

# Pukekohe Transport Network Urban Design Evaluation

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### Document Status

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## 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
CPTED	Crime Prevention through Environmental Design
FUZ	Future Urban Zone
NPS:UD	National Policy Statement on Urban Development
NoR	Notice of Requirement
RMA	Resource Management Act 1991
SH	State Highway
Te Tupu Ngātahi	Te Tupu Ngātahi Supporting Growth Alliance
UDE	Urban Design Evaluation
ULDMP	Urban and Landscape Design Management Plan
Waka Kotahi	Waka Kotahi New Zealand Transport Agency

## Executive Summary

Te Tupu Ngātahi Supporting Growth is undertaking the route protection phase for the Pukekohe transport projects (Pukekohe Transport Network) on behalf of Auckland Transport (AT) and Waka Kotahi NZ Transport Agency (Waka Kotahi). There are nine Notices of Requirement (NoRs) proposed for the Pukekohe Transport Network, and eight transport projects (with the reasoning discussed below).

This Urban Design Evaluation (UDE) contains an evaluation section for each transport project which has been prepared based on the guidance and principles established in Te Tupu Ngātahi Design Framework (the Design Framework).

The UDE provides urban design focused commentary on the concept design and recommends the framework for how and where any urban design outcomes and opportunities should be considered in future design stages. These form part of the Urban and Landscape Design Management Plan (ULDMP) and Landscape Management Plan (LMP) recommended as a condition for the NoRs.

Additional urban design opportunities identified during the evaluation have been 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 are not however required to mitigate the anticipated urban design effects of the Projects.

### Summary of urban design outcomes sought

Overall, the Pukekohe Transport Network has been found to be generally supportive of the Design Framework principles.

Details of the urban design recommendations are included within Section 8: Summary of urban design evaluation and recommendations.

The preparation of an ULDMP (and a Landscape Management Plan for the Waikato NoR) in future delivery stages is recommended for all NoRs to further develop the urban design outcomes recommended as summarised under each NoR evaluation.

A ULDMP or Landscape Management Plan is to be prepared as part of the detailed design process for each NoR, prior to construction. Mana Whenua are recommended to be invited to provide input into the development of the ULDMP or Landscape Management Plan to achieve the desired outcomes for the projects, particularly relating to cultural sites, landscapes, and values that have been identified as part of the cultural advisory report.

The ULDMP or Landscape Management Plan is to show how the project is to integrate with the surrounding landscape and context, and manage the potential visual effects associated with the projects. They are to be prepared in accordance with the most current urban design guidelines relevant to the designation and the Requiring Authority.

As a minimum, the ULDMP is to provide details of:

- How the project is to be integrated with the adjacent urban context, including the topography, adjacent built form, land use and density, natural environment, landscape character and open space.
- How the project provides active mode connections, to and interfaces with, existing, or adjacent land use, public transport and walking and cycling connections.
- How inclusive access is to be promoted.

- How the project promotes a sense of safety through the application of Crime Prevention Through Environmental Design (CPTED) principles, Safety in Design (SID) requirements and Maintenance in Design (MID) requirements.

To show the above, the ULDMP is to include:

- An urban design concept plan that shows the overall design approach and explains the urban design approach and rationale.
- Developed design concepts including for walking and cycling, and public transport facilities.
- Urban design and landscape details that cover:
  - Road design, including intersection form, gradients, associated earthworks (including cut and fill batters and benching), how they are to interface and integrate with adjacent land use, median width and treatment, corridor – side width and treatment.
  - Lighting, fencing, signage and wayfinding proposed.
  - Architectural and landscape design of all major structures, including bridges, retaining walls and noise barriers (if applicable).
  - Landscape and interface design for any proposed stormwater wetlands and swales
  - Integration of public transport facilities.
  - Active mode facilities, including cross corridor connections, dedicated separated crossings,
  - How construction and site compound areas, driveways, and access ways and fences are to be reinstated.

In the Waikato NoR 8, the Landscape Management Plan is to provide details of:

- Landscape treatments which reflect cultural values and heritage landforms, and integrate with the surrounding topography, natural environment, and landscape character.
- Landscape treatments which support road safety, consider visual and acoustic amenity for adjacent residential dwellings, and integrate biodiversity and ecology, and stormwater management.
- Planting zones and layouts.
- Site preparation, subsoil and topsoil and mulch treatments.
- Plant sourcing and planting, including hydrodressing and grassing, and use of eco-sourced species.
- Pest plant and animal management (to support plant establishment).Landscape and visual outcomes for NoR 8 (WDC) will also integrate with NoR (AC) as the LMP is required to be appropriately aligned with the ULDMP of NoR 8 (AC).

# 1 Introduction

## 1.1 Purpose and Scope of this Report

This urban design evaluation forms part of the suite of technical reports prepared to support the Assessment of Effects on the Environment (AEE) for nine Notices of Requirement (NoRs) being sought by Waka Kotahi NZ Transport Agency (Waka Kotahi) and Auckland Transport (AT) for the Pukekohe Transport Network under the Resource Management Act 1991 (RMA).

This report considers the considerations and inputs associated with the construction, operation and maintenance of the Pukekohe Transport Network on the existing and likely future environment as it relates to urban design and an evaluation and identification of future transport and land use integration opportunities.

The key matters addressed in this report are as follows:

- Identify and describe the context of the Pukekohe Transport Network area;
- Identify and describe the urban design outcomes of each Project in relation to the Te Tupu Ngātahi Design Framework (Design Framework) corridor;
- Recommend measures as appropriate to support future transport and land use integration opportunities for each Project corridor; and
- Present an overall conclusion of the urban design outcomes for each Notice of Requirement.

## 1.2 Report Structure

The report is structured as follows:

- Project overview with a summary of the Pukekohe Transport Network Projects in **Section 2**;
- A summary of the Design Context in **Section 3**;
- Identification and description of the existing and likely future urban design environment in **Section 4**;
- Overview of the methodology used to undertake the evaluation and any relevant standards or guidelines in **Section 5**; and
- An assessment of the nine NoRs against the Te Tupu Ngātahi Design Framework:
  - An assessment of the urban design matters that are relevant to all NoRs in **Section 6**
  - An assessment of the urban design matters specific to each of the NoRs in **Section 7**
  - 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 Pukekohe Transport Network Projects as a whole and each NoR, and 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 urban design 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.

## 2 Pukekohe Transport Network Overview

The Pukekohe Transport Network comprises eight transport projects through Pukekohe, Paerata and Drury. A concept design has been undertaken for the NoRs. The design will be further refined through future phases of the Project and will be undertaken within the scope of the designation conditions and future resource consent conditions. The detailed design of the Project will be undertaken prior to construction and reflected in the Outline Plan(s) which will be submitted to Council as set out in s176A of the RMA.

The Pukekohe Transport Network encompasses eight transport projects for the Pukekohe, Paerata and Drury West areas. AT has lodged six NoRs with Auckland Council and Waka Kotahi has lodged two NoRs with Auckland Council and one with Waikato District Council. The Pukekohe Transport Network includes provision for improved walking and cycling, public transport, and general traffic connections.

For the purposes of this assessment, Mill Road and Pukekohe East Road Upgrade (that includes works within Auckland Council and Waikato District Council) is referred to as one transport project, despite being submitted as two separate NoRs. The matters relevant to each jurisdictional area are addressed through this assessment.

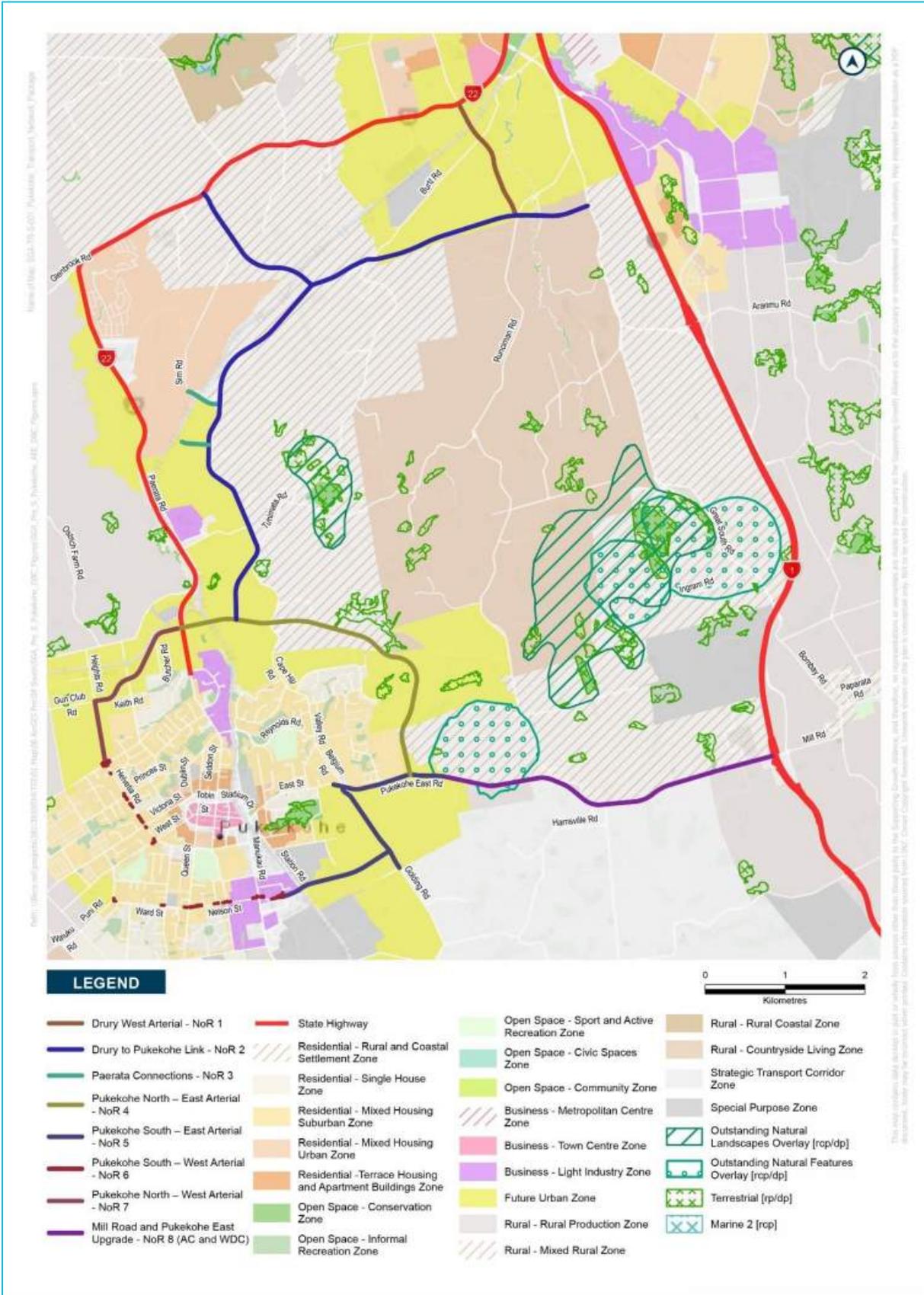


Figure 2-1: Pukekohe Transport Network

**Table 2-1: Pukekohe Package Project Summary**

NoR	Project	Requiring Authority	Description
1	<b>Drury West Arterial</b>	AT	<ul style="list-style-type: none"> <li>NoR 1 is a 1.6km new transport corridor extending south from the intersection of SH22 and Jesmond Road to the proposed Drury to Pukekohe Link (NoR 2).</li> <li>It connects Drury West Town Centre, Drury West Rail Station and provides access to the strategic transport network including SH1 and SH22. It connects with Burt Road and to Runciman Road in the south.</li> <li>This new transport corridor improves local connectivity in Drury West and the wider area to centres, employment and rail stations.</li> <li>Between SH22 and Burt Road, the proposed cross section is a four lane arterial 30m wide. This includes two lanes for PT and walking and cycling facilities on both sides of the corridor.</li> <li>South of Burt Road a two lane arterial with a 24m wide cross section is proposed with two lanes for general traffic and walking and cycling facilities on both sides of the corridor.</li> <li>Three new bridges are proposed over existing NIMT rail line, and two tributaries of the Ngakoroa Stream.</li> <li>Three new stormwater wetlands are proposed and new culverts and swales.</li> </ul>
2	<b>Drury-Pukekohe Link</b>	Waka Kotahi	<ul style="list-style-type: none"> <li>NoR 2 provides a north south strategic corridor with two general traffic lanes proposed and active transport facilities on one side of the corridor. The total length of the NoR is 10.6km.</li> <li>NoR 2 is split into the following four segments.</li> </ul>
	South Drury Connection segment		<ul style="list-style-type: none"> <li>South Drury Connection segment provides a new connection extending from Great South Road in the east at the proposed SH1 Drury South Interchange (a proposed Waka Kotahi SH1 project). The alignment is along the edge of the FUZ to Burt Road in the west.</li> <li>It provides a strategic connection improving local access in Drury West, provides resilience in the transport network supporting SH22 and SH1, provides direct connectivity to the proposed Drury South Interchange and supports the proposed strategic active modes corridor.</li> <li>A 24m wide cross section is proposed with two lanes for general traffic, with walking and cycling on one side of the corridor.</li> <li>Three new bridges are proposed over tributaries of the Ngakoroa Stream.</li> <li>Three stormwater wetlands are proposed and new culverts and swales.</li> </ul>
	SH22 Connection segment		<ul style="list-style-type: none"> <li>Connecting with the South Drury Connection and Drury-Paerata Link segments, this connection provides a strategic connection between State Highway 1 and State Highway 22.</li> </ul>

NoR	Project	Requiring Authority	Description
			<ul style="list-style-type: none"> <li>It improves access between Drury West and Paerata, provides resilience in the transport network supporting SH22 and SH1, provides direct connectivity to the proposed Drury South Interchange and supports the proposed strategic active modes corridor.</li> <li>It includes new transport corridor and a partial upgrade of Sim Road (north).</li> <li>A 24m wide cross section is proposed with two lanes for general traffic and walking and cycling on one side of the corridor.</li> <li>Two new bridges are proposed over the Oria Creek and NIMT.</li> <li>Two stormwater wetlands are proposed and new culverts and swales.</li> </ul>
	Drury-Paerata Link segment		<ul style="list-style-type: none"> <li>Drury-Paerata Link segment is a new corridor connecting the segments of South Drury Connection, SH22 Connection and Paerata Arterial. This segment extends from an intersection with Burt Road in the north, to the Paerata Arterial segment in the south.</li> <li>It provides connectivity between Drury and Paerata providing a strategic connection between two areas of future urban development.</li> <li>A 24m wide cross section is proposed with two lanes for general traffic and walking and cycling on one side of the corridor.</li> <li>Two bridges are proposed over tributaries of the Oira Creek.</li> <li>Three stormwater wetlands are proposed and new culverts and swales.</li> </ul>
	Paerata Arterial segment		<ul style="list-style-type: none"> <li>Paerata Arterial segment is located along the eastern edge of Paerata FUZ. It connects with Paerata Connections NoR 3 at the northern extent and to the proposed Pukekohe North East Arterial NoR 4 at its southern extent.</li> <li>It includes an upgrade of part of Sim Road (south), Tuhimata Road and a new section of transport corridor.</li> <li>It increases connectivity to Paerata FUZ, Paerata Rail Station and Pukekohe Town Centre.</li> <li>A 24m wide cross section is proposed with two lanes for general traffic and walking and cycling on one or both sides of the corridor. No bridges are proposed.</li> <li>Six stormwater wetlands are proposed wetlands (one shared with NoR 4 and one shared with NoR 3) and new culverts.</li> </ul>
3	<b>Paerata Connections</b>	AT	<ul style="list-style-type: none"> <li>The Paerata Connections provide two connections from the existing Sim Road (south) proposed to be upgraded by NoR 2 to the Paerata Rail Station and Paerata Rise development.</li> <li>The connections provide the primary east-west connections for all modes in Paerata.</li> <li>NoR 3 has includes two segments:</li> </ul>

NoR	Project	Requiring Authority	Description
			<ul style="list-style-type: none"> <li>• <b>Sim to Sim Connection segment</b> provides a new connection of approximately 400m between the two extents of Sim Road over the railway (NIMT).</li> <li>• <b>Paerata Rail Station Connection segment</b> provides a new transport corridor approximately 330m in length between the Paerata Rail Station (KiwiRail designation 6311 currently under construction) and NoR 2.</li> <li>• A 24m wide cross section is proposed with two lanes for general traffic and walking and cycling on both sides of the corridor.</li> <li>• One bridge is proposed over the NIMT to connect the two extents of Sim Road for the Sim to Sim Connection segment.</li> <li>• One new stormwater wetland is proposed that is shared with NoR 2 and a new culvert.</li> </ul>
4	<b>Pukekohe North-East Arterial</b>	AT	<ul style="list-style-type: none"> <li>• The Pukekohe North-East Arterial is an approximately 4km new transport corridor from SH22 in the northwest connecting to Pukekohe East Road in the south east.</li> <li>• It connects the strategic corridors at SH22 (at the northern extent of the Pukekohe North West Arterial NoR 7), the Drury to Pukekohe Link NoR 2 and Pukekohe East Road proposed to be upgraded by NoR 5 and NoR 8.</li> <li>• Its primary function is for general traffic, freight, an active mode links between future neighbourhoods and alleviating traffic on existing roads at Cape Hill Road and Valley Road.</li> <li>• A 24m wide cross section is proposed with 2 lanes for general traffic and walking and cycling proposed on both or one side of the corridor.</li> <li>• Seven bridges are proposed over the Whangapouri Creek, the NIMT, and other unnamed streams and tributaries.</li> <li>• Six new stormwater wetlands are proposed and new culverts.</li> </ul>
5	<b>Pukekohe South-East Arterial</b>	AT	<ul style="list-style-type: none"> <li>• The Pukekohe South-East Arterial upgrades part of Pukekohe East Road, Golding Road and provides a new connection between Golding Road (from north of Royal Doulton Drive) and across Station Road and the NIMT to the existing industrial development on Crosbie Road to Svendsen Road.</li> <li>• It is a primary east-west connection to assist in redirecting general traffic and freight away from the Pukekohe town centre to provide additional resilience to the wider network.</li> <li>• A 24m wide cross section is proposed with two lanes for general traffic with walking and cycling on the southern side of the corridor on Pukekohe East Road and on both sides for the remainder of the corridor.</li> <li>• One bridge is proposed crossing Station Road and the NIMT.</li> <li>• Five new stormwater wetlands are proposed and new and upgraded culverts.</li> </ul>

NoR	Project	Requiring Authority	Description
6	<b>Pukekohe South-West Upgrade</b>	AT	<ul style="list-style-type: none"> <li>Pukekohe South West Arterial involves the re-allocation of road space within the existing road corridor for a bi-directional cycle way and footpath upgrade. The proposed designation is limited to specific intersections and driveways to safely accommodate active mode facilities. The existing road reserve is to be utilised where possible retaining a 20m wide cross section with 2 lane general traffic, walking on both sides and a bi-directional cycleway on one side of the corridor.</li> <li>No bridges or stormwater wetlands are proposed.</li> </ul>
7	<b>Pukekohe North-West Arterial</b>	AT	<ul style="list-style-type: none"> <li>Pukekohe North-West Arterial provides a connection between Helvetia Road in the southwest and SH22 in the northeast. It upgrades part of Helvetia Road, utilises part of Keith Road (a paper road), and forms a new connection between Beatty Road and Butcher Road to SH22 – connecting to the Pukekohe North East Arterial NoR 4.</li> <li>It provides an alternative connection for all modes travelling north to south in west Pukekohe assisting in redirection of general traffic away from the town centre and provides additional resilience to the wider network. A 24m wide cross section is proposed with two lanes for general traffic and walking and cycling on both sides of the corridor.</li> <li>No bridges are proposed.</li> <li>Two new stormwater wetlands are proposed and new and upgraded culverts.</li> </ul>
8 (AC and WDC)	<b>Mill Road and Pukekohe East Road Upgrade</b>	Waka Kotahi	<ul style="list-style-type: none"> <li>NoR 8 upgrades Mill Road (Bombay) in the east and Pukekohe East Road in the west.</li> <li>It provides an important strategic connection between Auckland and Waikato and from SH1 to Pukekohe urban areas for traffic and freight, with a major rural active mode connection. Harrisville Road plays a significant role in distributing traffic from further south into Waikato.</li> <li>Mill Road is proposed to be upgraded to four lanes (2.1 kms) from SH1 in the east to Harrisville Road in the west. It has a 30m wide cross section with four lanes for general traffic, with walking and cycling on the southern side.</li> <li>Pukekohe East Road is proposed to be upgraded (3.4 kms) for walking and cycling facilities on the southern side from Harrisville Road in the east to NoR 5 in the west.</li> <li>One new stormwater wetland is proposed, swales and new and upgraded culverts.</li> </ul>

## 3 The Design Context

### 3.1 Te Tupu Ngātahi Design Framework

This evaluation which has been prepared for each of the NoRs 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.

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; and
- Response to topography.

### 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 on Urban Development (NPS:UD), Government Policy Statement on Land Transport, Medium Density Housing Standards, NZ Transport Agency Bridging the Gap, Regional Land Transport Plan)
- Local level (e.g. Auckland Plan 2050, Auckland Transport Alignment Project, 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 rail, rapid transit and the role of active modes.

### **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
- areas that are well serviced by existing or planned public transport or where there is high demand for housing or business.

This aligns with the Design Framework principle of 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.

### **Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021**

Coming into effect on 20 December 2021, the Amendment Act sets out a number of changes required to be undertaken by Regional and Territorial Authorities to enable increased housing supply with a focus on Tier 1, high growth areas. The amendments introduced the Medium Density Residential Standards (MDRS) which generally require Territorial Authorities to enable 3 dwellings, up to 3 storeys high on a site as permitted activities (subject to standards), unless there are Qualifying Matters that apply. This will likely enable additional density within existing urban areas, and future growth areas as they are live zoned, increasing the level of development that is enabled. This is relevant when considering the likely future environment anticipated in the Future Urban Zone (FUZ) and the future look and feel of these areas.

## **3.2.2 Local Level**

### **3.2.2.1 Auckland Council**

At a local level, the key urban design considerations and provisions of the AUP:OP relevant to the Project 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 M: Appendix 1 Structure plan guidelines.

The specific urban design commentary within the corridor evaluations (outlined in the sections below) broadly address the objectives and policies of the relevant sections of the Regional Policy Statement and Chapters of the AUP:OP as listed above.

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.

### **3.2.2.2 Waikato Planning Instruments**

Approximately 2.4km of NoR 8: Mill Road and Pukekohe East Road Upgrade is located within the Rural Zone of the Waikato District and therefore also in the jurisdiction of Waikato District Council. Of relevance to this section is the Operative Waikato District Plan (Franklin Section), the Proposed Waikato District Plan and the Waikato Regional Policy Statement. Being in the Rural Zone, there are little to no specific urban design outcomes to be considered for NoR 8 in the segment relevant to the Waikato District.

## 4 Existing and likely future environment

It is anticipated that the Pukekohe Transport Network of projects will be constructed between 10-20 years from now meaning that changes in the receiving environment are expected. The Pukekohe Transport Network covers a range of receiving environments including existing urban, future urban (FUZ) and rural. The likelihood of change for these receiving environments is set out in

Table 4-1: Land use likelihood of change based on current and potential future zoning .

**Table 4-1: Land use likelihood of change based on current and potential future zoning**

Current land-use	Zoning	Likelihood of Change for the environment	Likely Future Environment
<b>Residential</b>	Residential	Low	Urban
<b>Business</b>	Business	Low	Urban
<b>Open Space</b>	Open Space	Low	Open Space
<b>Special Purpose</b>	Special Purpose Zone	Low	Special Purpose
<b>Rural</b>	Countryside Living	Low	Rural
	Mixed Rural Use	Low	Rural
<b>Greenfield / rural</b>	Future Urban Zone	High	Urban
<b>Greenfield/rural</b>	Residential or Business	High	Urban

All areas of FUZ have a high likelihood of change in planning and land use context. Existing areas of zoning may see change with further intensification enabled by recent amendments to the NPS:UD and introduction of MDRS. No change is anticipated in existing Rural Zones between the three areas of Drury, Paerata or Pukekohe.

With corridors from Drury, through Paerata and Pukekohe, with connections to Bombay, the Pukekohe Transport Network covers a large area, with differing contexts and communities. The general context is described below, however due to each of the corridors having different existing and future receiving environment these are addressed for each corridor specifically. The general areas are shown in Figure 4-1.

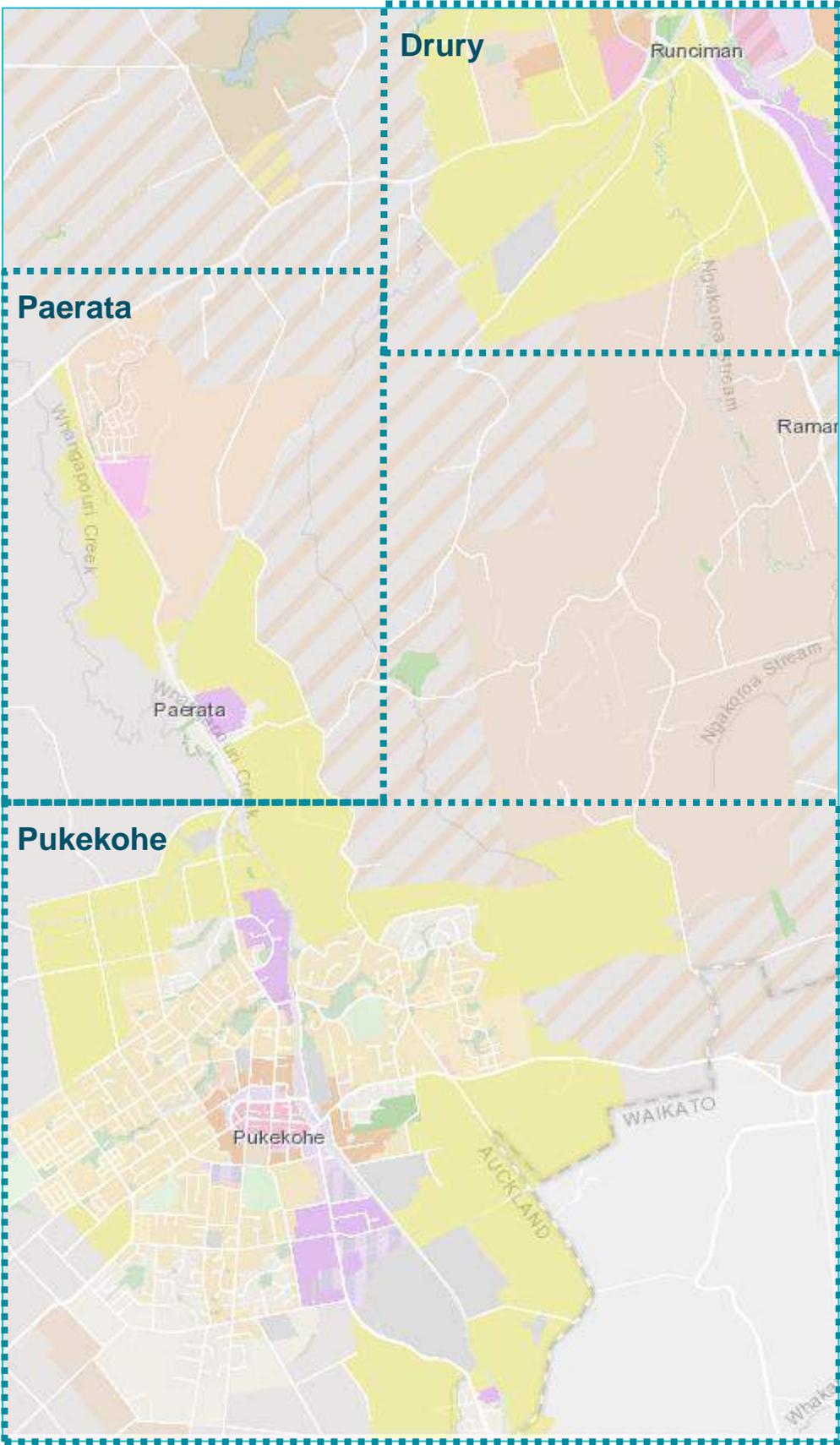


Figure 4-1: Context of the Pukekohe Transport Network

## Drury

Drury is relevant to two of the proposed designations NoR 1 - Drury West Arterial, and NoR 2 - Drury to Pukekohe Link (Segment 1 – South Drury Connection).

Currently Drury is a small town on the edge of Auckland with development and urbanisation beginning to occur. The northern most projects in the Pukekohe Transport Network provide access into Drury West, which is part of the Drury-Ōpaheke Structure Plan area. The area is currently a mix of rural and rural residential land use.

The Future Urban Zone extends to the south-west from the motorway and a mix of urban densities are anticipated by the Structure Plan including Terrace Housing and Apartment Zone, Mixed Housing Urban Zone and Mixed Housing Suburban Zone. New centres are anticipated including Drury West Centre partly located to the north of NoR 1, with smaller local centres throughout the structure plan area. Industrial use is anticipated to the east of NoR 1. The development of Drury, particularly to the south and west, and the future land use will ultimately be realised through the Plan Change and consenting process, which may be influenced by recent plan changes to the area to establish a range of business centres, and the notice of requirement for the Drury West Station

Plan Change 51 was made operative in December 2022 and includes 33.65 hectares of land in Drury West in the area generally bounded by Drury Creek to the east, Future Urban Zoned land to the west and Karaka Road/State Highway 22 to the south and south east, and includes Town Centre zone, Terrace Housing and Apartment Buildings zone and Residential: Mixed Housing Urban zone. This is located to the north of NoR 1 on the northern side of SH22.

