

17. Coastal Hazards Adaptation Framework and Coastal Panel

Reference Te Tohutoro: 22/280041

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1. Purpose of the Report Te Pūtake Pūrongo

- 1.1 The purpose of this report is to seek Council approval of:
 - 1.1.1 The Coastal Adaptation Framework (the Framework) which sets out the Council's approach to adaptation planning with low lying coastal and inland communities that will be impacted by sea level rise; and
 - 1.1.2 The appointment of the Coastal Panel for Lyttelton Harbour / Whakaraupō. Note that the names of the candidates to be appointed are contained in a Public Excluded attachment and if discussion of these candidates is required, Council will move into a Public Excluded session to protect privacy of the candidates.
- 1.2 Council staff engaged on the draft Framework in late 2021. Detailed analysis of public feedback and Council responses to submissions is set out in Appendix A: *Coastal Adaptation Framework Consultation Analysis*.
- 1.3 The Framework has been amended in response to the submissions, with oversight and endorsement from the Coastal Hazards Working Group (see Appendix B: *Coastal Adaptation Framework*.)
- 1.4 The decisions in this report are of high significance in relation to the Council's Significance and Engagement Policy due to current and anticipated future impacts of coastal hazards on low-lying inland and coastal communities, mana whenua, and Council infrastructure.

2. Officer Recommendations Ngā Tūtohu

That the Council:

1. Approves the final Coastal Adaptation Framework which sets out the guiding principles and the engagement and decision-making process for the Council's adaptation planning process.
2. Resolves to appoint the Lyttelton Harbour / Whakaraupō Coastal Panel named in Appendix C: Coastal Panel for Whakaraupō.
3. Agrees that the names of the Coastal Panel members are released after they have been advised of the Council decision.

3. Reason for Report Recommendations Ngā Take mō te Whakatau

- 3.1 Approval of the Framework and establishment of the Coastal Panel are necessary precursors to the Council's initiation of adaptation planning in Lyttelton Harbour / Whakaraupō in Spring 2022; to be followed by subsequent tranches of adaptation planning across other affected parts of the district.

- 3.2 While feedback has led to some amendments to the Framework, there was widespread support for the co-creation approach that it proposes. The Coastal Hazards Working Group (CHWG) has endorsed the amended Framework and Council staff recommend that Council approve the report recommendations to enable staff to progress adaptation planning.

4. Alternative Options Considered Ētahi atu Kōwhiringa

- 4.1 With broad support indicated for the approach set out within the Framework, no alternative approach to adaptation planning has been developed.
- 4.2 Some submitters in the Waimairi Beach to Southshore area sought to delay Council activity, and therefore some consideration has been made of this request. However, the Council has previously agreed to start adaptation planning in the Lyttelton Harbour / Whakaraupō Adaptation Area and these communities have indicated a preference to progress this programme of work.

5. Background

- 5.1 Communities around the world are facing the impacts of climate change and sea-level rise. As a low-lying city, Christchurch is vulnerable to the impacts of sudden storms as well as gradual changes to the shoreline and tides. Data derived from the *Coastal Hazards Assessment for Christchurch District* (2021) Tonkin + Taylor (Coastal Hazards Assessment, 2021) indicates that at 1.5m of sea level rise around 26,500 properties across the district are likely to experience coastal flooding, erosion and rising groundwater.
- 5.2 The Coastal Hazards Adaptation Planning (CHAP) programme was established to work with rūnanga and communities to develop adaptive pathways to plan for, and respond to, coastal hazards impacted by sea level rise.
- 5.3 In August 2020 the CHWG (Council, Papatipu Rūnanga and Environment Canterbury) was established to provide oversight and guidance over this programme.
- 5.4 On 7 October 2021 the Urban Development and Transport Committee approved the release of the Draft Framework for community feedback, and noted that staff were releasing the Coastal Hazards Assessment, 2021.
- 5.5 The Framework set out Council's proposed approach to adaptation planning with rūnanga and communities including the respective roles and responsibilities of Council and private asset owners, guiding principles for adaptation planning, and a proposed engagement and decision-making process.
- 5.6 Alongside the release of the Framework, Council also sought feedback on an *Issues and Options Paper* as a first step of the Coastal Hazards Plan Change which will manage new development, changes of use and subdivision proposed in the future.

6. Engagement activity

- 6.1 The Coastal Hazards engagement initially ran from 8 October – 15 November but was extended to 6 December 2021 to give people more time to consider their feedback.
- 6.2 During that eight week period Council staff attended more than 40 meetings, briefings, drop-ins, and pop-ups reaching more than 450 people. Online engagement through social media posts reached over 59,000 people, and received 1,716 likes, shares and comments. Significant effort was made to provide communities with information in a range of formats, including video, online maps, fact sheets, technical and plain language reports as well as initiatives like colouring competitions and a children's engagement event attended by five schools.

- 6.3 101 submissions were received on the Framework, 42 of which were pro-forma responses or endorsements organised by the Waimairi Beach, North Beach and Southshore Residents' Associations. A high number of submissions were also received from children and young people – including students from the University of Canterbury and the five schools above.
- 6.4 A number of organisations and groups submitted (listed in Appendix A), as well as the Waitai Coastal-Burwood and Waikura Linwood-Central-Heathcote Community Boards.

7. Submissions and responses

- 7.1 As noted above, the *Coastal Adaptation Framework Consultation Analysis* (Appendix A) sets out the feedback received from submitters and Council's responses to this feedback which has been discussed and endorsed by the CHWG. Accordingly, a number of revisions have been made to the Framework (see Appendix B).
- 7.2 Looking across all submissions, there was broad support across the District for the Framework and acknowledgement of the value in setting out upfront a clear, co-creation process that involves mana whenua and communities.
- 7.3 In the following section, this report addresses six themes where public feedback was significant, contentious, and/or polarised.
- Engagement concerns
 - Climate science scepticism
 - The importance of education and awareness-raising
 - Principle Three: Focus on public assets that contribute to the health, safety and wellbeing of communities
 - Principle Seven: Keep managed retreat on the table
 - The Coastal Panel composition and appointment process

Engagement concerns – no change recommended

- 7.1 Feedback from coastal residents from Waimairi Beach to Southshore produced themes around a lack of sufficient time for the community to engage and provide feedback, and a lack of trust and confidence in Council. Analysis shows some contradictory messages from submitters who voiced frustration at being over-consulted and fatigued by Council engagement, alongside appeals for more involvement in drafting the Framework, increased access to experts to better understand the Coastal Hazards Assessment 2021, and the establishment of community expert groups outside of those proposed by Council.
- 7.2 These issues were not raised in submissions from elsewhere across the District.
- 7.3 Council staff note that the engagement period was extended to a total of eight weeks which aligns well with best practice.¹ It is intended that ongoing information sharing will continue with the Coastal Hazards Assessment 2021; and a significant period of localised engagement will precede planning in each Adaptation Area.

Climate science scepticism - no change recommended

- 7.4 The Christchurch Coastal Residents United and some other submitters from the Waimairi Beach to Southshore area questioned the base assumptions in the Coastal Hazards Assessment 2021. Some comments alleged a conflict of interest with the peer reviewer, and others sought access to alternative experts to review this modelling work. In addition, some

¹ DPMC's *Good Practice Guide for Community Engagement* recommends a 6-10 week period of engagement for projects at a national level. Many Council consultations are for a period of 4-5 weeks.

submitters called for localised monitoring programmes to validate that seas are rising before the Council takes any further action.

- 7.5 Council was not seeking feedback on the highly technical modelling work in the Coastal Hazards Assessment 2021. However, Council remains confident that its methodology is aligned with current climate change policy and guidance from the Ministry for the Environment and the Intergovernmental Panel on Climate Change, that the methodology and findings have been robustly tested by credible experts, and that the information produced is suitable to inform adaptation planning.

The importance of education and awareness-raising

- 7.6 Feedback from children and young people, in particular, raised concerns about misinformation and climate science literacy in the wider community.
- 7.7 To respond to this feedback, Council staff have added a new section on engagement principles within the Framework. These engagement principles show the Council's commitment to how we will engage with communities, and also acknowledge the importance of encouraging and supporting education initiatives to raise awareness and understanding of coastal hazards.

Principle Three: Focus on public assets that contribute to the health, safety and wellbeing of communities - no change recommended

- 7.8 Some submitters from across the District agreed that private property is the responsibility of the property owner, not the ratepayer.
- 7.9 However, others sought to broaden the principle to include private assets generally, with some arguing that Council has a 'duty of care' to protect private assets, and questioned Council's legal advice.
- 7.10 Legal Services are clear that no legislation or case law has established that the Council owes such a legal duty of care. The Council's purpose and role under the Local Government Act 2002 does not demand that the Council becomes responsible for privately owned property. Therefore, no change is recommended to Principle Three.

Principle Seven: Keep managed retreat on the table - change recommended

- 7.11 Some submitters from across the District supported this principle as inevitable, noting that in places it could be the most feasible and ecologically beneficial adaptation option available.
- 7.12 However, others raised concerns that it appears to be Council's preferred approach as it was the only adaptation type singled out. Others felt that it could alienate communities, and create stress and uncertainty for many people.
- 7.13 Council staff acknowledge concerns that by singling out the managed retreat adaptation type there was an implicit indication that this is the Council's preferred approach. Staff wish to emphasise that this was not the intention; and inclusion of this principle was intended to stimulate discussion and debate about managed retreat and emphasise the importance of longer-term sustainability as a consideration in adaptation planning processes.
- 7.14 To better fit this purpose, this principle has been redrafted to support the importance of 'Consider Long-Term Sustainability' which can be reviewed in Appendix B.

The Coastal Panel composition and appointment process - no change recommended

- 7.15 Submitters, predominantly from Waimairi Beach to Southshore, sought to include a greater proportion of 'local representation' on Coastal Panels, arguing that six community members

were insufficient. These submitters wanted either ‘the community’ or residents associations to appoint the Coastal Panel.

- 7.16 Council staff note that the proposed Coastal Panel composition is six community members, rūnanga representation, a representative of the local Community Board, a representative of the local Zone Committee and up to three ‘rest of city’ representatives.
- 7.17 Council note that the rūnanga, Community Board, and Zone Committee representatives also represent local interests and entities and therefore hold a localised focus. At most, only three members could be considered to hold non-local interests.
- 7.18 Staff also note that appointment processes are often fraught with issues of mandate. While Residents’ Associations hold valuable local information, they are not democratically elected representatives of their communities and do not have delegated decision-making powers. Some communities do not have Residents’ Associations, and participation levels can differ between Residents’ Associations.
- 7.19 In contrast, Christchurch City Councillors are elected representatives of their communities and therefore hold a mandate to make decisions on behalf of communities. It is for this reason that Council will oversee the process of appointments to the Coastal Panel.

8. Appointment of the Lyttelton Harbour / Whakaraupō Coastal Panel

- 8.1 Note that the names of the candidates to be appointed are contained in a Public Excluded Appendix C: *Coastal Panel for Whakaraupō*. If discussion of these candidates is required, Council will move into a Public Excluded session to protect privacy of the candidates.
- 8.2 The CHWG have considered and endorsed the appointment of the Lyttelton Harbour / Whakaraupō Coastal Panel.
- 8.3 The Coastal Panel is comprised of members appointed via three different processes:
 - 8.3.1 members appointed by rūnanga, Community Board or Zone Committee;
 - 8.3.2 community members who applied through an Expression of Interest process, are endorsed by the CHWG and appointed by Council; and
 - 8.3.3 a rest of city representative appointed by a Community Board in another Adaptation Area to provide cross fertilisation of ideas and early socialisation of the processes before planning starts in their Adaptation Area. Additionally, a rest of city youth representative was nominated to increase the proportion of young people on the Coastal Panel.
- 8.4 In total, ten Expressions of Interest were received with six of those applicants endorsed to become community members and a seventh appointed as a rest of city representative due to her residence outside the Adaptation Area, but in acknowledgement of her significant connections to the Adaptation Area.
- 8.5 The six community members were selected for their strong local connections and with consideration of the need for members with diverse age, gender, and place of residence.
- 8.6 It is proposed that the Coastal-Burwood Community Board select one ‘rest of city’ representative from their Board members who is able to take a wide perspective in order to support the adaptation planning process and is supportive of the need to plan now for current and future impacts of sea level rise.

9. Policy Framework Implications Ngā Hīraunga ā- Kaupapa

Strategic Alignment Te Rautaki Tīaroaro

- 9.1 The coastal adaptation programme is closely aligned with the Council's strategic priorities of 'Enabling active and connected communities to own their future' and 'Meeting the challenge of climate change through every means available'.
- 9.2 This report supports the [Council's Long Term Plan \(2021 - 2031\)](#):
- 9.2.1 Activity: Strategic Planning, Future Development and Regeneration
- Level of Service: 9.5.7.4 Develop a coastal hazard assessment and strategic adaptation framework to guide the development of adaptation pathways with communities who will be exposed to coastal hazards caused by climate change. - Develop and release updated Coastal Hazard Assessment and Strategic Adaptation Framework. Commence work with first tranche of priority communities.

Policy Consistency Te Whai Kaupapa

- 9.3 The decision is consistent with Council's Plans and Policies.
- 9.4 Central Government has indicated that it will introduce a Climate Adaptation Act in 2023 to address legal, technical and funding issues relating to managed retreat.
- 9.5 Council staff have developed the Coastal Adaptation Framework to be responsive to future legislative change, and consider it necessary to progress adaptation planning due to the high levels of coastal hazard exposure in the Christchurch District.

Impact on Mana Whenua Ngā Whai Take Mana Whenua

- 9.6 The management of coastal hazards is of significant interest to Te Rūnanga o Ngāi Tahu and Papatipu Rūnanga due to the intrinsic values that Māori hold with whenua, wai and the environment. The inclusion of Te Rūnanga representative(s) on the CHWG acknowledges the importance of this relationship as does the partnership approach to the development of strategic documents, and the role of rūnanga on Coastal Panel.

Climate Change Impact Considerations Ngā Whai Whakaaro mā te Āhuarangi

- 9.7 Engagement with communities on coastal hazards sits under Programme 3: Proactive Climate Planning with Communities under the Council's Ōtautahi Christchurch Climate Resilience Strategy.

Accessibility Considerations Ngā Whai Whakaaro mā te Hunga Hauā

- 9.8 Access considerations are core to adaptation planning.

10. Resource Implications Ngā Hīraunga Rauemi

Capex/Opex Ngā Utu Whakahaere

- 10.1 Funding for technical work and engagement was allocated to the CHAP programme in the Council's Long Term Plan 2021-31.

11. Legal Implications Ngā Hīraunga ā-Ture

Statutory power to undertake proposals in the report Te Manatū Whakahaere Kaupapa





- 11.1 The Council has various responsibilities, functions and powers under the Local Government Act 2002, the Resource Management Act 1991, and other legislation in relation to managing significant risks from natural hazards.

- 11.2 It is noted that changes to resource management legislation (including a new Adaptation Act) will strengthen central government direction for managing coastal hazards in the next three years.

Other Legal Implications Ētahi atu Hīraunga-ā-Ture

- 11.3 Legal Services have provided legal advice set out in Appendix One: *Coastal Adaptation Framework Consultation Analysis* on various issues raised by the submissions. This includes analysis of duty of care comments, and the broadness of principle three in relation to infrastructure.

