TE TUPU NGĀTAHI
SUPPORTING GROWTH

VOLUME 4

South Frequent Transit Network

Assessment of Landscape and Visuals Effects

October 2023

Version 1.0

WAKA KOTAHI NZ TRANSPORT AGENCY

AT

New Zealand Government

Document Status

Responsibility	Name
Author	Matthew Jones
Reviewer	Simon Button
Approver	Liam Winter

Revision Status

Version	Date	Reason for Issue
1.0	13/10/23	Final for lodgement

Table of Contents

Appendices

Table of Tables

Table of Figures

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
CPTED	Crime Prevention through Environmental Design
FULSS	Future Urban Land Supply Strategy
FUZ	Future Urban Zone
MCA	Multi-Criteria Assessment
MDRS	Medium Density Residential Standards
MHS	Mixed Housing Suburban
MHU	Mixed Housing Urban
NIMT	North Island Main Trunk railway track
NoR	Notice of Requirement
NoR 1	Notice of Requirement 1: Great South Road FTN Upgrade
NoR 2	Notice of Requirement 2: Great South Road Upgrade (Drury section)
NoR 3	Notice of Requirement 3: Takaanini FTN – Weymouth, Alfriston and Great South Road Upgrades
NoR 4	Notice of Requirement 4: Takaanini FTN - Porchester Road and Popes Road Upgrades
NPS:UD	National Policy Statement for Urban Development
PC78	Plan Change 78 to the Auckland Unitary Plan: Operative in Part
RMA	Resource Management Act 1991
SEA	Significant Ecological Area
SH1	State Highway 1
South FTN	South Frequent Transit Network
Te Tupu Ngātahi	Te Tupu Ngātahi Supporting Growth Alliance
the Project	The Four NoRs proposed to authorise transport upgrades along key sections of roads which fall within the South FTN network (subject of this report / application).

Acronym/Term	Description
THAB	Terrace House and Apartment Building zone
TMP	Tree Management Plan
ULDMP	Urban Landscape and Design Management Plan
Waka Kotahi	Waka Kotahi New Zealand Transport Agency

Executive Summary

This report provides a landscape assessment of the four proposed Notices of Requirement (**NoRs / the Project**) sought to enable the South Frequent Transport Network (**South FTN)** which forms part of Te Tupu Ngātahi Supporting Growth Alliance (**Te Tupu Ngātahi**). The assessment methodology is based on, and consistent with Te Tangi A Te Manu Aotearoa New Zealand Landscape Assessment Guidelines, Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. It specifically provides an assessment of the potential landscape character (including natural character) and visual amenity effects associated with the construction and operation of the proposed Project.

Alongside the Takaanini Level Crossings (**TLC**) Project, the South FTN is one of two large-scale, long-term transport interventions proposed for the area of South Auckland between Manukau and Drury as part of Te Tupu Ngātahi. These Projects in turn are part of a wider planned multi-modal transport intended to support growth and enable mode shift in South Auckland. The proposed South FTN comprises four NoRs for the provision of upgrades and improvements of existing roads within existing urban and anticipated future urban environments.

The Project areas where the designations are proposed form part of an existing and emerging urban environment which is anticipated to intensify through the Auckland Unitary Plan: Operative in Part (**AUP:OP**) and proposed Plan Change 78 (**PC78**) provisions. This is anticipated to change the urban character in the area to enable greater density and height of future built form.

An indicative concept design has been undertaken for the respective NoR Projects (which has been used to inform this assessment) with consent based upon designations related to each NoR. The concept design will be refined through future phases of the Project, undertaken within the scope of the designation conditions and future resource consent conditions.

Within this report the potential effects have been assessed at a Project-wide scale, and at a more refined and specific scale related to each NoR. Although there are a range of assessment conclusions reached related to the respective NoRs, the Project will provide visually integrated elements into the urban environment, designed to respond to the existing and anticipated future urban landscape patterns. Although presenting a change to the character (including introducing new infrastructure elements), the Project provides improvements to transport infrastructure and safer movements for vehicles, buses and active modes across the area. The respective NoR Projects will be consistent with the anticipated urban landscape character and will be supported by the mitigation measures proposed which are to be implemented through an Urban and Landscape Design Management Plan (**ULDMP**).

Mitigation measures include: (i) providing an outcomes-based approach to landscape mitigation that considers overall improvements to this urban landscape (including biophysical systems and processes), and enhances visual amenity, (ii) an integrated response to the existing and emerging urban patterns and development at the localised scale and across the wider South FTN area, (iii) managing and limiting the extent of earthworks required, (iv) vegetation and tree management, and (v) the protection of open space and amenity values.

The table below provides a summary of the potential landscape character and visual amenity effects ratings (i) overall, and (ii) for the respective NoR Projects during both the construction and operational phases (including the recommended mitigation measures).

Whilst an overall project level of effect has been identified, it should not detract from the importance of the individual effects on landscape character and visual amenity (at both construction and operational phases) identified for each NoR. The outline of individual effects for each NoR have been provided, consistent with the approach and intent of Te Tangi A Te Manu Aotearoa New Zealand Landscape Assessment Guidelines, Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. As such, overall project effects are provided as a summary only.

Summary of potential landscape character and visual amenity effects relative to the specific NoRs for the FTN.

NoR	Corridor	Construction Phase		Operational Phase	
Overall Project	*N/A*	*Landscape Character*	***Moderate***	*Landscape Character*	***Low***
		Visual Amenity	***Moderate***	*Visual Amenity*	***Low***
NoR 1	*Great South Road Intersections*	*Landscape Character*	***Moderate***	*Landscape Character*	***Low***
		Visual Amenity	***Low – Moderate***	*Visual Amenity*	***Low***
NoR 2	*Great South Road (Drury Section)*	*Landscape Character*	***Moderate***	*Landscape Character*	***Low***
		Visual Amenity	***Low – Moderate***	*Visual Amenity*	***Low***
NoR 3	*Alfriston Road*	*Landscape Character*	***Moderate – High***	*Landscape Character*	***Low – Moderate***
		Visual Amenity	***Moderate***	*Visual Amenity*	***Low***
NoR 4	*Porchester Road / Popes Road*	*Landscape Character*	***Low – Moderate***	*Landscape Character*	***Very Low***
		Visual Amenity	***Low***	*Visual Amenity*	***Very Low***

1 Introduction

1.1 Purpose and scope of this report

This Landscape Assessment report has been prepared to inform the Assessment of Effects on the Environment (**AEE**) for Notices of Requirement (**NoR**) being sought by Auckland Transport (**AT**) for the South Frequent Transit Network (**South FTN**) under the Resource Management Act 1991 (**RMA**). Four NoRs are proposed to authorise transport upgrades along key sections of roads which fall within the South FTN network. The transport upgrades authorised by the NoRs are referred to in this report as the **Project.**

Specifically, this report considers the actual and potential effects associated with the construction and operation of the Project on the existing and likely future environment as it relates to Landscape Assessment 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 Project. The AEE also contains a detailed description of works to be authorised within the 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 assessment of Landscape Assessment effects. 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

In order to provide a clear assessment of the NoRs, this report follows as appropriate, the structure set out in the AEE. This report contains an assessment of the actual and potential effects of the Project as a whole (the four NoRs) / localised areas within the wider extent). Where appropriate, measures to avoid, remedy or mitigate effects are recommended. The sections of this report are arranged accordingly. Table 1-1 below provides an overview of the report structure and where the description of effects can be found in this report.

The report follows a nested structure:

- Part A covers assessment of the Project as a whole; and
- Part B covers assessment of each of the four proposed NoRs.

Table 1-1: Report Structure

Report Part #	Report Section #	Extent Assessed (Route and/or NoR)
A	4	Whole of Project
B	5.1	NoR 1 – Great South Road FTN Upgrade
	5.2	NoR 2 – Great South Road Upgrade (Drury section)
	5.3	NoR 3 – Weymouth Road, Alfriston Road and Great South Road Upgrades
	5.4	NoR 4 – Porchester Road and Popes Road Upgrades

2 Project Description

2.1 Context – South FTN network

As described further in the AEE, the South FTN is one of the transport works packages proposed for South Auckland between Manukau and Drury as part of Te Tupu Ngātahi.[1]The South FTN is in turn part of a wider planned multi-modal transport network intended to support growth and enable mode shift in South Auckland.

The South FTN comprises a range of road upgrades including bus priority measures, new and upgraded active mode facilities, and intersection improvements along existing arterial road corridors in South Auckland. In particular, the proposed road upgrades provide for:

- Operation of high-quality FTN[2] bus services along Great South Road between Manukau and Drury (the Great South Road FTN route);
- Operation of high-quality FTN bus services along existing roads between Manurewa, Takaanini, and Papakura (the Takaanini FTN route); and
- Urbanisation of adjoining key connections to FTN routes – Popes Road West, and the Drury section of Great South Road between Waihoehoe Road and State Highway 1 (**SH1**).

The total extent of the South FTN network is shown in Figure 2-1.

2.2 The NoRs – proposed spatial extent

Of the full South FTN network extent shown in Figure 2-1, only a portion falls within the NoRs/Project (see Figure 2-2). This is because the proposed corridor upgrades do not always require additional land take, can be undertaken within the existing road reserve, and therefore do not require new designations.[3]

Accordingly, this assessment is focussed on the activities proposed to be authorised by the four NoRs. The NoRs seek generally to provide for road widening to accommodate bus priority measures, walking, and cycling facilities, key intersection upgrades, replacement of existing bridges and other associated works. These are described in more detail in Table 2-1, and the extents are shown in Figure 2-2.

Further detail on the proposed activities and works in each NoR are provided in the AEE.

Table 2-1: South FTN – Summary of NoRs

NoR reference	Project component	Description
NoR 1	Great South Road FTN Upgrade	• Road upgrades and transport upgrades providing for the Great South Road FTN route along Great South Road between Manukau and Drury. • NoR comprises eight separate areas along Great South Road (see Figure 2-2) providing for bus priority measures, walking and cycling facilities, key

[1] The Programme is a collaboration between Auckland Transport (**AT**) and Waka Kotahi NZ Transport Agency (**Waka Kotahi**) to investigate, plan, and undertake route protection for the strategic transport networks needed to support Auckland's growth over the next 30 years.
[2] FTN services are defined in AT's Regional Public Transport Plan (**RPTP**) as bus routes operating at least every 15 minutes between 7am-7pm, 7 days-a-week, often supported by priority measures such as bus or transit lanes.
[3] Some limited additional third-party land may be required in the future to provide for intersection upgrades between Takaanini and Ōpaheke. The relative cost-benefit assessment of these areas did not favour route protection at this time given the projected time scale for future urban growth in this area.

NoR reference	Project component	Description
		intersection upgrades, replacement of the existing Otūwairoa / Slippery Creek bridge, and stormwater management devices.
NoR 2	Great South Road Upgrade (Drury section)	• Road upgrades and transport upgrades providing for upgrade of a 520m section of Great South Road in Drury between Waihoehoe Road and the SH1 Drury Interchange. • NoR enables road widening to provide for four lanes, active mode facilities, replacement of the existing Hingaia Stream bridge, and stormwater management devices.
NoR 3	Takaanini FTN – Weymouth Road, Alfriston Road and Great South Road Upgrades	• Road upgrades and transport upgrades providing for the Takaanini FTN route along Weymouth and Alfriston Roads between Selwyn Road and Saralee Drive; and for an adjoining section of the Great South Road FTN route between Halver Road and Myers Road. • NoR enables road widening to accommodate bus priority measures, walking and cycling facilities, key intersection upgrades, replacement of existing bridges along Weymouth Road over the North Island Main Trunk (**NIMT**) and Alfriston Road over SH1, and stormwater management devices.
NoR 4	Takaanini FTN – Porchester Road and Popes Road Upgrades	• Road upgrades and transport upgrades providing for the Takaanini FTN route along Porchester Road generally between Alfriston Road and Walters Road; and for the urbanisation of Popes Road generally between Takanini School Road and Porchester Road. • NoRs provide for urbanisation of both corridors – two traffic lanes, walking and cycling facilities, key intersection upgrades, and stormwater management devices.

