Attachment A: Independent Lessons-Learnt Review of Whakatipu Transport Programme Alliance

Independent Lessons-Learnt Review of Whakatipu Transport Programme Alliance

Dave Brash, May 2024

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Glossary

BCR	Benefit Cost Ratio	**OAG**	Office of Auditor General
CIP	Crown Infrastructure Partners	**OP**	Owner Participant
ECG	Engineering Challenge Group	**PCG**	Project Control Group
MoU	Memorandum of Understanding	**PAA**	Programme Alliance Agreement
NOP	Non Owner Participant	**SME**	Subject Matter Expert
NZUP	NZ Upgrade Project	**TOC**	Target Outturn Cost

Independent Lessons-Learnt Review of Whakatipu Transport Programme Alliance

Background

This report is an independent lessons-learnt review of the performance of the Whakatipu Transport Programme Alliance (see Appendix 1 for the Terms of Reference). The review was requested by the Council (resolution 27 April 2022) and focusses on (at minimum) lessons learnt from the use and operation of the alliance model, Queenstown District Council's (QLDC) management of risk and opportunity in major projects and the key considerations when entering into third party (eg; Government) funding agreements. The aim is to understand the root causes of these issues and make findings which draw out the lessons on how these could be better managed in the future.

The methodology adopted was to review all relevant documents, undertake a site visit to Queenstown and interview key people (see Appendix 2 for the list of people interviewed).

While the report covers all of the programme (including NZ Upgrade Programme or NZUP) it does this primarily through a QLDC lens. It firstly sets out the critical timeline of events and key decisions, and then discusses how and why things evolved the way they did in terms of the:

- Decision to establish the Programme
- Decision to establish an Alliance
- Performance of the Alliance to date (Appendix 3 contains a primer on Alliances).

Each section finishes with both long term and short term lessons – the latter being things the Council could consider applying to the existing programme. The report concludes with a discussion of the counter factual, a summary of the key lessons and overall conclusions. Structuring the Report this ways does mean you need to read whole report to understand the full suite of lessons.

Timeline

Table 1 (below) summarises the timeline of events and key decisions.

Set up

In quarter two of 2020, during the early stages of the initial COVID-19 lock-down, the Government made available funding for "shovel ready" projects. QLDC applied for funding for a number of projects. QLDC's submission was successful in gaining offers of part funding for two projects, namely the Queenstown Town Centre Street Upgrades project (the Street Upgrades project) and the Queenstown Town Centre Arterial Stage 1 project (the Arterial project).

Table 1	Whakatipu Transport Alliance Timeline
2017-19	
Nov 2017	Town Centre Master Plan and programme business case developed and then agreed by Council. Includes town centre upgrades and arterials stage 1-3. And a BCR of !.7
Nov 2017	Business case developed for Arterials Stages 1-3
2020	
March	First Covid lockdown
May	Apply for Shovel Ready (CIP) funding
June	PM announces $85m for two Shovel Ready projects in Queenstown (Street Upgrades $35m and Arterial $50m)
August	Council Workshop on Procurement, which favours use of Alliance Council agrees to enter into funding agreement with CIP and delegates to CE to finalise (total cost estimates Street Upgrades=$60.62m, Arterial=$65.92m) Agree with NZTA to include NZUP in Programme (estimated cost $115m)
September	Council meeting approves MoU and to develop joint procurement with NZTA, and delegates to CE to finalise Alliance (procurement plan signed off November 2020)
December	Interim Alliance Agreement with consortia signed RMA Notice of Requirement under Covid-19 Recovery (Fast-Track) Act lodged for the Arterial project
2021	
January	Alliance commenced early works on Street Upgrades
March	Alliance Board meets for first time Lakeview Project added to scope
June	Council approves increased budget to $63.4m for Street Upgrades project and delivery by the Alliance
July	Council approves increased budget to $55m for Lakeview project and delivery by the Alliance
September	Final Alliance Agreement signed Early works commence on Arterial Board notes risk of cost overruns with extraordinary market price increases
October	Council approves increased budget to $86.6m for the Arterial project and delivery by the Alliance
2022	
March	Arterial 100% design agreed, Street Upgrades business distruption concerns Slow progress on NZUP TOC; NZUP public engagement
June	Street Upgrades completion date delayed 6 mths, business concerns about night work Street Upgrades and Arterial TOCs variances small but climbing Initial NZUP TOC estimates exceeds budget, “tiger team” set up to review
August	Programme update to Councillors Board assign “Red” risk rating due to cost risk (TOC variances increase) Covid-19 Delta lockdown, concern at Board on impact on costs
September	Councillor Workshop on NZUP, Minister briefed on NZUP cost increases NZUP engagement on Notice of Requirement (NOR)
December	Arterial – a six month delay forecast for completion of work (to Nov 24) Council approved the removal of the Pedestrian Overpass from scope of Arterial project

Table 1	continued
2023	
January	Board presented with increase in Cost to Complete for the Arterial project NZUP funding increase not forthcoming, Board seeking guidance from NZTA
April	Board concern about robustness of cost forecasting Increase in Cost to Complete or TOC: variances reported to Board - Arterial=$17.7m; Street Upgrades=$6.7m Councillors agree to increase budget and CE's delegation for Arterial to $108.8m Council directs staff to undertake a lessons learnt review
December	Street Upgrades work complete (TOC variance $8.5m, but within overall budget) Board presented with $16m increase in Cost to Complete for the Arterial project (TOC variance now $34.2m) NZTA agree to start work on enabling works withing existing budget, TOC close to reconciliation (4% variance)
2024	
February	Council agrees to increase Arterial budget and CE delegation by $17.65m to a revised total of $128m NZUP Stage 1 agreed by Board. Board agrees target date for operation of the Arterial route as December 2024 and fully construction complete by March 2025

In August 2020 the Council entered into a funding agreement with Crown Infrastructure Partners (CIP) agreement to fund the "shovel ready" projects. The Town Centre Upgrades and Arterial were funded at $35m and $50m, respectively. The agreement caps CIP funding at this amount, which means QLDC has 100% of the risk on any cost increases above CIP funding. There were also strict milestone requirements that needed to be met.

In September 2020 QLDC entered into a Memorandum of Understanding (MoU) with NZ Transport Agency (Waka Kotahi or NZTA) to deliver the two projects (Lakeview was added to scope in March 2021), alongside the NZUP project on SH6 from Frankton to the Town Centre. After a procurement workshop with Councillors which discussed a range of models there was an informal consensus that an alliance was the preferred contracting approach. The Council delegated the development of the procurement plan and formation of the Alliance to the CE.

In late 2020 the partners went to the open market to establish an Alliance and a consortium of engineering consultant companies (Beca and WSP) and contractors (Downer and Fulton Hogan) were appointed. There was one bid. The successful consortia (the Non-Owner Participants or NOPs), along with QLDC and NZTA (the Owner Participants or OPs), then collectively formed the Whakatipu Transport Programme Alliance.