Plan Change 61 was made operative in December 2022 and includes 56 hectares of land in Drury West in the area generally bounded by Jesmond Road and Future Urban Zoned land to the east, Oira Road to the west, Future Urban Zoned land to the north and Karaka Road/State Highway 22 to the south. The proposed zoning includes Neighbourhood Centre zone, Residential: Terrace Housing and Apartment Buildings zone, Residential: Mixed Housing Urban zone an open space network. This is located to the north of NoR 1 on the northern side of SH22.

Also adjacent to NoR 1, Te Tupu Ngātahi has lodged multiple Notices of Requirement for the Drury West Rail Station which is currently being processed.

Due to these areas changing, it has been assumed that any future development will be able to respond to the presence of the new transport corridor, and the future environment will have a mix of housing at a range of densities.

The Transpower National Grid Corridor runs along the southern edge of the Future Urban Zone in Drury, which is adjacent to NoR - Drury to Pukekohe Link (Segment 1 – South Drury Connection).

## Paerata

Paerata is relevant to NoR 2 – Drury to Paerata Link with the southern portion of this corridor (Segment 2 – SH22 Connection, Segment 3 – Drury-Paerata Link, Segment 4 – Paerata Arterial) running along the eastern edge of Paerata FUZ, past the recently designated Paerata Station, before deviating west and through the Paerata Structure Plan area. It is also relevant to NoR 3 – Paerata Connections, which connect from NoR 2 across the NIMT.

Paerata is an area of existing urban land use comprising older residential and industrial land use. Paerata Rise is currently being developed. The Pukekohe-Paerata Structure Plan identifies a range of

Mixed Housing Urban and Terrace Housing and Apartment Zoning in the area. The NIMT runs through Paerata with development on either side of the corridor.

Recent changes to the RMA and NPS:UD mean that due to the Paerata Station, more intensive residential development may be enabled. Plan changes in this area will confirm the zoning and level of development enabled in the future. Due to these areas changing, it has been assumed that any future development within the FUZ will be able to respond to the presence of the NoR corridor.

## **Pukekohe**

Pukekohe is a large existing township that is well established with a range of land uses. The proposed NoRs are generally located near the periphery of Pukekohe. They are located in both existing urban and future urban areas. The Pukekohe-Paerata Structure Plan identifies anticipated future land use for the FUZ areas.

These areas of FUZ are anticipated to change, enabling future development to respond to the presence of the corridor. Changes are expected to be generally aligned with the Pukekohe-Paerata Structure Plan, however the future land use will be determined through the plan change and consenting process.

The four NoR corridor areas are described in more detail below.

### North-East.

This area includes FUZ in the north, which the Pukekohe-Paerata Structure Plan indicates will be a small area of Mixed Housing Urban, before moving into, and through the Rural Zone. To the south is FUZ, where Single House Zoning is anticipated by the Pukekohe-Paerata Structure Plan, and an area of live zoned Residential Mixed Housing Urban Zone.

### South-East

This area includes existing residential development to the north of Pukekohe East Road and an area of Mixed Use Urban Zoning adjacent to Golding Road (NoR 5) that was rezoned as part of Plan Change 76 and was made operative 20 July 2023. FUZ is located to the south. This area of FUZ is anticipated to be a mix of Mixed Housing Suburban, Mixed Housing Urban and in the south a small area of industrial land use is anticipated. It also includes the Special Purpose – Major Recreational Facility Zone - A&P Showgrounds which is interfaced by NoR 5.

PC74 is located to the south of NoR 5 and does not directly interface with the length of the corridor, however is near the end of the NoR 5 corridor.

### South-West

The South West of Pukekohe is live zone and urbanised. This area includes industrial and commercial land in the south before moving to Single House zone for the remainder of the area. Low to no change is anticipated in this area, however changes to the RMA may enable further infill development to occur, increasing residential density in this location.

### North-West

This area of Pukekohe is mostly FUZ with Mixed Housing Urban and Industrial zoning anticipated by the Pukekohe-Paerata Structure Plan.

Section 9 of the AEE outlines the key attributes of the existing and likely future environment of the Project across each of the NoR sections. Each section is described in the AEE under key features of:

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

## 4.1 Corridor form and function

Section 9 of the AEE outlines the key physical elements of the Project across each of the NoR sections and how the different elements of the Project will operate once the Project is implemented.

The design of the Project is commensurate with the 'route protection' phase of the Project, as such, only a concept level of design has been undertaken. The design will be further refined through subsequent phases of the Project and will be undertaken within the scope of the designation conditions and future resource consent conditions. The detailed design of the Project will be undertaken prior to construction and reflected in the Outline Plan(s) which will be submitted to Council as set out in s176A of the RMA.

## 5 Evaluation Methodology

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

- Input to the options assessment process used to inform the preferred transport corridor alignment;
- Reviews of and the project concept designs and Te Tupu Ngātahi GIS viewer and attendance at design review workshops;
- A review of the Pukekohe 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 Project and surrounding context;
- A review of the other GIS data such as contours and aerial photography;
- A preliminary site visit on 26 January 2023 with the Project Team;
- A more detailed site visit undertaken on 16 March 2023 to further understand the receiving environment; and
- A specialists' workshop held on 22 March 2023 to discuss initial findings following the first site visit.

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

- Construction method statement;
- Revisions of concept design drawings; and
- Other technical assessments:
  - Pukekohe Transport Network Assessment of Aboricultural Effects;
  - Pukekohe Transport Network Assessment of Ecological Effects;
  - Pukekohe Transport Network Assessment of Historic Heritage Effects; and
  - Pukekohe Transport Network Assessment of Flood Hazard Effects.

The UDE considers the design outcomes and opportunities relevant to all nine NoRs across the Pukekohe 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 Urban and Landscape Design Management Plan (ULDMP) or Landscape Management Plan 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 Assessment of urban design matters

### 6.1 Urban design matters common to all NoRs

This section evaluates common or general urban design matters across the entire Pukekohe Transport Network against the relevant Design Framework Principles. It provides urban design focused commentary on the concept design 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 and Landscape Management Plan (UDLMP) and where there is an overlap of urban design outcomes with other considerations (for example ecological, landscape, visual or water quality 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 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 6-1: Common urban design matters relevant to all corridors**

Principle	Explanation	Application common to all NoRs
<b>ENVIRONMENT</b>		
<b>1.1 Support and enhance ecological corridors and biodiversity</b>	<i>Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors</i>	<ul style="list-style-type: none"> <li>The proposed corridors and associated proposed designation boundaries provide sufficient space (within the cross section and wider boundary) that have the potential to 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.</li> <li>Opportunities within the immediate landscape of the corridor to support and enhance wetlands and indigenous biodiversity through project landscaping that ties into stream and riparian corridors as are detailed in the Pukekohe Transport Network: Assessment of Ecological Effects.</li> <li>The transport corridors cross multiple water courses. While freshwater ecology is to be consented separately, the location and design of the corridors has sought to minimise impacts on ecological features such as the stream alignment and indigenous vegetation where possible.</li> </ul>

Principle	Explanation	Application common to all NoRs
		<ul style="list-style-type: none"> <li>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, providing a connected natural system and protecting riparian vegetation and habitat..</li> <li>Stream crossings where existing culverts are to be upgraded or lengthened will need to provide for fish passage if this is not already provided. .</li> </ul>
<b>1.2</b> <b>Support water conservation and enhance water quality in a watershed</b>	<i>Take into account and work with the existing watershed as part of a whole system.</i>	<ul style="list-style-type: none"> <li>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 spaces to provide natural drainage to stormwater wetlands as a way to address water quality and reduce hard engineering solutions.</li> <li>Further refinement of the proposed stormwater treatment devices, including swales, and wetlands, 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.</li> </ul>
<b>1.3</b> <b>Minimise land disturbance, conserve resources and materials</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>Where possible, the proposed corridors seek to follow the alignment and geometry of the existing corridors, minimising land disturbance.</li> <li>Where new corridors are proposed, there are opportunities to further refine and minimise earthworks required as part of future design stages.</li> <li>Further vertical integration adjacent to stream crossings and bridging structures should be 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.</li> <li>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, for example the integration of works into the surrounding landscape and urban context.</li> </ul>
<b>1.4</b> <b>Adapt to a changing climate and respond to the microclimatic factors of each area</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The cross sections of the transport corridors 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: <ul style="list-style-type: none"> <li>Responds to pedestrian amenity outcomes</li> <li>Provides canopy shading of the corridor, particularly for active mode facilities.</li> </ul> </li> </ul>

Principle	Explanation	Application common to all NoRs
		<ul style="list-style-type: none"> <li>○ Mitigates urban heat island effects within the environment of the corridor through landscaping and planting design.</li> <li>○ Contributes to biodiversity values within the corridor</li> <li>○ Responds to and enhance landscape character and values within the corridor.</li> <li>● The concept design, 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.</li> <li>● The proposed corridor 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 the corridor landscape should be developed in future design stages.</li> </ul>
<b>SOCIAL</b>		
<p><b>2.1</b> <b>Identity and place</b></p>	<p><i>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.</i></p>	<ul style="list-style-type: none"> <li>● The proposed corridors pass 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: <ul style="list-style-type: none"> <li>○ There is opportunity to improve connectivity and interface with watercourse crossings to enhance their distinctive landscape qualities (character drivers) for their local communities.</li> <li>○ 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.</li> <li>○ In future design stages, Mana Whenua will be invited to provide input as Partners into relevant cultural landscape and design matters including how desired outcomes reflect their identity and values.</li> </ul> </li> <li>● Where more detail is required, these will be addressed in individual commentary on the corridors for each individual NoR (see Section 7).</li> </ul>
<p><b>2.2</b> <b>Respect culturally significant sites and landscapes</b></p>	<p><i>Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.</i></p>	<ul style="list-style-type: none"> <li>● <i>Pukekohe Transport Network: Assessment of Historic Heritage Effects</i> has identified that there is one historic heritage site within the corridors (NoR 6), and potentially within close proximity to the corridors NoR 4 and 8. As construction is planned in the future for the Pukekohe Transport Network, and timing is not yet confirmed, it is recommended that a Historic Heritage Management Plan (HHMP) is prepared for these NoRs (4, 6, 8) at detailed design phase before construction commences.</li> </ul>

Principle	Explanation	Application common to all NoRs
		<ul style="list-style-type: none"> <li>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.</li> <li>Further details of these areas are provided in the <i>Pukekohe Transport Network Cultural Values Assessment</i>. 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.</li> </ul>
<b>2.3</b> <b>Adaptive corridors</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The proposed typical corridor cross section has the sufficient spaces to be flexible, re-configurable and adaptable for changing transport needs. For example, modal changes, future bus priority measures at intersections, bus stations and future expansion of any walking and cycling networks can be accommodated within the corridor.</li> <li>The proposed cross section provides space for all modes, with sufficient spaces at the corridor edges that accommodate active frontages, provide permeability for access to adjacent land use types and movement corridors.</li> </ul>
<b>2.4</b> <b>Social cohesion</b>	<i>Provide clear, effective and legible connectivity between community and social functions.</i>	<ul style="list-style-type: none"> <li>The proposed typical corridor cross sections support the creation of spaces where corridor access can be provided through a permeable interface at the corridor boundary. Additional detail is provided as part of each NoR evaluation where areas have been identified that require particular attention to achieve legible connectivity.</li> <li>The proposed corridor alignments and function can deliver a positive contribution to the sense of participation, as well as community resilience by supporting direct access to existing and future local, neighbourhood and town centres and open spaces. Refer to in the evaluation for each individual NoR (see Section 7) for specific focus areas.</li> <li>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 at intersections and midblock crossings for active mode users of all ages and abilities.</li> </ul>
<b>2.5</b> <b>Safety</b>	<i>Provide a safe and convenient network of routes accessible to people of all ages and abilities.</i>	<ul style="list-style-type: none"> <li>The proposed corridors will deliver improved levels of access and movement to future local communities, with the provision of fully segregated active travel solutions.</li> <li>The proposed corridors accommodate the universal design approach and accessibility to all parts of user journeys. Future design stages will need to address/respond to</li> </ul>

Principle	Explanation	Application common to all NoRs
		<p>universal access within the road corridor and at intersections and mid-block crossings.</p> <ul style="list-style-type: none"> <li>The future design and functional layout of the corridors should respond to and incorporate CPTED principles, including clear sightlines, good levels of lighting, passive surveillance, and avoidance of entrapment zones. A CPTED assessment of each NoR project should be carried out against the proposed design and should address, at a minimum, any identified potential CPTED risks outlined in each NoR evaluation.</li> <li>Further design detail of safe prioritised active modes crossings across the corridor at mid-block locations and intersections should be addressed at subsequent detail design stages.</li> </ul>
<b>BUILT FORM</b>		
<b>3.1</b> <b>Align corridors with density</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>Refer to the evaluation for each individual NoR (see Section 7).</li> </ul>
<b>3.2</b> <b>Corridor scaled to the surrounding context and urban structure</b>	<i>Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).</i>	<ul style="list-style-type: none"> <li>Refer to the evaluation for each individual NoR (see Section 7).</li> </ul>
<b>3.3</b> <b>Facilitate an appropriate interface between place and movement</b>	<i>Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)</i>	<ul style="list-style-type: none"> <li>The proposed corridor cross sections provide a flexible platform 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.</li> <li>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, should be considered and included as part of future detailed design stages.</li> <li>The general philosophy for the project has been to maintain existing access where practicable, however direct access is not recommended for some NoRs. It is proposed to manage existing property access via a condition and consultation with land owners. Management of existing access is proposed to be managed through consultation</li> </ul>

Principle	Explanation	Application common to all NoRs
		<p>with directly affected landowners in future design stages.</p> <ul style="list-style-type: none"> <li>• Direct private vehicular access from future development is generally not anticipated to be accommodated onto the corridors, however a pedestrian permeable interface or active frontage interface is supported at all locations along the corridor, which should be addressed through the future detailed design stages. It is assumed that vehicle access will be provided from a lower order road corridor, or via alternative means such as services lanes or access lanes.</li> </ul>
<b>MOVEMENT</b>		
<p><b>4.1</b> <b>Connect nodes</b></p>	<p><i>Provide tangible connectivity between identified activity nodes.</i></p>	<ul style="list-style-type: none"> <li>• The identification of clear and direct connections across the corridor should be demonstrated in future design stages including <ul style="list-style-type: none"> <li>○ between local, neighbourhood and town centre functions, and employment areas and the communities they serve</li> <li>○ between future open spaces and reserves along the wider blue-green network.</li> </ul> </li> <li>• Please refer to the evaluations for each individual NoR (see Section 7) for specific nodal focus areas and commentary.</li> </ul>
<p><b>4.2</b> <b>Connect modes</b></p>	<p><i>Provide for choice in travel and the ability to connect at interchanges between modes.</i></p>	<ul style="list-style-type: none"> <li>• The proposed corridors provide simple but complete future connectivity for all modes (walking, cycling, public transport and private vehicles).</li> <li>• 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 recommended that further consideration in future design stages is given to enabling the detailed connections to any future active mode network design across the network that may be constructed as the area develops.</li> <li>• Subject to detailed design, there is the possibility for the future transport network to connect to the proposed corridors where technical design and safety specifications are able to be met.</li> </ul>
<p><b>4.3</b> <b>Support access to employment and industry</b></p>	<p><i>Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.</i></p>	<ul style="list-style-type: none"> <li>• The corridor prioritises public transport and active modes to provide direct access between existing and planned commercial, industrial and employment areas including: <ul style="list-style-type: none"> <li>○ Drury West Station</li> <li>○ Paerata Station</li> <li>○ Paerata Industrial area</li> <li>○ Existing employment areas in Pukekohe</li> </ul> </li> <li>• Pukekohe FUZ including land signalled for industrial purposes.</li> </ul>

Principle	Explanation	Application common to all NoRs
<b>4.4 Prioritise active modes and public transport</b>	<i>Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.</i>	<ul style="list-style-type: none"> <li>The corridor design and designation boundary provides access for active modes, and public transport through the provision of: <ul style="list-style-type: none"> <li>High quality walking and cycling facilities,</li> <li>PT priority at identified intersections. Refer to the evaluation for each individual NoR (see Section 7) where these are relevant.</li> </ul> </li> <li>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.</li> <li>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.</li> </ul>
<b>4.5 Support inter-regional connections and strategic infrastructure</b>	<i>Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.</i>	<ul style="list-style-type: none"> <li>The corridors provide connections for freight to/from and between industrial areas.</li> <li>NoR specific urban design commentary on the place / movement balance, modal priority aspirations and urban interfaces is included in the evaluation for each individual NoR (see Section 7).</li> </ul>
<b>4.6 Support legible corridor function</b>	<i>Consider how the corridor can be clearly navigated and understood by users moving from place to place.</i>	<ul style="list-style-type: none"> <li>The typical corridor cross section accommodates a range of modes with clear allocation of street spaces that inherently supports future community connectivity, mobility and travel choice.</li> <li>Further development of active mode midblock crossings and along the corridor at the detailed design stage will provide clear and legible cross corridor access and connectivity between areas of high density, centres and community amenities.</li> <li>There are opportunities to develop wayfinding strategies to provide direction to key destinations and nodes.</li> </ul>
<b>LANDUSE</b>		
<b>5.1 Public transport directed and integrated into centres</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>Refer to the evaluation for each individual NoR (see Section 7).</li> </ul>
<b>5.2 Strategic corridors as urban edges</b>	<i>Strategic corridors as potential definers of a land use edge.</i>	<ul style="list-style-type: none"> <li>Refer to the evaluation for each individual NoR (see Section 7).</li> </ul>

## 7 Urban design evaluation tables for specific NoRs

Table 7-1: Urban design evaluation for NoR 1 – Drury West Arterial outlines urban design commentary specific to NoR 1. For urban design commentary common to all NoRs, refer to Table 6-1: Common urban design matters. Refer to Appendix B for Outcomes and Opportunities Maps relevant to NoR 1.

### 7.1 Urban Design Matters: NoR 1 – Drury West Arterial

Table 7-1: Urban design evaluation for NoR 1 – Drury West Arterial

Principle	Explanation	Application to NoR 1
<b>ENVIRONMENT</b>		
<b>1.1 Support and enhance ecological corridors and biodiversity</b>	<i>Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors</i>	<ul style="list-style-type: none"> <li>Opportunities within the immediate environment of NoR 1 to support ecological connectivity and biodiversity are identified in the Pukekohe Transport Network: Assessment of Ecological Effects and include: <ul style="list-style-type: none"> <li>Stormwater wetlands and swales within the corridor</li> <li>Where the corridor crosses tributaries of Ngakoroa stream.</li> </ul> </li> <li>There are three watercourse crossings (two bridges and one culverted crossing) in NoR 1 that present opportunities to reinforce broader connectivity outcomes for ecology and water quality by minimising the stream interruption and ensuring a connected natural system.</li> </ul>
<b>1.2 Support water conservation and enhance water quality in a watershed</b>	<i>Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors</i>	<ul style="list-style-type: none"> <li>The NoR 1 corridor design includes three watercourse crossings that will maintain the continuity of the watershed.</li> <li>There are opportunities to maintain the watershed and streams in these locations, with water treatment “off-line” from the permanent stream.</li> <li>Water quality treatment is proposed through four wetland ponds located directly adjacent to the transport corridor.</li> </ul>
<b>1.3 Minimise land disturbance, conserve resources and materials</b>	<i>Take into account and work with the existing watershed as part of a whole system.</i>	<ul style="list-style-type: none"> <li>NoR 1 traverses across undulating land, the NIMT, and tributaries of the Ngakoroa Stream resulting in moderate earthworks at the corridor edges. Further vertical integration adjacent to the three bridging structures and the intersection of Runciman Road should be demonstrated in future design stages to allow an appropriate transition and interface to adjacent built form.</li> </ul>

Principle	Explanation	Application to NoR 1
<b>1.4 Adapt to a changing climate and respond to the microclimatic factors of each area</b>	<i>Respect the existing topography, landform 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</i>	<ul style="list-style-type: none"> <li>There are no specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>SOCIAL</b>		
<b>2.1 Identity and place</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The further identification, development and integration of key local community and identity drivers within NoR 1 should be addressed in future design stages. Key NoR 1 local identity locations and functions include: <ul style="list-style-type: none"> <li>The Drury West Town Centre (as zoned through PC51)</li> <li>The future Drury West Railway Station (subject to a separate Designation process).</li> <li>A Local Centre (as zoned through PC 61)</li> <li>Integration with High Density Housing around the station and the centre.</li> <li>Integration with future medium density housing adjacent to the corridor.</li> <li>Open space linkages between water courses and providing continuity of the blue/green network.</li> </ul> </li> <li>The response to distinctive landscape character qualities of open spaces, stream and conservation zones.</li> </ul>
<b>2.2 Respect culturally significant sites and landscapes</b>	<i>Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.</i>	<ul style="list-style-type: none"> <li>There are no specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>2.3 Adaptive corridors</b>	<i>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 or utilise technology over time</i>	<ul style="list-style-type: none"> <li>If practicable, future land integration post construction should be considered to support any proposed development / adjacent to the NoR 1 corridor and around intersections, particularly at the Runciman Road Intersection where large areas of fill are required to construct the corridor.</li> </ul>
<b>2.4 Social cohesion</b>	<i>Provide clear, effective and legible connectivity between</i>	<ul style="list-style-type: none"> <li>The proposed corridor alignment and function can deliver a positive contribution to the sense of</li> </ul>

Principle	Explanation	Application to NoR 1
	<i>community and social functions.</i>	<p>participation, as well as community resilience by supporting direct access to future centres, community facilities and areas of open space.</p> <ul style="list-style-type: none"> <li>• To enable equitable local connectivity and cross corridor access for people of all ages and abilities to commercial centres and areas of high density, further development at the detailed design stage should be undertaken of crossing points in NoR 1 for intersections and potential midblock crossings including: <ul style="list-style-type: none"> <li>○ Jesmond Road / SH22</li> <li>○ Drury West Station</li> <li>○ Burt Road / Pitt Road</li> <li>○ Runciman Road</li> <li>○ Drury To Pukekohe Link (NoR 2)</li> </ul> </li> </ul>
<b>2.5 Safety</b>	<i>Provide a safe and convenient network of routes accessible to people of all ages and abilities.</i>	<ul style="list-style-type: none"> <li>• Refer to Table 6-1 for safety recommendations, in addition to the common matters CPTED recommendations, it is recommended that a CPTED audit of the NoR 1 project should address, at a minimum, the current identified CPTED risks including: <ul style="list-style-type: none"> <li>○ Underbridge environments at Ngakoroa stream tributary crossings</li> <li>○ The NIMT crossing environment</li> <li>○ Proposed wetland environments.</li> </ul> </li> </ul>
<b>BUILT FORM</b>		
<b>3.1 Align corridors with density</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>• NoR 1 passes through areas anticipated to have range of densities outlined in the Drury-Paerata Structure Plan. The corridor will provide direct connection to the new Drury West Station and the periphery of the Drury West Centre and local centre identified in the Structure Plan.</li> <li>• It is recommended that future design stages demonstrate the proposed modal connections, hierarchy, built form interfaces and arrangements that support the creation of vibrant, active urban environments.</li> </ul>
<b>3.2 Corridor scaled to the surrounding context and urban structure</b>	<i>Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).</i>	<ul style="list-style-type: none"> <li>• The corridor has been designed for the future urban context with a 50km/h speed. It includes a mix of corridor widths to accommodate PT where necessary.</li> <li>• The four-lane segment of the corridor is located in the area anticipated to be developed as Terrace Housing and Apartment Building (THAB) in the Drury Paerata Structure Plan, providing a wider corridor where larger scaled buildings are anticipated, presenting the opportunity to establish a corridor with an appropriate urban scale. Future design stages should address the place/movement function of this area and demonstrate</li> </ul>

Principle	Explanation	Application to NoR 1
		<p>how movement across the corridor will be facilitated, allowing people to move through the high-density area with ease.</p> <ul style="list-style-type: none"> <li>The remainder of the corridor is proposed with two traffic lanes and is considered to be an appropriate scale for the anticipated future residential scale.</li> <li>Large intersections are proposed as part of this corridor, with two lanes roundabouts shown in the NoR 1 design. Detailed design will need to provide safe active mode crossing at these intersections, with opportunities to provide grade separated crossings or use signals.</li> </ul>
<b>3.3 Facilitate an appropriate interface between place and movement</b>	<i>Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)</i>	<ul style="list-style-type: none"> <li>Key focus areas within NoR 1 that require further resolution in future design stages to demonstrate support for an appropriate place function include: <ul style="list-style-type: none"> <li>Facilitating an active interface from adjacent land use to the corridor to achieve positive CPTED outcomes, including working with land developers to facilitate property access on either side of the corridor.</li> <li>Prioritise active mode access to Drury West Station.</li> <li>Refinement of intersection design and scale to facilitate an active interface at intersections, particularly at the Runciman Intersection which has a large earthworks footprint.</li> </ul> </li> </ul>
<b>MOVEMENT</b>		
<b>4.1 Connect nodes</b>	<i>Provide tangible connectivity between identified activity nodes</i>	<ul style="list-style-type: none"> <li>The corridor provides broad connections from the FUZ to Drury West Station and Drury West Town Centre located to the north-east of NoR 1. To realise this connection future design stages will need to demonstrate clear, direct and prioritised access for active mode users to these destinations.</li> </ul>
<b>4.2 Connect modes</b>	<i>Provide for choice in travel and the ability to connect at interchanges between modes.</i>	<ul style="list-style-type: none"> <li>NoR 1 includes provision for PT lanes in the northern segment where a four lane cross section is proposed. PT priority is to be provided at all intersections south of the NIMT.</li> </ul>
<b>4.3 Support access to employment and industry</b>	<i>Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.</i>	<ul style="list-style-type: none"> <li>No specific comments refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>4.4 Prioritise active modes and public transport</b>	<i>Provision of quality active mode corridors and dedicated public transport corridors to enable a modal</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>

Principle	Explanation	Application to NoR 1
	<i>shift away from private vehicle use.</i>	
<b>4.5 Support inter-regional connections and strategic infrastructure</b>	<i>Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.</i>	<ul style="list-style-type: none"> <li>The corridor provides a connection between the Drury West Station and Drury West Town Centre and the wider Pukekohe transport network.</li> </ul>
<b>4.6 Support legible corridor function</b>	<p><i>Consider how the corridor can be clearly navigated and understood by users moving from place to place.</i></p> <p><i>Legible Connections</i></p> <p><i>To achieve a positive and engaging street presence provide clear physical and visual connection between station and interchange facilities and surrounding corridors.</i></p>	<ul style="list-style-type: none"> <li>The corridor will provide a gateway into Drury West from the south, this presents the opportunity to establish experiential gateways promoting legibility, identity and wayfinding for users.</li> </ul>
<b>LANDUSE</b>		
<b>5.1 Public transport directed and integrated into centres</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>5.2 Strategic corridors as urban edges</b>	<i>Strategic corridors as potential definers of a land use edge.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 1 project corridor.</li> </ul>

## 7.2 Urban Design Matters: NoR 2 – Drury – Pukekohe Link

NoR 2 is an approximately 8.7km long corridor connecting Great South Road in Drury to the northern edge of Pukekohe. The alignment passes through a range of contexts which require different responses depending on the receiving environment. For this reason, where necessary, the evaluation of NoR 2 provides commentary with reference to five segments, including the SH22 Connection which runs between SH22 and the Drury – Pukekohe Link. These are shown in Figure 7-1:

- Segment 1: South Drury Arterial Great South Road – SH22 Connection (ch8750 to ch5100)
- Segment 2: SH22 Connection
- Segment 3: Drury – Paerata Link (ch 5100 to ch3100)
- Segment 4: Paerata Arterial (ch3100 to ch0000)

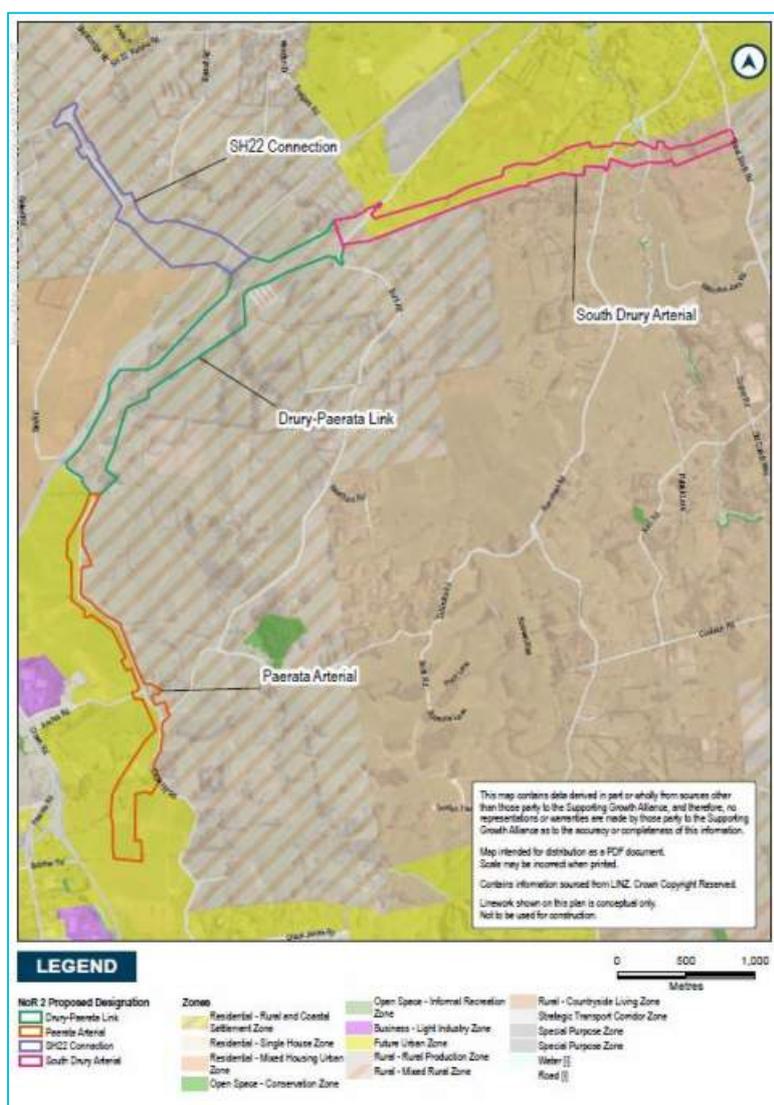


Figure 7-1: NoR 2 – Drury to Pukekohe Link Segments

Table 7-2: Urban Design Evaluation for NoR 2 – Drury – Pukekohe Link outlines urban design commentary specific to NoR 2. For broad commentary, please also refer to Table 6-1: Common urban design matters relevant to all corridors. Refer to Appendix B for Outcomes and Opportunities Maps relevant to NoR 2.

