



Minutes:

Extended CAP Meeting – Raumati Adaptation Area: MCDA Scoring of Shortlisted Pathways

Date: Wednesday, 13 December 2023

Location: Robin's Nest, Ngā Manu Nature Reserve, 74 Ngā Manu Reserve Road, Waikanae

(MS teams- link in invite)

Time: 1.00 pm – 6.00 pm

Attendees: Jim Bolger (Chair), Stephen Daysh, Donald Day, Martin Manning, Susie Mills, Kelvin Nixon, Moira Poutama, Jerry Mateparae, Olivia Bird, John Barrett, Derek Todd, Iain Dawe, Rhys Girvan, Danielle Johnson, Paula Blackett, Astrid Dijkgraaf, Jason Holland, Abbey Morris, Yvonna Chrzanowska, Heather Patterson, Alfred Lison, Oskar Temel

Observers: Tim Sutton, and Sophie Handford

Apologies: Mark Taratoa, Kris Pervan, Michael Moore, Cam Butler, Glen Olsen, Monique Eade, Kate MacDonald, Sandhira Naidoo, Aastha Shrestha

Agenda Item	Comments						
Opening & Introductions	Opening Karakia by Moira Welcome by Jim Bolger, Chair						
Confirmation of the minutes	 Confirmation of the Minutes Jim motioned to move the minutes be accepted. Don supported the motion to move the minutes and Moira seconded the motion. 						
Project Update	 Abbey Morris (KCDC) Abbey gave an overview about an upcoming informational video that will be presented by Derek, which will be done in the new year. Derek will talk about TK and the science behind the Jacob's report, as well as the addendum to the Jacob's report. It will include a PowerPoint presentation which will be recorded and released publicly. Abbey added that Kris Pervan (GM Strategy and Growth – KCDC) is looking to hold a catch up with CAP in the new year to discuss CAP's desired request to engage independently and to do more community engagements outside of the Council organised community engagement events. Jim asked for an update on the groundwater report. Abbey replied that she has requested a progress update from Council Infrastructure team on the groundwater modelling work done by AWA. The work is currently in the peer review stage, hoping to have further information in February 2024. Jim asked when CAP will receive the economic data to support their decision making. Abbey replied that this is on track as planned in the work programme for the early April CAP meeting. The Coastal Project team will be establishing a contract shortly to start drafting the economic data report. Abbey sought clarification from CAP to confirm the adaptation pathways for the RAA, based on discussions at the 15 November CAP meeting. She explained there was a 						



	 difference in interpretation amongst TAG about the agreed pathways for the erosion management units – Management Unit 9A (North of Wharemauku Stream) and 10A (South of Wharemauku Stream), regarding whether the seawall proposed was to be an enhanced or new seawall. Abbey stated that given there were different interpretations, instead of making assumptions she brought it back to CAP to ensure CAP's vision was captured. One interpretation on 'Enhance Sea wall ¹²' would mean building an entirely new seawall regardless of the structures that are there – refer to menu option 12: new sea wall). Another interpretation would be to 'enhance existing erosion protection structures' - refer to menu option 2. Derek explained that if a new sea wall is built the design may not always be able to withstand new environment conditions in the future. In that case CAP needs to decide whether they would prefer to enhance an established sea wall to meet the new conditions or remove the old sea wall and build an entirely new one that can meet the needs of the future. Martin stated it is very costly to enhance a seawall and noted that CAP must consider the presentation they received last week from Ecoreef as a potential cost-effective approach that allows for progressive sea wall development over time. Derek added that similar solutions which allow for new modules of the sea wall to be added over time are available and can come under the definition of enhancing the sea wall. Stephen highlighted the importance of clarifying the exact form of pathway the CAP has decided about and ensuring that the pathways match the menu definitions in the <i>High-level Menu of Options Raumati Adaptation Area</i> document. After some discussion on menu options 2 and 12, CAP agreed that they understood the "enhanced seawall" to be as described in menu option 2. Stephen highlighted the following change: The <i>RAA Shortlisted Adaptation Path</i>
Multiple Criteria Decision Analysis (MCDA) Assessment of Shortlisted Pathways for Raumati Adaptation Area	 Stephen Daysh, Mitchell Daysh with support from Derek Todd, Jacobs (Facilitated discussion session resulting in CAP decision required) Focusing on the 'Effectively manages the risk of coastal erosion' criterion. Stephen introduced the criterion with pre-scoring from Derek. Derek explained pathways are ranked for effectiveness for managing erosion risk and provided rationale behind the difference in his scores for Management Unit 9A. The full rationale is in the notes section of the MCDA scoring sheet, and he added that: Management Unit 9A (North of Wharemauku Stream) PW 3 and PW 6 is ranked highest (5) due to the effectiveness of relocation of the seawall further back in the medium and increased confidence that seawall could be enhanced in long-term to meet the new conditions. PW4 is ranked 4 because there is less certainty about the effectiveness of renourishment in the long-term. PW5 is 4 because the sea wall would not change position from where the current sea wall is, so there is uncertainty about the effectiveness of that regarding coastal erosion in the long-term.



	 PW2 is 4 for similar reasons as the sea wall would not move back in the short term until the line was re-established with a setback sea wall in the long-term. PW1 has lowest relative rank (3), due to a risk in the medium-term of whether the status quo structures can be enhanced. He added that the existing structures can be enhanced for change in conditions in 30 years, but uncertainty exists on whether they could continue to be enhanced further into the future. Derek explained the same approach has been used across Management Unit 10A (South of Wharemauku Stream). Susie asked for clarification on what beach renourishment would entail for PW4 in Management Unit 9A. Derek answered that this pathway includes moving the sea wall back paired with dune reconstruction. In the long-term it is anticipated that dunes would get eroded and would involve ongoing costs to renourish. Derek added that there is uncertainty around whether the sea wall will be as efficient against erosion without a dune in front of it. Derek explained that all the pathways for Management Unit 9B (Inundation unit) have been scored at 1 for erosion as they are all designed to manage inundation and there is no risk for erosion in that unit. Stephen asked if there were any more questions around Derek's scoring and reasoning. CAP had none.
Multiple Criteria Decision Analysis (MCDA) Assessment of Shortlisted Pathways for Raumati Adaptation Area	 Stephen Daysh, Mitchell Daysh with support from Derek Todd, Jacobs (Facilitated discussion session resulting in CAP decision required) Focusing on the 'Effectively manages the risk of coastal inundation' criterion. Derek explained that the main inundation risk for Management Unit 9A is from sea water coming up Wharemauku Stream. He provided rationale for the scores for Management Unit 9A, noting most of the pathways scored 2 due to all pathways being better for erosion protection, not inundation protection. He added there could be a small co-benefit from the pathways for inundation. However, PW5 was downgraded to 1, due to no co-benefit existing because there is no moving of the sea wall. He reiterated that none of the pathways are designed for inundation in this area given it is an erosion unit and erosion is the main coastal hazard projected for the Raumati Adaptation Area. Derek explained that the rationale for the scoring of Management Unit 10A is like that of Management Unit 9A. The pathways that include re-establishing the line with a setback sea wall have some co-benefit. Derek explained the scoring for Management Unit 9B which is the unit focused on inundation risk/management. Derek explained that all the draft pathways that CAP have chosen would be highly effective at managing the risks of coastal inundation, but PW2 could be less effective as floodproofing individual properties could still result in some access issues. Martin noted concerns about flood management and drainage and added that the way the water gets out is critical. Derek responded that the drainage element would be part of enhancing existing inundation are less relevant to these units, therefore the pathways received low scores. Stephen added that this method of scoring is consistent with previous scoring.



	 Martin pointed out that CAP's scoring will go out to the public where they may see that their area has been scored low and become concerned due to not understanding the terminology. If there is no risk of inundation or erosion in their area, then this should be noted so the public knows not to be concerned. Jason reminded Martin that the methodology approach has been agreed by CAP right from the start. Each pathway for each erosion unit is scored both for effectiveness of managing the erosion risk and the effectiveness of managing the inundation risk. Similarly, each pathway for each inundation unit is scored both for effectiveness of managing the inundation risk and the effectiveness of managing the erosion risk and the effectiveness of managing the erosion risk. The rationale for this method is scoring on that co-benefit and provides the ability for a pathway option to have a slightly higher combined score even if it was not primarily designed to deal with the other risk, but it still provides some benefit to managing it. Stephen reminded CAP that they have a very detailed summary sheet which describes the different types and levels of risk for each of the Management Units. Stephen encouraged CAP to utilise that information in their report.
Multiple Criteria Decision Analysis (MCDA) Assessment of Shortlisted Pathways for Raumati Adaptation Area Continued	 Stephen Daysh, Mitchell Daysh with support from Monique Eade, Jacobs (<i>Facilitated discussion session resulting in CAP decision required</i>) <i>Focusing on the 'Regulatory consenting and policy risk' criterion</i>. Monique ran through her scoring and commentary on the pathways. She highlighted that the policy framework has the potential to change, and the scoring is based on the existing framework and is also heavily swayed by the medium- and long-term options. Monique explained that the erosion Management Units (9A and 10A), have been scored consistently. For sea walls some minor upgrades are enabled by the current policy framework. However, significant upgrades can be considered a new sea wall under the existing framework, but the fact there is an existing seawall will be considered in consenting. This is easier than building a sea wall where none has existed in the past. Monique continued by explaining that the policy framework generally discourages the construction of new sea walls except where it is the only reasonable or practical option. The New Zealand Coastal Policy Statement requires consideration of other risk management approaches including both status quo and managed retreat, as well as requiring the works to be part of a long-term hazard management strategy. This is largely part of the work CAP is already doing through the Takutai Kāpiti process. In summary, despite the policy framework, the rules enable the construction of sea walls, therefore pathways with sea walls are scored as a 3, due to the policies not supporting it but the rules enable it. She added that pathways which include retreat have been scored as a 2 because whilst national policy is currently more difficult than building a sea wall. Current policy generally encourages soft engineering approaches so it would be scored as a 4, however, because soft engineering approaches so it would be scored as a 4. Monique explained that for inundation Management Unit 9B, scoring is more di