Attachments Ngā Tāpirihanga

| No. | Title | Page |
|---|--|------|
| A   | Coastal Adaptation Framework Consultation Analysis for Council 070422 | 186 |
| B   | Coastal Adaptation Framework Tracked Changes | 225 |
| C | Coastal Panel for Whakaraupō (<i>Under Separate Cover</i>) - CONFIDENTIAL | |

Additional background information may be noted in the below table:

| Document Name | Location / File Link |
|---------------|----------------------|
| | |

Confirmation of Statutory Compliance Te Whakatūtutanga ā-Ture

Compliance with Statutory Decision-making Requirements (ss 76 - 81 Local Government Act 2002).

(a) This report contains:

- (i) sufficient information about all reasonably practicable options identified and assessed in terms of their advantages and disadvantages; and
- (ii) adequate consideration of the views and preferences of affected and interested persons bearing in mind any proposed or previous community engagement.

(b) The information reflects the level of significance of the matters covered by the report, as determined in accordance with the Council's significance and engagement policy.

Signatories Ngā Kaiwaitohu

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| Authors | Jane Morgan - Principal Programme Advisor Katy McRae - Head of Communications & Engagement |
| Approved By | Jane Davis - General Manager Infrastructure, Planning & Regulatory Services |

CONSULTATION ANALYSIS – COASTAL ADAPTATION FRAMEWORK

Introduction

Engagement on the Coastal Adaptation Framework, and the Issues and Options Paper for the Coastal Hazards Plan Change initially ran for five weeks, from 8 October – 15 November. However, following feedback from the community the engagement period was extended a further three weeks until 6 December 2021 to give groups and individuals more time to consider their feedback.

Engagement and communication tactics

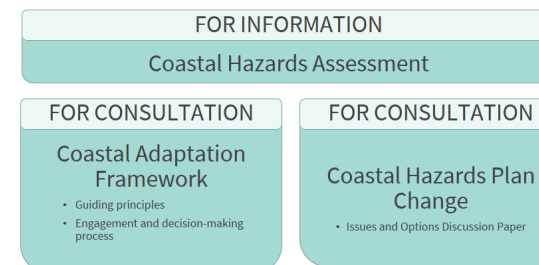
Engagement on the Coastal Adaptation Framework and the Issues and Options Paper for the Coastal Hazards Plan Change was wrapped up into a wider Coastal Hazards Conversation which included the release, for information, of an updated Coastal Hazards Assessment.

To introduce the coastal hazards conversation, we sent out an email to more than 200 stakeholders, groups and individuals when the Coastal Hazards Assessment was released. The release of the Assessment was timed to coincide with the release of the Coastal Adaptation Framework and the Issues and Options Paper on the Urban Development and Transport Committee agenda.

On 8 October, when engagement launched for the Coastal Adaptation Framework and the Issues and Options Paper, a newsletter was sent out to the same database and a follow-up email was then sent to specific community groups with a particular interest in coastal hazards.

In the lead-up and during the engagement period we held more than 40 briefings, meetings and drop-ins, reaching more than 450 people. Meetings attended by the project group but organised by community groups for their residents and members were particularly well-attended, and we would like to acknowledge and thank those groups for the invitations to attend.

Over the course of the engagement period we promoted the coastal conversation more than 20 times via social media. Our Facebook posts reached more than 59,000 people, with 1,716 Active responses (likes, shares and comments). We also had six stories on Newsline, as well as articles in The Press, the Akaroa Mail, the Star, Bay Harbour News, and an interview on Radio New Zealand.



Submissions

We received 101 submissions on the Coastal Adaptation Framework and 90 submissions on the Issues and Options Paper. These totals include:

- 25 pro formas organised by the Waimairi Beach Residents' Association which provided feedback both the Coastal Adaptation Framework and the Issues and Options Paper.
- 10 pro formas organised by the North Beach Residents Association which provided feedback on both the Coastal Adaptation Framework and the Issues and Options Paper.
- 7 submissions endorsing the Southshore Residents' Association which provided feedback on both the Coastal Adaptation Framework and the Issues and Options Paper.

The majority of feedback was from residents in coastal communities – in particular, from residents living in the Pegasus Open Coast area (Brooklands, Waimairi, North Beach, New Brighton, South New Brighton and Southshore).

With the Coastal Adaptation Framework we also saw a high number of submissions from children and young people – including students from the University of Canterbury, and a joint submission from students from Banks Avenue School, Chisnallwood Intermediate, Governors Bay School, Haeata Community Campus, and Lyttelton Primary School.

We heard from the Waitai Coastal-Burwood and Waikura Linwood-Central-Heathcote Community Board, and the following organisations, residents' associations and community networks:

- Christchurch Coastal Residents United (CCRU)
- Avon Heathcote Ihutai Estuary Trust
- South Brighton Residents Association (SBRA)
- Waimairi Beach Residents Association (WBRA)
- North Beach Residents Association (NBRA)
- Southshore Residents Association (SSRA)
- New Brighton Pier and Foreshore Society
- Brighton Observatory of Environment and Economics (BOEE)
- Flourish Kia Puawai

- Orion
- Lyttelton Port Company
- Boffa Miskell

Overarching themes across both engagements

Across both engagements there were some common themes around process and expectations.

There was a strong feedback from a number of submitters in the Pegasus Open Coast area that the period of engagement was too short, and there was insufficient time to consider all the information and to make informed comments. This was a particular theme in the feedback from residents' associations, who felt that they did not have enough time to canvas the views of their residents properly. In response to this feedback we extended the engagement period for a further three weeks, at the end of which time the residents' associations we heard from (Waimairi, North Beach and Southshore) either submitted pro formas or had feedback specifically endorsing their submissions. This would suggest that, over the eight week period, they had been able to complete, at least to some degree, wider engagement with their local residents.

Another overarching theme across both engagements was an issue of trust and confidence in the Council. Again, this feedback was almost exclusively from submitters in the Pegasus Open Coast area. Submitters referenced previous processes and experiences with the Council as undermining trust in the current process. Some submitters specifically mentioned their concern at slow progress on the project to address earthquake-related issues to the estuary edge in Southshore and South New Brighton. In addition, the inability to review and challenge the technical information, and the lack of community involvement in the early planning stages of both documents were also cited as reasons for mistrust in the current process.

“Community involvement has been denied and models and data have not been made available for review, all of which leads to the familiar closed-door scenario and feelings of mistrust with Council.”

A further theme across both engagements was the perception that coastal communities have been unfairly singled out and that other areas of the city are not given as much scrutiny or have as many restrictions.

“Let's be honest, Southshore has been mercilessly spotlighted, over-analysed, over-consulted and at times over-regulated. It would be fair to say that many in Southshore have consultation fatigue.”

Coastal Adaptation Framework: submissions analysis and proposed responses

Engagement process and other over-arching issues

| Theme | Specific issues raised | Recommendation |
|---|---|---|
| Insufficient time for community engagement | <p>Submitters from the eastern suburbs (CCRU, Richard Dalman, Kim Money, Josiah Thompson, Tim Sintes, SSRA, NBRA, WBRA, Coastal Burwood Community Board, Vic Allen) argued that the engagement period has been too short for communities to process the Coastal Adaptation Framework and the Coastal Hazards Plan Change Issues and options paper given the complexities and significance of these programmes of work.</p> <p>However, some submitters (Meg Roulston, Simon Watts, Rachel Puentener) acknowledged the value of Council engaging early in the process of developing the Coastal Adaptation Framework and noted their appreciation for what they perceived as a new approach.</p> | <p>No change recommended</p> <p>An initial five week engagement phase (8 October – 15 November) was extended to an eight week engagement phase (closing on 6 December 2021). For context, DPMC's <i>Good Practice Guide for Community Engagement</i> recommends a 6-10 week period of engagement for projects at a national level. Many Council consultations are for a period of 4-5 weeks.</p> <p>Ongoing district-wide information sharing will continue with the Coastal Hazards Assessment; and a significant period of localised engagement will precede planning in each Adaptation Area.</p> |
| Support for the CAF | <p>A number of submitters from across the district (including four young people) (Boffa, Rachel Puentener, SSRA, Orion, Lyttelton Port Company, Linwood-Central-Heathcote Community Board, Federated Farmers, New Brighton Pier and Foreshore Society, Alyssa Greaney, Luci Tretheway, Sam Archie, Scott Butcher, Helena Parsons, Tyler McNabb) indicated broad support for the CAF. These submitters acknowledged the value in setting out upfront a clear process that involves mana whenua and communities.</p> | NA |

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| Opposition to the CAF | No submitters challenged the value of the CAF. | NA |
| Timing of Council's adaptation process | <p>Slow down</p> <p>A number of submitters from the eastern suburbs (Coastal Burwood Community Board, SSRA, NBRA, Simon Watts, Karina Hay, David East, Kim Money, Tim Sintes) - commented that they believe the process is rushed and needs to be slowed down or paused.</p> <p>One submitter (Simon Watts) questioned whether Council should initiate this process at this point in time give the reform programme being led by Central Government.</p> <p>The Coastal Burwood Community Board were concerned that the process was moving too fast stating <i>"The future impacts of climate change are not certain, and it may take decades until we get a better idea of this through accurate monitoring."</i></p> <p>The Linwood Central Heathcote Community Board raised concerns about the timeline given the significant upfront work needed to raise community awareness in a sensitive way.</p> <p>Rachel Puentener provided rationale for why adaptation planning should occur before the plan change</p> <p>Some Southshore residents raised specific timing issues related to the interface with the Earthquake Legacy works in Southshore. These issues are dealt with on p.29 of this document.</p> | <p>No change recommended.</p> <p>Potential to consider engagement/education opportunities for other adaptation areas once adaptation planning is underway in Whakaraupō / Lyttelton Harbour, to help build a shared understanding of risks and impacts of coastal hazards, and of adaptation planning. Note that this will require additional resourcing.</p> |

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| | <p>Go faster</p> <p>Flourish Kia Puāwai challenging the Council to move at a faster pace noting that they are “concerned that unnecessary delay in taking action on these important issues matters could be significantly detrimental to communities, individuals and natural habitats.”</p> | |
| Terminology | <p>The Linwood Central Heathcote Community Board noted that the impacts will occur on low-lying inland communities as well as coastal communities and sought to increase the relevance of the process through re-naming the Coastal Panels to Community Panels and the process to Adaptation to Sea Level Rise.</p> | <p>No change recommended</p> <p>All programme documentation already references “impacts on low-lying coastal <u>and inland</u> communities”. The proposed alternative term ‘Community Panels’ is not sufficiently descriptive.</p> |
| | <p>One submitter (Scott Butcher) proposed replacing the term ‘soft engineering options’ with ‘eco-system based adaptation’ because the term ‘soft’ inaccurately implies that these options are less secure and resilient than ‘hard’ options.</p> | <p>Change recommended</p> <p>This is a valid point and future documentation will align with this proposed new wording.</p> |

Coastal Hazards Assessment (CHA)

Note that feedback was not specifically sought on the CHA. It is a technical report that was peer reviewed by highly qualified coastal scientists.

| Theme | Specific issues raised | Recommendation |
|---|---|----------------|
| Positive feedback regarding the public release of the CHA | <p>Some submitters acknowledged the efforts Council had made to publish the hazards information through a range of mechanisms.</p> <p>Flourish Kia Puāwai submitted “Overall there has been an impressive amount of quality work put into developing this policy and processes for engaging with the public about these issues. In particular, the short You Tube videos were most useful. We appreciated viewing the overview video, and that you have started on specific videos for each of the specific consultation areas. The</p> | NA |

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| | <p><i>various maps and interactive tools relating to sea level rise and related issues are also useful.”</i></p> <p>Simon Watts (BOEE) submitted “<i>The climate and hazard portal is very accessible, and again (with the exception of the groundwater aspect), it is again difficult to identify what more Council staff could have done to make this information accessible.</i>”</p> | |
| <p>Concerns that CCRU (and wider community) have not been able to access expert time and advice, and provide feedback on the CHA</p> | <p>Some submitters (CCRU, SSRA, Kim Money, David East) raised concerns that CCRU (and the wider community) have not been able to access expert time and advice, and provide feedback on the CHA.</p> | <p>No change recommended.</p> <p>The Council has endeavoured to act in an open and collaborative manner in the development and publication of the CHA.</p> <p>With this front of mind, the methods, full technical report and peer reviewer comments are all available publicly as is a public report, online portal, videos and accompanying fact sheets.</p> <p>With regards the CCRU specifically, Council staff have invested a considerable amount of time and resources to provide support an increased understanding of the CHA methodology, including:</p> <ul style="list-style-type: none"> • Involving CCRU in community stakeholder workshops with Tonkin + Taylor experts at the outset of the research to inform the development of the CHA. CCRU opted to withdraw from this process. • Presenting to a CCRU-led forum on 27 Oct 2021 with the expert technical reviewer present to respond to any technical questions. • Multiple email, face to face and phone exchanges with Council staff over a 12 month period to explain in detail |

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| | | <p>the different technical aspects of the report and the alignments with advice from IPCC and MfE.</p> <p>MfE guidance acknowledges that there is unlikely to ever be complete agreement on the science. However, Council's inclusion of multiple scenarios within the modelling allows for adaptive planning and recognises the inherent uncertainty in any modelling that estimate future climate conditions.</p> |
| Concerns about modelling and assumptions | <p>CCRU recommend not using modelled coastal hazards information as a basis for adaptation planning due to the possibility of <i>"models being wrong"</i>.</p> <p>Some submitters (CCRU, WBRA, Richard Dalman, David East, Marion Smart) dispute the use of RCP8.5, particularly as the main point of reference in the CHA process. These submitters have interpreted recent IPCC advice to state that this scenario is now considered low probability and its use is now questionable.</p> <p>CCRU are particularly critical of the statement <i>"Under current conditions, it is predicted that New Zealand will experience around 30cm of sea level rise by 2050, 50cm of rise by 2075 and 1m by 2115."</i> which is based on an RCP8.5 scenario. CCRU describe this as <i>"an extreme scenario"</i>, and <i>"a red flag that undermines confidence in the rest of the report"</i>.</p> <p>CCRU note that there is no questioning of RCP8.5 in the CHA peer review and allege that CHA authors [Tonkin + Taylor] <i>"step beyond being honest brokers"</i> as a result of the use of <i>"too much precaution"</i>.</p> | <p>No change recommended.</p> <p>Council is required to provide communities with the best information available to make good decisions, not to seek out scenarios to appease those who do not accept climate change science.</p> <p>Therefore, Council takes direction from the Ministry for the Environment (MfE) and the Intergovernmental Panel on Climate Change (IPCC) on these matters.</p> <p>MfE Guidance (2017) sets out an early step of undertaking a hazards assessment and states <i>"If coastal adaptation planning does not intentionally account for uncertainties, much of the evidence and the risk of unexpected consequences from our decisions would not be considered."</i></p> <p>Council relies on MfE guidance on which sea level rise scenarios to consider for information and planning. This guidance has not yet been updated following the release of the updated IPCC AR6 report (2021). Until national recommendations are updated, Council will continue to follow current guidance which recommends the use of all four RCP</p> |

