Kōrero mai | Let's talk

Adapting to sea-level rise

Rāpaki

Let’s find a way

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Christchurch City Council

Let’s talk about sea-level rise in Rāpaki

We know that sea levels are rising in response to climate change. Locally, they’ve risen by more than 10 centimetres over the last 15 years in Whakaraupō Lyttelton Harbour. We expect to see a further 14 to 23 centimetres by 2050, and between 38 centimetres and 1 metre by 2100. Over time, this is going to have a big impact on how we live, use and move around our coastline and low-lying inland areas. We don’t have all the answers about what life is going to look like in the future, but we know there are some important decisions we can all be making now to make sure we’re better prepared.

You can help us all get ahead of the impacts of sea-level rise in Rāpaki and the wider Whakaraupō Lyttelton Harbour to Koukourarata Port Levy area by being a part of this kōrero.

Kōrero mai | Let’s talk

Head online to **letstalk.ccc.govt.nz** to find out more about this and other draft adaptation pathways and provide your feedback. Alongside Rāpaki, we’re also wanting feedback on draft adaptation pathways for Koukourarata Port Levy, Allandale, Teddington, Purau and Te Wharau Charteris Bay.

You can pick up a consultation booklet for any of the other areas at Lyttelton and Diamond Harbour libraries, or get in touch with us and we’ll send them out to you.

You need to give us your feedback by 10 December 2023.

Phone us on 03 941 8096 or email **letstalk@ccc.govt.nz**

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Te Hapū o Ngāti Wheke Inc is the Papatipu Rūnanga legal entity that represents Ngāti Wheke, the hapū with manawhenua status over the Whakaraupō basin and surrounding areas as outlined in the Port Cooper Deed. This entire area is culturally significant to Ngāti Wheke and sustains the hapū. Te Hapū o Ngāti Wheke has a strategic plan, a key part of which is the protection and enhancement of the whenua, moana and awa. Ngāti Wheke hopes to be a part of the leadership in climate action for future generations.

Mō tātou, ā, mō kā uri ā muri ake nei.
For us and our children after us.

Christchurch City Council recognises the rangatiratanga of Ngāti Wheke over its whenua and is working in partnership to plan for impacts on public assets and places of value.

Timeline

2021

You provided feedback on the Coastal Adaptation Framework and Catalogue of Coastal Hazard Adaptation Options. Members of the community expressed interest in joining the Whakaraupō Lyttelton Harbour – Koukourarata Port Levy Coastal Panel.

2022

The Coastal Adaptation Framework was adopted by the Council. The Coastal Panel was established.

2022-2023

You told us what you value most about living in the area. The Coastal Panel turned this information into community objectives that were shared with the public.

The Coastal Panel identified six Priority Adaptation Locations to focus on in this round of planning based on the level of exposure to coastal hazards. These locations were shared with the public.

Each adaptation option was considered for alignment with the community objectives by the Coastal Panel. The options were also scored for effectiveness, feasibility, and environmental impact by the Specialist and Technical Advisory Group, alignment with mana whenua values by rūnanga, and the Council's guiding principles by Council staff.

Private property owners at risk from coastal hazards in the short term have been contacted directly with more information about their individual risk.

Here now

Based on this information and input, the Coastal Panel has drafted adaptation pathways for each Priority Adaptation Location and is seeking your feedback.

2023-2024

Preferred pathways will be identified and shaped up with greater detail. These will be shared with the public for input.

Preferred pathways will be presented to the Council for a decision to either accept, amend or reject the recommendation.

Our conversation to date

This isn't the first conversation we've had with you about coastal hazards, and it won't be the last.

Guided by your feedback to date, the Coastal Panel has drafted adaptation pathways that outline different ways we could address the risks from coastal hazards in Rāpaki over time. The process to come up with these draft pathways has been supported by the Specialist and Technical Advisory Group.

Before we go any further with this work, we'd like to know what you think about these pathways, to make sure we're on the right track.

On the left is a reminder of the work to date and what's yet to come.

The Coastal Panel is a diverse group of 13 community members and rūnanga representatives from the Whakaraupō Lyttelton Harbour and Koukourarata Port Levy area, alongside a couple of city-wide representatives. The Coastal Panel will present adaptation pathways for each Priority Adaptation Location to the Council, who will make the final decision on whether to accept, amend or reject the pathways.

The Specialist and Technical Advisory Group is made up of various experts from across a range of fields and organisations. It supports the Coastal Panel's decision-making by providing information, advice and guidance.

What we've heard from you so far

Last time we touched base, you told us what you value about living in Rāpaki and the wider Whakaraupō Lyttelton Harbour to Koukourarata Port Levy area, and the things you'd like to see in the future. The Coastal Panel turned this important feedback into community objectives (see below), which were shared in early 2023. The panel has since used these objectives to help come up with adaptation options and to guide the development of adaptation pathways.