	 because enhancing existing protections and raising buildings is easier to do. The other pathways have a slight hurdle. Stephen asked CAP if they had any questions for Monique. Jerry asked Monique for clarification on why certain pathways have been scored 3 and not 2 for the erosion Management Units. Monique explained that her scoring is reflective of looking at all of the possible adaptation options and rated them relative to each other to avoid inconsistencies. Monique further clarified that a rating of 3 is the middle range, lower than 3 reflects options that are harder for consenting and scores above 3 are easier. She explained that current national legislation and regional policies would make pathways scored a 2 harder to complete, because effectively there are two processes to implement those options, so they are not impossible but more difficult. Therefore, options that include a managed retreat are marked lower. Pathways marked at 3 are easier than a retreat as the policy framework allow for them. Monique added that any major additions to a seawall are considered the same as making a new sea wall regarding national legislation and regional policies. Jerry asked Monique that if a pathway includes a retreat, it will be far more difficult from a regulatory risk perspective. Monique confirmed that is the case. Stephen added that whichever option CAP agrees on will have its challenges, but they are not impossible. Jim asked how this scoring fits into possible changes to the Resource Management Act, due to the new government, considering that we do not currently know what those changes might be. Stephen replied that TAG is applying the current legislation for their scoring, noting that this is a sound and proven methodology. Jason added that the as full confidence in what has been prepared by Monique. Abbey noted that there was a memo provided by Monique on her thought process if CAP would like to understand more. Stephen asked for questions from C
Multiple Criteria Decision Analysis (MCDA) Assessment of Shortlisted Pathways for Raumati Adaptation Area Continued	 Stephen Daysh, Mitchell Daysh with support from Rhys Girvan, Boffa Miskell (<i>Facilitated discussion session resulting in CAP decision required</i>) Focusing on the 'Landscape' criterion. Rhys gave an overview of the pathways and their impact on natural character. He stated that this area of coast has a large amount of modification, and therefore a high level of natural character has not been identified. Rhys added that his commentary was formed by looking at the pathways in terms of what opportunities they may present to restore natural character due to the amount of modification that has already occurred. Rhys gave a summary of what scoring 1 – 5 means from a landscape perspective. Anywhere there is an impact on natural character you would expect a reduction in natural character. The pathways that score lower are due to a high level of modification, but those that score higher will enhance the natural character of the area. Rhys started with Management Unit 9A (North of the Wharemauku Stream), explaining that PW1 is about keeping what is there in terms of the existing seawalls, enhancing them in the medium term, then replacing in long term. This pathway allows limited opportunities to restore natural character. Olivia asked if re-establishing the line with a setback seawall will give any opportunities to restore natural character due to there being more space. Rhys responded that there could be an opportunity to enhance natural character due to there being more space, but this has not been included as an option within PW1.



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	 Olivia clarified her question by asking if re-establishing the line would encourage character to develop naturally. Rhys responded that without developing any additional mechanisms that come with reinstating dunes in this pathway, there might be a reduction in natural character. The pathway would need to have additional mechanisms in order to restore the natural character. For PW2, Rhys explained that it is like PW1 regarding hard engineering reducing the amount of natural character of the area. Stephen clarified that this pathway does not outline any work to enhance the natural character. Rhys confirmed this to be the case. For PW3, Rhys explained it is similar to the previous two pathways except the timing of the setback seawall is different. This again becomes a hard-edge wall without enhancing the natural character. Rhys added that in this context, restoring natural character is about how you would encourage natural elements, patterns and processes. Enhancing in this context means it will enhance protection but will not go towards restoring natural character. Martin added that hard engineering can have the opportunity for recreational areas, e.g. picnic areas on top of sea walls. Rhys responded that picnic areas are not natural elements, and the Landscape criterion only focuses on how the pathways affect the natural character. Recreation areas on sea walls would be reflective of the Public Access and Recreation criterion. Rhys explained that PV4 initially looks at enhancing the existing protection, then reestablishing the seawall back from the coastline alongside reconstructing the dunes thus restoring the natural character. Martin asked how the nourishment would be one. Derek replied that because this pathway would be a referential in restoring the natural character. Martin added that is pathway would be preferental in restoring the natural character. Stephen reiterated to CAP that this pathway is preferred by Rhys, regarding potential to crest
TEA BREAK	
Multiple Criteria Decision Analysis (MCDA) Assessment of Shortlisted Pathways for Raumati	 Stephen Daysh, Mitchell Daysh with support from Rhys Girvan, Boffa Miskell (Facilitated discussion session resulting in CAP decision required) Focusing on the 'Landscape' criterion. Stephen introduced Management Unit 10A (South of Wharemauku Stream), noting that the pathways were similar to Management Unit 9A but with subtle differences. Rhys gave an overview of his commentary of PW1 by noting that status quo includes the proposed replacement sea wall as part of the upcoming Long-term Plan. He



	 For PW2, Rhys explained that it starts with the status quo but recognises that sea wall will need to be re-established inland in the future which would allow for more possibility for dune enhancement. For PW3, Rhys noted that the level of hard engineering modification in the area becomes greater with very little actions done regarding restoration of natural elements that were there previously. For PW4, Rhys explained that re-establishment of the line with a setback sea wall would allow more space, so this pathway is neutral. For PW5, Rhys noted that this pathway allows for more nature-based solutions. Moving back the sea wall would allow more space that can be accommodated with dunes and the addition of beach renourishment in the long-term would be better for natural character. Stephen noted for CAP that this commentary is consistent with Management Unit 9A. Rhys explained his commentary for Management Unit 9B (inundation unit), explaining that whilst he has scored all three pathways similarly, PW2 allows for natural elements and processes to occur, such as flooding. By lifting and flood proofing the infrastructure you work more with the hazard and allow it to come and go naturally. Rhys added that PW1 and PW3 allow for building structures to protect from the hazard without improving the natural character and elements.
Multiple Criteria Decision Analysis (MCDA) Assessment of Shortlisted Pathways for Raumati Adaptation Area Continued	 Stephen Daysh, Mitchell Daysh with support from Danielle Johnson and Paula Blackett, NIWA (Facilitated discussion session resulting in CAP decision required) Focusing on the 'Community, social and economic wellbeing' criterion. Abbey noted that social scientists Dr Paula Blackett and Dr Danielle Johnson, from NIWA have joined TAG. Both are very experienced in the human domain. Stephen invited Paula and Danielle to introduce themselves. Paula introduced herself and outlined her expertise, including that she was the lead for the human domain for MfE's guidance and contributed to the National Climate Change Risk Assessment for New Zealand (MfE 2020). She also contributed to the Coastal Hazards and Climate Change: Guidance for local government (MfE 2017). She added that she has already advised other local governments on these topics and has just completed the Wellington Regional Climate Change Risk Assessment for the human domain. Danielle introduced herself and outlined her expertise, including having a background in anthropology and human geography with a specialism in climate adaptation. Stephen invited Paula and Danielle to begin with their commentary. Paula began with a general overview of the different adaptation options for both the Community Social and Economic Wellbeing and the Public Access and Recreation criteria. She explained that there are two aspects when it comes to thinking about the impacts on things people value, which are the people who are directly affected and those who are less directly impacted but are still part of the community. She



- Paula continued by explaining the impact of sea walls, knowing that beaches are lost overtime with sea walls so the ability to recreate is diminished and public access to the coastal environment is altered, although there is possibility of creating different types of access. She added that members of the community, who gain wellbeing by spending time at the beach, will be affected. She continued by explaining that people whose property are immediately behind the sea wall will benefit, thus increasing their certainty in respect to insurance and confidence in the ability to remain in the area. Paula added that there is potential for community conflict about ad-hoc maintenance for private sea walls as there may be parts of the sea wall that are not maintained by those who cannot afford it in contrast to those who can.
- Paula continued by discussing the pathway options that include Community Education and Emergency Management and how this tends to get people out of harm's way and removes direct risk to life. People know what to do when something happens, but it does not help much with long-term certainty or people's confidence to be able to stay in place, particularly those who are on the beach front. She added that it does create some opportunities for increased social cohesion as the community can work together and affect actions as a collective - this action means the ability to connect with the coast is still present, but so are the risks.
- Paula continued by explaining the pathway options that include dune establishment and beach renourishment tend to be the preferred option in various communities at it retains people's ability to recreate in a given place. Paula added, however, that the sand for construction and renourishment must come from somewhere so it may be translating the risk to another area.
- Jim noted that Paula has mentioned that sea walls could create conflict between neighbours. Jim then asked if this is unique to Raumati or is it like other places. Paula replied that social conflict is common in similar circumstances where there is a differential benefit. Jim responded that it is the same with building roads, that some people benefit more than others. Jim asked for clarification whether this analysis is unique to Raumati or could it be applied to most similar communities. Paula answered that this impact on social cohesion is present in all similar communities and given this is likely to occur in Raumati.
- Paula continued her overview by highlighting the option of re-establishing the line and beach renourishment as one that tends to be more appealing in the context of the Community Social and Economic Wellbeing criteria. This option looks to retreat the beach front houses so those people will be impacted and will create issues within the community, but then the recreational opportunities and ability to connect to the beach will remain. *Note: No properties have been identified for retreat if it was to occur as this is outside of the scope of the project and CAP.*
- Jerry asked whether Paula and Danielle included the impact from the rates on those front-line houses as that will have an impact on the rates elsewhere. Paula replied that they were not supplied the rate information so that was not included in their analysis. *Note: How adaptation options could be funded is not within scope of the project nor the CAP.*
- Danielle gave an overview of inundation protection measures for Management Unit 9B, focusing on hard protection and flood proofing of buildings. She explained that hard protection such as stopbanks, culverts, and pump stations have complex and conflicting impacts. They may improve the health and safety of the community by reducing risk of injury or illness from encountering flood waters, however, there is evidence to suggest that these protection measures also give people a false sense of security which may put more of the community in harm's way if there was a coastal storm surge flood without much warning. Danielle added that hard protection



structures may reduce the feeling of being at risk and allow more of the community to feel confidence that they are able to stay in the area. Danielle also noted that community members may also find it easier to get insurance, but noted insurance coverage depends on the insurance companies themselves and not what Council does.

