



# Draft Hutt Corridor Plan

APRIL 2011



draft

Have your say



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## The Hutt Corridor

For the purpose of this plan the Hutt Corridor is defined as the transport corridor formed by State Highway 2 and the Wairarapa railway line from Ngauranga in the south through to Te Marua, Upper Hutt in the north, as well as east – west connections between State Highway 2 and State Highway 1, including State Highway 58. It includes major arterial routes and key routes for public transport, walking and cycling connecting with this corridor.

### Links to our other plans

This corridor plan is one of several that sets out a multi-modal package of improvement measures that contribute to the long term direction agreed in the Wellington Regional Land Transport Strategy. This plan complements and is supported by the projects and measures in our other corridor plans and our modal plans for walking, cycling, road safety, demand management and public transport.

### Introduction

There are many significant factors that influence travel patterns in the region, and in the Hutt Corridor, and a degree of uncertainty as to the outlook for some of these factors. Therefore this Plan has been developed to identify short term measures that address pressing needs and to signal the likely measures needed to address longer term requirements. The timing of longer term measures will be reviewed as significant trends become evident.

## Key transport pressures and issues

### Population

Population for the whole Wellington region is expected to grow by about 3,000 per annum using the medium projection from the Statistics NZ 2006 base estimates to 2031 (as updated early 2010). Eight percent (240 per annum) of this growth is expected in the Hutt Valley. This translates to a forecast average annual growth rate of 0.2 percent for both Upper Hutt and Hutt City, compared with 0.6 percent forecast for the Wellington Region.

Household size is projected to decrease from 2.6 to 2.4 (medium projection for Lower Hutt, similar trend for Upper Hutt) by 2031. Even with relatively low projected population growth, the number of households will continue to increase, indicating a likely increase in trips.

### Employment

Employment has grown steadily over the past 10 years with a 1.2% increase per annum in the number of employees. The total number of employees currently working in the Hutt Valley is 56,000. Employment growth out to 2021 is projected to be around 2% per annum in Lower Hutt and around 1.4% in Upper Hutt.

Manufacturing is the dominant industry in the Hutt Valley. However, while it is likely to continue to be a key industry for some time, manufacturing is experiencing a decline similar to the national trend. The current growth industries in the Hutt Valley are healthcare, construction and other service related industries.

Economic growth as measured by GDP per capita has grown by 1.6% per annum in Lower Hutt and 0.7% per annum in Upper Hutt over the period 1994 to 2009 (BERL). For Upper Hutt, the decreasing trend since 2005 is attributed in part to closure of the South Pacific Tyre factory in 2006 and the relocation of some defence force personnel in 2009.

## Land use

Statistics NZ estimates that there will be between 6,200 and 10,300 new households in Hutt City by 2031 under the medium to high projections<sup>1</sup>. While most easily available land with good transport links has already been developed there is land available for infill subdivisions in Wainuiomata, Stokes Valley, and parts of the valley floor. Hutt City Council's District Plan seeks to encourage a greater proportion of well located intensive housing within existing areas to cater for smaller households and to minimise energy and transport costs. Its Vision CBD 2030 and CBD Making Places strategies also reinforce the important role of the city centre in providing for further residential, business and retail growth.

Wellington City is predicted to continue growing at a faster rate than much of the rest of the region (26,000 – 34,000 new households by 2031 under medium – high projections). A major part of this growth is greenfield development on the northern fringes of the city. Wellington City Council's District Plan has identified a large development site at Lincolnshire Farm, located north of Grenada village and west of Horokiwi. A structure plan has been developed for a residential and business park at this location. It is envisaged that this will accommodate 1000 or more dwellings and over 30 hectares of employment activities in future. Some early subdivisions of this land have already been approved and are under construction.

Statistics NZ estimates that there will be between 2,200 and 4,100 new households in Upper Hutt by 2031 under the medium to high projections<sup>2</sup>. Upper Hutt's Urban Growth Strategy suggests that half of these will be provided for within existing residential areas, and the remainder within a new greenfield subdivision proposed at Maymorn.

The Wellington Regional Strategy identifies eight regional 'focus' areas that are likely to come under development pressure or which represent an opportunity to plan collaboratively for future growth. Two of these focus areas are located in the Hutt Valley. These are 'Grenada to Gracefield' and 'the area from the SH2/SH58 interchange to Upper Hutt City centre'.

In Lower Hutt, the Seaview/Gracefield area is the region's primary industrial and logistics centre and generates significant travel demands, particularly for heavy commercial vehicles. Hutt City has a proposed vision for the area to 2030 which is to grow these types of activities and to provide for better heavy commercial vehicles access between Seaview/Gracefield and key freight destinations such as Centreport, Wellington City CBD, north Wellington, Porirua and other destinations further north.

In Upper Hutt there are several regionally significant sites with opportunities for commercial/industrial/recreational development at St Patrick's Silverstream, the former General Motors site in Trentham, the AgResearch site at Wallaceville, and potential for intensive residential development around transport nodes/centres in Trentham and Upper Hutt CBD.

<sup>1</sup> Statistics NZ projections published in 2009 and based on a 2006 estimate of household number.

<sup>2</sup> Statistics NZ projections published in 2009 and based on a 2006 estimate of household number.

## Freight

The freight task is expected to double in the Wellington region by 2031 according to the National Freight Demand Study (2008). Wellington has a high proportion of short truck based trips which comprise a large number of the trips within region. These trips are concentrated on SH1 from Ngauranga to Wellington City and SH2 from Ngauranga and Upper Hutt. A significant proportion of these trips are to and from the Seaview / Gracefield area in Lower Hutt, travelling along the Petone Esplanade.

