7.5 NoR 5: New SH1 crossing at Dairy Stream - Urban Design Matters

Table 8 outlines urban design commentary specific to NoR 5.

Table 8: Urban Design Evaluation for NoR 5 - New SH1 Crossing at Dairy Stream

Principle	Explanation	Application to NoR 5
ENVIRONMENT		
1.1 Support and enhance ecological corridors and biodiversity	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• Opportunities within the immediate environment of NoR 5 to support ecological connectivity and biodiversity are identified in the *North: Assessment of Ecological Effects* and include where the corridor crosses a tributary of the Huruhuru (Dairy Stream).
1.2 Support water conservation and enhance water quality in a watershed	*Take into account and work with the existing watershed as part of a whole system.*	• The proposed typical corridor cross section and designation boundary allow sufficient space to provide natural drainage to vegetated swales to address water quality and reduce hard engineering solutions. The crossing includes space for a stormwater wetland.
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.*	• Earthworks are required to achieve the necessary height over the SH1 corridor, particularly on the western side where it ties in with Top Road. • The surrounding land is identified for future urban development and is LUC class 4 soil which is not considered to be highly productive.
1.4 Adapt to a changing climate and respond to the microclimatic factors of each area	*Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the orientation of transport corridors can make to the local climate of future places and streets.*	• The corridor provides active mode facilities across the SH1 corridor, supporting mode shift
SOCIAL		
2.1 Identity and place	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity*	• The further identification, development and integration of key identity drivers within NoRs 5 should be addressed in future design stages and are generally limited to the natural character drivers of the Huruhuru (Dairy Stream) and its tributary.

Principle	Explanation	Application to NoR 5
	and contribute to our collective memory.	
2.2 **Respect culturally significant sites and landscapes**	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• Refer to Table 3 in relation to this design principle.
2.3 **Adaptive corridors**	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• Refer to Table 3 in relation to this design principle. • If practicable, future land integration post construction should be considered in the following areas to support any proposed development adjacent to the corridor, particularly: ○ Adjacent to the fill batters that provide the height required to cross SH1.
2.4 **Social cohesion**	*Provide clear, effective and legible connectivity between community and social functions.*	• The crossing provides an important connection over the SH1 corridor, connecting communities on either side.
2.5 **Safety**	*Provide a safe and convenient network of routes accessible to people of all ages and abilities.*	• Refer to Table 3 in relation to safety recommendations. In addition to these recommendations, a CPTED audit of the corridor within NoR 5 should address, at a minimum, the current identified CPTED risks including the walking and cycling facilities where there are limited passive surveillance opportunities.
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.*	• This principle is not directly relevant to the NoR 5 corridor as it is a short crossing over the SH1 corridor. It does link areas of FUZ, which are anticipated to be residential.
3.2 **Corridor scaled to the surrounding context and urban structure**	*Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).*	• The designation provides for a 24m two way urban arterial connection with a 18-22m wide overbridge over SH1. The cross section includes active mode facilities on either side. • The width of the corridor is considered appropriate to the FUZ context; however, future design detail of the proposed ramp structure from Top Road and East

Principle	Explanation	Application to NoR 5
		Coast Road should consider scale, visual integration and interface response to adjacent land use functions. • Further vertical integration adjacent to the proposed ramp structure should be developed at a detailed design stage to allow an appropriate transition and interface to adjacent built form.
3.3 **Facilitate an appropriate interface between place and movement**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• Refer to Table 3 in relation to this design principle.
MOVEMENT		
4.1 **Connect nodes**	*Provide tangible connectivity between identified activity nodes.*	• The designation provides a connection over the SH1 corridor, and access to the Silverdale West Industrial Structure Plan Area.
4.2 **Connect modes**	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• Refer to Table 3 in relation to this design principle.
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.*	• Refer to Table 3 in relation to this design principle. This connection provides a direct route from the FUZ to the east to the Dairy Flat area, including the Silverdale West Industrial Structure Plan Area and the wider FUZ which is anticipated to include a future town centre.
4.4 **Prioritise active modes and public transport**	• *Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.*	• The crossing includes separate facilities for active modes linking catchments east and west of SH1.
4.5 **Support inter-regional connections and strategic infrastructure**	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.*	• This principle is not directly relevant to the NoR 5 corridor.
4.6 **Support legible corridor function**	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• Refer to Table 3 in relation to this design principle.

Principle **LANDUSE**	Explanation	Application to NoR 5
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.*	• This principle is not directly relevant to the NoR 5 corridor.
5.2 **Strategic corridors as urban edges**	*Strategic corridors as potential definers of a land use edge.*	• This principle is not directly relevant to the NoR 5 corridor.

7.5.1 NoR 5: New SH1 crossing at Dairy Stream Outcome and Opportunities Map

NOR 5 - NEW SH1 CROSSING AT DAIRY STREAM

OUTCOMES AND OPPORTUNITIES PLAN

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 Huruhuru (Dairy Stream) and its 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 future land use and Huruhuru (Dairy Stream) and its tributaries.
3. **CPTED -** Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance, particularly at intersections.
4. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
5. **Stormwater Wetlands -** 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. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact 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.

Establish landscape outcomes that provides an appropriate interface to the blue and green network using native and ecologically appropriate planting.

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
- Future Urban Zone - FUZ
- Indicative footprint of Pine Valley East Station park and ride and bus layover
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse

7.6 NoR 6: New Connection between Milldale and Grand Drive- Urban Design Matters

Table 9 outlines urban design commentary specific to NoR 6.

Table 9: Urban Design Evaluation for NoR 6 – New Connection between Milldale and Grand Drive

Principle	Explanation	Application to NoR 6
ENVIRONMENT		
1.1 Support and enhance ecological corridors and biodiversity	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• Opportunities within the immediate environment of NoR 6 to support ecological connectivity and biodiversity are identified in the *North: Assessment of Ecological Effects* • There are five watercourse crossings in NoR 6 across the Ōrewa River and its tributaries and associated wetlands. Two of these are proposed to be bridged. The crossings present an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system, particularly where culverts are proposed.
1.2 Support water conservation and enhance water quality in a watershed	*Take into account and work with the existing watershed as part of a whole system.*	• The proposed typical corridor cross section and designation boundary allow sufficient space to provide drainage to vegetated wetlands to address water quality and reduce hard engineering solutions.
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.*	• There are large areas of earthworks required to deliver this corridor with some large batters likely required, to accommodate the corridor, resulting in a wide corridor in this location, potentially up to 140m across the indicative earthworks which without mitigation will not create positive interfaces along the corridor. Future design stages should demonstrate the approach to minimising the extent of cut and fill required. • The majority of the land adjacent to the corridor within the FUZ and therefore identified for future urban development. is LUC class 4 soil which is not considered to be highly productive soil. The small segment of the corridor adjacent to the Rural Zone that will be subject to earthworks is LUC class 4, which is not considered to be highly productive.
1.4 Adapt to a changing climate and respond to the microclimatic	*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*	• Refer to Table 3 in relation to this design principle.

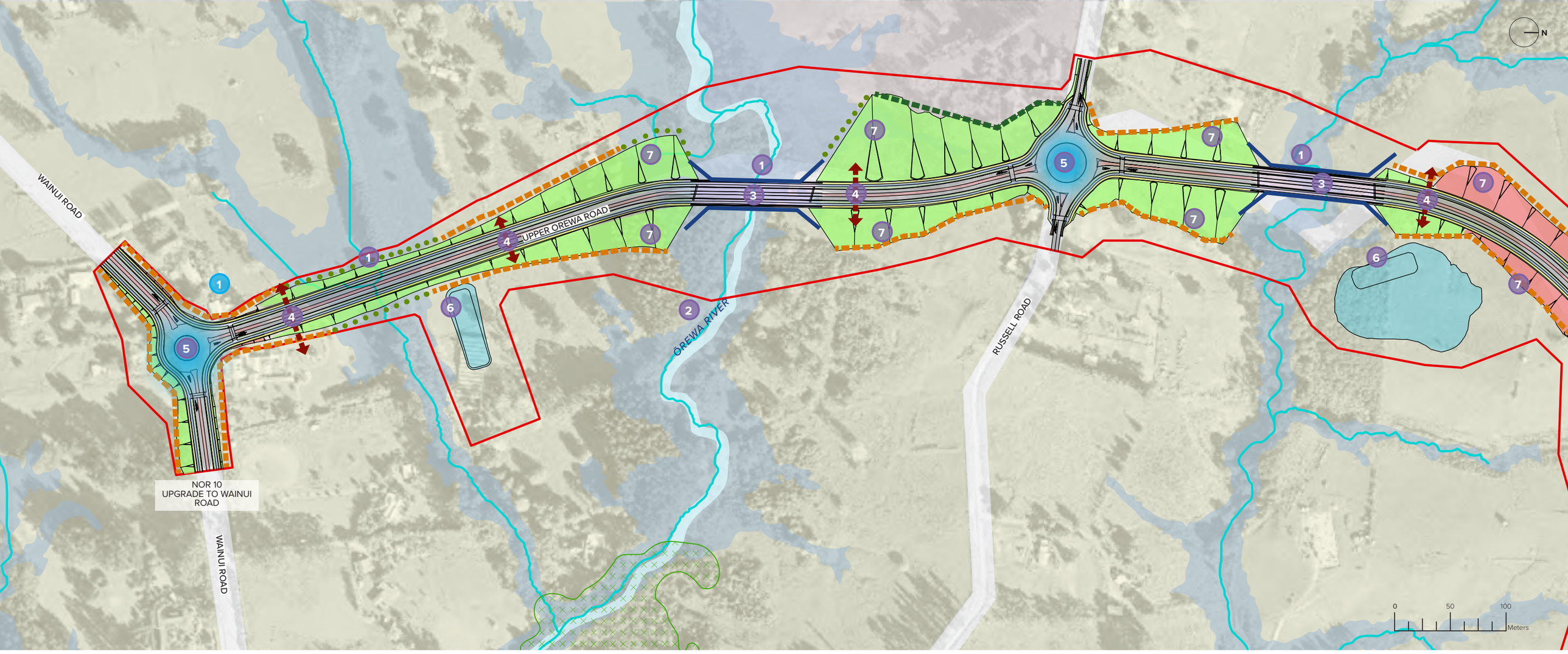
Principle	Explanation	Application to NoR 6
factors of each area	*local climate of future places and streets.*	
SOCIAL		
2.1 **Identity and place**	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.*	• The further identification, development and integration of key identity drivers within NoR 6 should be addressed in future design stages and include consideration of and responses to: ○ The Ōrewa River and its tributaries.
2.2 **Respect culturally significant sites and landscapes**	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• Refer to Table 3 in relation to this design principle.
2.3 **Adaptive corridors**	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• If practicable, future land integration post construction should be considered in the following areas to support any proposed development / redevelopment adjacent to the NoR 6 corridor: ○ Future residential zoning adjacent to the corridor ○ A potential future school facility at the southern end of the corridor.
2.4 **Social cohesion**	*Provide clear, effective and legible connectivity between community and social functions.*	• To enable equitable local connectivity and cross corridor access to the future school, further development at the detailed design stage should be undertaken to provide crossing points at intersections and at appropriate mid-block locations.
2.5 **Safety**	*Provide a safe and convenient network of routes accessible to people of all ages and abilities.*	• Refer to Table 3 in relation to safety recommendations. In addition to these recommendations, a CPTED audit of the corridor within NoR 6 should address, at a minimum, the current identified CPTED risks including the walking and cycling facilities where there are limited passive surveillance opportunities.
BUILT FORM		

Principle	Explanation	Application to NoR 6
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.*	• NoR 6 is located in the FUZ and structure planning is yet to be undertaken. A future school is likely to be proposed adjacent to the southern intersection of the corridor, which creates the opportunity to provide direct connection to the school as the area develops.
3.2 **Corridor scaled to the surrounding context and urban structure**	*Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).*	• The proposed corridor is a 24m cross section, two-lane carriageway with separated walking and cycling for the length of the designation. It will tie into a 30m corridor at the western edge of Ara Hills, connecting to Grand Drive. • The corridor will have a 50km/h speed environment. Intersections are currently shown as single lane roundabouts. This proposed cross section and speed environment are generally suitable for the future residential environment anticipated in this location. • Future design detail of the corridor should look to reduce the scale of earthwork associated with the corridor, to better integrate large areas of cut and fill which are likely to create large scale batter slopes in the context of residential development, potentially up to 140m in some locations , with adverse impacts on interface and connectivity within the future urban environment. • The scale of the earthworks and structures required to establish this corridor is large and the relationship to the context will depend on the developments planned / established adjacent to the corridor, the width of the corridor itself (i.e., including the space required for earthworks, structures, facilities, etc) and the ability to integrate these features of the corridor into the surrounding urban fabric as the area urbanises. This could be achieved through working with adjacent developers to understand land use, establish the appropriate levels of adjacent land to the corridor and realising opportunities in detailed design. • Further vertical integration adjacent to the proposed ramp structures for proposed bridges should be developed at a detailed design stage to allow an appropriate transition and interface to adjacent built form.
3.3 **Facilitate an appropriate interface between**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• Key focus areas within NoR 6 that require further resolution in future design stages to demonstrate the place function include the built form interface with the road corridor, in particular where large areas of cut and fill are required. Without careful consideration these

Principle	Explanation	Application to NoR 6
place and movement		areas are likely to have impacts on connectivity and access, particularly for active modes, in the future.
MOVEMENT		
4.1 Connect nodes	*Provide tangible connectivity between identified activity nodes.*	• The corridor will provide a connection between the Ara Hills development and the Milldale Centre
4.2 Connect modes	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• Refer to Table 3 in relation to this design principle.
4.3 Support access to employment and industry	*Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.*	• The corridor will allow a direct connection through Milldale to the Silverdale West Industrial area and rapid transit stations in this area.
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.* •	• Refer to Table 3 in relation to this design principle.
4.5 Support inter-regional connections and strategic infrastructure	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.*	• Refer to Table 3 in relation to this design principle.
4.6 Support legible corridor function	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• Refer to Table 3 in relation to this design principle.
LANDUSE		
5.1 Public transport directed and integrated into centres	*Locate rapid transit interchanges within centres (local, town and metro) to support a mix of uses and*	• Refer to Table 3 in relation to this design principle.

Principle	Explanation	Application to NoR 6
	provide modal choice to a larger number of users.	
5.2 Strategic corridors as urban edges	*Strategic corridors as potential definers of a land use edge.*	• This principle is not directly relevant to the NoR 6 corridor.

7.6.1 NoR 6: New Connection between Milldale and Grand Drive Outcomes and Opportunities Maps



NOR 6 - NEW CONNECTION BETWEEN MILLDALE AND GRAND DRIVE

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 2

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 the Ōrewa River and its 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 Ōrewa River and its tributaries.
3. **CPTED -** Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance.
4. **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.
5. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
6. **Stormwater Wetlands -** 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. **Earthworks -** Minimse Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Where mass planting is proposed on batters, use native ecologically appropriate species.

1. **Interface and connect with a future school -** Future land use in the area may include a school. The corridor should interface and consider the provision of a direct, safe, grade crossing directly to the school, supporting access for the surrounding community.

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 mode 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
- Future Urban Zone - FUZ
- Rural - Production
- Proposed Cut
- Proposed Fill
- Significant Ecological Area (SEA) - Terrestrial
- Blue network
- Open Watercourse

NOR 6 - NEW CONNECTION BETWEEN MILLDALE AND GRAND DRIVE

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 2

Outcomes

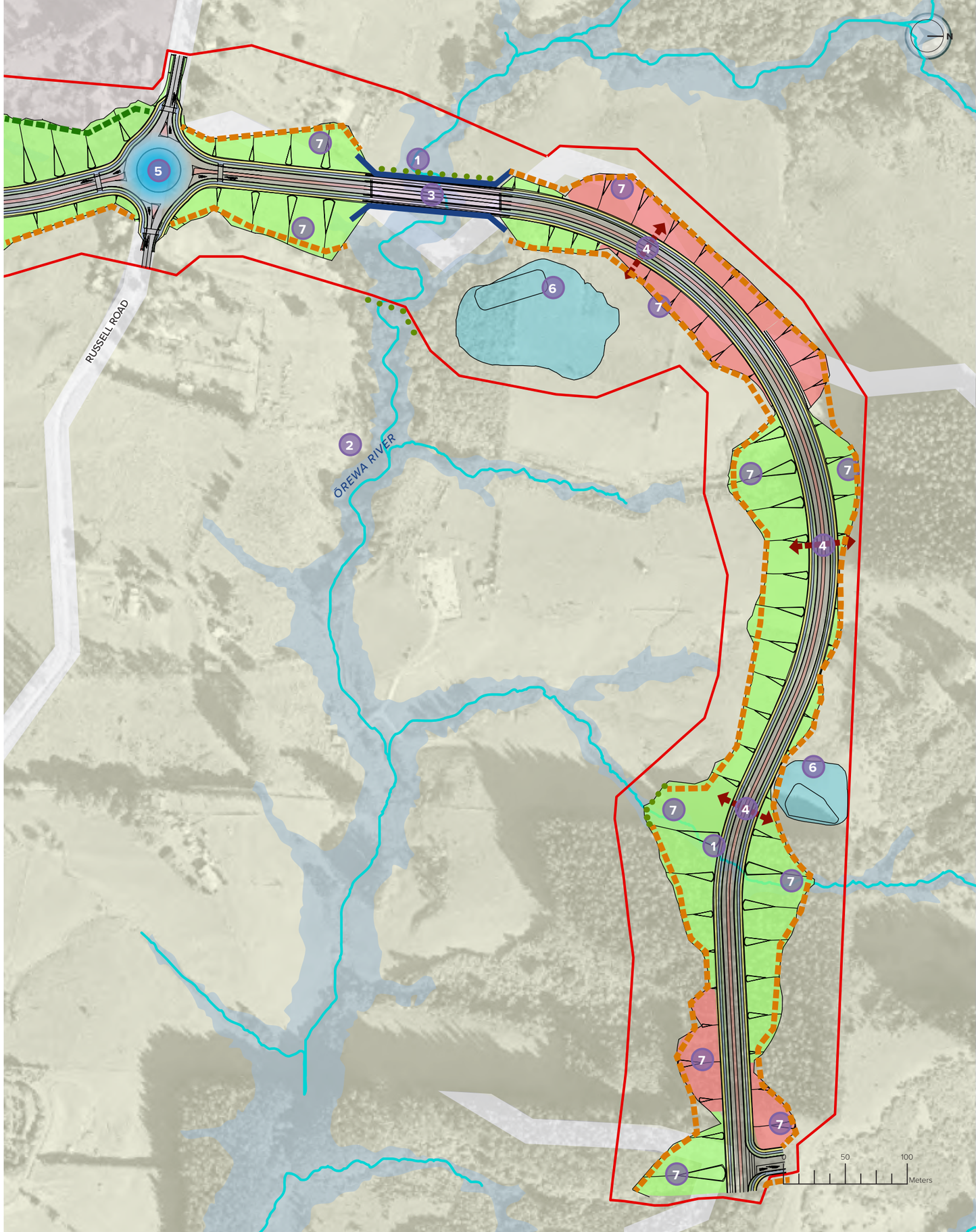
1. **Ecological connectivity -** Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Ōrewa River and its tributaries.
2. **Identity drivers -** Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including future land use and centres, existing development in Ara Hills, and adjacent watercourses.
3. **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.
4. **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, open spaces and community facilities
5. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
6. **Stormwater Wetlands -** 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. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact 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.
- 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.
- 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
- Future Urban Zone - FUZ
- Rural - Production
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse



7.7 NoR 7:Upgrade to Pine Valley Road - Urban Design Matters

Table 10 outlines urban design commentary specific to NoR 7.

