



**TE TUPU NGĀTAHI**  
SUPPORTING GROWTH

# North West Redhills and Riverhead Assessment of Landscape Effects

December 2022

Version 1

## Document Status

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## Abbreviations

Acronym/Term	Description
AEE	Assessment of Effects on the Environment
ASH	Alternative State Highway

<b>Acronym/Term</b>	<b>Description</b>
<b>AT</b>	Auckland Transport
<b>AUP:OP</b>	Auckland Unitary Plan Operative in Part
<b>CC2W</b>	City Centre to Westgate
<b>FTN</b>	Frequent Transit Network
<b>FULSS</b>	Future Urban Land Supply Strategy
<b>FUZ</b>	Future Urban Zone
<b>NAL</b>	North Auckland Line
<b>NoR</b>	Notice of Requirement (under the Resource Management Act 1991)
<b>RMA</b>	Resource Management Act 1991
<b>RTC</b>	Rapid Transit Corridor
<b>RAMC</b>	Regional Active Mode Corridor
<b>RUB</b>	Rural Urban Boundary
<b>SG</b>	Te Tupu Ngātahi Supporting Growth
<b>SH16</b>	State Highway 16
<b>The Council</b>	Auckland Council
<b>Waka Kotahi</b>	Waka Kotahi NZ Transport Agency

## Glossary of Acronyms / Terms

Acronym/Term	Description
<b>Auckland Council</b>	Means the unitary authority that replaced eight councils in the Auckland Region as of 1 November 2010.
<b>Redhills Riverhead Assessment Package</b>	Two Notices of Requirement (for Don Buck Road and Coatesville-Riverhead Road) and one alteration to an existing designation (Fred Taylor Drive) for the Redhills Riverhead Package of Projects for Auckland Transport.

# 1 Executive Summary

## ***Assessment undertaken***

The Landscape Effects Assessments (LEAs) have been undertaken with reference to Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines<sup>1</sup>. It assesses the effects on the landscape which comprise landscape character, visual and natural character. Landscape impacts are a result of natural or induced changes in the landscape. Natural character impacts relate to the changes to streams, wetlands and their margins as outlined in the NZCPS<sup>2</sup>.

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

Changes during the construction process and/or activities associated with the development are considered separately to those generated by a completed development.

## ***Project context summaries***

### **NoR RE1 Don Buck Road FTN Upgrade**

This project is set in an existing two-lane arterial which runs from Fred Taylor Drive to the north and Swanson Road and Universal Drive to the south. The proposed road upgrade is from Fred Taylor Drive south to Royal Road. The road is proposed to be upgraded from a corridor width of 27-35m to a 30m wide four-lane local arterial with buses priority lanes and separated cycle lanes and footpaths on both sides of the corridor. Intersections located along the corridor are proposed to be signalised.

### **NoR RE2 Fred Taylor Drive (alteration to existing designation 1433)**

This project is set in an existing rural and semi-rural road two-lane arterial corridor which extends from the existing Brigham Creek Interchange in the north to SH16 in the south (via an intersection with Don Buck Road). The proposed upgrade will require the existing road corridor to be widened in places to facilitate the proposed corridor will also support an active mode shift with separated cycle lanes and footpath on either side and public transport priority lanes. The northern extent of the route is surrounded by FUZ and the southern extent is urban zoned residential and business zoned land.

### **NoR R1 Coatesville-Riverhead Highway Upgrade**

The project is set within an existing arterial extending from SH16 in the south to its intersection with Dairy Flat Highway in the north east, with the extent of the proposed upgrade from SH16 in the south to its intersection with Riverhead Road in the north. The southern section of the alignment from SH16 to Short Road runs through rural land uses which are expected to remain. The northern section (close to and within the Riverhead township) runs through low-medium density residential land uses on the east and future urban zoned land on the west.

## ***Potential Positive Effects***

A number of positive landscape and visual effects are anticipated as a result of the operation of the Projects (including proposed mitigation).

<sup>1</sup> 'Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines', [Final Draft subject to final editing, graphic design, illustrations, approved by Tuia Pito Ora/NZILA 5 May 2021]

<sup>2</sup> 'New Zealand Coastal Policy Statement' [issued 4 November 2010]. Accessed online 24.11.2021 (<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/nz-coastal-policy-statement-2010.pdf>)



Positive effects are likely to include:

- A streetscape to support emerging urban form within adjacent land in the Riverhead FUZ and the emerging urban form of Redhills; and;
- Slower speed limits adjacent to existing dwellings and commercial activities improving the experiential qualities of the corridor for users and well as private properties adjacent to the road corridor.

### ***Construction Effects***

Construction effects are expected to be primarily related to the presence of construction plant within existing road corridors, lighting of night works, construction sites and the construction of wetlands. The phasing of the Projects will increase the intensity of construction traffic moving along the Project routes throughout the construction period. The phasing of the works along the corridor reduces the length of time audiences are expected to experience adverse effects. Mitigation measures are proposed to reduce the impacts of these construction effects.

### ***Operational Effects***

Operational effects are expected to be result of a widened or introduced road corridor; changes in landform and alteration of watercourses. It is proposed that during the detailed design processes these are addressed in the ULDMP.

### ***Proposed mitigation measures***

Mitigation measures are recommended to reduce potential effects of a low-moderate and above rating to reduce effects to a lower degree.

#### ***For Construction effects***

The mitigation measures for all activities and built elements during construction for all NoR Project Areas in this package are outlined below. An Urban and Landscape Design Management Plan (ULDMP) is recommended as a condition on the designation which should include the following matters:

- Provide hoarding around the boundaries of site compounds that face on to adjacent residential properties.
- Interpretation - where practicable, during construction, install construction hoardings with interpretive panels in selected areas which are in close proximity and visible to the public, to provide information about the Project and its progress.
- Reinstate earthworked areas at the completion of works.
- Vegetation clearance: wherever practicable, limit the removal of mature trees and indigenous vegetation.
- Where topsoil is to be stored on site we recommend that these are grassed to better integrate with the surrounding landscape.
- Wherever practicable consideration should be given to locating stockpiles at the edge of site compounds to provide visual screening.
- Wherever practicable retain, stockpile and re-use top soil from existing pastoral land within the Project area to reduce the amount of truck movements, and associated visual effect.
- Mitigate effects related to lighting during night time works by using directional lighting to prevent sky glow and glare/spill light falling on residential properties.

#### ***For Operational effects***

The mitigation measures for all activities and built elements during operation for all NoR Project Areas for this package are outlined below. The measures to remedy and mitigate the adverse operational effects of the Project on the natural and urban landscape will be addressed under a ULDMP, which will lay out the main design themes, principles and outcomes of the Project.

- **Cut and Fill Batters (General areas)** - All cut and fill slopes to be shaped to a natural profile to integrate into the surrounding natural landform, benching and geometric angles should be avoided where practicable. These areas may be grassed or landscaped, to integrate into the adjacent land use.
- **Site Compounds and Construction Yards** - Reinstate construction and site compound areas by removing any left-over fill and shaping ground to integrate with surrounding landform.
- **Impacts on private property** – the Project could potentially impact on existing property features in the following ways:
  - Encroachment into some private yards, impacting on residential amenity and existing entrance way design;
  - Surface level changes between private property and the upgraded road corridor and subsequent regarding of some driveways and private accessways;
  - Greater proximity of the carriageway and footpath/cycleway to property boundaries and increased traffic volumes.
- For partially affected properties, where existing dwellings are assumed to remain, it is recommended that boundary fences and garden plantings (removed through the Project works) are reinstated on completion of the works affecting the property, unless other arrangements are requested by land owners.
- Noise mitigation measures and/or retaining walls (if proposed) are recommended to integrate with private boundary fencing reinstatement and any reinstatement planting required to replace vegetation lost through the Project works (i.e. to avoid double layering of noise walls and boundary fences). These features should be designed to minimise adverse visual amenity effects on residents, integrate with the layout and design of outdoor living spaces and in consideration of streetscape character.
- A planting plan is recommended to be included in the ULDMP which will be developed as part of the detailed design of the Project. It is recommended that any planting proposed as mitigation for activities that require regional consents process is integrated with the planting plan as recommended.

## Conclusions

Across all NoRs the adverse landscape and visual effects without the implementation of mitigation proposals will range from **moderate-high** adverse to **very low** adverse during the construction phase. Landscape and visual effects during the operational phase, without mitigation are anticipated to range from **moderate-high** adverse to **very low** adverse

It is anticipated that across all of the NoRs, where mitigation measures are undertaken landscape and visual effects will range from **low moderate** adverse to **very low-** adverse during the construction phase of works. With the project information currently available during the operational phase of works it is anticipated that landscape and visual effects will range from **low-moderate** adverse to **very low** adverse. Across all NoRs the proposed operational effects are assessed approximately 3-5 years after implementation when proposed planting has become established. After implementation it is expected that landscape effects will diminish over time until planting is established;

The highest level of anticipated adverse landscape effects with or without mitigation are related to the potential loss of riparian vegetation within established wetlands (NoR RE1), the loss of screening vegetation and front yard space of enduring rural landscapes along the Coastesville-Riverhead

highway (NoR R1) and the loss of screening vegetation and front yard space within established rural residential dwellings (NoRs R1 and R3). The highest level of anticipated adverse visual landscape effects across all NoRs are related to retained residential properties where existing screening and filtering vegetation is removed and/or the road corridor moves closer to the audience. For all of the NoRs it is anticipated that adverse effects can be mitigated and will become amalgamated into the emerging urban development.

## 2 Introduction

This landscape assessment has been prepared for the North West Redhills and Riverhead Local Arterials Notices of Requirement (**NoRs**) for Auckland Transport (**AT**) (the “**Redhills Riverhead Assessment Package**”). The NoRs are to designate land for future strategic and local arterial transport corridors as part of Te Tupu Ngātahi Supporting Growth Programme (**Te Tupu Ngātahi**) to enable the construction, operation and maintenance of transport infrastructure in the North West area of Auckland.

This report assesses the landscape effects of the North West Redhills Riverhead Assessment Package identified in Section 5 and Table 2-1 below.

Refer to the main AEE for a more detailed project description.

**Table 2-1: North West Redhills Riverhead Assessment Package – Notices of Requirement and Projects**

Notice	Project
NoR RE1	Don Buck Road FTN Upgrade
NoR RE2	Fred Taylor Drive (alteration to existing designation 1433)
NoR R1	Coatesville-Riverhead Highway Upgrade

## 3 Purpose and Scope of this Report

This assessment forms part of a suite of technical reports prepared to support the assessment of effects within the Redhills Riverhead Assessment Package. Its purpose is to inform the AEE that accompanies the Redhills Riverhead Assessment Package sought by Waka Kotahi and AT.

This report considers the actual and potential effects associated with the construction, operation and maintenance of the Redhills Riverhead Assessment Package on the existing and likely future environment as it relates to landscape effects and recommends measures that may be implemented to avoid, remedy and/or mitigate these effects.

The key matters addressed in this report are as follows:

- a) Identify and describe the landscape context of the Redhills Riverhead Assessment Package area;
- b) Identify and describe the actual and potential landscape effects of each Project corridor within the Redhills Riverhead Assessment Package;
- c) Recommend measures as appropriate to avoid, remedy or mitigate actual and potential landscape effects (including any conditions/management plan required) for each Project corridor within the Redhills Riverhead Assessment Package; and
- d) Present an overall conclusion of the level of actual and potential landscape effects for each Project corridor within the Redhills Riverhead Assessment Package after recommended measures are implemented.

### 3.1 Report Structure

The report is structured as follows:

- a) Overview of the methodology used to undertake the assessment and identification of the assessment criteria and any relevant standards or guidelines;
- b) Description of each Project corridor and project features within the Riverhead Assessment Package as it relates to landscape;
- c) Identification and description of the existing and likely future landscape environment;
- d) Description of the actual and potential positive effects of the Project;
- e) Description of the actual and potential adverse landscape character, effects of construction of the Project;
- f) Description of the actual and potential adverse landscape effects of operation of the Project;
- g) Recommended measures to avoid, remedy or mitigate potential adverse landscape effects; and
- h) Overall conclusion of the level of potential adverse landscape effects of the Project after recommended measures are implemented.

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 for the Project, likely staging 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 effects. As such, they are not repeated here, unless a description of an activity is necessary to understand the potential effects, then it has been included in this report for clarity.

## 3.2 Preparation for this Report

The assessment is derived from the following data collection and field work:

- Online data collection of aerial maps and AUP:OP / GIS overlays, including, but not limited to:
  - Significant Ecological Areas (SEAs)
  - Outstanding Natural Features (ONF) and Outstanding Natural Landscapes (ONL)
  - Outstanding Natural Character (ONC)
  - High Natural Character (HNC)
  - Land Cover Data Base (LCDB)
  - AUP:OIP zones; and
  - Catchments and hydrology
- Desktop analysis of the roads, urban areas / future urban areas with Google Maps and Google Streetview
- Site Visits to each of the Project areas, was undertaken in July 2020, March 2021 and June 2022.
  - The purpose of these site visits were to understand and evaluate the existing baseline as part of determining the physical and sensory effects the Projects would have on the site and the broader landscape, in addition to the identification of the Projects' viewing audiences.
- A study of aerial photography including land use, landform and vegetation patterns was undertaken, in addition to the site visit, to determine the visual catchment and viewing audience of the proposal.
- Private properties which are likely to be affected have been visually surveyed from nearby publicly accessible locations where possible, with further reference to aerial imagery to understand the nature of these potential viewing audiences.

Review of related specialist reports including Ecology, Arboriculture and Urban Design.

## 4 Assessment Methodology

### 1.1 Overview

This Landscape Effects Assessment (LEA) has been undertaken with reference to Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines<sup>3</sup>. The same methodology applies to the construction and operational stages of the works and for NoRs (R1, R2, and R3). These guidelines have been developed to relate to the Aotearoa New Zealand environmental planning context and align with te ao Māori and te ao Pākehā concepts of landscape.

### 4.1 Scale of Effects

In determining the magnitude of potential and actual landscape and visual effects of the Project, a consistent 7-point rating scale has been used that is based on the recommendations in the Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines. The effects ratings referred to in this assessment are based upon a seven-point scale which ranges from 'very low' to 'very high' (a detailed description of these scales is available in Appendix 3 of this assessment).

### 4.2 Landscape Values, Landscape Sensitivity

Landscape values consider any scheduled high value landscape areas (ONLs, ONFs, HNCs or ONCs) at a national, regional or district level within or directly adjacent to the Project areas.

The sensitivity of landscape is influenced by the existing land use, future landscape direction (AUPOIP and also the Whenuapai Structure Plan). The interfaces between lands and water (riparian margins) are particularly sensitive to landscape change. Other landscape attributes may also be sensitive to the effects of landscape change such as topographical and landform features, vegetation, landmarks and landscape features in the contextual landscape.

### 4.3 Landscape and Natural Character Effects

Landscape effects are a result of physical change in the landscape, which may change the character of the landscape over time. Landscape effects relate to biophysical: abiotic (geophysical processes (landform) and drainage patterns), biophysical: biotic (vegetation cover, quality and pattern) and human attributes (land uses, active and passive recreation, amenity and built form).

Effects will be assessed in terms of:

- Temporary/construction effects, which relate to the construction activities required to implement the Project.
- Permanent/operational effects, the effects on the landscape of completed works (including integrated landscape mitigation measures).

Natural character effects pertains to changes to the coastal environment (including the coastal marine area), wetlands, and lakes and rivers<sup>4</sup> and their margins. Effects are primarily concerned with the

<sup>3</sup> 'Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines', [Final Draft subject to final editing, graphic design, illustrations, approved by Tuia Pito Ora/NZILA 5 May 2021]

<sup>4</sup> A 'river' is defined in the RMA as a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse.

degree to which natural processes, natural patterns and natural elements have undergone human modification

The natural character assessment for this Project applies to the existing water bodies and wetlands associated with the Sinton Stream, Pikau Stream, Totara Creek, Waiarohia Stream, Rawiri Stream and Trig Stream.

## 4.4 Visual Effects

Visual effects relate to the changes that arise in the composition of available views as a result of changes to the landscape. Visual effects are considered for both temporary (construction effects) and permanent (operational effects) of the Projects.

Assessment photography was obtained during the project site visit in November and December 2021. The outlook from viewpoints that were captured onsite were photographed and assessed in variable weather conditions and at standing eye level.

## 4.5 Limitations and Project Assumptions

This landscape assessment does not specifically address and respond to Mana whenua values from a landscape planning perspective. This report references the latest data available in respect of these matters at the time of issue.

All site assessments have been undertaken from public land and supported through detailed desktop GIS mapping and aerial photograph information.

A range of assumptions have been made in order to establish a consistent approach across the projects and to clearly define the parameters of the context of the construction and operational phases. Detailed list of the Project Assumptions is available in Appendix 3 of this assessment.

The findings of this landscape effects assessment are underpinned by the following assumptions:

## 4.6 Statutory Guidance

### 4.6.1 Notice of Requirement

This assessment has been prepared to support the NoRs for the projects. The process for consideration of a NOR is set out in section 168 of the RMA. This includes consideration of the actual or potential effects (including positive effects) on the environment of allowing the requirement under the Resource Management Act (RMA).