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| | One submitter (Vic Allen) sought to ensure that the Coastal Panel will test options against a range of scenarios including those projecting low levels of SLR. | <p>scenarios, and the use of RCP8.5 where a single scenario is required to allow for longer term effects and stress testing of possible outcomes. Accordingly, the CHA includes the full range of scenarios from low to high.</p> <p>Council has initiated discussions with researchers involved in the NZ SeaRise programme who are updating national projections to account for the latest IPCC data and has not received any advice to discard the RCP8.5 or SSP5-8.5 scenarios.</p> |
| Concern that existing protection structures are excluded from flood hazard mapping | Two submitters (South New Brighton Residents Association, David East) raised concerns that flood or erosion mitigation structures weren't factored into the hazard mapping, or that there were inconsistencies between how these structures are treated in different areas. | <p>No change recommended</p> <p>The default approach of the CHA was to model hazards 'banks down' for initial high-level hazard mapping. This is common practice in hazard assessments as it avoids making assumptions about the condition, lifetime and effectiveness of various structures and allows for an understanding of the risk if any existing structures were to fail.</p> <p>For example, while flood mitigation structures can help to manage surface flooding, they are less effective at protecting against sea level rise because having permanent water on one side can cause groundwater to rise on the other. Drainage outlets might also allow back-flow during flood events. This means that land can be flooded from below even if the protection structure is higher than the flood level.</p> <p>There are a few exceptions to this default approach where the natural shoreline has been significantly modified with land reclamation and erosion mitigation structures – from</p> |

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| | | <p>Ferrymead to Scarborough, Lyttelton Port and within the Akaroa township.</p> <p>Because in these areas the shoreline modifications are extensive and have been in place for so long, it is not feasible to use past observations to estimate what the long-term erosion rate would be in the absence of structures. Due to these limitations, in these locations, the erosion hazard is modelled and mapped to impact only the land immediately behind the structure, as this land could quickly become unstable if the structure failed. If the damaged structure was not promptly repaired then the extent of erosion in the longer-term could be greater than mapped.</p> <p>Furthermore, because Council anticipated that communities would expect to see these structures on maps, we collected information on the location and type of coastal structures across the district and visually identified the majority of these structures on the CHA maps without making any assumptions about their role in the management of hazards management.</p> <p>This is why mitigation structures in areas such as Ferrymead to Scarborough have been treated differently in the hazard mapping than areas such as South New Brighton. This approach is further explained in the online portal and in both CHA reports.</p> |
| | The Lyttelton Port Company raised concerns that the existing coastal mitigation structures along the Port are not recognised on the maps. | <p>Change recommended</p> <p>Add missing Lyttelton Port hazard mitigation structures to the coastal hazard maps.</p> |

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| <p>Concerns with technical review process for CHA</p> | <p>The New Brighton Pier and Foreshore Society raised concerns about the peer review process stating that “<i>it has been done by parties that work closely together to the point where we understand some people may have been employed at various times by both</i>”. They sought international peer review on the basis that “<i>We understand the scientific community in New Zealand is small, however international peer review is surely possible</i>”.</p> <p>David East raised a perceived conflict of interest in the technical review process, but did not elaborate on the nature of this perceived conflict.</p> <p>Three other submitters (Marion Smart, WBRA, NBRA) sought the input of ‘other experts’ to further review the process.</p> | <p>No change recommended</p> <p>Council is confident that the content of the CHA has been robustly tested by credible experts and is suitable to inform adaptation planning and plan change work at a high level.</p> <p>The independent technical reviewer, Derek Todd, Principal Coastal and Hazards Scientist for Jacobs is an internationally recognised expert in the field of coastal hazards research with over 35 years’ experience, and importantly 28 years’ experience of the Christchurch district coastline. There are very few experts of this calibre in New Zealand, particularly with the same level of local knowledge.</p> <p>In addition, Environment Canterbury coastal scientists and a variety of Council staff attended fortnightly progress meetings and reviewed every part of content as it was developed.</p> <p>For transparency purposes, the Council published online the issues register setting out issues raised and addressed by the peer reviewers.</p> |
| <p>Concern with CHA information going on LIMs / specific concerns raised around groundwater information going on LIMs</p> | <p>Several submitters from the eastern suburbs (CCRU, Simon Watts, Jan & Tim Sintes, Rebecca DeProspo) objected to the inclusion of groundwater data on LIMs and/or suggested that:</p> <ul style="list-style-type: none"> • No updates should be made to LIMs until communities have been further engaged the adaptation planning and plan changes processes are concluded; and • the technical reports have outstanding issues and unanswered questions and are therefore not suitable for the purpose of LIM notifications. | <p>Councils are legally required to include hazard information on a LIM if it is known. While the CHA was released on 8 October 2021, Council chose to take a ‘safe harbour’ approach to give people time to read the hazards information and understand the implications for their property.</p> <p>During this time, staff engaged with individuals and communities through online communications, community drop ins, and community, and stakeholder meetings. A</p> |

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| | <p>Rebecca DeProspo raised concerns about the impact of updated LIM notations putting “<i>as-yet totally unwarranted flood-prone notations on LIMs for tens of thousands of property owners whose properties will then face dire repercussions with regard to their ability to be insured and/or sold, despite having never experienced any flooding.</i>”</p> | <p>description of how the new technical information would affect LIMs was provided on the Coastal Hazards page on the Council’s website, along with a fact sheet that provided more information about what LIMs are and why Council is required to put this information on LIMs.</p> <p>Staff have taken on board feedback and legal advice in determining that a general LIM notation (rather than a specific LIM notation) will be included. A general LIM notation will not endeavour to provide detailed information at a property level, but will provide a link to the coastal hazards portal for more information.</p> <p>General LIM notations will be added for flood and erosion risk but will not be undertaken for groundwater risk. Further work will be undertaken by Council to better understand shallow groundwater across the district and following completion of this work a decision will be made regarding any future LIM notations on groundwater.</p> |
| <p>Mapping should cover whole city, not just coastal</p> | <p>One submitter (Kim Money) sought the publication of ‘whole city’ mapping of sea level rise, flooding and ground water impacts to show that some inland areas will also be impacted.</p> | <p>Change recommended</p> <p>Council agree that it would be beneficial to clarify that there is risk from coastal hazards further inland, which were not re-modelled as part of his process. Council intends to achieve by adding a static map of the 2017 CHA coastal hazard risk to the inland area on the coastal hazards online portal.</p> |

Principles

| Theme | Specific issues raised | Recommendation |
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| Principle One: Uphold te Tiriti o Waitangi | <p>Support for this principle</p> <p>A number of submitters from across the district, including three young people (the Five Schools Children's Submission, the Linwood-Central-Heathcote Community Board, Flourish Kia Puāwai, NBRA, WBRA, Alyssa Greaney, Hannah Mae Jerao, Amelie Bunt Rowe, Rachel Puentener) specifically referenced support for this principle.</p> <p>Some submitters (CCRU, David East) expressed support with some unarticulated reservations.</p> <p>No submitters specifically opposed this principle.</p> | No change recommended. |
| Principle Two: Develop local plans for local communities and environments | <p>Support for this principle</p> <p>Some submitters from the eastern suburbs (CCRU, NBRA, WBRA, David East, Meg Roulston) supported this principle with reservations about the agreed boundary lines and the equity and consistency of approach and investment. In addition, an emphasis was placed on the coastal science being "<i>tested against the reality of that location.</i>" The Coastal Burwood Community Board also sought an aligned strategy of the collection of monitoring data relating to erosion, accretion, groundwater, sea level rise with results available to communities.</p> <p>Other submitters also lent their support to this principle (Boffa, Flourish Kia Puāwai) on the basis that integrating</p> | <p>Change recommended</p> <p>Redraft the principle to state:</p> <p>Develop local plans for with local communities and for local environments.</p> <p><i>Adaptation planning will respond to the scale of the risks and vulnerabilities of each Adaptation Area and its assets. It will reflect local values, and other considerations that may exacerbate community vulnerabilities such as lower levels of hazard awareness and socio-economic challenges. Adaptation planning may produce different results in each place – there is no 'one size fits all' solution or timeline for addressing coastal hazards.</i></p> |

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| | <p>local values can help drive a collective purpose and vision for adaptation plans.</p> <p>Some submitters (CCRU, Richard Dalman, Rachel Puentener) sought a more explicit acknowledgement of the partnership with communities.</p> <p>The Five Schools Children’s Submission supported this principle as having greater equity, respecting differences and increasing people’s responsiveness to ideas. They noted <i>“You talk with them and not at them or just go and do it without talking to them.”</i></p> <p>The Linwood-Central-Heathcote Community Board supported this principle noting that within their ward boundaries the coastal-facing communities had greater pre-existing awareness of the issues they will face through sea level rise, but that communities that are more likely to be impacted by their locations within the Ōpāwaho and Ōtākaro River deltas may have lower starting levels of awareness.</p> <p>The Linwood-Central-Heathcote Community Board and some other submitters (Mitchell Anderson, Molly Magrid) also noted that some communities have greater pre-existing socio-economic vulnerabilities relating to poverty and housing insecurity and sought greater emphasise of these challenges within this principle.</p> <p>No submitters specifically opposed this principle.</p> | <p>In response to the request for monitoring data to be made available to communities please note that a significant amount of data is already publicly available including:</p> <p>Environment Canterbury:</p> <ul style="list-style-type: none"> Wave data https://www.ecan.govt.nz/data/current-wave-data/ Sea level https://niwa.co.nz/our-science/coasts/tools-and-resources/sea-levels/sumner-head Coastal water quality https://www.lawa.org.nz/explore-data/swimming/ Regional webcams https://www.ecan.govt.nz/webcams/ Coastal geomorphological monitoring (beach profiles) https://www.ecan.govt.nz/about/your-council/request-information/responses/ <p>Christchurch City Council:</p> <ul style="list-style-type: none"> CoastSnap https://ccc.govt.nz/environment/coast/coastsnap/ Tidal data https://ccc.govt.nz/environment/coast/tidal-data/ Groundwater monitoring (report) https://ccc.govt.nz/assets/Documents/Environment/Water/Monitoring-Reports/2021-reports/Appendix-D-Annual-Groundwater-Analysis-Detailed-Report.pdf Waterway monitoring https://ccc.govt.nz/environment/water/waterways/waterway-monitoring <p>Stats NZ:</p> |
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| | | <ul style="list-style-type: none"> Coastal sea level rise https://www.stats.govt.nz/indicators/coastal-sea-level-rise Oceanic and coastal extreme waves https://www.stats.govt.nz/indicators/oceanic-and-coastal-extreme-waves Extreme rainfall https://www.stats.govt.nz/indicators/extreme-rainfall <p>Both Council and Environment Canterbury have responsibilities for monitoring natural hazards, with ECan specifically tasked under the Resource Management Act (1991) with monitoring:</p> <ul style="list-style-type: none"> natural hazards and hazard events (collects/ catalogues and maps information). beach profiles, erosion. river flows, flood events. Undertakes/commissions natural hazard assessments.. <p>It will be core to the development of each adaptation plan to identify signals and triggers with the Coastal Panel and to then provide clarity on how these will be monitored.</p> |
| | <p>Specific request related to this principle: Avon Heathcote Estuary Ihutai Trust</p> <p>In relation to this guiding principle the Avon Heathcote Estuary Ihutai Trust Board requested that an Estuary Environmental Management Plan be included in the overall Adaptation Framework to provide an environmental planning framework to sit within or alongside the present proposed Coastal Adaptation Framework.</p> | <p>Further consideration recommended</p> <p>In principle, this proposal is worth consideration and further scoping once adaptation planning begins in the Avon Heathcote Estuary Ihutai area. No date is yet set for the initiation of adaptation planning in this area.</p> <p>Understanding the existing ecological values of any area, and consideration of the environmental impacts of any adaptation options is critical to the adaptation planning process.</p> |
| | <p>Specific request related to this principle: Orion and Lyttelton Port Company</p> | <p>Further consideration recommended</p> |

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| | <p>In relation to this guiding principle Orion and Lyttelton Port Company proposed that:</p> <ol style="list-style-type: none"> 1) A separate forum is established for industry and non-Council infrastructure owners to offer input into adaption options and areas. 2) Infrastructure providers are provided with clarity about the Adaptation Areas, and with a timeline indicating when each Adaptation Area would be participating in the adaptation planning process. | <p>Council agrees that the involvement of utility and non-Council infrastructures owners is integral to localised adaptation planning. Council has initiated early discussions with some providers and will formalise a process for information-sharing as we move into planning for Phase Three of the programme in Whakaraupō / Lyttelton Harbour.</p> <p>No decisions have yet been made on the sequence and timelines for future Adaptation Areas to undertake planning. Provision of a forward timeline in the current uncertain environment is not considered practical. Unexpected impacts such as covid-19, or weather events that might increase the willingness or urgency for communities to participate in planning processes cannot be predicted and therefore a level of flexibility is desirable.</p> |
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| <p>Principle Three: Focus on public assets that contribute to the health, safety and wellbeing of communities</p> | <p>Support for this principle</p> <p>Some submitters from across the district (Lawrence Mote, Hannah Mae Jerao, Sam Archie, Helana Parsons, Tyler McNabb, Aric Thorn) supported this principle noting the following points:</p> <ul style="list-style-type: none"> • This responsibility should fall to the property owner, not the ratepayer • Information about the threat of climate change and coastal inundation has been available to coastal property owners for up to 15 years. <p>Three submitters (Federated Farmers, Five Schools Children's Submission, Rachel Puentener) agreed that some privately owned assets provide health, safety and wellbeing services to communities and sought to ensure that communities would be involved in identifying these.</p> | <p>No change recommended</p> <p>The principle currently states that “<i>While the adaptation planning process <u>will consider communities as a whole and will identify private assets at risk of coastal hazards</u>, Councils resources (including public funds) will primarily be used to manage risks to public assets that contribute to the health, safety and wellbeing of communities.</i>” Therefore, Council are clearly signalling that public assets will not be considered in isolation of private assets.</p> <p>The principle also provides for some flexibility by acknowledging that some privately owned assets such as “<i>marae, urupa, churches, surf-lifesaving services and building or land use for civil defence and emergency services</i>” may also be a focus for adaptation planning.</p> <p>With regards the submission from CCRU, Council has no stated approach to protecting all of its publicly owned assets. Instead, the CAF proposes that communities, rūnanga and Council work together to determine the best path forward, which may or may not involve a ‘protection’ approach.</p> |
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| | <p>Concerns with this principle: ‘duty of care’</p> <p>The Linwood-Central-Heathcote Community Board were concerned that this principle would “<i>alienate community members who have significant investment on private assets</i>” and recommended that the principle be extended to incorporate private assets.</p> <p>CCRU asked if this principle means that Council will protect public assets only.</p> <p>The Coastal Burwood Community Board stated that this “<i>must provide for continued investment and maintenance of public assets</i>”.</p> <p>A number of submitters from the eastern suburbs (NBRA, WBRA, CCRU, David East, Josiah Thompson, Meg Roulston, Greg Ritchie) stated that “<i>it is artificial to consider public assets in isolation, there is a duty of care to the community as a whole, including private assets, to support social and economic wellbeing</i>”.</p> | <p>In response to the suggested ‘duty of care’, Council does not legally have a duty of care to such broad and undefined matters as “<i>the community as a whole, including private assets, to support social and economic well-being.</i>”</p> <p>No case law has established that the Council owes such a legal duty of care. There is also no such legislative provision which establishes such a legal duty of care.</p> <p>The Council is aware of the risk of judicial activism and that legal duties may be expanded over time. However, we are not at the point where the Courts have created such a wide duty as referred to in this submission.</p> |
| | <p>Concerns with this principle: ‘alignment with LGNZ advice’</p> <p>In regards to this principle, Simon Watts (BOEE) submitted that</p> <p><i>“The role of in this process seem incompletely described. While it may be the case that Council is only formally responsible for public infrastructure, and that private property owners are responsible for their own property, I would be rather surprised if that satisfied the Council’s</i></p> | <p>The documents referenced by this submitter are available at www.lgnz.co.nz/climate-change-project/supporting-documents/</p> <p>The Council’s purpose and role under the Local Government Act 2002 does not demand that the Council becomes responsible for privately owned property.</p> |

