

Memorandum

To:	North Project Team
From:	
Date:	April 2023
CC:	
Subject:	North – Design Framework Review
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This urban design evaluation has been prepared for the North Detailed Business Case based on the guidance and principles established in the programme wide document - Te Tupu Ngātahi Design Framework (Design Framework). It covers both the Strategic and Local packages.

The Design Framework takes a systems-based approach as the basis on which urban areas are organised and understood and pulls these apart as a series of layers; environment, social, built form, movement and land use, and cultural and sustainability values underpinning and spanning across these. In this way transport networks are not seen in isolation rather in terms of how they can contribute to the urban system as a whole.

The Design Framework provides measurable guidance for outcomes-based decisions throughout each phase of the programme delivery including:

- Option development
- Option evaluation
- Detailed business case preparation, and
- The corridor protection and consenting process.

There are 20 design principles that have been established within these layers to provide high level guidance on the attributes of responsive, resilient, sustainable and high-quality urban environments. Each preferred option has been evaluated against these 20 programme wide design principles based on the current design detail (Rev B). The record notes where an option is supportive of each of the design principles and where the option was assessed as being neutral or as an opportunity for development, this has been noted below as urban design recommendations that should be considered and developed in future design stages.

The intention of this evaluation is to provide a high-level urban design overview that considers the road, active mode and rapid transit corridor alignments. The urban design commentary will also identify design opportunities and refinements that should be considered at subsequent stages of the design and help to form the basis of future urban design specific consent conditions.

No assessment has been undertaken on the 3 type A projects (Dairy Stream Active Mode Corridor, Argent Land Upgrade and the New Pine Valley Road Upgrade). This is to be completed as part of the implementation business case for each project.







1.1 New Rapid Transit Corridor (Albany to Milldale) Assessment

The proposed public transport corridor is supportive of the following Design Framework principles:

Social

Adaptive corridors.

Built Form

Align corridors with density

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Prioritise active modes and public transport
- Support inter-regional connections and strategic infrastructure
- Support legible function

Land Use

Public transport directed and integrated into centres

Those principles that scored neutral in their support include:

Environment -

Minimise land disturbance, conserve resources and materials -

The RTN is a long corridor (approx. 16km) that runs through the FUZ. There are a locations where large batter slopes, both cut and fill, are required to accommodate the corridor through the FUZ meaning there are large areas of land disturbance. Future design should look to minimise these where possible.

Support and enhance ecological corridors and biodiversity -

Details of the ecological management strategy of the corridor is not fully resolved and should be reviewed for landscape integration opportunities with stream networks as part of detailed design and designation conditions.

Support water conservation and enhance water quality in a watershed -

Future development and definition of the proposed stormwater retention ponds at a future design stage is recommended to provide an appropriate interface with the surrounding land uses. There are also opportunities to explore an integrated urban storm water strategy and stormwater treatment for the RTC to deliver an integrated water quality treatment system.







Adapt to a changing climate and respond to the microclimatic factors of each area Provide further details and definition at future design stages of the proposed amenity
planting and water sensitive design elements to demonstrate consideration of urban heat
island effects in this future urbanized area.

Social -

Identity and place –

Future architectural design response of the RTC will need to consider the underlying identity drivers of the surrounding context such as;

- the landscape character drivers across the corridors.
- the urban space qualities of the mixed use landuse, the future town centre in Dairy Flat, any other smaller future centres and the surrounding high density land uses.
- cultural values and narratives.

Respect culturally significant sites and landscapes –

Explore opportunities for the betterment of various streams and riparian margins that the RTC passes over through an interface strategy that integrates the stream network as part of the public realm and reinforces the identity drivers for the RTC.

No known areas of culturally significant within the site, however there is a Historic Structure identified near the edge of the corridor. This should be considered as part of the assessment of effects.

Social Cohesion –

The length and scale of the works associated with the corridor create a severance risk and detailed design should consider how connectivity could be provided / improved through the length of the corridor at regular locations, particularly to key destinations in the future including the future town centre, areas of open space and recreation and areas of employment.

Safety –

Future development of the final crossing points of the RTC will reinforce the sense of personal safety and provide for equitable local connectivity and access for active modes. In particular, the provision of crossings is recommended to demonstrate connectivity for active modes at multiple points along the corridor creating an accessible urban environment with a high degree of permeability.

Built Form -

Corridor scaled to the surrounding context and urban structure –

The RTC is a 20m wide corridor that moves through the FUZ, the corridor includes provision for rapid transit vehicles and active mode facilities. The design requirements of the corridor in relation to geometry in combination with the topography of the FUZ mean large scale earthworks are required through the extent of the corridor. Detailed design should look to maximise interface opportunities by minimising the extent of batter slopes and look for opportunities to integrate with adjacent development.

Facilitate an appropriate interface between place and movement –







An urban integration strategy should be developed to coordinate with landowners in future stages to address interface issues and areas of localized fill and cut batters. This will enable an appropriate interface with adjacent land uses that will provide for active edge permeability and enable local access and connectivity to be achieved, particularly any areas of higher density housing.

The following principles were identified as not relevant to the public transport interchange:

Strategic corridors as urban edges

1.2 New Milldale Station and Associated Facilities (Bus Interchange etc.)

The proposed station is <u>supportive</u> of the following Design Framework principles:

Environment

- Support and enhance ecological corridors and biodiversity
- Minimise land disturbance, conserve resources and materials

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Prioritise active modes and public transport
- Support inter-regional connections and strategic infrastructure
- Support legible function

Those principles that scored <u>neutral</u> in their support include:

Environment

- Support water conservation and enhance water quality in a watershed –
 Future development and definition of the proposed stormwater retention pond at a future design stage is recommended to provide an appropriate interface with the surrounding land uses.
- Adapt to a changing climate and respond to the microclimatic factors of each area –
 there is sufficient space within the designation for the future design to respond to climatic
 factors including design to take account of access to sunlight, prevailing wind direction and
 the provision of planting and landscaping, including trees.

Social

Identity and place –

Future architectural design response of the station will need to consider the underlying identity drivers of the surrounding context such as;

- the landscape character drivers of the Milldale area
- the urban space qualities of the surrounding residential area and future anticipated character of the area as it changes over time.







- cultural values and narratives
- Adaptive corridors While not a corridor, the station is adjacent to SH1 and Highgate bridge, provides for public transport and will be accessible by active modes. Future design of the station and bus interchange will need to consider noise effects on adjacent properties. The design will need to include consideration for water management, ecology and recreation, which should be able to be achieved within the space allocated for the station footprint.
- Respect culturally significant sites and landscapes No known areas of culturally significant within the site, however this hasn't formally assessed. This should be considered as part of the assessment of effects.
- Safety Detailed design of the station will need to consider CPTED and safe access and interaction with John Fair Drive and Ahutoetoe Road for active modes.