70% of all people commuting into Wellington City from outside the City commute from the Hutt Valley. Therefore there are competing demands between freight and commuting trips along the Hutt Corridor during peak periods.

## Public Transport

There has been an overall steady increase in public transport patronage on Hutt Valley rail and bus services over the past decade, although this has flattened off over the last few years. The rail network and complementary bus network provide important access within the Hutt Valley and to/from Wellington City (and other centres). Rail services have been adversely affected by poor reliability issues as a result of ageing rolling stock, track and signalling. Bus services travelling into Wellington City from Hutt Valley are often caught up in severe congestion on State Highway 2 and the urban motorway. Maintaining and increasing use of public transport relies on provision of reliable, comfortable and frequent services.

## Traffic volumes

Despite a flattening-off in traffic volumes over the past few years, research shows that the region's level of car ownership has been increasing steadily for decades and has continued to grow at a rate of 1.4% per annum<sup>3</sup> over the past ten years. Car ownership rates in the Hutt Valley are similar to those of the region. Certain areas of the Hutt Valley, such as Upper Hutt north and Lower Hutt east, have experienced stronger growth in car ownership than other areas, perhaps due to their distance from public transport. However, changes in fuel price and the availability of alternative fuels or electric vehicles will be likely to have a significant effect on future demand for private vehicle use.

Nationally, traffic volumes grew at around 4.3% per annum up until 2005, and have stabilised since then. Traffic volumes on both SH2 and SH58 reflect this national trend. Through the Hutt Corridor traffic volumes on State Highway 2 increase as you travel south starting at around 15,000 vehicles per day north of Silverstream through to around 67,000 vehicles per day at the southern end (between Petone and Ngauranga).

Historically, there has been steady growth in heavy commercial vehicle volumes on state highways of around 6.5% p.a. nationally. This trend has flattened off since 2005. Heavy vehicle volumes on SH2 over recent years reflect this national trend with a small decrease since 2006. Volumes on SH58 have shown a slight increase since 2006 with fluctuations in volumes along the length of SH58.

There are high numbers of heavy vehicle trips on Petone Esplanade, which has heavy vehicle volumes of around 3000 per day, accounting for around 10% of total traffic volumes on this route. This is much higher than 6% north of Petone on SH2, and 3% south of Petone on SH2.

<sup>3</sup> Cars per person – the rate is 1% per annum for cars per household.



## Walking and cycling

Use of walking and cycling for journeys to work is declining in the Hutt Valley and is below the regional average. This may be related to longer distances travelled to work by Hutt Valley residents. Some sub-areas in the Hutt Valley have good proportions of active mode trips for education purposes. There is a need to continually improve walking and cycling facilities through the corridor to encourage as many shorter trips as possible by these modes, including north-south facilities through the valley, facilities to/from key destinations, and enhancing pedestrian and cyclist access east-west across State Highway 2.

## Climate change

The impact of climate change on the transport network is a very relevant long term issue for the Hutt transport corridor. The Hutt Valley relies heavily on the section of State Highway 2 and the Wairarapa railway line between Petone and Ngauranga for access to the Wellington City CBD, the Port and the International Airport. Evidence suggests that rail services are already vulnerable to delays or cancellations on an annual basis as a result of storm surges affecting this section of track. With expected increases in sea levels combined with more frequent and severe storms the impacts are likely to be more significant in future. SH58 is also vulnerable to the impacts of climate change where it runs along the Pauatahanui Inlet, as is the Esplanade along the Petone foreshore.

## Safety

Historically there has been a decreasing trend in road crashes resulting in injury within the Hutt Valley. However, from 2005 to 2008 there was an increasing trend, but in 2009 and 2010 the number of injury crashes reduced down to 2006 levels. This improvement should be viewed in context of what remains a high total number of injury crashes, over 1,000 in the 2009 year, on our road network.

The following are some of the main areas of concern:

- SH2: Melling Interchange to SH2/58 (including the Kennedy Good Bridge interchange), and Horokiwi to Ngauranga
- SH58, Grays Road and Akatarawa Road: High crash rates for the volume of traffic along the route.

An increasing trend in the crash rate for cyclists and motorcyclists in Hutt Valley reflect a similar trend to the regional average. Pedestrian crash rates in Hutt Valley are fluctuating and are similar to the regional crash rate.

## Land use and transport integration

The draft Hutt Corridor Plan has been developed in the context of the policy framework provided by the various regional strategies and policy statements, such as the Regional Land Transport Strategy, Wellington Regional Strategy and Regional Policy Statement. The Plan takes account of the guidance they provide around land use and transport integration. Key policy directions include the importance of compact urban form, a strong CBD supported by sub-regional centres, encouraging growth in areas with good access to transport networks/hubs and local amenities, and improving east-west connections.

Local land use plans and growth strategies have also informed the Plan's development. Local decision making under the Resource Management Act and District Plans are crucial to land use and transport integration, to ensure land uses are located in the right places so that they are well connected and complement our investment the transport network.





## Strategic Context

The long term vision for this corridor described in the RLTS 2007-2016 is:

*Along the Hutt Corridor from Ngauranga to Upper Hutt, State Highway 2 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 the majority of people using passenger transport to commute along this corridor during the peak period. Maximum use of the existing road network will be achieved through measures giving priority to buses and addressing severe traffic congestion. 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. East-west connections between this corridor and other corridors and regional centres will be efficient, reliable and safe.*

The RLTS also contains the following region wide strategic outcomes:

- ➔ Increased peak period passenger transport mode share
- ➔ Increased mode share for pedestrians and cyclists
- ➔ Reduced greenhouse gas emissions
- ➔ Reduced severe road congestion
- ➔ Improved regional road safety
- ➔ Improved land use and transport integration
- ➔ Improved regional freight efficiency.