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| | <p><i>obligations under the Local Government Act to support resident's and community well-being. Particularly (as in this case) that the situation is not one of resident's foolishness or omission. This is a national problem and Christchurch is only one part.</i></p> <p><i>From the three legal opinions commissioned on issues around adaptation to climate change, LGNZ is of the view that as the law currently stands, in fact local government are responsible wholly or partly for the liabilities of their residents in this situation. Possibly you have a different (legal) opinion?"</i></p> | <p>It is noted that the legal opinions cited by this submitter do not in fact support his statement that "LGNZ is of the view that as the law currently stands, in fact local government are responsible wholly or partly for the liabilities of their residents in this situation."</p> <p>While there is one opinion highlighting the potential for judicial activism in this area, the law has not developed to the point advocated by this submitter.</p> |
| | <p>Concerns with this principle: 'non-Council-owned infrastructure'</p> <p>In regards to this principle, two infrastructure providers provided feedback seeking a widening of the scope of assets to include other forms of public infrastructure.</p> <p>Lyttelton Port Company submitted that:</p> <p><i>"Whilst we appreciate that CCC may wish to focus on its public assets for funding purposes, private and other public assets and infrastructure are equally as critical to the wellbeing of communities. CCC needs to give sufficient consideration of other assets and infrastructure in policy making which may affect the ability of such infrastructure to operate or develop. Therefore in the context of Christchurch, this Principle could be re-written as Focus on public assets that contribute to the health, safety and wellbeing of communities."</i></p> | <p>No change recommended</p> <p>As noted above, the current wording of the principle acknowledges that some privately owned assets may also be a focus for adaptation planning.</p> <p>Furthermore if the Council were to amend the principle in the manner suggested, it would become excessively broad and would also cover crown assets and potentially residential homes as people would reasonably state that their houses are assets that contribute to the health, safety and wellbeing of communities.</p> |

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| | <p>Orion submitted that:</p> <p><i>“While we understand that focusing on public assets is vital for CCC, a key gap missing is in lifeline infrastructure that is provided by private owners. CCC needs to put further consideration into policy and decision making for the ability for private infrastructure and assets to operate and develop within this Framework Document. Therefore, we believe changing the guiding principle to focus on all assets is beneficial to all parties affected: Focus on public assets that contribute to the health, safety and wellbeing of communities.”</i></p> | |
| <p>Principle Four: Be flexible and responsive</p> | <p>Support for this principle</p> <p>Some submitters from the eastern suburbs (NBRA, WBRA, CCRU the Coastal Burwood Community Board, David East) supported this principle.</p> <p>The Linwood-Central-Heathcote Community Board suggested that Council emphasise the importance of future proofed planning and consenting processes to enable community members to also take responsibility for using flexible and responsible approaches to development.</p> <p>Some submitters (CCRU, Simon Watts, Richard Dalman) referred to the importance of ensuring that adaptation options are timed appropriately to ensure that actions are not maladaptive.</p> <p>No submitters specifically opposed this principle</p> | <p>No change recommended</p> |

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| <p>Principle Five: Recognise inter- generational equity issues</p> | <p>Support for this principle</p> <p>A broad range of submitters from across the district (particularly younger submitters) supported this principle (the Five Schools Children's Submission, Linwood Central Heathcote Community Board, Flourish Kia Puāwai, Lyttelton Port Company, Rachel Puentener, Luci Tretheway, Nick Reid, Hannah Mae Jerao, Greg Kiddney, Amelie Bunt Rowe, Emily Ward, Tyler McNabb, Aric Thorn).</p> <p>The Five Schools Children's Submission noted <i>"We are in the centre of it – what it currently is and what is coming. WE are the next generation. Adults will pass away and will be the world we live in. Our kids will say – why didn't we act?"</i></p> <p><i>We have to live out what the video said before, like in 50 years time when we are alive it could be over a metre."</i></p> <p>Lyttelton Port Company support this principle but sought clarification on how it interacts with the prioritisation of natural and nature-based options.</p> | <p>No change recommended</p> <p>It is predicted that New Zealand will experience 1m of rise by 2115.¹ Even if emissions are reduced, the Intergovernmental Panel on Climate Change reports that there is high confidence that longer term impacts will be seen for centuries to millennia to come.²</p> <p>These impacts were not caused by future generations and this principle recognises that the burden of these costs should not all fall to them.</p> <p>With regards the risk of maladaptation (acting to early or too late) signalled by the submitters from the eastern suburbs the MfE Guidance adopted by the Council recommends the use of signals and triggers which are indicators of changes – such as a degree of sea level rise – that indicate when it is optimal to act. These triggers are intended to prevent maladaptation.</p> <p>With regards the question from the Lyttelton Port Company, the interaction between these principles will be managed through the evaluation process which is intended to support Coastal Panel decision-making by assessing options against a range of criteria that</p> |
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¹ Bell, R., Lawrence, J., Allan, S., Blackett, P., & Stephens, S. (2017). Coastal Hazards and Climate Change: Guidance for local government. Ministry for the Environment. (Note: This statistic uses a baseline period of 1986-2005. We have experienced around 10cm of sea level rise since this baseline period and therefore expect to see around 20cm of additional sea level rise over the next 30 years, by 2050).

² Intergovernmental Panel on Climate Change. (2021). Summary for Policymakers. In Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press.

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| | <p>Concerns with this principle</p> <p>Some submitters from the eastern suburbs (NBRA, WBRA, SSRA, CCRU, David East, Marion Smart, Meg Roulston) stated “<i>while we do not want to unfairly burden future generations, we also do not want to act so conservatively that this generation is prematurely and disproportionately affected, only to find out in the future that the modelling is based on worst case scenarios.</i>”</p> <p>These submitters preferred to spread costs over current and future generations.</p> | <p>assess the relative acceptability of options and identifies the trade-offs implicit in any decision.</p> |
| <p>Principle Six: Prioritise natural and nature-based options</p> | <p>Support for this principle</p> <p>Some submitters from across the district, including some of the younger submitters (Five Schools Children’s Submission, Boffa, Linwood Central Heathcote Community Board, Flourish Kia Puāwai, Luci Tretheway, Greg Kiddney, Mark Kroening, Tyler McNabb) supported this principle and acknowledged the importance of natural values in our coastal environments.</p> <p>Some of these submitters recommended further community awareness raising around the opportunities and co-benefits provided by natural and nature-based solutions.</p> | <p>No change recommended</p> <p>The current wording of the principle acknowledges that in some circumstances hard protection structures may not be the only feasible options with the statement “We will identify and prioritise natural and nature-based options <u>wherever feasible.</u>”</p> <p>Information about ‘hard’ and ‘soft’ engineering options is available in the Catalogue of Coastal Hazard Adaptation Options https://ccc.govt.nz/assets/Documents/Environment/Coast/Catalogue-of-Coastal-Hazard-Adaptation-Options-v3.pdf</p> |

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| | <p>Concerns with this principle</p> <p>Some submitters from the eastern suburbs (NBRA, WBRA) stated <i>“The principle also need to include recognition that hard protection structures may be the only practical means to protect existing infrastructure”</i>.</p> <p>One submitter (David East) viewed this principle as indicating a Council predetermination to avoid use of hard structures.</p> <p>Some submitters sought additional information on what constitutes a ‘hard’ or a ‘soft’ option and where the policy direction to support this principle sits within the New Zealand Coastal Policy Statement.</p> <p>One submitter (Todd Carbines) noted that some areas already have hard protection while others do not and so considered this principle unfair.</p> | <p>The New Zealand Coastal Policy Statement (NZCPS) 2010 Policy 25(e) Subdivision, use and development in areas of coastal hazard risk directs Council to <i>“discourage hard protection structures and promote the use of alternatives to them, including natural defences”</i>.</p> <p>It is noted that Policy 27(c) Strategies for protecting significant existing development from coastal hazards recognises that hard protection may be necessary and the only option for <i>“existing infrastructure of national or regional significance”</i> which applies to such assets as airports, or ports.</p> <p>Policy 27(2a) also requires that any assessments undertaken with regards existing significant development <i>“focus on approaches to risk management that reduce the need for hard protection structures and similar engineering interventions.”</i></p> <p>Read together, there is clear guidance within the NZCPS that provides direction for the Council’s principle.</p> <p>Further information on the use of the NZCPS rationale for this principle can be found in the <i>NZCPS 2010 Guidance Note: Coastal Hazards</i>, Department of Conservation https://www.doc.govt.nz/Documents/conservation/marine-and-coastal/coastal-management/guidance/policy-24-to-27.pdf</p> |
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| <p>Principle Seven: Keep managed retreat on the table</p> | <p>Support for this principle</p> <p>Some submitters from across the District, including three young people (Thomas Kulpe, Alyssa Greaney, Amelie Bunt Rowe, Emily Ward, Joy McLeod, Scott Butcher) supported this principle for the following reasons:</p> <ul style="list-style-type: none"> • It is inevitable • It may be the most feasible • relative to other countries we have a low population density and higher ground to retreat to and described this option as the “pathway of Least Regret” • it can lead to more widespread community and environmental gain by providing a buffer between the hazard and communities. <p>The Five Schools Children’s Submission considered that this principle could be improved through a commitment to consider other options before this option; and through the provision of community education and the development of a retreat plan with the community.</p> <p>They also noted that this principle could support good ecological outcomes.</p> | <p>Change recommended</p> <p>Council staff acknowledge concerns that by singling out the managed retreat adaptation type there is an implicit indication that this is the Council’s preferred approach.</p> <p>Council staff wish to emphasise that this is not the intention; and inclusion of this principle was intended to stimulate discussion and debate about managed retreat and to emphasise the importance of longer-term sustainability as a consideration in adaptation planning processes.</p> <p>To better fit this purpose, this principle has been reframed as follows.</p> <p>Consider long-term sustainability</p> <p><i>We will consider all options for managing the risks posed by coastal hazards for communities, with a particular focus on long-term, sustainable risk-reduction approaches. This focus is in line with the New Zealand Coastal Policy Statement 2010 and will help ensure we acknowledge the carbon cost of implementing options, the residual risk created by different options, and the impacts of maintaining options.</i></p> |
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| | <p>Concerns with this principle</p> <p>Submitters from the eastern suburbs (NBRA, WBRA, SSRA, CCRU, New Brighton Pier and Foreshore Society, Richard Dalman, Marion Smart, David East, Meg Roulston, Rachel Puentener, Rebecca de Prospe) oppose the inclusion of this principle for the following reasons:</p> <ul style="list-style-type: none"> • It appears to be Council's preferred approach given it is the only adaptation type singled out. • It creates stress and uncertainty for many people. • It isn't a practical option until compensation mechanisms have been agreed for property owners. <p>The Linwood-Central-Heathcote Community Board were concerned that this principle would alienate some community members and recommended that the principle be re-drafted to <i>"Keep all adaptation options on the table including managed retreat."</i></p> <p>A submitter (Phillip Ridge) sought clarification on where the NZCPS provides direction on managed retreat.</p> <p>Orion and Lyttelton Port Company noted that some activities cannot retreat and infrastructure provision might still be required in these circumstances. Both infrastructure provides encouraged further consideration of the nature of the activities occurring in each adaptation Area as planning progresses.</p> | <p><i>This principle aims to ensure that future costs of adaptation options are considered, for example the costs of ongoing maintenance of some built structures may over time be greater than the cost of adaptation options such as retreat or avoiding new development. Different options can be found in the Catalogue of Coastal Hazard Adaptation Options.</i></p> <p>This proposed new wording is supported by s27 Of the New Zealand Coastal Policy Statement (2010).</p> <p>While the principle has been amended it is important to note that the New Zealand Coastal Policy Statement 2010 Objective 5 provides the following direction regarding managed retreat:</p> <p>To ensure that coastal hazards risks taking account of climate change, are managed by:</p> <ul style="list-style-type: none"> • locating new development away from areas prone to such risks; • considering responses, including managed retreat, for existing development in this situation; and • protecting or restoring natural defences to coastal hazards. <p>Further information on the use of the NZCPS rationale for this principle can be found in the <i>NZCPS 2010 Guidance Note: Coastal Hazards</i>, Department of Conservation https://www.doc.govt.nz/Documents/conservation/marine-and-coastal/coastal-management/guidance/policy-24-to-27.pdf</p> |
| Proposed new principles | | |

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| <p>Education and awareness</p> | <p>A number of submitters, particularly children and young people (Five Schools Children's Submission, Alyssa Greaney, Breanna Greaney, Greg Kiddney, Mitchell Anderson) proposed the inclusion of a principle that commits to increased education in schools and with communities as a means of embedding science awareness in the general public.</p> <p>The Five Schools Children's Submission sought education <i>"on the impacts of climate change, and what's affected, the science, how to adapt, how you can learn, reassurance how you can help, how you can stop the flow of misinformation, why you should learn."</i></p> | <p>Change proposed, through the addition of a section on engagement principles</p> <p>As set out in the CAF (p.24) it is intended that adaptation options are assessed against the guiding principles to inform the Coastal Panel's decision making process. While education is undeniably important it does not convert naturally into an assessment criteria for adaptation options assessment process.</p> <p>Therefore, it is proposed that a new section is added to the CAF that sets out our existing engagement principles and which adds a new principle that focuses on the criticality of supporting adaptation planning, with education on adaptation and climate change.</p> <p>Note also that the Coastal Hazards Adaptation Planning programme has two existing educational initiatives:</p> <ul style="list-style-type: none"> • supporting the teaching of the Climate Change curriculum in schools across the district with 13 schools having participated to date • CoastSnap https://ccc.govt.nz/environment/coast/coastsnap/ <p>More broadly, the Council is committed to actively supporting broader education on climate change and sustainability as core to <i>Kia Tūroa te Ao – The Climate Resilience Strategy</i> and currently funds the following educational interventions:</p> <ul style="list-style-type: none"> • CCC <u>School travel planning</u> – facilitated process to encourage safe and low carbon travel • <u>Assisted kerbside recycling</u> – recycling bins and education materials |
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| | | <ul style="list-style-type: none"> • Learning Through Action – out of class learning for students on a range of topics • Enviroschools Canterbury – student-led, facilitated sustainability learning • School edible gardening and healthy eating support - Food Resilience Network School Hui (teacher training) and numerous healthy food school programmes (e.g. garden to table, kids edible gardens, orchards in schools, health promoting schools). • Christchurch Climate Campus – new school focusing on climate action • Stormwater Superhero Mobile Resource – mobile education resource about healthy waterways and water cycle • Operation River Quest and Mother Of All Cleanups– encouraging children to care for waterways • TOCK Education programme – early childhood waste education • Eco-Educate – Lesley Ottey school sustainability education programme • Bush Farm Trust – environmental education at Orton Bradley • Untouched World Environmental Leadership Programme • Ministry of Awesome – youth education programme • NZ Climathon – event fostering innovation <p>See the CCC Sustainability Fund</p> |
| Put the wellbeing of people at the centre of the process | Some submitters sought a greater focus on wellbeing (CCRU, Richard Dalman, Josiah Thompson). | <p>Change proposed, through the addition of a section on engagement principles</p> <p>As set out in the CAF (p.24) it is intended that adaptation options are assessed against the guiding principles to inform the Coastal Panel's decision making process. While wellbeing is undeniably important it</p> |

