

VOLUME 4

Takaanini Level Crossings Assessment of Landscape, Natural Character and Visual Effects

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Glossary of Defined Terms and Acronyms

We note that ‘Takaanini’ (with double vowels is used throughout the Report Acknowledging the ongoing kōrero and guidance from Manawhenua on the cultural landscape. ‘Takanini’ is used where reference is made to a specific and existing named place (e.g., Takanini Road, Takanini Town Centre etc.). Manawhenua is also used throughout the Report as while gifting the programme name as Te Tupu Ngātahi, Manawhenua confirmed this was an appropriate spelling (capital ‘M’ and one word). Notwithstanding this, the term is spelled as two words in other fora and the proposed designation conditions – Mana Whenua.

Acronym/Term	Description
AEE	Assessment of Effects on the Environment report
AT	Auckland Transport
AUP-OP	Auckland Unitary Plan: Operative in Part
CEMP	Construction Environmental Management Plan
Council	Auckland Council
CPTED	Crime Prevention through Environmental Design
DBC	Detailed Business Case
EcIA	Ecological Impact Assessment
KiwiRail	KiwiRail Holdings Limited
LNCVEA	Landscape, Natural Character and Visual Effects Assessment
NIMT	North Island Main Trunk rail line
NPS	National Policy Statement
NPS-UD	National Policy Statement on Urban Development
NoR	Notice of Requirement
NoR 1	Notice of Requirement 1: Takaanini Level Crossings Project (Spartan Road, Manuia Road, Manuroa Road, and Taka Street)
NoR 2	Notice of Requirement 2: Takaanini Level Crossings Project (Walters Road)
ONF	Outstanding Natural Features
ONL	Outstanding Natural Landscapes
PC78	Plan Change 78 to the Auckland Unitary Plan (Operative in Part)
RMA	Resource Management Act 1991
SH1	State Highway 1
TDM	Transport Design Manual
TMP	Tree Management Plan
Te Tangi a te Manu	Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines
Te Tupu Ngātahi	Te Tupu Ngātahi Supporting Growth

Acronym/Term	Description
TLC/ the Project	Takaanini Level Crossings Project
ULDMP	Urban Landscape and Design Management Plan
VP	Viewpoint
Waka Kotahi	Waka Kotahi New Zealand Transport Agency
ZTV	Zone of Theoretical Visibility

Executive Summary

Te Tupu Ngātahi Supporting Growth is seeking designations to enable the Takaanini Level Crossings project (**TLC / the Project**), on behalf of Auckland Transport (**AT**). Te Tupu Ngātahi has prepared two Notices of Requirement (**NoR**) under the Resource Management Act 1991 (**RMA**) for the TLC. The proposed TLC has been developed as part of the Takaanini Level Crossings Detailed Business Case (**DBC**) approved by AT and Waka Kotahi New Zealand Transport Agency (**Waka Kotahi**). The Project proposes to construct five new bridges across North Island Main Trunk rail line (**NIMT**) over five project areas. NoR 1 relates to four of the proposed Project areas (referred to as Spartan Road, Manuia Road, Manuroa Road and Taka Street) while NoR 2 relates to the remaining project area (referred to as Walters Road) as below:

NoR 1	Spartan Road	Closure of the existing level crossing, new active modes bridge across the NIMT and associated works.
	Manuroa Road	Closure of the existing level crossing, new active modes bridge across the NIMT and associated works.
	Manuia Road	New grade separated crossing across the NIMT and associated works.
	Taka Street	Replacement of the existing level crossing with a new grade separated crossing across the NIMT and associated works.
NoR 2	Walters Road	Replacement of the existing level crossing with a new grade separated crossing across the NIMT and associated works.

This assessment considers the landscape, natural character, and visual effects in relation to the TLC. The assessment has been undertaken in line with Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines (**Te Tangi a te Manu**).

Prior to undertaking the assessment, a desktop analysis was completed followed by site visits for the five project areas. The wider visual catchment was also assessed to evaluate potential visual impacts on more distant viewers.

The assessment of effects for each project area analyses the context and determines the landscape characteristics and values of each area and then assesses the construction and operational effects of the Project. A summary statement and table of effects is provided in each project area (Section 5.1.6 and Section 5.2.5 of this Report).

Construction effects relate to the activities and elements that will be introduced into the existing landscape throughout construction. These effects will endure throughout the construction phase and are temporary in nature.

Operational effects are permanent effects that result from the Project once it is completed, and once mitigation measures (if any) have been implemented. Effects may be positive, adverse or neutral.

Section 5.2.5 of this Report includes measures to avoid, remedy or mitigate construction effects. Measures for construction and operation are considered within a Project wide context, i.e. across all five project areas.

The mitigation of operational effects also includes (in addition to Project wide recommendations) specific recommendations relating to works associated with each of the specific project areas as identified in Section 5.2.4 of this Report.

Overall Project conclusions are provided below and in Section 6 of this Report.

Positive outcomes for landscape

Overall, the Project provides the following opportunities for positive landscape outcomes:

- A distinctive landscape identity underpinned by the natural patterns and processes that have been lost and may be reintroduced either literally or symbolically;
- A net increase in canopy cover with associated biophysical landscape benefits on Te Taiao/the physical environment from the potential planting of fill batters, planting in berms, green stormwater infrastructure such as vegetated swales and planted stormwater wetlands;
- The introduction of urban ngahere along the corridors with associated positive effects on high quality urban landscape amenity and place identity outcomes;
- Enhanced cultural landscape outcomes through integration of Manawhenua values and narratives that reflect and celebrate te ao Māori;
- Increased connectivity of the open space network within Takaanini in line with the objectives of the Papakura Local Board Open Space Network Plan 2019; and
- Increased walkability and cycle connectivity along the network which contributes to landscape amenity, enjoyment, and pleasantness.

Overall conclusions

Construction effects

Construction of the Project will occur in a highly modified urban environment that is strongly characterised by transport infrastructure and mixed-use development. Construction effects will predominantly result from visual impacts for fixed viewing audiences near the project areas.

In relation to visual amenity effects during construction, effects are anticipated to arise from construction activities, elements (i.e. construction equipment, laydown areas), and temporary structures associated with construction activities.

The greatest effects will be for fixed residential viewing audiences near the grade-separated ramps and bridges at Manuia Road and Taka Street due to the change to current established outlooks for these viewers and the large scale of construction.

The construction of the grade-separated ramps and road bridge at Walters Road - while of a similar scale to Manuia Road and Taka Street, will have lesser construction effects due the viewing audience being mostly occupational (workers and shoppers) and transient viewers.

For Taka Street, construction activities and elements are assessed as having moderate-high adverse visual effects after mitigation. This is due to the magnitude of construction that will be introduced into what is currently a homogenous low-rise residential landscape setting. Residents of Taka Street and the surrounding housing (fixed viewing audiences) will experience a significant change to their existing environment. However, these adverse effects will be experienced temporarily during construction, with the project area being part of a changing environment. Provision of alternative

access to Takaanini Reserve during construction will help mitigate the loss of landscape connectivity for residents.

For Spartan Road, construction effects will be low due to the existing industrial setting and lack of fixed viewers.

For Manuia Road, the greatest construction effects will be experienced by residents who will perceive the construction activity as a considerable change to the currently available views. Visual effects will be Moderate Adverse before mitigation, reducing to Low-Moderate Adverse following mitigation (refer to Section 5.1.6 of this Report).

For Manuroa Road, construction effects will be experienced by surrounding fixed residential viewing audiences, however the extent of construction is limited to near the existing transport infrastructure of the NIMT and therefore visual effects will be limited in their extent.

For Walters Road, construction activities will introduce large scale infrastructure works into a receiving environment that is characterised by low-density mixed use activities – including residential, town centre, industrial and community uses such as training centre and childcare facilities. The greatest adverse effects will be for residents. Given the temporary nature of construction and following implementation of proposed mitigation measures, adverse effects are assessed as moderate.

Overall, with the implementation of mitigation measures (including screening, design of human-scaled interfaces and landscape connections) and considering the temporary nature of construction works, construction effects are assessed as shown in the table below and as outlined in Section 5.1.6 of this Report.

Construction effects summary

			Before mitigation		After mitigation	
Effect		Assessment	Magnitude of effect	Nature of effect	Magnitude of effect	Nature of effect
Landscape		There are very few existing landscape values in the receiving environment that would be adversely affected due to construction works following mitigation.	Low-Moderate	Adverse	Low	Adverse
Natural Landscape		The project areas and surrounding landscape is generally devoid of natural character attributes that would be adversely affected during the construction phase.	Very Low	Adverse	Very Low	Neutral
Visual amenity	Wider Viewing catchment	Viewers within the wider visual catchment will not experience adverse visual effects during construction due to the long	Very Low	Adverse	Very Low	Neutral

			Before mitigation		After mitigation	
		viewing distance, intervening screening and heavily built urban setting within which the construction will be viewed.				
	Spartan Road	The visual context for the Project is a highly industrialised setting with poor visual amenity. Viewing audiences comprise mostly transient and occupational viewers with few fixed viewers. Within this context, construction activities including large machinery and vehicles will be coherent with the prevailing visual landscape quality and will largely be experienced temporarily.	Low-Moderate	Adverse	Low	Adverse
	Manuia Road	The visual context of the Manuia Road project area is variable and generally poor with a dominance of major transport infrastructure and light industry, with some residential to the southeast and southwest adjacencies. Viewing audiences include transient, occupational, and residential (fixed) viewers. For residential viewers situated adjacent to the southeast designation boundary, construction will be visually dominant and result in temporary adverse visual effects.	Moderate	Adverse	Low-Moderate	Adverse
	Manuroa Road	The visual context of Manuroa Road project area is generally homogenous and comprises low-rise residential and small businesses, roading and rail infrastructure. Viewing audiences include transient, occupational, and residential (fixed) viewers. Residents have a higher sensitivity to change than transient or occupational viewers due to the fixed nature of their viewing experience. In this context, residents close to the construction zone will experience	Moderate	Adverse	Low-Moderate	Adverse

			Before mitigation		After mitigation	
		<p>close views of the construction with large machinery, earthworks and activity.</p> <p>Construction effects will, however, be temporary and limited due to the physical extent of works occurring near the NIMT where transport infrastructure already dominates.</p>				
	Taka Street	<p>Taka Street is a visually homogenous low-rise residential setting featuring an open space reserve with large trees. Viewing audiences comprise residential and transient viewers.</p> <p>Construction works are assessed as initially having high adverse effects on residents of Taka Street and the surrounding housing as viewers will experience a significant change to their existing environment.</p>	High	Adverse	Moderate-High	Adverse
	Walters Road	<p>The visual context of the Walters Road project area is variable, comprising an industrial/commercial character to the west of Arion Road, and mixed-use including residential to the east. Transport infrastructure, traffic and carparking dominate the mid portion. Viewing audiences comprise residential, occupational, and transient viewers.</p> <p>Construction will introduce large-scale construction activity and elements (i.e. construction equipment, laydown areas) into a landscape setting with generally low visual amenity, particularly to the west of Arion Road. Residents in the eastern portion will experience the greatest visual impacts during construction because of their fixed viewing experience.</p>	Moderate-High	Adverse	Moderate	Adverse

Operational effects

Operational effects relate to permanent effects of the resulting infrastructure once construction is completed, and mitigation measures take effect. Operational effects of the Project will result from large-scale transport infrastructure, including three multi-modal bridges and ramps, being introduced into the existing urban landscape setting.

While the Project will result in a level of change to the receiving environment, it is an environment that is highly modified from its natural state and possesses little to no high-value landscape, natural character, or visual amenity values. Furthermore, the proposed infrastructure is of a nature that is coherent with the prevailing landscape, which is characterised by mixed-use development including industrial activity and major transport infrastructure. As such, the landscape is not as sensitive to the changes that will result from the Project, notwithstanding that parts of the Project are located within areas with residential receiving audiences.

Consideration is also given to the likely future receiving environment. Takaanini is a landscape in transition to higher urban density. As such, the type of change that is likely to be experienced by residents, transitional and occupational viewers is part of a continuum of change that is anticipated to take place within the timespan of the Project being implemented. It can be expected that people will adapt to the changing landscape over time.

Given that the current landscape is generally devoid of natural character, landscape and visual amenity values, the Project presents an opportunity to contribute positive landscape effects with mitigation. Through the implementation of plantings that will contribute to increased vegetation cover and connected urban ngahere, inclusion of cultural narratives, and multi-modal connectivity for active modes, the overall effect will be a landscape where nature and people are better connected within the urban environment.

Operational effects are as assessed as outlined below and as outlined in Section 5.2.5 of this Report.

Operational effects summary

Effect	Assessment	Before mitigation		After mitigation	
		Magnitude of effect	Nature of effect	Magnitude of effect	Nature of effect
Landscape	<p>There are very few landscape values that would be adversely affected during operational phase and following mitigation.</p> <p>The exception is some trees of note that will be removed, and public open space that will be encroached upon at Takaanini Reserve.</p> <p>Mitigation for the loss of trees will include outcomes-based measures targeted at returning the value that the trees provide to the urban landscape. Alternative access to Takaanini Reserve is recommended to ensure</p>	Very Low	Adverse	Low	Positive

		Before mitigation		After mitigation	
	<p>open-space connectivity once the Project is operational.</p> <p>Overall improvements from mitigation planting will include enhanced urban amenity, biodiversity net gain, connected urban ngahere and enhanced sense of place, resulting in overall positive effects on the landscape.</p>				
Natural Landscape	<p>There are negligible natural landscape attributes within the project areas and therefore there are negligible adverse effects on natural landscape character during the operational phase of the Project. There are opportunities to improve natural character through mitigation planting resulting in overall positive effects on the landscape.</p>	Very Low	Adverse	Low	Positive
Visual amenity	<p>Wider Viewing catchment</p> <p>The proposed infrastructure will not introduce adverse visual effects within the wider viewing catchment. Any potential visual effects will be mitigated through careful selection of non-reflective materials, colours and finishes to blend into the surrounding setting.</p>	Very Low	Adverse	Very Low	Neutral
	<p>Spartan Road</p> <p>The proposed ramps and bridge crossing will not be inconsistent with the different elements located in this industrial setting and are coherent with the rail and adjacent roading infrastructure (ie SH1 ramps) and surrounding industrial typologies. Mitigation measures could include introducing hard and soft landscape features at the proposed cul-de-sac heads where rail infrastructure currently exists, resulting in positive effects on the visual landscape.</p> <p>Overall, proposed infrastructure can be integrated into the future landscape setting and will result in positive effects on natural landscape values.</p>	Very Low	Adverse	Low	Positive

			Before mitigation		After mitigation	
	Manuia Road	<p>Manuia Road proposed infrastructure will result in a significant change to current available views, especially for the residential fixed audience as it will introduce large permanent elevated infrastructure into a predominantly low-rise urban landscape setting. Adverse effects include the potential visual dominance effects of the large infrastructure.</p> <p>Infrastructure can be assimilated into the receiving environment due to the ability to mitigate the scale of the infrastructure with generous and extensive green infrastructure (planting/open spaces) and quality design. Active modes movement will be improved through design.</p> <p>Overall, it is assessed that the proposed infrastructure can be integrated into the future landscape setting.</p>	Low-Moderate	Adverse	Low	Adverse
	Manuroa Road	<p>The proposed active modes ramps and bridge crossing will not be inconsistent with existing elements of the existing NIMT infrastructure (ie rail arm barriers, and fences). Along with the removal of NIMT clutter either side of the rail line, the proposed infrastructure will integrate with the landscape context.</p> <p>Overall, it is assessed that the proposed infrastructure can be integrated into the future landscape setting.</p>	Low	Adverse	Very Low	Adverse
	Taka Street	<p>The proposed infrastructure will introduce large permanent elevated infrastructure into a predominantly residential area with low single storey homes and where a reserve currently</p>	Moderate	Adverse	Low-Moderate	Adverse

		Before mitigation		After mitigation	
	<p>contributes to the neighbourhood amenity.</p> <p>With mitigation in place, the level of effects are expected to be low-moderate adverse due to the scale of the infrastructure when compared with the existing landscape setting. Adverse effects include the potential visual dominance effects of the large infrastructure, overshadowing, loss of some trees and restrictions to movement between each side of the street which is currently enjoyed.</p> <p>Mitigation measures will reduce the adverse effects of the permanent infrastructure. There is potential to create high amenity landscape outcomes including connected linear /open spaces between the reserve and rail station, and introduction of natural landscape values through the introduction of planting to mitigate the loss of vegetation at Takaanini Reserve.</p> <p>Overall, it is assessed that the proposed infrastructure can be integrated into the future landscape setting.</p>				
Walters Road	<p>The proposed infrastructure will introduce large permanent elevated infrastructure into a mixed-use area that is generally low-rise. Adverse effects include the potential visual dominance effects of the infrastructure and restrictions to multi-modal movement across the street. The viewing audience is, however, largely comprised of transient and occupational viewers and as such there is a relatively small number of fixed viewers who will permanently</p>	Low-moderate	Adverse	Low	Adverse

		Before mitigation		After mitigation	
	<p>experience the landscape change.</p> <p>Mitigation measures including screening, amenity planting, selection of sympathetic materials and alternative active modes connections will contribute to high amenity outcomes for the Project. Considering that the largest proportion of viewers will experience the infrastructure temporarily it is assessed that, with mitigation, the Project can be integrated into the landscape setting.</p>				

1 Introduction

1.1 Purpose and scope of this Report

This Landscape, Natural Character and Visual Effects Assessment (**LNCVEA**) has been prepared to inform the Assessment of Effects on the Environment (**AEE**) for two NoRs being sought by AT for the TLC under the RMA. The Project proposes to construct five new bridges across five project areas: NoR 1 relates to four of the proposed Project areas (referred to as Spartan Road, Manuia Road, Manuroa Road and Taka Street) while NoR 2 relates to the remaining Project area (referred to as Walters Road). Specifically, this Report considers the actual and potential effects associated with the construction and operation of the TLC on the existing and likely future environment as it relates to Landscape, Natural Character and Visual Effects and recommends measures that may be implemented to avoid, remedy and/or mitigate these effects.

