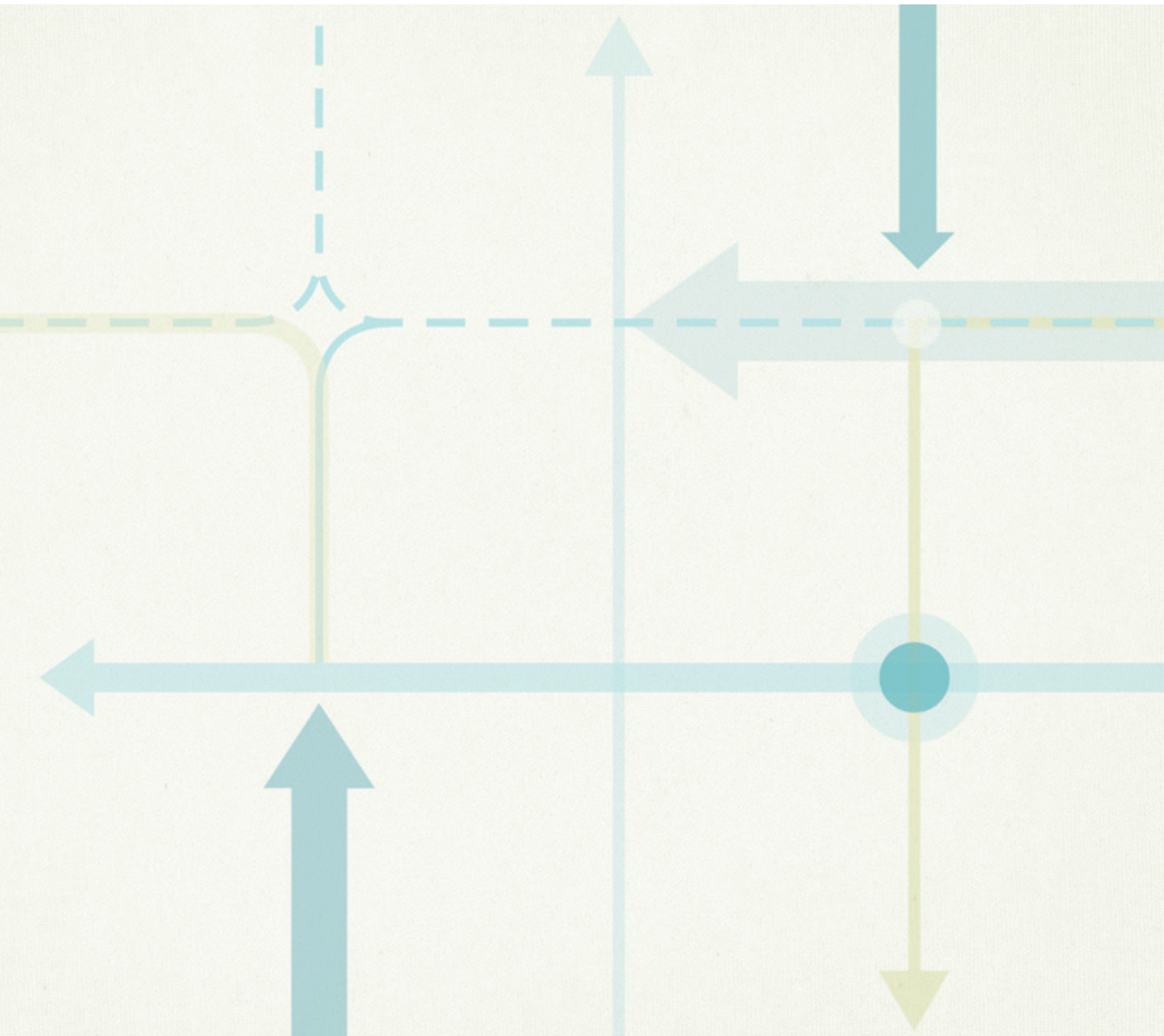
CORRIDOR STRATEGIES




CALTEX

THE STRATEGIC CASE FOR INVESTMENT BY CORRIDOR

This section sets out the strategic approach to future investment in the region's key transport corridors – Western, Hutt, Wairarapa and Ngauranga to Wellington Airport.

A number of pieces of work have assisted with informing the understanding of the problems and issues in each transport corridor. These include: analysis of trends and issues at a regional and corridor level; strategic and modal studies; feedback from councils, transport operators, user groups and the community; and, monitoring of indicators through the Annual Monitoring Report.

These strategies set out multimodal solutions to address the key problems and challenges for the particular corridor, including consideration of how each corridor integrates with the wider regional transport network. In most cases they consider a medium term horizon.

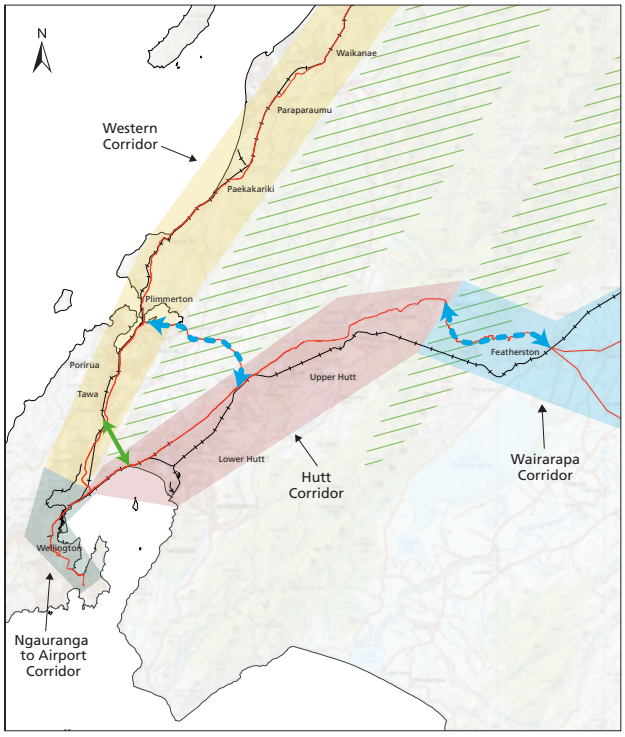
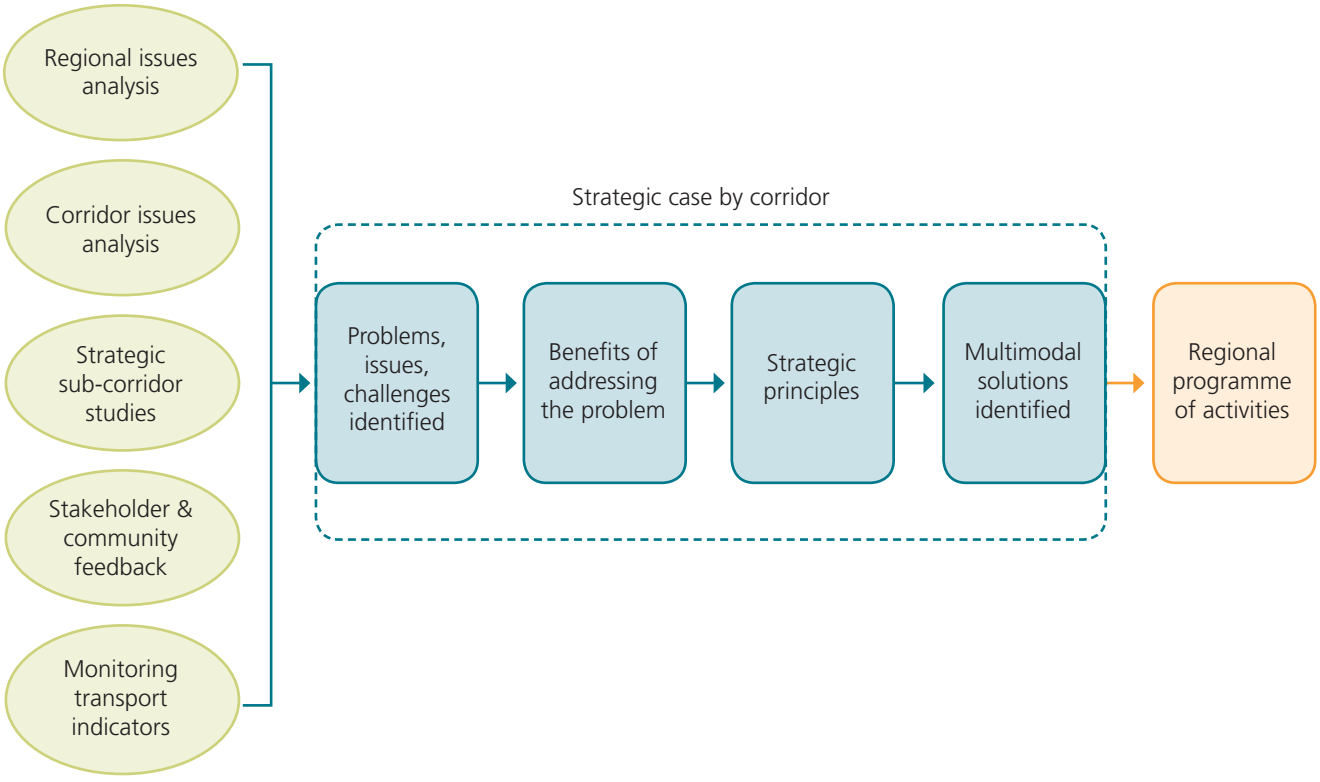


