TE TUPU NGĀTAHI
SUPPORTING GROWTH

North Projects Urban Design Evaluation

August 2023

Version 1.0

WAKA KOTAHI NZ TRANSPORT AGENCY

New Zealand Government

Document Status

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Glossary of Defined Terms and Acronyms

Table 1: Glossary of defined terms and acronyms

Acronym/Term	Description
AEE	Assessment of Effects on the Environment report
AT	Auckland Transport
AUP:OP	Auckland Unitary Plan: Operative in Part
BRT	Bus Rapid Transit
CEDF	Cultural and Environmental Design Framework
CPTED	Crime Prevention through Environmental Design
Design Framework	Te Tupu Ngātahi Design Framework
MCA	Multi-Criteria Assessment
MDRS	Medium Density Residential Standards
N/A	Not Applicable
NPS	National Policy Statement
NPS:UD	National Policy Statement on Urban Development
NoR	Notice of Requirement
NoR 1	New Rapid Transit Corridor (Albany to Milldale)
NoR 2	New Milldale Station and associated facilities (bus interchange etc)
NoR 3	New Pine Valley East Station and associated facilities (Frequent transit network (FTN) bus interchange, park and ride and access road)
NoR 4	SH1 improvements
NoR 5	New SH1 Crossing at Dairy Stream (Dairy Stream Motorway crossing for all modes, including connections through to Top Road and East Coast Road)
NoR 6	New Connection between Milldale and Grand Drive, Ōrewa (Upper Ōrewa Road Upgrade and extension)
NoR 7	Pine Valley Road upgrade
NoR 8	Dairy Flat Highway Upgrade –Future Urban Zone (FUZ) section between Silverdale interchange and Durey Road
NoR 9	Dairy Flat Highway Upgrade rural section (Durey Road to Te Wharau (Albany Village))
NoR 10	Wainui Road upgrade (between Lysnar Road and Wainui interchange)
NoR 11	New Connection between Dairy Flat Highway and Wilks Road (new link road connecting Kahikatea Flat Road to Wilks Road interchange)
NoR 12	Bawden Road upgrade and extension
NoR 13	East Coast Road upgrade
NZ	New Zealand

Acronym/Term	Description
RLTP	Auckland Regional Land Transport Plan
RMA	Resource Management Act 1991
RTC	Rapid Transit corridor
RTN	Rapid Transit Network
SH1	State Highway 1
Te Tupu Ngātahi	Te Tupu Ngātahi Supporting Growth Alliance
TDM	AT's Transport Design Manual
THAB	Terraced House and Apartment Building zone
ULDMP	Urban Landscape and Design Management Plan
UDE	Urban Design Evaluation
Waka Kotahi	Waka Kotahi New Zealand Transport Agency

Executive Summary

Te Tupu Ngātahi is preparing Notices of Requirement (NoRs) under the Resource Management Act 1991 (RMA) for route protection of the North Projects. There are 13 NoRs proposed for the North Projects and involves both Auckland Transport (AT) and Waka Kotahi NZ Transport Agency.

This Urban Design Evaluation (UDE) contains an evaluation section for each NoR which has been prepared based on the guidance and principles established in Te Tupu Ngātahi Design Framework (Design Framework -See Appendix 1). The UDE provides urban design focused commentary on the current design detail and recommends the framework for how and where any urban design opportunities should be considered in future design stages. These recommendations should form the basis of an urban design specific designation condition, and where there is an overlap of urban design outcomes with other considerations (for example ecological, landscape, visual or water quality related recommendations) they should be integrated within the relevant specialist conditions.

The recommendations are summarised as urban design outcomes sought. Where additional urban design opportunities have been identified during the evaluation, they are also mapped for each NoR for consideration either by the requiring authorities or other parties at future stages of design and development of the Project. These opportunities support the qualities defined under the principles of the Design Framework, however, are not required to address the anticipated urban design outcome of the Projects.

Summary of urban design outcomes sought

Overall, the North Projects are generally consistent with the Design Framework principles.

The preparation of an Urban and Landscape Design Management Plan (ULDMP) prior to the start of construction is recommended for all NoRs to further develop the urban design outcomes recommended as summarised under each NoR evaluation.

Details of the urban design recommendations are included for each NoR and are summarised in Section 7.

1 Introduction

This Urban Design Evaluation (UDE) has been prepared for the Te Tupu Ngātahi Supporting Growth Alliance, North Auckland Projects to support 13 Notices of Requirement (NoRs) for Auckland Transport (AT) and Waka Kotahi NZ Transport Agency (WK) as requiring authorities under the Resource Management Act 1991 (RMA). The notices are to designate land for future strategic transport corridors and two rapid transit corridor stations to enable the future construction, operation and maintenance of transport infrastructure in the North area of Auckland. The North area extends from Albany to Ōrewa and via the growth areas of Dairy Flat, Silverdale West, Wainui East, and Redvale (refer Figure 2-1). The North Projects are summarised in Section 2.

Refer to the main Assessment of Effects on the Environment (AEE) for a more detailed project description.

1.1 Purpose and Scope of this Report

This UDE forms part of the suite of technical reports prepared to support the AEE for the North Projects. Its purpose is to inform the AEE that accompanies the North NoRs for AT and Waka Kotahi.

The UDE provides an overview of the urban design considerations and inputs as well as an evaluation and identification of future transport and land use integration opportunities for the 13 NoRs across the North Area.

The key matters addressed in this report are as follows:

1. Identify and describe the future urban design context of the North Projects;
2. Identify and describe the urban design outcomes of each Project in relation to the Te Tupu Ngātahi Design Framework (Design Framework);
3. Recommend outcomes and opportunities that are to be achieved to establish the design outcomes articulated in the Design Framework for each Project; and
4. Present an overall conclusion of the urban design outcomes for each Notice of Requirement .

1.2 Report Structure

The evaluation is structured as follows:

a) A summary of the North Projects in **Section 2**;
b) A summary of the design context in **Section 3;**
c) Identification and description of the existing and likely future urban environment in **Section 4**;
d) Overview of the methodology used to undertake the assessment and identification of the assessment criteria and any relevant standards or guidelines in **Section 5**;
e) An assessment of the 13 NoRs against the Te Tupu Ngātahi Design Framework:
   a. An assessment of the urban design matters that are relevant to all NoRs in **Section 6**
   b. An assessment of the urban design matters specific to each of the NoRs in **Section 7**
   c. Summary of the urban design evaluation and recommendations in **Section 8**.

This report should be read alongside the AEE, which contains further details on the history and context of the Projects. The AEE also contains a detailed description of works to be authorised for the North Projects as a whole and each NoR, and the typical, indicative 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 urban design outcomes. 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.

2 North Projects Overview

An overview of the North Projects is provided in Figure 2-1 below, with a brief summary of the North Projects provided in Table 2**.**