Driven primarily by the CIP requirements as part of Covid-19 response, the Alliance was set up and began operating very quickly in late 2020/early 2021. In response to CIPs funding milestone, early works in the Street Upgrades began on 18 January

2021. The initial Target Outturn Costs (TOC[1]) for the three QLDC projects were agreed in June, July and September 2021. The initial estimate for the Arterial of $66m used in the CIP bid was based off the business case. The first TOC estimate [2] by the Alliance was based off a 30% design and set at $70.1m ($5m higher than the original estimate and reconciled with an Independent Estimator).

Implementation

The Council has subsequently agreed to additional budget to fund the further cost increases for the Arterial in April 2023 and February 2024. There have also been delays in delivery of the projects when compared against the initial proposals: Street Upgrades (six months), Lakeview (seven months) and Arterial (10 months). The Street Upgrade and Lakeview projects have now been largely completed. Construction work has been ongoing for at least 2.5 years on the Arterial project, with a current target date for starting operation in December 2024 and completion of construction March 2025.

The NZUP project was only at the concept stage in 2020, however, while scoping and design have been delayed multiple times there is now agreement to proceed. The Minister announced a $250m funding package in April 2024 and early works planned to commence shortly.

There have also been some ongoing issues[3] with communications and engagement with effected businesses and property owners. And with the handover of some aspects of the final construction.

Decision to Establish the Programme

It is important to understand the context surrounding the decision to establish the Programme and then enter into the Alliance in 2020. This section covers the decisions to establish the programme and the next section discusses the decision to procure the programme via an Alliance approach.

The Council had these projects in the pipeline for a number of years but did not have the money or any NZTA funding support to advance them. They had also just finished the Town Centre Master Plan and the business case for the Arterial. The Queenstown Integrated Transport Strategy brought this work together with planning done by NZTA for the upgrade of SH6 and Otago Regional Council's Public Transport Programme Business Case. Furthermore, the Council's asset management plans highlighted the poor state of three waters infrastructure. And the then Mayor had also been elected on a mandate to address the infrastructure deficit in Queenstown. Thus, all these projects had been a long-standing aspiration, and the Council of the day saw the Covid-19 funding as a great opportunity to fast track.

[1] Target Outturn Cost or TOC is the expected cost to completion for the Alliance scope and is the basis from which the Alliance pain/gain mechanisms are applied. It is not the owner's budget, the latter includes QLDC share of Alliance management costs, QLDC costs and any contingency.
[2] See further discussion on p14 on the design limitations and TOC.
[3] These are discussed further on p16.

In March 2020 NZ went into Covid-19 lockdown. We tend to forget the very real concern from the Government, Councils and the communities about the predicted devastating impact of Covid-19 on the economy, and especially unemployment in tourist centres like Queenstown.

Investment in infrastructure was a central political response to this crisis. And in this context, applying for "free money" from government and moving quickly to implement these projects, therefore made good sense.

However, there appears to have been little discussion around the Council table of the nature and scale of risks of the investment arrangements and the programme itself, and especially and how best to manage them. There appears to have been an early assumption that procuring via an Alliance would be sufficient to manage this risk (alongside having experienced staff and traditional QLDC approach to infrastructure delivery). As discussed in the next section, Alliances do provide good tools and approaches to managing a range of risks (not available via traditional procurement), but they also need to be well excecuted and the inherent investment and programme risks still need to be well monitored and managed.

The critical inherent risks were:

- This was large and complex project for QLDC (there were no other capital projects of similar size; for comparison purposes the programme cost estimate was about three times the QLDC's annual capex in 2019/20)
- The CIP cap (and penalties for not meeting milestones) meant effectively a 100% cost risk transfer to QLDC above CIP funding
- While headlined as a roading project, there were four quite different roading projects and there was also a significant three-waters and utilities component in the programme (approx. 30%)
- Major town centre improvements are known for their high risk of cost overruns from unknown ground conditions/utilities and the issues with managing the impacts on businesses (eg; Christchurch's earthquake rebuild and Wellington's "golden mile")
- The Arterial project was only at the initial stages of design and investigation
- NZUP was only at the concept stage ie: pre-business case, design and investigation
- While inflation and interest rates where low at the time, and thus large cost escalation was understandably not on the initial 'risk radar', this is an example of a low probability high consequence risk that actually happened.

OAG's recent report[4] on the Government's NZUP and "Shovel Ready" programmes notes Treasury advice around the high risk of cost overruns because of the lack of investigation and design work. While not specific to the Whakatipu Transport Programme, the OAG were highly critical of the lack of risk management and financial controls at a national level.

In practice the Councillors did not receive regular or comprehensive risk reporting on the Programme, much of which was readily available through the Alliance. Reports were very operational (eg: road closures) and did not focus on cost overruns until

[4] Office of Controller and Auditor General – Making infrastructure investment decisions quickly – Dec 2023.

funding requests came forward. These issues are discussed in more detail in the section the Performance of the Alliance below (p11).

Finally, feedback from Councillors and senior staff was that they felt "blindsided" by the cost increases, especially on the Arterial project. With hindsight, and in light of the inherent risk profile, a different approach to risk could have been considered and may have avoided some of the issues or at least avoid the surprises – and given Councillors more confidence in the Programme. That approach would involve regular reporting of financial risk, greater oversight at Council level and at senior management level – see lessons below.

Long Term Lessons:

lt1 That governance arrangements at Council and senior management levels should better reflect the risk profile of large infrastructure projects, and ensure there is adequate capability to support it

lt2 Council's Audit and Risk or Infrastructure Committees could be delegated an oversight role for such large and complex investment programmes which are above and beyond business as usual

lt3 That the CE and GM Property and Infrastructure regularly review progress on the programme and budget for such projects and escalate to Council as appropriate

lt4 That for large and complex work programmes reporting systems to CE be put in place to ensure risks are understood, there are no surprises and appropriate mitigations are applied in a timely way. This could usefully be presented as a monthly risk dashboard and presented to Council as appropriate.

Short Term Lessons

st1 That the Council's Infrastructure Committee be delegated oversight for remainder of the Arterial Project and a risk dashboard be reported to its regular meetings

st2 *That the CE and GM Property and Infrastructure regularly review progress on the Arterial Project and budget and escalate to Council as appropriate.*

Decision to Establish an Alliance

The context surrounding the decision to use an Alliance is also important. Alliances have been used successfully in crisis situations (eg; Kaikoura and Christchurch earthquake rebuilds and more recently in response to Cyclone Gabrielle) and for complex projects where risks are not well understood. Historically, most Alliances in NZ have come within 5% of original cost estimates. It is very rare for a project to consume all the "pain" component, and thus all the Non Owner Particpants (NOPs) overhead and profit margin, as has happened for the Arterial project.

The reasons and benefits of using an Alliance approach were spelt out in general terms in a briefing Council and in workshop held with Councillors in August 2020. Interviewees noted there was strong support at this time for an Alliance approach from

Ministers, Mayor, NZTA, and QLDC staff (in particular the then GM Property and Infrastructure). In September 2020 the Council decided to enter into a MoU with NZTA in order to collaborate on the delivery of a joint programme and delegated to the CE to approve the joint procurement plan. The procurement plan and tender evaluation assessed a range of procurement options and detailed the advantages of an Alliance, and was approved by the CE on November 2020.