In your feedback to us it was clear that some of the things you value most about Rāpaki are:

"Being connected to whānau, whakapapa and the environment" and "having our children and their children enjoy the same environment and whakapapa".

"The importance of preserving our whakapapa to the land and sea where we have our customary food collection and safe water to be able to drink and swim in."

You told us that all community assets are important, particularly the natural environment:

"The land and sea are our taonga, the people at home to keep our precious commodity safe for food gathering and water to drink."

"Community assets are important as a whole for a healthy environment."

You also have a clear vision about what you do and don't want to see in the future:

You want to see "people able to swim in the water, trees on the hillsides and no contaminants in the harbour".

You don't want to see "our land diminishing to the ongoing elements".

These are all things the Coastal Panel has kept in mind when thinking about how to address coastal hazards in Rāpaki.

Community objectives

Community resilience

Foster the preparedness of communities (current and future) to determine how best to support themselves through times of disaster and disruption.

Community and culture

Retain a sense of community, social connectivity and sense of place by recognising the importance of heritage, identity, community spaces, places (such as parks and marae) and neighbourhoods.

Infrastructure

Ensure infrastructure, such as roads, jetties, waste, communications, electricity and water networks, are sufficiently resilient to support the health, safety and wellbeing of communities now and in the future.

Access to natural areas

Protect and enhance access to the land and the sea for mahinga kai, cultural activities, recreation, leisure and enjoyment for current and future generations.

Environment and landscapes

Protect landscape amenity and protect the natural environment for mahinga kai, natural resources and native biodiversity.

Important features in Rāpaki

The natural environment

The natural environment in Rāpaki is highly valued for its mahinga kai, ecological and recreational features. The beach is a popular swimming destination and is used a lot by locals and other residents in the Christchurch district. It's significant as one of the only shelly beaches found in the harbour and it's an important point of access to the sea for the collection of kai moana. The marine environment in this area supports a wide range of native species.

The beach at Rāpaki.

Community facilities

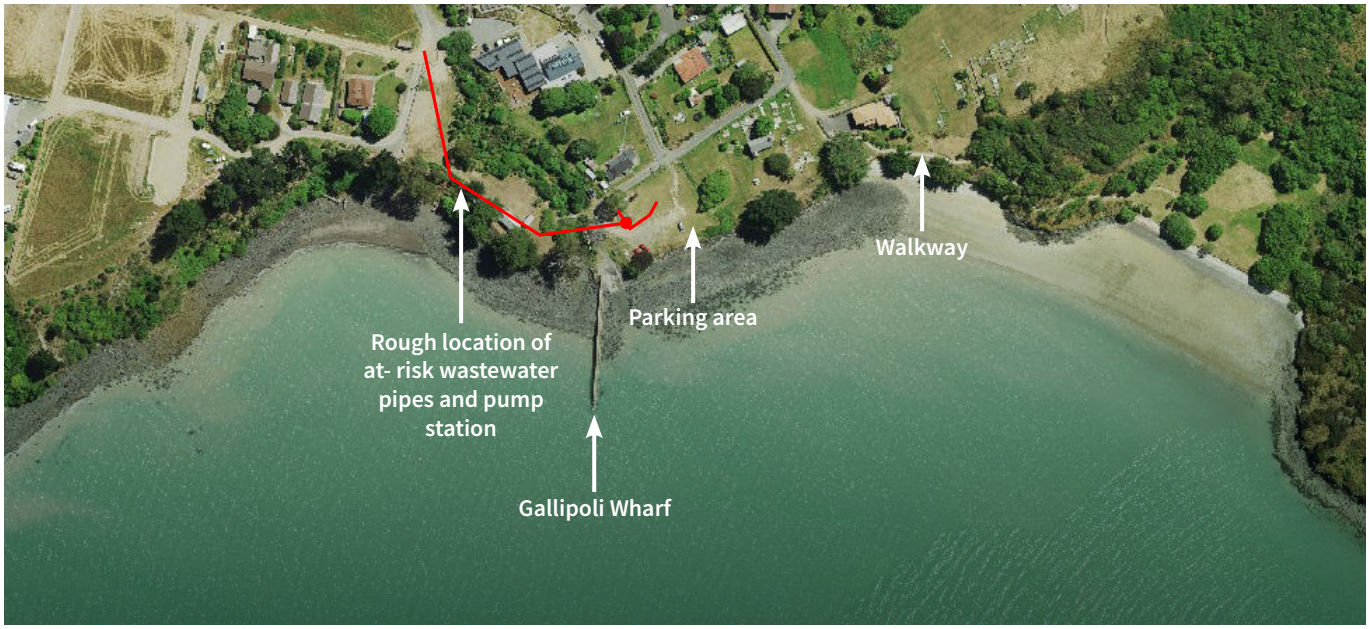
The Gallipoli Wharf was built in 1916 as a memorial to the young Māori soldiers from Rāpaki who fought in Gallipoli during World War I. It holds historical significance and is an important recreational asset. The wharf is well used year-round for boating and seasonally for swimming. It provides an alternative form of access that can be used in the event of an emergency or when roads leading in and out of Rāpaki might be closed.