Built Form

- Align corridors with density Milldale has recently been developed with lower density housing, meaning that there is unlikely to be density in the immediate walkup catchment of the station. The Milldale Local Centre and associated increased density is approximately 1.8km to the northwest, which is within a micro-mode/active mode catchment but is some walk away. The Highgate employment area is located to the east across the soon to be constructed Highgate Bridge on John Fair Drive. The location of the station is unable to be located elsewhere, so minimal changes are able to be made to improve scoring, however the station in this location may encourage future redevelopment (when it occurs) to be higher density, creating density around the station.
- Scaled to the surrounding context and urban structure The design of the station needs to reflect its residential context. The recent development of the Milldale area means substantial change in the built form is unlikely to occur in the immediate future, however a more enabling planning framework could be implemented, resulting in increased density in the future. The station design should consider how this could be responded to, should this eventuate.
- Facilitate an appropriate interface between place and movement Detailed design of the station will need to consider how the station interfaces with adjacent properties and the surrounding street network to provide connectivity and a positive influence on the urban form in the area. An urban integration strategy should be developed in coordination with landowners in future stages to address interface issues and areas of localized fill batters. This will enable an appropriate interface with adjacent land uses that will provide for active edge permeability and deliver local access and connectivity can be achieved.

Landuse







 Public transport directed and integrated into centres – The interchange doesn't specifically direct public transport into 'centres,' however it does provide an alternative access point for trips to other centres on the RTC, and beyond into wider Auckland.

The following principles were identified as <u>not relevant</u> to the Milldale Station.

Strategic corridors as urban edges

1.3 New Pine Valley East Station And Associated Facilities (Frequent Transit Network (FTN) Bus Interchange, Park And Ride and Access Road)

The proposed station is supportive of the following Design Framework principles:

Environment

- Support and enhance ecological corridors and biodiversity
- Minimise land disturbance, conserve resources and materials

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Prioritise active modes and public transport
- Support inter-regional connections and strategic infrastructure
- Support legible function

Those principles that scored <u>neutral</u> in their support include:

Environment

- Support water conservation and enhance water quality in a watershed –
 Future development and definition of the proposed stormwater retention pond at a future design stage is recommended to provide an appropriate interface with the surrounding land uses.
- Adapt to a changing climate and respond to the microclimatic factors of each area –
 there is sufficient space within the designation for the future design to respond to climatic
 factors including design to take account of access to sunlight, prevailing wind direction and
 the provision of planting and landscaping, including trees.

Social

- Identity and place Future architectural design response of the station will need to consider the underlying identity drivers of the surrounding context such as;
 - the landscape character drivers of the Pine Valley area including the Weiti Stream.
 - the urban space qualities of the surrounding residential area and future anticipated commercial activity as it changes over time.







- cultural values and narratives
- Adaptive corridors While not a corridor the station is adjacent to the Pine Valley Road upgrade and separate New Pine Valley Road alignment. It provides for public transport and will be accessible by active modes. Future design of the station and bus interchange will need to consider noise effects on adjacent properties. The design will need to include consideration for water management, ecology and recreation, which should be able to be achieved within the space allocated for the station footprint.
- Respect culturally significant sites and landscapes A Māori Heritage Area is identified
 on the edge of the site. This should be considered as part of the assessment of effects.
- Safety Detailed design of the station will need to consider CPTED and safe access and interaction with New Pine Valley Road for active modes.

Built Form

- Align corridors with density The station is located in the FUZ, and straddles the interface with the Silverdale West Dairy Flat Industrial Structure Plan area. There is the possibility of a small local centre being developed in the area, and the presence of the station will enable the development of higher density development. Future station design should respond to the future land use and integrate with the anticipated intensive form.
- Scaled to the surrounding context and urban structure The design of the station needs to reflect its future context which is anticipated to be a mix of higher density residential land use to the west, with the potential for a smaller local centre, and light industrial land use to the west (as per the Silverdale West Dairy Flat Industrial Structure Plan area). The station design should consider how this could be responded to, as the future urban form and land use develops. The Park and Ride facilities could be designed and constructed in a range of configurations, and future design should consider how this could be integrated into the adjacent land use, including the treatment of edges and enabling active interfaces with the adjacent transport network.
 - Facilitate an appropriate interface between place and movement Detailed design of the station will need to consider how the station interfaces with adjacent properties and the surrounding street network to provide connectivity and a positive influence on the urban form in the area. An urban integration strategy should be developed in coordination with landowners in future stages to address interface issues and areas of localized fill batters (if required). This will enable an appropriate interface with adjacent land uses that will provide for active edge permeability and deliver local access and connectivity can be achieved.

Landuse

Public transport directed and integrated into centres – Future land use in the area may
include a small local centre co-located with the station. The station is on the RTC alignment
which provides an alternative access point for trips to other centres on the RTC, and beyond
into wider Auckland.

The following principles were identified as not relevant to the Milldale Station.







Strategic corridors as urban edges

1.4 SH1 Improvements

The proposed transport corridor is supportive of the following Design Framework principles:

Environment

Minimise land disturbance, conserve resources and materials

Social

- Adaptive
- Social cohesion
- Safe Corridors

Built Form

- Scaled to the surrounding context and urban structure
- Facilitate an appropriate interface between place and movement

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Prioritise active modes and public transport
- Support inter-regional connections and strategic infrastructure
- Support legible function

Land Use

Public transport directed and integrated into centres

Those principles that scored <u>neutral</u> in their support include:

- Support and enhance ecological corridors and biodiversity
 - Details of the ecological management strategy of the corridor is not fully resolved and should be reviewed for landscape integration opportunities with adjacent areas of SEAs, watercourses and wetlands.
- Support water conservation and enhance water quality in a watershed
 - Future development and definition of the proposed stormwater retention ponds at a future design stage is recommended to provide an appropriate interface with the surrounding land uses. There are also opportunities to explore an integrated urban storm water strategy and stormwater treatment for the SH1 corridor to deliver an integrated water quality treatment system.
- Adapt to a changing climate and respond to the microclimatic factors of each area –
 Provide further details and definition at future design stages of the proposed amenity
 planting and water sensitive design elements to demonstrate consideration of urban heat
 island effects.
- Identity and place –







The future architectural design response of the corridor will need to consider the underlying identity drivers of the surrounding context such as;

- the landscape character drivers throughout the corridor as it moves through different contexts.
- cultural values and narratives

Respect culturally significant sites and landscapes –

Explore opportunities for the betterment of various streams and riparian margins that the SH1 corridor passes over through an interface strategy that integrates the stream network as part of the public realm and reinforces the identity drivers for the Corridor. No known areas of culturally significant within the site, however there are archaeological sites, and historic structures identified near the edge of the corridor. This should be considered as part of the assessment of effects.

