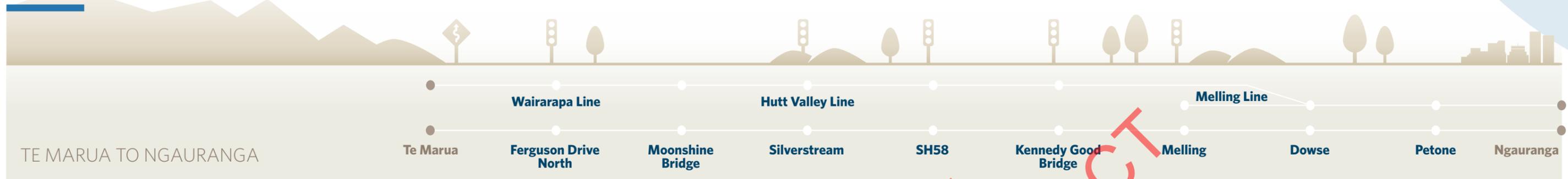


SH2 TE MARUA TO NGAURANGA RECOMMENDED PROGRAMME



RECOMMENDED PROGRAMME The recommended programme includes investment for rail, road, bike, bus and foot as well as considering access, land use and travel demand management.

Outcomes

- 60 fewer deaths and serious injuries over 10 years
- 5 fewer closures over 5 years
- 30% improvement in reliability
- 7-12 min average travel time saving (road)
- 6 min journey timesaving (PT) (10 min regular services)
- 60% increase in capacity during peak hours for rail services

Programme investment profile
H/H/0.9-2.0
Programme cost range
\$1.4 - \$2.1b (incl rail)

THEME	Corridor and intersection safety improvements (including four laning to Upper Hutt)		Multi-modal corridor improvements focusing on public transport, managed motorway and intersection grade separation						
	Rail: improvements focusing on improved capacity, frequency and reliability (rail scenario 1 and 2) and journey time (rail scenario A). Bus and active modes: more frequent bus services, improved public transport and active mode integration and improved walking and cycling links.		Non-Infrastructure: Improved travel demand management (eg regional ticketing, behaviour change initiatives), access management and integrated land use planning.						
	Upper Hutt to Trentham double tracking		Upper Hutt to Silverstream four laning		Kennedy Good Bridge grade separation		Melling grade separation		Wellington to Hutt Valley Cycleway
	Intersection improvements (including Whakatiki St)		Intersection grade separation						
	Roading, walking and cycling, and other non-public transport initiatives								
Cost	\$10-30m	\$110-205m	\$40-65m	\$50-90m	\$95-175m	\$120-235m	\$40-65m	\$270-340m	
BCR	<1	<1	1-3	1-3	1-3	1-3	1-3	1-3	1-3
	Public transport and travel demand management								
Cost	\$530-705m								
BCR	1-3								

SH2 TE MARUA TO NGAURANGA

The Wellington region is the third biggest in New Zealand, accounting for 11% of the population and 12% of the workforce. It is also the second-largest economy and contains the centre of Government and large social services and business services sectors.

The two largest centres within the Wellington region are Wellington City and the Hutt Valley. Accordingly, the transport corridor between these two centres is vital to the economy of the Wellington region.

The corridor carries over 115,000 multi-modal commuters and 4,000 heavy vehicles and significant volumes of rail freight connecting to CentrePort, one of New Zealand's largest ports.

State Highway 2 (SH2) is a vital corridor in the national network, linking Wellington and Auckland along the east coast of the North Island.

However, the current transport link between Te Marua and Ngaranga is congested, unsafe and lacks resilience. Trips on SH2, that take 25 minutes in the off peak period, take between 35 and 65 minutes in the morning peak period. Rail journeys are typically on time, but the trains are approaching capacity. There have been almost 1,000 crashes on SH2 in the last 5 years, which resulted in 59 deaths and serious injuries.

