Minutes:
Final CAP Meeting – Economic Analysis for All Adaptation Areas

Date: Wednesday, 10 April 2024

Location: Kotare Room, Ramaroa Centre, Queen Elizabeth Park, Paekākāriki

Time: 1.30 pm – 4.30 pm

Attendees: Jim Bolger (Chair), Jerry Mateparae, Donald Day, Martin Manning, Susie Mills, Kelvin Nixon, Moira Poutama, Stephen Daysh, Derek Todd, Ngcebo Gwebu, Jason Holland, Sandhira Naidoo, Alfred Lison, Heather Patterson, and Abbey Morris

Observers: Michael Moore, Glen Olsen, Sophie Handford, and Cam Butler

Apologies: John Barrett, Olivia Bird, Mark Taratoa, and Sean McKinley

Agenda Item	Comments
Opening & Introductions	**Welcome** by **Jim Bolger, Chair** Karakia by Moira
Confirmation of the minutes	**Jim Bolger, Chair** Jim gave an overview of what today's session would entail, and noted that the optional thresholds decided by the CAP will be included in the CAP's recommendation report to Council after the CAP have heard from the community. Jim asked for comments on the minutes from 11 October 2023, and 13 December 2023. Jim motioned to accept these minutes. Don moved and Kelvin seconded. Regarding the draft 20 March 2023 minutes, Martin considered an error existed in a statement attributed to him, and as a result an amendment was made to remove the words in ~~strikethrough~~: "Martin reported a story of properties that insurance companies were withdrawing from~~, but a council decided to take on the risk instead~~." . Martin moved the minutes, and Don seconded.
Optional Thresholds for Adaptation Areas - Confirmation	**Stephen Daysh, Mitchell Daysh with support from Monique, Jacobs** *Facilitated discussion session – CAP decision required* Monique reminded CAP of what they had discussed at the previous meeting, where CAP went through the list of possible topics for their optional thresholds and said 'Yes' or 'No' against erosion and inundation units in RAA and PAA to indicate whether they thought the topic was relevant for that area. Monique discussed how in the previous meeting, the CAP asked TAG to create a spreadsheet where all optional thresholds and optional topics for all adaptation areas, split between erosion and inundation units, could be viewed together. As the CAP had developed some differing topics/wording for NAA and CAA, the TAG made recommendations where there were gaps. Monique continued that CAP's job today would be to go through TAG's further recommendations for where the optional

	threshold topics could be applicable and confirm or adjust them particularly with local knowledge.
	• Monique discussed how NAA and CAA did not have similar thresholds for some topics, so she applied the 'Yes' and 'No' values to these areas to align with what CAP had decided for RAA and PAA. For optional threshold topics 'Frequency of Flooding' and 'Depth of Flooding' Monique marked erosion units as a 'No' and inundation units as a 'Yes' for whether the topic is applicable and confirmed with the CAP that they agreed with this.
	• Monique explained how erosion is the main hazard concern for three waters infrastructure (drinking water, stormwater, and wastewater) as it can be exposed when the land is eroded away, so this has been marked as 'Yes' against all erosion units and a 'No' for all inundation units as the pipes are underground.
	• Monique continued that 'Road Access' was a topic that CAP indicated as important for RAA and PAA, however, NAA and CAA did not have a threshold topic for exclusively road access, so this was added as a 'Yes' for all units.
	• Monique also explained that for 'Telecommunication/Power Services' no similar threshold was developed for NAA and CAA, so they have been added and marked as 'Yes' for being applicable to all units.
	• Monique moved onto the 'Septic Tanks' optional threshold topic, explaining that the NAA erosion unit has been changed from a 'No' to a 'Yes' to reflect the CAP's decision at the last meeting to mark this topic as applicable to both erosion and inundation PAA units. This decision was due to the potential loss of the septic tank disposal fields from erosion, rather than just considering the impact from flooding. Monique explained how this has been carried through to the NAA units, which is another area that relies on septic tanks, so both types of units in NAA and PAA have been marked as 'Yes' for 'Septic Tanks'.
	  ○ Stephen agreed with CAP's decision that both hazards should be considered when it comes to operational impact on septic tanks.
	• Monique continued onto discussing the 'Beach Access' optional threshold topic, explaining that CAP's optional threshold from NAA and CAA about safe public access to launch boats is not applicable to RAA and PAA so has been marked as 'No' for all RAA and PAA managed units.
	  ○ Jerry responded that there is a boat launch facility on the waterfront in Raumati, so the 'No' for RAA erosion unit should be changed to a 'Yes'. All CAP agreed.
	  ○ Jerry also noted that there may be a boat ramp in Paekākāriki as the Surf Club can launch boats. Susie agreed that there is a ramp there, but unsure if it is for public use. Susie commented that PAA erosion units could be marked as a 'Yes' anyway in case.
	  ○ Stephen asked for confirmation from Council after the meeting about whether there is public access to launch boats in Paekākāriki, and asked that it be kept at 'No' until this can be confirmed.
	  ○ Jerry commented that once this report goes public, if we've marked it as a 'No' but there actually is a public boat ramp then it will call into question what the CAP is doing. Stephen responded that this is why it is important to receive confirmation.
	  ○ Don remarked that the Surf Club's ramp is gated that prevents public access.
	  ○ Monique reminded the CAP that these topics are for the thresholds which trigger a change in adaptation when reached, and asked them if they would consider moving a seawall just because they don't have boat

