

## Attachment 1:

### Q and As: P2G Link Road options north of Tawa

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#### Summary of transport analysis

To assist councillors in understanding the complex technical transport information contained in the attached report, Greater Wellington Regional Council (GWRC) and NZ Transport Agency officers have jointly prepared and agreed a summary of the key findings from the transport modelling. This is structured around the key transport questions.

It should be noted that neither the technical report nor this summary covers the wider issues involved in the decision on options – such as resilience, property impacts, environmental and social impacts – this information has been presented previously by NZ Transport Agency in the briefings to individual Councils.

It is important to note that the NZ Transport Agency considers all three options: SH1 widening (Option C); Takapu Link Road (Option D); and Wait and See, as viable and has no preferred option at this stage.

#### **Q. Where are most trips on the P2G Road in 2031 going to and from?**

**A.** The vast majority of trips in 2031 on the P2G Link Road are moving between east and west from the lower Hutt Valley and north Wellington, Tawa, Porirua (and vice-versa). In terms of private vehicles approximately 90% of trips have origins and destinations within the lower Hutt Valley or north Wellington, Tawa, Porirua.

Analysis of the longer distance trips using the P2G Link Road shows that those from north of Transmission Gully on SH1 travelling eastwards in the AM Peak comprise approximately 9% of all vehicles and those from Upper Hutt or further north on SH2 travelling westbound in the PM Peak comprise approximately 10% of all vehicles.

#### **Q. Is there additional congestion on SH1 north of Tawa Interchange in 2031 as a result of P2G Link Road?**

**A.** Yes. The addition of the P2G Link Road stimulates more trips as accessibility is improved between the key urban areas of the region, and some re-routing occurs from SH58 to P2G Link Road as it provides a faster trip for some users. Whilst the vast majority of trips are east-west, between north Wellington, Tawa, Porirua and the lower Hutt Valley, some of these trips do include travel along this relatively short section of SH1.

#### **Q. Is this additional congestion significant?**

A. There is no formula for this – a judgement call is required based on a number of factors including: changes to Levels of Service (LoS), changes to travel times, the number of people affected, what's happening on other sections of SH1 that form part of a total journey, the impact on travel patterns on the rest of the transport network including other modes.

With the addition of the P2G Link Road the LoS analysis shows traffic conditions on SH1 north of Tawa changing from LoS C to D in the southbound AM peak and from LoS D to E in the northbound PM peak. This change occurs gradually over a long period of time. The northbound flows are more of a concern than southbound.

Levels of service are forecast to be similar or worse than this on other sections of SH1 closer to Wellington City, including sections between Churton Park and Johnsonville and at Ngauranga Gorge.

The travel time analysis shows that a longer journey (and a typical trip at peak times) from Porirua to Wellington (Aotea Quay off-ramp) in 2031 would be 20.2 minutes in a do nothing situation without the P2G Link Road in the AM Peak. With the P2G Link Road this same trip would be 15.8 minutes – a 4.4 minute saving (or 21.8%). With the addition of Option C (SH1 widening) the trip would reduce to 15.5 minutes – a reduction of 18 seconds from the P2G Link Road only. With the addition of Option D (Takapu Link) the trip would take 15.9 minutes – an increase of 6 seconds from P2G Link Road only.

In the northbound PM Peak from Wellington (Aotea Quay on-ramp) to Porirua the trip in 2031 would be 18 minutes in a do nothing situation without the P2G Link Road. With the P2G Link Road this same trip would be 16.8 minutes – a decrease of 1.2 minutes. With the addition of Option C (SH1 widening) the trip would take 15.4 minutes – a reduction of 1.4 minutes from the P2G Link Road only. With the addition of Option D (Takapu Link) the trip would take 16.0 minutes – a reduction of 45 seconds from P2G Link Road only.

For a shorter trip from say Porirua to Tawa the differences in travel times between the options will be more marked because over a longer trip, travel time changes balance out.

#### **Q. How effective are the options in alleviating the forecast additional congestion?**

A. The LoS on the P2G Link Road itself is either A or B in all peak periods.

Option C (SH1 widening) improves the LoS on SH1 north of Tawa in the southbound AM peak from LoS D to LoS C – better than it would be even if no P2G Link Road was constructed. In the northbound PM peak it improves the LoS from E to C, again better than if no P2G Link Road was constructed.

Option D (Takapu Link) improves the LoS in the southbound AM peak from LoS D to LoS C/D. In the northbound PM peak it improves the LoS from E to D.

The Wait and See option would not alleviate the forecast additional congestion on SH1.

The LoS on Takapu Link in Option D would be A for the 4,385 vehicles using this route daily.

The analysis shows that Options C and D reduce congestion on SH1 north of Tawa, but that Option C (widening SH1) is more effective.

