

Attachment 5: Passages of DBC and supporting documents referred to in reply submissions for the Transport Agency

Shortlist MCA Report (Appendix C to the DBC):



Short List Option Assessment

Manawatū Gorge (SH3) Alternative Detailed Business Case

NZ Transport Agency

6 June 2018

3.3 Social and environmental assessment methodology

The social and environmental assessment criteria did not change from the long list assessment and the methodology for the assessments was similar. For the short list assessment, specialists were asked to assess the corridor which looked at the area 250 m on either side of the centreline (i.e. a 500 m wide corridor). The short-list options were assessed as a corridor with the final alignment assumed as being anywhere within that corridor. The social and environmental assessment involved specialist consultants reviewing desk top data they could draw on and site visit observations to identify the level of social and environmental risk, constraints and opportunities associated with each option. This was considered against the environment at the time of the assessment, including known consented or approved projects (e.g. Saddle Road improvements which were underway at the time such as low noise surfacing through Ashhurst).

The 'base case' or 'do minimum' option for the social and environmental assessment was the continued operation of Saddle Road and Pahiatua Track as the main vehicle routes from Ashhurst to Woodville, with minor improvements to Saddle Road to address safety and asset condition issues.

All social and environmental effects were considered without mitigation except where mitigation would be standard compliance with a Transport Agency design standard or typical measures implemented on Transport Agency projects (e.g. erosion and sediment control measures, traffic management plans). 'Bespoke' or project specific mitigation, such as ecological off-set areas for addressing habitat loss, were not factored into the risk based assessment undertaken for the short list assessment, but may be developed during the future consenting phase of the project, if required.

The social and environmental specialists used a number of resources to complete their assessment including;

- The location of the short list corridors on GHD's WebGIS Portal
- Field observations during site visits, where these were possible
- Constraints data and mapping loaded onto GHD's WebGIS portal which were populated by the project team from a range of data sources, including council planning documents and records, Department of Conservation, NZ Archaeological Association records, NIWA, Land Information NZ, Landcare Research and utility service providers
- Information that specialists were able to draw on from their own professional experience and knowledge
- Feedback from stakeholder and community engagement
- Information from relevant RMA planning instruments

Option 4 generated quite divisive comments from the key stakeholders and the public, with a lot of support for and against this option. Concerns were predominately related to the issues associated with connecting this option to SH3 near Stoney Creek Road and the potential impacts on a large number of landowners (potentially more than 50).. However, there was strong support for the option as it was perceived to be the most direct route and would support economic development of Palmerston North and surrounds.

The majority of the feedback received on Option 2 (from both key stakeholders and the general public) related to concern about the traffic effects of during construction, due to the use of Saddle Road as an alternative route. The general consensus from the stakeholders at the short list workshop was that Option 2 was not preferred.

There was less specific feedback regarding Options 1 and 3 during the key stakeholder workshop however, the general themes of public feedback on Option 3 were that this option had a lesser property impact compared with other options and acceptable gradients.

During this phase of the project the project team was available to meet with potentially affected landowners. Potentially affected landowners were provided this opportunity via letters and many took up this opportunity. In addition to private landowners, the project team met with Meridian, Tilt and AgResearch to further understand specific issues and considerations. In particular this alerted to the project team to the presence of a long-term fertiliser research site, which would be affected by the northern short list options to varying degrees.

4.4.4 Network dependent investments

A summary of the assessment that was undertaken to determine the cost of connecting each option into the existing network is included in Table 22 below.

Table 22 Network dependent investments

	Option 1	Option 2	Option 3	Option 4
Network dependent investments	-	-	-	xx

Options 1-3 provide connection into the existing network and do not require any additional investment, and as such have been scored as neutral. Option 4 would require additional investment (up to an additional \$85M) in the development of Stoney Creek Road and therefore has been scored as having a moderate adverse effect.