Figure 13

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1. NGAURANGA TO AIRPORT CORRIDOR STRATEGY

This corridor starts at the Ngauranga interchange and continues through the Wellington City CBD to Newtown (including the regional hospital), the eastern suburbs and Wellington International Airport. It includes SH1 major arterial routes, the railway line where the NIMT and the Hutt/Wairarapa railway lines merge and through to Wellington City rail terminals, and key routes for passenger transport, walking and cycling.

1.1 LONG TERM STRATEGIC VISION FOR THE NGAURANGA TO AIRPORT CORRIDOR

Along the Ngauranga to Airport Corridor, access to key destinations such as CentrePort, Wellington City CBD, Wellington Hospital and the international airport will be efficient, reliable, quick and easy. Passenger transport will provide a very high quality, reliable and safe service along the Wellington City growth spine and other key commuter routes. The local street network will provide a safe, attractive and accessible environment for pedestrians and cyclists, particularly through the Golden Mile and Wellington City CBD. The strategic road network will provide an effective corridor for through trips and access to key destinations, including freight trips. Traffic congestion through the corridor will be managed at levels that balance demand against the ability to fully provide for peak demand due to community impacts and cost constraints, and the provision of an efficient and effective public transport system. Maximum utilisation of the existing network will be achieved by removal of key bottlenecks on the road and rail networks.

1.2 CONTEXT

This transport corridor travels through the higher density urban environment of central Wellington City, providing access to the region's primary employment centre, to the key freight destinations of the port and airport, and to the regional hospital. The corridor serves a range of activities from office, retail, education, leisure and residential with an associated range of trip types. Commuter trips dominate the network at peak times. Pedestrian and cyclist activity is particularly high along the Golden Mile, waterfront and through Wellington City CBD.

1.3 THE PROBLEM

Space constraints and a concentration of activity through this transport corridor lead to slow and unreliable journey times during peak and off-peak periods. This results in conflict between different users of the transport network and the different transport modes, affecting the safety and attractiveness of those modes. This is forecast to continue into the future as a result of population and employment growth.

1.4 BENEFITS OF ADDRESSING THE PROBLEM

- **Economic growth supported** - efficient and reliable access to and through the CBD and central Wellington City as a crucial employment centre for the region and to other key destinations for freight and tourism such as the port and international airport.
- **Integrated transport and land use** - efficient and effective travel options to support current and future urban growth areas in the city, including inner city living and intensification along the growth spine from Johnsonville to Kilbirnie.
- **Accessible and liveable city** – the central city street network provides good access for all transport modes (including freight) while providing a safe, pleasant and attractive environment for shopping, education and leisure activities.

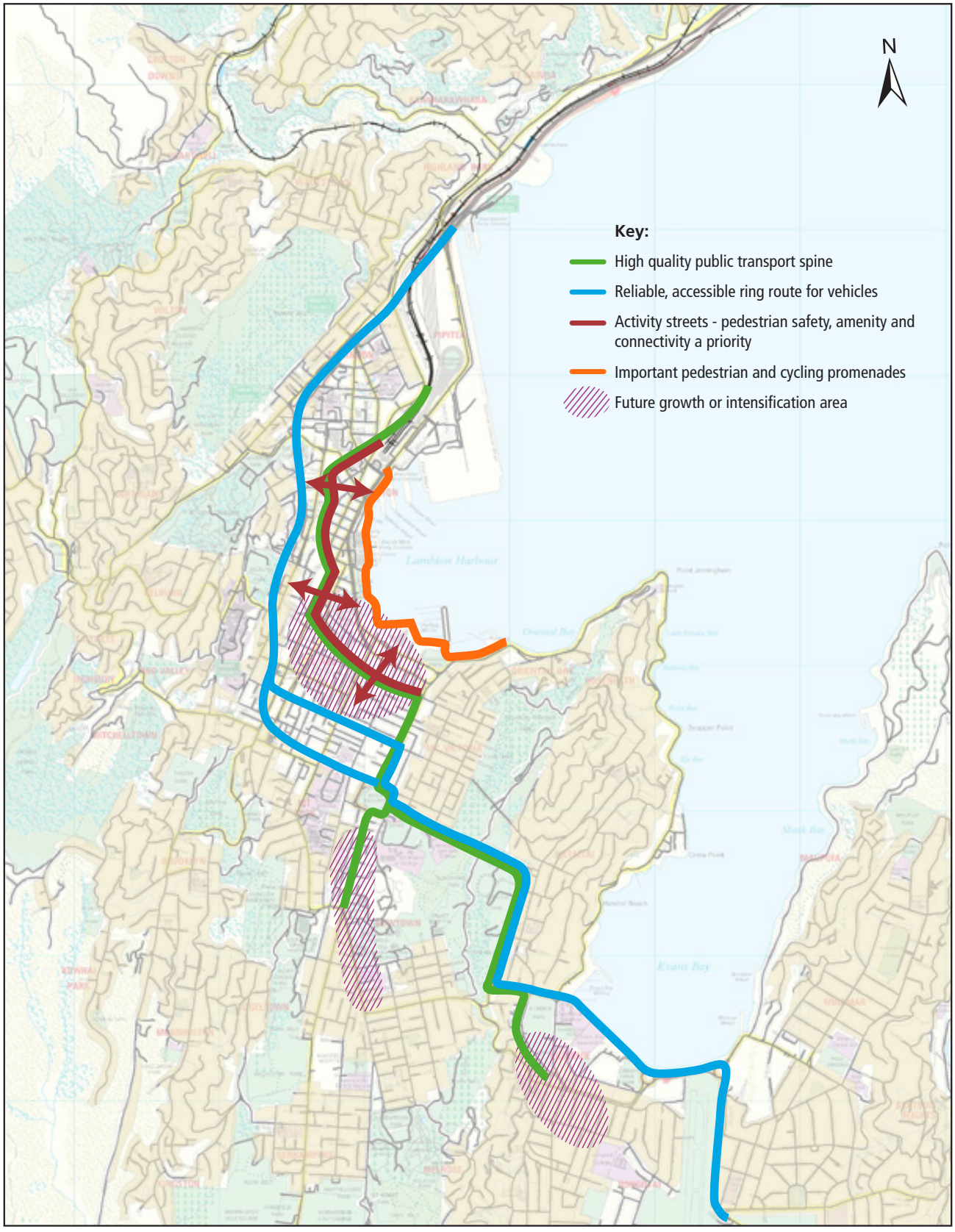
1.5 STRATEGIC PRINCIPLES – NGAURANGA TO AIRPORT CORRIDOR

The following strategic principles have been identified for the development of this transport corridor to address the above problems and challenges through a multimodal approach:

