

Western Corridor Plan 2012

June 2012

Draft

Strategic Context

Corridor plans organise a multi-modal response across a range of responsible agencies to the meet pressures and issues facing the region's land transport corridors over the next 10 years and beyond.

The Western Corridor generally follows State Highway 1 from the regional border north of Ōtaki to Ngauranga and the North Island Main Trunk railway to Kaiwharawhara. The main east-west connections are State Highway 58 and the interchange for State Highways 1 and 2 at Ngauranga.

Long term vision

This Corridor Plan has been developed to be consistent with the Regional Land Transport Strategy (RLTS), which sets the objectives and desired outcomes for the region's transport network. The long term vision in the RLTS for the Western Corridor is:

Along the Western Corridor from Ngauranga to Ōtaki, State Highway 1 and the North Island Main Trunk 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 corridor. These primary networks will be supported effectively by local and regional connector routes.

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

Traffic congestion on State Highway 1 will be managed at levels that balance the need for access against the ability to fully provide for peak demands due to community impacts and cost constraints. Maximum use 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.

Policy framework

The objectives of the RLTS will not be achieved through this plan on its own. Other national, regional and local transport planning documents guide, complement and support this corridor plan.

At the national level, the Government Policy Statement (GPS) identifies economic growth and productivity, as well as road safety, as major priorities. This includes moving people and freight as quickly, efficiently and safely as possible. These priorities are particularly relevant to the Western Corridor which is the region's main freight and commuter route for road and rail. The GPS also identifies 7 roads of national significance (RoNS). One of these is the Wellington RoNS, which includes several state highway projects through the Western Corridor.

Safer Journeys 2020 outlines the “safe system” approach of safe roads and roadsides, safe speeds, safe vehicles and safe road use for New Zealand. This “safe system” has been adopted in the region through the Regional Road Safety Plan.

Regionally, the direction for public transport over the next 10 years is set by the Regional Public Transport Plan. It outlines the approach to funding and delivering public transport, and defines the proposed services. The Regional Rail Plan¹ provides the framework for improving the region’s rail network over the long term – presenting alternative scenarios for improving rail’s reliability, frequency, capacity and reach.

Regional implementation plans contain action programmes with a range of improvements for their specific areas. For example, the Regional Walking and Cycling Plans include actions for the NZ Transport Agency (NZTA) and local councils to systematically review their pedestrian and cycle networks to identify problem areas and pinch points, and implement improvements consistent with best practice guidance.

Local transport planning by Wellington City Council (WCC), Porirua City Council (PCC) and Kāpiti Coast District Council (KCDC) address detailed issues and provide more certainty around activities for the parts of the transport network that these Councils are responsible for: namely local roads, road safety and infrastructure for walking, cycling and public transport (stops, shelters, bus lanes, etc.).

Some projects, such as the Petone to Grenada link road and State Highway 58 improvements, feature in both the Western and Hutt Corridor Plans.

¹ A review of the Regional Rail Plan is starting in 2012.

Why the Western Corridor is important

The Western Corridor is a primary commuter and freight route into and out of the Wellington region, connecting communities and commercial areas within the region and beyond. It also provides vital strategic access to the Wellington City CBD, Port and International Airport as well as the Wellington Regional Hospital.

All day traffic volumes on State Highway 1 grow from 15,000 vehicles near the region's border to the north, 12% being freight vehicles, to over 40,000 vehicles at Ngauranga – 3% being freight trucks. Over 5.5 million passengers are carried by rail annually on the North Island Main Trunk (NIMT) and Johnsonville commuter rail lines. The total amount of freight carried to, from and through² the Wellington region by rail in 2006/07 was 1.6 million tonnes – the vast majority of this carried by the NIMT.

This corridor is one of the more populated areas in the region with approximately 150,000 people living in the northern Wellington City suburbs, Porirua and Kāpiti. Like national and international trends, the overall population is ageing with a high and growing proportion of elderly people – particularly in Kāpiti. In contrast, Porirua has a relatively high percentage of children. Kāpiti and the northern Wellington suburbs are projecting significant population growth over the next 20 years, 17% and 10% respectively. Porirua is expected to grow a more modest 3%.³

Significant residential and commercial developments in the Western Corridor are signalled to occur at Johnsonville, Churton Park, Lincolnshire Farms, north/east of Porirua CBD, east of Whitby, north of Cambourne, Waikanae north and Ōtaki north. These developments will generate significant new trips and activity that will need to be accommodated by the transport network.

About 45,500 people work on a full time basis within the Western Corridor. The 2006 census showed that two thirds of people living in Kāpiti commute to work locally and 23% to Wellington City, while a roughly similar number of Porirua residents travel locally or to Wellington for work (44% and 46% respectively). The Western Corridor also accommodates a significant number of recreational and tourist trips associated with people travelling to and through the region. This creates off-peak congestion during weekends and public holidays – particularly through Kāpiti.

Freight volumes are expected to double over the coming decades. Wellington acts as the main hub for all road and rail freight travelling between the North and South Island – currently over 5 million tonnes each year. In total, Wellington's port and ferry facilities provide for over 11 million tonnes of domestic and international freight movements.

The vast majority of this freight transits through the Western Corridor. Planned investment in road and rail facilities may result in new freight hubs being established within this corridor which may change freight patterns, and potentially can increase the proportion of freight trips using this corridor. Palmerston North is also growing as a commercial and freight hub for the lower North Island. This has the potential to increase the number of freight trips travelling to the north of the region.

² Assuming all rail freight moving between the North and South Islands has to pass through Wellington. Figure based on the 2008 National Freight Demands Study.

Significant transport network issues

The strategic transport network through this corridor has come under significant pressure due to increasing demands over the past decades, and this is expected to continue with further increases in freight volumes and new land development into the future. The significant network issues are identified below.