The corridor is also at risk of flooding, landslides, tsunami, climate change impacts, earthquakes and liquefaction. In the last five years the highway and rail lines have been closed on multiple occasions, including a storm in June 2013 which washed out the rail line for over a week. These events result in significant disruption to commuters as there is no simple, alternative route.

The strategy for this section of SH2 is to improve the performance of the transport corridor by:

- Improving capacity on rail
- Improving levels of service for cyclists
- Improving capacity on road
- Reducing demand for peak hour travel
- Improving road safety
- Improving resilience of the network

There is a critical dependency to upgrade the public transport network (particularly rail) prior to investing in significant corridor wide state highway improvements, to provide the public a viable alternative mode of transport during periods of significant disruption as the SH2 corridor is developed. The public transport component of the programme is estimated to be in the region of \$530-\$705m.

Wider system benefits of the recommended programme will be dependent upon the final form and strategic approach taken to the Ngaranga to Airport business case ("Let's Get Wellington Moving") which is currently underway.

PROGRAMME MULTI-CRITERIA ASSESSMENT

The programmes are different combinations of activities. Alternative programmes were developed and assessed against the investment objectives and other criteria.

	Objective	Baseline	Programme 1 Do-minimum	Programme 2 Base (+ do-minimum)	Programme 3 Roading do-maximum	Programme 4 Maximise existing assets (+ base) / optimisation	Programme 5 Public transport / travel demand management 1 (+ base)	Programme 6 Public transport / travel demand management 2 (+ PT/TDM 1)	Programme 7 Safe system (+ base)	Programme 8 Multi-modal - low (+ base)	Programme 9 Multi-modal - medium (+ multi-modal - low)	Programme 10 Multi-modal - high (+ multi-modal - medium)
Investment objectives	Improve travel time reliability Reduction in 95th percentile travel time	65 mins AM peak 95th percentile travel home	Neutral	Minor benefit	Major benefit	15-25% Minor benefit	Minor benefit	20-40% Moderate benefit	Minor benefit	15-25% Minor benefit	30-45% Moderate benefit	40-55% Major benefit
	Improve public transport punctuality	Rail: 93% on time (HVL) 20min peak services (HVL) 14,000 peak capacity Bus: 5-10min avg lateness	Neutral	Minor benefit	Moderate disbenefit	10min peak services, +60% peak capacity, Moderate benefit	Major benefit	10min peak services, +60% peak capacity, 6min journey reduction, extended network reach, Major benefit	Minor benefit	10min peak services, +60% peak capacity, Moderate benefit	10min peak services, +60% peak capacity, 6min journey reduction, Moderate benefit	10min peak services, +60% peak capacity, 6min journey reduction, extended network reach, Major benefit
	Improve road safety DSI saved/5 years	59 DSI in the last 5 years	Neutral	Minor benefit	Major benefit	<20 Major benefit	Minor benefit	<10 Moderate benefit	Major benefit	<20 Major benefit	25-30+ Major benefit	30+ Major benefit
	Improve quality of infrastructure KiwiRAP star rating	3-4 star KiwiRAP rating	Neutral	Minor benefit	Major benefit	4+ Moderate benefit	Minor benefit	3-4 Minor benefit	Major benefit	4+ Moderate benefit	4.5 Major benefit	4.5+ Major benefit
	Improve resilience Number of closures	7 closures in the last 5 years	Neutral	Moderate benefit	Major benefit	2 Moderate benefit	Moderate benefit	2 Moderate benefit	Moderate benefit	2 Moderate benefit	2 Moderate benefit	1 Major benefit
	Stakeholder ranking (Shortlisted programmes include further detailed outcomes)		-	-	-	Shortlisted	-	Shortlisted	-	Shortlisted	Recommended	Shortlisted
Implementability risks (feasibility, affordability, public/stakeholder)			Low	Low	Very high	Medium	Medium	Very high	High	Medium	High	Very high
MCA	Safety		Neutral	Minor benefit	Major benefit	Major benefit	Minor benefit	Moderate benefit	Major benefit	Major benefit	Major benefit	Major benefit
	Economy		Neutral	Minor benefit	Major benefit	Minor benefit	Minor benefit	Moderate benefit	Minor benefit	Minor benefit	Moderate benefit	Major benefit
	Environmental		Neutral	Minor disbenefit	Major disbenefit	Neutral	Neutral	Moderate disbenefit	Neutral	Minor disbenefit	Minor disbenefit	Moderate disbenefit
	Social		Neutral	Moderate benefit	Minor disbenefit	Minor disbenefit	Minor benefit	Minor benefit	Neutral	Minor benefit	Neutral	Minor benefit
	Cultural		Neutral	Minor disbenefit	Moderate disbenefit	Minor disbenefit	Neutral	Neutral	Neutral	Minor disbenefit	Minor disbenefit	Moderate disbenefit
Economics	Cost Range (\$m)		\$0	\$600 - \$800	\$1800 - \$2800	\$1100 - \$1600	\$1100 - \$1500	\$1400 - \$2000	\$900 - \$1400	\$1000 - \$1500	\$1400 - \$2100	\$2500 - \$3600
	Benefit Cost Ratio (BCR)			1.3 - 2.5	0.6 - 1.7	1.1 - 2.2	1.0 - 1.9	1.0 - 1.9	1.1 - 2.3	1.0 - 2.2	0.9 - 2.0	0.7 - 1.6
Note: Programmes include all costs and benefits of the Petone to Grenada Link Road											Recommended programme	