## 4.7 Non-Statutory Guidance

The Whenuapai Structure Plan indicates how the future urban environment may develop over time, subject to future plan change processes.

### 4.7.1 Spatial Land Use Strategy - Kumeū-Huapai, Riverhead, and Redhills North.

The Kumeū-Huapai / Riverhead area has not been structure planned. Land release for the Kumeū-Huapai/Riverhead area is identified in the FULSS to occur between 2028 and 2032. Council’s current view is that structure planning must occur prior to the release of land currently zoned FUZ. This is indicatively programmed for Kumeū-Huapai / Riverhead in 2025.

The project team is working closely with Auckland Council to support desired outcomes for the Kumeū-Huapai / Riverhead area.

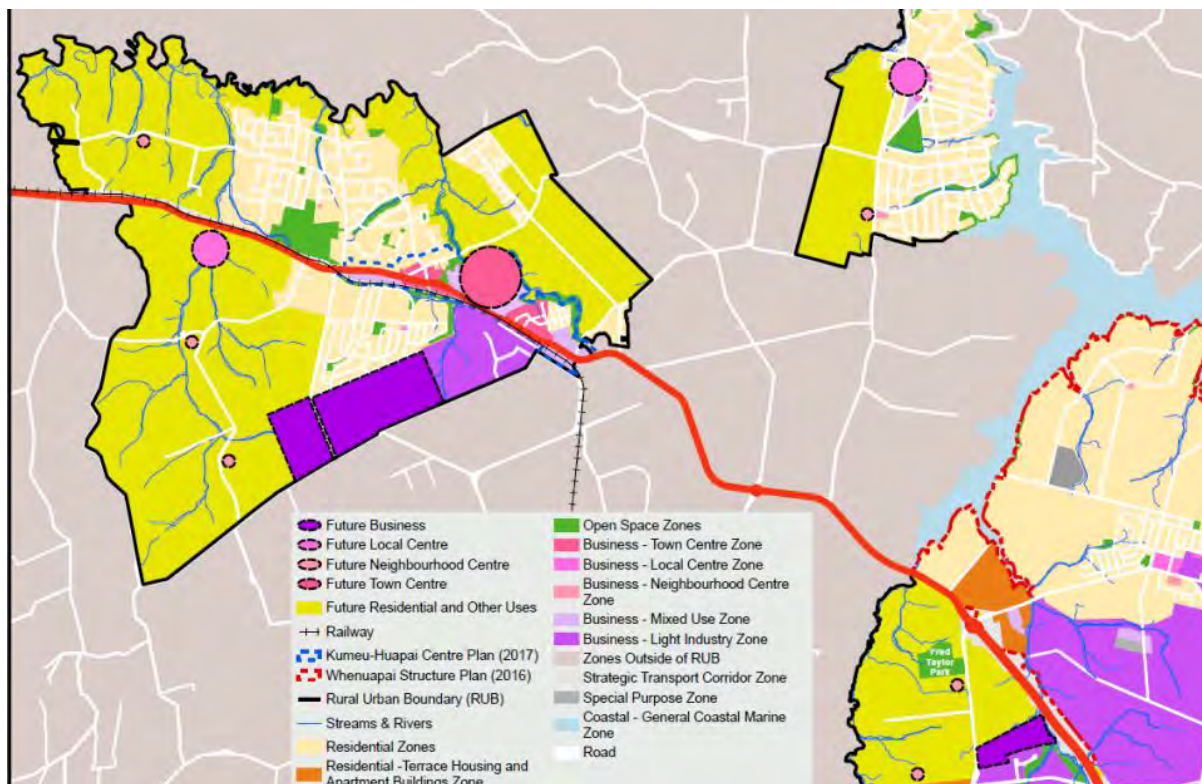


Figure 4-1: Spatial Land Use Strategy - Kumeū-Huapai, Riverhead, and Redhills North.

**Note: The Spatial Land Use Strategy is not a detailed structure plan and is only intended to be a high-level outline of the future land uses in the Future Urban zone.**

### 4.7.2 National Policy Statement on Urban Development – NPS UD

The National Policy Statement-Urban Development (NPS-UD) came into effect on 20 August 2020 and sets out a list of things that local authorities must do to give effect to the objectives and policies defined within the policy statement.

Detailed analysis of the NPS UD is available in Appendix 3 of this assessment.



## 5 Redhills Riverhead Assessment Package Overview

An overview of the Redhills Riverhead Assessment Package is provided in below Figure 5-1.



Figure 5-1: Redhills and Riverhead Assessment upgrades

A brief summary of the Redhills Riverhead Assessment Package projects is provided in Table 5-1 below.

Table 5-1: Redhills Riverhead Assessment Package Project Summary

Corridor	NOR	Description	Requiring Authority
<b>Don Buck Road FTN Upgrade</b>	RE1	Upgrade of Don Buck Road corridor to a 30m wide four-lane cross-section providing bus priority lanes and separated active mode facilities on both sides of the corridor.	Auckland Transport
<b>Fred Taylor Drive FTN Upgrade</b>	RE2	Upgrade of Fred Taylor Drive corridor to a 30m wide four-lane cross-section providing bus priority lanes and separated active mode facilities on both sides of the corridor.	Auckland Transport
<b>Coatesville-Riverhead Highway Upgrade</b>	R1	Upgrading the southern section of the corridor to a 33m two-lane low speed rural arterial cross-section with active mode facilities on the western side; and  Upgrading the northern section of the corridor to a 24m two-lane urban arterial cross-section with active mode facilities on both sides of the corridor.	Auckland Transport

Please refer to the AEE for further information on these projects, including a project description, key project features and the planning context.

## 6 Redhills Riverhead Positive Effects

Positive effects in relation to landscape and visual elements are primarily associated with the provision or improved streetscapes resulting in improved visual amenity and enhancements to the landscape.

Although infrastructure projects often introduce or expand a transportation corridor, there are opportunities to improve the visual amenity, landscape legibility and improve landscape character features, improve streetscape amenity and enable active transportation modalities. Positive landscape effects may result from general landscape improvements associated with the project and / or specific measures designed to improve anticipated landscape and / or visual effects.

A number of positive landscape and visual effects are anticipated as a result of the operation of the

- Projects (including proposed mitigation).
- Positive effects are likely to include:
- A streetscape to support emerging urban form within adjacent land in the Riverhead FUZ and the emerging urban form of Redhills; and;
- Slower speed limits adjacent to existing dwellings and commercial activities improving the experiential qualities of the corridor for users and well as private properties adjacent to the road corridor.

## 7 Redhills Riverhead Construction and Operational Effects and Proposed Mitigation

### 7.1.1 Site Enabling Works

#### Construction Areas

Construction compounds, laydowns, construction machinery, earthworks, material storage will be present across both Projects in this Package. Night works, where required, will introduce light into an existing sparsely lit environment. Landscape effects related to activities across this package of work will be;

- the widening of an existing road corridor into undeveloped and developed land (all NoRs);
- wetland/dry pond construction (all NoRs);
- construction within the proximity to retained private property; and;
- removal of existing buildings and development (all NoRs).

#### Vegetation Clearance

Broad areas of roadside vegetation are proposed to be removed to accommodate the wider road corridors and batter slopes for all NoRs. Within urban areas this is a permitted activity and is expected as a requirement for the expansion of the road corridor. Vegetation removal in rural areas is subject to consent as a regional matter.

This consists of trees and shrubs located within the road-side boundaries and private properties within the Project area. Rural vegetation including exotic pasture, trees, shelterbelt plantings, private gardens and cropland make up the majority of vegetation to be removed for all NoRs.

### 7.1.2 Recommended Measures to Avoid, Remedy or Mitigate Construction Effects

The mitigation measures for all activities and built elements during construction for all NoR Project Areas in this package are outlined below. An Urban and Landscape Design Management Plan (ULDMP) is recommended as a condition on the designation which should include the following matters:

- Provide hoarding around the boundaries of site compounds that face on to adjacent residential properties.
- Interpretation - where practicable, during construction, install construction hoardings with interpretive panels in selected areas which are in close proximity and visible to the public, to provide information about the Project and its progress.
- Reinstate earthworked areas at the completion of works.
- Vegetation clearance: wherever practicable, limit the removal of mature trees and indigenous vegetation.
- Where topsoil is to be stored on site we recommend that these are grassed to better integrate with the surrounding landscape.
- Wherever practicable consideration should be given to locating stockpiles at the edge of site compounds to provide visual screening.

- Wherever practicable retain, stockpile and re-use top soil from existing pastoral land within the Project area to reduce the amount of truck movements, and associated visual effect.
- Mitigate effects related to lighting during night time works by using directional lighting to prevent sky glow and glare/spill light falling on residential properties.

### 7.1.3 Recommended Measures to Avoid, Remedy or Mitigate Operational Effects

The mitigation measures for all activities and built elements during operation for all NoR Project Areas for this package are outlined below. The measures to remedy and mitigate the adverse operational effects of the Project on the natural and urban landscape will be addressed under a ULDMP, which will lay out the main design themes, principles and outcomes of the Project.

- **Cut and Fill Batters (General areas)** - All cut and fill slopes to be shaped to a natural profile to integrate into the surrounding natural landform, benching and geometric angles should be avoided where practicable. These areas may be grassed or landscaped, to integrate into the adjacent land use.
- **Site Compounds and Construction Yards** - Reinstate construction and site compound areas by removing any left-over fill and shaping ground to integrate with surrounding landform.
- **Impacts on private property** – the Project could potentially impact on existing property features in the following ways:
  - Encroachment into some private yards, impacting on residential amenity and existing entrance way design;
  - Surface level changes between private property and the upgraded road corridor and subsequent regarding of some driveways and private accessways;
  - Greater proximity of the carriageway and footpath/cycleway to property boundaries and increased traffic volumes.
- For partially affected properties, where existing dwellings are assumed to remain, it is recommended that boundary fences and garden plantings (removed through the Project works) are reinstated on completion of the works affecting the property, unless other arrangements are requested by land owners.
- Noise mitigation measures and/or retaining walls (if proposed) are recommended to integrate with private boundary fencing reinstatement and any reinstatement planting required to replace vegetation lost through the Project works (i.e. to avoid double layering of noise walls and boundary fences). These features should be designed to minimise adverse visual amenity effects on residents, integrate with the layout and design of outdoor living spaces and in consideration of streetscape character.
- A planting plan is recommended to be included in the ULDMP which will be developed as part of the detailed design of the Project. It is recommended that any planting proposed as mitigation for activities that require regional consents process is integrated with the planting plan as recommended.

## 8 NoR RE1: Don Buck Road FTN Upgrade

### 8.1 Project Corridor Features

Don Buck Road is an existing two-lane arterial which runs from Fred Taylor Drive to the north and Swanson Road and Universal Drive to the south. The proposed road upgrade is from Fred Taylor Drive south to Royal Road. The corridor is anticipated to facilitate the future growth in Redhills, whilst also providing a connection to rapid transit stations, regional active mode corridors and the SH16 motorway interchanges.

This section of Don Buck Road is proposed to be upgraded from a corridor width of 27-35m to a 30m wide four-lane local arterial with buses priority lanes and separated cycle lanes and footpaths on both sides of the corridor. Intersections located along the corridor are proposed to be signalised. An overview of the proposed design is provided in Figure 8-1 below.



**Figure 8-1: Overview of the Don Buck Road FTN Upgrade**

Key features of the proposed new corridor include the following:

- Widening of Don Buck Road to a 30m wide four-lane local arterial with buses priority lanes and separated cycle lanes and footpaths on both sides of the corridor (See Figure 8-2).
- The upgrade to the intersections with Fred Taylor Drive, Westgate Drive, Rush Creek Drive and Beauchamp Road.
- The proposed upgrade is expected to remain within the existing corridor to the extent possible with localised widening occurring near intersections.

- Tie-ins with existing roads, stormwater dry ponds, wetlands and culverts.
- Batter slopes to enable widening of the corridor, and associated cut and fill activities (earthworks).
- Vegetation removal along the existing road corridor.

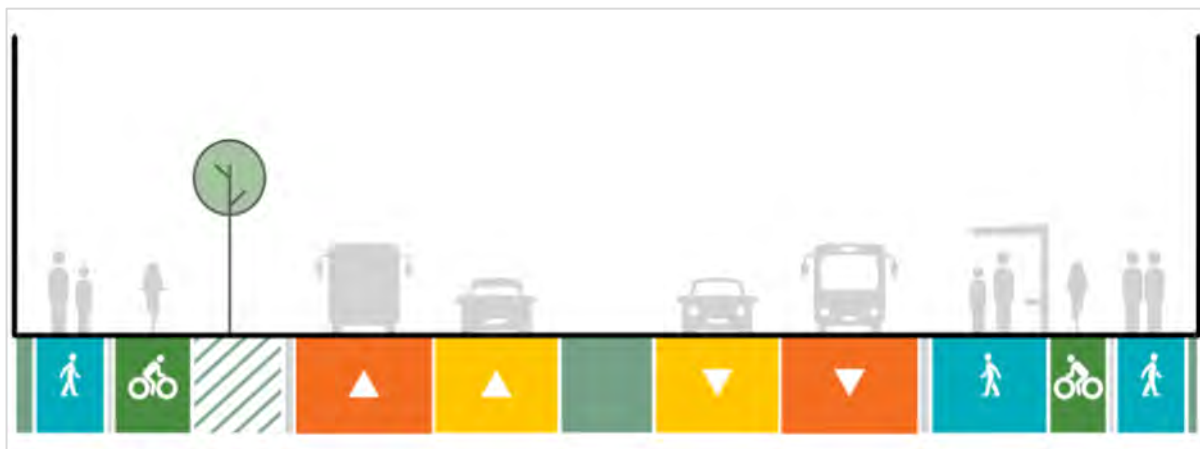


Figure 8-2: Don Buck Road Upgrade Typical Cross Section

## 8.2 Existing and Likely Future Environment

### 8.2.1 Planning context

The land adjacent to Don Buck Road is comprised of various business, residential and open space zoning. The following outlines the key elements of the planning context for the Don Buck Road FTN Upgrade:

- The eastern side of Don Buck Road above Westgate Drive is zoned under the AUP:OP as Business – Light Industry. To the south of Westgate Drive, the eastern side of Don Buck Road contains an Open Space – Community Zone (occupied by Massey Leisure Centre), with the remaining land zoned as Residential – Mixed Housing Zone.
- The western side of Don Buck Road is within the I610 Redhills Precinct and is predominantly zoned Residential – Mixed Housing Urban, with a portion of land in the northern section of the corridor zoned Residential – Terraced Housing and Apartment Buildings Zone (**THAB**). Land further to the west of Don Buck Road forms part of the Redhills Precinct.

Table 8-1 below provides a summary of the existing and likely future environment as it relates to the Don Buck Road FTN Upgrade.

Table 8-1: Don Buck Road FTN Upgrade Existing and Likely Future Environment

Environment today	Zoning	Likelihood of Change for the environment <sup>5</sup>	Likely Future Environment <sup>6</sup>
Business	Business (Industrial)	Low	Business
Residential	Residential – Mixed Housing Urban Zone	Low	Residential

<sup>5</sup> Based on AUP:OP zoning/policy direction

<sup>6</sup> Based on AUP:OP zoning/policy direction

Environment today	Zoning	Likelihood of Change for the environment <sup>5</sup>	Likely Future Environment <sup>6</sup>
	Residential – Terraced Housing and Apartment Zone		
Open Space	Open Space – Community Zone	Low	Open Space

Please refer to the AEE for further information on the planning context.

## 8.2.2 Baseline / Existing Landscape

### 8.2.2.1 Baseline Landscape

The Project is situated within the existing Don Buck Road corridor and extends into adjacent land that is characterised by urban residential and light industry.

The local landscape character of Don Buck Road is summarised below:

- Vegetation cover comprising stand-alone elements of urban trees, predominantly within private property boundaries. The majority of the road reserve comprises amenity grass with standalone and clumps of native and non-native trees appearing intermittently along the road reserve. The largest band of vegetation is at the southern end of the scheme on the eastern side of the road corridor.
- The landscape is characterised by land modification associated with developed urban land on the urban fringe.
- The landscape character value is very low within the context of the existing road reserve. There is the potential to enhance this aspect of the landscape.

## Landform and Hydrology

Don Buck Road is situated on along a north south ridgeline that gently rises from the north to the south with a highpoint close to the Royal Road intersection. The main road corridor does not traverse existing streams and wetlands, however the Wetland 2 upgrade to the east is within the Tihema Stream valley.

## Landcover

The landscape east and west of Don Buck Road is characterised by a wide roadside verge that borders predominantly residential properties that front or back on to the road corridor. The northern end of the site is bordered to the east by a large sealed area used for light industry. To the south of the business - light industry zoned land the Massey Leisure centre is designated as an open space conservation zone. St Paul's Primary School to the west of the site is set approximately 40m back from the proposed designation, but has an access directly onto Don Buck Road.