This Report should be read alongside the AEE, which contains further details on the history and context of the TLC. The AEE also contains a detailed description of works to be authorised within each NoR, and the typical construction methodologies that will be used to implement this work. These have been reviewed by the author of this Report and have been considered as part of this LNCVEA. As such, they are not repeated here. Where a description of an activity is necessary to understand the potential effects, it has been included in this Report for clarity.

1.2 Report Structure

The structure of the report is set out in Table 1 below. The assessment considers the actual and potential effects of the Project as a whole in the first instance. Where required, the assessment then focusses on the potential effects arising within individual project areas (i.e., Spartan Road, Manuia Road, Manuroa Road, Taka Street which falls within NoR 1 and Walters Road which falls within NoR 2). Where appropriate, measures to avoid, remedy or mitigate effects are also recommended.

Where the individual project areas are discussed, sub-sections are arranged by project area in geographical order along the NIMT moving north to south.

Table 1: Report Structure

Sections	Section number
Introduction	1
Project Description	2
Assessment Methodology	3
Existing and Likely Landscape Environment	4
Landscape, Natural Character and Visual Amenity Effects	5
Conclusions	6

2 Project Description

The overall Project proposes the removal and / or replacement of four existing road over rail level crossings at Spartan Road, Manuroa Road, Taka Street and Walters Road in Takaanini. As further discussed in the AEE, the Project responds to functionality and safety issues anticipated at these crossings from the increasing number of train movements along the NIMT. The Project and indicative design also respond to the long-term planned expansion of the NIMT from the current two rail tracks to up to four tracks. The increased rail frequency will lead to greater barrier arm down-time and therefore increased severance and congestion in the area.

The Project primarily involves the construction of five new bridges to support safe and reliable east-west transport movement across the NIMT in Takaanini. This includes dedicated active mode bridges at Spartan Road and Manuroa Road, and two-lane arterial road bridges with active mode facilities at Manuia Road, Taka Street and Walters Road. Manuia Road is a new east-west connection in the network, acting as a replacement for vehicular trips that would have used the closed Spartan and Manuroa Road level crossings. The bridges and associated works/improvements are located across five project areas and will be progressed as two NoR packages (refer to Figure 1 and Table 2).

The indicative design has been prepared for assessment purposes, and to indicate what the final design of the Project may look like. The final design will be refined and confirmed at the detailed design stage. Key features of the works common across project areas include the following:

- Bridge structures across the NIMT with a vertical clearance from existing ground level to road surface of approx. 7.8m;
- Works to tie in with existing roads;
- Batters and/or retaining and associated cut and fill activities;
- Vegetation removal within the project areas to enable construction; and
- Areas identified for construction related activities including site compounds, construction laydown, alternative access, and construction traffic manoeuvring.

Further details of each project area are provided in the following sections below.

Table 2: The TLC project areas and NoR packages

NoR Reference	Project area	Description	Requiring Authority
Takaanini Level Crossings Project NoR 1	Spartan Road	Closure of the existing level crossing, construction of a new bridge with walking and cycling facilities across the NIMT and associated works.	Auckland Transport
	Manuia Road	Construction of a new bridge with general traffic lanes and walking and cycling facilities across the NIMT and associated works.	
	Manuroa Road	Closure of the existing level crossing, construction of a new bridge with walking and cycling facilities across the NIMT and associated works.	

	Taka Street	Closure of the existing level crossing, construction of a new bridge with general traffic lanes and walking and cycling facilities across the NIMT and associated works.	
Takaanini Level Crossings Project NoR 2	Walters Road	Closure of the existing level crossing, construction of a new bridge with general traffic lanes and walking and cycling facilities across the NIMT and associated works.	



Figure 1: Overview of the Project, project areas and extent of the NoRs

2.1 NoR 1 – Spartan Road, Manuia Road, Manuroa Road and Taka Street

2.1.1 Spartan Road project area

As set out in Table 3 below, the proposed works within the Spartan Road project area include closure of the existing level crossing and replacement with a new active modes bridge across the NIMT.

Table 3: Overview of Spartan Road project area

NoR 1 – Spartan Road project area	
Key features	
Overview	<ul style="list-style-type: none"> • Closure of the existing road corridor to vehicular traffic across the NIMT. • Construction of an active mode bridge across the NIMT. • Construction of cul-de-sacs (accommodating footpaths) and works to tie into the existing corridor on either side of the NIMT along Spartan Road. • Ramps and stairs will connect to the bridge on either side (east and west) of the NIMT and will tie into the cul-de-sacs.
Other structures	<ul style="list-style-type: none"> • None
Other road closures / cul-de-sacs	<ul style="list-style-type: none"> • None
Speed environment	<ul style="list-style-type: none"> • 50km/h (where it is trafficked)

Access lanes	<ul style="list-style-type: none"> • None
Intersections	<ul style="list-style-type: none"> • None
Stormwater infrastructure	<ul style="list-style-type: none"> • Kerb and channel along road edge
Typical cross sections	 <p>The diagram illustrates a cross-section of a road. It features a central red-paved area, likely a dedicated zone for pedestrians and cyclists. On either side of this red area are grey kerbs. Above the kerbs, there are vertical grey lines representing streetlights or poles. In the background, there are silhouettes of a pedestrian and a cyclist. The red area contains white icons of a pedestrian and a cyclist, indicating its intended use.</p>

2.1.2 Manuia Road project area

As set out in Table 4 below, the proposed works within the Manuia Road project area include construction of a new grade-separated road crossing (bridge) across the NIMT. The new bridge will accommodate one vehicle lane in each direction and active mode facilities.

Table 4: Overview of the Manuia Road project area

NoR 1 – Manuia Road project area	
Key features	
Overview	<ul style="list-style-type: none"> • There is currently no existing east-west corridor / level crossing across the NIMT in this project area. • Construction of a new arterial road bridge across the NIMT accommodating two lanes (one in each direction) and separated active mode facilities. • Construction of new arterial road corridors tying into either side of the bridge (east and west of the NIMT) accommodating two vehicle lanes (one in each direction) and separated active mode facilities.
Other structures	<ul style="list-style-type: none"> • Retaining/abutment walls (either side of the NIMT).
Other road closures / cul-de-sac	<ul style="list-style-type: none"> • Reconstruction of existing cul-de-sac at Hitchcock Road (east of the NIMT) to tie into the new intersection at Oakleigh Avenue / Manuia Road / Hitchcock Avenue (as described below) and upgrade with footpath.
Speed environment	<ul style="list-style-type: none"> • 50km/h

<p>Access lanes</p>	<ul style="list-style-type: none"> Existing Manuia Road will be reconfigured into an access lane for remaining properties, tying in with the new Manuia Road corridor / bridge (west of NIMT).
<p>Intersections</p>	<ul style="list-style-type: none"> Upgrade of the existing Great South Road / Challen Close / Manuia Road intersection to provide for signalisation, footpath upgrades and tie in works with the existing roads. New roundabout intersection at Oakleigh Avenue / Manuia Road / Hitchcock Avenue with active mode facilities and tie in works.
<p>Stormwater infrastructure</p>	<ul style="list-style-type: none"> Stormwater culvert and associated flood offset storage area. Kerb and channel along road edge. <p><i>Note: NoR has also considered space requirements for future stormwater treatment devices (though subject to future Regional Plan consenting process)</i></p>
<p>Typical cross sections</p>	<p>The image contains two diagrams illustrating typical cross sections for a road project. The top diagram, labeled 'TWO LANE ARTERIAL BRIDGE', shows a cross-section with two lanes for cars (yellow with white triangles), two lanes for bicycles (green with white bicycle icons), and two lanes for pedestrians (blue with white person icons). The bottom diagram, labeled 'TWO LANE ARTERIAL', shows a similar cross-section but with a central green area between the car lanes and trees on the sides. The diagrams use icons to represent different modes of transport and infrastructure elements like trees and kerbs.</p>

2.1.3 Manuroa Road project area

As set out in Table 5 below, the proposed works within the Manuroa Road project area include closure of the existing level crossing and replacement with a new active modes bridge across the NIMT.

Table 5: Overview of the Manuroa Road project area

NoR 1 – Manuroa Road project area	
Key features	
Overview	<ul style="list-style-type: none"> • Closure of the existing road corridor to vehicular traffic across the NIMT. • Construction of an active mode bridge across the NIMT. • Construction of cul-de-sacs (accommodating footpaths) and works to tie into the existing corridor on either side of the NIMT along Manuroa Road. • Ramps and stairs will connect to the bridge on either side (east and west) of the NIMT and will tie into the cul-de-sacs.
Other structures	<ul style="list-style-type: none"> • None
Other road closures / cul-de-sac	<ul style="list-style-type: none"> • None
Speed environment	<ul style="list-style-type: none"> • 50km/h (where it is trafficked)
Access lanes	<ul style="list-style-type: none"> • None

Intersections	<ul style="list-style-type: none">• None
Stormwater infrastructure	<ul style="list-style-type: none">• Kerb and channel along road edge
Typical cross sections	 <p>The diagram illustrates a typical cross-section of a road infrastructure. It features a central red-paved area, likely a dedicated zone for pedestrians and cyclists, flanked by grey kerbs. Above the red area, there are silhouettes of a pedestrian and a cyclist. The entire structure is supported by grey pillars or walls, suggesting a raised or protected section of the road.</p>

2.1.4 Taka Street project area

As set out in Table 6 below, the proposed works within the Taka Street project area include closure of the existing level crossing and replacement with a new grade-separated road crossing (bridge) across the NIMT. The new bridge will accommodate one vehicle lane in each direction and active mode facilities.

Table 6: Overview of the Taka Street project area

NoR 1 – Taka Street project area	
Key features	
Overview	<ul style="list-style-type: none"> • Construction of an arterial road bridge across the NIMT accommodating two vehicle lanes (one in each direction) and separated active mode facilities. • Construction of arterial road corridors tying into either side of the bridge and existing intersections (east and west of the NIMT). The corridors will accommodate two vehicle lanes (one in each direction) and separated active mode facilities.
Other structures	<ul style="list-style-type: none"> • Retaining/abutment walls
Other road closures / cul-de-sac	<ul style="list-style-type: none"> • Closure of existing Takanini Road (north) to vehicular traffic at the intersection with Taka Street bridge i.e., no through-traffic provision. Replacement with a cul-de-sac and works to tie into the existing corridor of Takanini Road to the south. Active modes connection from Takanini Road to Takaanini Station (under the new Taka Street bridge).
Speed environment	<ul style="list-style-type: none"> • 50km/h

<p>Access lanes</p>	<ul style="list-style-type: none"> • Construction of four access lanes: <ul style="list-style-type: none"> • Construction of a new access lane (cul-de-sac) located west of the NIMT and north of the Taka Street road corridor. It accommodates a footpath on the northern side and bi-directional traffic. The access lane will tie in with the Taka Street corridor and provides access to existing properties to remain and Takaanini Station. • Construction of a new access lane located west of the NIMT and south of the Taka Street road corridor. It accommodates a footpath on the southern side and bi-directional traffic. The access lane will tie in with the Taka Street corridor and provides access to existing properties to remain. • Construction of two access lanes located west of the NIMT (north and south of the Taka Street road corridor and looping under the new Taka Street bridge). They accommodate a footpath on the outer edge and bi-directional traffic. The access lane(s) will tie in with the Taka Street corridor and provides access to existing properties to remain including Takaanini Reserve and Cathay Lane.
<p>Intersections</p>	<ul style="list-style-type: none"> • None
<p>Stormwater infrastructure</p>	<ul style="list-style-type: none"> • Stormwater culvert and associated flood offset storage area. • Kerb and channel along road edge. <p><i>Note: designation has also considered space requirements for future stormwater treatment devices (though subject to future Regional Plan consenting process)</i></p>
<p>Typical cross sections</p>	<p>The image contains two diagrams illustrating typical cross sections of road infrastructure. The top diagram, labeled "TWO LANE ARTERIAL BRIDGE", shows a cross-section with a central two-lane road (yellow with upward and downward arrows), flanked by green bicycle lanes and blue pedestrian lanes. The bottom diagram, labeled "TWO LANE ARTERIAL", shows a similar cross-section but with a central two-lane road (yellow with upward and downward arrows) flanked by green bicycle lanes and blue pedestrian lanes, with trees and additional pedestrian space on the outer edges.</p>

2.2 NoR 2 – Walters Road

2.2.1 Walters Road project area

As set out in Table 7 below, the proposed works within the Walters Road project area include closure of the existing level crossing and replacement with a new grade-separated road crossing (bridge) across the NIMT. The new bridge will accommodate one vehicle lane in each direction and active mode facilities.

