

New Zealand Upgrade Project (Queenstown) – Focused Scope Review

Summary:

The SH6/SH6A Intersection Improvements project is a complex online project with a number of constraints that ultimately impact the overall costs. The Cost Estimate that was developed for the Business Case for the Queenstown Package is no longer appropriate given the design development that has taken place over the last couple of years to achieve the programme outcomes, the current market conditions and escalation. The biggest opportunity to reduce costs is simply to deliver the project quicker but there is also risk associated with the programme due to the timing of designation approval, consenting, property acquisition and decision making.

Background:

As part of the New Zealand Upgrade Programme, the Business Case for the Queenstown Package was developed during 2020 with a cost estimate (\$115m) approved in November 2020. The Queenstown Package includes improvements to the SH6/SH6A intersection.

The Business Case estimate was updated in early 2022 to reflect escalation and current market conditions which was the first indication that there would be a funding shortfall. Through 2022, the Kā Huanui a Tāhuna Alliance continued to develop the design and provide updated pricing that indicated further cost increases. Once the design had been developed to 30%, pricing packages were provided to the Independent Estimator (IE), Bond CM. In early 2023, the pricing was exchanged between the Alliance and IE which confirmed a significant cost increase to the approved budget but also highlighted a gap between the two estimates that is higher than industry norms.

Business Case Cost Estimate:

It is worth noting that the Business Case cost estimate is a P50 and did not include escalation which is in the order of 22% from Nov 2020 to Sept 2022 based on the typical Waka Kotahi Cost Indices. The current design has also incurred some significant scope changes since the Business Case as part of the normal design development e.g. the SH6/SH6A intersection has gone from a signalised roundabout to a fully signalised intersection.

SH6/SH6A Intersection:

As the cost increases have become clear, the focus has narrowed on the SH6/SH6A Intersection as it is expected that this will help deliver better outcomes than the other projects within the Queenstown Package. To understand the cost increases better and identify any opportunities to reduce costs, a workshop took place on Monday 3rd April 2023 with the Kā Huanui a Tāhuna Alliance, Bond CM and Waka Kotahi present.

The following information identifies the areas of potential opportunity that were discussed, constraints impacting cost, actions required to remove the constraints and any conclusions that were made.

- **Construction Methodology:** The construction methodology is based on limiting the traffic management switches and maximising the size of the construction work areas to drive production efficiencies. The construction methodology has been well planned and staged to maximise production and minimise costs within the constraints of the MRs relating to traffic management i.e. maintaining one lane open in all directions at all times.
- **Resourcing:** Queenstown's remote location impacts on costs with the appropriately skilled labour in short supply, requiring staff and labour to travel and be accommodated in

Queenstown, adding to typical construction costs. A worker village was discussed but has been discounted due to the availability and cost of land, as well as consenting constraints. The cost of materials, particularly aggregates and asphalt, are at a premium due to turnaround times e.g. asphalt will need to come from Alexandra with a minimum 3 hour turnaround, significantly higher than in other urban areas. A mobile asphalt plant would not be economic given the relatively small quantities involved.

- **Working restrictions:** There are a number of working restrictions related to noise and winter working. The restrictions relating to noise are based on the District Plan and expected Consent Conditions which all appear reasonable. The restrictions on winter working are based on the MRs and while these could be challenged, there would be a quality risk associated with doing this, which would need to be appropriately managed.
- **Key Cost Influences:** Other factors impacting cost include the current escalation rate, both nationally and more specifically attributed to working in Queenstown, scope growth identified earlier and the increased extent of utility relocation.

Conclusions:

The Kā Huanui a Tāhuna Alliance have developed the design based on the Business Case and with respect to the MRs. The construction methodology and staging has been developed to minimise costs. There are a number of factors associated with working in Queenstown that are impacting costs that would not be experienced in other urban areas.

The overall duration of the project (36 months) currently spans three seasons (23/24, 24/25 and 25/26). While there is potentially an opportunity to reduce this, it would require an alteration to the MRs, whether that is around traffic management (level of service) or winter working. However, there is currently a far greater risk that designation or consent approval, property acquisition or slow decision making would delay the commencement of works, pushing the tail of the project into winter 2026 and subsequently into a fourth construction season which would add significantly to the costs. This is emphasised by the early procurement of materials with long lead times associated with service relocation.

A sensitivity analysis of the MRs and current programme should be carried out to ensure that specific opportunities for cost reduction are identified and the risk of cost increases are fully understood.

In terms of the current gap between the Alliance and IE cost estimates, while this is higher than industry norms, the TOC reconciliation process should be allowed to progress over the coming months as the design has further developed and there is better understanding of the work packages that are being priced.