in this area.

NH-O1 and NH-O2 state that risk from natural hazards in Low, Medium, and High Natural Hazard Overlays resulting from use and development do not increase the existing risk from natural hazards to people, property, and infrastructure. The Project will provide a more resilient highway route, in particular through the second tunnels, which will support recovery during a natural hazard event. The proposed mitigation measures help to offset the potential increase for flooding help to ensure that the existing risk from natural hazards is not exacerbated.

A Tsunami Hazard Overlay (High Hazard Area) applies from the east end of Kilbirnie Park, across the Wellington Road/Evans Bay Parade/Cobham Drive intersection and eastwards along Cobham Drive.

This same area of the Project includes the low and medium tsunami hazard risk and the medium coastal inundation hazard risk. Again, this is an existing area of state highway with the majority of works contained within the existing footprint. On this basis, the works are not considered to be inappropriate nor are they expected to increase the risk and consequences of hazard events. The Project design includes measures such as increased stormwater management to reduce the impacts on the infrastructure in the event of a hazard event, such as coastal inundation.

Accordingly, it is considered the Project is consistent with the objectives and policies relating to natural hazard risks.

8.3.9 Air quality

The following objectives and policies are assessed within this theme:

- RPS– Objective 1
- NRP – Objective O31, Objective O32, Policy P58

The air quality objectives and policies seek to protect human health, amenity, and the environment from the adverse effects of air pollutants. NRP Objectives O31 and O32 direct management of air quality to minimise adverse effects, including objectionable and offensive effects such as dust and fumes. The Air Quality Assessment report has identified effects through the construction phase that will need to be managed in relation to high sensitivity receivers within 50 m of construction zones and increased dust generation due to high wind speeds. The Project therefore includes several mitigation measures to be applied throughout the construction phase, including the preparation and implementation of a management plan to minimise the nuisance effects of construction dust such that these effects will not be objectionable or offensive to receivers. Ongoing monitoring throughout construction will also enable the detection of high wind and dust conditions that may require additional mitigation.

The assessment concludes that there are no operational effects requiring ongoing mitigation measures. Accordingly, the Project is consistent with the objectives and policies relating to air quality.

8.3.10 Contaminated land

The following objectives and policies are assessed within this theme:

- NRP – Objective O41, Objective O42, Policy P66, Policy P68, Policy P99, Policy P100
- District Plan – Objective CL-O2, Policy CL-P2, Policy CL-P3

The contaminated land objectives and policies manage the disturbance and creation of contaminated land, discharges arising from contaminated land, and the subsequent effects on the environment including risks to human health.

The Project involves soil disturbance of both HAIL and non-HAIL sites as detailed in section 6.13, however these works will include site-specific controls and will be undertaken in accordance with management plans to mitigate effects on human health and the environment. The effects of the construction and operational effects have been assessed as low to negligible with mitigation measures in place. Accordingly, the Project is consistent with the relevant objectives and policies relating to contaminated land.

8.3.11 Erosion and sediment control

The following objectives and policies are assessed within this theme:

- NZCPS – Policy 22
- RPS – Policy 41
- NRP – Policy P107
- PC1 – Policy WH.P29, Policy WH.P30, Policy WH.P31

The objectives and policies relating to erosion and sediment are focussed on managing the effects of earthworks and vegetation clearance activities and subsequent sediment runoff into coastal waters and freshwater.

In terms of Policy 22 of the NZCPS, the discharge of sediment laden water and high pH runoff to the Lambton Harbour and Evans Bay coastal environments are an important consideration. The Technical

Assessment for Erosion and Sedimentation Effects notes the large-scale earthworks required for construction, particularly the tunnel portals for the proposed Terrace Tunnel and Mt Victoria Tunnel, and the trench excavation and ground improvement works at the Basin Reserve require management as these activities are likely to generate a high level of effects without appropriate controls. Policy 22(2) directs that land use, and development shall not result in a significant increase in sedimentation in the CMA. Policy 22(4) also directs a reduction in sediment loadings in runoff and stormwater systems through controls on land use activities. Both of these requirements will be met by the Project through the implementation of best practice erosion and sediment controls alongside area-specific mitigation measures such as containerised treatment systems to treat sediment laden water and adjust pH levels prior to discharge to the stormwater network and CMA and pumping water from trenching and ground improvement works to sediment retention ponds to allow for settlement prior to discharge. Policy 22(1) also requires sedimentation levels and impacts on the coastal environment to be assessed and monitored. The Project includes continuous monitoring of discharges of TSS and pH and allowance for diversion to sewer where treatment limits cannot be met. Accordingly, the requirements of NZCPS Policy 22 will be met through these controls.

RPS Policy 41(a) requires consideration of the extent to which the activity minimises erosion. The Project incorporates progressive stabilisation of slopes, alongside the implementation of an Erosion and Sediment Control Plan (ESCMP). Policy 41(c) requires consideration of the extent to which the earthworks or vegetation clearance results in adverse effects on aquatic ecosystem health, indigenous biodiversity in water bodies and receiving environments. Mitigation measures such as monitoring of turbidity or sediment deposition, alongside the erosion and sediment controls, have been incorporated into the Project to reduce adverse effects on aquatic ecosystem health and indigenous biodiversity in the coastal environment. These measures are therefore expected to result in low to negligible adverse effects, such that Policy 41(c) will be met.

Policy P107 of the NRP requires the implementation of measures, including good management practice, to minimise the risk of accelerated soil erosion, control silt and sediment runoff, and ensure the site is stabilised and vegetation cover is restored. As previously outlined, the Project includes standard erosion and sediment control measures, along with measures to address specific effects associated with the construction of the tunnel portals and trenching, such that these requirements will be met. The Project also includes replanting of vegetation where this is possible, however it is noted that the project area is already a modified urban environment with existing vegetation limited to relatively small areas of the Project, predominantly at the Town Belt. Accordingly, the Project is consistent with Policy P107.

With regard to Policy WH.P29 of PC1, the assessment outlined above in relation to the RPS and NRP policies is relevant to clauses (a) and (c). Clause (b) directs limiting the amount of land disturbed at any time. As noted in section 4.2.4, staging plans for bulk earthworks will be implemented along with sequencing to minimise exposure of disturbed ground which will meet the requirement of clause (b). In relation to clause (d), erosion and sediment control measures will be in place prior to, and for the duration of, construction works with regular maintenance and monitoring of the effectiveness of these measures.

Policy WH.P30(a) directs that the discharge of sediment from earthworks of an area exceeding 3000 m² shall not exceed 100 g/m³ at the point of discharge. As noted in section 6.14.4, an adaptive management approach will be implemented, with continuous monitoring of discharges for TSS and pH and diversion to sewer will occur should these limits not be met. This will be supported by visual inspection, in-field monitoring, and escalation to a marine ecologist where non-compliance or unexpected discharges occur. Monitoring results will be reported to GWRC, as required by clause (c). Clause (b), directing good management practice, is addressed in the commentary above and will be met by the Project.