Table 7: Overview of Walters Road project area

NoR 2 – Walters Road project area	
Key features	
Overview	<ul style="list-style-type: none"> • Construction of an arterial road bridge across the NIMT accommodating two vehicle lanes (one in each direction) and separated active mode facilities. • Construction of arterial road corridors tying into either side of the bridge and existing intersections (east and west of the NIMT). The corridors will accommodate two vehicle lanes (one in each direction) and separated active mode facilities.
Other structures	<ul style="list-style-type: none"> • Retaining / abutment walls
Other road closures / cul-de-sac	<ul style="list-style-type: none"> • None
Speed environment	<ul style="list-style-type: none"> • 50km/h

<p>Access lanes</p>	<ul style="list-style-type: none"> Construction of two access lanes located west of the NIMT (north and south of the Walters Road corridor and looping under the new Walters Road bridge). They accommodate a footpath on the outer edge and bi-directional traffic. The access lane(s) will tie in with the Walters Road corridor and provide access to remaining properties.
<p>Intersections</p>	<ul style="list-style-type: none"> Upgrade of the existing Arion Road / Walters Road intersection to provide for footpath upgrades and works to tie into existing Arion Road. Upgrade of the existing Braeburn Place / Walters Road intersection to provide for footpath upgrades and works to tie into existing Braeburn Place. Upgrade of the existing Tironui Road / Walters Road intersection to provide for footpath upgrades and works to tie into existing Tironui Road.
<p>Stormwater infrastructure</p>	<ul style="list-style-type: none"> Stormwater culvert. Kerb and channel along road edge. <p><i>Note: NoR has also considered space requirements for future stormwater treatment devices (though subject to future Regional Plan consenting process).</i></p>
<p>Typical cross sections</p>	<p>The image contains two diagrams illustrating typical cross sections for road infrastructure. The top diagram, labeled 'TWO LANE ARTERIAL BRIDGE', shows a cross-section with two lanes for cars (yellow with triangles), two lanes for bicycles (green with bicycle icons), and two lanes for pedestrians (blue with person icons). The bottom diagram, labeled 'TWO LANE ARTERIAL', shows a similar layout but with trees and a central green area between the car lanes.</p>

3 Assessment Methodology

3.1 Preparation for this Report

In preparing this Report, the following information has been reviewed:

- Auckland Unitary Plan: Operative in Part (**AUP-OP**);
- Relevant zoning provisions;
- Plan Change 78; future plan enabled provisions;
- Auckland Transport Design Manual (**TDM**);
- Tuia Pito Ora New Zealand Institute of Landscape Architects (2022) Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines (**Te Tangi a te Manu**);
- Tuia Pito Ora New Zealand Institute of Landscape Architects (2010) Best Practice Guide: Visual Simulations BPG 10.2 NZILA;
- Te Rautaki Ngahere ā-Tāone o Tāmaki Makaurau Auckland's Urban Ngahere (Forest) Strategy
- Papakura Local Board Open Space Network Plan, Auckland Council, September 2019; and
- Papakura Greenways/Local Paths Plan, Auckland Council, 2017.

Engagement with technical experts from within Te Tupu Ngātahi and other external technical specialists has been undertaken. Specifically, the author:

- engaged with project managers, programme managers, transport specialists, ecologist, ArcGIS technicians;
- engaged with Ngā Manawhenua me Te Tupu Ngātahi to gain an understanding of cultural matters of importance;
- undertook a site visit on 30 August 2022 together with the Project team and arboriculture, ecology, transport, planning, engineering and heritage specialists. The purpose of the visit was site familiarisation and to gain a shared understanding of matters of importance from the perspectives of respective specialists; and
- undertook a further site visit on 16 December 2022 to gather additional site information

Engagement with Manawhenua is anticipated by Te Tupu Ngātahi to continue as the Project progresses.

3.2 Assumptions and Limitations

In undertaking this assessment, the following limitations have been encountered and therefore the following assumptions have been made:

- This assessment is based on site visits to publicly accessible locations only, except for one site visit to privately owned land at Takaanini Town Centre. These areas include road corridors (including footpaths) and public parks / reserves.
- Portions of the Project pass through properties currently held in private ownership. Therefore, the assessment of the impacts within or adjoining these private properties rely upon site visits to publicly accessible locations, and information from our own desktop reviews (such as aerial photography).

- Potential viewing audiences both within and outside of the proposed designation boundaries have been considered within this Report. Viewing audiences within designation boundaries who have been considered are those who are transient in nature (passing through the project areas) such as vehicle users or pedestrians.
- It is assumed that fixed viewing audiences in private properties within the proposed designation will not be affected as these properties will be acquired, therefore these viewers have not been considered. The fixed viewing audience is therefore comprised of residential audiences adjacent to the designation interface. Representative viewpoints have been selected to assess effects on these viewing audiences.
- Occupational viewing audiences and visitors to business premises have been considered in this assessment. These viewers will experience the landscape change as part of their short-term daily activities.
- This Report does not provide an assessment of the impacts on Manawhenua cultural concepts or values in relation to landscape, as it is not the place of a landscape architect to speak on behalf of Manawhenua unless specifically designated to do so. Manawhenua knowledge and values have, however, been shared through separate and parallel hui between the Project team and Manawhenua.
- This Report relies on the collective inputs and expertise of a range of disciplines which have informed the considerations and conclusions of this assessment. Inputs include urban design, arboricultural, flood hazards, heritage, ecological and social impact expertise.
- Associative landscape values derive from people's relationships with the landscape, including memory and meaning. A desktop review of the cultural impacts and archaeological assessment reports has been undertaken to inform this assessment.
- The proposed project areas are located within a predominantly urban landscape which will evolve over time and is likely to experience change before the implementation of the Project. The National Policy Statement on Urban Development (**NPS-UD**) enables higher density dwellings within a walkable catchment of rapid transit stops. In the context of this Project, it is anticipated that the following urban intensification will take place in line with proposed Plan Change 78 (**PC78**) to the AUP-OP:
 - Zoning within a walkable catchment of a rapid transit stop in the project areas will enable, at minimum, apartment buildings of six storeys; and
 - Beyond walkable catchments, residential zoning will provide for three dwellings up to three storeys in height (subject to meeting the relevant development standards).

3.3 Methodology

3.3.1 Overview

This LNCVEA has been undertaken using best practice guidance for landscape assessment as set out in Te Tangi a te Manu. Te Tangi a te Manu places emphasis on, and seeks alignment between, te ao Māori and te ao Pākehā concepts of landscape.

Te Tangi a te Manu defines landscape character as comprising each landscape's distinctive combination of physical attributes (e.g. landform and ecological aspects), associative attributes (e.g. heritage and cultural values) and perceptual attributes (e.g. legibility of landcover patterns and aesthetic qualities). Visual effects are included in this assessment as a subset of landscape effects.

Landscape effects have been assessed at two scales. First the broader context has been considered to evaluate the potential for adverse landscape or visual effects within the wider landscape catchment and viewshed. At a closer scale, each of the five project areas were assessed separately in proximity to the Project area boundaries.

Landscape assessment considers the existing and anticipated future character of a landscape and the extent to which a proposal may have adverse or positive effects on this character. Landscape effects result from natural or induced change in the components, character or quality of the landscape. Usually these are the result of landform or vegetation modification or the introduction of new structures, facilities or activities into the landscape.

Natural character, as defined by Te Tangi a te Manu, is the distinct combination of an area's natural characteristics and qualities, including degree of naturalness. Natural character is the outcome of physical environment and perception. The project areas do not contain any natural character features.

Effects arise from change in the values associated with the landscape, not simply as a result of the change itself. Visual impacts are the result of change to the landscape and are a consequence of that change.

3.3.2 Nature of Effects

The degree to which landscape and visual effects are generated by the Project depends on a number of factors, which include:

- The degree to which the Project contrasts or is consistent with the qualities of the surrounding landscape;
- The proportion of the Project that is visible, determined by the observer's position relative to the objects viewed;
- The distance and foreground context within which the Project is viewed;
- The area or extent of visual catchment from which the Project is visible;
- The number of viewers, their location and situation (static or moving) in relation to the view;
- The backdrop and context within which the Project is viewed;
- The predictable and likely known future character of the locality; and
- The quality of the resultant landscape, its aesthetic values and contribution to the wider landscape character to the area.

Change in a landscape does not, of itself, necessarily constitute an adverse landscape or visual effect. Landscape is dynamic and is constantly changing over time in both subtle and more significant transformational ways. These changes are both natural and human induced. Within the context of continual landscape change, it is important to manage human induced change so that significant adverse effects are avoided or sufficiently mitigated to reduce the effects of the change in land use. Landscape and visual effects can also be temporary or permanent, which must be considered when determining the magnitude and nature of such effects.

Effects include positive effects. Consideration is given to enhancements brought about by the Project, such as those achieved through good design, rather than merely minimising adverse effects (which is a baseline).

The landscape and visual effects generated by any particular project can, therefore, be classified as:

- Positive (beneficial), contributing to the visual character and quality of the environment;
- Negative (adverse), detracting from existing character and quality of environment; or
- Neutral (benign), with essentially no effect on existing character or quality of environment.

3.3.3 Scale of Effects

The New Zealand Institute of Landscape Architects recommends the use of a seven-point rating scale as a uniform scale to provide a qualitative measure for the level of effects as described below in Table 8, rather than concluding the level of effects (less than minor, minor or more than minor) which rests with the planner. This scale has been used in determining the level of effects arising from the TLC, the effects scale ranges between 'Very Low' to 'Low' to 'Low-Moderate' to 'Moderate' to 'Moderate-High' to 'High' to 'Very High'.

Table 8: Scale of level of effects

Effect Rating	Use and Definition
Very Low (V-L)	Negligible loss of or modification to key elements / features / characteristics of the baseline, i.e., approximating a 'no change' situation and a negligible change in views.
Low (L)	<p>Little material loss of or modification to key elements / features / characteristics. i.e., modification or change is not uncharacteristic or prominent in views and absorbed within the receiving landscape.</p> <p><u>Concise Oxford English Dictionary Definition</u></p> <p>Low: adjective- 1. Below average in amount, extent, or intensity.</p>
Low-Moderate (L-M)	Minor loss of or modification to one or more key elements / features / characteristics, i.e., new elements are not prominent within views or uncharacteristic within the receiving landscape.
Moderate (M)	<p>Partial loss of or modification to key elements / features / characteristics of the baseline, i.e., new elements may be prominent in views but not necessarily uncharacteristic within the receiving landscape.</p> <p><u>Concise Oxford English Dictionary Definition</u></p> <p>Moderate: adjective- average in amount, intensity, quality or degree</p>

Moderate-High (M-H)	Modifications of several key elements / features / characteristics of the baseline, i.e., the pre-development landscape character remains evident but materially changed and prominent in views.
High (H)	Major modification or loss of most key elements / features / characteristics, i.e., little of the pre-development landscape character remains and a major change in views. <u>Concise Oxford English Dictionary Definition</u> High: adjective- Great in amount, value, size, or intensity.
Very High (V-H)	Total loss of key elements / features / characteristics, i.e., amounts to a complete change of landscape character and in views.

3.3.4 Mitigation

In accordance with Te Tangi a te Manu recommendations, for effects that are very low or low, mitigation is generally not required. Mitigation may be required for landscape effects of a low-moderate to moderate rating and are likely to be required for effects of moderate-high to high rating to reduce effects to a lower degree. For effects that are very high, mitigation is unlikely to reduce the level of effect to any discernible degree.

3.3.5 Landscape effects

Landscape effects are derived from changes in the physical landscape, which may give rise to changes in its character and how this is experienced over time. This may in turn affect the values ascribed to the landscape. Potential landscape effects in this assessment relate to the following landscape attributes:

- Landform and Hydrology;
- Vegetation Patterns and Open Space;
- Urban Development and Land Use;
- Aesthetic Qualities including views and visual coherence; and
- Notable amenity trees.

3.3.6 Visual effects

Visual effects are effects on landscape values as experienced in views. They are a technique to help understand landscape effects and are a subset of landscape effects. Visual effects are considered for both temporary (construction effects) and permanent (operational effects) of the Project. Potential effects considered in this assessment relate to the following visual amenity attributes:

- Visual quality and composition (legibility, coherence, setting, scenic quality);
- Visibility (extent of visibility to the project area(s)); and
- Views (viewing audience and views afforded to, from and within the project area(s)).

3.3.7 Natural character effects

Natural character is primarily concerned with the degree to which natural processes, natural patterns and natural elements have undergone human modification. The RMA mandates the preservation of the natural character of the coastal environment, wetlands, lakes and rivers and their margins from inappropriate use and development.

Most landscapes have some of natural character however for this project, natural attributes are generally absent from the project areas.

3.3.8 Associative landscape effects

Associative landscape values relate to the memory and meaning of landscapes that people have relationships with. Understanding associative values requires engagement with Manawhenua and with people who have contemporary associations with the landscape.

For this Project, engagement with Manawhenua is ongoing through Te Tupu Ngātahi and relevant considerations have been taken into account in the preparation of this LNCVEA. Desktop evaluation of the cultural impacts and archaeological assessment reports prepared for TLC have been undertaken to inform this assessment.

For cultural landscape values, Te Tangi a te Manu goes further to promote integration of Te Ao Māori – our unique indigenous worldview, as a keystone of Aotearoa landscape assessment practice. As set out in Section 3.2 of this Report, it is not, the role of the Landscape Architect to determine these values. Accordingly, this LNCVEA does not specifically address Manawhenua values.

3.3.9 Construction and operational effects

Effects are assessed in two phases, construction effects and operational effects. Construction effects relate to the construction period, with effects generally being temporary in nature. They relate to the works required to build the Project and generally involve machinery and activities required to enable the Project to be built. The emphasis on construction effects is on avoiding mitigating and remedying the effects that impact on landscape character, including those relating to the visual (perceptual) effects on viewing audiences.

Operational effects relate to the permanent effects once construction is completed. Residual effects relate to the environmental effects predicted to remain after actions to avoid, remedy or mitigate adverse effects where practicable.

4 Existing and Likely Landscape Environment

The AEE outlines the key attributes of the existing and likely future environment of the Project across each of the five project areas. Each section is described in the AEE under key features of:

- Current land use;
- Community and recreation facilities;
- Watercourses;
- Vegetation and recreational facilities;
- Historic heritage and archaeological values;
- Existing designations;
- Current zoning;
- Precincts;
- Other non-statutory features; and
- Likely future zoning.

The existing and likely landscape environment is discussed further in the following sections.

4.1 Statutory Context

4.1.1 RMA

The preservation of natural character is a matter of national importance under the RMA per section 6(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”

No parts of the project areas are contained within the coastal environment. There are also no wetlands, lakes or rivers identified within the project areas.

Section 6(b) requires the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development as a matter of national importance,

“The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development”

No parts of project areas are identified as an Outstanding Natural Landscape (**ONL**) or Outstanding Natural Features (**ONF**) within the AUP-OP. It is also considered that following a more detailed reassessment, the study area would not reach the high degree of naturalness to be considered outstanding. There are therefore no matters of national importance relating to landscape matters within the project areas.

Section 7 of the RMA concerns ‘other matters’ relating to managing the use, development and protection of natural and physical resources. In terms of landscape and visual considerations, particular regard must be had to section 7(c):

“The maintenance and enhancement of amenity values, as well as Section 7(f) the maintenance and enhancement of the quality of the environment.

Section 7 matters are addressed in the remainder of this Report.

4.1.2 National Policy Statement on Urban Development 2020

In addition to the purpose and principles set out in Part 2 of the RMA, national policy statements contain matters of national importance. Of relevance to the TLC is the NPS-UD and the objectives and policies it sets out.

The NPS-UD is intended to set the direction for planning decisions to enable well-functioning urban environments, and in particular to provide for the changes in amenity values over time in response to the diverse and changing needs of people, communities, and future generations. The NPS-UD acknowledges that amenity values change over time, and that while planned urban built form may detract from amenity values appreciated by some to enable greater housing densities and types, these changes are not, of themselves, an adverse effect.

4.2 Existing landscape

4.2.1 Wider landscape context

The physical landscape of the wider Papakura area within which the Project is situated is derived from the volcanic and uplift processes on the north edge of the South Auckland Volcanic Field, the physical constraints provided by the Hunua foothills and the Manukau Harbour edge. The foothills of the Hunua Ranges on the northern edge of the South Auckland Volcanic Field provide the backdrop to Takaanini. The main spine of the Hunua Ranges lies further to the east between Mangatangi, and Kawakawa Bay. The foothills are of volcanic origin comprising lithic volcanoclastic sandstone and argillite from the Waipapa Group, and alternating sandstone and mudstone with varying volcanic content from the Warkworth sub-group. This part of the Auckland Volcanic Field is formed with material from the Kerikeri Volcanic Group. Geologic origin has had a strong influence on topography, streams and natural vegetation cover.

The flats between the Hunua Ranges and the coastal Pahurehure Inlet are fan deposits of undifferentiated colluvium and alluvium: formed predominantly by alluvial deposition processes of local streams.

The lower edge of the Hunua Ranges defines a change in landscape character. A distinctive east-west transect of diminishing naturalness is evident, between the forested Hunua Ranges backdrop to the east, to the disbursed pattern of lifestyle blocks occupying the foothills and uplands, to the heavily settled and urbanised flats of the Takaanini urban area (within which the project areas are set), to the coastal edge of the Manukau Harbour at the Pahurehure Inlet.