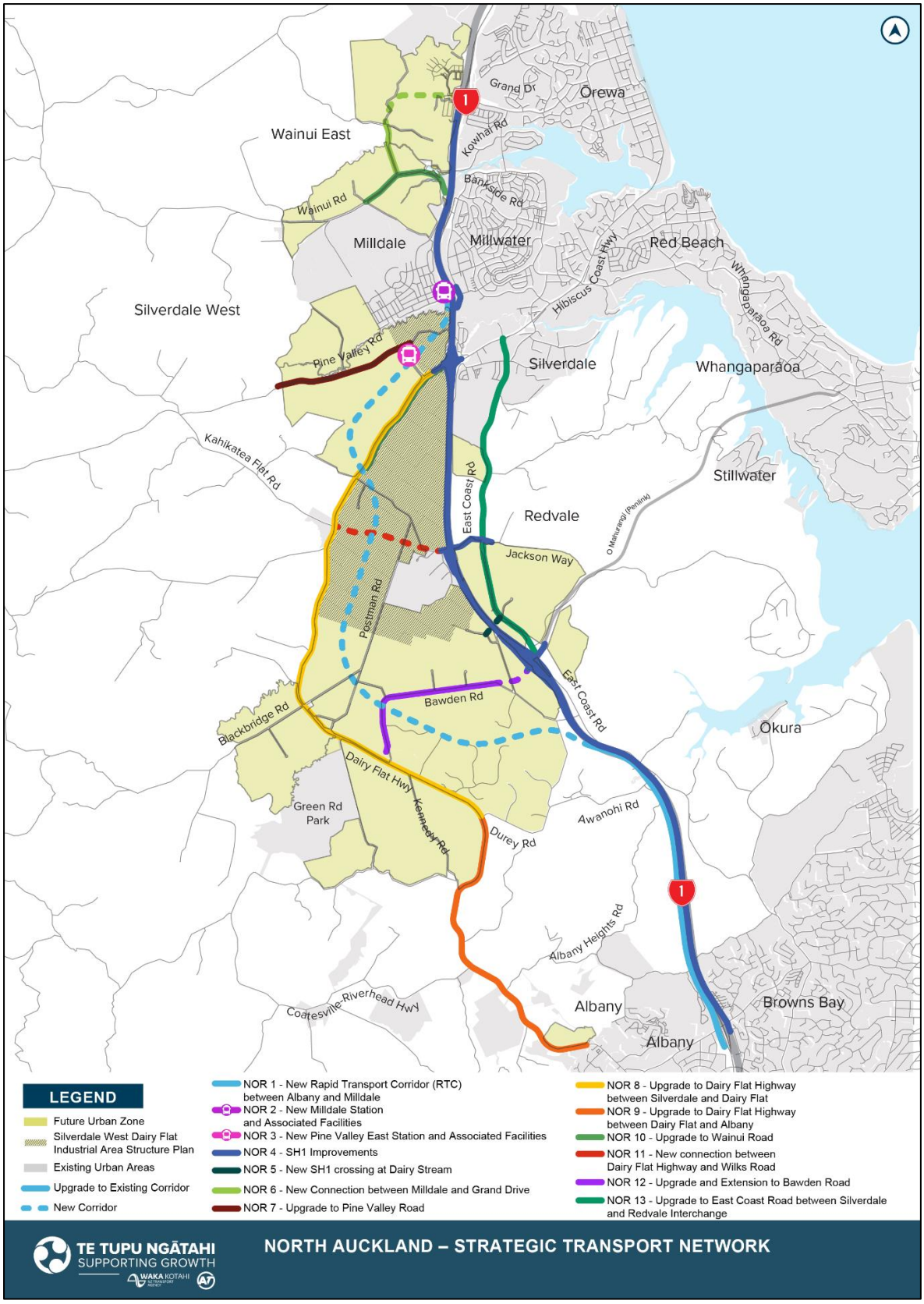

Figure 2-1 Map showing the location of each Project within the North growth area

Table 2: North Projects Summary

NoR	Project	Description	Requiring Authority
1	New Rapid Transit Corridor (RTC) between Albany and Milldale, including new walking and cycling path between Bawden Road and Dairy Flat Highway	• A 16km-long RTC for public transport and active mode purposes • An 80km/hr operating speed (other than around stations) • Walking and cycling facilities along some of its length from Bawden Road to the point where the RTC crosses Dairy Flat Highway • Grade separated crossings at intersections with other key transport corridors • The NoR will overlap with the existing motorway designation and SH1 improvements project over some of the length (between Albany and around Bawden Road)	WK
2	New Milldale Station and Associated Facilities	• A new rapid transit station and associated facilities, including: • Station building with associated station facilities • Cycle and shared mobility device parking provision • Local bus layover and stop provision • Taxi and ride share drop-off facilities •	WK
3	New Pine Valley East Station and Associated Facilities	• A new rapid transit station and associated facilities, including: • Station building with associated station facilities on structure over New Pine Valley Road with associated stairs and lift towers • Cycle and shared mobility device parking provision • Local bus layover and stop provision • Layover facilities for bus based RTC mode • Taxi and ride share drop-off facilities • Park and ride facility (up to 500 car parking spaces) • Upgrade to Old Pine Valley Road along station frontage. •	WK
4	SH1 Improvements (Alteration to designations 6761, 6760, 6759, 6751)	• Widening the SH1 carriageway from two lanes to three lanes in each direction from the Lonely Track Road overbridge to the Silverdale interchange • Upgraded Ō Mahurangi Penlink (Redvale) Interchange (upgrading this proposed interchange to add north facing ramps) • New Wilks Road interchange (south facing ramps only) • Silverdale interchange upgrade for east-west capacity • New Walking and Cycling Path along SH1 - an approximately 16 km long active mode corridor along one side of SH1 from Albany to Grand Drive (starts on east of SH1 at Oteha Valley Road, crosses to west of SH1 around	WK

NoR	Project	Description	Requiring Authority
		Bawden Road and then back to east around Silverdale interchange) • Silverdale to Highgate Active mode connection - connection from the strategic active mode corridor at Silverdale to Highgate Parkway • Wainui interchange upgrade for active modes – new bridge for active modes across SH1	
5	New SH1 crossing at Dairy Stream	• A new two-lane urban arterial connection and SH1 motorway overbridge between Top Road and East Coast Road near Huruhuru (Dairy Stream) • Active mode facilities on both sides of the carriageway • The overbridge would cross six lanes of motorway, a two-lane link road to the motorway service centre and the new walking and cycling path on SH1 (refer to NoR 4 above)	AT
6	New Connection between Milldale and Grand Drive	• A new two-lane urban arterial with separated walking and cycling facilities on both sides between Wainui Road (Milldale) and the western edge of the Ara Hills development in Ōrewa. This will connect through to Grand Drive at SH1 via a new 30m road corridor to be vested by the Ara Hills developer.	AT
7	Upgrade to Pine Valley Road	• An upgrade to Pine Valley Road (FUZ section) between Poynter Lane and Argent Lane to a two-lane urban arterial with separated walking and cycling facilities on both sides •	AT
8	Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat	• An upgrade to a 4-lane urban arterial on sections where FUZ land is located both sides of the road (between Silverdale interchange and Wilks Road and between Richards Road and Durey Road), with separated walking and cycling paths on both sides of the corridor • Upgrade to a 2-lane rural arterial between Wilks Road and Richards Road – with a swale on the west and separated walking and cycling on the eastUpgraded bridge over Huruhuru (Dairy Stream)	AT
9	Upgrade to Dairy Flat Highway between Dairy Flat and Albany	• An upgrade to Dairy Flat Highway between Dairy Flat and Albany for active mode and safety improvements including a central wire rope barrier and side barriers. • The widened Road corridor will retain two lanes (one in each direction) and will also retain crawler lanes as currently located • Cycle path added on the western side of the carriageway between Durey Road and the Coatesville Riverhead Highway Roundabout and then on the eastern side between the Roundabout and Te Wharau (Albany Village)	AT

NoR	Project	Description	Requiring Authority
10	Upgrade to Wainui Road	• Upgrade to Wainui Road to a 2-lane urban arterial between Lysnar Road and the new Argent Lane • Separate, dedicated, walking and cycling facilities on both sides of the carriageway • Upgraded bridge over Waterloo Creek (tributary to Ōrewa River)	AT
11	New connection between Dairy Flat Highway and Wilks Road	• Segment 1 (Kahikatea Flat Road to Postman Road Segment) will feature a 2-lane urban arterial (24 m wide corridor) with separated walking and cycling facilities on both sides. • Segment 2 (Postman Road to SH1) features a 4-lane urban arterial (30 m wide corridor) with separated cycling and walking facilities, two lanes of general traffic and two-lanes where priority may given to freight traffic.	AT
12	Upgrade and Extension to Bawden Road	• Upgrade and extension to Bawden Road. This will include a 30m four-lane road corridor with walking and cycling facilities on both sides. Two lanes for general traffic and two lanes for a frequent transit network (likely bus lanes). • Road intersects with the RTC. The road is likely to go under the RTC (grade separated crossing).	AT
13	Upgrade to East Coast Road between Silverdale and Ō Mahurangi Penlink (Redvale) Interchange	• Upgrade to the footpath on the west side and new footpath on east side between Hibiscus Coast Highway and Silverwater Drive. • Segment 1 (from Silverwater Drive to Newman Road) features a two-lane urban arterial upgrade (24 m) with separated walking and cycling facilities on both sides. • Segment 2 (from Newman Road to Jackson Way, where one or both sides is rural) has a shared path to the west only, with no works to the existing carriageway and no swales. • Segment 3 (from Jackson Way to the end of the FUZ) features a 24 m wide cross section with walking and cycling facilities on both sides.	AT

3 The Design Context

This section outlines those documents and policies that are relevant to the Te Tupu Ngātahi Design Framework. It generally describes the principles of the Design Framework and the relationship between this framework and relevant strategic plans, policies and design guidance to the project.

3.1 Te Tupu Ngātahi Design Framework

This evaluation is based on the guidance and principles established in the Te Tupu Ngātahi programme wide document – *Te Tupu Ngātahi Design Framework (**Design Framework or Design Framework Principles**)*.

The Design Framework takes a systems approach as the basis on which urban areas are organised and understood. It pulls these apart as a series of layers; environment, social, built form, movement and land use, with cultural and sustainability values underpinning and spanning across all layers. In this way transport networks are not seen in isolation; rather in terms of how they can contribute to the urban system as a whole and therefore assist in delivering well-functioning urban environments, particularly the provision of accessibility for all people between housing, jobs, community services, and open spaces, including by public transport and active modes.

There are twenty design principles that have been established (as part of the Design Framework) within these layers to provide high level guidance on the attributes of responsive, resilient, sustainable, vibrant and high-quality urban environments. Each of the principles describe what 'good looks like' and what to aim for in the design of transport networks. The principles sit within an integrated system, to be prioritised and applied according to desired outcomes articulated in the strategic policy direction and the context of each NoR.

The Design Framework principles are relevant across the Projects within the Te Tupu Ngātahi Supporting Growth Programme as they contribute to the understanding of the development of route options in terms of: place context, built form interfaces, movement functions and modal priorities. They also inform the design development of route options at each phase with specific urban design considerations including:

- Land use and corridor interface
- Connectivity and access
- Character and sense of place
- Integration with future development
- Response to topography.

The Design Framework has been used to evaluate other packages prepared under the Te Tupu Ngātahi Supporting Growth programme, and this evaluation is consistent with the approach taken for these previous assessments.

3.2 Strategic plans, policies and design guidance

3.2.1 Overview

The Design Framework sits within the context of a range of established strategic plans, policies and design guidance that guide urban development outcomes at the:

- National level (e.g. National Policy Statement (NPS) on Urban Development, Government Policy Statement (GPS) on Land Transport, Medium Density Housing Standards (MDRS), NZ Transport Agency Bridging the Gap, Regional Land Transport Plan; and
- Local level (e.g. Auckland Plan 2050, Auckland Transport Alignment Project (ATAP), Auckland Transport Roads and Streets Framework, Transport Design Manual, Auckland Unitary Plan (AUP:OP), AT Sustainability Framework, Auckland Transport Code of Practice).

The established strategic plans and guidance outlined above informed the development of the Design Framework content and they are referenced in general terms as they relate to the attributes that will contribute to healthy, connected and sustainable communities. Where more recent design guidance was available that did not form part of these published reports, the Design Framework included more detail, e.g. the approach to the location of rapid transit and the role of active modes.

3.3 National Policy Statement on Urban Development 2020 (NPS:UD)

The 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 NPS:UD. 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 increased commercial and residential activity around:
    - centre zones;
    - areas with employment opportunities; and
    - areas that are well serviced by existing or planned public transport or where there is high demand for housing or business.
- Providing accessibility for all people between housing, jobs, community services, and open spaces, including by public transport and active modes.

This aligns with the Design Framework principles of connecting communities and increasing density in and around centres to create vibrant walkable/cyclable communities that support public transport, have compact urban forms, a strong sense of place and a community focal point.

The NPS:UD recognises that to achieve well-functioning urban environments, communities may experience significant changes to an area, and the level of amenity they currently experience. A large area of the North Projects is within the Future Urban Zone, consequently a high level of change is anticipated in this area, over time as the area develops. This is an important consideration for the UDE which assumes that the projects will be delivered in an urbanised, or urbanising environment.

