Memo

To: **Carly Hinde, Principal Project Lead, Premium Unit, Planning and Resource Consents, Auckland Council**

From: **Derek Foy and Rodney Yeoman, Directors, Formative**

Date: **14 October 2025**

Re: **Fast Track Referral pre-application Wairau Blue-Green Network Stage 1 - A F Thomas Park (PRR00042611)**

The purpose of this memo is to provide Auckland Council ("AC") with preliminary economic guidance on the pre-application information submitted by Healthy Waters (the "applicant") in support of a proposed Fast-track Approval Act ("FTAA") referral for a flood mitigation at 27 Northcote Road, Hillcrest ("the proposal").

The pre-application documents suggests that the proposed flood mitigation is designed to have wetlands, dry detention, and public open space which will be used for future recreational uses. The site comprises 43.7ha which is currently used as Takapuna Golf Course, and is zoned Open Space - Sport and Active Recreation Zone ("OS-SRZ").

1 Information reviewed

We have reviewed:

- The economic effects assessment prepared by Martin Jenkins Associates titled "Wairau Blue-green Network - Stage 1 AF Thams Park" (August 2025), referred to as the "MJA report".
- The concept and feasibility report prepared by Auckland Council titled "Wairau Blue-Green Network Stage 1 - A F Thomas Park" (July 2025), referred to as the "Stage 1 report".
- The pre-application engagement project summary memo, prepared by Jacobs (August 2025), and titled "Project Overview and Proposed Works".

2 Review of MJA report

This section reviews the key elements of the MJA report and provides preliminary guidance on the FTAA application from an economics perspective. This review considers the economic methodology, policy options tested, temporal parameters, expected value, opportunity cost, sensitivity analysis, unquantified benefits, overall significance, and level of detail provided.

2.1 Economic method

The MJA report quantifies the economic value of the flood mitigation proposal using Cost Benefit Analysis ("CBA") approach, which estimates the outcome at a societal level from the proposal as compared to the current situation. CBA framework is the standard method applied by Treasury for national level policy assessment[1] and assessing the merits of significant infrastructure investments,[2] and is also applied by Auckland Council.[3]. We agree with the method adopted as it will provide an understanding of whether the benefits outweigh the costs, which is one matter that needs to be considered by decision makers under the FTAA.

2.2 Policy options tested

The MJA report compares the status quo (the existing uses of AF Thomas Park) as compared to the option of flood mitigation via the proposal. We agree with the use of the current situation (a 'Do Nothing' scenario with no additional flood protection) as the counterfactual. Against which alternative policy options are tested. Comparing the flood mitigation proposal to the counterfactual provides a useful result which shows that in most instances society is better off from the implementation of the proposal.

However, there may be other alternative ways of mitigating the risk, and it would be valuable to test those alternatives to show that the flood mitigation proposal that has been chosen is the best. The MJA report acknowledges this potential and recommended[4] that AC investigate whether:

- Additional alternative protection mechanisms may be put in place. Logically, additional protection would reduce flooding risk and hence could be beneficial, even if they do not mitigate all risk.
- There might be future retreat from the most risk-prone areas, with potential for more houses to be rated as category 3. If such retreat were to occur, societal risk could be reduced by not allowing people to live in highest risk areas.
- Planning rules to manage future development potential can change risk. We understand that Plan Change 120 ("PC120") Housing Intensification and Resilience has been designed, at least in part, to manage development in high-risk areas and to allow more intensity in lower-risk areas.
- The Stage 1 report has an option of investing more to allow both the flood mitigation and the full golf course to be retained. This would require a much larger capital

[1] Public sector agencies submit Budget bids for programmes and initiatives through the Treasury, where they are assessed using Cost Benefit Analysis.
[2] NZTA applies Cost Benefit Analysis to assess transport network investments.
[3] Auckland Council (2018) Guide to weighing benefits and costs – Chief Economist Unit.
[4] Page 7.

investment of over $100million, twice the available budget. However, it is an option that could have been tested, even if it is likely to perform poorly.