	access? Or is this a community value that you are already trying to protect through your adaptation options along the way? Abbey added the question, for Paekākāriki which has re-establishing the line in a draft pathway, would you recommend retreat just to be able to have boat access? Jim responded no. ○ Stephen asked the CAP if they would like to keep it as 'No' until boat access can be confirmed? CAP agreed. ○ *Note: It was confirmed afterwards that there is not an official boat ramp in Paekākāriki so 'No' was kept for the PAA*. ○ Glen commented on the issue of boat launching access and stated that there is a public ramp at Otaihanga (within the CAA) which goes into the river and is at risk of inundation, and users are already having problems accessing it. Glen added that it is a public ramp that you can get a key to if you are a member of the boat club. Given this comment, the CAP determined that CAA inundation for boat launching optional threshold should become 'Yes' instead of 'No'. • Monique moved onto 'Dune Volume', which she noted as not being relevant topics for Paekākāriki and Raumati, as sufficient dunes are not present within these areas, and asked the CAP if they agreed, given this, that dune volume should then be marked as not relevant for these areas. CAP agreed. • Monique continued onto explaining the 'Significant Event' optional threshold topic, and how NAA and CAA didn't have a similar threshold, so TAG filled them in as 'Yes' to indicate its significance for all areas. Stephen asked the CAP if they agreed that both optional topics 'Significant Event' and 'Cost of Public Maintenance' were applicable to all areas. CAP agreed. • Stephen moved onto 'Private Maintenance' and asked Monique to outline this threshold topic and why some areas had a 'No'. Monique explained that 'Private Maintenance' is not applicable to NAA and CAA as there are no privately maintained seawalls like there is in PAA and RAA. CAP agreed with this. • Stephen moved into 'Recovery Time Between Events', which are thresholds that have been marked as applicable for all areas. CAP agreed. • Stephen then moved onto the two optional threshold topics, 'Shorebird Habitats' and 'Mahinga Kai'. Monique explained that these were thresholds that CAP proposed for NAA and CAA, but no areas had yet been given a 'Yes' or a 'No' so this is something the CAP will need to decide today. Monique added that she had assigned 'Yes/No' to the areas, but she is not an ecologist so invited the CAP to change them however they saw fit. ○ Susie commented that damage from hazards further up the Waikanae River would have an impact on the shorebird habitats, so the inundation unit should be changed to a 'Yes'. Kelvin agreed that the CAA inundation units should have a 'Yes'. Susie added that this also applies to Ōtaki, so NAA inundation units should also have a 'Yes'. Stephen agreed that this made sense. ○ Kelvin remarked that this is a similar issue for 'Mahinga Kai' so both CAA and NAA inundation units should be changed to a 'Yes'. Moira strongly agreed with this. • Stephen thanked Monique for her contribution and advice, and commended CAP's call to have consistency across the adaptation areas by bringing all of them together. • Jim asked CAP who was prepared to move this document with amendments. Susie accepted. Don seconded.

	The results outcome of this discussion can be seen in Appendix A to these minutes. The text in red, shows CAP's determined changes to applicable optional thresholds within adaptation areas.