- Danielle explained that the impact on social cohesion is also mixed as although there may be an increase in confidence in remaining in the community, measures for hard protection and flood proofing may also cause tension. This is likely around who pays for these measures, as not everyone in that community will benefit from stop banks, etc. Danielle added that the impact on public access and opportunity for recreation is minimal, as measures such as stop banks may increase public recreation if walkways were incorporated, but hard protection like culverts and pumping stations, may also be considered an eyesore. Danielle continued by explaining that flood proofing buildings may have a positive impact on the community by reducing the health implications of living in a waterlogged building. Health implications of living in waterlogged building.
- Danielle added that she cannot give a definitive answer about the implications of floodproofing on ability to get insurance. However, if people can get insurance due to floodproofing buildings, then that will increase confidence to stay in the community for longer, thus improving social cohesion.
- Derek noted Management Unit 9A is an erosion unit and does not cover the risk of inundation. Danielle replied that while their commentary takes wider community-level overview there are small pockets of people that may have different experiences with inundation. Paula added that they provided more information instead of less, which is why there are a lot of factors included in their commentary for the CAP to consider.
- Martin asked to what extent can we expect a difference from one generation to another. He added that looking at the long-term perspective, his grandchildren are very different from him, and these pathways are looking at another two generations out. Paula replied that when you are doing a climate change risk assessment, you tend to just project the current situation forward in time. She added that this is a methodological problem as society changes with what people want now versus in the future, but the beauty of using the Dynamic Adaptative Planning Pathways approach is, it gives you flexibility to navigate through this inevitable social change. Paula shared that if we were to attempt to imagine a future society, we would get it wrong, so we use what is the situation now as a benchmark for the future.
- Stephen suggested CAP moves onto scoring the pathways, against the Community, Social, and Economic Wellbeing criteria, beginning with Management Unit 9A.
- For PW2, Danielle commented that this pathway gets into the seawall earlier than PW1, therefore the social cohesion issue may come up earlier in time. Olivia added that in terms of the community feedback, this pathway seems to be more in line with what they want.
- For PW4, Paula noted that with re-establishing the line in the medium term, the beachfront properties would need to be retreated. However, by maintaining the beach and the beach renourishment some of the community impacts are positive. CAP acknowledged the difficulty related to the decisions around retreat. Susie noted that the beachfront property owners will be devastated, and those next in line may wonder if they would have to move in the future. Don added that the difficulty when you look at the different options in the medium and long term, each of the impacts will affect different generations. Susie added that if this pathway came out as the



preferred pathway, she queried if CAP would be acting in reflection of the Raumati community's values that they have shared.

- Abbey noted that in this pathway, the CAP needs to weigh up the impact of retreat to a beachfront part of the community in the medium term, which allows to reestablish a protection line. She noted that Raumati has strongly shared that they do not want to retreat and want to stay in place.
- Jerry responded that CAP is discussing social and economic wellbeing impacts, which is about people and how they feel about whether they are being listened to and achieving what they want in the community. Tim added that if you're scoring PW1 which has retreat in the long term as a 2, then looking at PW4 which has retreat in the medium term, from the view of the Raumati community who have said they are not interested in retreat, the logic says to give this one 1.
- Stephen noted that this is a difficult area because of the trade-offs for the community and looking at the pathways relative to each other will be important. Jim replied that no one wants to retreat, but CAP is also looking at the climate risk. Jerry responded that the overall impact is the climate risk, but this specific criterion is around what the people want.
- CAP discussed scoring for PW5, with Stephen explaining that this pathway includes building a sea wall at the start, enhancing that sea wall in the medium term, and then enhancing again in the long term to the new climate conditions.
- CAP discussed scoring for PW6, with Stephen noted this pathway includes building a sea wall at the start, then re-establishing the line with a setback sea wall in the medium term.
- Abbey pointed out the difference between PW3 and PW6, saying both include reestablishing the line in the medium term, and enhancing the new sea wall in the long term, but in the short term PW6 builds a new sea wall and PW3 enhances existing structures, along with community education. Abbey noted that Management Unit 9A does not currently have a council-maintained and owned sea wall, so PW6 could mean more certainty for the community.
- Jerry said that if Council went to the residents and said they will build a sea wall there, the residents would be positive about it. Jason clarified that option 12 on the high-level menu of options does not guarantee that Council will pay for the sea wall. Jerry countered that it is a matter of how Council goes about it, or if Council decides that beachfront owners must put in structures or make it optional. Jason added that he is not aware of a mechanism where Council could compel residents to build those structures themselves, only where Council has done the project itself.
- Jason added that this criterion is where CAP should bring in what they have heard from the community, likely more than any other criteria as it is dealing with social impacts of these pathways. Olivia agreed, noting that as is the core criteria where CAP gets to reflect what feedback they have heard from the community, both regarding the sea wall and managed retreat, she thinks it is important that we reflect that in the scoring.
- Stephen added that it is also important to capture CAP's reasons for the distinctions, noting there is no distinction in TAG's notes but quite a distinction between CAP's scorings due to CAP considering the community's view and that reflects in their scoring.
- Susie noted that the feedback CAP has received from the community is that they
 want to stay for as long as possible, thus the pathways that do not include a
 managed retreat should be scored higher and more favourable.



•	Olivia added that at the last meeting there was a conversation around the RAA
	objective and key focus for this adaptation area so it would be beneficial to capture
	how the CAP has scored these pathways in the context of the objective.

- Kelvin noted that a government report has said to not use the words 'managed retreat' but rather 'strategic relocation', and we should be reflecting that. Stephen replied that the NZCPS still uses the term 'managed retreat', but if CAP has concern about using that term, then it should be noted. Abbey added that if the terminology was changed now there is a potential for the Raumati community to perceive that CAP is trying to cause confusion since the term 'managed retreat' is well known. She then asked for clarity from CAP if going forward they would prefer the wording to change from 'managed retreat' to a different wording. Jerry replied that since that wording was already used for all other areas this should not change.
- The CAP wished for the following commentary to be noted:
 - PW5 for Management Unit 9A: This pathway is reflective of the objective for the Raumati Adaptation Area in recognition of the community's values.
 - PW3, PW4 and PW6 for Management Unit 9A, and PW4 and PW5 for Management Unit 10A: Re-establishing the line with a setback sea wall negatively affects front line homeowners' ability to stay in situ in the medium-term.

CAP moved onto scoring for Management Unit 9B (Inundation Unit).

- Danielle explained for PW1 the combination of emergency management and community education and additional hard protection, would positively influence community health, wellbeing, and safety. She noted that PW3 is like PW1, whereas PW2 is different in that it includes flood-proofing.
- Stephen asked Paula for any further comments. Paula replied that the long term for PW1 and PW3 puts the onus on Council to build the inundation protection, whereas PW2 includes flood proofing buildings and elevating floor levels of structures which would put the onus on the property owner. Paula highlighted that the difference is on who bears the responsibility for adaptation. Danielle added that because PW2 includes more individual responsibility it could lead to social inequity which would negatively impact social cohesion in the community between those who can and cannot afford it.
- Kelvin noted that PW1 and PW3 are different regarding when the hard protection is built. Abbey added the other difference is that in the medium term with PW1 you are enhancing existing inundation protection but PW3 it is building new structures. Susie asked what protections are in place currently. Tim replied there are some stopbanks and sections of wooden sea wall.
- Kelvin observed that additional hard protections in the medium-term would be better for the long-term.
- Stephen noted the comment on false sense of security associated with stopbanks. Paula explained the "levee effect", which is well-documented with flood management. She explained that the engineering measures are designed for a 1% AEP event, so if there was an intense inundation event that caused protection to be overrun this could result in failure. The "levee effect" is when people believe they will always be protected due to the protections put in place. This gives a false sense of security as all engineering has its limits. Paula added that people would need to be reminded that despite having stopbanks there is still a risk in the case of an extreme event. Jerry noted that an example of this happening is Cyclone Gabrielle.
- Stephen clarified that the pathways that were not going to manage the risk were excluded as per the technical advice. Iain added that there is still remaining risk even with liable options and structures.