The following principles were identified as not relevant to the State Highway 1 Improvements:

- Align with density
- Strategic corridors as urban edges

1.5 Dairy Stream Motorway Crossing

The proposed crossing is <u>supportive</u> of the following Design Framework principles:

Environment

- Support and enhance ecological corridors and biodiversity
- Minimise land disturbance, conserve resources and materials

Social

- Adaptive Corridors
- Social cohesion
- Safety

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Prioritise active modes and public transport
- Support legible function

Those principles that scored <u>neutral</u> in their support include:

Environment

Support water conservation and enhance water quality in a watershed –







Future development and definition of the proposed stormwater retention pond at a future design stage is recommended to provide an appropriate interface with the surrounding land uses.

Adapt to a changing climate and respond to the microclimatic factors of each area –
 Active modes are to be provided along the length of the corridor. Detailed design will need to accommodate amenity measures such as street trees and shading.

Social

Identity and place –

Future design response of the corridor will need to consider the underlying identity drivers of the surrounding context such as;

- the landscape character drivers of the area
- the urban space qualities of the surrounding residential area and future anticipated character of the area as it changes over time.
- cultural values and narratives
- Respect culturally significant sites and landscapes –

No known areas of culturally significant within the site, however this hasn't formally assessed. This should be considered as part of the assessment of effects.

Built Form

- Align corridors with density The corridor is located in the FUZ, which is anticipated to
 provide for residential land use, likely of a medium density.
- Scaled to the surrounding context and urban structure The design of the corridor should reflect its residential context and needs to consider the integration between adjacent land use and the vertical geometry of the ramps required to cross over SH1.
- Facilitate an appropriate interface between place and movement –
 An urban integration strategy should be developed in coordination with landowners in future stages to address interface issues with the adjacent fill batters.

The following principles were identified as not relevant to the Dairy Stream Crossing.

- Support inter-regional connections and strategic infrastructure
- Public transport directed and integrated into centres
- Strategic corridors as urban edges







1.6 New Connection Between Milldale and Grand Drive

The proposed crossing is <u>supportive</u> of the following Design Framework principles:

Social

Adaptive corridors

Movement

- Connect modes
- Support access to employment and industry
- Support inter-regional connections and strategic infrastructure
- Prioritised active modes and public transport
- Support legible function

Those principles that scored <u>neutral</u> in their support include:

Environment

- Support and enhance ecological corridors and biodiversity the current alignment
 avoids identified SEAs, however cuts through areas of indigenous vegetation identified as
 part of the wider ecological assessment. Opportunities to minimise the effect on these areas
 is recommended as part of design refinement.
- Support water conservation and enhance water quality in a watershed –
 Future development and definition of the proposed stormwater management at a future design stage is recommended to provide an appropriate interface with the surrounding land uses.
- Adapt to a changing climate and respond to the microclimatic factors of each area –
 Active modes are to be provided along the length of the corridor, and part of the corridor provides for public transport lanes. Detailed design will need to accommodate amenity measures such as street trees and shading.

Social

- Respect culturally significant sites and landscapes –
 No known areas of culturally significant within the site, however this hasn't been formally assessed. This should be considered as part of the assessment of effects.
- Social Cohesion the proposed corridor will provide connectivity between Ara Hills and Milldale. The inclusion of protected cycling facilities will provide modal choice for users. The location of the corridor and the associated topography means that there are large areas of earthworks that will create severance issues for the community unless connectivity and access can be established.
- Safety –

Detailed design of the corridor will need to consider CPTED and how active interfaces can be established with the road corridor. Detailed design will need to consider design detail for safe active mode crossings and safe pedestrian environments.







Built Form

 Align corridors with density – The location of the corridor is zoned FUZ, and there is no structure plan in place, therefore the likely density of the land adjacent to the corridor is unknown. The corridor does however provide a connection for development in the north/Ara Hills area to the Milldale Centre in the south.

Movement

• **Connect nodes** – This corridor supports wider connections between Milldale and north to Ara Hills and through into Ōrewa via Grand Drive, however does not directly connect into centres.

Landuse

Public transport directed and integrated into centres –

The corridor doesn't specifically direct public transport into 'centres,' however it does provide access from the north-east to the Milldale Centre. Further understanding of the future public transport network is required.

Those principles that scored Opportunity for development in their support include:

Social

Identity and place –

The scale of the earthworks involved in this corridor means that it does not respond to the underlying topography and natural characteristics of the place. Future design work is recommended to minimise the scale of earthworks along this corridor.

Built Form

- Scaled to the surrounding context and urban structure The corridor is located in the FUZ and future development will be able to respond to the corridor and its scale.
 Nevertheless, the topography of the area will result in large scale earthworks, and these should be minimised as much as possible during more detailed design.
- Facilitate an appropriate interface between place and movement –
 The scale of the earthworks required will likely create difficulties in facilitating an appropriate interface between public and private. Future detailed design should take the opportunity to maximise interface outcomes along the corridor. Providing for future connectivity to adjacent land development and future movement network will be important to provide permeability and connectivity in the area.

The following principles were identified as not relevant to the Upper Orewa Road Extension.

Strategic corridors as urban edges







1.7 Pine Valley Road Upgrade

The proposed crossing is supportive of the following Design Framework principles:

Environment

Minimise land disturbance, conserve resources and materials

Social

- Identity and place
- Adaptive corridors
- Social cohesion
- Safe Corridors

Built form

- Corridor scaled to the surrounding context and urban structure
- Facilitate an appropriate interface between place and movement

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Support inter-regional connections and strategic infrastructure
- Support legible function

Those principles that scored <u>neutral</u> in their support include:

Environment

- Support and enhance ecological corridors and biodiversity

 – the current alignment is
 adjacent to an identified SEA, and the edge of indigenous vegetation identified as part of the
 wider ecological assessment. There are opportunities to minimise effects on these areas, as
 part of design refinement and these should be considered when developing the construction
 methodology.
- Support water conservation and enhance water quality in a watershed Future
 development and definition of the proposed stormwater management at a future design
 stage is recommended to provide an appropriate interface with the surrounding land uses.
- Adapt to a changing climate and respond to the microclimatic factors of each area –
 Active modes are to be provided along the length of the corridor, and part of the corridor provides for public transport lanes. Detailed design will need to accommodate amenity measures such as street trees and shading.

Social

Respect culturally significant sites and landscapes – No known areas of culturally significant within the site, however this hasn't been formally assessed. This should be considered as part of the assessment of effects.







Safe corridors – Detailed design of the corridor will need to consider CPTED and how
active interfaces can be established with the road corridor. Detailed design will need to
consider design detail for safe active mode crossings and safe pedestrian environments.