While the underlying geological and hydrological patterns and processes are evident in the wider landscape, the natural character of this landscape has been diminished due to the loss of native vegetation cover. There is now very little (approximately 3%) native vegetation remaining¹ throughout the Papakura area. Native vegetation has been replaced by pastureland in the rural landscape, with the remaining native vegetation generally occupying only steep-sided gullies.

¹ Papakura Local Board Open Space Network Plan, Auckland Council, September 2019

4.2.2 Local landscape

At a local scale, human settlement and urban development contribute most predominantly to landscape character. The prevailing suburban settlement pattern comprises residential housing, industry, commerce, and community uses such as schools, early childhood education facilities and churches. Transport infrastructure and the movement of vehicles on these routes - especially the NIMT, State Highway 1 (**SH1**) and Great South Road have a strong influence on the landscape character of the project areas.

4.2.3 Hydrology

Streams within the wider Takaanini landscape generally originate in the Hunua foothills and flow to the southern reaches of Pahurehure Inlet. However, it is noted that the Papakura Stream located north of the Spartan Road project area originates from the Whitford Forest and flows to the Pahurehure Inlet. The hydrological patterns and processes are legible and vivid in the upper catchment headwaters, where stream gullies, tributaries, and associated vegetation form distinctive corridor patterns. In the lower reaches where the streams meet the flood plains, the natural hydrological patterns have been heavily modified through underground piping and channeling as a means of supporting urban development patterns and land uses.

Hydrological patterns and associated riparian margins are not evident within the project areas or local surrounds. Daylighting of water has been introduced in two notable locations – to the north of the Manuia Road project area crossing Hitchcock Road, and to the northeast of Takaanini Town Centre within Arion Road Reserve. Overall, hydrological systems do not contribute to a sense of landscape naturalness.

4.2.4 Vegetation

4.2.4.1 Ecology

4.2.4.2 An Ecological Impact Assessment (**EciA**) report has been prepared to inform the AEE for this Project. The report considers the actual and potential effects associated with the construction and operation of the TLC on the existing and likely future environment as it relates to ecological effects and recommends measures that may be implemented to avoid, remedy and/or mitigate these effects.

4.2.4.3 In terms of landscape values, the ecological assessment considers that the ecological baseline of terrestrial habitats have **Negligible – Low** ecological value. However, there are some native plantings and native treeland present and due to the predominance of native species, the ecological value of this habitat was assessed as **Moderate**.

4.2.4.4 Amenity planting

An arboriculture assessment was undertaken for the Project² which has informed this Report. A total of 45 trees³ are identified as likely requiring removal to enable works within the designation boundaries Overall, this is a low number of trees, which reflects the general lack of tree cover within the designation boundaries and more generally within the surrounding landscape. From a landscape perspective, those trees that do exist therefore have a higher scarcity value meaning that when there

² Takaanini Level Crossings Assessment of Arboricultural Effects, Peers Brown Miller, July 2022

³ It is noted that three of these 45 trees are identified as either pest species or less than 4m in height or 400mm in girth, and can currently be removed as a Permitted activity under the AUP-OP.

are fewer trees within a landscape, those trees have more individual value than when there are more trees located in the landscape.

4.2.5 Land use

The Project areas are concentrated within the Takaanini urban built environment. Land uses comprise a mix of commercial shopping centres, low density housing, light industrial and heavy industrial activities. There are several education centres including schools, early childhood education facilities and training institutes which reflects the young family demographics within the area. Beyond the urban settlement to the northeast and southeast, the land use transitions to peri-urban lifestyle blocks, some of which are in transition to residential subdivisions.

The settlement of Takaanini and its ongoing life and activity is supported by the NIMT, SH1 and the network of local and arterial roads that connect it within the Auckland Region and the rest of the country. These transport routes, their associated infrastructure and vehicle movements have a dominating presence within the local landscape.

4.2.6 Parks and open spaces

Parks and open spaces contribute to the landscape character of urban environments by providing natural character, visual amenity and associative landscape values through the relationships people have with these spaces – particularly through their recreational use of such spaces.

- Some existing parks and open spaces will be impacted by the Project. Any loss of parks and open space is especially important because there are insufficient parks within the local landscape to meet current demand, and certainly not enough to support projected population growth, as defined in the Papakura Local Board Open Space Network Plan, Auckland Council, September 2019; and
- The Papakura Open Space Network Plan⁴ shows the greatest gaps in Neighbourhood and Suburban Parks' provision occurring in the Takaanini North and South Census Area Units within which the project areas are located. Where parks do exist, they are smaller than the 3-10ha standard required to be defined as Suburban Parks but meet the standard 0.3-0.5ha for the Neighbourhood Parks definition. Table 10 provides a list of parks directly impacted by, or near, the designation boundaries.

Furthermore, existing parks are disconnected from each other and do not contribute to a connected green network. The Papakura Greenways/Local Paths Plan⁵ aims to create more greenways connections to:

- improve walking connections;
- improve cycle connections;
- improve recreation opportunities;
- improve ecological opportunities;
- improve community connections; and
- improve access to streams, rivers and the coast.

⁴ Papakura Local Board Open Space Network Plan, Auckland Council, September 2019

⁵ Papakura Greenways/Local Paths Plan, Auckland Council, 2017

The most significant park in the surrounding area is Bruce Pulman Park located to the east of the Walters Road project area. This is a major destination park featuring multi-sport and active recreation facilities.

4.2.7 Cultural Significance

Takaanini is of great cultural significance to successive iwi and hapu who have Manawhenua status in accordance with their tikanga and cultural narrative within this rohe. Manawhenua values are inextricably linked with landscape, including those both seen and unseen. Refer to Associative Landscape Values in Section 3.3.8 of this Report for an explanation of the process being followed to give effect to cultural values.

4.2.8 Natural Character

The project areas and their surrounds possess a very low level of naturalness due to successive settlement and development removing all traces of original surficial features. There are no remnants of naturally occurring native vegetation within the project areas or surrounding built environment. Native planting has been established at Taka Street Reserve and within the Takaanini Town Centre on Walters Road, but these are small patches and overall do not contribute to a sense of naturalness. Refer to Section 4.2.4.4 of this Report for further discussion on Amenity Planting.

As mentioned above in Section 4.1.1 of this Report, the Project is not within the coastal environment and there are no other identified natural character features (i.e., wetlands, lakes rivers) within the project areas.

5 Landscape, natural character and visual amenity effects

The following sections discuss the landscape, natural character, and visual amenity effects of the entire TLC network i.e., the combination of road closures and/or grade separate across the five project areas. The assessment focuses on common or general effects across the Project, but where appropriate, discusses project area specific matters.

5.1 Assessment of construction effects

This section assesses the construction (temporary) effects on landscape values and characteristics arising during the construction phase of the Project. Effects are addressed in terms of the three dimensions of landscape, natural character, and visual values – Refer to 5.1.2 to 5.1.4 below.

Potential construction effects arise from the physical changes to the environment which may change its character and values – for instance, vegetation removal and landform alterations. Effects also arise from the presence of construction activities including machinery and construction compounds and material storage. Visual impacts during construction result from the visibility and visual (aesthetic) quality of the viewing experience. These matters are covered in detail below.

5.1.1 Summary of construction activities

An overview of the Project works is provided in Section 2 of this Report above and summarised as follows:

- Enabling works including the removal of buildings, earth shaping and retaining batters, stormwater control devices, hoardings, construction of alternative access;
- Construction activity areas including site compounds, construction laydown, and construction traffic manoeuvring;
- The construction of bridge and ramp structures across the NIMT;
- Works to tie in with existing roads;
- Batters and / or retaining and associated cut and fill activities; and
- Vegetation removal within the project areas to enable construction.

5.1.2 Landscape effects

The project areas are located within a highly modified urbanised setting within which no highly significant landscape values have been identified. The existing receiving environment is heavily modified and is characterised by urban activity and built form. The future receiving environment, enabled by the NPS-UD, anticipates urban intensification and planned urban built form to enable it - including supporting transport infrastructure. The future anticipated urban landscape is therefore considered to be consistent with the Project.

Trees and open spaces

There are no formal landscape protections within the AUP-OP, except for two listed Notable England Oak trees within the Project area (located at 15 Manuroa Road) and trees located within the road reserve or open space zones which are subject to AUP-OP District Plan controls. It is understood that

a prominent street tree (London Plane) within the road reserve at the intersection of Great South Road and Walters Road is within the designation boundaries but will not require removal for the Project.

There are several mature trees that will be impacted by construction, as described in Table 9 below. Each tree or grouping of trees has been assessed on its own merit from an arboriculture and landscape perspective. The trees all contribute to landscape amenity, and their value is heightened due to the scarcity of trees in the project areas and surrounding landscape. As mature specimens, they provide disproportionately greater benefits to the urban landscape setting including providing shade, heat cooling effects, and extensive root systems that absorb large areas of stormwater.

The value of these trees is, however, limited by the fact that they are all exotic and as such do not contribute to a thriving native urban ngahere. Nor do they form part of a strategically planned green infrastructure network which is identified as a key objective of Auckland Council's Urban Ngahere Strategy.

On balance, the loss of the trees can be mitigated through the establishment of mitigation planting that will contribute to improved urban amenity, biodiversity net gain, connected ngahere and sense of place.

Table 9: Important landscape amenity trees within the designation boundaries

Ref.	Location	Comments
Manuroa Road	15 Manuroa Road	Two large Notable English Oak trees (AUP ID 2265) provide a high level of landscape amenity to an area otherwise devoid of trees. Removal of these trees will create an adverse effect on landscape amenity during construction and prior to mitigation / replacement planting.
Takaanini Reserve	24 Taka Street; Lot 12 DP 9255	A mixed group of mature exotic amenity trees provide a high level of landscape amenity together with the open grass setting and stands of exotic trees further into the reserve. Loss of these trees will create an adverse effect on landscape amenity during construction and prior to mitigation / replacement planting.
Walters Road	Arion Road Reserve	Fifteen (15) Sweet Gum (<i>Liquidambar styraciflua</i>) trees are growing within road reserve to the east of Arion Road. These trees contribute to landscape amenity within Walters Road. Loss of these trees will create an adverse effect on landscape amenity during construction and prior to mitigation / replacement planting.

Five parks and open spaces have been assessed as being impacted by construction works as described in Table 10 below. These spaces provide amenity for the community as places of respite and recreation activity. They are important as small green islands within a heavily developed built environment, where use and enjoyment of the landscape setting is experienced. Temporary effects will arise from the introduction of construction materials, elements and activities that will disrupt access to, and the use and enjoyment of these spaces.

Table 10: Important public open spaces impacted by the designation

Ref.	Location	Comments	Within Project areas	Proximate to Project areas
Takaanini Reserve	24 Taka Street; Lot 12 DP 9255	<p>1.1 ha reserve running between Taka Street and Station Road. Wide Street frontages. Mature specimen trees and open grassed areas. Recreation facilities include paths, play and youth (skate) facilities. For residents and passers-by, the reserve offers relief from an otherwise predominantly built landscape environment.</p> <p>The designation extends across the Taka Street road frontage. Construction effects will result from proposed structures, activities, machinery, vegetation clearance and earthworks, which will disrupt the relationship between the community and their use and enjoyment of the park and street environment.</p> <p>Mitigation of construction effects will include alternative access being provided to the reserve.</p>	In part	
Takanini Community Hall	8 Takanini Road; Lot 2 DP 111308	<p>0.18ha community reserve with building and surrounding hardstand. Wide street frontage. Access to the site is from Takanini Road.</p> <p>The designation does not extend over the reserve. However, temporary effects on the public use and enjoyment of the reserve may arise from disruption caused by construction activities associated the closure of existing Takanini Road (north), construction of a cul-de-sac on Takanini Road north and works to tie into the existing corridor of Takanini Road to the south.</p>		yes
Takanini Cubs, Scout and Venturers; Open Space – Community reserve	12A Manuroa Road; Lot 19 DP 17332, Lot 10 DP 18590	<p>0.18ha community reserve with Takanini Cubs, Scouts and Venturers building and surrounding hardstand. Poor Street frontage. Extends between Manuia Road and Manuroa Road. Main access to the site is off Manuia Road but with alternative (currently pedestrian) access off Manuroa Road.</p> <p>The designation does not extend to cover this reserve. However temporary effects on the public use and enjoyment of the reserve may arise from disruption caused by construction activities and machinery relating to reconfiguring Manuia Road into an access lane. Access to this open space should be provided for during construction.</p>		yes
Walters Access Way	19R Walters Road; Pt Lot 29 DP 17857	<p>0.56ha reserve extends alongside the rail line between Walters Road and Tironui Station Road West. Open grass strip provides access and minor landscape amenity.</p> <p>The designation extends over the northern end of this open space reserve. Temporary effects on connectivity along this reserve may arise from disruption caused by construction activities and machinery.</p>	In Part	

Ref.	Location	Comments	Within Project areas	Proximate to Project areas
Arion Road Reserve, Walters Road	40R Walters Road; Lot 17 DP 404252	<p>0.25ha road reserve provides stormwater detention and attenuation. Open grassed area with semi-mature amenity trees provides landscape quality to the street environment and is contiguous with a tree row extending west within the road reserve to Porchester Road.</p> <p>The designation extends over the edge of this reserve. Construction effects are assumed to involve the removal of a row of Liquidambar street trees (Group 17, arboriculture report). This row of trees are a local visual amenity asset which also provides ecosystem service benefits as a greenspace asset.</p> <p>These effects are temporary and their loss will be mitigated following construction during which more suitable planting as identified in Auckland Council's Urban Ngahere strategy can be implemented.</p>	In Part	

Overall landscape effects during construction

Construction works will introduce machinery, stored materials, structures, and activities such as demolition of existing buildings, earthworks, and vegetation clearance in a receiving environment that is generally devoid of landscape values and characteristics. There are, however, some landscape values that are assessed as being adversely impacted are areas of parks and open spaces where access will be disrupted temporarily, and the loss of several mature trees.

Overall, given the lack of existing landscape values and characteristics, together with the temporary nature of construction works, the adverse effects on landscape values during construction are assessed as **Low-Moderate Adverse**. Following implementation of mitigation (refer to Section 5.1.6 of this Report) measures, effects will reduce to **Low Adverse**.

5.1.3 Natural landscape effects

The wider landscape context in relation to the project areas possesses a very low level of natural character due to human modification over the past approximately 150 years. Removal of native forest cover and conversion to agrarian pastureland, and subsequent subdivision to lifestyle blocks, has resulted in a landscape that is dominated by human activity.

The Hunua Ranges backdrop possesses a high level of naturalness due to the contiguous forest cover and intact landscape patterns and processes. This backdrop, however, is not visible from within the surrounding context of the project areas and therefore does not contribute to perceived naturalness.

The coastal landscape of the nearby Manukau Harbour including the Pahurehure Inlet is not discernable from this location and therefore does not contribute to perceptions of naturalness.

The immediate context of the project areas is a highly urbanised landscape with very poor natural landscape attributes. Almost all surficial landscape resources have been heavily modified and degraded to enable human settlement and development so that the urban setting today is devoid of any perceived naturalness. Furthermore, given the flat topography and the built-up nature of the urban area, there are no elevated locations from which the Hunua Ranges backdrop are perceived and would otherwise contribute to a sense of connection to the wider landscape.

Other than the small number of singular amenity trees and groupings described in Table 9 above, the area is generally devoid of introduced vegetation, therefore introduced planting does not contribute in any significant way to the level of naturalness of the local area.

Overall Natural Character effects during construction

Overall, the landscape setting is generally devoid of natural landscape attributes and therefore the Project will result in **Very Low Adverse** effects on natural character values during construction. Following implementation of mitigation (refer to Section 5.1.6 of this Report) measures, effects will reduce to **Very Low Adverse**. For effects that are low or very low, mitigation is generally not required. There are, however, opportunities to create improved landscape outcomes because of the Project, which are discussed below in relation to mitigation recommendations.

5.1.4 Visual effects

Visual effects are a component of overall amenity. Visual amenity contributes to peoples' appreciation of the pleasantness and aesthetic coherence of a place. Accordingly, this part of the assessment considers the effects of visual change that the Project would create to the outlook and views of people who make up the identified viewing audience within the wider viewing catchment.