Visitors to the wharf and beach often make use of the parking area at the shorefront, which spans public and private land. From the carpark, there's a short walk along the beach via the local walkway.

Gallipoli Wharf.

Infrastructure

There's some wastewater infrastructure exposed to coastal hazards, including a pumping station and some pipes that provide service to some properties in Rāpaki.



A map showing the location of key infrastructure and assets.

Rāpaki will be increasingly impacted by coastal hazards

Because the land in Rāpaki is above sea level, coastal flooding and rising groundwater will only have an impact on low-lying land around the shorefront. The images below show that erosion is the main coastal hazard in Rāpaki and will increase over time. Some parts of the shorefront are already defended with rock armouring, which provides some protection against the risk of erosion, but over time, this is likely to be at the expense of the beach. Rising sea levels will eventually cause this armouring to fail, and during storm events it's likely that large sections of land could be lost over short timeframes. Unprotected areas of the coastline will be eaten away faster than protected areas.

It's important to note that while we have a good understanding of how coastal hazards will impact us, it's hard to predict the rate at which sea levels will rise further in the future. The rate of change will depend on global greenhouse gas emissions and what impact this has on our climate. If different tipping points are reached, it's possible we'll see sea levels rise much more quickly. That's why it's important to have a plan in place for the future of our coastal communities

Current sea level

40cm sea-level rise

1m sea-level rise

2m sea-level rise

These images show how this area will be affected by coastal hazards as sea levels rise, during a 1-in-100-year-storm event.

Probability of coastal erosion

- 66–100% (Likely)
- 33–65% (Moderately likely)
- 5–32% (Unlikely)

Depth of flooding*

- 0–20cm
- 20–50cm
- 50–100cm
- >100cm

*In many places, the areas at risk from flooding are also at risk from rising groundwater.

Important things to know

- While we're planning for communities as a whole, the Council will focus its public funds towards public infrastructure. In Rāpaki, this means the focus of adaptation planning will be on the wastewater pipes and pumping station, jetty, walkway to the beach and parking area, some of which are more critical than others.
- While the Council is focusing its planning on public assets, we're aware that privately owned assets are also at risk, and some property owners will feel anxious and uncertain about their future. We've prepared a factsheet for property owners, which you can find on our website at **ccc.govt.nz/coastalhazardsinfo**
- It's also important to note that some adaptation options and pathways will, if progressed, have an impact on private property owners. For example, if privately owned land needs to be purchased to allow for things like building a new road, or if Council-owned assets are moved away from their current location, this may affect nearby properties. You might want to follow the Council's work over time so that you'll be aware if it affects you directly.
- Some adaptation options for the Whakaraupō Lyttelton Harbour to Koukourarata Port Levy area would need significant investment from residents and ratepayers, yet may only benefit relatively small numbers of people. The Council and residents have limited resources and need to balance the considerable investments needed for climate adaptation with other investments needed across the district. It's also important to remember that any major works will take time to happen. These factors mean we'll all need to learn to live with some of the impacts of rising seas and a changing climate.
- Given these challenges, there's no guarantee that existing Council assets will be maintained and available into the future. The closure, removal, or retreat of different assets are options that may be considered for any asset in response to changing conditions and needs across the district.
- We don't yet have all the information about what these options might look like if put in place, but we think it's important to get your thoughts on them now, before we invest time and money drawing up plans that might not align with the community's views for the area.

What can we do about coastal hazards in Rāpaki?

The Gallipoli Wharf, wastewater pumping station and pipes, parking area and walkway will all come under threat from coastal hazards, if they are not already. Because the land in Rāpaki is well above sea level, the main risk is from coastal erosion, which will impact access to the jetty and eat away at the parking area and walkway, and eventually the pumping station and pipes also. Over time, the wharf could be flooded during storm events and parts of the beach could be lost to rising sea levels if rock armouring is used.

It's important to note there are other important assets and places of value in Rāpaki that are not public. Close collaboration with Te Hapū o Ngāti Wheke will be needed to support the long-term management of the area.

