

EXECUTIVE SUMMARY OF THE PETONE TO GRENADA EVALUATION REPORT

Background

It has long been recognised that a new road between Petone and Grenada is needed to improve the Wellington region's roading network resilience (both operationally and in the event of an earthquake), address the problematic congestion on SH1 and SH2 near the Ngauranga flyover, and to link and unlock new urban growth areas.

A preferred alignment for the link road was identified and communicated to the public in 2015 and since then the NZ Transport Agency has been developing a business case for the Petone to Grenada (P2G) Link Road.

The P2G project objectives are to:

- enhance local, regional and national economic growth and productivity for people and freight
- improve connectivity between the lower Hutt Valley and Johnsonville and Porirua
- reduce journey times and improve journey time reliability between the lower Hutt Valley, Ngauranga and Porirua, and on the Wellington state highway network
- enhance safety of travel on the Wellington state highway network
- enhance resilience of the Wellington state highway network and
- manage the immediate and long term social, cultural, land use and other environmental impacts of the project on the Wellington region and its communities by (so far as practicable) avoiding, remedying or mitigating any such effects through route and alignment selection, expressway design and conditions.

In light of significant natural events such as the Kaikoura and Wellington earthquakes, we undertook a comprehensive internal evaluation of the project. It is common practice for us to regularly review new proposals, particularly for large-scale, complex projects like the P2G Link Road.

The evaluated scheme

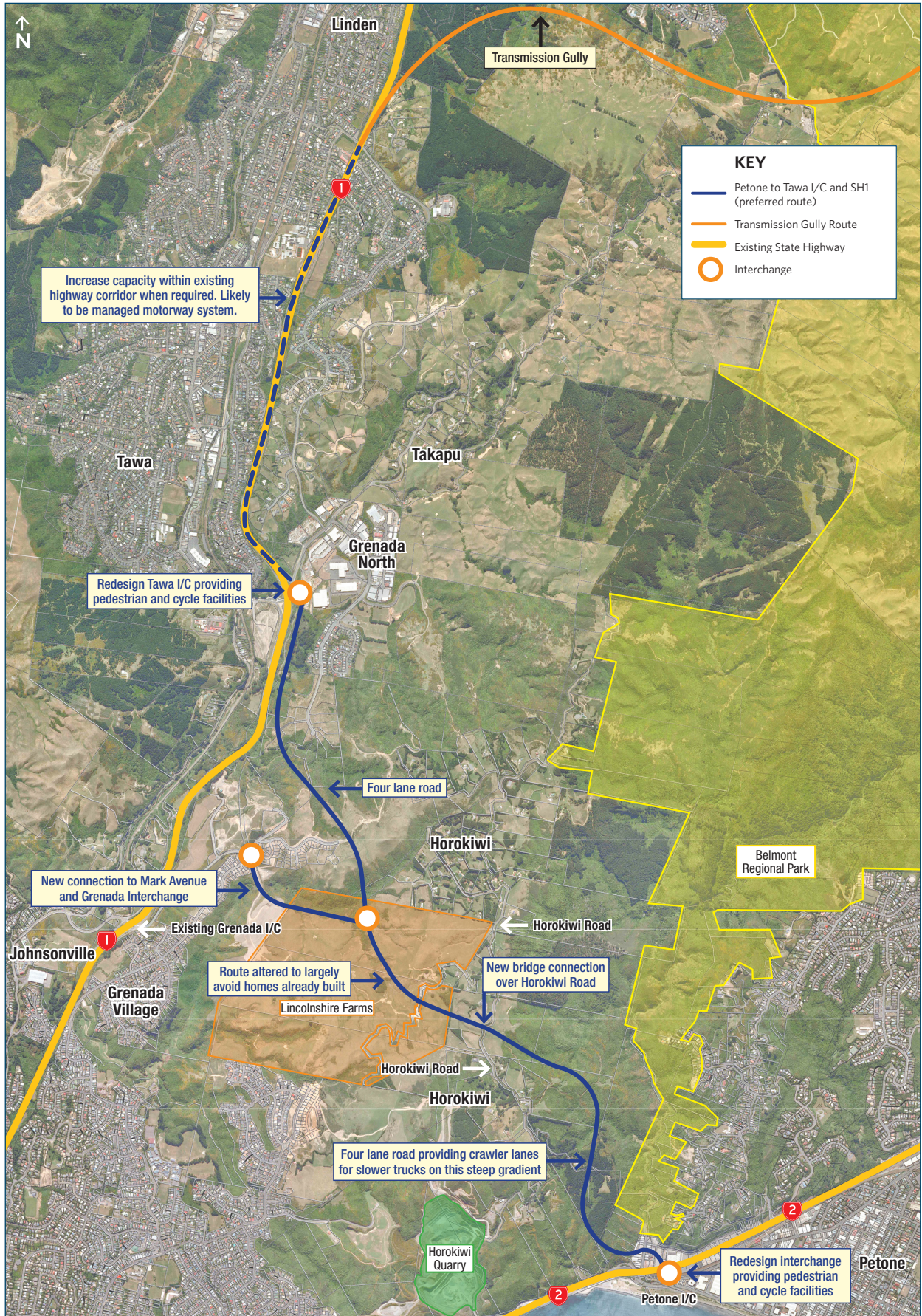
Selection of a refined scheme was based on a multi-criteria analysis (MCA) done in 2016. The major elements of this scheme included:

- 6.5km link road between Petone in the east and Grenada and Tawa in the west
- three interchanges at Petone/SH2, Tawa/SH1 and Horokiwi/P2G
- 1.5km additional works along SH1 and SH2 to accommodate the Petone interchange (SH2 widening to Dowse) and safety improvements on SH1 (realigning the 'Tawa curves')
- two lanes plus a crawler lane in each direction for the full length
- walking and cycling facilities along the full length in each direction.