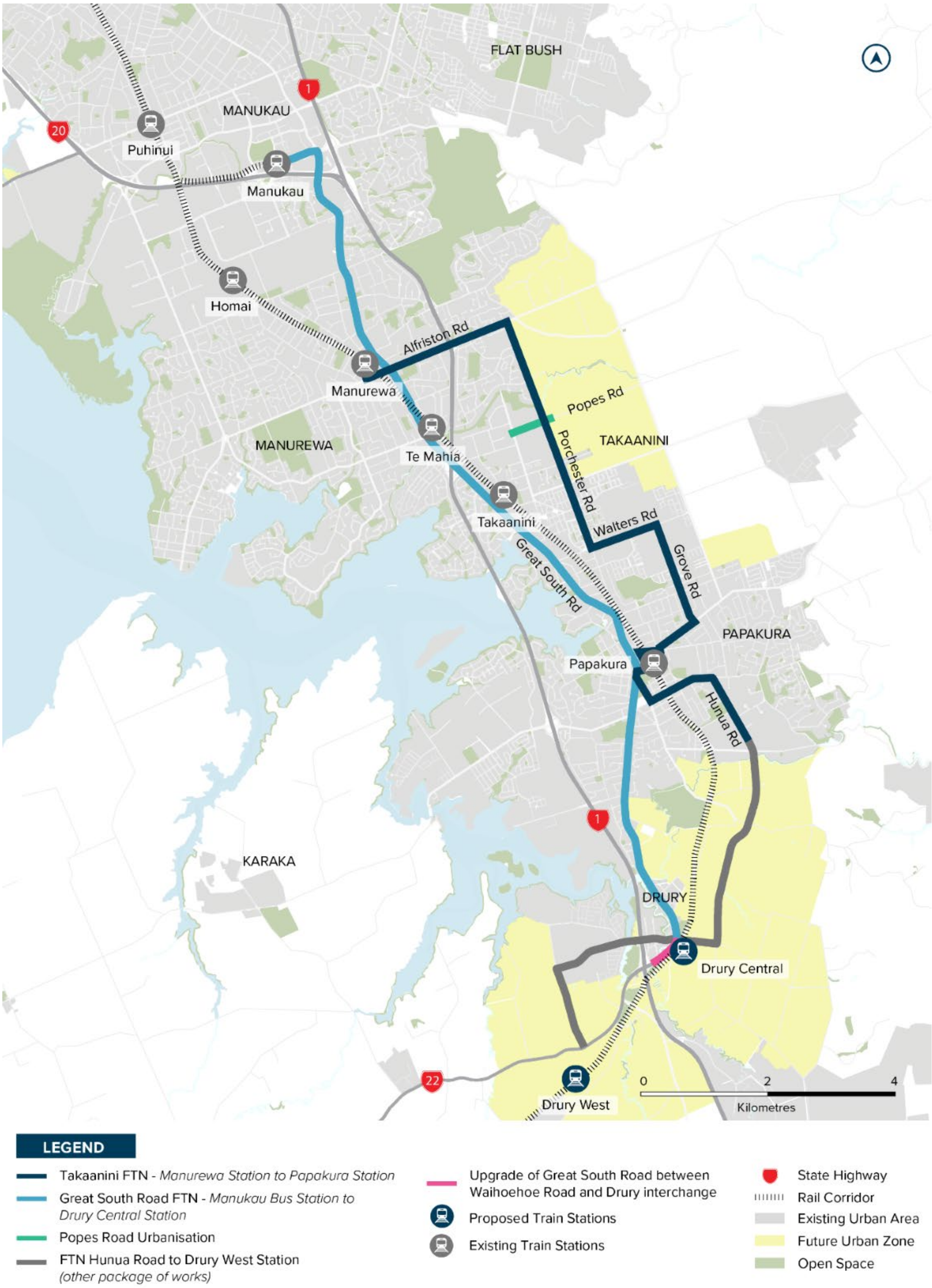

Figure 2-1: South FTN – overall Project extent

Figure 2-2: South FTN – proposed NoRs

3 Assessment methodology and parameters

This methodology section sets out the process that has been undertaken and the key matters which have been taken into consideration to assess the relevant landscape character and visual amenity effects of the FTN on the receiving environment. A detailed description of the work undertaken is contained under the relevant headings throughout this report.

The FTN alignment has been developed to a concept design level for designation which is what is assessed. As it moves through the detailed design process and as construction methodology is confirmed, it is likely that some details will change, but will remain within the designation and envelope of effects assessed in this report. All figures and dimensions provided are approximate and will be confirmed during the detailed design stage.

The FTN alignment includes four NoRs, as outlined within Section 2 above. This report provides a description of the existing environment and landscape setting, and an assessment of the common landscape character and visual amenity effects (across all NoRs) and then on each individual NoR.

The assessment methodology is based on, and consistent with Te Tangi A Te Manu Aotearoa New Zealand Landscape Assessment Guidelines, Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. This assessment has also been prepared with consideration given to the following guidelines and documents:

Waka Kotahi

- Bridging the Gap: NZTA Urban Design Guidelines (2013);
- Landscape and Visual Assessment Guidelines (2013); and
- Bridge Manual (2013).

Auckland Council

- AUP:OP;
- PC78 and the future plan enabled provisions related to urban intensification;
- Auckland’s Urban Ngahere (Forest) Strategy (2019);
- Manurewa Urban Ngahere Action Plan (2022);
- Papakura Urban Ngahere Action Plan (2022);
- Manurewa Local Board Open Space Network Plan, Auckland Council, August 2018;
- Papakura Local Board Open Space Network Plan, Auckland Council, September 2019; and
- Papakura Greenways / Local Paths Plan, Auckland Council, 2017.

3.1 Preparation for this report

Work undertaken for the preparation of this report commenced in June 2023. In summary, this work has included:

- Review of the ‘South FTN Project: AEE Specialist Briefing Pack’ prepared by Te Tupu Ngātahi Supporting Growth Alliance (dated June 2023) (**Te Tupu Ngātahi**) to understand the Project details and proposal;
- Review of the project concept designs and Te Tupu Ngātahi GIS viewer;
- A review of the relevant statutory provisions of the Project and the zoning (and future zoning) in the surrounding context;

- A review of the other data provided via Te Tupu Ngātahi GIS portal, such as land uses and AUP:OP zones, topography, hydrology, vegetation patterns, natural resources and natural heritage layers and aerial photography;
- A preliminary site visit on 17 July 2023 with the Project Team; and
- A more focused and detailed site visit undertaken on 22 September 2023 to further understand the receiving environment and to capture site photography.

For clarity, the author has not been involved with the options assessment process (Multi Criteria Analysis (**MCA**)) used to inform the preferred transport corridor alignment, attendance or input into design workshops to refine the respective designs, or attendance at or consultation with, Manawhenua.

Alongside the preparation of this assessment, the author has reviewed the following documents:

- Construction Method Statement;
- Revisions of concept design drawings; and
- Other Technical Assessments, including:
    - Arboriculture Assessment;
    - Ecological Assessment; and
    - Urban Design Assessment.

This assessment relates to landscape character (including natural character where relevant) and visual amenity matters. Where other matters or expertise have been relied upon, these have been referenced or stated within the assessment with the information available at the time of issue.

3.2 Methodology

3.2.1 Assessment Approach

The following methodology has been used to identify and assess the landscape values of the localised and wider context of the subject area and the FTN's potential effects on those values:

- A desktop review of the location and alignment of the respective projects associated with the FTN;
- A desktop review of relevant statutory and non-statutory documents, including the AUP:OP and design frameworks and manuals;
- Site visits to publicly accessible locations during 2023 as outlined above;
- Providing a description of the FTN Project's proposed NoRs (and the individual designation boundaries) as they relate to landscape matters in this environment;
- A description of the existing environment and landscape context of the respective designations. The description includes reference to the existing (current) land uses and the urban settings (where relevant);
- An outline of the likely future landscape context along the alignment of the proposed designation boundary for each NoR. The description includes reference to the likely future land uses and the urban setting (where relevant) as anticipated by the AUP:OP and PC78;
- Analysis of the landscape character values of the respective Projects, and the surrounding landscape context;
- Identification and analysis of the visual catchment;
- An assessment of positive effects arising from the NoRs;

- An assessment of the potential landscape character effects (including natural character) and visual amenity effects during the construction period, including any effects on any recognised landscape overlays;
- An assessment of the potential landscape character effects (including natural character) and visual amenity effects during operation, including any effects on any recognised landscape overlays; and
- Identification of recommended measures to avoid, remedy or mitigate potential effects to form part of the Urban and Landscape Design Management Plan (**ULDMP**) recommended as conditions on the designations.

Particularly relevant to the assessment of these NoRs is their urban context and being within an 'urban landscape'. An urban landscape is a type of landscape which falls within the same *"conceptual framework as all other landscapes"*. Furthermore, *"…'urban landscapes' do not just mean the natural or green parts of cities. Urban landscapes comprise the physical urban environment (its topography, streets, buildings, open spaces, and their related processes and activities), how people perceive it (its legibility, memorability, aesthetics), and what it means (its identity, history, sense of place)".*[4] As such, the assessment of this urban landscape and its attributes and qualities is key to providing a comprehensive and robust approach and evaluation.

3.2.2 Assessment Criteria

The assessment of effects on landscape character and visual amenity within this report refers to a rating scale for the identified landscape value. To be consistent with the ratings of the values described, in relation to potential effects, the same seven-point scale (below) is used to achieve a level of standardisation.[5] Words are used in preference to numbers to reduce the likelihood of using 'scores' in a formulaic way.

Very Low	Low	Low – Moderate	Moderate	Moderate – High	High	Very High

It should be noted that a change in a landscape does not in itself mean that a proposal will result in an adverse effect on the values of that landscape:

> *"Change itself is not an effect: landscapes change constantly. It is the implications of change for a landscape's values that is the effect."*[6]

The nature of effects can be **Adverse** (negative) or **Beneficial** (positive). An assessment of effects combines both value ratings (Very Low – Very High) and nature of effects (Adverse, Positive).

- An adverse effect relates to an activity which results in a reduction in landscape and / or visual amenity values; and
- A positive effect relates to an activity which enhances landscape and / or visual amenity values through restoration and / or provision of positive elements or features.

Where a proposal will result in a change, but that change will have no effect on the characteristics or values of a particular landscape or view, a nature of effect rating of '**neutral**' will be provided.

4 Refer Te Tangi a Te Manu, paragraphs 4.46 – 4.48.
5 The scale is symmetrical around 'moderate'. The scale is based on the recommended NZILA Best Practice Guide and is consistent with the *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*, July 2022.
6 Refer Te Tangi a te Manu, paragraph 6.03.

3.2.3 Landscape Character Effects

The methodology for assessing the effects of an activity or development on landscape character requires a four-stage process:

1. Definition of 'landscape';
2. Analysis of landscape characteristics and identification of landscape values;
3. Overall synthesis (or appraisal) of landscape character; and
4. Assessment of effects of an activity or change on those characteristics.

> *'While landscape draws strands from diverse sources (natural sciences, humanities, cultural perspectives), it is perceived and experienced as a unified phenomenon. It is an integrated whole. It is more than a summary of data – the whole is greater than the sum of the parts.*
>
> *The current professional practice of conceptualising 'landscape' as the overlap of its physical, associative, and perceptual dimensions'.* [7]

The three overlapping dimensions of landscape character include:

- **Physical** aspects (its geomorphology, ecological communities and processes) of the site;
- **Perceptual** aspects (the vividness and memorability of the landscape features); and
- **Associative** aspects, including such meanings as the historical and cultural connections of the site.

This report includes an analysis of landscape characteristics and an assessment of physical, perceptual and associative attributes as they relate to the FTN alignment during both construction (temporary) and long-term operational phases. It includes assessment of natural character as related to the works proximate to the Otūwairoa and Hingaia streams within NoRs 1 and 2, respectively.

Construction phase: Construction effects are generally considered temporary in duration and dynamic in nature. The construction stage includes impacts on the bio-physical landscape (including removal of vegetation and landform modification), associative aspects, and perceptual components, including visual amenity from public locations and private residences.

Operational phase: Operational effects are also assessed against the same aspects as outlined under construction; however, they are assessed against the completed works of the Project, and include any proposed landscape mitigation measures.

3.2.4 Visual Amenity Effects

Visual effects relate the changes to the landscape values experienced within a view. Visual values are inherently linked to landscape values. The nature of a view depends on how it is perceived and the extent to which it is valued or not.[8]

An assessment of visual effects is provided for both the construction and operation of the designation.

Given that this assessment is based on the Project having a medium-to-long term (10-15+ years) implementation timeframe, it is anticipated that some areas will have changed by the time that the infrastructure is implemented, especially in areas affected by PC78 provisions. The visual assessment of each Project area is therefore an exercise intended to provide an indication of the level of effect

[7] Refer Te Tangi a te Manu, Paragraphs 4.21 – 4.22.
[8] Refer Te Tangi a te Manu, Paragraphs 6.09 (point 2).

based on the likely future environment. Photographs captured during the site visit provide visual representation of the existing environment[9] (at the time of capture) with the likely future environment illustrated within the supporting maps and described within this report.

The visual assessment has been undertaken from locations proximate to the respective Project areas, predominantly within the localised environment along road corridors and evaluating adjacent sites. Visual assessment from the wider context has been considered but has not been specifically assessed. The reason for this is due to the proposal being for improvements to transport infrastructure in an existing modified and a future urban environment. For all of the NoRs and designations, a road reserve (transport corridor) exists, and it is purely a modification and / or enhancement of the infrastructure. From the wider landscape, where a specific Project may be visible it will be viewed in the context of the urban environment where transport infrastructure is expected and it will not be out of context, especially in light of the urban intensification anticipated through the AUP:OP and PC78.

3.2.5 Construction Effects

The assessment of construction effects is based upon an understanding of the required process to implement infrastructure of the type and scale anticipated within the designations. This will likely include, but is not limited to:

- Earthworks manipulation: including site clearance and modification to the existing landscape, and machinery such as excavators, loaders, dozers, graders and scrapers;
- Road creation / widening including machinery such as milling machines, pavers, compactors and rollers;
- Lifting machinery: including machinery such as cranes for bridge construction; and
- Wetland construction: earthworks associated with these elements.

It is assumed that the construction process will be staged between the NoRs seeking to avoid disruption (where possible) to the existing transport network and infrastructure. An indicative construction methodology has been prepared for the Project which are typical methodologies for roading projects and are outlined within the AEE. Once the Project moves through the detailed design stage, a detailed construction methodology for each NoR will be prepared.