Table 10: Urban Design Evaluation for NoR 7 Upgrade to Pine Valley Road

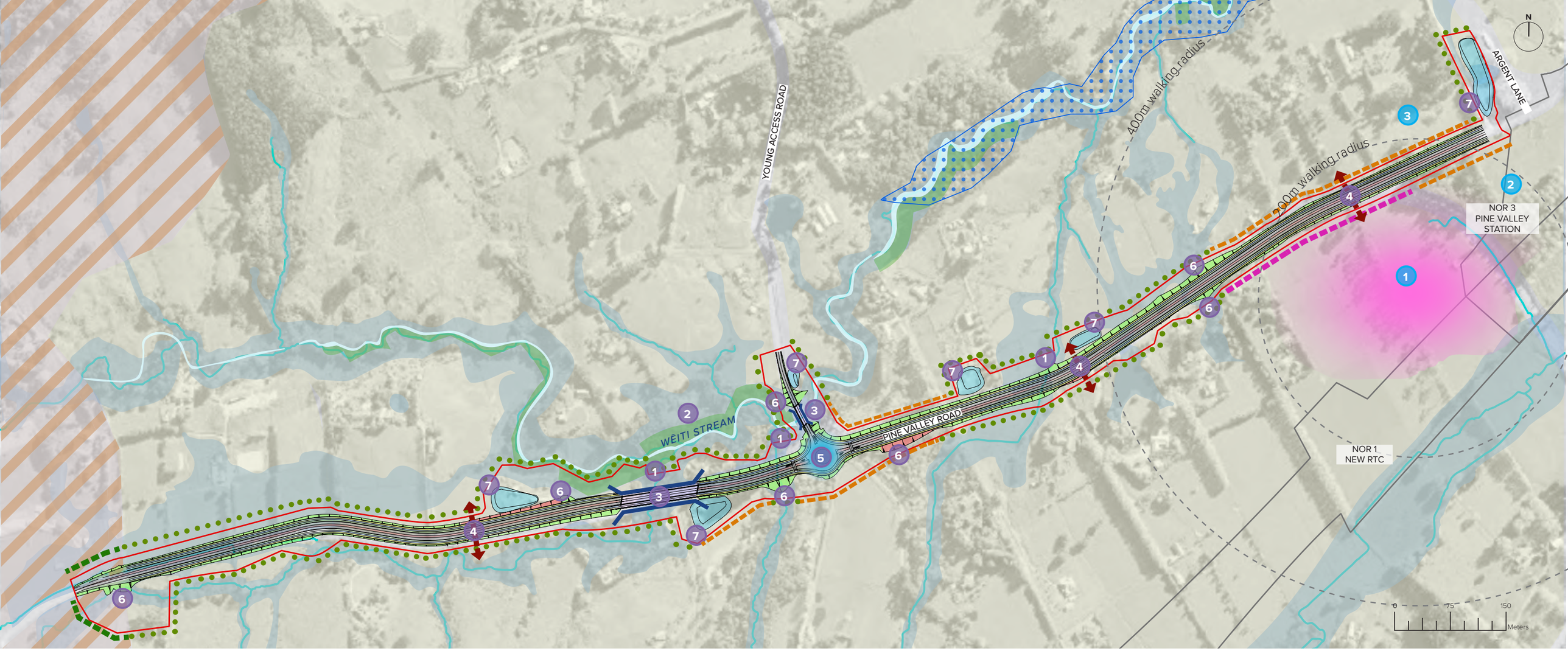
Principle	Explanation	Application to NoR 7
ENVIRONMENT		
1.1 Support and enhance ecological corridors and biodiversity	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• Opportunities within the immediate environment of NoR 7 to support ecological connectivity and biodiversity are identified in the *North: Assessment of Ecological Effects* and include: ○ where the corridor crosses tributaries of Wēiti Stream. • There are two watercourse bridge crossings in NoR 7 at the Wēiti Stream. A small exotic wetland is identified adjacent to the northern side of the corridor. This presents an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system
1.2 Support water conservation and enhance water quality in a watershed	*Take into account and work with the existing watershed as part of a whole system.*	• The proposed typical corridor cross section and designation boundary allow sufficient space to provide drainage to vegetated wetlands to address water quality and reduce hard engineering solutions. • The corridor is located adjacent to and within the flood plains of the Wēiti Stream and detailed design should take this into consideration when designing stormwater management solutions.
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.*	• This corridor requires minimal earthworks to undertake the proposed upgrade, making use of the existing corridor. • The surrounding land is LUC class 4 soil which is not considered to be highly productive. The land is also identified for future urban development and will be urbanised.
1.4 Adapt to a changing climate and respond to the microclimatic factors of each area	*Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the orientation of transport corridors can make to the local climate of future places and streets.*	• The corridor provides active mode facilities, supporting mode shift.
SOCIAL		

Principle	Explanation	Application to NoR 7
2.1 **Identity and place**	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.*	• The further identification, development and integration of key identity drivers within NoR 7 should be addressed in future design stages and include consideration of and responses to: ○ The Wēiti Stream and its tributaries. ○ The proposed Pine Valley East Station ○ The potential local centre in this location. ○ Gateways and transition between residential and industrial land use.
2.2 **Respect culturally significant sites and landscapes**	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• Refer to Table 3 in relation to this design principle.
2.3 **Adaptive corridors**	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• If practicable, future land integration post construction should be considered in the following areas to support any proposed development / redevelopment adjacent to the NoR 7 corridor, particularly: ○ The Pine Valley East Station ○ A potential local centre in this location
2.4 **Social cohesion**	*Provide clear, effective and legible connectivity between community and social functions.*	• To enable equitable local connectivity and wider access to the Pine Valley East Station and anticipated areas of high density, further development at the detailed design stage should be undertaken to provide crossing points at intersections and at appropriate midblock locations. • 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 the Pine Valley East Station and any future local centre in the area.
2.5 **Safety**	*Provide a safe and convenient network of routes accessible to people of all ages and abilities.*	• Refer to Table 3 in relation to safety recommendations. • In addition to these recommendations, a CPTED audit of the NoR 7 project should address, at a minimum, those areas along the corridor that may have a less active interface due to adjacent SEA, flood plains and areas of cultural significance.
BUILT FORM		

Principle	Explanation	Application to NoR 7
3.1 **Align corridors with density**	*Locate stations/stops and corridors within walking distance of higher density development to facilitate modal shift, support commercial and mixed-use centres and contribute to vibrant, active urban environments.*	• The corridor is located in the FUZ and minimal future land use planning has been undertaken in this location. It is possible a future local centre may be in this area, likely associated with the RTN which is likely to enable density which this corridor could support.
3.2 **Corridor scaled to the surrounding context and urban structure**	*Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).*	• The proposed upgrade maintains a two-lane corridor, with widening to 24m to include allowance for active mode and stormwater facilities. The proposal will also reduce the speed environment from 80km/h to 50km/h which is appropriate for a future residential environment. Minimal earthworks are required to deliver this corridor.
3.3 **Facilitate an appropriate interface between place and movement**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• Key focus areas within NoR 7 that require further resolution in future design stages to demonstrate the place function include: ○ The key intersections and mid-block crossings to facilitate wider access to Pine Valley East Station. ○ The interface with adjacent high and medium density development.
MOVEMENT		
4.1 **Connect nodes**	*Provide tangible connectivity between identified activity nodes.*	• The corridor provides a connection from the edge of the FUZ to the future Pine Valley East Station and further to the Milldale Centre.
4.2 **Connect modes**	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• Refer to Table 3 in relation to this design principle.
4.3 **Support access to employment and industry**	*Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.*	• The corridor facilitates access to the Silverdale West future industrial area, and the Pine Valley East Station which provides access to wider employment opportunities in the FUZ, Albany and beyond.

Principle	Explanation	Application to NoR 7
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 PT lanes are not proposed, however the corridor has flexibility for PT use.
4.5 **Support inter-regional connections and strategic infrastructure**	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.*	• This corridor ties into the proposed RTC corridor and SH1 via the new Pine Valley Road alignment and the Silverdale interchange.
4.6 **Support legible corridor function**	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• Refer to Table 3 in relation to this design principle.
LANDUSE		
5.1 **Public transport directed and integrated into centres**	*Locate rapid transit interchanges within centres (local, town and metro) to support a mix of uses and provide modal choice to a larger number of users.*	• PT using this corridor will be able to access the Milldale Centre and the Pine Valley East Station.
5.2 **Strategic corridors as urban edges**	*Strategic corridors as potential definers of a land use edge.*	• This principle is not directly relevant to the NoR 7 corridor.

7.7.1 NoR 7: Upgrade to Pine Valley Road Outcomes and Opportunities Map



NOR 7 - UPGRADE TO PINE VALLEY ROAD

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 1

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 Wēiti 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 Wēiti Stream and any future local centres in the area.
3. **CPTED -** Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance.
4. **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.
5. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
6. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact the efficiency of future adjacent landuses. Where mass planting is proposed on batters, use native ecologically appropriate species.
7. **Stormwater Wetlands -** 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.

1. **Connect with the future local centres -** The Draft Spatial Land Use Strategy identifies two potential local centres in this area. The road upgrade should provide for direct connection to these centres in the future.
2. **Connect with the future Pine Valley East Station -** NoR 2 will establish a station on the Rapid Transit Corridor. The future design of the corridor should establish a clear and direct connection to the station across the corridor, facilitating access to the station and RTC from the wider catchment.
3. **Gateway into the Silverdale Industrial Area -** The corridor will provide direct access into the Silverdale West Industrial area, and the future design of the corridor, should consider the opportunity to provide a gateway into the area, assisting in way finding and defining the transition between land uses.

OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that enables buildings and spaces in the town centre 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 mode 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
- Future Urban Zone - FUZ
- Rural - Mixed Rural
- Proposed Cut
- Proposed Fill
- Natural Stream Management Areas
- Blue network
- Open Watercourse
- Potential Future Local Centre

7.8 NoR 8: Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat - Urban Design Matters

NoR 8 is approximately 9.5km long corridor from the Silverdale Interchange in the north to the intersection with NoR 9 in the south, to the south of the Durey Road intersection. The majority of NoR 8 is located in the FUZ, with two sections of the Dairy Flat Highway on the boundary of the FUZ and Rural Zone; an approximate 700m section between Wilks Road and the Kahikatea Flat Industrial area and another section of approximately 2.1km in length from the southern edge of the Kahikatea Flat Industrial area to the boundary of the FUZ north of Blackbridge Road. These sections on the boundary of Rural Zone have a different cross section, recognising the differing context from those segments that are urban on either side of the corridor. The future anticipated environment includes the Silverdale West – Dairy Flat Industrial Structure Plan area, existing Industrial area at Kahikatea Flat Road, future residential development of various densities, and in close proximity to a future town centre within the Dairy Flat area. For this reason, where necessary, the evaluation of NoR 8 provides commentary with reference to five segments. These are:

- Segment A: Durey Road Intersection – Bawden Road (Chainage 0 - 1800)
- Segment B: Bawden Road – Richards Road (Chainage 1800 - 3900)
- Segment C: Richards Road – Horseshoe Bush Road (Chainage 3900 - 6100)
- Segment D: Horseshoe Bush Road –Crossover with the RTC (Chainage 6100 - 8150)
- Segment E: Crossover with the RTC – Silverdale Interchange (Chainage 8150 – 9415)

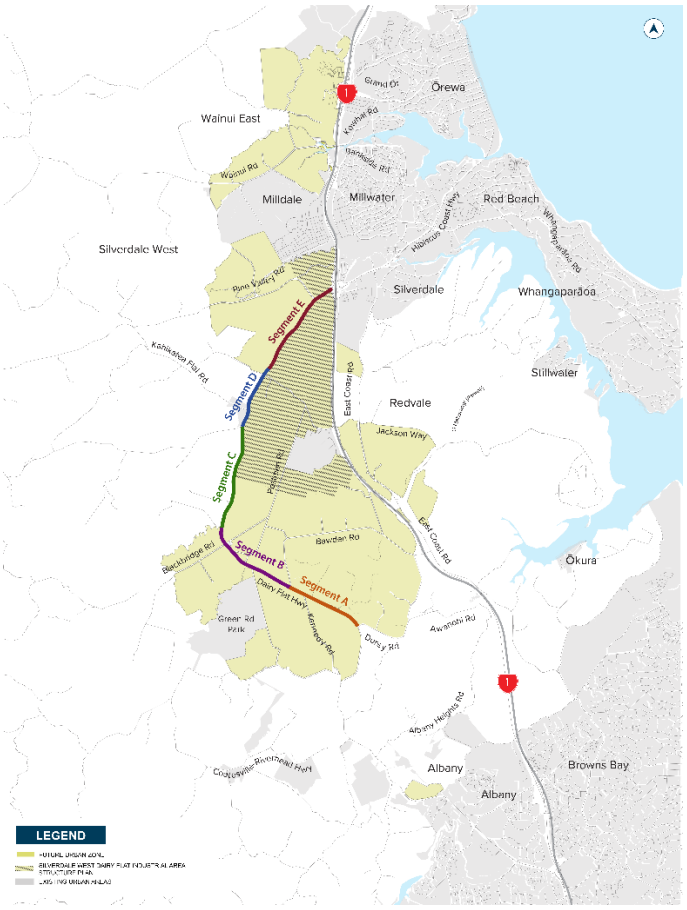


Figure 7-3: NoR 8 Segments

Table 11 outlines urban design commentary specific to NoR 8.

Table 11: Urban Design Evaluation for NoR 8 - Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat

Principle	Explanation	Application to NoR 8
ENVIRONMENT		
1.1 Support and enhance ecological corridors and biodiversity	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• Potential opportunities within the immediate environment of NoR 8 to support ecological connectivity and biodiversity are identified in the North: *Assessment of Ecological Effects* and include where the corridor crosses: ○ Huruhuru (Dairy Stream) and tributaries ○ Rangitopuni Stream and tributaries; ○ John Creek and tributaries; and • Refer to the North: Assessment of Ecological Effects for details of these opportunities. **Segment A** • This segment crosses two tributaries of the Huruhuru (Dairy Stream) and associated wetlands; via a bridge at Chainage 600 and a culvert at chainage 1100. These crossings present an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system. **Segment B** • This segment crosses two tributaries of the Huruhuru (Dairy Stream) and associated flood plains and wetlands via bridges at chainage 1900 and 2700 and culverts at chainage 2500 and 3800. A large area of exotic wetland has been identified on the corner of Dairy Flat Highway and Blackbridge Road. These crossings present an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system. **Segment C** • This segment crosses three tributaries of the Rangitopuni Stream, associated wetlands and floodplains via two bridges at chainage 4650 and 5950 and a culvert at chainage 4300. These crossings present an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system.

Principle	Explanation	Application to NoR 8
		Segment D • This segment of the corridor runs adjacent to a identified natural wetland on the corner of Dairy Flat Highway and Wilks Road West and another exotic wetland adjacent to the western side of the corridor but has minimal encroachment on these areas. **Segment E** • There are no watercourse or SEAs crossed in this segment. There are areas of exotic wetland that have been identified in this segment.
1.2 **Support water conservation and enhance water quality in a watershed**	*Take into account and work with the existing watershed as part of a whole system.*	• The proposed typical corridor cross section and designation boundary allow sufficient space to provide drainage to artificial stormwater wetlands to address water quality. Room for twelve artificial wetlands is provided along the length of the corridor to provide stormwater management of the corridor.
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.*	• Earthworks are required throughout the length of the corridor. These are generally of a small scale, with some localised areas where larger cut/fill is required due to the topography, including: - Chainage 0-100 - Chainage 3000-3100 - Chainage 3500 – 3700 - Chainage 9300. • Some of the larger stormwater wetlands also require large areas of cut to be constructed. • The majority of the corridor is located in the FUZ meaning that the area will be urbanised, with a segment adjacent to the rural zone that is not expected to be developed. Soils along this corridor are classified as LUC Class 4 with a small area of Class 6, and not considered to be highly productive.
1.4 **Adapt to a changing climate and respond to the microclimatic factors of each area**	*Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the orientation of transport corridors can make to the local climate of future places and streets.*	• Refer to Table 3 in relation to this design principle. • The corridor provides room for dedicated public transport lanes where there is FUZ on both sides of the corridor. Active mode facilities are provided throughout the length of the corridor, supporting mode shift.