Built Form

 Align corridors with density – The location of the corridor is zoned FUZ, and there is no structure plan in place, therefore the likely density of the land adjacent to the corridor is unknown. The corridor does however provide a connection into the future Pine Valley Station which is likely to encourage future density in this area.

Movement

Prioritise active modes and public transport – The corridor provides for separated
cycling facilities; however design detail needs to resolve access through intersections to
provide for priority to active modes.

Landuse

Public transport directed and integrated into centres – The corridor doesn't specifically
direct public transport into 'centres,' however it does provide access from the north-east to
the Pine Valley Road Station. There may be a small local centre co-located with the station
in the future.

The following principles were identified as not relevant to the Pine Valley Road Upgrade.

- Support inter-regional connections and strategic infrastructure.
- Strategic corridors as urban edges.







1.8 Dairy Flat Highway Upgrade between Silverdale Interchange and Kahikatea Flat Road

The proposed crossing is <u>supportive</u> of the following Design Framework principles:

Environment

- Support and enhance ecological corridors and biodiversity
- Minimise land disturbance, conserve resources and materials

Social

- Identity and place
- Adaptive corridors
- Social cohesion

Built form

- Corridor scaled to the surrounding context and urban structure
- Facilitate an appropriate interface between place and movement

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Support inter-regional connections and strategic infrastructure
- Support legible function

Those principles that scored <u>neutral</u> in their support include:

Environment

- Adapt to a changing climate and respond to the microclimatic factors of each area –
 Active modes are to be provided along the length of the corridor, and part of the corridor
 provides for public transport lanes. Detailed design will need to accommodate amenity
 measures such as street trees and shading.
- Support water conservation and enhance water quality in a watershed Future
 development and definition of the proposed stormwater management at a future design
 stage is recommended to provide an appropriate interface with the surrounding land uses.

Social

- Respect culturally significant sites and landscapes No known areas of culturally significant within the site, however there are archaeological sites, and a historic structure identified near the edge of the corridor. This should be considered as part of the assessment of effects.
- Safe corridors Detailed design of the corridor will need to consider CPTED and how
 active interfaces can be established with the road corridor. Detailed design will need to
 consider design detail for safe active mode crossings and safe pedestrian environments.







Built Form

• Align corridors with density – The location of the corridor is zoned FUZ. The Silverdale West Structure Plan has been prepared for the area to the east of this segment which provides for industrial land use. No structure plan has been prepared for the area to the west, and while it is anticipated to be residential development, the density of the land adjacent to the corridor is unknown. The corridor does however provide a connection into the future Pine Valley Station in the north.

Movement

Prioritise active modes and public transport – The corridor provides for separated
cycling facilities and public transport, however design detail needs to resolve access through
intersections to provide for priority to active modes.

Landuse

- Public transport directed and integrated into centres The corridor doesn't specifically
 direct public transport into 'centres,' however it does provide access from the north-east to
 the Pine Valley Road Station. Further understanding of the future public transport network
 and other centres is required.
- Strategic corridors as urban edges the Dairy Flat Corridor is used to define the urban edge for a 800m segment as it runs north/south.

1.9 Dairy Flat Highway Upgrade between Kahikatea Flat Road and Durey Road

The proposed crossing is supportive of the following Design Framework principles:

Environment

- Support and enhance ecological corridors and biodiversity
- Minimise land disturbance, conserve resources and materials

Social

- Identity and place
- Adaptive corridors
- Social cohesion

Built form

- Corridor scaled to the surrounding context and urban structure
- Facilitate an appropriate interface between place and movement

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry







- Prioritise active modes and public transport
- Support inter-regional connections and strategic infrastructure
- Support legible function

Those principles that scored <u>neutral</u> in their support include:

Environment

- Adapt to a changing climate and respond to the microclimatic factors of each area –
 Active modes are to be provided along the length of the corridor, and part of the corridor provides for public transport lanes. Detailed design will need to accommodate amenity measures such as street trees and shading.
- Support water conservation and enhance water quality in a watershed Future
 development and definition of the proposed stormwater management at a future design
 stage is recommended to provide an appropriate interface with the surrounding land uses.

Social

- Respect culturally significant sites and landscapes No known areas of culturally significant within the site, however this hasn't been formally assessed. This should be considered as part of the assessment of effects.
- Safe corridors Detailed design of the corridor will need to consider CPTED and how
 active interfaces can be established with the road corridor. Detailed design will need to
 consider design detail for safe active mode crossings and safe pedestrian environments,
 particularly at key intersections near the likely Dairy Flat Town Centre.

Built Form

• Align corridors with density – The location of the corridor is zoned FUZ. The Silverdale West Structure Plan has been prepared for the area to the east of northern part of this segment which provides for industrial land use. No structure plan has been prepared for the area to the west, and while it is anticipated to be residential development, the density of the land adjacent to the corridor is unknown. It is assumed that the Dairy Flat Town Centre and associated density will be located to the north of Dairy Flat Highway. The corridor provides some connection between Dairy Flat, Pine Valley and Milldale.

Movement

Prioritise active modes and public transport – The corridor provides for separated
cycling facilities and public transport, however design detail needs to resolve access through
intersections to provide for priority to active modes.

Landuse

- Public transport directed and integrated into centres The corridor doesn't specifically
 direct public transport into 'centres,' however it does provide access near the likely location
 of the Dairy Flat Centre and Pine Valley /Milldale Stations to the north. Further
 understanding of the future public transport network and other centres is required.
- Strategic corridors as urban edges the Dairy Flat Corridor is used to define the urban edge for a 2.6km segment as it runs north/south.







1.10 Dairy Flat Highway rural section

The proposed crossing is supportive of the following Design Framework principles:

Social

- Adaptive corridors
- Social cohesion

Movement

- Connect nodes
- Support access to employment and industry
- Support inter-regional connections and strategic infrastructure
- Support legible function

Those principles that scored neutral in their support include:

Environment

- Minimise land disturbance, conserve resources and materials The cross section of
 the corridor has been narrowed where possible, further reduction in the scale of earthworks
 can be considered as part of detailed design.
- Support and enhance ecological corridors and biodiversity The proposed widening
 will encroach into the edges of SEAs, however, follows an existing corridor in this space.
 The cross section has been reduced where possible to minimise the width of the corridor.
- Support water conservation and enhance water quality in a watershed The future
 development and definition of the proposed stormwater management at a future design
 stage is recommended to provide an appropriate interface with the surrounding land uses.
- Adapt to a changing climate and respond to the microclimatic factors of each area –
 Active modes are to be provided along the length of the corridor. Detailed design will need to accommodate amenity measures such as street trees and shading.