3.2.6 Assumptions and Limitations

In preparation of this report, the following assumptions have been made:

- Site visits were undertaken to publicly accessible locations only (no private properties were visited). These locations included within road reserves and public parks / reserves;
- Complementary to the site visits, desktop analysis has supported the assessment which has included review of the information within Te Tupu Ngātahi GIS portal and aerial photography;
- Regarding the visual catchment and visibility of the respective Project areas, the potential viewing audiences both within and outside of the proposed designation boundaries have been considered as part of this assessment;
- Where private properties (commercial or residential) are set to be acquired as a result of a proposed designation, these are assumed to be removed and therefore effects on individuals / visual effects are not assessed. These properties are however assessed as part of how that property may be affected in relation to the potential effects on the urban landscape and patterns;
- This assessment does not specifically address the cultural landscape and any cultural effects. For matters related to the cultural impact assessment, please refer to the AEE document;

[9] Refer **Appendix A** to this report.

- The proposed Project areas are located within an urban landscape which will continue to evolve over time and will experience change before the implementation of the Project within the respective designations. 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 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 (the following railway stations are relevant: Te Mahia, Takaanini and Papakura and Drury);
    - Beyond walkable catchments, residential zoning will provide for three dwellings up to three storey's in height (subject to meeting the relevant development standards); and
    - The proposed Medium Density Residential Standards (**MDRS**) will also affect the potential density enabled in this urban area;
- Earthworks will be limited to within the footprint of the designation;
- The location of the respective designation boundaries sit within modified urban environments (which are subject to planning provisions which enable future intensification). Following evaluation, it was identified that for the majority of the designations the sites do not possess attributes or characteristics which warrant an assessment of natural character. However, natural character assessment has been provided for the proposed bridges over the Otūwairoa and Hingaia streams within designations which form part of NoRs 1 and 2. For the balance of the designation boundaries, any natural character effects are assessed for be nil; and,
- The author and reviewer of this assessment have not been involved in the MCA process to determine the FTN alignment and designation footprints.

3.3 Existing and future environment

The existing and anticipated future environment is further discussed in the accompanying AEE. In summary, the implementation timeframe for the Project has yet to be confirmed but is likely to be in approximately 10-15 years' time subject to funding availability. The assessment considers the effects of the Project at both the existing environment (as it exists today) and the likely future (planned) environment which consider potential urban development and intensification sought under PC78.

The Project will be constructed and will operate in the existing urban environment or planned environment (i.e. what can be built under the existing Auckland Unitary Plan: Operative in Part (**AUP:OP**) live zones):

a) **Existing environment:** The corridors are situated primarily within existing urban areas with live zoning including residential, commercial, and open space zones. There is some Future Urban Zone land in the wider area to the northeast/east. The existing activities within the area are generally reflective of the existing underlying zoning;
b) **Planned environment:** The planned environment is anticipated to remain urban and comprised of similar activities as the existing environment. The density of residential development is however anticipated to change and increase in future. In particular, this includes in the residential zones around Te Mahia and Takaanini stations, in line with the implementation of the NPS:UD in the AUP:OP. The remaining residential areas will experience an uplift of density through the implementation of the Medium Density Residential Standards (**MDRS**) through the Resource Management (Enabling Housing Supply and Other

Matters) Amendment Act 2021. PC78 (notified at the time of assessment) seeks to give effect to the NPS:UD and incorporate the MDRS into residential zoning. It is noted that there are some areas of existing residential zoned land (particularly east of the NIMT) that have recently been intensified (i.e., new builds), as such are unlikely to change in the near future.

The likelihood and magnitude of land use change regarding the land use planning context has been identified in Table 3-1 below. This has been used to inform the assumptions made on the likely future environment.

Table 3-1: South FTN – existing and future environment

Existing environment	Current AUP:OP Zoning	Likelihood of Change for the environment[10]	Magnitude of potential change	Likely Receiving Environment[11]
Residential[12]	Residential (Mixed Housing Suburban)	Low - Moderate[13]	Low - Moderate	Residential
	Residential (Mixed Housing Urban)	Low - Moderate[14]	Low - Moderate	Residential
	Residential (Mixed Housing Suburban and Urban) around train stations	Moderate	Moderate - High	Residential and Commercial/Retail[15]
Business	Business (Heavy Industry)	Low	Low	Business (Industrial)
	Business (Light Industry)	Low	Low	Business (Industrial)
	Business (Neighbourhood Centre)	Low	Low	Business (Neighbourhood Centre)
	Business (Town Centre)	Low	Low	Business (Town Centre)
Open Space	Informal Recreation	Low	Low	Informal Recreation
	Community	Low	Low	Community
Greenfield areas	Future Urban	Low - Moderate	High	Urban

Specific, and relevant to this landscape assessment, the section below provides a description of the existing and future environment from a landscape perspective, outlined features and attributes which provide landscape characteristics and values across each NoR.

[10] Based on AUP:OP zoning/policy direction.
[11] Based on AUP:OP zoning/policy direction.
[12] Based on the NPS:UD and MDRS, these residential areas are likely to experience increased density.
[13] There are areas of existing Residential Zone land that has recently been intensified (i.e. new build developments), as such is unlikely to change in the near future.
[14] There are areas of existing Residential Zone land that has recently been intensified (i.e. new build developments), as such is unlikely to change in the near future.
[15] Note that much of the commercial operations between Manuia Road and Taka Street occur on residentially zoned land.

NoR 1 [16]

The numerous designations associated with NoR 1 span along the existing Great South Road road corridor and in many instances extends into the adjacent properties.

The existing land use and urban pattern of the areas associated with these designations includes a mix of suburban (predominantly one-two storey standalone houses), and business zoned land such as the established Papakura Metropolitan centre, mixed use and light industry zones. The built form associated with the business zones are generally of a scale and density, particularly at Papakura. There are also a number of smaller properties with neighbourhood centre zoning and have a more ‘local shop' typology (e.g. corner dairies, convenience stores). The residential zoned land within or proximate to the NoR 1 designations includes Terrace Housing and Apartment Buildings Zone (**THAB**), Mixed Housing Urban Zone (**MHU**) and Mixed Housing Suburban Zone (**MHS**). Also within / proximate to the NoR1 designations are areas with existing rural land uses, however these are zoned FUZ under the AUP:OP. Future urban intensification associated with the AUP:OP and PC78 will enable greater development potential for many properties across NoR 1. In time, this will change the urban character.

Along the route there are number of public open spaces proximate or within the designations which include:

- Anderson Park on Great South Road (NoR 1);
- Central Park Reserve and the Central Park Cenotaph on Great South Road, (NoR 1);
- Chisholm Corner on Great South Road (NoR 1) which is contiguous with the Papakura cemetery; and
- Slippery Creek Reserve on Great South Road (NoR 1).

These open spaces vary in their scale and useability (e.g. formal or informal recreation reserves) and add to the landscape character and amenity of the area, especially localised to the respective reserves.

Across NoR 1 and within or proximate to the designation boundary is existing vegetation and trees of varying scales and significance. There is amenity planting associated with individual properties, but also a number of trees which provide varying levels of landscape amenity for the area. This includes a mix of native and exotic species either within private property or public open spaces and a number of these trees are protected under the AUP:OP. These trees add to the landscape character and amenity of this area. A specific list related to the NoR and an assessment of potential effects is provided within **Part B** of the assessment of effects section of this report.

Another notable landscape feature associated with NoR 1 is the Otūwairoa Stream. This stream has low-moderate natural character values attributed to the flow and form of the catchment, the limited native vegetation cover (albeit with a high proportion of weed species) and its semi-rural setting (identified Future Urban Zone (**FUZ**)). This stream is described and assessed within **Part B**.

NoR 2 [17]

NoR 2 is located within a small part of Drury near the SH1 interchange and follows an existing road corridor. This area is characterised by the industrial nature of the land use and urban pattern (mixed use and light industry zoning). The Hingaia Stream flows north-south in this location and splits the NoR. The area has low landscape and natural character values due to the industrial land use and

[16] Photos of the existing environment of NoR 1 are illustrated as viewpoints 01, 02 and 03 within **Appendix A**.

[17] Photo of the existing environment of NoR 2 is illustrated as viewpoint 04 within **Appendix A**.

utilitarian building forms combined with the degraded stream. The stream has a high percentage of weed species along its margins and is in a degraded state. On the southern side of the stream (as it bends west after it flows under Great South Road) is the Karaka reserve (open space). This open space has low landscape amenity due to its also degraded state (overgrown weed species). At the time of writing this open space is also being used as a laydown area for the works being undertaken nearby on State Highway 1. There are no trees or vegetation of note identified by the AUP:OP within this NoR designation.

NoR 3 [18]

NoR 3 is an elongated designation which extends from the Manurewa town centre along Alfriston Road across SH1 toward Porchester Road to the east, ceasing just east of Magic Way. The land use and urban pattern is predominantly residential (Mixed Housing Urban and Mixed Housing Suburban) and includes predominantly one–two storey standalone houses. The layout of these houses varies across the respective properties, however as a general rule they are set back from the road with lawn, gardens and / or parking in their front yards to the road. There is more intensive development (buildings with businesses along Great South Road and Alfriston Road) near the centre of Manurewa. This includes the commercial buildings along Great South Road, Weymouth Road and Alfriston Road proximate to Manurewa town centre and train station. There is also THAB zoned properties along these three roads, but this development potential has not been realised as yet. Future urban intensification associated with the AUP:OP and PC78 will enable greater development potential for many properties across NoR 3, particularly those within the walkable catchment of the Manurewa train station. In time, this will change the urban character.

Along the route there are number of public open spaces proximate or within the designations which include:

- Tadmore Park on Great South Road (NoR 3);
- Gallaher Park on Alfriston Road (NoR 3);
- An informal (unnamed) recreation reserve, located on Alfriston Road east of SH1 (NoR 3); and
- Alfriston Park on Alfriston Road (NoR 3)

Like with NoR 1, these open spaces vary in their scale and useability (e.g. formal or informal recreation reserves). Tadmore Park and Gallaher Park are larger parks with formal recreation and are located directly adjacent to each other and are located Manurewa town centre, accessed of both Great South Road (west) and Alfriston Road (north). Within the eastern part of NoR 3 is Alfriston Park and an unnamed informal recreation reserve (which currently hosts a stormwater detention pond and native planting). These open spaces add to the landscape character and amenity of this area.

Along the NoR 3 designation boundary is existing vegetation and trees of varying scales and significance. Like NoR 1, there is amenity planting associated with individual properties, but also a number of trees which provide varying levels of landscape amenity for the area. This includes a mix of native and exotic species either within private property or public open spaces and a number of these trees are protected under the AUP:OP. These trees add to the landscape character and amenity of this area. A specific list related to the NoR and an assessment of potential effects is provided within **Part B** of the assessment of effects section of this report.

[18] Photos of the existing environment of NoR 3 are illustrated as viewpoints 05, 06 and 07 within **Appendix A**.

NoR 4 [19]

The designation boundary for NoR 4 is elongated and extends along Porchester Road (north) to Walters Road (south). It also includes an east-west section along Popes Road, from Takanini School Road (west), across Porchester Road and for a short distance beyond Porchester Road. The existing land use and urban pattern of this area includes a mixed of predominantly residential (Mixed Housing Suburban, Single House zone) properties on the western side of Porchester Road, with existing rural land uses to the east. Along Popes Road is zoned Light Industry (west of Porchester Road).

The houses within the MHS and Single House zoned land are predominantly one–two storey standalone houses and as a general rule are set back from the road with lawn, gardens and / or parking in their front yards to the road. Within the rural land the houses vary but are standalone set within larger land holdings.

Along the designation there is no vegetation or trees of significance (identified by the AUP:OP), however there is street side amenity planting associated with the residential properties. Although not protected, these trees add to the character and amenity of the area.

There are two open spaces / reserves along this designation. These are (i) on the corner of Porchester Road and Airfields Road, and (ii) on the corner of Walters Road and Arion Road. The designation boundary protrudes into these open spaces to a very small extent. These small do provide landscape amenity to the area.

[19] Photo of the existing environment of NoR 4 is illustrated as viewpoint 08 within **Appendix A**.

4 PART A: PROJECT-WIDE ASSESSMENT

This section assesses common or general landscape matters across the entire Project. It also provides recommendations and measures to avoid, remedy, or mitigate actual or potential adverse effects identified as a result of the FTN Project as a whole. NoR-specific matters or more localised matters related to each NoR are further discussed in **Part B** of this report.

4.1 Positive effects

As previously outlined, the FTN Project includes the provision of new transport infrastructure within the existing and emerging urban environment between Manukau (north) and Drury (south) across four NoRs. This new infrastructure has the potential to provide positive landscape effects through design which could include integration into the surrounding environment and its urban patterns, enhanced landscape and streetscape amenity, and landscape mitigation measures and safety improvements.