Principle	Explanation	Application to NoR 8
SOCIAL		
2.1 **Identity and place**	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.*	• The NoR 8 corridor runs through or bounds the FUZ along the length of the corridor. It is anticipated that the corridor will span a range of future receiving environments including the Silverdale West – Dairy Flat Industrial Structure Plan area, existing Industrial area at Kahikatea Flat Road, future residential development of various densities, and in close proximity to a future town centre within the Dairy Flat area. The corridor will also help define the boundary between rural and urban land use for approximately 2.8km of the corridor between Pine Valley Road and Blackbridge Road. • Future design stages of the project should demonstrate an appropriate response to place values and the definition of character and 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 runs to the south of the likely location of the future Dairy Flat Town Centre and the design should demonstrate a response to the place values established in this location and facilitate access for active modes across the corridor, including opportunities for connections to Green Park and Dairy Stream.
2.2 **Respect culturally significant sites and landscapes**	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• Refer to Table 3 in relation to this design principle.
2.3 **Adaptive corridors**	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• If practicable, future land integration post construction should be considered in the following areas to support any proposed development / redevelopment adjacent to the NoR 8 corridor: ○ On both sides of the corridor where it is located within the FUZ ○ On the eastern side of Segment C and D where the FUZ is only on the eastern side.
2.4 **Social cohesion**	*Provide clear, effective and legible connectivity between community and social functions.*	• 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 wider, yet direct access to future local, neighbourhood and

Principle	Explanation	Application to NoR 8
		town centres, schools, community functions and open spaces, including: ○ The future Dairy Flat town centre. ○ Future employment area in Silverdale West Dairy Flat Industrial Structure Plan area. ○ Areas of high density adjacent to the town centre. ○ Adjacent to the future Green Road Reserve ○ Dairy Flat School • To enable equitable local connectivity and access to the future town centre and areas of future high density residential development, further development at the detailed design stage should be undertaken of crossing points for intersections and at mid-block locations along this alignment, providing connections to key destinations and minimising the effects of severance.
2.5 **Safety**	*Provide a safe and convenient network of routes accessible to people of all ages and abilities.*	• Refer to Table 3 in relation to safety recommendations. In addition to these recommendations, a CPTED audit of the corridor within NoR 8 should address, at a minimum, the current identified CPTED risks including: ○ Proposed wetland environments throughout the corridor. ○ Any proposed grade separated crossings of the corridor. ○ Underbridge environments to the water course crossings throughout the corridor.
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.*	• While land use planning has not been undertaken within the majority of the alignment (the exception being high level planning for the Silverdale West Dairy Flat Structure Plan Area), it is anticipated that the corridor will pass through a range of residential densities, including areas that are likely to be higher density near the future Dairy Flat Town Centre.
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).*	• Where the corridor is located within the FUZ, a four-lane arterial 30m cross section is proposed. Where the corridor is located adjacent to the Rural Zone, a 29m corridor is proposed. Speeds are proposed to be reduced from 80km/h to between 50-60km/h which are considered to be appropriate for an urban context. • The widening will establish a high movement corridor, and the detailed design of the corridor will need to consider the different place values of each of the adjacent land use contexts of the corridor as it moves between industrial land use and a likely range of residential densities, including higher densities near the future Dairy Flat Town Centre.

Principle	Explanation	Application to NoR 8
		• The scale of future development is likely to vary throughout the alignment due to different land uses being anticipated in the area, and future design stages will need to demonstrate an appropriate response to the scale of adjacent urban development. Particular focus will be required in those areas of the corridor where larger scale earthworks are required due to the existing topography, including: ○ Chainage 0-100 ○ Chainage 3000-3100 ○ Chainage 3500 – 3700 ○ Chainage 9300.
3.3 **Facilitate an appropriate interface between place and movement**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• Key focus areas within NoR 8 that will require further resolution in future design stages to demonstrate the place interface / response to the proposed movement function include: ○ In proximity to the future Dairy Flat Town Centre. ○ Adjacent to the Green Road Reserve s. ○ Where large areas of cut or fill are proposed adjacent to future residential development. ○ Establishing an appropriate treatment buffer to integrate the corridor and associated works adjacent to the rural zone.
MOVEMENT		
4.1 **Connect nodes**	*Provide tangible connectivity between identified activity nodes.*	• NoR 8 provides connections between Albany (via NoR 9), a future Dairy Flat Town Centre, the Silverdale West Employment Node and Silverdale. The corridor provides for active mode facilities along the length of the corridor and room for dedicated public transport lanes in the FUZ if required, providing travel choice in these areas.
4.2 **Connect modes**	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• NoR 8 provides opportunities for a range of modes to use the corridor, including separated active mode facilities along the length of the alignment and room for dedicated public transport lanes where the corridor is located in the FUZ.
4.3 **Support access to employment and industry**	*Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.*	• The corridor provides direct access to the existing industrial zoned area at the intersection of Kahikatea Flat Road and Dairy Flat Highway, the Silverdale West Dairy Flat Industrial Structure Plan area, and generally to the Dairy Flat Town Centre facilitating access to these employment nodes.

Principle	Explanation	Application to NoR 8
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.*	• NoR 8 provides opportunities for a range of modes to use the corridor, including separated active mode facilities along the length of the alignment and room for dedicated public transport lanes where the corridor is located in the FUZ.
4.5 **Support inter-regional connections and strategic infrastructure**	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.*	• The NoR 8 corridor provides alternate connections to and through the Silverdale West Dairy Flat Industrial Structure Plan area from the SH1 corridor.
4.6 **Support legible corridor function**	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• Refer to Table 3 in relation to this design principle.
LANDUSE		
5.1 **Public transport directed and integrated into centres**	*Locate rapid transit interchanges within centres (local, town and metro) to support a mix of uses and provide modal choice to a larger number of users.*	• While the final location of the future Dairy Flat Town Centre is not yet confirmed, the corridor will facilitate access to the town centre for public transport.
5.2 **Strategic corridors as urban edges**	*Strategic corridors as potential definers of a land use edge.*	• This principle is relevant within Segments C and D of the corridor where it follows the edge of the FUZ.

7.8.1 NoR 8: Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat Outcomes and Opportunities Maps

NOR 8 - UPGRADE TO DAIRY FLAT HIGHWAY BETWEEN SILVERDALE AND DAIRY FLAT

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 2

Outcomes Opportunities

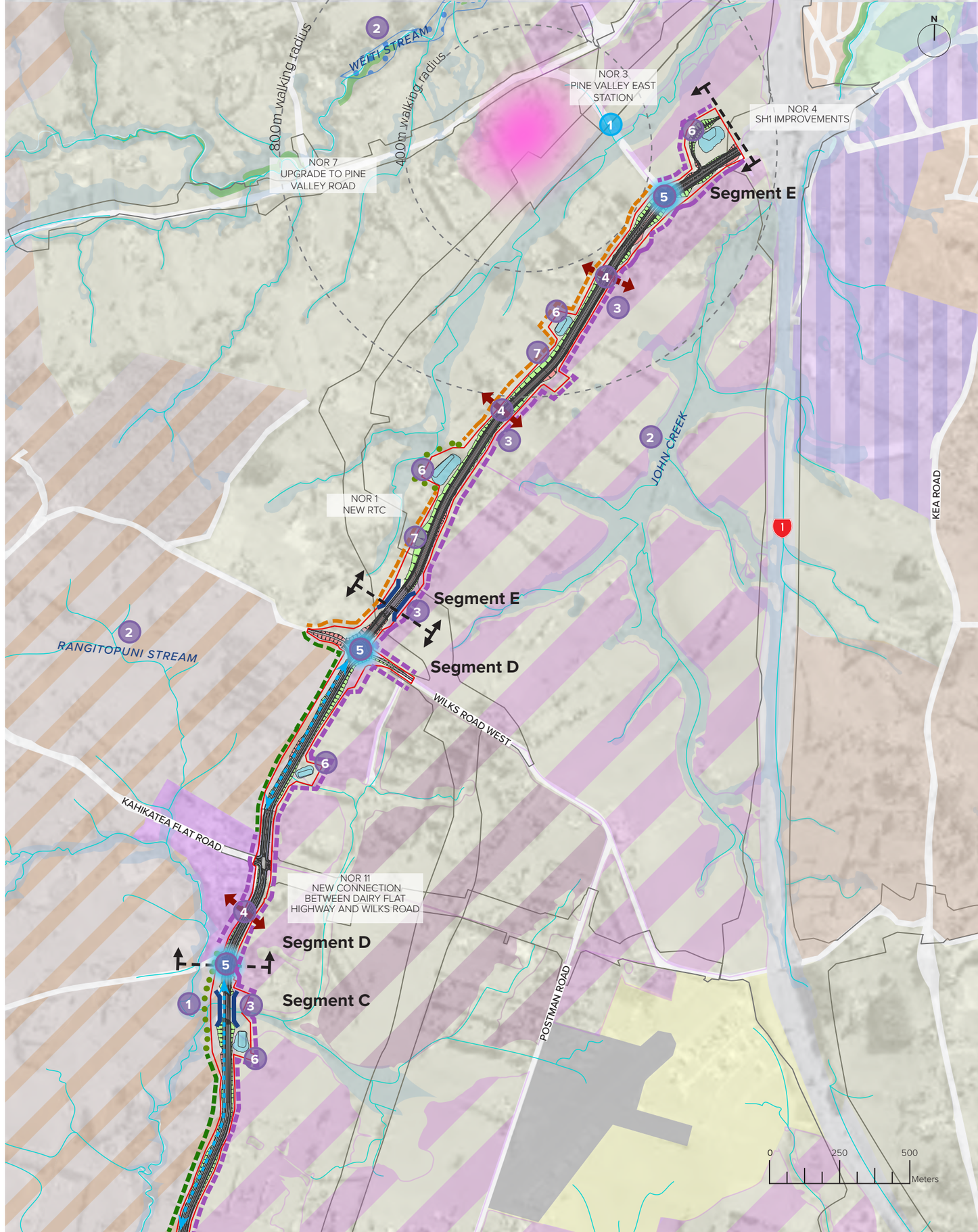
1. **Ecological connectivity -** Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Wēiti Stream and Rangitopuni Stream and its trubutaries.
2. **Identity drivers -** Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including future land use and adjacent watercourses, Wēiti Stream and the Rangitopuni Stream.
3. **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.
4. **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, open spaces and community facilities.
5. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
6. **Stormwater Wetlands -** 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. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact the efficiency of adjacent landuses.
1. **Connect with the future Pine Valley East Station -** NoR 3 will establish a station on the Rapid Transit Corridor. The future design of the corridor should establish a clear and direct connection to the station across the corridor, facilitating access to the station and RTC from the wider catchment.

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.
- 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
- Future Urban Zone - FUZ
- Residential - Large Lot
- Residential - Mixed Housing Urban
- Business - Light Industry
- Business - General Business
- Silverdale West Industrial Structure - Light Industry
- Silverdale West Industrial Structure - Heavy Industry
- Rural - Countryside Living
- Rural - Mixed Rural
- Significant Ecological Area (SEA) - Terrestrial
- Significant Ecological Area (SEA) - Marine
- Natural Stream Management Areas
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse
- Bi-Directional Cycling facilities
- Potential Future Local Centre



NOR 8 - UPGRADE TO DAIRY FLAT HIGHWAY BETWEEN SILVERDALE AND DAIRY FLAT

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 2

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 Rangitopuni Stream and Huruhuru (Dairy) Stream and its 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 future land use and the Dairy Flat Town Centre, Rangitopuni Stream and Huruhuru (Dairy) Stream.
3. **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.
4. **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, open spaces and community facilities and centres at a frequency appropriate for their context.
5. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
6. **Stormwater Wetlands -** 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. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact the efficiency of adjacent landuses.

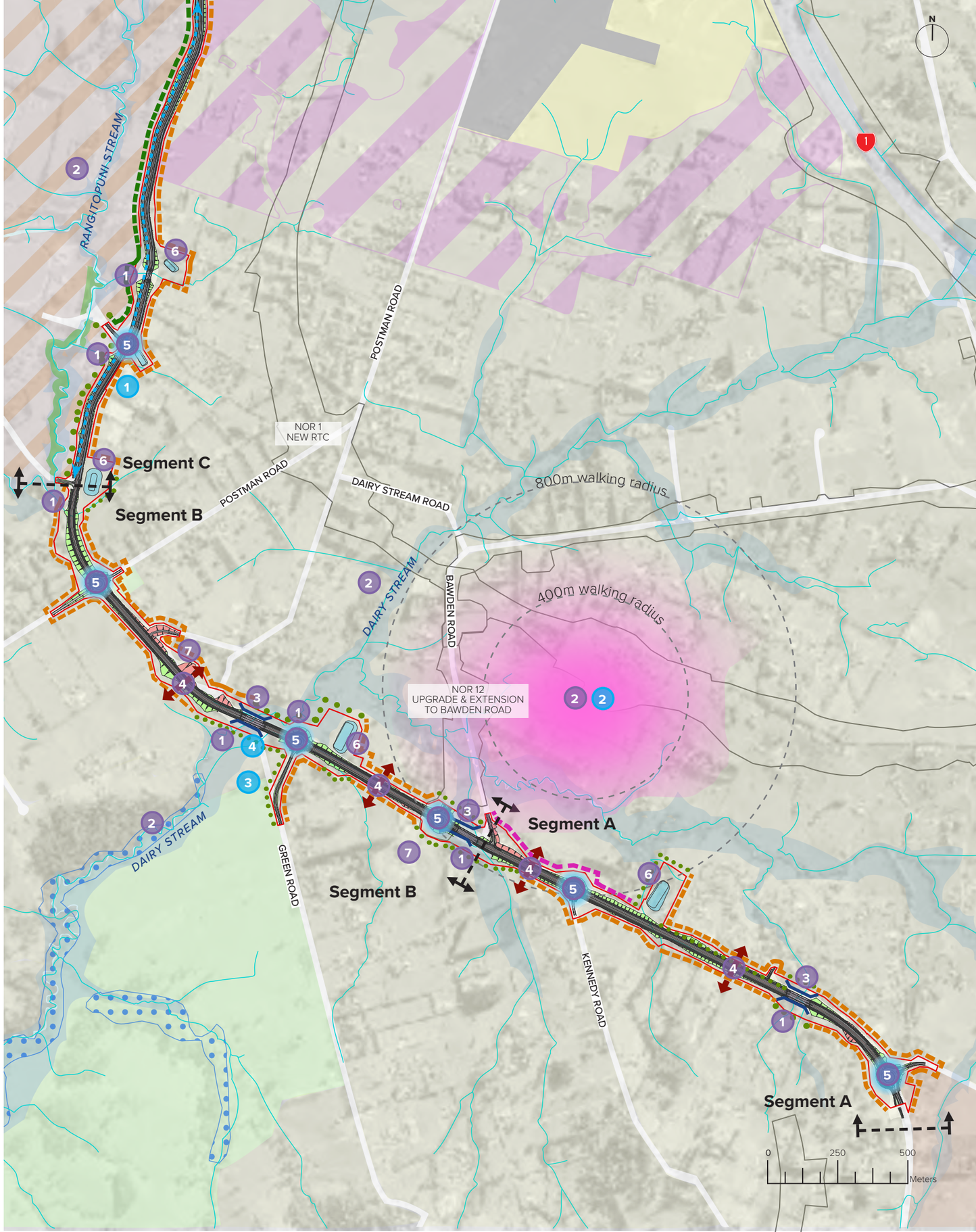
1. **Interface and connect with Dairy Flat School -** The corridor should interface and consider the provision of a direct, safe, grade crossing directly to the school supporting access for the surrounding community.
2. **Facilitate a connection to the future Dairy Flat Town Centre -** The corridor should facilitate ease of access to the future Dairy Flat Town Centre (potential location shown).
3. **Facilitate a connection to the Green Road Reserve -** The corridor should facilitate ease of access to Green Road Reserve which may comprise a regional open space leisure facility in the future will provide amenity to the wider area.
4. **Enhance the Outstanding Natural Landscape values -** The corridor should consider appropriate planting and landscaping in this section of the corridor.

OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that enables buildings and spaces in the town centre 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 mode 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
- Future Urban Zone - FUZ
- Residential - Large Lot
- Residential - Mixed Housing Urban
- Business - Light Industry
- Business - General Business
- Silverdale West Industrial Structure - Light Industry
- Silverdale West Industrial Structure - Heavy Industry
- Rural - Countryside Living
- Rural - Mixed Rural
- Open Space - Sport and Active Recreation
- Natural Stream Management Areas
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse
- Bi-Directional Cycling facilities
- Potential Future Town / Metro Centre



7.9 NoR 9: Upgrade to Dairy Flat Highway (Durey Road to Albany Village) - Urban Design Matters

Table 7: Urban Design Evaluation for NoR *4* – SH 1 Improvements outlines urban design commentary specific to NoR 9.