Standalone and small clumps of mature native trees located within the road reserve and within the roadside boundaries of private properties contribute to the landscape character of the surrounding landscape. A dense linear belt of native vegetation has been planted along an approximately 80m stretch of an embankment at the southern end of the Project corridor on the eastern side (Figure 9-3 below).

No scheduled notable trees are present within proximity of the Project.



**Figure 8-3: Existing view of the existing vegetation looking north along Don Buck Road from the intersection with Beauchamp Drive.**

## Land Use

The existing Don Buck Road corridor is approximately 32m wide and zoned as 'Road under the AUP:OP, the carriageway is approximately 15m wide.

Land use either side of the existing road urban and comprises residential properties along the majority of the route and large lot light industrial use to the north west of the route (Figure 9-4 below).





Figure 8-4: View south down Don Buck Road from 560 Don Buck Road showing residential and light industrial land uses.

### Scheduled Landscape and Ecological Features

There are no scheduled landscape or ecological features within or proximate to the Project area.

### Historical and Cultural Associations

There are no scheduled historical features within or proximate to the Project area.

#### 8.2.2.2 Likely Future Environment

##### Overview

The land surrounding the Project will undergo a localised change with some of the vacant lots being developed for residential uses. Rural land within the Redhills Precinct beyond the first line of existing residential lots will be urbanised for residential purposes over the next 10 years. It is anticipated that the abiotic features of the landscape will be altered over time as the landscape is urbanised.

It is anticipated that the limited biotic (land cover) features within the landscape will be required to be removed to develop some of the vacant lots within the immediate vicinity. Although land further to the west will experience substantial change from rural to urban, the land immediately abutting the Project corridor will continue to be predominantly urban residential in nature.

## 8.3 Extent of Visibility and Viewing Audience

The visual catchment is the area of land from which part or all of the Project area is visible. This is largely determined by landform, land cover and built elements, which in combination may obscure or filter views. The extent of visibility of the proposed road corridor is contained by the existing

surrounding built form, in addition to some changes in topography. Some vantage points within proximity to the Project area are likely to witness heightened adverse visual effects. In summary the viewing audience for the Project includes:

- *Public Views:* Transient public audience (vehicle users). Key roads where views can be obtained from include Fred Taylor Drive, Westgate Drive, Rush Creek Drive and Beuachamp Drive. Views include:
  - Travellers (cars, pedestrians and cyclists) along Fred Taylor Drive, Westgate Drive, Rush Creek Drive and Beuachamp Drive which bisects the Project corridor (Refer Appendix 2 Site Photo 1, Site Photo 2, Site Photo 3);
  - Travellers (cars, pedestrians, and cyclists) along Don Buck Road (Refer Appendix 2 Site Photo 4 and Site Photo 5); and
- *Private Views:* The viewing context also includes a residential viewing audience that borders the majority of the Project corridor. The north east of the corridor abuts large lot light industrial and commercial properties. Specifically:
  - Views from the residential properties with short driveways that front on to Don Buck Road (Appendix 2 Site Photo 6); and;
  - Occupants of nearby commercial buildings along Don Buck Road adjacent to the proposed corridor.

Views are well contained within the immediate area surrounding the road corridor due to density of development that borders the existing road corridor.

## 8.4 Landscape Values

There are no regionally or nationally significant landscapes (ONLs, ONFs or ONCs) within or proximate to the proposed designation boundary.

The gently sloping topography and the mature streetscape vegetation contribute to the visual amenity of the landscape. The highly modified landscape has limited natural features, which are restricted to vegetation. An open space conservation zone is located to the south of the Westgate Drive to the east of the Project corridor, and contains a library, leisure centre and place of worship. The wetland 2 upgrade is located within Rush Creek Reserve which is zoned as an open space – informal recreation zone, the wetland upgrade is approximately 200m from the Project corridor main works.

## 8.5 Landscape Sensitivity

This corridor is situated within a broader landscape that has been assessed within the AUP:OP as being suitable for urbanisation. The proposed urbanisation of the surrounding landscape as indicated by the Whenuapai Structure Plan will be primarily industrial, retail and service buildings. The Project area is assessed as having a low sensitivity to landscape change.

## 8.6 Assessment of Landscape Effects and Measures to Avoid, Remedy or Mitigate Actual or Potential Adverse Effects

### 8.6.1 Positive Effects

Generalised positive effects related to the Project are covered in Section 5 of this report. Additional positive effects related specifically to this Project include:

- New opportunities for active modes of transport along Don Buck Road and connections with Royal Reserve and Rush Creek Reserve.
- Structured and consistent vegetation along the road corridor.

## 8.6.2 Assessment of Construction Effects

### Construction Areas

Site compound and construction areas are to be established within the existing road designation and distributed along the corridor dependent on the stage of the project. These construction compounds will be contained by traffic management.

Overall, it is anticipated that with or without the implementation measures the physical landscape effects resulting from establishment and use of the construction work areas within the Project area are assessed to be **very low** adverse.

### Vegetation Clearance

The majority of existing road side vegetation is proposed to be removed to accommodate the wider proposed Project corridor including adjacent batter slopes. This consists entirely of trees and shrubs located within the road-side boundaries and private properties, within the Project area.

Without the implementation of proposed mitigation measures it is anticipated that physical landscape effects are expected to be **low** adverse to **low-moderate** adverse. Overall, the physical landscape effects anticipated to arise from vegetation clearance, with the provision of mitigation measures are assessed as **low** adverse. Although an area of mature specimen trees which provide screening will be removed, these are not covered by any protections, can be removed as a permitted activity and are detached from a larger contiguous habitat.

### Structures and Earthworks

Approximately 24,500m<sup>3</sup> cut and 20,000m<sup>3</sup> of fill earthworks are anticipated to be undertaken over the site at a minimum. Imported brown rock will be required to construct the road. Some of these earthworks will occur on land that is currently occupied by built form, which has a lower sensitivity to change.

The impacts and potential landscape effects of the proposed earthworks include the modification of and permanent changes to the underlying landform, surface level changes in close proximity to retained urban private properties. The proposed cut and fill slopes range in scale from 1m to 16m wide and will alter the form and width of the existing road corridor and the immediate surrounding urban landscape.

Retaining walls are included in the interim design within the retained industrial, commercial and residential properties in proximity to the project corridor. The longest length of contiguous wall which is approximately 165m in length is adjacent to the Massey Library, Massey Leisure Centre and the residential property at 2 Rush Creek Drive.

Overall, the earthworks and retaining walls are considered to be of a scale and quantity that is reasonably anticipated with a project of this scope and size and all cut and fill slopes are expected to be integrated within the existing modified environment. With or without mitigation measures the expected to result in **low** adverse to **very low** adverse effects.

### Dry Ponds and features

All of the storm water to be redirected into the wetland upgrade located away from the Project corridor within the Rush Creek Reserve stormwater ponds. Wetland 2 will require the removal of existing established native vegetation within the existing stormwater ponds.



The proposed wetland will require earthworks to re-shape the land and achieve optimal depths and edge profiles, which will be determined as part of the resource consent phase.

We anticipate that effects on the physical landscape to implement the proposed dry pond to be between **low** adverse and **low-moderate** adverse without or without the implementation of mitigation measures. This is due to the unavoidable amount of vegetation required to be removed to establish the wetland.

### Private Properties

Residential properties within and adjacent to the Project area (including those which are partially designated) will be impacted by the Project in the following ways:

- Surface level changes between private property boundaries and the upgraded road corridor, requiring existing driveways and private accessways to be regraded;
- Encroachment into private yard areas and the removal of private garden plantings and trees, ancillary buildings and boundary fences;
- Potential construction of noise mitigation measures and retaining walls;
- Demolition of existing dwellings and ancillary buildings (required properties)

Approximately 12 existing dwellings are proposed to be impacted by the project works. Landscape mitigation measures are proposed under 7.6.3 Recommended Measures to Avoid, Remedy or Mitigate Construction Effects below.

With the information currently available and with or without the inclusion of mitigation measures, it is anticipated that the physical landscape effects on the physical landscape on private properties is **low-moderate**, as a result of the proximity of the proximity of the works to audiences and the proposed changes.

#### 8.6.2.1 Site Finishing Works

Finishing works are expected to include grassing of exposed earth, lighting, signage, line markings, footpath/cycleway details and reinstatement of private property fences and gardens. Streetscape elements and landscaping, including those required as mitigation will also be implemented. These activities are to be determined by detailed design and will occur within the already modified areas of

the Project. Landscape effects with or without the implementation of mitigation measures are expected to be **very low** adverse.

### 8.6.2.2 Temporary Visual Effects

The construction of the Project is anticipated to be in two stages along the proposed corridor over a period of approximately 2-3 years, more accurate project timings will be available after the detailed design process. Visual effects are anticipated to occur progressively through the Project area and transient viewing audiences may concurrently experience adverse visual effects from both stages through the construction period.

The consideration of visual effects through the construction phase acknowledges the full range of activities (and their resultant visual impact), required to implement the upgraded road corridor.

It is anticipated that construction activities required to implement the Project will be generally consistent in nature and scale to road works and infrastructure activities commonly anticipated by transient viewing audiences within a main arterial corridor. Another important consideration is that landscape change by way of vegetation is in the context of an existing urban landscape and road corridor.

Notwithstanding the above, some vantage points within the Project area are likely to witness heightened adverse visual effects through the construction phase due to the magnitude of vegetation removal and/or earthworks proposed. These areas are outlined below:

- Private properties where physical landscape effects will occur within private gardens.
- Private properties along Don Buck Road in proximity to the on road construction works under traffic management.
- Private properties in proximity to the wetland within the Rush Creek Reserve.

The nature and significance of the potential adverse visual effects is considered to be moderated through the Project area by the following aspects:

- Road works and construction activities can generally be expected to occur within arterial roads;
- Don Buck Road is already a central element within the visual composition of the Project area;
- The existing road corridor landscape has already been modified by previous works required to shape the existing road corridor.
- The construction phase is expected to be implemented in two main phases which are expected to allow efficient access to the construction zones while maintaining continued access for the intersecting roads and existing private and commercial driveways.

With the information available, without the implementation of mitigation measures, it is anticipated that transient public viewing audiences will be range from **moderate** adverse to **low-moderate** adverse. With the provision of mitigation measures visual effects for the transient public viewing audience are anticipated to be between **low** adverse and **low-moderate** adverse through the construction phase, taking into account those vantage points listed above where adverse effects are likely to be heightened during the temporary construction period.

Adverse visual effects during the construction phase are likely to be heightened for private viewing audiences directly adjacent to the Project area on the basis of more direct and prolonged engagement and proximity to the construction activities of the Project. This will include the presence of heavy machinery and the visible disturbance of both the road corridor and also individual private interfaces with the road.

Without the implementation of mitigation measures it is anticipated that the visual effects on private viewing audiences are anticipated to range from **moderate** adverse to **low-moderate** adverse. With the implementation of mitigation measures visual effects are anticipated to range between **low-moderate** adverse and **low** adverse during the construction phase for private viewing audiences, depending on their location, proximity to the works and outlook.

### 8.6.3 Recommended Measures to Avoid, Remedy or Mitigate Construction Effects

Recommendations are in line with the general recommendations in Section 6.1.2.

### 8.6.4 Assessment of Operational Effects

#### 8.6.4.1 Natural Character Effects

Within the footprint of the road corridor and the proximate surrounding landscape, there are no existing watercourses or water bodies. However, the Wetland 2 upgrade is positioned within the Rush Creek Reserve open space and will require the alteration of the of the existing stream and wetland. This will be reinstated as part of the construction period. Without proposed mitigation and particularly, in this instance the reinstatement of riparian vegetation, it is anticipated that effects will be **moderate** adverse. The implementation of the mitigation we anticipate that the natural character effects will be low-moderate adverse on natural character forming elements, features and processes. This will reduce to **very low** adverse effects as mitigation planting is established over 3-5 years after implementation.

#### 8.6.4.2 Visual Amenity Effects

Overall, there are likely to be a range of visual amenity effects on public and private viewing audiences relative to their proximity to the corridor. For existing properties set back from the Project area by up to approximately 70m, the visual amenity effects are anticipated to be **very low** with or without the implementation of mitigation measures. This is primarily a result of the distance of the audiences and the anticipated intervening built form that will screen and filter views of the Project.

**Very low** residual adverse visual effects are anticipated for some private residents, as a direct result of the Project, residents may experience some level of material change to the visual composition and residential amenity of the road corridor as perceived from their private property.

From some properties directly adjacent to the Project area (from which land is required), visual amenity and residential character effects will be heightened as a result of the construction impacts including driveway regrading, potential loss of yard space, removal of existing screening vegetation and by greater proximity of the carriageway and footpaths/cycleways to private dwellings.

Without the implementation of mitigation measures, some of these audiences will experience short distance views of the proposal. It is anticipated that there visual amenity effects will range from **moderate-high** adverse to **low-moderate** adverse.

It is recommended that boundary fences and garden plantings (removed through the Project works) are reinstated on completion of the works affecting the property. These mitigation measures should be considered within the ULDMP under the lens of neighbourhood character and as such are discussed further in the following section. It is expected that during the operational phase of works residential properties that front directly on to the project will experience **low** adverse effects once

mitigation planting has established. It is anticipated that landscape planting will take approximately 3-5 years to establish, to integrate into the landscape and provide sufficient screening and filtering.

Public viewing audiences will continue to engage with a similar transport environment, within the context of an increasingly urban neighbourhood character. Without mitigation measures being implemented it is anticipated that effects on this audience will be **low-moderate** adverse to **low** adverse.

Assuming that mitigation planting is implemented visual effects are expected to be between **low** adverse and **very-low** adverse. Over time, visual effects are anticipated to be neutral for the public viewing audience, based on visual amenity for users associated with streetscape being replaced with a similar landscape and increased accessibility to active modes of transport.

Overall, visual effects are anticipated to be partially or fully mitigated by measures implemented during the finishing phase of the construction period (within the road corridor and private property boundaries), that will mature through the operational phase of the Project to adequately reduce any potential long-term residual visual effects of the Project.

#### 8.6.4.3 Landscape Character Effects

The principal elements of the Project will generally be in accordance with the existing urban arterial road. At the completion of the Project, the upgraded corridor will resemble that of an urban arterial road with active modes of transport, structured street tree planting, integrated stormwater management and engineered roading elements.

Although clearance of vegetation is expected as part of the required works, a structured landscape planting design will improve the landscape character along the project corridor, once implemented. This will alter the character of the surroundings immediately after construction as mature trees and shrubs will have been replaced with smaller less developed vegetation.



Figure 8-5: Don Buck Road indicative 30m cross section

The cross section above (Figure 9-5) illustrates the proposed upgrade to the road and the expected future use. Although indicative, there is available space within the road corridor for green infrastructure elements such as street trees and berms where low impact stormwater devices and associated planting can be accommodated. These features are expected to match the existing or improve landscape and urban amenity within the corridor.

The proposed street tree plantings, in conjunction with stormwater management and berm plantings, will provide landscape amenity and positively contribute to the landscape character of the Project area within the context of the urban environment.

With the information available, without the implementation of mitigation landscape character effects are anticipated to be **low-moderate** adverse. Allowing for future landscape mitigation, which is expected to take 3-5 years to establish, adverse landscape character effects are anticipated to be **low** adverse.

### 8.6.5 Recommended Measures to Avoid, Remedy or Mitigate Operational Effects

Recommendations are in line with the general recommendations in Section 6.1.3

## 8.7 Conclusions

Overall, landscape and visual effects without mitigation are expected to range from **moderate** adverse to **very-low** adverse and **low-moderate** adverse to **very low** adverse during the operational phase. Landscape and visual effects assuming that mitigation measures are implemented will range from **low-moderate** to **very low** for the construction phase and **low** to **very low** for the operational phase. Natural Character effects are expected to be **moderate** adverse without mitigation and **low** adverse with the implementation of mitigation measures. Overall, the adverse effects can be mitigated and there are a number of positive landscape and visual effects that can ensue.



## 9 NoR RE2: Fred Taylor Drive FTN Upgrade

### 9.1 Project Corridor Features

Fred Taylor Drive is an existing rural and semi-rural road two-lane arterial corridor which extends from the existing Brigham Creek Interchange in the north to SH16 in the south (via an intersection with Don Buck Road). The proposed upgrade will require the existing road corridor to be widened in places to facilitate the proposed corridor will also support an active mode shift with separated cycle lanes and footpath on either side and public transport priority lanes.

The key landscape matters addressed for the Fred Taylor Drive FTN Upgrade include the following:

- The upgrade of the existing corridor to a 30m wide four-lane FTN arterial with separated walking and cycling. This widening is expected to remain in the existing designation 1433 to the extent possible.
- Localised widening outside the existing designation 1433 occurring at intersections.
- The upgrade of the intersections with Kakano Road and Northside Drive to signalised intersections.
- Additional land for tie-ins with side streets and stormwater wetlands. Refer to the concept design drawings at Appendix 2 or specific locations along the alignment.
- Batter slopes to enable widening of the corridor, and associated cut and fill activities.
- Vegetation removal along the existing road corridor.

### 9.2 Existing and Likely Future Environment

#### 9.2.1 Planning context

The existing Fred Taylor Drive corridor runs through a mix of residential and industrial land uses.