- a high quality and high frequency passenger transport 'spine'
- a reliable and accessible 'ring' or bypass route for vehicles
- inter-connected, safe, and convenient local street, walking, cycling and passenger transport networks
- highly accessible and attractive 'activity' or shopping streets

A key philosophy underlying these strategic principles is the need to optimise use of the transport network, while ensuring that the different role of various parts of the transport network is strengthened and the conflict between modes is minimised. For example, without a reliable and accessible ring road for vehicles, traffic will be encouraged to look for alternative routes, such as the quays and around Oriental Bay to Evans Bay, resulting in greater conflict with cyclists and pedestrians using these routes.

Figure 14. Strategic principles – Ngauranga to Airport Corridor



1.6 STRATEGIC RESPONSE - NGAURANGA TO AIRPORT CORRIDOR

A package of measures, across all transport modes and networks, are proposed for this corridor consistent with the key strategic principles.

Developing a high quality and frequency public transport priority 'spine'

Bus priority measures will be established along the Golden Mile and on core routes as a first step towards the development of a high quality, high frequency public transport priority spine. This will be progressively developed into a Bus Rapid Transit network, over the next 10 years, subject to satisfactory business cases being developed.

Implementing safety and capacity improvements to SH1

Safety and capacity improvements to SH1 from Ngauranga to Wellington International Airport will be investigated and constructed to reinforce its role as a high quality and reliable ring route for east-west traffic. The key measures include:

- Intersection improvements at Cobham Drive and Troy Street
- Capacity improvements along Ruahine Street and Wellington Road, and duplicating the Mt Victoria Tunnel
- Removing traffic lanes from the waterfront route and concurrent duplication of the Terrace Tunnel.

Addressing conflicting transport demands at the Basin Reserve

Improvements at the Basin Reserve will be implemented to: improve public transport reliability and journey times; allow a future dedicated public transport corridor (consistent with the identified public transport priority spine); provide for efficient local traffic movement; provide a quick and reliable east-west route for state highway traffic; and, improve connectivity and safety for cyclists and pedestrians.

Reallocating traffic between Ngauranga and the CBD

Some of the existing general traffic lanes on Hutt Road between Ngauranga and Thorndon will be reallocated for bus lanes to support faster and more reliable bus journey times from the north. At the same time improved peak capacity will be provided on SH1 between Ngauranga and Aotea Quay through active traffic management measures and increased capacity.

Improving key walking and cycling routes

Improvements will be made to walking and cycling facilities in this corridor, to improve the level of service and safety. These include:

- Implementation of a Wellington City walking and cycling policy
- Investigating improvements at Wellington Railway Station to improve walking connections to buses and the pedestrian network.
- Improving walking and cycling facilities through Mt Victoria Tunnel
- Investigating and implementing improved cycling and walking connections between Wellington City and Hutt City (via Ngauranga) consistent with the vision of the Great Harbour Way/Te Aranui o Pōneke concept.

Continuing a programme of travel demand management measures

An ongoing programme of travel demand management measures will be undertaken throughout the region, aimed at reducing the number of car trips (particularly with single occupants) and encouraging alternative travel options by public transport, walking and cycling and promoting other behaviours such as carpooling, teleconferencing, and flexible workplace policies.

Identifying and addressing network vulnerabilities

All organisations responsible for managing and operating the region's land transport network will work together to identify key vulnerabilities in the transport network that may affect the ability of the wider network to resume service after disruption caused by an incident or event.

Solutions to address these network vulnerabilities and to improve overall transport network resilience will be identified and funding for packages of improvements through the NLTP will be sought.

1.7 TIMING AND SEQUENCING CONSIDERATIONS - NGAURANGA TO AIRPORT CORRIDOR

The relative timing and sequencing of key measures within this corridor is very important.

The immediate priority for the corridor is to implement priority measures along the public transport priority spine, to continue improving provision for walking and cycling along key routes, and to resolve the conflicting transport demands at the Basin Reserve. This will help to support more walking, cycling and public transport use in the corridor as a first step.

The concurrent implementation of bus lanes on Hutt Road and peak lanes on SH1 south of Ngauranga are also an early priority to assist with bus service reliability from the northern suburbs.

Longer term priorities for the corridor involve implementation of a high quality, high frequency public transport system through the spine, and projects which will improve the safety and capacity of SH1, to support the important strategic role of each of these routes in the local and regional transport network.

Photo: NZ Transport Agency

2. WESTERN CORRIDOR STRATEGY

This corridor generally follows SH1 and the NIMT railway line from the regional border north of Otaki through to Ngauranga/Kaiwharawhara. The main east-west connections are SH58 and the interchange for SH1 and SH2 at Ngauranga.

2.1 LONG TERM STRATEGIC VISION FOR THE WESTERN CORRIDOR

Along the Western Corridor from Ngauranga to Otaki, SH1 and the NIMT railway line will provide a high level of access and reliability for passengers and freight travelling within and through the region in a way which recognises the important strategic regional and national role of this route. These primary networks will be supported effectively by local and regional connector routes.

A high quality rail service will accommodate the large number of people using public transport to commute along this corridor during the peak period. Bus services and park and ride facilities will provide additional access for the community.

Traffic congestion through the corridor will be managed at levels that balance demand against the ability to fully provide for peak demand due to community impacts and cost constraints, and the provision of an efficient and effective public transport system. Maximum utilisation of the existing network will be achieved by removal of key bottlenecks on the road and rail networks. Effective safety measures on the road and rail networks will ensure that no one is killed or injured as a result of network deficiencies when travelling in this corridor.

East-west connections between this corridor and other corridors and regional centres will be efficient, reliable and safe.

2.2 CONTEXT

This transport corridor is the primary route for inter-regional freight and tourism trips to and from the north, connecting to Wellington City, the port and airport. It also provides for significant volumes of commuter trips from within the region, between local centres and through to the Wellington City CBD.

While the majority of Kapiti's working residents are employed within Kapiti, Wellington City is the dominant commuter destination for people who travel outside Kapiti for employment. Porirua City, Lower Hutt and Palmerston North are also key employment attractors for Kapiti residents.

Growth in the Kapiti Coast has been driven by an expanding service sector, including: retail trade, health care and social assistance, education, accommodation and food services, and construction.

2.3 THE PROBLEM

Local trips, commuter trips and freight all compete for road space through this corridor leading to congestion and unreliable journey times, both during peak times and at other times such as weekends and holiday periods.

High traffic volumes along SH1, combined with numerous 'at grade' intersections (requiring vehicles to cross high volume and/or high speed traffic flows, with or without traffic signals) and property accesses (north of Porirua), lead to significant road safety issues. The single-track steeply-graded section of the NIMT railway line between Pukerua Bay and Paekakariki presents a pinch-point in the rail network, resulting in a capacity and frequency constraint on passenger transport and freight services. Both the road and rail network are particularly vulnerable to natural hazards and impacts from seismic events between Pukerua Bay and Paekakariki, where the narrow transport corridor is wedged between the hills and the sea. The lack of any alternative north-south route through the corridor means that a natural event or traffic incident on SH1 often results in severe delays and disruption to the wider network.