**Table 7-2: Urban Design Evaluation for NoR 2 – Drury – Pukekohe Link**

Principle	Explanation	Application to NoR 2
<b>ENVIRONMENT</b>		
<p><b>1.1</b></p> <p><b>Support and enhance ecological corridors and biodiversity</b></p>	<p><i>Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors</i></p>	<p>All Segments</p> <ul style="list-style-type: none"> <li>• Opportunities within the immediate environment of NoR 2 to support ecological connectivity and biodiversity are identified in the Pukekohe Transport Network: <i>Assessment of Ecological Effects</i> and include: <ul style="list-style-type: none"> <li>○ Artificial wetlands and swales within the corridor</li> <li>○ Where the corridor crosses tributaries of <ul style="list-style-type: none"> <li>- Ngakoroa stream and tributaries</li> <li>- Oira Creek and tributaries</li> <li>- Whangapouri Stream and tributaries.</li> </ul> </li> </ul> </li> <li>• There are water course bridges within the NoR at: <ul style="list-style-type: none"> <li>○ Ch8400 (Segment 1)</li> <li>○ Ch8000 (Segment 1)</li> <li>○ Ch1500 on the SH22 connection (Segment 2)</li> <li>○ Ch 5000 (Segment 3)</li> <li>○ Ch4200 (Segment 3)</li> </ul> </li> <li>• These locations present an opportunity to reinforce broader connectivity outcomes for ecology and water quality by minimising the stream interruption and ensuring a connected natural system. Refer to the Pukekohe Transport Network: <i>Assessment of Ecological Effects</i> for details of these opportunities.</li> </ul>
<p><b>1.2</b></p> <p><b>Support water conservation and enhance water quality in a watershed</b></p>	<p><i>Take into account and work with the existing watershed as part of a whole system.</i></p>	<p>All segments</p> <ul style="list-style-type: none"> <li>• The proposed typical corridor cross section and designation boundary allows sufficient spaces where required to provide natural drainage to constructed stormwater ponds and vegetated swales to address water quality and reduce hard engineering solutions.</li> <li>• The NoR 2 corridor design generally supports water conservation and presents opportunities to enhance water quality in the water shed. Refinement of the approach to stormwater management in future design stages should include addressing the configuration, scale and location of larger areas of fill in floodplains and stream corridors including any suitable mitigation.</li> </ul> <p>Segment 1</p> <ul style="list-style-type: none"> <li>• The corridor design includes two watercourse bridge crossings in this segment of NoR 2 that will maintain the continuity of the watershed and present opportunities for enhanced water quality.</li> <li>• This area includes large areas of stream and floodplain that are proposed to be filled with culverts. There are</li> </ul>

Principle	Explanation	Application to NoR 2
		<p>opportunities to refine the approach to this design to support water conservation and enhancement of water quality.</p> <ul style="list-style-type: none"> <li>Water quality treatment is proposed through a swale and three wetland ponds of various sizes located directly adjacent to the transport corridor.</li> </ul> <p>Segment 2</p> <ul style="list-style-type: none"> <li>There are two stormwater wetlands and a swale proposed as part of this corridor segment</li> <li>This corridor segment includes a bridge crossing over Oira Creek that will maintain the continuity of the watershed and present opportunities for enhanced water quality.</li> <li>At the crossing with Oira Creek, significant earthworks have been identified – refer to commentary under principle 1.3 for further commentary on earthworks integration.</li> <li>Further refinement of the scale and locations of the artificial wetlands and general earthworks to demonstrate their integration with the existing landform should be addressed in future design stages.</li> </ul> <p>Segment 3</p> <ul style="list-style-type: none"> <li>There are two stormwater wetlands and a swale proposed as part of this corridor segment.</li> <li>This segment includes two bridge crossings that will maintain the continuity of the watershed. There are opportunities to refine the approach to earthworks and wetland integration to further demonstrate support for water conservation and enhancement of water quality.</li> </ul> <p>Segment 4</p> <ul style="list-style-type: none"> <li>There are no permanent streams or flood plains in this segment of the corridor.</li> <li>Water quality treatment is proposed through four wetland ponds of varying sizes located directly adjacent to the transport corridor or approach roads.</li> </ul>
<p><b>1.3 Minimise land disturbance, conserve resources and materials</b></p>	<p><i>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.</i></p>	<ul style="list-style-type: none"> <li>Overall, NoR 2 follows existing transport corridors where possible and seeks to minimise earthworks. There are however opportunities to refine and reduce these along the alignment, particularly near streams and within floodplains.</li> </ul> <p>Segment 1</p> <ul style="list-style-type: none"> <li>This segment has one larger area of earthworks near Ngakoroa Stream, and large areas of fill near the intersection with Runciman Road and Burt Road and the adjacent floodplain. There may be opportunities to</li> </ul>

Principle	Explanation	Application to NoR 2
		<p>refine the earthworks approach in future design stages to further minimise or integrate land disturbance with the existing landform, or given the location near the proposed artificial wetland, integrate this fill with the surrounds of the wetland and the riparian margins of the Ngakoroa Stream.</p> <ul style="list-style-type: none"> <li>Segment 1 runs along the edge of the FUZ zone between CH5900 - 8752 which is LUC Class 2 and 4 Soils. The corridor is located within the area anticipated to be developed in the future. From CH5100-5900 the corridor covers areas of LUC Class 1 and 3 removing this area from productive capacity.</li> </ul> <p>Segment 2</p> <ul style="list-style-type: none"> <li>There are large areas of earthworks at the south-eastern edge of the segment where the corridor crosses Oira Creek and the NIMT corridor, presenting opportunities to refine the earthworks approach as part of future design stages to further minimise or integrate land disturbance with the existing landform.</li> <li>Segment 2 covers areas of LUC Class 1, 2, 3 and 4 soils, removing that area that is not an existing road from productive capacity.</li> </ul> <p>Segment 3</p> <ul style="list-style-type: none"> <li>This segment generally follows the alignment of the NIMT corridor, offset up to approximately 200m east.</li> <li>Future design stages should demonstrate how earthworks can be managed to enable a positive interface to the lands between the NoR and NIMT corridors.</li> <li>Segment 3 is entirely within the Rural Zone and covers LUC Class 3 soils, removing these from productive capacity.</li> </ul> <p>Segment 4</p> <ul style="list-style-type: none"> <li>This segment generally follows Sim Road before deviating through the FUZ. Future design stages should demonstrate how earthworks can be managed to enable a positive interface to be established with the corridor which, without careful consideration may create areas which are difficult to develop and establish a positive interface with the road corridor.</li> <li>The majority of Segment 4 is located on LUC Class 3 soils, with a small area of Class 2 soil at the southern end of the corridor. The segment runs along the edge of the FUZ zone between CH1100 – 3100, before entering the FUZ which is LUC Class 3 Soils. The corridor is located within the area anticipated to be developed in the future.</li> </ul>

Principle		Explanation	Application to NoR 2
<b>1.4</b> <b>Adapt to a changing climate and respond to the microclimatic factors of each area</b>	<i>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.</i>		<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> <li>NoR 2 provides for active modes within the cross section. Public Transport priority is to be provided at intersections within Segment 1 and 4 where it is located in or adjacent to the FUZ.</li> </ul>
<b>SOCIAL</b>			
<b>2.1</b> <b>Identity and place</b>	<i>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.</i>		<ul style="list-style-type: none"> <li>The NoR 2 corridor spans a range of future receiving environments moving from the edge of the FUZ in Segment 1, a rural environment in Segment 2, bounding the FUZ in Segment 3, ultimately running through the FUZ in Segment 4.</li> <li>Future design stages of the project should demonstrate an appropriate response to place values and the definition of identity drivers of the immediate context. This includes opportunities for gateways, strong definition of the rural / urban boundary, wayfinding and positive integration with the future urban environment. The corridor also provides broad access to the Paerata Station and should respond to the place values established in this location.</li> </ul>
<b>2.2</b> <b>Respect culturally significant sites and landscapes</b>	<i>Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.</i>		<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>2.3</b> <b>Adaptive corridors</b>	<i>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 or utilise technology over time.</i>		<ul style="list-style-type: none"> <li>If practicable, future land integration post construction should be considered in the following areas to support any proposed development / redevelopment adjacent to the NoR 2 corridor: <ul style="list-style-type: none"> <li>On the northern side of Segment 1 where it bounds the FUZ.</li> <li>On the western side of Segment 3 and 4 where it bounds or is located within the FUZ.</li> </ul> </li> </ul>
<b>2.4</b> <b>Social cohesion</b>	<i>Provide clear, effective and legible connectivity between community and social functions.</i>		<ul style="list-style-type: none"> <li>The proposed corridor alignment and function can deliver a positive contribution to the sense of participation, as well as community resilience by supporting wider, yet direct access to existing local, neighbourhood and town centres, schools, community functions and open spaces. Examples of school, community and business functions that will benefit from</li> </ul>

Principle	Explanation	Application to NoR 2
		<p>improved connectivity delivered by the project within NoR 2 include:</p> <ul style="list-style-type: none"> <li>○ Drury West</li> <li>○ Paerata Village</li> <li>○ Paerata Station</li> <li>○ Pukekohe</li> </ul> <ul style="list-style-type: none"> <li>● To enable equitable local connectivity and access to the Paerata Station and areas of future high density residential development, further development at the detailed design stage should be undertaken of crossing points for intersections along the alignment.</li> <li>● Only Segment 4 has a small portion that is located with larger areas of FUZ on either side, and potential mid-block crossings should be considered in this location.</li> </ul>
<p><b>2.5 Safety</b></p>	<p><i>Provide a safe and convenient network of routes accessible to people of all ages and abilities.</i></p>	<ul style="list-style-type: none"> <li>● Refer to Table 6-1: Common urban design matters in relation to Safety recommendations. In addition to these recommendations, a CPTED audit of the NoR 2 project should address, at a minimum, the current identified CPTED risks including: <ul style="list-style-type: none"> <li>○ Active mode facilities with minimal passive surveillance and activation from adjacent development for large stretches of the corridor through the Rural Zone</li> <li>○ Under bridge environments to the water course crossings in Segments 1, 2 and 3.</li> <li>○ Proposed wetland environments for all Segments.</li> </ul> </li> </ul>
<b>BUILT FORM</b>		
<p><b>3.1 Align corridors with density</b></p>	<p><i>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.</i></p>	<ul style="list-style-type: none"> <li>● NoR 2 provides broad connectivity to the Paerata Station and between Pukekohe and Drury settlements and the amenities and facilities in these locations. High density development on this corridor is limited to the catchment of the Paerata Station and the corridor provides access along the edge of this area. Future design stages should define clear, legible and direct connections from the corridor to these areas to support the development objectives of these urban centres.</li> </ul>
<p><b>3.2 Corridor scaled to the surrounding context and urban structure</b></p>	<p><i>Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).</i></p>	<ul style="list-style-type: none"> <li>● The NoR 2 corridor configurations and scale (two lanes throughout) provide an appropriate response to its location on the edge of the FUZ, through the Rural Zone, and within the FUZ.</li> <li>● Key focus areas within NoR 2 that require further resolution in future design stages to demonstrate the potential scale and urban structure response include: <ul style="list-style-type: none"> <li>○ Segment 4 within the FUZ, which has large areas of fill due to the existing topography.</li> </ul> </li> </ul>

Principle	Explanation	Application to NoR 2
<b>3.3</b> <b>Facilitate an appropriate interface between place and movement</b>	<i>Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)</i>	<ul style="list-style-type: none"> <li>• Key focus areas within NoR 2 that require further resolution in future design stages to demonstrate the place interface / response to the proposed movement functions include: <ul style="list-style-type: none"> <li>○ Key community and business functions outlined for NoR 2 under Principle 2.4 Social Cohesion</li> <li>○ Land between the NIMT and the proposed alignment in Segment 3</li> <li>○ Large areas of cut or fill are proposed adjacent to future residential development in Segment 4</li> <li>○ Built form interfaces, visual or landscape buffers and development controls proposed for the FUZ in Segment 4</li> <li>○ Appropriate treatment buffers to integrate the corridor and associated works within the Rural Zone.</li> </ul> </li> </ul>
<b>MOVEMENT</b>		
<b>4.1</b> <b>Connect nodes</b>	<i>Provide tangible connectivity between identified activity nodes.</i>	NoR 2 provides broad connections between Pukekohe, Paerata and Drury, including the future rail stations in Paerata and Drury. The corridor provides for active mode facilities along the length of the corridor, providing travel choice in these areas.
<b>4.2</b> <b>Connect modes</b>	<i>Provide for choice in travel and the ability to connect at interchanges between modes.</i>	<ul style="list-style-type: none"> <li>• NoR 2 provides opportunities for a range of modes to use the corridor, including separated active mode facilities along the length of the alignment and Public Transport Priority at intersections where the corridor is located within or adjacent to the FUZ.</li> </ul>
<b>4.3</b> <b>Support access to employment and industry</b>	<i>Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.</i>	<ul style="list-style-type: none"> <li>• Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>4.4</b> <b>Prioritise active modes and public transport</b>	<i>Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.</i>	<ul style="list-style-type: none"> <li>• Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> <li>• PT priority is to be provided at intersections within / adjacent to the FUZ.</li> </ul>
<b>4.5</b> <b>Support inter-regional connections and strategic infrastructure</b>	<i>Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.</i>	<ul style="list-style-type: none"> <li>• The corridor aligns with the Transpower National Grid Line within Segment 1 and a portion of the NIMT . The corridor provides opportunities to connect to the NIMT through station access in Pukekohe, Paerata and Drury for passengers.</li> </ul>

Principle		Explanation	Application to NoR 2
<b>4.6</b> <b>Support legible corridor function</b>	<i>Consider how the corridor can be clearly navigated and understood by users moving from place to place.</i>		<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>LANDUSE</b>			
<b>5.1</b> <b>Public transport directed and integrated into centres</b>	<i>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.</i>		<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 2 corridor.</li> </ul>
<b>5.2</b> <b>Strategic corridors as urban edges</b>	<i>Strategic corridors as potential definers of a land use edge.</i>		<ul style="list-style-type: none"> <li>Segment 1, and, parts of 3 and 4 bound the FUZ, the design and final alignment of the corridor should discourage urbanisation on the eastern side of these alignments.</li> </ul>

## 7.3 Urban Design Matters: NoR 3 – Paerata Connections

Table 7-3: Urban Design Evaluation for NoR 3 – Paerata Connections outlines urban design commentary specific to NoR 3. For broad commentary, please also refer to Table 6-1: Common urban design matters relevant to all corridors. Refer to Appendix B for Outcomes and Opportunities Maps relevant to NoR 3.

**Table 7-3: Urban Design Evaluation for NoR 3 – Paerata Connections**

Principle	Explanation	Application to NoR 3
<b>ENVIRONMENT</b>		
<b>1.1</b> <b>Support and enhance ecological corridors and biodiversity</b>	<i>Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors</i>	<ul style="list-style-type: none"> <li>Opportunities within the immediate environment of NoR 3 to support ecological connectivity and biodiversity are identified in the Pukekohe Transport Network: <i>Assessment of Ecological Effects</i> and include: <ul style="list-style-type: none"> <li>Artificial wetlands and swales within the corridors.</li> </ul> </li> <li>Refer to the Pukekohe Transport Network: <i>Assessment of Ecological Effects</i> for details of these opportunities.</li> </ul>
<b>1.2</b> <b>Support water conservation and enhance water quality in a watershed</b>	<i>Take into account and work with the existing watershed as part of a whole system.</i>	<ul style="list-style-type: none"> <li>The southern connection joins the Paerata Station access road which crosses the end of a Tributary to the Whangapouri Creek. Treatment in this area should be consistent with the approach required under the Paerata Station designation.</li> </ul>
<b>1.3</b> <b>Minimise land disturbance, conserve resources and materials</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The northern connection has a large area of fill adjacent to the NIMT. This presents the opportunity to refine the earthworks approach in future design stages to further minimise or integrate land disturbance with the existing landform.</li> <li>The northern NoR 3 corridor crosses over the NIMT, resulting in moderate earthworks at the corridor edges. Further vertical integration adjacent to the bridging structure should be demonstrated in future design stages to allow an appropriate transition and interface to adjacent built form.</li> </ul>
<b>1.4</b> <b>Adapt to a changing climate and respond to the microclimatic factors of each area</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>

Principle	Explanation	Application to NoR 3
<b>SOCIAL</b>		
<b>2.1 Identity and place</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The further identification, development and integration of key local community and identity drivers within NoR 3 should be addressed in future design stages. These include the Paerata Rise development and the recently designated Paerata Station and future high density housing development anticipated around the station.</li> </ul>
<b>2.2 Respect culturally significant sites and landscapes</b>	<i>Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>2.3 Adaptive corridors</b>	<i>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 or utilise technology over time.</i>	<ul style="list-style-type: none"> <li>If practicable, future land integration post construction should be considered in the following areas to support any proposed development / redevelopment adjacent to the NoR 3 corridor: <ul style="list-style-type: none"> <li>Adjacent to live zoning in Paerata on the western side of the NIMT</li> <li>Adjacent to the FUZ in Paerata on the eastern side of the NIMT</li> <li>The Paerata Rail Station area.</li> </ul> </li> </ul>
<b>2.4 Social cohesion</b>	<i>Provide clear, effective and legible connectivity between community and social functions.</i>	<ul style="list-style-type: none"> <li>To enable equitable local connectivity and cross corridor access to the Paerata Station and areas of high density, further development in future design stages should be undertaken to provide crossing points at intersections and at appropriate midblock locations.</li> <li>The proposed corridor alignment and function can deliver a positive contribution to the sense of participation, as well as community resilience by supporting direct access to the Paerata Station and the Paerata Rise development and associated community/commercial facilities including Paerata School.</li> </ul>
<b>2.5 Safety</b>	<i>Provide a safe and convenient network of routes accessible to people of all ages and abilities.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to Safety recommendations. In addition to these recommendations, a CPTED audit of the NoR 3 project</li> </ul>

Principle	Explanation	Application to NoR 3
		should address, at a minimum, safe connections over the NIMT and connections to the Paerata Station.
<b>BUILT FORM</b>		
<b>3.1 Align corridors with density</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>NoR 3 provides direct access to the recently designated Paerata Station, which will enable future high-density development in this catchment. It is recommended that future design stages demonstrate the proposed modal connections, hierarchy of movements, built form interfaces and arrangements that support the creation of vibrant, active urban environments around the station.</li> </ul>
<b>3.2 Corridor scaled to the surrounding context and urban structure</b>	<i>Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).</i>	<ul style="list-style-type: none"> <li>The NoR 3 corridor configurations and scale (two lanes throughout) provide an appropriate response to the anticipated future environment which is anticipated to be medium and high-density residential development. Any potential conflict between placemaking aspirations within local communities and the scale and speed of the proposed movement functions of the corridor should be addressed in future design stages.</li> <li>Key focus areas within NoR 3 that require further resolution in future design stages to demonstrate the potential scale and urban structure response include: <ul style="list-style-type: none"> <li>The walk-up catchment of the Paerata Station</li> <li>The corridor edges and interfaces with future medium and high-density residential development.</li> <li>Where large areas of cut or fill are proposed adjacent to future residential development.</li> </ul> </li> </ul>
<b>3.3 Facilitate an appropriate interface between place and movement</b>	<i>Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)</i>	<ul style="list-style-type: none"> <li>Key focus areas within NoR 3 that require further resolution in future design stages to demonstrate the place function include: <ul style="list-style-type: none"> <li>The key intersections and mid-block crossings to Paerata Station.</li> <li>The interface with adjacent high and medium density development.</li> <li>Where large areas of cut or fill are proposed adjacent to future residential development.</li> </ul> </li> </ul>
<b>MOVEMENT</b>		
<b>4.1 Connect nodes</b>	<i>Provide tangible connectivity between identified activity nodes.</i>	<ul style="list-style-type: none"> <li>These corridors provide a connection to Paerata from the Drury – Pukekohe Link, establishing stronger connections between nodes, including the future Paerata Station. All connections provide for a range of modes to use these connections, including separated active mode facilities.</li> </ul>

Principle	Explanation	Application to NoR 3
<b>4.2 Connect modes</b>	<i>Provide for choice in travel and the ability to connect at interchanges between modes.</i>	<ul style="list-style-type: none"> <li>NoR 3 provides opportunities for a range of modes to use the corridor, including separated active mode facilities along the length of the alignment.</li> </ul>
<b>4.3 Support access to employment and industry</b>	<i>Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>4.4 Prioritise active modes and public transport</b>	<i>Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters relevant to all corridors.</li> </ul>
<b>4.5 Support inter-regional connections and strategic infrastructure</b>	<i>Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.</i>	<ul style="list-style-type: none"> <li>NoR 3 includes direct access to Paerata Station from the Drury – Pukekohe Link improving connections to strategic infrastructure.</li> </ul>
<b>4.6 Support legible corridor function</b>	<i>Consider how the corridor can be clearly navigated and understood by users moving from place to place.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>LANDUSE</b>		
<b>5.1 Public transport directed and integrated into centres</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 3 corridor.</li> </ul>
<b>5.2 Strategic corridors as urban edges</b>	<i>Strategic corridors as potential definers of a land use edge.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 3 corridor.</li> </ul>

## 7.4 Urban Design Matters: NoR 4 – Pukekohe North-East Arterial

Table 7-4: Urban Design Evaluation for NoR 4 Pukekohe North-East Arterial outlines urban design commentary specific to NoR 4. For broad commentary, please also refer to Table 6-1: Common urban design matters relevant to all corridors. Refer to Appendix B for Outcomes and Opportunities Maps relevant to NoR 4.

Table 7-4: Urban Design Evaluation for NoR 4 Pukekohe North-East Arterial

Principle	Explanation	Application to NoR 4
<b>ENVIRONMENT</b>		
<b>1.1</b>  <b>Support and enhance ecological corridors and biodiversity</b>	<i>Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors</i>	<ul style="list-style-type: none"> <li>Opportunities within the immediate environment of NoR 4 to support ecological connectivity and biodiversity are identified in the Pukekohe Transport Network: <i>Assessment of Ecological Effects</i> and include: <ul style="list-style-type: none"> <li>Artificial wetlands and swales within the corridor</li> <li>Where the corridor crosses: <ul style="list-style-type: none"> <li>Tributaries of Oira Creek in the east of the corridor</li> <li>Whangapouri Creek in the west of the corridor.</li> </ul> </li> </ul> </li> <li>There are seven watercourse crossings (6 over tributaries of Oira Creek and one over Whangapouri Creek) in NoR 4 that present opportunities to reinforce broader connectivity outcomes for ecology and water quality by minimising the stream interruption and ensuring a connected natural system. Refer to the <i>Pukekohe Transport Network: Assessment of Ecological Effects</i> for details of these opportunities.</li> </ul>
<b>1.2</b>  <b>Support water conservation and enhance water quality in a watershed</b>	<i>Take into account and work with the existing watershed as part of a whole system.</i>	<ul style="list-style-type: none"> <li>The corridor design includes seven watercourse bridge crossings that will maintain the continuity of the watershed and present opportunities for enhanced water quality. Water quality treatment is located within the area identified for the corridor.</li> <li>Water quality treatment is proposed through five wetland ponds of various sizes located adjacent to the transport corridor.</li> <li>Refinement of the approach to stormwater management in future design stages should include addressing the configuration, scale and location of larger areas of fill in floodplains and stream corridors including any suitable mitigation.</li> </ul>
<b>1.3</b>  <b>Minimise land disturbance,</b>	<i>Respect the existing topography, landforms and urban structure in the placement of strategic</i>	<ul style="list-style-type: none"> <li>There are large areas of earthworks located across the corridor, generally associated with bridged stream crossings, the NIMT crossing and also as a response to the steep topography in this area. This presents the</li> </ul>

Principle	Explanation	Application to NoR 4
<b>conserve resources and materials</b>	<i>corridors. Minimise the quantity of hard engineering materials required. Minimise, mitigate any adverse effects of activities on the environment.</i>	<p>opportunity to refine the earthworks approach in future design stages to further minimise or integrate land disturbance with the existing landform.</p> <ul style="list-style-type: none"> <li>The corridor crosses through areas of LUC Class 2 and 3 soils, which are considered to be highly productive. The majority of the corridor is located within the FUZ, and future development of this land is therefore anticipated. Where the corridor runs through the Rural Zone, it will reduced and sever an area of LUC Class 3 soil.</li> </ul>
<b>1.4 Adapt to a changing climate and respond to the microclimatic factors of each area</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>SOCIAL</b>		
<b>2.1 Identity and place</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>When constructed, the corridor is anticipated to pass through five different contexts as identified in the Pukekohe - Paerata Structure Plan. From west to east, it will travel from Industrial Zone, through Mixed Housing Urban Zone, before moving to the Rural Zone, deviating to the south and entering Single House Zone before concluding in the Mixed Housing Suburban Zone. Each of these areas will have their own context, character and place values that should be addressed in future design stages.</li> <li>There are multiple water crossings along this corridor, future design stages should consider the natural and cultural qualities of these water bodies and incorporate these into the ultimate design.</li> <li>The corridor will carry traffic from the west of Pukekohe including industrial land, some of which is anticipated to be heavy vehicles. The design of the corridor will need to consider and address the anticipated volume and typology of this traffic moving through the proposed low – medium density housing.</li> </ul>
<b>2.2 Respect culturally significant sites and landscapes</b>	<i>Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.</i>	Refer to Table 6-1: Common urban design matters in relation to this design principle.
<b>2.3</b>	<i>Corridors should demonstrate flexibility to respond to</i>	<ul style="list-style-type: none"> <li>If practicable, future land integration post construction should be considered to support any proposed</li> </ul>

Principle	Explanation	Application to NoR 4
<b>Adaptive corridors</b>	<i>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 or utilise technology over time.</i>	development / redevelopment adjacent to the NoR 4 corridor within the FUZ in a manner that is appropriate with the anticipated future land use typology and pattern.
<b>2.4 Social cohesion</b>	<i>Provide clear, effective and legible connectivity between community and social functions.</i>	<ul style="list-style-type: none"> <li>To enable equitable local connectivity and cross corridor access within future residential areas, further development at the detailed design stage should be undertaken to provide crossing points at intersections and at appropriate midblock locations.</li> <li>The proposed corridor alignment and function can deliver a positive contribution to the sense of participation, as well as community resilience by supporting direct access to community facilities and amenities that may be developed in the future such as areas of open space and schools.</li> <li>Consideration and provision for areas of developing land that require connection to the corridor should be provided for as part of future design where it is safe to do so.</li> </ul>
<b>2.5 Safety</b>	<i>Provide a safe and convenient network of routes accessible to people of all ages and abilities.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to Safety recommendations. In addition to these recommendations, a CPTED audit of the NoR 4 should consider how to maximise safety for active mode users within the rural segment of the corridor.</li> </ul>
BUILT FORM		
<b>3.1 Align corridors with density</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The NoR 4 corridor forms part of a conceptual ring route around Pukekohe, comprised of new and upgraded existing corridors. The ring route distributes regional strategic traffic away from central Pukekohe by providing an orbital arterial that connects radial arterials such as SH22, the proposed north-south arterial, Cape Hill Road, Pukekohe East Road, Buckland Road, Blake Road and Puni Road.</li> <li>Given the orbital function of NoR 4, the corridor core purpose is not to directly serve density, however the corridor traverses (and potentially connects to a range of future urban contexts, which include Mixed Housing Urban Zone to the north of Pukekohe and a large Single House Zone to the east of the alignment).</li> </ul>
<b>3.2</b>	<i>Align the speed, type and scale of transport corridors</i>	<ul style="list-style-type: none"> <li>The corridor for NoR 4 is proposed as a two lane arterial with active modes. Speed will vary on the corridor in</li> </ul>

Principle	Explanation	Application to NoR 4
<b>Corridor scaled to the surrounding context and urban structure</b>	<i>and infrastructure with the environment that it moves through (appropriate scale to the context).</i>	<p>relation to the adjacent land use context, between 50-70 km/h, with potential for higher speeds in the Rural Zone. This is an appropriate scale for the anticipated future urban environment which is anticipated to be medium density (to the east) and low density residential development (to the south) as per the Pukekohe-Paerata Structure Plan. The segment of the corridor in the Rural Zone should be designed to integrate into this context. Any potential conflict between placemaking aspirations within local communities and the scale and speed of the proposed movement functions of the corridor should be addressed in future design stages.</p> <ul style="list-style-type: none"> <li>• Key focus areas within NoR 4 that require further resolution in future design stages to demonstrate the potential scale and urban structure response include: <ul style="list-style-type: none"> <li>○ The corridor sections within the segments of the corridor anticipated to be residential land use in the future. This is particularly the case where large areas of earthworks are proposed which may be out of scale when compared to the adjacent development.</li> </ul> </li> </ul>
<b>3.3 Facilitate an appropriate interface between place and movement</b>	<i>Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)</i>	<ul style="list-style-type: none"> <li>• Key focus areas within NoR 4 that require further resolution in future design stages to demonstrate the place function include: <ul style="list-style-type: none"> <li>○ The key intersections and mid-block crossings in the industrial and residential segments of the corridor.</li> <li>○ Where large areas of cut or fill are proposed adjacent to future residential development.</li> <li>○ Managing any effects of freight/ heavy vehicles moving along these corridors from industrial activity.</li> </ul> </li> </ul>
<b>MOVEMENT</b>		
<b>4.1 Connect nodes</b>	<i>Provide tangible connectivity between identified activity nodes.</i>	<ul style="list-style-type: none"> <li>• NoR 4 (and the adjoining NoRs) does not provide direct connections between activity nodes instead providing a route around Pukekohe, which may facilitate easier access to employment for some. It does provide a more direct route from the north to wider connections such as Bombay and beyond via SH1. Future design stages should demonstrate how cross corridor connectivity has been maximised, whilst maintaining the function of the corridor.</li> </ul>
<b>4.2 Connect modes</b>	<i>Provide for choice in travel and the ability to connect at interchanges between modes.</i>	<ul style="list-style-type: none"> <li>• NoR 4 provides opportunities for a range of modes to use the corridor, including separated active mode facilities along the length of the alignment.</li> </ul>

Principle	Explanation	Application to NoR 4
<b>4.3</b> Support access to employment and industry	<i>Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.</i>	<ul style="list-style-type: none"> <li>The corridor provides access to industrial and employment areas as part of a wider network in combination with NoR 5, 6 and 7.</li> </ul>
<b>4.4</b> Prioritise active modes and public transport	<i>Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.</i>	<ul style="list-style-type: none"> <li>Potential priority conflicts between active modes / public transport and the anticipated freight function of the NoR 4 corridor should be further identified and addressed in future design stages of the project, including the following specific focus areas: <ul style="list-style-type: none"> <li>The Intersection at SH22</li> <li>The intersection with the NoR 2 corridor</li> <li>The intersection with Cape Hill Road</li> <li>The intersection of Pukekohe East Road.</li> <li>Mid-block crossings</li> </ul> </li> </ul>
<b>4.5</b> Support inter-regional connections and strategic infrastructure	<i>Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.</i>	<ul style="list-style-type: none"> <li>NoR 4 provides more direct connectivity from the North of Pukekohe to Bombay and SH1 for those travelling south.</li> </ul>
<b>4.6</b> Support legible corridor function	<i>Consider how the corridor can be clearly navigated and understood by users moving from place to place.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>LANDUSE</b>		
<b>5.1</b> Public transport directed and integrated into centres	<i>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.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 4 corridor.</li> </ul>
<b>5.2</b> Strategic corridors as urban edges	<i>Strategic corridors as potential definers of a land use edge.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 4 corridor.</li> </ul>

## 7.5 Urban Design Matters: NoR 5 – Pukekohe South-East Arterial

Table 7-5: Urban Design Evaluation for NoR 5 – Pukekohe South-East Arterial outlines urban design commentary specific to NoR 5. For broad commentary, please also refer to Table 6-1: Common urban design matters relevant to all corridors. Refer to Appendix B for Outcomes and Opportunities Maps relevant to NoR 5.