	 Kelvin noted the comment about the "levee effect" should be noted for PW3 too. Stephen asked Danielle why there is only one point of commentary included on PW3. Danielle responded that it would be repeating points from previous pathways, but highlighted the commentary where is states that additional hard protection could also have adverse effects on health and safety which refers to the levee effect that was discussed extensively in PW1. Jerry noted that the differentiating point is PW2 will impact directly on homeowners because they must do something themselves. Olivia anticipated there would be some positive impact on community wellbeing from hard protection, but the commentary from TAG explains it would have a neutral effect. Susie said that the effects of inundation would be felt more by those alongside the stream, such as the shopping centre and bowling club, and behind the dunes, affecting a lot more people (compared to those beach-front owners affected by erosion). Abbey reminded CAP of Derek's point that there are only a few pockets within Management Unit 9B that would be affected by inundation. Tim added that Susie's point about the shopping centre being affected makes PW2 less attractive as it would be harder for these areas to raise their floors and foundations without adverse effect on the community in terms of access. He also added that there are a lot of public areas there, including schools. Stephen noted that CAP agreed on their scoring for Management Unit 9B.
TEA BREAK	
Multiple Criteria Decision Analysis (MCDA) Assessment of Shortlisted Pathways for Raumati Adaptation Area Continued	 CAP continued by scoring Management Unit 10A for the 'Community, social and economic wellbeing' criterion. Abbey reminded CAP that status quo for this Management Unit means building a new sea wall as outlined in the LTP. Kelvin noted that PW5 seemed similar to PW4. Stephen highlighted the distinction that in PW5 the community would get the benefit of beach renourishment, whereas in PW4 they would not. Jerry added that in PW4 if the setback sea wall that was built in the medium-term could no longer meet the conditions in the long-term then a new sea wall would be built, whereas in PW5 there is no new sea wall in the long term. The CAP's final scores can be found in Appendix 1 to these minutes.
Multiple Criteria Decision Analysis (MCDA) Assessment of Shortlisted Pathways for Raumati Adaptation Area Continued	 Stephen Daysh, Mitchell Daysh with support from Astrid Dijkgraaf, Astrid.Ecology (Facilitated discussion session resulting in CAP decision required) Focusing on the 'Ecology' criterion: Stephen welcomed Astrid and asked her to outline her experience. Astrid introduced herself, who outlined her previous work on the Kāpiti Coast District Plan (including the work on significant natural areas) and State Highway One. Stephen highlighted the depth of the notes and commentary from Astrid. Astrid noted that the coast of RAA is constrained and modified and has had sea walls for such a long time so there is not a lot of space for ecological aspects. Astrid provided the rationale behind her commentary, explaining that being an



can adapt and move, noting that animals can move easier than plants and dunes struggle to move if there is no sand coming in.

- Stephen asked for CAP to begin their scoring for **Management Unit 9A** based on their knowledge of the coastline and the comments on ecology from Astrid.
- Jerry asked Astrid which of the six pathways she would rate as the best two in terms of ecological values. Astrid answered that if you can create room for dunes that would help to protect the properties as dunes also function as a buffer for the sea, and if you have dunes then you can reestablish some habitat. She added that it might not be much, but it would be more than what is there currently, so where it is possible to re-establish the line and renourish a dune there would be ecological benefits. Astrid outlined that PW4 is best for ecology as hard structures do not give much habitat for species to be able to establish therefore do not have much ecological benefit.
- Jason asked how much habitat you could expect to achieve due to the limited range of space, even under PW4. Jason further asked if any of these pathways could be given a 4 or 5 rating given that even then best option for ecology still seems to have some limited ecological benefits. Astrid replied that in some other areas where dunes have been reestablished the dunes started moving coastward, so they managed to accrue more sand and increase in size by themselves once they were more established, adding that if that were to happen you could score higher as the habitat is increasing. Astrid also noted in that scenario dunes were eroding before being re-established. Abbey reminded CAP that Derek has noted previously the dunes in this unit are eroding at a high level and the sediment is being washed out instead of coming back into the area naturally.
- Jerry said that we are looking at this from the ecological values and what is best in terms of managing or improving the ecological values of the area, adding that he would rate these pathways according to what is best for the ecological values to be enhanced. Olivia replied that none of these pathways go far to improve the ecological state, instead for PW4, so she would look to scoring them quite low. Olivia continued by saying that in terms of re-establishing the line, that course of action does not do enough to improve ecological values of the area. Astrid replied that it might create some short-term habitat, but it would probably need to come with something like weed management.
- Jerry noted that he would also rate PW4 higher as, from an ecological sense, you are not doing anything until you absolutely must.

CAP moved onto scoring Management Unit 10A.

• Astrid gave an overview, saying that if there is an opportunity to create space it would be beneficial for ecology. Kelvin responded that there is not a lot of space ecologically. Olivia added that she would score PW5 higher in terms of how it gives some opportunity to improve the ecology. Jerry noted that PW2 also offers space and dune reconstruction.

CAP moved into scoring for Management Unit 9B (inundation unit).

• Astrid gave an overview by explaining that in some instances inundation goes quite a long way up the Wharemauku Stream so the ecological changes that happen there will need to be kept in mind, such as whether birds and fish can still use the estuary. Astrid added that the estuary and stream become quite important when it comes to the inundation unit and there are potential ecological benefits that could be created if some of the flood-protection measures create temporary space. For example, if the Wharemauku Stream was allowed to move into its flood plain more, those areas could serve as ecological areas during the times that they are not flooded. Astrid



continued by explaining that other measures such as increasing the heights of houses and flood protecting them would have very little effect on ecology.
 Olivia asked if PW2 would have any ecological benefit by flood proofing and creating

- Olivia asked if PW2 would have any ecological benefit by flood proofing and creating space for natural processes, or if it would be neutral. Astrid agreed it would be neutral.
- Abbey asked if construction of inundation protection structures would negatively impact ecology compared to flood proofing and raising floor levels. Astrid replied that if those structures were placed in places that have ecological value, then it would be a negative. If inundation structures interfered with how the aquatic species could move through the system, that would also be a negative thing for ecology, but it depends on what structures would be used. Astrid added that you can have flood mechanisms that are open most of the time for fish to pass through and are closed when sea levels are problematic.
- John asked how far up the Wharemauku Stream the impact of inundation is likely to be seen. Astrid replied that in some of the maps she studied the possibility of inundation in the long term goes even past the new State Highway One. Kelvin responded that that would suggest it would be better to have flood protection in the medium term rather than in the long term.
- Olivia said that she scored pathways that include flood proofing as a 3 due to it seeming like an ecologically neutral option. Kelvin added that by putting in flood gates, the risk of inundation that harms ecology up the stream would be lowered.
- Olivia asked Astrid if she knows what species in the area would be impacted by the flooding. Astrid replied that there is currently quite a lot of vacant land either side of the Wharemauku Stream. She added that there is quite a range of species in the stream with a high score from GWRC, also the stream goes very far inland. Astrid explained that with increases in coastal flooding, vegetation on the stream over time could change from freshwater vegetation to saline vegetation. She added that if the salt wedge moves further inland it could create more spawning habitat for inanga. She noted that the species that are there currently are of low ecological value or are fairly resilient.
- Stephen noted Kelvin's point that if you have stop banks and culverts with flood gates you can close off the sea coming in, which would not be inundated with sea water when the high tides and flood are coming in. Kelvin also added that not having them there is not a negative. Olivia added that flooding can be positive for ecology.

The CAP's final scores can be found in Appendix 1 to these minutes.



Multiple Criteria Decision Analysis (MCDA) Assessment of Shortlisted Pathways for Raumati Adaptation Area Continued...

Stephen Daysh, Mitchell Daysh with support from Danielle Johnson and Paula Blackett, NIWA (Facilitated discussion session resulting in CAP decision required)

Focusing on the 'Public access and recreation' criterion.

- Stephen noted that this criterion is where the walkways and seawalls come in which has been a point of interest for Martin.
- Abbey reminded CAP that for Management Unit 9A (North of Wharemauku Stream, and in PW1 the Status Quo is as is and there is not a new sea wall as proposed in the upcoming long-term plan.

CAP began their scoring for Management Unit 9A

- Jerry said that he sees the pathways are all the same because people will change their views on what public access is and the recreation that they will do on those. He cited New Plymouth as an example with a sea wall right along the front of the area with parts of the beach they can still access and other parts they cannot, but the entire wall is also a walkway. Jerry supported Martin's previous points that future generations will look at the sea wall and think it is a great place to have a picnic.
- Tim noted that beach access is not dependant on private landowners, it is dependent on the Council decision to maintain public access to the beach.
- Olivia queried the last bullet on PW4 regarding how beach renourishment risks losing recreational opportunities. Jerry noted that beach renourishment could positively impact public access to the beach.
- Olivia asked how much of an impact would re-establishing the line have on public access and recreation, and does it matter if it is in the medium term or the long term. Abbey replied explaining that Council currently has multiple accessways to the beach through the dunes as Council maintains them but that does not mean they will all remain open or maintained.
- Stephen added that he has seen sea walls overseas where the line has been moved back and in these cases the points of access were minimised to maintain the integrity of the sea wall, so from a public access point of view it would be negative. Olivia responded that if re-establishing the line is in the medium term it will need to be scored lower.

Management Unit 10A - CAP discussed and agreed their scoring.

CAP moved onto scoring Management Unit 10B (inundation).

- Jim noted that all the pathways are similar in terms of public access.
- Martin commented that he was not comfortable with any of the options but also thinks it is the best that can be done.
- Olivia added that PW2 should be scored slightly lower as flood proofing buildings and infrastructure could impact public accessibility.

The CAP's final scores can be found in Appendix 1 to these minutes.