The following inter-regional outcome has been developed as part of the current RLTS update:

- ➔ Improved safety, efficiency and reliability of strategic road and rail links to the north.

A number of current central government policy documents such as the Government Policy Statement on Land Transport Funding (and the priority given to Roads of National Significance) and Safer Journeys 2020, and NZ Transport Agency (NZTA) documents currently under development such as the State Highway Network Strategy and draft State Highway Classification also contribute to the context within which this plan has been developed.

## Hutt Corridor Objectives

The following objectives for the corridor plan were developed with reference to the strategic framework and the more specific pressures and issues relevant to this corridor:

- Provide for future growth (population/ employment/ freight) in the Hutt Corridor in accordance with Wellington Regional Strategy and Regional Policy Statement
- Reduce severe congestion on the road network, including focussing on congestion 'hotspots' between Ngauranga and Petone, the Ngauranga Interchange, and the Petone Esplanade/SH2 intersection
- 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.

## What we plan to do

The Hutt Corridor Plan needs to respond to expected future population and employment growth and associated distribution. This means we need to use the best information available from sources such as Statistics NZ and work done during development of our Wellington Regional Strategy (WRS) to understand how the future transport network will need to support the movement of people and freight. Local growth strategies and District Plans also provide direction about where future growth will be located within the various local authority areas and this corridor plan assumes that local land use will be managed in accordance with local planning documents.

We acknowledge there are many uncertainties about how the market may respond to future external influences such as fuel price, new technology, industry changes or to new infrastructure elsewhere on the regional network - such as construction of Transmission Gully. Therefore the plan, while providing for current issues and projected future pressures as best we can define them today, will need to be as robust as possible to accommodate a degree of change under possible future growth scenarios. However, it should be noted that we cannot plan for unknown futures and if what we currently understand about future growth changes significantly over coming years, we will need to review the corridor plan.

Evidence suggests that transport infrastructure can help shape growth and make a positive contribution to economic development when it resolves isolation and bottleneck issues and where a sound economic basis (and other required location drivers for businesses) already exists for growth. However, without these preconditions, investment in transport infrastructure and the provision of services cannot be assumed to automatically lead to economic growth. It will therefore be important to recognise all the relevant drivers for growth and give appropriate weight to past and planned patterns of growth as part of the corridor plan review.

A number of comprehensive transport studies have been prepared since the previous corridor plan was adopted that provide useful information about potential improvement projects and packages to address the issues for this corridor. While the corridor would benefit from all of these projects to some extent, we are constrained by available funding and resources and therefore it is necessary to consider which projects are both effective and affordable as the best package of measures to be included in the Hutt Corridor Plan.

## Providing for existing activity, future growth and severe network congestion

The WRS identifies the need for a strong Wellington City CBD and sub-regional centres. Supporting this requires a reliable and efficient transport network connecting existing established centres where people live and work, and supporting growth within these centres and surrounding catchment areas.

A significant issue for the corridor is the heavy demand and pressure on the transport network by both commuters (road and rail) and freight on the section of the network south of Petone (and along Petone Esplanade). A similar situation exists with respect to SH1 south of Tawa. Even with changes in technology, lifestyles, and emerging patterns of jobs and industry locations - Wellington City CBD, the Port and the Airport are still expected to be the key trip attractors for commuters and freight for the foreseeable future.

Continuing with the package of improvements on our rail network to increase its capacity, frequency, speed and reliability is therefore very important to ensure we give people an attractive and efficient public transport option for travelling to and from the CBD. Ensuring a complete and attractive off-road walking/cycling path between Petone and Ngauranga and through the Hutt Valley is also an important element of providing mode choice.

In terms of our road network, the strategic options for addressing severe congestion on this part of the network (in addition to promoting mode shift to public transport wherever possible) are to optimise the efficiency of the existing network, provide additional capacity on SH2 south of Petone, and to improve east – west linkages to remove any unnecessary trips on SH2 and SH1 using Ngauranga interchange.

Two approaches were considered to improve east-west connectivity. The first involves upgrading the existing SH58 route between the Hutt Valley and the Western Corridor (SH1). The second involves constructing a new east–west link, such as the proposed Petone to Grenada link road, and improved connections through to Gracefield.

Increasing capacity on SH58 (through 4-laning and grade separation) will remove congestion and reduce travel times on the route itself, with benefits to those travelling between Kapiti/Porirua north and the Hutt Valley. It would also support future industrial growth in Upper Hutt in terms of any freight movement to/from the north. However, increasing capacity on SH58 will have no impact on the areas of severe congestion and heaviest traffic volumes, at the southern end of the corridor between Petone and Ngauranga, as the travel time improvements are insufficient to attract significant numbers of trips off SH2 and SH1.

Building a new link between north Wellington and Lower Hutt would provide a new direct connection between key population and employment centres. It would significantly reduce trip distances, journey times and remove the need for trips between these centres to use the section of SH2 south of Petone. This would have a significant contribution to reducing traffic volumes along this stretch of SH2. Traffic reduction benefits would apply to SH1 between Tawa and Ngauranga. Economic growth would also be facilitated through provision of new direct links to industrial areas at Seaview, Porirua and Lincolnshire Farm. This option would also result in some traffic volume reductions on SH58, providing minor travel time benefits on this route.