2.4 BENEFITS OF ADDRESSING THE PROBLEM

- **Economic growth supported** - efficient and reliable access to Wellington City as the region's key employment centre, sub-regional centres such as Porirua and Paraparaumu, and to other key destinations for freight and tourism such as the Wellington CBD, the port and the international airport.
- **Improved resilience** - a robust transport corridor with good route alternatives and a range of travel options resulting in a reduced cost to the region from delays and disruption associated with natural hazards, events or incidents affecting the transport network.
- **Improved road safety** – a reduction in the number of road crashes throughout the corridor.

2.5 STRATEGIC PRINCIPLES – WESTERN CORRIDOR

The following strategic principles have been identified for the development of this transport corridor to address the above problems and challenges through a multimodal approach:

- A reliable, high capacity, modern and attractive rail network supported by effective bus services
- A safe, effective and reliable state highway corridor - attracting through trips off the local road network
- A resilient transport corridor, with good route options and alternatives, including east-west connectivity
- Well connected, safe and convenient walking and cycling networks, with good strategic links between them.

These strategic principles work together to provide an optimised solution. A high quality rail corridor will ensure a good proportion of commuter trips are made using public transport, increasing the efficiency of the transport system as a whole during peak times. However, public transport is not suitable for all trip types and a reliable and effective state highway corridor is needed to provide for other trips, including freight trips into and through the Wellington region from the north.

2.6 STRATEGIC RESPONSE – WESTERN CORRIDOR

A package of measures, across all transport modes and networks, is proposed for this corridor consistent with the above strategic principles.

Implementing safety and efficiency improvements to SH1

A number of projects are proposed to provide improved safety and efficiency outcomes for SH1 through the Western Corridor. Along SH1 between Tawa and Otaki, this involves provision of a new parallel route that will go around rather than through communities, and that will avoid key pinch points such as the narrow coastal stretch of existing SH1 between Paekakariki and Pukerua Bay. These will be median divided expressways designed to modern safety standards, with grade separated interchanges. The key measures include the following Wellington RoNS projects:

- Transmission Gully highway
- MacKays to Peka Peka
- Peka Peka to Otaki

Associated with the RoNS are improvement works to local roads to provide enhanced access for local communities and well as improving freight links.

Work will also be needed to investigate and agree any future changes to the existing SH1 corridor once the new Wellington RoNS are operational and the existing road becomes a local road through the state highway revocation process.

Continued improvements to deliver a modern, reliable, and accessible rail system

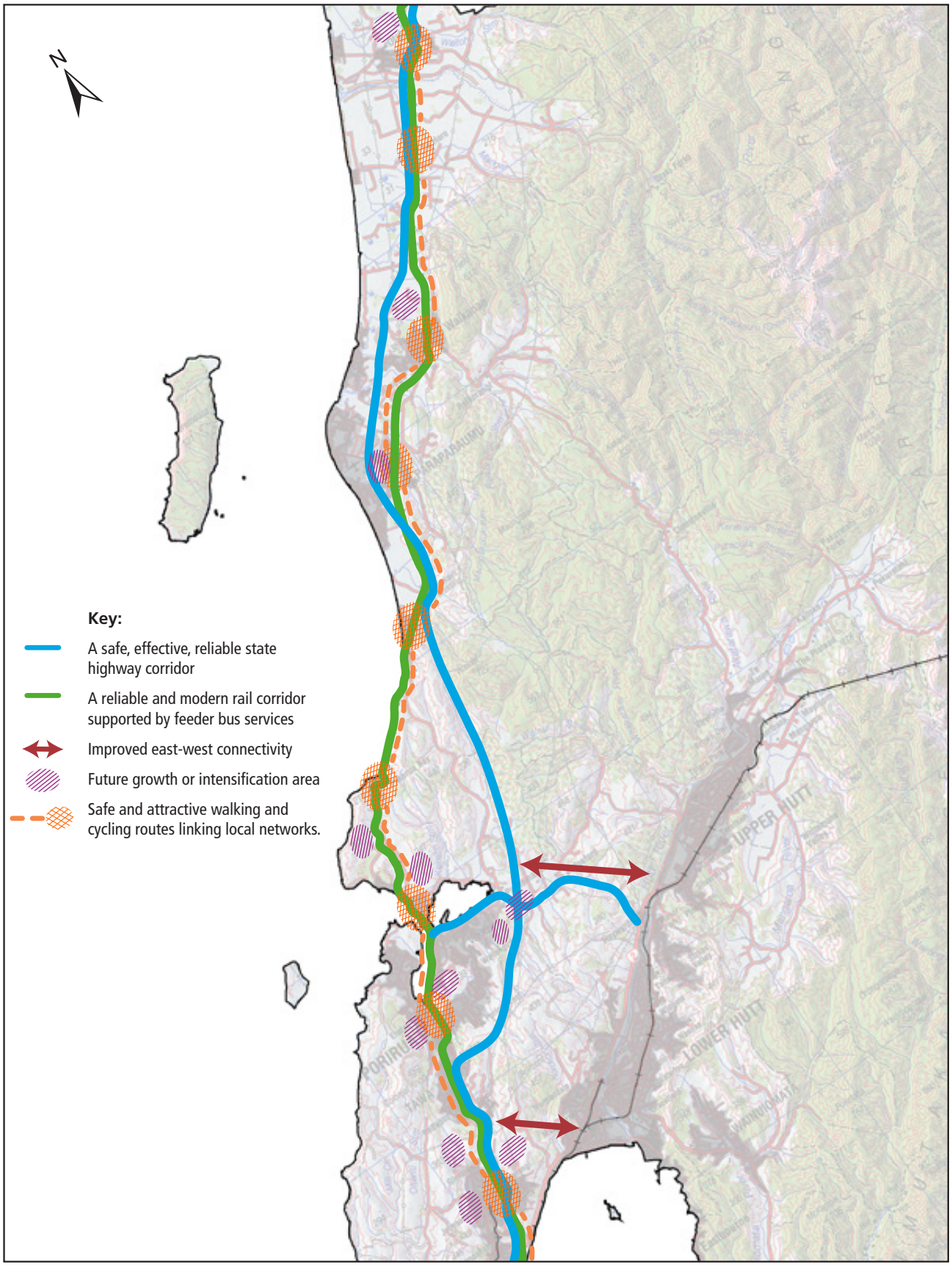
Over recent years, significant investment has been made in the rail system through this corridor to improve track and signalling systems and rolling stock to address reliability issues. This has included double tracking and extension of the electrified urban commuter network to Waikanae. Ongoing investment in the rail network through enhanced service patterns and infrastructure upgrades will be important to ensure that public transport remains an attractive and competitive mode choice in future.

The approach to the long term development of the rail network is identified through the Regional Rail Plan which includes an 'implementation pathway'. Rail Scenario 1 is the next stage of investment and will be implemented over the short to medium term. The key measures for this corridor under Rail Scenario 1 include:

- A new service pattern to optimise capacity
- Turnback facilities at Porirua and Plimmerton
- Signalling and track upgrades through Tawa Basin
- Other infrastructure improvements such as safety at level crossings and 'park and ride' facilities.

In the longer term there are several potential investment scenarios identified in the Regional Rail Plan. These are described as Rail Scenario 2, Rail Scenario A and Rail Scenario B. They provide different levels of emphasis on capacity, journey times, and network expansion to respond to changing external pressures and community needs.