Policy WH.P31 of PC1 directs earthworks over 3000 m² must not occur during the winter months (1st June to 30th September) each year and that earthworks must be stabilised against erosion, with sediment controls in place prior to shut down. The Project is not consistent with this policy, due to the nature and scale of the Project. It will be necessary to undertake earthworks during the winter months, as shutting down works during this period would significantly prolong traffic and general disruption and the overall construction period and subsequent completion of the Project.

As set out in section 6.13.1, a range of erosion and sediment control measures will be in place to minimise erosion and sediment discharge, including during periods of higher rainfall. The NPS-I and the other relevant objectives and policies addressing significant infrastructure discussed above weigh strongly in favour of NZTA's approach to carrying out earthworks during the winter months.

8.3.12 Climate change

The following objectives and policies are assessed within this theme:

- NPS-UD – Objective 8, Policy 1, Policy 6
- RPS – Objective CC.3, Objective CC.6, Objective 16A, Policy CC.9, Policy CC.14, Policy CC.14A
- District Plan – SRCC-O1

The NPS-UD, RPS, and District Plan seek to effectively plan for the effects of climate change and achieve a reduction in greenhouse gas emissions. The Transport Assessment has considered these objectives and policies, noting that while there may be a small increase in CO₂ emissions from vehicles, the Project design would not prevent future expansion of the bus network which would support mode shift and the potential to reduce emissions. The provision of an upgraded active mode pathway through the Mt Victoria Tunnel may also support uptake of active modes.

With regard to managing the effects of climate change, the Project objective does not relate to or seek to focus on climate change outcomes or emission reduction directly. However, the design has incorporated measures to provide resilience for the road corridor including through the approach to stormwater management, as detailed in section 6.12. SH1 is existing infrastructure, within a spatially constrained urban environment which means opportunities to provide nature-based solutions as sought by RPS Policy CC.14 are limited. However, the Project design has endeavoured to incorporate rain gardens and reinstate vegetation where it is practicable to do so which will support broader efforts of the region to build climate-resilience.

The Project's relationship with climate change policies must be understood in context. SH1 is a critical piece of national and regional infrastructure that supports economic productivity, public transport growth, and active mode connectivity across Wellington. The upgraded corridor will support improved public transport delivery to the southern and eastern suburbs, enable future modal shift, and provide improved active mode connections through the new Mt Victoria Tunnel shared path. The direct and future opportunities outlined above (and further in section 8.3.2) are relevant to the policy direction on reducing transport emissions.

8.3.13 Mana Whenua values

The following objectives and policies are assessed within this theme:

- NPS-FM – Policy 1, Policy 2
- NZCPS – Objective 3, Policy 2, Policy 4, Policy 6, Policy 21
- NPS – UD Objective 5, Policy 1
- NPS – IB Objective 1, Policy 1, Policy 2
- NRP – Objective O12, Policy P18, Policy P19, Policy P20, Policy P21, Policy P47, Policy P48, Policy P49
- RPS – Objective 16B, Objective 24, Objective 25, Objective 26, Objective 27, Objective 28, Policy FWXXB, Policy 48, Policy UD.2
- District Plan – HHSASM-O1, HHSASM-O4, HHSASM-O5

The Mana Whenua objectives and policies in the NPS-FM, NZCPS, NPSUD, NPSIB, NRP, RPS and District Plan relate to recognising and providing for tangata whenua values, including kaitiakitanga, mauri and cultural relationships with freshwater and natural resources while ensuring their active involvement in resource management decision-making.

Policies 1 and 2 of the NPS-FM recognise the need to manage freshwater in a manner that gives effect to Te Mana o te Wai while enabling communities to provide for their social, economic and cultural well-being in a way that is consistent with the NPS-FM.

The Project is consistent with NZCPS Objective 3 and Policies 2, 4, 6 and 21 through its partnership approach with Mana Whenua, integration of cultural values into project design and assessment, and implementation of measures to manage potential effects on culturally significant landscapes, waterways and coastal environments.

The Project also aligns with NPS-UD Objective 5 by taking account of Te Tiriti o Waitangi principles through recognition of Mana Whenua interests and values throughout the planning and decision-making process. In relation to Policy 1(a)(ii), the Project acknowledges Māori cultural identity and relationships with place, supporting opportunities for cultural expression within the Wellington urban environment.

The Project is consistent with NPS-IB Objective 1 and Policies 1 and 2 as it incorporates measures to avoid, remedy or mitigate effects on indigenous biodiversity, recognises the role of Mana Whenua as kaitiaki, and provides for tangata whenua participation in the identification, assessment and management of biodiversity values. Through these measures, the Project supports the protection of indigenous biodiversity while incorporating Māori perspectives and cultural values into environmental management

This has been provided for through NZTA's partnership with Mana Whenua on the consenting, design and delivery of the Project.

8.3.14 Integrated management

The following objectives and policies are assessed within this theme:

- RPS – Integrated Management Objective A, Policy IM.1, Policy 64
- NRP – Objective O1, Objective O2, Objective O3, Policy P1, Policy P3

The objectives and policies within the integrated management theme relate to the management of resources and recognising the intrinsic values of air, land and water to the social, economic and cultural wellbeing of the community and the relationship of Mana Whenua with the natural environment.

The Project traverses an existing urban environment that intersects with the coastal environment, areas of indigenous biodiversity and ecological habitats, with potential air quality effects to be managed.

The Project has been assessed on a whole-of-catchment, whole-of-corridor basis, with integrated consideration of stormwater quality, piped away, indigenous biodiversity, air quality, and the relationship of Mana Whenua with the natural environment. SH1 is regionally significant infrastructure, as defined under the RPS, NRP and the District Plan, and will provide a range of local, regional and national benefits. The Project is consistent with the integrated management theme: it has been designed to minimise adverse effects, the effects management hierarchy has been applied throughout, and the benefits of the Project are weighed in that integrated context. Accordingly, the Project satisfies the integrated management objectives and policies.

8.4 Assessment of relevant iwi planning documents

Schedule 5, clauses 5(1)(h) and 5(2)(g) of the FTAA require an assessment of the Project against any relevant provisions in a planning document recognised by a relevant iwi authority and lodged with a local authority.

The following iwi planning document is considered relevant to the Project:

- Te Mahere Wai o Te Kāhui Taiao (Te Mahere Wai)

Te Mahere Wai is a planning document prepared on behalf of Taranaki Whānui ki te Upoko o te Ika and Te Rūnanga o Toa Rangatira. It is an implementation plan that expresses Mana Whenua values and aspirations for the management of freshwater, receiving environments, and coastal waters within the wider Wellington coastal and urban catchments.