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| | | <p>does not convert naturally into an assessment criteria for adaptation options assessment process.</p> <p>Therefore, it is proposed that a new section is added to the CAF that sets out the engagement principles that will support adaptation planning, with wellbeing core to our engagement approach.</p> |
| No reference to heritage values | Of concern to the Akaroa Civic Trust | <p>No change recommended</p> <p>Heritage values are critical to communities and will be considered through the process set out in the CAF (p.14) in which communities identify the assets they consider important. These assets will be included in the risk and vulnerability assessment and form part of adaptation considerations.</p> |

Coastal Panel and STAG

| Theme | Specific issues raised | Recommendation |
|--|--|----------------|
| Positive about the proposed co-design approach to adaptation planning | <p>Some submitters (Avon Heathcote Estuary Ihutai Trust Board, Federated Farmers, Meg Roulston, Rachel Puentener, Hannah Mae Jerao) were supportive of the proposed engagement and decision-making approach of communities, rūnanga and Council working together for the best possible sustainable outcomes.</p> <p>Some submitters (Rachel Puentener, Meg Roulston) provided support also for the Coastal Panel receiving psychosocial support and remuneration for their time. Other suggestions included Te Tiriti training, as well as process evaluation.</p> | NA |

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| | One submitter (Rachel Puentener) raised concerns that Council as final decision-makers would act in alignment with the Coastal Panel recommendations and not undermine the work that had been under taken to date by not communicating these changes to the Coastal Panel prior. | |
| Coastal Panel composition | <p><i>Desire to include a larger proportion of local representation and mixed feedback about ‘rest of city’ representation</i></p> <p>A number of submitters largely from the eastern suburbs (NBRA, WBRA, Marie Graham, New Brighton Pier and Foreshore Society, Simon Watts, Mitchell Anderson) felt the balance of ‘local representation’ on Coastal Panels was disproportionately low at six community members and should be reviewed to achieve between 75-80% local representation.</p> <p>Some submitters from the eastern suburbs (SSRA, Coastal Burwood Community Board, Kim Money, Meg Roulston, Karina Hay) objected to any rest-of-city representation on the basis that the affected community should be trusted to make these decisions; and that there was not similar ‘rest of city’ representation in other processes relating to hazards management outside of coastal areas.</p> <p>One submitter (Amandine Bosserelle) supported the rest of city representation on the basis that all residents use the coastline and public facilities.</p> | <p>No change recommended</p> <p>The proposed Coastal Panel composition is for six community representatives, rūnanga representation, a representative of the local Community Board, a representative of the local Zone Committee and <u>up to three</u> ‘rest of city’ representatives.</p> <p>Council consider that the rūnanga, Community Board, and Zone Committee representatives also represent local interests and entities and therefore the majority of the Coastal Panel hold a localised focus. Therefore, at most, only three Coastal Panel representatives could be considered to hold non-local interests.</p> <p>It is acknowledged that rūnanga also hold a special Treaty-based partnership relationship with Council in addition to their interests locally.</p> <p>It is important to note that rest of city representation is capped at ‘up to three’ meaning not all three roles need to be appointed but allowance is made for that where appropriate. This flexibility aligns with a localised ‘one size doesn’t fit all’ approach.</p> <p>Staff note the following rationales for the inclusion of ‘rest of city’ representation:</p> |

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| | | <ul style="list-style-type: none"> • coastal and river environments are precious taonga and are well utilised and valued by all members of the district • any adaptation costs covered by the ratepayer create a shared interest in this process from across the district • the 'rest of city' representation can help to create more diversity on the Coastal Panel where that might be lacking through an EOI process • the lessons learned within on Adaptation Area can benefit other Adaptation Areas over time and can be shared by the rest of city representatives. <p>It is proposed that one of the the 'rest of city' representatives on the Coastal Panels is a Community Board representatives from another Adaptation Areas to provide some cross fertilisation of ideas and to provide some early socialisation of the processes before planning starts in their Adaptation Area.</p> <p>It is critical that this Community Board representative is able to take a wider perspective in order to support the adaptation planning process and is supportive of the need to plan now for current and future impacts of sea level rise.</p> |
| | <p>Youth representations</p> <p>Some young people who submitted (Alyssa Greaney, Greg Kiddney, Amelie Bunt Rowe) sought higher youth representation for several reasons:</p> <ul style="list-style-type: none"> • raising concerns that two young people would feel intimidated in a group of adults • because young people will be most impacted by these decisions | <p>Change recommended, with caveats</p> <p>It is recommended that the composition of the Coastal Panel be amended to increase the minimum number of youth representatives to three (ideally aged 25 years or younger) <u>where this can be achieved</u>.</p> <p>Note that these roles may be filled by Coastal Panel members from the community, rūnanga, Community Board, Zone Committee and rest of city representatives.</p> |

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| | <ul style="list-style-type: none"> because young people are a valuable resource for innovation. <p>Some submitters (SSRA, Richard Dalman) recommended a minimum of six community members in addition to rūnanga and young people.</p> | |
| | <p>Rūnanga representation</p> <p>Some young people who submitted (Alyssa Greaney, Breanna Greaney, Greg Kiddney) noted strong support for runanga representation and application of traditional knowledge into the process.</p> | NA |
| | <p>A specific request was received from the Avon Heathcote Estuary Ihutai Trust Board that they would be included in the Coastal Panel.</p> | <p>We are not currently appointing Coastal Panels to areas outside of the Lyttelton Harbour, Council are keen to ensure that Coastal Panels membership represents diverse issues and values across each area. While we are not specifically looking for representatives from interest groups, Council will welcome an Expression of Interest from any interested parties for consideration at the time the Coastal Panel is formed.</p> |
| Coastal Panel appointment process | <p>A number of submitters from the eastern suburbs (NBRA, WBRA, SSRA, CCRU, Richard Dalman, Simon Watts) sought to have either 'the community' or residents associations appoint all Coastal Panel members.</p> <p>The SSRA recommended that the rest-of-city representatives should be selected via an application process as opposed to an appointment process.</p> | <p>No change recommended.</p> <p>Appointment processes are often fraught with issues of mandate. While Residents Associations hold valuable local information, they are not democratically elected representatives of their communities and do not have delegated decision-making powers. Some communities do not have Residents Associations, and participation levels can differ between Residents Associations.</p> <p>In contrast, Christchurch City Councillors are elected representatives of their communities and therefore hold a mandate to make</p> |

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| | | <p>decisions on behalf of communities. It is for this reason that Council will oversee the process of appointments to the Coastal Panel.</p> <p>In response to the SSRA's concerns, the appointment of the 'rest of city' representatives would be led by Community Boards in other Adaptation Areas.</p> |
| Greater role sought by the Coastal-Burwood Community Board | <p>The Coastal Burwood Community Board sought to have delegation to:</p> <ul style="list-style-type: none"> • appoint the Coastal Panel • determine their TOR • receive reports; and • be represented on the Coastal Panel | <p>No change recommended.</p> <p>Because adaptation planning is a district-wide process, it is important that an equitable process is followed across the district. Therefore, oversight of the process remains with the Coastal Hazards Working Group which importantly given the scale of this work includes Council, Papatipu Rūnanga and Environment Canterbury representation.</p> <p>However, it is important to note that the existing Coastal Panel composition includes a Community Board representative and as each Adaptation Area enters into adaptation planning the relevant Community Board Chair is welcomed onto the Coastal Hazards Working Group.</p> |
| Specialist and Technical Advisory Group (STAG) composition and appointment process | <p>Some submitters from the eastern suburbs (CCRU, the New Brighton Pier and Foreshore Society, SSRA, Richard Dalman, Marion Smart, Kim Money,) sought have a proportion or all STAG members appointed by the community to achieve a partnership approach.</p> | <p>No change recommended.</p> <p>STAG members will have:</p> <ul style="list-style-type: none"> • proven experience and expertise with the management of Council infrastructure which is the primary focus of adaptation planning, or • verifiable specialist expertise in public policy, science or cultural matters and can be drawn from external agencies or iwi for example University of Canterbury, Environment Canterbury and Ngāi Tahu. |

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| | | <p>This approach ensures that a highly credible group of experts with specialist knowledge of the local environment and the overarching regulatory and policy framework are in place to inform the decision-making of the Coastal Panel.</p> <p>It is important to note that the STAG have no 'voting rights' and that the community-comprised Coastal Panel will be making the recommendations. This is intended to drive a partnership approach with the local community.</p> |
| Use of community experts | <p>Some submitters from the eastern suburbs (CCRU, Richard Dalman, Marion Smart, Kim Money) expressed a desire to establish a grouping of 'community experts' and/or a group of experts available to the community.</p> <p>Some submitters expressly requested that this community expert group are "<i>not appointed by or utilised by Council</i>" and/or are "<i>other credible experts and widely accepted international reports with views not necessarily aligned with the T&T report.</i>"</p> <p>The exact nature of the experts role wasn't fully articulated in all submissions, but Marion Smart suggested this group could be utilised by the Coastal Panel to provide second opinion advice to what the STAG had put forward and/or could be available to provide independent adaptation advice to "<i>recognised community groups</i>". Kim Money suggested instead that they are utilised to peer review the Coastal Hazards Assessment.</p> | <p>No change recommended.</p> <p>The establishment of a second group of 'community experts' in addition to the STAG would have the following implications:</p> <ul style="list-style-type: none"> • at minimum a doubling of costs using public funds - while many Council experts who will sit on the STAG are funded via salary the establishment of a second group of community experts would likely require the use of contractors and could more than double the existing STAG budget • potentially competing or contradictory advice between the STAG and community experts leading to a stalemate, loss of confidence in the process, and further costs • issues with mandate – who in the community has the mandate to appoint these experts? • potential issues with liability and credibility. |

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| | Submitters supported the use of public money to fund this group. | |
| Decision-making process | <p>The proposed engagement and decision-making process was endorsed by a small number of submitters across the district (Linwood-Central-Heathcote Community Board, Mark Kroening, Helena Parsons).</p> <p>More clarity sought by some submitters (Richard Dalman, Marion Smart) about who leads the components of each step in the process – and proposing the introduction of an independent facilitator for engagements with the wider community.</p> <p>The SSRA put forward a view that Council does not necessarily need to be the decision-maker.</p> <p>No submitters provided detailed feedback on the decision-making process. No significant objections were made with regards the activities, processes and criteria set out in the CAF.</p> | NA |

Effects on communities

| Theme | Specific issues raised | Recommendation |
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| Costs to private property owners | Some submitters (CCRU, Richard Dalman) were critical of the indicative costings provided for adaptation options in the example pathways (p.15) which do not include the costs to private property owners. | <p>Further consideration recommended</p> <p>High-level, indicative costings were included in the CAF however more detailed work will be undertaken as adaptation planning progresses and a wider view of costs and impacts will need to be progressed.</p> |

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| Insurance | SSRA sought more support from Council in working with insurers to ensure the solutions are developed to provide ongoing access to insurance in areas at risk of sea level rise. | <p>No change recommended</p> <p>Council acknowledges that communities are concerned about insurance impacts and have endeavoured to better understand the position of insurers through discussions with ICNZ and the joint production of a fact sheet. https://ccc.govt.nz/assets/Documents/Environment/Coast/Fact-sheet-ICNZ-Council-Climate-Change-and-Insurance.pdf</p> <p>However, it is not Council's role to intervene in the interface between private property owners and their insurers.</p> |
| Coastal communities are being unfairly singled out | <p>Two submitters (Kim Money, Tim Sintes) raised the concern that coastal communities have been unfairly singled out with regards coastal hazards and has requested that a city-wide map is created showing sea level rise, groundwater and flooding across the city.</p> <p>SSRA's submission conveys a similar sentiment, albeit more broadly – <i>"Southshore has been mercilessly spotlighted, over-analysed, over-consulted and, at times, over-regulated"</i>.</p> | Council agrees that such a map is a useful action and has developed the Christchurch District - Natural Hazards and Management Approach and Christchurch District - Hazard Distribution Maps attached on pp.38-39 of this document. |
| Trust eroded no progress on Southshore earthquake legacy issues | <p>Some submitters (Kim Money, Josiah Thompson, Meg Roulston, Jan W) brought up concerns relating to the separate Southshore and South New Brighton Earthquake Legacy Project.</p> <p>Concerns centred around the lead-in time for the erosion and flood protection works to be completed and the impact these perceived delays have had on trust between Council and communities.</p> | <p>On 9 May 2019 Council [CNCL/2019/00074]:</p> <p>3. Agrees to split the Regeneration Strategy project into two projects:</p> <ul style="list-style-type: none"> a. Earthquake legacy repairs. b. An adaptation strategy. <p>This decision was informed by feedback from the Southshore and South New Brighton communities. Accordingly, Council staff have progressed these projects separately and in a subsequent decision [UDATC/2020/00020] Council resolved to initiate adaptation planning in the Lyttelton / Whakaraupō Adaptation Area.</p> |

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| | <p>In addition, submitters (SSRA, Meg Roulston, Marie Graham, the Coastal Burwood Community Board) reinforced advice previously received from Southshore representatives that the community would only want to enter into adaptation planning once the earthquake repairs are concluded.</p> <p>The SSRA also raised equity issues where some parts of the city already have protection works but others do not.</p> | <p>On 12 November 2020 Council [CNCL/2020/00138] resolved to allocate funding of \$10.5m in the 2021-31 Long Term Plan for the completion of earthquake legacy works “subject to design and consenting”.</p> <p>It is an unavoidable reality that significant design and statutorily-required consenting work is required before on the ground delivery can occur. Currently, Jacobs have been commissioned to deliver Preliminary Design and the Resource Consent is on track to be submitted by July 2022.</p> <p>Because works in a coastal environment create greater complexities, the Resource Consent process may take up to a year, and this will be followed by Detailed Design with a planned start on site in January 2024.</p> <p>These process steps were clearly set out with the Southshore Residents Association at their AGM on 15 July 2020.</p> <p>Council does not intend to enter into adaptation planning with the Southshore community prior to the completion of these works.</p> |
| Southshore – stormwater drainage and current levels of service | <p>The SSRA note present-day concerns regarding the effectiveness of stormwater management and have asked for a ‘baseline’ level of storm water infrastructure to be put in place before an adaptation discussion can begin.</p> | <p>Management of stormwater is of high priority for Council. In low-lying parts of the city adjacent to the coastline and rivers there are significant geographic challenges that require additional monitoring and support from Council.</p> <p>The Southshore stormwater network is a focus for the operations team in Council who adopt a range of measures to maximise performance. The network copes well until there is a combination of high tide and heavy rain. In these weather events, storm-water ponds on streets because there is little gradient for water to channel towards drainage systems. Temporary street flooding is an outcome of practical design choices in response to a range of conditions that limit pipe capacity. It minimises water pooling on private properties and is a common practice in cities worldwide.</p> |

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| | | These challenges are not confined to Southshore and are an early indication of the challenges ahead as sea levels rise. Adaptation planning with Council, rūnanga and community input provides the opportunity to consider how to best respond to these challenges. |
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Christchurch District – Natural Hazards and Management Approach