Potential positive landscape effects anticipated Project-wide (including mitigation) include:

- In all instances, the Project provide for upgraded transport infrastructure along existing roads within an existing or emerging urban environment. This will present a change within this urban landscape, but will provide an enhancement to the character along the respective corridors;
- The Project will provide improvements to connectivity and movement through this broad urban landscape area;
- New and improved active / multi-modal transport infrastructure (pedestrian and cycling) along each of the respective corridors. This includes separated cycle lanes and footpaths along each of the corridors / respective NoRs;
- An enhancement of streetscape character and improved visual amenity for road users and adjacent properties through the provision for a more coherent arrangement of the road structure (cross section) and clearly defined / dedicated multi-modal infrastructure elements. The provision for berm space within the street cross section will also provide the opportunity to improve streetscape amenity. These berm areas could include street trees, planting and rain gardens / storm water treatment elements. For the upgraded roads landscape planting would provide coherency in streetscape character and enhancement of this environment, and help tie in with future development through appropriate landscape design and species selection;
- The improved arrangement and inclusion of dedicated walking, cycling and bus lanes will increase walkability and improve cycle connectivity throughout the area and along the network which contributes to the enhancement of landscape amenity, people's enjoyment, and the pleasantness of the area. This includes increased connectivity of the open space network across the broader FTN Project area in line with the objectives of both the Manurewa Local Board – Manurewa Open Space Network Plan (2018) and the Papakura Local Board Open Space Network Plans (2019);
- The changes to the streetscape cross sections will help to create a safer streetscape environment whilst supporting the anticipated growth within these urban areas, complementing the emerging urban development patterns associated with the AUP:OP and PC78;
- The inclusion of street trees along the respective road corridors will help increase vegetation within road reserves and contribute toward urban ngahere (forest) objectives. This will also provide positive effects on quality urban landscape amenity and place identity outcomes. This is in line with the respective Manurewa and Papakura Local Board's *Urban Ngahere Action Plans* (prepared in 2022);

- Albeit modified, following construction the stream margins proximate to the bridges across the Otūwairoa and Hingaia stream will be enhanced through planting which will enhance the natural character values;
- Enhanced cultural landscape outcomes through the integration of Manawhenua values and narratives that reflect and celebrate te ao Māori; and
- In the two locations where the Project traverses streams (Otūwairoa and Hingaia), the Project provides for landscape mitigation and enhancement of these margins.

4.2 Adverse construction effects

To assess the construction effects of the proposed NoRs overall, the key issues in relation to landscape effects need to be identified and assessed. The detailed design of the respective NoRs are not yet finalised, however, it is anticipated that each NoR will require site enabling works, route formation works and site finishing works within each designation. These components are broken down as follows:

- Site enabling works
  - Establishment of (temporary) site compounds and construction areas;[20]
  - Machinery and movement of vehicles;
  - Building clearance; and
  - Vegetation clearance from within the designation.
- The activities and extent of physical impacts on private properties adjacent to the existing road corridors during the construction period and measures to reinstate boundary fences, driveways and gardens:
  - Impacts on the physical landscape resource during construction such as vegetation clearance (within the road reserve and private property boundaries), operation of construction areas, and earthworks within existing road corridors / proposed designation boundaries; and
  - Potential impacts on private properties including removal and reinstatement of boundary fences, garden plantings and driveway regrades.
- Route formation works activity
  - Earthworks (including cut / fill and the formation of levels for the respective NoRs),
  - Construction activity for stormwater runoff and treatment / attenuation areas. These include wetlands[21], raingardens[22] and swales;[23]
  - Construction activity of physical structures including the carriageway and the associated components (road, bus lanes, walking and cycling, planting areas etc); and
  - Activity of road construction / formation works.
- Site finishing works
  - Implementation of landscape mitigation measures such as planting;

[20] It is anticipated that any site enabling works (with the exclusion of the movement of vehicles to and from the site) will be located within the designation boundary, and has therefore been considered as part of this assessment.
[21] NoRs 3 + 4.
[22] NoRs 1 + 2.
[23] NoR 4.

- Implementation of reinstatement works such as driveways, fence and gardens on adjacent sites; and
- Establishment of signage, lighting and road painting works.

The above construction stages will result in temporary effects on landscape character and visual amenity. These are addressed in relation to the FTN Project overall below, and within **Part B** in relation to each NoR.

The construction phase for the entire FTN Project takes place within an existing modified urban environment and therefore urban intensification is anticipated.

It is anticipated that the majority of construction works will be undertaken during daylight-hours. Should there be a requirement for any night works, construction lighting may be required. In this event, it is anticipated that any lighting would be highly localised (to the areas being worked on at the time) and temporary in duration.

Effects on landscape character and visual amenity will likely include matters such as:

- Landscape Character

– Effects on landscape character[24] (including streetscape character) related to matters such as:

  - Integration of development patterns (e.g., urban form, topography)
  - Streetscape interface,
  - Vegetation clearance,
  - Open spaces,
  - Formation of new infrastructure / structures.

– Effects on natural character (where relevant).

- Visual Amenity

– Views from private residences proximate to the alignment,
– Any views from public locations.

These are assessed in turn below.

4.2.1 Landscape Character

The construction phase of the overall FTN Project will cause disruption and will result in a change to the existing landscape character in this existing urban environment. The respective NoRs involve the upgrade and improvements to existing roads and the configuration of the various elements within the existing road reserve.

In order to make these improvements the designation boundary in some instances will need to either protrude into or include entire adjacent properties. As such, there are a number of properties directly affected by the construction works across each NoR. This will change the underlying existing land use to an active construction site and / or will have their driveway access, fences or boundary vegetation affected due to the widening of the road.

[24] Dependent on the corridor alignment.

The construction works will introduce machinery and materials and activity (such as demolition, earthworks, vegetation removal, construction etc) along the span of the respective corridors within the NoRs. For NoRs 1 and 2 this includes localised works within the smaller, separated designation boundary, predominantly at intersections. However, for NoRs 3 and 4, each NoR forms a single contiguous designation boundary which extends along entire streets / corridors. This affects a larger area and therefore a greater number of properties.

A number of existing buildings (within residential and commercial zoned land) and areas of vegetation will need to be removed as a result of the extent of the designations sought. Although a change to the character of the area along arterial routes traversing a large part of South Auckland, the overall urban pattern will remain. This is necessary to enable the proposed works and upgrades to be implemented. In many instances, potential effects on properties are limited to their respective front yards with buildings remaining. However, where buildings are to be removed this will present a temporary adverse effect on character, noting that the areas within which the designations are located are zoned for urban intensification under the AUP:OP or PC78 provisions. Put simply, this part of Tāmaki Makaurau Auckland city is anticipated to intensify, with changes to the building density / form, land uses and transport infrastructure anticipated. The works associated with the Project is therefore consistent to support this anticipated growth.

Following the completion of the construction phase, and implementation of new transport infrastructure and mitigation, the balance of the land of the affected properties which formed part of the designations (and which don't form part of the now new road corridors or mitigation requirements) will be subject to a proposed designation review condition which could result in the partial uplift of the designation extent on those properties (including landscape provisions where there may be insufficient land area to feasibly develop). As such, there are opportunities for reintegration of this land. This could include enabling its redevelopment (by others) in accordance with the broader urban intensification direction and their underlying land use zoning.

A number of public open spaces / reserves will be affected during the construction phase. This is either by the designation protruding into the reserve along the street edge to enable the works, or by the introduction of significant infrastructure within an open space. These potentially affected reserves include:

- Anderson Park on Great South Road (NoR 1);
- Central Park Reserve and the Central Park Cenotaph on Great South Road, (NoR 1);
- Chisholm Corner on Great South Road (NoR 1) which is contiguous with the Papakura cemetery;
- Slippery Creek Reserve on Great South Road (NoR 1);
- Karaka Reserve on Great South Road (NoR 2);
- Tadmore Park on Great South Road (NoR 3);
- Gallaher Park on Alfriston Road (NoR 3);
- An informal (unnamed) recreation reserve, located on Alfriston Road east of State Highway 1 (NoR 3);
- Alfriston Park on Alfriston Road (NoR 3); and
- An unnamed reserve on the corner of Porchester and Airfield Road (NoR 4).

Although there is a disruption to these open spaces, on balance they are still accessible and usable as public assets and amenities for the community. The areas where they are affected are largely restricted to the street edge and any adverse effects considered to be acceptable for the duration of the construction phase. However, there are some instances where a greater area or established vegetation would potentially be affected by the proposal. Specific assessment of this, including the effects of the inclusion of stormwater treatment / wetlands is addressed related to each NoR within **Part B** below.

The proposed works required for the implementation of the bridges across the Otūwairoa and Hingaia Streams within NoRs 1 and 2, will affect and present a change to these streams and their margins. The construction phases will require works in this area which will affect their natural character. These streams have varied levels of natural character due to their vegetation cover and landforms within the catchments set within either semi-rural (NoR 1) or industrial (NoR 2) landscapes. Specific assessment of each bridge and the works required related to each stream can be found within **Part B** below.

Across the wider FTN Project area, a number of notable / protected trees under the AUP:OP are located within the proposed designation boundary. These trees are listed within the AEE and also within the Assessment of Arboricultural effects report which forms part of the application. Within this urban environment, the locations of the NoRs and designations are largely devoid of notable or established trees and there is a low proportion of vegetation coverage. As such, any existing trees enhance the appreciation and level of landscape amenity of the localised areas within which they are located. Therefore, their removal through the construction phase could reduce the landscape amenity of the area and result in adverse effects on landscape character before replacement / mitigation planting can be undertaken. It is recommended as part of mitigation measures to avoid these trees where possible.[25] Assessment related to potential landscape effects on specific NoRs resulting from the removal of the notable trees and other established trees is provided within **Part B** below.

In relation to earthworks / landform modification required across the Project, this is this largely restricted to locations proximate to the existing road reserves due to (in most instances) the limited variation in the existing topography along the respective corridors. As such, any earthworks proposed will have a limited footprint and does not present significant landform modification which is of an inappropriate scale in this landscape. This also limits the size / scale of the proposed designation boundary. Where there are areas with greater cut / fill modification such as within the NoR 3 corridor and where the Project crosses the Otūwairoa / Slippery Creek (NoR 1), the Hingaia stream (NoR 2), these are specifically addressed within **Part B** below.

In relation to potential effects on landscape character for the Project overall, although a change to the existing character and land use, the construction phase is a necessary part of the process required in order to provide the improvement of the transport network across this wider landscape to support anticipated urban growth. Potential adverse effects on landscape character resulting from the construction works are assessed to be moderate, overall. This takes the following into account:

- The temporary nature of the construction works phase;
- The extent of the Project overall within this part of Auckland;
- The context of the existing and emerging urban landscape and any potential effects on adjacent properties;
- The works not being out of context in this landscape and associated with the upgrade of existing road corridors;
- Although a temporary change to land use, the overall existing urban development pattern across the Project area is retained;
- The extent of the construction works and development being anticipated in this urban environment (as sought by the respective AUP:OP and potential PC78 planning provisions);

[25] Recommendations / mitigation measures are outlined within Sections 4.3, 4.5, 5.4 ,6.4 and 7.4 of this report.

- Any earthworks, as a general rule, having a limited footprint and not presenting landform modification which is of an inappropriate scale in this landscape;
- The management of potential effects resulting from the removal of vegetation; and
- Mitigation measures being implemented.

Whilst an overall Project level of effect has been identified, it should not detract from the importance of the individual effects on landscape character identified for each NoR. As such, overall project effects are provided as a summary only.

4.2.2 Effects on visual amenity

The works required across the four NoRs will have a high viewing audience due to the location of the designations within an existing urban environment and along existing road corridors. The visual audience is largely restricted to locations near the subject NoRs and will include:

- People moving along these respective streets (or those adjacent),
- More 'static' views from residents or people working or visiting the commercial properties and centres near the respective designations; and
- Users of public open spaces.

From a wider context, there will only be very limited visibility of the NoR and therefore the construction works. Where visible from the wider context, it will be seen as part of the existing and emerging urban environment and would have **very low** adverse visual effects.

The proposed construction works will be visible from those properties adjacent to the designation boundaries, often in close proximity. The removal of buildings and vegetation within the designation boundary will also expose views to the Project and construction works for those adjacent dwellings whose views of the respective road corridors will have previously been screened. This is particularly the case for properties along NoR 3 and to a lesser extent for NoR 1.

The construction works and machinery will be visible from the properties which are to remain adjacent to the designation boundary. It is from these locations where the greatest potential adverse effects could occur given their proximity and potential outlook to the project area. Although visible, the construction works will be temporary and present activities which are not common (although not unanticipated), changing the outlook from the aforementioned locations. There will be greater adverse effects on localised areas and some parties will be more affected than others given the works required. This is outlined further in **Part B**.

However, the designation and therefore construction area will be contained by hoardings (through a mitigation measure) which will screen views of lower-level construction activity and machinery. Some taller elements such as cranes used for the construction of bridges will be visible above the hoardings, and in many instances seen from a distance given the extent of the respective designations.

Although a large visual catchment and high (predominantly localised) viewing audience is associated with each NoR, across the Project as a whole, any adverse effects on visual amenity resulting from the construction phase is assessed to be **moderate**.

The assessment conclusion reached related to the construction works, on balance, is due to:

a) Limited extent of the designation boundaries along the respective corridors (e.g. the proposed designation boundaries are relatively localised and do not extend beyond what is reasonably necessary to construct);
b) The nature of the activity in an existing and emerging urban area (e.g. construction works and roading upgrades are not common in urban environments but are anticipated as part of improving transport connections and infrastructure as part of supporting urban growth);
c) The temporary nature of the activity;
d) The nature of the view. Some viewers will be transient and others 'fixed', particularly in locations adjacent to the respective designations;
e) The recommended mitigation measures, such as hoardings which will provide screening,
f) In many instances, existing elements along streets and within private properties which will provide screening;
g) The extent of trees potentially affected; and
h) The nature of the viewing audience. Some viewers will be transient using the streets and open spaces, or 'fixed' from people within houses or buildings, particularly in locations adjacent to the respective designations.

4.3 Recommended measures to avoid, remedy, or mitigate construction effects

The matters outlined below address the key elements related to the construction phase for the Project overall which are likely to result in adverse effects on landscape character and visual amenity. A ULDMP is recommended as a condition on the respective designations which should include the following measures to mitigate landscape effects.