**Q. Are there alternative ways to reduce congestion?**

**A.** Yes. Some options have been explored by GWRC that would partly alleviate the forecast additional congestion, however none of these are currently programmed or funded and some may require legislative change.

Additional public transport improvements (beyond those already planned) could be implemented. These include rail travel frequency improvements (essentially a 12 minute frequency at peak periods), additional park and ride spaces and enhancements to journey speeds through track works. Doing these could improve public transport patronage and reduce traffic volumes on SH1 north of Tawa by 2% (100 vehicles) in the AM peak.

Another option is a 25% increase in the cost of long-stay commuter parking in Wellington CBD. When coupled with additional PT improvements, this would have the effect of a significant increase in public transport patronage and reducing traffic volumes on SH1 north of Tawa by 5% (300 vehicles) in the AM peak.

A further option is a modest all-day toll on the P2G Link Road. When coupled with additional PT improvements, this would reduce traffic volumes by around 35% on P2G itself and reduce traffic volumes on SH1 north of Tawa by around 7% (400 vehicles) in the AM peak. It is important to note that the NZ Transport Agency has not considered this option at this early point in the project.

It is considered that a reduction in traffic volumes of 5% or more could reduce congestion and improve levels of service on SH1 north of Tawa to an acceptable level.

GWRC consider that a moderate level of congestion in the transport network is desirable to create demand for other modes of transport, including public transport.

**Q. What would happen in a “Wait and See” option?**

**A.** There are two approaches. One would take no action north of Tawa and simply monitor the actual traffic volumes in the first 5 to 10 years after construction. If traffic levels and congestion reached a certain trigger point then action could be taken to programme and implement solutions. This has the disadvantage of not providing certainty for affected land owners and potentially increased construction costs. There would also be additional time required to obtain necessary RMA approvals before work could proceed.

The second approach is for a designation to be placed on land for the preferred option (this would require a choice to be made) but no construction programmed in the initial 5 years. Again monitoring would be undertaken on the actual traffic volumes and if and when traffic levels and congestion reached a certain trigger point then the NZ Transport Agency could move relatively swiftly to implement detailed design and construction for the preferred solution. This has the advantage of providing certainty for affected land owners, reducing the time required to respond to identified issues but has the disadvantage of potentially increased construction costs compared with building now.

There are a number of uncertainties that may impact on whether the level of congestion is as forecast.

The timing of change is the first factor. The modelling shows a gradual decline in LoS and a gradual increase in travel times over the period from construction of the P2G Link Road to 2051. The forecast travel patterns that drive these trends result from land use changes occurring on the ground including new jobs being created in the Hutt valley and Porirua. If these land use changes take a longer period to be implemented then the rate of deterioration in LoS will be slowed also.

The scale of the forecast impacts is the second factor. Transport modelling is very effective in comparing the relative merits of options but like all models cannot absolutely predict the future. All forecasting models have a margin of error. In a situation where the forecast changes are relatively minor there is less certainty about the actual significance or timing of the forecast outcomes. That may or may not be relevant in this case.

The third factor is that monitoring of actual traffic volumes on SH1 may reveal that the travel patterns and levels of congestion are slightly different to that forecast by the transport models. This may be relevant for both southbound and northbound congestion levels.

#### **Q. Which options are the best for freight movements?**

**A.** The P2G Link Road itself represents a significant improvement in freight efficiency due to the reduced travel times. The modelling indicates that HCVs using the P2G Link Road would experience a 20% improvement in efficiency relative to the current route via SH2 and SH1, because of the reduced journey time.

Of the options north of Tawa, Option D is more efficient (a total 39% improvement in efficiency) because it is flatter. This would benefit the 1000 HCVs forecast to use this route on daily basis.

It should be noted that only a small proportion of freight movements in the region are long distance trips using HCVs (heavy commercial vehicles). Most freight trips are within the region using MCVs and LCVs (medium and light commercial vehicles).

#### **Q. Is SH58 a viable alternative to the P2G Link Road?**

**A.** No. Upgrading SH58 does not provide a suitable alternative to either the P2G Link Road or to improving capacity north of Tawa.

Two of the key problems that the P2G Link Road seeks to resolve are addressing congestion and journey times on the most congested parts of the state highway network (ie Ngauranga Gorge and Ngauranga to Petone) and filling the missing link on the state highway network by providing connectivity between lower Hutt Valley and north Wellington, Tawa, Porirua. Four laning SH58 would not solve these problems because it is too remote from the main demand flows between lower Hutt Valley and north Wellington, Tawa, Porirua.

Two of the north of Tawa options, (Options C and D) are proposed to mitigate the congestion on SH1 resulting from the P2G Link Road. Four laning SH58 is also not an alternative to these options, because it would not alleviate congestion on SH1. SH58 would also not provide access to the major development area at Lincolnshire Farm.

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