Table 12: Urban Design Evaluation for NoR 9 Dairy Flat Upgrade Rural Section (Durey Road – Albany)

Principle	Explanation	Application to NoR 9
ENVIRONMENT		
1.1 Support and enhance ecological corridors and biodiversity	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• Opportunities within the immediate environment of NoR 9 to support ecological connectivity and biodiversity are identified in the *North: Assessment of Ecological Effects.* • The upper segment of the corridor is located adjacent to the Huruhuru (Dairy Stream) and associated wetlands with tributaries to the stream crossed by the corridor via culverts. The lower segment of the corridor is adjacent to Waiokahukura (Lucas Creek) with tributaries crossed by the corridor. • There are SEAs adjacent to the corridor for the majority of the length between Foley Quarry Road (Ch3200) to where it ties into Albany (ch400). The design and designation look to narrow the corridor where it is constrained, but will still encroach on some of these areas.
1.2 Support water conservation and enhance water quality in a watershed	*Take into account and work with the existing watershed as part of a whole system.*	• The proposed typical corridor cross section and designation boundary allow sufficient space to provide natural drainage to vegetated swales to address water quality and reduce hard engineering solutions. Where the corridor is constrained, a berm will be used and stormwater piped to treatment locations.
1.3 Minimise land disturbance, conserve resources and materials	*Respect the existing topography, landforms and urban structure in the placement of strategic corridors. Minimise the quantity of hard engineering materials required. Minimise, mitigate any adverse effects of activities on the environment.*	• The topography of the corridor is steep in places, with areas of high geotechnical instability. Consequently, there are large areas of earthworks required throughout the corridor. Generally, these are in the Rural Zone and will impact on the existing environment which is not anticipated to change. The extent of earthworks should be minimised as the design of the corridor is refined in the future. • The majority of the corridor is within the Rural Zone, however, it is mostly LUC class 4 and 5 soils which are not considered to be highly productive. There are some areas of LUC Class 3, and the widening of the road in

Principle	Explanation	Application to NoR 9
		this area will result in the loss of a small area of these soils.
1.4 **Adapt to a changing climate and respond to the microclimatic factors of each area**	*Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the orientation of transport corridors can make to the local climate of future places and streets.*	• The corridor provides for active mode facilities supporting mode shift.
SOCIAL		
2.1 **Identity and place**	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.*	• The further identification, development and integration of key identity drivers within NoR 9 should be addressed in future design stages and are generally limited to: ○ The Huruhuru (Dairy Stream) and its tributaries in the northern segment of the corridor. ○ The natural character of the adjacent SEA and indigenous vegetation. ○ Gateways into Albany and the future urban environment in Dairy Flat.
2.2 **Respect culturally significant sites and landscapes**	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• Refer to Table 3 in relation to this design principle.
2.3 **Adaptive corridors**	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• Refer to Table 3 in relation to this design principle.
2.4 **Social cohesion**	*Provide clear, effective and legible connectivity between community and social functions.*	• The safety upgrades proposed for the corridor include the addition of a wire rope barrier, which will restrict local access via right turns in some locations.
2.5 **Safety**	*Provide a safe and convenient network of*	• Refer to Table 3 in relation to safety recommendations. In addition to these recommendations, a CPTED audit of the corridor within NoR 9 should address, at a

Principle	Explanation	Application to NoR 9
	routes accessible to people of all ages and abilities.	minimum, the current identified CPTED risks including, the walking and cycling facilities where there are limited passive surveillance opportunities. • The design of active mode facilities should consider the likely speed environment relating to the gradient of Dairy Flat Highway in this segment. • The corridor improvements include safety upgrades through the provision of a central wire rope barrier which will improve safety outcomes for users of the corridor.
BUILT FORM		
3.1 **Align corridors with density**	*Locate stations/stops and corridors within walking distance of higher density development to facilitate modal shift, support commercial and mixed-use centres and contribute to vibrant, active urban environments.*	• The corridor runs for a short distance along the edge of the FUZ which is anticipated to be developed for residential purposes, however no structure planning has taken place. The rest of the corridor is located in a rural context before tying into the FUZ (anticipated to be residential) and existing urban environment in Albany which is Mixed Housing Suburban Zone.
3.2 **Corridor scaled to the surrounding context and urban structure**	*Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).*	• The proposed widening as part of NoR 9 will result in a two lane arterial with active modes on one side with the width of the cross section ranging from 19.1m in constrained sections to 25m in unconstrained sections. The speed is proposed to be lowered from 80-60km/h.. This is an appropriate scale for the anticipated future environment likely to be adjacent to a small area of future residential development at the northern and southern eastern edge of the corridor. • Due to the topography, large areas of earthworks will be required along the corridor. Future design stages will need to consider how to best integrate these within the adjacent rural, open space areas, including conservation zone and in some cases, SEA 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.
3.3 **Facilitate an appropriate interface between place and movement**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• Key focus areas within NoR 9 that require further resolution relate to managing the interface between the corridor and future residential land use at either end of the corridor, including facilitating safe crossing to access the active mode facilities proposed on one side of the corridor.
MOVEMENT		

Principle	Explanation	Application to NoR 9
4.1 **Connect nodes**	*Provide tangible connectivity between identified activity nodes.*	• The corridor provides an alternative connection between new development anticipated in Dairy Flat and existing development in Albany and the associated centres.
4.2 **Connect modes**	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• Refer to Table 3 in relation to this design principle.
4.3 **Support access to employment and industry**	*Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.*	• The corridor provides alternative access between Dairy Flat and Albany and associated areas of employment.
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.* •	• Refer to Table 3 in relation to this design principle.
4.5 **Support inter-regional connections and strategic infrastructure**	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.*	• Refer to Table 3 in relation to this design principle. • The corridor provides alternative access between Dairy Flat and Albany and associated areas of employment.
4.6 **Support legible corridor function**	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• Refer to Table 3 in relation to this design principle.
LANDUSE		
5.1 **Public transport directed and integrated into centres**	*Locate rapid transit interchanges within centres (local, town and metro) to support a mix of uses and provide modal choice to a larger number of users.*	• Refer to Table 3 in relation to this design principle.
5.2 **Strategic corridors as urban edges**	*Strategic corridors as potential definers of a land use edge.*	• The northern segment of the corridor defines the urban edge of an area of FUZ in the south of Dairy Flat before shifting into a rural context.

7.9.1 NoR 9: Upgrade to Dairy Flat Highway (Durey Road to Albany Village) Outcomes and Opportunities Maps

NOR 9 - UPGRADE TO DAIRY FLAT HIGHWAY (DUREY ROAD TO ALBANY VILLAGE)

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 2

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 Ōkura River and its 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 Ōkura River and its 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 -** 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. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact the efficiency of adjacent landuses.

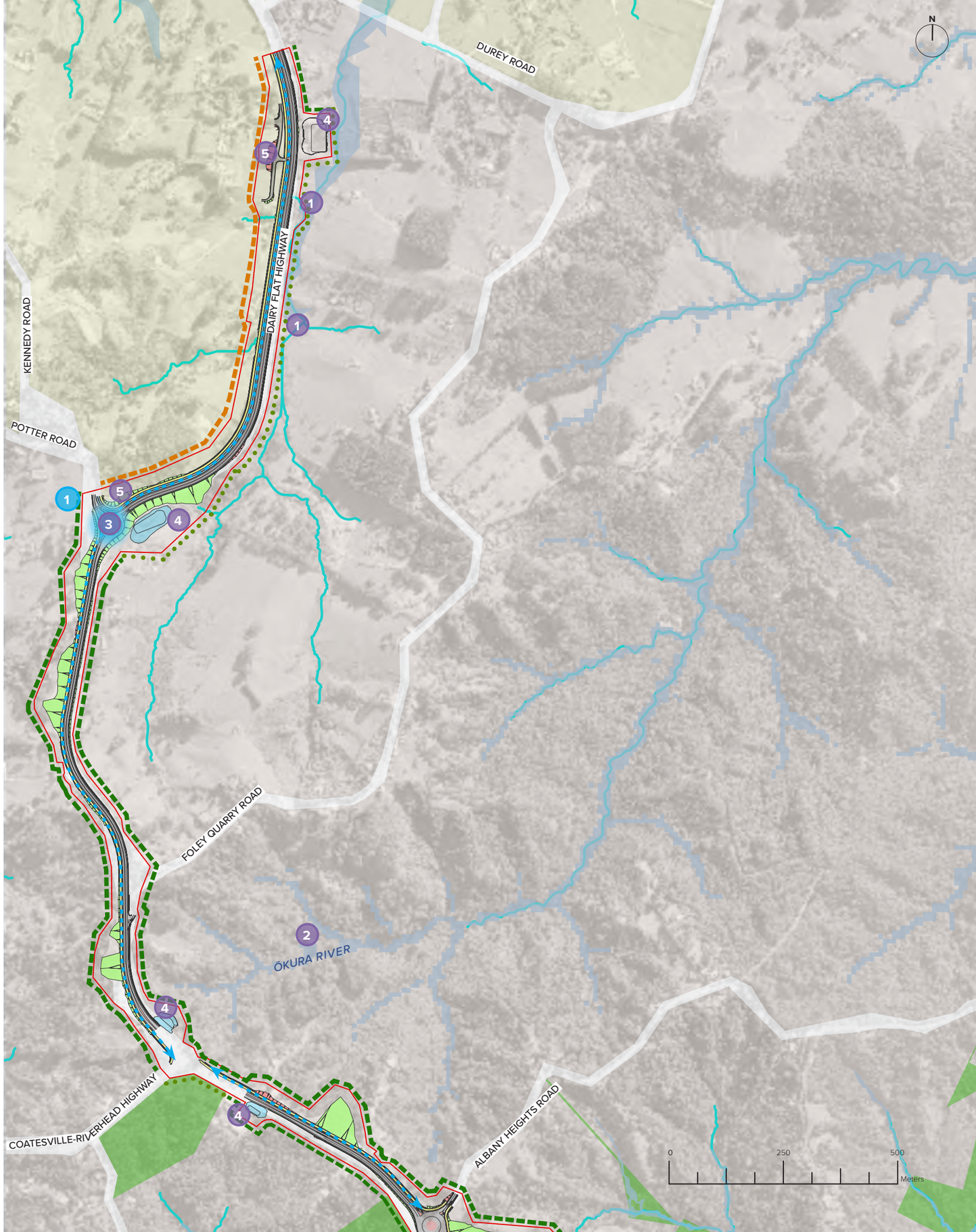
1. **Gateway into the Dairy Flat Area -** The corridor will provide direct access into the Dairy Flat area from Albany , and the future design of the corridor, should consider the opportunity to provide a gateway into the area, assisting in way finding and defining the transition between rural and urban land uses.

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.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

LEGEND

- Designation Boundary
- Future Urban Zone - FUZ
- Residential - Mixed Housing Urban
- Business - Light Industry
- Business - General Business
- Rural - Countryside Living
- Open Space - Conservation
- Open Space - Informal Recreation
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse
- Bi-Directional Cycling facilities



NOR 9 - UPGRADE TO DAIRY FLAT HIGHWAY (DUREY ROAD TO ALBANY VILLAGE

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 2

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 Ōkura River, Paremoremo Creek and tributaries of Waiokahukura (Lucas Creek).
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 Ōkura River, Paremoremo Creek and tributaries of Waiokahukura (Lucas Creek).
3. **Active mode permeability -** Corridor permeability for active modes that addresses cross corridor connectivity where the active mode facilities cross the corridor.
4. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
5. **Stormwater Wetlands -** 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. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact the efficiency of adjacent landuses.

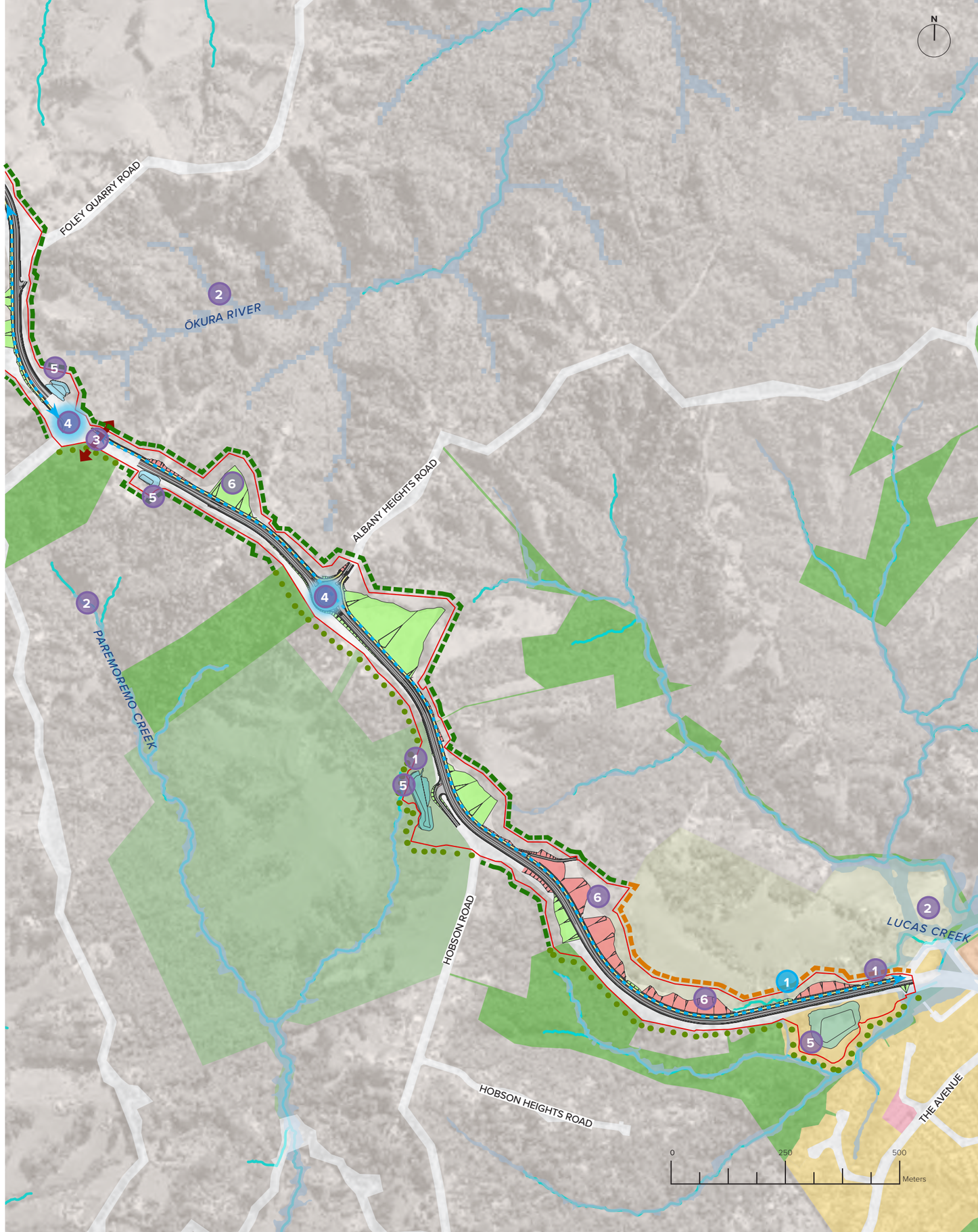
1. **Gateway into the Albany Area -** The corridor will provide direct access into the Albany area from Dairy Flat , and the future design of the corridor, should consider the opportunity to provide a gateway into the area, assisting in way finding and defining the transition between rural and urban land uses.

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.
- Cross corridor active mode connection.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

LEGEND

- Designation Boundary
- Future Urban Zone - FUZ
- Residential - Mixed Housing Suburban
- Business - Neighbourhood Centre
- Rural - Countryside Living
- Open Space - Conservation
- Open Space - Informal Recreation
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse
- Bi-Directional Cycling facilities



7.10 NoR 10: Upgrade to Wainui Road - Urban Design Matters

Table 13 outlines urban design commentary specific to NoR 10.

Table 13: Urban Design Evaluation for NoR 10 – Upgrade to Wainui Road

Principle	Explanation	Application to NoR 10
ENVIRONMENT		
1.1 Support and enhance ecological corridors and biodiversity	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• Opportunities within the immediate environment of NoR 10 to support ecological connectivity and biodiversity are identified in the *North: Assessment of Ecological Effects* and include: ○ where the corridor crosses The Waterloo Creek. ○ The significant vegetation and unprotected indigenous vegetation in the area. • The is one water course bridge crossing in NoR 10 at Waterloo Creek which connects to the Ōrewa River that presents an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system.
1.2 Support water conservation and enhance water quality in a watershed	*Take into account and work with the existing watershed as part of a whole system.*	• The proposed typical corridor cross section and designation boundary allow sufficient space to provide drainage to vegetated stormwater wetlands to address water quality and reduce hard engineering solutions. • The corridor is located adjacent to and within the flood plains of the Waterloo Stream and Ōrewa River. Detailed design should take this into consideration when designing stormwater management solutions.
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.*	• This corridor requires minimal earthworks to undertake the proposed upgrade making use of the existing corridor. • The surrounding land is identified for future urban development and is LUC class 4 soil which is not considered to be highly productive. It is also located in the FUZ and anticipated to be developed.
1.4 Adapt to a changing climate and respond to the microclimatic factors of each area	*Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the orientation of transport corridors can make to the local climate of future places and streets.*	• Refer to Table 3 in relation to this design principle. • The corridor includes active mode facilities supporting mode shift.