The northern section of Fred Taylor Drive is within the Redhills North FUZ, with an area of land zoned under the AUP:OP as Open Space – Sport and Active Recreation Zone (Fred Taylor Park) adjacent the road corridor. The southern section of Fred Taylor Drive is zoned under the AUP:OP as THAB zone on the western side, and forms part of the I610 Redhills Precinct. The eastern side is zoned Business – Light Industry Zone and Business – Mixed Use Zone and forms part of the I615 Westgate Precinct.

Table 9-1 below provides a summary of the existing and likely future environment as it relates to the Fred Taylor Drive FTN Upgrade.

**Table 9-1: Fred Taylor Drive FTN Upgrade Existing and Likely Future Environment**

Environment today	Zoning	Likelihood of Change for the environment <sup>7</sup>	Likely Future Environment <sup>8</sup>
Business	Business (Light Industrial)	Low	Business

<sup>7</sup> Based on AUP:OP zoning/policy direction

<sup>8</sup> Based on AUP:OP zoning/policy direction

Environment today	Zoning	Likelihood of Change for the environment <sup>7</sup>	Likely Future Environment <sup>8</sup>
	Business (Mixed Use)	Low	
<b>Residential</b>	Residential – Terraced Housing and Apartment Zone	Low	Residential
<b>Open Space</b>	Open Space – Sport and Active Recreation	Low	Open Space
<b>Undeveloped greenfield areas</b>	Future Urban	<b>High</b>	Urban

Please refer to the AEE for further information on the planning context.

## 9.2.2 Landscape Environment

### 9.2.2.1 Baseline Landscape

The Project is situated along the existing Fred Taylor Drive rural two-lane arterial road which is undergoing a transition to a urban land use along its length. Residential development to the west of the road and large lot light industrial development to the east are currently under construction, in accordance with the urban zoning.

The existing arterial road corridor is typically rural in nature, without a curb and channel (for long stretches), inconsistent lighting and no active mode lanes or footpaths.

The local landscape character of Fred Taylor Drive is summarised below;

- Vegetation cover comprising indigenous vegetation; hedgerows and shelterbelts along remnant field boundaries; exotic rank grassland; and non-native stand-alone trees within front gardens and streetscape of the existing urban areas.
- The landscape is characterised by rural residential development and agricultural fields to the east and larger agricultural production land to the west.
- The landscape character value is low within the context of the existing arterial road and urbanisation of residential commercial development. There is the potential to enhance the cohesiveness of the landscape through the implementation of this Project.

### Landform and Hydrology

The Fred Taylor Drive existing arterial road is positioned along a shallow ridgeline with a north south aspect and a gentle slope ascending towards a high point at the southern extent of the route. The lowest point of the Project is at the northern extent of the corridor.

There are no rivers or permanent streams which cross the Project corridor. However, branches of the Totara Creek are within proximity to the designation will be affected by the upgrade to the Kopupaka Reserve wetland (see Figure 10-1 below).



**Figure 9-1: View from Kedgley Road of the Kopupaka Reserve wetland which will be expanded.**

## Landcover

The northern quadrant of the route is bordered on either side by predominantly rural production land with large light industrial buildings.

Clusters of rural residential properties are present to the west of the existing corridor, however it is recognised that these will most likely be replaced as the land is developed in line with the underlying THAB zoning. To the east of the Project corridor is a combination of rural fields, existing agricultural production properties with some new large lot industrial development.

Either side of the road is bordered by mixed size geometric fields bound in parts by isolated native vegetation, hedgerows and exotic grassland. Large lot light industrial and commercial properties are present and under development on the site of remnant fields to the east. Mature trees within the road reserve and front yards of private development contribute to the character of the landscape (see Figure 10-2 below).



**Figure 9-2: View south from Pua Street of light industrial development of rural fields.**

There are no scheduled notable trees within or proximate to the project boundary, however existing mature Norfolk Pines adjacent to the Pua Street interchange however, are prominent features within the landscape (see Figure 10-3 below).



**Figure 9-3: Norfolk Island Pines opposite the Pua Street and newly built THAB zoned housing that backs on to Fred Taylor Drive.**

## Land Use

The existing Fred Taylor Drive corridor is approximately 10-15m wide and is within land zoned as 'Road' under the AUP:OP that varies in width between 20-30m.

Land on either side of the Project corridor is a mix of rural residential, agricultural production and light industry. The northern extent of the road is a FUZ and will be urbanised as part of the Spatial Land Use Strategy - Kumeū-Huapai, Riverhead, and Redhills North. The western side of the Project corridor is zoned as THAB and the eastern side of the route is predominantly business zoned land.

## Scheduled Landscape and Ecological Features

There are no scheduled landscape or ecological features within or proximate to the Project area.

## Historical and Cultural Associations

There are no scheduled historical or cultural features within or proximate to the Project area.

### 9.2.2.2 Likely Future Environment

#### Overview

The FUZ land within the northern quadrant of the Project will witness a substantial change in the transition from a rural to urban land use character over the next 10 years. The live zoned THAB and business zoned land adjacent to the Project corridor is expected to continue being developed in accordance with their zoning. It is anticipated that the abiotic features of the landscape will endure,

although these are limited to the existing landform due to the existing amount of modification associated with the rural agricultural land use.

It is anticipated that some of the defining biotic (land cover) features of the landscape will undergo significant change alongside future development, with the removal of vegetation to accommodate proposed commercial and residential development. This will likely involve the implementation of street tree plantings, public open space areas and general landscaping within the private yards of future housing development for public amenity.

### 9.2.2.3 Kumeū-Huapai / Riverhead area / Redhills

This FUZ area has not undergone a structure planned, it is identified by council that this process will be undertaken before the land is released to be urbanised. This process is indicatively programmed to be undertaken in 2025 in order for the land to be released between 2028 and 2032 as indicated in the Future Urban Land Supply Strategy (FULSS).

The Spatial Land Use Strategy for Kumeū-Huapai, Riverhead, and Redhills North has been developed with collaboration between Auckland Council and the project team. This provides a high level framework that outlines the distribution of future land use (see Figure 10-4 below).

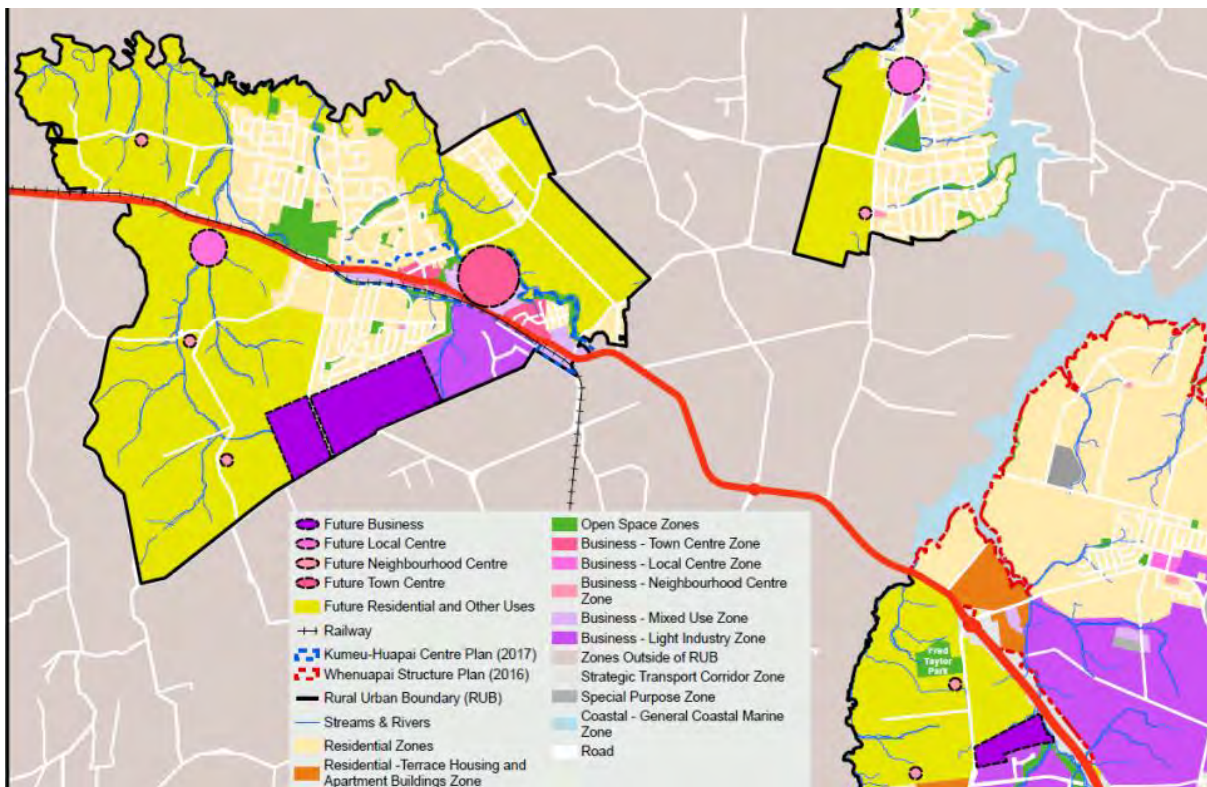


Figure 9-4: Spatial Land Use Strategy - Kumeū-Huapai, Riverhead, and Redhills North.

## 9.3 Extent of Visibility and Viewing Audience

The visual catchment is the area of land from which part or all of the Project area is visible. This is largely determined by landform, land cover and built elements, which in combination may obscure or filter views. The extent of visibility of the proposed road corridor is contained by built form and existing vegetation. Notwithstanding the above, some vantage points within the Project area are likely to witness heightened adverse visual effects. In summary the viewing audience for the Project includes:

- *Public Views:* Transient public audience (vehicle users). Key roads where views can be obtained from include Fred Taylor Drive, Kakano Road, Northside Drive, Pua Street, Matakohe Road, Spring Garden Avenue. Views include:
  - Travellers (cars, pedestrians and cyclists) along Kakano Road, Northside Drive, Pua Street, Matakohe Road, Spring Garden Avenue, which bisect the site and from Fred Taylor Drive (Refer Appendix 2 Site Photo 7, Site Photo 8 and Site Photo 9);
- *Private Views:* The viewing context will include a concentrated urban residential viewing audience, people within commercial and industrial businesses, and a small number of rural properties with private viewing audiences, however these are expected to be removed within the near future. Specifically:
  - Views from the rural residential properties with short driveways that front on to Fred Taylor Drive (75, 75B, 77, 80, 94, 96, 98, 100, 102, 110, 112, 114, 116, 118, 120, 130) (Refer Appendix 2 Site Photo 10 and Site Photo 11 );
  - Views from the urban residential properties that immediately border Fred Taylor Drive, and others currently under development (Refer Appendix 2 Site Photo 12; and;
  - Occupants of nearby commercial buildings along Fred Taylor Drive adjacent to are well contained within the immediate area surrounding the road corridor and urban built form due to the relatively flat landscape and intervening vegetation and built form.

Over time, the audience is likely to grow to include residents of future urban developments within the FUZ and the urban zoned land currently under development.

## 9.4 Landscape Values

There are no regionally or nationally significant landscapes (ONLs, ONFs or ONCs) within or proximate to the proposed designation boundary.

The gently sloping topography and small areas of remnant rural mature vegetation contribute to the visual amenity of the landscape. The modified areas of the landscape has limited natural features, which are restricted to individual isolated stands of mature vegetation.

## 9.5 Landscape Sensitivity

This project corridor is situated along an existing arterial road and a developing urban landscape. The FUZ and urban zoned live areas of the landscape has been assessed within the AUP:OP as being suitable for urbanisation. The proposed urbanisation of the surrounding landscape will be developed as high and medium density residential and commercial / industrial. Although there are pockets of mature vegetation within the Project area is assessed as having a very low sensitivity to landscape change.

## 9.6 Assessment of Landscape Effects and Measures to Avoid, Remedy or Mitigate Actual or Potential Adverse Effects

### 9.6.1 Positive Effects

9.6.2 Positive effects related to the Project are covered in Section 5 of this report.

### 9.6.3 Assessment of Construction Effects

#### Construction Areas

Site compound and construction areas are to be established within the road corridor and buffer area provided. This will prevent landscape effects related to the construction compounds on the surrounding green field land.

Without the provision of mitigation measures, it is anticipated that physical landscape effects are likely to result in a **low** adverse level of effects. After implementing mitigation measures it is anticipated that the physical landscape effects resulting from establishment and use of the construction work areas within the Project area is assessed to be **very low** adverse.

#### Vegetation Clearance

Small areas of road side vegetation are proposed to be removed to accommodate the wider road corridors and batter slopes. This consists of trees and shrubs located within the road-side boundaries of private properties, within the Project area. Exotic pasture, trees, shelterbelt plantings, private gardens and exotic stands of trees make up the majority of vegetation to be removed.

Without the implementation of mitigation measure it is anticipated that physical landscape effects will range from **low-moderate** adverse to **low** adverse. Provided that an appropriate amount of revegetation mitigation is undertaken for the removal of indigenous vegetation, the adverse physical landscape effects likely to arise from vegetation clearance within the Project area are assessed as **low** adverse.

#### Structures and Earthworks

The earthworks are anticipated to be in a deficit and additional fill is expected to be required across the site. The majority of the proposed additional fill will comprise imported brown rock for engineering purposes.

The impacts and potential landscape effects of the proposed earthworks include the modification of and permanent changes to the underlying landform and surface level changes in close proximity to private properties. However, it is acknowledged that the majority of existing properties are expected to be removed as a result of the urbanisation of the surrounding landscape that will experience.

The proposed cut and fill slopes range in scale from 1m to 13m wide and will alter the form of the existing landform. Embankments within the Project corridor are primarily fill slopes with only a small section of cut located to the north of the Northside Drive intersection.

Overall, we consider the proposed earthworks to be of a quantity that is reasonably anticipated with a project of this scope and scale and all cut and fill slopes are expected to be integrated with the



existing modified environment. The progression from a rural to urban land use within adjacent areas will integrate with the proposed road upgrade over time.

Without the implementation of mitigation measures, it is anticipated that physical landscape effects will range from **low** adverse to very **low adverse**. Provided that the proposed mitigation measures are undertaken we expect that the effects of the earthworks will be **very low**.

### Wetlands and features

Two wetlands are proposed within this Project area and one existing wetland will be upgraded as part of the Project.

- Wetland 1 upgrade is located approximately 450m to the west of the main project corridor and will expand on an existing manmade wetland within the Kopupaka Reserve;



- Wetland 2 is located to the east of the project corridor at 81 Fred Taylor Drive lot (refer to image in Construction Areas section); and;
- Wetland 3 is located to the east of the project corridor within the 113-115 Fred Taylor Drive arable production (refer to image in Construction Areas section).

These proposed new wetlands will require earthworks to re-shape the land and achieve optimal depths and edge profiles, which will be determined as part of the resource consent phase. These are located within green field sites that are within land that is anticipated to be developed and urbanised in the near future. The Wetland 1 expansion of a recently established wetland area, riparian vegetation has not yet fully established in this location and does not make a substantial contribution to the landscape character.

We consider that without the implementation of mitigation measures the physical landscape effects will range from **low** adverse to **very low** adverse. Provided that the mitigation measures are implemented, the effects on the physical landscape to implement the proposed wetland features to be **very low** adverse, with or without the implementation of mitigation measures.

### Private Properties

Residential properties within and adjacent to the Project area (including those which are partially designated) will be impacted by the Project in the following ways:

- Surface level changes between private property boundaries and the upgraded road corridor, requiring existing driveways and private accessways to be regraded;
- Encroachment into private yard areas and the removal of private garden plantings and trees, ancillary buildings and boundary fences;
- Potential construction of noise mitigation measures and retaining walls;
- Demolition of existing dwellings and ancillary buildings (required properties) on adjacent properties

Approximately 21 existing rural dwellings are expected to be impacted by the project works. One of these is expected to be removed as part of the works and the balance of these properties are expected to be removed in order to facilitate urban development in live zoned urban areas and FUZ. Approximately new dwellings have been recently developed along Matakohe Road opposite Pua Street, This development is in line with the projected urbanisation, and are expected to be retained through the construction and operational phases.

Landscape mitigation measures are proposed under 8.6.3 Recommended Measures to Avoid, Remedy or Mitigate Construction Effects below, these will assist in integrating the proposed corridor with the future urban environment.

Without implementing the recommended mitigation measures it is anticipated that physical landscape effects will range from **low-moderate** adverse to **low** adverse. Provided that the recommended mitigation measures are implemented it is assessed that the magnitude of adverse physical landscape effects on private properties will range between **very low** and **low**.

### 9.6.3.1 Site Finishing Works

Finishing works are expected to include grassing of exposed earth, lighting, signage, line markings, footpath/cycleway details and reinstatement of private property fences and gardens. Streetscape elements and landscaping, including those required as mitigation will also be implemented. These activities are to be determined by detailed design and will occur within the already modified areas of the Project. Physical landscape effects are expected to be **very low** through this final phase of the construction process with or without the inclusion of mitigation measures.