Figure 1 shows the preferred alignment communicated in 2015. Figures 2 and 3 show an artist's impressions of the current Petone interchange and the evaluated interchange design. The design is characterised by very high cuts through the rock and a large footprint in the urban and natural environment.

Figures 4 and 5 show an artist's impressions of the current Tawa interchange and the evaluated interchange design.

Figure 1: 2015 Preferred alignment



Key evaluation findings

The evaluation examined the current P2G Link Road scheme's performance against the project objectives, its costs, key design decisions, anticipated environmental impacts and the interchange design options.

The project evaluation found that:

- the current alignment may not provide the lifeline resilience outcomes first anticipated because the very high vertical cuts would be susceptible to landslides following a major earthquake (7.5 magnitude)
- the project objectives may not reflect the high priority now being placed on resilience by local and central government
- expected costs could be significantly higher than first anticipated
- environmental impacts of the current design are significant and may be difficult to mitigate.

The drivers for these findings include:

- the physical location – the need for the road to traverse a steep coastal escarpment near a major fault line
- the design requirement for an expressway standard road
- projected traffic volumes for the new road, including that these projections hadn't allowed for any demand management tools to be used to manage the capacity requirement, such as bus lanes, high occupancy vehicle (HOV) lanes and tolling
- assumptions made about the scale of environmental impacts of the previously considered alignment options
- assumptions about how the P2G Link Road would connect and interact with the existing roading network.

Resilience

Overall the evaluation found the scheme would offer only minor resilience benefits. In terms of major seismic and storm events, the main resilience risk for this scheme is road closure due to slips and landslides from cut slope

failures. Analysis of the scheme found that following a major seismic event, limited access could be provided within three to seven weeks. This estimate is only slightly better than estimated closure times for SH2 and SH58 and would not provide an acceptable level of resilience for the communities of the Hutt Valley.

Costs

The evaluation found that the costs for the proposed scheme are very high in comparison to other major Transport Agency projects. The costs are driven by the nature of the terrain, the chosen alignment and the high cost of major interchanges. These factors link directly to the key drivers listed above.

The evaluation investigated whether the costs could be reduced significantly if the project scope was modified by removing some elements (such as bridge structures, road widening, and crawler lanes). While this would reduce some cost, it would not be enough to change the very high costs of the project overall. The drivers above must be addressed to have a significant impact on the costs.

Recommendations

The evaluation accepted the assumption of the general physical location of the road but challenged the project team to look more closely at the other four drivers underpinning the current scheme. Specifically, the report recommended the following:

- restate the project objectives to be clear that resilience is a priority objective
- reconsider whether an expressway standard is required to provide the project outcomes
- take a system-wide transport view including considering active demand management options such as greater public transport usage, high occupancy vehicle lanes, ride sharing schemes, tolling and freight priority
- reconsider the form of the connection to SH1 on the Grenada side
- reconsider earlier alignment options that might allow a better resilience outcome with lower overall environmental impact.

Next Steps

The overarching recommendation of the evaluation is to review the key design assumptions that have underpinned the development of the preferred alignment for the P2G link road. As a result, we are undertaking further project investigations to ensure that the scheme is fit for purpose prior to completing the business case.

We will share the evaluation findings with local councils, and seek their feedback on the findings and

recommendations. Their feedback will then help shape the scope of the business case moving forward.

We expect to complete our discussions with local councils and make decisions on any changes to the scope of the current P2G Link Road scheme early next year. We will then advise the public about any changes to the scope of the project and the likely impacts on project timing.

Figure 2: Current Petone interchange



Figure 3: Evaluated design for new Petone interchange



Figure 4: Current Tawa interchange

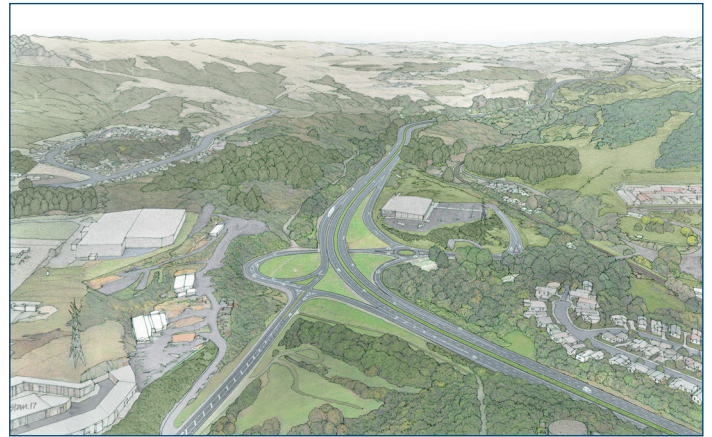


Figure 5: Evaluated design for Tawa interchange