Next Steps• Abbey thanked CAP for their continued dedication to the project throughout 2023.
• The next CAP meeting is 17th January 2024, on PAA and will cover excluding
adaptation options from longlist to the shortlist.
• Jim thanked everyone for attending and contributing. He thanked the work of
Council in supporting CAP and thanked Stephen for his support.
• Jim thanked the entire CAP team and wished everyone a Merry Christmas.Closing KarakiaBy Moira





ATTACHMENTS

- High-level Menu of Options Raumati Adaptation Area Updated
- RAA Pathways Presentation Enhance Seawall Version
- RAA Planning Memo Consentability of Adaptation Pathways
- RAA Shortlisted Pathways with MCDA Commentary for Community, Social and Economic Wellbeing
- RAA Shortlisted Pathways with MCDA Commentary for Ecology
- RAA Shortlisted Pathways with MCDA Commentary for Landscape
- RAA Shortlisted Pathways with MCDA Commentary for Public Access and Recreation
- RAA Shortlisted Pathways with MCDA Commentary for Regulatory consenting and policy risk
- RAA Shortlisted Pathways with MCDA Commentary for Risks of Coastal Erosion
- RAA Shortlisted Pathways with MCDA Commentary for Risks of Coastal Inundation





Appendix 1: MCDA Scoring of Raumati Adaptation Area Pathways

	MCDA Criteria/Weighting										Ì
	CAP Weighting		Ecology Landscape		Community Social and Economic Wellbeing	Public Access and Recreation	Regulatory consenting and policy risk	Effectively manages the risks of coastal erosion	Effectively manages the risks of coastal inundation		
	3		2	3	3	3	1	3	2	Weightings TB	by CAP
Pathways for Rauma	ati Adaptation Area				MCDA Sconng					Weighted	
Management Unit	Pathways Pathway Descriptions	Ecology	Landscape	Te ao Mãori values	Community Social and Economic Wellbeing	Public Access and Recreation	Regulatory consenting and policy risk	Effectively manages the risks of coastal erosion	Effectively manages the risks of coastal inundation	MCDA Total Score:	RAW MCDA Total Score:
	Short term Medium term Long ter	n Score Notes Notes for coastal options (9A & 10A):	Score Notes	Score Notes	Score Notes In the short, medium, and long term, there will, in general,	Score Notes	Score Notes	Score Notes	Score Notes	-	
	1 Enhance existing Community Education and Emergency Management ¹ Enhance existing Protection Re-establish Execution and Emergency (Enhance)	 • Use to the shape of the coast there is a reduced sediment supply to the Raumati foreshore • This means that the beach and due system are not many the state of the coast there is a reduced sediment supply to the Raumati foreshore • A hot public and private casalal protection structures (see a state 1055) • Hence there is little opportunity for ridgenous species habitat, client the the Raumati adaptation area (Priraparamo beach bird habitat). Reamati to the sas in maintained throughout, and comes ord of them exclusive in maintained (Priragation), and comes ord of them exclusive in maintained (Priragation), and comes ord of them exclusive in maintained (Priragation) and endered by point. • Scring is relative and confined to within the options provided. Fran an ecology respective, the beat (Dir admittedy, unrealistic) coptions would be to remove all forest and wattends. If this unrealistic option were available them all other options would reduce by 1 or 2 points. 	In the short and medium terms, maintaining and reinforcing existing structures will continue to extend hard engineering structures within the context of existing modification. In the inargie trans, resisting a condrivated swall back engineering within this modified coatalic context. Europer engineering within this modified coatalic context. Claracter in context of enging modification.	0	 be a posible influence on public heath and safety. Education will help the community to more out of the form way, reduce the risk is life, and know how to respond to hazara. A second seco	In the short term the bash and associated recentional use and access remains the term, the enhancement and creation of seawall may lead to a loss of the bach, with associated loss of public access and arcreation on sandy arcs. - should be spatial prosecular, built may be advantagence. If some groups (such as wheelsha's user, cyclist, and families with inform in bugged and could present an opportunity for increased access for these groups regionally. + Note the information group and access here groups regionally relevance. This is contigent on public access here groups are able to be the state of the second and could present an opportunity for increased access for these groups regionally relevance. This is contigent on public access here groups and a privately maintained seawall (If this option continues into the future).	Planning framework generally provides for maintenance and micr upgrades of seawalk. Supficient upgrades may be concrete a new seawall The existing poly framework discussions have a seaved The existing poly framework discussions. A Consenting pathway is available through the rules of relevant regional and district plant. Substance of the substance of the substance of the substance Provide and district plant. Substance are constant on while which may be provide and exist plant. Plan changes are currently required to implement retreat of private properties.	 Potentially may not completely manage the ension tak in the shart-t-institum term faits the projected high enciron along this section of coast impacting properties. Medium term option may need to be brought forward in time if existing structures all earlier in the short term. Enhancing existing structures over the medium term will stall result in a piece-meal approach which may not effectively "encertain the short need to be to brought the short term. Head the short need the results of the short term. Head the short need the results of the short term. Head the short need the results of the short term will stall head the barb need the results of the short term will be take over the short needbard term. Not will be over the short head the results of the short needbard term. Not will be over the short head the results of the short needbard the results of the short head the results of the short needbard the results and a short will be a semicle propertional to the north and at the Wheremarkum mouth. Short-ineedbard term double to forsidered best-practice at Lossing the word head to be considered best-practice at Lossing terms and anothe terms of the short needbard and the word would be informed by a specified design. 	Pathway not designed to deal with the inundation hazard, where most impacted properties are located around the Whatemauku Stram, steaked from the coast. Enhancing existing structures over the needlum term would nedworing the inundation in this non-entroping to benchton reducing the inundation in the inum, retreat some impacted properties and settack will could be designed to reduce future overtopping.	37	15
Erosion Unit	2 Enhance existing ancture ² , Education and Endigenent ² (Protect – Hard Engineering) Management ⁴ (Enhance)	 In the short and medium terms, the reinforced seawall will be a hard engineering structure within a dynamic coastal environment and indigenous species and habitate relation opportunity structure, or the structure structure within a dynamic coastal environment and indigenous species and habitate relation of the structure is taken as meating them and the structure structure structure is a structure and the structure structure structure structure structure structure structure structure structure and structure is structure and structure is a structure is structure and structure is a structure and structure and structure is a structure and structure is a structure and structure is a structure and structure and structure is a structure and structure is a structure and structure is a structure and structure and structure is a structure and structure and structure and structure and structure is a structure and structure and	In the short term, reinforcing existing scewals will continue to extend had engineering influences within the context of the stand of the stand of the stand of the stand of the stand of the medium and longer term, reinstating reparator the present day shoreline will continue had engineering within this modified costation context. United existing or ongoing opportunities to restore natural character in context of ongoing modification.	4	be a posible influence on public health and safety. «Education will help the community to move out of harms way, reduce the next to like, and show how to respond to be added. «How and the same out of the same same same same same same same sam	The enhancement and orestion of issuesibility into to a loss of the batch, with associated loss of public access and recrection on sandy areas. The enhancement is altered from a seach to seawail promensed, but this may be advantageous for some groups (e.g. wherebility users, cyclistic, and families with children in bagge) and could present an opportunity for increased access for these groups regionally.	 Planning framework generally provides for maintenance and micr upgrades of seawalk. Supflicant upgrades may be considered a new seawall londer the futural Resources (Nam. ages hit due forescriton except where it is the only reasonable or gradical option having discutted other risk management options. A conserting pathwary is available through the rules of relevant regional and district plans. Existing environment contains sea walls which may be considered a part of contains. Plan changes are currently required to implement retreat of avirus grouperies. 	Likely to manage the risk to costal erosion over fine. Modum term option may need to be brought forward in time if acting structures are the brought forward in term will still result in a piece-mail population term. Inhancing estilling structures over the short term will still result in a piece-mail population term in its patient manage the hazar relative to a coordinated approach in the modum of the structures over the short term. The structures over the short term will still result in a piece-mail population term in its populations manage the hazar relative to a coordinated approach in the modum of the structures over the short term. There is the potential for vertex of module at higher Salt cound. There is the potential for the short term. Submersionals informations and provide the structure as term will be considered best practice, relative to the uncoordinated approach in the short term.	Pathway not designed to deal with the inundation hazard, where most impacted properties are loaded around the Whatmanuka Stream, stakehol from the cata: Analysis and the state of the state of the state having a new seawail in the medium term would reduce the substate of the state of the state of the state of the state of the state of the state of the state of the state around and the state of the line may retrain some impacted properties and stateka will could be designed to reduce future overtopping.	52	20
umati (North of Wharemauku Stream) Erc °	S Enhance exising protection Re-establish the mat ²⁷ Community Endigation Energiency Managementy (Enhance)	In the short term, the reinforced seawall will be a hard engineering structure within a dynamic coastal environment and indigenous species and babtan testini low opportunity status que. In a construction of the structure of the opportunities, cause tempory fauna and shabtat disturbance, and limit restoration opportunities when a set back is required (e.g. undid to remove all hard structure) to the opportunities, cause tempory fauna and structures of the opportunities of the opportunities when a set fordures to take on a more natural form and if assisted thy fordures to take on a more natural form and if assisted hashate In Anaural dune system will assist with protecting human infrastructure in the long-term, however the tak of and supply could set the dunes eroof further. In this could be negated in the longer term by a new had engineering assaud, and ongoing coastal ension due to bank of sand supply	In the short term, reinforcing existing seavails will continue to extend hard engineering influence, within the context of existing modification. In the medium and longer terms, reinstating and reinforcing a coordinated seavail will continue to modify the natural elements, patterns and process in the existing modified context. Imited existing or ongoing opportunities to restore natural durantee in context of ongoing and increasing modification.	0	4 In the start, industry, and origitem, there suit, in globels, while the community to nove out of harms with sur, reduce with the community to nove out of harms with sur, reduce with the instance of the start substrates with the start of the start hard safety from collapse events and unstable sees. Nowever, since this pathway does not protect algorist in the start of the star	 The enhancement and orestion of seawals may lead to a loss of the beach, with associated loss of public access and recreation on and yates. -Public access to the coardial monotoment packed from the seaward access of the end and the seaward access the seaward access to the seaward of present an opportunity. If or increased access for these groups regionaly. If our access the is contingent on public access being granted and a privately maintained seaward (if this option continues into the future). 	Planning fromework generally provides for maintenance administry approach of earls. Supplicant spectra of the second seco	 Likely to manage the risk to coastal erosion over time. Advalum term option may need to be brought forward in time if existing structures tail earlier in the short term. Erhanding existing structures over the short term will still result in a piece-meal approach which may not effectively manage the haard relative to a conditisted approach in the medium-long term. A steak savaali breight in following the relate of online the back, not less risk to the properties behind. The progression of proforms from the short to the medium term is sensible if 2.4.8 to tacking at a high Still scenario, and proportionate to the scala of risk. Potential for some end effects at the north and at Wharemalus Scenario coast Bineframs Establishment of a condinated approach over the medium long term mould be considered be tarked, existing to the encondinated approach in the short term. 	Pathway not designed to deal with the inundation hazard, where most impatted properties are loaded around the Whatmanuka Seran, steaka from the caat. Provide the steak of the second second second second re-stabilishment of the line in the medium term would they have co-benefits in reducing risks to beachfort properties effected by overtopping. Future sea wall enhancements could be designed to reduce future overtopping.	37	15
Management Unit 9A:	Enhance solding attricture", 4 Community Energency Management (Enhance) 4 Community Energency (Rereat & Protect)	 In the short term, the reinforced seawal will be a bard engineering structure within a dynamic coastal environment and indigenous species and abatas real to wooportunity status eque. A reinforced seawall coadf further reduce habitat toportunities, clause temporary flause and habitat environment is the structure of the seawall environment is the seawall environment and the seawall environment environment. 	In the short term, reinforcing existing seawals will continue to extend had engineering influences within the context of existing modification. The seaward of the seaward of the seaward text from the present day shorts will continue had engineering within this modified coastal context. The the present day shorts will context and combine hat engineering within this modified coastal context. 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I alley for manage the risk to costal recision over the mediam term, however uncertainty about maritating the risk additional term of the short term. I alley for the term will allow for more the mediam term, however uncertainty about maritating the risk method term will allow for more the properties in the mediam term will allow for more terms on properties in the mediam term will allow for more terms on the execution of the short term. I allow the short term. I allow the short term.	Pethway ed designed to ded with the humdation haund, where not impacted properties are located aroun the Wheremaku Stram, reteknik from the coast end of the strange existing structures over the abort term and the here ca-babenent of the line in the nedium term would likely have co-benefits in reducing risks to beachfront properties effected by overtopping.	53	29
	Sea wall ² (Protect – Hard Engineering) Brightering) Brightering) Brightering Engineering)	d 1 •Very little opportunity for indigenous fauna, flora or habitats in short, medium, or long term	Establishing and reinforcing a coordinated seawall will continue hard engineering influences within the context of existing modification. Imbed existing or ongoing opportunities to restore natural character in context of increasing modification.	2	Influid anotatio Influid anotatio Influid anotatio Influid anotatio Influid anotatio Influid Infl	•Over time the brach is likely to be lost, with consequent loss of back-related recreation activities. However, be change from back to seawall promenade can increase public access to and use of the costall environment and associated recreational opportunities for some groups lives abovel. In end only the access is contingent on public access being greated on a privately markandard seawall (if this option continues into the future).	The existing policy framework discourages hard protection except where is it the only reasonable or practical option having discourted other risk management options. A conventing starburky is available through the rules of relevant regional and district plans. Existing environment contains sea walls which may be considered as part of convent. Subject of the starburk of the starburk of the starburk and minor upgrades of assamble. Supplicant upgrades may be considered a new seawail under the Natural Resources Plan.	Lakey to manage the right to count denoise over time. Accordinated approach is bed practice for managing the right to record. endotecount of the seawall in the same location over time may not be effective over longer indifframes in high SA scenario, as back howing and anrowing could undermine the structure. In good conditions and the is sufficiently build. Potential for some end effects at the north and at Wharemanku Stream across all timeframes.	Pathway not designed to deal with the inundation hazard, where most impacted properties are located around the Whatemaku Stream, statuch from the coast. Survicture elevation and signe could be designed to reduce overtopping hazard.	48	19
	Box wat ¹⁰ Protect – Hard Protect – Hard Engineering) Protect – Kind Protect – Kind Protect)	 In the abort term, the reinforced asswall will be a hard engineering structure within a dynamic coastle anivonment and indigenous species and habitat retain low opportunity status age. A reinforced seawall coad further reduce habitat discurations, and first restantion apportunities when a set back is required (e.g. unable to remove all hard structures) In the medium term a backs asswall may enable the fordunes to take on a more natural form and if assisted by planting and weed management coald provide indigenous and and the system will assist with protecting human infrastructure in the longer term by an enable the engineering seawall, and ongoing coastal erosion due to land of a supply coals see the dures reade intref. 	In the short term, establishing a new or replacement servail will continue hard engineering within this modified castal context. In the medium and longer terms, reinstating and reinforcing a coordinated servail will continue within the context of existing modification. I limited opportunity to restore natural character in context of increasing modification.	e	Heath and whety for households affected by ension may improve with of Leanalth, however, the lack of wider community education and energency management could leave some people under-prepared for fung in an ension- prove area, with consequent risks for the inheat and safety. -Additionally, as lated advert, the risk of flooting remains, with impacts for pable heath and safety. -I certainly around the future of the community and their ability to contrue living in the community for their basis of certainly around the future of the community and their ability contrue living in the community for their basis ecommunity members' serve of certainty. -Social cohesion is likely to be impacted frequency an noted adver, which is difficult to pecific in leadily bounded above, which is a difficult to pecific in leadily bounded would be affected by the presence of seawaits.	Over time the beach is likely to be lost, with consequent loss of beach-related recreation activities. However, the charge from beach to seaked promised on increase public access to and our the casatal annihol conset in the second second second provide the casatal annihol conset (see above). "Nito charge in access to cating the public access to and granted onto a privately maintained seakel (if this option continues into the future).	 The existing policy framework discourages hard protection except where it is the only reasonable or practical option. having discourted other risk management options. A conventing pathway is available through the rules of relevant regional and district plant. Exclude provincent of contact. Planning framework generally provides for maintenance and minor optication generally provides for maintenance and minor optication generally provides for maintenance and minor optication framework. Significant upgrades may be considered a new seawall under the kharal Resources Pan. Plan changes are currently required to implement retreat of private properties. 	Likely to manage the risk to coastal erosion over all timeframes through a coordinated approach. A coordinated approach is best practice for managing the construction of the second s	Pathway red designed to deal with the inundation based, where most impacted properties are located around the Wharemaku Stream, setback from the coast. Re-stabilized to the medium term would levely have co-benefits in reducing risks to beachfront properties effected by overlapping. Suructure effected by overlapping. Suructure effected by overlapping.	52	20
Management Unit	Pathways Pathway Descriptions	Ecology	Landscape	Te ao Mãori values	Community Social and Economic Wellbeing	Public Access and Recreation	Regulatory consenting and policy risk	Effectively manages the risks of coastal erosion	Effectively manages the risks of coastal inundation		