Figure 15. Strategic principles – Western Corridor



Addressing road safety on the strategic road network

Outside of the Wellington RoNS projects, a number of other measures are proposed to contribute to a safer strategic road network through this corridor. The key measures include:

- Extending the median barrier on the existing SH1 route between Centennial Highway and MacKays Crossing.
- Improving pedestrian facilities across existing SH1 at Pukerua Bay and Otaki.
- A package of targeted safety improvements between Otaihanga and Waikanae along the existing SH1 route.
- A package of targeted safety improvements along SH58, including intersection upgrades, passing lanes, road realignment, median barriers and other safety works.

Improving connectivity and safety of key walking and cycling routes

Projects to provide safe and attractive walking/cycling facilities along strategic routes and across road and rail corridors will be pursued to improve connections between communities. The key measures include:

- Improving connections to the Ara Harakeke shared walk/cycleway by providing new or upgraded walkway/cycleway facilities from Tawa in the south and from Paekakariki in the north.
- Investigating walking and cycling links as part of the Wellington RoNS projects, to look for opportunities to provide new facilities along and across the new SH1 alignment, or along the existing SH1 alignment as part of the revocation process. This includes development of a cycling route through Queen Elizabeth Park connecting Paekakariki and Raumati.

Improving east-west connectivity between this corridor and the Hutt Valley

The investigation and construction of a new link road between SH1 and SH2 (known as the Petone to Grenada link road) will be progressed to provide more direct and efficient access between centres in the Western and Hutt corridors, and to contribute to greater route alternatives and improved network resilience. This link road will also reduce congestion on SH1 and SH2, provide future access to the Lincolnshire Farm growth area, and may accommodate more direct east-west public transport services.

Major safety upgrades along SH58, the existing east-west connection between the Western Corridor and Hutt Corridor, are proposed.

Identifying and addressing network vulnerabilities

All organisations responsible for managing and operating the region's land transport network will work together to identify key vulnerabilities in the transport network that may affect the ability of the wider network to resume service after disruption caused by an incident or event.

Solutions to address these network vulnerabilities and to improve overall transport network resilience will be identified and funding for packages of improvements through the NLTP will be sought.

2.7 TIMING AND SEQUENCING CONSIDERATIONS – WESTERN CORRIDOR

An immediate priority for this corridor is to address identified safety issues and walking/cycling improvements along the existing SH1 route, and build on recent rail improvements by optimising capacity to provide for projected patronage growth, and increasing freight capacity and speed.

Whilst some of the Wellington RoNS projects have already commenced, it will be around 2018 before the first of these is likely to be completed and operational. Consequently, the associated safety and reliability improvements, walking/cycling improvements and benefits associated with revocation of the existing SH1 route will not be fully realised until the medium term.

Longer term, the need for the rail system to provide an attractive and competitive public transport option for commuters will become increasingly important as the RoNS projects become operational. To ensure public transport continues to maintain and grow its share of commuter trips through this corridor, and to maintain the reliability benefits of the new SH1 route in the future, continued investment in rail network improvements will be crucial.

3. HUTT CORRIDOR STRATEGY

This corridor generally follows SH2 and the Wairarapa railway line from Ngauranga in the south through to Te Marua, Upper Hutt in the north. It includes east-west connections between SH1 and SH2, and major arterial local roads, key public transport, and walking and cycling routes within the corridor.

3.1 LONG TERM STRATEGIC VISION FOR THE HUTT CORRIDOR

Along the Hutt Corridor from Ngauranga to Upper Hutt, SH2 and the Wairarapa railway line will provide a high level of access and reliability for both passengers and freight. These primary networks will be supported effectively by local and regional connector routes.

High quality rail and bus services will accommodate a majority of commuters along this corridor during the peak period. Comprehensive bus services and adequate park and ride facilities will provide additional access for the community.

Effective safety measures on the road and rail networks will ensure that no one is killed or injured when travelling in this corridor as a result of network deficiencies.

East-west connections between this corridor and other corridors and regional centres will be efficient, reliable and safe, providing resilient options for all trips.

3.2 CONTEXT

This transport corridor connects the cities of Upper Hutt, Lower Hutt and provides access to and from Wellington City. Freight volumes through this corridor are significant, particularly at the southern end where freight from the Seaview/Gracefield industrial area makes up around 10% of daily traffic movements along Petone Esplanade, connecting onto SH2.

While a majority of Hutt Valley residents work within the Hutt Valley, and travel between local centres for that purpose, Wellington City is a key employment destination, generating significant volumes of commuter journeys. The manufacturing industry is the largest employment generator in the Hutt Valley, followed by significant employment in construction, retail, education and health sectors.

3.3 THE PROBLEM

Conflicting demands for freight and commuter trips through this relatively narrow and constrained corridor, particularly the southern end between Petone and Ngauranga,[1] leads to traffic congestion and unreliable freight and commuter journeys.

The transport infrastructure through this corridor is highly vulnerable to natural hazards which can impact on the resilience of the wider regional network.

Limited connections between this corridor and the Western Corridor add to the pressure on the transport network, with freight and other trips needing to travel via the Ngauranga Interchange.

The design and form of the existing east-west link, SH58, contributes to a relatively poor road safety record. In addition, large volumes of high speed traffic travel along SH2 through multiple at-grade intersections with significant safety implications.

3.4 BENEFITS OF ADDRESSING THE PROBLEM

- **Economic growth supported** – reliable access between key centres in the Hutt Valley, and to the CBD and the port for employment and freight purposes; more direct and efficient journeys between key freight and employment destinations.
- **Improved resilience** - a robust transport corridor with good route alternatives and a range of travel options resulting in a reduced cost to the region from delays and disruption associated with natural hazards, events or incidents affecting the transport network.
- **Improved road safety** – a reduction in the number of road crashes throughout the corridor.

1 Traffic along SH2 builds up from relatively low levels north of Upper Hutt (18,000 per day), through to around 70,000 vehicles per day south of Petone. Around 30,000 of these join SH2 from the Petone Esplanade, with a relatively high proportion (around 10%) being heavy commercial vehicles.

3.5 STRATEGIC PRINCIPLES – HUTT CORRIDOR

The following key strategic principles have been identified for the development of this transport corridor to address the above problems and challenges through a multimodal approach:

- A reliable, high capacity, modern and attractive rail corridor supported by effective bus services
- A safe, effective and reliable SH2 corridor
- Good east-west connections linking SH2 with SH1 to the west and the Seaview/Gracefield industrial area to the east
- A resilient transport corridor, with good route options and alternatives
- Well connected, safe and convenient walking and cycling networks, with good north-south and east-west links between centres.

These strategic principles all work together and complement each other to provide an optimised transport corridor solution. Improving the state highway corridor without parallel improvement of the rail corridor would not address the challenges in this corridor or the strategic direction for the region. A high quality rail corridor encourages a proportion of commuter trips to be made using public transport, increasing the capacity of the road network during peak times for freight and other trips not suited to public transport.

3.6 STRATEGIC RESPONSE - HUTT CORRIDOR

A package of measures is proposed for this corridor consistent with the above strategic principles.

Implementing safety, reliability and efficiency improvements to SH2

A number of projects are proposed to provide improved safety, reliability and efficiency outcomes for SH2. The key measures include:

- Improvements to interchanges at SH2/SH58, Melling and Kennedy Good Bridge intersections to address the poor safety record of these locations, improve travel times, and improve access to the Hutt city centre. A Detailed Business Case "SH2 Corridor Improvements" will be developed to identify interventions. Improvements at Melling intersection will be designed and timed to work alongside planned flood protection works and will give consideration to improving access to Melling railway station.
- Ongoing minor safety works will be progressed along SH2 through the corridor including installing median barriers, removing or minimising roadside hazards, and improving road friction at intersections. This will include a programme of measures to address any pinch points and safety hazards for on-road cyclists.
- Longer term, further measures will need to be investigated along the northern part of the corridor. These may include intersection improvements on SH2 north of Maoribank to address safety issues and planned future growth (including those areas identified in Upper Hutt City Council's Urban Growth Strategy[1]) and additional capacity from SH2 Silverstream through to Maoribank. The first section to be progressed should be between SH2 Silverstream and Moonshine Road, which is expected to be a four lane layout to expressway standard.