Economic Analysis of Top Pathways for Adaptation Areas	**Stephen Daysh, Mitchell Daysh & Derek Todd and Ngcebo Gwebu, Jacobs**
	
	Facilitated discussion session – <u>No</u> CAP decision required
	
	Derek began the discussion by giving an overview of the draft economic analysis and how these numbers were calculated.
	• Derek explained that there were two parts to the draft economic analysis of the preferred pathways.
	  ○ The first part sat with the engineers and coastal scientists at Jacobs where they looked at what the losses and costs might be to complete the actions in the pathways. Derek added that calculating this involves several key assumptions that will be further explained. The second part sat with the Jacob's economics team where they put the numbers through an economic model.
	• Gwebu introduced himself, shared that he was the lead economist for the work, and noted his previous work on coastal and flooding hazard assessments.
	• Derek gave an overview of the structure of their discussion, emphasising that the nature of economics is that you have to include a lot of assumptions to be able to come up with a quantitative figure. All these assumptions are outlined within the Draft Economics Analysis Methodology Memo and are subject to independent peer review which has yet to be completed.
	  ○ Derek recapped that the purpose of this analysis is to see the relative ranking between the CAP's MCDA scoring and the economic scoring. This information will then be used by the CAP to confirm their preferred pathway for each adaptation area in their recommendation report.
	  ○ Derek explained that the pathways the CAP will be focusing on in their discussion today are the ones where their MCDA rankings did not match up with the economic rankings. Jerry responded, upon reading the provided documents prior to the meeting, that the TAG had already done this analysis on their behalf. Derek replied that Jerry was correct, but it would be the CAP's job to take that information and consider if the pathways where the scores do not align show reason to adjust their top ranked pathway.
	  ○ Abbey reminded the CAP that their recommendation report will be including their top pathway for each management unit. Adding that, they now have their top three from the MCDA scores, and after this they will need to decide on one top pathway. Stephen recalled the recommendation report for the Hawkes Bay where their CAP had some highly MCDA ranked pathways that turned out to be unaffordable when the economics were applied, so they recommended one that was more financially viable. Stephen added that, ultimately it is the CAP that needs to decide what their preference is.
	  ○ Kelvin noted that the pathways which included managed retreat did not often align with the economics. Derek replied that they would explain further how the managed retreat was calculated.

	○ Derek also highlighted that out of 11 erosion units, 6 of the 11 match up between the MCDA and economics scoring. Out of the 9 inundation units, 4 of them matched up. Derek commented that just because a pathway is higher ranked economically, it does not necessarily mean that must be the preferred pathway as the MCDA values scoring is still important to consider in conjunction with economics. *Note: it was noticed after the CAP meeting that there was an error in the Comparison Table for TOP MCDA Scored Pathway vs Top Economics Ranked Pathways. The CAP was alerted to this and the table was corrected within the draft Economic Analysis of Takutai Kapiti Short-listed Coastal Adaptation Pathways report.* ○ Derek continued by noting that where we talk about costs there is no distinction of where the costs are coming from, whether from private landowners or Council. There is no obligation on the Council to fund any of these things and reminded CAP that Council is obligated to protect private property. He also noted that land-use planning measures are not included in the analysis because they do not have that information, but it can be expected that they won't result in an increase in future losses if there is good land-use planning. ○ Martin noted that the longer the time period covered within an economic analysis the more uncertain the results are. Derek replied that Gwebu would explain how the economists took this into consideration. • Derek explained the different matrices used to cost the pathways, and that Jacobs worked with information from KCDC, GWRC, and Jacob's national database of information as the basis for the costings. These costings are the best available numbers for a high level economic analysis. Derek added that they calculated the residual losses, such as when the flooding is larger than the adaptation option was designed for. Derek's explanation included that: ○ The 'Pathway Cost' and 'Damage Avoided' metrics were two metrics that Hurunui District Council used for their adaptation project and were helpful as part of their community engagement. ○ 'Cost + Loss' considers the cost of the adaptation option plus the cost of the residual damage and residual losses. Gwebu also noted that the economic analysis only takes the economic losses into consideration, but the CAP should also consider the losses from other values (i.e human, cultural, ecological) as covered as part of the MCDA process. ○ All the money values are in 'present value' which tries to account for the fact that people value a dollar today more than a dollar tomorrow, so these figures take inflation into consideration through a set discount rate of 5% which is standard practice. Jim asked that CAP pause to reflect on the absurdity of this, then invited the discussion to move forward. Gwebu noted that it is the Treasury's model for calculations and that it's an attempt at trying to assume what the value is going to be in 100 years' time. ○ Martin expressed concern for use of the long-term rate and noted it still has some issues. Stephen responded that this has been considered by sensitivity testing. Derek added that sensitivity testing showed that it didn't change the relativity between the pathways. ○ Derek continued that the cost of 'Status Quo' actions are as per the estimates on past costs and rates outlined in the current KCDC Long Term Plan 2021-2041. Also that under this analysis exercise the adaptation implement starts in 2020, so the costs associated with the proposed