### 9.6.3.2 Temporary Visual Effects

The construction of the Project is currently anticipated to be in four stages along the proposed corridor over a period of 2-3 years. Visual effects are anticipated to occur progressively through the Project area and transient viewing audiences may concurrently experience adverse visual effects from several stages through the construction period.

The consideration of visual effects through the construction phase acknowledges the full range of activities (and their resultant visual impact), required to implement the upgraded road corridor.

It is anticipated that construction activities required to implement the Project will be generally consistent in nature and scale to road works and infrastructure activities commonly anticipated by transient viewing audiences within a main arterial corridor. Another important consideration is that landscape change by way of vegetation removal and land modification (on private rural property programmed to be urbanised), albeit at a lesser scale, forms part of the expected backdrop and eventual outcome of the existing environment.

Notwithstanding the above, some vantage points within the Project area are likely to witness heightened adverse visual effects through the construction phase due to the magnitude of vegetation removal, proximity to construction compounds and/or earthworks proposed. These include dwellings which have already developed within the emerging urban environment. These areas are outlined below:

- Private properties where physical landscape effects will occur along roadside boundaries to Fred Taylor Drive.
- Recently developed properties as part of the urbanisation at Matakohe Road;

The nature and significance of the potential adverse visual effects we consider to be moderated through the Project area by the following aspects:

- Fred Taylor Drive is already a central element within the visual composition of the Project area;
- The existing road corridor landscape has already been partially modified by previous works required to shape the existing road corridor.
- The construction phase of works is expected to be approximately 2-3 years, however this time frame will be refined further. The construction period is expected to be implemented in six phases which are expected to allow efficient access to the construction zones while maintaining continued access for the intersecting roads and existing private and commercial driveways.

Without mitigation measure it is anticipated that adverse effect have the potential to be **low-moderate**. Provided that mitigation measures are undertaken, adverse visual effects for the transient public viewing audience are anticipated to be **low** through the construction phase, taking into account those areas listed above where adverse effects are likely to be heightened during the construction period.

Adverse visual effects during the construction phase are likely to be heightened for private viewing audiences directly adjacent to the Project area on the basis of more direct and prolonged engagement with the construction activities of the Project. This will include the presence of heavy machinery and the visible disturbance of both the road corridor and also individual private interfaces with the road.

Without mitigation measures in place private viewing audiences have the potential to be **low-moderate** or **moderate** where works are in proximity to residential properties. We consider visual effects are will range between **low** and **very low** during the construction phase for private viewing audience,

Adverse visual effects on the properties already constructed on Matakohe Road are likely to be heightened due to the proximity of the dwellings and that they will remain in perpetuity. Effects on the dwellings that immediately back/front on to the Project corridor without mitigation are anticipated to be **moderate** adverse. Provided that the recommended mitigation measures are implemented it considered that visual effects will be **low-moderate** adverse.

#### 9.6.4 Recommended Measures to Avoid, Remedy or Mitigate Construction Effects

Recommendations are in line with the general recommendations in Section 6.1.2.

In addition to these measures the following project specific interventions are suggested:

- Provide hoarding or other screening of the dwellings on Matakahe Road (and any other dwellings that share a boundary with the Project corridor that have been developed during the construction phase) to reduce visual effects;
- Coordinate with developers with lots that border the Project corridor to ensure that the proposed developments integrate with the road corridor and;
- The production of a tree protection plan is suggested to be provided within the ULDMP, to indicate protection measures and locations to be protected during construction.

## 9.6.5 Assessment of Operational Effects

### 9.6.5.1 Natural Character Effects

Natural character forming elements, features and processes within the Project area are limited to the existing manmade wetland that will be expanded as part of the Wetland 1 Upgrade. Without the implementation of mitigation proposals it is anticipated that natural character effects will be **low-moderate** adverse. Provided that mitigation riparian planting are implemented, it is anticipated that the natural character value in the landscape is very low and adverse effects are expected to be **very low** adverse.

### 9.6.5.2 Visual Amenity Effects

Overall, there are likely to be a range of visual amenity effects on public and private viewing audiences relative to the proximity of the corridor. For existing properties set back from the Project area, the visual amenity effects will be reduced incrementally as the distance from the proposed road increases.

Private properties which have filtered, screened or distant views towards the works are expected to experience a reduced level of change as a result of the works. Whereas residential viewing audiences closer to the proposed corridor will experience more direct levels of material change to the visual composition and residential amenity of the road corridor as perceived from private property. Private properties with an existing short distance view over Fred Taylor Drive including those on Matakahe Road (particularly those that front on to the corridor) will experience very little difference between baseline views and views during operation within the context of the wider urbanised landscape.

For properties directly adjacent to the Project area (from which land is required), visual amenity and residential character effects will be heightened as a result of the construction impacts including driveway regrading, potential loss of yard space and by the introduction of an urban carriageway and footpaths/cycleways to private dwellings. It is recommended that boundary fences and garden plantings (removed through the Project works) are reinstated on completion of the works affecting the property, unless other arrangements are requested by landowners. It would be advantageous if these could be discussed with developers during the detailed design process of the Project. These mitigation measures should be considered within the ULDMP through the lens of neighbourhood character and as such are discussed further in the following section.

Very few rural public viewing audiences in the existing environment have a direct view of the works due to the lack of connectivity to rural land. Over time as the surrounding FUZ and live urban zoned land is developed visual effects are anticipated to be reduced for the public viewing audience, based on improved visual amenity for users associated with streetscape improvements, maturing street trees, berm planting and accessibility to active modes of transport. Public viewing audiences within the urban environment are primarily active mode users along the Fred Taylor Drive Road.

Overall, some visual effects are anticipated to be mitigated by measures implemented during the finishing phase of the construction period (within the road corridor and private property boundaries), that will mature through the operational phase of the Project. These will reduce some of the long-term residual visual effects of the Project, however the 24-30m wide road will be a noticeable feature within the landscape. The road corridor will become less apparent as the surrounding area is urbanised over time.

Without the implementation of recommended mitigation measures, it is anticipated that visual effects on **low** adverse for transient viewers. For private viewing audiences it is anticipated that visual effects for private viewing audiences will range from **low-moderate** adverse to **moderate** adverse .

On the basis that recommended mitigation measures are undertaken, adverse visual effects within the Project area are likely to be **very low** for transient viewers through the operational phase of the Project. For the private viewing audience, the visual effects are anticipated to range from **low** adverse to **very low** adverse, reducing over an extended period of time.

### 9.6.5.3 Landscape Character Effects

The principal elements of the Project will permanently alter the character of the existing rural (albeit transitional) features either side of Fred Taylor Drive. The remnant rural sections of the road are characterised by the lack of streetscape features, informal intermittent vegetation, shelterbelt and hedgerows along field boundaries and existing rural land uses adjacent to the corridor. At the completion of the Project, the upgraded corridor will resemble that of an urban arterial road on account of the pedestrianisation, active modes of transport, reduced speed limit, structured street tree planting, integrated stormwater management and engineered roading elements that are inherently urban aesthetic.

The Project is anticipated to enter the operational phase within the context of increased urbanisation within rural sections as adjacent THAB and business and developed FUZ land is progressively live-zoned and urbanised. Although it is not possible to anticipate the exact future urban land use pattern within the FUZ the Spatial Land Use Strategy indicates that a Future Neighbourhood Station will be located to the north of the existing THAB. The AUP:OP indicates that is desirable to develop the majority of the western portion of the corridor as for residential development and the east for commercial and industrial uses.

Based on the above the magnitude and nature of landscape change proposed by the Project we consider that the proposed changes will match with those that will likely occur throughout the localised landscape over time.

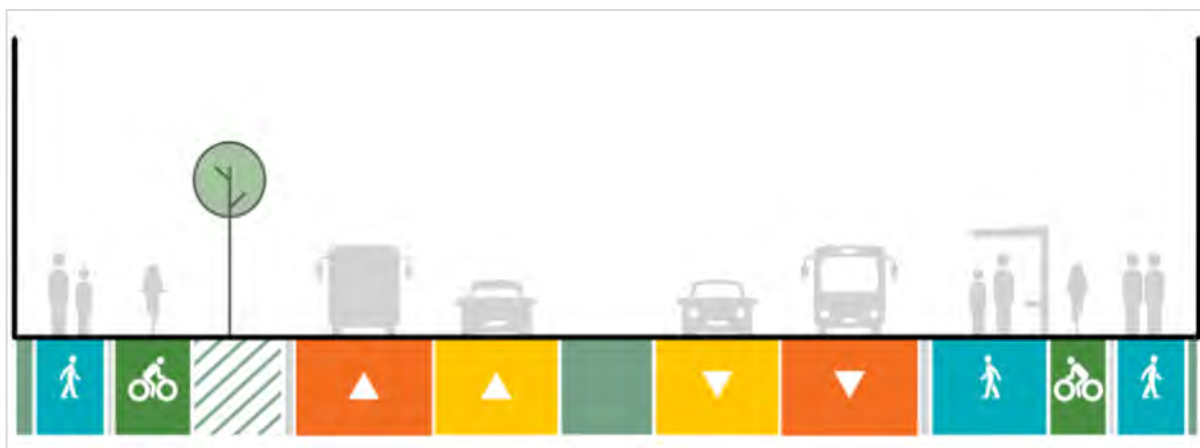


Figure 9-5: Fred Taylor Drive FTN Upgrade Typical Cross Section

The typical cross section above illustrates the proposed upgrade to the road and the expected future use. Although indicative the available space within the road corridor for green infrastructure elements such as street trees and berms where low impact stormwater devices and associated planting can be accommodated. These features are expected to improve landscape and urban amenity within the road corridor.

As outlined earlier broad areas of vegetation along the existing corridor may not be able to be retained within the new corridor. New street tree planting along the length of the corridor will be an appropriate replacement for the vegetation removed, within the context of the anticipated surrounding urban environment (from a landscape character perspective).

Without the implementation of the recommended mitigation measures it is anticipated that physical landscape effects will range from **low-moderate** adverse low adverse.

It is assessed that the new street tree plantings, in conjunction with stormwater management and berm plantings, will provide landscape amenity and positively contribute to the landscape character of the Project area within the context of an urban environment. Overall, it is considered that effects on the landscape are expected to be **very low** adverse.

### 9.6.6 Recommended Measures to Avoid, Remedy or Mitigate Operational Effects

Recommendations are in line with the general recommendations in Section 6.1.3. In addition to these measures, specific measures recommended for Fred Taylor Drive are listed below:

- Engage with developers of lots adjacent to the Project corridor to ensure that the ULDMP to ensure that the road corridor integrates with the surrounding land.
- Produce a landscape planting plan for the reinstatement and enhancement of Wetland 1 Upgrade.

## 9.7 Conclusions

Overall, landscape and visual effects without mitigation are expected to range from **moderate** adverse to **very-low** adverse for the construction phase of works and **low-moderate** adverse to **very low** adverse for the operational phase. Landscape and visual effects assuming that mitigation measures are implemented are anticipated to range from **low-moderate** adverse to **very low** adverse for the construction phase and **low** adverse to **very low** adverse for the operational phase.

Without the implementation of mitigation proposals, it is anticipated that natural character effects will be **low-moderate** adverse. Provided that mitigation riparian planting is implemented, it is anticipated that the natural character effects are anticipated to be **very low** adverse.

Overall, the adverse effects can be mitigated and reduced over time in relation to the urbanisation of the surrounding landscape. The surrounding landscape context has a lower level of sensitivity to change due to the existing context of the arterial road and the projected urbanisation and development of time. There are a number of positive landscape and visual effects that will result from the project including the opportunity to formalise the streetscape and amenity provide consistent amenity along the Project corridor.

## 10 NoR R1: Coatesville-Riverhead Highway Upgrade

### 10.1 Project Corridor Features

The Coatesville-Riverhead Highway is an existing arterial extending from SH16 in the south to its intersection with Dairy Flat Highway in the north east, with the extent of the proposed upgrade from SH16 in the south to its intersection with Riverhead Road in the north. The southern section of the alignment from SH16 to Short Road runs through rural land uses which are expected to remain. The northern section (close to and within the Riverhead township) runs through low-medium density residential land uses on the east and future urban zoned land on the west.

The proposed upgrade to the road will provide two modalities:

- Upgrading the southern section of the corridor to a 33m two-lane low speed rural arterial with active mode space on the western side; and
- Upgrading the northern section of the corridor to a 24m two-lane urban arterial with walking and cycling facilities on both sides of the corridor.

The proposed upgrade will provide a key north-south connection between Riverhead and Westgate with a reduced speed limit to 50kph and introduce active mode use into the corridor.





**Figure 10-1: Overview of the Coatesville-Riverhead Highway Upgrade**

Key features of the proposed new corridor include the following:

- Upgrading the southern section of the corridor to a 33m two-lane low speed rural arterial with active mode space on the western side and upgrading the northern section of the alignment to a 24m two-lane urban arterial with walking and cycling facilities on both sides of the corridor (See Figure 8-2 below).

- The upgrade of the Coatesville-Riverhead Highway / Old Railway Road intersection to a roundabout.
- The upgrade of the existing Coatesville-Riverhead Highway / Riverhead Road roundabout intersection.
- Tie-ins with existing roads, stormwater wetland and culverts.
- Batter slopes to enable widening of the corridor, and associated cut and fill activities (earthworks).
- Vegetation removal along the existing road corridor

Other construction related activities required outside the permanent corridor including the re-grade of driveways, construction traffic manoeuvring and construction laydown areas.

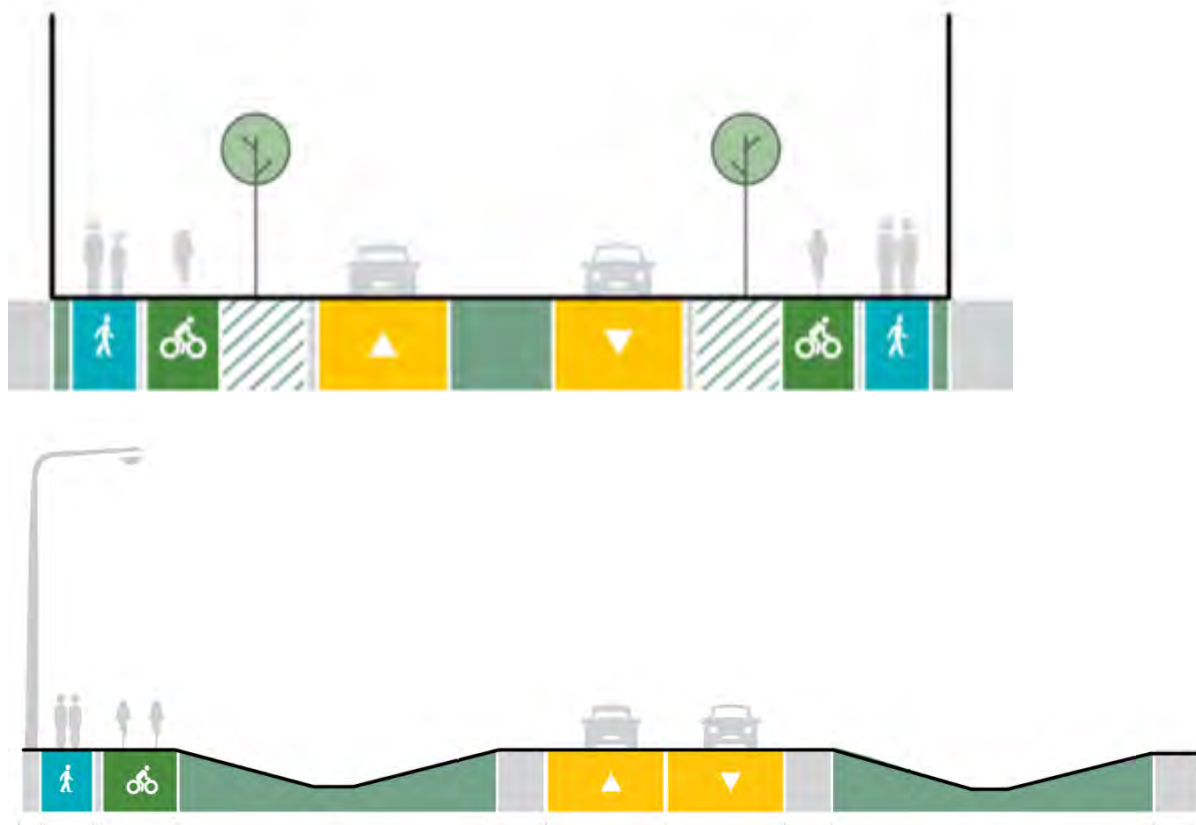


Figure 10-2: Coatesville-Riverhead Highway Cross Section – urban and rural section

## 10.2 Existing and Likely Future Environment

### 10.2.1 Planning context

The southern section of Coatesville-Riverhead Highway from SH16 to Short Road runs through rural land uses predominantly zoned under the AUP:OP as Rural – Mixed Rural Zone on both sides of the existing corridor. The northern section (close to and within the Riverhead township) runs through land zoned as Residential – Single House Zone and to the east and future urban zoned land on the west.

Table 10-1 below provides a summary of the North West existing and likely future environment as it relates to the Coatesville-Riverhead Highway Upgrade.