Of relevance to the Project, Te Mahere Wai identifies several overarching themes, including:

- The protection and enhancement of water quality in freshwater and coastal receiving environments
- The reduction of contaminants entering waterways from urban activities

- The recognition of cumulative effects of stormwater discharges
- The importance of improving outcomes for receiving environments, including coastal waters

Te Mahere Wai promotes a general direction of improvement in urban water quality, particularly where stormwater discharges contribute contaminants to downstream freshwater and coastal environments. The Project involves works to an existing section of SH1 where stormwater runoff is currently discharged without treatment. The introduction of stormwater treatment as part of the Project provides an improvement over the existing environment by capturing contaminants associated with road runoff, including contaminants derived from vehicle use, prior to discharge to the receiving environment.

In this respect, the Project aligns with the overall direction of Te Mahere Wai in seeking improved management of urban stormwater and improved water quality outcomes, particularly where coastal waters represent the primary receiving environment.

8.5 Wellington Town Belt Policy Assessment

Given the Project area includes land and values within the Wellington Town Belt, the activities within the Wellington Town Belt are subject to the provisions of the Wellington Town Belt Act 2016 (WTBA). This land is managed by WCC in accordance with the Town Belt Management Plan 2018 (TBMP). Both are considered ‘other matters’ warranting consideration under section 104(1)(c) of the RMA.

8.5.1 Wellington Town Belt Act 2016

The land within the Wellington Town Belt is subject to the provisions of the WTBA. The purpose of the WTBA, according to section 3 is:

“(a) Provide a transparent statutory basis for the Council’s trusteeship and management of the Wellington Town Belt on behalf of the inhabitants of the city of Wellington; and

(b) Impose on the Council responsibilities, and provide the Council with powers, to protect, manage, and enhance the Wellington Town Belt; and

(c) Recognise the history of the original Town Belt and its significance to Mana Whenua and the inhabitants of Wellington.”

In accordance with the WTBA, WCC is the trustee of the Town Belt and holds the Town Belt on behalf of the inhabitants of Wellington. WCC is also required to adopt a management plan for the Town Belt and to comply with this plan when exercising its powers with respect to the Town Belt. WCC has adopted the TBMP for this purpose.

Project activities in the Town Belt will be undertaken in accordance with the WTBA. Most importantly, the WTBA and the PWA govern the process by which the Crown permanently acquires Town Belt land for the Project. This includes allowing for compensation to be either or both monetary compensation or a grant of land (section 23(5) of the WTBA). A compensation agreement is being developed by NZTA in consultation with WCC and Mana Whenua, as part of the PWA process for the acquisition of this land. This agreement is not a matter for the FTAA or the expert panel.

8.5.2 Wellington Town Belt Management Plan 2018

The WTBA⁷³ requires WCC to adopt a management plan and review it at intervals of not more than 10 years⁷⁴. The purpose of the TBMP is to provide WCC with a clear framework for decision-making and managing the Town Belt for at least the next 10 years.

The TBMP provides a framework for addressing common issues across the Town Belt and managing them in a comprehensive and consistent way. Detailed objectives and policies give guidance for the development, management, protection, operation and public use of the Town Belt.

Section 8.8.2 of the TBMP specifically acknowledges that Town Belt land will be required for future improvements to SH1. The TBMP references the 2011 NZTA proposal “*The Inner City Transport*

⁷³ Section 11(1)

⁷⁴ Section 11(3)

Network: Improvements for a Successful Capital City". Elements of the 2011 proposal referenced in the TBMP that are consistent with the current Project include:

- A second Mt Victoria Tunnel to the north of the existing one (two lanes eastbound)
- Widening Ruahine Street and Wellington Road. In places particularly near Badminton Hall, the encroachment into the Town Belt could exceed the existing designation boundary
- A new pedestrian and cycle path between Cobham Drive and the Basin Reserve

WCC's position, as documented in the TBMP regarding the 2011 proposal, has been taken into consideration in the development of the current SH1 Improvement Project. This position includes:

- WCC supports the alignment of the Mt Victoria Tunnel to the north of the existing tunnel
- WCC acknowledges that various impacts need to be considered, the option of widening Ruahine Street to the west (requiring the compulsory acquisition of Town Belt land) is preferable to widening into the residential area to the east
- WCC will seek to minimise the widening of the street onto the Town Belt
- If the second Mt Victoria Tunnel and widening of the Ruahine Street go ahead, NZTA will need to acquire part of the Town Belt, which is held in trust by the WCC. During that process, the WCC will need to make decisions under the WTBA

Policy 8.8.2.1 states that:

"Council will continue to work with NZTA to identify options for reducing or mitigating the impacts of State Highway 1 on the Town Belt and in particular Hataitai Park."

NZTA has maintained regular engagement with WCC throughout the development of the Project and the preparation of the Application, including discussions regarding potential impacts on the Town Belt. Details of engagement with WCC are provided in section 7.4.1 above. There has also been a separate consultation on developing a compensation agreement for the Town Belt land that will need to be acquired.

The Project will have adverse effects on the Town Belt, as acknowledged in the TBMP. These include impacts on landscape, amenity and changes in character, displacement of social infrastructure, loss of mature trees and indigenous vegetation and temporary effects associated with construction. The potential construction and operational effects of the Project, as well as recommendations for mitigation, offset and compensation measures to manage identified effects, are discussed in detail in the technical studies, including Urban Form, Landscape and Visual Assessment, Ecology Assessments and the Social and Recreation Impact Assessment, and summarised in Chapter 6 of this report above.

One of the key benefits the Project brings to the Town Belt is the proposed Hataitai Connection bridge that will enable easier ingress and egress for vehicles and improved accessibility for pedestrians and cyclists to and from Hataitai Park. The TBMP acknowledges that improved access to Goa Street would be a benefit of the 2011 SH1 proposal. Further in section 8.8.4.2 the TBMP presents findings from a 2007 report on Hataitai Park that identified access to the park as a significant issue. It acknowledges the limitation of the vehicular entrance from Ruahine Street, where congestion is high when sports activities, such as netball, create significant traffic congestion entering or leaving the Park. The Hataitai Connection bridge will address this issue. In addition, the new wider Hataitai active modes bridge will better connect the Town Belt to Hataitai Village.

8.6 Resource consents

Schedule 5, clause 17(1) of the FTAA requires the Panel to take into account the provisions in Part 2, 3, 6 and 8 to 10 that direct decision-making on an application for a resource consent.

The following subsections provide an assessment of the Project against the relevant sections of the RMA within the FTAA framework.

The resource consents required under the NRP are set out in section 5.2 and have been effectively considered as a discretionary activity, without reference to section 104D of the RMA as this does not apply under the FTAA. Proposed conditions are included in Appendix A.

8.6.1 Section 104

In terms of section 104(1)(a) of the RMA, the actual and potential effects of the Project on the environment are assessed in Chapter 6 of this report which is supported by the detailed technical reports. As set out in that section, there are a range of effects ranging from positive to very high adverse effects.