5.1.4.1 Wider viewing catchment

This section addresses visual effects in relation to the wider viewing catchment referred to as the Zone of Theoretical Visibility (**ZTV**). Visual effects relating to specific project areas are covered in Sections 5.1.4– 5.2.3 of this Report respectively.

Representative viewpoints within the wider viewing catchment

Viewshed mapping was undertaken to understand who may potentially be affected by the Project within the wider viewing catchment. Four (4) representative viewpoints were selected (VP1-VP4) along the foothills to the northeast and northwest of Takaanini urban settlement (refer to Appendix A of this Report, Figure LA008 – LA011). These viewpoints were assessed to determine the visibility and visual effects of the proposed interventions at the wider scale.

Additional viewpoints looking to the east (e.g., from properties in Karaka) were not considered necessary for the assessment of effects after initial desktop reviews concluded that the project areas would not result in adverse visual effects at these viewpoints on the following basis:

- Views of the Hunua Ranges are primarily true east to southeast and are not likely to be impeded by the proposed construction activities and infrastructure;
- Intervening landscape features when looking towards the project areas are likely to constrain views; and
- Where infrastructure may be visible, it will likely be viewed in amongst an already urbanised context and will be congruent with the type of development viewed.

The zoning in the area around Karaka was also considered which is Rural (Rural - Coastal Zone and Rural - Mixed Rural Zone). The land area is also subject to development constraints under the National Policy Statement for Highly Productive Land and does not anticipate urbanisation. Therefore, there are limited viewing audiences from this area and local constraints to views.

All four view locations selected were taken from public viewpoints within legal road corridors and represent views commonly experienced by the community. Private residential views are deemed to be represented by these public viewpoints, given that the long distance of residents' views will be like those experienced from public viewpoints.

Photographs taken using a 50mm SLR lens were used to demonstrate the relative visibility of the project areas, existing features and proposed infrastructure, and its relationship with the surrounding landscape and built forms. The selection of the key viewpoints is generally based on the following criteria:

- Views which are commonly experienced by the community from public viewing locations;
- An even spread of representative long-distance views within the visual envelope; and
- Representative viewpoints that consider a human's normal field of vision (i.e. panoramic views).

Some or all five project areas will be visible from the four representative viewpoints as detailed in Table 11: below.

Table 11: Area Reference: Wider Viewing Catchment

Area Reference: Wider Viewing Catchment	
Viewpoint (VP)	Description (view location and view afforded from this location)
VP1	<p>The Taka Street, Manuroa Road and Manuia Road project areas are visible from Redoubt Road when looking southwest at approximately 5.3km from Takaanini Town Centre. The viewing audiences are transient, and the view is fleeting.</p> <p>The view is framed by the surrounding vegetation and topography. The topography consists of a south-facing gully and steep slopes with mixed regenerating vegetation and exotic species. Patches of regenerating native vegetation are visible.</p> <p>In the foreground, Redoubt Road Reservoir can be seen on a flat grassed site. In the midground, disbursed dwellings transition into an urban environment. In the distance there are views of distant farmland, hills and the Manukau Harbour, which provide a backdrop to the urban environment.</p>
VP2	<p>All five project areas are visible from Polo Prince Drive when looking southwest, at approximately 3.8km from Takaanini Town Centre. The viewing audiences are transient, and the view is fleeting.</p> <p>The view is framed by undulating midslopes and residential lifestyle blocks. The vegetation cover consists of rural pasture, prominent exotic forest patches and amenity planting. The vegetation quality is moderate due to a degree of naturalness; however, this has been modified by humans and comprises areas of exotic monoculture.</p> <p>In the foreground, rural pasture is punctuated by post and wire fences, and single-storey residential houses can be seen. In the midground, there are scattered trees intermixed with the settlement infrastructure. In the distance, views of farmland, hills and the Manukau Harbour provide a backdrop to the urban environment.</p>
VP3	<p>All five project areas are visible from Jabal Crescent when looking southwest, at approximately 4.5km from Takaanini Town Centre. The viewing audiences are transient, and the view is fleeting.</p>

Area Reference: Wider Viewing Catchment

	<p>The view is framed by midslopes and residential housing. The vegetation cover consists of an interplay of rural pasture, a scattering of exotic trees and patches of Totara. The overall perception of naturalness is compromised by human modifications.</p> <p>In the foreground, residential lifestyle housing can be seen, transitioning to suburban housing and then urban development in the midground. Distant views are of farmland, hills and the Manukau Harbour, which provide a backdrop to the urban environment.</p>
<p>VP4</p>	<p>All five project areas are visible from Settlement Road when looking northwest at approximately 5.5km from Takaanini Town Centre. The viewing audiences are transient, and the view is fleeting.</p> <p>The view is framed by rolling hillforms and residential housing. The adjacent gullies are covered in native regenerating vegetation. Rural and suburban amenity planting is also evident. Significant mature tree patches can be seen. The overall perception of naturalness is compromised by human modifications.</p> <p>In the foreground, residential lifestyle housing can be seen, transitioning to suburban housing and then urban development in the midground. Distant views are of farmland, hills and the Manukau Harbour, which provide a backdrop to the urban environment.</p>

Assessment of visual effects on the wider viewing catchment during construction

The ZTV analysis shows that distant views of the project areas will not result in adverse visual effects during construction. This is due to a combination of factors including:

- The context within which the infrastructure sits is not a pristine natural landscape.
- Viewing distances at approximately 3 to 5km render the scale of the proposed infrastructure as insignificant in the view;
- Intervening landform and vegetation create localised screening;
- The height of the proposed structures which will be in scale with the existing built form and more especially with the greater bulk and scale of the future plan-enabled up zoning; and
- The proposed structures will sit low in the landscape and will not pierce the skyline from these distant views.

Visual effects on the wider viewing catchment are assessed as being **Very Low Adverse** during construction. Following implementation of mitigation (refer to Section 5.1.6 of this Report) measures, effects will reduce to Very Low Neutral. For effects that are low or very low, mitigation is generally not required.

5.1.4.2 Spartan Road

Representative viewpoints within Spartan Road

To evaluate construction effects on visual landscape values, the following assessment was carried out. This general approach has been applied to all photographs taken for all the project areas.

Two representative viewpoints were selected in relation to the Spartan Road project area (VP5-VP6); one each from the eastern and western sides of the NIMT on Spartan Road within the legal road corridor (refer Appendix A of this Report, Figures LA013 and LA014). These viewpoints were assessed to determine the visibility and visual effects of the proposed interventions in relation to general community perceptions. No viewpoints were selected from private properties.

Photographs taken using a 50mm SLR lens were used to demonstrate the relative visibility of the project areas, existing features and proposed infrastructure, and its relationship with the surrounding landscape and built forms. The selection of the key viewpoints is generally based on the following criteria:

- Views which are commonly experienced by the community from public viewing locations;
- An even spread of representative viewpoints within the visual envelope upon approach to the NIMT;
- The requirement to provide representative viewpoints that consider a human’s normal field of vision (i.e. panoramic views); and
- From locations which represent near-distant views.

The proposed construction activities and elements will be visible from the two representative viewpoints as described in Table 12 below.

Table 12: Area Reference: Spartan Road

Area Reference: Spartan Road	
Viewpoint (VP)	Description (view location and view afforded from this location)
VP05	<p>The Spartan Road project area is visible from Spartan Road when looking west towards the NIMT. Transient viewers will see momentary views while occupational viewers, who mainly consist of employees from surrounding industrial businesses, will have short-term views.</p> <p>The view is framed by the surrounding industrial built form. Due to the urban context, there is no natural land cover. Grassed berms form both sides of the road, with scattered amenity planting and specimen trees located within the boundaries of the surrounding properties. The surrounding urban environment is a mixture of heavy and light industry, resulting in large format buildings with big yards for logistics activities.</p> <p>In the foreground, a chain metal fence borders the adjacent industrial yards in keeping with typical industrial boundary treatments. Driveway crossings intersect the footpath and a grassed berm defines the carriageway edge. Vertical infrastructure associated with the NIMT crosses the road in the foreground and midground. In the distance, the motorway over bridge can be seen. Mature trees are scattered throughout the view.</p>
VP06	<p>The Spartan Road project area is visible from Spartan Road when looking east towards the NIMT. Transient viewers will see momentary views, while the occupational viewers, who mainly consist of employees from surrounding industrial businesses, will have short-term views.</p> <p>The view is framed by the surrounding urban built form and the NIMT. Due to the urban context, there is no natural land cover. Grassed berms form both sides of the road. The surrounding urban environment comprises heavy and light industry with large format buildings and big yards for logistics activities.</p> <p>In the foreground of the viewpoint, Spartan Road congested with vehicles can be seen; this heavy vehicular movement is a reasonably constant feature of the visual setting. Vertical infrastructure associated with the NIMT extends across the view in the foreground and midground. A few mature trees are scattered throughout the view.</p>

Assessment of visual effects during construction

Construction effects on visual landscape values for Spartan Road project area relate to both the presence of construction activities and elements during the temporary construction phase, and the

visual landscape values that are required to be modified to implement the Project. Construction activities and elements will consist of demolition and enabling works, a construction compound, laydowns, construction machinery, earthworks, material storage and vertical elements such as scaffolding needed to build the Project. Introduction of artificial light may be introduced for night works.

Construction activities and elements, while introducing large scale interventions into the landscape setting, will have low adverse effects. This is because the context for the Project is a highly industrialised setting with poor visual amenity. Furthermore, the construction will be viewed within the context of the existing NIMT and road corridor and as such does not occupy a landscape with a high sensitivity to change. For the predominantly occupational and transient viewing audiences, transport infrastructure and large format building masses already dominate the visual landscape. Within this context, construction activities including large machinery and vehicles will be coherent with the prevailing visual landscape quality.

In terms of existing landscape values that will need to be modified to enable construction, the area does not possess noteworthy visual landscape values that would result in adverse effects from construction.

The future plan-enabled environment, through the application of NPS-UD, anticipates greater density which would change the visibility and visual quality of the landscape setting by introducing new intervening built form within views. The construction of the Project will be an appropriate scale to the likely intensified landuse, however there may be a greater number of viewers.

With the above in mind, it is considered that the effects on the aesthetic qualities and visual landscape values will be temporary, i.e. limited to the construction period. For transient viewing audiences, construction will be more fleeting in nature and assimilated into industrial and transport infrastructure that already has a dominating influence within the existing visual landscape. Visual effects for transient viewing audiences will be **Low adverse**. Visual effects for occupational viewing audiences will be **Low-Moderate adverse** before mitigation, reducing to **Low adverse** following mitigation (refer to section 5.1.6 of this Report).

5.1.4.3 Manuia Road

Representative viewpoints within Manuia Road

Two representative viewpoints were selected in relation to the Manuia Road project area (VP7-VP8); one from the corner of Oakleigh Avenue and Hitchcock Road looking southwest, and one from Manuia Road looking northeast (refer Appendix A of this Report, Figures LA015 and LA016). These viewpoints were assessed to determine the visibility and visual effects of the proposed interventions in relation to general community perceptions. No viewpoints were selected from private properties.

The proposed construction activities and elements will be highly visible from the two representative viewpoints as described in Table 13 below.

Table 13: Area Reference: Manuia Road

Area Reference: Manuia Road	
Viewpoint (VP)	Description (view location and view afforded from this location)

Area Reference: Manuia Road

<p>VP07</p>	<p>The Manuia Road project area is visible from the corner of Oakleigh Avenue and Hitchcock Road when looking southwest. The viewing audiences are a mix of transient viewers using the roading network who will experience momentary views, and occupational viewers working in the surrounding Business-Light Industry zone who will experience short-term views.</p> <p>Industrial buildings in the surrounding landscape are low and relatively small in bulk and scale. The southern boundary of the designation adjoins six single storey detached dwellings fronting onto Portrush Lane. Power poles, which extend through the foreground, midground and into the distance, provide vertical scale. A scant number of trees are scattered throughout the view.</p>
<p>VP08</p>	<p>The Manuia Road project area is visible from Manuia Road when looking northeast. The viewing audiences are a mix of occupational viewers from surrounding industrial businesses and residents on the south side of Manuia Road, and transient viewers comprising visitors and employees at the shopping centre on the corner of Manuia Road and Great South Road. The occupational viewers will experience short-term views, while the transient viewers will experience momentary views.</p> <p>The mix of built form surrounding the designation is generally low at a maximum of 2 stories high, and relatively small in bulk and form.</p> <p>There is no vegetation of note that contributes to landscape amenity. Existing vertical infrastructure associated with the NIMT is visible in the mid-ground while a prominent communications tower rises to the northwest.</p>

Assessment of visual effects during construction

Construction effects on visual landscape values for the Manuia Road project area relate to both the presence of construction activities and elements during the temporary construction phase, and the visual landscape values that are required to be modified to implement the Project. Construction activities and elements will consist of demolition and enabling works, construction compounds, laydowns, construction machinery, major earthworks including embankments, material storage and vertical elements such as scaffolding needed to build the Project. Introduction of artificial light may be introduced for night works. The project area does not possess high visual amenity values. Visual effects will result from the large interventions that will be introduced into the landscape temporarily during construction.

Effects for this project area have been assessed based on four quadrants, as set out below. The magnitude and nature of the visual change resulting from construction of the Manuia Road project area will vary for each of the four quadrants due to the variability of the existing receiving environment.

South of the Manuia Road bridge: Adverse visual effects will potentially be high in this quadrant which is surrounded by a residential population (fixed viewing audience), a small shopping centre at the corner of Manuia Road and Great South Road which consists of transient viewers, and those visiting the scout, cubs and venturers hall at the end of Manuia Road who will view the construction works. These viewing audiences will experience close views of the construction with large machinery, earthworks and activity accentuating a change to the existing visual landscape.

northwest and northeast of the Manuia Road bridge: Adverse visual effects will potentially be low-moderate in these quadrants due to the predominant industrial nature of the built environment and generally poor existing visual amenity.

Southeast of the Manuia Road bridge: Adverse visual effects will potentially be high due to the construction activities including machinery, and construction elements such as compounds and storage on the residents on the southern boundary of the designation along Portrush Lane.

The future plan-enabled environment, through the application of PC78 and NPS-UD, anticipates greater density which would change the visibility and visual quality of the landscape setting by introducing new intervening built form within views. The construction of the Project will be an appropriate scale to the likely intensified land-use, however there may be a greater number of viewers.

For transient viewing audiences, construction will be more fleeting in nature and assimilated into transport infrastructure that already has a strong dominating influence within the existing visual landscape. Overall visual effects will be **Low-Moderate Adverse** for this audience.

Overall, the greatest construction effects will be experienced by residents who will perceive the construction activity as a considerable change to the currently available views. Visual effects will be **Moderate Adverse** before mitigation, reducing to **Low-Moderate Adverse** following mitigation (refer to Section 5.1.6 of this Report).

5.1.4.4 Manuroa Road

Representative viewpoints within Manuroa Road

Two representative viewpoints were selected in relation to the Manuroa Road project area; VP9 and VP10 (refer Appendix A of this Report, Figures LA017 and LA018). These viewpoints were assessed to determine the visibility and visual effects of the proposed interventions in relation to general community perceptions. No viewpoints were selected from private properties.

The proposed construction activities and elements will be highly visible from the two representative viewpoints as described in Table 14 below.

Table 14: Area Reference: Manuroa Road

Area Reference: Manuroa Road	
Viewpoint (VP)	Description (view location and view afforded from this location)
VP09	<p>The Manuroa Road project area is visible from the corner of Oakleigh Avenue and Manuroa Road when looking west towards the NIMT. Transient viewers will see fleeting views while occupational and fixed viewers, who consist of employees from surrounding businesses and residents along Manuroa Road respectively, will have short-term and permanent views.</p> <p>The view is framed by single storey residences and businesses such as early childhood education centres on both sides of Manuroa Road. Grassed berms, pedestrian paths, low fences and vehicle crossings border both sides of the road, while amenity planting and specimen trees feature within private properties provide visual relief from the hard urban form.</p> <p>Vertical infrastructure associated with the NIMT crosses the road in the midground. In the distance mature vegetation can be seen.</p>
VP10	<p>The Manuroa Road project area is visible from Manuroa Road looking east towards the NIMT. Transient viewers will see fleeting views while occupational and fixed viewers, who consist of</p>

Area Reference: Manuroa Road

employees from surrounding businesses and residents along Manuroa Road, will have short-term and permanent views, respectively.