**Table 10-1: Coatesville-Riverhead Highway Existing and Likely Future Environment**

Environment today	Zoning	Likelihood of Change for the environment <sup>9</sup>	Likely Future Environment <sup>10</sup>
Rural	Rural	Low	Rural
Residential	Residential	Low	Residential
Future Urban Zone / Undeveloped greenfield areas	Future Urban	High	Urban

Please refer to the AEE for further information on the planning context.

## 10.2.2 Baseline / Existing Landscape

### 10.2.2.1 Baseline Landscape

The Project is situated within the existing Coatesville Riverhead Highway between SH16 to the south and the Riverhead Road / Kaipara Road interchange to the north.

The local landscape character of Coatesville Riverhead Highway is summarised below;

- Vegetation cover comprises stand-alone elements of urban trees, predominantly within the established urban residential development along Grove Way. The majority of the road reserve comprises amenity grass with standalone and stands of native and non-native trees appearing intermittently along the road reserve. The largest band of vegetation is at the southern end of the scheme on the western side of the road corridor, within private rural land.
- The landscape is characterised by land modification associated with activities that have modified the original pattern to accommodate a rural production land use. A small area of the adjacent landscape has been developed as a single house zone to the north east.

## Landform and Hydrology

Coatesville Riverhead Highway is situated along gently undulating landform that is partially cut into the surrounding landscape to accommodate the existing road. The main road corridor traverses four tributaries of Brigham Creek, no additional watercourses will be impacted by the proposed road upgrade.

## Landcover

The landscape on either side of the road corridor is characterised by a wide roadside verge that borders rural residential and production land that is predominantly arable in nature. In contrast the northern section of the route corridor is bordered to the east by single house zoned land and to the west by existing rural land with a FUZ overlay. The Hallertau Brewery at the corner Coatesville Riverhead Highway and Riverhead Point Drive is zoned as a Business - Neighbourhood Centre Zone.

<sup>9</sup> Based on AUP:OP zoning/policy direction

<sup>10</sup> Based on AUP:OP zoning/policy direction

Standalone and linear bands of mature native and exotic trees located within the road reserve and within the roadside boundaries of private properties contribute to the landscape character of the surrounding landscape. Dense linear belts of hedgerows and shelterbelts of trees are intermittent features along the roadway and form private property boundaries (Figure 11-3 below).

A group of scheduled notable trees (2598, Redwood) is located to the east of the road corridor within the private property boundary of 1135 Coatesville-Riverhead Highway.



**Figure 10-3: Existing shelterbelt and boundary vegetation along Coatesville-Riverhead Highway**

The existing Coatesville Riverhead Highway corridor is zoned as 'Road' under the AUP:OP and is approximately 20-25m wide, the carriageway is approximately 10-12m wide.

Land use either side of the existing road corridor is characterised by predominantly rural production and rural residential residences. Commercial, rural production and light industrial development is distributed intermittently along the length of the corridor. The single house zoned land to the north east of the corridor is a visible change in land use from the surrounding rural uses. To the south of the single house zone residential area is a Special Purpose – School Zone which contains the Hare Krishna Centre and School (Figure 11-4 below).



**Figure 10-4: Hare Krishna Centre and Special Purpose – School Zone**

### **Scheduled Landscape and Ecological Features**

A scheduled notable group of trees (2598, Redwood, refer Figure 11-5 below) is located outside of the project footprint but within the proposed designation.



Figure 10-5: Scheduled notable tree group 2598 viewed from Riverhead Road.

## Historical and Cultural Associations

There are no scheduled historical features within or proximate to the Project area.

### 10.2.2.2 Likely Future Environment

#### Overview

The land surrounding the majority of the Project area is expected to retain its existing rural aesthetic, land use and character. The existing single house zoned land to the south of the project is also expected to retain its current urban character. However, to the west of the north section of the project area a localised change is expected within the FUZ from a rural to urban land use. This land is expected to be urbanised for residential purposes over the next 10-20 years. It is anticipated that the abiotic features of the landform will be altered over time as the landscape is urbanised.

It is anticipated that the limited biotic (land cover) features within the landscape will be generally retained within the wider landscape. However, within the FUZ where land is going to be developed substantial change in the landscape from rural to urban will take place. Biotic features including existing vegetation are expected to be largely removed to accommodate urban development.

## 10.3 Extent of Visibility and Viewing Audience

The visual catchment is the area of land from which part or all of the Project area is visible. This is largely determined by landform, land cover and built elements, which in combination may obscure or filter views. The extent of visibility of the proposed road corridor is contained by the existing surrounding built form, in addition to some changes in topography. Some vantage points within

proximity to the Project area are likely to witness heightened adverse visual effects. In summary the viewing audience for the Project includes:

- *Public Views:* Transient public audience (vehicle users). Key roads where views can be obtained from include the Coatesville Riverhead Highway, Old Railway Road, Riverland Road, Riverhead Road, Kaipara Road. Views include:
  - Travellers (cars, pedestrians and cyclists) along Old Railway Road, Riverland Road, Riverhead Road, Kaipara Portage Road, Moontide Road which bisect the Project corridor (Refer Appendix 2 Site Photo 13, Site Photo 14, Site Photo 15);
  - Travellers (cars, pedestrians, and cyclists) along Coatesville Riverhead Highway (Refer Appendix 2 Site Photo 16, Site Photo 17, Site Photo 18,); and
- *Private Views:* The viewing context also includes an urban residential viewing audience that borders the north east of the Project corridor. The majority of the corridor is bordered by rural residential and agricultural production lots. Specifically:
  - Views from rural residential properties with short driveways that immediately front on to Coatesville Riverhead Highway (1093,1095 and 1187) (Appendix 2 Site Photo 19);
  - Views from urban residential properties within proximity to the Project corridor on Grove Way (5, 7, 9, 11, 15, 17, 19 and 21) (Appendix 2 Site Photo 21, Site Photo 21);
  - Occupants of nearby commercial buildings along Coatesville Riverhead Highway adjacent to the proposed corridor (Appendix 2 Site Photo 22).

Views are well contained within the immediate area surrounding the road corridor due to density of development that borders the existing road corridor.

## 10.4 Landscape Values

There are no regionally or nationally significant landscapes (ONLs, ONFs or ONCs) within or proximate to the proposed designation boundary.

The gently sloping topography and the mature boundary vegetation contributes to the visual amenity of the landscape. The enduring natural features within the modified rural landscape include riparian vegetation and natural watercourses which link to the Brigham Creek Inlet.

## 10.5 Landscape Sensitivity

This corridor is situated within a broader landscape that will predominantly continue to function as a rural production and residential landscape. Retained rural residential properties will have a low moderate sensitivity to change as a result of the proposed widening of the road, due to the reduced distance from the road and the increased level of traffic. Rural agricultural production audiences have a low sensitivity to change, due to the audiences having less of a focus on the amenity aspects of the landscape.

FUZ land to the north west of the Project corridor has been assessed within the AUP:OP as being suitable for urbanisation. This area has a very low sensitivity to the changes proposed by the Project as they align with the anticipated future character. The existing single house zoned land residential audiences opposite the FUZ also have a low level of sensitivity, due to the existing urban context and the expected urban landscape to be developed to the west.

## 10.6 Assessment of Landscape Effects and Measures to Avoid, Remedy or Mitigate Actual or Potential Adverse Effects

### 10.6.1 Positive Effects

Generalised positive effects related to the Project are covered in Section 5 of this report. Additional positive effects related specifically to this Project include:

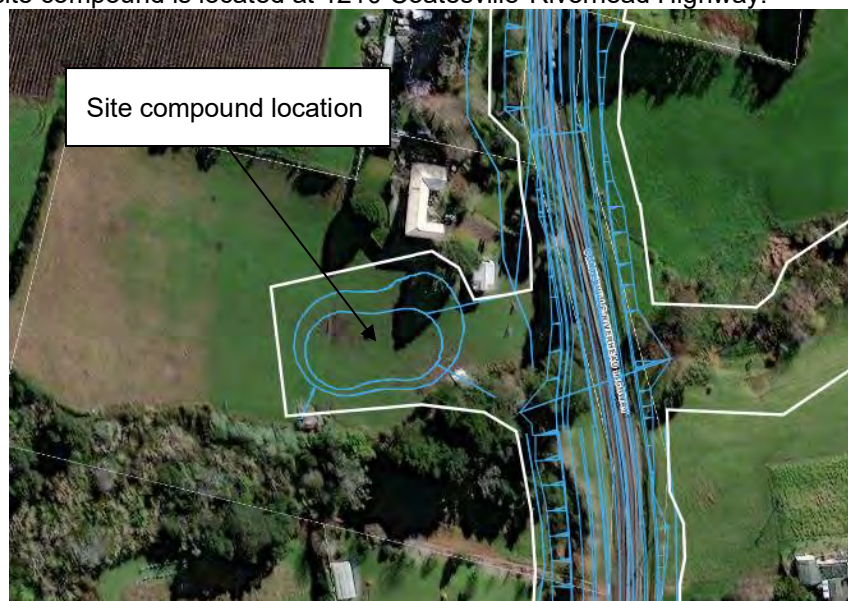
- New opportunities for active modes of transport along the Coatesville Riverhead Highway to create an integrated road environment.
- The opportunity to create a transportation corridor that will include space for trees and soft landscape that will seamlessly integrate with the FUZ.

### 10.6.2 Assessment of Construction Effects

#### Construction Areas

Site compound and construction areas are to be established at two locations within the Project area. Construction traffic will be heightened at these locations through the construction period of the Project.

- A proposed site compound is located at 1210 Coatesville-Riverhead Highway.





- A site compound with a stockpile area and sediment ponds at 182 Old Railway Road.



The proposed site compounds are all located in pastoral fields within rural zoned land. We recommended that all site compounds are grassed after works have completed.

Without the implementation of recommended mitigation measures it is anticipated that physical landscape effects will be **low** adverse. The physical landscape effects resulting from establishment and use of the construction work areas, provided that recommended mitigation measures are undertaken, are assessed to be **very low** once they have been re-grassed.

### Vegetation Clearance

The majority of existing road side vegetation is proposed to be removed to accommodate the wider proposed Project corridor including adjacent batter slopes. This consists primarily of pastoral grassland, non-native shelterbelt trees and shrubs located within the road-side boundaries and private properties, within the Project area. Some additional riparian vegetation is expected to be removed within proximity to the Project's watercourse crossings. It is anticipated that the scheduled notable group of trees located within proximity to the Project will be retained.

Although it is recognised that the effects related to the removal of riparian vegetation will be higher than non-native vegetation, overall, the adverse physical landscape effects likely to arise from vegetation clearance within the Project area are assessed as **low** adverse with or without mitigation.

### Structures and Earthworks

There cut and fill balance of earthworks is anticipated to result in cut material being in surplus across the project. Although, the level of cut required is greater than the required fill, imported brown rock

may be required to construct the road. Some of these earthworks will occur on land within proximity of watercourses, which have a higher sensitivity to change.

The impacts and potential landscape effects of the proposed earthworks include the modification of and permanent changes to the underlying landform, surface level changes in close proximity to retained private properties in rural and urban contexts. The proposed cut and fill slopes range in scale from 1m to 14m wide and will alter the form and width of the existing road corridor and surrounding predominantly rural landscape.

Retaining walls are included in the design within proximity to a retained residential property on the corner of Coatesville-Riverhead Highway and Moontide Road. The length of this wall is approximately 34m and sits entirely within the road boundary, the height of the wall will be approximately 1.5m.

Overall, the earthworks and retaining walls are considered to be of a scale and quantity that is reasonably anticipated with a project of this scope and size and all cut and fill slopes are expected to be integrated within the existing modified environment. Without the implementation of mitigation measures it is anticipated that physical landscape effects will be **low-moderate** adverse. Provided that recommended mitigation measures are implemented, it is anticipated that a **low** adverse level of effects will be experienced as a result of the incursion into rural land and sensitive water courses.

### Dry Ponds and features

One wetland is proposed as part of the proposed road upgrade, this will be located within proximity to an existing tributary of the Brigham Creek Inlet. The wetland will be constructed within an existing pastoral field, where a site compound is located, to the south of the FUZ. The proposed wetland will require earthworks to re-shape the land and achieve optimal depths and edge profiles, which will be determined as part of the resource consent phase.



It is anticipated that without the implementation of mitigation measures, physical landscape effects will be **low-moderate** adverse. We consider that with the implementation of mitigation measures effects on the physical landscape to implement the proposed wetland to be **low** adverse, as a result of there being no direct impacts on sensitive landscape features.

## Private Properties

Residential properties within and adjacent to the Project area (including those which are partially designated) will be impacted by the Project in the following ways:

- Surface level changes between private property boundaries and the upgraded road corridor, requiring existing driveways and private accessways to be regraded;
- Encroachment into private yard areas and the removal of private garden plantings and trees, ancillary buildings and boundary fences;
- Potential construction of noise mitigation measures and retaining walls; and;
- Demolition of existing dwellings and ancillary buildings (required properties).

Approximately 30 existing retained dwellings are expected to be directly impacted by the proposed project works. Landscape mitigation measures are proposed under 9.6.3 Recommended Measures to Avoid, Remedy or Mitigate Construction Effects below.

As a result of the proximity of the above construction works to audiences and the proposed changes. It is anticipated that without any mitigation adverse effects on properties during construction be **moderate** adverse and **moderate high** adverse for 13 properties that front on to the Coatesville-Riverhead Highway. It is assessed that the visual effects on the physical landscape on retained private properties is **low-moderate** adverse and **moderate** adverse for 13 properties that front onto Coatesville-Riverhead Highway.

### 1.1.1.1 Site Finishing Works

Finishing works are expected to include grassing of exposed earth, lighting, signage, line markings, footpath/cycleway details and reinstatement of private property fences and gardens. Streetscape elements and landscaping, including those required as mitigation will also be implemented. These activities are to be determined by detailed design and will occur within the already modified areas of the Project. Without the proposed mitigation measures it is anticipated landscape effects will be **low** adverse. With the inclusion mitigation measures landscape effects are anticipated to be **very low** adverse through this final phase of the construction process.

### 1.1.1.2 Temporary Visual Effects

The construction of the Project is anticipated to be in four stages along the proposed corridor over a period of 2-3 years, this time frame will be refined further. Visual effects are anticipated to occur progressively through the Project area and transient viewing audiences may concurrently experience adverse visual effects from both stages through the construction period. The consideration of visual effects through the construction phase acknowledges the full range of activities (and their resultant visual impact), required to implement the upgraded road corridor.

It is anticipated that construction activities required to implement the Project will introduce a noticeable change to the landscape adjacent to the existing arterial road. Once the widening has been completed and the existing road is merged with the additional lane, the effects on the transient audience will be heightened. Another important consideration is that landscape change by way of vegetation removal and construction will be in the context of an emerging urban landscape at the north of the project corridor.

Notwithstanding the above, some vantage points within the Project area are likely to witness heightened adverse visual effects through the construction phase due to the magnitude of vegetation removal and/or earthworks proposed. These areas are outlined below:

- Private properties where physical landscape effects will occur within private gardens at these locations:
  - Coatesville-Riverhead Highway property numbers 1093, 1095, 1135, 1140, 1156, 1158, 1169, 1170, 1173, 1175, 1177, 1179, 1181, 1186, 1187, 1194, 1197, 1200, 1210, 1229, 1230, 1288, 1293, 1295, 1296, 1302, 1308, 1312, 1320, 1335, 1351, 1352, 1356, 1363, 1367, 1368, 1385, 1387, 1397 and 1409;
  - Riverhead Point Drive property number 1;
  - Old Railway Road property numbers 179, 181, 182 and 184; and;
  - Riverland Road property numbers 8 and 9;
- Private properties in proximity to the site compound at 182 Old Railway Road.
- Private properties in proximity to the site compound and Wetland 1 at 1210 Coatesville-Riverhead Highway.

The nature and significance of the potential adverse visual effects are considered to be moderated through the Project area by the following aspects:

- Road works and construction activities can generally be expected to occur within arterial roads;
- The Coatesville-Riverhead Highway is already a central element within the visual composition of the Project area;
- The construction phase is expected to be implemented in four main works phases which are expected to allow efficient access to the construction zones while maintaining continued access for the intersecting roads and existing private and commercial driveways.

Without the implementation of mitigation measures it is anticipated that temporary visual effects will be **low-moderate** adverse for transient audiences. With the inclusion of mitigation measures visual effects for the transient public viewing audience are anticipated to be **low** adverse through the construction phase, taking into account those vantage points listed above where adverse effects are likely to be heightened during the temporary construction period.

Adverse visual effects during the construction phase are likely to be heightened for private viewing audiences directly adjacent to the Project area on the basis of more direct and prolonged engagement and proximity to the construction activities of the Project. This will include the presence of heavy machinery and the visible disturbance of both the road corridor and also individual private interfaces with the road.

Therefore, without proposed mitigation measures it is considered that audiences will experience **moderate** adverse to **moderate high** adverse effects for retained properties in proximity to the expanded transportation corridor. With the inclusion of proposed mitigation measures adverse visual effects are anticipated to range between **moderate** adverse and **low-moderate** adverse during the construction phase for private viewing audiences, depending on their location, proximity to the works and outlook.