In terms of planning instruments referred to in section 104(1)(b), the assessment in sections 8.2 and 8.3 above demonstrates that the Project:

- Is highly aligned and enabled by the objective and policies of the NPS-I
- Is generally consistent with the relevant objectives and policies of the NPS-UD
- Has overall consistency with the policy direction of the NZCPS and the NPS-IB
- Is compliant with the policy and consenting pathway for specified infrastructure in the NPS-FM and NES-F
- Has overall consistency with the direction of the RPS, noting the Project provides for RSI and the strategic transport network (which includes the state highway network)
- Is consistent with the NRP and PC1 in relation to wetlands, water quality, and activities in the coastal environment, noting the NRP recognises the benefits of RSI and the benefits of the use of land and water for transportation
- Is consistent with the District Plan as it provides an enabling framework for RSI and recognises the importance of RSI to support a well-functioning urban environment

Section 104(1)(c) provides that, when considering an application for resource consent, a consent authority must, subject to Part 2 of the RMA, have regard to any other matter it considers relevant and reasonably necessary to determine the application. Relevant matters such as non-RMA instruments or documents have been identified and evaluated in sections 8.4 and 8.5 of this report, and as part of the assessment of Project alignment with strategic planning documents recognised in the NPS-I assessment and set out in Part A of the Application. The Project is considered to be in very aligned with those strategic documents and the identified non-statutory planning documents.

8.6.2 Section 105

Some of the resource consents required for the Project are for discharge permits being discharges to air, and discharges of contaminants to land where it may enter water. Section 105 sets out the additional matters that the Panel must have regard to for discharge permits in addition to the matters in section 104(1):

- The nature of the discharge and the sensitivity of the receiving environment to adverse effects
- The applicant's reasons for the proposed choice
- Any possible alternative methods of discharge, including discharge into any other receiving environment

Details of the discharges are included in the relevant technical assessments and sections 6.12, 6.14 and 6.15 of this report relating to stormwater, erosion and sediment control and air quality.

The nature of the discharge and the sensitivity of the receiving environment

Discharge permits are being sought in respect of the discharge of sediment associated with works within natural wetlands, stormwater runoff from earthworks, stormwater runoff from contaminated land, stormwater runoff from impervious areas of the Project once operational, and discharges of dust to air during construction. Detailed consideration has been given to methods for addressing any potential adverse effects of these discharges, and appropriate methods have been adopted including through design and construction methods, such as conditions requiring stormwater treatment to be designed and undertaken in accordance with relevant best practice standards, implementation of best practice erosion and sediment control measures to be set out in an ESCP and SSESCPs, and the requirement for a Construction Air Quality Management Plan to ensure effects are appropriately managed.

The nature of the proposed discharges and sensitivity of the receiving environment in relation to the discharges during construction and operation have been outlined in Chapter 2, sections 6.8, 6.9 and 6.15 of this report, and the associated Technical Reports.

The sensitivity of the ultimate coastal receiving environments for contaminants such as sediment conveyed by the existing stormwater piped network throughout the Project area can be further summarised as follows:

- Te Whanganui-a-Tara (Wellington Harbour) is identified in Schedule B of the NRP as Ngā Taonga Nui a Kiwa – a coastal area from which Mana Whenua derive cultural and spiritual identity, their status as Mana Whenua and associated responsibilities that come with that
- Evans Bay and Lambton Harbour (part of the wider Te Whanganui-a-Tara/Wellington Harbour coastal management unit) have been assessed for their ecological values and in summary contain marine habitats of moderate ecological value, coastal avifauna of low to very high ecological value, Kororā/Little Penguin of high ecological value, marine fish of moderate ecological value, and marine mammals of low to very high ecological value
- Technical Report #12 (Marine Ecology Assessment) and Technical Report #17 (Erosion and Sediment Control Assessment) note that both Evans Bay and Lambton Harbour are degraded by contamination and are heavily modified environments including the presence of existing stormwater outlets. Contaminants at Lambton Harbour often exceed national sediment quality guidelines

In terms of the receiving environment for air quality, the sensitivity of people and property in the Project area has been assessed as high due to the proximity of residential properties to construction works with more than 100 receptors within 50 m of the construction footprint.

Discharges of contaminants to land and water during construction

During construction of the Project, discharges will occur via the stormwater / piped away network to the coastal environment at Lambton Harbour and Evans Bay. These discharges will largely consist of managed sediment run off from bulk earthworks and general construction activities. Stormwater discharges to the coastal environment may therefore contain potentially higher levels of sediment during the construction period than is typical. A range of measures are proposed to minimise the effects of the discharges including:

- Containerised treatment systems to treat sediment laden water and adjust pH through chemical dosing prior to discharge
- Bunding of stockpiled soil with runoff areas directed to treatment devices
- Allowing water to pond in trenches and pumping it to sediment retention ponds where space allows or using portable treatment units (e.g. silt busters) where space is limited
- Treating high pH water from grouting and piling in dedicated tanks prior to discharge
- Implementing erosion and sediment control measures outlined in the ESMP and ESCPs for Project works
- Applying general controls across all work areas to minimise erosion and sediment discharge
- Adopting an adaptive management approach with continuous monitoring of discharges for TSS and pH, with automated diversion to the sewer system if treatment limits cannot be met and a contingency response plan implemented

Specific measures in specific areas of the Project are summarised below:

- Lambton Harbour and Evans Bay - Erosion and sediment controls for all construction areas including silt fences, filter socks, bunding and stabilisation of exposed areas

Terrace and Mt Victoria Tunnels:

- Containerised treatment systems are recommended to be used to treat sediment laden water and adjust pH through chemical dosing before discharging to reticulated systems
- Stockpiling of soil will be bunded with runoff areas directed to treatment devices

Basin Reserve:

- Water from trenches pumped to sediment retention ponds where practicable otherwise where space is limited, portable treatment units (e.g., silt busters) will be deployed
- High pH water from grouting and piling will be treated in dedicated tanks prior to discharge
- Monitoring of discharges from sediment retention ponds, and treatment systems prior to discharge – implemented via construction monitoring plan and contingency response plan

All areas:

- Construction erosion and sediment control plan. Area specific plans, monitoring plans and contingency response plans
- Seek approval to discharge to wastewater reticulation to enable automated diversion to network
- Preparation of an Operational Management and Monitoring Plan (OMMP) and a Contaminated Soil Management Plan (CSMP) to manage the effects of soil disturbance on contaminated land and the associated discharge
- Industry best practice site management and the proposed construction methodology will minimise effects on people and the environment to the extent practicable

Discharges to water during operation

Technical Report #15 (Stormwater Assessment) provides a detailed description of the nature and quality of stormwater discharges from the operational phase of the Project. The Project involves changes to the existing state highway stormwater network which is currently untreated. Stormwater treatment is proposed as part of the Project where space allows and this treatment is expected to result in an overall improvement in discharge quality.