Inland Christchurch

| Hazard | Management |
|-------------------------|--|
| Flooding (some coastal) | <ul style="list-style-type: none">District Plan (FMA* and HFHMA**)Floodplain investigations (Land Drainage Recovery Programme)Upcoming plan change (update to FMA) |
| Liquefaction | <ul style="list-style-type: none">District Plan and Building Act requirements |
| Shallow groundwater | <ul style="list-style-type: none">Future plan change to address for inland ChristchurchUpcoming adaptation planning |
| Tsunami | <ul style="list-style-type: none">Civil defence evacuation areas |

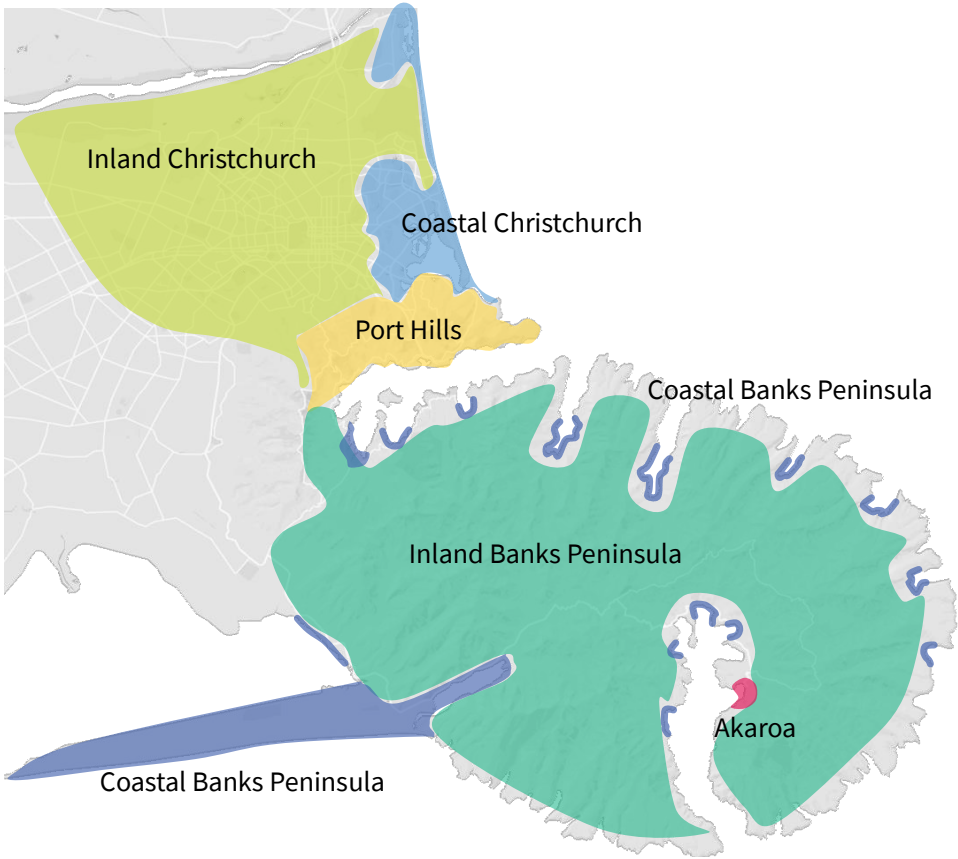
Port Hills

| Hazard | Management |
|--------------------|---|
| Slope instability | <ul style="list-style-type: none">District Plan (cliff collapse, mass movement, and rock-fall management areas) |
| Drought & wildfire | <ul style="list-style-type: none">Port Hills Fires Recovery Plans actions |

Coastal Banks Peninsula

| Hazard | Management |
|---------------------|--|
| Coastal flooding | <ul style="list-style-type: none">Coastal hazards draft plan changeUpcoming adaptation planning |
| Coastal erosion | <ul style="list-style-type: none">Coastal hazards draft plan changeUpcoming adaptation planning |
| Liquefaction | <ul style="list-style-type: none">District Plan and Building Act requirements |
| Shallow groundwater | <ul style="list-style-type: none">Coastal hazards draft plan changeUpcoming adaptation planning |
| Tsunami | <ul style="list-style-type: none">Civil defence evacuation areasCoastal hazards draft plan change |

*FMA = Flood Management Area
**HFHMA = High Flood Hazard Management Area



Coastal Christchurch

| Hazard | Management |
|---------------------|--|
| Coastal flooding | <ul style="list-style-type: none">Coastal hazards draft plan changeUpcoming adaptation planning |
| Coastal erosion | <ul style="list-style-type: none">Coastal hazards draft plan changeUpcoming adaptation planning |
| Liquefaction | <ul style="list-style-type: none">District Plan and Building Act requirements |
| Shallow groundwater | <ul style="list-style-type: none">Coastal hazards draft plan changeUpcoming adaptation planning |
| Tsunami | <ul style="list-style-type: none">Civil defence evacuation areasCoastal hazards draft plan change |

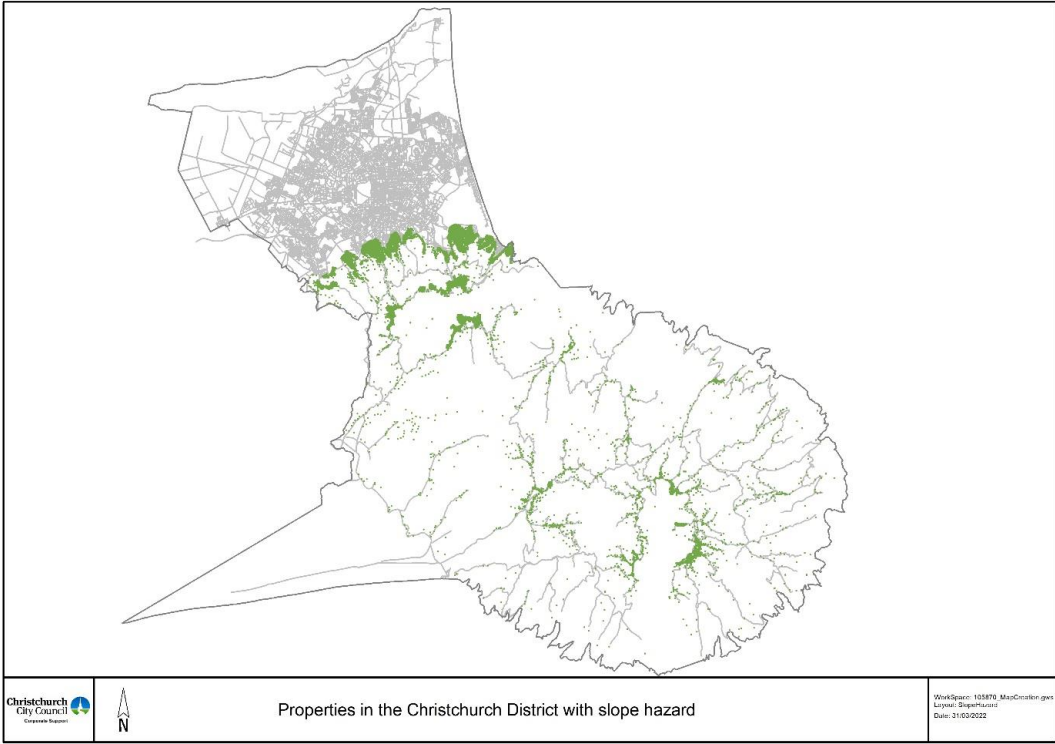
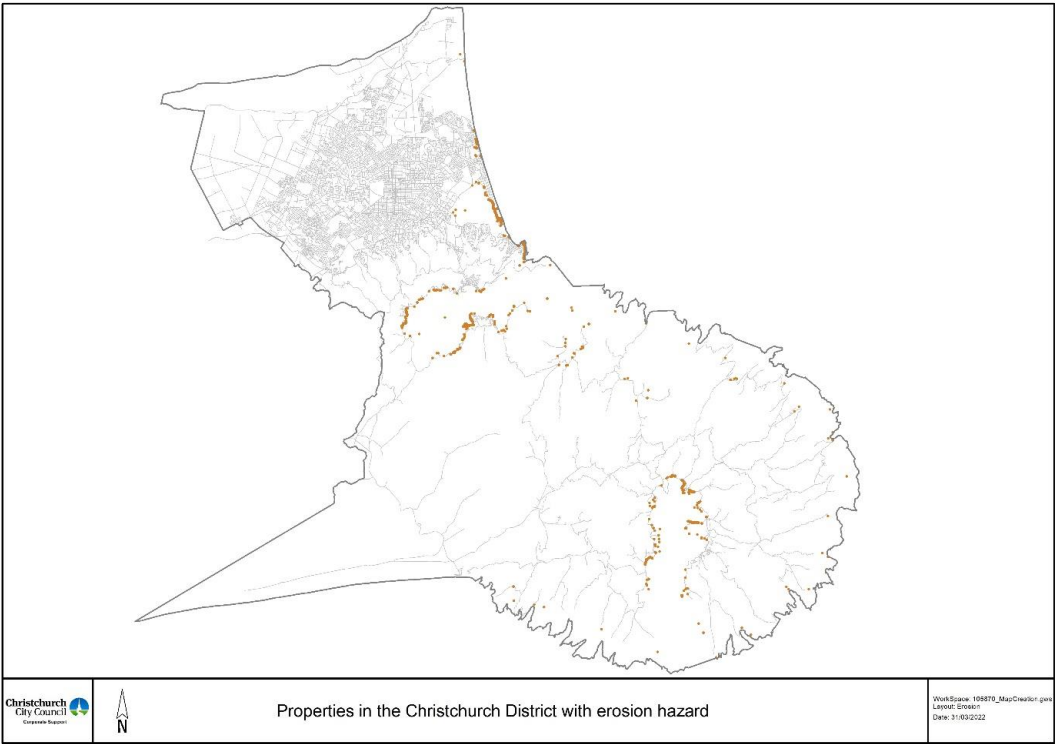
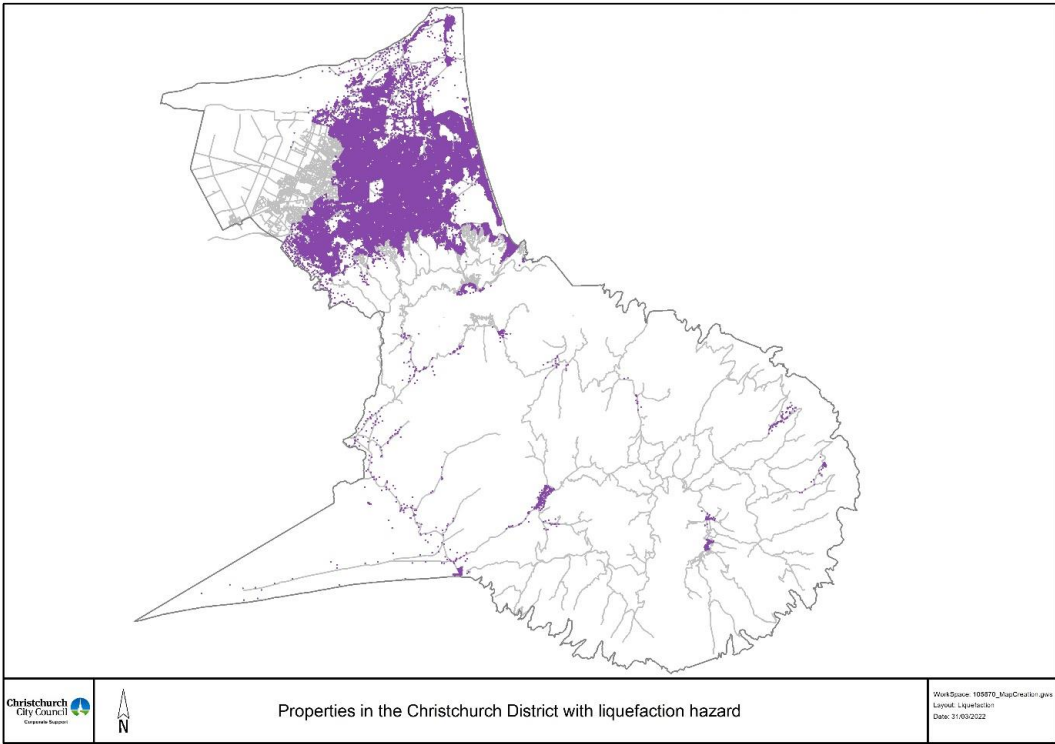
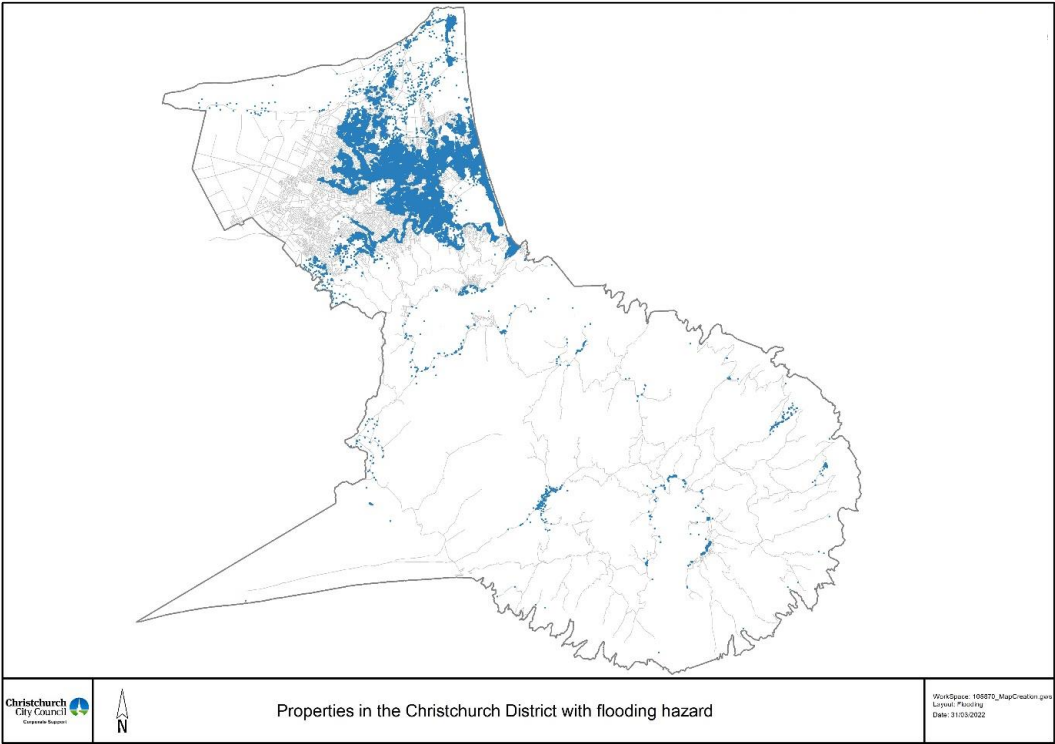
Inland Banks Peninsula

| Hazard | Management |
|--------------------|--|
| Slope instability | <ul style="list-style-type: none">District Plan (remainder slope instability management area) |
| Drought & wildfire | <ul style="list-style-type: none">Actions arising from the Port Hills Fires Recovery Plan may result in changes to the District Plan for other areas |

Akaroa

| Hazard | Management |
|---------------------|--|
| Coastal flooding | <ul style="list-style-type: none">Coastal hazards draft plan changeUpcoming adaptation planning |
| Coastal erosion | <ul style="list-style-type: none">Coastal hazards draft plan changeUpcoming adaptation planning |
| Drought & wildfire | <ul style="list-style-type: none">Actions arising from the Port Hills Fires Recovery Plan may result in changes to the District Plan for other areas |
| Shallow groundwater | <ul style="list-style-type: none">Coastal hazards draft plan changeUpcoming adaptation planning |
| Tsunami | <ul style="list-style-type: none">Civil defence evacuation areasCoastal hazards draft plan change |

Christchurch District – Hazard Distribution Maps



DISCLAIMER: This map is for informational purposes only and may not have been prepared for, or be suitable for legal, engineering or surveying purposes. The information shown on this map is current as at the date shown on the map. Christchurch City Council cannot accept any responsibility for any errors, omissions, or positional accuracy of the data. The hazard data shown in these maps was sourced from the District Plan and the 2021 Coastal Hazard Assessment.