3.4 Auckland Council

Auckland Unitary Plan

At a local level, the key urban design considerations and provisions of the AUP:OP relevant to the Projects include:

- Regional Policy Statement B2: Urban Growth and Form;

- Regional Policy Statement B3: Infrastructure Transport and Energy;
- Regional Policy Statement B4: Natural Heritage (E38: Urban Subdivision);
- Chapter E38: Subdivision;
- Chapter H: Zones (including structure planned zones);
- Chapter I: Precincts
    - Dairy Flat Precinct which relates to the existing North Shore Airport
    - Wainui Precinct (Milldale)
    - Highgate Precinct
    - Silverdale 2 Precinct
    - Orewa 3 Precinct
- Chapter M: Appendix 1 Structure plan guidelines.

The specific urban design commentary within the NoR evaluations (outlined in the sections below) broadly cover the objectives and policies of the relevant sections of the Regional Policy Statement and Chapters of the AUP:OP as listed above. For a full assessment of the Objectives and Policies, refer to the AEE.

3.4.1 Auckland Plan 2050

In addition, the Auckland Plan 2050 sets the vision and direction for Auckland and the Design Framework directly references this plan. The Design Framework illustrates how the outcomes of the Auckland Plan are linked to the design principles set out in the Design Framework.

3.4.2 Silverdale West Dairy Flat Industrial Structure Plan

The Silverdale West Dairy Flat Industrial Structure Plan (Industrial Structure Plan) outlines the anticipated land use for part of the North Projects area and includes light and heavy industrial land use. It has therefore been assumed that future land use and development in this area will be industrial in character. A plan change will be required before development is able to occur.

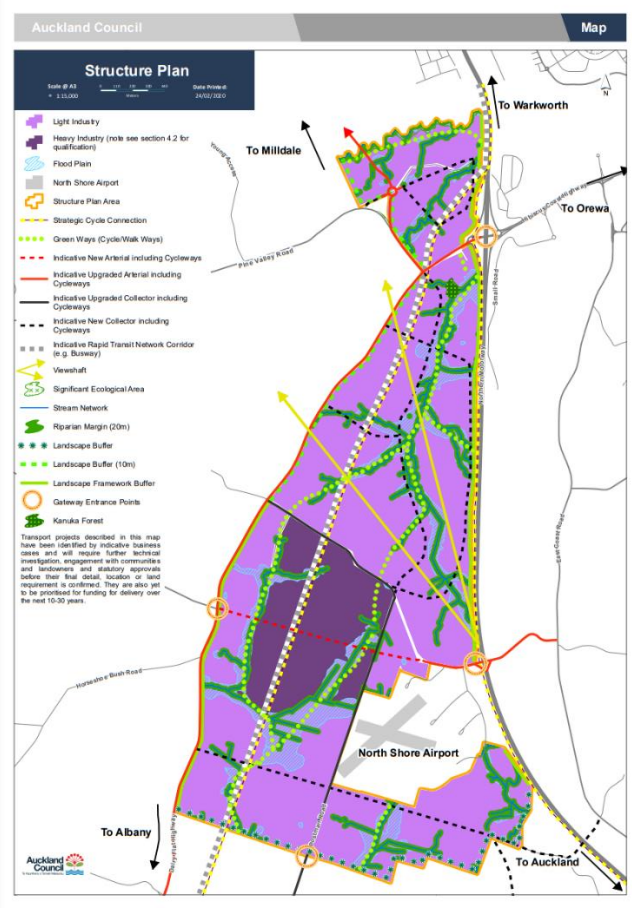

Figure 3-1: Silverdale West Dairy Flat Industrial Area Structure Plan Map

3.4.3 Draft Silverdale Dairy Flat Spatial Land Use Strategy

As part of preparation for the urbanisation of the North Projects area, Auckland Council has commenced the initial development of a draft Silverdale Dairy Flat Spatial Land Use Strategy (Land Use Strategy). This considers the investment signalled by the North Projects, including the Rapid Transit Corridor, and the associated stations at Milldale and Pine Valley Road. While no location has been determined, the Land Use Strategy anticipates future stations being delivered adjacent to the future Dairy Flat Town Centre. It also signals the potential for two local centres in the Pine Valley area.

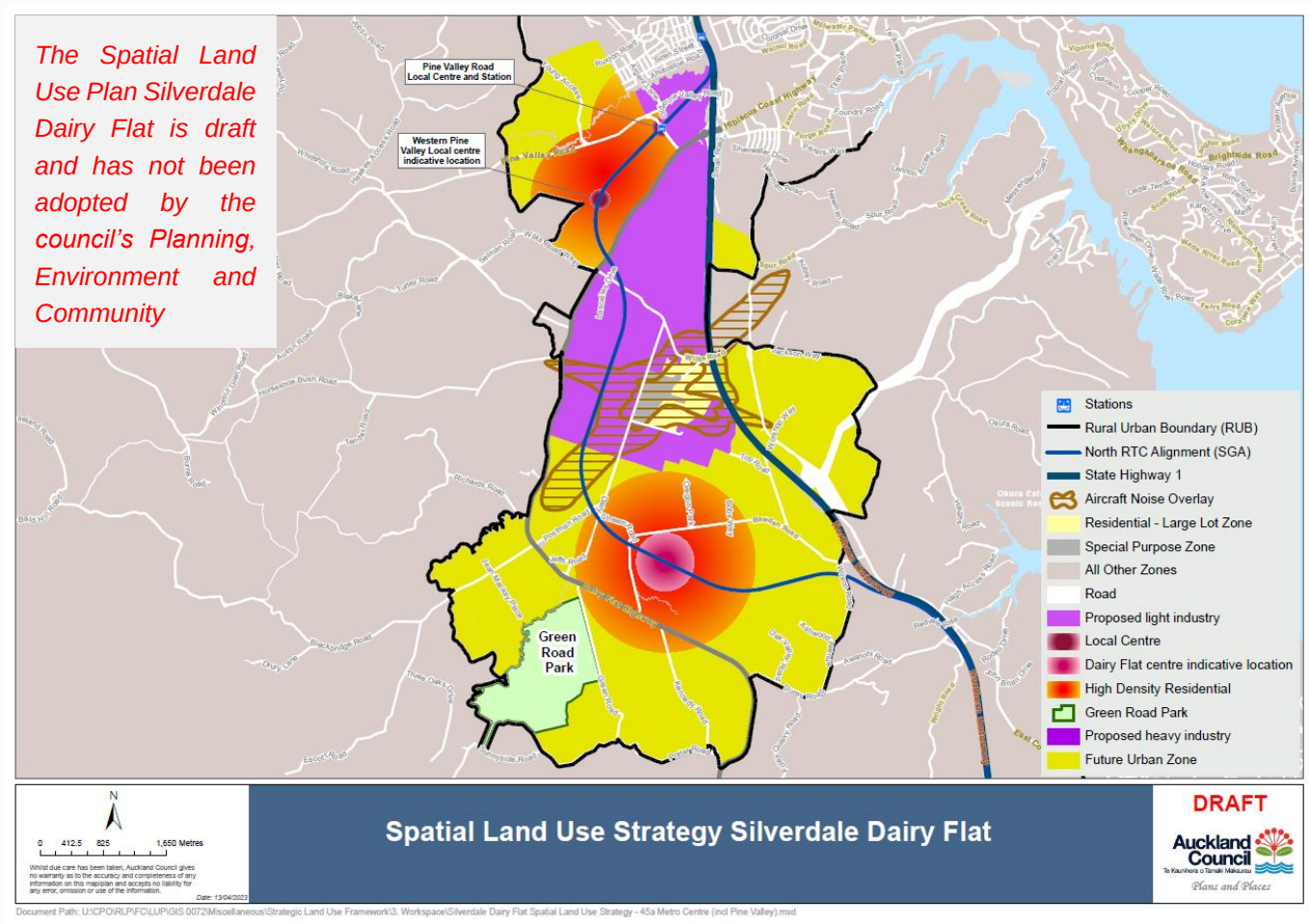

Figure 3-2: Draft Spatial Land Use Strategy Silverdale Dairy Flat.

At the time of preparation of this report, the Spatial Land Use Plan Silverdale Dairy Flat is draft and has not been adopted by the Council's Planning, Environment and Community Committee.

4 Existing and likely future environment

The AEE needs to consider both the existing environment and the likely future receiving environment at the time at which effects will likely occur. It is anticipated the North Projects will be constructed between 10 – 30+ years from now, meaning the receiving environment will differ significantly from what is present today.

The North Projects cover a large area between Albany in the South, through to Ōrewa in the north. The majority of the NoRs are located to the west of SH1 within the areas of Dairy Flat, Silverdale West and Milldale. The upgrade to East Coast Road (NoR 13) is located to the east of SH1 and connects into Silverdale.

There are existing rural and urban zonings in the study area, as well as large areas of future urban zoning (FUZ) which will influence the likely receiving environment for assessment purposes. The majority of the North Projects will be constructed and will operate within (or immediately adjacent to) areas currently zoned as FUZ.

The remainder will be constructed and operated within the existing urban environment or planned environment (i.e., what can be built under the existing AUP:OP live zones). Within these areas, there is a range of existing urban development including residential, commercial and industrial land use; existing rural- residential development, and rural land use. However, greater intensification is anticipated in the residential zones, centre zones (and future centres), and land adjacent to the proposed RTC stations, in line with the NPS:UD and introduction of the Medium Density Residential Standards (MDRS) MDRS. The MDRS provisions enable three dwellings, up to three stories high to be developed on a site, subject to standards, meaning that generally compared to currently development, additional density is likely to be seen across future residential zoning; noting that the policy context may shift prior to construction.

4.1 Existing Environment

The southern extent of the North Projects area includes existing development in Albany, which has a range of residential and commercial land uses, including the Albany Metropolitan Centre and the adjacent Albany Park and Ride which is the northern extent of the Northern Busway. Development in Albany is separated from the FUZ area in Dairy Flat by a large area of Significant Ecological Area (SEA) and Countryside Living zoned land.

Existing development in the north is generally located on the eastern side of SH1 in Silverdale, Millwater and Ōrewa. These well-established communities have a range of housing options – typically low density. They also have land use functions that enable them to function with a reasonable level of independence, reflecting their location north of Auckland, including access to employment and commercial activity, schools, community facilities and open spaces.