Roads

Typical traffic volumes throughout the day along the Western Corridor increase from approximately 15,000 vehicles at the northern end to 40,000 at Ngauranga in the south, with a spike at Newlands of over 70,000 vehicles. These figures reflect a significant number of local trips competing with regional and inter-regional commuters and freight for use of the state highway. This results from a lack of suitable arterial north-south routes in some locations along the corridor for local traffic which causes delays.

About 7,000 journey-to-work trips per day are made to the Wellington CBD from the Western Corridor during the AM peak. These AM peak journey-to-work trips are projected to increase 9% by 2031 due to population and employment growth. This increase may impact congestion and journey time reliability without mitigating investment.

Congestion on SH1 is experienced during both peak and off-peak travel times. Peak congestion occurs most sharply during the AM peak, which impacts on trip reliability. Specific areas in the Western Corridor where the worst peak congestion occurs are through the Ngauranga Gorge, the merge between SH1 and SH58 at Paremata as well as onward north over the Mana Esplanade. During the weekend and over public holidays, severe congestion frequently occurs between Pukerua Bay and Paekakariki, as well as several areas through Kāpiti including Paraparaumu, Waikanae and Ōtaki.

NZTA travel time surveys indicate that the total Wellington RoNS route experience average delays of half a minute per kilometre travelling south during the AM peak and about 20 seconds delay per kilometre travelling north during the PM peak. Off-peak congestion along this route was a little over 10 seconds delay per kilometre. SH58 experiences about 20 to 40 seconds delay per kilometre throughout the day. These averages mask considerable variation. For example, the Ngauranga Gorge experiences 2 to 4 minutes delay per kilometre in southbound lanes during the AM peak.

Congestion impacts on freight costs by reducing journey time reliability for just-in-time deliveries, which in turn reduces productivity of the regional economy. SH1 between Waikanae and Paraparaumu has been approved for use by High Productivity Motor Vehicles (heavy freight trucks) under 54 tonnes. Depending on the use of these heavy trucks along SH1, the rate of freight traffic increases might be less than it otherwise would be, since a proportion of the increasing freight task could be met by these larger trucks. Preliminary NZTA evaluations indicate that differences in maintenance costs between fewer (but heavier) freight trucks and more standard-sized trucks carrying the same freight task are negligible. However, issues from amenity (noise and vibrations) and perceived safety risks are also likely to be raised.

³ These projections are based on work undertaken for the Wellington Transport Strategic Model (WTSM) upgrade.

Community severance is currently an issue along SH1, particularly where the road passes through town centres. High volumes of through traffic make crossing the state highway difficult for local traffic, cyclists and pedestrians and leads to safety issues. The significant percentages of local journey-to-work trips necessitate high quality local connections between residential areas and town centres.

Public transport

Total public transport patronage along the Western Corridor has been consistent over the past 6 years at around 9 million trips per year. 12% of journey-to-work trips from Kāpiti were made with public transport in 2006. For Porirua residents it was 15%, and for the northern Wellington suburbs the public transport journey-to-work mode share was 22%.

Rail is the key strategic public transport mode for this corridor, supported by bus routes connecting suburban communities with rail stations, town centres as well as the Kāpiti Health Centre in Paraparaumu and Kenepuru Hospital in Porirua. Some through bus services to Wellington City are also provided, particularly from north Wellington.

Future levels of public transport patronage will be influenced by future fare increases, extent of rail investment and the proposed construction of the RoNS. Park-and-ride spaces for cars and bicycles are constrained at stations throughout the corridor.

The two commuter rail services are the Kāpiti and Johnsonville lines. Significant investment has been made to improve rail infrastructure in the corridor over recent years, including a third line into Wellington Station as well as double tracking and electrification to Waikanae. However, several more years of investment in the track and network infrastructure is required to significantly reduce the number of service disruptions and improve reliability.

A remaining single track section of rail at the North-South Junction (through the tunnels between Pukerua Bay and Paekakariki) may limit future increased service frequency on the Kāpiti line. Freight trains also compete with commuter services for passage times through the Junction.

Ōtaki is currently served by bus route 290 and the Capital Connection rail service. Limited service frequencies, relatively low patronage and affordability concerns are major issues facing public transport for Ōtaki. These issues lead to general dissatisfaction with the present level of service. Ōtaki's community aspirations for improved public transport provision will need to be balanced with available funding for services and infrastructure improvements.

Detailed analysis of the complex interplay between the planned RoNS, provision of public transport services, future land development scenarios and fuel costs has yet to be conducted. As a result there is a significant information gap for future planning.

Walking and cycling

The walking and cycling networks provide essential commuter, recreational and tourist links throughout the Western Corridor. Walking and cycling accounted for a relatively low number of journey-to-work trips in 2006 (6% for Kāpiti, 4% in Porirua and 5% for the northern Wellington suburbs). Walking is often an important part of a longer trip by another transport mode.

The Regional Cycling Network consists of the core strategic routes which link the region's centres. It generally follows the state highways, but also includes off-road routes and shared paths. While various sections of the cycling network have undergone piecemeal investment, there is currently no continuous, safe cycling route through the Western Corridor. This limits growth of this mode for longer distance trips. Limited provision for cyclists on SH58 also reduces east-west recreational cycling.

Limited provision for pedestrian links across SH1 is an issue for several urban areas through the corridor. This causes safety issues, particularly in Pukerua Bay, as well as constrains access between commercial areas on either side of the state highway for foot traffic.

Safety (perceived and real) has consistently been reported as a major determinant in whether people walk or cycle for local trips, or allow their children to walk or cycle to school. Porirua residents reported in 2008 that they felt the safest in the region walking at 77% and Kāpiti ranked fourth at 69%. Both Porirua and Kāpiti had a low percentage (about 5%) of respondents who felt unsafe walking. Porirua also had the highest proportion of people who felt safe cycling (45%) and the least amount who felt unsafe at 30%. Kāpiti ranked relatively low with only 25% feeling safe and 34% feeling unsafe.