### 10.6.3 Recommended Measures to Avoid, Remedy or Mitigate Construction Effects

Recommendations are in line with the general recommendations in Section 6.1.2.

In addition to these measures the following project specific interventions are suggested:

- Coordinate with developers with lots in the FUZ that borders the Project corridor to ensure that the proposed developments integrate with the road corridor;
- A tree protection plan is produced for the group of scheduled notable trees (2598, Redwood) located to the east of the project corridor to ensure that the root protection area is not infringed upon and damage to these trees is avoided; and;

- The production of a riparian vegetation protection plan is suggested to be provided within the ULDM, to indicate protection measures and locations to be protected during construction.

## 10.6.4 Assessment of Operational Effects

### 10.6.4.1 Natural Character Effects

Within the footprint of the road corridor and the proximate surrounding landscape, there are four existing watercourses. All of the watercourses that will be impacted by the proposed upgrade are crossed by the existing road. All existing watercourse crossings are culverted and no bridges are proposed within the proposed upgrade. The proposed widening will require earthworks within proximity of the natural watercourses and the removal of riparian vegetation and will alter the form and function of the existing watercourses.

We recommended that riparian vegetation is reinstated and / or improved after the completion of the construction period. Without the inclusion of mitigation measures, and in particular the replacement landscape riparian planting, it is anticipated that effects on natural character will be **low-moderate** adverse. With the inclusion of mitigation measures a result of the above it is determined that **low** adverse effects on natural character forming elements, features and processes that will be experienced in the operational phase of the project.

### 10.6.4.2 Visual Amenity Effects

Overall, there are likely to be a range of visual amenity effects on public and private viewing audiences relative to their proximity to the corridor. Audiences that are set back further than 80m from the project corridor are anticipated to experience some level of material change to the visual composition and residential amenity of the road corridor as perceived from their private property. It is anticipated that adverse effects experienced will be no greater than **very low** with or without the inclusion of mitigation measures.

Urban properties set back from the Project area on Grove Way are expected to experience a reduction in landscape amenity. This will be as a result of the removal of tree and understorey vegetation which separates Grove Way and the Coatesville-Riverhead Highway. During the operational phase of the project streetscape vegetation will be provided within the upgraded road. It is suggested that within this section of the route a detailed design exercise is undertaken to ensure that Grove Way landscape amenity at this section of the route is optimised.

Without the implementation of mitigation measures, it is anticipated that the visual effects on urban properties will be **low-moderate** adverse, within the context of anticipated urbanisation. With the provision of mitigation measures it is anticipated that the amenity provided within the upgraded project corridor will be comparable to the existing amenity. As a result, we consider that adverse visual amenity effects will be **very low** during the operational phase of the project.

Over time as the surrounding FUZ land is live zoned at the northern and southern extents of the project corridor visual effects are anticipated to be reduced for the private viewing audiences within the emerging urban area. This is as a result of the increased density surrounding the project corridor and the change to an urban amenity including streetscape improvements, maturing street trees, berm planting and active modes of transport.

For rural properties directly adjacent to the Project area (from which land is required), visual amenity and residential character effects will be heightened as a result of the construction impacts including driveway regrading, potential loss of yard space, removal of existing screening vegetation and by

grater proximity of the carriageway and footpaths/cycleways to private dwellings. We recommended that boundary fences and garden plantings (removed through the Project works) are reinstated on completion of the works affecting the property. We recommend that mitigation measures for each property are considered on an individual basis with consultation with the landowner.

Without the inclusion of mitigation measures it is anticipated that visual effects on rural properties will range from **low-moderate** adverse for some further back from the transport corridor. Rural properties which have lost screening vegetation and front yard area as a result of the road widening, without mitigation it is anticipated that these will experience **moderate-high** adverse to **moderate** adverse visual effects.

It is anticipated that during the operational phase of works, provided that the mitigation measures are implemented, rural residential properties that front directly on to the project will experience **low** adverse to **low-moderate** adverse visual effects once reinstatement works and proposed mitigation planting has established. It is anticipated that visual effects will reduce over an extended period of time as mitigation landscape planting matures, typically between 3-5 years.

Public viewing audiences will engage with an expanded road corridor, particularly within the proposed urban section of the project corridor. Within the rural sections of the road corridor the road will be similar to the existing road. Visual effects for this audience are expected to be **very low** adverse in the context of the urbanisation of the surrounding landscape to the north. Over time, visual effects are anticipated to be neutral for the public viewing audience, based on visual amenity for users associated with the streetscape being replaced with a similar landscape and increased accessibility to active modes of transport. Visual effects within the context of the rural landscape will be **low** adverse as a result of the road corridor expanding into the surrounding landscape.

Overall, visual effects are anticipated to be partially or fully mitigated by measures implemented during the finishing phase of the construction period (within the road corridor and private property boundaries), that will mature through the operational phase of the Project to adequately reduce any potential long-term residual visual effects of the Project.

#### 10.6.4.3 Landscape Character Effects

The principal elements of the Project will generally be in accordance with the existing arterial road. At the completion of the Project, the urban sections of the upgraded corridor will resemble that of an urban arterial road with active modes of transport, structured street tree planting, integrated stormwater management and engineered roading elements. The rural sections of the upgraded route will retain a rural character and aesthetic with surrounding vegetation provided to settle the road into the landscape.

A planting plan is recommended to be included in the ULDM which will be developed as part of the detailed design of the Project. We recommended that any planting proposed as mitigation through the regional consents process is integrated with the planting plan as recommended through this assessment under the ULDM. This will ensure that natural and landscape character values are preserved as an outcome of the Project.

Although clearance of vegetation is expected as part of the required works, a structured landscape planting design will improve the landscape character along the project corridor, once implemented. This will alter the character of the surroundings immediately after construction as mature trees and shrubs will have been replaced with smaller less developed vegetation.



Figure 10-6: Coatesville-Riverhead Highway SH16 to Short Road (rural), Indicative 33m cross section



Figure 10-7: Coatesville-Riverhead Highway Short Road to Riverhead Highway (urban), Indicative 24m cross section

The cross sections above (Figure 11-6 and 11-7) illustrates the proposed upgrade to the road and the expected future use. Although indicative, there is available space within the road corridor for green infrastructure elements such as street trees and berms where stormwater devices with a small footprint and associated planting can be accommodated within the urban section. It is anticipated that these will be in keeping with the expected vernacular of the future urban landscape in the urban section of the route. There will also be space within embankments either side of the rural section of the route and to provide landscape amenity. These features are expected to match the existing rural amenity within the corridor.

The proposed vegetation (in the form of street tree planting, riparian vegetation, berm planting, screening vegetation and rural amenity planting) in conjunction with stormwater management, will provide landscape amenity of the Project area within the context of the urban and rural environments.

Within the rural environment it is anticipated that without the implementation of mitigation measures landscape effects will be **low-moderate** adverse to **low** adverse. With the provision of mitigation measures to integrate the expanded road corridor with the rural environment it is anticipated that landscape effects will be **low** adverse, reducing to neutral over time as vegetation matures.

Without mitigation it is anticipated that **low-moderate** adverse effects will be experienced may not reduce to neutral over time within the urban environment. It is anticipated that effects on the urban landscape will be **low** adverse reducing to neutral as vegetation matures.

### 10.6.5 Recommended Measures to Avoid, Remedy or Mitigate Operational Effects

Recommendations are in line with the general recommendations in Section 6.1.3.

## 10.7 Conclusions

Overall, landscape and visual effects without mitigation are expected to range from **moderate-high** adverse to **low** adverse for the construction phase of works and **moderate-high** adverse to **very low** adverse for the operational phase. Landscape and visual effects assuming that mitigation measures are implemented are anticipated to range from **moderate** adverse to **very low** adverse for the construction phase and **low moderate** adverse to **very low** adverse for the operational phase.

Without the implementation of mitigation proposals it is anticipated that natural character effects will be **low-moderate** adverse. Provided that mitigation riparian planting are implemented, it is anticipated that the natural character effects are anticipated to be **low** adverse.

Overall, the adverse effects can be mitigated and reduced over time in relation to the urbanisation of the surrounding landscape in the northern future urban areas and the implementation of mitigation planting in the rural areas to the south.



## 11 Conclusion

### NoR RE1 Don Buck Road FTN Upgrade

Overall, landscape and visual effects without mitigation are expected to range from **moderate** adverse to **very-low** adverse. Landscape and visual effects assuming that mitigation measures are implemented will range from **low-moderate** to **very low** for the construction phase and **low** to **very low** for the operational phase. Natural Character effects are expected to be **moderate** adverse without mitigation and **low** adverse with the implementation of mitigation measures. Overall, the adverse effects can be mitigated and there are a number of positive landscape and visual effects that can ensue.

### NoR RE2 Fred Taylor Drive (alteration to existing designation 1433)

Overall, landscape and visual effects without mitigation are expected to range from **moderate** adverse to **very-low** adverse for the construction phase of works and **low-moderate** adverse to **very low** adverse for the operational phase. Landscape and visual effects assuming that mitigation measures are implemented are anticipated to range from **low-moderate** adverse to **very low** adverse for the construction phase and **low** adverse to **very low** adverse for the operational phase.

Without the implementation of mitigation proposals it is anticipated that natural character effects will be **low-moderate** adverse. Provided that mitigation riparian planting are implemented, it is anticipated that the natural character effects are anticipated to be **very low** adverse.

Overall, the adverse effects can be mitigated and reduced over time in relation to the urbanisation of the surrounding landscape. The surrounding landscape context has a lower level of sensitivity to change due to the existing context of the arterial road and the projected urbanisation and development of time. There are a number of positive landscape and visual effects that will result from the project including the opportunity to formalise the streetscape and amenity provide consistent amenity along the Project corridor.

### NoR R1 Coatesville-Riverhead Highway Upgrade

Overall, landscape and visual effects without mitigation are expected to range from **moderate-high** adverse to **low** adverse for the construction phase of works and **moderate-high** adverse to **very low** adverse for the operational phase. Landscape and visual effects assuming that mitigation measures are implemented are anticipated to range from **moderate** adverse to **very low** adverse for the construction phase and **moderate** adverse to **very low** adverse for the operational phase.

Without the implementation of mitigation proposals it is anticipated that natural character effects will be **low-moderate** adverse. Provided that mitigation riparian planting are implemented, it is anticipated that the natural character effects are anticipated to be **low** adverse.

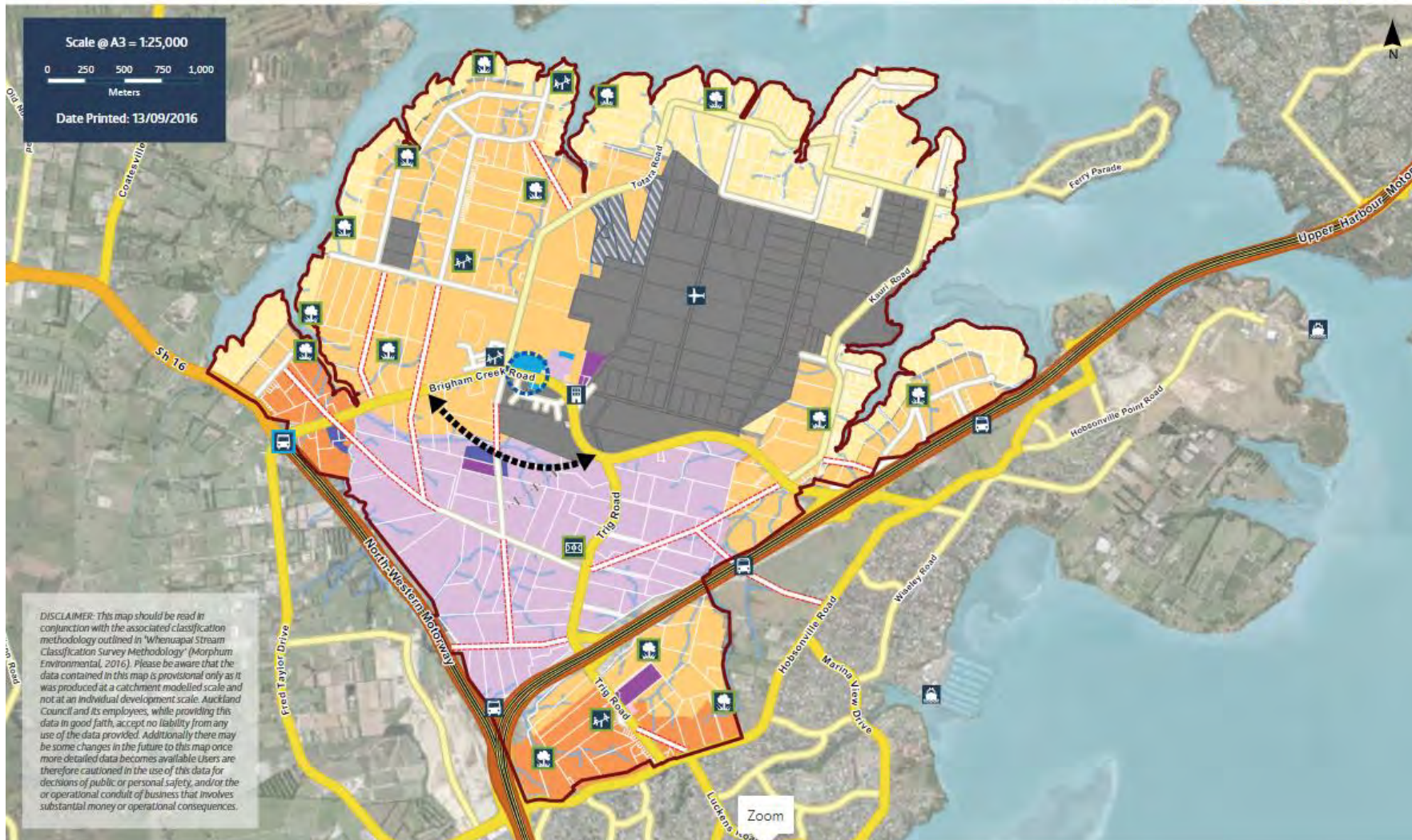
Overall, the adverse effects can be mitigated and reduced over time in relation to the urbanisation of the surrounding landscape in the northern future urban areas and the implementation of mitigation planting in the rural areas to the south.

## 2 Appendix 1: Whenuapai Structure Plan

Whenuapai Structure Plan September 2016

# Structure Plan Map

- |  |  |  |  |
|--|--|--|--|
|  Potential Multi-purpose Community Facility |  Proposed Civic Space                         |  Whenuapai Structure Plan Boundary  |  School               |
|  Ferry terminal                             |  Existing Neighbourhood Park                  |  NZDF Property                      |  Local Centre         |
|  RTN Station                                |  Proposed Neighbourhood Park                  |  NZDF Designation                   |  Neighbourhood Centre |
|  RTN Station - Park and Ride                |  Proposed Sports Park - location undetermined |  Rapid Transit Network (RTN)        |  Mixed use            |
|  |  Proposed Suburb Park                         |  Potential Brigham Creek Bypass     |  Low Density          |
|  |  |  Proposed Roads                     |  Medium Density       |
|  |  |  Permanent and Intermittent Streams |  High Density         |



### 3 Appendix 2: Graphic Supplement

# SUPPORTING GROWTH ALLIANCE

REDHILLS AND RIVERHEAD - NOTICE OF REQUIREMENTS  
LANDSCAPE AND VISUAL EFFECTS ASSESSMENT APPENDIX 2 GRAPHIC SUPPLEMENT

AUGUST 2022



# Redhills and Riverhead - Notice of Requirements



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View south west across Coatesville-Riverhead Highway from outside 15 Grove Way 23

View north along Coatesville-Riverhead Highway from outside the Huapai Golf Club 24



Existing View



Existing View





Existing View



Existing View



Existing View



Existing View



Existing View



Existing View



Existing View



Existing View





Existing View



Existing View



Existing View



Existing View



Existing View



Existing View



Existing View



Existing View





Existing View



Existing View



Existing View



Existing View

## 4 Appendix 3: Landscape Effects Methodology

### 4.1 Overview

This Landscape Effects Assessment (LEA) has been undertaken with reference to Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines<sup>11</sup>. The same methodology applies to the construction and operational stages of the works and for NoRs (R1, R2, and R3). These guidelines have been developed to relate to the Aotearoa New Zealand environmental planning context and align with te ao Māori and te ao Pākehā concepts of landscape.

While natural character, landscape and visual amenity effects assessments are closely related, they form separate procedures. An assessment of the effects on natural character of an activity involves consideration of the proposed changes to the current condition compared to the existing. The assessment of the potential effects on landscape considers effects on physical attributes, landscape character and values. The assessment of visual effects considers how changes to the physical landscape affect the viewing audience.

Visual effects relate to the amenity values of a landscape including the natural and physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.

Landscape effects result from natural or induced change in the components, character or quality of the landscape. Usually these are the result of landform or vegetation modification or the introduction of new structures, facilities or activities into the landscape.