Raumati and Paekākāriki seawalls (as including in the upcoming proposed Long-Term Plan 2024-2034) will have already been implemented and are not included within the short-term costs of the related pathways.
    - Derek noted to the CAP that the cost of retreat is calculated by multiplying the average private property value by 2.5 as the approach undertaken for the Hawkes Bay Coastal Strategy by Tonkin and Taylor. This approach provides an estimate for all associated costs. He also emphasised that no types of retreat approaches were used in the assessment, and there is no specification on who would bear the cost of retreat. Stephen endorsed the use of this methodology, citing the large amount of work done to come to that multiplier figure by Tonkin and Taylor. He emphasised how fortunate CAP are to have that piece of work for reference.
    - Kelvin asked why it was only the average house price as someone's property may be vastly disproportionate, especially in 10 years' time. Derek responded that they cannot include that degree of granularity on the calculations. All of these are high-level indicative figures. Abbey added that the averages are taken per management unit to acknowledge the difference of house prices throughout district and an average for the whole district was not used.
    - Jim reiterated to CAP that there are a large number of assumptions that are needed to inform this work.
    - Derek added that a property is considered lost when erosion crosses into the property boundary and damages above and below ground infrastructure, whereas inundation only influences above-ground infrastructure.
- Jim reflected on the cost of pathways that include dune reconstruction and renourishment, remarking that there would be a huge amount of sand required and he questioned where it would come from. Derek replied that it is an assumption that the sand would be available, and that no specific sources have been identified - there may be some available around the region but that can come with other consequences.
- Derek outlined some of the ways that sensitivity testing was undertaken for the pathways, including differences based on differing sea level rise scenarios. No changes in relativity were found.

Derek moved the discussion on to the economic analysis for pathways in the Northern Adaptation Area.

- Derek outlined the economic information for management unit 1A – Ōtaki Beach Erosion. Derek explained that pathway zero (PW-0) is always shown in the top line and is the baseline cost if nothing is done or the there are no changes to the maintenance. Abbey added that all these figures are based on the RCP 8.5 sea level rise scenario.
- Susie clarified that for the pathways that include retreat in this unit, the number of properties that are still exposed at the end of the pathway is zero because they have been retreated. Derek responded that this is correct.
- Susie asked why there is only one property still exposed at the end of pathway 1 that did not include retreat, does that mean that only 1 property would have needed to be retreated? Derek responded that the number does not include the number of properties that would have already been impacted by erosion and all the others were already exposed and lost in the modelling, so there was only 1