Road safety

Road safety issues along SH1 are well documented from Pukerua Bay north to the end of the corridor. Sections of SH1 here are rated as some of the worst sections of state highway in New Zealand for collective risk – measured as the total number of fatal and serious injury crashes per kilometre. These safety issues are largely the result of high volumes of traffic moving down relatively narrow road lane widths at speed.

There are many at-grade intersections (both signalised and non-signalised) along SH1 which are not designed to safely accommodate high volumes of traffic travelling at speeds up to 100 km/h. Examples are SH1 intersections at Pukerua Bay and Paekakariki, where speed limits have been reduced as a result. SH58 has particular safety issues relating to the condition of the road – which received a two star ranking in KiwiRap over its whole length.

Some of the most significant safety black spots are at the Ngauranga Gorge, around the Porirua CBD, Grays Road, Paekakariki and on both edges of Waikanae's urban area.

In total, NZTA's Crash Analysis System recorded 1,336 injury crashes throughout the Western Corridor between 2006-2010, resulting in 32 deaths and 292 serious injuries. Roughly 40% of injury crashes occurred on the state highways, with the remainder on local roads. Crashes are a complex combination of contributing factors and usually have more than one factor (ie. road condition, weather, driver error, etc.) attributed to it.

Pedestrians, cyclists and motorcyclists have also been identified as vulnerable users, with a medium to high level of risk for suffering a fatal or serious injury.

East – West connections

The region's topography has created a largely north-south linear shape to our urban form, converging at Ngauranga. While this has many benefits in terms of transport infrastructure efficiency, limited east-west connections between SH 1 and SH 2 has been identified as an issue for the region in term of providing effective connections between key destinations for people, goods and services.

Existing east-west connections between SH1 and SH2 are provided by SH58/Grays Road and Akatarawa Road, located towards the northern half of the corridor. There are no east-west links at the southern end of the corridor between the key freight and employment centres of Johnsonville and Porirua with Lower Hutt (Petone and Seaview). These trips are currently often made using SH1 and SH2 via Ngauranga interchange – placing more pressure on the sections of the region's transport network that already suffer congestion and high levels of demand for north-south trips into and out of Wellington City. This leads to longer travel times and trip distances.

East-west public transport provision is limited to a single service between Porirua and Upper Hutt (route 98) over SH 58 and Taita to Tawa (route 99) through the Ngauranga interchange. With 5% to 8% of journey-to-work trips taken from areas within the Western Corridor to the Hutt Valley, this limited provision offers minimal capacity to service these important strategic connections.

Limited east-west connection between SH1 and SH2 also creates significant network resilience issues. An incident (such as a traffic accident or slip) on SH 1 between Wellington City and Porirua can cripple the entire state highway network for hours, even on a weekend, due to the lack of nearby alternative routes and a long diversion via SH58. In a major event such as an earthquake or tsunami, having an alternative east-west link at the southern end of the Western Corridor could be vital to re-instating access to Wellington City from the rest of the North Island.

Climate change and hazards

The future impact of climate change on the transport network is a very relevant issue for the corridor. Greater Wellington has done some initial mapping of these impacts on the region's coastal areas as well as tsunami mapping. The climate change mapping is preliminary and based on topographical contours, but it does indicate the effects of a 1 to 2 metre rise in sea level. The tsunami mapping highlights flooding risks as well as "scouring", which undermines the ground structures beneath roads and rail tracks.

The sea level rise and tsunami maps show risks along the whole western coast of the Wellington region. Storm flooding is also a risk for low-laying areas. With regard to the strategic transport network in the Western Corridor, the maps suggest the following potential risks:

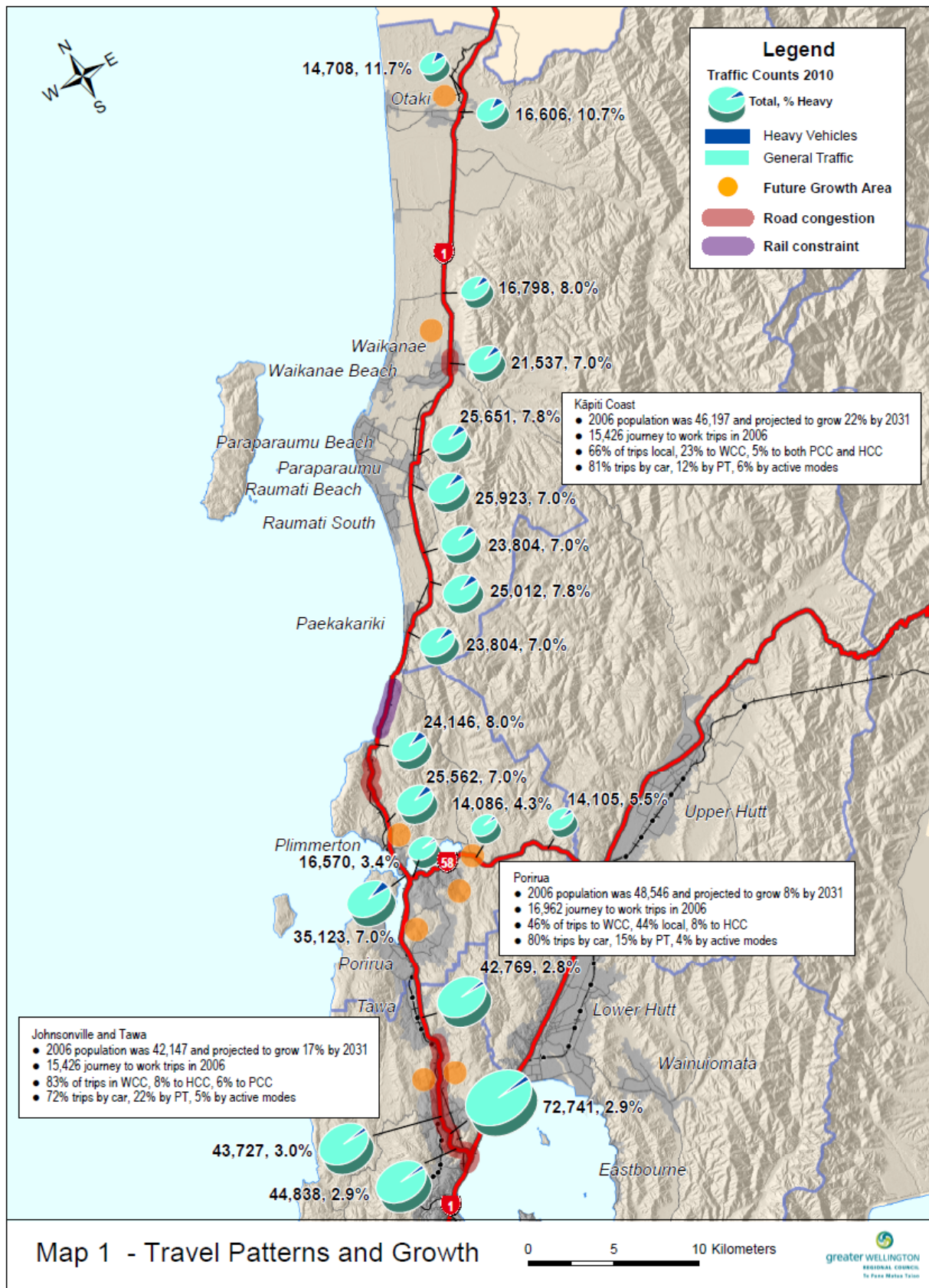
- Flooding and erosion/slips along the coastal strip between Plimmerton and Paekakariki affecting SH1 and the NIMT
- Erosion/slips around Paraparaumu
- Flooding of the NIMT railway line as well as SH1, SH58 and Grays Road along the Porirua Harbour and around Ōtaki