4.4.5 Strategic network and land use integration

The JWG assessment included modelling to understand the wider transport and economic benefits of each option, based on a number of scenarios (Table 24). This modelling informed the assessment of each option

Consultation Summary Report (Appendix J to the DBC):

GHD
Advisory



Manawatū Gorge Alternatives Consultation Summary Report

NZ Transport Agency

7 May 2018

3.1.2 Short list options

The four short list options were presented to the key stakeholders during the third workshop held on 2 November 2017. The purpose of this workshop was not to determine a preferred option but to discuss the merits of each. General themes expressed were the importance of assessing network connectivity and the opportunity the closure of the Gorge provides for long term solutions.

Table 6 Summary of option discussion points – Key Stakeholder Workshop 3

Option	Key themes discussed
Option 1	Discussion regarding the interface with Saddle Road, likely bridging requirements and how this would connect to Ashhurst. Wind could be an issue on this elevated route.
Option 2	Key constraint was the impact on traffic movements along Saddle Road, a degree of interruption could be expected. The other options provide additional levels of resilience, as there is a secondary road to use in case of emergencies etc. This option does not

Option	Key themes discussed
	have an 'alternative' route in case of emergencies. This option also has wind farm impacts.
Option 3	Stakeholders noted that out of all the options, this had the lowest gradients which saves on operating costs. Key thing to note was that the option affects a nationally significant scientific site. In terms of land use, it travels through rural land and a wind farm.
Option 4	Stakeholders noted the challenging terrain at the south eastern bend with large gradients, a number of bridges would be required. Fundamental difference is that this option would remove traffic from SH3 and SH57 and direct it on to Stoney Creek Road. It was noted that to mitigate the effects on Stoney Creek Road, an upgrade would be required. If no upgrade is conducted you would expect an increase in crashes on Stoney Creek Road. There is also the opportunity for second bridge over the Manawatū River, presenting an economic benefit. Access into the north east industrial zone is a key issue and how that interfaces with the route, and the longer term picture of how transport supports the economic growth.

Project DBC:

Business case for implementation

31/05/2018

FINAL

MANAWATŪ GORGE ALTERNATIVES DETAILED BUSINESS CASE

Part A: The Case for the Project

Detailed business case to proceed from initiation to implementation



notably trucks, a resilient route (comments related to the importance of a reliable route that is least likely to be closed in the future), followed by time of project delivery and cost.

There was little commentary on Option 1 via the Social Pinpoint forum (with six comments specific to this route), which related to stability concerns, the less direct nature of the route and the impacts of wind and fog. The consistent themes expressed in the feedback received via feedback forms (available at the public open days and online) were that this route was too steep and windy, had limiting terrain, was located too far north and added extra distance. Very few stakeholders selected this as their preferred option.

Feedback from key stakeholders indicated concerns with Option 2 and its effects on traffic during construction and there was a general consensus that Option 2 was not preferred. Option 2 received less comments on Social Pinpoint. Public feedback on this option was almost exclusively related to the disruption to traffic during construction of this option and the associated difficulties with construction on the current alternative route. A few people noted that this option would result in the least impact on land/property impact and was practical in that it utilised an existing route.

The majority of public feedback indicated a preference for either Option 3 or Option 4. The feedback on Option 3 was relatively consistent amongst the public – namely that this option was considered favourable as it is shortest, most direct route and has the best gradients. Associated commentary included the favourable road geometry (“less twisty”) and cost efficiency. This route was also considered to have a lesser property impact than other options. Overall, there was limited negative commentary on this option (even when it was not identified as their preferred option) however concerns regarding the impact on the AgResearch fertiliser trial site, the similarity of the route (in terms of location) to Saddle Road were noted. Specific concerns regarding the AgResearch fertiliser trial site included the inability to replace or reproduce this site.