Currently the Dairy Flat Area is a mix of rural-residential and rural land use, with some commercial activity located throughout the area. This rural community has a range of community facilities including Dairy Flat School, Dairy Flat Community Hall, and the large Council owned Green Road Reserve, which is planned to become a future recreation and sporting asset for the area. The North Shore Airport is a unique land use feature located in this area. There is a small area of existing industrial/commercial use located on the corner of Kahikatea Flat Road / Dairy Flat Highway. The character of the area reflects the rural/ rural-residential land use and includes flat and rolling topography with steeper areas at the eastern end of Bawden Road and in the north.

The Milldale area is currently partially live zoned and is developing with a range of housing typologies and densities and a local centre is to be constructed. Residential development will continue in this area.

Figure 4-1: Aerial of the North Area showing existing urbanisation in Albany, Silverdale, Milldale and Millwater

4.2 Future Environment

Due to the long-term timeframes and likely development of the area, it is important to look forward to the future receiving environment when considering urban design outcomes and opportunities that are relevant to the 13 NoRs for the North Projects.

The adopted Silverdale West - Dairy Flat Industrial Area Structure Plan anticipates the development of a large industrial area within an area of FUZ predominantly between Dairy Flat Highway and SH1.

The remaining areas of FUZ, including Upper Ōrewa Silverdale West/Pine Valley and Dairy Flat have not yet been structure planned by Auckland Council. Auckland Council has, however, released some high-level thinking on future land uses in a draft Spatial Land Use Strategy shown in **Figure 4-2** which broadly suggests:

- A centrally located metropolitan/ town centre in Dairy Flat, adjacent to the RTC and out of the flood plains in this location.
- The potential for Terrace Housing and Apartment (THAB) zoning for 800m surrounding this metropolitan / town centre
- A local centre in the southern Pine Valley area, with the possibility of a smaller centre co-located with the station.

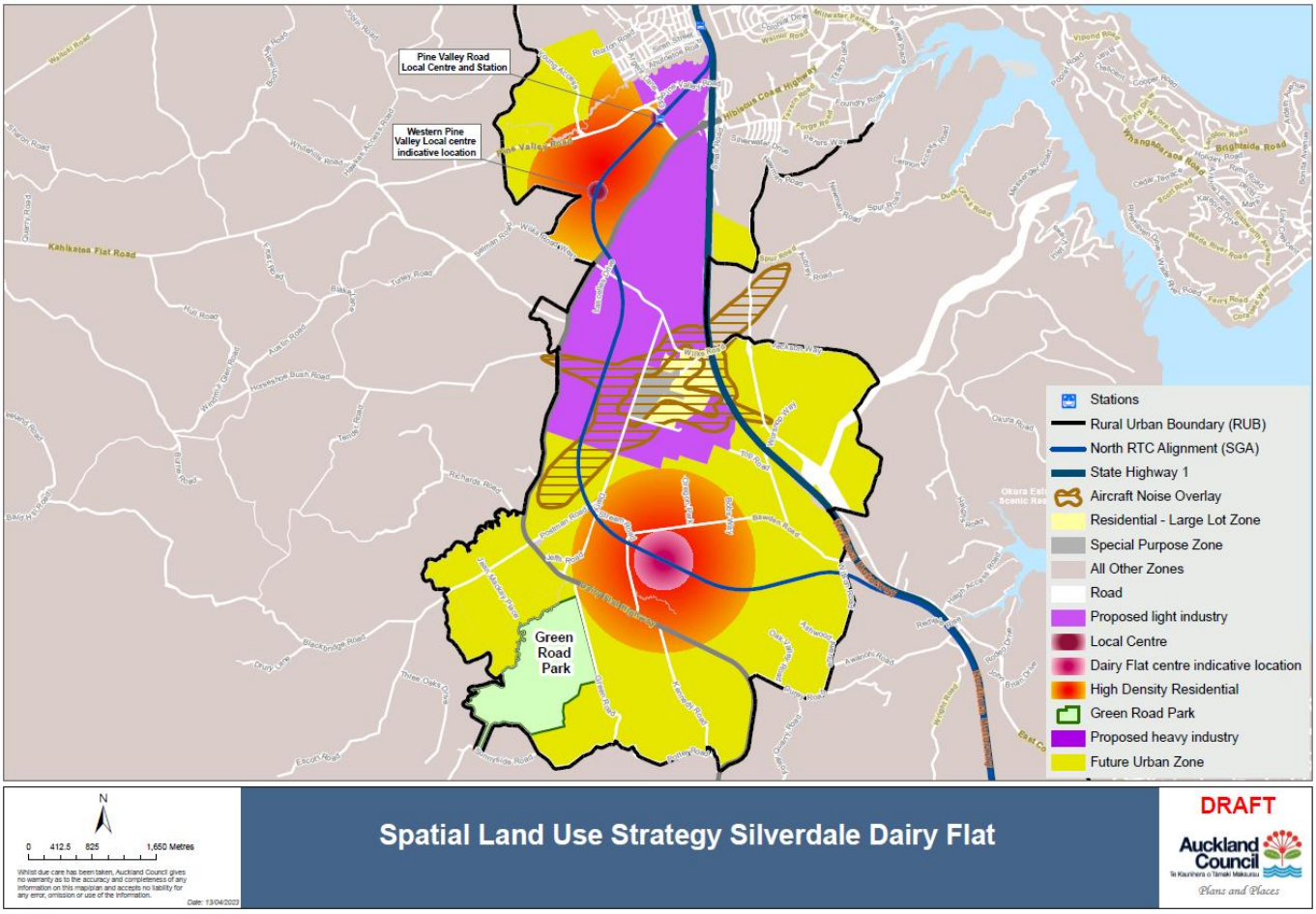

Figure 4-2: Draft Spatial Land Use Strategy Silverdale Dairy Flat

All areas of FUZ have a high likelihood of change in a planning and land use context. It is anticipated that the likelihood of change in the following areas / zones is generally low, however additional intensification enabled by the MDRS and NPS:UD may be developed in existing residential areas:

- Current residential areas/zones, including Single House, Mixed Housing Suburban, Mixed Housing Urban, Terrace and Apartment Buildings, and Large Lot zones
- Current business areas/zones, including Light Industry, Mixed Use, General Business, Neighbourhood Centre, Local Centre, Town Centre, Heavy Industrial zones.

- Current open space areas/zones, including Informal Recreation, Community, Sport and Active Recreation, Conservation zones.
- Current rural areas which are not FUZ zoned, including the Countryside Living zone.
- Other areas currently within the Special Purpose zone including Special Purpose – Cemetery, Special Purpose – School, and Special Purpose – North Shore Airport.

Sections 7 and 8 of the AEE outline the key attributes of the existing and likely future environment of the North Projects as a whole and then each of the NoRs.

5 Evaluation Methodology

Urban design outcomes have been considered as part of the wider input into option development and evaluation process for the North Projects which has resulted in the preferred outcomes that have been assessed in this report.

Work undertaken for this evaluation commenced in September 2022. In summary, the preparation for this work has included:

- Input to the options assessment process used to inform the preferred transport corridor alignments or station locations.
- Reviews of the project concept designs Te Tupu Ngātahi GIS viewer and attendance at design review workshops.
- Review of the North Projects specialist briefing package, the NOR indicative design drawings and designation boundaries, and Te Tupu Ngātahi GIS viewer
- A review of the statutory setting of the Projects and surrounding context
- A review of the other GIS data such as contours and aerial photography
- A preliminary site visit on 21 September 2022 with the Project Team

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

- Indicative Construction Method Statement.
- Other Technical Assessments:
    - Arboricultural Assessment
    - Ecological Assessment
    - Cultural Impacts Assessment.
    - Stormwater Assessment

Where other matters or expertise have been relied upon, these have been stated within the UDE assessment.

The UDE considers the design outcomes and opportunities relevant to the 13 NoRs across the North Projects. Using the Te Tupu Ngātahi Design Framework as the basis for evaluation. The UDE considers each of the 20 design principles for each NoR and how the option is supportive of the design principles and whether there are opportunities for improved alignment with these that can be achieved as the detailed designs of the designations continue to be developed. The assessment is undertaken in two stages. First, matters common to all NoRs are identified and addressed. Secondly matters that are specific to each NoR are considered and assessed.

The UDE does this by identifying outcomes and opportunities related to the NoRs that can contribute to establishing well-functioning urban environments and maximise positive design outcomes in relation to these NoRs. These have been spatially identified and are anticipated to be included in the development of the ULDMP proposed to be prepared as a condition of NoR prior to construction commencing.

In addition to the outcomes that relate to the delivery of these NoRs, the UDE identifies opportunities to achieve better urban outcomes as the area develops. These opportunities may not relate to, or be delivered by the Requiring Authorities, and could be delivered by other stakeholders including Auckland Council or the development community. The purpose of these is to identify where better

transport and land use integration could be facilitated resulting in better urban environments for future communities.

6 Evaluation of urban design matters

6.1 Urban design matters common to all NoRs

This section evaluates common or general urban design matters across the North Projects against the relevant Design Framework Principles. It provides urban design focused commentary on the current design detail and recommends the framework for how and where common urban design outcomes should be considered in future design stages. These recommendations are to be addressed through the preparation of an Urban Design Landscape Management Plan (UDLMP) prior to construction of the Projects. Where there is an overlap of urban design outcomes with other considerations (for example ecological, landscape and visual related recommendations) these could be integrated with other relevant designation conditions.

The assessment has been undertaken based on the designation design drawings including the bridges and earthworks batters shown. The detailed design of the corridors and stations will be undertaken in the future and will confirm details including earthworks and the location and extent of bridges, and culverts along the corridor.

Stormwater water quality is a future regional consenting matter that will be addressed at a later stage; however the proposed typical corridor cross sections allow sufficient space to provide natural drainage to stormwater wetlands or via swales as a way to address water quality and reduce hard engineering solutions. Where these are shown, they have been addressed in relation to the Design Framework.