Table 7-5: Urban Design Evaluation for NoR 5 – Pukekohe South-East Arterial

Principle	Explanation	Application to NoR 5
<b>ENVIRONMENT</b>		
<b>1.1</b> <b>Support and enhance ecological corridors and biodiversity</b>	<i>Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors</i>	<ul style="list-style-type: none"> <li>Opportunities within the immediate environment of NoR 5 to support ecological connectivity and biodiversity are identified in the Pukekohe Transport Network: <i>Assessment of Ecological Effects</i> and include: <ul style="list-style-type: none"> <li>Artificial wetlands and swales within the corridor</li> </ul> </li> </ul>
<b>1.2</b> <b>Support water conservation and enhance water quality in a watershed</b>	<i>Take into account and work with the existing watershed as part of a whole system.</i>	<ul style="list-style-type: none"> <li>The corridor northern and eastern legs of the corridor follow existing road corridors (Pukekohe East Road and Golding Road), with widening proposed. Refinement of the location of artificial wetlands so they are outside of existing stream alignments is recommended as part of future design stages.</li> <li>NoR 5 crosses areas of flood plain, flood prone and flood sensitive areas in the westernmost segment of the corridor that will need to be considered in future design stages.</li> </ul>
<b>1.3</b> <b>Minimise land disturbance, conserve resources and materials</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The NoR 5 alignment along the existing Pukekohe East Road and Golding Road alignments require minimal earthworks, however a larger area of fill is required at the Golding Road intersection. This presents the opportunity to refine the earthworks approach in future design stages to further minimise or integrate land disturbance with the existing landform.</li> <li>Extensive earthworks are required for the segment of NoR 5 between Golding Road and Svendsen Road. The earthworks at the western end are required to enable the road to cross over the NIMT and Station Road with adequate clearances. Future design stages should address how these earthworks could be further minimised, retained or otherwise configured to present an appropriate interface to the adjacent land uses.</li> </ul>
<b>1.4</b> <b>Adapt to a changing</b>	<i>Design for predicted future regional climatic impacts in the corridor location.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>

Principle	Explanation	Application to NoR 5
<b>climate and respond to the microclimatic factors of each area</b>	<i>Consider the positive contribution that the orientation of transport corridors can make to the local climate of future places and streets.</i>	
<b>SOCIAL</b>		
<b>2.1 Identity and place</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>When delivered, the corridor is anticipated to pass through four different contexts as identified in the Pukekohe - Paerata Structure Plan. From east to west, it will travel from future Mixed Housing Suburban Zone through the future Mixed Housing Urban Zone (including the site adjacent to Golding Road rezoned through Plan Change 76), continuing to the west through future Industrial Zone before crossing the NIMT into the existing General Business Zone, running past the service access to a group of large format retail stores. Each of these areas will have their own context, character and place values that future design stages should address.</li> <li>There are two water crossings along this corridor, detailed design should consider the natural and cultural qualities of these streams and incorporate these into the ultimate design.</li> <li>The corridor will bring traffic from the west of Pukekohe including commercial and industrial land, some of which will be heavy vehicles. Future design stages for the corridor will need to consider and address the anticipated volume and typology of this traffic moving through future low – medium density housing.</li> </ul>
<b>2.2 Respect culturally significant sites and landscapes</b>	<i>Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>2.3 Adaptive corridors</b>	<i>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 or utilise technology over time.</i>	<ul style="list-style-type: none"> <li>If practicable, future land integration post construction should be considered in the following areas to support any proposed development / redevelopment adjacent to the NoR 5 corridor: <ul style="list-style-type: none"> <li>Within and adjacent to FUZ or zoned developable land in a manner that is appropriate with the anticipated future land use typology and pattern.</li> <li>At the connection with Svendsen Road where the corridor is bounded by General Business Zone to the south and Light Industrial Zone to the north.</li> </ul> </li> </ul>
<b>2.4</b>	<i>Provide clear, effective and legible connectivity between</i>	<ul style="list-style-type: none"> <li>To enable equitable local connectivity and cross corridor access within future residential areas, further</li> </ul>

Principle	Explanation	Application to NoR 5
<b>Social cohesion</b>	<i>community and social functions.</i>	<p>development at future design stages should be undertaken to provide crossing points at intersections and at appropriate midblock locations including as a minimum:</p> <ul style="list-style-type: none"> <li>○ The intersection of Anselmi Ridge Road</li> <li>○ At appropriate spacing along Golding Road</li> <li>○ At the Station Road over bridge.</li> </ul> <ul style="list-style-type: none"> <li>● Consideration and provision for areas of developing land that require connection to the corridor should be provided for as part of future design where it is safe to do so.</li> <li>● There is the opportunity to establish a cross corridor connection for active modes to the Pukekohe showgrounds, if appropriate and desirable, facilitating access to this facility.</li> </ul>
<b>2.5 Safety</b>	<i>Provide a safe and convenient network of routes accessible to people of all ages and abilities.</i>	<ul style="list-style-type: none"> <li>● Refer to Table 6-1: Common urban design matters in relation to safety recommendations, in addition to these recommendations, a CPTED audit of the NoR 5 corridor should address, at a minimum, the current identified CPTED risks including: <ul style="list-style-type: none"> <li>○ The over and underbridge environment at the crossing of the NIMT and Station Road</li> <li>○ Proposed wetland environments</li> <li>○ The interface with the existing Anselmi Ridge Road development area.</li> </ul> </li> </ul>
<b>BUILT FORM</b>		
<b>3.1 Align corridors with density</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>● The NoR 5 corridor forms part of a conceptual ring route around Pukekohe, comprised of new and upgraded existing corridors. The ring route distributes regional strategic traffic away from central Pukekohe by providing an orbital arterial that connects radial arterials such as SH22, the proposed north-south arterial, Cape Hill Road, Pukekohe East Road, Buckland Road, Blake Road and Puni Road.</li> <li>● Given the orbital function of NoR 5, the corridor core purpose is not to directly serve density, however the corridor traverses and potentially connects to a range of future urban contexts, which include Residential Mixed Housing Urban Zone and Mixed Housing Suburban Zone east of the NIMT described in the Pukekohe – Paerata Structure Plan.</li> </ul>
<b>3.2 Corridor scaled to the surrounding context and</b>	<i>Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves</i>	<ul style="list-style-type: none"> <li>● The corridor for NoR 5 is proposed as a two lane arterial with active modes with a speed of 50km/h. This presents an appropriate scale for the future environment which is anticipated to be largely medium and low density residential development. Any potential conflict between</li> </ul>

Principle	Explanation	Application to NoR 5
<b>urban structure</b>	<i>through (appropriate scale to the context).</i>	<p>placemaking aspirations within local communities and the scale and speed of the proposed movement functions of the corridor should be addressed in future design stages.</p> <ul style="list-style-type: none"> <li>• Key focus areas within NoR 5 that require further resolution in future design stages to demonstrate the potential scale and urban structure response include: <ul style="list-style-type: none"> <li>○ The corridor sections within the segments of the corridor anticipated to be residential land use in the future. This is particularly the case where large areas of earthworks are proposed which may be out of scale when compared to the adjacent development.</li> <li>○ Further vertical integration adjacent to the proposed structure to cross the NIMT should be developed at a detailed design stage to allow an appropriate transition and interface to adjacent built form.</li> </ul> </li> </ul>
<b>3.3 Facilitate an appropriate interface between place and movement</b>	<i>Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)</i>	<ul style="list-style-type: none"> <li>• Key focus areas within NoR 5 that require further resolution in future design stages to demonstrate the place function include: <ul style="list-style-type: none"> <li>○ The key intersections and mid-block crossings in the industrial and residential segments of the corridor</li> <li>○ Where large areas of cut or fill are proposed adjacent to future residential development.</li> <li>○ Adjacent to existing commercial development in the General Business Zone at the western end of the corridor</li> <li>○ Managing any effects of freight/ heavy vehicles moving along these corridors from industrial activity.</li> </ul> </li> </ul>
<b>MOVEMENT</b>		
<b>4.1 Connect nodes</b>	<i>Provide tangible connectivity between identified activity nodes.</i>	<ul style="list-style-type: none"> <li>• As noted under Principle 3.1, NoR 5 (and the adjoining NoRs) is part of a conceptual ring route around Pukekohe and does not provide direct connections between activity nodes. The ring route distributes regional strategic traffic away from central Pukekohe by providing an orbital arterial that connects other strategic radial arterials.</li> <li>• NoR 5 does provide a more direct route from the north to wider connections such as Bombay and beyond via SH1. Future design stages should demonstrate how cross corridor connectivity has been maximised, whilst maintaining the function of the corridor.</li> </ul>
<b>4.2 Connect modes</b>	<i>Provide for choice in travel and the ability to connect at interchanges between modes.</i>	<ul style="list-style-type: none"> <li>• Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>

Principle	Explanation	Application to NoR 5
<b>4.3</b> <b>Support access to employment and industry</b>	<i>Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.</i>	<ul style="list-style-type: none"> <li>The corridor provides access to industrial and employment areas as part of a wider network in combination with NoRs 4, 6 and 7.</li> </ul>
<b>4.4</b> <b>Prioritise active modes and public transport</b>	<i>Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>4.5</b> <b>Support inter-regional connections and strategic infrastructure</b>	<i>Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.</i>	<ul style="list-style-type: none"> <li>NoR 5 provides more direct connectivity from the South of Pukekohe to Bombay and SH1 for those travelling south via SH1, it also provides a wider connection with NoR 4 in providing a more direct route north, without requiring vehicles to travel through Pukekohe.</li> </ul>
<b>4.6</b> <b>Support legible corridor function</b>	<i>Consider how the corridor can be clearly navigated and understood by users moving from place to place.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>LANDUSE</b>		
<b>5.1</b> <b>Public transport directed and integrated into centres</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 5 corridor.</li> </ul>
<b>5.2</b> <b>Strategic corridors as urban edges</b>	<i>Strategic corridors as potential definers of a land use edge.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 5 corridor.</li> </ul>

## 7.6 Urban Design Matters: NoR 6 – Pukekohe South-West Upgrade

Table 7-6: Urban Design Evaluation for NoR 6 – Pukekohe South-West Arterial outlines urban design commentary specific to NoR 6. For broad commentary, please also refer to Table 6-1: Common urban design matters relevant to all corridors. Refer to Appendix B for Outcomes and Opportunities Maps relevant to NoR 6.

The designation for NoR 6 covers small discrete areas where localised widening is required to provide adequate facilities. The remainder of the upgrade to the relevant corridors will be located in the existing road boundary. This assessment covers the entire corridor, including those areas outside of the designation footprints.

**Table 7-6: Urban Design Evaluation for NoR 6 – Pukekohe South-West Arterial**

Principle	Explanation	Application to NoR 6
<b>ENVIRONMENT</b>		
<b>1.1</b> <b>Support and enhance ecological corridors and biodiversity</b>	<i>Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors</i>	<ul style="list-style-type: none"> <li>The corridor crosses the Whangapouri Stream, however this area is outside of those areas to be designated.</li> </ul>
<b>1.2</b> <b>Support water conservation and enhance water quality in a watershed</b>	<i>Take into account and work with the existing watershed as part of a whole system.</i>	<ul style="list-style-type: none"> <li>The entire corridor is within the existing urban environment with multiple water course crossings over the corridor which are generally culverted.</li> <li>No changes are proposed in relation to manage stormwater.</li> </ul>
<b>1.3</b> <b>Minimise land disturbance, conserve resources and materials</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The corridor utilises the existing road corridors and will therefore have minimal impact on land disturbance.</li> </ul>
<b>1.4</b> <b>Adapt to a changing climate and respond to the microclimatic</b>	<i>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</i>	<ul style="list-style-type: none"> <li>Provision of street trees will likely require the use of tree-pits due to the narrow width of the front berm and separator proposed in the indicative cross-section (1.2m).</li> </ul>

Principle	Explanation	Application to NoR 6
<b>factors of each area</b>	<i>local climate of future places and streets.</i>	
<b>SOCIAL</b>		
<b>2.1 Identity and place</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The corridor spans a range of existing urban zones; General Business Zone, Light Industrial Zone, Mixed Housing Suburban Zone and a small area of FUZ adjacent to Puni Road. The small areas of designation identified along the Pukekohe South-West Corridor should be incorporated into the wider corridor design within the existing transport corridor. The wider corridor design should look to respond to the adjacent context, relevant to its location.</li> <li>One of the discrete designation areas includes the edge of the site of the Nehru Hall, a scheduled historic heritage place, prominently located on a corner that contributes to the place values of the area. The design of the active mode path should respond to this site and maintain clear views to the hall to maintain its prominent visibility on the corner site. The brick gateway should be relocated and reinstated as per the recommendations of the Pukekohe Transport Network Assessment of Effects on Historic Heritage.</li> </ul>
<b>2.2 Respect culturally significant sites and landscapes</b>	<i>Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>2.3 Adaptive corridors</b>	<i>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 or utilise technology over time.</i>	<ul style="list-style-type: none"> <li>The designation identifies small areas of corridor that are required to implement the upgrade. Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>2.4 Social cohesion</b>	<i>Provide clear, effective and legible connectivity between community and social functions.</i>	<ul style="list-style-type: none"> <li>To enable equitable local connectivity and cross corridor access, further development at future design stages should be undertaken to provide crossing points at intersections and at appropriate midblock locations to access the bi-directional cycleway.</li> </ul>

Principle	Explanation	Application to NoR 6
<b>2.5 Safety</b>	<i>Provide a safe and convenient network of routes accessible to people of all ages and abilities.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to safety recommendations.</li> <li>Future design of the corridor will need to provide safe crossings at intersections and mid-block locations along the corridor.</li> </ul>
<b>BUILT FORM</b>		
<b>3.1 Align corridors with density</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 6 corridor as it spans the General Business Zone, Light Industrial Zone, Mixed Housing Suburban Zone and a small area of FUZ adjacent to Puni Road.</li> </ul>
<b>3.2 Corridor scaled to the surrounding context and urban structure</b>	<i>Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).</i>	<ul style="list-style-type: none"> <li>The corridor upgrade will generally be delivered in the existing road boundary, with small areas of widening required at localised points, the scale of the corridor will therefore remain suitable for the context.</li> </ul>
<b>3.3 Facilitate an appropriate interface between place and movement</b>	<i>Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)</i>	<ul style="list-style-type: none"> <li>The corridor upgrade will generally be delivered in the existing road boundary, with small areas of widening required at localised points, the corridor will therefore generally maintain the existing interface between place and movement.</li> </ul>
<b>MOVEMENT</b>		
<b>4.1 Connect nodes</b>	<i>Provide tangible connectivity between identified activity nodes.</i>	<ul style="list-style-type: none"> <li>As noted under Principle 3.1, NoR 6 (and the adjoining NoRs) is part of a conceptual ring route around Pukekohe and does not provide direct connections between activity nodes. The ring route distributes regional strategic traffic away from central Pukekohe by providing an orbital arterial that connects other strategic radial arterials.</li> <li>The proposed upgrade implements changes for active modes, with some intersection improvements.</li> </ul>
<b>4.2 Connect modes</b>	<i>Provide for choice in travel and the ability to connect at interchanges between modes.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>

Principle	Explanation	Application to NoR 6
<b>4.3</b> <b>Support access to employment and industry</b>	<i>Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.</i>	<ul style="list-style-type: none"> <li>The corridor provides access to industrial and employment areas as part of a wider network in combination with NoRs 4, 5 and 7.</li> </ul>
<b>4.4</b> <b>Prioritise active modes and public transport</b>	<i>Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>4.5</b> <b>Support inter-regional connections and strategic infrastructure</b>	<i>Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 6 corridor.</li> </ul>
<b>4.6</b> <b>Support legible corridor function</b>	<i>Consider how the corridor can be clearly navigated and understood by users moving from place to place.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>LANDUSE</b>		
<b>5.1</b> <b>Public transport directed and integrated into centres</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 6 corridor.</li> </ul>
<b>5.2</b> <b>Strategic corridors as urban edges</b>	<i>Strategic corridors as potential definers of a land use edge.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 6 corridor.</li> </ul>

## 7.7 Urban Design Matters: NoR 7 – Pukekohe North-West Arterial

Table 7-7: Urban Design Evaluation for NoR 7 – Pukekohe North-West Arterial outlines urban design commentary specific to NoR 7. For broad commentary, please also refer to Table 6-1: Common urban design matters relevant to all corridors. Refer to Appendix B for Outcomes and Opportunities Maps relevant to NoR 7.

Table 7-7: Urban Design Evaluation for NoR 7 – Pukekohe North-West Arterial

Principle	Explanation	Application to NoR 7
<b>ENVIRONMENT</b>		
<b>1.1</b> <b>Support and enhance ecological corridors and biodiversity</b>	<i>Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors</i>	<ul style="list-style-type: none"> <li>Opportunities within the immediate environment of NoR 7 to support ecological connectivity and biodiversity are identified in the <i>Pukekohe Transport Network: Assessment of Ecological Effects</i> and include: <ul style="list-style-type: none"> <li>Artificial vegetated swales within the corridor</li> <li>where the corridor crosses tributaries of Whangapouri Creek and its tributaries.</li> </ul> </li> </ul>
<b>1.2</b> <b>Support water conservation and enhance water quality in a watershed</b>	<i>Take into account and work with the existing watershed as part of a whole system.</i>	<ul style="list-style-type: none"> <li>There are no water crossings in NoR 7, however the corridor intersects areas of flood plain, flood prone and flood sensitive areas in the western edge of the corridor that will need to be considered in future design stages.</li> </ul>
<b>1.3</b> <b>Minimise land disturbance, conserve resources and materials</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>NoR 7 follows existing roads where possible, upgrading a small portion of Butcher Road and Helvetia Road at either end of the designation. The corridor however has several locations where larger areas of fill are required. This presents the opportunity to refine the earthworks approach in future design stages to further minimise or integrate land disturbance with the existing landform and with future development, particularly those areas anticipated to have future residential land use in the Pukekohe-Paerata Structure Plan.</li> <li>NoR 7 covers areas of Class 1, 2 and 3 soils, however this land is identified for future urbanisation through the allocation of the FUZ zoning.</li> </ul>
<b>1.4</b> <b>Adapt to a changing climate and respond to the microclimatic factors of each area</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>

Principle	Explanation	Application to NoR 7
<b>SOCIAL</b>		
<b>2.1 Identity and place</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The NoR 7 corridor is located entirely within the FUZ and traverses future residential (Mixed Housing Suburban Zone) and industrial land use, as shown in the Pukekohe – Paerata Structure Plan. Each of these areas will have their own context, character and place values that future design stages will need to address.</li> <li>There are opportunities for the corridor demonstrate how the interface and transition between industrial and residential land use is managed in future design stages.</li> </ul>
<b>2.2 Respect culturally significant sites and landscapes</b>	<i>Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>2.3 Adaptive corridors</b>	<i>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 or utilise technology over time.</i>	<ul style="list-style-type: none"> <li>If practicable, future land integration post construction should be considered to support any proposed development / redevelopment adjacent to the NoR 7 corridor within the FUZ in a manner that is appropriate with the anticipated future land use typology and pattern.</li> </ul>
<b>2.4 Social cohesion</b>	<i>Provide clear, effective and legible connectivity between community and social functions.</i>	<ul style="list-style-type: none"> <li>To enable equitable local connectivity and cross corridor access within future residential areas, further development at the detailed design stage should be undertaken to provide crossing points at intersections and at appropriate midblock locations, providing access between residential areas and to areas of employment.</li> </ul>
<b>2.5 Safety</b>	<i>Provide a safe and convenient network of routes accessible to people of all ages and abilities.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to Safety recommendations. In addition to these recommendations, a CPTED audit of the NoR 7 should consider how to maximise safety for active mode users at intersections.</li> </ul>
<b>BUILT FORM</b>		
<b>3.1 Align corridors with density</b>	<i>Locate stations/stops and corridors within walking distance of higher density development to facilitate modal shift, support</i>	<ul style="list-style-type: none"> <li>The NoR 7 corridor forms part of a conceptual ring route around Pukekohe, comprised of new and upgraded existing corridors. The 'ring route' provides a distributes regional strategic traffic away from central Pukekohe by</li> </ul>

Principle	Explanation	Application to NoR 7
	<i>commercial and mixed-use centres and contribute to vibrant, active urban environments.</i>	<p>providing an orbital arterial that connects radial arterials such as SH22, the proposed north-south arterial, Cape Hill Road, Pukekohe East Road, Buckland Road, Blake Road and Puni Road.</p> <ul style="list-style-type: none"> <li>Given the orbital function, the corridor core purpose is not to directly serve density, however the corridor traverses (and potentially connects to a range of future urban contexts, which include Mixed Housing Suburban Zone to the north of Pukekohe and a light industry zone along Helvetia Road.</li> </ul>
<b>3.2 Corridor scaled to the surrounding context and urban structure</b>	<i>Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).</i>	<ul style="list-style-type: none"> <li>The proposed corridor for NoR 7 is proposed as a two lane arterials with active modes and a design speed of 50km/h. This is an appropriate scale for the anticipated future environment which is anticipated to be medium density residential and industrial development. Any potential conflict between placemaking aspirations within local communities and the scale and speed of the proposed movement functions of the corridor should be addressed in future design stages.</li> <li>Key focus areas within NoR 7 that require further resolution in future design stages to demonstrate the potential scale and urban structure response include: <ul style="list-style-type: none"> <li>The corridor sections within the segments of the corridor anticipated to be residential land use in the future. This is particularly the case where large areas of earthworks are proposed which may be out of scale when compared to the adjacent development.</li> <li>Transitions and interfaces between future residential and industrial land use.</li> </ul> </li> </ul>
<b>3.3 Facilitate an appropriate interface between place and movement</b>	<i>Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)</i>	<ul style="list-style-type: none"> <li>Key focus areas within NoR 7 that require further resolution in future design stages to demonstrate the place function include the built form interface and any visual or landscape buffers and development controls proposed for interface between future residential and industrial land use.</li> </ul>
<b>MOVEMENT</b>		
<b>4.1 Connect nodes</b>	<i>Provide tangible connectivity between identified activity nodes.</i>	<ul style="list-style-type: none"> <li>NoR 7 (and the adjoining NoRs) does not provide direct connections between activity nodes instead providing a route around Pukekohe, which may facilitate easier access to employment for some. It does provide a more direct route from the north to wider connections such as Bombay and beyond via SH1. Detailed design should provide connection across corridors to maximise cross corridor connectivity, whilst maintaining the function of the corridor.</li> </ul>

Principle	Explanation	Application to NoR 7
<b>4.2 Connect modes</b>	<i>Provide for choice in travel and the ability to connect at interchanges between modes.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>4.3 Support access to employment and industry</b>	<i>Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.</i>	<ul style="list-style-type: none"> <li>The corridor provides access to industrial and employment areas as part of a wider network in combination with NoRs 4, 5 and 6.</li> </ul>
<b>4.4 Prioritise active modes and public transport</b>	<i>Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>4.5 Support inter-regional connections and strategic infrastructure</b>	<i>Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.</i>	<ul style="list-style-type: none"> <li>In combination with the other designations, NoR 7 provides more direct connectivity from the north west of Pukekohe to Bombay and SH1 for those travelling south via SH1, it also provides a wider connection with NoR 6 in providing a more direct route, without requiring vehicles to travel through the centre of Pukekohe.</li> </ul>
<b>4.6 Support legible corridor function</b>	<i>Consider how the corridor can be clearly navigated and understood by users moving from place to place.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>LANDUSE</b>		
<b>5.1 Public transport directed and integrated into centres</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 7 corridor.</li> </ul>
<b>5.2 Strategic corridors as urban edges</b>	<i>Strategic corridors as potential definers of a land use edge.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 7 corridor.</li> </ul>

## 7.8 Urban Design Matters: NoR 8 – Mill Road and Pukekohe East Upgrade

Table 7-8: Urban Design Evaluation for NoR 8 (AC and WDC) – Mill Road and Pukekohe East Upgrade outlines urban design commentary specific to NoR 8. For broad commentary, please also refer to Table 6-1: Common urban design matters relevant to all corridors. Refer to Appendix B for Outcomes and Opportunities Maps relevant to NoR 8.