Improving east-west connectivity

The investigation and construction of a new link road between SH1 and SH2 (known as the Petone to Grenada Link Road) is proposed to provide more direct and efficient access between centres in the Western and Hutt corridors. This link road will directly reduce the demand and associated traffic congestion on SH2 between Petone and Ngauranga. It will also provide future access to the Lincolnshire Farm growth area, will provide an alternative route for enhanced resilience and route security, and may accommodate more direct east-west public transport services.

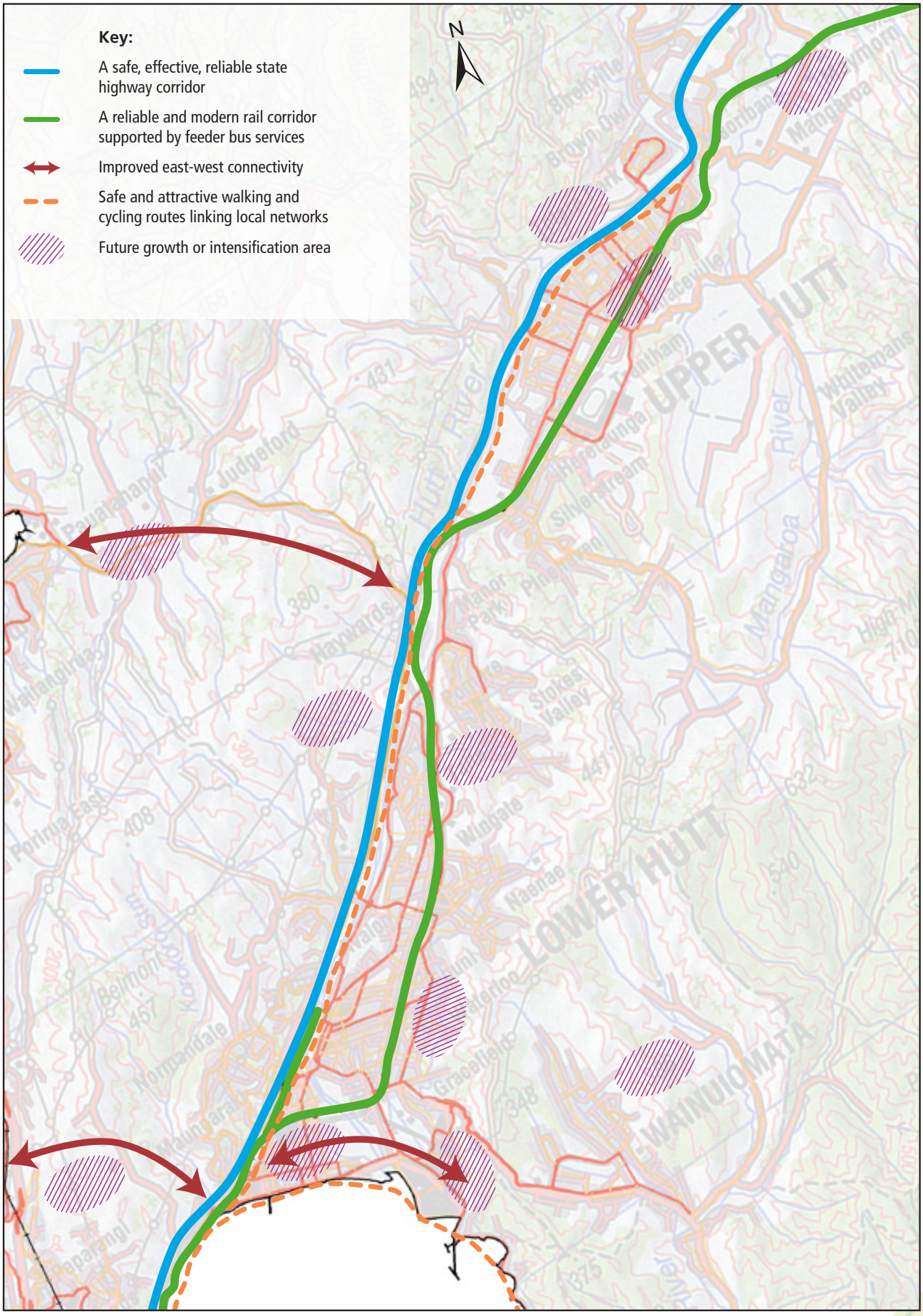
Improving access between SH2 and the Seaview/Gracefield industrial area in the shorter term will be addressed through improvements to the Petone Esplanade to maximise traffic efficiency and improve pedestrian and cyclist access to and along the foreshore. In the medium term the options for increasing capacity are a major upgrade of the Petone Esplanade or an alternative route further inland, known as the Cross Valley Link. The preferred option is the new inland Cross Valley Link as this is likely to be most effective and is most consistent with other community outcomes relating to amenity and use of the Petone foreshore. The timing of this new road should be closely linked to the construction of the Petone to Grenada Link Road.

SH58 provides the current primary east-west connection between the Western Corridor and Hutt Corridor. In the short to medium term, the focus is on improving the safety of this route through a major package of improvements. These safety upgrades should be designed so that they are not contrary to future capacity upgrades.

An alternative east-west link, to the north of SH58, is Akatarawa Road. This is a longer, narrower and winding route, but does contribute towards network resilience by providing an alternative route. Further consideration will be given to the funding feasibility of upgrading this route over the longer term.

1 http://www.upperhuttcity.com/planning/urban-growth-strategy/

Figure 16. Strategic principles – Hutt Corridor



Continued improvements to deliver a modern, reliable, and accessible rail system

Over recent years, significant investment has been made in the rail system through this corridor to improve track and signalling systems and rolling stock to address reliability issues. The approach to the long term development of the rail network is identified through the Regional Rail Plan which includes an 'implementation pathway'. Ongoing investment in the rail network through service patterns, infrastructure upgrades and rolling stock replacement will be important to ensure that public transport remains an attractive and competitive mode choice in future.

Rail Scenario 1 is the next stage of investment and will be implemented over the short to medium term. The key measures for this corridor under Rail Scenario 1 include:

- A new service pattern to optimise capacity
- Double tracking Trentham to Upper Hutt
- Upgrade of Upper Hutt Station
- Other infrastructure improvements such as safety at level crossings and enhanced 'park and ride' facilities.

Beyond 2020 there are several potential investment scenarios identified in the Regional Rail Plan. These are described as Rail Scenario 2, Rail Scenario A and Rail Scenario B. They provide different levels of emphasis on capacity, journey times, and network expansion to respond to changing external pressures and community needs.

Improving connectivity and safety of key walking and cycling routes

Projects to provide safe and attractive walking/cycling facilities along strategic routes and across road and rail corridors will be constructed to improve connectivity between communities and key centres.

The key measures include:

- Fixing the 'gap' in the strategic cycle network between Petone and Ngauranga through provision of a high quality, safe and attractive pedestrian/cyclist facility linked to the existing local footpath/cycle networks to the north and south.
- Continuing to improve and implement off-road and recreational walking and cycling facilities and tracks to provide alternative options for walking and cycling trips. These include progressing implementation of the Great Harbour Way and Upper Hutt Rail Corridor Cycle Link, and continued improvement of the Hutt River Trail.

Identifying and addressing network vulnerabilities

The vulnerability of the southern section of the Hutt Corridor, between Petone and Ngauranga, to storm events has been demonstrated in recent years. This critical section of the transport network is expected to be subject to increasing risks in future as a result of sea level rise and more frequent storm events.