	property to be retreated. Susie explained that she thought those properties could have been protected by an option like renourishment in the medium term in PW-4. Derek responded that this takes into account that the adaptation option may not be completely affective, explaining that the effectiveness of something like dune renourishment decreases over time. • Abbey added that the cost of retreat in this unit is far smaller than the cost of retreat projected for other areas, given the average property prices. • Martin asked how the damages avoided sum is identical between them, even though one property would still be exposed in PW-1. Gwebu responded that is likely due to rounding of numbers, and how the value has decreased over the years. • Jim clarified that the data shows if a house falls into the sea then it is worth less than a house that is retreated. Derek responded that it is CAP's decision to take this into consideration through the recommendations. Abbey added that this shows it likely cheaper to allow properties to fall into the sea, if sea level rise was to occur, than proactively retreat. • Derek moved onto discussing management unit 1B – Ōtaki Inundation. Derek explained that the MCDA ranking did not align with the economic rankings in this unit, as the cost of retreat is so high due to the amount of properties that would need to be retreated, adding that it costs a lot less to build additional hard protection but you end up with three times as many buildings still exposed at the end of the pathway. • Cam commented that if you put all the additional hard protections in for this area then you will essentially build a flood basin, or even a swimming pool. Cam then asked how the residual damage from this has been accounted for in the economics, unless there is a system to drain it. Derek responded that costs of damage from a 1 in 100 year storm and smaller storms have been included in the economics calculation. Derek also added that aspects like the one Cam brought up should be considered in the design of the adaptation option. • Derek explained that all the units with inundation should have a note that the benefits in things could be better when considering a full flood multi-hazard, adding that you need to be recognisant that if you create a flood basin you need to be aware of the exit.
Tea Break	
Economic Analysis of Top Pathways for Adaptation Areas Continued…	**Stephen Daysh, Mitchell Daysh & Derek Todd and Ngcebo Gwebu, Jacobs** *Facilitated discussion session – <u>No</u> CAP decision required* Stephen outlined how the CAP would be focussing their discussion on the units where the pathways did not correlate between the MCDA scores and the economic scores. • Kelvin asked about 2A – Te Horo Beach Erosion, why the highly ranking 'Cost Benefit Ratio' for PW-1 wasn't included in this summary and it instead favoured the other pathways. Derek responded that is a good point, however, the other two pathways still have more high scores in more matrices than PW-1. Derek acknowledged that all the information can be used by the CAP to determine their recommended pathway. • Stephen moved to Management Unit 3A – Peka Peka Erosion. Stephen noted that PW-5 has the highest MCDA score, but PW-1 has the higher economics score.

	Derek emphasised that PW-1 ranks higher economically because it is the only pathway that does not include retreat, which is very expensive. However, the number of properties still exposed to erosion at the end of PW-1 is 15, yet for the other two it is 0. Derek clarified that this needs to be taken into consideration as just because a pathway is cheaper it does not necessarily mean it is the most effective.
	• Jim asked if there is really an alternative to retreat or seawall. Derek responded that alternatives are options like beach renourishment in the other pathways which are cheaper, but there is more residual risk as effectiveness decreases over time. Abbey added that this is part of CAP's decision, they need to ask themselves whether it is better to have a cheaper option that results in more properties being exposed or recommend a more expensive option where there are more damages avoided.
	• Glen commented that the baseline pathway (no adaptation done) seemed the most economical. Derek responded that you need to weight that against the other values such as social values.
	• Jerry asked about the number of properties that are currently exposed and wanted to have this data. Derek replied that these numbers are available and added that this number is calculated by measuring what impact a severe storm could have on the area and how many properties it effects.
	  ○ Jerry commented that it would be far simpler to understand the level of risk if one saw what percentage of the properties are at risk in present day.
	  ○ Derek responded that this information is available within the draft risk assessments.
	• Jim expressed that he does not see the point in projecting to 100 years out as it is so uncertain.
	  ○ Jim also asked when the risk assessments would be discussed by CAP seeing as this is the last CAP meeting and the risk assessments are not available yet.
	  ○ Stephen replied that CAP have had an overview and considering them further will be part of their considerations whilst the CAP writes their report.
	  ○ Abbey reminded the CAP that their recommendations should also consider the community feedback received through the engagement pop-ups, adding that they need to listen to the community and reflect the community's feedback in their report. Jim responded that they have been listening to the community for a long time now.
	  ○ Abbey explained, for the purpose of CAP Observers, that the CAP will be meeting independently from Council when they write their report. Jim queried if this means the note at the beginning of the meeting about this being the final CAP meeting was incorrect. Abbey replied that this is CAP's last meeting with TAG (including Council project staff) and CAP is doing their writing meetings as independent CAP Meetings. Abbey added that the Coastal Project Team have been supporting thus far and CAP have expressed that they want to be independent, so this is the point where the Council staff are stepping back.
	• Stephen moved to Management Unit 10A – Raumati (South of Wharemauku Stream) Erosion. Derek noted that this management unit includes a new seawall that is already in the proposed Long-Term Plan 2024-2034, so the cost of this