Option 4 was the most divisive of all the options, with a lot of support for and against this option. Positive comments related largely to the provision of a second bridge over the Manawātū River, accessibility to Palmerston North and surrounding areas (including Hawke’s Bay, Feilding and Horowhenua), the avoidance of Ashhurst, shorter travel time and the flat gradient. The provision of key elements of the proposed rural freight ring route that came with Option 4.

Negative comments related to the associated impacts on the nearby road network (e.g. Stoney Creek Road) as result of changed traffic patterns, social impact (particularly on Whakarongo school), reduced visibility in poor weather conditions and that the option was too far south for some travellers.

Public engagement highlighted the opposing public views on which route would provide the best transport connection (e.g some stakeholders felt that Option 3 was the best east-west connection, and that Option 4 disadvantaged more northern travellers, and vice versa). Regardless of option, another common theme was the importance of Ashhurst and the value of the Ashhurst Domain. The importance of future proofing the route by providing sufficient lanes and passing lanes was also expressed.

4.3.7 Preferred Option

Taking into consideration each of the short list MCA assessment performances and the feedback received from the different forms of public consultation, Option 3 was chosen as the preferred

option. The key aspects of the MCA process, which support the recommendation of Option 3 include better transport performance, an acceptable risk of adverse environmental impacts, and greater implementability. This is detailed below and summarised in Table 15.

In terms of transport performance, Option 3 was the only short list option that provided a substantial benefit across the three transport criteria assessed (resilience, safety and efficiency).

- Both Option 3 and Option 2 provided for the greatest transport resilience, relative to the other short list options and do minimum. This is because of the exposure to seismic events (highest on Option 4) and the provision of a new alignment, additional to Saddle Road which can remain an alternative route.
- Option 3 performed well in terms of safety as a function of the design standard and the length of the route (longer routes are more likely to have a higher crash rate).
- Option 3 provides efficiency benefits, notably the shortest travel time for heavy commercial vehicles relative to the other short list options and a significant reduction in travel time costs and vehicle operating costs compared with do minimum (of a scale comparable to, or better than the other short list options).

The short list options performed similarly overall in terms of social and environmental impacts, with no fatal flaws identified on any of the alignments and at the time of the production of this DBC, these effects were considered to be able to be avoided or minimised through future design and/or addressed using mitigation and environmental offset approaches familiar to the Transport Agency, including the Public Works Act.

From an implementability perspective, which included consideration of project risk, safety in design, delivery time and cost, network dependant investment and strategic integration, Option 3 was overall the most favourable because:

- While all of the short list options have some geotechnical risk, the northern options had substantially less risk than Option 4 as a function of the underlying geology. The Preliminary Geotechnical Appraisal Report (Appendix I) confirms that Option has the least geotechnical risk of the short list options.
- Further work to understand the wider transport and economic benefits of the short list options confirmed that Option 3 along with the other short list options, was able to provide a connection to the current and future strategic road network and integrate with the current and anticipated land use.

5.3 SOCIAL AND ENVIRONMENTAL PERFORMANCE

Table 16 below documents the key findings from a risk based assessment of social and environmental effects, constraints and opportunities associated with the recommended option. The recommended option was considered against the environment as it is today, including consented or approved projects. This means the ‘base case’ or ‘do minimum’ option was the continued operation of Saddle Road (in its current form, including committed improvements) as the main vehicle route from Ashhurst to Woodville.

The assessment in Table 16 was informed by input from a number of social and environmental specialists who carried out a high level assessment using largely desk top resources, including:

- The location of the recommended option on GHD’s WebGIS Portal
- Constraints data and mapping loaded onto GHD’s WebGIS portal which were populated by the project team from a range of data sources, including council planning documents and records, Department of Conservation, NZ Archaeological Association records, NIWA, Land Information NZ, Landcare Research and utility service providers
- Information that specialists were able to draw on from their own professional experience and knowledge