Discharges to air

During the construction of the Project, discharges of dust will take place because of construction activities. These discharges are an unavoidable part of the construction process and cannot practicably be discharged to another receiving environment due to their geographic location. There are a range of methods proposed for dust control and best practice site management methods will be used during the construction phase to minimise effects on people and the environment, as set out in an air quality management plan required to be prepared.

8.6.3 Section 107

Section 107 of the RMA prevents discharge permits that authorise the discharge of water or contaminants into water (or onto land in circumstances that may result in it entering water) being granted in certain circumstances.

Those circumstances are where the discharges would give rise to any of the following in the receiving waters:

- The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials
- Any conspicuous change in the colour or visual clarity
- Any emissions of objectionable odour
- The rendering of fresh water unsuitable for consumption by farm animals
- Any significant adverse effects on aquatic life

The Project involves discharges to land (pipe) that will ultimately enter coastal water during both the construction and operational phases. The discharges meet the tests of section 107, allowing the grant of discharge permits for the following reasons:

- The potential for effects associated with odours, conspicuous oils, floatable or suspended materials on receiving waters from construction and operational discharges is expected to be low following mitigation (s107(1)(c) and (e))

- Technical Report #15 (Stormwater) concludes that the effects of increased TSS and metal contaminants in receiving environments will be low following mitigation. Residual effects are expected to be localised to areas where stormwater treatment catchpit filters are impracticable due to space constraints. After reasonable mixing these discharges are not expected to be conspicuous (s107(1)(d))
- Technical Report #12 (Marine Ecology) concludes that there will be no significant adverse effects from the discharge of contaminants on aquatic life during construction and operation of the Project (s107(1)(g))

8.6.4 Part 2 RMA Assessment

Introduction

Schedule 5, Clause 5(1)(g) of the FTAA requires an assessment of the Project against sections 5, 6, and 7 of the RMA. The purpose of the RMA is established in section 5(2) and is to “promote the sustainable management of natural and physical resources”. The broader principles (sections 6 to 7⁷⁵) are to inform the achieving of that purpose.

It is noted that although the purpose of the RMA is to promote the sustainable management (section 5 of the RMA), this is given less weight in decision-making under the FTAA than the purpose of the FTAA, which is to facilitate the delivery of infrastructure and development projects with significant regional or national benefits. The Panel is required to ‘take into account’ the provisions of Part 2 (purpose and principles), Part 3 (duties and restrictions under the RMA), Part 6 (resource consents), and Part 8 (designations) of the RMA, and give the greatest weight to the purpose of the FTAA when considering this application.

For the reasons set out above, it is considered that the Project will be consistent with Part 2 and the sustainable management purpose of the RMA as the analysis above demonstrates it is generally consistent with the various subordinate planning instruments that give effect to Part 2, including the highest-level instruments being the NPS-I, NZCPS, NPS-FM, NPS-UD, and NPS-IB.

However, for completeness a further assessment against the provisions of Part 2 is also set out below.

RMA Section 5 - Purpose

The Project will enable people and communities to provide for their social, economic and cultural wellbeing and for their health and safety through:

- Supporting the economic growth of Wellington City and the wider Wellington region through increased labour productivity and regional GDP because of improved efficiency of travel, and improved resilience of the state highway corridor during natural hazard events
- Delivering community, social and transport benefits through improved transport access and safety, local road decongestion, reduced journey times
- Increased health and safety through corridor safety improvements, increased capacity, and improved network resilience in the event of disruptions

Considering these benefits alongside the assessment of effects in Chapter 6 of this AEE, the following conclusions can be made:

- The Project will help meet the future transport, economic, and urban development needs of Wellington City and the wider region as it provides opportunities for future land use and transport integration and urban development improvements

The Project will help safeguard the life supporting capacity of natural resources, specifically:

- Air – by reducing traffic congestion along the corridor and on local roads
- Water – the Project includes stormwater treatment for discharges to the coastal environment, which is currently not the case for the existing state highway stormwater network. This will provide an overall improvement to the quality of the stormwater discharge and reduce impacts on the coastal receiving environment

⁷⁵ While ordinarily considered in RMA processes, section 8 of the RMA is not relevant under the FTAA

- Ecosystems – by avoiding, remedying, mitigating, and offsetting effects on ecological values

A range of mitigation measures are proposed that are appropriate to the scale and significance of the potential effects that may arise during the construction and operation of the Project to avoid, remedy, or mitigate those adverse effects

Accordingly, the Project will achieve the RMA purpose of sustainable management of natural and physical resources.

RMA Section 6 – Matters of national importance

The section 6 matters of national importance that are relevant to the Project and must be taken into account are addressed below:

- (a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development*

The Project is located within a highly modified urban environment, including the coastal environment at Evans Bay where the existing SH1 and stormwater outfall are located. There are no identified areas of outstanding natural character in this area, nor does the District Plan identify this area as displaying high or very high natural character values. The Project does involve the total loss of (low-quality) natural inland wetlands. The effects of these losses have been assessed in sections 6.86.9 and 8.3.3 of this report. While the design has sought to minimise this loss as far as practicable, complete loss is unavoidable and compensation is proposed.

- (c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna*

The Project works will avoid, to the extent practicable, areas of significant vegetation and significant habitats of indigenous fauna. Where there are unavoidable effects, mitigation measures are proposed including replacement planting to replace lost vegetation and restore habitats as quickly as possible. The Project stormwater outfall upgrade work does traverse a coastal area identified in the NRP as a habitat with significant biodiversity values as set out in sections 6.9 and 8.3.3. The ecological effect of construction works in this area is expected to be between very low and low after mitigation. Adverse effects on habitat for kororā/little penguins at Evans Bay is to be mitigated as far as practicable, and compensation is proposed for the residual effects.

- (d) The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers*

The Project will maintain the existing access to and along the coastal marine area at Evans Bay.

- (e) The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga*

Technical Report #19 and #20 (Cultural Impact Assessments) concluded that the Project has the potential to contribute to lasting environmental and cultural improvement, provided Mana Whenua values and expectations are meaningfully integrated into the design, delivery, and long-term management. Taranaki Whānui and Ngāti Toa are the relevant iwi authority, hapū and Treaty Settlement entities for the Project. As discussed in sections 1.3 and 7.3 above, NZTA has worked closely with Mana Whenua to understand the cultural values of the Project area and to ensure the Project appropriately reflects the relationship of Mana Whenua with their ancestral lands and water, and will continue to do so.

Taranaki Whānui and Ngāti Toa are project partners for the Project and have confirmed their support for the Project.