Table 3: Common urban design matters relevant to all corridors

Principle	Explanation	Application common to all NoRs
ENVIRONMENT		
1.1 **Support and enhance ecological corridors and biodiversity**	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• The proposed designation boundaries provide sufficient space (within the cross section and wider boundary) to potentially support ecological connectivity and biodiversity in the local environment by providing contiguous space for diverse planting responses. This could include street tree planting, or additional areas of landscaping/planting associated with the corridors such as part of, or adjacent to, artificial wetlands and in the riparian areas of watercourses. • Opportunities within the immediate landscape of the corridor to support and enhance indigenous biodiversity through project landscape planting that ties into stream and riparian corridors as detailed in the North: Assessment of Ecological Effects

Principle	Explanation	Application common to all NoRs
		• There are multiple water courses that are crossed by the designations. While freshwater ecology is to be consented separately, the location and design of corridors has sought to minimise impacts on ecological features such as stream alignments and indigenous vegetation where possible. • The design of the corridors includes a number of bridge crossings, the details of which will be determined as the design of the corridor is refined at future design stages. Bridging structures provide the opportunity to reinforce broader connectivity outcomes for ecology by minimising stream interruptions and providing a connected natural system. • Stream crossings where existing culverts are to be upgraded or lengthened will also be improved so that fish passage is provided.
1.2 **Support water conservation and enhance water quality in a watershed**	*Take into account and work with the existing watershed as part of a whole system.*	• While stormwater / water quality is a future regional consenting matter to be addressed at a later stage, the proposed typical corridor cross sections allow sufficient space to provide natural drainage to stormwater wetlands as a way to address water quality and reduce hard engineering solutions. • Further refinement of the proposed stormwater treatment devices, swales and ponds during the future design stages is recommended to define the final form and interface with the surrounding land uses. For example, wetland edges may be configured in a naturally shaped manner and fully integrated with existing natural drainage features and vegetation.
1.3 **Minimise land disturbance, conserve resources and materials**	*Respect the existing topography, landforms and urban structure in the placement of strategic corridors. Minimise the quantity of hard engineering materials required. Minimise, mitigate any adverse effects of activities on the environment.*	• The options process has considered the extent of earthworks required and sought to minimise these where practicable. However, there remain opportunities to continue to refine and minimise earthworks required as part of future design stages. • Upgrades to existing corridors generally seek to follow the current alignment and geometry, minimising land disturbance. • For all designations, the extent of earthworks is addressed in NoR specific commentary in section 7. • Further vertical integration adjacent to stream crossings and bridging structures should be

Principle	Explanation	Application common to all NoRs
		developed at a detailed design stage to allow an appropriate transition and interface to adjacent built form where corridors are located adjacent to existing or future urban areas. • If practicable, opportunities should be explored at future detailed design stages to redefine and integrate residual land along the corridor frontage with the expected future land use function. • Commentary has been provided identifying the General Land Use Classification (LUC) of the soils, and those areas of high-quality soils which are soil classes 1-3. For those corridors in the FUZ, it is anticipated that the adjacent land will be urbanised and therefore lose its productive value. For those corridors in rural areas, the construction of the corridor will result in a loss of soil commensurate with the extent of earthworks required. Refer to section 7 for detailed commentary on each NoR. Soil classification has been taken from the SGA GIS - NZLRI Land Use Capability layer.
1.4 **Adapt to a changing climate and respond to the microclimatic factors of each area**	*Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the orientation of transport corridors can make to the local climate of future places and streets.*	• The proposed corridor cross sections generally provide locations for tree and vegetation cover within the designation. Further definition and design of the corridor landscape should be developed in future design stages and should address how the proposed corridor landscape: ○ Responds to pedestrian amenity outcomes; ○ Provides canopy shading to the corridor, particularly for active mode facilities; ○ Mitigates urban heat island effects within the environment of the corridor, and ○ Responds to and improves landscape character and values within the corridor. • The proposed corridor designs, including identified watercourse and stream crossings, adopt a vertical geometry that accommodates future stormwater events including the applied climate change factors as stated in Auckland Council Stormwater Code of Practice. • The DBC process of determining corridor locations considered resilience and climate adaptation as part of the options assessment. The location of the proposed corridors provides space for street tree planting that, when delivered, will contribute to the amenity of the area by providing shade and microclimatic cooling qualities. Further definition and design of

Principle	Explanation	Application common to all NoRs
		the corridor landscapes should be developed in future design stages. • The corridors will provide active mode facilities supporting mode shift.
SOCIAL		
2.1 **Identity and place**	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.*	• The proposed designations are located in and through a range of environments including existing urban, future urban and rural. Each of these contexts presents different opportunities to integrate the corridors into their surrounds; generally: ○ There is opportunity to improve connectivity and interface with watercourse crossings to enhance their distinctive landscape qualities (character drivers) for their local communities including opportunities for interaction, where appropriate. ○ Consideration of street tree selection and placement provides the opportunity to reflect and enhance the unique local character inherent in the built, natural and cultural qualities of the location. ○ In future design stages, Manawhenua will be invited to provide input as Partners into relevant cultural landscape and design matters including how desired outcomes reflect their identity and values. • Where more detail is required, these have been addressed in individual commentary on the corridors in the individual NoR evaluations in Section 7.
2.2 **Respect culturally significant sites and landscapes**	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• Manawhenua have been involved in regular hui and site visits with the Project team to share sites/areas that are of significance to Manawhenua and identify opportunities within and adjacent to the Project to acknowledge, respond, protect and incorporate their cultural narrative. • Further details of these areas are referenced in the *North Package: Cultural Impacts Assessment.* • In future design stages, Manawhenua will be invited as Partners to provide input into other relevant cultural landscape and design matters including how desired outcomes reflect their identity and values.

Principle	Explanation	Application common to all NoRs
2.3 **Adaptive corridors**	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• The proposed typical corridor cross sections and designation boundary have sufficient space to be flexible, re-configurable and adaptable for changing transport needs. For example, modal changes, future bus priority measures at intersections, bus stops and future expansion of any walking and cycling networks can be accommodated within the corridor. • The proposed cross sections provide space for all modes, with sufficient space at the corridor edges that accommodate active frontages, provide permeability for access to adjacent land use types and movement corridors. • For commentary relevant to stations, see specific commentary in the evaluation of NoRs 2 and 3.
2.4 **Social cohesion**	*Provide clear, effective and legible connectivity between community and social functions.*	• The proposed typical corridor cross sections support the creation of spaces where corridor access for active modes can be provided through a permeable interface at the designation boundary Additional detail is provided as part of each designation assessment where areas have been identified that require particular attention to achieve legible connectivity and permeability as the FUZ develops due to corridors being fully segregated (NoR1 RTC) or limited access arterials. • The proposed corridor alignments and function can deliver a positive contribution to the sense of belonging and participation, as well as community resilience by supporting direct access to existing and future local, neighbourhood and town centres and open spaces. Refer to individual NoR sections for specific focus areas. • To enable equitable local connectivity and cross corridor access to commercial centres and areas of residential development, further development at the detailed design stage should be undertaken of safe crossing points for intersections and midblock crossings for active mode users. These should be provided at a frequency commensurate to the level of activity and movement anticipated across the corridor. i.e. provide more frequent crossings in, and near, centres and in areas of higher density land use.
2.5 **Safety**	*Provide a safe and convenient network of routes accessible to*	• The proposed corridors and stations will deliver a greater level of access and movement to future

Principle	Explanation	Application common to all NoRs
	people of all ages and abilities.	local communities, with the provision of fully segregated active travel solutions. • The proposed corridors and stations accommodate the universal design approach and accessibility to all parts of user journeys. • The future design and functional layout of the designation design stages should respond to and incorporate CPTED principles, including clear sightlines, good levels of lighting, passive surveillance, and avoidance of entrapment zones. • There is opportunity for future adjacent development to provide additional passive surveillance and activation improving CPTED outcomes for the project. • A CPTED audit of each NoR project should be carried out against the proposed design and should address, at a minimum, the current identified CPTED risks outlined in each NoR evaluation. • Future development and detailed design of the final crossing points of the various designations is required to confirm and reinforce a sense of personal safety and provide for equitable local connectivity and access. • Further design detail of safe prioritised active modes crossings across the corridors and intersections should be addressed at subsequent detail design stages.
BUILT FORM		
3.1 **Align corridors with density**	*Locate stations/stops and corridors within walking distance of higher density development to facilitate modal shift, support commercial and mixed-use centres and contribute to vibrant, active urban environments.*	• Refer to individual assessments for each NoR.
3.2 **Corridor scaled to the surrounding context and urban structure**	*Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through*	• Refer to individual assessments for each NoR.

Principle	Explanation	Application common to all NoRs
	(appropriate scale to the context).	
3.3 **Facilitate an appropriate interface between place and movement**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• The proposed corridor cross sections provide flexibility to address the opportunity for place as well as movement function with clear allocation of street space, for example separated pedestrian and cycle facilities and potential road berm spaces that provide safe waiting zones for pedestrians. • In the absence of medians, signalised or legal crossings, mid-block crossings should be spaced appropriately for the adjacent land-uses and pedestrian desire routes involved, and should be considered and included as part of future detailed design stages. • Direct private vehicular access is generally not accommodated onto the corridors; however a pedestrian permeable interface or active frontage interface is supported at all locations along the corridors. To achieve this outcome will require cooperation between the Requiring Authority and adjacent land owners.
MOVEMENT		
4.1 **Connect nodes**	*Provide tangible connectivity between identified activity nodes.*	• The designations provide broad connections as part of the wider transport network and will facilitate access to activity nodes such as future town centres, areas of employment and residential development. To achieve finer grain connectivity the identification of clear and direct connections across the corridor should be demonstrated in future design stages including; ○ between local, neighbourhood and town centre functions and the communities they serve; and ○ between open spaces and reserves along the wider blue-green network. ○ Refer to individual NoR sections for specific nodal focus areas and commentary.
4.2 **Connect modes**	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• The proposed corridors provide simple but complete future connectivity for all modes (walking, cycling, public transport and private vehicles). • Where there is an existing street network, connectivity to the surrounding street network and access to the wider area is generally identified and accommodated, however it is