Natural character effects are in relation to natural or induced change to any streams, wetlands and their margins as outlined in the NZCPS guidance note<sup>12</sup>. These are usually the result of landform, vegetation or hydrological modification or the introduction of structures into the waterbody or its margin.

The process of change itself, that is the construction process and/or activities associated with the development, also carry with them their own visual effects, however, these are distinct from those generated by a completed development.

The landscape and visual effects generated by any particular proposal can, therefore, be perceived as:

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

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

- The degree to which the proposal contrasts, or is consistent, with the qualities of the surrounding landscape.
- The proportion of the proposal that is visible, determined by the observer's position relative to the objects viewed.

<sup>11</sup> 'Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines', [Final Draft subject to final editing, graphic design, illustrations, approved by Tuia Pito Ora/NZILA 5 May 2021]

<sup>12</sup> 'New Zealand Coastal Policy Statement' [issued 4 November 2010]. Accessed online 24.11.2021 *NZCPS 2010 Guidance note Policy 13: Preservation of natural character* (DOC, September 2013). (<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/nz-coastal-policy-statement-2010.pdf>)

- The distance and foreground context within which the proposal is viewed.
- The area or extent of visual catchment from which the proposal is visible.
- The number of viewers, their location and situation (static, or moving) in relation to the view.
- The backdrop and context within which the proposal is viewed.
- The predictable and likely known future character of the locality.
- The quality of the resultant landscape, its aesthetic values and contribution to the wider landscape character to the area.

Change in a landscape and ‘visibility’ of a proposal does not of itself, constitute an adverse landscape or visual effect. It is the effect on the values of the landscape, positive, adverse or benign that need to be understood and evaluated.

## 4.2 Scale of Effects

In determining the magnitude of potential and actual landscape and visual effects of the Project, a consistent 7-point rating scale has been used that is based on the recommendations in the Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines. The effects ratings referred to in this assessment are based upon a seven-point scale which ranges from ‘very low’ to ‘very high’ and are described in the table below.

### 7-point rating scale

<i>Effect Rating</i>	<i>Use and Definition</i>
<b>Very High:</b>	Total loss of key elements / features / characteristics, i.e. amounts to a complete change of landscape character and in views.
<b>High:</b>	Major modification or loss of most key elements / features / characteristics, i.e. little of the pre-development landscape character remains and a major change in views.  <u>Concise Oxford English Dictionary Definition</u> High: adjective- Great in amount, value, size, or intensity.
<b>Moderate-High:</b>	Modifications of several key elements / features / characteristics of the baseline, i.e. the pre-development landscape character remains evident but materially changed and prominent in views.
<b>Moderate:</b>	Partial loss of or modification to key elements / features / characteristics of the baseline, i.e. new elements may be prominent in views but not necessarily uncharacteristic within the receiving landscape.  <u>Concise Oxford English Dictionary Definition</u> Moderate: adjective- average in amount, intensity, quality or degree

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

### **Mitigation**

For effects that are very low or low, mitigation is generally not required. Additional landscape mitigation may be required for landscape effects of a low-moderate to high rating to reduce effects to a lower degree. For effects that are very high, mitigation is unlikely to reduce the level of effect to any discernible degree. Operational effects are assessed after mitigation planting has been established, typically this is between 3-5 years after implementation. While planting establishes it is anticipated that adverse effects will reduce over time.

## **4.3 Methodology Breakdown**

The methodology that forms the basis for the assessment is set out below:

- Identification of relevant statutory provisions and non-statutory guidance relating to landscape;
- Analysis and description of existing landscape elements, features and character of the existing 'Baseline Landscape' within the NoRs and surrounding areas;
- Analysis and description of landscape elements, features and character of the likely future environment within the NoRs and surrounding areas;
- Analysis and description of perceptual, sensory and associative qualities within the Project areas, and the identification of the viewing audience and visual catchment;
- Summary of landscape values within the Project areas, including inputs from other specialists such as ecology, stormwater and historic heritage;
- Evaluation of the sensitivity of the landscape within the Project areas to landscape change arising from transport infrastructure upgrades;
- Analysis and description of the development proposal including construction methodology, timeline and discussion of avoidance and mitigation measures already integrated through the design;
- Identification of the principal elements of the Project (effects generators) likely to result in landscape, natural character and visual effects;
- Identification of temporary (construction) vs permanent (operational) effects of the Projects;
- Identification of general and targeted mitigation measures to reduce the magnitude of likely effects;

- Assessment of effects (adverse, neutral and/or positive) on the bio-physical aspects of the landscape resource, landscape character, natural character and visual amenity, taking account of the proposed mitigation measures; and
- Summary of the overall landscape and visual effects of the Projects and an overall determination of the significance of landscape and visual effects.

## 4.4 Landscape Values

Considering the absence of any scheduled high value landscape areas (ONLs, ONFs, HNCs or ONCs) at a national, regional or district level within or directly adjacent to the Project areas, a summary is provided of local landscape values within each Project Group. Local values generally considered three broad categories including: biophysical, perceptual and associative values.<sup>13</sup>

## 4.5 Landscape Sensitivity

The level of sensitivity of the sites and wider rural areas to land use change is influenced by the latest planning direction (AUP:OP and also the Whenuapai Structure Plan) that has placed the sites, local landscape and NoRs into the Future Urban Zone (FUZ) and some live mixed housing urban zoning around Whenuapai City Centre.

Notwithstanding the above, the interface between the land and water (riparian margins) is particularly sensitive to landscape change and under Part 2 of the RMA (section 6(a)) and relevant policies of the National Policy Statement for Freshwater 2020 (NPS-FM), the values within these areas of the landscape should generally be protected from inappropriate subdivision, use and development.

Other landscape attributes may also be sensitive to the effects of landscape change such as topographical and landform features, vegetation (scheduled notable trees or patterns of contiguous land cover), existing sensitivity associated with the built environment and views afforded to large mature trees, landmarks and/or landscape features within the contextual landscape. A scheduled notable tree is a tree or group of trees that a community or nation regards as being of special importance. These are listed in the Schedule 10: notable trees schedule in the AUPOIP<sup>14</sup>.

## 4.6 Landscape Effects

Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character and how this is experienced over time. This may in turn affect the perceived value ascribed to the landscape.

Potential landscape effects in this assessment relate to the following landscape attributes:

- Biophysical - Abiotic: Geophysical processes (landform) and drainage patterns.
- Biophysical – Biotic: Vegetation cover, quality and pattern (native and exotic).
- Human attributes: Land uses, active and passive recreation, amenity and built form.

Landscape and visual effects are assessed in two parts as outlined below; firstly, through the construction period of the Projects where the bio-physical and human attributes within the Project

<sup>13</sup> Landscape Guideline: Appendix 1: NZTA Landscape and Visual Assessment Guidelines

<sup>14</sup> AUPOIP Schedule 10: Notable Trees, <https://unitaryplan.aucklandcouncil.govt.nz/Images/Auckland%20Unitary%20Plan%20Operative/Chapter%20L%20Schedules/Schedule%2010%20Notable%20Trees%20Schedule.pdf> [accessed 5 July 2022]



area are required to be modified to implement the Project. Landscape and visual effects during the construction phase are generally considered to be temporary and dynamic in nature and may temporarily be heightened by the intervention of heavy machinery, areas of exposed ground and the use of construction service areas. In the second part (the operational phase of the Projects), the overall significance and value of landscape and visual change is explored and ultimately the Project's impact on landscape character, natural character and visual amenity is assessed.

The two categories of effects are outlined as follows:

- **Temporary Effects** (Construction Effects): Describes the anticipated effects on the bio-physical elements and features of the landscape resource (landform, vegetation and hydrology) resulting from the construction of the Project. It also includes visual amenity effects for both public and private viewing audiences from construction works. The construction activities required to implement the Project are categorised under the following broad headings:
  - **Site enabling works** - site establishment, demolition and vegetation clearance;
  - **Project formation works** - bulk earthworks, retaining walls, park and ride formation, platform and overhead structures, culvert upgrades, stormwater wetlands construction.
  
- **Permanent Effects** (Operational Effects): Describes the effects on the landscape of completed works (including integrated landscape mitigation measures), the significance of physical landscape change and ultimately the resulting effects of the Projects on landscape character, natural character and visual amenity for both public and private viewing audiences.
  - **Finishing works** - lighting, signage, road, footpath/cycleway details and line markings, streetscape elements and landscaping (including trees, mitigation planting and riparian/stormwater device/wetland planting).

## 4.7 Natural Character Effects

Section 6(a) of the RMA identifies as a matter of national importance to recognise / provide for the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers<sup>15</sup> and their margins, and the protection of them from inappropriate subdivision, use, and development.

Assessing existing natural character is primarily concerned with the degree to which natural processes, natural patterns and natural elements have undergone human modification. Hydrological and ecological survey and assessment for the Project area generally underpin the landscape evaluation of existing natural character values.

The natural character assessment for this Project applies to the existing water bodies and wetlands associated with the tributaries of the Brigham Creek Inlet, the Kumeū River and its branches.

## 4.8 Visual Effects

Visual effects relate to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with

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<sup>15</sup> A 'river' is defined in the RMA as a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse.

respect to visual amenity. Visual effects are considered for both temporary (construction effects) and permanent (operational effects) of the Projects.

Potential effects considered in this assessment relate to the following visual amenity attributes:

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

The nature and magnitude of the visual effect can be influenced by a number of factors such as:

- The extent to which the Project areas are visible;
- Legibility and whether there are intervening elements in the landscape that restrict views towards the Project area;
- Whether or not aspects of the Project appear 'at odds or integrated' with existing (or anticipated future) landscape character and composition;
- Distance between the viewer and the Project area;
- The nature of the viewing audience, numbers and extent of the visual catchment.

The proposed road corridor NoRs are located within an evolving future urban landscape, which in itself will bring about substantial landscape and visual change. Therefore, the visual composition that exists today is likely to change considerably over the course of the next decade.

Based on the above, the visual assessment for the Projects focuses on the potential visual effects arising (through the construction and operation of the Projects) within the proposed NoR areas, and localised landscape. The focus of the assessment is on the nature and significance of effects within the Project areas and how that translates to effects for immediately adjacent land uses (existing and future, but acknowledging that the existing land uses will change in the future).

Assessment photography was obtained during the project site visit in March 2022. The outlook from viewpoints that were captured onsite were photographed and assessed in variable weather conditions and at standing eye level. The photographs were taken with a digital SLR camera.

## 4.9 Limitations

This landscape assessment does not specifically address and respond to Mana whenua values from a design planning perspective. However, Mana whenua knowledge and associative values of the project landscape has been shared through the separate and parallel engagement between the Project team and Mana whenua who have expressed interest in the Projects. There are several crossovers with related specialties including urban design, hydrology, ecology, arboriculture and historic heritage. This report references the latest data available in respect of these matters at the time of issue.

All site assessments have been undertaken from public land and supported through detailed desktop GIS mapping and aerial photograph information.

## 4.10 Project Assumptions

The findings of this landscape effects assessment are underpinned by the following assumptions:

- For the FUZ areas, it is likely that construction of the road corridors will occur ahead of, or in parallel to, the urbanisation of these areas. Therefore, the starting assumption is that the roads will be constructed in the existing village and semi-rural environment and operate in an urban environment.
- Enabling work is expected to begin on stage 1 of the roads in 2023. The overall duration for the works is estimated to be approximately two years i.e. completed by 2028. Construction timings are indicative and further details will be confirmed closer to the time of construction and at the OPW stage.
- Areas that are already urbanised, or are planned to be (as per precinct plans in the AUP:OP), construction and operation of the transport corridors will be within an urban environment.
- The proposed designation footprint has sufficient space to enable design changes to occur through the detailed design phase of the Project, in order to integrate the road corridor from a visual and urban design perspective with adjoining land uses.

## 4.11 Statutory Guidance

### 4.11.1 Notice of Requirement

This assessment has been prepared to support the NoRs for the projects. The process for consideration of a NOR is set out in section 168 of the RMA. This includes consideration of the actual or potential effects (including positive effects) on the environment of allowing the requirement under the Resource Management Act (RMA).

Part 2, Schedule 6, Clause 33(7)(b) in Part 8 of the RMA, in particular ss 168, 171 and 176 of the RMA. The designation once confirmed authorises the activities relating to the Project or work enabled by the designation that would otherwise require a resource consent for land use activities pursuant to section 9(3) of the RMA. This assessment therefore focuses on the landscape and visual effects of the land use activities that will be authorised by the proposed designations for the Project. Landscape and visual effects arising from activities that require future regional consents will be assessed as part of a future consent process.

## 4.12 Non-Statutory Guidance

The Kumeū-Huapai / Riverhead area has not been structure planned. Land release for the Kumeū-Huapai/Riverhead area is identified in the FULSS to occur between 2028 and 2032. Council's current view is that structure planning must occur prior to the release of land currently zoned FUZ. This is indicatively programmed for Kumeū-Huapai / Riverhead in 2025.

The project team is working closely with Auckland Council to support desired outcomes for the Kumeū-Huapai / Riverhead area.

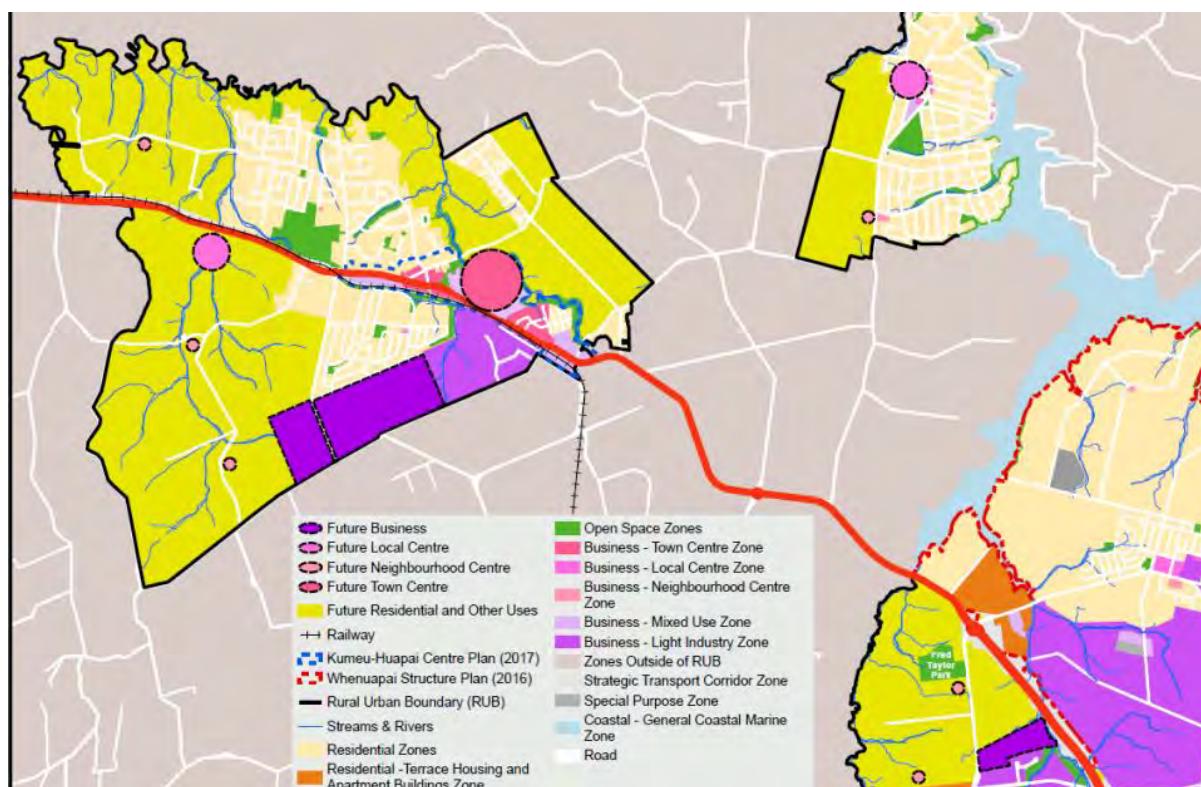


Figure 11-1: Spatial Land Use Strategy - Kumeū-Huapai, Riverhead, and Redhills North.

**Note: The Spatial Land Use Strategy is not a detailed structure plan and is only intended to be a high-level outline of the future land uses in the Future Urban zone.**

#### 4.12.1 National Policy Statement on Urban Development – NPS UD

The National Policy Statement-Urban Development (NPS-UD) came into effect on 20 August 2020 and sets out a list of things that local authorities must do to give effect to the objectives and policies defined within the policy statement. The NPS-UD does not explicitly address or refer to urban design but sets out the characteristics and rationale for “*well-functioning urban environments*” that enable all communities to provide for their social, economic, and cultural well-being and for their health and safety, now and into the future. This includes, amongst other requirements, the enabling of density and development capacity through “up-zoning” and more enabling planning provisions:

- around centre zones
- in areas with employment opportunities
- in areas that are well serviced by existing or planned public transport or where there is high demand for housing or business
- along rapid transit stops

In the context of this Project, the NPS-UD Policy 1 defines what constitutes a well-functioning urban environment as one that provides “good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport”. The implications of NPS-UD Policy 3 are that development of six storeys or more building heights are more likely within the context of an expanded road corridor.