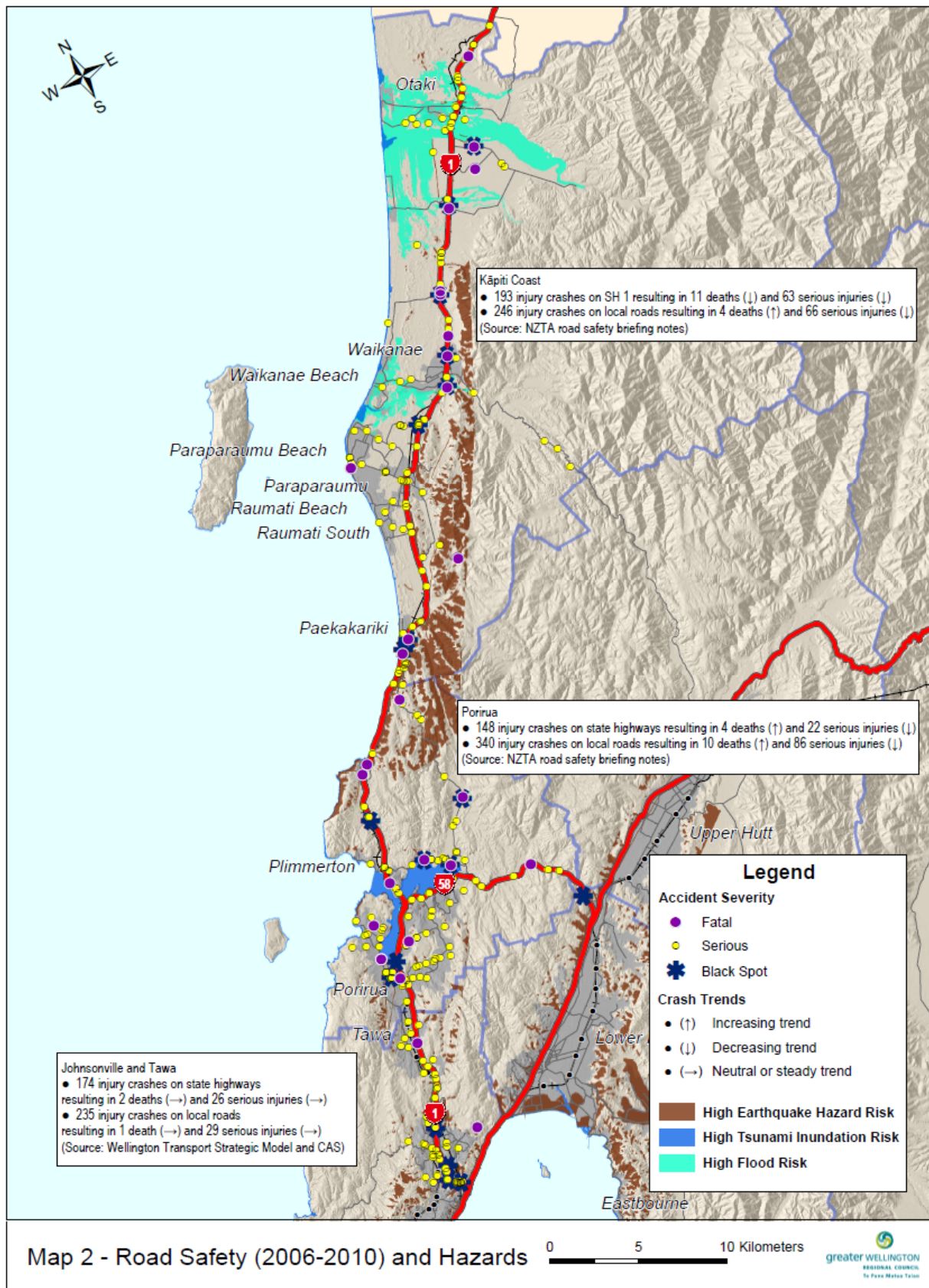
Expected increases in sea levels combined with more frequent and severe storms and storm surge impacts are likely to become more significant over time. The higher frequency and severity of storms will increase maintenance costs and reduce the reliability of the road and rail networks during storm events by causing more landslips, accidents, and road closures due to storm surges.