Social

- Identity and place The upgraded corridor will follow the existing alignment. There is the opportunity for detailed design to refine the response to topography and landscape, minimising effects on amenity and place values of this area which includes large areas of SEAs.
- Respect culturally significant sites and landscapes No known areas of culturally significant within the site, however this hasn't been formally assessed. This should be considered as part of the assessment of effects.
- Safe corridors Detailed design of the corridor will need to consider CPTED and how
 active interfaces can be established with the road corridor. Detailed design will need to
 consider design detail for safe active mode crossings and safe pedestrian environments,
 particularly at key intersections near the likely Dairy Flat Town Centre.







Built Form

- Align corridors with density The location of the majority of the corridor is zoned rural
 with a small area of FUZ in the south and while it is anticipated to be residential
 development, the future density of the land adjacent to the corridor is unknown. It is
 assumed that the Dairy Flat Town Centre and associated density will be located to the north
 of Dairy Flat Highway. The corridor provides an alternative connection between Dairy Flat
 and Albany.
- Corridor scaled to the surrounding context and urban structure The corridor makes use of the existing road alignment and looks to minimise the width where there are constraints to its upgrade. There are larger areas of earthworks adjacent to the FUZ area in the south, detailed design should seek to minimise these to create an appropriate interface.
- Facilitate an appropriate interface between movement and place The corridor is a high movement, low place context with most of the corridor in a rural zone. There are larger areas of earthworks adjacent to the FUZ area in the south, detailed design should seek to minimise these to create an appropriate interface.

Movement

- Connect modes The corridor upgrade provides for a shared active modes path. Design
 detail will need to manage gradient and associated speeds to provide for a safe and
 comfortable user experience.
- Prioritise active modes and public transport The corridor provides for separated
 cycling facilities however design detail needs to resolve access through intersections to
 provide for priority to active modes.

Landuse

Public transport directed and integrated into centres – The corridor doesn't specifically
direct public transport into 'centres,' however it broadly provides access near the likely
location of the Dairy Flat Centre and Pine Valley /Milldale Stations to the north from Albany
and vice versa.

The following principles were identified as not relevant to the Dairy Flat Highway Rural Section.

Strategic corridors as urban edges.







1.11 Wainui Road Upgrade

The proposed crossing is supportive of the following Design Framework principles:

Environment

Minimise land disturbance, conserve resources and materials

Social

- Identity and place
- Adaptive corridors
- Social cohesion

Built form

- Corridor scaled to the surrounding context and urban structure
- Facilitate an appropriate interface between place and movement

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Support legible corridor function

Those principles that scored neutral in their support include:

Environment

- Support and enhance ecological corridors and biodiversity The project upgrades an
 existing corridor, running adjacent to an SEA. Detailed design should take the opportunity to
 refine the design to minimise effects on the edge of the SEA.
- Support water conservation and enhance water quality in a watershed The future
 development and definition of the proposed stormwater management at a future design
 stage is recommended to provide an appropriate interface with the surrounding land uses.
- Adapt to a changing climate and respond to the microclimatic factors of each area –
 Active modes are to be provided along the length of the corridor. Detailed design will need to accommodate amenity measures such as street trees and shading.

Social

- Respect culturally significant sites and landscapes No known areas of culturally significant within the site, however this hasn't been formally assessed. This should be considered as part of the assessment of effects.
- Safe corridors Detailed design of the corridor will need to consider CPTED and how
 active interfaces can be established with the road corridor. Detailed design will need to
 consider design detail for safe active mode crossings and safe pedestrian environments,
 particularly given the proximity to a future school.







Built Form

Align corridors with density – The location of the corridor is zoned FUZ, with the Milldale
Town Centre located to the south. No structure plan has been developed for this area and
therefore the future density is unknown. The corridor provides some connection between
Millwater and Milldale.

Movement

Prioritise active modes and public transport – The corridor provides for separated
cycling facilities and public transport, however design detail needs to resolve access through
intersections to provide for priority to active modes.

Landuse

Public transport directed and integrated into centres – The corridor doesn't specifically
direct public transport into 'centres,' however it does provide access near the Milldale Centre
to the south.

The following principles were identified as not relevant to the Dairy Flat Highway Rural Section.

- Support inter-regional connections and strategic infrastructure.
- Strategic corridors as urban edges.







1.12 New Connection between Dairy Flat Highway and Wilks Road

The proposed crossing is supportive of the following Design Framework principles:

Environment

Minimise land disturbance, conserve resources and materials

Social

- Identity and place
- Adaptive corridors
- Social cohesion

Built form

- Corridor scaled to the surrounding context and urban structure
- Facilitate an appropriate interface between place and movement

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Prioritise active modes and public transport
- Support inter-regional connections and strategic infrastructure
- Support legible function

Those principles that scored <u>neutral</u> in their support include:

Environment

- Support and enhance ecological corridors and biodiversity There are two stream crossings that detailed design will need to consider and maintain/enhance the continuity of these corridors.
- Adapt to a changing climate and respond to the microclimatic factors of each area –
 Active modes are to be provided along the length of the corridor, and part of the corridor provides for public transport lanes. Detailed design will need to accommodate amenity measures such as street trees and shading.
- Support water conservation and enhance water quality in a watershed The future
 development and definition of the proposed stormwater management at a future design
 stage is recommended to provide an appropriate interface with the surrounding land uses.

Social

- Respect culturally significant sites and landscapes No known areas of culturally significant within the site, however this hasn't been formally assessed. This should be considered as part of the assessment of effects.
- Safe corridors Detailed design of the corridor will need to consider CPTED and how active interfaces can be established with the road corridor in the future industrial







environment. Detailed design will need to consider design detail for safe active mode crossings and safe pedestrian environments.

Movement

Prioritise active modes and public transport – The corridor provides for separated
cycling facilities and public transport, however design detail needs to resolve access through
intersections to provide for priority.

The following principles were identified as not relevant to the Dairy Flat Highway Rural Section.

- Align corridors with density
- Public transport directed and integrated into centres.
- Strategic corridors as urban edges.

1.13 Upgrade and extend Bawden Road

The proposed crossing is <u>supportive</u> of the following Design Framework principles:

Social

- Identity and place
- Adaptive corridors

Built Form

Align corridors with density

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Prioritise active modes and public transport
- Support legible function

Landuse

Public transport directed and integrated into centres.

Those principles that scored <u>neutral</u> in their support include:

Environment

- Support and enhance ecological corridors and biodiversity There are two stream crossings that detailed design will need to consider and maintain/enhance the continuity of these corridors.
- Support water conservation and enhance water quality in a watershed The upgrade
 of Bawden Road crosses two streams and has a couple segments located within a







- floodplain. Areas have been allocated for water quality treatment, however detailed design will need to address how the project can support and enhance water quality.
- Adapt to a changing climate and respond to the microclimatic factors of each area –
 Active modes are to be provided along the length of the corridor, and part of the corridor provides for public transport lanes. Detailed design will need to accommodate amenity measures such as street trees and shading.