The view is framed by single storey residences and businesses such as second-hand car dealers on both sides of Manuroa Road. Grassed berms, pedestrian paths, low fences and vehicle crossings border both sides of the road, while amenity planting and specimen trees feature within private properties and provide visual relief from the hard urban form.

Vertical infrastructure associated with the train line crosses the road in the midground. In the distance mature vegetation can be seen.

Assessment of visual effects during construction

Construction effects on visual landscape values for the Manuroa Road project area relate to both the presence of construction activities and elements during the temporary construction phase, and the visual landscape values that are required to be modified to implement the Project. Construction activities and elements will consist of demolition and enabling works, construction compounds, laydowns, construction machinery, major earthworks including embankments, material storage and vertical elements such as scaffolding needed to build the Project. Introduction of artificial light may be introduced for night works. The Project area does not possess inherently high visual amenity values that would be required to be modified and as such, construction will not have an adverse effect on visual landscape character.

Visual effects will result from the visibility of large interventions that will be introduced temporarily during construction into a residential landscape setting. Viewing audiences include transient, occupational, and residential (fixed) viewers. Residents, who have a higher sensitivity to change due to the fixed nature of their viewing experience, will experience close views of the construction with large machinery, earthworks and activity accentuating a change to the existing visual landscape. Construction effects will, however, be limited in extent to the area near the NIMT and will be viewed in the context of existing rail infrastructure.

The future plan-enabled environment, through the application of PC78 and NPS-UD, anticipates greater density which would change the visibility and visual quality of the landscape setting by introducing new intervening built form within views. The construction of the Project will be an appropriate scale to the likely intensified landuse, however there may be a greater number of viewers.

With the above in mind, construction works will introduce a large visual change for transient viewing audiences; however, the viewing experience will be momentary and will therefore be **Low Adverse** following mitigation.

For residents, construction effects will be **Moderate Adverse** before mitigation. Mitigation measures (refer to section 5.1.6 of this Report) will reduce the magnitude and nature of effects to **Low-Moderate Adverse**.

5.1.4.5 Taka Street

Representative viewpoints within Taka Street

Two representative viewpoints were selected in relation to the Taka Street project area; VP11 and VP12. (refer Appendix A of this Report, Figures LA019 and LA020). These viewpoints were assessed

to determine the visibility and visual effects of the proposed interventions in relation to general community perceptions. No viewpoints were selected from private properties.

The proposed construction works will be highly visible from the two representative viewpoints as described in Table 15 below.

Table 15: Area Reference: Taka Street

Area Reference: Taka Street	
Viewpoint (VP)	Description (view location and view afforded from this location)
VP11	<p>The Taka Street project area is visible from Taka Street when looking west towards the NIMT. Transient viewers will see fleeting views while fixed viewers, who consist of residents from along Taka Street, will have permanent views.</p> <p>The view is framed by single storey residential dwellings. Grassed berms, pedestrian paths, low and high fences and vehicle crossings border both sides of the road, while amenity planting and specimen trees feature within private properties and provide visual relief from the hard urban form.</p> <p>Takaanini Reserve fronts the northern side of Taka Street. The reserve edge features large established trees, smaller native plantings and open grassed areas which collectively contribute visual relief and contribute to an attractive neighbourhood environment.</p> <p>Vertical infrastructure associated with the trainline, and power poles dissect the view in the foreground and midground. In the distance mature vegetation can be seen.</p>
VP12	<p>The Taka Street project area is visible from Taka Street when looking east towards the NIMT. Transient viewers will see fleeting views. Occupational viewers (from the nearby aged care facility, early learning centre, and church) will have short-term views. Fixed viewers, who consist of residents along Taka Street, will have permanent views.</p> <p>The view is framed by single storey residential dwellings. Grassed berms, pedestrian paths, low and fences and vehicle crossings border both sides of the road, while amenity planting and specimen trees feature plentifully within private properties and the road corridor. Mature trees are large in scale when compared to the single storey residential development and as such contribute scale and high landscape amenity to the setting.</p> <p>Vertical infrastructure associated with the train line and power poles dissect the view in the foreground and midground. In the distance, the Takaanini Reserve trees feature prominently.</p>

Assessment of visual effects during construction

Construction effects on visual landscape values for the Taka Street project area relate to both the presence of construction activities and elements during the temporary construction phase, and the visual landscape values that are required to be modified to implement the Project. Construction activities and elements will consist of demolition and enabling works, construction compounds, laydowns, construction machinery, major earthworks including embankments, material storage and vertical elements such as scaffolding needed to build the Project. Introduction of artificial light may be introduced for night works.

In terms of existing visual landscape values, the visual quality of the street environment is homogenous with very few detracting elements. Existing rail infrastructure is relatively recessive and

does not dominate views. Takaanini Reserve and scattered mature trees contribute to an attractive neighbourhood setting.

Viewing audiences include transient, occupational, and residential (fixed) viewers. Visual effects will be greatest for residents of Taka Street and those adjacent to the designation boundary, who will experience close views of the construction with large machinery, earthworks and activity accentuating a large, disruptive change to the existing visual landscape. While it is noted that these changes are temporary in nature, the magnitude of change is assessed as high when compared to the existing receiving environment.

Properties opposite Takaanini Reserve who currently enjoy views of the reserve will be removed as they are within the designation. Therefore, the fixed viewing audience who will be most impacted by construction are the current rear site properties who currently look at the rear of the street front properties. These properties do not currently enjoy a direct view of the reserve. Properties on the north side of the road adjacent to the designation boundary and those fronting onto Takaanini Reserve will also experience views of construction.

For the transient viewing audience, loss of visual amenity provided by Takaanini Reserve fronting onto the street environment will diminish the viewing experience. Views of construction activity will otherwise be momentary.

Any loss of trees and associated green open space at Takaanini Reserve will diminish visual amenity during construction for transient and fixed viewing audiences. This loss cannot be mitigated during construction, but mitigation measures in relation to the loss of trees will take effect following construction and will include establishment of vegetation that will contribute to urban greening outcomes identified in the Urban Ngāhere Strategy and given effect through the Urban Landscape and Design Management Plan (**ULDMP**).

The western end of Taka Street is characterised by non-residential related land uses including a car yard and petrol station. These diverse land use areas are less sensitive to change with viewing audiences comprised of transient and occupational viewers.

Furthermore, the future plan-enabled environment, through the application of PC78 and NPS-UD, anticipates greater density which would change the visibility and visual quality of the landscape setting by introducing new intervening built form within views. The construction of the Project will be of an appropriate scale to the likely intensified landuse, however there may be a greater number of viewers. With the above in mind, the level of effects is assessed as **High Adverse**.

Overall, taking into account the existing sensitive receiving environment, the application of the NPS-UD which is expected to change the visual context to a high density urban setting over time and the temporary nature of construction effects, the level of effects is assessed as **Moderate-High** adverse following implementation of mitigation measures (refer to Section 5.1.6 of this Report).

5.1.4.6 Walters Road

Representative viewpoints within Walters Road

Five representative viewpoints were selected in relation to the Walters Road project area; VP13 - VP17 (refer Appendix A of this Report, Figures LA021- LA025). These viewpoints were assessed to determine the visibility and visual effects of the proposed interventions in relation to general

community perceptions. One viewpoint – VP14 was selected from private property at Takanini Town Centre.

The proposed construction activities and elements will be highly visible from the five representative viewpoints as described in Table 16 below.

Table 16: Area Reference: Walters Road

Area Reference: Walters Road	
Viewpoint (VP)	Description (view location and view afforded from this location)
VP13	<p>The Walters Road project area is visible from the corner of Walters Road and Porchester Road when looking west towards the NIMT. Transient viewers will see fleeting views while fixed and occupational viewers, who consist of residents and employees from businesses along Walters Road, will have permanent and short-term views, respectively.</p> <p>The view is framed by the surrounding urban built form which consists of single storey, detached residential dwellings. A road reserve – Arion Park, is located on the northern side of the street between Arion Road and Porchester Road. Urban exotic trees and grassed open space define the edge of the park and provide visual softening to the road edge.</p> <p>Walters Road occupies the foreground, with adjacent footpaths and berms located on both sides of the road. Power poles provide vertical infrastructure which dissects the view in the foreground and midground. Traffic lights can be seen in the midground. Sparse mature trees can be seen in the distance.</p>
VP14	<p>The Walters Road project area is visible from the upper floor of Takaanini Village Limited building, Takaanini Town Centre, 30 Walters Road, looking south west towards the NIMT where occupational viewers will have short-term views of the Project.</p> <p>The view is framed by the surrounding urban built form and carpark associated with the Takaanini Town Centre. The surrounding urban form consists of single storey, detached residential dwellings, Takaanini Town Centre and light industrial buildings. Specimen trees are prominent in the foreground and screen the town centre carpark, while lightpoles feature strongly in this close view.</p> <p>To the right of the view, one of the buildings within the Takaanini Town Centre can be seen. In the midground, light industrial buildings and transmission towers are prominent.</p> <p>Residential housing occupies the distant view leading up to the skyline which is defined by vegetation. The horizon sits low in this view with a big sky which is pierced by the transmission masts.</p>
VP15	<p>The Walters Road project area is visible from the northern footpath on Walters Road when looking west towards the NIMT. The viewing audience is transient and will experience fleeting views.</p> <p>The view is framed by the surrounding urban built form which consists of single storey, detached residential dwellings. A road reserve – Arion Park, is located on the northern side of the street between Arion Road and Porchester Road. Urban exotic trees and grassed open space define the edge of the park and provide visual softening to the road edge.</p> <p>Walters Road occupies the foreground, with adjacent footpaths and berms located on both sides of the road. Power poles provide vertical infrastructure which dissects the view in the foreground and midground. In the midground, vertical infrastructure associated with</p>

Area Reference: Walters Road	
	the trainline is visible. Also visible in the midground are large lot industrial buildings. In the distance, large mature trees can be seen, along with transmission towers.
VP16	<p>The Walters Road project area is visible from Braeburn Place looking north towards Takaanini Town Centre. The viewing audiences consist of transient viewers who will experience fleeting views and fixed viewers comprising residents living on Braeburn Place, who will have permanent views.</p> <p>The view is directly towards the Takanini Town Centre which features prominently in the mid ground. A grass berm, footpath and road pavement occupy the foreground. The town centre has a high level of visual amenity featuring quality modern architecture and well maintained gardens. Light poles afford a vertical element to this view.</p>
VP17	<p>The Walters Road project area is visible from the junction of Great South Road and Walters Road when looking east towards the NIMT and will be experienced by transient viewers who will see fleeting views.</p> <p>The view is framed by the surrounding light industrial urban built form. Grassed berms are evident on both sides of the road. Amenity plantings and specimen trees are located within the boundaries of the surrounding properties. Overall, the trees are scattered, and the vegetation cover is not intact. The urban surroundings include light industrial and commercial buildings. The land use is highly modified.</p> <p>In the foreground and midground, Walters Road can be seen, with adjacent footpaths and berms located on both sides of the road. Urban exotic trees and amenity planting is located to the left of the view. Towards the right of the view a yard storing boats can be seen. In the distance, there is vertical infrastructure associated with the NIMT, as well as power poles.</p>

Assessment of visual effects during construction

Construction effects on visual landscape values for the Walters Road project area relate to both the presence of construction activities and elements during the temporary construction phase, and the visual landscape values that are required to be modified to implement the Project. Construction activities and elements will consist of demolition and enabling works, construction compounds, laydowns, construction machinery, major earthworks including embankments, material storage and vertical elements such as scaffolding needed to build the Project. Introduction of artificial light may be introduced for night works.

Construction activities will introduce large scale infrastructure works into a receiving environment that is characterised by low-density mixed use activities – including residential, town centre and industrial. The visual context is strongly influenced by Walters Road which carries large volumes of traffic, and large numbers of stationary vehicles queuing to cross the NIMT. Construction works will comprise of large machinery, earthworks, elements and activity accentuating a change to the existing visual landscape. Construction works will be highly visible from both sides of the road and will visually sever existing available views from one side of the road to the other.

The future plan-enabled environment, through the application of MDRS, anticipates greater density which would change the visibility and visual quality of the landscape setting by introducing new intervening built form within views. The construction of the Project will be an appropriate scale to the likely intensified landuse, however there may be a greater number of viewers.

For transient viewers, the construction works will likewise introduce a large visual change in relation to the existing receiving environment, however for these viewers the experience will be momentary and, given the temporary nature of the construction, the level of effects are assessed as **Moderate Adverse**.

For residents, the existing views along the street and perpendicular to the road corridor will be of a **Moderate-High Adverse** nature. Given the temporary nature of the construction and following implementation of mitigation (refer to Section 5.1.6 of this Report) measures, effects will reduce to **Moderate Adverse**.

5.1.5 Recommended measures to avoid, remedy or mitigate construction effects

The mitigation measures for all activities and built elements during construction for all project areas are outlined below. Overall, mitigation measures are not considered necessary to reduce impacts of construction on landscape and natural character values as such values are largely absent. The exception is for the loss of a number of trees and disruption to the park frontage at Takaanini Reserve. Tree loss will be mitigated following construction when planting will be implemented to contribute to key outcomes of increased urban amenity, biodiversity net gain, connected urban ngahere and sense of place. The loss of connection to Takaanini Reserve can be mitigated through the provision of alternative access. Access to the Takanini Cubs, Scouts and Venturers Reserve (off Manuia Road) should also be provided for during construction.

Mitigation of visual effects relates to existing visual landscape values that are required to be modified to implement construction, and the visual impacts of introducing construction activities as a new element into the existing receiving environment. Mitigation takes account of the change that will be experienced relative the existing receiving environment, and the temporary nature of construction. The primary method of mitigating construction effects is through screening construction activities and elements.

An ULDMP is recommended as a condition on the designation.

5.1.5.1 Overall mitigation recommendations include:

- The primary means of mitigating construction effects is through a Construction Environmental Management Plan (**CEMP**);
- Wherever possible, limit the removal of noteworthy trees and provide management of remaining vegetation in accordance with the arborist report;
- Reinstate construction and site compound areas by removing any left-over fill and shaping ground to integrate with surrounding landform;
- Provide hoardings around the boundaries of the site compounds that face onto adjacent landowners and publicly accessible parks and open spaces;
- Where practicable, during construction, install construction hoardings with interpretation panels in selected areas which are in close proximity and visible to the public (e.g. parks and commercial areas with multiple shops), to provide information about the Project and its progress;
- Provide screening hoardings around the boundaries of site compounds that face on to adjacent properties. Screening should be designed to minimise the appearance of bulk and dominance, be aesthetically pleasing and reflect the context it is being introduced in. While screening may introduce a new visual feature adjacent to properties during construction, it will be a temporary

feature and engagement with relevant affected landowners is recommended prior to works commencing to communicate the proposed mitigation and identify any concerns;

- Where practicable, during construction, establish site compound areas adjacent to the NIMT and away from the public road to reduce visual clutter;
- Provide opportunities for Manawhenua and nominated artists to provide visual storytelling on the construction hoardings;
- Where possible, mitigate effects related to lighting during night time works through the use of directional lighting to prevent glare / spill light falling on residential properties;
- Provide access for community to connect to public open spaces and the train station;
- Open spaces adjacent to the designation boundaries should be cordoned off from construction impacts through the use of physical barriers; and
- Provide access corridors for residents to move to and through open spaces adjacent to construction activities to maintain connections through the urban landscape.

5.1.6 Summary of construction effects

In summary, the level of effects anticipated during the construction phase are set out in Table 17 below.