All organisations responsible for managing and operating the region's land transport network will work together to identify key vulnerabilities in the transport network that may affect the ability of the wider network to resume service after disruption caused by an incident or event.

Key areas for investigation in this corridor include:

- Improving future resilience of the key transport and life lines corridor between Ngauranga and Petone in relation to seismic events, natural hazards and climate change impacts
- Seismic strengthening of road/rail bridges on key strategic routes
- Investigation and construction of a resilient east-west route that provides alternative route options in the event of a major event.

Solutions to address these network vulnerabilities and to improve overall transport network resilience will be identified and funding for packages of improvements through the NLTP will be sought.

3.7 TIMING AND SEQUENCING CONSIDERATIONS – HUTT CORRIDOR

An early priority for this corridor is to improve the safety and efficiency of the SH2 and other existing key strategic roads such as Petone Esplanade and SH58.

Addressing the gap in the strategic walking/cycling network between Petone and Ngauranga is also an early priority, although achieving an optimal solution may involve a longer timeframe.

In the medium term, addressing the need for better east-west links between SH2 (Petone) and SH1 (Grenada), and between Seaview/Gracefield and SH2 will be a priority.

Longer term, capacity upgrades of SH2 will be investigated including full grade separation at major intersections, along with expansion of the rail network to meet future growth and demand.

4. WAIRARAPA CORRIDOR STRATEGY

This corridor generally follows SH2 from north of Te Marua, Upper Hutt, over the Rimutaka Hill through to Mount Bruce north of Masterton, and the Wairarapa railway line from north of Maymorn, Upper Hutt through to Masterton. It also includes SH53 between Featherston and Martinborough.

4.1 LONG TERM STRATEGIC VISION FOR THE WAIRARAPA CORRIDOR

The local road network will provide access to the state highways and the rail network, which in turn will connect these areas with the Wellington City CBD and other regional centres. Basic, but reliable, local passenger transport (and Total Mobility) services will be easily accessible.

4.2 CONTEXT

This transport corridor travels through a largely rural landscape with a number of small rural towns. Primary and manufacturing industries are the key economic drivers, with growth also occurring in the tourism sector. While SH2 through the Wairarapa Corridor does not carry the high general traffic volumes seen in other corridors, it does carry a relatively high proportion of heavy vehicles.

Around 90% of Wairarapa resident's currently live and work within Wairarapa but there is a growing trend for people to live in Wairarapa and work in Wellington City or other parts of the region, so the importance of providing for longer distance commuters is gradually increasing.

4.3 THE PROBLEM

The state highway network (SH2 and SH53) provides the primary road link between and through Wairarapa's rural townships and there is often a conflict between the need to provide for through traffic to move effectively along SH2 (including freight) and the need to provide a safe and pleasant pedestrian environment within the townships. A forecast increase in future freight volumes, particularly from logs, will exacerbate this conflict and could result in worsening safety and amenity issues.

A network of local roads provides connections to the state highway network – however these are often not designed to accommodate high volumes of freight and larger freight vehicles. Local roads and parts of the state highway network are often vulnerable to natural hazards.

4.4 BENEFITS OF ADDRESSING THE PROBLEM

- **Economic growth supported** – efficient access provided for movement of freight between key production and manufacturing sites in Wairarapa and destinations in the rest of the region, including CentrePort. Safe and easy access to Wairarapa attracts visitors for events and tourism purposes from outside the region and from other parts of the region.
- **Improved road safety** – a reduction in the number of road crashes throughout the corridor, reducing the associated social cost.
- **Improved resilience** - a robust and reliable transport corridor that stands up well to natural hazards and seismic events resulting in reduced cost to the region from delays and disruption affecting the transport network.
- **Accessible and liveable towns** – the main street through Wairarapa's rural townships provide a safe, pleasant and attractive environment for workers, shoppers, visitors and residents.

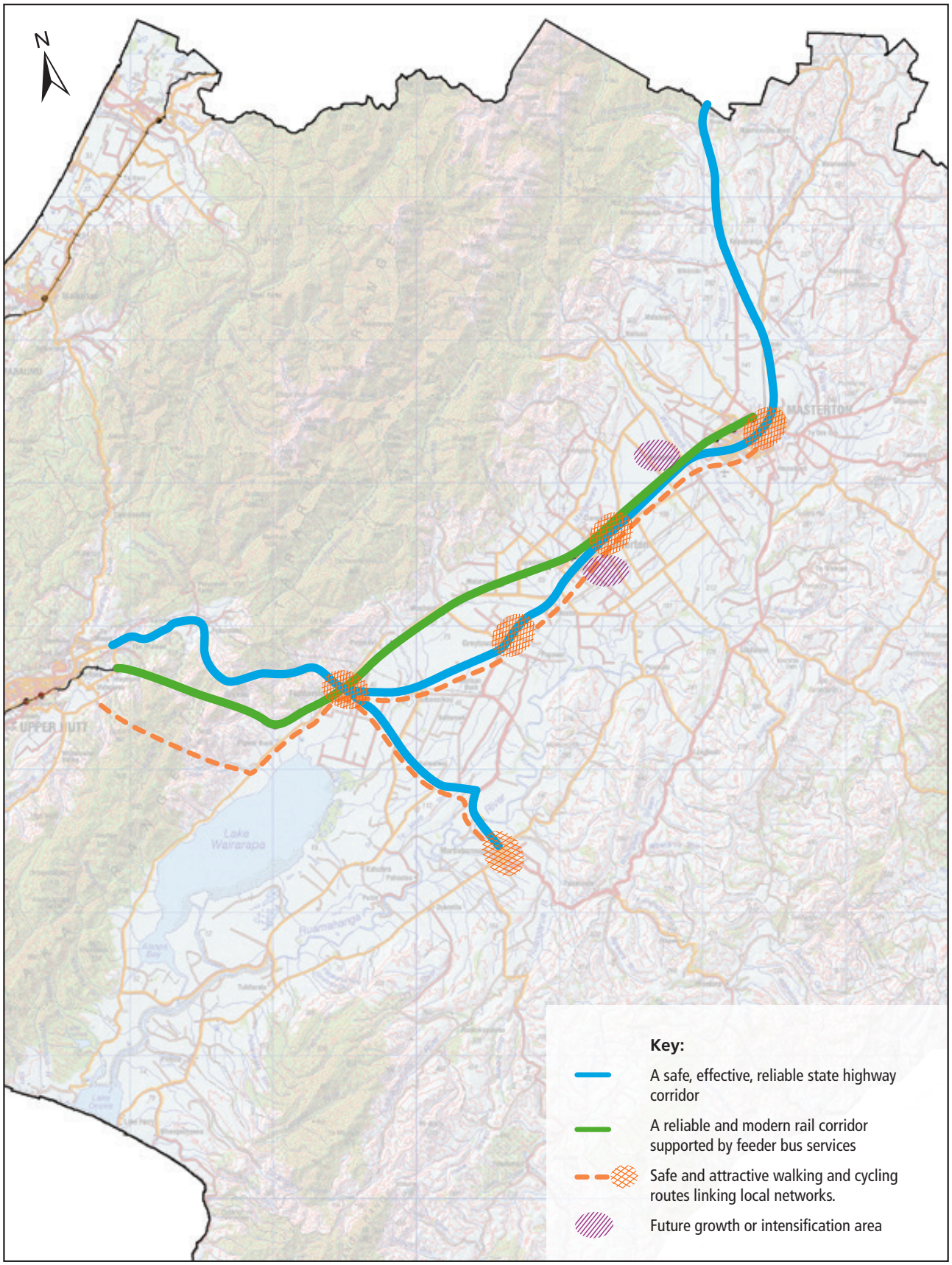
4.5 KEY STRATEGIC PRINCIPLES – WAIRARAPA CORRIDOR

The following key strategic principles have been identified for the development of this transport corridor to address the above problems and challenges through a multimodal approach:

- A reliable and resilient state highway and strategic rural road network that provides safely for all trips including freight, motorcyclists and visitors.
- A modern and reliable rail corridor for freight and commuter trips supported by local bus connector services.
- Safe and attractive pedestrian/cycling environments within townships, together with safe walking and cycling networks connecting townships.