Principle	Explanation	Application common to all NoRs
		recommended that further consideration in future design stages is given to the detailed connections to any future active mode network design across the network. • Subject to detailed design, there is the ability for the future network to connect to the proposed corridors where technical design and safety specifications are able to be met.
4.3 **Support access to employment and industry**	*Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.*	• The corridors and stations prioritise public transport and active modes to provide direct access to and support for existing and planned commercial, industrial and employment areas including: ○ Albany Metropolitan Centre. ○ Silverdale Centre. ○ The Milldale Centre. ○ A future town centre in Dairy Flat. ○ Future employment in the Silverdale West Dairy Flat Industrial Structure Plan area. • For those projects that provide a freight focus, refer to individual NoR commentary.
4.4 **Prioritise active modes and public transport**	*Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.*	• The corridor designs and designation boundaries provide access for active modes, and public transport through the provision of: • High quality walking and cycling facilities, • Refer to individual commentary in relation to provision for public transport with the designations. • Detailed demonstration of safe and prioritised active mode connections at intersections and mid-block crossings in future design stages should focus on delivering a higher level of service to active and micro modes to further support modal shift. • Potential priority conflicts between active modes / public transport and the ongoing freight function of sections of the corridors should be further identified and addressed in the future design of the Projects. See individual NoRs for specific opportunities identified.
4.5 **Support inter-regional connections and strategic infrastructure**	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power,*	• NoR specific commentary is provided in relation to supporting connections for freight to/from industrial areas. . • NoR specific urban design commentary on the place / movement balance, modal priority

Principle	Explanation	Application common to all NoRs
	wastewater, water) to the network.	aspirations and urban interfaces is included in the individual NoR evaluations.
4.6 **Support legible corridor function**	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• The typical corridor cross sections accommodate a range of modes with clear allocation of street spaces that inherently support future community connectivity, mobility and travel choice. • Further development of active mode midblock crossings and along the corridors at the detailed design stage will provide clear and legible cross corridor access and connectivity between areas of high density, centres and community amenities.
LANDUSE		
5.1 **Public transport directed and integrated into centres**	*Locate rapid transit interchanges within centres (local, town and metro) to support a mix of uses and provide modal choice to a larger number of users.*	• Refer to individual assessments for each NoR.
5.2 Strategic corridors as urban edges	*Strategic corridors as potential definers of a land use edge.*	• Refer to individual assessments for each NoR.

7 Urban design evaluation tables for Notice of Requirements

7.1 NoR 1: New RTC (Albany to Milldale) - Urban Design Matters

NoR 1 is a 16.8km long RTC connecting from Albany in the south, through Dairy Flat to Milldale in the North. The Rapid Transit Corridor passes through a range of contexts which require different responses depending on the receiving environment. For this reason, where necessary, the evaluation of NoR 1 provides commentary with reference to four segments which are shown in **Figure 7-1**.

These are:

- **Segment A**: Oteha Valley Road – Wilson Road (Chainage 0 -6000) covers the area outside of the FUZ and therefore in an environment that is not expected to change.
- **Segment B:** Wilson Road – Postman Road (Chainage 6000-9700) is the east-west portion of the route that will connect to the future Dairy Flat town centre and anticipated future residential development at a range of densities.
- **Segment C:** Postman Road – Dairy Flat Highway cross over (Chainage 9700-13100) covers the portion of the route as it turns to a north/south alignment and moves from anticipated future residential development through the future Silverdale West industrial area.
- **Segment D:** Dairy Flat Highway cross over – Milldale (Chainage 13100-16800) covers the FUZ and anticipated future local centres to the north east. This segment also includes the two station designations (NoR 2: Milldale Station and NoR 3: Pine Valley Station).

Table 4: Urban design evaluation for NoR *1* – New Rapid Transit Corridor outlines urban design commentary specific to NoR 1.

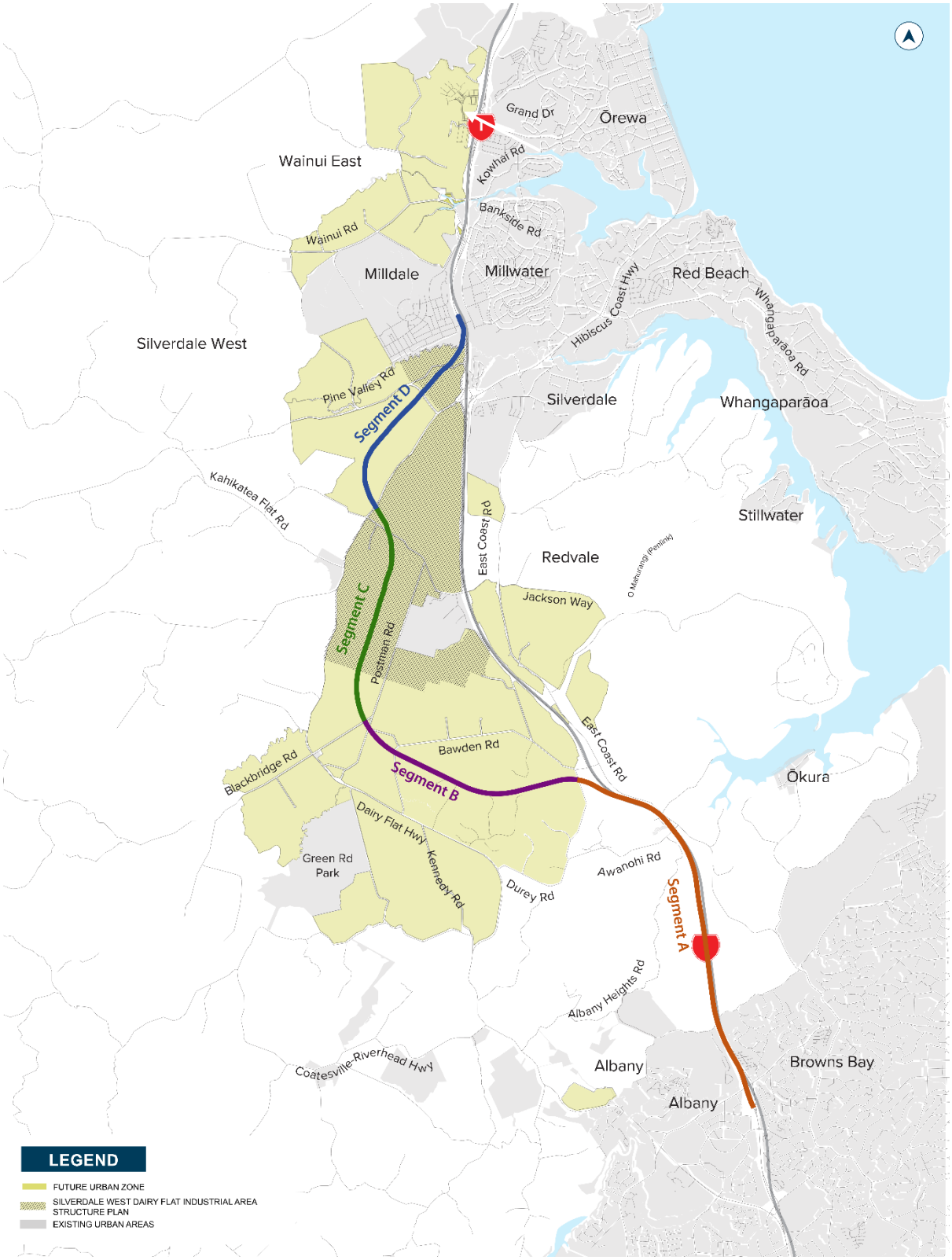

Figure 7-1: RTC Route Segments

Table 4: Urban design evaluation for NoR 1 – New Rapid Transit Corridor

Principle	Explanation	Application to NoR 1
ENVIRONMENT		
1.1 Support and enhance ecological corridors and biodiversity	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• Potential opportunities within the immediate environment of NoR 1 to support ecological connectivity and biodiversity are identified in the North: *Assessment of Ecological Effects* and include where the corridor crosses: ○ Waiokahukura (Lucas Creek) and tributaries; ○ Ōkura River; and tributaries ○ Huruhuru (Dairy Stream) and tributaries; ○ Wēiti Stream and tributaries, ○ John Creek and and tributaries: an ○ Rangitiopuni Stream and tributaries • Refer to the North: Assessment of Ecological Effects for details of these opportunities. **Segment A** • From Oteha Valley Road, this segment crosses an existing water course (Waiokahukura (Lucas Creek)) on a viaduct that is currently under SH1 before heading north adjacent to the existing SH1 corridor which is flanked by areas of indigenous vegetation on the east and SEA on the west. • The corridor in this segment crosses seven water courses and associated floodplains that are currently crossed by the SH1 corridor. The RTC corridor will bridge the Ōkura River and Lucas Creek by a viaduct. The RTC crosses an exotic wetland before entering the FUZ. This presents an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system that can be reinforced by planting. • Segment A traverses undulating land resulting in large cut batters encroaching into areas of identified SEAs (ch4800-5500). Further vertical geometric or structural retaining integration should be demonstrated in future design stages to reduce effects on these areas. **Segment B** • Segment B has no areas of SEA or indigenous vegetation that are impacted by the RTC there are however a number of exotic wetlands crossed by, or adjacent to the corridor. The corridor includes a large viaduct structure that spans Bawden Road and the adjacent Huruhuru (Dairy Stream) and flood plain

Principle	Explanation	Application to NoR 1
		(Ch9000). This presents an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system. • Some smaller water courses are culverted (ch10400, 11000 & 12900), and there may be opportunities to enhance broader ecology and water quality outcomes in these locations. **Segment C** • There are no areas of SEA within this section of the RTC, there is however an exotic wetland identified in the northern portion of this segment, crossed by the corridor. There is a single bridge crossing over a tributary to the Rangitopuni Stream. These present an opportunity to reinforce broader connectivity outcomes for ecology and water quality by minimising the stream interruption and providing a connected natural system which is aligned with the blue/green network identified in the Silverdale West Dairy Flat Industrial Structure Plan. **Segment D** • The RTC passes close to an SEA in the southern area, and runs along the edge of the "Kathy's Thicket" SEA which is adjacent to the Wēiti River on a viaduct; minimising its impact on the SEA. As the design is refined in later stages, this should minimise impacts on these locations and look for opportunities to enhance these areas where possible. • The RTC crosses three waterways. One is culverted and two are to be crossed with structures (Ch 13600 & 16200). It also crosses an exotic wetland. These present an opportunity to reinforce broader connectivity outcomes for ecology and water quality by minimising the stream interruption and providing a connected natural system.
1.2 **Support water conservation and enhance water quality in a watershed**	*Take into account and work with the existing watershed as part of a whole system.*	• The proposed typical corridor cross section and designation boundary allow sufficient space for swales or to provide natural drainage to stormwater wetlands to address water quality and reduce hard engineering solutions. **Segment A** • The RTC follows the SH1 corridor with 3 existing culverts, and proposes to viaduct over the Ōkura River and Lucas Creek, maintaining the continuity of the water shed. There may be opportunities to