- (f) The protection of historic heritage from inappropriate subdivision, use, and development*

Technical Report #8 (Heritage Assessment) and Technical Report #9 (Archaeological Assessment) conclude that there will be low to moderate adverse effects of the Project on historic heritage values and archaeology. As set out in sections 6.5 and 6.6 several measures are proposed to mitigate the effects on these values and the Project has sought to avoid significant adverse effects on heritage values through the design, such as relocation of scheduled heritage buildings and one non-scheduled building with heritage and archaeological values rather than removal or demolition. Also avoiding direct effects on the heritage area and minimising effects on the historic landscape values at the Basin Reserve. Archaeological monitoring and recording will also be undertaken during construction.

(h) The management of significant risks from natural hazards

The Project is located within areas within identified flooding, coastal inundation, and tsunami risks as set out and assessed in section 8.3.8. The design has incorporated measures to avoid increasing the risks from natural hazards both on the state highway itself and for the surrounding environment. Accordingly, any significant risks from natural hazards will be appropriately managed.

RMA Section 7 – Other matters

The following matters in section 7 of the RMA have been taken into account:

7(a) and (aa) – Kaitiakitanga and the ethic of stewardship

Technical Report #19 and #20 (Cultural Impact Assessments) stated that Mana Whenua involvement in design, restoration, monitoring, and cultural expression is essential to giving effect to kaitiakitanga. Ongoing engagement with project partners Taranaki Whānui and Ngāti Toa, the Mana Whenua of Te Whanganui-a-Tara (Wellington Harbour), ensures Project processes and outcomes are grounded in kaitiakitanga and Mana Whenua knowledge of place.

7(b) – The efficient use and development of natural and physical resources

The Project upgrades the existing SH1 corridor to improve the efficiency of the existing state highway network. Accordingly, the Project makes efficient use of an existing physical resource, improving its operational efficiency, and providing a range of benefits to users of the state highway and the wider community.

7(c) – The maintenance and enhancement of amenity values

The maintenance and enhancement of amenity values have been recognised through the provision of the improved shared cycle and pedestrian path through the proposed Mt Victoria Tunnel, the land / green bridge at Pukeahu Memorial Park/Sussex Street and replanting following construction activities. The Project's effects on amenity values during construction, relating to water quality, noise and air quality, will be managed through implementation of construction management plans, adopting best practice techniques and good site management measures.

7(d) – The intrinsic values of ecosystems, 7(f) – the maintenance and enhancement of the environment, and 7(g) any finite characteristics of natural and physical resources

The technical assessments have considered the matters covered in section 7(d), (f), and (g). A range of mitigation measures have been proposed along with supporting conditions to appropriately address the potential effects on the environment from the Project. This includes offsetting where biodiversity related effects cannot be avoided or fully mitigated.

7(i) – The effects of climate change

The effects of climate change have been considered through the design of the Project, including the stormwater upgrades required and predicted changes in rainfall rates and intensity informing the Project design overall.

8.7 Additional statutory considerations relevant to notice of requirement

8.7.1 Introduction

Schedule 5, clause 24 of the FTAA sets out the criteria and other matters for assessment of the NoR. The Panel is required to take into account the provisions of Part 8 of the RMA that direct decision making on a notice of requirement for a designation alteration (except section 170).

Sections 171 and 181 of the RMA require consideration of the effects on the environment of allowing the requirement, having particular regard to:

- a) Any relevant provisions of national policy statements, the NZCPS, the RPS and the District Plan

- b) Whether adequate consideration has been given to alternative sites, routes and methods of undertaking the work if the requiring authority does not have an interest in the land sufficient for undertaking the work; section 171(1)(b)(i).⁷⁶
- c) Whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought; section 171(1)(c)
- d) Any other matter the territorial authority considers reasonably necessary to make a recommendation; section 171(1)(d)

The effects to be considered may include any positive effects on the environment to offset or compensate for any adverse effects that will or may result from the activity enabled by the designation, as long as those effects result from measures proposed or agreed by the requiring authority (section 171(1)(b)).

8.7.2 Effects on the environment and relevant provisions of statutory planning documents

The effects of the alteration to the existing designation on the environment have been set out in detail in the technical assessment reports and summarised in section 6 of this report. In addition, the assessment has considered a range of statutory and non-statutory documents as set out in Chapter 8 of this report and formed conclusions as to consistency with them. The NPS-I, NZCPS, NPS-FM, NPS-IB, NPS-UD, the RPS, the NRP, and the District Plan generally provide policy support and direction for the Project and have been considered in this report.

8.7.3 Positive effects

The benefits of the Project have been set out in Part A of the Application. In addition, the assessment of effects in Chapter 6 highlights some of positive effects of the Project and a full list is provided as part of the benefits assessment in Part A of the Application. As well as a better state highway, these include an upgraded shared path in the proposed Mt Victoria Tunnel and the addition of stormwater treatment resulting in improvements to the quality of the stormwater discharge to the coastal environment from the state highway network. The proposed Basin Reserve green space extension to Pukeahu National War Memorial has been assessed as being of regional significance as place-making enhancement, as it will function as an extension of the existing Pukeahu green space through to Cambridge Terrace. This new connection also enhances the setting of the National War Memorial, such that has nationally significant benefits, given the status of the memorial.

8.7.4 Adequate consideration of alternatives

A detailed assessment of the alternatives considered for the Project has been carried out by Mr Phil Peet (Part F: Technical Report #1 Consideration of Alternatives). That report responds to the requirements of the FTAA and RMA and should be read alongside this Application. In addition, further localised design refinement and design alternatives were considered during the consent design work, which are outlined in Part F: Technical Report #4 Design Assessment, prepared by Mr Gareth McKay. Commentary on how the relevant legal requirements under section 171(1)(b) of the RMA and Schedule 5 of the FTAA are met is also provided in the Legal Submissions document.

This section provides a summary of the key steps in the consideration of alternatives for the Project and summarises the strategic alternatives and sector-level options considered.

The SH1 corridor through Wellington City has been the subject of transport investigations for decades. The Ngauranga to Airport Corridor Plan (2008) identified the need for improvements including a second Terrace Tunnel, grade separation at the Basin Reserve, and a second Mt Victoria Tunnel. These elements were subsequently taken forward as part of the Wellington Northern Corridor Road of National Significance (RoNS) in 2009.

A proposal for a bridge on the northern side of the Basin Reserve (the Basin Bridge) was the subject of a Board of Inquiry process under the RMA. The Board of Inquiry declined to confirm the designation in 2014, finding (among other things) that the consideration of alternatives had been inadequate. That decision has directly shaped the approach taken to alternatives assessment for the current Project, which has been designed from the outset to be comprehensive, transparent, and well-documented.