However, even with traffic reductions on the section of SH2 south of Petone achieved by a new Petone to Grenada link, the constraints at Ngauranga where SH1 and SH2 merge will continue to cause congestion issues on SH2 upstream (north) of Ngauranga. The Ngauranga to Aotea project being progressed by NZTA may offer some relief to this section of the highway through the operation peak time clearways southbound (and northbound) along the urban motorway between Ngauranga and Aotea. This should assist in relieving some congestion at the Ngauranga merge and upstream on SH2.

Several options for optimising the capacity of the existing road network between Ngauranga and Petone were considered including options for high occupancy vehicle (HOV) lanes. There are both successful and unsuccessful examples of high occupancy vehicle (HOV) lane schemes both in New Zealand and overseas. A number of factors influence their success including characteristics of the road network, design and management of the lanes, level of congestion,

availability of alternative routes, supportive policies and more. However, the general consensus in international research is that well designed and managed HOV lanes can have a positive contribution, but only as part of a wider package of transport improvements.

Successful HOV lanes increase the person carrying capacity of a section of road by encouraging higher vehicle occupancies and more efficient use of road space. A modest reduction in overall traffic levels can be achieved as a result of successful HOV lane schemes (in the vicinity of 2-10%), although in many examples worldwide it has been found that traffic volumes returned to previous levels within a few years as a result of induced traffic (new trips that would not have previously been made at that time/location). Another possible effect of HOV lanes is to encourage public transport users to switch back to private vehicle use so that they can benefit from any HOV lane time savings.

There are many cautions in the international research about attempting to implement HOV lanes as a sole solution to address severe traffic congestion, and in particular the scenario of converting an existing lane of traffic to a HOV lane. While improved journey times as an incentive to ride sharing are consistent with travel demand policies, significantly worsening congestion in other general traffic lanes may not be acceptable in terms of other regional transport policies. In the Hutt Corridor example, single occupant commuters travelling between north Wellington and the Hutt Valley (or vice versa) would be likely to be affected by worse congestion, yet may have few options currently in terms of a public transport alternative, and car sharing may be more difficult where the trip origin/destination is more diverse. Creating a new (possibly tidal) lane which can be utilised to provide journey time benefits to high

occupancy vehicles without significantly worsening existing congestion is likely to be a more acceptable solution in this context.

Further research is underway to examine the feasibility of HOV lanes and their potential application within the Hutt Corridor. However, the information available to date indicates clearly that whilst HOV lanes may be an option, they are unlikely to be successful unless part of a comprehensive set of transport improvements. As such, they should not be considered as an alternative to the other projects within the Hutt Corridor Plan.

Other options for increasing capacity on SH2 south of Petone are very limited. Constructing a permanent additional lane in each direction between Petone and Ngauranga was investigated but was found to have very significant costs associated with the required hillside excavation on one side and foreshore reclamation on the other side.

Longer term options to increase capacity along SH2 south of Petone will require further investigation once short-medium term road and rail improvement measures are in place. This may involve looking again at significant land reclamation works between Ngauranga and Petone, and understanding the benefits relating to road, rail, cycling and climate change impacts. A high quality rail service to provide for increased commuter demand and to encourage mode shift will continue to be critical.

A new efficient east-west route across the lower Hutt Valley has been under consideration for many years. Options for improving access between SH2 and Gracefield were investigated in a 2004 MWH Study and in 2009/10 as part of the Ngauranga Triangle

Strategic Study. This included options to construct new links and upgrade existing links. A preferred option was identified as a new two-lane link road with provision for cyclists that connects Seaview / Gracefield to SH2 at the new Dowse Interchange on SH2. However, the option had relatively high costs and low benefits, giving it a low benefit/cost ratio under the NZTA standard evaluation. While Hutt City officers were able to identify wider economic benefits, they considered that these were extremely unlikely to be accepted by the NZTA for funding purposes. This means the burden of funding the project would fall solely on the local community and as a result it is not considered acceptable to pursue this option further. However, efficient access between the Seaview / Gracefield industrial area and State Highway 2 is still recognised as crucial. Therefore, Hutt City Council has decided to investigate minor improvement works along The Esplanade at Petone over the next ten years to maximise traffic efficiency of the route to minimise congestion and travel time variability as much as possible. This may include measures such as upgrading intersections, making some minor intersections left in/left out, and lane widening. Investigating a dedicated walkway/cycleway is also proposed.

An investigation commenced in October 2009 into grade separation of the Melling and Kennedy Good intersections on SH2. Preferred options for grade separating the interchanges were found, but with relatively high cost and low benefits (due to limited projected traffic growth on SH2), were not economically viable within 10 years. Therefore the projects will not be progressed further at this time. Instead the NZTA is investigating short-term improvement measures for SH2 which will help to



alleviate traffic congestion and improve safety until such time as the grade separation of Melling and Kennedy Good becomes economically viable. The short-term measures are under investigation and subject to a suitable option being found, will be implemented within the next three years.

Currently the section of SH2 north of Silverstream (River Road) is operating at capacity during the peak. NZTA and Upper Hutt City have studied this section and evaluated options for increasing the road capacity from the existing one lane in each direction with passing lanes to two lanes in each direction. The options varied in terms of alignment, i.e. using the existing River Road or providing a new alignment closer to the base of the western Hutt hillside. These options are however not economically viable within 10 years due to the high cost relative to the amount of traffic growth predicted.