The procurement plan and feedback from interviews highlighted the following **Alliance** advantages:

- **Complexity** – the underground utilities, 3-waters and retaining walls in a built-up area were highly complex engineering challenges
- **Coordination** – four major projects at different stages of development presented major coordination issues
- **Quick implementation and agility** – the economic/employment crisis meant being able to deploy quickly was important, as was the ability to redeploy resources when faced with an unexpected problem or to avoid busy business periods such as holidays etc
- **Risk management** – a range of significant risks, some not well understood, needed to be managed. An Alliance provided a risk sharing framework suitable for such a situation
- **Innovation and solutions focus** – given the above, the ability of designers, contractors and Council staff to come together an focus on finding innovations and solutions was likely to be critical
- **Dynamic design and construction optimisation** – given the limited design work completed the Alliance was considered most suited to developing the design and construction details in parallel and in an inter-active way
- **Market and supply-chain leverage** – Queenstown is a small contractor market with long supply chains, and an Alliance would maximise leverage to get the best suppliers and good prices
- **Broader outcomes** – the government and council were interested in achieving broader social outcomes (eg; employment) and an integrated model should maximise these opportunities.

The procurement plan considered three contracting options – traditional, three-waters panel and alliancing. A quantative assessment was undertaken in which an alliance scored significantly higher (see Appendix 4 and further discussion on page 18).

Thus, the decision at the time to go with an Alliance is a totally reasonable response to the issues facing the Council. These issues are discussed in more detail in the section the Performance of the Alliance below.

The Programme Alliance Agreement (PAA) largely followed a standard alliance approach, however, there were two key aspects where it differed.

Firstly, the owners (QLDC and NZTA) had separate projects within the Alliance (normally there is one owner, or two/three owners jointly funding the same projects). In the first few years NZTA did not have an active construction project and therefore much "skin the game" and while initially there was good involvement they arguably did not commit sufficient Allaince expertise.

Secondly, the schedules to the PAA (Schedule 5) set out that a standard QLDC contract management approach would be used. However, this was somewhat at odds with the Alliance approach, especially when it came to governance and decision making by staff. In particular, the QLDC's Programme Control Group (PCG) was not suited to an Alliance because they were designed for a design and build contract management approach (eg: gateways). In practice the PCG was not used as part of oversight.

On the other hand, the Engineering Challenge Group (ECG) was used for technical approval by subject matter experts (SMEs). However, it appears[5] that the ECG or some of the SMEs acted in a design approval role without wider consideration of the budget implications.

Thus, appropriate QLDC senior management oversight and resourcing was weaker than it needed to be (especially in the last 18 months without Peter Hansby's experience). Given the size and risk around the Programme an internal oversight group to support the CE and GM Property and Infrastructure would have been helpful. possibly involving GM of Assurance, Finance and Risk, the OIM and the Commercial and Procurement Manager.

No advice to QLDC CE was provided at the beginning about what would be required in terms of the management oversight/interaction of such an Alliance. The assumption around support from NZTA did not fully eventuated and the business as usual programme oversight was not always fit for purpose. Specifically, the Council did not resource itself up sufficiently to reflect the complexities of the Alliance, or the reporting requirements back to Council. It principally relied on a General Manager Property and Infrastructure, one other senior manager and an Owner Interface Manager (OIM), who all also had very big day jobs, to manage everything. Perhaps some sharing of pain/gain across programme by the owners would have incentivised greater collaboration.

Long Term Lessons:

lt5 That, for transparency on major high-risk projects, the CE report back to Council on the outcome of the procurement plan process (including pros and cons of option and rational for preferring an Alliance)

lt6 That governance and decision making within QLDC needs to be adapted and resourced to suit an Alliance. In particular, it should be clear how it integrates with business-as-usual project oversight, budget control, and is to be synced with Alliance decision making. An internal oversight group to support the GM Property and Infrastructure should be considered.

lt7 There needs to be greater incentive on the owners to work together and share their expertise and experience on all the projects (not just their own), perhaps some owner pain/gain sharing across the whole programme could be included in the future.

[5] Interviewees had differing views on what role SMEs played in approval of designs.

Performance of the Alliance

This section addresses how well the Alliance has delivered on its promise. It is largely through a QLDC lens, but there are lessons for NZTA too. The section addresses performance on a topic by topic basis, and illustrates the lessons by drawing examples from all four projects. The topics covered below, include budget outturn, construction cost inflation, design and estimation, capability and relationships, community and business relations, and quality of the final product.

Budget Outturn

The increase in cost to completion has primarily impacted the Arterial project to date[6], but Street Upgrades and to a lesser degree Lakeview have also been impacted.

The Lakeview project outturn cost has come in quite close to the TOC, but the NOPs are in some “pain”. There have been savings, but these have been off-set by the seven month delay in reaching practical completion. The project has experienced cost increases, largely due to asbestos contamination being far in excess of what had been anticipated, but these are valid variations and neutral from a TOC perspective. The delay noted above could have (but didn’t) result in costs to QLDC from the developer, but has delayed the timing of receipts due to QLDC.

The Street Upgrades project has also suffered from cost increases but through the application of the pain/gain mechanism has come within QLDC’s budget, albeit also with a delay on completion date. This means that the NOPs margin for overheads (eg: HR and back-office support) and profits have mostly been eroded. Therefore, QLDC is largely paying only the actual cost of what has been built (ie: Limb1 which is independently verified actual costs of staff, suppliers and subcontractors, with no margin for the NOPs).

The cost increase for Street Upgrades was driven mostly by costs and redesign due to the discovery of unexpected utilities (eg: the Alliance discovered an unknown utility on average every 900mm) and unexpected ground conditions (eg: the extensive roots of the Wellingtonia tree in Brecon St). While the design was reported to be 100% completed before commencement, the unknown utilities phenomenon (which is not uncommon in town centre upgrades in NZ and Australia) meant that further design work had to be undertaken. Note there was some contingency provided in the TOC for this and for cost inflation (see later comments).

The advantage of an Alliance in these types of circumstance is they were able to pivot work on other areas and focus on finding a new design solution with minimum cost increase or delay. Under a traditional construction contracting approach (eg; as set out in NZS3910) this would most liklely have resulted in a drawn-out dispute about variances (most contractors will not accept utilities risk nor unforeseen ground conditions), and in some cases resulted in many additional months of delay with corresponding increases in costs.

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[6] although NZUP is facing similar cost pressures it is only at the beginning of delivery.

The Arterial project in particular has faced additional and more acute challenges. The result of consequent reforcasting and increases in cost to completion has required two QLDC budget increases: $21m in April 2023 and $18m in February 2024. The estimated Alliance cost to completion is $97m, plus QLDC costs, resulting in a total revised budget of $128m. The effect of the Alliance pain/gain mechanism is that QLDC is only paying the actual cost of what is being constructed (ie; only Limb1 with no margin for NOPs). While there remains some risk of further cost increases (ie: some unquantified risks) there is a prudent contingency in this latter figure.