Social

- Respect culturally significant sites and landscapes No known areas of culturally significant within the site, however this hasn't been formally assessed. This should be considered as part of the assessment of effects.
- Safe corridors Detailed design of the corridor will need to consider CPTED and how
 active interfaces can be established with the road corridor. Detailed design will need to
 consider design detail for safe active mode crossings and safe pedestrian environments.

Movement

Prioritise active modes and public transport – The corridor provides for separated
cycling facilities and public transport, however design detail needs to resolve access through
intersections to provide for priority to active modes.

Those principles that identified opportunities for development include:

Environment

• Minimise land disturbance, conserve resources and materials – the eastern end of the Bawden Road upgrade requires substantial earthworks, with combined batter slopes 200m across from edge to edge across the intersection. This footprint has been reduced through severing Top Road. Opportunities should be taken as part of detailed design to reduce the scale of these batter slopes as much as possible to minimise the severance effect.

Social

- **Identity and place** As above, the eastern end of the Bawden Road upgrade, requires substantial earthworks which is not sympathetic to the underlying topography of the area. The scale of the works will influence the future character of the area.
- Social cohesion The scale of the works associated with the corridor create a severance
 risk and detailed design should consider how connectivity could be provided / improved in
 this location.
- Corridor scaled to the surrounding context and urban structure The corridor is located in FUZ, with the western end likely to be in or near the town centre, this segment of the corridor has a minimal earthworks footprint, however, detailed design should still look to maximise interface opportunities by minimising the extent of batter slopes. The eastern end of the corridor will be in FUZ (anticipated to be residential) which, without sufficient integration will create poor interface outcomes due to the scale of the works required and the separation from the transport corridor.
- Facilitate an appropriate interface between place and movement As above, the eastern end of the corridor will struggle to establish a positive interface with future land use.

The following principles were identified as not relevant to the Bawden Road Upgrade.







- Support inter-regional connections and strategic infrastructure
- Strategic corridors as urban edges.

1.14 Upgrade East Coast Road between Silverdale and Redvale Interchange

The proposed crossing is <u>supportive</u> of the following Design Framework principles:

Social

- Adaptive corridors
- Social cohesion

Built form

- Corridor scaled to the surrounding context and urban structure
- Facilitate an appropriate interface between place and movement

Movement

- Connect nodes
- Connect modes
- Support access to employment and industry
- Support legible function

Those principles that scored neutral in their support include:

Environment

- Support and enhance ecological corridors and biodiversity There is one stream
 crossings that detailed design will need to consider and maintain/enhance the continuity of
 these corridors.
- Support water conservation and enhance water quality in a watershed The upgrade
 of East Coast Road crosses one watercourse and the associated area of floodplain Areas
 have been allocated for water quality treatment, however detailed design will need to
 address how the project can support and enhance water quality.
- Minimise land disturbance The widening of the corridor along the top of the ridgeline
 requires large amounts of earthworks in some locations and has the potential to affect the
 natural characteristics of the area, particularly in the rural zone, which is not subject to
 change.
- Adapt to a changing climate and respond to the microclimatic factors of each area –
 Active modes are to be provided along the length of the corridor, and part of the corridor provides for public transport lanes. Detailed design will need to accommodate amenity measures such as street trees and shading.

Social







- Identity and place The widening of the corridor along the top of the ridgeline requires
 large amounts of earthworks in some locations and has the potential to affect the natural
 characteristics of the area, particularly in the rural zone, which is not subject to change.
- Respect culturally significant sites and landscapes
 - No known areas of culturally significant within the site, however this hasn't been formally assessed. This should be considered as part of the assessment of effects.
- Safe corridors Detailed design of the corridor will need to consider CPTED and how
 active interfaces can be established with the road corridor. Detailed design will need to
 consider design detail for safe active mode crossings and safe pedestrian environments.

Built Form

 Align corridors with density – The context of the corridor changes, being located in FUZ, existing urban and rural.

Movement

Prioritise active modes and public transport – The corridor provides for separated
cycling facilities, however design detail needs to resolve access through intersections to
provide for priority to active modes, particularly when facilitating crossing of the road corridor
when the cycleway transitions from shared path on the western side of the corridor to
separated facilities on either side of the corridor.

Landuse

- Public transport directed and integrated into centres The corridor doesn't specifically
 direct public transport into 'centres,' however it does provide access to the existing
 Silverdale Centre.
- Strategic corridors as urban edges The corridor defines the urban edge for approximately 1.6km in the northern segment.

The following principles were identified as <u>not relevant</u> to the East Coast Road Upgrade.

Support inter-regional connections and strategic infrastructure.





New Rapid Transit Corridor (Albany to Milldale) Assessment

5.2 Measurable Design Criteria

option against the design principle	s. Prir	proposed as a record of review of any given marily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defined Is neutral and requires further of Is an opportunity for developm If the principle is not relevant to 			Opportunity for development			
If an option is neutral or requires de an opportunity for improvement at opportunities should be included in ownership defined and actioned.	Supports	Neutral	Opportunity	Not relevant		
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity		X		
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials		X		
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place		X		
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion		X		
	2.5	Safe corridors		X		
Built form	3.1	Align corridors with density	X			
	3.2	Corridor scaled to the surrounding context and urban structure		X		
	3.3	Facilitate an appropriate interface between place and movement		X		
Movement	4.1	Connect nodes	X			
	4.2	Connect modes	X			
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport	X			
	4.5	Support inter-regional connections and strategic infrastructure	X			
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres	X			
	5.2	Strategic corridors as urban edges				X

New Milldale Station and associated facilities assessment

5.2 Measurable Design Criteria

option against the design princi	ples. Prir	proposed as a record of review of any given narily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defin Is neutral and requires furth Is an opportunity for develo If the principle is not relevant 			Opportunity for development			
an opportunity for improvement	at futured at	pment, this should be noted and scheduled as e detailed design stages. A summary of these business case reporting process with ultimate	Supports	Neutral	Opportunity f	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity	X			
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials	X			
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area	X			
Social	2.1	Identity and place		X		
	2.2	Respect culturally significant sites and landscapes	X			
	2.3	Adaptive corridors				X
	2.4	Social cohesion	X			
	2.5	Safe corridors		X		
Built form	3.1	Align corridors with density		X		
	3.2	Corridor scaled to the surrounding context and urban structure		X		
	3.3	Facilitate an appropriate interface between place and movement		X		
Movement	4.1	Connect nodes	X			
	4.2	Connect modes	X			
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport	X			
	4.5	Support inter-regional connections and strategic infrastructure	X			
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres		X		
	5.2	Strategic corridors as urban edges				X