	seawall has not been included in the pathway cost as it is anticipated that it will be implement prior to 2030 under this exercise. • Stephen commented on how the pathways on this slide have not been ordered according to MCDA rank, unlike all the previous units. CAP requested this ordering issue be fixed for their consideration. • Stephen moved to Management Unit 11A – Paekākāriki Seawall Erosion. Derek noted that this is another management unit where a new seawall is already included in the proposed Long-Term Plan 2024-2034. • Stephen commented that the MCDA values and economic matrices seem to correlate on this unit as well as 12A. Stephen moved to discussion of the inundation units, starting with Management Unit 1B – Ōtaki Inundation. • Derek noted that this is another pathway that includes retreat, which is expensive so the economics favour other pathways even though they may have more residual risk. Derek also added that in PW-1 the floor levels will have been raised through the 'Accommodate' option in the medium term, so the flooding in the long term could be below floor level. o Martin responded that not all houses are able to have their floor levels raised. • Jim commented that he was still trying to work out the value of this. o Stephen replied that there is definitely deep uncertainty. o Abbey also responded that there is still more work to be done, including further consultation with the community post Takutai Kapiti prior to adaptation options being implemented. o Stephen added that the Hawkes Bay Council have utilised all the work that their CAP had done on their recommendations report and have found it extremely valuable. o Jim responded that he did not think it would be valuable to make recommendations if there are still several more steps where their recommendations could be changed, and if that is the case why should the CAP not choose their preferred pathways now. o Stephen replied that they may have been able to do that if there was more time in the meeting. o Abbey responded that CAP should not choose their preferred pathways before they have heard the community's feedback. Stephen replied that Abbey was right. o Jerry summarised his understanding of CAP's recommendations, that the CAP has received the best available information on climate change and the effect on the coast, as well as possible adaptation options to mitigate the damage. Jerry added that it seems to him that the decisions about what is actually done are with the community and the Council, and the CAP are only offering the information and recommendations for the Council to go to the community. He concluded by saying that he does not think the CAP should be recommending how much money the community may be willing to spend. o Stephen responded that the CAP could then include their top three pathways in their report instead of only the top one. Abbey replied that this may not be in alignment with the CAP's Terms of Reference. o Jason quoted the wording in the CAP's Terms of Reference "the panel is to recommend coastal adaptation options for Council's consideration".

	Jim responded that CAP could provide 3 options for each unit and have fulfilled their obligations, whilst also offering the Council more flexibility in how the money is spent. ○ Jerry stated that he cannot believe that Jim, in his former role, would have taken a paper with recommendations that told him what to do without options being provided. Jim replied he wouldn't have. Jim added that he agreed with Jerry, that CAP should put forward the top three with all the data and give Council the choice – CAP will not be recommending one pathway per management unit. • Stephen moved onto Management Unit 2B – Te Horo Inundation. • Derek again noted that these pathways include retreat, which is expensive, so they do not score highly on economic values. • Stephen moved onto Management Unit 3B – Peka Peka Inundation. • Jerry commented that PW-3 gives you the ability to change direction of your adaptation options as there is less infrastructure involved, but with PW-2 you will be more stuck with the infrastructure built in the medium term with the additional hard protection. He added that this could be a comment included to the Council in the report, that there is more flexibility involved in some pathways over others. • Jason added that wherever the CAP is certain about its recommendation then it should feel comfortable giving certainty, but that options can be provided where that is CAP's preference. • Stephen moved onto Management Unit 5B – Waikanae Beach Inundation. • Jerry stated that the difference between PW-3 and PW-5 is very small in MCDA score. • Stephen moved onto Management Unit 9B – Raumati Inundation • Derek explained how the top MCDA scored pathway in this unit is also the pathway with the least residual risk. • Jerry asked why PW-2 costs so much. Derek replied that it is likely the cost associated with Accommodate and raising floor levels or flood-proofing buildings. Derek noted that he would get this information for the CAP and report back. This concluded CAP's discussion.
Next Steps	Abbey thanked the Coastal Advisory Panel for all their work, along with the TAG for their support to the CAP. Jim thanked the CAP and TAG, explaining that this has been a complex and difficult issue and the CAP have worked through many issues. Jim also noted that many of the CAP have also gone out into the public and accepted that criticism too. Jim thanked the TAG as they have been essential to better understand the options.
Closing Karakia	By **Moira**

Takutai Kāpiti.