Table 2 contains a summary of the Alliance's recent report on the Arterial cost to completion, which includes detail on cost drivers. There are two main reasons QLDC has ended up in this position on the Arterial project, namely, extraordinary construction cost escalation and poor design/estimation. These are discussed further in the following two sections.

Table 2 – Extract from Alliance Board Arterial Report Feb 2024: Increase in Cost to Complete and Impact of Funding Decision

a) Since the previous re-forecast (reported to the Programme Alliance Board at the 31 January 2023 meeting) and subsequent approved increase to budget, the remaining work scope has been fully re-priced and there is a projected increase of $16m required to complete the project. This reforecast means that the Forecast Final Cost of the project is estimated at $97m, compared to the previous advice of $81m.

b) At the point of the previous re-forecast and approved budget increase, the remaining work had been re-quantified based on the final design. The final design quantities had been priced with latest rates where possible, but where not possible due to procurement still to be completed, initial TOC rates (initial pricing rates) were used, and a contingency was included. However, as procurement of all remaining work progressed through-out 2023 it became apparent that the current budget was no longer sufficient. The main drivers are; the increased complexity and methodology required to deliver the work, additional risks uncovered that were not known, changes in temporary traffic management 'specification,' cost escalation, and additional programme duration due to the now known complexity.

c) Cost saving options have been constantly reviewed all the way through the project. Some options were already implemented earlier in 2023 including removal of the Ballarat Street Pedestrian Overpass and changing concrete footpaths to asphalt. Due to the stage in the project where most scope is now in construction, significant cost saving options are very limited. Remaining viable cost saving options have been included in this report and are being investigated now. They will be implemented where possible. None of these options are able to reduce the final forecast cost to within the current budget.

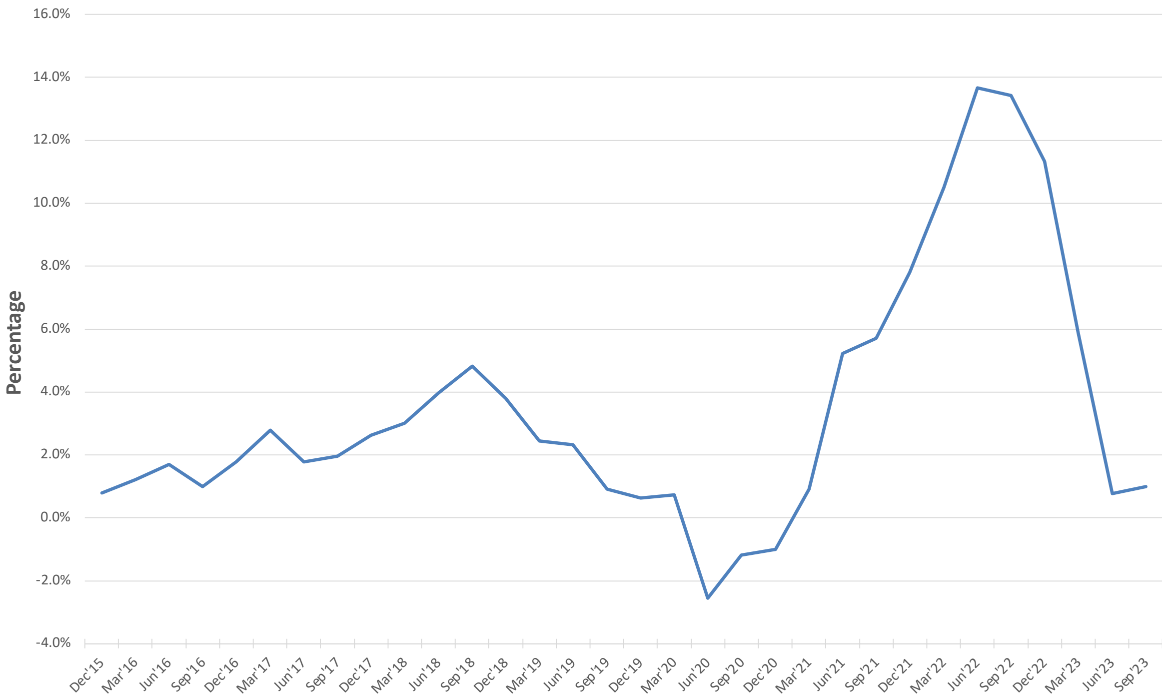
The final area to comment on is the cost of Alliance management. These costs are typically higher in an Alliance due to the nature of alliancing agreements and processes. The Alliance and the Independent Estimator both build-up these management costs separately, and then exchange and reconcile these. These costs are also benchmarked against other Alliances. Interviewees acknowleged these costs were at the high end of the typical range. While there has been some increase in the

TOC for this aspect, it is small in the scheme of things. The upside is these costs are shared with NZTA which has lowered the overall cost to QLDC.

Construction cost inflation

Escalation of construction costs in NZ over the last three years has been extraordinary by recent historical standards. See Figure 1. These escalation numbers have not been seen since the 70's and 80's and where not forseen in 2020.

Figure 1: Year on year NZTA cost escalation construction index



The Alliance estimate that escalation has varied between between 10% and 40% for different services and products. Anecdotally, there is also a premium in Queenstown due to its remoteness and small market size. The QLDC budget forecasts for the Arterial project have gone from the original \$65m in August 2020, \$89m in October 2021, \$110m in April 2022 to \$128m in February 2024 – roughly a doubling (note these costs have been rounded to the nearest million and differ from the Alliance TOCs due to inclusion of associated QLDC costs). Of the latest \$18m increase[7], 19% is escalation due to inflation.

This scale of cost increase has been seen in most other major projects in NZ. For example, the original budget for Wellington's Golden Mile upgrade was \$74m[8], this rose to \$90m in 2021, \$118m in 2022 and \$130m in 2023 – not quite doubling overall. The main drivers were infrastructure-specific cost escalation and more accurate assessment of construction costs, in particular temporary traffic management and site management. Inflation costs made up 35% of these increases.

[7] A brakedown of how much of the increase over the life of the project is due to inflation related costs is not available, but the it is likely to be signifcantly higher.

[8] Note these are p50 estimates

This inflation is largely unavoidable. While the Alliance has used its market power to get good prices, there are limits to using this leverage in hard economic times without making suppliers “go broke”. Street Upgrades avoided the worst of this inflation, but the Arterial project was in the “centre of the storm”.

In terms of lessons, the issue is therefore more about how cost escalation was managed rather than whether it could have been avoided.

Firstly, the Alliance Board flagged the risk of “extraordinary price increases” as early as September 2021 and gave it a “red” rating in August 2022. The first time this issue was reported to the Councillors was December 2022 when a request to remove the Pedestrian Overpass from the Arterial project was presented and approved by Council. The brief report did flag escalation risk (13.7% increase in construction index) but only offered up the Overpass (and a range of options for descoping the overpass). It implies that this would address the budget problem but there is no discussion of the wider budget risk for the programme if this escalation continues.