ent Unit 9B: Raumati AA Inundatio	2	Status Quo ¹ and Community Education and Emergency Management ⁴	Enhance Existing Inundation Protection ³ and Community Education and Emergency Management ⁴ (Enhance)	Flood proofing buildings and infrastructure ³ and/or Elevate floor levels of buildings ² (Accommodate)	3	waterways - these could be negative for a undergrounding transmitter could be negative for a undergrounding transmitter on the set of the set of the set of the set reduce inundation risk and create indigenous habitat where space allows - Provided that the enhanced inundation protection does not overlap with current ecologically valuable sizes then the - Provided that the enhanced inundation protection does not overlap with current ecologically valuable sizes then the - Norder of the method would be needed on the effects on waterways - these could be needed on the effects on waterways - these could be needed on private filed areas to reduce downstream flood events or heights) - Unlikely that floorprofing and elevation of buildings would affect ecological aspects	3	Disting and ongoing hard engineering structures occur within the context of existing modification. in the longer term, adjusting built form will have more limited impacts on natural elements, patterns and processes which may continue to operate.		2	Interments bunchl from an increased attack to galanche and province for any another than the house and the information An another and any and the anatomic and the information management and and any dratection structures may increase health and safety of the community, certainty about the on health and safety of the community, and infrastructure and/or elevating buildings in the house have a series of the safety of the community, and the safety of the on health and safety of residents that shake it foods and/or for elevating buildings and infrastructures and/or all safety of residents that shake it food proofs within the house, and social cohesion. -relevation and safety of residents that shake it food proofs anding buildings. -Allowing buildings to beath and safety of residents that shake it food proofs any and unbesters to flow under buildings removes direct propers around contact with floodwards (which proofs the people and contact with floodwards (which points) to beath and safety and market proofing structures can help people avoid contact with floodwards (which points) to beath and safety wilding in the market of house (which points) and any and unbest the safety the market of the safety and any and unbest (building the transformed flood points) - Nower, for people to be the share that building as resident of the safety and minimise the risk of inhibiting a feature and the safety and minimise the risk of inhibiting a feature and the safety and minimise the risk of inhibiting a - Nower, for people to be the safet building as resident of the safety and safety and minimise the risk of inhibiting and a safety and and balance and the safety and minimise the risk of inhibiting as the safety and unbest food gave contact with floodwards the building as resident of the safety and safety and minimise the risk of inhibiting as the safety and the safety and minimise the risk of inhibiting as the safety and the safety and minimise the risk of inhibiting as the safety and the safety an	2	This pathway is unlikely to have an impact on either wider community/district use of the coastal environment or public access to the coastal environment. - Some increases to opportunities of recreastion may be observed if stopbants include a walking/binking trad. - Borecer, many people find that cuberts, pumping stations and other hard interventions in the landscape are an eyeson who every name yeage find that cuberts, pumping stations and other hard interventions in the landscape are an eyeson who every decrease the likelihood of recreation (whether are located. becated. becated.	5	Montenance of Infrastructure is generally a condition of resource convent. Generally there is a pathway for conventing new instaurcure. Specific type of Infrastructure will determine how callenings this process is. No resource consent is required for flood proofing buildings. Section floor beach is permitted by the District Plan but may be subject of a development standards such as angles in relation to boundary.	1	Pathway not designed to deal with the erroison hazard, and is unlikely to have any benefits to reduce risk to erosion.
n Unit	1	Status Quo ¹ and Community Education and Emergency Management ⁴	Enhance Existing Inundation Protection ³ and Community Education and Emergency Management ⁴ (Enhance)	Long term Additional Hard Protection (e.g., Stopbanks ³ , Culverts ¹⁴ , Pumpstations ¹⁵) (Protect)	Score 2	Notes Notes for inland areas: There are more (compared to the coast) ecclopically (performant sites, habits and indigenous species, and areas ignificant sites, habits and indigenous species, and areas protection) The Whatemankuk Serem is an important assets that has had some restoration work already guided by a restoration group: The due landscape extends as least as far inland as SH1 because there are more ecological autos, there is greater thate of adaptation measures overlapping with these value: I obtained to use water sensitive urban design principles to reduce inundation the enhanced inundation protection does not coarting with current ecologically valuable sites then the dist in the rehanced inundation protection does not coarting with current ecologically valuable sites then the Home information would be needed on the effects on	<u>Score</u> 2	Notes Score Score Soluting and anguing hard engineering structures occur within the context of existing modification. In the longer term additional hard protection will increase the extent of modification evident in affected areas.	Notes	Score 3	Nets Fieldsth and safety of the community will likely be enhanced through community education and emergency management, a sensight hand hand to respect the an instation event, and the sensitive sensitive sensitive sensitive sensitive enhalth and engineering solutions may offer benefits for health and engineering and health engineering the finds table and health ensuins. This could mean more expectively if there is limited time to put out messaging to the community. For more extrain about health engineering in and health engineering the second health the faunce, especially hard protection structures in place could health the faunce and health througe elucidance in thorace, and the faunce, and hard protection structures in place could health the faunce. A will be always through a business are affecting at trials of the faunce in the second health the faunce, and the faunce is the faunce in the second health the second health the faunce is a faunce in the second health the second health the faunce is a faunce in the second health the faunce is instruction or the second health the second health the faunce is instruction or the second health the	3	Notes -This pathway is unlikely to have an impact on either wider community/district use of the costal environment -some increases to opportunities for recreation may be observed if rigobank include a walkinghing tand. rebility/buggies.etc. -tooleaner of the source of the source of the source rebility/buggies.etc. -some increases to be leaded on the landscape are an eyesone, which may decrease the leaihood of recation (which active or passive) in areas where hard protection structures are located.	<u>Score</u>	Notes Maintenance of infrastructure is generally a condition of resource consent. Infrastructure. Infrastructure. Infrastructure. Societic type of infrastructure will determine how challenging this process is.	Score 1	Notes
igement Unit	Pathways	P	athway Descript	tions	_	Ecology		Landscape	Te ao Mãori values		Community Social and Economic Wellbeing		Public Access and Recreation		Regulatory consenting and policy risk		Effectively manages the risks of coastal erosion
	5	Status Quo ³ (Current new outlined to LTP) and Community Education and Emergency Management ⁴	Re-establish the line with a setback sea wall & Dune reconstruction ¹¹ (Retreat & Protect)	Beach renouriahment ¹⁰ (Protect – Soft Engineering)	3	In the short term, the reinforced seawall will be a hand engineering structure whith a dynamic coastal environment engineering structure whith a dynamic coastal environment status operation of the structure of the structure of a characteristic coastal coals further methods in black opportunities, cause temporary fauna and habitat disturbance, and inter resortant on opportunities when a set back is required (e.g. unable to remove all hard structures) in the medium tern a setback sawall may enable the coastal provide indigenous habitat - Dune reconstruction will an important part of this, especially if assister will assist with protecting human infrastructure in the long-term, however the lack of and upply coals are the dune errole furthers - This coald be negated in the longe term by a men hard to the of a struct your would be moderated by beach, nourishment. = back nourthment will assist with resting and re- establishing coastal foredunes, especially after storm events.	4	In the short term, reinforcing existing seawalls will continue to extend hard engineering influences within the context of existing modification. In the medium and longer terms, reinstating a coordinated seawall back from the present day shorefine will continue hard engineering within this modified coastal context. * Control to a transformed durate the and combone nature based solution solution does durated within the influence of the shore the transformed durate the and combone nature based solution solutions the hard engineering durated backster and combone nature modified costatic context. * Ourse and beach profile additionation of high beals of adjust and the profile and form.		1	 An noted above, community education, emergency margement and examils may improve public health and suffer, certainly and the hiture of the community, and insurability of personal asset. Since no provides for costal fill donig is present in this pathway, risk to health and adely, certainly around the future, and insurability of assets remain provide the second state of the second state provides and the second state of the second state provides and the second state of the second state increases social cohesion. As noted above, both due reconstruction and back for communities where as and and other material is sourced, in commont the states and and other material is sourced, in sourced the future of the community, social cohesion, and insurability of assets. 	3	+In Raumati, loss of beach in the medium term through seavails may be counterbalanced by durn ercontruction and beach renounisment in the long term, potentially providing more opportunities for recretation and public access to and used the costal durino of the away provide and dure access. However, if and other material is anough in from thosever, if and other material is anough in from those in the second second second second second second basing recreational opportunities associated with the beach.	2	Planning framework generally provides for maintenance and minor upgrades of seawalls. The existing participation of the seawall work the Natural Beorurces Film. The existing participation of the seaward search of the having discounted other risk management options. A consenting sativally is valiable through the rules of relevant regional and district plans. The existing participation of the rules of relevant regional and district plans. The existing participation of the rules of relevant regional and district plans. The rules of relevant existing and district plans. The rules of relevant existing a planet of the rules of relevant existing a planet of the rules of relevant existing planets. The rules of the rules of relevant is blaining policy framework encourages soft engineering approaches to be considered ahead of hard engineering.	4	Likely to manage the risk to coastal erosion over the median term, however uncertainly about maintaining the is addiment characteristic and the second second second is addiment characteristic maintaining backs renoursilvent in the long term. A settak assault being ball following the retreat of some properties in the endium term will allow frome room on the back, and less risk to the properties behind. Dure reconstruction will provide additional protection in front of a stability to exacritate the risks to the adjacent shoresine. «Listabilisment of accordinated approach over the medium- long term would be considered bact racks, relative to the uncordinated approach in the short term.