Effect criterion	Risk of effect	Environmental risks and constraints	Key assumptions
Property	Moderate adverse effect	The alignment is expected to negatively impact on properties in the area (through displacement and severance), property acquisition will be required. Interests include private farmland, AgResearch, Meridian Energy, KiwiRail, Transpower, Tararua District Council and PowerCo.	relied on for identifying potential infrastructure conflicts. That no further land is required where the recommended option is shown to be within current road reserve. That Maori Land (Parahaki Block) can be avoided by the alignment.
Human health			
Construction noise	Minor adverse effect	Construction noise effects should be able to be managed with standard practices as the majority of activity will be remote from houses, surplus material can disposed on-site, and the bulk of heavy vehicle movements will be internal to the site.	That piling for bridge/viaduct construction can be managed with standard practices. That construction traffic does not pass through Ashhurst and any blasting is remote from houses. That surplus material is able to be disposed of on-site, away from houses.
Operation noise	Minor adverse effect	The recommended option may have minor adverse noise effects during operation. While traffic and associated noise will be significantly reduced from the current route through Ashhurst, the smooth geometry and steep gradients are likely to give rise to increased braking and engine noise. Concurrently, positive effects are anticipated in the west as traffic and associated noise will be reduced from the current route through Ashhurst.	That asphalt paving will be used on the alignment near houses.
Contaminated land	Moderate or substantial adverse effect	There are 7 potential hazardous activity and industries list (HAIL) sites located within the footprint of the recommended option. One of these, a historic landfill on Saddle Road may have moderate to major risk due to a likely requirement to disturb a contaminated site and the potential need for excavation of buried waste and potential leachate seepage effects on stormwater. The 6 other sites identified are either stockyards, transport depots or buildings which may contain asbestos. These pose a moderate risk as	The assessment relies on HAIL site information provided by the councils and a specialist’s examination of Google Earth 2017 Aerial Imagery as representation of known potentially contaminated land. Unrecorded sites may be identified in the future.

7 Financial case

7.1 PROJECT DELIVERY COST

The recommended option cost has been estimated to a level of detail consistent with the level of design completed. Elemental costs were prepared and reviewed in accordance with the NZTA Cost Estimation Manual guidelines, SMO14, with an advanced approach to risk based estimates recommended in NZTA Z44 for the determination of the Expected and 95th percentile estimates.

- Expected estimate of \$469 M, (\$517 M with escalation)
- 95th percentile estimate \$604 M.

7.1.1 Capital cost estimate assumptions

The following outlines the assumptions included in the development of the capital cost estimate:

- Pricing is current as at the 3rd Quarter 2017 and have been derived from recent Transport Agency capital project rates.
- Contingencies totalling \$105 M have been allowed for to cover unidentified additional activities or changes to the scope and risks identified outlined in this DBC., This contingency and the funding risk value has been calculated from a Monte Carlo simulation using @risk.
- Pricing of costs associated with wind farm impacts have been provided by an independent wind farm specialist. This has a base cost of \$12M (assumes removal of 2 wind turbines), plus \$10M (expected), plus a further \$38M (funding risk). This item was excluded from the Monte Carlo analysis with these contingent sums added to the P50 and P95 contingencies assessed for the rest of the project works.
- Rates and prices exclude GST.
- Escalation of 3% per annum has been allowed for in the expected and 95th percentile estimate.
- Transport Agency managed costs for all phases – 3% of physical works costs.
- Consenting, design and documentation – 6.5% of physical works cost plus an allowance for geotechnical Investigations and legal costs.
- MSQA – 4.5% of physical works cost.
- Property costs have been provided by The Property Group (TPG).
- Allowances only for environmental controls have been included.
- As there has been no intrusive geotechnical investigation, allowances only have been made for rock fall protection, ground improvements, retaining structures and subgrade treatment only reflective of a project of this scale, with high potential for significant variability including in the assessed risks.
- The Manawatū River bridge for the purpose of the base estimate has been assumed to be minimal intrusive bridge design (with respect to river impact). This has also assumed to be a 4