

MT MESSENGER BYPASS PROJECT: SUMMARY OF EVIDENCE OF PETER ANTHONY ROAN (ASSESSMENT OF ALTERNATIVE OPTIONS, MCA PROCESSES) FOR THE NZ TRANSPORT AGENCY

1. I have been involved in the Mt Messenger Bypass project since early 2017 and hold the role of Planning and Environmental Manager in the Alliance. In this role I coordinated and led the route selection / assessment of alternatives process, which involved:
 - (a) assisting with developing options;
 - (b) developing the multicriteria analysis (MCA) assessment methodology;
 - (c) facilitating the two expert assessment MCA workshops and assessment processes;
 - (d) reviewing the outcomes from workshops and applying weightings to sensitivity test the options evaluations processes; and
 - (e) providing recommendations on the options to the Transport Agency.

2. A two-stage MCA process was undertaken to consider and evaluate options for the Project, comprising a longlist (of 24 options) and shortlist (of 5 options) assessment process. The methodology was consistent across both assessments, and comprised the following steps:
 - (a) generation of longlist options to be evaluated by subject matter experts;
 - (b) development of assessment criteria by which the corridor options would be evaluated in both the longlist and shortlist assessments (i.e. a two-stage evaluation process was applied). The criteria were selected taking into consideration relevant statutory matters, the Transport Agency's project objectives, the likely effects of the Project, and experience from other projects;
 - (c) the application of a consistent scoring system by which all criteria would be assessed (providing for both positive and negative impacts);
 - (d) specialist briefing on the options and scoring methodology, and subsequent expert scoring of options;
 - (e) workshop(s) to assess and evaluate the options against the consistent scoring criteria and identify positive and adverse effects;
 - (f) analysis of the options scoring, including using weightings and sensitivity analysis;
 - (g) shortlisting of options from the longlist, and repeating the above assessment

process through the shortlist stage; and

- (h) reporting on the MCA outcomes at the longlist and shortlist stages and presentation of results to the Transport Agency as the decision maker responsible for selection of the preferred option.
3. This process was used to evaluate 24 corridor options (the longlist evaluation, in MCA1) to identify a shortlist of five corridor options (the shortlist evaluation, in MCA2) and then to further evaluate that shortlist. The process was designed to be repeatable through the two step evaluation process, and enable transparency in scoring and analysis.
 4. Given the number of possible route options for the Project and complex considerations involved, in my opinion, MCA provided a useful and robust tool to aid in distinguishing between alternative options. MCA is essentially a decision support tool, enabling options to be scored in a transparent and independent fashion against predetermined assessment criteria. The process assists in assessing the relative merits of options, making explicit the key considerations and the values attributed to them. The process generates a score for an option, relative to other options, from which it is possible to rank options in relation to each other and then test the analysis using weightings.
 5. Ultimately, the Transport Agency as Requiring Authority is responsible for selecting the preferred option. That decision should take into account the results of the MCA, in conjunction with any other considerations the Transport Agency considers to be relevant (including in this case the cost of each option).
 6. With that overall decision-making process in mind, the MCA (and my reporting on the MCA) did not necessarily seek to identify a single "best" performing option. Even if it did, the Transport Agency, as requiring authority, was not required to choose the "best" performing option from the MCA.
 7. At the end of the MCA1 process, the 24 longlist options were reduced down to 5 options. The shortlisted options provided a representative selection of the better performing options from the longlist options assessment process. The shortlisted options also provided for a geographic spread, while omitting the poorer performing options. The shortlisted options were: **Option A**: the western most option, located west of SH3 in the Parininihi land, in the Waipingao Valley; **Option E**: the eastern most option, located to the east of SH3; **Options F and P**, located in the Parininihi land, closer to the head of the Waipingao Valley; and **Option Z**, the 'online' option, located largely within the Transport Agency's SH3 landholding.
 8. It is my opinion that, at the end of the longlist assessment process, the longlist options had been examined in a robust manner and that the shortlisted corridor options

represented an appropriate range of options to be taken forward for further assessed in the shortlist stage. In mid-June 2017, public consultation was undertaken to gain input from local communities and key stakeholders on the five shortlisted options.