Principle	Explanation	Application to NoR 1
		improve the watershed quality as part of future upgrades to the corridor where culverts are located. The designation allows room for swales to manage stormwater in this segment which have been assumed due to the constrained environment. **Segment B** • This segment includes a large viaduct structure that maintains the continuity of the Dairy Stream and the associated flood plain. There are 3 culverts proposed within this segment of the corridor for small stream crossings, presenting opportunities for enhancing water quality and maintaining the continuity of the watershed in these locations. The designation boundary allows room for two stormwater wetlands in this segment. **Segment C** • Segment C includes one bridge over the tributary to the Rangitopuni Stream, maintaining the continuity of the watercourse. Three culverts are proposed to cross smaller watercourses, presenting opportunities for maintaining the continuity of the watershed in these locations. The designation boundary allows room for two stormwater wetlands in this segment. **Segment D** • The RTC crosses three water ways in this segment. One is culverted and two are to be crossed with viaduct structures. The viaducts present an opportunity to reinforce broader connectivity outcomes for ecology and water quality by minimising the stream interruption and providing a connected natural system. The designation allows room for three stormwater wetlands in this segment.
1.3 **Minimise land disturbance, conserve resources and materials**	*Respect the existing topography, landforms and urban structure in the placement of strategic corridors. Minimise the quantity of hard engineering materials required. Minimise, mitigate any adverse effects of activities on the environment.*	**Segment A** • Minimal earthworks are required in the southern part of Segment A. The area between Awanohi Rd and Bawden Rd requires large areas of cut earthworks into an area of SEA (ch4800-5500); this should be reduced as much as possible as part of detailed design and integrated into the adjacent rural land. • This segment is not identified as FUZ and is mostly located on LUC class 4 soils, with some small areas of LUC Class 3 (which are considered high-quality soils). The corridor runs along the existing SH1 corridor minimising any further reduction of high-quality soils.

Principle	Explanation	Application to NoR 1
		Segment B • Segment B requires extensive amounts of earthworks in this segment, with some significant batters likely required to accommodate the RTC, resulting in a very wide corridor in this location, potentially up to 220m across the indicative earthworks. Future design should look to minimise these as much as possible to minimise severance and enable a positive interface to be established. This segment does include areas of LUC Class 3 soils, but this area is zoned FUZ and will be urbanised in the future. **Segment C** • Segment C also requires extensive amounts of earthworks throughout this segment, with some large cut batters likely required to accommodate the RTC, resulting in a wide corridor in this location potentially up to 120m across the indicative earthworks. Future design should look to minimise these as much as possible to enable a positive interface to be established. This segment is entirely LUC Class 4 soils. The area is zoned FUZ, and will be urbanised in the future. **Segment D** • Segment D requires large amounts of earthworks in this segment, with some large batters likely required, resulting in a wide corridor in these locations potentially up to 90m across the indicative earthworks. Future design should look to minimise these as much as possible to enable a positive interface to be established in these areas. The majority of this segment is in LUC Class 4 soils with a small area of Class 6 soil near Milldale., and is zoned FUZ, and will be urbanised in the future.
1.4 **Adapt to a changing climate and respond to the microclimatic factors of each area**	*Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the orientation of transport corridors can make to the local climate of future places and streets.*	• The typical RTC cross section does not include space specifically identified for amenity measures such as trees. Planting could be provided in areas surplus to requirements post construction on the edge of the active modes corridor, adding to the amenity of the corridor and contributing to reduction in heat island effects. • The corridor provides dedicated public transport and includes active mode facilities through to the cross over with Dairy Flat Highway supporting mode shift and reduced climate change impacts. There is the opportunity to extend the active mode facilities

Principle	Explanation	Application to NoR 1
		beyond Dairy Flat Highway, providing a direct connection to the likely future local centre(s) in Pine Valley.
SOCIAL		
2.1 **Identity and place**	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.*	• The RTC passes through a number of contexts and future urban environments. The further identification, development and integration of key identity drivers within NoR 1, including, gateways, future stations/centres, should be addressed in future design stages, once further clarity on adjacent land use outcomes is known, and include consideration of and responses to the following matters: **Segment A** • Segment A begins in Albany in the south tying in with the Albany Station by a viaduct over Oteha Valley Road The majority of this segment of the RTC is located outside the FUZ in the Countryside Living Zone and minimal/no changes are anticipated in this context. By aligning with the existing SH1 corridor in this section, it reinforces the major movement corridor in the area maintaining the existing character of this segment. The RTC should include gateway treatment recognising and communicating arrival from the north into the major centre of Albany. Design should also reflect the natural qualities of the adjacent SEA and indigenous vegetation. **Segment B** • Segment B is the beginning of the FUZ and where the RTC deviates away from the SH1 corridor. This segment may include up to three stations (which are not proposed to be designated at this time), servicing future growth and urbanisation in the area. A future town centre is also proposed to be located in this section. The design of the RTC should reflect this future context and consider responses to the future town centre and future adjacent stations providing a gateway to the centre.

Principle	Explanation	Application to NoR 1
		Segment C • This section runs through a small area of unplanned FUZ, which is anticipated to be future residential land use before moving into the Silverdale West Dairy Flat Industrial Structure Plan Area which provides for a mix of heavy and light industrial. There are no stations currently proposed in this segment, however the gradient in this area does not preclude the possibility of a station serving the industrial area in the future. The RTC will need to consider the various character and place drivers associated with the area including the Rangitopuni Stream, its tributaries, and the future industrial land use, and incorporate these into the design of the corridor. **Segment D** • This segment deviates across Dairy Flat Highway into FUZ that has not been structure planned. It is anticipated to provide for future residential land use and may include two local centres in the future. This segment includes the Milldale Station (NoR 2) and Pine Valley Station (NoR 3). The segment runs alongside a tributary of the Wēiti Stream. Refinement of design should respond to the place and landscape values of the natural environment and define gateways and way-finding for the two future stations.
2.2 **Respect culturally significant sites and landscapes**	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• Refer to Table 3 in relation to this design principle.
2.3 **Adaptive corridors**	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• The RTC has been designed and assessed for bus rapid transit but the corridor is futureproofed for light rail, thereby future proofing the route to be adaptive for a range of transport options. • The corridor provides for rapid transport and the majority of the corridor also provides for active mode facilities. • If practicable, future land integration post construction should be considered to support any proposed development / redevelopment adjacent to the NoR 1 corridor and look for opportunities to activate the corridor through the FUZ. Where this is not possible due to the scale of earthworks required, consideration should be given on how to best activate the active modes component of the corridor,

Principle	Explanation	Application to NoR 1
		including separating the active mode facilities from the carriageway for rapid transit vehicles. • The design of the corridor within the industrial area should consider the adjacent industrial land use and potential for this to negatively impact the amenity of the active mode facility. The detailed design should consider how the amenity of the environment can be maximised for active mode users. Future design considerations could include the creation of a landscape or visual buffers from adjacent industrial land use or creation of a local road/service lane, facilitating activation and passive surveillance of the active mode facility.
2.4 **Social cohesion**	*Provide clear, effective and legible connectivity between community and social functions.*	• The corridor spans a range of contexts varying from Rural - Countryside Living Zone to FUZ to developed land in Milldale and Albany, providing connection and access between these areas. The segregated nature of the corridor introduces the risk of severance within the FUZ and frequent opportunities to cross the corridor should be provided for all modes. The obvious location for cross corridor connections is any future station location, however additional crossing points will be required to achieve a permeable future urban environment and maintain equitable access to community facilities and open spaces.
2.5 **Safety**	*Provide a safe and convenient network of routes accessible to people of all ages and abilities.*	• In addition to these recommendations, a CPTED audit of the NoR 1 project should address, at a minimum, the current identified CPTED risks including: ○ Those areas of the RTC that require large amounts of earthworks that, depending on future development, could result in areas of the corridor with minimal passive surveillance of the associated active modes corridor. ○ Within the industrial segment of the corridor, which has the potential for a low level of passive surveillance. ○ Future crossing locations across the RTC. • Identification of safe, grade separated crossings of the RTC at regular locations throughout the corridor, particularly for active modes should be identified to minimise severance effects associated with the corridor. • As the RTC is refined in future design stages, consideration should be given to delivering active mode corridors that are universally accessible, and integrated with adjacent land use, making them useable and accessible for all users. This may mean

Principle	Explanation	Application to NoR 1
		locating the active mode facility at the bottom or top of embankments where a direct interface cannot be achieved.
BUILT FORM		
3.1 **Align corridors with density**	*Locate stations/stops and corridors within walking distance of higher density development to facilitate modal shift, support commercial and mixed-use centres and contribute to vibrant, active urban environments.*	• The RTC spans a range of future land use contexts, including: ○ The existing Albany Metropolitan Centre in the south, ○ Rural – Countryside Living Zone between Albany and the FUZ. ○ FUZ throughout the Dairy Flat area, including the Silverdale West Industrial Area ○ Mixed Housing Suburban Zone in Milldale ○ Light Industry Zone in Millwater (across the yet to be constructed Highgate Bridge). • In addition to NoR 2 and NoR 3, the RTC provides the opportunity to deliver additional stations throughout the FUZ. These are anticipated to enable any residential zoning to provide for high density development within a walkable catchment around those future stations. • The RTC provides a connection through the indicative location of the future Dairy Flat Town Centre. This provides the opportunity to establish a station co-located with the future Dairy Flat Town Centre providing an opportunity to achieve an integrated transport / town centre outcome, providing access to employment, recreation and more intensive commercial and residential activity. • The Draft Spatial Strategy shows a possible centre near the western end of Pine Valley Road which provides the opportunity to co-locate this centre with a future station in this location; and therefore encourage higher density development within a walkable catchment around the station, facilitating increased access to the RTC. • The Pine Valley East Station sits on the interface between future residential land and future industrial land. The Draft Spatial Strategy suggests that Pine Valley East Station may support a small local centre in this location with higher density residential development enabled to the west. For the industrial land area, it may enable finer grain, more intensive activities adjacent to the station location through structure planning/plan changes. • The Milldale Station is located adjacent to existing Mixed Housing Suburban and Single House Zone. The station may encourage future redevelopment to