Summary of issues

The following maps provide a visual overview of the pressures and issues noted above. Note that the black spots shown in Map 2 indicate where \$3 million in social costs were accrued between 2006 and 2010.

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Key objectives for this corridor

The key objectives developed for this corridor plan respond to the significant issues and opportunities relating to this specific transport corridor. They are:

- Provide for current and future growth pressures (population / employment / freight) in the Western Corridor in accordance with strategic growth plans⁴
- Reduce congestion on the road network, including focussing on congestion ‘hotspots’ at the Ngauranga Interchange, SH1 and SH58 intersection at Paremata, between Ngauranga and Johnsonville, and along the Mana Esplanade
- Reduce off-peak and weekend congestion between Pukerua Bay and Paekakariki as well as from Waikanae to Ōtaki
- Improve the mode share of walking, cycling and public transport
- Improve accessibility for all modes and between modes
- Improve route security and network resilience
- Improve road safety throughout the Corridor.

The objectives are derived from the Regional Land Transport Strategy 2010-2040 key outcomes. Progress against these outcomes is monitored through the Annual Monitoring Report on the Regional Land Transport Strategy.

⁴ These include the Regional Policy Statement, Wellington Regional Strategy and the District Plans.

Plan of action

In order to achieve the objectives and address the corridor's issues and pressures, more work will be required than only continuing investment in maintenance and operations activities. The following projects and packages⁵ of multiple projects have been prepared for inclusion in the Western Corridor Plan by the responsible agencies.

Strategic road network projects

Corridor plans are the only place in regional planning where development of the region's strategic road network is considered. So while corridor plans are multi-modal, proposed road improvements are consequently significant parts of these plans.

Roads of National Significance package

The Wellington Road of National Significance (RoNS) is a package of capacity improvements and upgrades to State Highway 1. This project has benefits across multiple objectives and issues including:

- Support for a growing population by reducing congestion and improving safety for local and long-distance journey-to-work and recreational trips. The population through the Western Corridor is expected to increase by 16,500 over the next 20 years, mainly in the northern Wellington suburbs and Kāpiti
- Support for increasing freight volumes (expected to double over the coming decades) in the region by providing more reliable journey for just-in-time goods delivery, with the vast majority of movements continuing to be made by truck
- Improved access to employment and markets with travel time savings to Wellington's port, CBD, airport and hospital
- Relief from congestion on the state highways and local road networks at peak times and on public holidays by providing more road capacity for an increasing number of commuter, freight and other trips
- Improved safety through higher quality engineering and fewer at-grade intersections
- Improve commuter and freight trips through the corridor with better journey time reliability
- Improve route security and network resilience through more advanced engineering and providing an alternative route

It is anticipated that the RoNS projects will be substantially completed or under construction within the next 10 years, or over the next three Regional Land Transport Programme (RLTP) periods – 2012-15, 2015-18, 2018-21.

Associated with the RoNS projects are a number of improvements to local roads in order to support the RoNS and the large number of local journey-to-work trips, as well as walking and cycling links.

⁵ Packages identified in the Western Corridor Plan are thematic in nature and meant to highlight areas where multiple projects perform similar functions (ie. safety improvements to SH1) or are primarily associated with each other (ie. walking and cycling projects associated with the RoNS). They are not funding packages which are developed as part of the Regional Land Transport Programme.

Investigations into which local roads will require work is scheduled to be completed within the next RLTP period 2012-15 with design and construction expected to occur during the next two periods.

Walking and cycling commuter links are also part of the RoNS package and include east-west connections across the upgraded SH1 and north-south commuter links. These are scheduled to be included in the next three RLTP periods.

Stretches of the state highway will become redundant after some RoNS projects are built, namely Transmission Gully and MacKays to Peka Peka Expressway. These stretches are intended to be transferred to Porirua City and Kāpiti Coast District Councils as local roads. The condition of these individual stretches of the current SH1 alignment at the time of transfer remains to be decided.

East-west investigations package

A new road is proposed to connect SH1 at Grenada North and SH2 at Petone – known as the Petone to Grenada Link Road. Other elements include demand management measures and the creation of a ‘beach to bush’ walk and cycle link between Belmont Regional Park and the Petone foreshore.

This project will provide a direct connection between the northern Wellington suburbs, Porirua and Lower Hutt, improving access between employment and markets. It also reduces congestion on SH1 south of Tawa, significantly improves network resilience to accidents or natural hazards, provides for a potential new east-west bus route and integrates land use and transport by supporting proposed development at Lincolnshire Farm, Petone west and Seaview/Gracefield.

The short-medium term priority for SH58 is to improve the safety of this route by implementing a package of road safety improvement works as outlined in this plan. However, we also need to investigate the need and feasibility for increasing capacity on SH58, including consideration of four-laning the current alignment between Transmission Gully and SH2. Any short-medium term safety improvements should not be contradictory to potential long term capacity upgrades.

Investigation of the Petone to Grenada Link Road has already started. SH58 capacity improvements investigation will start in the 2012-15 RLTP. The outcome of these studies will inform the development of the 2015-18 Programme and subsequent plans.

Johnsonville Triangle improvements

Redevelopment of the Johnsonville Mall area and proposed residential intensification has been signalled through Wellington City District Plan changes. These developments will require upgrades to the road network in Johnsonville in order to accommodate increased private vehicle, freight, public transport as well as walking and cycling trips.

Investigation and design of these improvements is scheduled for the 2012-15 RLTP period, with construction occurring in the next RLTP period. The extent of these improvements will be determined by the level of uptake for allowed residential development and the construction timing of Johnsonville Mall. Consequently, some of the funding for this project is likely to come from developer contributions.