Table 7-8: Urban Design Evaluation for NoR 8 (AC and WDC) – Mill Road and Pukekohe East Upgrade

Principle	Explanation	Application to NoR 8
<b>ENVIRONMENT</b>		
<b>1.1</b> <b>Support and enhance ecological corridors and biodiversity</b>	<i>Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors</i>	<ul style="list-style-type: none"> <li>Opportunities within the immediate environment of NoR 8 to support ecological connectivity and biodiversity are identified in the <i>Pukekohe Transport Network: Assessment of Ecological Effects</i> and include: <ul style="list-style-type: none"> <li>Artificial vegetated swales and wetlands within the corridor.</li> </ul> </li> <li>The corridor crosses two water courses which are currently culverted by the existing road corridor. Detailed design should consider opportunities for betterment in these locations.</li> </ul>
<b>1.2</b> <b>Support water conservation and enhance water quality in a watershed</b>	<i>Take into account and work with the existing watershed as part of a whole system.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>1.3</b> <b>Minimise land disturbance, conserve resources and materials</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>NoR 8 upgrades the existing Mill Road/Pukekohe East Road Corridor, improving active mode facilities and intersections. The corridor runs across areas of high-quality soil, particularly in the east widening the road corridor throughout, reducing the area of high-quality soils adjacent to the existing corridor.</li> </ul>
<b>1.4</b> <b>Adapt to a changing climate and respond to the microclimatic factors of each area</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>

Principle	Explanation	Application to NoR 8
<b>SOCIAL</b>		
<b>2.1 Identity and place</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>The majority of the NoR 8 corridor is located within the rural zone, with a small portion entering the FUZ on the eastern side of Pukekohe which is anticipated to be future residential development (Mixed Housing Suburban Zone) by the Pukekohe-Paerata Structure Plan. Treatment of the corridor in a rural context will need to consider how to integrate the additional width into the adjacent rural environment. The treatment of the corridor as it enters Pukekohe provides the opportunity for gateway treatment, signalling arrival in the town and transitioning the corridor from a rural to an urban context.</li> <li>The corridor runs along the edge of the Tuff Crater which is a significant landscape feature and holds cultural importance for Manawhenua.</li> </ul>
<b>2.2 Respect culturally significant sites and landscapes</b>	<i>Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> <li>The Historic Heritage Assessment has identified the Bombay Flour Mills (or Pilgram's Mill) is located south of the NoR 8 boundary. A HHMP is recommended to be prepared prior to construction commencing.</li> </ul>
<b>2.3 Adaptive corridors</b>	<i>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 or utilise technology over time.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>2.4 Social cohesion</b>	<i>Provide clear, effective and legible connectivity between community and social functions.</i>	<ul style="list-style-type: none"> <li>The designation crosses the carparking area of the Pukekohe East Hall which is currently located in the existing road reserve on the northern side of the corridor. Widening is proposed to the south in this location, so does not change this arrangement. Future design should maintain access to this community facility.</li> <li>Similarly, the Ainsely Polo Club is located on the northern side of the corridor. Widening is proposed to the south in this location, so does not change this arrangement. Future design should maintain access to this recreation facility.</li> </ul>
<b>2.5 Safety</b>	<i>Provide a safe and convenient network of</i>	<ul style="list-style-type: none"> <li>Refer to Table 6-1: Common urban design matters in relation to safety recommendations, in addition to these</li> </ul>

Principle	Explanation	Application to NoR 8
	<i>routes accessible to people of all ages and abilities.</i>	<p>recommendations, a CPTED audit of the corridor within NoR 8 should address, at a minimum, the current identified CPTED risks including:</p> <ul style="list-style-type: none"> <li>○ The walking and cycling facilities where there are limited passive surveillance opportunities.</li> </ul>
<b>BUILT FORM</b>		
<b>3.1 Align corridors with density</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>• This principle is not directly relevant to the NoR 8 corridor.</li> </ul>
<b>3.2 Corridor scaled to the surrounding context and urban structure</b>	<i>Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).</i>	<ul style="list-style-type: none"> <li>• The proposed widening as part of NoR 8 will result in a corridor that is four lanes, with active modes on one side from Harrisville Road to the intersection with SH1 and a two lane arterial with active modes on one side for the remainder of the corridor. Speed will vary on the corridor in relation to the adjacent land use context, between 50-80 km/h. This is an appropriate scale for the anticipated future environment likely to include a small area of medium and low density residential development at the eastern edge of the corridor. Any potential conflict between placemaking aspirations within local communities and the scale and speed of the proposed movement functions of the corridor should be addressed in future design stages.</li> </ul>
<b>3.3 Facilitate an appropriate interface between place and movement</b>	<i>Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)</i>	<ul style="list-style-type: none"> <li>• Key focus areas within NoRs 8 that require further resolution relate to managing the interface between the corridor and future residential land use, including facilitating safe crossing to access the active mode facilities proposed on the southern side of the corridor.</li> </ul>
<b>MOVEMENT</b>		
<b>4.1 Connect nodes</b>	<i>Provide tangible connectivity between identified activity nodes.</i>	<ul style="list-style-type: none"> <li>• The corridor provides a direct connection between Pukekohe and Bombay.</li> </ul>
<b>4.2 Connect modes</b>	<i>Provide for choice in travel and the ability to connect at interchanges between modes.</i>	<ul style="list-style-type: none"> <li>• No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>

Principle	Explanation	Application to NoR 8
<b>4.3</b> <b>Support access to employment and industry</b>	<i>Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>4.4</b> <b>Prioritise active modes and public transport</b>	<i>Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>4.5</b> <b>Support inter-regional connections and strategic infrastructure</b>	<i>Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.</i>	<ul style="list-style-type: none"> <li>The existing corridor connects Pukekohe to Bombay and the SH1 corridor, providing access south to the Waikato and beyond. The upgrades will provide for active mode connection along this corridor.</li> </ul>
<b>4.6</b> <b>Support legible corridor function</b>	<i>Consider how the corridor can be clearly navigated and understood by users moving from place to place.</i>	<ul style="list-style-type: none"> <li>There are opportunities for future design stages to demonstrate the approach to potential gateway and way finding components at each end of the corridor.</li> </ul>
<b>LANDUSE</b>		
<b>5.1</b> <b>Public transport directed and integrated into centres</b>	<i>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.</i>	<ul style="list-style-type: none"> <li>No specific comments, refer to Table 6-1: Common urban design matters in relation to this design principle.</li> </ul>
<b>5.2</b> <b>Strategic corridors as urban edges</b>	<i>Strategic corridors as potential definers of a land use edge.</i>	<ul style="list-style-type: none"> <li>This principle is not directly relevant to the NoR 8.</li> </ul>

## 8 Summary of urban design evaluation and recommendations for all corridors

Overall, the proposed Pukekohe Transport Network corridor design and configuration is generally consistent with the Design Framework principles. There are, however, a number of recommendations to be addressed as design progresses to deliver an alignment that is consistent with the anticipated outcomes articulated in the Te Tupu Ngātahi Design Framework.

A summary of the recommended urban design outcomes for all NoRs is outlined below. These will be addressed by the development of a ULDMP (or an Landscape Management Plan for the Waikato NoR) in future delivery stages. By addressing these recommendations through the ULDMP or Landscape Management Plan, the detailed design of the corridors will be able to respond appropriately to the identified design principles and the urban design outcomes sought.

The ULDMP (and Landscape Management Plan for the Waikato NoR) should address the following outcomes:

NoR	Principle	Recommendation
All	Environment	<ul style="list-style-type: none"> <li>• A landscape plan that:                             <ul style="list-style-type: none"> <li>○ considers recommendations from the landscape and visual, arboriculture, flooding and ecological assessments including street tree and stormwater raingarden and wetland planting, construction compound and private property reinstatement and treatment of batter slopes. The landscape plan should also demonstrate integration of water bodies and stream/creek crossings and their tributaries where these intersect with the NoR corridors. The landscape outcomes should support the principles of Auckland’s Urban Ngahere Strategy and reinforce the character and identity of the context and wider vegetation patterns of the local landscape and create connections to proposed greenways and the wider walking and cycling network.</li> </ul> </li> <li>• Provide for integration of the stormwater swales and wetlands to ensure an appropriate interface with adjacent land uses, specifically where wetlands are proposed in areas zoned, or anticipated to be zoned high density or for business activity.</li> <li>• Include measures to demonstrate that the project has adapted to the changing climate such as reducing urban heat island effects in future urbanised areas through landscaping and street tree canopies, supporting modal shift and accounting for flood hazard risks.</li> <li>• Where practicable, identify opportunities to reduce the volume and area of earthworks required to construct the corridor, and look to enable a positive and direct interface with adjacent urban land use.</li> <li>• Develop an overarching land integration strategy to redefine and integrate residual land along all corridor frontages in a manner that is consistent with anticipated expected future land use function.</li> <li>• Refine the design of the corridor to maintain the connections of the Ngakoroa Strea, Oira Stream, Whangapouri Creek and their tributaries.</li> </ul>

NoR	Principle	Recommendation
	<b>Social</b>	<ul style="list-style-type: none"> <li>• In future design stages, Manawhenua shall be invited as Partners to provide input into relevant cultural, landscape and design matters including how desired outcomes reflect their identity and values.</li> <li>• Include a CPTED Review of the project to create a safe and useable corridor and include any specific areas identified in individual corridor recommendations.</li> <li>• Include a Universal Access audit as part of the detailed design process to create corridors that are safe, legible and step-free so they are accessible for people of all ages and abilities.</li> <li>• The design of each NoR should address and provide for prioritised safe crossings for active modes at intersections, particularly where multiple lanes and/ or roundabouts are anticipated.</li> </ul>
	<b>Built Form</b>	<ul style="list-style-type: none"> <li>• Known or planned changes of land use and residential density that have the potential to alter the perceived scale and impact of the proposed corridor functions should be identified and addressed where corridors are located in, or adjacent to FUZ.</li> <li>• Resolution of any potential conflict between placemaking aspirations within local communities and the scale and operating speed of the proposed movement functions of the corridor should be addressed.</li> <li>• An urban interface approach within the corridors that:               <ul style="list-style-type: none"> <li>○ Provides an appropriate interface to the anticipated future environment and enables buildings and spaces to positively address and integrate with the corridors;</li> <li>○ Responds to the spatial character of urban environments and supports quality public realm infrastructure, ample pedestrian footpath width, frequent pedestrian crossing points and street trees for shade and amenity;</li> <li>○ Manages the transition between urban and rural land use;</li> <li>○ Provides a corridor interface that supports permeable pedestrian access and responds to the changing built form interface and spatial character of adjacent future development;</li> <li>○ Where applicable recognises the transition of densities from:                   <ul style="list-style-type: none"> <li>- Rural to Urban and visa-versa defining the urban edge and communicating a transition in speed environments, establishing gateways that signal a sense of arrival and convey the character and place values of the context; and</li> <li>- Residential – Terrace Housing and Apartment Building to Residential to Mixed Housing Urban and Suburban Zone and provide a corridor interface that supports permeable pedestrian access and responds to the changing built form interface and spatial character of adjacent future development.</li> </ul> </li> </ul> </li> <li>• A landscape treatment approach for the rural sections of the corridors to integrate relevant corridor sections into the rural context.</li> </ul>
	<b>Movement</b>	<ul style="list-style-type: none"> <li>• Future design of the corridors should provide for permeability of the corridor for active modes by providing regular cross corridor connectivity (midblock crossings), modal priority and permeable access</li> </ul>

NoR	Principle	Recommendation
		<p>to destinations such as centres, transport interchanges, open spaces and community facilities.</p> <ul style="list-style-type: none"> <li>• Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the designation within the Pukekohe Projects.</li> </ul>
	<b>Land Use</b>	<ul style="list-style-type: none"> <li>• Demonstration of how any residual land portions following the construction of each designation is redefined and integrated with the expected future land use function. This is particularly important in areas where more intensive activity is anticipated in the future, including centres, stations and high-density residential areas, and adjacent to intersections where large areas of earthworks are required.</li> </ul>
<p>In addition to the recommendations that are common to each of the nine NoRs, the following recommendations are provided for each NoR below.</p>		
<b>NoR 1</b>	<b>Environment</b>	<ul style="list-style-type: none"> <li>• No specific recommendations</li> </ul>
	<b>Social</b>	<ul style="list-style-type: none"> <li>• The identification, development and integration of key local community and identity drivers within NoR 1 should be demonstrated within the corridor. Key local identity community functions to be addressed include: <ul style="list-style-type: none"> <li>○ Drury West Town Centre</li> <li>○ Future Drury West Railway Station (subject to a separate Designation process)</li> <li>○ A Local Centre (as identified in the Drury-Paerata Structure Plan)</li> <li>○ Integration with High Density Housing around the station and the centres; and</li> <li>○ Integration with future medium density housing adjacent to the corridor.</li> </ul> </li> <li>• Key distinctive landscape character qualities of open spaces, stream and conservation zones include: <ul style="list-style-type: none"> <li>○ Ngakoroa Stream and its tributaries</li> <li>○ Future stormwater wetlands</li> <li>○ Future parks and reserves that may be developed as the area urbanises.</li> </ul> </li> <li>• The proposed corridor alignment and function can deliver a positive contribution to the sense of belonging and participation, as well as community resilience by supporting direct access to future centres, schools, community functions and open spaces. Where more intensive land uses are anticipated, such as adjacent to the future Drury West Station, the frequency of crossings should provide for a level of permeability consistent with the urban form of the context. Locations where access should be addressed include: <ul style="list-style-type: none"> <li>○ Drury West Station</li> <li>○ A future local centre (as identified in the Drury-Paerata Structure Plan)</li> </ul> </li> </ul>

NoR	Principle	Recommendation
		<ul style="list-style-type: none"> <li>○ Cross-corridor crossings that prioritise active modes at locations that facilitate access to future schools, community functions and open spaces that may be developed as the area urbanises.</li> <li>● The CPTED review of NoR 1 should address, at a minimum, the current identified CPTED risks including: <ul style="list-style-type: none"> <li>○ Any provision of grade -separated crossings that may be proposed over the multi-lane segment of the corridor.</li> <li>○ Those areas of the transport corridors, where the presence of wetlands, flood plains or the level of earthworks required means there could be sections with minimal passive surveillance of the corridor.</li> </ul> </li> </ul>
	<b>Built Form</b>	<ul style="list-style-type: none"> <li>● Develop an urban interface approach within the corridors that provides an appropriate interface to Drury West Station.</li> </ul>
	<b>Movement</b>	<ul style="list-style-type: none"> <li>● Future design of the corridor should provide for permeability of the corridor for active modes that provide regular cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as centres, transport interchanges, open spaces and community facilities. Those locations where this is particularly important are: <ul style="list-style-type: none"> <li>○ Drury West Station.</li> <li>○ Any future schools or community facilities that may be developed as the area urbanises.</li> <li>○ At regular, mid-block intervals along the proposed corridor within the urban environment.</li> </ul> </li> <li>● Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the corridor. Demonstration of specific intersection responses to ensure connectivity between future residential land use should be developed for: <ul style="list-style-type: none"> <li>○ Intersection with Jesmond Road/ SH22</li> <li>○ Intersection with Burt Rd/Pitt Rd</li> <li>○ Intersection with Runciman Rd</li> <li>○ Intersection with Drury To Pukekohe Link (NoR 2).</li> </ul> </li> </ul>
	<b>Land Use</b>	<ul style="list-style-type: none"> <li>● Demonstration of how any residual land portions following the construction of each designation is redefined and integrated with the expected future land use function, particularly within: <ul style="list-style-type: none"> <li>○ The future Drury West Station</li> <li>○ Adjacent high density land use areas</li> </ul> </li> </ul>

NoR	Principle	Recommendation
<b>NoR 2</b>	<b>Social</b>	<ul style="list-style-type: none"> <li>• The identification, development and integration of key local community and identity drivers within NoR 2 should be demonstrated. Key local identity community functions to be addressed include:               <ul style="list-style-type: none"> <li>○ Future Paerata Railway Station (subject to a separate Designation process)</li> <li>○ High Density Housing around the station</li> <li>○ Future medium density housing adjacent to the corridor</li> <li>○ Gateways and transitions between rural and urban areas, particularly Drury, Paerata and Pukekohe.</li> </ul> </li> <li>• Key distinctive landscape character qualities of open spaces, stream and conservation zones include:               <ul style="list-style-type: none"> <li>○ Ngakoroa Stream and its tributaries</li> <li>○ Oira Creek and its tributaries</li> <li>○ Future stormwater wetlands</li> <li>○ Future parks and reserves that may be developed as the area urbanises.</li> </ul> </li> <li>• The proposed corridor alignment and function can deliver a positive contribution to the sense of participation, as well as community resilience by supporting direct access to future centres, schools, community functions and open spaces. Locations where access should be addressed include:               <ul style="list-style-type: none"> <li>○ The Paerata Station</li> <li>○ Any future schools or community facilities that may be developed as the area urbanises.</li> </ul> </li> </ul>
	<b>Built Form</b>	<ul style="list-style-type: none"> <li>• Develop an urban interface approach within the corridors that provides an appropriate interface to Paerata Station.</li> </ul>
	<b>Movement</b>	<ul style="list-style-type: none"> <li>• Future design of the corridor should provide for permeability of the corridor for active modes that provide regular cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as centres, transport interchanges, open spaces and community facilities. Those locations where this is particularly important are:               <ul style="list-style-type: none"> <li>○ Paerata Station</li> <li>○ Any future schools or community facilities that may be developed as the area urbanises.</li> <li>○ At regular, mid-block intervals along the proposed corridor within the urban environment.</li> </ul> </li> <li>• Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the corridor. Demonstration of specific intersection responses to ensure connectivity between future residential land use should be developed for:               <ul style="list-style-type: none"> <li>○ Intersection with Drury West Arterial (NoR 1)</li> </ul> </li> </ul>

NoR	Principle	Recommendation
		<ul style="list-style-type: none"> <li>○ Intersection with Burt Rd</li> <li>○ Intersection with Sim Rd</li> <li>○ Intersections with the Paerata Connections (NoR 3)</li> <li>○ Intersection with Pukekohe North-East Arterial (NoR 4).</li> <li>○ At regular, mid-block intervals along the proposed corridor within the urban environment</li> </ul>
	<b>Land Use</b>	<ul style="list-style-type: none"> <li>● Demonstration of how any residual land portions following the construction of each designation is redefined and integrated with the expected future land use function, particularly within:                             <ul style="list-style-type: none"> <li>○ The future Paerata Station</li> <li>○ Adjacent high density land use areas</li> </ul> </li> </ul>
<b>NoR 3</b>	<b>Environment</b>	<ul style="list-style-type: none"> <li>● No specific recommendations</li> </ul>
	<b>Social</b>	<ul style="list-style-type: none"> <li>● The identification, development and integration of key local community and identity drivers within NoR 3 should be demonstrated. Key local identity community functions to be addressed include:                             <ul style="list-style-type: none"> <li>○ Future Paerata Railway Station</li> <li>○ Future High-Density Housing around the station</li> <li>○ Future medium density housing adjacent to the corridor.</li> </ul> </li> <li>● Key distinctive landscape character qualities of open spaces, stream and conservation zones include:                             <ul style="list-style-type: none"> <li>○ Oira Creek and its tributaries</li> <li>○ Future stormwater wetlands</li> </ul> </li> <li>● The proposed corridor alignment and function can deliver a positive contribution to the sense of belonging and participation, as well as community resilience by supporting direct access to future centres, schools, community functions and open spaces. Locations where access should be addressed within each NoR include:                             <ul style="list-style-type: none"> <li>○ Paerata Station</li> <li>○ Intersections with the Drury – Pukekohe Link (NoR 2).</li> </ul> </li> <li>● The CPTED review of NoR 3 should address, at a minimum, the current identified CPTED risks including:                             <ul style="list-style-type: none"> <li>○ Overbridges over the NIMT where there is likely to be minimal passive surveillance.</li> </ul> </li> </ul>
	<b>Built Form</b>	<ul style="list-style-type: none"> <li>● Develop an urban interface approach within the corridors that provides an appropriate interface to Paerata Station.</li> </ul>
	<b>Movement</b>	<ul style="list-style-type: none"> <li>● Future design of the corridor should consider how the active mode facilities can be efficiently connected into the local network, providing access to the adjacent area for active mode users, particularly where cross-corridor connections are provided, creating a fine grain level of connectivity as the area develops.</li> </ul>

NoR	Principle	Recommendation
		<ul style="list-style-type: none"> <li>○ Paerata Station</li> <li>○ Any future schools or community facilities that may be developed as the area urbanises</li> <li>○ At regular, mid-block intervals along the proposed corridor within the urban environment</li> <li>● Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the corridor. Demonstration of specific intersection responses to ensure connectivity between future residential land use should be developed for: <ul style="list-style-type: none"> <li>○ Intersection with Drury – Pukekohe Link (NoR 2)</li> <li>○ Intersection with the Paerata Station access road.</li> </ul> </li> </ul>
	<b>Land Use</b>	<ul style="list-style-type: none"> <li>● Demonstration of how any residual land portions following the construction of each designation is redefined and integrated with the expected future land use function, particularly within: <ul style="list-style-type: none"> <li>○ The future Paerata Station</li> <li>○ Adjacent high density land use areas</li> </ul> </li> </ul>
<b>NoR 4</b>	<b>Environment</b>	<ul style="list-style-type: none"> <li>● No specific recommendations</li> </ul>
	<b>Social</b>	<ul style="list-style-type: none"> <li>● The identification, development and integration of key local community and identity drivers within NoR 4 should be demonstrated. Key local identity community functions to be addressed include: <ul style="list-style-type: none"> <li>○ Future medium density housing adjacent to the corridor</li> <li>○ Gateways and transitions between rural and urban areas.</li> </ul> </li> <li>● Key distinctive landscape character qualities of open spaces, stream and conservation zones include: <ul style="list-style-type: none"> <li>○ Oira Creek and its tributaries</li> <li>○ Whangapouri Creek and its tributaries</li> <li>○ The rural environment and interface</li> <li>○ Future stormwater wetlands</li> <li>○ Future parks and reserves that may be developed as the area urbanises.</li> </ul> </li> <li>● The CPTED review of NoR 4 should address, at a minimum, the current identified CPTED risks including: <ul style="list-style-type: none"> <li>○ Those areas of the active mode corridor where the separation and lack of activation from adjacent rural land use mean there is minimal passive surveillance of the corridor;</li> <li>○ Overbridges over the NIMT where there is likely to be minimal passive surveillance.</li> </ul> </li> </ul>
	<b>Built Form</b>	<ul style="list-style-type: none"> <li>● No specific recommendations</li> </ul>

NoR	Principle	Recommendation
	<b>Movement</b>	<ul style="list-style-type: none"> <li>• Future design of the corridor should consider how the active mode facilities can be efficiently connected into the local network, providing access to the adjacent area for active mode users, particularly where cross-corridor connections are provided, creating a fine grain level of connectivity as the area develops.                             <ul style="list-style-type: none"> <li>○ To and between future employment areas.</li> <li>○ Any future schools or community facilities that may be developed as the area urbanises.</li> <li>○ At regular, mid-block intervals along the proposed corridor within the urban environment</li> </ul> </li> <li>• Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the corridors within the Pukekohe Transport Network. Demonstration of specific intersection responses to ensure connectivity between future residential land use should be developed for:                             <ul style="list-style-type: none"> <li>○ Intersection with the Drury – Pukekohe Link (NoR 2)</li> <li>○ Intersection with Cape Hill Road</li> <li>○ Intersection with Mill Road (NoR 5 and 8)</li> <li>○ Intersection with Paerata Road / Butcher Road (NoR 7).</li> </ul> </li> </ul>
	<b>Land Use</b>	<ul style="list-style-type: none"> <li>• No specific recommendations.</li> </ul>
<b>NoR 5</b>	<b>Social</b>	<ul style="list-style-type: none"> <li>• The identification, development and integration of key local community and identity drivers within NoR 5 should be demonstrated. Key local identity community functions to be addressed include:                             <ul style="list-style-type: none"> <li>○ Future medium density housing adjacent to the corridor</li> <li>○ Gateways and transitions between residential, commercial and industrial areas.</li> </ul> </li> <li>• Key distinctive landscape character qualities of open spaces, stream and conservation zones include:                             <ul style="list-style-type: none"> <li>○ Whangapouri Creek and its tributaries</li> <li>○ Future stormwater wetlands</li> <li>○ Future parks and reserves that may be developed as the area urbanises.</li> </ul> </li> <li>• The CPTED review of NoR 5 should address, at a minimum, the current identified CPTED risks including:                             <ul style="list-style-type: none"> <li>○ Overbridges over the NIMT where there is likely to be minimal passive surveillance.</li> </ul> </li> </ul>
	<b>Built Form</b>	<ul style="list-style-type: none"> <li>• An urban interface approach within the corridor that:                             <ul style="list-style-type: none"> <li>○ Manages the interface with the existing commercial centre on Crosbie Road.</li> </ul> </li> </ul>
	<b>Movement</b>	<ul style="list-style-type: none"> <li>• Future design of the corridor should consider how the active mode facilities can be efficiently connected into the local network, providing access to the adjacent area for active mode users, particularly where</li> </ul>

NoR	Principle	Recommendation
		<p>cross-corridor connections are provided, creating a fine grain level of connectivity as the area develops.</p> <ul style="list-style-type: none"> <li>○ Any future schools or community facilities that may be developed as the area urbanises</li> <li>○ At regular, mid-block intervals along the proposed corridor within the urban environment</li> <li>○ To future employment areas</li> </ul> <ul style="list-style-type: none"> <li>● Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the corridor. Demonstration of specific intersection responses to ensure connectivity between future residential land use should be developed for: <ul style="list-style-type: none"> <li>○ Intersection with the Drury – Pukekohe Link (NoR 2)</li> <li>○ Intersection with Mill Road (NoR 8).</li> </ul> </li> </ul>
	<b>Land Use</b>	<ul style="list-style-type: none"> <li>● No specific recommendations</li> </ul>
<b>NoR 6</b>	<b>Environment</b>	<ul style="list-style-type: none"> <li>● No specific recommendations</li> </ul>
	<b>Social</b>	<ul style="list-style-type: none"> <li>● The identification, development and integration of key local community and identity drivers within NoR 6 should be demonstrated. Key local identity community functions to be addressed include: <ul style="list-style-type: none"> <li>○ Integration with future housing adjacent to the corridor;</li> <li>○ Integration with a potential Local Centre at the southern end of the corridor; and</li> <li>○ Integration with a potential education facility near the southern end of the corridor.</li> <li>○ An appropriate response to the Nehru Hall.</li> </ul> </li> <li>● Key distinctive landscape character qualities of open spaces, stream and conservation zones include: <ul style="list-style-type: none"> <li>○ Adjacent areas of open space including Samuel Miller Reserve, Pukekohe Cemetery and Rosa Birch Park</li> <li>○ Whangapouri Creek.</li> </ul> </li> <li>● The proposed corridor alignment and function can deliver a positive contribution to the sense of belonging and participation, as well as community resilience by supporting direct access to future centres, schools, community functions and open spaces. Locations where access should be addressed within include: <ul style="list-style-type: none"> <li>○ Cross-corridor crossings that prioritise active modes at locations that facilitate access to schools, community functions and open spaces along the corridor, including: <ul style="list-style-type: none"> <li>- Pukekohe Cosmopolitan Club</li> <li>- Samuel Miller Reserve</li> <li>- Pukekohe Indian Community Centre</li> <li>- Pukekohe Hill School</li> <li>- Rosa Birch Park</li> </ul> </li> </ul> </li> </ul>

NoR	Principle	Recommendation
		<ul style="list-style-type: none"> <li>- Jutland Road South playground</li> <li>- Pukekohe Tennis Club</li> </ul>
	<b>Built Form</b>	<ul style="list-style-type: none"> <li>• No specific recommendations</li> </ul>
	<b>Movement</b>	<ul style="list-style-type: none"> <li>• Future design of the corridor should provide for permeability of the corridor for active modes that provide regular cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as centres, transport interchanges, open spaces and community facilities. Those locations where this is particularly important are:                             <ul style="list-style-type: none"> <li>○ Pukekohe Cosmopolitan Club</li> <li>○ Samuel Miller Reserve</li> <li>○ Pukekohe Indian Community Centre</li> <li>○ Pukekohe Hill School</li> <li>○ Rosa Birch Park</li> <li>○ Jutland Road South playground</li> <li>○ Pukekohe Tennis Club</li> </ul> </li> <li>• Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the corridor.</li> </ul>
	<b>Land Use</b>	<ul style="list-style-type: none"> <li>• Demonstration of how any residual land portions following the construction the designation are to be redefined and integrated with the expected future land use function, particularly at:                             <ul style="list-style-type: none"> <li>○ Intersections where widening is proposed.</li> </ul> </li> </ul>
<b>NoR 7</b>	<b>Environment</b>	<ul style="list-style-type: none"> <li>• No specific recommendations</li> </ul>
	<b>Social</b>	<ul style="list-style-type: none"> <li>• The identification, development and integration of key local community and identity drivers within NoR 7 should be demonstrated. Key local identity community functions to be addressed include:                             <ul style="list-style-type: none"> <li>○ Interface between industrial and residential land use</li> <li>○ Future medium density housing adjacent to the corridor</li> <li>○ Gateways and transitions between residential and industrial areas.</li> </ul> </li> <li>• Key distinctive landscape character qualities of open spaces, stream and conservation zones include:                             <ul style="list-style-type: none"> <li>○ Whangapouri Creek and its tributaries</li> <li>○ Future wetlands</li> <li>○ Future parks and reserves that may be developed as the area urbanises.</li> </ul> </li> <li>• The proposed corridor alignment and function can deliver a positive contribution to the sense of participation, as well as community resilience by supporting direct access to future centres, schools,</li> </ul>

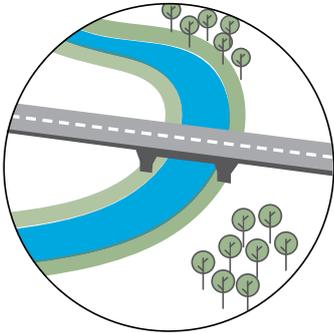
NoR	Principle	Recommendation
		<p>community functions and open spaces. Locations where access should be addressed within each NoR include:</p> <ul style="list-style-type: none"> <li>○ To and between future employment areas</li> <li>○ Intersection with the Drury – Pukekohe Link (NoR 2)</li> <li>○ Intersection with the Pukekohe South – West Arterial (NoR 6)</li> <li>○ Any future schools or community facilities that may be developed as the area urbanises.</li> </ul>
	<b>Built Form</b>	<ul style="list-style-type: none"> <li>● An urban interface approach within the corridors that: <ul style="list-style-type: none"> <li>○ Manages the transition between areas of industrial and residential land use.</li> </ul> </li> </ul>
	<b>Movement</b>	<ul style="list-style-type: none"> <li>● Future design of the corridor should consider how the active mode facilities can be efficiently connected into the local network, providing access to the adjacent area for active mode users, particularly where cross-corridor connections are provided, creating a fine grain level of connectivity as the area develops. <ul style="list-style-type: none"> <li>○ Any future schools or community facilities that may be developed as the area urbanises</li> <li>○ At regular, mid-block intervals along the proposed corridor within the urban environment</li> <li>○ To future employment areas</li> </ul> </li> <li>● Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the corridor. Demonstration of specific intersection responses to ensure connectivity between future residential land use should be developed for: <ul style="list-style-type: none"> <li>○ Intersection with the Drury – Pukekohe Link (NoR 2)</li> <li>○ Butcher Road Intersection</li> <li>○ Beatty Road Intersection</li> <li>○ Gun Club Road Intersection.</li> </ul> </li> </ul>
	<b>Land Use</b>	<ul style="list-style-type: none"> <li>● No specific recommendations</li> </ul>
<b>NoR 8 (AC and WDC)</b>	<b>Environment</b>	<ul style="list-style-type: none"> <li>● No specific recommendations</li> </ul>
	<b>Social</b>	<ul style="list-style-type: none"> <li>● The identification, development and integration of key local community and identity drivers within NoR 8 should be demonstrated. Key local identity community functions to be addressed include: <ul style="list-style-type: none"> <li>○ Gateway into Pukekohe as it transitions from Rural to Residential</li> <li>○ Gateway into Bombay</li> <li>○ Future medium density housing adjacent to the corridor.</li> </ul> </li> <li>● Key distinctive landscape character qualities of stream include: <ul style="list-style-type: none"> <li>○ Future wetlands</li> <li>○ The rural character and landscape.</li> <li>○ The Tuff Crater (notably on privately owned land).</li> </ul> </li> </ul>

NoR	Principle	Recommendation
		<ul style="list-style-type: none"> <li>• The proposed corridor alignment and function can deliver a positive contribution to the sense of belonging and participation, as well as community resilience by supporting access to future centres, schools, community functions and open spaces. Locations where access should be addressed or maintained within the NoRs include:                             <ul style="list-style-type: none"> <li>○ To the Bombay Service Centre</li> <li>○ Intersection with the Pukekohe North – East Arterial (NoR 4)</li> <li>○ Intersection with the Pukekohe South – East Arterial (NoR 5).</li> <li>○ Community Recreation Facilities including the Pukekohe East Hall and the Ainsley Polo Club</li> </ul> </li> </ul>
	<b>Built Form</b>	<ul style="list-style-type: none"> <li>• No specific recommendations</li> </ul>
	<b>Movement</b>	<ul style="list-style-type: none"> <li>• Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the designations within the corridor. Those locations where this is particularly important are:                             <ul style="list-style-type: none"> <li>○ Intersection with the Pukekohe North – East Arterial (NoR 4)</li> <li>○ Intersection with the Pukekohe South – East Arterial (NoR 5).</li> </ul> </li> </ul>
	<b>Land Use</b>	<ul style="list-style-type: none"> <li>• No specific recommendations</li> </ul>

# Appendix A

## Design Framework Principles

# ENVIRONMENT



## 1.1 Support and enhance ecological corridors and biodiversity

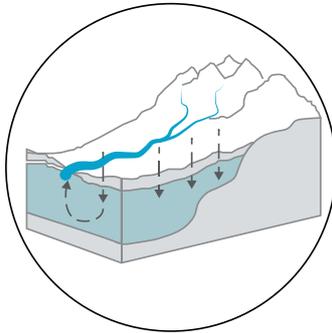
In the placement and design of movement corridors mitigate the effects on or enhance existing ecological corridors.