Principle	Explanation	Application to NoR 10
SOCIAL		
2.1 **Identity and place**	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.*	• The further identification, development and integration of key identity drivers within NoR 10 should be addressed in future design stages and include consideration of and responses to the Waterloo Creek and its tributaries.
2.2 **Respect culturally significant sites and landscapes**	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• The future detailed design should acknowledge the importance of the Ōrewa River, associated SEAs and indigenous vegetation.
2.3 **Adaptive corridors**	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• If practicable, future land integration post construction should be considered both sides of the corridor to support any proposed development adjacent to the corridor.
2.4 **Social cohesion**	*Provide clear, effective and legible connectivity between community and social functions.*	• To enable equitable local connectivity and connectivity with future urbanisation further development at the detailed design stage should be undertaken to provide crossing points at intersections and at appropriate midblock locations. • 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 the Meraki Montessori Primary School for all modes.
2.5 **Safety**	*Provide a safe and convenient network of routes accessible to people of all ages and abilities.*	• Refer to Table 3 in relation to safety recommendations. In addition to these recommendations, a CPTED audit of the corridor within NoR 10 should address, at a minimum, the current identified CPTED risks including the walking and cycling facilities where there are limited passive surveillance opportunities.
BUILT FORM		

Principle	Explanation	Application to NoR 10
3.1 **Align corridors with density**	*Locate stations/stops and corridors within walking distance of higher density development to facilitate modal shift, support commercial and mixed-use centres and contribute to vibrant, active urban environments.*	• The corridor is located in the FUZ and minimal future land use planning has been undertaken in this location.
3.2 **Corridor scaled to the surrounding context and urban structure**	*Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).*	• The proposed upgrade maintains a two-lane corridor, with widening to 24m to include allowance for active modes and stormwater management. The corridor will have a 50km/h speed environment which is appropriate for a future residential scale. Minimal earthworks are required to deliver this corridor.
3.3 **Facilitate an appropriate interface between place and movement**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• Key focus areas within NoR 10 that require further resolution in future design stages to demonstrate the place function include: ○ The key intersections and mid-block crossings to facilitate wider access in the area. ○ The interface with anticipated future adjacent residential development ○ A clear, direct and safe access to Meraki Montessori Primary School.
MOVEMENT		
4.1 **Connect nodes**	*Provide tangible connectivity between identified activity nodes.*	• Future land use planning in this area is on-going. The upgrade of the corridor will provide connections for active modes and vehicles, through the area, including the existing Meraki Montessori School and a likely future school on Upper Ōrewa Road.
4.2 **Connect modes**	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• Refer to Table 3 in relation to this design principle.
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.*	• Refer to Table 3 in relation to this design principle.
4.4 **Prioritise active modes and public transport**	*Provision of quality active mode corridors and dedicated public transport corridors to enable a modal*	• Refer to Table 3 in relation to this design principle.

Principle	Explanation	Application to NoR 10
	shift away from private vehicle use. •	
4.5 **Support inter-regional connections and strategic infrastructure**	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.*	• Wainui Road connects to SH1 via south-facing ramps only, however will connect to the proposed Wainui interchange active mode crossing included in NoR 4.
4.6 **Support legible corridor function**	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• The future detailed design needs to provides careful consideration of way-finding and developing a legible active mode facility, clearly tying into the existing network.
LANDUSE		
5.1 **Public transport directed and integrated into centres**	*Locate rapid transit interchanges within centres (local, town and metro) to support a mix of uses and provide modal choice to a larger number of users.*	• This principle is not directly relevant to the NoR 10 corridor.
5.2 **Strategic corridors as urban edges**	*Strategic corridors as potential definers of a land use edge.*	• This principle is not directly relevant to the NoR 10.

7.10.1 NoR 10: Upgrade to Wainui Road Outcomes and Opportunities Maps

NOR 10 - UPGRADE TO WAINUI ROAD

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 2

Outcomes Opportunities

1. **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 future land use and adjacent Ōrewa River and Waterloo Creek.
2. **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, open spaces and community facilities.
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 development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact the efficiency of adjacent landuses.

1. **Interface and connect with a future school -** Future land use in the area may include a school. The corridor should interface and consider the provision of a direct, safe, grade crossing directly to the school, supporting access for the surrounding community.

OUTCOMES

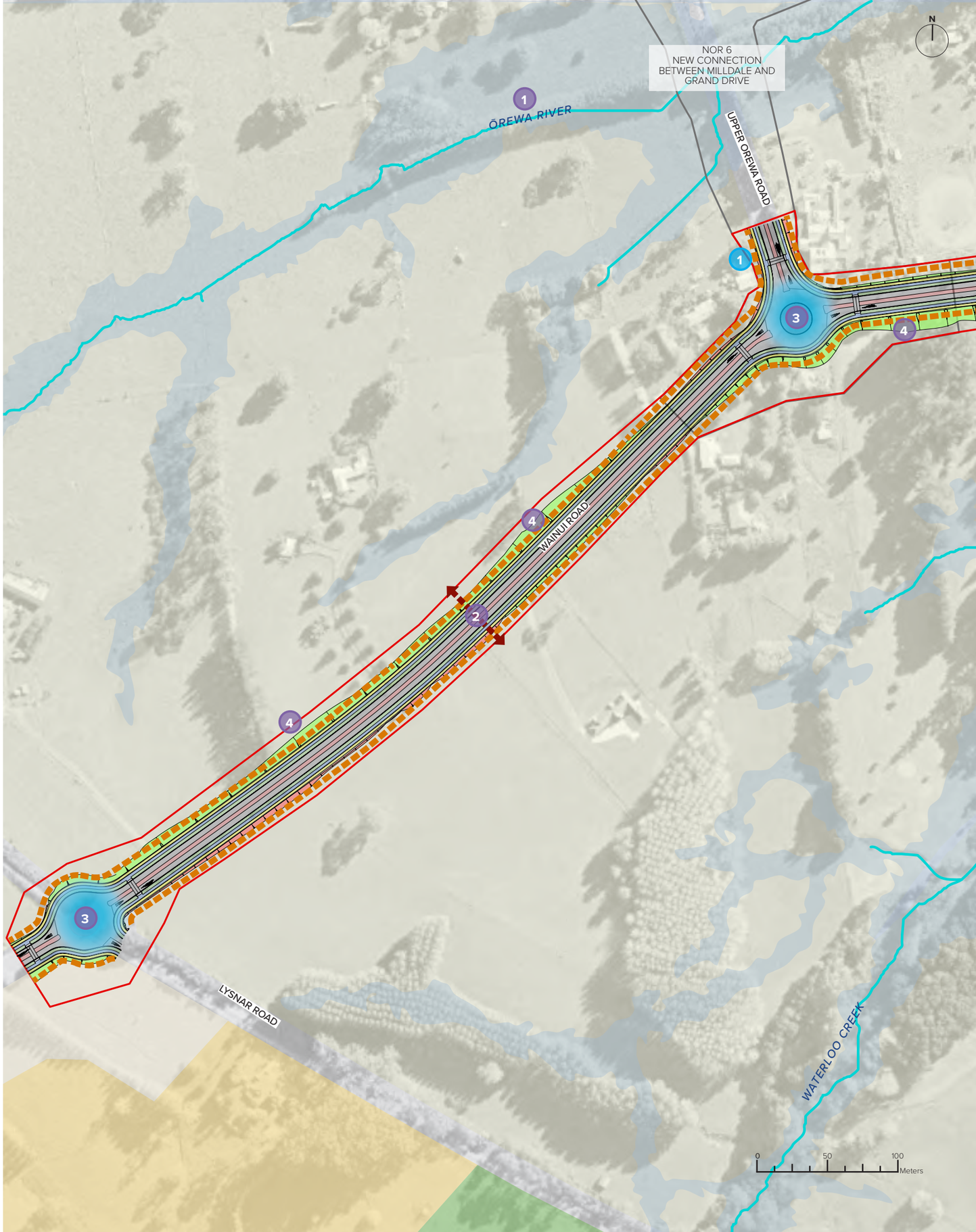
Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.

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
- Future Urban Zone - FUZ
- Residential - Mixed Housing Suburban
- Open Space - Conservation
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse



NOR 10 - UPGRADE TO WAINUI ROAD

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 2

Outcomes Opportunities

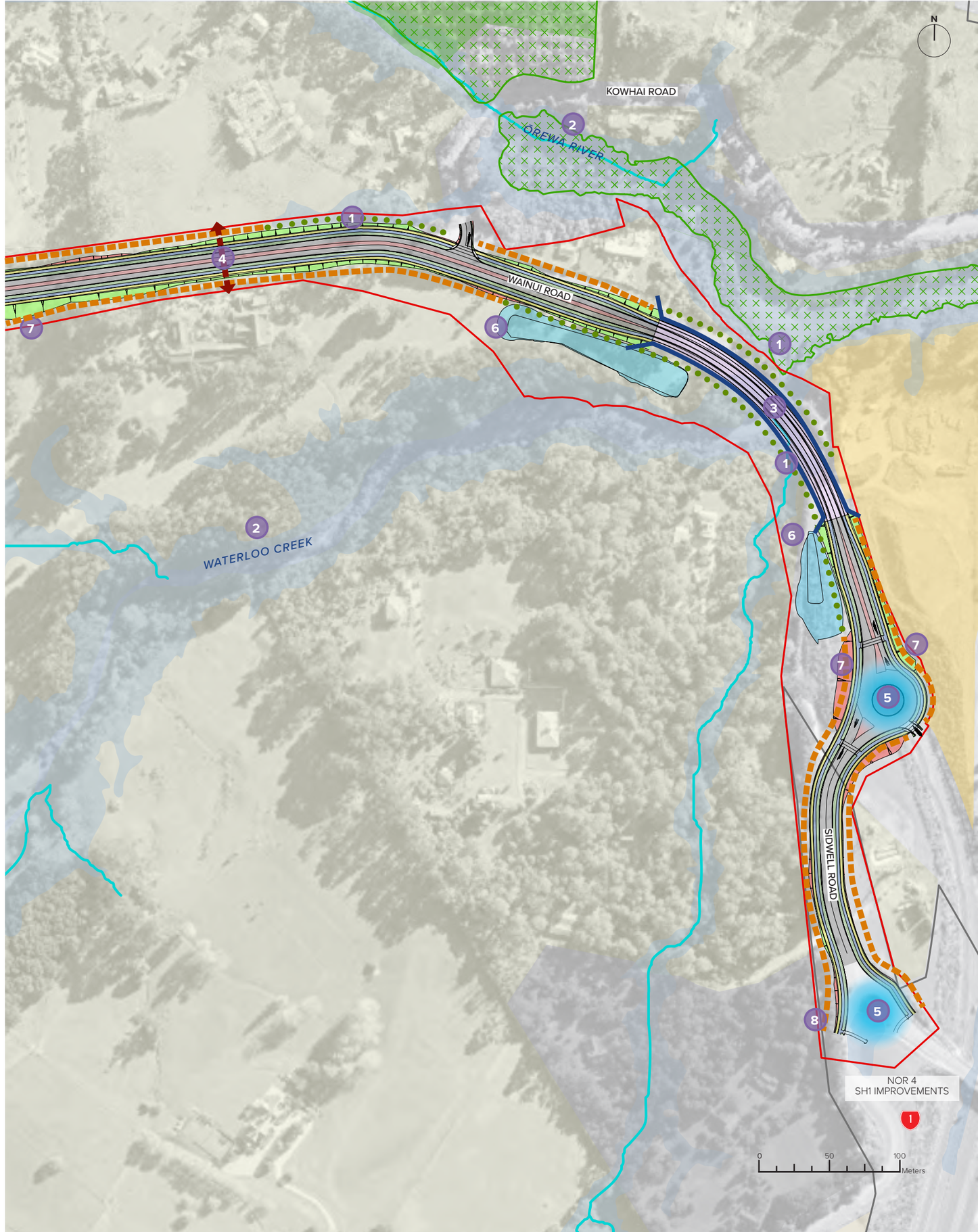
1. **Ecological connectivity -** Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Waterloo Creek and Ōrewa River.
2. **Identity drivers -** Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including future land use and adjacent Waterloo Creek and Ōrewa River.
3. **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.
4. **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, open spaces and community facilities
5. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
6. **Stormwater Wetlands -** 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. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact the efficiency of adjacent landuses.
8. **Interface and connect with Meraki Montessori School -** The corridor should provide a direct, safe, access directly to the school supporting access for the surrounding community.

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 mode 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
- Future Urban Zone - FUZ
- Residential - Mixed Housing Suburban
- Open Space - Conservation
- Significant Ecological Area (SEA) - Terrestrial
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse



7.11 NoR 11: New Connection between Dairy Flat Highway and Wilks Road - Urban Design Matters

Table 14 outlines urban design commentary specific to NoR 11.

Table 14: Urban Design Evaluation for NoR 11 New Connection between Dairy Flat Highway and Wilks Road

Principle	Explanation	Application to NoR 11
ENVIRONMENT		
1.1 Support and enhance ecological corridors and biodiversity	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• Opportunities within the immediate environment of NoR 11 to support ecological connectivity and biodiversity are identified in the *North: Assessment of Ecological Effects* and include where the corridor crosses tributaries of the Rangitopuni Stream. • There are two water courses proposed to be culverted, which are tributaries to the Rangitopuni Stream. These present an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system.
1.2 Support water conservation and enhance water quality in a watershed	*Take into account and work with the existing watershed as part of a whole system.*	• The proposed typical corridor cross section and designation boundary allow sufficient space to provide natural drainage to stormwater wetlands to address water quality.
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.*	• Whilst this is a new corridor, the route taken requires minimal earthworks and structures to be delivered. • The surrounding land is identified for future urban development and is LUC class 4 soil which is not considered to be highly productive. This area is also FUZ and is therefore anticipated to be developed in the future.
1.4 Adapt to a changing climate and respond to the microclimatic factors of each area	*Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the orientation of transport corridors can make to the local climate of future places and streets.*	• Refer to Table 3 in relation to this design principle.
SOCIAL		

Principle	Explanation	Application to NoR 11
2.1 **Identity and place**	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.*	• The further identification, development and integration of key identity drivers within NoR 11 should be addressed in future design stages and are generally limited to the natural character drivers of the Rangitopuni Stream. The corridor is located in an area anticipated to be developed for industrial land use as per the Silverdale West Industrial Structure Plan and the future design of the corridor should reflect and respond to the future character of the area.
2.2 **Respect culturally significant sites and landscapes**	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• Refer to Table 3 in relation to this design principle.
2.3 **Adaptive corridors**	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• The corridor is to be delivered across two segments with different cross-sections. The corridors provide for active modes and the four lanes provided in segment 2, which has the option of allocating two lanes to prioritise freight traffic. • If practicable, future land integration post construction should be considered both sides of the corridor to support any proposed development adjacent to the corridor.
2.4 **Social cohesion**	*Provide clear, effective and legible connectivity between community and social functions.*	• The anticipated future environment is a mix of residential development in the residential precinct east of the airport, existing commercial land use and future heavy and light industrial land use (as per the Silverdale West Dairy Flat Industrial Area Structure Plan).The corridor will provide an east-west connection through the structure plan area.
2.5 **Safety**	*Provide a safe and convenient network of routes accessible to people of all ages and abilities.*	• Refer to Table 3 in relation to safety recommendations. In addition to these recommendations, a CPTED audit of the corridor within NoR 5 should address, at a minimum, the current identified CPTED risks including the walking and cycling facilities where there are limited passive surveillance opportunities. • Detailed design needs to address safe crossing of intersections, particularly where multiple lanes are anticipated, providing the ability to safely cross the corridor and access employment.
BUILT FORM		

Principle	Explanation	Application to NoR 11
3.1 **Align corridors with density**	*Locate stations/stops and corridors within walking distance of higher density development to facilitate modal shift, support commercial and mixed-use centres and contribute to vibrant, active urban environments.*	• The majority of the corridor environment is anticipated to be zoned for Light Industrial and Heavy Industrial land use. It does however provide a connection to the existing commercial land use at the intersection of Kahikatea Flat Road and Dairy Flat Highway and will provide access to the airport and surrounding commercial activity.
3.2 **Corridor scaled to the surrounding context and urban structure**	*Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).*	• The corridor will include two segments of different cross sections. Segment 1 (Kahikatea Flat Road to Postman Road Segment) will feature a 2-lane urban arterial (24 m wide corridor) with separated walking and cycling facilities on both sides. Segment 2 (Postman Road to SH1) features a 4-lane urban arterial (30 m wide corridor) with separated cycling and walking facilities, two lanes of general traffic and two-lanes where priority may given to freight traffic. Both segments will have a 50km/h speed environment. • The majority of the corridor is anticipated to be in an industrial environment and the scale of the corridor is appropriate in this context. • There is a small area of Dairy Flat Precinct Residential Large Lot zoned land adjacent to the North Shore Airport. Current development is setback from the road corridor and whilst a four-lane corridor is proposed in this segment, establishing a high movement function minimal earthworks are required and widening is proposed to the north, minimising any effects of scale on the existing residential development.
3.3 **Facilitate an appropriate interface between place and movement**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• Key focus areas within NoR 11 that require further resolution in future design stages to demonstrate the place function include the built form interface, any visual or landscape buffers and development controls proposed adjacent to the Dairy Flat Precinct Residential Large Lot zoned land.
MOVEMENT		
4.1 **Connect nodes**	*Provide tangible connectivity between identified activity nodes.*	• This corridor provides a direct connection between the proposed Wilks Road Interchange and the Dairy Flat Silverdale West Industrial area connecting the industrial activity with the State Highway 1 corridor.
4.2 **Connect modes**	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• Refer to Table 3 in relation to this design principle.

Principle	Explanation	Application to NoR 11
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.*	• This corridor provides a direct connection between the proposed Wilks Road Interchange and the Dairy Flat Silverdale West Industrial area connecting the industrial activity with the State Highway 1 corridor, supporting 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.*	• Refer to Table 3 in relation to this design principle.
4.5 **Support inter-regional connections and strategic infrastructure**	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.*	• The corridor provides a direct connection to the SH1 corridor, minimising the need for freight movements to use the local network.
4.6 **Support legible corridor function**	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• Future design of the corridor should incorporate gateway and way-finding treatments for the Industrial area. It should also provide for clear and legible active mode movements.
LANDUSE		
5.1 **Public transport directed and integrated into centres**	*Locate rapid transit interchanges within centres (local, town and metro) to support a mix of uses and provide modal choice to a larger number of users.*	• This principle is not directly relevant to the NoR 11 corridor.
5.2 **Strategic corridors as urban edges**	*Strategic corridors as potential definers of a land use edge.*	• This principle is not directly relevant to the NoR 11 corridor.