The potential broader programme cost risk was not made explicit with the CE and Council until early 2023 when the Council was briefed on April 2023 on a request for budget increase. An earlier heads-up would have avoided the surprise element and allowed mitigations to at least be considered earlier when more options were available. Good practice would be to consider a range of cost escalation scenarios, options for de-scoping, and how they would impact on the realisation of project benefits (ie: BCR). This does not mean Council would have necessarily accepted these options given the benefits of the programme.

Secondly, NZTA has recognised this recent cost escalation as an historically extreme event and an industry wide problem. It has therefore provided guidance and a process for providing budget increases to cover it. This guidance is being applied in the case of the NZUP project but unfortunately NZTA are not funding the QLDC projects. In contrast, neither QLDC nor CIP have a such a policy. CIP have given a flat “no” to any budget increases over the cap, although annecdotely one of the interviewees reported that CIP have provided for escalation on at least one other projects in NZ. QLDC has approached CIP on this issue.

Design and estimation

The design and estimation for the Street Upgrades and Lakeview projects was generally within acceptable margins, however, there were some issues with the unconstructability of aspects of the design. As noted earlier, the main issue has been the need to redesign or adapt due to unknown utilities and ground conditions.

On the other hand, the design and estimation for the Arterial has often been poor – there are a number of reasons for this.

Firstly, the Alliance “30%” design meant that the Alliance TOC Team and the Independent Estimator (IE) materially underestimated the extent and engineering complexity of the project (eg: retaining walls, tie-backs, cul-de-sacs, stormwater). The “30% design” used for the original TOC, was incomplete or too conceptual in some key aspects and effectively either treated like a "ready for construction" design or presented in a way that the cost risks were not apparent – and therefore insufficient contingency allowance was made. Normally this would have been picked up by the IE, but his estimate was very close to the Alliance estimate.

Secondly, it is likely that Covid-19 and having a remote design team (based in Christchurch) contributed to this under-estimation problem. In an Alliance it is important that there is close but robust relationships between designers, subject matter experts (SMEs), contractors and the IE.

Notwithstanding the above, it was really the lack of an early heads up of the scale of design gap and corresponding cost increases, and the options for addressing them, that is the issue. While the Alliance and QLDC SMEs undertook value engineering exercises which resulted in some descoping and cost decreases (refer Table 2, and in particular the removal of the pedestrian overbridge in December 2022). There does not appear to strong budget control or a fundamental rethink at any stage. It's not clear whether the then GM Property and Infrastructure considered such a rethink, but there was no early opportunity for the QLDC CE to consider major de-scoping or delaying aspects in order to meet budget constraints, and therefore consider whether it needed to be escalated to the Council itself. The focus appears to have been finding cost savings which still achieved the specified design, rather than the overall budget constraint (eg: the redesign of the St Joseph's school retaining wall, providing for refuse-truck turn-arounds on cut off streets).

It is important to also recognise that, putting aside the above issues, QLDC may have decided to approve a budget increase anyway on the basis this was the best option and that the benefits still justified the costs - but the budget increase requests (both in April 2023 and February 2024) were not framed in this way. What is also clear, is that notwithstanding the lost opportunity to consider more radical descoping options, what has been built is still good value for money. That is, notwithstanding the additional design development and in some cases design rework required, and delay that ensued, QLDC largely got what QLDC paid for (refer Budget Outturn section above).

Finally, while at a much earlier stage, the design and estimation for the NZUP project has undergone major churn and delay. Early cost estimates significantly exceed the budget, and it has been difficult to get agreement beteen the Alliance and NZTA on the rescoping of the project. There was initially a wide gap between the Alliance and IE's TOC estimates. There has now been detailed design, cost reconciliations, and greater risk assessment, and because of the time available to work through the issues, the final TOC when agreed is likely to be more resilient and robust than was the case when the original TOC for the Arterial project was agreed. The government recently agreed to increase the budget from the orginal $115m to $250m.

Capability and Relationships

The capability of staff and relationships between partners is critical to the success of any Alliance. A number of the people interviewed for this review noted that performance has generally been "OK", but that "the magic didn't really happen" in this Alliance. The inteviewees discussed a number factors that may have contributed to this:

- Loss of key people and project champions

- Distraction and delays of Covid -19 and lock down
- Difficulties of recruiting people to live and work in Queenstown
- NZTA's lack of "skin in the game" associated with slow implementation of NZUP.

Notwithstanding these observations, where tensions have arisen (eg: the practical completion and handover process with QLDC) these have been pro-actively and maturely addressed. As in any Alliance these issues will need to be continuously and proactively addressed over the remaining life of the programme, in particular:

- Key person and recruitment challenges – identify key person risks and develop a workforce plan to ensure the right capability is recruited
- Stronger leadership role for NZTA – ensuring that they bring their Alliance experience to the table
- Improvements to QLDC governance – the Infrastructure Committee be delegated an oversight role and the senior management review their internal governance to recognise the complexities and risk associated with the Alliance (see above sections pages 6 and 8).

Community and Business Relations

One of the hardest challenges for any infrastructure improvement project in a town centre is managing the inevitable disruption to businesses and property owners - the Whakatipu Transport Programme Alliance is no exception.

Feedback from interviews indicates that community and business relations has been a "mixed bag" – there are examples of good practice and sometimes problems on both sides. At a broad level the community has not fully embraced the programme – possibly the compelling story of refurbishing town centre for the future has been lost in the issues around business disruption, delay and cost increases. Other comments relate to the effectiveness and infrequency of the community liaison group meetings, and a "feeling" that those communicating did not empathise with residents situation or did not follow through eg: works did not happen when scheduled or occurred without adequate notice.

There is an opportunity to review and re-set the communications and engagement strategy, and in particular the Stakeholder & Engagement Plan. The review needs to look at the role of QLDC staff in providing context and to better leverage established relations in the community, the role of the Community Liaison Group, and whether to leverage the recent progress on the Arterial and the start of works on NZUP to provide a more compelling story to the public.

Ongoing Construction and the Quality of the Final Product

Overall the quality of the final build looks to be mostly with industry norms. There have been two specific quality issues raised during the review:

- Stormwater management in the town centre – this is the subject of a separate review process and not commented on further here
- Practical completion and hand over of asset – as noted earlier there have been some issues with aspects of the hand over assets, but these have been mostly minor. The process has also been slow. These relationship problems between Alliance and QLDC appear to have now been adequately addressed. While the Alliance did engage with QLDC staff early on the handover process this did not

seem to help when it was put into action. The lesson for any future Alliances is to not only engage early with SMEs but to “stress test” the process to iron out any problems.