Kāpiti Coast DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

ATTACHMENTS
• 11 October 2023 CAP meeting minutes • 13 December 2023 CAP meeting minutes • 20 March 2023 CAP meeting minutes • Optional Threshold PDF • PowerPoint Presentation on the Economic Analysis of Top Pathways • Economics Analysis Draft Methodology Memo

Appendix 1: CAP's Confirmed Optional Thresholds

Based on the CAP discussions the following optional thresholds have been developed. It is recommended these are used as a starting point to engage with communities post Takutai Kāpiti. The table below records CAP's view on which thresholds might be applicable within the Adaptation Areas. The table attempts to bring consistency to the thresholds developed in the Northern and Central Adaptation Areas and those recommended in the Raumati and Paekākāriki Adaptation Areas. Tracked changes have been used to show how thresholds have been merged. The blue footnote text has been provided by TAG to provide commentary on these changes for the CAP's consideration. All other blue text shows where TAG have made additions for CAP's consideration and confirmation. Text in red shows where CAP has made changes (based on their discussion at the 10 April CAP Meeting) on what they have determined as being applicable regarding optional thresholds within adaptation areas.

Optional Topics	Optional Thresholds	Applicable?							
		NAA Erosion	NAA Inundation	CAA Erosion	CAA Inundation	RAA Erosion	RAA Inundation	PAA Erosion	PAA Inundation
Insurance	~~X properties not able to get insurance in x years.~~ (NAA/CAA) ~~First property loses insurance.~~ (NAA/CAA) ___ dwellings are unable to obtain insurance for coastal hazards.[1] OR ~~Insurance premiums increases to become unaffordable.~~ (NAA/CAA) ~~*The cost of X properties has increased to unaffordable rates.*~~ *(RAA/PAA)* The cost of insurance for ___ properties exceeds $_____ per annum making it unaffordable for the community.[2]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
[1] Wording differed between NAA/CAA and RAA/PAA although the intent was the same. The wording from RAA/PAA was more measurable and grammatically correct so has been included here. [2] Wording differed between NAA/CAA and RAA/PAA although the intent was the same. New wording is proposed to ensure the threshold is measurable and consistent between all Adaptation Areas.									
Frequency of coastal flooding	__ m or more of water ponds at _____ (specified location/s) for a continuous period of more than __ days.[3]	No	Yes	No	Yes	No	Yes	No	Yes
[3] No similar threshold developed for NAA/CAA. Could be applicable for all inundation units.									
Depth of flooding	Water enters __ dwellings within _____(specified community) __ times in __ years.[4]	No	Yes	No	Yes	No	Yes	No	Yes
[4] No similar threshold developed for NAA/CAA. Could be applicable for all inundation units.									
Water infrastructure	Drinking water and wastewater infrastructure is within __m of <u>the position</u> of Mean High Water Springs ~~position~~.[5]	Yes	No	Yes	No	Yes	No	Yes	No
[5] Wording amended to correct grammar. No similar threshold developed for NAA/CAA. Could be applicable for all areas. Note: There is no public water supply infrastructure in Te Horo and no public wastewater infrastructure in Te Horo, Peka Peka or Paekākāriki however, this threshold could be developed to cover private and public infrastructure.									
Road access	~~X times in x years that people loose road access to their property.~~ (NAA/CAA) ~~*X times in x years that people loose road access and/or services to their property.*~~ *(RAA/PAA)* Access to properties is unavailable for more than ____ hours, ___ times in ___ years.[6]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
[6] RAA/PAA threshold included roading and services. Specific thresholds on water services and telecommunications/power services were also included so services have been removed from this threshold and a new threshold was added to separate these topics. Reworded to ensure the threshold is measurable and provides for discussion on length of outages.									
Telecommunication / power services	~~*X times in x years that people loose services to their property.*~~ *(RAA/PAA)* Coastal hazards result in telecommunication and/or power outages for more than __ hours __ times in __ years.[7]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
[7] No similar threshold developed for NAA/CAA but could be applicable for all Adaptation Areas. Wording amended to ensure it is measurable provides for discussion on length of outages.									