Action table 1 – Strategic road projects

Action	Responsibility	Indicative Cost
Road of National Significance package		
Progressively investigate, design and construct sections of the Wellington RoNS projects: <ul style="list-style-type: none"> • Transmission Gully • MacKays to Peka Peka • Peka Peka to Ōtaki • Ōtaki to Levin 	NZ Transport Agency	\$930M \$630M \$251M \$140M
Improvements to KCDC major community connector local roads in order to support the RoNS, including freight links – in three stages: <ul style="list-style-type: none"> • Investigation • Preliminary works • Design and construction 	KCDC	\$280,000 \$500,000 TBD
Investigate walking and cycling commuter links along the Wellington RoNS (refer to Strategic walking and cycling projects section).	NZ Transport Agency GWRC KCDC PCC	TBD
East-west connections investigation package⁶		
Complete a scheme assessment to comprise of: <ul style="list-style-type: none"> • A new link road between SH2 at Petone and SH1 at Grenada • Demand management measures such as ramp signalling at Ngauranga and Petone • ‘Beach to Bush’ walking and cycling connection at Petone interchange A new link road between SH2 at Petone and SH1 at Grenada, including demand management measures such as ramp signalling at Ngauranga and Petone	NZ Transport Agency HCC WCC NZ Transport Agency NZ Transport Agency	\$6M Approx \$254M TBD
Investigate the need and feasibility of increasing capacity on SH58, including considering 4-laning the current alignment from the proposed intersection of SH58 and Transmission Gully to the SH58/SH1 intersection in order to inform the development of the RLTP 2015-18 and subsequent plans	NZ Transport Agency	TBD

⁶ The projects in this package are also identified in the Hutt Corridor Plan 2011

Action	Responsibility	Indicative Cost
Johnsonville Triangle Roading improvements		
Increase capacity of the local network to meet growing demand including improvements to public transport, walking and cycling	WCC	\$18.75M
Airlie Road Bridge replacement		
Replace bridge to improve safety and provide route continuity	PCC	\$1.48M
SH1 optimisation package		
Intersection optimisation at Kāpiti Road to improve operation and alleviate significant congestion	NZ Transport Agency	\$240,000
Optimisation of north-bound off-ramp at Johnsonville	NZ Transport Agency	\$1.14M

Strategic road safety projects

Many region-wide road safety activities, such as driver training and promotional activities, are part of the Regional Road Safety Plan. Specific engineering projects as part of the 'safe system' approach for the Western Corridor are outlined below.

SH1 safety improvements package

A package of road safety improvements are proposed for SH1. Investigation and design phases are scheduled for the 2012-15 RLTP period with construction expected to commence during the 2015-18 period.

These include extending the median barrier from MacKays Crossing to Centennial Highway as well as signalling an intersection across SH1 in Ōtaki is proposed for 2017/18

Otaihanga to Waikanae safety improvements

This project involves three phases including a mix of minor works, then a new roundabout at the SH1 intersection with Otaihanga Road, and then the third phase is a wire rope median barrier from Otaihanga to Kebbell Drive in Waikanae. The third phase also includes necessary widening around the curves.

The initial works and roundabout installation are scheduled to occur in the 2012-15 RLTP period, along with investigation and design of the third phase projects. Construction of the wire rope barrier and curve widening is expected to be during the 2015-18 RLTP period.

SH58 safety improvements package

Along SH58, a long list of safety improvements are proposed to be completed based on priority need and as funding allows. These include measures such as intersection improvements, passing lanes, road realignments, seal widening, median barriers, and roundabout improvements. Wherever possible, these improvement works will be designed to improve safety for all road users including pedestrians and cyclists.

The investigation and design phases for some of the improvements to SH58 commenced during the 2012-15 RLTP period, and they are expected to be substantially completed within the 2015-18 Programme. These safety improvements are the realignment of three out-of-context curves on Hayward's Hill Road and a package of improvements for Mt Cecil to Harris Road.

The Gray's Road safety improvements involve road alignment and road surface improvements at high risk locations. These works are planned to commence during the 2011/12 financial year, and be completed within the 2012-15 RLTP period.

Action table 2 – Strategic road safety projects

Action	Responsibility	Indicative Cost
SH1 safety improvements package		
Extend the median barrier from MacKays Crossing to Centennial Highway	NZ Transport Agency	Approx \$6 – 7M
Replace existing zebra crossing in urban Ōtaki with a Puffin signalised pedestrian crossing	NZ Transport Agency	\$77,000
SH1 Otaihanga to Waikanae safety improvements		
<p>Safety improvements to SH1 between Otaihanga Road and Kebbells Drive will occur three stages:</p> <p>Stage 1: Interim minor safety improvements to the road</p> <p>Stage 2: Install a roundabout at Otaihanga Road intersection</p> <p>Stage 3: Block project consisting of –</p> <ul style="list-style-type: none"> • A wire-rope barrier between Otaihanga and Kebbells Drive, along with widening around the curves north of Otaihanga • Turn-around area at Kebbells Drive <p>Improvements should reflect SH1 modifications as agreed with KCDC and incorporate Kāpiti RoNS Alliance designs into temporary/short term measures</p>	NZ Transport Agency	<p>TBD</p> <p>TBD</p> <p>Approx \$2 - 3M</p>

SH58 Safety Improvements Package⁷		
Short-medium term: <ul style="list-style-type: none"> • Spinnaker Drive intersection treatment • Moonshine to Pauatahanui Minor Safety Improvements • Extending uphill passing lane on Haywards Hill. 	NZ Transport Agency	Approx \$10-15M
And longer term: <ul style="list-style-type: none"> • Haywards Hill to Moonshine Road seal widening and median barrier • Improve road alignment on Haywards Hill • Moonshine Road roundabout • Flightys Road roundabout. Improvements should include features that also improve safety for pedestrians and cyclists wherever possible	NZ Transport Agency	Approx \$40-55M
Realignment of three existing out-of-context curves on the Haywards Hill in order to improve safety	NZ Transport Agency	\$3.74M
Improve safety from Mt. Cecil to Harris Road. Likely to involve seal widening, changing line markings and guardrail installation	NZ Transport Agency	\$630,000

Strategic public transport projects

Rail package

The short-medium term priority for rail in the region is to get the current network running reliably and effectively. To this end the Regional Rail Package outlines a programme of essential track, signal and rolling stock upgrades – including the refurbishment or replacement of the Ganz Mavag fleet. We also want to improve our existing railway stations (particularly in terms of access, amenity and security), continue to upgrade park and ride provision, and to get real time and integrated ticketing systems implemented.