Guidance for built structures and landscape design and planting for transport projects is provided within the *Bridging the Gap: NZTA Urban Design Guidelines (2013), Waka Kotahi Landscape and Visual Assessment Guidelines (2013) and Waka Kotahi Bridge Manual (2013)* documents. The design and mitigation measures outlined must be consistent with these design guidelines. Other mitigation measures are outlined below:

- The primary means of mitigating construction effects is through a Construction Environmental Management Plan (**CEMP**);
- Site compounds, construction yards, the storage of construction machinery and locations of any overburden areas should be located in visually discrete locations. At the very minimum screening of these elements is required during the construction period;
- Reinstate construction and site compound areas by removing any left-over fill and shaping ground to integrate with surrounding landform;
- Where possible, the balance of fill earthworks should be sourced from cut earthworks along the alignment;
- Wherever possible, limit the removal of noteworthy trees and provide management of remaining vegetation in accordance with the arborist report and the Tree Management Plan (**TMP**) which will guide arboricultural matters through the detailed design and construction phases of the Project; [26]
- Provide hoardings around construction areas which face onto adjacent properties and publicly accessible parks and open spaces. Where practicable, include interpretation panels on these

[26] Refer to the *Arboricultural Assessment* report which forms part of this application.

hoardings in certain 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;
- Reinstatement of planting within private property boundaries where affected;
- Screening should be designed to minimise potential adverse visual effects of the construction works. While screening may introduce a new visual feature adjacent to properties during construction, it will be temporary and engagement with relevant affected landowners is recommended prior to works commencing to communicate the proposed mitigation and identify any concerns;
- Provide opportunities for Manawhenua involvement and nominated artists to provide visual storytelling on the construction hoardings. This is provided for through the proposed Mana Whenua Kaitiaki Forum condition which is the vehicle for facilitating continued involvement / partnership at the future Outline Plan / detailed design stage;
- Where possible, mitigate effects related to lighting during any nighttime works through the use of directional lighting to prevent glare / spill light falling on adjacent properties. Lighting to only be operational whilst night works are occurring; and
- Public open spaces adjacent to the designation boundaries should be cordoned off from construction impacts through the use of physical barriers. However, retain access for the community to connect to these open spaces.

It is recommended that the above measures are captured within a condition of consent and used to inform the preparation of a ULDMP and landscape plans as the detailed design of the alignment is progressed.

4.4 Adverse operational effects

For the purpose of this assessment, it is assumed that at the time of operation for the FTN Projects the existing land uses will remain the same (as per the AUP:OP) and urban intensification will have been enabled through provisions related to the MDRS and PC78. Therefore, the urban environment will have changed with a greater scale and density of built form and development enabled and, in some cases, likely implemented.

The assessment also assumes the recommendations and mitigation measures have been implemented which will minimise effects on landscape character and visual amenity.

The key components related to effects on landscape character and visual amenity will likely include:

- Landscape Character

– Effects on landscape character / streetscape character (dependent upon route alignment) related to matters such as:

    - Integration of development patterns (e.g. urban form, topography),
    - Streetscape interface,
    - Vegetation patterns and mitigation planting, and
    - Formation of new infrastructure / structures.

– Effects on natural character (where relevant).

- Visual Amenity

- Views from private residences proximate to the alignment,
- Any views from public locations.

These are addressed in turn below.

4.4.1 Landscape Character

The proposed NoRs will provide either a full or partial upgrade to a number of existing roading corridors across the overall wider FTN Project area within an existing and emerging urban environment. Although there will be an upgrade to existing roads and modification / additional elements implemented, there will only be a limited change to the character of the area, e.g. existing roads upgraded to improve transport infrastructure and include multi-modal uses.

As outlined under construction effects earlier, there will be impact to a number of properties adjacent to and affected by the designation. Following the completion of the construction phase, and implementation of new roading infrastructure and mitigation, the balance of the land of the affected properties which formed part of the designations (and which don't form part of the now new road corridors or mitigation requirements) will be subject to a designation review condition which could result in the partial uplift of the proposed designation boundary from those properties (including landscape provisions where there may be insufficient land area to feasibly develop). As such, there are opportunities for reintegration of this land. This could include enabling its redevelopment (by others) in accordance with the broader urban intensification direction and their underlying land use zoning.

Under the AUOP:OP and PC78 (where relevant) residential and business zones will be enabled to intensify with greater building scale and density. The Project will improve the transport infrastructure throughout the area to create a more coherent road cross section and configuration. The works will improve the landscape amenity values of the area, whilst enabling and supporting the anticipated urban growth. The proposed roads will form part of the emerging and anticipated urban development enabled through the AUP:OP and PC78. The works associated with each NoR are in keeping with this character.

Although there is potential for the removal of established and some notable trees[27], and disruption to open spaces across the Project-wide area[28], these matters can be addressed through mitigation measures which include avoiding tree removal where possible, providing a landscape and planting response, and the reinstatement of the open space functions. The road improvements with multi-modal function will enhance connectivity throughout the area and to public assets such as open spaces.

Following the construction of the proposed bridges across the Otūwairoa and Hingaia Streams within NoRs 1 and 2, there is an opportunity to enhance the natural character of these stream margins through integrated landforms and enhancement planting along the stream margins. The proposed retaining walls do not extend down to the stream edge and provide the opportunity for this landscape and natural character enhancement. Specific assessment of each the works required related to each stream can be found within **Part B** below.

Any adverse effects on landscape character for the Project overall are assessed to be **low**, especially once the areas outside of the constructed lineal road corridors (e.g. the balance of the designation

[27] As identified by the AUP:OP.
[28] These matters are addressed within **Part B** of this report.

extent) has been reinstated to their underlying zone and land use, and mitigation measures have been implemented. There will also be positive effects resulting from the upgrade of the streetscape environment.

Again, whilst an overall project level of effect has been identified, it should not detract from the importance of the individual effects on landscape character identified for each NoR. As such, overall Project effects are provided as a summary only.

4.4.2 Visual Amenity

For similar reasons, any adverse effects on visual amenity across the FTN Project-wide area are assessed to be **low**. This is due to the designations providing upgrades and additional roading elements along established street corridors within an existing and emerging urban environment.

The works within each NoR will not be seen out of context and will integrate into the surrounding environment. There will be properties with visibility of the widened road corridor where traffic (vehicles, buses and active modes) are in closer proximity. This includes the adjacent neighbouring properties, including those adjacent to the designation. However, the proposal provides functional and visual improvements (through the road arrangement and cross sections) to an existing street corridor within an urban environment. Although a change, this activity is not uncommon and is anticipated within this environment.

Any amendments to the underlying topography will have been implemented and mitigated through integration into the site's surrounding context. Although the potential loss of established trees, these will have been mitigated through the measures outlined within the ULDMP. There will be positive effects related to the provision of mode share and enhanced streetscape amenity through the planting and street trees proposed within the road reserve.

4.5 Recommended measures to avoid, remedy, or mitigate operational effects

The matters outlined below address the key elements related to the operation of the Project overall, which are likely to result in adverse effects on landscape character and visual amenity. An ULDMP is recommended as a condition on the respective designations which should include the following measures to mitigate landscape effects:[29]

- Adopt an outcomes-based approach to landscape mitigation that considers overall improvements to this urban landscape (including biophysical systems and processes), and enhances 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 for landscape enhancement such as establishing contiguous planting within an overall 'green network';

29 As outlined related to the *recommended measures* for the **construction** phase, guidance for built structures and landscape design and planting for transport projects is provided within the *Bridging the Gap: NZTA Urban Design Guidelines (2013), Waka Kotahi Landscape and Visual Assessment Guidelines (2013) and Waka Kotahi Bridge Manual (2013)* documents. The design and mitigation measures outlined must be consistent with these design guidelines.

- Tree management including establishment and maintenance phases, should be undertaken in accordance with the Tree Management Plan (**TMP**) (as per Arboricultural Assessment report). Focus on canopy cover and landscape enhancement as the measure to mitigate vegetation loss rather than a like-for-like approach;
- Develop a landscape management plan that focusses on:
  - Creating a planting palette in favour of indigenous species;
  - Selecting trees that are suitable within the urban environment and are resilient to future predicted climate change;
  - Contributing to a connected green infrastructure that enhances the landscape ecosystem,
  - Selecting and growing locally 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 infrastructure (such as across the streams) to be of a human-scale;
- Use of shade trees and amenity planting, generous open space, attractive hard landscape features, wayfinding, sculpture, and art should 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 the infrastructure elements;
- Design being mindful of potential light effects, e.g. avoid light spill;
- Select locations for hard infrastructure (such as transformers) that will not be visually intrusive. Notwithstanding, provide mitigation of these elements; and
- Design to contribute positively to visual amenity for nearby residents who will view any infrastructure elements from close proximity. Consider the form, colour, bulk, textures and finishes to elements to create visual quality and interest. This also includes plant species selection.

In terms of more specific elements the following measures are provided.

4.5.1.1 Bridges and structures:

- To be designed to visually integrate with the localised context and to minimise any potential adverse effects on urban character and visual amenity of the area;
- Bridges should be designed to contribute to local identity, demonstrating a sense of place. This relates to bridges and structures to demonstrate the character and appropriate scale;
- Engagement with Manawhenua should be undertaken with the use of preferred te ao Māori design principles. Where appropriate, bridges and structures should be designed as features; and
- Avoiding noise barriers where possible. If these are to be included, they should be designed to integrate into the localised environment to avoid visual prominence and adverse effects.

4.5.1.2 Integration with surrounding context:

- The respective Projects are to be designed to respond to and integrate with the adjacent urban landscape context. This relates to the emerging urban environment (responding to density and land uses), landscape character, and any open spaces zones.

4.5.1.3 Walking and cycling connectivity:

- Investigate opportunities to integrate with existing and future open spaces (and also walking and cycling infrastructure) proximate to the proposed NoRs and respective designations. This will provide better connections and active mode share across a wider catchment. Walking and cycleway connections should be designed in a manner which contributes to the local identity and urban amenity of the landscape and aligned with Manawhenua preferred design principles. Designs should also look to enhance any landscape and ecological corridors (designed in conjunction with topography and planting – *outlined below*).

4.5.1.4 Private properties:

- Reinstate driveways, accessways, private fences and garden plantings for existing remaining properties affected by works within the proposed designations. Elements are to be designed to minimise visual amenity effects on residents, and to integrate with the layout and design of outdoor living spaces and in consideration of streetscape character.

4.5.1.5 Planting design details:

- Landscape design and planting design details should be prepared for the Project that demonstrate (but are not limited to) the following:
  - Retaining existing vegetation where possible;
  - Provide street trees within the respective NoR designations where practicable in conjunction with any smaller shrubs and ground cover species. This will enhance streetscape amenity. The species selected should be appropriate for use within stormwater treatment areas and berms. Species and tree stature should be selected to correspond with adjacent land uses and to provide ecological enhancement, in accordance with the nine key principles outlined in the Auckland's Urban Ngahere (Forest) Strategy;
  - Treatment of earthworks and residual land to integrate with adjacent land use patterns (in relation to visual and biophysical aspects);
  - Stormwater wetland design and planting;
  - Integration of Manawhenua preferred design principles in relation to planting, structures and hard landscape elements;
  - Site preparation, implementation and maintenance requirements for all planting typologies; and
  - Planting to be designed to provide an extension of, and be contiguous with, any existing established vegetation patterns.

The proposed mitigation measures should, where practicable, be integrated with planting requirements of future resource consent processes.

It is recommended that the above points are captured within a condition of consent and used to inform the preparation of an ULDMP as the detailed design of the alignment is progressed.

5 PART B: NOR LEVEL ASSESSMENT

5.1 NoR 1 – Great South Road FTN Upgrade

As outlined in the Project description (see Section 2), NoR 1 comprises a range of interventions providing for the Great South Road FTN route along Great South Road between Manukau and Drury. These include eight intersection upgrades, and the replacement of the Otūwairoa / Slippery Creek bridge. The wider corridor will provide for either three or four lanes in the midblock including bus lanes in one or both directions, and active mode facilities. Refer to the drawing set included with the AEE application to see plans an indicative road configurations / cross section.

An assessment at the Project-wide scale has been provided within **Part A – Project Wide Assessment**, however there are components of the design related to the NoRs which require specific landscape assessment, and these are outlined below.

5.1.1 Positive effects

Any positive effects resulting from the works within NoR 1 have been outlined and addressed within **Part A**. The Project presents upgrades to existing road corridors which will increase streetscape amenity and improve connectivity throughout the area.

5.1.2 Adverse construction effect

5.1.2.1 Landscape Character

In relation to landscape character, for NoR 1 there will be a change to this environment and the existing urban landscape given the upgrade to a number of short sections, and intersections, along Great South Road. These designations predominantly align along existing road corridors with impact being limited and restricted to small parts of adjacent residential and commercial properties which have been designated to allow for the works.

In relation to the urban pattern, the Project will introduce construction roadworks to upgrade the streetscape environment. This will change the character of the respective localised designations from a functioning road, urban land uses (such as residential, commercial properties[30]) or small parts of public open space to an active construction site. This will cause disruption to accessing a number of properties and a change to the use and activities in the area. However, the extent of the designations is localised, and the works authorised by the respective designations will not be out of place or inconsistent with the character of the area. Roadworks can be expected in urban environments and as part of roading upgrades. The construction works will introduce machinery, materials and activity (such as demolition, earthworks and vegetation removal) into this environment.