New Pine Valley Station and associated facilities assessment

5.2 Measurable Design Criteria

option against the design principle	s. Pri	proposed as a record of review of any given marily serving as a gap analysis tool, this how an option responds to the design principles			+	
 Supports the qualities defined Is neutral and requires further or Is an opportunity for developm If the principle is not relevant to 			Opportunity for development			
If an option is neutral or requires de an opportunity for improvement at opportunities should be included in ownership defined and actioned.	Supports	Neutral	Opportunity	Not relevant		
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity				X
	1.2	Support water conservation and enhance water quality in a watershed				X
	1.3	Minimise land disturbance, conserve resources and materials				X
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area				X
Social	2.1	Identity and place				X
	2.2	Respect culturally significant sites and landscapes				X
	2.3	Adaptive corridors				X
	2.4	Social cohesion				X
	2.5	Safe corridors				X
Built form	3.1	Align corridors with density				X
	3.2	Corridor scaled to the surrounding context and urban structure				X
	3.3	Facilitate an appropriate interface between place and movement				X
Movement	4.1	Connect nodes				X
	4.2	Connect modes				X
	4.3	Support access to employment and industry				X
	4.4	Prioritise active modes and public transport				X
	4.5	Support inter-regional connections and strategic infrastructure				X
	4.6	Support legible corridor function				X
Landuse	5.1	Public transport directed and integrated into centres				X
	5.2	Strategic corridors as urban edges				X

State Highway 1 Improvements

5.2 Measurable Design Criteria

option against the design principl	les. Prir	proposed as a record of review of any given marily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defined Is neutral and requires furthe Is an opportunity for develop If the principle is not relevant 			Opportunity for development			
an opportunity for improvement	at futur in the	pment, this should be noted and scheduled as e detailed design stages. A summary of these business case reporting process with ultimate	Supports	Neutral	Opportunity f	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity		X		
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials	X			
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place		X		
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion	X			
	2.5	Safe corridors	X			
Built form	3.1	Align corridors with density				X
	3.2	Corridor scaled to the surrounding context and urban structure	X			
	3.3	Facilitate an appropriate interface between place and movement	X			
Movement	4.1	Connect nodes	X			
	4.2	Connect modes	X			
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport	X			
	4.5	Support inter-regional connections and strategic infrastructure	X			
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres	X			
	5.2	Strategic corridors as urban edges				X

Dairy Stream Motorway Crossing

5.2 Measurable Design Criteria

option against the design prin	ciples. Prir	proposed as a record of review of any given narily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities det Is neutral and requires fur Is an opportunity for deve If the principle is not relev 			Opportunity for development			
an opportunity for improveme	ent at futured at the l	pment, this should be noted and scheduled as e detailed design stages. A summary of these business case reporting process with ultimate	Supports	Neutral	Opportunity f	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity	X			
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials	X			
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place		X		
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion	X			
	2.5	Safe corridors	X			
Built form	3.1	Align corridors with density		X		
	3.2	Corridor scaled to the surrounding context and urban structure		X		
	3.3	Facilitate an appropriate interface between place and movement		X		
Movement	4.1	Connect nodes	X			
	4.2	Connect modes	X			
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport	X			
	4.5	Support inter-regional connections and strategic infrastructure				X
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres				X
	5.2	Strategic corridors as urban edges				X

New Connection between Milldale and Grand Drive

5.2 Measurable Design Criteria

option against the design principle	es. Prir	proposed as a record of review of any given marily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defined Is neutral and requires further Is an opportunity for developr If the principle is not relevant 			Opportunity for development			
an opportunity for improvement a	nt futur	pment, this should be noted and scheduled as e detailed design stages. A summary of these business case reporting process with ultimate	Supports	Neutral	Opportunity :	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity		X		
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials			X	
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place			X	
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion		X		
	2.5	Safe corridors		X		
Built form	3.1	Align corridors with density		X		
	3.2	Corridor scaled to the surrounding context and urban structure			X	
	3.3	Facilitate an appropriate interface between place and movement			X	
Movement	4.1	Connect nodes		X		
	4.2	Connect modes	X			
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport	X			
	4.5	Support inter-regional connections and strategic infrastructure	X			
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres		X		
	5.2	Strategic corridors as urban edges		X		

Pine Valley Road upgrade assessment

5.2 Measurable Design Criteria

option against the design princ	iples. Prir	proposed as a record of review of any given narily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defir Is neutral and requires furth Is an opportunity for develo If the principle is not releva 			Opportunity for development			
an opportunity for improvemen	t at futureed in the	pment, this should be noted and scheduled as e detailed design stages. A summary of these business case reporting process with ultimate	Supports	Neutral	Opportunity f	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity		X		
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials	X			
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place	X			
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion	X			
	2.5	Safe corridors		X		
Built form	3.1	Align corridors with density		X		
	3.2	Corridor scaled to the surrounding context and urban structure	X			
	3.3	Facilitate an appropriate interface between place and movement	X			
Movement	4.1	Connect nodes	X			
	4.2	Connect modes	X			
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport		X		
	4.5	Support inter-regional connections and strategic infrastructure				X
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres		X		
	5.2	Strategic corridors as urban edges				X

Dairy Flat Highway (Silverdale - Kahikatea Flat Rd) upgrade assessment

5.2 Measurable Design Criteria

option against the design principle	es. Prir	proposed as a record of review of any given marily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defined Is neutral and requires further Is an opportunity for developm If the principle is not relevant to 			Opportunity for development			
an opportunity for improvement a	t futur	pment, this should be noted and scheduled as e detailed design stages. A summary of these business case reporting process with ultimate	Supports	Neutral	Opportunity f	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity	X			
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials	X			
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place	X			
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion	X			
	2.5	Safe corridors		X		
Built form	3.1	Align corridors with density		X		
	3.2	Corridor scaled to the surrounding context and urban structure	X			
	3.3	Facilitate an appropriate interface between place and movement	X			
Movement	4.1	Connect nodes	X			
	4.2	Connect modes	X			
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport		X		
	4.5	Support inter-regional connections and strategic infrastructure	X			
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres		X		
	5.2	Strategic corridors as urban edges	X			

Dairy Flat Highway (Kahikatea Flat Rd - Durey Rd) upgrade assessment

5.2 Measurable Design Criteria

option against the design principle	es. Prin	proposed as a record of review of any given marily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defined Is neutral and requires further Is an opportunity for develope If the principle is not relevant to 			Opportunity for development			
an opportunity for improvement a	t futur	pment, this should be noted and scheduled as e detailed design stages. A summary of these business case reporting process with ultimate	Supports	Neutral	Opportunity 1	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity	X			
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials	X			
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place	X			
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion	X			
	2.5	Safe corridors		X		
Built form	3.1	Align corridors with density		X		
	3.2	Corridor scaled to the surrounding context and urban structure	X			
	3.3	Facilitate an appropriate interface between place and movement		X		
Movement	4.1	Connect nodes	X			
	4.2	Connect modes	X			
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport	X			
	4.5	Support inter-regional connections and strategic infrastructure	X			
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres		X		
	5.2	Strategic corridors as urban edges		X		