Decisions about which stations throughout the region’s rail network will be upgraded first will be based on a prioritisation criteria currently being developed by Greater Wellington. The 2012-15 RLTP contains funds for purchasing (and thereby securing) existing space for park-and-ride carparks at Porirua Station.

Longer term, a number of potential rail enhancement projects to improve capacity, frequency and reach may be considered. Many of these long term enhancement projects are identified in the Regional Rail Plan. The priority, as funding becomes available, will be to progress those projects identified in Rail Scenario 1 of the Rail Plan.

⁷ Also identified in the Hutt Corridor Plan 2011.

For the Western Corridor, Rail Scenario 1 included works at the North-South Junction in order to increase the speed at which trains can travel through the tunnels. This work has already been done. Further improvements to the North-South Junction are part of Rail Scenario A – which focuses on reducing journey times for commuters by enabling faster train speeds. This would involve extending the double track sections as close to the tunnel portals as practicable. The timing of these works is part of the Regional Rail Plan review starting in 2012.

Greater Wellington continues to work with KiwiRail and Horizons Regional Council in relation to options for retaining the Capital Connection.

Public transport service reviews

A review of public transport services provided in Kāpiti is scheduled for 2015. The review for Porirua is scheduled for 2016 and will include east-west connections to the Hutt Valley.

Regular detailed reviews of public transport within the region are an important measure to ensure that services are optimised and improved to reflect the changing needs of communities. These reviews include looking at timetables, bus-rail connections, potential new or extended services, potential changes to increase efficiency or to optimise services.

Action table 3 – Strategic public transport projects

Action	Responsibility	Indicative Cost
Rail package		
Implement rail infrastructure as determined by the Regional Rail Plan including any: <ul style="list-style-type: none"> • Improvements to track and signalling systems • Rail station deferred renewals and major repairs • Possible network and operations development to meet growth and land development 	GWRC KiwiRail	TBD
Refurbishment or replacement of Ganz Mavag carriages	GWRC	\$80M
Station repairs and minor improvements (including pedestrian and accessibility improvements) and park and ride upgrades	GWRC	\$2.5M per year (region-wide)

Action	Responsibility	Indicative Cost
Porirua Station parking Purchase existing carpark land at Porirua Station from NZTA	GWRC	\$1.3M
Area-wide service reviews		
The area-wide service reviews are primarily focused on the bus network but also considers integration with rail and road activities. Area-wide reviews generally take between 6 and 18 months with implementation of any changes following on from this. The programme of area-wide service reviews for the Western Corridor is:		
<ul style="list-style-type: none"> • Kāpiti 	GWRC	\$100,000
<ul style="list-style-type: none"> • Porirua including east-west connections to Hutt Valley 	GWRC	\$100,000
Real time and integrated ticketing		
Complete rollout of real time information systems throughout Corridor	GWRC	\$3.77M (region-wide)
Develop electronic integrated ticketing systems for the public transport network, including along the Western Corridor as part of wider regional implementation	GWRC	\$39M (region-wide)

Strategic walking and cycling projects

Shared pathways package

This proposed package continues improving walking and cycling links through the Western Corridor, a key north-south strategic link for commuters, recreational cyclists and tourists. Currently, the sealed Ara Harakeke shared pathway provides a high quality connection for cyclists and walkers between Mana and Pukerua Bay.

This package extends the sealed sections of the Regional Cycling Network in three locations, promoting them to the same standards as the Ara Harakeke shared pathway. These sections are the Tawa walkway along Porirua Stream, Porirua Station Road to Kenepuru rail station, and from Pukerua Bay shops to Paekakariki. The Pukerua Bay to Paekakariki section is currently a footpath along the state highway, and this section's upgrade is anticipated to begin outside 10 years from now after Transmission Gully is constructed, taking traffic off the coastal route.

Porirua cyclepath 'spine' package

The projects in this package are mostly meant to upgrade existing cycle and footpaths to shared path standards as funding becomes available. The 'spine' is primarily a north-south route along SH1 with a link into the Porirua CBD. It also goes around the Pauatahanui Inlet and inland out to Titahi Bay.

Action table 4 – Strategic walking and cycling projects

Action	Responsibility	Indicative Cost
Walking and cycling shared pathway package		
Improve connections to the Ara Harakeke shared walk/cycleway from Tawa and Pukerua Bay, including: <ul style="list-style-type: none"> • Tawa walkway alongside Porirua Stream • Porirua Station Road to Kenepuru Station Shared Use Path • Improve links between Pukerua Bay shops and Paekakariki to shared pathway standards 	WCC PCC PCC	\$2.7M \$420,000 \$400,000
Porirua cycleway upgrades		
Improve the arterial 'spine' of cycle paths in the Porirua area to a shared use standard	PCC	\$750,000
RoNS walking and cycling investigations		
Investigate walking and cycling commuter links along the Levin to Wellington Airport RoNS, including: <ul style="list-style-type: none"> • East-west connectivity of local pedestrian and cycle traffic • Through Queen Elizabeth Park • Alongside the Kāpiti Expressway including MacKays to Peka Peka, Peka Peka to Ōtaki, and Ōtaki to Levin projects • To provide access over/under Transmission Gully 	NZ Transport Agency GWRC KCDC PCC	TBD