We consider that it would be beneficial to assess a range of policy options to ensure that the chosen option of flood mitigation is the best option. If various options have already been considered that fact should be noted, and those options and their relative merits stated.

2.3 Temporal parameters

The outcomes of most CBAs are sensitive to the temporal parameters adopted, particularly the assessment timeframe and discount rate. In general, most policies involve investing in long-lived assets to meet future needs. If a shorter timeframe is used, fewer of the long-term benefits are captured in the analysis. Similarly, higher discount rates reduce the present value of future benefits more sharply.

We consider that the assessment period should align with the expected life of the investment, and that the discount rate should reflect the nature of the investment (social or commercial). In this case, the MJA report adopts a baseline assessment period of 100 years and a 4% discount rate which we consider is reasonable. However, we note that:

- The sensitivity analysis only tests shorter timeframes than the 100 years (i.e. 25, 50, 75), and not longer timeframes (e.g. 125 years), which means the range of benefits presented is likely to err on the downside (that is, benefits are likely to be understated).
- It is common practice to apply a lower discount rate for non-commercial or social investments. If a lower discount rate had been applied, the value of benefits assessed would have been larger.

As a result, the range of the Present Value of the benefits and costs shown in the assessment (page 19) are more weighted to the downside, and the benefits are more likely to be understated than overstated. The MJA report has tested a range of input parameters to test sensitivity of the analysis, and from that sensitivity testing reaches a BCR range of 0.5 to 1.4. That range is wider than we would expect and without understanding the nature of the assumptions made in the sensitivity testing may mean that readers infer a greater likelihood of returns from the proposal being negative (indicated by BCR values of less than 1.0) than is anticipated.

It would be valuable if the MJA report provided a result for a baseline run, driven by a 100-year assessment period and 4% discount rate. While the BCR for that baseline is not provided, or able to be calculated from the information provided, we anticipate that the BCR might be greater than 1.0 and provide a better indication of the expected BCR of the proposal. If the MJA report does not consider that such as baseline scenario can be presented with any greater certainty than other scenarios, that should be stated.

2.4 Expected value

The benefits (and some of the costs) will only occur when a flooding event occurs, and there is inherent uncertainty regarding the timing and scale of such future events. The MJA report addresses this uncertainty by estimating the Annual Average Damage (AAD), which represents the expected value - a standard economic approach for incorporating uncertainty. The AAD is the probability-weighted average of all possible outcomes and provides an estimate of the expected damage based on the likelihood of each event type. This is a reasonable and widely accepted method for quantifying uncertain future impacts.

However, we note two aspects of the assessment:

- The MJA report assumes that no new development will occur within the catchment in the future. This assumption may lead to an underestimation of the benefits, as additional buildings are likely to be developed over time, although we recognise that (if adopted) AC's PC120 will direct future growth toward areas of lower flood risk and manage development in higher-risk locations. Over time, this is likely to result in less development in high-risk or high-impact areas, and more in lower-risk zones. It would be beneficial for the MJA report to incorporate the updated property-level data used in PC120 to reflect these anticipated development patterns. Also, we understand that new houses are required to have stormwater mitigation, such as retention tanks and other flood management mechanisms, which could mitigate or reduce the risk. If more development occurs in the catchment those mitigation measures could decrease the severity of the flooding events.
- The MJA report assumes that the transition of flood events from today to future more damaging events because of climate change occurs evenly through time (climate change was "linearly interpolated"). We assume that this means the flooding events changes between current to future by even increments (1% each year) over the assessment period, and the full impact of climate change only occurs in the final year. While we are not experts in climate change, we consider that transition in nature systems tend to follow non-linear paths. As an example, if the pathway between current events and future climate change event follows an S-curve, which is common in environmental systems, then the benefits from the proposal would be different, potentially larger, than is shown in the MJA report, because there would be a greater impact from adverse events earlier in the assessment period.

2.5 Opportunity costs

The changes in the operation of the Takapuna Golf Course are important, because there could be a reduction in golfing activity and consequent reduction in operation costs associated with proposal, if

it results in the size of the course being reduced. We have not reviewed the course usage data or the operational costs used in the MJA report, but how these will change is important, and we consider that the modelling described in the MJA report[5] represents a reasonable set of outcomes resulting from change in golfing activity.