In relation to open spaces / reserves, three public open spaces are affected by the proposed designation boundary. These are:

- Anderson Park, located on the corner of Great South Road and Grande Vue Road, Manurewa;[31]

30 Such as properties within the Project area affected by the extent of the designation where buildings / vegetation is required to be removed. For NoR1 this includes properties at 64 – 74 Great South Road, Manurewa and 322 – 332 Great South Road, Papakura.

31 Refer to NoR 1 General Arrangement Plan in Volume 3.

- Central Park Reserve and the Central Park Cenotaph, located at the junction of Great South Road, Wood Street and Opaheke Road, Papakura;[32]
- Chisholm Corner, located at the junction of Great South Road and Settlement Road, Ōpaheke;[33] and
- Slippery Creek Reserve on Great North Road.[34]

Although the works would restrict access to these respective open spaces from Great South Road, access is still provided to each open space from other parts of the local area. The extent of the designation and therefore potential works within each open space is also not extensive and does not occupy a large proportion of the space, e.g. it is largely street frontages which are affected. As such these open spaces are retained as public recreation assets and can be used during the construction phase.

However, the proposed designations and therefore the construction works may result in the removal of a number of established trees within these open spaces. Although not all identified as notable / protected trees by Auckland Council under the AUP, these trees provide enhancement to the landscape amenity and appreciation of the local area.

Within Anderson Park, the proposed designation boundary includes a range of established trees such as pohutukawa, totara and karaka along the frontage to Great South Road to the west. These significant and established trees strongly add to the amenity and landscape character of this part of Manurewa. Refer Figure 5-1 below.

Figure 5-1: Image of the established trees on the corner of Grand Vue Road and Great South Road within Anderson Park (Source: MJ_IGL)

Within Central Park (Papakura), there is also a number of large established trees within the open space which are associated with Papakura Old Central School Hall, which is listed as a heritage building within the AUP. These trees include a notable Oak tree[35] and other trees such as karaka,

32 Refer NoR 1 General Arrangement Plan in Volume 3.
33 Refer NoR 1 General Arrangement Plan in Volume 3.
34 Refer NoR 1 General Arrangement Plan in Volume 3.
35 Identified as *Natural Heritage: Notable Trees Overlay – 2188, Oak (Memorial), Verified position of tree* under the AUP.

kahikatea, rimu and totara. Also in this area is a notable Phoenix palm tree[36] which is located at the junction of Opaheke Road and Great South Road (at 278 Great South Road), and a notable group of trees[37] (Rimu, Kauri, Phoenix Palm, Oaks) at 250 – 260 Great South Road. These trees are located on the northern side of Wood Street proximate to the proposed designation boundary. Again, these trees contribute to the landscape amenity of the streetscape environment, the public open space and the local area. Their removal would result in adverse effects on landscape character. Refer Figure 5-2 and Figure 5-3 below.

Figure 5-2: Image of the established trees on the corner of Great South Road and Wood Street within Central Park, Papakura (Source: MJ_IGL)

[36] Identified as *Natural Heritage: Notable Trees Overlay – 2206, Phoenix Palm, Verified position of tree* under the AUP.

[37] Identified as *Natural Heritage: Notable Trees Overlay – 2210, Rimu, Kauri, Phoenix Palm, Oaks, Unverified position of tree* under the AUP.

Figure 5-3: Image of the established trees along Great South Road and Opaheke Road within Central Park, Papakura (Source: MJ_IGL)

Although the proposed designation boundary includes the locations of some of these trees, the current indicative design avoids their removal. As a preventative matter, any works associated with the upgrade of the road should be undertaken using arborist best practice to minimise effects (as outlined within the Arboricultural Assessment report) because their removal would result in adverse effects on landscape character.

Other notable trees or groups of trees located within or proximate to the proposed NoR 1 designation boundary include:

- A Norfolk island pine[38], within a private residential property at 18 Great South Road;
- A Totara tree[39], within a private residential property at 154 Great South Road;
- A Phoenix Palm tree[40], located within a Metropolitan City entre zoned property at 67 Great South Road;
- A gum tree[41], located within / proximate to the designation at the Chisholm Corner open space to the east;
- a Phoenix palm tree[42] within a private residential property at 1/355 Great South Road, opposite Chisholm Corner; and
- a group of trees[43] within the road reserve (at the intersection of Great South Road and Butterworth Ave).

These trees provide landscape amenity value to the localised landscape within which they are located and also contribute to the overall amenity value of the wider landscape. Some of the trees are located

38 Identified as *Natural Heritage: Notable Trees Overlay – 1664, Norfolk Island Pine, Verified position of tree* under the AUP.
39 Identified as *Natural Heritage: Notable Trees Overlay – 2267, Totara, Verified position of tree* under the AUP.
40 Identified as *Natural Heritage: Notable Trees Overlay – 2215, Phoenix Palm, Verified position of tree* under the AUP.
41 Identified as *Natural Heritage: Notable Trees Overlay – 2189, Gum, Verified position of tree* under the AUP.
42 Identified as *Natural Heritage: Notable Trees Overlay – 2227, Phoenix Palm, Verified position of tree* under the AUP.
43 Identified as *Natural Heritage: Notable Trees Overlay – 2190, Miro, Rimu, Verified position of tree* under the AUP.

outside of the designation boundaries but within properties affected by designations. However, a number of the trees located are within, or are in close proximity to, the designations areas. As above, the application of arborist best practice will minimise adverse effects on landscape character. There are no notable / protected trees within the Slippery Creek reserve.

At Otūwairoa / Slippery Creek, the existing bridge is proposed to be replaced to enable the proposed road configuration. The extent of works within this designation are extends down the slopes toward the stream and along the road alignment to enable the new bridge. This will require earthworks and modification of the landform at this location adjacent to the stream and will result in temporary effects on landscape character. Refer FiguresFigure 5-4 – Figure 5-6 below.

Figure 5-4: Image of the existing Otūwairoa bridge (Source: MJ_IGL)

Figure 5-5: Image of the existing Otūwairoa bridge and adjacent bank to the south (Source: MJ_IGL)

Figure 5-6: Image of the existing Otūwairoa bridge and adjacent bank to the north (Source: MJ_IGL)

The new bridge across Otūwairoa / Slippery Creek under the indicative design is proposed to be approximately 3m higher than the existing bridge (an 'increase in the bridge vertical level'). These presents a new structure which although the same land use, is considerably larger than the existing environment. This will change the character of the area through the introduction of the bridge itself, but also the earthworks and land formation required and the addition of retaining walls.

These proposed works will present potential localised effects on the natural character of the stream margin. The existing stream condition has a low-moderate level of natural character attributed to the flow and form of the catchment, the limited native vegetation cover (albeit with a high proportion of weed species) and its semi-rural setting (identified FUZ), e.g. it is not set within an industrial landscape (such as the Hingaia Stream within NoR 2). On the eastern side of the stream (as it flows under Great South Road) is the Slippery Creek reserve which has moderate landscape amenity due to its open nature, picnic rest stop seating, and accessibility proximate to the stream.

The proposal provides the opportunity to enhance this stream margin and open space. During the construction phase the vegetation in this area will be cleared associated with the construction works which will provide the opportunity to remove the weed species along its margins. The construction works will change the character of the area, but this will be temporary with opportunities to enhance natural character values long term.

In summary and for the reasons outlined within this section above related to the existing urban pattern, open spaces, trees and vegetation, earthworks and natural character values, potential adverse effects on landscape character for NoR 1 are assessed to be **moderate** overall.

5.1.2.2 Visual Amenity

In relation to visual amenity, although a large viewing audience due to the nature of the view along existing roads, any adverse visual amenity effects specific to NoR 1 are assessed to be **low – moderate** during the construction phase. This is largely due to (i) the specific and localised nature of the designations, (ii) the potential removal of established trees (as outlined under *landscape* *character*), and (iii) the visibility and nature of earthworks and construction required at the Otūwairoa / Slippery Creek bridge.

From a number of properties adjacent to the respective designations, views will be afforded toward the construction works at close proximity. This includes adjacent properties where houses and buildings are unaffected by the works, and those properties where views will be exposed to the proposed works through the removal of buildings / houses within the proposed designation boundary. Specifically, these are located at 64 – 74 Great South Road, Manurewa and 322 – 332 Great South Road, Papakura. The houses 'behind' these listed affected properties will be set back from the street edge, however, works may occur at these addresses.

As outlined earlier within this report, the construction works and machinery will be visible from the adjacent properties including public open spaces. However, although visible and changing their outlook, the construction works will be temporary and present activities which are not common (although not unanticipated) as required to provide an upgrade to the road network. Potential adverse effects will be reduced through the provision of hoardings which will provide mitigation and screen views of lower-level construction activity and machinery, however taller elements such as cranes used for the construction of the bridge will be visible above the hoarding.

The construction phase for the bridge across the Otūwairoa stream will also incrementally introduce the landforms required on either side of the stream for the bridge abutments which will be visible in the localised context.

Although visible and a temporary visual change to the existing urban environment, upgrades and roadworks can be expected and will not be seen as being out of place in this context.

5.1.3 Adverse operational effects

The operation of NoR 1 will provide an upgraded road layout and an enhancement to the streetscape environment. Although a change, the proposed layout will provide a visually coherent road arrangement within this already urbanised landscape. Any effects on existing vegetation will be minimised through the protection and mitigation measures proposed relating to arboricultural best practice during the construction phase, and therefore long-term effects (relation to potential tree removal) is minimised.

Overall, the landscape character of NoR 1 will have **low** adverse effects. This is especially once the areas outside of the constructed lineal road corridors (e.g. the balance of the designation boundary) has been reinstated to their underlying zone and land use, and mitigation measures have been implemented.

As outlined under construction effects earlier, there will be impact to a number of properties adjacent to and affected by the designation. Following the completion of the construction phase, and implementation of new roading infrastructure and mitigation, the balance of the land of the affected properties which formed part of the designations (and which don't form part of the now new road corridors or mitigation requirements) will be subject to a designation review condition which could result in the partial uplift of the designation boundary on those properties (including landscape provisions where there may be insufficient land area to feasibly develop). As such, there are opportunities for reintegration of this land. This could include enabling its redevelopment (by others) in accordance with the broader urban intensification direction and their underlying land use zoning.

Under the AUP:OP and PC78 (where relevant) residential and business zones will be enabled to intensify with greater building scale and density. The Project will improve the transport infrastructure throughout the area to create a more coherent road cross section and configuration.

Any potential effects on notable trees will be addressed through appropriate mitigation measures as outlined within the TMP and Arboricultural Assessment report. Any open spaces affected will also be reinstated.

Following construction, although modified with a new bridge and retaining walls the stream margins proximate to the bridge across the Otūwairoa stream will be enhanced through appropriate planting measures which provide the opportunity to enhance the natural character values of the area.

In relation to **visual amenity**, the designations provide an upgrade to existing road corridors and will not be seen to be out of context, albeit through road widening to enable the movement of vehicles, buses and active modes to complement the anticipated urban growth in the area. Any vegetation which was removed along the road edge (including within provide property) during the construction phase will be replaced ‘like for like’ which is outlined within conditions and the UDLMP.

The new bridge across the Otūwairoa stream will present a new structure at a greater scale than existing, however it will visually integrate into the surrounding urban context, which is anticipated to intensifiy under the AUP:OP provisions. Its fill batters will be planted with native vegetation which will visually soften these forms and integrate with the planting proposed along the stream margin. As such, any potential adverse effects on visual amenity are assessed to be **low**.

5.1.4 Recommended measures to avoid, remedy, or mitigate effects

The ‘overall approach’ outlined earlier within this report (within **Part A**) to avoid, remedy or mitigate effects for all NoRs remain relevant[44], however specific measures are provided below:

- Ensure access into the identified public open spaces is retained during the construction phase;
- Although not protected, there are a number of established trees within the proposed designation boundary for NoR 1 which may be affected by the Project. These trees provide landscape amenity to the urban environment, a number of which are located within public open spaces and private properties. Given their landscape values, these trees should be avoided where possible through both the construction phase and the longer term operation of the Project;
- Ensure the earthworks required to build the bridge over the Otūwairoa stream / Slippery Creek are minimised, and, where possible to help offset proposed retaining walls, any landform modification integrates back into the surrounding environment responding to the stream edge. The modified slopes adjacent to the stream should be planted with appropriate species to tie in with the existing vegetation pattern and help visual integration. Mitigation measures related to the design of the bridge have been outlined earlier within this report; and
- The fill batters / bridge abutments are to be planted with native vegetation to provide visual softening and to assist with integrating these forms into the localised environment, providing a contiguous vegetation pattern with that proposed along the stream margin.

[44] As such, they are not repeated here.

5.2 NoR 2 – Great South Road Upgrade (Drury section)

As outlined in the Project description (see Section 2), NoR 2 comprises a range of interventions providing for the upgrade of Great South Road in Drury between Waihoehoe Road and the SH1 Drury Interchange. These include road widening to provide four lanes, active mode facilities, and the replacement of the Hingaia Stream bridge.

5.2.1 Positive effects

Any positive effects resulting from the Project on NoR 2 have been outlined and addressed within the **Part A – Project Wide Assessment**. The Project presents upgrades to existing road corridors which will increase streetscape amenity and improve connectivity throughout the area.