⁷⁶ Section 171(1)(b) was amended in August 2025 by the Resource Management (Consenting and Other System Changes) Amendment Act 2025 to remove the former additional trigger based on likely significant adverse effects on the environment, placing greater emphasis instead on effects on private property

Following the Basin Bridge decision, work on the second Mt Victoria Tunnel was also paused. The Let's Get Wellington Moving (LGWM) partnership between NZTA, WCC, and GWRC was then established in 2016 to develop a new programme of transport improvements for Wellington. LGWM undertook extensive investigation of strategic alternatives and section-level options over the period 2016 to 2023, producing a Programme Business Case (2019), an Indicative Business Case (2021), and a Detailed Business Case (commenced in 2023, but not completed before LGWM was dissolved in December 2023). The work undertaken during the LGWM phases provides a substantial evidence base for the current Project and is discussed further below.

When NZTA took back responsibility for the state highway elements of the programme in 2024, it systematically revisited earlier options, retested key decisions, and confirmed that all relevant alternatives had been adequately considered in light of the updated Project objective. This included re-examining, for example, large-scale long-tunnel concepts, network-wide programme alternatives, and multiple design variants within each Project section.

The NZTA Board was presented with options in June and November 2024, including a comparison of the long tunnel concept against an option similar to the current preferred option. Following that assessment, a preferred base option was taken forward for further testing and refinement through the investment case phase (2024/2025) and the pre-implementation phase (2025/2026), during which the Project design has continued to be refined through targeted section investigations, including in response to issues identified by specialists and raised through stakeholder and public community engagement. The targeted section investigations are outlined in Part F: Technical Report #4 Design Assessment, prepared by Mr Gareth McKay.

Throughout the alternatives assessment process, NZTA has maintained an open mind and has retested options when the Project objective changed, when new information became available, and in response to feedback from the public, key stakeholders, and Mana Whenua.

Strategic alternatives

At the strategic level, the LGWM investigations considered a wide range of alternative programmes for addressing Wellington's transport problems, including:

- Programmes focused on public transport and active modes without significant new state highway infrastructure – these were found to be unable to adequately address congestion and reliability problems on SH1. While such programmes provided additional people-moving capacity, they did not reduce demand on the state highway network sufficiently to enable efficient and reliable access on SH1
- Demand management through road pricing and congestion charging – modelling consistently showed that pricing alone, or in combination with public transport investment, reduces traffic volumes but does not eliminate the need for road capacity improvements, particularly in the medium to long term. Pricing can help manage demand and improve benefits, however, and the Project has been designed to be compatible with future tolling or congestion charging should that be pursued
- Alternatives with limited state highway infrastructure – consideration has been given to options with limited state highway improvements (for example, just grade-separating traffic at the Basin Reserve). These options were found to not contribute as much to the Project objective and may result in insufficient improvements in congestion reduction and overall traffic efficiency
- Alternative state highway corridors at ground level – these were considered during the LGWM Programme Business Case but were found to be less efficient and to affect established communities. For example, using existing corridors such as the Harbour Quays would involve longer routes, lower speed limits, and greater side friction, and perform relatively poorly against the Project objective
- Long tunnel options – these were also considered during the LGWM Programme Business Case phase but were discounted due to their very high costs. Another long tunnel option between the Terrace Tunnel and Mt Victoria was investigated in detail during the LGWM Indicative Business Case phase and again by NZTA in 2024. The long tunnel performed well in transport terms but was found to cost almost double the current Project, with significant construction, property, and environmental impacts. NZTA concluded it was unaffordable and did not proceed with further investigation

- Alternatives that change demand through land use – different land use scenarios were considered throughout the LGWM and current Project phases. Even with implementation of a mass rapid transit solution and growth distributed along transit corridors, transport modelling demonstrated that highway investment was still needed, as constrained road capacity at locations such as the Basin Reserve delayed public transport services

The assessment of strategic alternatives consistently identified that improvements to the existing SH1 corridor – rather than relocation or reliance on non-highway interventions alone – were necessary to achieve significantly positive outcomes by reference to the Project objective. Technical Report #1 provides a detailed account of this assessment.

Section-level options

Within the preferred strategic approach of improving the existing SH1 corridor, detailed options were assessed for each section of the Project. The assessment used multi-criteria analysis (MCA) as necessary, informed by technical specialists, transport modelling, engineering feasibility work, and environmental and social assessments. Consistent MCA frameworks were applied across various phases, with criteria covering Project objectives, environmental and social effects, Mana Whenua values, feasibility, cost and value for money. The key findings for each section are summarised below.

The nature and extent of potential impact on the Town Belt have been a particular consideration relevant to some Project sections.

Terrace Tunnel: Options ranged from 'tidal flow' operation in the existing tunnel, widening the existing tunnel, reallocating lanes, and constructing one, two, or three lane second tunnels. Options relying on reconfiguring the existing tunnel were discounted due to operational limitations, safety issues, or lack of meaningful performance improvement. A single-lane second tunnel was discounted because it provided limited benefit relative to cost and introduced operational and safety challenges. Both two and three lane second tunnels were found to meet the Project objective, but a three-lane tunnel would require significantly more property acquisition, large cut slopes, and a larger construction footprint, while providing little additional benefit because downstream intersections in Te Aro remain a key constraint on corridor capacity. A two-lane second tunnel was identified as the preferred option.

Te Aro: A large range of options was considered, including tunnels, trenches, two-way configurations, and at-grade optimisation. Large-scale options such as eastbound bypasses, widened trenches, and tunnelled solutions were discounted due to substantial impacts on heritage, urban form, property, construction duration, and cost. Options to introduce two-way operation using Karo Drive were retested during the current Project phase but were found to worsen travel times and introduce significant network inefficiencies. The preferred option of optimising the existing one-way pair with three lanes in each direction was identified as the only option that achieves the Project objective while remaining affordable, deliverable, and environmentally acceptable.

Basin Reserve: The Basin Reserve section involved one of the most extensive alternatives assessments, given the area's heritage, social, and cultural significance, as well as the history of the Basin Bridge decision. At-grade options were reconsidered numerous times in the Project's history but were found to be unable to provide sufficient state highway performance or address critical movement conflicts. Meanwhile, many grade-separated arrangements were discounted due to unacceptable impacts. Ultimately, grade separation at the north-west corner of the Basin Reserve was selected as the preferred option, both during LGWM investigations and current Project investigations. This preferred option was refined as part of the current Project to include Sussex Street passing under SH1 (rather than over it). This was found to be a viable option that performs strongly against the Project objective while minimising effects. As a final check, the Basin Reserve roundabout enhancement option ('BRREO') promoted by some submitters in the Basin Bridge process and during NZTA's community engagement on the current proposal (November / December 2025), was also remodelled in early 2026. It was found to perform poorly against the Project objective as it retains significant traffic conflicts and cannot provide consistent priority for SH1 movement.