	4	Status Quo ¹ (Current new seawall as outlined in LTP) Education and Emergency Management ⁴	Re-establish the line with a setback sea wall (Retreat & Protect)	Enhance sea vali ¹² (Protect – Hard Engineering)	2	 In the short term, the reinforced seawail will be a hard engineering structure within a dynamic castal environment and relignous socies and habitst retained how opportunities, socies and habitst retained and habitst disturbance, and limit restoration opportunities, when a set back is required (eq. unable to remove all had structures) = in the medium term a setBack seawail may enable the planting and weed management could provide indigenous habitst A natural downe system will assist with protecting human ministructure in the long-term, however the lack of and upply could see that downe structure. An own had regimeering surveid, and ongoing castal erosion due to lank of and supply 	2	In the short term, establishing a new seawell will continue hard engineering within this modified costat context. In them medium and longer terms, setting sea wall back affest limited anging opportunity to restore natural character in context of increasing modification.		2	 -No noted above, community education, emergency mangement and seavails may improve public health and safety, certainly around the future of the community, and immunibility of personal assets. -Since no provision for costal of flooding is present in this future, and immunibility of assets remain for those affected by periodic immufation in sub-area 100. Reamati community social cohesion. 	2	-Over time the beach is likely to be lost, with consequent loss of beach-related recreation activities. +Novervi, the change from beach to see and promenade can and associated recreational opportunities for some groups (see above).	2	Planning framework generally provides for maintenance and minor upgrades of seawall. 	5	Likely to manage the risk to castal erosion over time. ** accordinated approach is being tractice for managing the risks to erosion. ** settaka kaswall being built following the retreat of some properties in the module time will also the rome re onon on the properties of the module time will also the rome re onon the properties of the module time will also the rome re onon the properties of the module time will also the rome re onon the properties of the properties built to the properties of the row and the source of the time time sitely to be approximate to the source of the time all allow the first Rise casing, or order for the source all baily measures the too the row and the source all the time resonance on the case and the charges accouncies along 5.8 . The design of this may not be practical, or may have undesirable consequences accounts of the row all allow pro- team and allow the row and accouncies along 5.8 . The approximation to allow and the row and accouncies along 5.8 . The approximation allow and the row and accouncies along 5.8 . The approximation allow and the row and account allow for the row and the row and the row and the row and account and as a source (IGE Part) account all time the row and the row and the row and the row and account and as a source (IGE Part) account all time the row and the row and the row and account the row and the row and the row and account the row and the row and the row and account the row and account the row and account the row and account the row and the row and account the row and ac
	3	Status Quo ¹ (Current new seawall as outlined in LTP) and Community Education and Emergency Management ⁴	Sea wali ¹² (Protect – Hard Engineering)	Enhance sea wali ¹² (Protect – Hard Engineering)	1	• Very little opportunity for indigenous fauna, flora or habitats in short, medium, or long term	1	Establishing and reinforcing hard engineering will continue within the context of existing modification. Yory lineted organization gooptrunity for extone natural character in context of increasing modification.		4	As noted above, community education, emergency imagenetic and sexuals may improve public health and imarching of personal autors. Since no provision for costal flooding to present in this pathway, risks to health and safety, certainly around the future, and insurability of suscis remain for those affected by periodic imarching in such as that the destination of the future and insurability of suscis remain for those affected by periodic imarching in such as that the destination to Remain any social cohesion.	2	 Over time the beach is likely to be lost, with consequent loss of beach-related recreation activities. However, the change from beach to seawail promenade can increase public access to and use of the castal environment and associated recreational opportunities for some groups (see above). 	3	Planning framework generally provides for maintenance and minor upgrades of seawalk. Significant upgrades may be considered a new seawall under the Nuture Boarcers Plan. The existing pathy framework discours taget hard protection having discourdes of their risk management options. A consenting pathway is available through the nules of relevant regional and discipct plans. Subling environment contains sea walls which may be considered as part of consent.	4	Likely to manage the risk to casstal erosion over time. A coordinated approach is best practice for managing the Accordinated approach is best practice for managing the The programmed approach is a straight of the second to the second to the effective over the long term, the design of the wall will likely need to have a significant to depth and increased orest deviation to deal with the charges associated with SIR. The deviation to deal with the charges associated with SIR. The deviation to deal with the charges associated with SIR. The deviation to deal with the charges associated with SIR. The deviation of the y actical, any have indexisted with the charges associated with SIR. The deviation of the size of the second to the second to the second to when the second term of the second term deviation of the second term of the second term deviation of the second term of the second term deviation of term deviation of the second term deviation of term deviation of term deviated term deviati
	2	Status Quo ¹ (Current new seawall as outlined in LTP) and Community Education and Emergency Management ⁴	Enhance existing protection structure ² . Community Education and Emergency Management ⁴ (Enhance)	Re-establish the line with a setback sea wall [®] & Dune reconstruction ¹¹ (Retreat & Protect)	2	In the short and medium terms, the reinforced sewall will be a hard engineering structure within a dynamic coastal environment and indigenous species and habbas retain low opportunity. Status quo. I lowever a reinforced sewall could further reduce habbas dynamic quotes and the status of the several environment and indigenous species and habbas the several environment and indigenous special and a structure of the quark regime environment and indigenous habbas. The several environment and it assisted by planting and weed management quoties could provide indigenous habbas. A natural dans with an important part of this, expecially if assisted by planting and weed management which could provid in engirem. Nature the bab of same and the site of the optical due system will assist with protecting human infrastructure in the optic my movement.	3	Is the short and medium terms, maintaining and selioforcing Is the short and medium a back exploring directure within the context of an existing modified coastal environment. In the longer term, setting the wall back and exabiling space for dure recreation provides same potential to reintroduce natural elements, patterns and process in this esting modified context. Bestoring subard form and character of dunes would contribute to reintroduce and combine nature baced solutions alongside land engineering forms in this modified context.		2	The investigation of percent parts at risk of ensoine me- this combatines of community decision, emergenci- tions, and the second of the community. Percepter would be cogniture of how to avoid then from ensoine, and assaults would decrease the risk to health and safety from ensoine. However, since this pathway does not control coastal flooding, risk to public health and safety remain when there are perceds of flooding in this area (see risk assessment). 4-chombing community education, mengency management fulner of the community for the second second second fulner of the community for the second second second to the second second second second second second to the second second second second second second testing the of 2 second second second second second second second second second second second second testing erosion, people may keel testic certain about the choixer of the second second second second second the render second second second second second second to the community metaway heel test certain about the fulner of the community, and is notice, this pathway the condition apport the second second second second second testing the of 2 second second second second second second second second second second second second second second testing the second second second second second second testing the second second second second second second second testing the second second second second second second second second testing the second second second second second second second second testing testing testin	2	Loss of basch in the medium term through seawals may be counterbalanced by dune recontruction in the long term, potentially providing more apportunities for recreation and public access to and use of the costal environment over time through the combination of seawall promenade and dune access. • Nowever, if sand and other material is brought in from another community, elsewhere, this community may risk losing recreational opportunities associated with the beach.	2	• Planning framework generally provides for maintenance and minor upgrades of seawalk. Under the Natural Resources Nat. The existing poly formework discources pland protection except where it is the only reasonable or practical option having discourdes of their risk management options. A consenting pathway is available through the rules of relevant regonal and discrit plans. • Busting environment contains sea walk which may be considered a part of consent. In the option of the seawal which may be considered and part of consent. In the properties.	5	Likely to manage the risk to coastal erosion over time. ** a coordinated approach is best practice for managing the risks to erosion. **The progression of options throughout time is sensible and provides for the ability to adapt the existing surfaces for a bailty to adapt the existing surfaces for a bailty to adapt the existing surfaces for a bailty of the sense of the sense.
	1	Status Quo ¹ (Current new sostillas aud Community and Community ducation and Emergency Management ⁴	Enhance existing protection structure ² , Community Education and Emergency Management ⁴ (Enhance)	Sea wall ¹² (Protect – Hard Engineering)	1	• Very little appartunity for indigenous fauna, flora or habitats in short, medium, or long term	1	Establishing and neinforcting hand engineering will continue within the constant of existing exodification. Every limited congregosportanity for existen natural character in context of increasing modification.		3	The combination of community elocation, emergency management, and essawlis under the spontaneous and the sense of the s	2	 Over time the beach is likely to be lost, with consequent loss of beach-related researcher activities. Consent promotes the second promotes of the reserves public occess to and use of the second announcement and associated recreational opportunities for some groups (see above). 	3	Hanning framework generally provides for maintenance and minor upgrades of a tawaks. Significant upgrades in the considered a new seawall under the Natural Resources Ran. The existing policy framework discourages hard protection exactly where it is benowners with the protection avoing discounted other risk management options. A consenting pathway is available through the rules of release executive resources and the resource seawarks which may be considered as part of consent.	4	Likely to manage the risk to casstal erosion over time. A coordinated approach is best practice for managing the risks to erosion. The progression of options throughout time is sensible and provides for the ability to adapt the existing structures for a signary provides for the ability to adapt the existing structures for a sensible. The progression of options throughout time the wall will likely need to have a significant to edgeth and increased or crest deviation to devia the change associated with SIA. Protential for some end effects at the north (Wharemaska Streem) and south (QE Park) across all timeframe.
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	 Pathway not designed to deal with the inundation hazard, where most impacted properties are located around the Wharemakuk Stream, setback from the coast. Structure elevation and stope coable designed to reduce overtopping hazard to beachfront properties. 	37	15
	 Tashway not designed to deal with the inundation hazard, where most impacted properties are located around the Waremakuk Stream, stetak from the coast. R-estabilishment of the line would likely have co-benefits in reducing risk to beachmon properties effected by overtopping. Situcture e toxics and stope could be designed to reduce overtopping hazard. 	45	18
	Pathway not designed to deal with the inundation hazard, where most impacted properties are located around the Waramanuka Deman, stock if rom the coast. Structure elevation and stope could be designed to reduce contropping hazard to beachingst properties.	40	16
	 Pathway not designed to deal with the inundation hazard, where most impacted properties are located around the Wharemaski Stream, setback from the cost. Wharemaski Stream, setback from the cost of the stream relation grists to beaching to properties effected by overtopping. Structure elevation and signe could be designed to reduce overtopping hazard. 	43	17
	 bathway not designed to deal with the inundation hazard, where most impacted properties are located around the Wharemauku Stream, setback from the coast. He establishment of the new sould have have co-benefits in reducing risks to beachfrom properties effected by contrapping. 	47	19
E	ffectively manages the risks of coastal inundation Notes		
	*Is proportionate to the nature and scale of the hazard. Progression of options over the medium to long term will likely manage the rols of catasti imvolution. *There is potential for hard engineering options to exact hate any engineering options of the state of the state of the completely through dengits for indices are negative impacts. *Design would be informed by best paractise at the time.	45	20
	His proportionate to the nature and scale of the hazard. Anongeneous of options over the medium to togs term will likely manage the risk of castal invancement History has proportionate to the scale of the hazard - an million likely to be proportionate to the scale of the hazard - an million marked. «Hoodprofing individual properties would stall result in some access issues. -Design would be informed by best practice at the time.	43	20