### Outcome:

- The preservation of the biosphere, continuity of natural systems (at a range of scales) and contribution to climate change mitigation through emissions uptake.
- Contribution to the legibility of an area, open space corridors for movement and community use and increased community connection to natural habitats.
- Supports and rehabilitates the natural landscape.

### Measure:

- Continuity/ severance of ecological corridors and enhanced biodiversity.
- Protection and enhancement of significant ecological areas (SEA's).



## 1.2 Support water conservation and enhance water quality in a watershed

Take into account and work with the existing watershed and aquifers as part of a whole system.

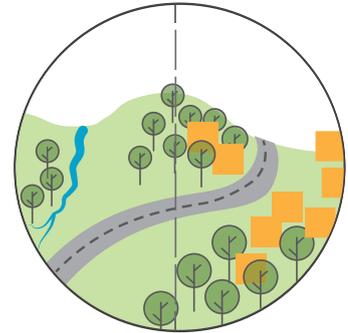
It is important that the mauri of waterways is restored, maintained and preserved for future generations. Connection to the Māori world view is described in the Te Aranga Principles - Mauri Tū: Environmental Health

### Outcome:

- Use of natural systems to support design outcomes, reduces hard engineering solutions and thereby carbon emissions.
- Supports natural water cycles that the biosphere and communities depend on.
- Reduces the cost of water quality treatment.
- Supports and restores the coastal landscape.

### Measure:

- Continuity/ severance of watershed.
- Allocation of land area for water quality treatment.
- Water quality treatment systems - swales, rain gardens, bioswales and wetlands are to be located within the corridor and not reliant on out of corridor treatment



## 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.

Landforms and built heritage including movement networks can embody a history and create a distinctive sense of place. They help to provide an understanding and connection to the former natural and cultural history.

Connection to the Māori world view is described in the Te Aranga Principles - Tohu: The wider cultural landscape

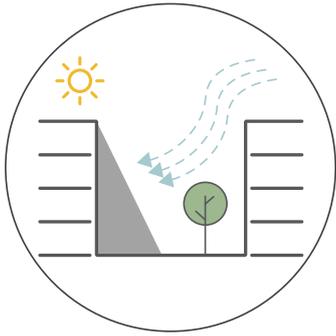
### Outcome:

- Reduces carbon emissions, waste of resources and impact on the biosphere.
- Protection of elite soils that support food production.

### Measure:

- Works with/ against land, topography or urban structure.
- Utilisation of existing corridors to minimise land disturbance.

# SOCIAL



## 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 climatic environment of future places and streets.

### Outcome:

- Long term planning in regard to climate change such as sustainable management of resources and development and adoption of renewable energy.
- Maintains key corridors and infrastructure resilience.
- Creates a streetscape environment that considers the quality of the experience for people. Supports and encourages foot traffic to local destinations.

### Measure:

- Corridor provides for active modes and public transport options to support modal shift and reduce climate change impacts.
- Consideration of future flood levels.
- Responds to the microclimatic conditions and characteristics of the area.
- Accommodates amenity measures such as space for shade, trees, wind protection, orientation of connections.



## 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.

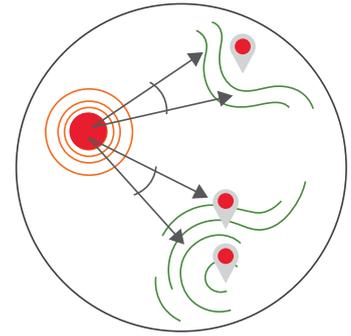
Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.

### Outcome:

- Supports social cohesion, sense of belonging and pride in an area through clear connection to history and identity of a place.
- Supports outstanding natural landscapes and features.

### Measure:

- Considers, respects and/or enhances the established identity/ form/ layout of a place.
- Preserves the amenity values and quality of a place.
- Responds to the underlying topography and natural characteristics of a place.
- Contributes to the placemaking drivers of its context.



## 2.2 Respect culturally significant sites and landscapes

Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.

Protecting or featuring these vistas or landmarks acknowledges the wider cultural or natural landscape and provides context and orientation for people who are either moving through or living within an area.

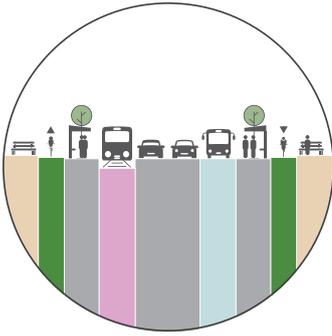
Connection to the Māori world view is described in the Te Aranga Principles - Tohu: The wider cultural landscape.

### Outcome:

- Supports the cultural context of places.

### Measure:

- Location of strategic corridor considers, respects and/or enhances significant sites and features.
- Establishes or acknowledges viewshafts and terminating vistas.



### 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 or utilise technology over time.

**Outcome:**

- Look to preserve, repurpose existing corridors over time to support long term whole of life beneficial use.
- Reduce the need to update and replace corridors, saving emissions and materials
- Minimise social disruption.
- Minimise significant and permanent engineering interventions/solutions.

**Measure:**

- Utilisation and adoption of existing corridors.
- Corridor configuration that does not preclude active modes or public transport.
- Accommodate variations and future changes in noise levels generated by corridor function.
- Provision of space function for non transport functions such as ecological diversity, water management and recreation.



### 2.4 Social cohesion

Provide clear, effective and legible connectivity between community and social functions.

**Outcome:**

- Deliver a positive contribution to the sense of belonging and participation, as well as community resilience.
- Establish and support a positive spatial relationship to the grain of future development.
- Supports the creation of spaces where people can seamlessly connect.
- Support modal shift to allow a diversity of choices to more of the population.

**Measure:**

- Address potential severance issues between areas through the network layout and providing universal access.
- Avoid isolated or fragmented areas of Future Urban Zones.
- Provision of modal choices.
- Provides connectivity and equitable access to community facilities and open spaces.



### 2.5 Safe corridors

Provide a safe and convenient network of routes accessible to people of all ages and abilities.

**Outcome:**

- Supporting a greater level of movement that promotes a sense of personal safety.
- Provide safe crossings for people crossing roads and railways.
- Illustrates the universal design approach and accessibility in to all parts of user journeys.
- Reduce deaths and injuries on the road network.

**Measure:**

- Support personal safety in the environment (CPTED) in the layout or colocation of different modes/ land uses.
- Clear and legible mixed modal zones.
- Grade separated crossings for pedestrians and cyclists.
- Corridor configuration that supports safe pedestrian environments.

# 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.**

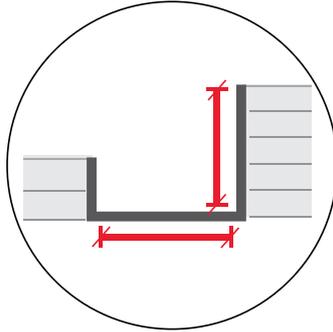
Density (and a diversity of housing choices) gives people the opportunity to live in neighbourhoods that meet their lifestyle preferences and economic means. Residents should be provided with the choice to live in amenity-rich neighbourhoods where they are a short walk or bike ride away from shopping, parks, schools and cafés and are encouraged to take public transport to work and regional destinations.

### Outcome:

- Provides opportunity for greater housing diversity and choice.
- Reduces car dependency and emissions, linear servicing infrastructure and climate change impacts.
- Align appropriate corridor typologies with public private interfaces that support density.

### Measure:

- Corridors aligned/ not aligned to areas of higher density.
- Corridors located near/through interchanges and centres.



## 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).**

Corridor configuration should respond to contextual drivers and support different functional requirements at a regional, sub-regional and neighbourhood scale. Corridor functions should support efficient movement, higher density living, mixed mode travel and placemaking.

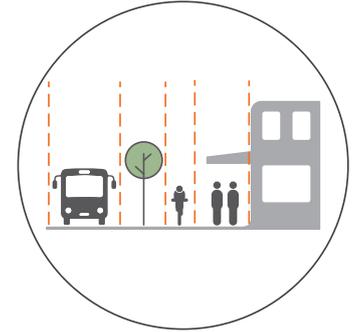
Refer to Locational Principles in Appendix E.

### Outcome:

- Corridors should demonstrate support for economic outcomes through efficient regional movement.
- Corridors should enable mass rapid transit and multi modal options that contribute to climate change mitigation.
- Maintain or improve amenity of the environment through which the corridor passes.
- Corridor should minimise impacts of widening in relation to existing land use patterns.

### Measure:

- Scale is/ isn't appropriate to the surrounding context.
- Corridor arrangement supports adjacent land use and provides an appropriate interface.



## 3.3 Facilitate an appropriate interface between place and movement

**Facilitate the opportunity for place as well as movement in corridors (people oriented streets)**

Corridors should deliver street typologies scaled to the adjoining land use that provide a clear movement function as well as an appropriate interface to built form.

Refer to Locational Principles Appendix E.

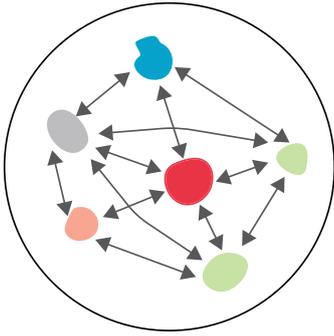
### Outcome:

- Social cohesion and economic benefit for local businesses.
- Opportunity for people oriented streets, potential for streets as public spaces.
- Supports connectivity and interface to open spaces and public spaces.

### Measure:

- Supports appropriate public private interfaces.
- Appropriate allocation of street space between competing uses.
- Provides connectivity at a fine grain (pedestrian) level
- Appropriate and positive influence on future urban form.

# MOVEMENT



## 4.1 Connect nodes

**Provide tangible connectivity between identified activity nodes.**

Corridors should provide direct and legible connections between key destinations.

Corridors should consider connectivity for all modes (walking, cycling, public transport, freight transport and private vehicle). Connect between areas as well as through central corridors.

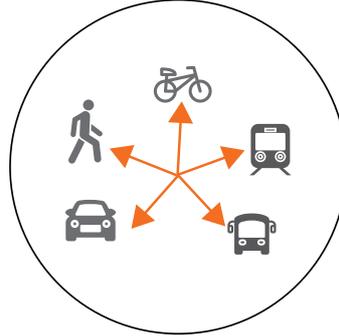
Corridors should accommodate any identified cross connections between nodes outside of strategic corridors.

### Outcome:

- Provides community connectivity, mobility and choice.
- Reduces car dependency and emissions as well as climate change impacts.
- Reduces travel times between destinations.

### Measure:

- Provides clear and tangible connectivity between complementary destinations.



## 4.2 Connect modes

**Provide for choice in travel and the ability to connect at interchanges between modes.**

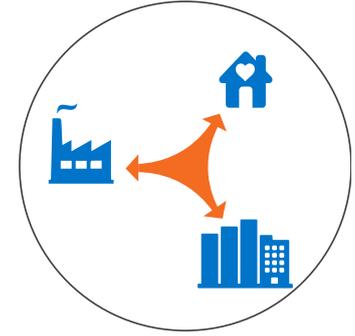
Provide access to multiple travel modes. Corridors can contribute to outcomes for a wider cross section of the community (including elderly, children and mobility-impaired users) when they support safe, comfortable and attractive multi-modal transport for all users.

### Outcome:

- Provides community connectivity, mobility and choice.
- Provides economic benefit at interchanges.
- Reduces car dependency and emissions as well as climate change impacts.

### Measure:

- Modal connections and interchange is/ isn't accommodated.
- Transition between modes is easy, convenient, safe and smooth,
- Clear and legible interchanges.



## 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.**

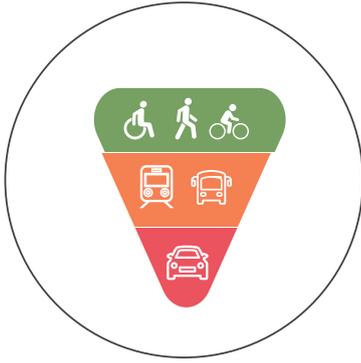
### Outcome:

- Supports the efficient movement of resources.
- Provision of modal choices to enable equitable access to areas of employment and industry.

Refer to Locational Principles in Appendix E.

### Measure:

- Provides tangible connectivity to areas of employment and industry.



#### 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.**

Dedicated and connected active mode networks provide choices for people walking and cycling, reduces land consumption, and improves overall network efficiency.

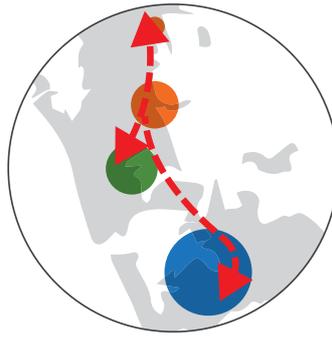
Dedicated and efficient public transport corridors provide modal choice to a larger number of users and reduces the impact on the environment.

##### **Outcome:**

- Supports community connectivity, mobility and choice.
- Reduction of car dependency and emissions, reduces climate change impacts.
- Supporting healthy lifestyles of the community by replacing short motor vehicle trips by alternative modes.
- Reduce environmental impact of travel.

##### **Measure:**

- Connectivity and quality of active paths.
- Prioritised network for public transport.



#### 4.5 Support inter-regional connections and strategic infrastructure

**Consider the location and alignment of significant movement corridors and placement of infrastructure (power, waste water, water) to the network.**

Locate significant infrastructure in appropriate locations and away from primarily residential areas.

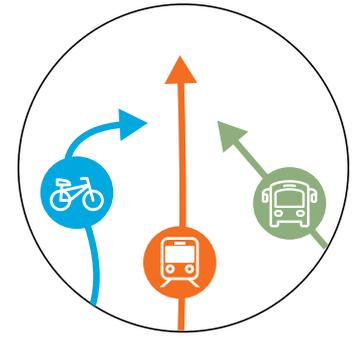
Identify corridor hierarchies and functions to allow for differentiation between inter-regional trips and local trips.

##### **Outcome:**

- Supports strategic infrastructure planning.
- Considers a coordinated approach between freight and passenger rail services.

##### **Measure:**

- Alignment of significant infrastructure along strategic corridors.
- Provide direct connections to rail, port and airport.
- Minimise the number of local trip movements from inter-regional routes.



#### 4.6 Support legible corridor function

**Consider how areas can be clearly navigated and understood by users moving from place to place.**

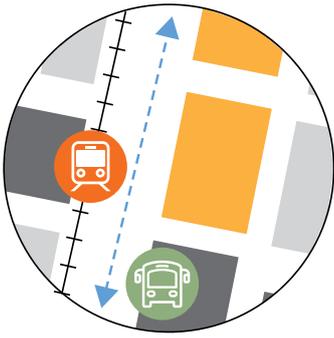
##### **Outcome:**

- Corridors designed and developed to suit the corridor function.
- Supports community connectivity, mobility and choice.

##### **Measure:**

- Provides clear gateways into areas.
- Provides direct connections between destinations.
- Corridor configuration provides clear modal interactions and priorities.

# LAND USE



## 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.**

Bringing public transport into a centre that has a higher level of density will cater for a greater number of users as well as providing accessible and viable alternatives to private vehicles.

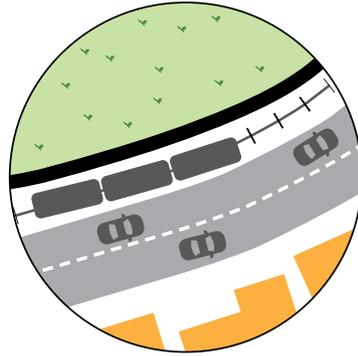
Refer to Locational Principles in Appendix E.

### Outcome:

- Supports community connectivity, mobility and choice.
- Supports higher densities in and around interchanges and centres.
- Reduction of car dependency and emissions, reduces climate change impacts.

### Measure:

- Public transport is/ isn't directed and integrated into centres.
- Interchanges are located in centres.
- Clear modal interactions at interchanges.



## 5.2 Strategic corridors as urban edges

**Strategic corridors as potential definers of a land use edge.**

Providing an edge that supports the containment of land use and restricts unwanted development outside of the identified urban areas.

### Outcome:

- Supports connectivity but restricts unwanted development.
- Minimises land take, disturbance and biodiversity impacts.

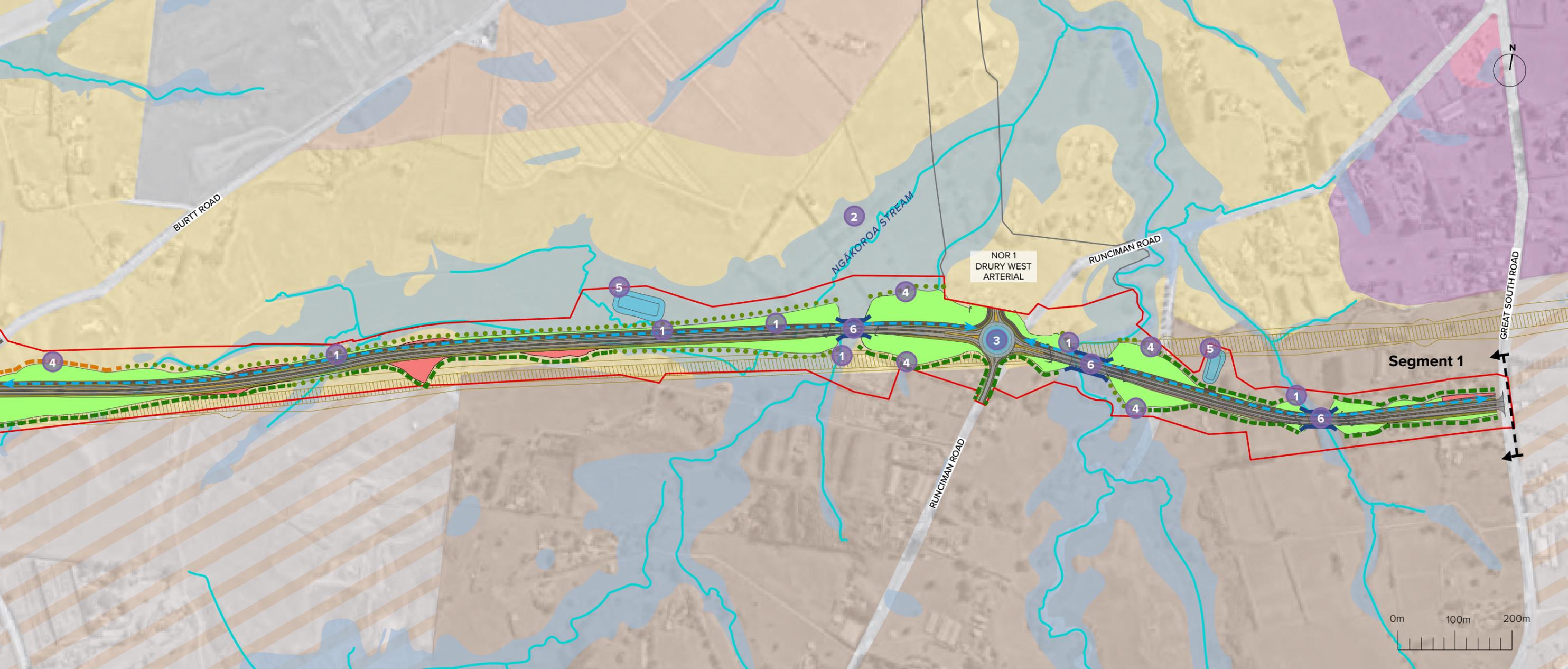
### Measure:

- Enables/ does not enable a land use edge.
- Provides appropriate corridor configuration with limited access.

# Appendix B

## Pukekohe Outcomes and Opportunities Plans





## NOR 2 - DRURY - PUKEKOHE LINK

### OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 4

Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Ngākoroa Stream and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Ngākoroa Stream and tributaries
- 3 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.

- 4 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
- 5 **Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.
- 6 **CPTED** - Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance, particularly at intersections and future cross-corridor connections. This should be a consideration of the active mode facilities which may have limited passive surveillance along the corridor from adjacent land use.

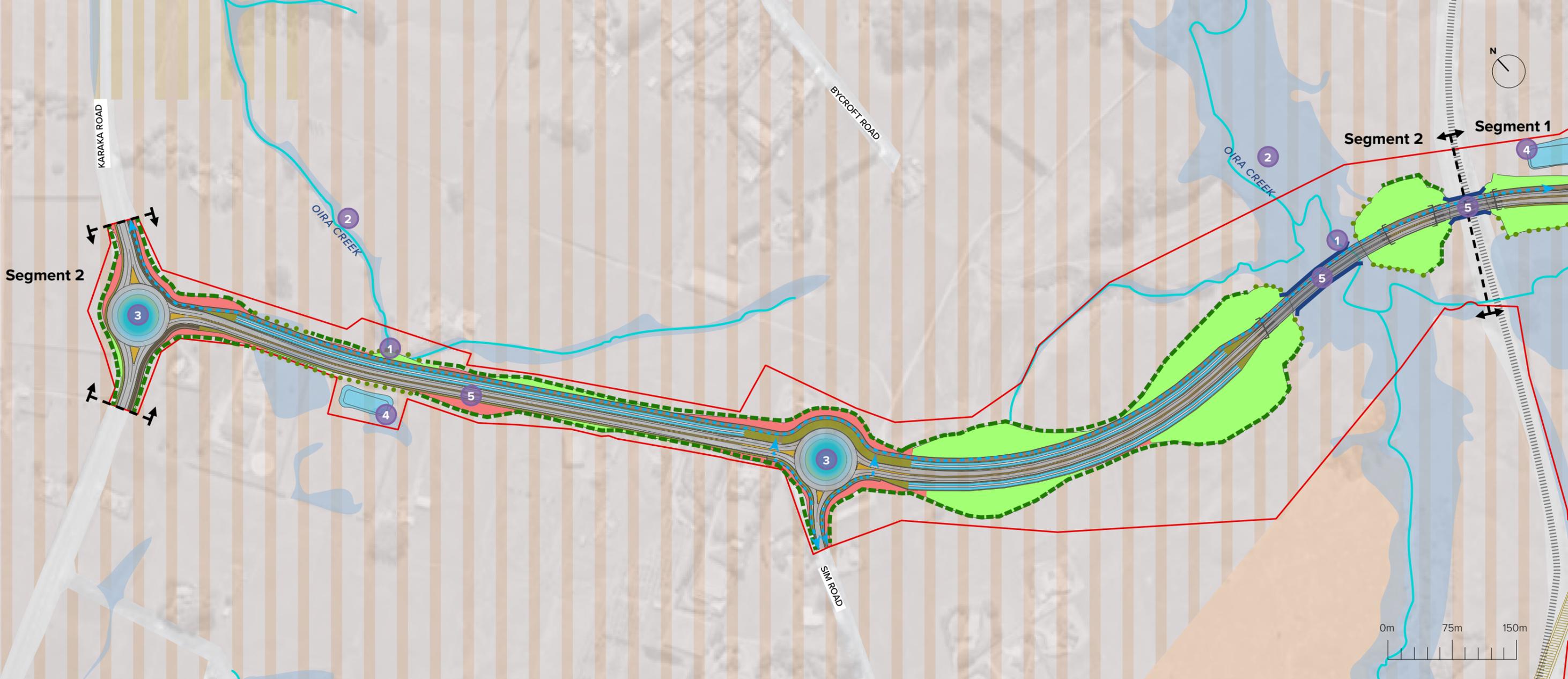
#### OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that responds to the adjacent rural zone, integrating the corridor into the adjacent land form and include appropriate planting and screening.
- Establish landscape outcomes that provides an appropriate interface to the blue and green network.
- Consideration of visual integration, interface and sense of place for the bridge structure.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

#### LEGEND

- Designation Boundary
- Other NOR Boundaries
- Business - Neighbourhood Centre
- Residential - Terrace Housing & Apartment Building (THAB)
- Residential - Mixed Housing Urban
- Residential - Mixed Housing Suburban
- Business - Light Industrial
- Rural - Countryside Living
- Rural - Mixed Rural
- Special Purpose Zone
- Blue network
- Open Watercourse
- National Grid Corridor
- Proposed Cut
- Proposed Fill
- Bi-Directional cycling facilities

\*Land use based on Drury - Opāheke Structure Plan



## NOR 2 - DRURY - PUKEKOHE LINK

### OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 4

Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Oira Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Oira Creek and tributaries
- 3 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.

- 4 **Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.
- 5 **CPTED** - Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance, particularly at intersections and future cross-corridor connections. This should be a consideration of the active mode facilities which may have limited passive surveillance along the corridor from adjacent land use.