Coastal Adaptation Framework

Item 17

Attachment B

Adaptation planning is about preparing now, so that we are ready for what may happen in the future.

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Glossary

| Term | Definition |
|----------------------------|--|
| Adaptation | The process of adjusting to change. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. |
| Adaptation Area | Large sections of coastal and low-lying inland areas that are likely to be affected by coastal hazards. We have identified seven Adaptation Areas in the Christchurch district, based on similar coastal environments and access dependencies. |
| Priority location | A defined at-risk location within an Adaptation Area that will receive an adaptation pathway. |
| Adaptation options | The array of interventions that are available and appropriate for addressing adaptation. These include policies, practices, built structures and ecological interventions. |
| Adaptation pathways | A decision-making strategy that is made up of a sequence of adaptation options, as well as triggers and decision-points that will be revisited over time. The wide range of options considered, evaluated and left on the table allows decisions to respond to future realities. |
| Signal | Signals warn that a system may soon no longer perform to the existing standard. Signals highlight changes in risk by using indicators such as increasing insurance premiums or increased flood frequency. Signals can be determined by working backwards from a trigger and threshold. |
| Trigger | Triggers activate a chain of decisions to ensure that implementation of the next option is complete before a threshold is reached. These pre-determined indicators build in implementation actions such as time for District Plan changes to be made or public funds to be approved and allocated. Triggers can be determined by working backwards from a threshold. |
| Threshold | Thresholds describe possible scenarios that mean we have not acted quickly enough to address the risk. These scenarios can be time-based or event-based. An example may be when a certain level of sea level rise is reached and assets are flooded. |
| Assets | Things that are of value (tangible and intangible) to the Council, community or stakeholders. Assets can be natural or built, and in private or public ownership. |
| Coastal Panel | The Coastal Panel is a group of rūnanga and community representatives tasked with undertaking analysis of the adaptation options and identifying preferred adaptation pathways for their Adaptation Area which are then submitted to Council for a decision. The Coastal Panel will include wider-city and youth representatives. |
| STAG | The Specialist and Technical Advisory Group (STAG) provides information and advice to support evidence-based decision-making by Council and the Coastal Panel. It is comprised of experts from different disciplines. |
| Short term | Less than 30 years into the future from 2020. |
| Long term | 30 to 100 years into the future from 2020. |

What is this Coastal Adaptation Framework?

This Coastal Adaptation Framework is a starting point for the work by the Christchurch City Council (the Council) and communities to create adaptive pathways that will allow us to plan for, and respond to, coastal hazard risks now and in the future.

The Framework sets out our initial approach to:

- Roles and responsibilities
- ~~Proposed~~ principles to guide decision-making
- A ~~proposed~~ flexible process for engagement and decision-making

The Framework might need to be reviewed and adapted in the future to better respond to issues or respond to new information or new ideas. The Council hasn't done this before, so nothing is set in concrete. This Framework describes our current thoughts on an approach to developing adaptation pathways, regardless of the Adaptation Area, or when the adaptation planning takes place. This approach, and any changes that we make to it, is designed to align with the New Zealand Coastal Policy Statement 2010, the 2017 Ministry for the Environment's (MfE) Coastal Hazards and Climate Change Guidance for Local Government, and relevant strategies, policies and plans from the Council.

Central Government is currently replacing the Resource Management Act (1991) with three new laws, and has indicated that one of these, the Climate Adaptation Act, will be introduced in 2023. This new Act will address the complex legal and technical issues associated with managed retreat and funding and financing adaptation. It is anticipated that the Climate Adaptation Act will clarify Central Government's approach to any funding for the retreat or protection of private assets. Although this clarity is not available yet, we think it is essential that we start this process with communities sooner rather than later.

If necessary, we can change this Framework to respond to these legislative changes, as well as to any future potential changes to our current decision-making frameworks.

There is a range of supporting information, including a *Management Framework* and *Catalogue of Coastal Hazard Adaptation Options* that sit alongside this Framework. You can read more about the supporting information on pages ~~178~~ and ~~189~~ of this document.

Putting it all in context

What is adaptation planning?

Adaptation planning is about preparing now, so that we are ready for what may happen in the future. We are generally following the approach recommended by the 2017 MfE guidance, with modifications undertaken where appropriate. The guidance document sets out a ten-step decision cycle of structured engagement which aims to increase awareness of the impacts of sea level rise, and lead to the development of community-led adaptation pathways that consider the social, cultural, natural and built environments.

The adaptation planning process is flexible in that it might change at any time to account for new information, new processes or new Council priorities but regardless of any changes, it puts community engagement at the centre of decision-making. It also gives us an adaptable, versatile way to progress things and make decisions, even when there is uncertainty about the rate and effects of climate change.

Why do we need to do adaptation planning?

It is predicted that New Zealand will experience 30cm of sea level rise by 2050, 50cm of rise by 2075 and 1m of rise by 2115¹. Even if emissions are reduced, it is virtually certain that global mean sea level will continue to rise through 2100, and there is high confidence that longer term impacts will be seen for centuries to millennia to come².

Low lying coastal and inland communities across Ōtautahi Christchurch will be increasingly impacted by intense storms leading to more frequent and extensive coastal flooding, erosion, and rising groundwater.

The New Zealand Coastal Policy Statement 2010 requires local authorities to consider and plan for these risks through pathways such as adaptation planning with communities, and the management of risks through the District Plan³.

As a region, Canterbury has around \$1B of local government owned infrastructure exposed to coastal hazards, the majority of which is in Christchurch. As sea levels rise, Canterbury has the most public infrastructure exposed to coastal hazards in New Zealand⁴.

As a city, Christchurch is more exposed to coastal hazards than either Auckland or Wellington⁵. Across the Christchurch district, approximately 25,000 properties are exposed to coastal hazard risks over the next 120 years⁶. The National Institute of Water and Atmospheric Research (NIWA) estimates that with 1m of sea level rise the replacement value of buildings in Ōtautahi Christchurch is approximately \$6.7B, the majority of which are residential⁷.

Unless we adapt, the impacts of coastal flooding, erosion and rising groundwater will greatly affect us and our environment into the future.

We have identified the coastal and low-lying communities within the Ōtautahi Christchurch district that are most at risk from coastal hazards through an updated Coastal Hazards Assessment. Given the extent of our district's exposure, we will be taking a staggered approach to community-led adaptation planning in different Adaptation Areas. In the first instance, we will focus adaptation planning on priority locations where coastal hazards will arise in the short-term – the next 30 years. Where hazards will arise in the longer-term – over 30 years, we will focus on raising awareness to ensure communities are aware of the risk.

¹ Bell, R., Lawrence, J., Allan, S., Blackett, P., & Stephens, S. (2017). *Coastal Hazards and Climate Change: Guidance for local government*. Ministry for the Environment. (Note: This statistic uses a baseline period of 1986-2005. We have experienced around 10cm of sea level rise since this baseline period and therefore expect to see around 20cm of additional sea level rise over the next 30 years, by 2050).

² Intergovernmental Panel on Climate Change. (2021). *Summary for Policymakers*. In *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.

³ Department of Conservation. (2010). *New Zealand Coastal Policy Statement*. <https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/nz-coastal-policy-statement-2010.pdf>

⁴ Simonson, T., & Hall, G. (2019). *Vulnerable: the quantum of local government infrastructure exposed to sea level rise*. Local Government New Zealand.

⁵ Parliamentary Commissioner for the Environment. (2015). *Preparing New Zealand for rising seas: Certainty and Uncertainty*.

⁶ The 2021 Coastal Hazard Assessment data would potentially impact around 16,000 properties across Christchurch and Banks Peninsula. Of these, around 15,000 are at risk of coastal flooding and 1,000 are at risk of erosion over the next 120 years. The 2017 Coastal Hazard Assessment also included areas further up the rivers, where coastal flooding is less dominant (but remains a factor) and from that assessment approximately 9,000 additional properties (outside of the 2021 assessment) are also likely to experience some coastal flooding.

⁷ National Institute of Water and Atmospheric Research. (2019). *Coastal Flooding Exposure Under Future Sea-level Rise for New Zealand. The Deep South Challenge*.

Putting it all in context

What are coastal hazards?

In line with the 2017 MfE Guidance, the Coastal Hazards Adaptation Planning programme focusses on three main coastal hazards that are made worse by climate change:

- **Coastal flooding** happens when normally dry, low-lying coastal areas are flooded by the sea. This usually happens as a result of a severe storm, but rising sea levels could also cause 'sunny day' flooding from high tides.
- **Coastal erosion** is a natural, ongoing process that occurs when the sea wears away the land. Some coastal areas experience short periods of erosion, but then recover (build up again) while others continuously erode and never recover. Coastal erosion may become more severe as a result of the impacts of climate change such as rising sea levels and increased storminess.
- **Rising groundwater** can bring the water table closer to the ground surface. Near the coast, the level of the sea often influences groundwater levels. We can therefore expect to see the groundwater rising as sea levels rise. At its most extreme, groundwater could rise above ground level and cause temporary or permanent ponding of water.

Putting it all in context

How can we adapt to coastal hazards?

Options that can be used to adapt to coastal hazards are typically grouped into five different types:

- **Maintain:** *We enhance what we're already doing*

We continue to live in an area while increasing knowledge of the environment and aiming to increase community risk awareness. Options include things like emergency response management, maintaining existing infrastructure, broad district-wide land use planning, environmental monitoring and community awareness raising.

- **Accommodate:** *We live with the hazard*

We continue to use land in an area by raising our tolerance to the hazards, which means we can avoid or delay the need to remove or relocate at-risk assets in the short term. Options include things like adapting buildings and infrastructure, raising land levels and managing ground and storm water.

- **Protect:** *We keep the hazard away*

We interrupt coastal hazards using soft-nature-based engineering approaches, hard-engineered structures, or a combination of the two, to form a barrier between assets and the hazard. Options include things like shoreline nourishment, seawalls, or stopbanks.

- **Retreat:** *We move away from the hazard*

We retreat from coastal areas, or relocate existing and planned development to reduce our exposure to the hazards. The hazard risk to assets is reduced or removed entirely, leaving the coast to respond to natural processes. Options include things like buyouts, land swaps, or leasebacks where property rights are purchased with the provision that the land is leased back to the former owner.

- **Avoid:** *We don't move into the way of the hazard in the first place*

We use planning tools to avoid increasing the risk of harm to people and property. Options include things like land zoning or setbacks that prevent development in some areas.

More detail about specific options can be found in the *Catalogue of Coastal Hazard Adaptation Options*.

Roles and responsibilities

While the Council, on behalf of the community, is responsible with Environment Canterbury for managing risks posed by coastal hazards and is responsible for managing the risk to Council owned assets and income, the Council does not have an explicit legal obligation to protect privately owned assets from coastal hazards.

Private asset owners (individuals, organisations, businesses, and iwi who own built structures on private land) are responsible for managing risks to their assets and incomes. The private asset owner's role is to:

- Be aware of the risks and their responsibility for managing them.
- Comply with regulations that apply to their assets and activities.
- Take steps to understand the magnitude and nature of the specific risks to their assets and activities.
- Develop and implement strategies and actions to manage these risks.

The Council's role is to:

- Prepare and implement civil defence and emergency management plans.
- Develop and implement plans, policies and regulations for the identification and management of coastal hazards.
- Facilitate the building of resilience and adaptive capacity within communities including providing information about known risks posed by coastal hazard.
- Where appropriate, work in partnership with communities to identify and manage the risks posed by coastal hazard and their impacts.

Our ~~draft~~ coastal adaptation guiding principles

As we have mentioned, adaptation planning will take place in different Adaptation Areas at different times. To encourage an equitable approach across all communities, we want to establish some clear principles now, to help guide our adaptation planning programme.

We have come up with the following ~~draft~~ principles with input from our partners Papatipu Rūnanga and Environment Canterbury:

Uphold te Tiriti o Waitangi

We will uphold the principles of the Treaty, including the principles of partnership and the active protection of Ngāi Tahu interests in land and water. This commitment includes recognising rangatiratanga and the duty to actively engage with mana whenua.

Develop local plans ~~with~~for local communities and for local environments

Adaptation planning will respond to the scale of the risks and vulnerabilities of each Adaptation Area and its assets. It will reflect local values, and other considerations that may exacerbate community vulnerabilities, such as lower levels of hazard awareness and socio-economic challenges. Adaptation planning may produce different results in each place – there is no ‘one size fits all’ solution or timeline for addressing coastal hazards.

Focus on public assets that contribute to the health, safety and wellbeing of communities

While the adaptation planning process will consider communities as a whole and will identify private assets at risk of coastal hazards, Council’s resources (including public funds) will primarily be used to manage risks to public assets that contribute to the health, safety and wellbeing of communities. Public assets may include infrastructure systems such as water pipes and roads, facilities such as libraries, pools and parks, and services such as waste collection.

Privately owned assets that directly contribute to the health, safety and wellbeing of communities may also be a focus for adaptation planning (but not necessarily public funding) if they provide critical community infrastructure. These assets may for example include: marae, urupa, churches, surf lifesaving services, and buildings and/or land used for civil defence and emergency services. This does not include privately owned recreation facilities or entertainment and hospitality venues.

Private asset owners are responsible for managing risks to their assets and incomes. Any private benefits from Council funded adaptation should be indirect or incidental.

Be flexible and responsive

Adaptation planning acknowledges that, while the sea is rising, there is uncertainty around when and how different areas will be impacted. This means we need to consider and accommodate a wide range of scenarios and potential options. We need to be responsive to future opportunities, technologies, funding sources and changes resulting from the Government's reform of the resource management system.

Recognise inter-generational equity issues

We will take a long-term view to ensure adaptation planning is sustainable, provides benefits to current and future generations, and is not driven by short-term decisions on cost savings or avoiding loss. We will prioritise options and pathways that minimise the burden on future generations and maximise inter-generational equity. Where appropriate, this may mean action is needed now, to avoid shifting the financial burden of implementing adaptation pathways on to future generations.

Prioritise natural and nature-based options

We will identify and prioritise natural and nature-based options wherever feasible, in preference to any hard engineering options. This is in line with the New Zealand Coastal Policy Statement 2010 which recognises that natural options provide additional benefits including protecting and enhancing the natural environment and taonga, and maintaining and creating recreational assets. Examples of natural and nature-based adaptation options can be found in the *Catalogue of Coastal Hazard Adaptation Options*.