Indicative programming diagram

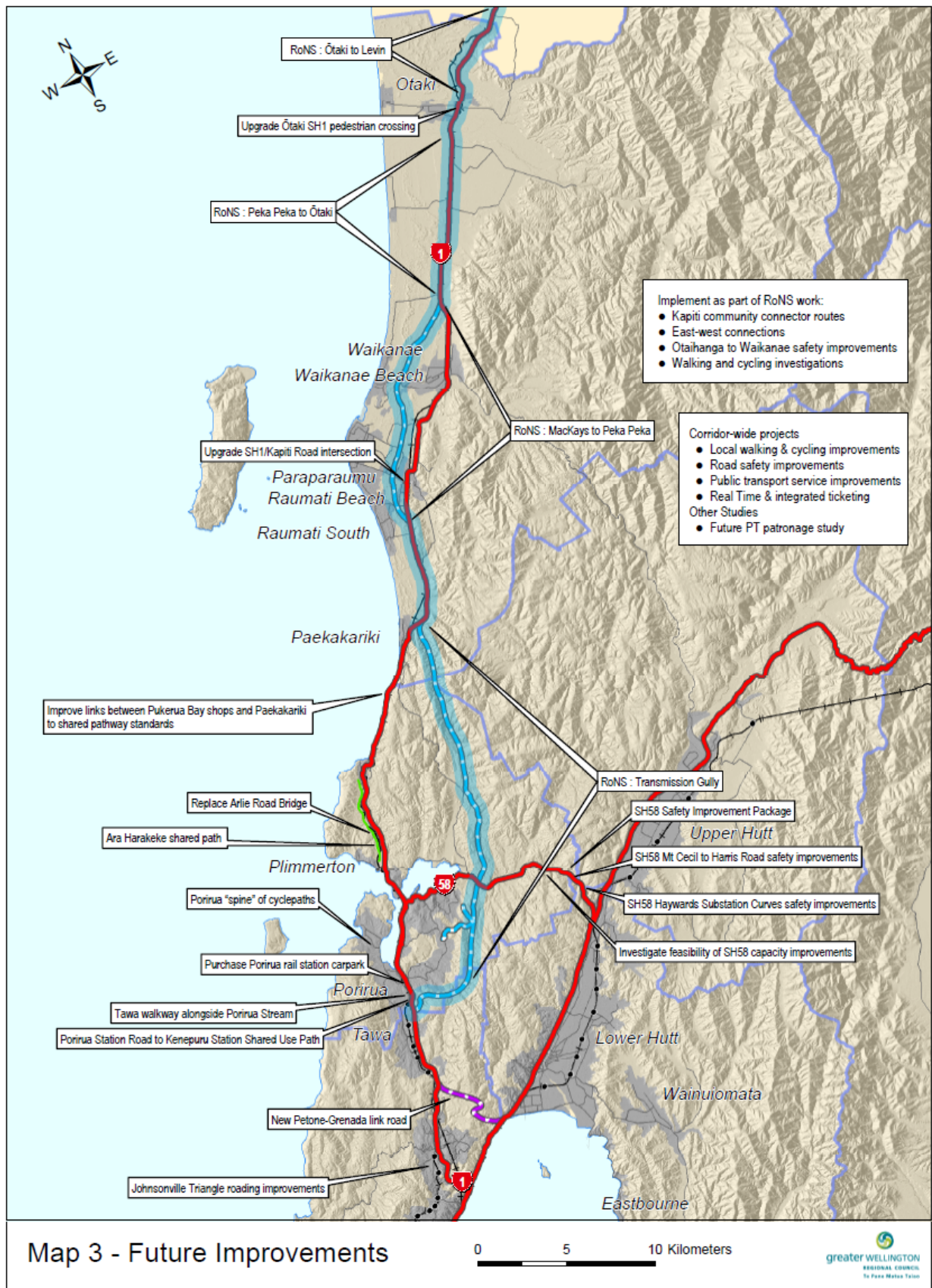
Key things to note about the indicative timing set out in the action programme:

- Timing is by three-year blocks. These relate to the periods of each Regional Land Transport Programme. Timing and funding are only confirmed for the 2009-12 and 2012-15 RLTP time blocks. Later RLTP blocks are indicative only.
- This is the optimal project timing according to the lead agency for the project. However, in every case this timing is dependant on obtaining funding. Projects within this corridor plan compete with other projects throughout the region, and then throughout New Zealand for NLTP funding.
- Some projects have a 'star' to indicate the need for some initial strategic work before the project is commenced. The later stages for these projects will be dependant on the outcome of this initial work.

Key	
Initial strategic / feasibility investigations	★
Project investigation / design stage	Yellow
Project construction / implementation stage	Orange

Draft

Project / Package	Regional Land Transport Programme period			
	2012 – 15	2015 – 18	2018 – 21	Beyond
Roads of National Significance Package				
Transmission Gully				
MacKays to Peka Peka				
Peka Peka to Ōtaki				
Ōtaki to Levin				
KCDC major community connectors				
Walking and cycling commuter links				
East-west connections investigations				
Petone to Grenada				
SH 58 capacity investigations	★			
Johnsonville Triangle roading improvements				
Arlie Road bridge replacement				
SH1 intersection optimisation				
Kāpiti Road intersection optimisation				
Johnsonville northbound off-ramp optimisation				
Road safety improvement package				
SH1 safety improvements				
SH1 Otaihanga to Waikanae safety improvements				
SH58 safety improvements				
Rail package				
Refurbish or replace Ganz Mavags				
Station and 'park and ride' works				
Porirua station parking purchase				
Rail Plan review (rolling stock & infrastructure upgrades)	★			
Porirua service review				
Kāpiti service review				
Real time information roll-out				
Integrated ticketing systems				
Walking and cycling shared pathway package				
Tawa along Porirua Stream				
Porirua Station Road to Kenepuru Station				
Pukerua Bay to Paekakariki				
Porirua cyclepath 'spine'				



Map 3 - Future Improvements

0 5 10 Kilometers