While construction of the arterial continues for another year, the NOPs are arguably no longer incentivised to come in under-budget or (ie: the limb 2 has been exhausted). The Council could consider renegotiating an incentive element where there is enough time to make a difference in the final stage of contruction. For example, Council could use some of the budget contingency as a “risk pool” to incentivise them to stay within budget, quality standards and timeline.

Overall Findings

The above section on Alliance performance illustrates that the ‘devil is always in the detail’ when it comes to implementation. The following sub-section tries to lift up a level and draw some more high-level findings on the challenges with implementation of the Alliance model in Queenstown.

Most of the interviewees commented that the Alliance model was not always well understood at the Council governance level and by some of the QLDC staff. While this appears to be true to a greater or lesser extent for various individuals, I also think they were often discouraged to learn more by comments that it was a “complex commercial model” and a feeling that the Alliance was somehow removed from QLDC. In particular, three areas could have been better understood and would have given decision-makers and contributors at different levels a better chance of making it a success.

Firstly, key Councillors (such as those on the Infrastructure Committee) need to understand how the commercial model and pain/gain mechanisms works, at least at a conceptual level. That is, how the transparency around verified actual costs, role of the Independent Estimator (IE), pain/gain incentive mechanisms and NOP profit/overheads margins deliver value for money in the absence of a traditional contractual approach. This up-skilling could include understanding how various scenarios could play out (eg; the exhausting of pain/gain).

Secondly, QLDC senior managers and staff involved in the day to day of such a programme need to understand the mechanisms – especially how limbs 1, 2 and 3 are calculated, the role of the IE and Alliance in reconciling the TOCs, risk management and reporting, and having confidence in the processes that determine them. This upskilling could have involve formal mentoring or capability building for staff (eg: experiencing other Alliances in practice).

Thirdly, the concept of “best for project” is embedded in the colloborative basis of an Alliance, but the role of the owners to lead this is not always well understood. In this case QLDC senior management and staff must set the agenda for their projects. If, for example, there is an overriding fiscal constraint, then this needs to be worked through collaboratively to determine what is ‘best for project’ to deliver this. The QLDC Board representative and the Owner Interface Manager (OIM) play a key role here, and all Alliance and QLDC staff need to be clear where these decisions are made.

***Longer Term Lessons*:**

lt8 That greater effort needs to go into ensuring Councillors and key Council staff fully understand the Alliance model and how to implement it successfully. This up-skilling should include understanding how various scenarios could play out (eg; the exhausting of pain/gain) and formal mentoring or capability building of staff (eg: experiencing other Alliances in practice).

lt9 That any future Alliance agreement consider what happens when pain (Limb3) exceeds the overheads and profit margin (Limb2) and there is no longer risk sharing incentives on NOPs – perhaps some residual risk sharing arrangement could be developed

lt10 That for major and high risk projects QLDC agree how the Alliance provides QLDC staff decision makers with early heads-up on cost any major cost escalation, options to keep within budget, and the benefits as well as costs of such options - such reporting would enable the CE to escalated significant issues in a timely way to the Council

lt11 *That both the QLDC senior management and Alliance Board prioritise management of their key person and recruitment risks throughout the project – this could include a risk register of critical personal and the development of a workforce plan to endure the recruitment and retention of the right capability.*

Short Term Lessons

st3 Refresh the Stakeholder and Engagement Plan and role of Community Liaison Group (CLG) and QLDC staff in communication and engagement for the remainder of Arterial and the NZUP projects

st4 Consider negotiating a risk sharing arrangement with NOPs for the remainder of the Arterial project where there is enough time to make a difference (eg: create a "risk pool" with some of the contingency budget to incentivise completion ahead of time and budget).

st5 *Review the handover and practical completion process for the Arterial drawing on lesson learnt from the Town Centre project.*

The Counter Factual

A review such as this would not be complete without some commentary of the counter factual ie: what would have happened if there was no programme or no Alliance. Noting of course that this is only opinion because it is not possible to definitively prove any counter factual scenario. And also noting that a robust assessment of the contracting models was undertaken in the procurement plan before choosing and alliance (refer page 8 and Appendix 4).

The need for rapid decision-making due to the Covid-19 crisis in 2020 is set out on page 6 and 7. Given the funding constraints on NZTA and QLDC that exists in normal circumstances it is very unlikely the programme would have advanced during this period.

In terms of procurement, other contracting options were considered at this time and the Alliance approach chosen (the reasons are outlined on page 8). The other options considered where to use the existing QLDC 3-waters consultant and contractor panels, a Fixed Price or some sort of Measure and Value approach.

Firstly, all these alternative options would have been much slower to get started, and would not have met the “Shovel Ready” funding timelines nor explicitly addressed the wider desired outcomes around economic stimulus and employment. While the Panel could have been used, they did not necessarily have the right capability and any contract package awarded would have used one or more of the standard contracting arrangements (as discussed in next two paragraphs).

Secondly, it is unlikely that any contractor (or consortia) would have taken on the high level of risks associated with proposed programme in a fixed price contract – and/or they would have built-in cost escalation clauses and transferred this, and other risks such as design, back to QLDC. Typically, where there are design or significant cost escalation issues such as what happened during Covid-19, such contracts lack the agility of an alliance and would have resulted in lengthy litigation and large delays (in similar cases contractors invoked force majeure or just walked away). A variation to Fixed Price would have been to use an early contractor involvement approach, this would have probably mitigated some of the design risks, but been lengthier, and still have QLDC holding the design and cost escalation risk.

Finally, a Measure and Value contract tends to only work where you have a well-developed design, which was not the case here, and would consequently have resulted in a cost-plus approach.

In summary, QLDC would have more than likely been worse off under these scenarios.

Conclusions and Lessons

The Whakatipu Transport Programme Alliance was created in the “fire” of the Covid-19 crisis and any review “in the cold light of day” is likely to find problems. Blaming and re-litigation of previous decisions in this context can be meaningless. That is why this review has rightly focussed on lessons learnt that can be applied into the near- and long-term future.

Broadly, this Review has found that the decisions to enter into the funding agreements and form an Alliance were reasonable in the context of the time. However, given the large size and high risks associated with the programme more oversight at councillor level, better reporting sytems and more oversight by senior management would have avoided being “surprised” by cost increases. In particular, earlier heads-up would have given the Council a better opportunity to either descope elements or continue with a better understanding of the cost drivers and be confident that the benefits still outweighed the costs.

Nevertheless, the overall outcome is still good value for money. That is, you are getting what you paid for at cost, especially in the projects where NOPs have little (Street Upgrades) or no (Arterial) profit / overhead margin due to the loss of Limb 2 through the pain/gain model.

Most of the increased costs are a result of the standard of the original design and it being based on limited information, unforeseen ground conditions and unexpectedly high inflation, and were therefore unavoidable. While it appears some of the design problems could have been avoided, these design cost increases themselves are not substantial compared with the increased construction costs that flowed from them – and have been now swallowed in the loss of NOP margin (Limb 2).

This view is reinforced by thinking about the counter factual. That is, given any contractor would have encountered the same problems, it is therefore highly unlikely QLDC would have got it cheaper through a more traditional contract.