A significant number of heavy vehicles carrying freight in the Hutt Corridor currently compete with commuter traffic on Petone Esplanade and SH2 south of Petone. An effective rail system for commuters between the Hutt Valley and Wellington City along with improving east-west connectivity to reduce pressure on this section of SH2 and provide a more direct link between key freight destinations is needed to provide for current and projected freight movement. One future scenario is that more significant growth in industrial activities could occur in areas such as Upper Hutt, Kapiti, or Wairarapa than forecast. This may mean an increased demand for heavy vehicles using the northern section of SH2. However, even under this scenario there will still be a significant number of trips (possibly involving more smaller trucks for distribution) to and from Wellington

City and the other sub-regional centres with their significant population base, and to access the Wellington Port and Airport. Industry location seeks agglomeration benefits gained when firms operate in close proximity to one another and is strongly influenced by distance to a quality workforce and the customers they serve. Therefore it is likely there will be a continuing dominant base of industrial activity in existing centres and industrial areas, particularly Lower Hutt, North Wellington and Porirua. Therefore addressing high demand and severe congestion on the southern section of SH2 by investing in rail and providing a new east-west link at the southern end of the corridor (as outlined above) is still considered to be a robust approach under such a future scenario.

### **Improving accessibility for all modes and between modes**

Improving the accessibility and connectivity of the transport network both within the Hutt Valley and with the wider network is an important objective of the Hutt Corridor Plan. In addition to improving road network accessibility and congestion relief, we need to enhance the efficiency, accessibility and connectivity of public transport, walking and cycling networks to ensure these provide good, realistic travel options.

We need to continue to invest in a fast, frequent, and reliable rail service to provide an attractive option for access along the key north-south corridor through the Hutt Valley. The rail corridor connects many centres and the Wellington City CBD. Providing park and ride facilities and station upgrades are also important

for integration of rail with other modes. The planned rollout of real time information and implementation of a comprehensive integrated ticketing scheme for the region will enhance public transport through the corridor.

Ongoing public transport service reviews are essential to ensure that bus and rail services in the Hutt Valley respond to growth and changing needs for local accessibility. There is also need to continue to look for opportunities to provide more direct public transport links between the Hutt Valley and communities along the Western Corridor. The proposed new Petone to Grenada link road would provide good potential for a bus-based service.

For walking and cycling, the overall approach is to provide a good quality, off-road strategic north-south link through the Hutt Valley via the Hutt River trail and connecting to an off-road facility along the harbour edge between Petone and Ngauranga (linking to other routes to the south). There is also a need to improve local walking and cycling facilities, including better east-west connections across SH2, and on key local links.

## Improving road safety

Around 50 injury crashes and 230 total crashes occurred in 2010 along SH2. Over half of these were rear-end type crashes, reflecting the number and spacing of intersections along the route and the congested nature of traffic using the route. The NZTA has proposed a number of minor safety measures together with removing as many 'at-grade' intersections as possible long term through grade separated interchanges, which will not only improve traffic flows but should significantly reduce crash occurrence.

Typically between 10 and 20 injury crashes occur on SH58 every year. Although a relatively small number of crashes, it is a high number considering the relatively low traffic volumes. Over half of these crashes are loss-of-control or head-on type crashes, reflecting the winding and narrow nature of the route. An ongoing programme of safety improvements along SH58 is proposed, with particular emphasis on reducing the number of mid-block crashes which are predominant on this route. Local routes such as Grays Road and Akatarawa Road have similar or worse crash records than SH58. The plan includes projects which seek to improve safety on these routes.

Other road safety improvements, education, and promotion through local council programmes are important to contribute to safer local roads and safer facilities for pedestrians and cyclists in the Hutt corridor and contribute to the objectives of Safer Journeys 2020.

## Route security and network resilience

The corridor plan aims to ensure that our transport network is able to continue operating as effectively as possible when an incident occurs on one part of the network, or under a future scenario such as peak oil where fossil fuels become scarce or where there are significant impacts from climate change.

The key to long-term resilience is choice. Both in terms of a network that is well connected and offers good alternative routes, and in terms of multi-modal travel options that do not rely exclusively on one mode of transport. For this corridor and the wider strategic network, improving east-west connections is critical to overall route security and resilience. While there are alternative local routes within Lower Hutt and Upper Hutt to bypass certain sections of SH2, the only alternative route for the whole of SH2 from Ngauranga to Upper Hutt is via SH1, using SH58 or Akatarawa Road (or SH57 and SH3 via Palmerston North) to get back onto SH2. If an incident occurs on the stretch of SH2 between Ngauranga and Petone, the current options result in a very significant detour via

SH58 for those travelling between Lower Hutt and Wellington City or vice versa. Upgrading the existing SH58 east-west route to four lanes would certainly help this route cope with additional traffic during a diversion. However, it does not provide an alternative direct link between SH1 and SH2 that a new Petone to Grenada road would provide. For this reason, a new link road between Petone and Grenada is considered to contribute most effectively to this objective in terms of east-west improvements.

Ensuring good modal travel choices will also contribute to resilience under future scenarios like peak oil. The Plan contributes to this through our investment in a high quality electric rail system supported by a comprehensive bus network through the Hutt corridor, together with improvements to make walking and cycling easier and safer.

## Measures within the corridor

The Plan defines a number of measures for improvements to the transport infrastructure within the corridor. The measures have been grouped into those that should be completed within the next ten years, and longer term measures that should be investigated over the next ten years and then programmed to be implemented as conditions and funding allow.

Timing has taken account of the most recent Wellington Regional Land Transport Programme (2009-2012), but also reflects updated information about projects and timing provided by the relevant road controlling authority or network manager.