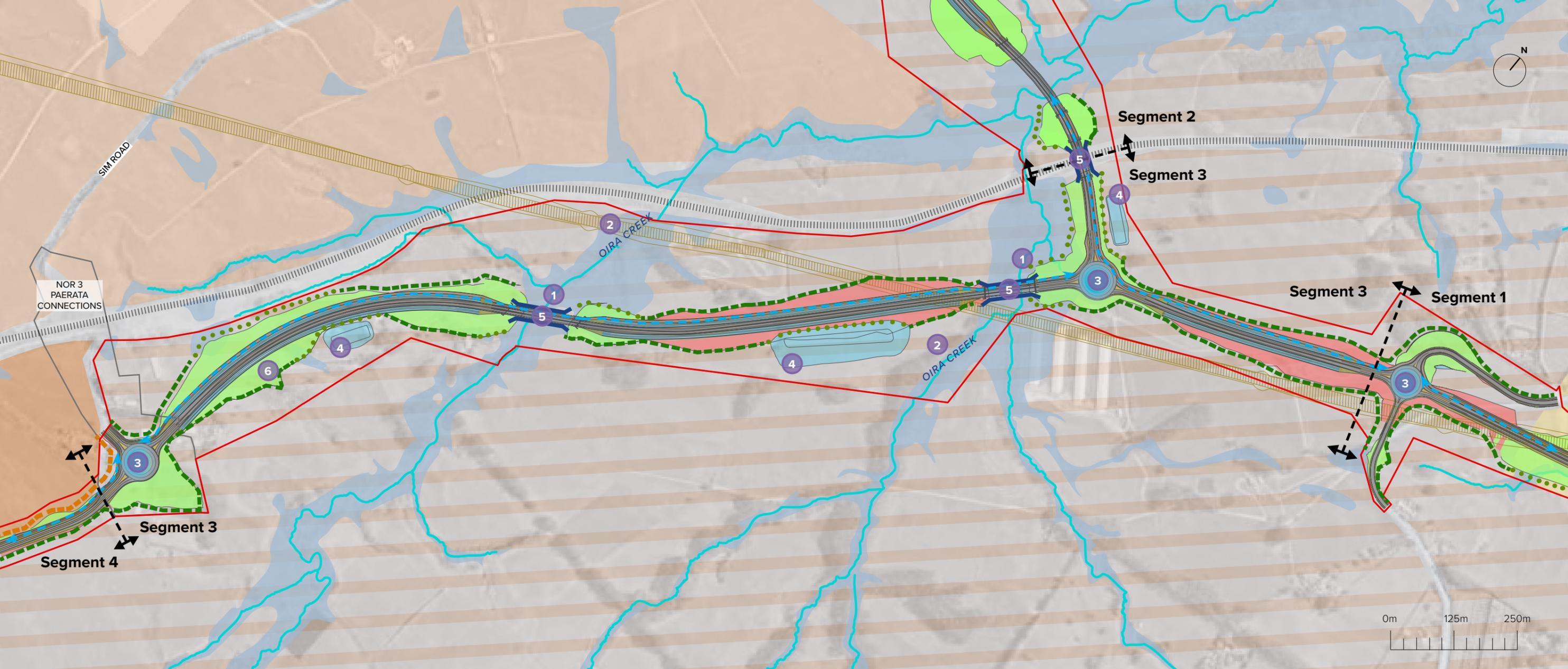
#### OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that responds to the adjacent rural zone, integrating the corridor into the adjacent land form and include appropriate planting and screening.
- Establish landscape outcomes that provides an appropriate interface to the blue and green network.
- Provide cross corridor active move connection that connects to the future local transport network.
- Consideration of visual integration, interface and sense of place for the bridge structure.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

#### LEGEND

- Designation Boundary
- Other NOR Boundaries
- Railway track
- Residential - Mixed Housing Urban
- Rural - Mixed Rural
- Blue network
- Open Watercourse
- Proposed Cut
- Proposed Fill
- Bi-Directional cycling facilities

\*Land use based on Pukekohe-Paerata Structure Plan



## NOR 2 - DRURY - PUKEKOHE LINK

### OUTCOMES AND OPPORTUNITIES PLAN - SHEET 3 OF 4

● Outcomes

**1 Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Oira Creek and tributaries.

**2 Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Oira Creek and tributaries

**3 Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.

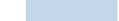
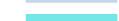
**4 Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.

**5 CPTED** - Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance, particularly at intersections and future cross-corridor connections. This should be a consideration of the active mode facilities which may have limited passive surveillance along the corridor from adjacent land use.

#### OUTCOMES

-  Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
-  Establish an interface that responds to the adjacent rural zone, integrating the corridor into the adjacent land form and include appropriate planting and screening.
-  Establish landscape outcomes that provides an appropriate interface to the blue and green network.
-  Consideration of visual integration, interface and sense of place for the bridge structure.
-  Intersection arrangement that addresses multi-modal priority, safety and legibility.

#### LEGEND

-  Designation Boundary
-  Other NOR Boundaries
-  Railway track
-  Residential - Terrace Housing & Apartment Building (THAB)
-  Residential - Mixed Housing Urban
-  Rural - Mixed Rural
-  Blue network
-  Open Watercourse
-  National Grid Corridor
-  Proposed Cut
-  Proposed Fill
-  Bi-Directional cycling facilities

*\*Land use based on Pukekohe-Paerata Structure Plan*



# NOR 3 - PAERATA CONNECTIONS

## OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 1

- Outcomes
- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Whangapouri Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Whangapouri Creek and tributaries and Paerata Station.
- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.
- 4 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
- 5 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
- 6 **Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.
- 7 **CPTED** - Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance, particularly at intersections and future cross-corridor connections. This should be a consideration of the active mode facilities which may have limited passive surveillance along the corridor from adjacent land use.
- 8 **Connect to Paerata Station** - To enable connected and legible communities, the local transport network should provide clear and direct access to future stations that prioritises access via active modes and public transport.

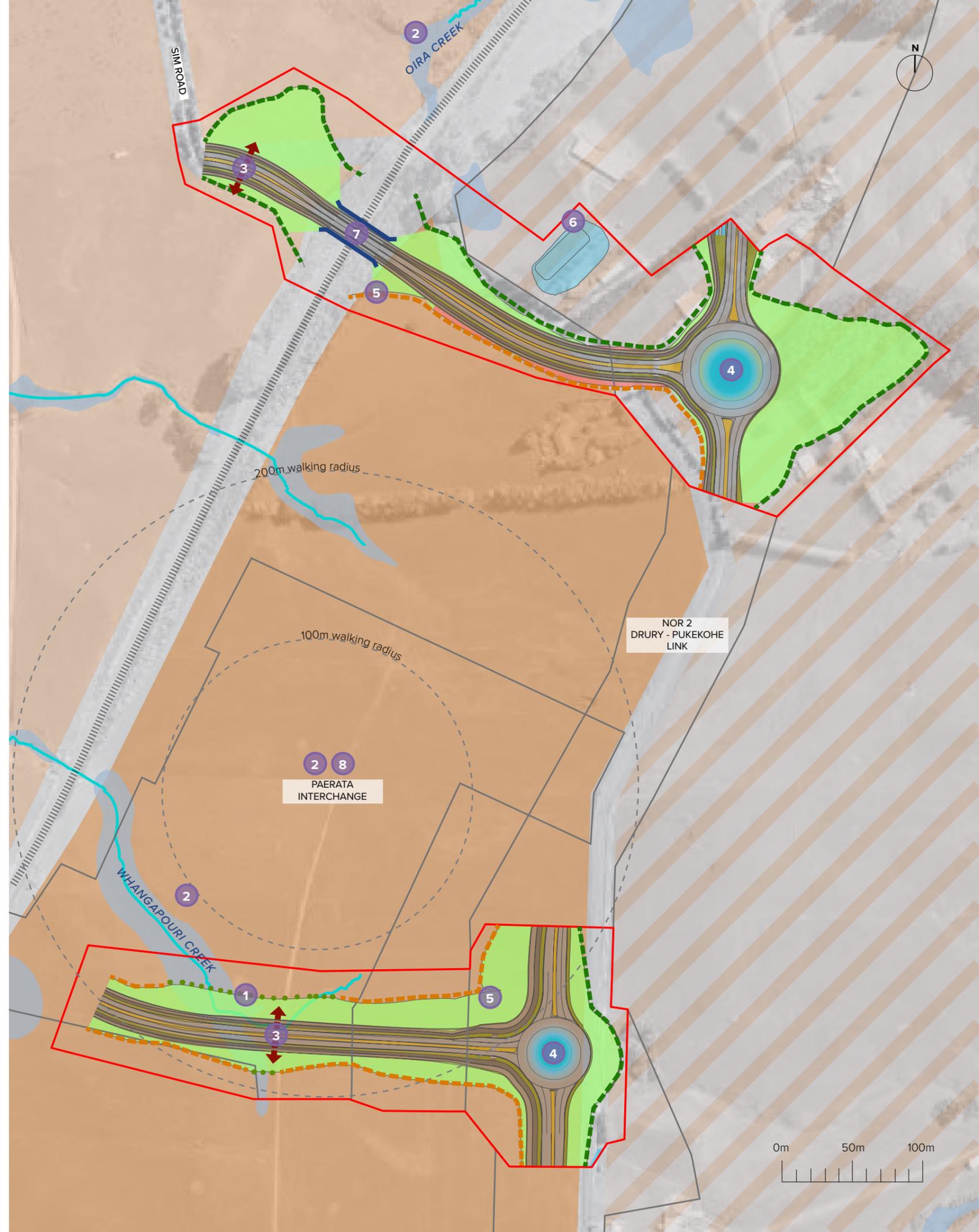
### OUTCOMES

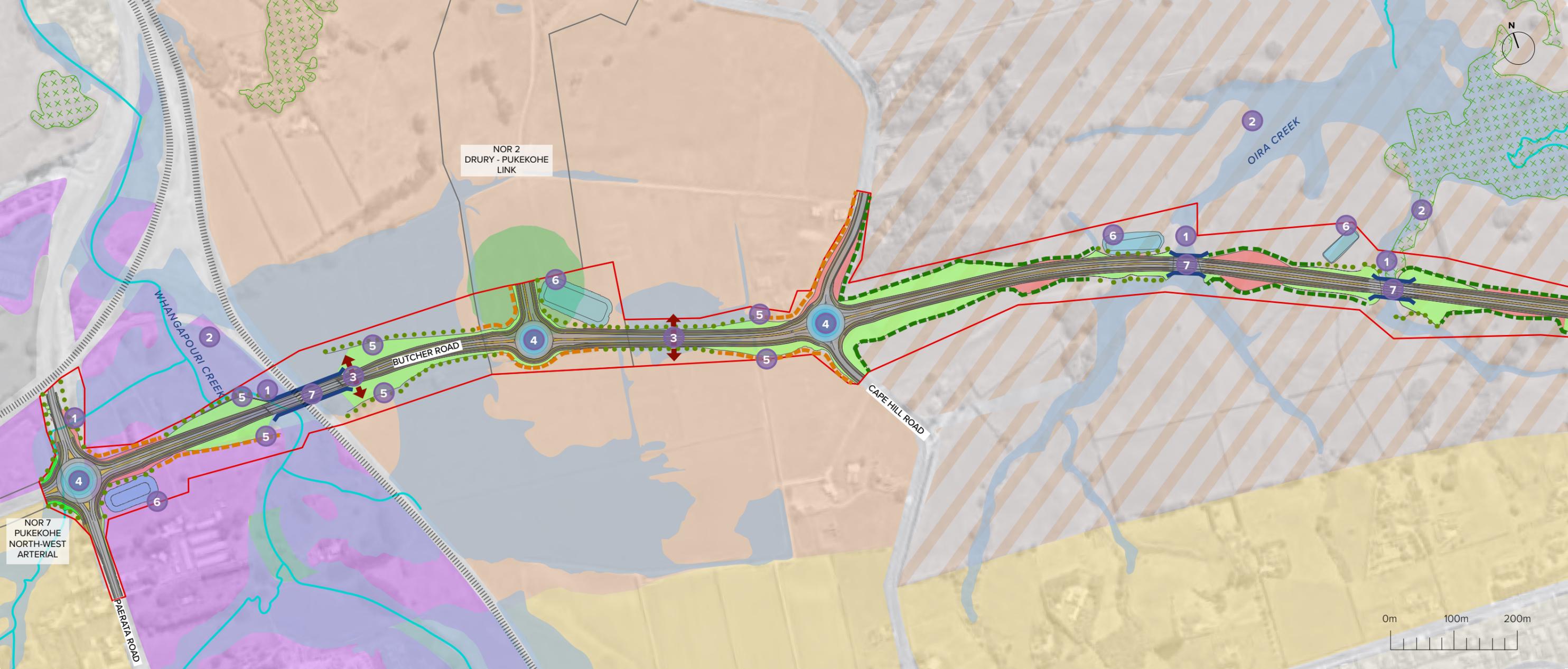
-  Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
-  Establish an interface that responds to the adjacent rural zone, integrating the corridor into the adjacent land form and include appropriate planting and screening.
-  Establish landscape outcomes that provides an appropriate interface to the blue and green network.
-  Provide cross corridor active move connection that connects to the future local transport network.
-  Consideration of visual integration, interface and sense of place for the bridge structure.
-  Intersection arrangement that addresses multi-modal priority, safety and legibility.

### LEGEND

	Designation Boundary		Blue network
	Other NOR Boundaries		Open Watercourse
	Railway track		Proposed Cut
	Residential - Terrace Housing & Apartment Building (THAB)		Proposed Fill
	Residential - Mixed Housing Urban		
	Rural - Mixed Rural		

\*Land use based on Pukekohe-Paerata Structure Plan





## NOR 4 - PUKEKOHE NORTH-EAST ARTERIAL

### OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 2

● Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Whangapouri Creek, Oira Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Whangapouri Creek, Oira Creek and tributaries
- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.
- 4 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
- 5 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
- 6 **Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.
- 7 **CPTED** - Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance, particularly at intersections and future cross-corridor connections. This should be a consideration of the active mode facilities which may have limited passive surveillance along the corridor from adjacent land use.

#### OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that responds to the adjacent rural zone, integrating the corridor into the adjacent land form and include appropriate planting and screening.
- Establish landscape outcomes that provides an appropriate interface to the blue and green network.
- Provide cross corridor active move connection that connects to the future local transport network.
- Consideration of visual integration, interface and sense of place for the bridge structure.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

#### LEGEND

- Designation Boundary
- Other NOR Boundaries
- Railway track
- Residential - Terrace Housing & Apartment Building (THAB)
- Residential - Mixed Housing Urban
- Residential - Mixed Housing Suburban
- Business - Light Industry
- Rural - Mixed Rural
- Blue network
- Open Watercourse
- Proposed Cut
- Proposed Fill
- Significant Ecological Area (SEA) - Terrestrial

*\*Land use based on Pukekohe-Paerata Structure Plan*

# NOR 4 - PUKEKOHE NORTH-EAST

## OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 2

● Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Whangapouri Creek, Oira Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Whangapouri Creek, Oira Creek and tributaries
- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.
- 4 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
- 5 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
- 6 **Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.
- 7 **CPTED** - Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance, particularly at intersections and future cross-corridor connections. This should be a consideration of the active mode facilities which may have limited passive surveillance along the corridor from adjacent land use.

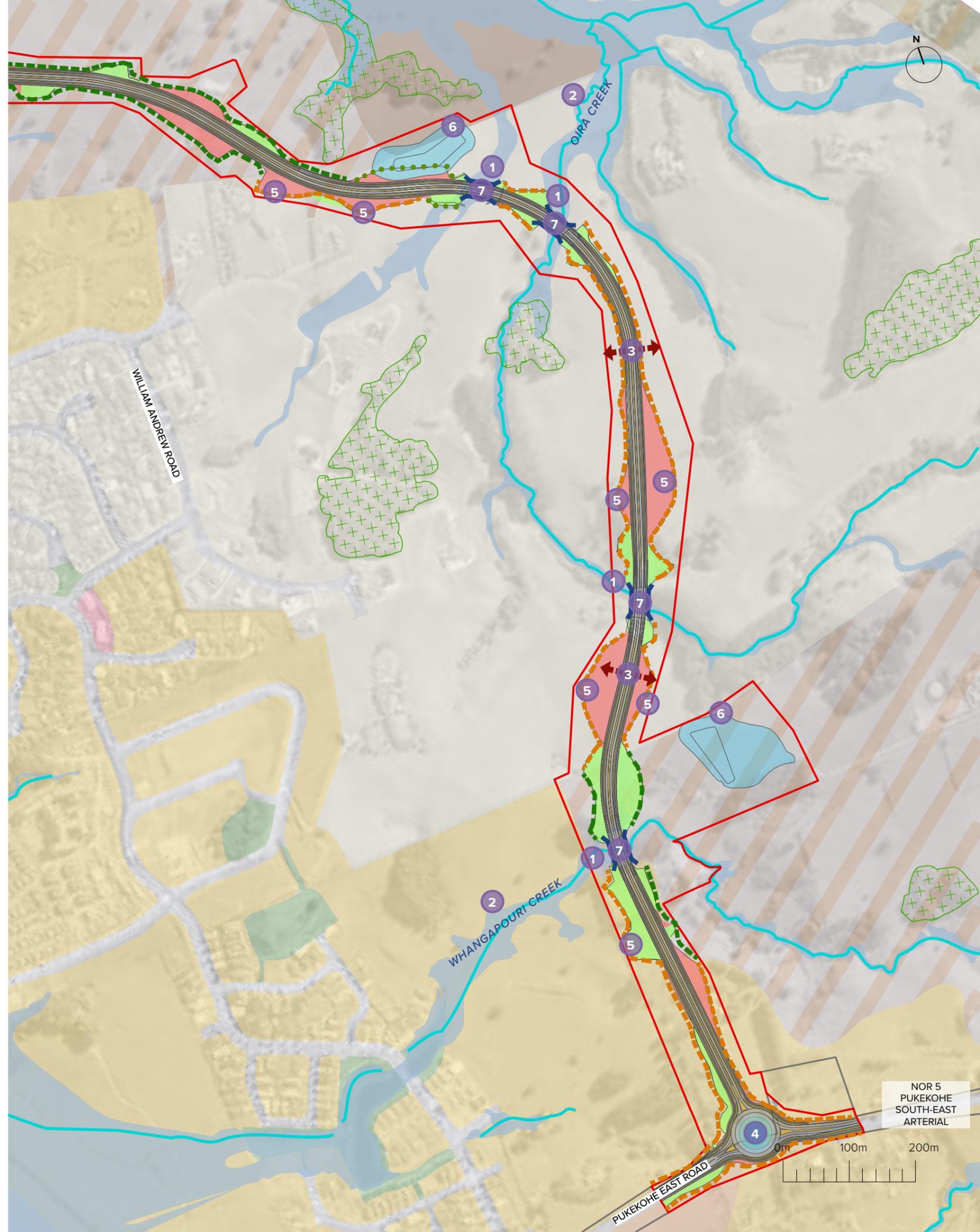
### OUTCOMES

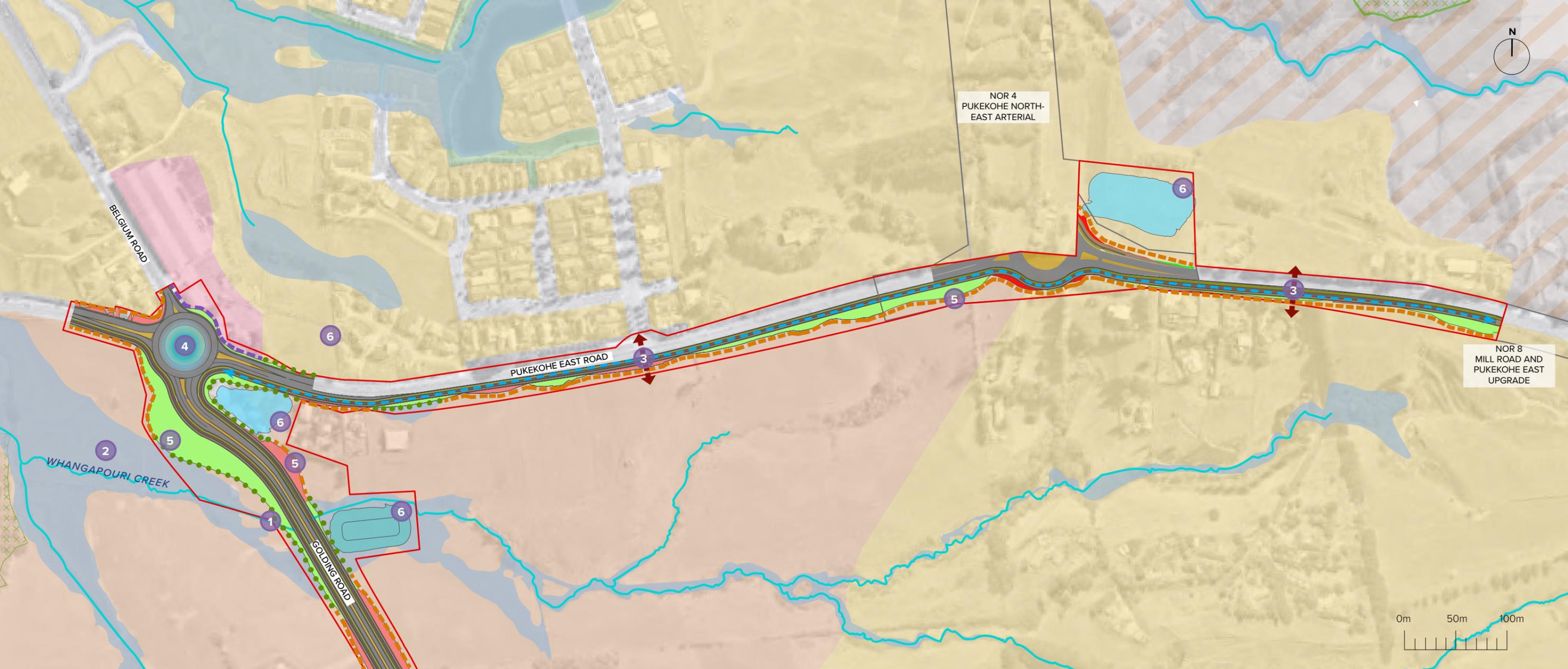
-  Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
-  Establish an interface that responds to the adjacent rural zone, integrating the corridor into the adjacent land form and include appropriate planting and screening.
-  Establish landscape outcomes that provides an appropriate interface to the blue and green network.
-  Provide cross corridor active move connection that connects to the future local transport network.
-  Consideration of visual integration, interface and sense of place for the bridge structure.
-  Intersection arrangement that addresses multi-modal priority, safety and legibility.

### LEGEND

	Designation Boundary		Blue network
	Other NOR Boundaries		Open Watercourse
	Business - Neighbourhood Centre		Significant Ecological Area (SEA) - Terrestrial
	Residential - Mixed Housing Suburban		Proposed Cut
	Residential - Single House Zone		Proposed Fill
	Rural - Countryside Living		
	Rural - Mixed Rural		

\*Land use based on Pukekohe-Paerata Structure Plan





## NOR 5 - PUKEKOHE SOUTH-EAST ARTERIAL

### OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 3

● Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Whangapouri Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Whangapouri Creek and tributaries
- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.

- 4 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
- 5 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
- 6 **Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.

#### OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that positively addresses adjacent industrial, business and mixed use zones including consideration of amenity and surveillance for active mode users.
- Establish an interface that responds to the adjacent rural zone, integrating the corridor into the adjacent land form and include appropriate planting and screening.
- Establish landscape outcomes that provides an appropriate interface to the blue and green network.
- Provide cross corridor active mode connection that connects to the future local transport network.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

#### LEGEND

- Designation Boundary
- Other NOR Boundaries
- Business - Neighbourhood Centre
- Residential - Mixed Housing Urban
- Residential - Mixed Housing Suburban
- Rural - Mixed Rural
- Blue network
- Open Watercourse
- Proposed Cut
- Proposed Fill
- Significant Ecological Area (SEA) - Terrestrial
- Bi-Directional cycling facilities

\*Land use based on Pukekohe-Paerata Structure Plan

# NOR 5 - PUKEKOHE SOUTH-EAST ARTERIAL

## OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 3

● Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Whangapouri Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Whangapouri Creek and tributaries
- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.
- 4 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
- 5 **Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.

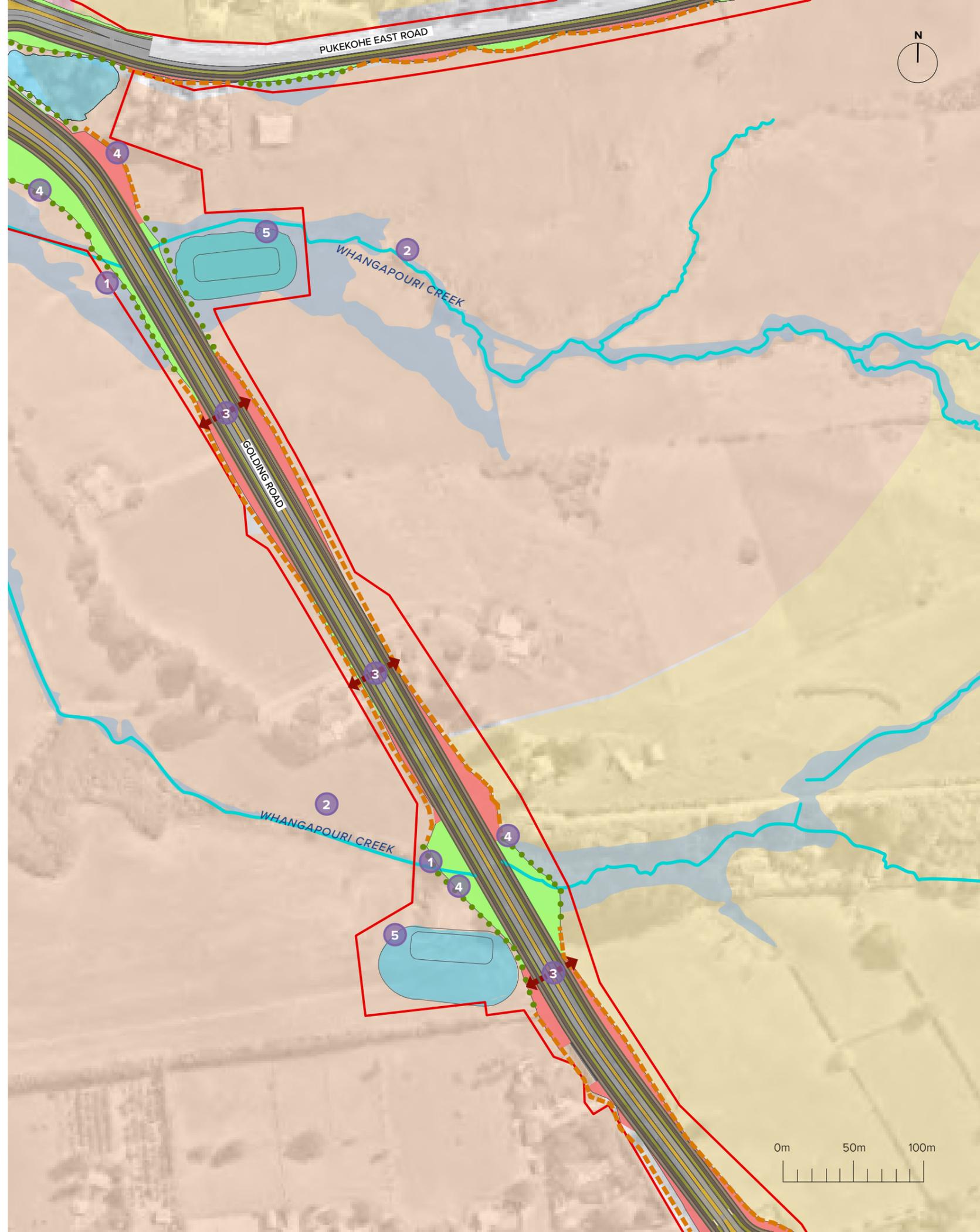
### OUTCOMES

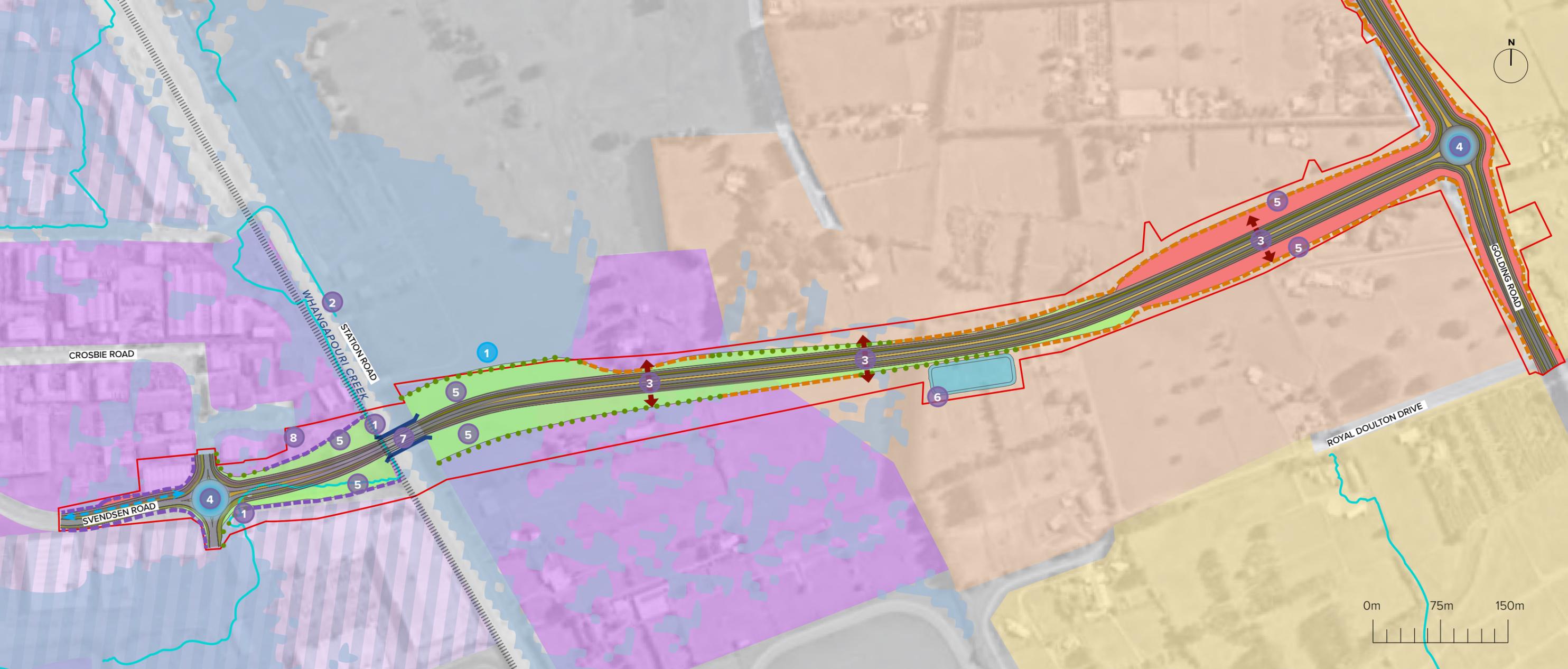
-  Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
-  Establish an interface that responds to the adjacent rural zone, integrating the corridor into the adjacent land form and include appropriate planting and screening.
-  Establish landscape outcomes that provides an appropriate interface to the blue and green network.
-  Provide cross corridor active move connection that connects to the future local transport network.