These strategic principles are all important and together contribute to an optimised transport corridor solution.

Figure 17. Strategic principles – Wairarapa Corridor



4.6 STRATEGIC RESPONSE – WAIRARAPA CORRIDOR

A mix of implementation measures, across all transport modes and networks, are proposed for this corridor consistent with the above strategic principles.

Implementing safety and reliability improvements to SH2 and the strategic road network

A range of engineering upgrades are proposed to address identified safety issues throughout the corridor. These include upgrading key intersections, median barriers, bridge upgrades or replacement, seal extension and other minor safety improvements.

Ongoing measures are required to continually improve the safety and efficiency of the Rimutaka Hill Road as a key route connecting Wairarapa with the rest of the region, with a focus on eliminating locations where freight vehicles are forced to cross the centre line due to insufficient road width and poor alignment.

These improvements will include provision for HPMVs which are able to move a larger volume of freight per vehicle, contributing to more efficient movement of road freight.

Addressing the impact of flood risk on the resilience of the transport network is planned through several bridge replacements/upgrades on SH53 (Waihenga Bridge and Tauherenikau Bridge)

The potential for traffic bypasses to remove heavy vehicle traffic from Wairarapa townships remain an important longer-term objective for this corridor to address the amenity impacts of heavy vehicles on SH2 through local town centres.

A modern and reliable rail corridor for freight and commuter trips supported by local bus connector services

Further upgrades to the rail carriages which operate between Wellington and Masterton are planned, along with other improvements to improve the reliability of these services. Recent reviews of rail and bus services have assisted in optimising the capacity and efficiency of the public transport network for commuters and for local connections. Future measures are likely to include improvements to park and ride facilities at stations.

Encouraging more freight to be carried by rail, particularly logs, is a key objective through this corridor given the safety and amenity issues associated with heavy vehicles travelling through the main street of townships and over the narrow and winding SH2 Rimutaka Hill road. This will involve ongoing collaboration between road controlling authorities, KiwiRail, CentrePort and other port and forestry companies.

Growth in log freight is expected in future and with around 80% of logs through Wellington's port originating in Wairarapa, this has the potential to significantly impact the transport network. The growth in log freight will result in increased maintenance requirements on the local roads linking logging areas with the state highway and adequate funding support will be needed to ensure these routes are able to be maintained to current standards. A road-rail transport hub at Waingawa will assist with the objective of moving more freight by rail. A freight bypass for logs from logging areas east of Masterton to the Waingawa road-rail transfer hub (south of Masterton town) will be an important measure to ensure effective freight access to this transfer hub and minimise the impact of heavy commercial vehicles through residential streets and shopping areas.

Safe and attractive pedestrian environments within townships, together with safe walking and cycling networks connecting townships

Measures for this corridor will focus on improving the safety of cycling networks within urban areas at locations with an identified crash risk, and ensuring that cycling connections between Wairarapa townships on state highways or high speed rural roads provide safe shoulder facilities for cyclists.

Continued development of off-road recreational cycle routes (such as Rimutaka Rail Trail) and on-road recreational routes (such as the NZ Cycle Trail) and connections to these will also be supported to provide additional cycle network connectivity for transport purposes.

Ongoing enhancement of the pedestrian environment within urban areas is proposed, including safety and amenity upgrades. Consideration of new pedestrian crossings, speed limits and traffic calming will be balanced with the needs of providing for through traffic on SH2 through these townships.

4.7 TIMING AND SEQUENCING CONSIDERATIONS

With increasing numbers of visitors travelling to Wairarapa for tourism and events, road safety is a high priority in the short term. Targeting safety black spots for pedestrians, cyclists and motorcyclists will be an important part of this.

Another short to medium term priority is to ensure that growing freight movements can be safely and effectively accommodated through the corridor. This will primarily involve a combination of infrastructure upgrades to address safety issues, resilience issues and to provide for HPMVs. It will also involve supporting an increasing share of freight being moved by rail.

Longer term, changing economic drivers within Wairarapa, and/or an increase in people living in Wairarapa and commuting to other parts of the region, may lead to changing priorities to accommodate different trip demands.

Photo: Anya Movill

5. CONNECTIONS BETWEEN CORRIDORS

The corridor plans break down the region into smaller geographic areas that follow the core transport and urban corridors to enable a more focused examination of issues and solutions.

However in reality these corridors are integrated into the wider regional transport network. This encompasses both physical connections between the corridors (road and rail) and functional links.

Some of the important functional links between and through the corridors include:

- Freight, travelling from elsewhere in the North Island to and through the region, and onto the South Island or international destinations.
- Commuters, travelling to the Wellington City CBD (a key employment node for the region) and between regional centres, such as east-west trips between Porirua and the Hutt Valley.
- Tourism trips, by domestic or international visitors travelling to and through the region from other parts of the country.
- Unexpected events and incidents on one part of the transport network can often result in a significant impact on other parts of the network. For example, an incident on SH2 can result in long traffic diversions via SH1 and SH58, consequently leading to delays on other parts of the road network. Delay or temporary closure of branches of the rail network can result in additional congestion and significant journey delays on the adjacent road network.

From a physical perspective, some of the connections between corridors are constrained by the availability of routes including:

- East-west routes connecting the Hutt Corridor and the Western Corridor. Currently SH58/Greys Road and Akatarawa Road are the only direct transport connections between the Hutt and Western corridors.
- Connections between the Wairarapa Corridor and the Hutt Corridor. The SH2 Rimutaka Hill road is the only direct road link connecting Wairarapa with the rest of the Wellington region (although there is also a rail link using the Wairarapa rail tunnel).

The hilly and mountainous terrain and geometric constraints affecting all these routes mean that they are relatively steep, winding and narrow in form, resulting in a lower level of service and safety risks.

5.1 IMPROVING STRATEGIC CONNECTIONS BETWEEN CORRIDORS

The approach to improving the connections between corridors within the region is to:

- **Continually improve the safety and resilience of existing strategic routes**

  Ensuring that trips using these routes can be made safely will contribute towards improved regional road safety and will minimise the number of incidents affecting or closing these important intra-regional connections.

  The priority here will be SH58, followed by SH2 Rimutaka Hill road based on the respective traffic volumes using these routes.

  Akatarawa Road is not seen as a high regional priority based on relatively low levels of use.

  The focus of these safety measures should be identified high risk locations and the section of SH58 between its intersection with Transmission Gully motorway and SH2 which is expected to see further increases in traffic volumes once Transmission Gully motorway is operational. Safety improvements along this part of SH58 should not restrict potential longer term capacity improvements.

- **Provide a new, more direct east-west connection between the communities of Lower Hutt (Hutt Corridor) and north Wellington/Porirua (Western Corridor)**

  This will significantly enhance connectivity between these regional communities and key freight destinations they contain. It will also provide an additional strategic route for access to the main urban areas of the region with significant overall transport network resilience benefits. Public transport services along this new route will also be investigated.

  A new east-west link will also relieve some congestion on SH1 south of Tawa and SH2 south of Petone - a key part of the strategic transport network that currently suffers severe congestion and which has significant capacity constraints.

Figure 18. Connections between corridors