The most recent advice from the funding agency, NZTA, has also influenced the timings of actions in the Plan. As a result of the number and timing of higher priority projects in the national programme, some projects in the Hutt Corridor are facing delays and deferrals. This has meant that some of the projects within the Plan are timed later than previously indicated and others are now programmed beyond 10 years.

Funding for the measures is expected to be a mix of national and local sources. Funding sources are determined through the Regional Land Transport Programme and National Land Transport Programme in accordance with the requirements of the Land Transport Management Amendment Act 2003.

# Overview diagrams

FIGURE 1: HUTT CORRIDOR - MEASURES TO BE IMPLEMENTED WITHIN 10 YEARS.

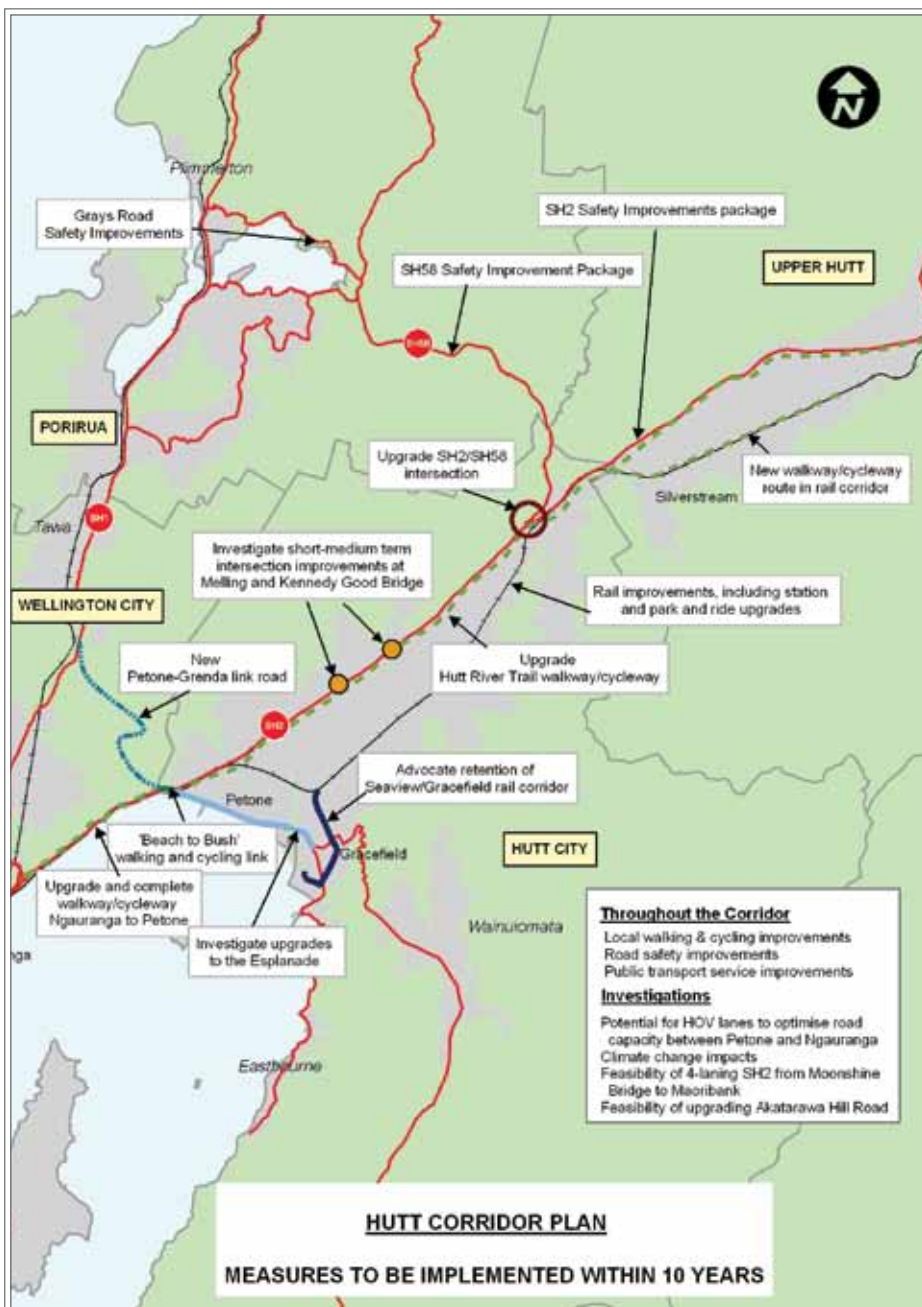
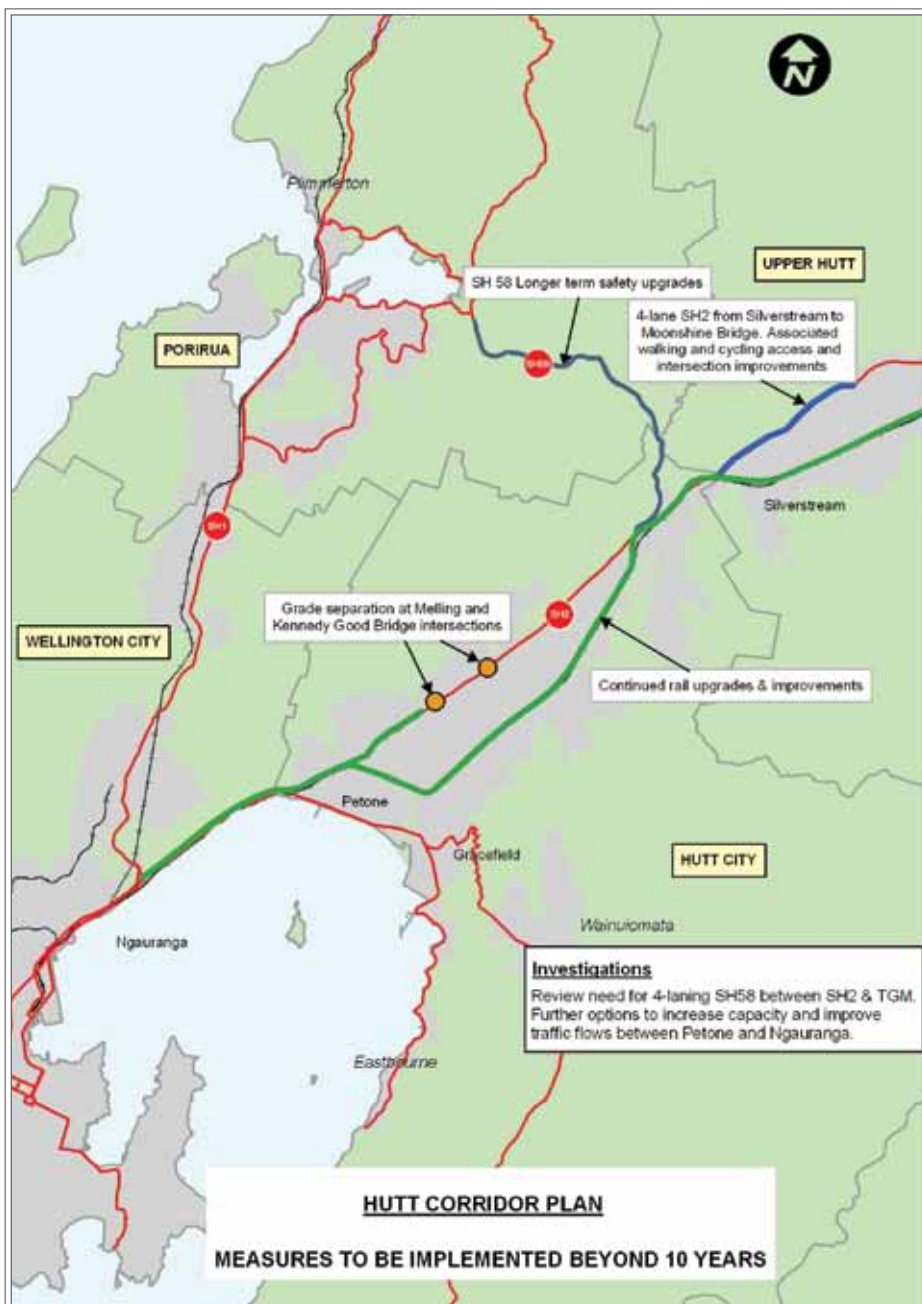