7.11.1 NoR 11: New Connection between Dairy Flat Highway and Wilks Road Outcomes and Opportunities Maps

NOR 11 - NEW CONNECTION BETWEEN DAIRY FLAT HIGHWAY AND WILKS ROAD

OUTCOMES AND OPPORTUNITIES PLAN

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 Rangitopuni 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 Rangitopuni Stream and any future local centres in the area.
3. **CPTED -** Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance.
4. **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.
5. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
6. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact the efficiency of future adjacent landuses.
7. **Stormwater Wetlands -** 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.
8. **Connect into RTC active modes corridor -** The RTC active mode facilities run through this area, connections should be made between NOR 11 and NOR 1 to provide access to and from the active modes facilitating connected communities.
1. **Gateway into the Silverdale Industrial Area -** The corridor will provide direct access into the Silverdale West Industrial area, and the future design of the corridor, should consider the opportunity to provide a gateway into the area, assisting in way finding and defining the transition between land uses.

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.
- 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
- Residential - Large Lot
- Business - Light Industry
- Silverdale West Industrial Structure - Light Industry
- Silverdale West Industrial Structure - Heavy Industry
- Rural - Mixed Rural
- Open Space - Conservation
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse

7.12 NoR 12: Upgrade and Extension to Bawden Road - Urban Design Matters

Table 15 outlines urban design commentary specific to NoR 12.

Table 15: Urban Design Evaluation for NoR 12 – Upgrade and Extension to Bawden Road

Principle	Explanation	Application to NoR 12
ENVIRONMENT		
1.1 Support and enhance ecological corridors and biodiversity	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• Opportunities within the immediate environment of NoR 12 to support ecological connectivity and biodiversity are identified in the *North: Assessment of Ecological Effects* and include where the corridor crosses Huruhuru (Dairy Stream) and its tributaries. • There are two water course bridge crossings in NoR 12 that cross the Huruhuru (Dairy Stream) and its tributaries presenting an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system.
1.2 Support water conservation and enhance water quality in a watershed	*Take into account and work with the existing watershed as part of a whole system.*	• The proposed typical corridor cross section and designation boundary allow sufficient space to provide natural drainage to vegetated wetlands to address water quality and reduce hard engineering solutions.
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.*	• Minimal earthworks are required where the NoR upgrades the existing corridor. However, where Bawden Road is proposed to be extended, extensive earthworks are likely required to accommodate the corridor with large batters around the intersection potentially up to 200m across the intersection. Without mitigation, these will create poor interface and connectivity outcomes for the future urban environment. • The location of the extension directly relates to tying into the Redvale Interchange and the O Mahurangi Penlink designation, therefore there is little flexibility in location. Detailed design should look to minimise the extent of earthworks required or develop an approach that allows for future development to positively interface with the corridor. • The surrounding land is identified for future urban development and the majority is LUC class 4 soil which is not considered to be highly productive. There are two areas of LUC Class 3, but these areas will be urbanised in the future.

Principle	Explanation	Application to NoR 12
1.4 **Adapt to a changing climate and respond to the microclimatic factors of each area**	*Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the orientation of transport corridors can make to the local climate of future places and streets.*	The corridor provides dedicated lanes for a frequent transit network (likely bus lanes) and includes active mode facilities supporting mode shift.
SOCIAL		
2.1 **Identity and place**	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.*	• The further identification, development and integration of key identity drivers within NoR 12 should be addressed in future design stages and include consideration of and responses to: ○ The Huruhuru (Dairy Stream) and its tributaries. ○ The potential town centre in this location. ○ A future station anticipated in association with the town centre. ○ Associated high density housing around the town centre.
2.2 **Respect culturally significant sites and landscapes**	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• Refer to Table 3 in relation to this design principle.
2.3 **Adaptive corridors**	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• The corridor cross-section provides room for public transport and active modes with space for stormwater treatment / attenuation. • If practicable, future land integration post construction should be considered both sides of the corridor to support any proposed development adjacent to the corridor, particularly at the intersection of Bawden Road and Top Road.
2.4 **Social cohesion**	*Provide clear, effective and legible connectivity between community and social functions.*	• Refer to Table 3 in relation to this design principle.
2.5 **Safety**	*Provide a safe and convenient network of*	• Refer to Table 3 in relation to safety recommendations. In addition to these recommendations, a CPTED audit

Principle	Explanation	Application to NoR 12
	routes accessible to people of all ages and abilities.	of the corridor where it crosses under NoR 1 should be undertaken.
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.*	• While future land use planning is in its early stages in this location, it is anticipated that the corridor will be located within or adjacent to the future Dairy Flat Town Centre, providing access to this activity node, a likely future station and associated areas of density.
3.2 **Corridor scaled to the surrounding context and urban structure**	*Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).*	• The proposed 30m cross section is proposed to have a speed of 50km/h, and is likely to run adjacent to, or through a future town centre. The future design of the corridor will need to take this into consideration and respond to this context. A 30m corridor is a wide cross section in an urban environment and without appropriately scaled buildings could result in a lack of sense of enclosure, increasing the perceived scale of the corridor. Detailed design should look to integrate the corridor with future adjacent land uses through design and landscaping techniques and speeds appropriate to the context. • The scale of the earthworks and structures required to establish this corridor is significant and the relationship to the context will depend on developments planned / established adjacent to the corridor, the width of the corridor itself (i.e., including the space required for earthworks, structures, facilities, etc) and the ability to integrate these features of the corridor into the surrounding urban fabric as the area urbanises. This could be achieved through working with adjacent developers to understand land use, establish the appropriate levels of adjacent land to the corridor and realising opportunities in detailed design.
3.3 **Facilitate an appropriate interface between place and movement**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• Key focus areas within NoR 12 that require further resolution in future design stages to demonstrate the place function include the built form interface at the eastern end of the corridor with future development. Detailed design should look to refine this and include mitigation strategies to integrate the corridor within the landform and with future development.

Principle	Explanation	Application to NoR 12
MOVEMENT		
4.1 **Connect nodes**	*Provide tangible connectivity between identified activity nodes.*	• The corridor will provide a future connection to the anticipated Dairy Flat Town Centre from SH1 and Ō Mahurangi Penlink.
4.2 **Connect modes**	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• The corridor provides dedicated facilities for public transport and active modes. Detailed design will need to provide for safe, prioritised crossings for active modes.
4.3 **Support access to employment and industry**	*Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.*	• The corridor will provide a direct connection for all modes to a future town centre.
4.4 **Prioritise active modes and public transport**	• *Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.*	• The corridor provides room for public transport and active modes. Detailed design will need to provide for safe, prioritised crossings for active modes.
4.5 **Support inter-regional connections and strategic infrastructure**	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.*	• This corridor predominantly provides for local trips, but also provides direct access from SH1 to the anticipated future town centre.
4.6 **Support legible corridor function**	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• Future design of the corridor should incorporate gateway and way-finding treatments for the future town centre area. It should also provide for clear and legible active mode movements.
LANDUSE		
5.1 **Public transport directed and integrated into centres**	*Locate rapid transit interchanges within centres (local, town and metro) to support a mix of uses and provide modal choice to a larger number of users.*	• The corridor provides for direct access to a future centre for public transport and active modes.
5.2 **Strategic corridors as urban edges**	*Strategic corridors as potential definers of a land use edge.*	• This principle is not directly relevant to the NoR 12 corridor as set out in Table 3.

7.12.1 NoR 12: Upgrade and Extension to Bawden Road Outcomes and Opportunities Maps

NOR 12 - UPGRADE & EXTENSION TO BAWDEN ROAD

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 2

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 Huruhuru (Dairy Stream) and its 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 future land use, the future Dairy Flat Town Centre and Huruhuru (Dairy Stream).
3. **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.
4. **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, open spaces and community facilities.
5. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
6. **Stormwater Wetlands -** 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. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact the efficiency of adjacent landuses.

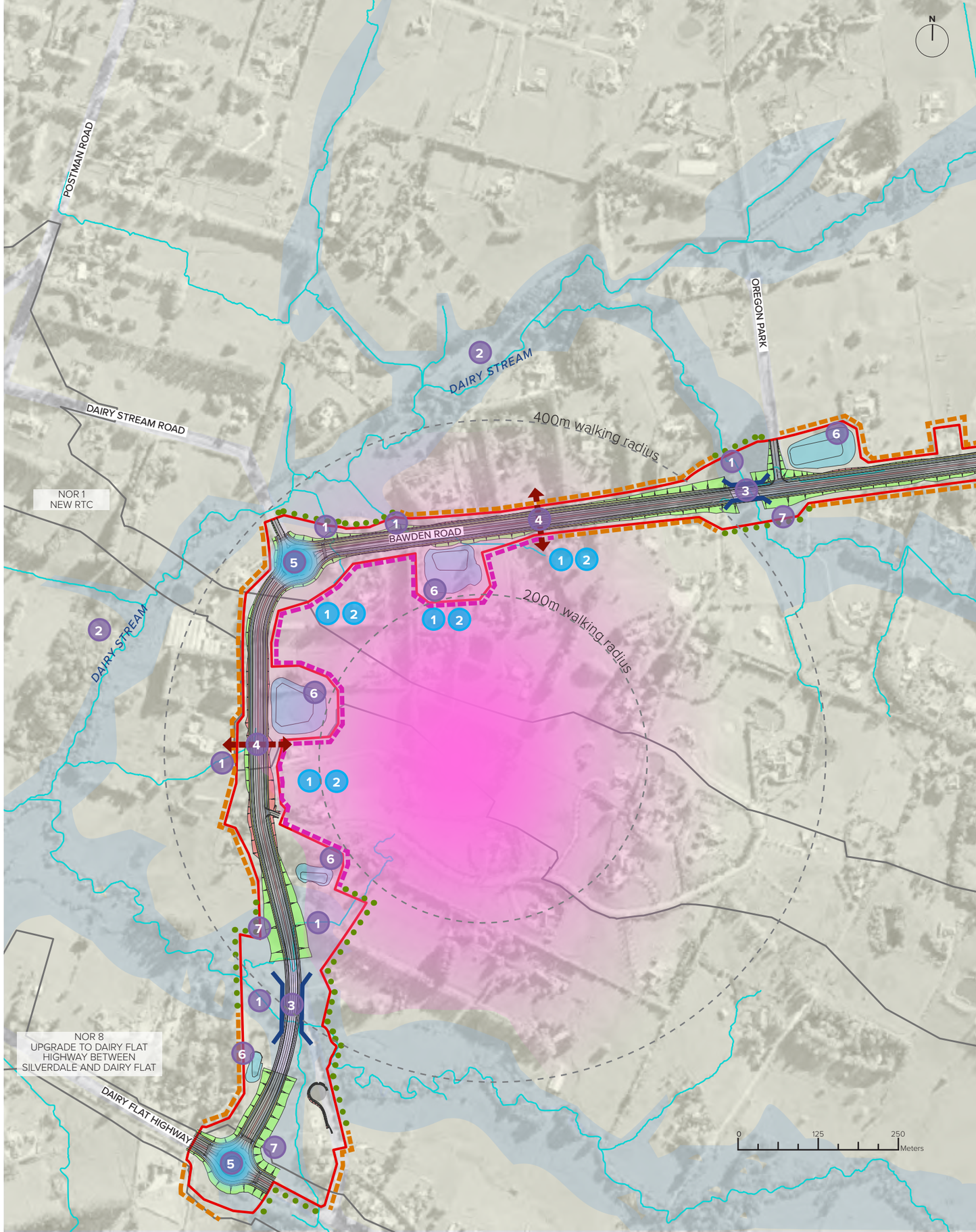
1. **Facilitate a connection to the future Dairy Flat Town Centre -** The corridor should integrate with the future local network to facilitate ease of access to the future Dairy Flat Town Centre location (indicative location shown as per Council's Draft Spacial Land use strategies).
2. **Future public transport connection -** There is an opportunity to provide a direct public transport connection from Bawden Road to the future Dairy Flat Town Centre as the local network is developed.

OUTCOMES

- Establish land use integration / interface that enables buildings and spaces to positively address and integrate with the corridor.
- Establish an interface that enables buildings and spaces in the town centre 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 mode 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
- Future Urban Zone - FUZ
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse
- Potential Future Town Centre



NOR 12 - UPGRADE & EXTENSION TO BAWDEN ROAD

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 2

Outcomes Opportunities

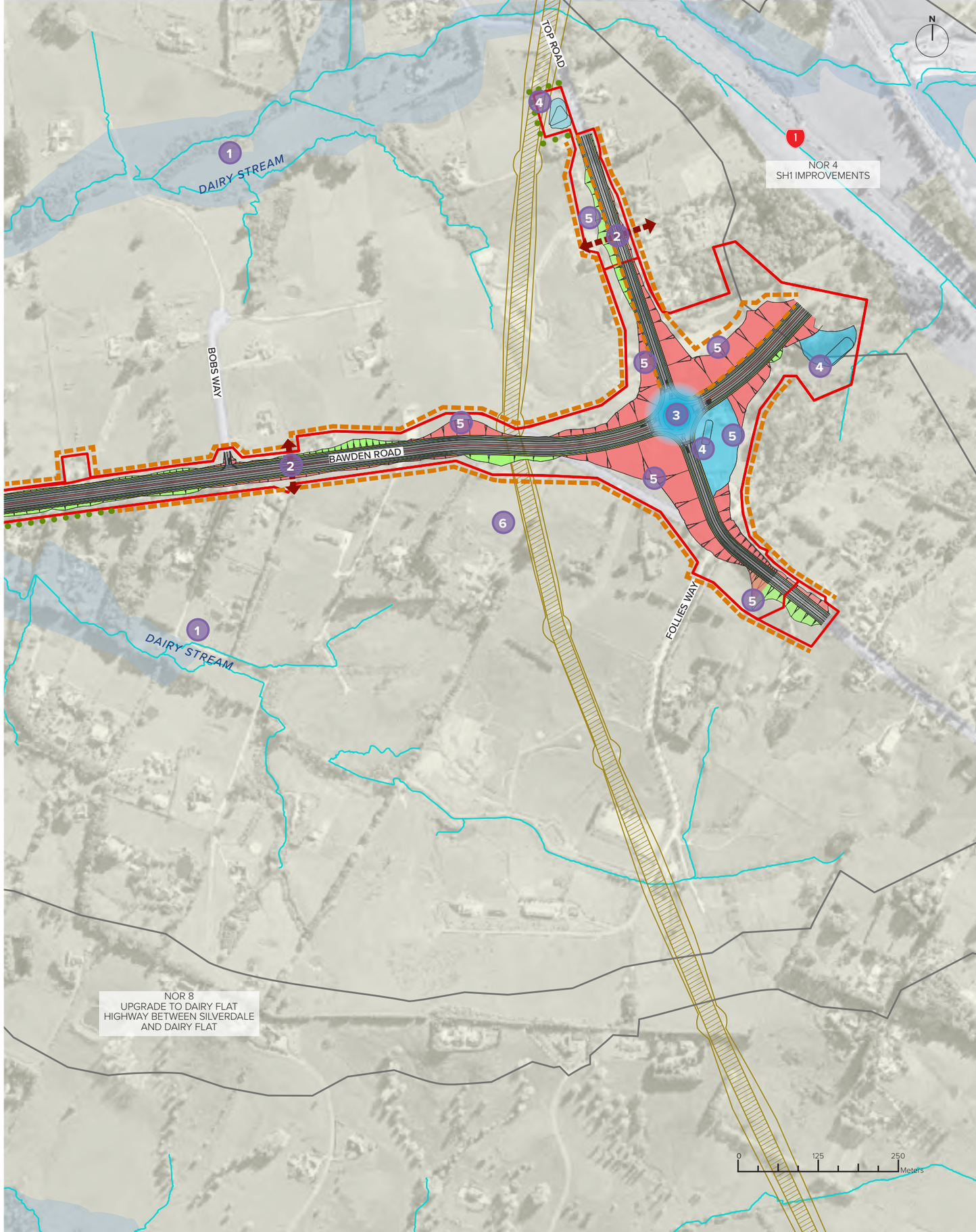
1. **Identity drivers -** Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including future land use, the Dairy Flat Town Centre and Huruhuru (Dairy Stream).
2. **Active mode permeability -** Corridor permeability for active modes that addresses cross corridor connectivity (midblock crossings), modal priority and permeable access to destinations such as future schools, open spaces and community facilities.
3. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
4. **Stormwater Wetlands -** 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. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of adjacent landuses.
6. **National Grid line -** Consideration and response to the National Grid line.

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 mode connection that connects to the future local transport network.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

LEGEND

- Designation Boundary
- Future Urban Zone - FUZ
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse
- National Grid Corridor



7.13 NoR 13: Upgrade to East Coast Road - Urban Design Matters

Table 7: Urban Design Evaluation for NoR *4* – SH 1 Improvements outlines urban design commentary specific to NoR 13.