The short term and long-term lessons are summarised in the box below. The long-term lessons are those the Council should consider when contemplating a major co-investment with government agencies and/or Alliance in the future. The short-term lessons are those that should be considered in the remainder of the current Alliance.

Summary of Lessons Learnt

Long Term:

lt1 That governance arrangements at Council and senior management levels should better reflect the risk profile of large infrastructure projects, and ensure there is adequate capability to support it

lt2 Council's Audit and Risk or Infrastructure Committees could be delegated an oversight role for such large and complex investment programmes which are above and beyond business as usual

lt3 That the CE and GM Property and Infrastructure regularly review progress on the programme and budget for such projects and escalate to Council as appropriate

lt4 That for large and complex work programmes reporting systems to CE be put in place to ensure risks are understood, there are no surprises and appropriate mitigations are applied in a timely way. This could usefully be presented as a monthly risk dashboard and presented to Council as appropriate.

lt5 That, for transparency on major high-risk projects, the CE report back to Council on the outcome of the procurement plan process (including pros and cons of option and rational for preferring an Alliance)

lt6 That governance and decision making within QLDC needs to be adapted and resourced to suit an Alliance. In particular, it should be clear how it integrates with business-as-usual project oversight, budget control, and is to be synced with Alliance decision making. An internal oversight group to support the GM Property and Infrastructure should be considered.

lt7 There needs to be greater incentive on the owners to work together and share their expertise and experience on all the projects (not just their own), perhaps some owner pain/gain sharing across the whole programme could be included in the future.

Summary of Lessons Learnt continued…..

lt8 That greater effort needs to go into ensuring Councillors and key Council staff fully understand the Alliance model and how to implement it successfully. This up-skilling should include understanding how various scenarios could play out (eg; the exhausting of pain/gain) and formal mentoring or capability building of staff (eg: experiencing other Alliances in practice).

lt9 That any future Alliance agreement consider what happens when pain (Limb3) exceeds the overheads and profit margin (Limb2) and there is no longer risk sharing incentives on NOPs – perhaps some residual risk sharing arrangement could be developed

lt10 That for major and high-risk projects QLDC agree how the Alliance provides QLDC staff decision makers with early heads-up on cost any major cost escalation, options to keep within budget, and the benefits as well as costs of such options - such reporting would enable the CE to escalated significant issues in a timely way to the Council

lt11 That both the QLDC senior management and Alliance Board prioritise management of their key person and recruitment risks throughout the project – this could include a risk register of critical personal and the development of a workforce plan to endure the recruitment and retention of the right capability.

Short Term:

st1 That the Council's Infrastructure Committee be delegated oversight for remainder of the Arterial Project and a risk dashboard be reported to its regular meetings

st2 *That the CE and GM Property and Infrastructure regularly review progress on the Arterial Project and budget and escalate to Council as appropriate*

st3 Refresh the Stakeholder and Engagement Plan and role of Community Liaison Group (CLG) and QLDC staff in communication and engagement for the remainder of Arterial and the NZUP projects

st4 Consider negotiating a risk sharing arrangement with NOPs for the remainder of the Arterial project where there is enough time to make a difference (eg: create a "risk pool" with some of the contienegency budget to incentivise completion ahead of time and budget)

st5 Review the handover and practical completion process for the Arterial drawing on lesson learnt from the Town Centre project.

Appendix 1: Terms of Reference for Review

Purpose

1. To undertake an independent lessons learnt review of the performance of the Whakatipu Transport Programme Alliance and report findings to the CEO and Councilors.

Background

2. In quarter two of 2020, during the early stages of the initial COVID-19 lock-down, the Government made available funding for “Shovel Ready projects”. QLDC applied for funding for a number of projects. QLDC’s submission was successful in gaining offers of part funding for two projects, namely the Queenstown Town Centre Street Upgrades project (the Street Upgrades project) and the Queenstown Town Centre Arterial Stage 1 project (the Arterial project).

4. QLDC entered into at MoU with NZTA to deliver the two projects (Lakeview was added to scope in 2021). In late 2020 the partners went to the open market to establish an Alliance and a consortium of engineering consultant companies (Beca and WSP) and contractors (Downer and Fulton Hogan) were appointed. The successful consortia, along with QLDC and NZTA, then collectively formed the Whakatipu Transport Programme Alliance.

3. To date, the Town Centre Street Upgrades have been largely completed. The Lakeview project has been largely construction completed, and construction work has been ongoing for at least 12 months on the Arterial project with a target date for completion in Dec 2024.

4. Since its inception, the Programme has faced a range of issues around cost escalation, transparency with Councillors and public engagement. At its meeting of 27 April 2023 the Council directed “staff to undertake a "lessons learned" process which at a minimum should include the use and operation of the alliance model.QLDC's management of risk and opportunity in major projects and the key considerations in entering into third party (e.g. Government) funding agreements”

5. Consequently, the CEO has commissioned a lessons learnt review in order to identify any improvements that could be made and to inform any future funding partnerships with government and the use of alliances.

Scope and Critical Issues

6. The review focuses on lessons that can be learnt from the implementation of the Alliance to date. The aim is to understand the root causes of the issues that have emerged and make findings/recommendations on how these could be better managed in the future. It is not an audit or “blaming” exercise

7. There are two parts to the review:

    a. The initial decision to establish the Programme and Alliance, including:

- What is an Alliance and what are the other options that could have been considered at the time.
- Why have Alliances been chosen elsewhere and comparison to Queenstown situation?
- Understand the Government funding covid stimulus packages and their effect on decisions.
- What was the basis for the council decision to go with an Alliance model? –Was it sound at the time?

b. The performance of the Alliance in implementing the programme to date, including:
  - Costs – reviewing the management of escalations and cost estimation?
  - What is the experience in the market generally about costs and price escalations during the time of the Alliance and how comparable are they?
  - Managing and sharing risk – appropriately done?
  - Communication and engagement with Councillors and the public?
  - Governance and decision-making – has the Alliance been well governed?

Methodology and Reporting

8. The key output is to prepare a report and presentation to the CEO that can also be used to present to Councilors, and the Alliance Board if required.

9. The approach is to:

   a. Review the Alliance documentation (eg; Council and Alliance reports)

   b. Review relevant external documentation – Government reports, funding agreements etc

   c. Undertake a site visit to understand the Programme and meet key people.

   d. Undertake structured interviews with key stakeholders. Who is interviewed will be guided by QLDC. Fifteen face-to-face or video interviews are proposed

   e. Prepare a first draft and summary of key findings for QLDC review

   f. Prepare final report and presentation

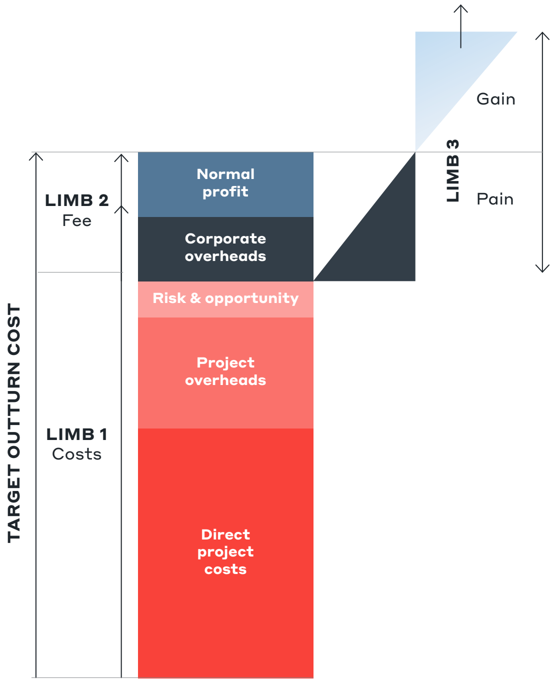
   g. Present to Councilors, and Alliance Board if required.