We agree that if the golf course stopped operating or changed to a smaller format (fewer holes) then there would be a transfer effect, whereby some of the existing players will continue to play golf elsewhere with an associated decrease in operational costs at the Takapuna Golf Course, and an increase in operational cost at those other courses. It is also reasonable to assess the potential outcome if a 9-hole course was retained. However, we note that the Stage 1 report includes an alternative option that has a full 18-hole course retained, which does not appear to be included in the MJA report.[6]

2.6 Sensitivity analysis

We consider that the sensitivity analysis is useful and note that the MJA report finds that the results of the CBA are most sensitive to discount rate, timeframe, build cost inflation, displacement of golfers, and share of golf operating costs that are saved. We consider that the sensitivity analysis should have also tested the assumption of no change in buildings and the transition pathway. The BCR range will be sensitive to these assumptions, however not using those assumptions will be most likely to underestimate the overall benefit, and hence to underestimate the BCR.

2.7 Unquantified values

There are a range of unquantified benefits and costs noted in the MJA report, some of which we consider will be material (i.e. flood protection benefits from stage 2 and 3 and greater development potential), while others are likely to be relatively small (e.g. lost tourist spend, government spend during response to flood event). On balance we would expect that if these unquantified benefits and costs were measured that the net position would be improved, and the BCR ratio would be higher.

2.8 Significance

A key aspect of the FTAA is that the activity must generate benefits of either national or regional significance. The MJA report does not discuss whether the proposed flood protection project would deliver significant benefits within the region, and it would be useful to do so to support decision making under the FTAA.

[5] Page 12

[6] According to the Stage 1 Report the capital cost of retain the 18-hole course and have the flood mitigation would be over $100m. This option is not shown in the sensitivity analysis.

One way of doing this would be to outline the total impact of a flooding event in a given year relative to the regional economy. That is, using undiscounted figures and not accounting for the probability of occurrence, what would be the total loss of buildings, and other impacts (such as injuries or fatalities), if a flooding event occurred in the coming year. This would provide decision-makers with a clearer understanding of the potential significance of the flood protection within the regional context. While the CBA approach is important for assessing whether costs outweigh benefits, it does not convey the scale or significance of potential impacts, which is a primary consideration under the FTAA.

2.9 Detail

We note that the results presented in the MJA report are high level and it is not possible to independently replicate the results from the report. The report notes that a "comprehensive CBA will be developed for the detailed business case in 2026". It would be beneficial if the report provided an appendix or detail on the calculations applied to establish the values, or if a more detailed report was provided for the consenting phase. This would allow independent verification of the results.

3 Conclusion

In conclusion, having reviewed the application materials, we consider that some additional information is required to enable AC to adequately assess the economic effects of the proposal and potential mitigation measures. The additional information we recommend includes:

- Testing of other reasonable alternative policy options such as other mitigation[7], retreat[8], managed risk[9] or TGC concept[10].
- Assessment of future development outcomes to better understand the impacts of potential flooding events.
- Additional sensitivity analysis to cover other key uncertainties.
- Evaluation of the proposal's significance for the region.

We consider that this additional work would be beneficial, however we acknowledge that it is unlikely to change the overall findings of the MJA report, and in fact would most likely indicate that the net positive benefits from the CBA are higher (i.e. society would gain more from the proposal) than assessed in the MJA report, with the BCR range likely to be mostly above 1.

[7] Other engineering options to minimise the risk, such as on-site management of storm water or other catchment level works to reduce flooding.
[8] Buying out land holders in high risk area to reduce the impacts e.g. category 3.
[9] Planning rules to limit development in high risk areas and encourage growth in low risk e.g. PC120.
[10] Retain the golf course and have flood mitigation, which would require $100m of capital.

It would be of assistance to decision makers if the economic assessment included a specific discussion about significance of the proposal, given that is a requirement in the FTAA.

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