Table 16: Urban Design Evaluation for NoR 13 East Coast Road Upgrade

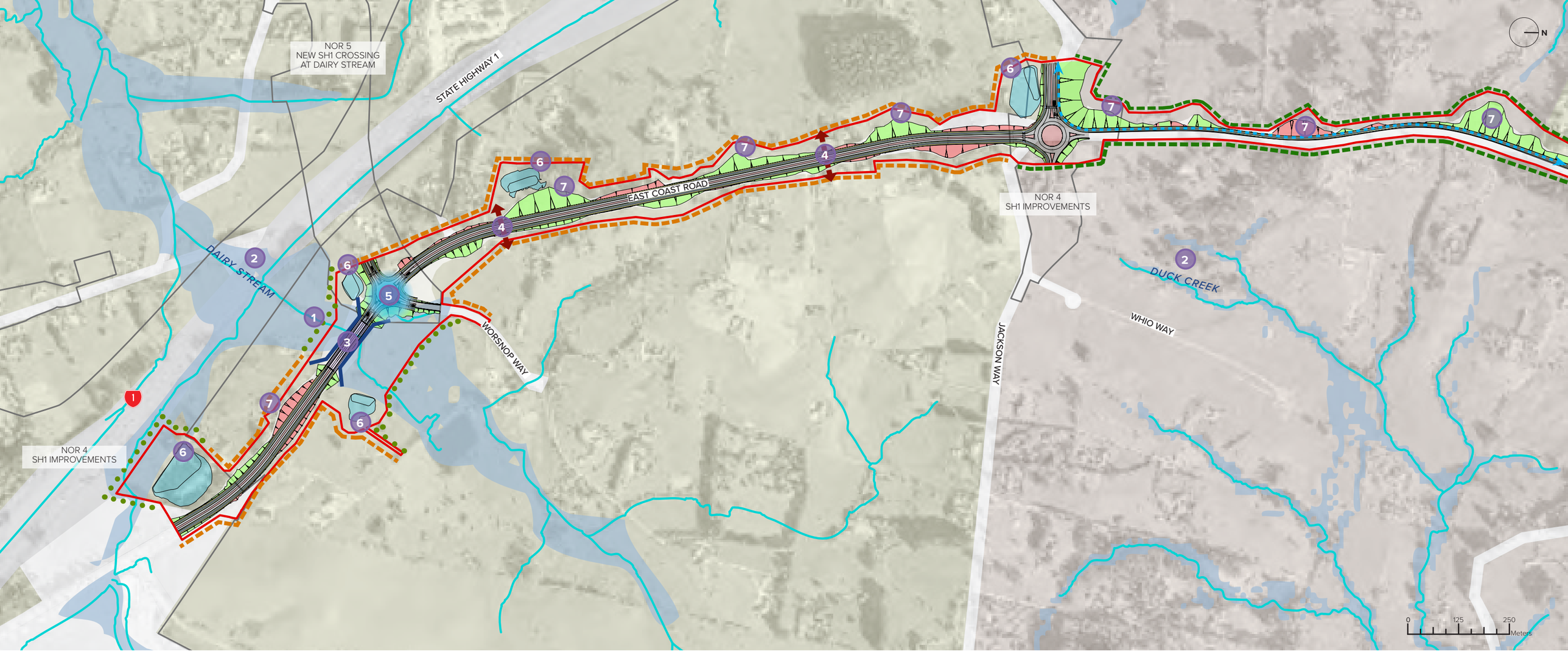
Principle	Explanation	Application to NoR 13
ENVIRONMENT		
1.1 Support and enhance ecological corridors and biodiversity	*Mitigate the effects on or enhance existing ecological corridors through the placement and design of movement corridors*	• Opportunities within the immediate environment of NoR 13 to support ecological connectivity and biodiversity are identified in the *North: Assessment of Ecological Effects* and include: ○ Artificial wetlands within the corridor; and ○ where the corridor crosses tributaries of Waokauri Creek and its tributaries. • The is one water course bridge crossing in NoR 13 at Huruhuru (Dairy Stream) (ch1250), and two exotic wetlands have been identified adjacent to the corridor. These present an opportunity to reinforce broader connectivity outcomes for ecology by minimising the stream interruption and providing a connected natural system.
1.2 Support water conservation and enhance water quality in a watershed	*Take into account and work with the existing watershed as part of a whole system.*	• Where the corridor is located within existing urban zones or the FUZ, space has been allowed for stormwater management and includes space for three stormwater wetlands. The cross section proposed for the segment of the corridor adjacent to the rural zone does not include stormwater treatment for the bike lane on the basis that runoff will be minimal.
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.*	• Due to the corridor location running along a ridgeline, there are large areas of earthworks required in discrete locations where there is steeper topography. As design is refined, opportunities to minimise the extent of these should be explored. • The surrounding land includes existing urban development, FUZ and rural zone. Soils in the corridor area LUC class 4 and 5 soils which is not considered to be highly productive.
1.4 Adapt to a changing climate and respond to the microclimatic	*Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the*	• The corridor provides active mode facilities supporting mode shift and reduced climate change impacts.

Principle	Explanation	Application to NoR 13
factors of each area	*orientation of transport corridors can make to the local climate of future places and streets.*	
SOCIAL		
2.1 Identity and place	*The identity or spirit of place is generally acknowledged as the unique amalgam of the inherent built, natural and cultural qualities of a place. Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.*	• The corridor runs through three different contexts; existing urban, future urban zone and rural land use. The corridor design should respond to the character and context of each part of the corridor, clearly defining the rural/urban boundary and provide clear gateways into each area to assist in way-finding.
2.2 Respect culturally significant sites and landscapes	*Acknowledge significant sites and features in the layout of movement corridors including ridgelines or horizons.*	• Refer to Table 3 in relation to this design principle.
2.3 Adaptive corridors	*Corridors should demonstrate flexibility to respond to changes in their function and physical interfaces. Consider an adaptive approach in the way strategic corridors are designed to be able to respond to changes in land use, the way we move around and utilise technology over time.*	• If practicable, future land integration post construction should be considered in the following areas to support any proposed development / redevelopment adjacent to the NoR 8 corridor: ○ On both sides of the corridor where it is located within the FUZ ○ On the eastern side of Segment C and D where the FUZ is only on the eastern side.
2.4 Social cohesion	*Provide clear, effective and legible connectivity between community and social functions.*	• Where the corridor proposes to shift to a shared path on one side, detailed design needs to provide for safe and direct crossings to the directional facilities proposed.
2.5 Safety	*Provide a safe and convenient network of routes accessible to people of all ages and abilities.*	• Refer to Table 3 in relation to safety recommendations. In addition to these recommendations, a CPTED audit of the corridor within NoR 13 should address, at a minimum, the current identified CPTED risks including: ○ The walking and cycling facilities where there are limited passive surveillance opportunities.
BUILT FORM		

Principle	Explanation	Application to NoR 13
3.1 **Align corridors with density**	*Locate stations/stops and corridors within walking distance of higher density development to facilitate modal shift, support commercial and mixed-use centres and contribute to vibrant, active urban environments.*	• The corridor traverses a range of contexts, including the Silverdale Centre General Business Zone and Light Industrial Zone, Mixed Housing Urban Zone, FUZ and Rural Zones. While not specifically aligned with density, it provides direct access to the centre from future urban areas on the eastern side of the SH1 corridor and the Hibiscus Coast Bus Station at the northern end of the corridor.
3.2 **Corridor scaled to the surrounding context and urban structure**	*Align the speed, type and scale of transport corridors and infrastructure with the environment that it moves through (appropriate scale to the context).*	• The proposed 24m cross section is two-laned with upgrades to include segregated active mode facilities in the future urban areas with a speed of 50km/hr. No changes to the carriageways are proposed in the rural segment, with a shared active modes facility proposed to be added to the cross section. The existing rural speed will be reduced to 60 km/h. The width and speed of the corridor are considered to be appropriate for the contexts. • Earthworks associated with the corridor are large in some locations in the FUZ due to the steep topography which may be out of scale with adjacent future residential development. Consideration of how future development can interface with the corridor in this location is required as the design continues to be refined.
3.3 **Facilitate an appropriate interface between place and movement**	*Facilitate the opportunity for place as well as movement in corridors (people-oriented streets)*	• Small amounts of earthworks are required in the southern FUZ area, enabling the establishment of a positive interface with the corridor. Where there is steeper topography in the northern FUZ area, achieving a positive interface is likely to be more challenging. Future design will need to consider the outcomes in this location and look to maximise opportunities for an active interface to be achieved.
MOVEMENT		
4.1 **Connect nodes**	*Provide tangible connectivity between identified activity nodes.*	• The upgrade to East Coast Road will provide improved connections to the Silverdale Centre and bus station for residents on the eastern side of SH1.
4.2 **Connect modes**	*Provide for choice in travel and the ability to connect at interchanges between modes.*	• Refer to Table 3 in relation to this design principle.

Principle	Explanation	Application to NoR 13
4.3 **Support access to employment and industry**	*Align the corridor location and typology to provide direct and efficient access to areas of employment and industry.*	• The upgrade to East Coast Road will provide improved connections to the Silverdale Centre for residents on the eastern side of SH1.
4.4 **Prioritise active modes and public transport**	• *Provision of quality active mode corridors and dedicated public transport corridors to enable a modal shift away from private vehicle use.*	• The upgrade to East Coast Road provides for improved active mode facilities, improving access for residents and future residents in this area.
4.5 **Support inter-regional connections and strategic infrastructure**	*Consider the location and alignment of significant movement corridors and placement of infrastructure (power, wastewater, water) to the network.*	• The upgrade to East Coast Road provides a connection to the Silverdale Centre without relying on the SH1 corridor.
4.6 **Support legible corridor function**	*Consider how the corridor can be clearly navigated and understood by users moving from place to place.*	• Refer to Table 3 in relation to this design principle.
LANDUSE		
5.1 **Public transport directed and integrated into centres**	*Locate rapid transit interchanges within centres (local, town and metro) to support a mix of uses and provide modal choice to a larger number of users.*	• Refer to Table 3 in relation to this design principle.
5.2 **Strategic corridors as urban edges**	*Strategic corridors as potential definers of a land use edge.*	• This principle is not directly relevant to the NoR 13 corridor.

7.13.1 NoR 13: Upgrade to East Coast Road Outcomes and Opportunities Maps



NOR 13 - UPGRADE TO EAST COAST ROAD

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 1 OF 2

Outcomes Opportunities

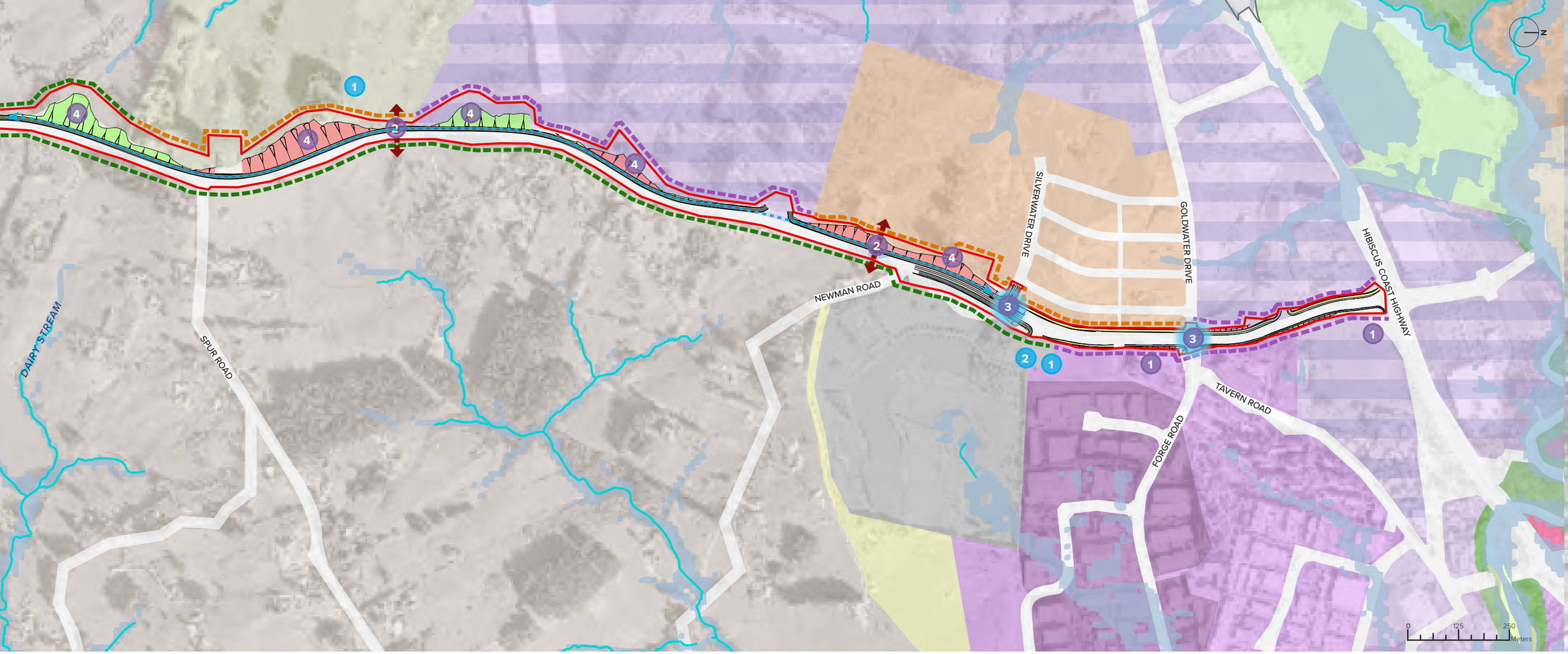
1. **Ecological connectivity -** Landscape outcomes should reinforce the wider vegetation patterns of the local open spaces and support ecological connectivity and biodiversity where the corridor crosses Huruhuru (Dairy Stream).
2. **Identity drivers -** Key local community, landscape character and identity drivers should be identified, developed and integrated with the adjacent land use functions and future design response, including Huruhuru (Dairy Stream).
3. **CPTED -** Future design should incorporate CPTED principles including clear sightlines, good levels of lighting and passive surveillance.
4. **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.
5. **Active mode legibility and priority -** Legibility, connectivity demands, safety and modal priority for active modes should be addressed at intersections.
6. **Stormwater Wetlands -** 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. **Earthworks -** Minimise Earthworks & Level changes at corridor boundaries & Interfaces with future development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impacts the efficiency of future adjacent landuses.

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 mode 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
- Future Urban Zone - FUZ
- Rural - Countryside Living
- Proposed Cut
- Proposed Fill
- Blue network
- Open Watercourse
- Bi-Directional Cycling facilities



NOR 13 - UPGRADE TO EAST COAST ROAD

OUTCOMES AND OPPORTUNITIES PLAN - SHEET 2 OF 2

Outcomes

Opportunities

1. **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 Silverdale Centre.
2. **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.
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 development areas to enable integration with adjoining future landuse. Use retaining structures in areas where space is insufficient to deploy earthworks batters or where earthworks negatively impact the efficiency of future adjacent landuses.

1. **Gateway into the Silverdale Area -** The corridor will provide direct access into the Silverdale area from the FUZ , and the future design of the corridor, should consider the opportunity to provide a gateway into the area, assisting in way finding and defining the transition between rural and urban land uses.
2. **Auckland Memorial Park and Cemetery -** Acknowledge and address the interface with the cemetery.

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 mod e connection that connects to the future local transport network.
- Intersection arrangement that addresses multi-modal priority, safety and legibility.

LEGEND

- Designation Boundary
- Future Urban Zone - FUZ
- Residential - Large Lot
- Residential - Mixed Housing Urban
- Business - Light Industry
- Business - General Business
- Business - Heavy Industry
- Open Space - Sport and Active Recreation
- Rural - Countryside Living
- Blue Network
- Open Watercourse
- Proposed Cut
- Proposed Fill
- Bi-Directional Cycling facilities

8 Summary of urban design evaluation and recommendations for all corridors

Overall, the proposed North Projects' corridor designs and configurations are generally supportive of 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. Due to the location of some of the corridors, and their anticipated function, some of the Design Framework principles are not relevant.

A summary of the recommended urban design outcomes and opportunities for all NoRs is outlined below. These are recommended to inform a part of the Urban and Landscape Design Management Plan (ULDMP) in future delivery stages. This is to ensure the detailed design of the corridors/stations respond appropriately to the principles and the project specific urban design outcomes sought.

The ULDMP should address the following Project specific outcomes across the corridors:

NoR	Principle	Recommendation
All	**Environment**	• A landscape plan that 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. • Integration of the stormwater raingardens 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. • 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. • 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. • 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. • Refine the design of the corridor to maintain the connections of the Huruhuru (Dairy Stream), the Rangitopuni Stream, the Wēiti River, the Waterloo Creek, the Ōrewa River, the Waokauri Creek, John Creek, the Ōkura River, / and their tributaries. • Integration of the stormwater swales and wetlands to ensure an appropriate interface with adjacent land uses, specifically where

NoR	Principle	Recommendation
		stormwater wetlands are proposed in areas zoned high density or for centres.
	Social	• 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. • Include a CPTED Review of the project to create a safe and useable corridor and include any specific areas identified in individual corridor recommendations. • 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. • 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. •
	Built Form	• 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. • 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. • An urban interface approach within the corridors and stations that: ○ Provides an appropriate interface to the anticipated future environment and enables buildings and spaces to positively address and integrate with the corridors; ○ 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; ○ Manages the transition between urban and rural land use; ○ Provides a corridor interface that supports permeable pedestrian access and responds to the changing built form interface and spatial character of adjacent future development; ○ Where applicable recognises the transition of densities from: - 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 - 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.

NoR	Principle	Recommendation
		• A landscape treatment approach for the rural sections of the corridors to integrate relevant corridor sections into the rural context.
	Movement	• Future design of the corridors 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.
	Land Use	• 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 and high-density residential areas, and adjacent to intersections where large areas of earthworks are required
• **In addition to the recommendations that are common to each of the 13 NoRs, the following recommendations are provided for each NoR below.**		
NoR 1	**Environment**	• No specific recommendations

	Social	• The identification, development and integration of key local community and identity drivers within NoR 1 should be demonstrated within the corridor and any future stations. Key local identity community functions to be addressed include:
		  • The future Milldale RTC Station;
		  • The future Pine Valley East RTC Station;
		  • The future Dairy Flat Town Centre;
		  • A future Local Centre in the north-western FUZ area;
		  • Integration with High Density Housing around the stations and the centres; and
		  • Integration with future medium density housing adjacent to the corridor.
		• Key distinctive landscape character qualities of open spaces, stream and conservation zones include:
		  • Ōkura River and its tributaries;
		  • Huruhuru (Dairy Stream) and its tributaries;
		  • Wēiti River and its tributaries;
		  • Adjacent stormwater and natural wetlands; and
		  • Future parks and reserves that may be developed as the area urbanises.
		• 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,

NoR	Principle	Recommendation
		schools, community functions and open spaces. Where more intensive land uses are anticipated, such as within the future Dairy Flat Town Centre, 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: • Milldale Station • Pine Valley East Station • Future stations along the RTC alignment • Future Dairy Flat Town Centre • Future Local Centres in the northeast area of the FUZ • 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. • The CPTED review of NoR 1 should address, at a minimum, the current identified CPTED risks including: • The provision of safe grade -separated crossings across the RTC at regular intervals; • Those areas of the transport corridors, including the RTC, where the level of earthworks required means there could be sections with minimal passive surveillance of the corridor; • Within the industrial segment of the corridor, which depending on the future land use pattern, has the potential for a low level of passive surveillance. • The detailed design of the RTC should consider how the amenity of the environment can be maximised for active mode users. Future design considerations could include the creation of a landscape or visual buffers from adjacent industrial land use or creation of a local road/service lane, facilitating activation and passive surveillance of the active mode facility.
	Built Form	No specific recommendations
	Movement	• 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: • At future station locations along the alignment. • Between stations at regular locations in the FUZ. Where the alignment spans areas anticipated to be high density residential land use or within, or near town centres, these should be provided at higher frequencies providing a level of accessibility and permeability appropriate for the context.