10. Tony Avery will be the key QLDC contact point and will provide direction.

Appendix 2: List of people Interviewed

Name	Role	Date
Ed Husband	WTP Alliance Programme Manager	7 February
Geoff Mayman	QLDC Owner Interface Manager	7 February
Mike Theelen	QLDC CEO	8 February
Glyn Lewers	QLDC Mayor	8 February
Phillipa Green	Alliance Commercial Manager	8 February
Gareth Noble	QLDC Procurement Manager	8 February
Tony Avery	QLDC GM Property and Infrastructure	9 February
Niki Gladding	QLDC Councillor	9 February
Gavin Bartlett	QLDC Councillor	9 February
Stew Burns	QLDC CFO	9 February
Peter Spies	NZTA Alliance Board	12 February
Ulvi Salayev	Alliance Board QLDC Independent Member	14 February
Andrew Johnson	Alliance Board Chair	16 February

Appendix 3: Alliance Primer – developed by WSP[9]



Compensation Model for Delivery

Essentially, there are two parts to the compensation model:

1. Compensation for the cost performance
2. Compensation for the non-cost performance

In addition, there are three limbs on the compensation model:

Limb 1 is for the reimbursable costs, such as the direct project costs and the indirect project-specific overhead costs that are actually incurred by the NOPs on the project. These costs are underwritten, whatever happens in the project. All of the NOPs recover the limb 1 costs. In addition, the agreed Net Risk and Opportunity Cost is captured against the Limb 1 component.

Limb 2, often referred to as the NOP fee, includes the corporate overhead and profit from this project. This fee or project margin for the NOPs is established on historical business as usual performance.

Limb 3 is the pain-or-gain portion of the compensation model. If NOPs can deliver the project to target, without doing any better nor worse, they will simply recover limbs 1 and 2. However, if NOPs can deliver exceptional performance and high KPI performance, then there could be some additional rewards that they get on top.

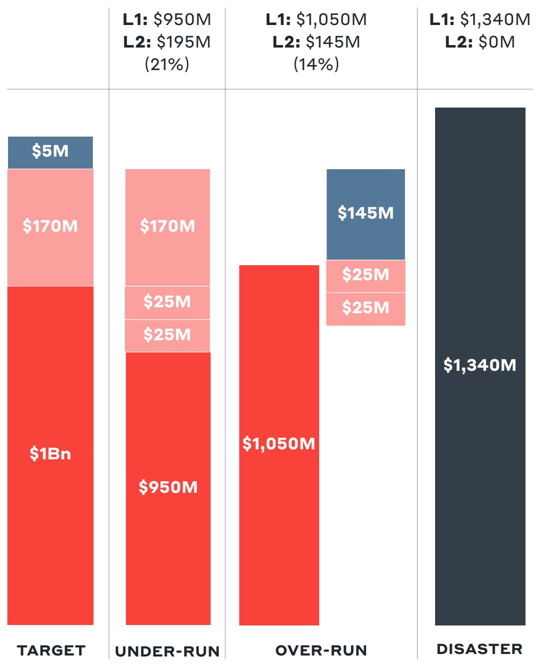
Pain or Gain Example

Target project value: $ 1.175B, including a $5 million reward, in case of extraordinary performance.

Underrun: the project is delivered $50M under budget. The NOP fee increases from $170M+$25M = $195M. The client gets a great job and pockets half the savings. The reward pool payment will be determined from the performance of the KRA & KPI Metrics.

Over-run: the project is delivered $50M over budget. The NOP fee reduces by $25M. $170M - $25M = $145M. The client gets extra $50M project work, but only funds half of this.

Disaster: the project is delivered for $1.34B. The NOP loses its entire limb 2 NOP fee. The owner gets the project done at a cost but has to underwrite the extra $340M over budget.



07 Leveraging Project Procurement & Delivery Approaches for Positive Outcomes

[9] From February 2021 presentation "Leveraging Project Procurement & Delivery Approaches for Positive Outcomes".

Appendix 4: Contracting Model Assessment

Factor	Traditional	Waters Panel	Alliance	Comment
Scale	x	xx	xxx	High cost of the package is more suited to Alliance model. The traditional scores the poorest as it will be very challenging from a number of levels to deliver these projects in 'siloed' traditional approach. 3 Waters Panel scores between Traditional and Alliance as the main risk is the increased scope and risk of being 'spread too thinly'.
Complexity	x	xx	xxx	The project will benefit most from an Alliance delivery model to reduce risk and streamline the project programme by resolving key risks at an early stage. The Panel's ECI options to a lesser degree also mitigate risk.
Risk	x	xx	xxx	The consortium will manage the design and constructability issues and risks in the 3 Waters Panel model. However, this will also be reflected in the price which will include allowance for these risks. In the traditional model the Principal will own these risks, whereas at Alliance model the risks will be shared as per the agreed commercial model with appropriate incentives.
Programme	x	xx	xxx	Alliance can overlap stages to streamline the programme. Generally, each stage of a Traditional project must be completed before the next stage can commence. The Panels are operated through a PMO, which can to some degree manage programme.
Cost of delivery	xxx	xx	x	Traditional and 3 Waters Panel are likely to be lower cost than Alliance due to the market tensions created through the tender process.
Upskilling the Supply Market	x	xx	xxx	Traditional and 3 waters panel models will to varying degrees assist QLDC with the objective to strengthen and upskill the local industry. The Alliance might attract the 'A-Teams' however these teams operate across NZ and might not achieve the lasting positive effect on the local market, this could however be mitigated by requiring minimum levels of sub-contracting and sub-contractor development.
Speed and ease of implementing the delivery model	x	xxx	xx	As the Panel is in place this scores highest. Undertaking the programme under a traditional model would be very time intensive. While an open market Alliance approach would also be time-consuming.
Innovation	x	xx	xxx	Innovation is achieved by having the contractor involved in the design processes early. The Traditional model does not provide this, while Panel arrangement and Alliance do.
Flexibility	x	xx	xxx	The project scope may change depending on the funding constraints; therefore, flexibility and agility are important, and the Alliance model prevails in this area.
TOTAL	**11**	**19**	**24**	