Dairy Flat Highway (Rural Section) upgrade assessment

5.2 Measurable Design Criteria

option against the design princi	ples. Prir	proposed as a record of review of any given narily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defin Is neutral and requires furth Is an opportunity for develo If the principle is not relevant 			Opportunity for development			
an opportunity for improvement	at futured in the	pment, this should be noted and scheduled as e detailed design stages. A summary of these business case reporting process with ultimate	Supports	Neutral	Opportunity 1	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity		X		
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials		X		
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place		X		
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion	X			
	2.5	Safe corridors		X		
Built form	3.1	Align corridors with density		X		
	3.2	Corridor scaled to the surrounding context and urban structure		X		
	3.3	Facilitate an appropriate interface between place and movement		X		
Movement	4.1	Connect nodes	X			
	4.2	Connect modes		X		
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport		X		
	4.5	Support inter-regional connections and strategic infrastructure	X			
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres		X		
	5.2	Strategic corridors as urban edges				X

Wainui Road Corridor

5.2 Measurable Design Criteria

option against the design princ	iples. Prir	proposed as a record of review of any given narily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defir Is neutral and requires furth Is an opportunity for develo If the principle is not releva 			Opportunity for development			
an opportunity for improvemen	t at futureed in the	pment, this should be noted and scheduled as e detailed design stages. A summary of these business case reporting process with ultimate	Supports	Neutral	Opportunity f	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity		X		
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials	X			
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place	X			
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion	X			
	2.5	Safe corridors		X		
Built form	3.1	Align corridors with density		X		
	3.2	Corridor scaled to the surrounding context and urban structure	X			
	3.3	Facilitate an appropriate interface between place and movement	X			
Movement	4.1	Connect nodes	X			
	4.2	Connect modes	X			
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport		X		
	4.5	Support inter-regional connections and strategic infrastructure				X
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres		X		
	5.2	Strategic corridors as urban edges				X

New Connection between Dairy Flat Highway and Wilks Road

5.2 Measurable Design Criteria

option against the design principle	s. Prir	proposed as a record of review of any given marily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defined under the principle; Is neutral and requires further clarity in relation to the qualities defined under the principle; Is an opportunity for development at future stages; or If the principle is not relevant to the option. 					Opportunity for development	
If an option is neutral or requires development, this should be noted and scheduled as an opportunity for improvement at future detailed design stages. A summary of these opportunities should be included in the business case reporting process with ultimate ownership defined and actioned.				Neutral	Opportunity 1	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity		X		
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials	X			
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place	X			
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion	X			
	2.5	Safe corridors		X		
Built form	3.1	Align corridors with density				X
	3.2	Corridor scaled to the surrounding context and urban structure	X			
	3.3	Facilitate an appropriate interface between place and movement	X			
Movement	4.1	Connect nodes	X			
	4.2	Connect modes	X			
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport		X		
	4.5	Support inter-regional connections and strategic infrastructure	X			
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres				X
	5.2	Strategic corridors as urban edges				X

Upgrade and extend Bawden Road

5.2 Measurable Design Criteria

option against the design prir	nciples. Prin	proposed as a record of review of any given narily serving as a gap analysis tool, this how an option responds to the design principles				
 Supports the qualities defined under the principle; Is neutral and requires further clarity in relation to the qualities defined under the principle; Is an opportunity for development at future stages; or If the principle is not relevant to the option. 					Opportunity for development	
an opportunity for improveme	ent at future ded in the l	pment, this should be noted and scheduled as e detailed design stages. A summary of these business case reporting process with ultimate	Supports	Neutral	Opportunity 1	Not relevant
System layers		Design Principles				
Environment	1.1	Support and enhance ecological corridors and biodiversity		X		
	1.2	Support water conservation and enhance water quality in a watershed		X		
	1.3	Minimise land disturbance, conserve resources and materials			X	
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X		
Social	2.1	Identity and place			X	
	2.2	Respect culturally significant sites and landscapes		X		
	2.3	Adaptive corridors	X			
	2.4	Social cohesion			X	
	2.5	Safe corridors		X		
Built form	3.1	Align corridors with density	X			
	3.2	Corridor scaled to the surrounding context and urban structure			X	
	3.3	Facilitate an appropriate interface between place and movement			X	
Movement	4.1	Connect nodes	X			
	4.2	Connect modes				
	4.3	Support access to employment and industry	X			
	4.4	Prioritise active modes and public transport	X			
	4.5	Support inter-regional connections and strategic infrastructure				X
	4.6	Support legible corridor function	X			
Landuse	5.1	Public transport directed and integrated into centres	X			
	5.2	Strategic corridors as urban edges				X

5.2 Measurable Design Criteria

option against t	he design principle d be used as a reco	s. Pri	proposed as a record of review of any given marily serving as a gap analysis tool, this how an option responds to the design principles			4	
 Supports the qualities defined under the principle; Is neutral and requires further clarity in relation to the qualities defined under the principle; Is an opportunity for development at future stages; or If the principle is not relevant to the option. 						Opportunity for development	
If an option is neutral or requires development, this should be noted and scheduled as an opportunity for improvement at future detailed design stages. A summary of these opportunities should be included in the business case reporting process with ultimate ownership defined and actioned.			Supports	Neutral	Opportunity f	Not relevant	
System laye	ers		Design Principles				
Environment		1.1	Support and enhance ecological corridors and biodiversity		X		
		1.2	Support water conservation and enhance water quality in a watershed		X		
		1.3	Minimise land disturbance, conserve resources and materials		X		
	1.4	Adapt to a changing climate and respond to the microclimatic factors of each area		X			
Social		2.1	Identity and place		X		
	2.2	Respect culturally significant sites and landscapes		X			
	2.3	Adaptive corridors	X				
	2.4	Social cohesion	X				
		2.5	Safe corridors		X		
Built form		3.1	Align corridors with density		X		
		3.2	Corridor scaled to the surrounding context and urban structure	X			
	3.3	Facilitate an appropriate interface between place and movement	X				
Movement	4.1	Connect nodes	X				
	4.2	Connect modes	X				
	4.3	Support access to employment and industry	X				
	4.4	Prioritise active modes and public transport		X			
	4.5	Support inter-regional connections and strategic infrastructure				X	
	4.6	Support legible corridor function	X				
Landuse		5.1	Public transport directed and integrated into centres		X		
	5.2	Strategic corridors as urban edges		X			