NoR	Principle	Recommendation
		• Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the designation within the North Projects. • 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. • Future station locations and typologies should be located and designed to maximise access and connectivity to the surrounding FUZ, the local transport network and public transport routes, maximising accessibility from the surrounding areas.
	Land Use	• 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: ○ The future Dairy Flat Town Centre ○ Adjacent high density land use areas
NoR 2	**Social**	• 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: • The Milldale Residential development and associated town centre; and • Integration with housing around the station. • • Key distinctive landscape character qualities of open spaces, stream and conservation zones include: • Wēiti River and its tributaries; and • "Kathy's Thicket" SEA. • The proposed corridor/station 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: • Crossing facilities that prioritise active modes across John Fair Drive and Ahutoetoe Road to facilitate access to the station. • The CPTED review of NoR 2 should address, at a minimum, the current identified CPTED risks including: • Connections between the bus interchange and the station. • The design of the station building and surrounding environment.

NoR	Principle	Recommendation
	Built Form	No specific recommendations
	Movement	No specific recommendations
	Land Use	No specific recommendations
NoR 3	**Environment**	No specific recommendations

	Social	• 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:
		  • Residential and Industrial development around the station.
		  • A potential future centre near or adjacent to the station.
		• Key distinctive landscape character qualities of open spaces, stream and conservation zones include:
		  • Wēiti River and its tributaries; and
		  • Future stormwater wetlands
		• The proposed corridor/station 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:
		  • Crossing facilities that prioritise active modes across (New) Pine Valley Road to facilitate access to the station.
		  • Connection to the future local road network in Pine Valley.
		• The CPTED review of NoR 3 should address, at a minimum, the current identified CPTED risks including:
		  • Connection between the Park and Ride and the station.
		  • The underbridge environment on (New) Pine Valley Road.
		The design of the station building and surrounding environment.

	Built Form	An urban interface approach within the corridors and stations that:
		  ○ Manages the interface between future industrial and residential land use (NoR 3);
		  ○ Considers opportunities to active the street network adjacent to the Park and Ride and interchange facilities.

NoR	Principle	Recommendation
	Movement	No specific recommendations
	Land Use	No specific recommendations
NoR 4	**Environment**	No specific recommendations

	Social	• 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:
		  ○ Gateways and way-finding as the corridor moves through various contexts and destinations.
		• Key distinctive landscape character qualities of open spaces, stream and conservation zones include:
		  ○ Ōkura Creek and its tributaries;
		  ○ Huruhuru (Dairy Stream) and its tributaries;
		  ○ John Creek and its tributaries;
		  ○ Wēiti River and its tributaries;
		  ○ The rural environment and interface; and
		  ○ Adjacent wetlands.
		• The CPTED review of NoR 4 should address, at a minimum, the current identified CPTED risks including:
		  • Those areas of the active mode corridor where the separation and lack of activation from adjacent land use mean there is minimal passive surveillance of the corridor;

	Built Form	No specific recommendations
	Movement	No specific recommendations
	Land Use	No specific recommendations

NoR 5	**Social**	• 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:
		  ○ Integration with future housing adjacent to the corridor.
		• Key distinctive landscape character qualities of open spaces, stream and conservation zones include:
		  ○ Huruhuru (Dairy Stream) and its tributaries.
		•

NoR	Principle	Recommendation
	Built Form	No specific recommendations
	Movement	No specific recommendations
	Land Use	No specific recommendations
NoR 6	**Environment**	No specific recommendations
	Social	• 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: ○ Integration with future housing adjacent to the corridor; ○ Integration with a potential Local Centre at the southern end of the corridor; and ○ Integration with a potential education facility near the southern end of the corridor. • Key distinctive landscape character qualities of open spaces, stream and conservation zones include: ○ Ōrewa River and its tributaries; and ○ Adjacent wetlands and areas of indigenous vegetation. ○ Future parks and reserves that may be developed as the area urbanises. ○ • The proposed corridor/station 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: ○ Future education facilities that may be located at the southern end of the corridor. ○ 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.
	Built Form	No specific recommendations
	Movement	• 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: ○ Adjacent to any future school.

NoR	Principle	Recommendation
	Land Use	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 at: ○ At the intersection of Russell Road and NoR 6.
NoR 7	**Environment**	No specific recommendations
	Social	• 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: ○ The future Pine Valley East RTC Station; ○ A potential Local Centre in this area; ○ The interface between industrial and residential land use; ○ Integration with future housing adjacent to the corridor; and ○ Gateways and transitions between residential and industrial areas. • Key distinctive landscape character qualities of open spaces, stream and conservation zones include: ○ Wēiti River and its tributaries; ○ Adjacent wetlands and areas of SEA; and ○ Future parks and reserves that may be developed as the area urbanises. • The proposed corridor/station 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: ○ Future Local Centre in the north-east FUZ area. ○ Cross-corridor crossings at locations that facilitate access to future schools, community functions and open spaces that may be developed as the area urbanises.
	Built Form	An urban interface approach within the corridors and stations that: ○ Manages the transition between areas of industrial and residential land use (NoR 7);
	Movement	• 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

NoR	Principle	Recommendation
		community facilities. Those locations where this is particularly important are: ○ Where the alignment spans areas anticipated to be high density residential land use or within, or near local centres, these should be provided at higher frequencies. • Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the designations within the North Projects. Those locations where this is particularly important are: ○ At intersections proposed near any future local centres in Pine Valley.
	Land Use	No specific recommendations
NoR 8	**Environment**	No specific recommendations
	Social	• 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: ○ Gateways and way-finding as the corridor moves through various contexts and destinations; ○ The future Dairy Flat Town Centre; ○ Integration with future housing adjacent to the corridor; and ○ Integration with future industrial use adjacent to the corridor. • Key distinctive landscape character qualities of open spaces, stream and conservation zones include: ○ Huruhuru (Dairy Stream) and its tributaries; ○ Rangitopuni Stream and its tributaries; and ○ Adjacent wetlands and areas of SEA. ○ Future parks and reserves that may be developed as the area urbanises. • The proposed corridor/station 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: ○ Future Town Centre in Dairy Flat ○ Existing industrial activity on Kahikatea Flat Road. ○ Cross-corridor crossings that prioritise active modes at locations that facilitate access to future/existing schools, community functions and open spaces that may be developed as the area urbanises.

NoR	Principle	Recommendation
	Built Form	No specific recommendations
	Movement	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: ○ Where the alignment spans areas anticipated to be high density residential land use or within, or near town or local centres, these should be provided at higher frequencies. • Legibility, connectivity demands, safety, universal access and modal priority for active modes should be addressed for intersections across the designations within the North Projects. Those locations where this is particularly important are: ○ At intersections proposed near the future Dairy Flat Town Centre.
	Land Use	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 at: ○ At the intersection of Bawden Road and Dairy Flat Highway (NoR 8) ○ At the intersection of Green Road and Dairy Flat Highway (NoR 8) ○ At the intersection of Blackbridge Road and Dairy Flat Highway (NoR 8)
NoR 9	**Environment**	No specific recommendations
	Social	• The identification, development and integration of key local community and identity drivers within NoR 9 should be demonstrated. Key local identity community functions to be addressed include: • Gateways and way-finding to Dairy Flat and Albany. • Key distinctive landscape character qualities of open spaces, stream and conservation zones include: • Huruhuru (Dairy Stream) and its tributaries; and • Adjacent areas of SEA and indigenous vegetation. • Future parks and reserves that may be developed as the area urbanises. • The proposed corridor/station 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,

NoR	Principle	Recommendation
		schools, community functions and open spaces. Locations where access should be addressed within each NoR include: ○ Cross-corridor crossings that prioritise active mode connections at the urban ends of the corridor and at the midway point, providing continuity and legibility for active mode users.
	Built Form	No specific recommendations
	Movement	No specific recommendations
	Land Use	No specific recommendations
NoR 10	**Environment**	No specific recommendations
	Social	• The identification, development and integration of key local community and identity drivers within NoR 10 should be demonstrated. Key local identity community functions to be addressed include: • Integration with future housing adjacent to the corridor. • Key distinctive landscape character qualities of open spaces, stream and conservation zones include: • Waterloo Creek and its tributaries; • Ōrewa River and its tributaries; and • Adjacent areas of Indigenous vegetation. • Future parks and reserves that may be developed as the area urbanises. • The proposed corridor/station 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: ○ Cross-corridor crossings that prioritise active modes at locations that facilitate access to future/existing schools, community functions and open spaces that may be developed as the area urbanises.
	Built Form	No specific recommendations
	Movement	No specific recommendations
	Land Use	No specific recommendations

NoR	Principle	Recommendation
NoR 11	**Environment**	No specific recommendations

	Social	• The identification, development and integration of key local community and identity drivers within NoR 11 should be demonstrated. Key local identity community functions to be addressed include:
		  • Integration with future industrial use adjacent to the corridor.
		• Key distinctive landscape character qualities of open spaces, stream and conservation zones include:
		  • Rangitopuni Stream and its tributaries; and
		  • Adjacent Wetlands.
		  • Future parks and reserves that may be developed as the area urbanises.
		• The proposed corridor/station 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:
		  • Cross-corridor crossings that prioritise active modes at locations that facilitate access to employment within the Silverdale West Dairy Flat Industrial Structure Plan Area.

	Built Form	No specific recommendations
	Movement	No specific recommendations
	Land Use	No specific recommendations
NoR 12	**Environment**	No specific recommendations

	Social	• The identification, development and integration of key local community and identity drivers within NoR 12 should be demonstrated. Key local identity community functions to be addressed include:
		  ○ The future Dairy Flat Town Centre;
		  ○ A future station associated with the Town Centre; and
		  ○ Integration with future housing adjacent to the corridor.
		• Key distinctive landscape character qualities of open spaces, stream and conservation zones include:
		  ○ Huruhuru (Dairy Stream) and its tributaries;
		  ○ Adjacent wetlands;

NoR	Principle	Recommendation
		○ Future parks and reserves that may be developed as the area urbanises. • The proposed corridor/station 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: ○ The Future Dairy Flat Town Centre. ○ Cross-corridor crossings that prioritise active modes at locations that facilitate access to future/existing schools, community functions and open spaces that may be developed as the area urbanises.
	Built Form	No specific recommendations
	Movement	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: ○ At intersections proposed near the future Dairy Flat Town Centre.
	Land Use	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 at: ○ At the intersection of Bawden Road and Top Road (NoR12). ○
NoR 13	**Environment**	No specific recommendations
	Social	• The identification, development and integration of key local community and identity drivers within NoR 13 should be demonstrated. Key local identity community functions to be addressed include: • Gateways and way-finding to Silverdale; and • Integration with future housing adjacent to the corridor. • Key distinctive landscape character qualities of open spaces, stream and conservation zones include: • Huruhuru (Dairy Stream) and its tributaries; and • Future parks and reserves that may be developed as the area urbanises.

NoR	Principle	Recommendation

		• The proposed corridor/station 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:
		  • Cross-corridor crossings that prioritise active mode connections at the urban ends of the corridor and at the midway point, providing continuity and legibility for active mode users
		  •

	Built Form	No specific recommendations
	Movement	No specific recommendations
	Land Use	No specific recommendations

9 Design Framework Principles

The adopted Design Framework principles, outcomes and measures are summarised here for reference and have been extracted from the full Te Tupu Ngātahi Design Framework.

ENVIRONMENT

1.1 Support and enhance ecological corridors and biodiversity

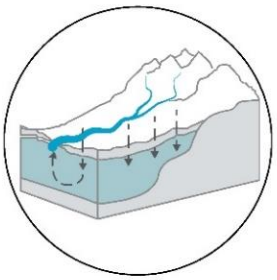
In the placement and design of movement corridors mitigate the effects on or enhance existing ecological corridors.

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.

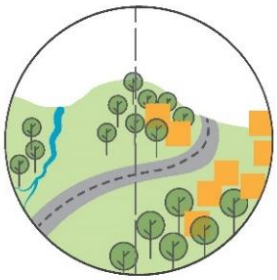
It is important that the mauri of waterways is restored, maintained and preserved for future generations. Connection to the Māori world view is described in the Te Aranga Principles - Mauri Tu: Environmental Health

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

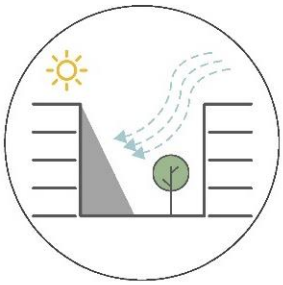
Outcome:

- 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 amalgram of the inherent built, natural and cultural qualities of a place.

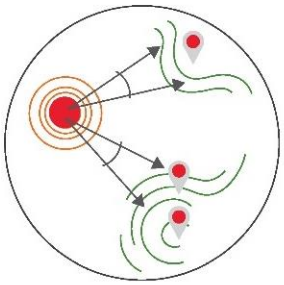
Responding to identity in the location and type of new corridors can provide a sense of continuity and contribute to our collective memory.

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.

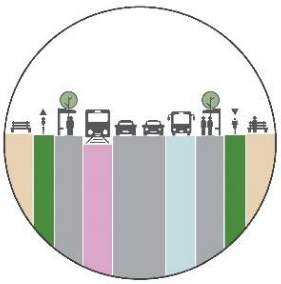
Connection to the Māori world view is described in the Te Aranga Principles - Tohu: The wider cultural landscape.

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 accessbility 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 enironments.

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.

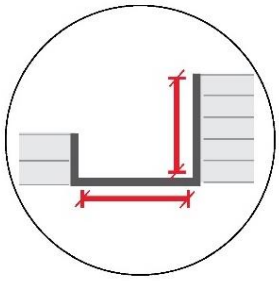
Density (and a diversity of housing choices) gives people the opportunity to live in neighbourhoods that meet their lifestyle preferences and economic means. Residents should be provided with the choice to live in amenity-rich neighbourhoods where they are a short walk or bike ride away from shopping,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

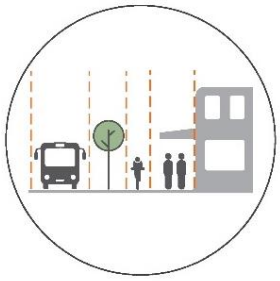
Refer to Locational Principles in Appendix E.

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.

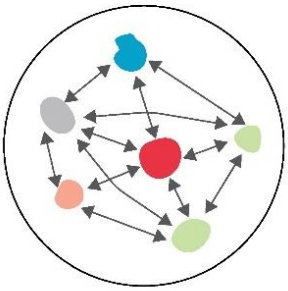
Outcome:

- 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.

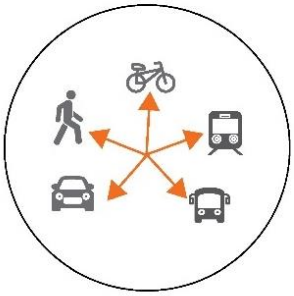
Corridors should accommodate any identified cross connections between nodes outside of strategic corridors.

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.

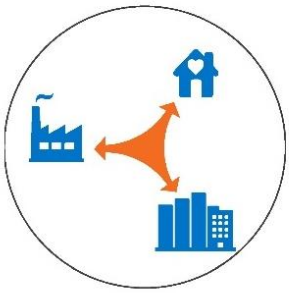
Provide access to multiple travel modes. Corridors can contribute to outcomes for a wider cross section of the community (including elderly, children and mobility-impaired users) when they support safe, comfortable and attractive multi-modal transport for all users.

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.

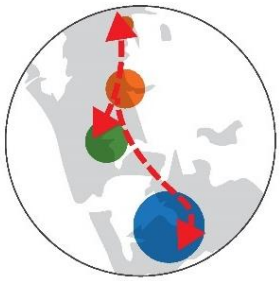
Dedicated and efficient public transport corridors provide modal choice to a larger number of users and reduces the impact on the environment.

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.

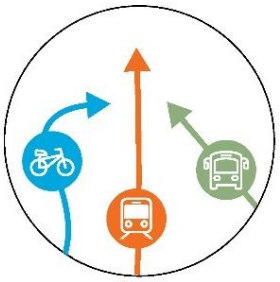
Identify corridor heirarchies and functions to allow for differentiation between inter-regional trips and local trips.

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.

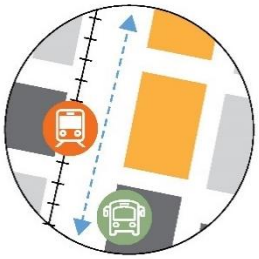
Outcome:

- 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.

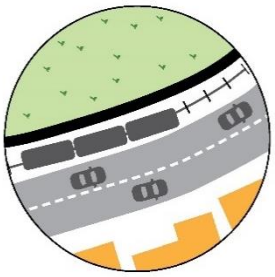
Refer to Locational Principles in Appendix E.

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.