9. The shortlisted options were subject to the same assessment methodology applied in the longlist stage (with the refinements to two criteria). My role was to facilitate the MCA2 workshop and then, following the workshop, tally scores and apply weightings to test sensitivity and establish an overall weighted score. The tallied scores for four of the five options (Options E, F, P, and Z) were relatively close, with three of the five options (Options E, P, and Z) receiving equal best raw score totals. This is perhaps not surprising given that the longlist process had filtered out inappropriate options. Option A was the worst performing option of the short listed options.
10. At the conclusion of MCA2, and as reported in the Shortlist Report, I recorded the following recommendations:
 - (a) Option A should not be progressed as the preferred option, given it was fairly clearly the 'worst' performed in the MCA2 process, and would in my view present significant consenting risks;
 - (b) Option F should also not be progressed given it was very similar to Option P, but performed worse on the important terrestrial ecology and landscape criteria; and
 - (c) The other three options (Z, P and E) should all be considered when determining a preferred option. All scored equally in terms of raw scores, which reflects that each of those options had different strengths and weaknesses in MCA performance. I noted that Option Z received the highest tallied score across two of the three weighting systems.
11. I did not identify a 'recommended option' for the Transport Agency to progress.
12. Following the MCA2 process, further design refinement work and costing was carried out by the design team. For Options A and P, route refinements were considered north of the tunnels through the northern ridge, however, this did not address the matters driving the MCA scoring associated with crossing the Waipingao Valley.
13. The northern end of Option Z runs adjacent to and through a large landslide feature. Significant ground engineering works (some 1.5km of retaining wall) were incorporated to isolate the alignment from the landslide and to achieve the Transport Agency's design requirements. The ground engineering meant that this option carried the highest cost of the five shortlisted options. Refinements to this alignment were considered, however, no refinement was identified that would either avoid the landslide or meet the Transport Agency's engineering requirements.

14. Refinement to Option E was made down the northern Mangapepeke Valley, shifting the alignment from the western part of the valley floor to the eastern valley flanks, avoiding poorer soil conditions in the valley floor.
15. Cost estimates for the refined shortlisted were prepared. Option E was the lowest cost option, while Option Z was the highest cost option (some \$112M higher than Option E).
16. I consider that at the end of the alternatives assessment process, corridor options for the Project had been thoroughly examined.
17. Following the analysis of the results of the MCA2 process, the subsequent refinement work, and having regard to the cost estimates, the Transport Agency then determined that Option E would be taken forward as the Project option.
18. As I note above, MCA is a tool to support decision making. Ultimately, the Transport Agency as Requiring Authority, is responsible for selecting the preferred option. Based on the outcome of MCA2, it would have been reasonable to choose any of Options Z, P or E. The Transport Agency's decision needed to take into account the results of the alternatives assessment process (the MCA), in conjunction with the other matters the Transport Agency considered relevant.
19. The NPDC s42A report questions why the Transport Agency did not select the online option (Option Z). Mr Symmans (EIC and supplementary evidence) describes the landslide feature at the northern end of Option Z, the results of geotechnical monitoring (which confirms that the landslide is active), and the ground engineering required for Option Z to meet the Transport Agency's engineering standards. I understand that with the benefit of the additional geotechnical material that has been provided to Council on the landslide feature, Council's reporting officer, Ms Rachelle McBeth, is now generally satisfied with the conclusion that Option Z would not meet the Transport Agency's resilience criteria without significant cost. I understand that Ms McBeth now accepts the basis for the Transport Agency's selection of Option E as its preferred option.
20. Overall, and on the matter of s171(1)(b) and whether adequate consideration has been given to alternatives, it is my opinion that the assessment process that I have led meets this test. The assessment process considered a wide range of realistic and feasible options, is robust and consistent between the longlist and shortlist stages, is transparent in the scoring given to options and the reasons for scoring, and was and is repeatable. It has involved subject matter experts relevant to the effects of the Project, including scoring of cultural matters by Ngāti Tama representatives. The process has informed the Transport Agency's decision making to help identify its preferred option for the Project.