Table 17: Summary of construction effects

			Before mitigation		After mitigation	
Effect		Assessment	Magnitude of effect	Nature of effect	Magnitude of effect	Nature of effect
Landscape		There are very few existing landscape values in the receiving environment that would be adversely affected due to construction works following mitigation.	Low-Moderate	Adverse	Low	Adverse
Natural Landscape		The Project area and surrounding landscape area is generally devoid of natural character attributes that would be adversely affected during the construction phase.	Very Low	Adverse	Very Low	Neutral
Visual amenity	Wider Viewing catchment	Viewers within the wider visual catchment will not experience adverse visual effects during construction due to the long viewing distance, intervening screening and heavily built urban setting within which the construction will be viewed.	Very Low	Adverse	Very Low	Neutral
	Spartan Road	The visual context for the Project is a highly industrialised setting with poor visual amenity. Viewing audiences comprise mostly	Low-Moderate	Adverse	Low	Adverse

			Before mitigation		After mitigation	
		transient and occupational viewers with few fixed viewers. Within this context, construction activities including large machinery and vehicles will be coherent with the prevailing visual landscape quality and will largely be experienced temporarily.				
	Manuia Road	The visual context of the Manuia Road project area is variable and generally poor with a dominance of major transport infrastructure and light industry, with some residential to the northeast and southeast adjacencies. Viewing audiences include transient, occupational, and residential (fixed) viewers. For residential viewers situated adjacent to the northeast designation boundary, construction will be visually dominant and result in adverse visual effects.	Moderate	Adverse	Low-Moderate	Adverse
	Manuroa Road	The visual context of Manuroa Road Project area is generally homogenous and comprises low-rise residential and small businesses, roading and rail infrastructure. Viewing audiences include transient, occupational, and residential (fixed) viewers. Residents have a higher sensitivity to change than transient or occupational viewers due to the fixed nature of their viewing experience. In this context, residents close to the construction zone will experience close views of the construction with large machinery, earthworks and activity. Construction effects will, however, be temporary and limited due to physical extent of works occurring near the NIMT where transport infrastructure already dominates.	Moderate	Adverse	Low-Moderate	Adverse
	Taka Street	Taka Street is a visually homogenous low-rise residential	High	Adverse	Moderate-High	Adverse

		Before mitigation		After mitigation	
	<p>setting featuring an open space reserve with large trees. There are some non-residential uses on the western end of Taka Street. Viewing audiences comprise residential, occupational and transient viewers.</p> <p>Construction works are assessed as initially having high adverse effects on residents of Taka Street and the surrounding housing as viewers will experience a significant change to their existing environment.</p> <p>With appropriate mitigation in place, these effects are assessed as diminishing to moderate-high during the first weeks of construction activity commencing, as they will be experienced temporarily, and the area itself is part of a changing environment.</p>				
Walters Road	<p>The visual context of the Walters Road project area is variable, comprising an industrial/commercial character to the west of Arion Road, and mixed-use including residential to the east. Transport infrastructure, traffic and carparking dominate the mid portion. Viewing audiences comprise residential, occupational, and transient viewers.</p> <p>Construction will introduce large-scale activity and elements into a landscape setting with generally low visual amenity, particularly to the west of Arion Road. Residents in the eastern portion will experience the greatest visual impacts during construction because of their fixed viewing experience.</p>	Moderate-High	Adverse	Moderate	Adverse

5.2 Assessment of operational effects

The following assessment of operational effects considers mitigation measures (as recommended in Section 5.2.4 of this Report) as being fully implemented. It assumes that planting has become fully established (i.e. 5 years growth). Mitigation measures are recommended to take an outcomes-based approach that considers overall improvements to landscape systems and processes, natural character, and visual amenity, rather than a quantitative approach which employs methods such as like-for-like and 2:1 ratios for mitigation planting in most cases. An outcomes-based approach considers the landscape as a connected, living system which the Project has the potential to help restore and is more aligned with current understanding of the role that landscape plays in creating more resilient, climate-adapted cities and settlements.

5.2.1 Landscape effects

The operational phase of the Project will introduce major transport infrastructure into a heavily built existing receiving environment where there are very few landscape values that would be adversely affected, other than the mature trees and open spaces described in Table 9 and Table 10 respectively. Historically, the degradation of the physical landscape resources has resulted from urban development within the project areas and their surrounding context. Consequently, all surficial features of the landscape have been modified. There is no indigenous vegetation cover in the area.

Within this degraded landscape context, effects resulting from the operational phase of the Project are assessed as **Very Low Adverse** taking into account opportunities to create improved landscape outcomes because of the Project. Following implementation of mitigation (refer to Section 5.2.5 of this Report) measures, effects will reduce to **Low Positive**.

5.2.2 Natural landscape effects

The operational phase of the Project will introduce major transport infrastructure into a landscape that possesses no natural landscape values or characteristics. The natural patterns and processes of the landscape systems have been heavily modified to enable existing development of the urban environment. Therefore, there are no adverse effects on natural landscape attributes during the operational phase of the Project.

The effects on Natural Landscape attributes during operation of the Project are assessed as **Very Low Adverse**. Following implementation of mitigation (refer to Section 5.2.5 of this Report) measures, effects will reduce to **Low Positive**.

5.2.3 Visual effects

5.2.3.1 Wider viewing catchment

Refer to Table 11, page 31 for representative viewpoint descriptions.

The ZTV analysis shows that the proposed infrastructure within the project areas will not introduce visually dominant or discordant elements into existing views. This is because the existing context is a heavily built urban landscape setting within which the scale and appearance of the proposed NIMT rail crossing structures will be coherent. Furthermore, anticipated urban intensification enabled through the application of NPS-UD would result in larger and taller buildings in proximity to the Takaanini rail station where the project areas are concentrated. Consequently, the scale and appearance of the proposed infrastructure would be further diminished relative to the anticipated

surrounding built form. Considering all factors that influence the visual quality and visibility of the proposed infrastructure within the wider viewing catchment, visual effects are assessed as **Very Low Neutral**. Following implementation of mitigation (refer to section 5.2.5 of this Report) measures, effects will reduce to **Very Low Neutral**.

5.2.3.2 Spartan Road

Refer to Table 12, page 33 for representative viewpoint descriptions.

During operations, the proposed ramps and bridge crossing will not be inconsistent with the different existing elements in this industrial setting and are coherent with the dominant rail infrastructure and surrounding industrial typologies.

The likely future plan-enabled environment, through the application of NPS-UD, is likely to result in urban intensification. This may increase the number of viewers who will experience the Project from elevated viewing positions within 6+ storey buildings.

The proposed grade separated pedestrian crossing and vehicular crossing closure will offer opportunities to improve landscape amenity when compared with the existing landscape condition which is dominated by hard infrastructure. The removal of NIMT barriers and the lights will simplify and declutter the road environment, while opportunities for softening through the establishment of amenity planting would be created.

Visual effects for occupational and transient viewing audiences within the existing receiving environment will be **Very Low Adverse**. Following implementation of mitigation (refer to Section 5.2.5 of this Report) measures, effects will reduce to **Low Positive**.

5.2.3.3 Manuia Road

Refer to Table 13, page 34 for representative viewpoint descriptions.

For Manuia Road, visual effects on the existing receiving environment will result from the height of the bridge structure and its associated pavement, barriers, light poles and associated light emissions, substructure (including undercroft space), embankments and the retaining abutment walls either side of the NIMT. Close views of the bridge's under-croft space could potentially create an adverse visual effect by creating an un-activated void. The edge treatment of this space will have an important role in assimilating the infrastructure into the surrounding visual landscape.

The future plan-enabled environment, through application of the NPS-UD, is likely to result in urban intensification which is more sympathetic to the scale and type of proposed infrastructure. However, urban intensification may also increase the number of viewers who will experience the Project from elevated viewing positions.

With reference to the quadrants described and used in my assessment of construction effects for this project area, in the southwest quadrant, the proposed bridge alignment through existing industrial development will draw it away from the residential properties and shopping centre. This will result in the infrastructure being more coherently assimilated into its surrounding visual context which is currently dominated by larger building masses and transport routes.

The greatest potential visual effects will be on fixed viewing audiences in the lower southeast quadrant within the existing receiving environment, primarily due to their proximity to the large infrastructure. Existing available views of relatively low built form will be replaced by a large bridge

which has the potential to be visually dominant. Generously proportioned open space and planted buffers between the bridge infrastructure and fixed viewing audiences could introduce a pleasant outlook for affected residents, resulting in potential improved landscape amenity when compared with the current stark urban setting, while mitigating the potential dominance of proposed infrastructure.

For the fixed viewing audience on the western side of Great South Road within the existing receiving environment, the current available views are dominated by a major arterial road with large traffic volumes and light industrial buildings. The visual change will not constitute an adverse visual effect.

Occupational viewers, comprising of workers in the existing light industrial zone and the shopping centre adjacent to Manuia Road, will experience visual change arising from the elevation and large scale of the infrastructure. However, unlike residential viewers, occupational viewers will experience a short-term view and thus the changes will not constitute a permanent change to their viewing experience.

For transient viewing audiences, the visual change is experienced for a short period of time and is momentary. For pedestrians and cyclists moving along the corridor, the infrastructure has the potential to appear visually dominant in relation to the human scale, which can be mitigated through measures set out in Section 5.2.4 of this Report.

Overall, the greatest potential visual effects will be on residents in the adjacent dwellings adjoining and within the immediate vicinity of the project area. Once established and following the implementation of mitigation measures, the Project will become increasingly assimilated into the existing built form. Assimilation will result from the introduction of connected green spaces and urban ngahere, attractive/appealing design of built elements, and creation of human-scaled interfaces into an environment that currently stark and hard in appearance. Furthermore, anticipated future higher urban densities will create a scale in the surrounding built form that is more cohesive with the scale of the Project infrastructure.

Visual effects for the fixed viewing audience will be **Low-Moderate Adverse** before mitigation, reducing to **Low Adverse** following mitigation.

5.2.3.4 Manuroa Road

Refer to Table 14, page 36 for representative viewpoint descriptions.

The operational phase of the Project for Manuroa Road will introduce active modes infrastructure comprising ramps and a bridge crossing over the NIMT. Visual change relative to the current available views will be experienced for fixed viewing audiences (residents) on both sides of Manuroa Road due to the proximity to, elevation and large scale of the infrastructure above the existing built form. The alignment of ramps parallel to the rail line, and the presence of existing NIMT infrastructure will assist with integrating the structures into the existing visual context of the rail corridor.

For transient viewers the current at-grade crossing will be closed and replaced with cul-de-sac heads. Visual amenity within the road corridor will be improved due to the removal of clutter created by the NIMT infrastructure, and soft landscape treatment that will become the visual focus along the road corridor.

The surrounding context of the Project area may experience urban intensification through application of NPS-UD. Higher housing development means there will potentially be more people viewing the

infrastructure from elevated locations. On the other hand, the greater urban height and density would further assimilate the Project infrastructure in scale into the surrounding visual landscape.

Overall, when considering the alignment and scale of the proposed infrastructure within the current and anticipated built form, and the removal of NIMT clutter either side of rail line, visual effects are assessed as **Low Adverse**. Following implementation of mitigation (refer to section 5.2.5 of this Report) measures, effects will reduce to **Very Low Adverse**.

As the effects rating is assessed as Low, mitigation measures are not required in accordance with recommendations of the Te Tangi a te Manu. Even so, there are opportunities to create a more attractive and vibrant street environment in proximity to the proposed infrastructure, through the introduction of planting, green spaces and possibly community recreation opportunities at the cul-de-sac heads.

5.2.3.5 Taka Street

Refer to Table 15: Area Reference: Taka Street page 38 for representative viewpoint descriptions.

Operational effects for the Taka Street project area will result from introducing infrastructure into an existing environment that is largely characterised by a homogenous low density residential street featuring single storey houses and a park with mature trees that add visual amenity to the neighbourhood. The western end of Taka Street is characterised by non-residential related land uses including a car yard and petrol station and is less sensitive to change due to the more diverse range of land uses and the viewing audiences comprising some occupational viewers. The scale of visual effects will be determined by the proposed infrastructure elements, the surrounding context within which they will sit (existing environment vs future urban intensification), and the mitigation measures employed to visually assimilate the infrastructure into the built form.

In terms of the proposed infrastructure elements, there is potential to create shadowing and visual dominance effects due to the scale of infrastructure. Particularly on the south side of the infrastructure, the undercroft spaces may create negative voids at street level and large elements such as sheer walls and pillars may appear visually dominant in relation to the human scale.

Visual effects also relate to the removal of open space and trees at the edge of Takaanini Reserve, which currently offers important visual amenity to the street environment and fixed viewing audiences. Views to the reserve could become dominated by and potentially visually severed by the proposed infrastructure.

Within the existing environment, the fixed viewing audience who will experience the greatest change to available views comprises residents either side of Taka Street. Of these residents, the properties most affected are those opposite Takaanini Reserve who currently enjoy an outlook over the reserve. Houses directly opposite the reserve will, however, be removed as they are within the designation. Therefore, the fixed viewing audience who will be most impacted by the infrastructure in relation to Takaanini Reserve are the current rear site properties who have been looking at the front properties. The available view of these properties will change from the rear of the front houses to the bridge structure.

For pedestrians and cyclists moving along the corridor, the infrastructure has the potential to be visually dominant in relation to the human scale, which can be mitigated through measures set out in Section 5.2.4 of this Report.

The future receiving environment enabled by the NPS-UD anticipates that the residential setting could change to 6 storeys or more apartments due to its proximity to the train station. While not certain, it is reasonable to assume that the closeness of the rail station to Taka Street is likely to catalyse this change to a more intensive urban setting over time. Within this context of the future plan-enabled intensive urban setting, the scale of infrastructure would be visually coherent in scale and is an expected element of the urban setting.

The proposed infrastructure has the potential to be visually integrated into the surrounding context through key mitigation measures set out below. These include the introduction of substantial, well considered urban Ngahere (forest) that supports positive ecological outcomes for the urban landscape systems, improvement of open space connections and amenity levels between Takaanini Reserve and the Takaanini Train Station to facilitate active modes, careful treatments of infrastructure edges to create beneficial human-scaled relationships and spaces, and creation of positive street frontage between Takaanini Reserve and Taka Street.

Trees that will be removed from the reserve frontage can be mitigated through planting that is in keeping with Auckland Council's Urban Ngahere strategy which gives preference to native planting, and species that are resilient to climate change.

Overall, considering the potential for urban intensification and the potential to create high amenity landscape outcomes in relation to the Project, operational effects are assessed as **Moderate Adverse** before mitigation, reducing to **Low-Moderate Adverse** following mitigation.

5.2.3.6 Walters Road

Refer to Table 16, page 40 for representative viewpoint descriptions.

Operational effects for Walters Road will result from introducing major infrastructure into an existing receiving environment that is characterised by low-density mixed-use activities including residential, town centre, industrial and community uses such as training centre and childcare facilities. Walters Road carries large volumes of traffic, and large numbers of stationary vehicles are frequently platooned at the NIMT crossing.

The scale of visual effects will be determined by the proposed infrastructure elements, the surrounding context within which they will sit (existing environment vs future urban intensification), and the mitigation measures employed to visually assimilate the infrastructure into the built form.

In terms of the proposed infrastructure elements, there is potential to create shadowing and visual dominance effects due to the large scale of infrastructure. Particularly on the south side of the infrastructure, the undercroft spaces may create negative voids at street level and the large elements such as sheer walls and pillars could be visually dominant in relation to the human scale.

In terms of the existing receiving environment, the landscape is currently heavily influenced by traffic on Walters Road which has a high adverse effect on the landscape amenity of the streetscape.

Fixed viewing audiences are residents to the east of the NIMT as follows:

- Southern side of Walters Road opposite the Takaanini Town Centre between the NIMT and Braeburn Place. Properties fronting Walters Road will be removed meaning that the new designation interface will be with residences set further back from Walters Road who currently experience the rear of the properties that front onto Walters Road. For these viewers, while the

available views will change, the distance from the proposed infrastructure means that they are less influenced by the scale and height of structures. Furthermore, generous planting as part of mitigation will help buffer visual effects.