Consider long-term sustainability

We will consider all options for managing the risks posed by coastal hazards for communities, with a particular focus on long-term, sustainable risk-reduction approaches. This focus is in line with the New Zealand Coastal Policy Statement 2010 and will help ensure we acknowledge the carbon cost of implementing options, the residual risk created by different options and the impacts of maintaining options.

This principle aims to ensure that future costs of adaptation options are considered. For example, the costs of ongoing maintenance of some built structures may over time be greater than the cost of adaptation options such as retreat or avoiding new development. Different options can be found in the *Catalogue of Coastal Hazard Adaptation Options*.

Keep managed retreat on the table

We will consider all options for managing the risks posed by coastal hazards for communities, including managed retreat. This is in line with the New Zealand Coastal Policy Statement 2010. While managed retreat is a challenging adaptation option in terms of implementation, and social and economic impacts, it offers a long-term sustainable option that can remove the risk of coastal hazards, allowing natural coastal processes to unfold. It can also be used to create natural protection buffers for other at-risk assets.

Different managed retreat options can be found in the *Catalogue of Coastal Hazard Adaptation Options*.

Our engagement principles

- Be open, transparent, accessible and inclusive, and encourage diversity of views.
- Provide meaningful opportunities for engagement where people's views and feedback can genuinely influence the process.
- Acknowledge the partnership status of Te Rūnanga o Ngāi Tahu and the Christchurch City Council under Te Tiriti o Waitangi.
- Recognise, value, and respect local knowledge and expertise.
- Encourage innovation and thinking that acknowledges not just individuals, but also communities, the wider city, the natural environment and future generations.
- Recognise the importance of community connectedness and networks for residents in maintaining community wellbeing.
- Recognise different communities have different needs, and that different approaches to communications and engagement will be needed to encourage people to engage with the adaptation planning process.
- Encourage and support education initiatives in local communities going through adaptation planning and the wider community, to raise awareness and understanding of the issues involved. Note: The Council is also committed to actively supporting broader education on climate change and sustainability as core to *Kia Tūroa te Ao – The Climate Resilience Strategy*.

Our approach to adaptation planning with each adaptation area

To encourage an equitable process that results in adaptation plans that are supported, where possible, by both residents and the Council, we are initially proposing to follow an approach that will include engagement with mana whenua and communities, technical work by the Specialist and Technical Advisory Group (the STAG), and a recommendation from the Coastal Panel for Council decision on adaptation pathways.

We estimate that to get through this process, it will take approximately 12-18 months. Once we have completed planning in one Adaptation Area, we will move onto the next Adaptation Area.



Who are the Coastal Panel?

A diverse group of community and rūnanga representatives from each Adaptation Area. Some city-wide representation will also be included as well as youth voices. There is one Coastal Panel per Adaptation Area.

The role of the Coastal Panel is to provide informed recommendations to Council for adaptation plans that allow communities within the Adaptation Area that are impacted by coastal hazards, to respond to changes over time.



Who are the STAG?

A specialist and technical forum that assists the Council and Coastal Panel with the creation of adaptation pathways.

Members are experts in their fields from across a number of agencies, and are able to provide information, advice and guidance to support Coastal Panel decision-making.

Initial community engagement about the Adaptation Area

Adaptation planning about an Adaptation Area starts with a period of engagement with people who live in the Adaptation Area in order to:

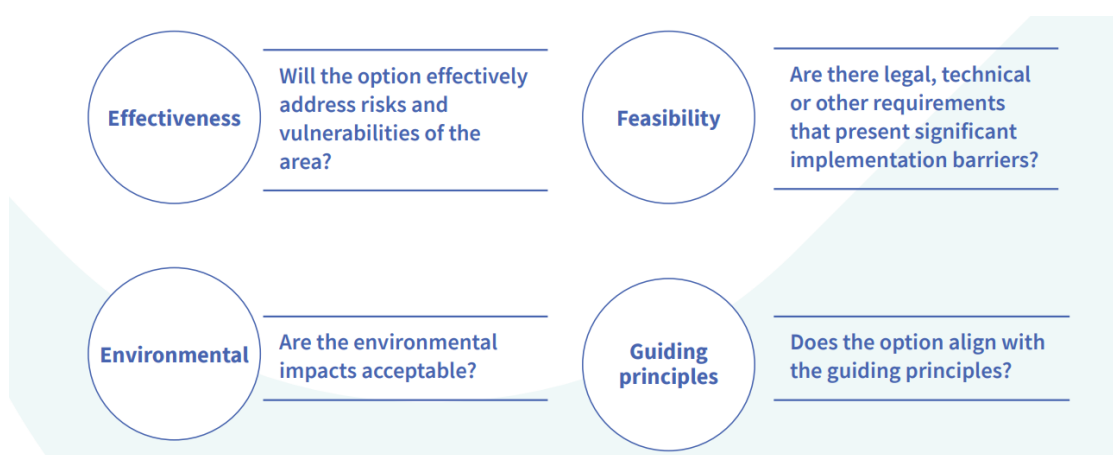
- Develop a shared understanding of coastal hazards and risk, and local knowledge and issues.
- Build an understanding of the roles and responsibilities, and the guiding principles.
- Ensure that the Risk and Vulnerability Assessment includes important assets and values that have been identified by the community (more information about the Risk and Vulnerability Assessment can be found on page 178 of this document).
- Identify community values in order to create community objectives and understand community aspirations.
- Seek community input to any adaptation options that are missing from the *Catalogue of Coastal Hazard Adaptation Options* (more information about the *Catalogue of Coastal Hazard Adaptation Options* can be found on page 178 of this document).

We will also seek the views of the wider community who are interested.

Technical analysis

The STAG with input from Council staff will prepare information for the Coastal Panel to consider. This range of work might include:

- Analysing community values in order to develop draft community objectives. The Coastal Panel will be involved in this analysis.
- Incorporating community input to the Risk and Vulnerability Assessment and identifying priority locations where short-term impacts of coastal hazards are anticipated.
- Establishing a range of example high-level adaptation pathways (as can be seen in the examples on the next page), signals, triggers and thresholds for Council infrastructure.
- Preliminary assessment of adaptation options to consider their effectiveness, feasibility and environmental impact, and whether they align with the guiding principles. The types of questions here are:



It is highly unlikely that options which are not sufficiently effective or feasible, will be considered when creating adaptation pathways.

Below, are just two examples of what high-level pathways could look like. Please note that these are not based on any real life scenario.

In Example 1 under a 'hold the line' pathway, we attempt to mitigate the effects of coastal hazards initially with one or more of the potential adaptation options listed under the accommodation approach. Once the pre-determined signals and triggers have been met (for example, a specified sea level rise is reached), this example shows a move to a protection approach with a different set of possible adaptation options. However, a 'hold the line' pathway in a different location could start with a different approach and utilise different option types at different points in time.

In Example 2, a 'work with nature' pathway could utilise environmentally driven accommodate and avoid approaches at the same time. Once the pre-determined signals and triggers have been met, this example shows a move to protect and at the next decision point, a move to managed retreat. Again, this is just one example of what a 'work with nature' pathway could look like, but it is not the only possible combination of option types and potential options.

You can see more about the adaptation types and options in the *Catalogue of Coastal Hazard Adaptation Options*.

What may example high level pathways in one priority location look like?

Example 1:

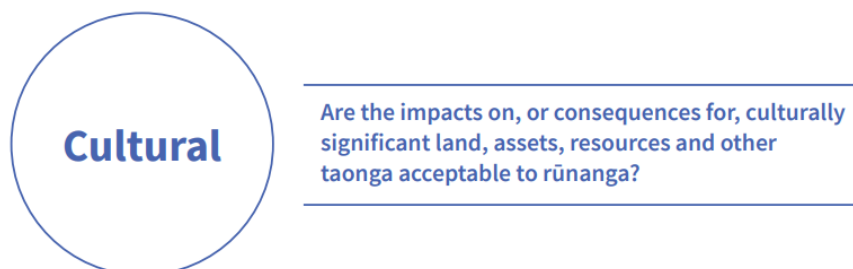
| Strategy: Hold the line | | | | | | | |
|-------------------------|--|---|--------|---------|--------------------------------|--------------------------------|-----------------------|
| Option type: | Accommodate | | Signal | Trigger | Protect | | Protect |
| Potential options: | Groundwater mgmt. (\$: Medium – Extreme) | Stormwater mgmt. (\$: Medium - Extreme) | | | Shore nourishment (\$: Medium) | Dune regeneration (\$: Medium) | Seawall (\$: High) |
| | Adaptable buildings (\$: Low – Medium) | Flood proofing buildings (\$: Low - Medium) | | | Wetland enhancement (\$: Low) | Detached breakwater (\$: High) | Revetment (\$: High) |
| | | | | | | | Stopbank (\$: Medium) |

Example 2:

| Strategy: Work with nature | | | | | | | |
|----------------------------|---------------------------------|--|--------|---------|----------------------------------|--------------------------------|--|
| Option type: | Avoid + Accommodate | | Signal | Trigger | Protect | | Retreat |
| Potential options: | Land use restrictions (\$: Low) | Groundwater mgmt. (\$: Medium – Extreme) | | | Shore nourishment (\$: Medium) | Dune regeneration (\$: Medium) | Property acquisition (\$: Medium - High) |
| | | Stormwater mgmt. (\$: Medium - Extreme) | | | Riparian management (\$: Medium) | | |

Understanding mātauranga Māori and rūnanga values

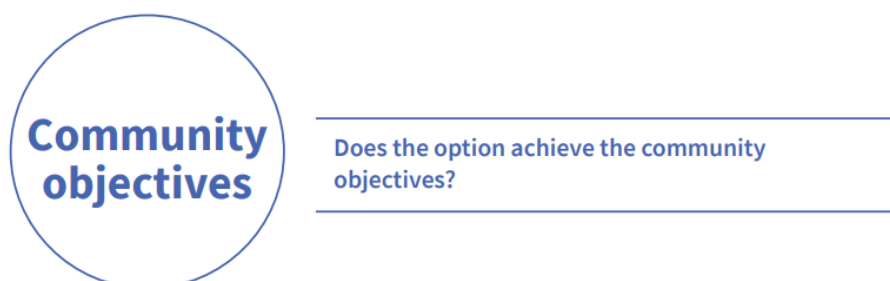
A wider understanding of mātauranga Māori and rūnanga values will be woven through the adaptation planning process. We will be seeking rūnanga feedback on examples of high-level adaptation pathways. Rūnanga will, if they wish, assess options against cultural values.



Coastal Panel analysis

The Coastal Panel will start to develop possible adaptation pathways. To help them achieve this, they are likely to undertake a range of work which might include:

- Considering the Risk and Vulnerability Assessment.
- Considering any general signals, triggers and thresholds prepared by the STAG.
- Considering the existing information on effectiveness, feasibility, environmental, guiding principles and cultural values.
- Considering how well adaptation options support community objectives.



We are likely to ask the Coastal Panel to draft high-level adaptation pathways to test with the wider community. These high-level adaptation pathways could include recommended options, potential benefits and impacts of these options, some high-level costings, and suggestions for ways the pathways could be funded and implemented.

Further community engagement about the Adaptation Area

We need to continue to check in with the wider community. Further engagement is likely to include testing the high-level adaptation pathways with the community, to get their feedback.

Coastal Panel analysis

It is intended that the Coastal Panel will narrow things down to a preferred pathway. To help them achieve this, the Coastal Panel might consider matters that include the following:

- Feedback gathered from community-wide engagement on possible high-level adaptation pathways;
- The financial implications of the identified pathways including capital and maintenance/ongoing costs;
- The guiding principles as outlined in this document;
- Long-term sustainability;
- Flexibility;
- Effectiveness;
- Environmental impacts;
- Cultural impacts;
- Social impacts; and
- Alignment with community objectives.

We intend to ask the Coastal Panel to identify a preferred pathway, along with recommended funding arrangements for implementation and we will then aim to check back in with the wider Adaptation Area to understand their views on this pathway.

Council makes final decision

Ultimately, it's the Council that makes the final decision on adaptation pathways that have been through this process.

Once adaptation pathways are decided by Council, the implementation phase begins. If public funding needs to be allocated, then this will be proposed by Council staff via an Annual Plan or Long Term Plan process. It's important to be aware that some adaptation options may not need to be implemented for some time, and may therefore be scheduled for delivery in 10 or even 20 years' time.

Supporting information

Coastal Hazards Assessment 2021

The Council engaged Tonkin + Taylor to assess three main coastal hazards; coastal flooding, erosion and rising groundwater for the entire Christchurch district. Good planning requires the best available data, and although there are uncertainties, the data will allow us to broadly understand how the hazards will change in the future and what areas may be impacted, to support sound adaptation planning discussions with communities and robust decision making by the Council.

You can read more about the Coastal Hazards Assessment 2021 at:

ccc.govt.nz/coastalhazards

Risk and Vulnerability Assessment

The Risk and Vulnerability Assessment, created in collaboration with the University of Canterbury, identifies which assets and values are at most immediate risk to the coastal hazards identified in the Coastal Hazards Assessment, so that we can prioritise where adaptation planning will occur. The Risk and Vulnerability Assessment will not be complete until the community has had a chance to provide feedback on whether the community assets and values are accurate, inclusive and representative.

The Risk and Vulnerability Assessment seeks to answer the following key questions:

- What assets and values are at risk from each coastal hazard, and what is their level of exposure?
- What are the likely consequences of exposure (i.e. number of people and assets affected, social and economic disruption, damage and losses)?
- What cascading, dependent or flow on effects might occur (e.g. roads, impact on community services)?
- When are these impacts likely to occur?
- Where is the most immediate and severe risk – and therefore priority for adaptation planning?

Management Framework

This document outlines the international, national and local level statutory and non-statutory context for the Council's coastal hazards planning activity. At a broader level, it also outlines the roles and responsibilities of territorial and regional authorities in relation to coastal hazards caused by climate change.

You can read the Management Framework in the reference library at:

ccc.govt.nz/adapting-to-sea-level-rise

Catalogue of Coastal Hazard Adaptation Options

This document is a literature review that provides contextual information on a wide range of overarching adaptation strategies and possible adaptation options for low-lying inland and coastal communities. This review is not intended to be the sole tool for identifying potential adaptation options or an exhaustive list of all available adaptation options. Instead, it is intended to inform and support the identification of suitable adaptation options for consideration in the development of adaptation pathways for low-lying inland and coastal communities in the Christchurch district.

You can read the Catalogue of Coastal Hazard Adaptation Options at:

ccc.govt.nz/how-we-can-adapt-to-coastal-hazards

Coastal Hazards District Plan Change

Alongside the Coastal Hazards Adaptation Planning programme, ~~we are also seeking input into~~ a Coastal Hazards Plan Change ~~which is required~~ to give effect to the New Zealand Coastal Policy Statement and meet our statutory obligations under the Resource Management Act ~~is also being carried out~~.

The scope of the plan change is to better manage future development, redevelopment, subdivision and changes in land use. It will introduce objective(s), policies and methods to the Christchurch District Plan that apply to the full extent of the district.

~~An Issues and Options paper has been drafted to provide the rationale for the proposed Plan Change and to set out four options for the management of coastal hazard risks, including Council's preferred option of adopting a risk-based approach. The risk-based approach gives effect to the New Zealand Coastal Policy Statement while still enabling communities to utilise their property as far as reasonably and safely possible.~~

You can read ~~the Issues and Options paper and provide your feedback~~ [more about the Plan Change](#) at:

ccc.govt.nz/plan-change-12