FIGURE 2: HUTT CORRIDOR - MEASURES THAT MAY BE IMPLEMENTED (BEYOND 10 YEARS).





## Measures to be implemented within 10 years

ACTION	RESPONSIBILITY	INDICATIVE IMPLEMENTATION COST
Complete a scheme assessment of the "Petone" package to comprise of: <ul style="list-style-type: none"> <li>➔ A new link road between SH2 at Petone and SH1 at Grenada</li> <li>➔ Demand management measures, such as ramp signalling at Ngauranga and Petone</li> <li>➔ 'Beach to Bush' walking and cycling connection at Petone interchange</li> </ul>	NZTA HCC WCC	\$6M
Implement the recommended "Petone" package from the Scheme Assessment	NZTA	\$254M
"Esplanade" package  Investigate options for a staged upgrade of The Esplanade, Petone to maximise traffic efficiency. Includes investigating a dedicated walkway / cycleway	HCC	TBC
Implement appropriate upgrades to The Esplanade identified as a result of investigations	HCC	Approx \$13M
Implement improvements at the SH2 / SH58 intersection to address congestion issues and safety risks	NZTA	\$40M
Complete investigations into short-medium term improvements at Melling and Kennedy Good Bridge intersections with a focus on improving traffic flow and safety	NZTA HCC GWRC	\$2.1M
Construct any identified short-medium term improvements	NZTA	TBC

<p>Rail Improvements Package:</p> <p>Implement the outstanding improvements in the base case scenario of the Regional Rail Plan, including:</p> <ul style="list-style-type: none"> <li>➔ Refurbishing existing Ganz Mavag carriages</li> <li>➔ Station upgrades (including pedestrian and accessibility improvements) and park and ride upgrades</li> </ul>	GWRC	<p>\$80M for GMs</p> <p>\$2.5M per year for station upgrades</p>
<p>Implement further improvements to the rail system through the corridor, consistent with the region's rail plan. For example, increasing capacity, frequency, and reliability through ongoing rolling stock and infrastructure upgrades to accommodate demand and encourage mode shift</p>	GWRC	To be determined
<p>Public Transport Service Review:</p> <p>Undertake a review of public transport services in, out and within the Hutt Valley to improve overall level of service and to ensure that services are operating effectively and efficiently. The review should include consideration of the most effective location for Hutt City's central bus terminal</p>	GWRC HCC	Administrative
<p>Advocate for the retention of the Seaview/Gracefield rail corridor for potential future freight movements</p>	GWRC HCC	Administrative
<p>Strategic walking and cycling improvement package:</p> <p>Upgrade the off-road cycleway/walkway between Ngauranga and Petone. One option under investigation includes improving the existing off road cycleway from Ngauranga to Horokiwi, a connection across the railway lines, and a new off-road facility on the seaward side of the rail between Horokiwi and Petone</p>	NZTA	\$14M
<p>Upgrade the Hutt River Trail between Upper Hutt and Petone to provide a good level of service for commuter cyclists and pedestrians as an alternative to SH2</p>	UHCC HCC	To be determined
<p>Implement a walking and cycling route within the Upper Hutt rail corridor to provide direct access for these modes between Upper Hutt CBD and schools along the route from Silverstream to Maoribank</p>	UHCC	To be determined
<p>Implement the relevant initiatives of the regional walking, cycling, travel demand management, and road safety plans</p>	GWRC TAs NZTA	As set out in the complementary plans