- Southern side of Walters Road and Porchester Road. For these residents, the proposed infrastructure will be located close to the front of their properties. The properties closest to Braeburn Place will experience the greatest overshadowing effect due to the ramp rising high in this location and loss of light and sun availability
- Northern side between Arion Reserve and Porchester Road. For these residents, the proposed infrastructure will be located close to the front of their properties. The ramp will not be high in relation to these properties, and sun/light penetration will not be diminished due to the infrastructure.

Occupational viewing audiences are those within Takaanini Town Centre and the businesses located to the south, south-west and northwest of the NIMT will experience views of the proposed infrastructure as short-term views.

Transient viewers made up of those traveling along the road corridors in vehicles will not experience adverse effects resulting from the infrastructure. For pedestrians and cyclists, the infrastructure has the potential to appear visually dominant in relation to the human scale, which can be mitigated through measures set out in Section 5.2.4 of this Report. The future plan-enabled environment, through the application of NPS-UD, anticipates greater density which would change the visibility and visual quality of the landscape setting by introducing new, intervening built form within views. The construction of the Project will be an appropriate scale to the likely intensified land-use, however there may be a greater number of viewers.

Overall, considering the potential for urban intensification and the potential to create high amenity landscape outcomes in relation to the Project, as well as the relatively large number of adjacent properties who will view the infrastructure as occupational (short term) viewers, visual effects are assessed as **Low-Moderate Adverse** before mitigation, reducing to **Low Adverse** following mitigation.

5.2.4 Recommended measures to avoid, remedy or mitigate operational effects

5.2.4.1 Overall mitigation recommendations

Given the level of effects and organic urban development (or change over time) expected in this area, appropriate mitigation measures to landscape effects can be identified in the future through design responses which are generated through the preparation of a ULDMP. Even if intensification anticipated under the NPS-UD and MDRS is not undertaken over the next 15 years as expected or fully realised in Takaanini, the development of a ULDMP enables mitigation to be determined that can appropriately respond to the receiving environment closer to the time of implementation. Specific recommendations for the ULDMP include:

- Adopt an outcomes-based approach to landscape mitigation that considers overall improvements to landscape systems and processes, natural character, and visual amenity;
- Continue to partner with Manawhenua in the ongoing design and implementation of landscape outcomes;

- In discussion with Manawhenua, support outcomes that contribute positively to Te Ao Māori cultural landscape;
- Include a landscape plan within the ULDMP that identifies opportunities to establish contiguous planting within the overall green network;
- Tree management including establishment and maintenance phases, should be undertaken in accordance with the Tree Management Plan (**TMP**) (as per arborist report). Focus on canopy cover as the measure to mitigate vegetation loss rather than a like-for-like approach;
- Develop a landscape management plan that focusses on:
 - Creating an indigenous vegetation palette in favour of indigenous species
 - Selecting trees that are resilient to future predicted climate change
 - Contributing to a connected green infrastructure that enhances ecosystem services
 - Selecting and growing locally provenanced/eco-sourced indigenous species
 - Using street trees to provide shade and soften the visual appearance of infrastructure in the corridor; and,
 - Creating a distinctive planting palette that contributes to the unique signature and identity of the urban landscape.
- Design public access interfaces with bridge / ramp infrastructure to create human-scaled, pleasant walking and stopping areas. Use of shade trees and attractive amenity plantings, generous scales of space, attractive hard landscape features, overhead structures to create human scale, wayfinding, sculpture, and art could be incorporated to contribute to high landscape amenity;
- Provide spaces and furnishings along active mode routes that support respite, comfort, rest and social connections. These spaces could be activated through providing elements such as seating, sculptures, art and play elements;
- Adopt Crime Prevention through Environmental Design (**CPTED**) principles in future design;
- Use non-reflective and recessive colours and materials to prevent visual intrusion of large infrastructure;
- Provide directional downward-focused lighting to avoid light spillage;
- Select locations for hard infrastructure such as transformers that will be visually intrusive;
- Create an attractive and locally relevant suite of fixtures and furnishings to implement consistently across the areas;
- Design structures to contribute positively to visual amenity for nearby residents who will view the structures up close. Consider the form, colour, bulk, textures and finishes to elements to create visual quality and interest. Avoid planting that would struggle and decoration that is not in keeping with the form and function of the structures; and
- Design the bridge undercrofts to consider the following:
 - Opportunities to design the edges and undersides of structures visible at close range to be visually interesting, aesthetically pleasing, contribute to a safe walking environment and assist (rather than obscure) wayfinding;
 - How project users experience and perceive the new structures from shared paths, adjacent public spaces, local roads and private properties. Particularly from existing residential areas around both ends of the undercroft and from the space under the undercroft;
 - Opportunities to use the undercrofts of the bridge to provide informal community recreation spaces or spaces for the community to interact with (i.e., facilities such as a small ball court, sitting area and play elements could be designed into the space, subject to CPTED and contextual considerations);
 - How the undercrofts could be used to support connectivity (i.e., north-south).

- Use of light in the undercroft to enhance the quality, safety and night patronage of the space underneath;
- Use of abstract cultural heritage design and themes that could be appreciated by pedestrians, cyclists and drivers; and
- How the surfaces of the structures, associated elements (i.e. signage, light poles, etc) and their surroundings could be designed to discourage graffiti, be easily maintained and not trap litter.

5.2.4.2 Specific Project Area recommendations include:

There is an opportunity to re-establish natural landscape values and thus contribute to Auckland Council's aspiration for a connected green network and urban ngahere (forest). Given the baseline of the area within the designation and its surrounds as being generally devoid of natural character values, this presents a real opportunity for betterment. Implementation of connected swathes of indigenous planting throughout the project areas will help to restore native biodiversity, landscape amenity, and sense of place. Use of eco-sourced species and a selection of emergent canopy trees will contribute to the identity of the area and overall quality and pleasantness of the urban landscape setting.

In addition to these broad opportunities that apply across each project area, the following specific opportunities to create improved landscape, natural character and visual amenity outcomes have been identified, which may be given effect through the ULDMP.

Wider Viewing Catchment:

- Consideration should be given to the colour and reflectivity of the infrastructure. Use of recessive colours and low-reflectivity materials will ensure that the built structures are nested within the urban form and do not stand out, especially when struck by sunlight.

Spartan Road:

- Explore design options to provide more compact/shorter ramp connections and reduce their overall footprint as far as practicable;
- Design infrastructure to respond sympathetically to the surrounding and plan-enabled urban setting at the time of construction;
- Create positive interfaces with the street level, including opportunities to activate the undercroft space for informal community recreation. Facilities such as a small ball court, sitting area and play elements could be designed into the space, subject to CPTED considerations; and
- Create attractive barriers (hard and soft landscape treatment) at the ends of the cul-de-sacs that connects with open space and vegetation along the NIMT corridor.

Manuia Road:

- Create a generous-scaled planted buffer and activated open space between the infrastructure and residential communities along the south side of the designation;
- Avoid planting the overshadowed spaces of the elevated infrastructure where light and sun will not penetrate. Instead use more mechanical methods of creating high visual amenity including form, colour, bulk, textures and finishes to elements to create visual quality and interest;

- Consider opportunities to be better connect the Takanini Cubs, Scout and Venturers Community Reserve to create positive amenity and address issues of CPTED, lack of connection and wayfinding; and
- Include walls and batters where appropriate to prevent access under the bridge where voids could become unsightly and attract negative behaviour.

Manuroa Road:

- Explore design options to provide more compact/shorter ramp connections and reduce their overall footprint;
- Create positive interfaces with the street level, including opportunities to activate the undercroft for informal community recreation; and
- Create attractive barriers (hard and soft landscape treatment) at the ends of the cul-de-sacs that connects with open space and vegetation along the NIMT corridor.

Taka Street:

- Provide quality open space connections and associated fixtures and furnishings between Takaanini Reserve and Takaanini Train Station. Provide sufficient space to create a generous open space connection that has the qualities of a linear park; and
- Consider the opportunity to create a well-designed and safe portal under the bridge, connecting Takaanini Reserve and the residential community to the south as well as connecting the urban Ngahere along a north-south axis.

Walters Road:

- Reinstate planting along Arion Reserve edge that integrates with the landscape treatments that exist within the adjacent residential development to the north;
- Consider the opportunity to create a well-designed and safe portal under the bridge to improve active modes and urban Ngahere connections between the Takaanini Town Centre and residential housing to the south of Walters Road; and
- Create an open and uncluttered realm around the landmark London Plane on Great South Road so that it can continue to provide a high-quality focal point.

5.2.5 Summary of operational effects and recommendations

In summary, the level of effects anticipated during the operational phase are set out in Table 18 below.

Table 18: Summary of operational effects and recommendations

Effect	Assessment	Before mitigation		After mitigation	
		Magnitude of effect	Nature of effect	Magnitude of effect	Nature of effect
Landscape	<p>There are very few landscape values that would be adversely affected during operational phase and following mitigation.</p> <p>The exception is some trees of note that will be removed, and public open space that will be encroached upon at Takaanini Reserve.</p> <p>Mitigation for the loss of trees will include outcomes-based measures targeted at returning the value that the trees provide to the urban landscape. Alternative access to Takaanini Reserve is recommended to ensure open-space connectivity.</p> <p>Overall improvements from mitigation planting will include enhanced urban amenity, biodiversity net gain, connected urban ngahere and enhanced sense of place, resulting in overall positive effects on the landscape.</p>	Very Low	Adverse	Low	Positive
Natural Landscape	<p>There are negligible natural landscape attributes within the project area and therefore there are negligible adverse effects on natural landscape character during the operational phase of the Project. There are opportunities to improve natural character through mitigation planting resulting in overall positive effects on the landscape.</p>	Very Low	Adverse	Low	Positive
Visual amenity	<p>Wider Viewing catchment</p> <p>The proposed infrastructure will not introduce adverse visual effects within the wider viewing catchment.</p> <p>Visual integration of the infrastructure within the wider catchment will be</p>	Very Low	Adverse	Very Low	Neutral

		Before mitigation		After mitigation	
	achieved through careful selection of non-reflective materials, colours and finishes to blend into the surrounding setting.				
Spartan Road	<p>The proposed ramps and bridge crossing will not be inconsistent with the different elements in this industrial setting and are coherent with the roading infrastructure and surrounding industrial typologies. Mitigation measures will include introducing hard and soft landscape features at the proposed cul-de-sac heads where rail infrastructure currently exists, resulting in positive effects on the visual landscape.</p> <p>Overall, proposed infrastructure can be integrated into the future landscape setting and will result in positive effects on natural landscape values.</p>	Very Low	Adverse	Low	Positive
Manuia Road	<p>Manuia Road proposed infrastructure will result in a significant change to current available views, especially for the residential fixed audience as it will introduce large permanent elevated infrastructure into a predominantly low-rise urban landscape setting. Adverse effects include the potential visual dominance of the large infrastructure.</p>	Low-Moderate	Adverse	Low	Adverse

			Before mitigation		After mitigation	
		<p>Infrastructure can be assimilated into the receiving environment due to the ability to mitigate the scale of the infrastructure with generous and extensive green infrastructure (planting / open spaces) and quality design. Active modes movement will be improved through design.</p> <p>Overall, it is assessed that the proposed infrastructure can be integrated into the future landscape setting.</p>				
	Manuroa Road	<p>The proposed active modes ramps and bridge crossing will not be inconsistent with the different elements of the existing NIMT infrastructure (ie rail arm barriers and fences). Along with the removal of NIMT clutter either side of the rail line the proposed infrastructure will integrate with the landscape context.</p> <p>Overall, it is assessed that the proposed infrastructure can be integrated into the future landscape setting.</p>	Low	Adverse	Very-Low	Adverse
	Taka Street	<p>The proposed infrastructure will introduce large permanent elevated infrastructure into a predominantly residential area with low single storey</p>	Moderate	Adverse	Low-Moderate	Adverse

			Before mitigation		After mitigation	
		<p>homes and where a reserve currently contributes to the neighbourhood amenity.</p> <p>The level of effects are expected to be low-moderate adverse due to the scale of the infrastructure when compared with the existing landscape setting. Adverse effects include the potential visual dominance of the large infrastructure, overshadowing, loss of some trees and restrictions to movement between each side of the street which is currently enjoyed.</p> <p>Mitigation measures will reduce the adverse effects of the permanent infrastructure. There is potential to create high amenity landscape outcomes including connected linear /open spaces between the reserve and rail station, and introduction of natural landscape values through the introduction of planting to mitigate the loss of vegetation at Takaanini Reserve.</p> <p>Overall, it is assessed that the proposed infrastructure can be integrated into the future landscape setting.</p>				
	Walters Road	The proposed infrastructure will	Low-Moderate	Adverse	Low	Adverse

		Before mitigation		After mitigation	
	<p>introduce large permanent elevated infrastructure into a mixed-use area that is generally low-rise. Adverse effects include the potential visual dominance of the infrastructure and restrictions to multi-modal movement across the street. The viewing audience is, however, largely comprised of transient and occupational viewers and as such there is a relatively small number of fixed viewers who will permanently experience the landscape change.</p> <p>Mitigation measures including screening, amenity planting, selection of sympathetic materials and alternative active modes connections will contribute to high amenity outcomes for the Project. Considering that the largest proportion of viewers will experience the infrastructure temporarily it is assessed that, with mitigation, the Project can be integrated into the landscape setting.</p>				

6 Conclusion

Construction effects will predominantly result from visual impacts for fixed viewing audiences near the project areas. There are no adverse effects on natural character. Landscape effects during construction will result from the loss of some mature trees, and public open space at Takaanini Reserve.

Construction effects will arise from construction activities, elements, and structures. The greatest effects will be for fixed residential viewing audiences near the grade-separated bridges at Manuia Road and Taka Street due to the change to current established outlooks for these viewers and the scale of construction. The construction of the grade-separated road bridge at Walters Road - while of a similar scale to Manuia Road and Taka Street, will have lesser construction effects due the viewing audience being mostly occupational (workers and shoppers) and transient viewers. For Spartan Road, construction effects will be low due to the existing industrial setting and lack of fixed viewers. For Manuroa Road, construction effects will be experienced by surrounding fixed residential viewing audiences, however the extent of construction is limited to near the existing transport infrastructure of the NIMT and therefore visual effects will be limited in their extent. Overall, with the implementation of mitigation measures (including screening, design of human-scaled interfaces and landscape connections) and considering the temporary nature of construction works, construction effects are assessed as ranging from Low-Moderate to Moderate-High (as outlined in Section 5.1.6 of this Report).

Operational effects, once the Project is completed and mitigation measures such as extensive plantings have been established, will result in benefits to the receiving environment. When compared with the current landscape, which is generally devoid of natural character and landscape and visual amenity values, the Project will result in improved quality to the built environment though increased vegetation canopy cover and multi-modal connectivity for active modes. The overall effect will be a landscape where nature and people are better connected within the urban environment. Operational effects are assessed as ranging from Very Low to Low-Moderate (as outlined in Section 5.2.5 of this Report).

Positive outcomes for landscape

Overall, the Project provides the following opportunities for positive landscape outcomes:

- A distinctive landscape identity underpinned by the natural patterns and processes that have been lost and may be reintroduced either literally or symbolically;
- A net increase in canopy cover with associated biophysical landscape benefits on Te Taiao/the physical environment from the planting of fill batters, planting in berms, green stormwater infrastructure such as vegetated swales and planted stormwater wetlands;
- The introduction of urban ngahere (forest) along the corridors with associated positive effects on high quality urban landscape amenity and place identity outcomes;
- Improved future landscape resilience in response to predicted climate change (in particular increased temperatures and increased rainfall) through carefully considered selection of plant species and canopy cover net gain;
- Enhanced cultural landscape outcomes through integration of Manawhenua values and narratives that reflect and celebrate te ao Māori;
- Increased connectivity of the open space network within Takaanini in line with the objectives of the Papakura Local Board Open Space Network Plan 2019; and

- Increased walkability and cycle connectivity along the network which contributes to landscape amenity, enjoyment, and pleasantness.

1 Appendix A: Supplementary Maps and Viewpoint Photos