3	Status Quo ¹ and Proto Community Stop Education and Energency Management ⁴ Prot (Prot	Illional Hard Itection (e.g. Enhan banks ¹⁴ , Protect verts ¹⁴ , Protect postations ¹⁵) (Enhan	sca New ation 3507 ³ 2 nce)	Provided that the enhanced humdation protection does not overlap with current ecologically valuable lates then the outcomes for terrearing ecological the entral 9 More information would be needed on the effects on attenamo, the electronic states of the entral streams of positive led, providing more reparts filed areas the operating effects, expectally on connectivity between habitats	Existing and ongoing hard engineering structures occu within the context of existing modification. I the menution and longer true addional hard protect will increase the extent of modification evident in affect area.	on d	3	 As noted above, community education, emergency management and hard protection structures may increase health and safety of the community, existing about the future, and invariability, but could also have adverse effects on health and safety. 	3	 This pathway is unlikely to have an impact on either wider community/district use of the coastal environment or public access to the coastal environment. -Some increases to opportunities for for enciration may be deserved if stopbanks include a walking/billing taxd, enciration of the stop opportunities of the once with histophility bagies excert visionery, many people find that culverts, pumping stations and other hard interventions in the fundances are an expecti- which may decrease the Bielihood of recreation (whether active or passies) in areas where hard protection structures are incread. 	4	Maintenance of Infrastructure is generally a condition of resource consent. a satisway for consenting new infrastructure. Specific type of Infrastructure will determine how enaltenging this process is.	1	•Pathway not designed to deal with the errorison hazard, an unlikely to have any benefits to reduce risk to errorison.
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 Is proportionate to the nature and scale of the hazard, however additional hard protection may not be required un- the long term. +hong testion of paties of a scale interaction to long term will +hong testion of paties of a scale interaction to long term will -hone is potential for hard engineering options to scale-table the risk or better area, however this would leave he mitigated completely through design to reduce any negative impact. *Pelign would be informed by best practice at the time. 	45	20		
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