Mt Victoria Tunnel: Options considered in this section include widening the existing tunnel, constructing new tunnels on different alignments (parallel to the existing tunnel, or diagonal connecting Wellington Road to the Basin area), and providing a separate walking and cycling tunnel. A parallel tunnel north of the existing tunnel was identified as achieving the desired transport performance with substantially fewer impacts and lower cost than the diagonal tunnel option. The diagonal tunnel would have required two new tunnels, created major impacts on Wellington College, St Mark's School, and Kilbirnie Park, and cost

\$1.2–\$1.7 billion more than the parallel tunnel. A separate walking and cycling tunnel was discounted due to high additional cost and greater Town Belt impacts; active modes can be safely accommodated within the new parallel tunnel.

Eastern Connections: Different options for road-widening and intersection forms were considered. A hybrid widening approach and grade-separation near Goa Street was identified as providing the best outcomes, removing key conflicts for SH1 traffic, improving accessibility between Hataitai and Hataitai Park, and delivering the strongest performance against the Project objective. Again, the potential impact of different options on the Town Belt was a key consideration.

Summary

The preferred Project option is the result of more than a decade of detailed investigation, drawing in particular from the extensive LGWM programme and continuing through NZTA's current investigations. It represents a balanced, feasible, and reasoned response to the transport problems facing SH1 in Wellington. Technical Report #1 provides a more detailed summary of the alternatives assessment process, including the reasons why alternatives were progressed or discarded, the nature of their effects, and how they performed against the Project objective.

NZTA is satisfied that the alternatives assessment process has been transparent and proportionate to the scale of potential effects and has enabled the identification and refinement of a preferred option in a robust and logical way. NZTA has been cognisant throughout of the relevant legal requirements, including to assess an appropriately broad range of options (including any capable of meeting the Project objective with fewer effects on property (or the environment)). While NZTA is not required to select the 'best' option (as discussed further in the Legal Submissions), the Project is made up of options that performed strongly in the relevant processes.

Section 171(1)(b) of the RMA requires an assessment of whether adequate consideration has been given to alternative sites, routes and methods for undertaking the work, where the requiring authority does not have an interest in the land sufficient for undertaking the works. NZTA has conducted a fulsome and comprehensive consideration of alternatives across the entire Project such that the requirements of section 171(1)(b) are clearly met. The processes involved identifying a broad range of alternative corridors, applying consistent and replicable multi-criteria analysis with inputs from Mana Whenua, stakeholders and technical specialists, narrowing a long list to a short list, and iteratively developing and refining the preferred option within the preferred corridor. NZTA's consideration of alternatives has accordingly been robust, and the choices made are well-informed, sensible and reasonable.

8.7.5 Reasonably necessary to achieve objective

Section 171(1)(c) of the RMA (and schedule 5, clause 12(1)(g) of the FTAA) requires an assessment of 'whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought'.

The objective of the Project is *to provide more efficient and reliable access on SH1 from north of the Terrace Tunnel to Wellington Airport and Wellington Hospital to support regional economic growth.*

The outcome sought is to support regional economic growth and productivity by improving access through reduced travel times (efficient) and improved journey time reliability (reliable) for all traffic on SH1 through Wellington city centre. The investment is targeting SH1 in both directions between the north of the Terrace Tunnel and Wellington International Airport, and sections thereof, as this route is part of many journeys to and from the airport, the regional hospital, and the central city.

The Project works are considered reasonably necessary for achieving this objective because they will:

- Improve travel efficiency and reliability by reducing traffic congestion along the State Highway 1 corridor
- Improve transport safety by increasing the capacity and resilience of the State Highway 1 corridor
- Deliver economic benefits to Wellington City and the wider region including through significant increases to labour productivity and regional GDP, and enabling increased housing supply along the corridor and more broadly in the city

The mechanism of a designation is also reasonably necessary to achieve NZTA's objective for the Project because:

- The designation provides certainty for NZTA, landowners, and the wider community about the future intended use of the land
- The designation is necessary to ensure the Project can be constructed, operated and maintained with certainty and efficiency, avoiding the need for piecemeal resource consent applications for individual Project components
- A designation will allow the Project to be constructed in an integrated and coordinated manner with all relevant Project components being considered holistically
- The designation will protect the Project area from future development which may otherwise preclude the construction of the Project
- The designation provides certainty for NZTA, landowners and the wider community about the future intended use of the land

8.7.6 Other matters

Section 171(1)(d) of the RMA provides that, when considering a NoR, a territorial authority must have particular regard to “*any other matter the territorial authority considers reasonably necessary in order to make a recommendation on the requirement*”. ‘Other matters’ that may be identified as relevant are typically other statutes and non-RMA planning documents. Relevant matters such as non-RMA instruments or documents have been identified and discussed previously in this chapter. The Project is highly aligned with the key strategic transport and future development strategies⁷⁷ both nationally and regionally.

8.7.7 Purpose of Fast-track Approvals Act

The purpose of the FTAA is *to facilitate the delivery of infrastructure and development projects with significant regional or national benefits*. The starting premise is therefore one of facilitating delivery of beneficial projects.

In accordance with section 43(1)(b)(i), which requires an explanation of how the Project aligns with the FTAA's purpose, the following points are relevant:

- The Project involves the delivery of infrastructure
- The Project will generate significant regional and national benefits
- The approval of the RMA and other approvals sought in the Application is necessary for the delivery of the Project, as the works cannot occur without these approvals
- The Project is a key infrastructure priority for the Government and New Zealand
- The Project has a history of halted effort to deliver the key components of the infrastructure proposed – while there will remain matters of contention with the current design, it is important that the Project can proceed without further delay
- The infrastructure proposed, i.e., the duplication of tunnels and grade separation at the Basin Reserve, are necessary for a well-functioning and resilient capital city for New Zealand
- NZTA has engaged extensively in refining the consent design to meet reasonable stakeholder expectations and will continue to do so throughout the detailed design and construction of the Project
- NZTA has proposed a robust set of conditions in Appendix A, that appropriately manage social and environmental effects, without setting disproportionate obligations for NZTA to deliver, and eroding the economic benefits of the Project

In summary, the Project has significant regional and national benefits and confirming the approvals sought for the Project would therefore give effect to the purpose of the FTAA.

⁷⁷ GPS, RLTP and FDS

9 CONCLUSION

This report demonstrates that the Project satisfies the statutory requirements of the FTAA and meets its purpose. The Project is consistent with the policy framework of the relevant planning documents and with the purpose and principles of the RMA. It represents a nationally and regionally significant investment in Wellington's transport network that the FTAA process was designed to facilitate.

NZTA's Proposed Conditions (Appendix A) will ensure the actual and potential adverse impacts of the Project are appropriately managed. Any residual adverse impacts are modest and plainly not sufficiently significant as to be out of proportion to the Project's significant national and regional benefits—benefits that include material improvements to journey time, travel time reliability, and safety for the people of Wellington and the wider region. Those benefits, subject to the mitigation set out in the Proposed Conditions, decisively outweigh any residual effects. The approvals sought pursuant to the FTAA should accordingly be granted.