## Measures to be implemented within 10 years

<p>SH2 Safety Improvements Package:</p> <p>Protect or remove roadside hazards on SH2 between Petone and Ngauranga to address current safety risks to road users</p> <p>Implement the following safety improvements on SH2 from Melling to Moonshine Hill Road: improving road friction at traffic signal controlled intersections and installing a median barrier between Moonshine and Silverstream</p>	<p>NZTA</p> <p>Approx \$0.5M</p> <p>NZTA</p> <p>\$10M</p>
<p>SH58 Safety Improvements Package:</p> <ul style="list-style-type: none"> <li>➔ Spinnaker Drive intersection treatment</li> <li>➔ Moonshine to Pauatahanui Minor Safety Improvements</li> <li>➔ Extending uphill passing lane on Haywards Hill</li> </ul> <p>Improvements should include features that also improve safety for pedestrians and cyclists wherever possible</p>	<p>NZTA</p> <p>Approx \$10 –15M</p>
<p>Grays Road Safety Improvements Package:</p> <p>Implement safety improvements along Grays Road, including geometric and road surface improvements at high risk locations identified through local road safety investigations work</p>	<p>PCC</p> <p>Approx \$0.2M</p>
<p>STUDIES AND INVESTIGATIONS TO BE COMPLETED PRIOR TO NEXT REVIEW OF THE CORRIDOR PLAN:</p>	
<p>Investigate the feasibility of utilising high occupancy vehicle lanes to optimise the road capacity on State Highway 2 between Petone and Ngauranga</p>	<p>NZTA</p> <p>To be determined</p>
<p>Investigate risk mitigation responses to the effects of climate change on key transport infrastructure within the Hutt Corridor, based on current regional studies to be completed by VUW, GWRC, and NIWA/NZTA. Works required to implement short-medium term responses to these effects to be included for in local planning and asset management</p>	<p>GW NZTA KiwiRail HCC WCC</p> <p>To be determined</p>
<p>Determine feasibility of advancing preferred option for a 4-lane road arrangement on SH2 between Maoribank and Moonshine Bridge</p>	<p>NZTA</p> <p>To be determined</p>
<p>Determine the feasibility of advancing the preferred option for improving the alignment of Akatarawa Hill Road as identified in the recent 2009 study</p>	<p>UHCC</p> <p>To be determined</p>

## Measures that may be implemented beyond 10 years

MEASURE	RESPONSIBILITY	INDICATIVE IMPLEMENTATION COST
Complete a scheme assessment for the grade separation of Melling and Kennedy Good Bridge intersections and implement the recommended upgrade option	NZTA	TBC
<p>Implement the following safety improvements along SH58:</p> <ul style="list-style-type: none"> <li>➔ Haywards Hill to Moonshine Road seal widening and median barrier</li> <li>➔ Improve road alignment on Haywards Hill</li> <li>➔ Moonshine Road roundabout</li> <li>➔ Flightys Road roundabout</li> </ul> <p>Improvements should include features that improve safety for pedestrians and cyclists where physically possible</p>	NZTA	Approx \$40 - 55M
<p>Complete a scheme assessment of the “Silverstream” package to comprise of:</p> <ul style="list-style-type: none"> <li>➔ 4-lane arrangement of SH2 from Moonshine Bridge to Silverstream</li> <li>➔ Intersection improvement at Silverstream exit</li> <li>➔ Walking and cycling access along and across SH2</li> </ul>	NZTA	\$1.3M
Implement the recommended “Silverstream” package from the Scheme Assessment	NZTA	\$100M+
Continue to implement improvements to the rail network consistent with the region’s rail plan	GWRC	To be determined
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/SH2 intersection	NZTA	To be determined
Upon completion of works between Ngauranga and Aotea and the construction of a new link road between Petone and Grenada, investigate further measures to improve traffic flows on SH2 Petone and Ngauranga, considering the benefits to rail and road of land reclamation	NZTA HCC WCC	To be determined

## Indicative Project Timings<sup>4</sup>

PROJECT/PACKAGE	2009 – 12			2012 – 15			2015 – 18			2018 – 21		
<b>Strategic walking and cycling improvement package:</b>												
Ngauranga to Petone walkway / cycleway upgrade												
Upgrade the Hutt River Trail												
New walking / cycling route along Upper Hutt rail corridor												
<b>Rail Network Improvements package:</b>												
Refurbish Ganz Mavags and station / park n ride upgrades												
Implement further rolling stock & infrastructure upgrades												
<b>Public Transport Service Review</b>												
SH2/SH58 intersection upgrade												
SH2 Safety Improvements Package												
Greys Road Safety Improvements Package												
Melling investigations												
"Petone" package												
"Silverstream" package												
SH58 Safety upgrades												
"Esplanade" package												

<sup>4</sup> Note striped box indicate the investigation phase, solid boxes indicate design and construction phases.



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