5.2.2 Adverse construction effects

5.2.2.1 Landscape Character

In relation to landscape character, for NoR 2 there will be a change to this urban environment along Great South Road through the construction phase related to the works required for the road upgrades, but more specifically the Hingaia Bridge. Again, ‘overall’ project-wide matters have been addressed within **Part A** of this report, however more specific assessment on certain matters is provided below. This NoR provides an upgrade to an existing road and larger bridge structure.

The existing bridge across the Hingaia stream is proposed to be replaced to enable the proposed road upgrade. Similar to the earthworks and land modification required for the Otūwairoa / Slippery Creek bridge within NoR 1, the extent of works also extends down the slopes toward the stream, but to a lesser extent. Refer Figures Figure 5-7 – Figure 5-9 below for the existing bridge context.

The new bridge across the Hingaia Stream (based on the indicative design) is proposed to be approximately 4m higher than the existing bridge (an ‘increase in the bridge vertical level’). Similar to that for the Otūwairoa bridge (NoR 1) this presents a new bridge structure which although has the same land use, is considerably larger than that within the existing environment. This will change the character of the area through the introduction of the bridge itself, but also the earthworks and extent of land formation required for the abutments and the addition of retaining walls.

As can be seen in the photos below, the area around the stream and bridge has poor landscape amenity and natural character values. This is attributed to the degraded stream margin which has poor vegetation cover (dominated by weed species) with no significant trees of note and has an accumulation of runoff and rubbish from the nearby industrial landscape. On the southern side of the stream (as it bends west after it flows under Great South Road) is the Karaka reserve which also has low landscape amenity due to its degraded state (overgrown weed species), its limited accessibility and current use as a laydown area for the nearby road works. The proposal provides the opportunity to enhance this stream margin and open space. During construction this area will be cleared associated with the construction works which will provide the opportunity to remove the weed species and also the rubbish and debris in the area. The construction works will change the character of the area, but this will be temporary with opportunities to enhance natural character values long term.

Any adverse effects on landscape character will be temporary and are assessed to be **moderate** in this localised area. Although the introduction of a construction site and the works associated with the bridge replacement, it forms part of the wider works required for the balance of the NoR along Great South Road.

Figure 5-7: Image of the existing Hingaia bridge (Source: MJ_IGL)

Figure 5-8: Image of the existing Hingaia bridge and adjacent bank to the north (Source: MJ_IGL)

Figure 5-9: Image of the existing Hingaia bridge and adjacent bank to the south (Source: MJ_IGL)

5.2.2.2 Visual Amenity

In relation to visual amenity, any adverse visual amenity effects specific to NoR 2 are assessed to be **low-moderate** during the construction phase. This is due to the specific and localised visual catchment of the designation, its limited extent along Great South Road and the visibility and nature of earthworks required for the Hingaia Stream bridge.

The visual catchment is limited to the road users and people who are working at or visiting the adjacent industrial properties. Views will be afforded of the proposed construction works above the proposed hoarding mitigation measures, with the taller elements such as cranes. However, although visible and changing their outlook within an existing urban environment, the construction works will be temporary and present activities which are not common (although not unanticipated) as required to provide an upgrade to the road network and bridge. As with the Otūwairoa stream, the construction works will also incrementally introduce the landforms / fill batters required on either side of the stream for the bridge abutments which will be visible in the localised context. Upgrades and roadworks can be expected and will not be seen as being out of place in this context.

5.2.3 Adverse operational effects

The operation of NoR 2 will provide the upgraded bridge and short road section of Great South Road. It is an upgrade to an existing road corridor. It will change the streetscape environment and will provide a coherent and organised road arrangement which includes the new bridge.

Overall, the landscape character of NoR 2 during the operational phase will have **low** adverse effects once mitigation measures have been implemented.

Following construction, the properties adjacent to and within the designation will return to their former land use, now fronting an upgraded road corridor. Although modified with a new, larger bridge and associated retaining walls, the stream margins proximate to the bridge across the Hingaia stream will be enhanced through appropriate planting measures which provide the opportunity to enhance the natural character values of the area.

In relation to visual amenity, the designations provide an upgrade to the existing road corridor and will not be seen to be out of context, albeit through road widening to enable the movement of vehicles, buses and active modes to complement the anticipated urban growth in the area.

The new bridge across the Hingaia Stream, like that across the Otūwairoa Stream, will present a new structure at a greater scale than existing. However, it will visually integrate into the surrounding urban context, which is anticipated to intensifiy under the AUP:OP provisions. Its fill batters will be planted with native vegetation which will visually soften these forms and integrate with the planting proposed along the stream margin. As such, any potential adverse effects on visual amenity are assessed to be **low**.

5.2.4 Recommended measures to avoid, remedy, or mitigate effects

The ‘overall approach’ outlined earlier within this report (within **Part A**) to avoid, remedy or mitigate effects for all NoRs remain relevant,[45] however a specific measure is provided below:

- Ensure the earthworks required to build the bridge over the Hingaia Stream are minimised and where possible to help offset the scale of proposed retaining walls, any landform modification integrates back into the surrounding environment responding to the stream edge. The modified slopes adjacent to the stream should be planted with appropriate species to tie in with the existing vegetation pattern and help visual integration. Mitigation measures related to the design of the bridge have been outlined earlier within Sections 4.3 and 4.5 of this report; and
- The fill batters / bridge abutments are to be planted with native vegetation to provide visual softening and to assist with integrating these forms into the localised environment, providing a contiguous vegetation pattern with that proposed along the stream margin.

5.3 NoR 3 – Takaanini FTN – Weymouth Road, Alfriston Road and Great South Road Upgrades

As outlined in the Project description (see section 2), NoR 3 comprises a range of interventions providing for the Takaanini FTN route along Weymouth and Alfriston Roads generally between Selwyn Road and Alfriston Park; as well as for the Great South Road FTN route between Alfriston Road and Myers Road. These interventions include road widening to provide for four lanes (general traffic and bus lanes in both directions), active mode facilities, eight intersection upgrades, stormwater treatment wetlands, and replacements of bridges over the NIMT and SH1.

5.3.1 Positive effects

Any positive effects resulting from the Project on NoR 3 have been outlined and addressed within **Part A**. NoR 3 presents upgrades to existing road corridors through an existing urban environment which will increase streetscape amenity and improve connectivity throughout the area.

[45] As such, they are not repeated here.

5.3.2 Adverse construction effects

5.3.2.1 Landscape Character

NoR 3 extends along two existing road corridors, (a) east-west along Weymouth and Alfriston Roads, and (b) north-south along Great South Road. It extends through a number of different zones[46] including:

- *Residential – Terrace House and Apartment Building*, *Mixed Housing Urban* and *Mixed Housing Suburban*;
- *Business – Town Centre* and *Light Industry*; and
- *Open Space – Sport and Active Recreation* and *Informal Recreation.*

NoR 3 involves the upgrade of these existing road corridors and will involve acquiring a number of properties adjacent to, and fronting, the road to enable site works to occur. Although the designation is largely linear, this will disrupt the existing urban pattern and form of the area.

Regarding the urban landscape pattern, NoR 3 is a single designation which extends along the two main road corridors. Numerous existing houses, buildings and other elements will be required to be removed, with access to others (which front the designation boundary) affected by the works. This will 'clear' the site over time and they will be replaced with the machinery, materials, structures and activities associated with the construction phase. This will also change the area from town centre commercial, suburban residential and a road corridor to a construction site. The proposed works will also result in the permanent closure / disconnection of Beaumonts Way, west of the NIMT.

In relation to open spaces / reserves, as outlined within **Part A**, four public open spaces are affected by the proposed designation boundary. These are:

- Tadmore Park, located on Great South Road (associated with Gallaher Park);
- Gallaher Park, with two small frontages on Alfriston Road;
- An informal recreation reserve, located east of SH1; and
- Alfriston Park, located on Alfriston Road.

Although the works required would restrict access to these respective open spaces, access is still provided to each open space from other parts of the local area. The extent of works within Tadmore Park and Gallaher Park is not extensive and does not occupy a large proportion of the space, e.g. it is largely the street frontages which are affected. As such these open spaces are retained as public recreation assets and can continue to be used during the construction phase.

However, for Alfriston Park and the *informal recreation reserve*, these spaces are considerably more affected by the proposed construction works. The *informal recreation reserve* is currently a stormwater detention pond and is accessed via Alfriston Road and Index Place (see Figure 5-10 below). The earthworks and landform modification required to build the bridge across SH1 will require a considerable amount of fill which is proposed to encroach into this space. Although an informal recreation reserve, it has low-moderate landscape amenity values, and it has a low level of useability. The works will change the landscape character of the space temporarily, but it will keep its utilitarian function.

[46] A plan illustrating these zones and the extent of NoR 3 can be found within the AEE document.

Figure 5-10: Image of the stormwater detention pond within the informal recreation reserve on Alfriston Road (Source: MJ_IGL)

For Alfriston Park, a wetland is proposed within this space which will occupy a significant proportion of the reserve. Not only will this disrupt access to the open space, but it will render part of the park unusable and therefore taking away a community asset during construction. This will result in greater adverse effects on the landscape character of this part of Manurewa (see Figure 5-11 below).

Figure 5-11: Image of the existing Alfriston Park public open space (Source: MJ_IGL)

Three other wetlands are proposed within the NoR 3 designation. These are at 15 Weymouth Road, 7 Alfriston Road and 75 Alfriston Road. These elements are not naturally occurring wetlands in this urban environment and will affect the character of the area. They will also be screened by the proposed mitigation works (e.g. hoardings).

One identified notable tree (under the AUP:OP) is located within the NoR 3 designation boundary. This tree is a Norfolk Island Pine[47] located on the property at 15 Weymouth Road, which is the location of one of the proposed wetlands.

However, the proposed designations and therefore the construction works may result in the removal of a number of established trees across the designation, within private properties and the open spaces. Although not all identified as notable / protected trees by Auckland Council under the AUP:OP, these trees provide enhancement to the landscape amenity and appreciation of the local area.

Within Tadmore Park, the proposed designation boundary includes a number of established trees along the Great South Road frontage such as oaks, london planes, totara and kowhai which may need to be removed (see Figure 5-12 below). These significant and established trees strongly add to the amenity values and landscape character of this part of Manurewa. Their removal, although enabling the upgrade of transport infrastructure along these respective streets, would result in adverse effects on landscape character and should be avoided, where possible.

Figure 5-12: Image of the existing trees within Tadmore Park (Source: Google Streetview)

The same can be said for the existing trees on the property at 7 Alfriston Road. Although not at the street frontage, these trees add to the vegetation cover in the area and can be appreciated from both Tadmore Park and Gallaher Park to the south and east. Numerous street trees along Alfriston Road could also be removed.

These trees contribute to the landscape amenity of the localised landscape and streetscape environment. Their removal through the construction works would result in adverse effects on landscape character and they should be avoided, where possible.

In terms of earthworks required overall, these are largely restricted to the localised setting along the road corridor, however greater fill is required for the bridge upgrade across the NIMT (at Manurewa station) and the aforementioned bridge upgrade across SH1. The rail bridge is proposed to be approximately 3m higher than the existing bridge, and the SH1 bridge at approximately 2m higher (an 'increase in the bridge vertical level'). These bridges will require cranes and other machinery which will change the character of the localised area. Retaining walls will also be required for the

[47] Identified as *Natural Heritage: Notable Trees Overlay – 1471, Norfolk Island Pine, Verified position of tree* under the AUP.

construction of these bridges which will add new elements into this environment. Figure 5-13 below illustrates the existing street environment of the bridge across SH1 looking west.

Figure 5-13: Image of the rise to the existing bridge across SH1 along Alfriston Road (Source: MJ_IGL)

In summary, any potential adverse effects on landscape character resulting from the construction works within NoR 3 are assessed to be **moderate – high**, overall. This takes into account:

- Although the construction works will present a temporary change to the character of the area, modification and development in an urban environment is anticipated. In this instance it is for the improvement of transport infrastructure and connections, and the designation is considered to be consistent and not out of context in this setting;
- The extent of the designation into the adjacent properties and removal of a number of houses;
- The scale of bridges and construction works required;
- The context of the existing urban landscape;
- The extent of earthworks, even though construction works and development is anticipated in this urban environment (as sought by the respective AUP:OP and potential PC78 planning provisions);
- The effects on public open spaces and the inclusion of wetlands;
- The potential effects resulting from the removal of vegetation; and
- Mitigation measures being implemented.

5.3.2.2 Visual Amenity

The visual catchment for the proposed designation boundary for NoR 3 includes the localised context of Weymouth Road, Alfriston Road, Great South Road and the smaller connecting roads. It also includes the adjacent residential and business properties and buildings, public open spaces, and to a limited extent users of the railway line at Manurewa Station and people travelling along SH1 under Alfriston Road. The area has moderate visual amenity attributed to its location along prominent roads in the area and associated with the Manurewa town centre.

Viewers of the construction works in this area will include those who are transient moving through the area on the roads (vehicles, pedestrians, cyclists), people in public open spaces, or those travelling on the rail line. More ‘static’ views will be afforded from the adjacent residences and businesses.

Although a large viewing audience due to the nature of the view from these locations, any adverse visual amenity effects specific to NoR 3 are assessed to be **moderate** during the construction phase. This is largely due to:

- The extent of the designation through this area;
- The modification required to the landscape to enable the works (e.g. building removal, tree removal, implementation of wetlands);
- The visibility and construction activity; and
- The extent of earthworks required.