Optional Topics	Optional Thresholds	Applicable?							
		NAA Erosion	NAA Inundation	CAA Erosion	CAA Inundation	RAA Erosion	RAA Inundation	PAA Erosion	PAA Inundation
Septic tanks	~~Effectiveness of septic system disposal fields are *operationally impacted* inundated for more than ___ days per year.~~ (RAA/PAA) Septic tank systems are operationally impacted for more than __ days per year.[8] OR Septic tanks are unable to be used __ times in __ years.[9]	~~No~~ Yes[10]	Yes	No	No	No	No	Yes	Yes
[8] Wording adopted from RAA/PAA and amended to improve grammar. [9] Wording adopted from NAA/CAAA but could be applicable for RAA/PAA too. [10] Propose changing NAA Erosion to "Yes" to be consistent with RAA and PAA. This threshold can be applicable for the erosion units due to potential loss of the septic tank disposal fields from erosion.									
Foreshore access	It is no longer possible to walk along the foreshore of _____ Beach during _____ tide.[11]	Yes	No	Yes	No	Yes	No	Yes	No
[11] Wording differed between NAA/CAA and RAA/PAA although the intent was the same. The wording from RAA/PAA was more flexible so has been included here.									
Beach access	Safe public access at _____(specific locations) is damaged ___ times over ___ years.[12] OR Safe public access to launch boats at _____ (specific locations) is damaged ___ times over ___ years.[13]	Yes Yes	No No	Yes Yes	No Yes	Yes Yes	No No	Yes No	No No
[12] Location added to ensure the threshold is measurable. No specific words were proposed for NAA/CAA so RAA/PAA words have been included. [13] Threshold topic from NAA/CAA and not applicable to RAA/PAA. No specific words were proposed in the meeting and the words above aim to capture the intent of the discussion.									
Seawall	The seawall requires significant maintenance and reinforcement exceeding $_____, ___ times in __ years.[14]	No	No	No	No	Yes	No	Yes	No
[14] Value included to help ensure "significant" is measurable.									
Dune volume	The dunes at _____ Beach are less than __ m in width, or height, or m^3 in volume.[15] ~~OR~~ ~~The distance between Marine Parade (Otaki) and the dune toe is less than ___m.~~[16]	Yes ~~Yes~~	Yes ~~No~~	Yes ~~No~~	Yes ~~No~~	No	No	No	No
[15] Changed "and" to "or" as will need a different figure depending on whether we are using width, height, or volume. [16] Deleted as it repeats the threshold above.									
Significant event	Any serious injuries and/or fatalities that occur as a result of a coastal erosion or coastal inundation event.[17] OR A coastal storm significantly compromises the effectiveness of the existing inundation (or erosion) protection structures.[17] OR ~~Properties being damaged by inundation: X house x times in x years.~~ A coastal storm causes damage to more than __ dwellings in _____(specified community).[18]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
[17] No similar threshold developed for NAA/CAA but could be applicable for all Adaptation Areas. [18] Wording differed between NAA/CAA and RAA/PAA although the intent was the same. The wording from RAA/PAA was more measurable and grammatically correct so has been included here.									

Optional Topics	Optional Thresholds	Applicable?							
		NAA Erosion	NAA Inundation	CAA Erosion	CAA Inundation	RAA Erosion	RAA Inundation	PAA Erosion	PAA Inundation
Cost of public maintenance	The overall cost of the current publicly funded _____ (specified) management approach exceeds $_____ per year.[19] OR A A targeted rate of more than $__ per year is required to fund the ongoing publicly funded maintenance of current _____ (specified) management approach.[19]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
[19] No similar threshold developed for NAA/CAA but could be applicable for all Adaptation Areas.									
Cost of private maintenance	The cost to maintain or replace privately owned seawalls exceeds what __ number of property owners are prepared to pay.[20]	No	No	No	No	Yes	No	Yes	No
[20] No seawalls in the NAA/CAA.									
Recovery time between events	_____ community is required to respond to ___ significant coastal storms within ___ years.[21] OR Emergency works costing over $___ are required ____ (frequency) to repair protection structures at _____ location. [21]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
[21] No similar threshold developed for NAA/CAA. Could be applicable for all areas.									
Shore bird habitats	_____(species) habitat is reduced.[22]	Yes	Yes	Yes	Yes	Yes	No	Yes	No
[22] No similar threshold developed for RAA/PAA and the thresholds were not matched to any adaptation areas. Could be applicable for all areas depending on the species concerned.									
Mahinga kai	Shellfish are no longer able to be gathered at _____ location.[23]	Yes	Yes	Yes	Yes	Yes	No	Yes	No
[23] No similar threshold developed for RAA/PAA and the thresholds were not matched to any adaptation areas. Could be applicable for all areas depending on the species concerned.									