### LEGEND

-  Designation Boundary
-  Other NOR Boundaries
-  Residential - Mixed Housing Urban
-  Residential - Mixed Housing Suburban
-  Blue network
-  Open Watercourse
-  Proposed Cut
-  Proposed Fill

\*Land use based on Pukekohe-Paerata Structure Plan





## NOR 5 - PUKEKOHE SOUTH-EAST ARTERIAL

### OUTCOMES AND OPPORTUNITIES PLAN - SHEET 3 OF 3

● Outcomes     ● Opportunities

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Whangapouri Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Whangapouri Creek and tributaries.
- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.
- 4 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
- 5 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
- 6 **Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.
- 7 **CPTED** - Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance, particularly at intersections and future cross-corridor connections. This should be a consideration of the active mode facilities which may have limited passive surveillance along the corridor from adjacent land use.
- 8 **Traffic volume and type** - Consider type and volume of traffic moving between industrial and residential areas as part of the design.
- 1 **Interface and provide connection to the Pukekohe Showgrounds for active modes.**

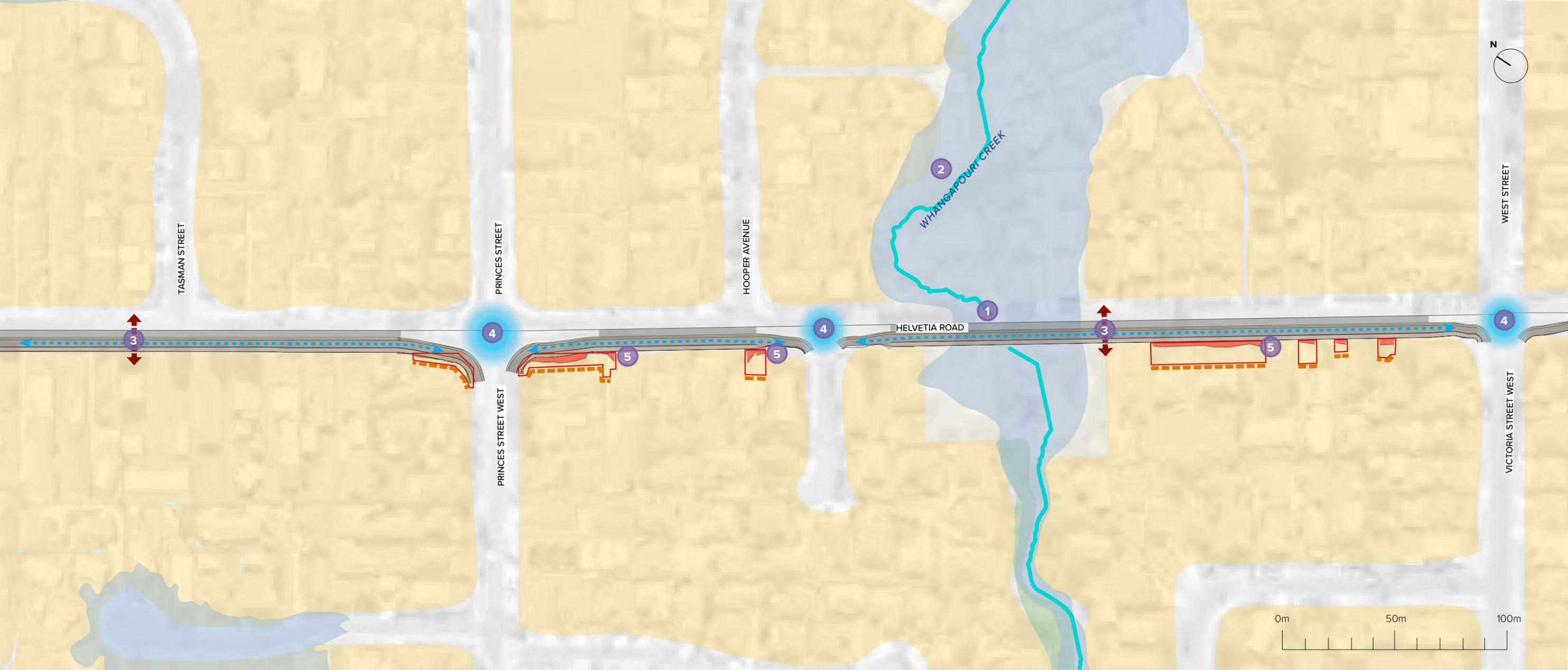
#### OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that positively addresses adjacent industrial, business and mixed use zones including consideration of amenity and surveillance for active mode users.
- Establish landscape outcomes that provides an appropriate interface to the blue and green network.
- ↔ Provide cross corridor active move connection that connects to the future local transport network.
- Consideration of visual integration, interface and sense of place for the bridge structure.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

#### LEGEND

- Designation Boundary
- Other NOR Boundaries
- ||||| Railway track
- Residential - Mixed Housing Urban
- Residential - Mixed Housing Suburban
- Business - Light Industry
- Business - General Business
- Special Purpose Zone
- Blue network
- Open Watercourse
- Proposed Cut
- Proposed Fill
- ↔ Bi-Directional cycling facilities

*\*Land use based on Pukekohe-Paerata Structure Plan*



## NOR 6 - PUKEKOHE SOUTH-WEST ARTERIAL

### OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 3

Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Whangapouri Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Whangapouri Creek and tributaries.
- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.

4 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.

5 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.

#### OUTCOMES

-  Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
-  Provide cross corridor active mode connection that connects to the future local transport network.
-  Intersection arrangement that addresses multi-modal priority, safety and legibility.

#### LEGEND

-  Designation Boundary
-  Other NOR Boundaries
-  Residential - Mixed Housing Suburban
-  Blue network
-  Open Watercourse
-  Proposed Cut
-  Proposed Fill
-  Bi-Directional cycling facilities

*\*Land use based on Pukekohe-Paerata Structure Plan*

# NOR 6 - PUKEKOHE SOUTH-WEST ARTERIAL

## OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 3

● Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Whangapouri Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Whangapouri Creek and tributaries.
- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.
- 4 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
- 5 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
- 6 **Respond to Nehru Hall** - The Nehru Hall is a scheduled heritage building and current community facility. The design of the active mode facility in this location should recognise and respond to this, maintaining the visual prominence of this building on the corner site and incorporate recommended response to the heritage values of the site.

### OUTCOMES

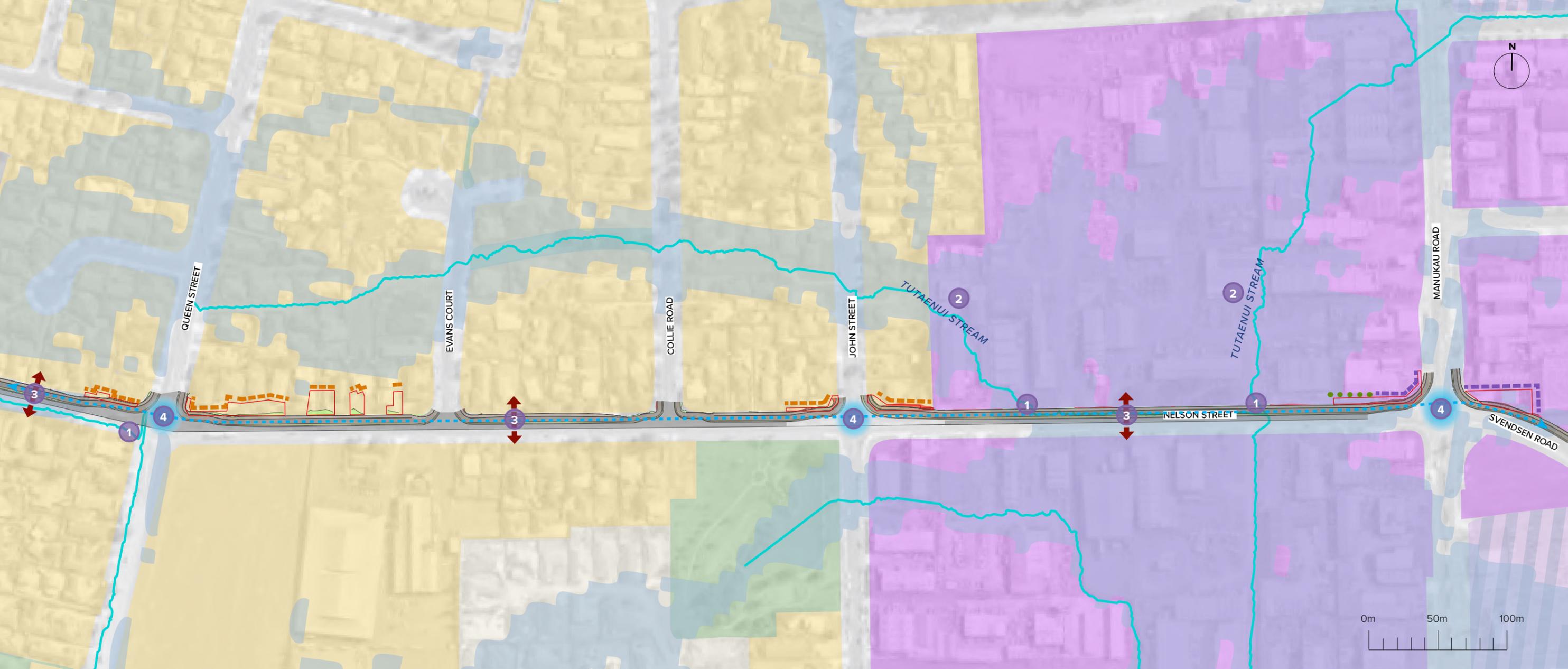
-  Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
-  Establish landscape outcomes that provides an appropriate interface to the blue and green network.
-  Provide cross corridor active move connection that connects to the future local transport network.
-  Intersection arrangement that addresses multi-modal priority, safety and legibility.

### LEGEND

-  Designation Boundary
-  Other NOR Boundaries
-  Residential - Mixed Housing Suburban
-  Open space - Informal Recreational
-  Open space - Sport and Active Recreation
-  Blue network
-  Open Watercourse
-  Proposed Cut
-  Proposed Fill
-  Bi-Directional cycling facilities

\*Land use based on Pukekohe-Paerata Structure Plan





## NOR 6 - PUKEKOHE SOUTH-WEST ARTERIAL

### OUTCOMES AND OPPORTUNITIES PLAN - SHEET 3 OF 3

● Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Whangapouri Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Whangapouri Creek and tributaries.

- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.
- 4 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.

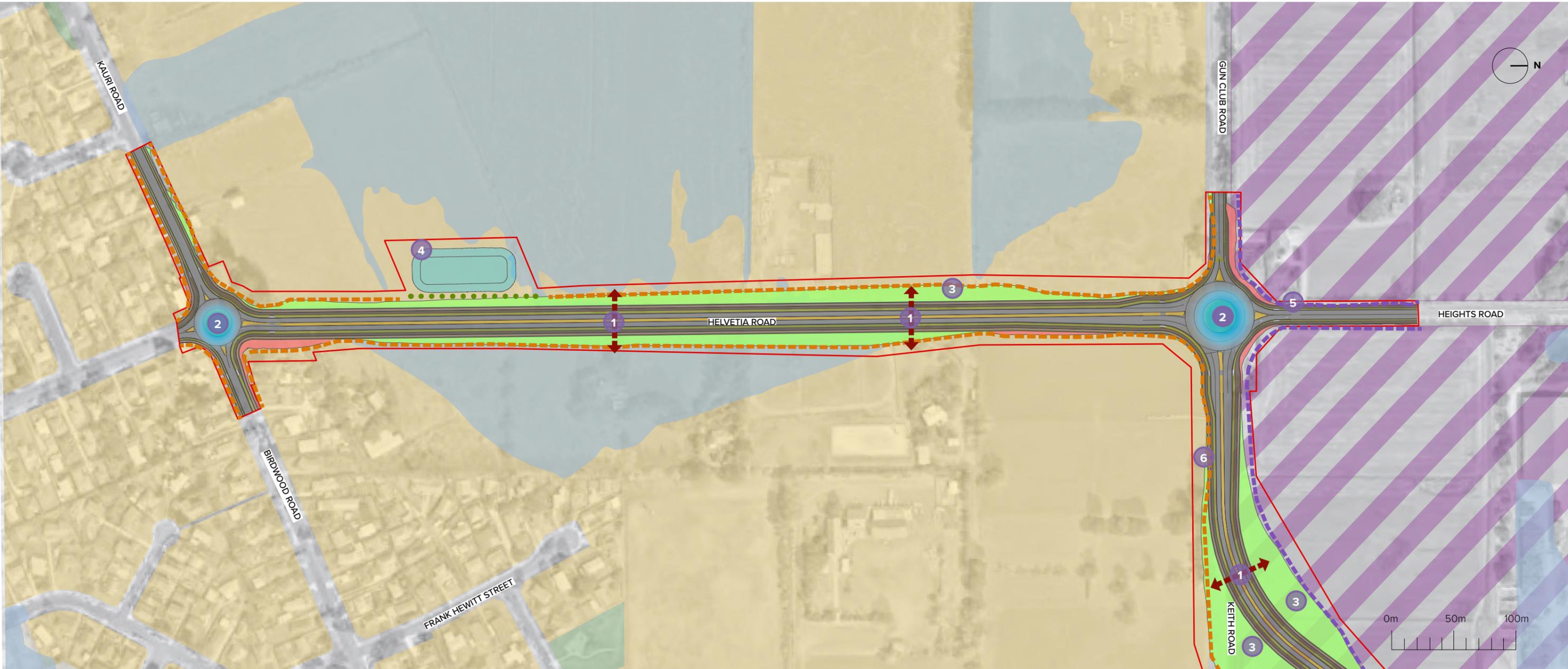
#### OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that positively addresses adjacent industrial, business and mixed use zones including consideration of amenity and surveillance for active mode users.
- Establish landscape outcomes that provides an appropriate interface to the blue and green network.
- Provide cross corridor active move connection that connects to the future local transport network.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

#### LEGEND

- Designation Boundary
- Other NOR Boundaries
- Residential - Mixed Housing Suburban
- Business - Light Industry
- Business - General Business
- Open space - Informal Recreational
- Blue network
- Open Watercourse
- Proposed Cut
- Proposed Fill
- Bi-Directional cycling facilities

*\*Land use based on Pukekohe-Paerata Structure Plan*



# NOR 7 - PUKEKOHE NORTH-WEST ARTERIAL

## OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 2

● Outcomes

- 1 Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.
- 2 Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
- 3 Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.

- 4 Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.
- 5 Traffic volume and type** - Consider type and volume of traffic moving between industrial and residential areas as part of the design.
- 6 Interface between residential and industrial land use** - Design corridor and associated landscaping to respond to and manage the interface between future residential and industrial land use.

### OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that positively addresses adjacent industrial, business and mixed use zones including consideration of amenity and surveillance for active mode users.
- Establish landscape outcomes that provides an appropriate interface to the blue and green network.
- Provide cross corridor active move connection that connects to the future local transport network.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

### LEGEND

- Designation Boundary
- Other NOR Boundaries
- Residential - Mixed Housing Suburban
- Open space - Informal Recreational
- Industrial Structure - Light Industry
- Blue network
- Open Watercourse
- Proposed Cut
- Proposed Fill

*\*Land use based on Pukekohe-Paerata Structure Plan*

# NOR 7 - PUKEKOHE NORTH-WEST ARTERIAL

## OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 2

● Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Whangapouri Creek and tributaries.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Whangapouri Creek and tributaries.
- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.
- 4 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
- 5 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
- 6 **Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.
- 7 **Traffic volume and type** - Consider type and volume of traffic moving between industrial and residential areas as part of the design.

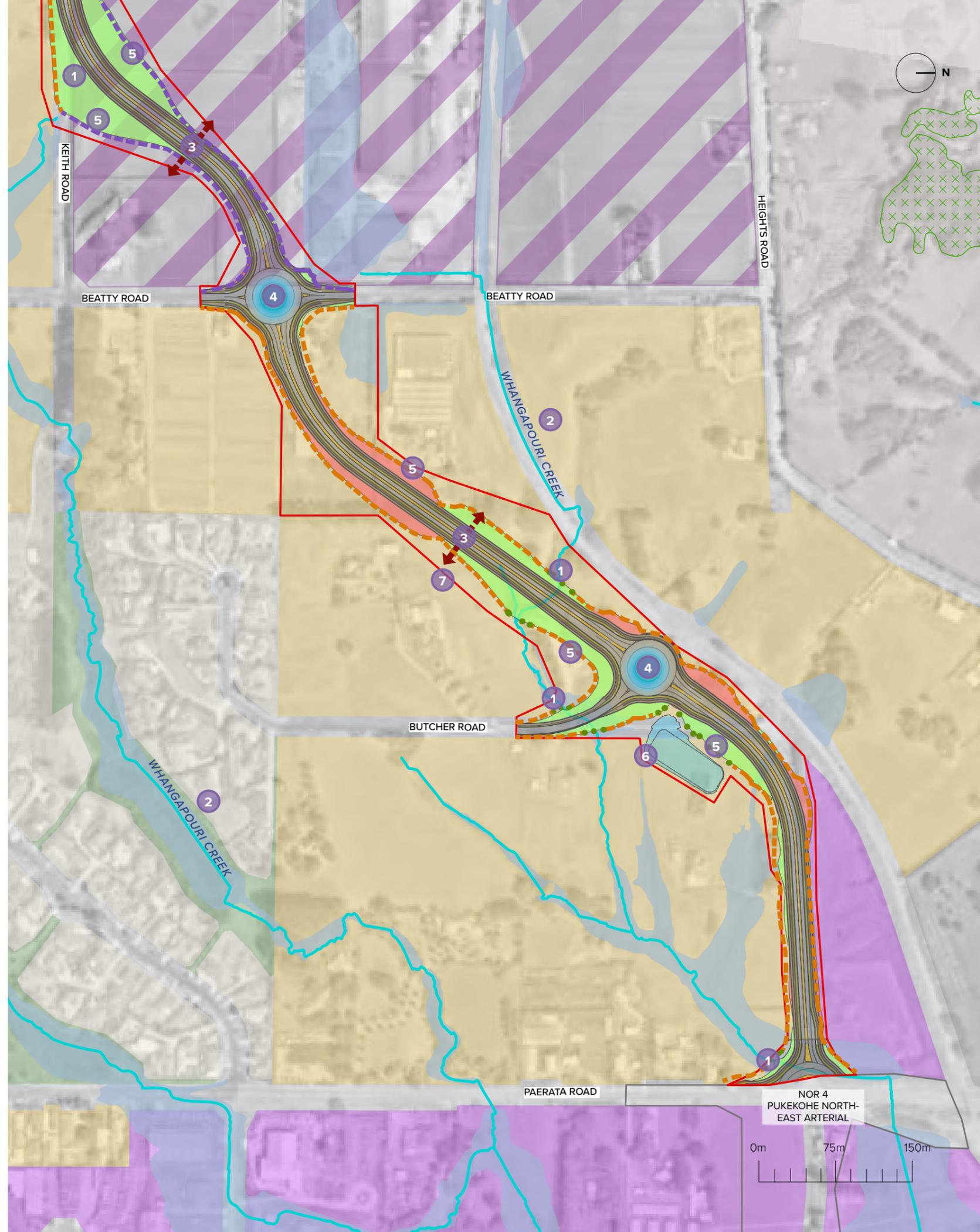
### OUTCOMES

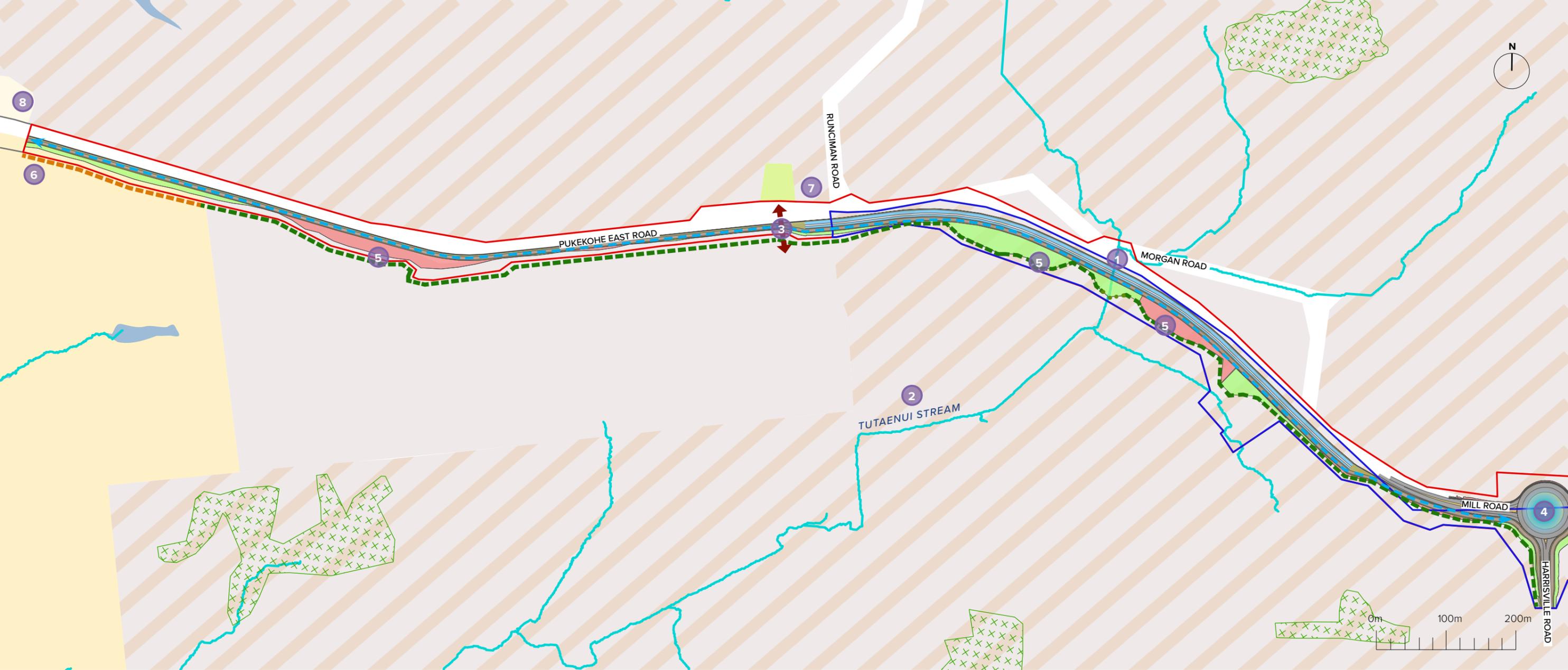
-  Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
-  Establish an interface that positively addresses adjacent industrial, business and mixed use zones including consideration of amenity and surveillance for active mode users.
-  Establish landscape outcomes that provides an appropriate interface to the blue and green network.
-  Provide cross corridor active move connection that connects to the future local transport network.
-  Intersection arrangement that addresses multi-modal priority, safety and legibility.

### LEGEND

-  Designation Boundary
-  Other NOR Boundaries
-  Residential - Mixed Housing Suburban
-  Residential - Single House
-  Business - Light Industry
-  Silverdale West Industrial Structure - Light Industry
-  Rural - Rural Production
-  Blue network
-  Open Watercourse
-  Proposed Cut
-  Proposed Fill

\*Land use based on Pukekohe-Paerata Structure Plan





# NOR 8 - MILL ROAD AND PUKEKOHE EAST UPGRADE

## OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 2

● Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Tutaenui Stream.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Tutaenui Stream.
- 3 **Active mode permeability** - Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, employment and business land, open spaces and community facilities.
- 4 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.

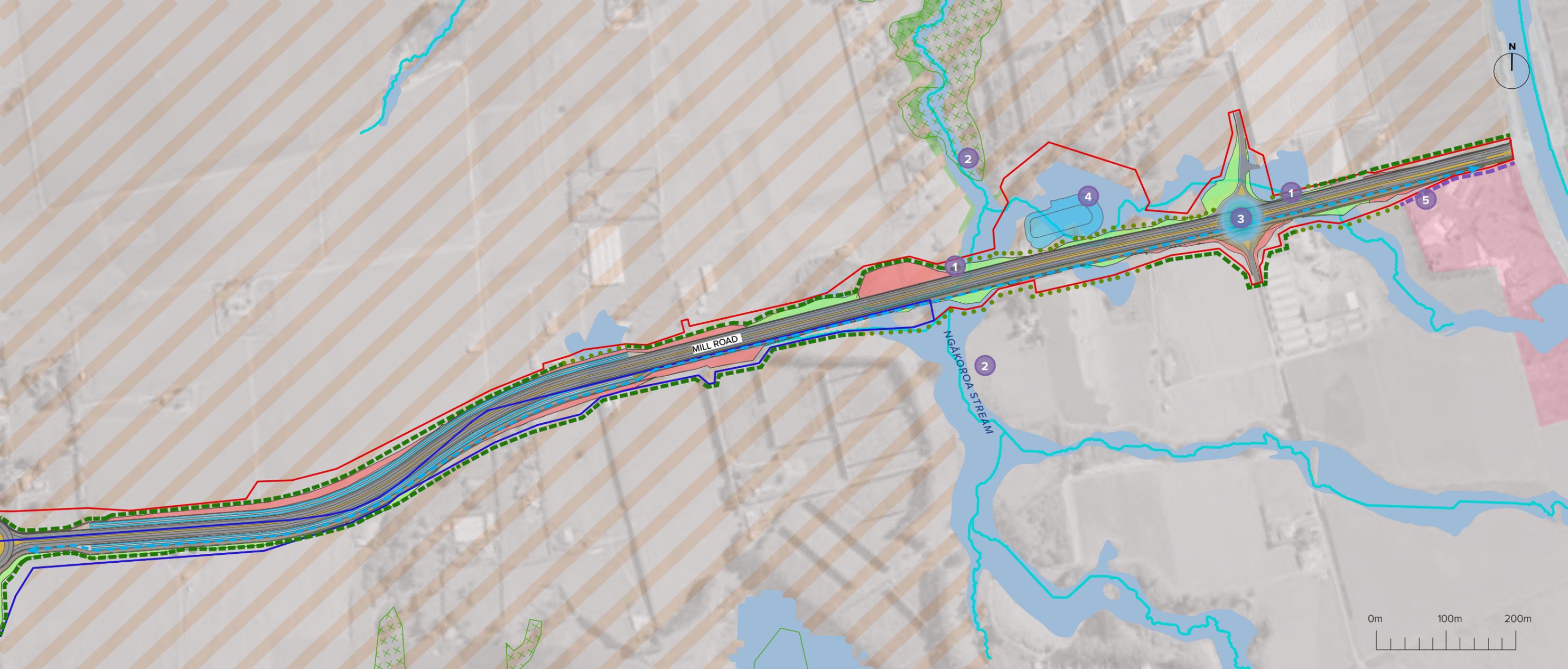
- 5 **Earthworks** - Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future adjacent landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
- 6 **Gateway** - Gateway treatment and define the transition into Pukekohe
- 7 **Pukekohe East Hall** - The design of the corridor should maintain access to this community facility.
- 8 **Ainsely Polo Club** - The design of the corridor should maintain access to this recreation facility.

### OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that responds to the adjacent rural zone, integrating the corridor into the adjacent land form and include appropriate planting and screening.
- Establish landscape outcomes that provides an appropriate interface to the blue and green network.
- Provide cross corridor active move connection that connects to the future local transport network.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

### LEGEND

- Designation Boundary (Auckland Council)
- Designation Boundary (Waikato District Council)
- Other NOR Boundaries
- Residential - Mixed Housing Urban
- Rural - Mixed Rural
- Rural - Rural Production
- Open space - Community
- Blue network
- Open Watercourse
- Proposed Cut
- Proposed Fill
- Significant Ecological Area (SEA) - Terrestrial
- Bi-Directional cycling facilities



## NOR 8 - MILL ROAD AND PUKEKOHE EAST UPGRADE

### OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 2

● Outcomes

- 1 **Ecological connectivity** - Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Ngākoroa Stream.
- 2 **Identity drivers** - Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including the Ngākoroa Stream.

- 3 **Active mode legibility and priority** - Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
- 4 **Stormwater Wetlands** - Future design should consider integration outcomes for wetland/s such as setbacks, arrangement and scale of planting to support an appropriate interface to the road corridor, adjacent land use and development.
- 5 **Connect and provide access to the Bombay Service Centre**

#### OUTCOMES

- Establish an interface that positively addresses adjacent industrial, business and mixed use zones including consideration of amenity and surveillance for active mode users.
- Establish an interface that responds to the adjacent rural zone, integrating the corridor into the adjacent land form and include appropriate planting and screening.
- Establish landscape outcomes that provides an appropriate interface to the blue and green network.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

#### LEGEND

- Designation Boundary (Auckland Council)
- Designation Boundary (Waikato District Council)
- Business - Neighbourhood Centre
- Rural - Rural Production
- Rural - Mixed Rural
- Blue network
- Open Watercourse
- Proposed Cut
- Proposed Fill
- Significant Ecological Area (SEA) - Terrestrial
- ↔ Bi-Directional cycling facilities