Principle	Explanation	Application to NoR 1
		be of higher density within the catchment of the station.
3.2 **Corridor scaled to the surrounding context and urban structure**	*Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).*	The RTC has been designed to be a segregated high-speed corridor that provides for a rapid connection through the FUZ and into Albany. The RTC is assumed to be bus based but also provides flexibility for light rail if that is proposed in future. This has influenced the scale and design of the corridor and ultimately how the corridor interfaces with the adjacent land use. After the route deviates away from the SH1 corridor, the carriageway itself is 20m within the FUZ between Wilson Road and Dairy Flat Highway, which provides sufficient space for Bus Rapid Transit and walking / cycling facilities within the cross section. The RTC has a 14m corridor from where it crosses Dairy Flat Highway through to the Milldale Station. The cross section of the movement corridor is considered to be appropriate in an urban setting, with a similar cross section width to a local or collector road. However the scale of the earthworks and structures required to establish this corridor is large. The relationship to the context will depend on developments planned / established adjacent to the corridor, the width of the corridor itself (i.e., including the space required for earthworks, structures, facilities, etc) and the ability to integrate these features of the corridor into the surrounding urban fabric as the area urbanises. This could be achieved through working with adjacent developers to understand land use, establish the appropriate levels of adjacent land to the corridor and realising opportunities in detailed design. • The future design of the RTC will need to consider the speed and segregated nature of the corridor, including cross-corridor connections, associated viaducts, and the interface with adjacent land use. • Specific commentary related to the segments is included below. **Segment A** • This segment connects into Albany Station over Oteha Valley Road, requiring a bridge structure. The scale of the proposal will be similar to the existing motorway interchange in this location over Oteha Valley Road. The RTC runs along the western side of the corridor below the existing residential development to the west. By co-locating the RTC

Principle	Explanation	Application to NoR 1
		with SH1 through this area, it will increase the scale of the movement corridor in this location, but is generally consistent with the context of the existing environment and therefore an appropriate scale. **Segment B** • Where the RTC deviates from SH1, it is located in the FUZ which allows future land use (which is anticipated to be a mix of residential densities and a large town centre) the opportunity to respond to the scale and location of the corridor. Significant earthworks are required to provide for this corridor with large areas of cut likely, which will present a large scale corridor in a future urban context. To achieve the best level of integration into the future landuse, and maximise the development potential of the town centre catchment, future refinement of the design should look to minimise the scale of earthworks required and establish a land use integration strategy for the length of the corridor, where possible working with adjacent development to achieve and integrated approach to earthworks and developable land; Therefore managing the interface between the scale of the corridor and adjacent development to the extent practicable as the design is refined. • The RTC will require elevated structures to cross over Bawden Road, Postman Road and Dairy Stream Road. The future design of these structures will need to consider the adjacent land use and the scale of these structures, which due to the likely location of the town centre may include large scale buildings up to 6 storeys in height as enabled by the NPS-UD adjacent to rapid transit stops and stations. A careful design response will be required to integrate the scale of the RTC into its context within this segment. **Segment C** • The future context of this segment is FUZ which is anticipated to be industrial within the Silverdale West Dairy Flat Industrial Structure Plan Area and residential outside of this area. It is anticipated that future urbanisation of these areas will be able to respond to the future corridor. Large amounts of earthworks are required in the southern part of this segment, with a mix of cut and fill required. These will be of a large scale in an area that is anticipated for future residential development. The scale of the earthworks and the corridor will be of a more appropriate scale in the industrial area

Principle	Explanation	Application to NoR 1
		where large buildings and a lower level of amenity are expected and less earthworks are required due to the topography. To achieve the best level of integration into the future context, future refinement of the design should look to minimise the scale of earthworks required in the future residential area and establish a land use integration strategy for the length of the corridor to be applied as the design is refined. A careful design response will be required to integrate the scale of the RTC into its context within this segment. **Segment D** • The future context of this corridor is not structure planned, however is anticipated to provide for residential development, with two potential local centres in the area. • This segment also includes large areas of earthworks with some larger areas of cut at ch13800 in the south. To the north, smaller areas of fill are required along the length of the corridor. To achieve the best level of integration into the future context, future refinement of the design should look to minimise the scale of earthworks required and establish a land use integration strategy for the length of the corridor to be applied as the design is refined. A careful design response will be required to integrate the scale of the RTC into its context within this segment.
3.3 **Facilitate an appropriate interface between place and movement**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• Key focus areas within NoR 1 that require further resolution in future design stages to demonstrate the place interface / response to the proposed movement functions include: ○ The provision of cross-corridor crossings along the length of the corridor to facilitate ease of movement across the RTC, particularly for active modes, minimising the effects of severance. . A high frequency of connectivity is required in and adjacent to town centres, future stations and within a high-density context to facilitate movement across the corridor. Regular crossings are required in a residential context and fewer crossings can be provided in an industrial context, due to the larger block sizes anticipated. ○ In the Silverdale West Industrial Structure Plan area, the future design will need to consider how the local road network can be accommodated and provide for the ability for the local network to cross the RTC with grade separated intersections. ○ Detailed design will need to consider how the active mode facilities can be efficiently connected into the local network, providing access to the adjacent area for

Principle	Explanation	Application to NoR 1
		active mode users, particularly where cross-corridor connections are provided, creating a fine grain level of connectivity as the area develops. ○ The built form interface, any visual or landscape buffers and development controls proposed throughout the length of the corridor. These should be tailored to the adjacent land use context, with earthworks minimised to the extent practicable. ○ Future design of the corridor will need to refine the interface and interaction with other movement corridors in the area such as Bawden Road.
MOVEMENT		
4.1 Connect nodes	*Provide tangible connectivity between identified activity nodes.*	• The RTC provides a connection between the existing nodes of the Albany Metropolitan Centre (via the existing Albany Station) and Milldale. The RTC will also deliver opportunities for future stations that will integrate with future centres or create smaller nodes of activity that enable high density housing. This will provide high levels of connectivity through the FUZ, reducing car dependency and travel times between these nodes. • Future station locations and typologies should be driven by the need to maximise access and connectivity to the surrounding FUZ, providing the most benefit possible to future residents.
4.2 Connect modes	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• Although its primary purpose is to provide for public transport, the majority of the RTC corridor also provides for active modes. Only Segment D has not included these as part of the corridor design, as it is close to the SH1 walking and cycling path. The future stations that will be located along the corridor will provide opportunities for interchanges between modes and this should be facilitated as the design is refined in future stages. • Auckland Council's Draft Future Spatial Land Use Strategy identifies the possibility of two local centres in the north-west area near Pine Valley Road. This creates the opportunity to extend the active mode corridor along the RTC to, and between these centres, facilitating increased access to these future centres for active modes. • Future station locations and typologies should be connected to the local public transport network, providing connections between nodes.
4.3 Support access to employment and industry	*Align the corridor location and typology to provide direct and efficient access*	• The RTC provides connections between Milldale to Albany, with the opportunity to connect beyond to the CBD via the existing Northern Busway. The RTC will result in future stations which will integrate with

Principle	Explanation	Application to NoR 1
	to areas of employment and industry.	centres and future employment opportunities. The Pine Valley East Station is located on the edge of the Silverdale West Dairy Flat Industrial Structure Plan area providing the opportunity for connection to these employment opportunities. While no station is currently proposed within the future industrial area, the gradients in this area do not preclude a station from being provided in this location should this be desirable in the future.
4.4 Prioritise active modes and public transport	*Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.*	• Segments A, B and C provide for active modes. No active mode facilities are provided for along Segment D. • Auckland Council's Draft Future Spatial Land Use Strategy identifies the possibility of two local centres in the north-west area near Pine Valley Road. There is the opportunity to extend the active mode corridor along the RTC to, and between these centres, facilitating increased access to these future centres for active modes and the designation should not preclude the ability to include active mode facilities in the future • The segregated nature of the RTC and active mode facilities prioritises movement through this area for public transport and walking/cycling. • The extent of earthworks required to deliver the RTC means there may be opportunities to refine the design of the active mode portion of the cross section to be located directly to adjacent land use, providing a more visible, accessible facility with higher levels of passive surveillance.
4.5 Support inter-regional connections and strategic infrastructure	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.*	• Segment A of the RTC is aligned with SH1 before the RTC deviates through the FUZ to service future urban growth. It solely provides a people movement function and will not be used by freight vehicles. • The corridor may enable the provision of future infrastructure services parallel to the RTC corridor, assisting with facilitating the urbanisation of the area.
4.6 Support legible corridor function	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• The segregated corridor provides priority for public transport and active modes, providing for a clear and legible movement through the FUZ. As the RTC is refined through future design stages, there are opportunities to incorporate gateway and way finding and treatments to further assist in clear navigation and legibility.
LANDUSE		

Principle	Explanation	Application to NoR 1
5.1 **Public transport directed and integrated into centres**	*Locate rapid transit interchanges within centres (local, town and metro) to support a mix of uses and provide modal choice to a larger number of users.*	• The RTC corridor directs and integrates public transport into the existing Albany Metropolitan Centre, which provides opportunities to connect to the south to the Auckland CBD. It will also connect and integrate with the anticipated future Dairy Flat Town Centre and two potential smaller local centres near Pine Valley Road and Pine Valley Station.
5.2 **Strategic corridors as urban edges**	*Strategic corridors as potential definers of a land use edge.*	• This principle is not directly relevant to the NoR 1 corridor.

7.1.1 NoR 1: New RTC (Albany to Milldale) Outcome and Opportunities Maps