From a number of properties adjacent to the respective designations, views will be afforded toward the construction works at close proximity. This includes adjacent properties where houses and buildings are unaffected by the works, and those properties where views will be exposed to the proposed works through the removal of buildings / houses within the proposed designation boundary. Specifically, these are located along Great South Road, in the commercial part of Manurewa, and numerous properties along Alfriston Road. A specific list of affected properties can be found within the AEE. The houses ‘behind’ these listed affected properties will be set back from the street edge but works may occur within the vacant addresses.

As outlined earlier within this report, the construction works and machinery will be visible from these adjacent properties, including from public open spaces. However, although visible and changing their outlook, the construction works will be temporary and present activities which are not common (although not unanticipated) as required to provide an upgrade to the road network. Potential adverse effects will be reduced through the provision of hoardings which will provide mitigation and screen views of lower-level construction activity and machinery, however taller elements such as cranes used for the construction of the bridges will be visible above the hoarding.

The construction phase for the bridges across the NIMT rail line and SH1 will present earthworks in the formation of the landforms required to provide the bridge batters. These will be visible in the localised urban context, and also from users of the rail line and SH1.

Although visible and a temporary visual change to the existing urban environment, construction activity is an expected feature of urban areas, and roadworks can be anticipated. This urban landscape is characterised by residential and commercial development, roading infrastructure and open space. The proposed works will be seen in this established urban context.

5.3.3 Adverse operational effects

Potential adverse effects on landscape character for   during the operational phase are assessed to be **low – moderate**. This is especially once the areas outside of the constructed lineal road corridors (e.g. the balance of the designation boundary) has been reinstated to their underlying zone and land use, and mitigation measures have been implemented. Any affected properties will have their driveways and boundaries reinstated and integrated to the new road arrangement.

During this phase, the character of the area is anticipated to have changed as enabled by the AUP:OP and PC78 provisions, especially considering the western part of the NoR designation is located near the Manurewa train station and town centre. As such, this area is anticipated to continue to change allowing for urban intensification, including buildings of greater density and height. The Project will be consistent with the future landscape character, improving transport infrastructure and enabling better transport connections through the area. The proposed road cross section will improve streetscape amenity, with the provision for active modes.

As outlined under construction effects earlier, there will be impact to a number of properties adjacent to and affected by the designation. The completion of the construction phase and implementation of new roading infrastructure and mitigation, the balance of the land of the affected properties which formed part of the designations (and which don't form part of the now new road corridors or mitigation requirements) will be subject to a designation review condition which could result in the partial uplift of the designation boundary from those properties (including landscape provisions where there may be insufficient land area to feasibly develop). As such, there are opportunities for reintegration of this land. This could include enabling its redevelopment (by others) in accordance with the broader urban intensification direction and their underlying land use zoning.

The removal the trees during the construction phase will have reduced the amenity and landscape character of the area, however this can be partially offset through the mitigation measures provided such as the inclusion of new trees. Any potential effects on notable trees will be addressed through appropriate mitigation measures as outlined within the TMP and Arboricultural Assessment report.

The scale of the bridges and their associated retaining walls bridges will change the character of the localised area. However, this is an upgrade of existing roading infrastructure across established transport routes (rail and SH1) to improve connections through this urban area which is anticipated to intensify in the future. The cul-de-sac at Beaumonts Way will disconnect vehicles from Weymouth Road, however a pedestrian connection is proposed.

Any adverse effects on visual amenity are assessed to be **low**. Although the proposal will have changed the road configuration / cross section, it will provide an enhanced streetscape environment and will be viewed in the context of the emerging urban environment.

In relation to visual amenity, the designation provides an upgrade to existing road corridors and will be seen in the context of the anticipated urban growth, albeit through road widening to enable the movement of vehicles, buses and active modes to complement the anticipated urban growth in the area.

The new bridges across the NIMT and SH1 will present new structures at a greater scale than existing, however they will visually integrate into the surrounding urban context. Retaining walls associated with the bridges will be introduced into this landscape, however they will be seen in the context of the urban context, which is anticipated to intensify under the AUP:OP provisions. The bridge fill batters will be planted with native vegetation which will visually soften these forms.

5.3.4 Recommended measures to avoid, remedy, or mitigate effects

The 'overall approach' outlined earlier within this report (within **Part A**) to avoid, remedy or mitigate effects for all NoRs remain relevant,[48] however a specific measure is provided below:

- Ensure the earthworks required to upgrade the bridge over the SH1 are minimised and respond to the existing landform (albeit modified). Any modified slopes required to create the landform should

[48] As such, they are not repeated here.

be planted to provide visual softening and integration with existing vegetation patterns. Mitigation measures related to the design of the bridge have been outlined earlier within this report;

- Where earthworks are required within public open spaces, ensure the topography integrates back into the surrounding environment at the completion of the construction phase, e.g. the western side of Gallaher Park along Great South Road. This will ensure future usability and access;
- With the inclusion of a wetland within Alfriston Park, ensure the balance of open space remains usable for the duration of the construction phase and it reinstated / improved as a public open space in the long term during operation;
- Ensure access into the identified public open spaces is retained during the construction phase; and
- Although not all protected, there are a number of established trees within the designation of NoR 3 which may be affected by the Project. These trees provide landscape amenity to the urban environment, a number of which are located within public open spaces. Given their landscape values, these trees should be protected and avoided, where possible, through both the construction phase and the longer-term operation of the Project.

5.4 NoR 4 – Takaanini FTN Porchester Road and Popes Road Upgrades

As outlined in the Project description (see Section 2), NoR 4 comprises a range of interventions providing for the Takaanini FTN route along Porchester Road generally between Alfriston Road and Walters Road; and for the urbanisation of Popes Road generally between Takanini School Road and Mill Road. These interventions provide for the urbanisation of both corridors, with two traffic lanes, widening for active mode facilities, seven intersection upgrades, and stormwater treatment wetlands.

5.4.1 Positive effects

Positive effects resulting from the works within NoR 4 have been outlined and addressed within **Part A**. NoR 4 provides an upgrade to existing road corridors through a mixed urban and rural environment. This will enhance the streetscape amenity and improve connectivity throughout the area, whilst providing and supporting this anticipated urban growth.

5.4.2 Adverse construction effects

5.4.2.1 Landscape Character

NoR 4 extends along the following existing road corridors, (a) north-south along Porchester Road, (b) east-west along Popes Road, and (c) along short sections of Alfriston Road, Takanini School Road and Walters Road. It extends through, or adjacent to a number of different zones[49] including:

- *Residential – Mixed Housing Urban*, *Mixed Housing Suburban* and *Single House*;
- *Business – Light Industry*; and,
- *Open Space – Informal Recreation*.

NoR 4 involves the upgrade of these existing road corridors and will involve partial acquisition of a number of properties adjacent to, and fronting, the respective roads to enable site works to occur.

49 A plan illustrating these zones and the extent of NoR 4 can be found within the AEE document.

Although the designations are largely linear and aligned to the existing roads, this will disrupt the existing development pattern and form of the area.

Regarding the existing landscape pattern, the designation boundary for NoR 4 extends along the aforementioned road corridors. However, only a limited number of houses / buildings are affected, however other elements such as vegetation will be required to be removed. Access to many properties (which front the designation boundary) will also be affected by the works, e.g., driveways.

The construction works will replace the road reserve (and a limited number of properties) with machinery, materials, structures and activities associated with this phase of the Project, changing the area to a construction site.

No notable trees identified by the AUP are affected by this NoR. However, a number of established trees located along Porchester Road and Popes Road will be affected. These trees are predominantly located along the road edge forming shelterbelts (associated with the existing rural land uses) or are amenity trees with the existing house curtilages (see Figure 5-14 below). Although these trees add to the landscape amenity and character of this setting, they are located in areas identified for future urban development within private properties. In the short term, their removal will change the character of the area and will result in adverse effects. However, there is significant vegetation cover and planting patterns in the area which will be retained outside the designation boundary during the construction phase, and the overall vegetation pattern of the wider landscape will remain unaffected by the proposed designation.

Figure 5-14: Image outside 64 Popes Road looking east (Source: MJ_IGL)

In relation to open spaces / reserves, two open spaces are potentially affected by the proposed construction works. These are (i) on the corner of Porchester Road and Airfields Road, and (ii) on the corner of Walters Road and Arion Road. A small extent of the proposed designations will protrude into these open spaces, however access into these spaces will be retained. The works in these locations will result in the removal of established trees, notably along Walters Road. These trees add to the landscape amenity and character of this localised environment and their removal will result in adverse effects.

Two wetlands are proposed within the NoR 4 designation. These are both located near the intersection to the north of Porchester Road and Popes Road. These elements are not naturally occurring wetlands in this environment and will temporarily affect the character of the area. They will also be screened by the proposed mitigation works (e.g. hoardings).

In terms of overall earthworks required, these are largely restricted to the localised setting along the road corridor.

In summary, potential adverse effects on landscape character resulting from the construction works within NoR 4 are assessed to be **low-moderate**, overall.

5.4.2.2 Visual Amenity

The visual catchment for the NoR 4 designation boundary includes the localised context of Alfriston Road, Porchester Road, Popes Road and Takanini School Road. It also includes the existing adjacent residential and industrial properties and buildings. The area has moderate visual amenity attributed to its location along prominent roads in the area which extend through a mix of rural and urban environments.

Viewers of the construction works in this area will include those who are transient, moving through the area on the roads. More 'fixed' views will be afforded from the adjacent residences and businesses.

In relation to visual amenity, although a moderate viewing catchment and audience due to the nature of the view from these locations, any adverse visual amenity effects specific to NoR 4 are assessed to be **low** during the construction phase. For those properties immediately fronting the works, effects will be **low-moderate**.

5.4.3 Adverse operational effects

During the operational phase, the landscape character of NoR 4 is anticipated to change considerably as enabled by the AUP:OP and PC78 provisions. As such, this area is anticipated to change allowing for urban intensification and greater density and height within the existing residential zones. The Project will be consistent with this future landscape character, improving transport infrastructure and enabling better transport connections through the area. The proposed road cross section will enhance the streetscape environment, with the provision for walking and cycling and also street trees.

The removal of trees during the construction phase will have reduced the amenity and landscape character of the area, however this can be partially offset through the mitigation measures provided such as the inclusion of new street trees. Potential effects on landscape character during the operational phase are assessed to be **very low**.

Any adverse effects on visual amenity are assessed to be **very low**. Although the proposal will have changed the road configuration, it will provide an enhanced streetscape environment and will be viewed in the context of the emerging urban environment.

5.4.4 Recommended measures to avoid, remedy, or mitigate effects

Although provided as an 'overall approach' to avoid, remedy or mitigate effects for all NoRs earlier within this report, those matters raised remain relevant when considering this NoR individually. As such, these measures are not repeated here.

6 Conclusion

This report has assessed the potential landscape character and visual amenity effects associated with the construction and operation of the proposed Project. The four separate NoRs which will enable the South FTN will for provide new and amended transport connections between Manukau (north) and Drury (south). The specific Projects associated with the South FTN will support the urban growth in the area.

The Project areas where the designations are proposed will form part of an existing and emerging urban environment which is anticipated to intensify through the AUP:OP and proposed PC78 provisions. This is anticipated to change the urban character in the area to enable greater density and height of future built form.

Within this report the potential effects have been assessed at a Project-wide scale, and at the more refined and specific scale related to each NoR. Although there are a range of assessment conclusions reached related to the respective NoRs, the Project will provide visually integrated elements into the urban environment, designed to respond to the existing and anticipated future urban landscape patterns. Although presenting a change to the character (including introducing new infrastructure elements), the Project provides improvements to transport infrastructure and safer movements for vehicles, buses and active modes across the area. The respective NoR Projects will be consistent with the anticipated urban landscape character and will be supported by the mitigation measures proposed which are to be implemented through a ULDMP.

Table 6-1 below provides a summary of the potential landscape character and visual amenity effects ratings (i) overall, and (ii) for the respective NoR Projects during both the construction and operational phases (including the recommended mitigation measures).

Whilst an overall project level of effect has been identified, it should not detract from the importance of the individual effects on landscape character and visual amenity (at both construction and operational phases) identified for each NoR. The outline of individual effects for each NoR have been provided, consistent with the approach and intent of Te Tangi A Te Manu Aotearoa New Zealand Landscape Assessment Guidelines, Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. As such, overall project effects are provided as a summary only.

Table 6-1: Summary of potential landscape character and visual amenity effects relative to the specific NoRs for the FTN.

NoR	*Corridor*	*Construction Phase*		*Operational Phase*	
Overall Project	*N/A*	*Landscape Character*	***Moderate***	*Landscape Character*	***Low***
		Visual Amenity	***Moderate***	*Visual Amenity*	***Low***
NoR 1	*Great South Road Intersections*	*Landscape Character*	***Moderate***	*Landscape Character*	***Low***
		Visual Amenity	***Low – Moderate***	*Visual Amenity*	***Low***

NoR	Corridor	Construction Phase		Operational Phase	
NoR 2	*Great South Road (Drury Section)*	*Landscape Character*	***Moderate***	*Landscape Character*	***Low***
		Visual Amenity	***Low – Moderate***	*Visual Amenity*	***Low***
NoR 3	*Alfriston Road*	*Landscape Character*	***Moderate – High***	*Landscape Character*	***Low – Moderate***
		Visual Amenity	***Moderate***	*Visual Amenity*	***Low***
NoR 4	*Porchester Road / Popes Road*	*Landscape Character*	***Low – Moderate***	*Landscape Character*	***Very Low***
		Visual Amenity	***Low***	*Visual Amenity*	***Very Low***

1 Appendix A Site Context Photos