Stakeholders selected programme 9 as the recommended programme on the basis that:

- It provided a balanced solution across all investment objectives; delivering over 70% of the benefits for approximately half the cost of programme 10.
- It is likely to meet customer expectations in regards to improvements across all modes.
- It provides an appropriate response to the problems without including some larger infrastructure projects which are high risk, high cost and unlikely to be necessary.
- There was support and buy-in from the investment partners.

STAKEHOLDERS AND INVESTORS

Investment partners

- Greater Wellington Regional Council
- NZ Police
- KiwiRail
- Hutt City Council
- Wellington City Council
- Upper Hutt City Council

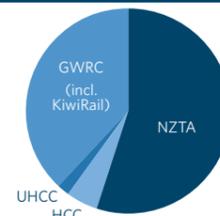
Stakeholders

- Automobile Association
- Wellington Lifelines Group
- Road Transport Association
- CentrePort
- Hutt Cycle Network

IMPLEMENTATION PARTNERS

We will partner with a range of organisations to deliver the recommended programme

- Greater Wellington
- Regional Council
- NZ Police
- KiwiRail
- Upper Hutt City Council
- Hutt City Council
- Wellington City Council



RISKS AND UNCERTAINTIES

Trigger	Time	Certainty	Impact	Comments
Petone to Grenada Link Road	5 years	More than likely	Very high	Petone to Grenada Link Road (P2G) will reduce demand on some SH2 sections, even more important once Transmission Gully is operational and more vehicles use SH58. If P2G is delayed or is unable to progress, other solutions will be required to mitigate the effects of high traffic volumes.
Ngaranga to Airport (N2A)	10 years	More than likely	High	Principal interdependency is the Ngaranga to Airport project (N2A). A cross-agency initiative to identify, plan and deliver integrated improvements across Wellington's transport system. Improvements on SH2 corridor need to be consistent with those proposed for N2A to ensure a coherent improvement strategy and consistent journey experience to and from Wellington.
Rail scenario funding	3 years	Reasonably foreseeable	High	Staged improvements on the Rail network are in line with Greater Wellington's current thinking: RS1 (capacity), then RSA (speed), then RS2 (capacity). This programme includes expedited delivery of RS1, to take pressure off the state highway before road improvements.
Land use development	10-20 years	Reasonably foreseeable	Medium	If very large subdivisions in Upper Hutt or Lincolnshire Farm are developed and have significant uptake, this will impact on traffic volumes and timing of projects in the programme.