The Coastal Panel has considered the workable options that would address the risks to each of these assets. These options are set out in the section titled 'Adaptation pathways'.

Sometimes the way we decide to manage one asset will have an impact on how the other assets could be affected by coastal hazards and the options we have available to manage those risks. In Rāpaki, the decision to protect the shorefront will have a big impact on the other assets.

The Coastal Panel has identified two approaches that help to show how different adaptation options might fit together. These are outlined on the opposite page.

1. Hold the line

We could keep on defending the existing public assets and spaces over the next century by adding to existing rock armouring in front of the parking area and expanding it to protect access to the wharf and the walkway to the beach. The wastewater pumping station sits behind a currently armoured part of the shorefront, so it'd likely benefit from this work. As sea levels rise, small sections of the beach may be lost as water rises to meet the hard edge of any armouring.

The resilience of the wharf itself could be improved through flood-proofing and raising its deck above future flood levels. Over time, it'll become harder and more expensive to maintain the wharf in its current location.

When the flood-proofing becomes less effective, an option could be to build a new wharf that can cope with raised sea levels better.

2. Work with nature

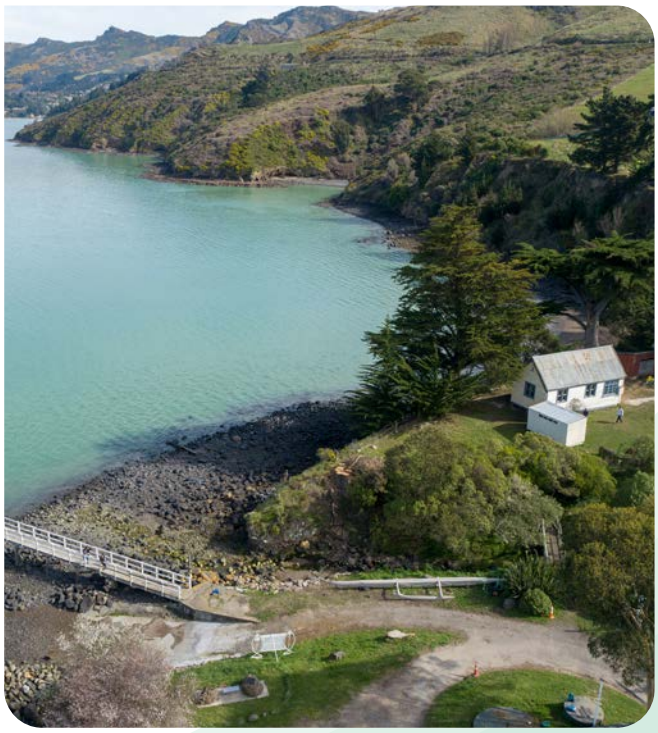
Instead of building a hard edge along the shorefront, we could create space for the natural environment to move in response to coastal hazards. This would involve moving a number of the at-risk assets away from the coast.

Over time, if the existing rock armouring along the front of the parking area is not maintained it will be worn away and the land will start to erode. For a time, this risk could be managed through planting and fencing, which could help to stabilise the cliff edge and keep people away from the unstable bank. As more and more of the land is eaten away, the parking area may need to be closed to the public. There may be an opportunity to provide parking further inland.

With this approach, the walkway to the beach would need to be moved away from the coast, or closed at a point when there was a clear risk to health and safety. Closure may mean no formal public access to the beach in this location. This would provide the beach with space to move inland as sea levels rise, rather than it being impacted by rock armouring, for example.

The same flood-proofing options are available for the wharf under this approach as well – the only difference being that access to the wharf will be impacted over time as the land around it erodes. Without armouring, it be could difficult to keep access to the wharf for extended periods of time.

Both of these approaches come with their own opportunities, risks and costs, and they may need to be used at different times or could be more appropriate for some assets than others. Regardless of what we do, it's going to get harder, more expensive and environmentally disruptive to keep public assets in this area, particularly near the shorefront due to coastal erosion.



Adaptation pathways

The adaptation pathway maps on the following pages help to show which options could be used to address the risks of coastal hazards for each asset. How we use or combine these options over time is something we want your feedback on.

Acting at the right time is an important part of a pathway. For example, it's hard to predict when it will become too costly and disruptive to keep repairing the walkway, and it's likely some parts will have issues before others. To get around this uncertainty, we'll make the decision to move from one option to another based on signals and triggers. In other words, we'll act when we start to see changes in conditions. The Coastal Panel will be thinking about what these signals and triggers might look like in more detail.

Some key terms explained

Signals are early warnings that the current option isn't working and that a different one will be needed soon. Signals may be environmental, such as sea-level rise, or other indicators such as increasing maintenance costs.

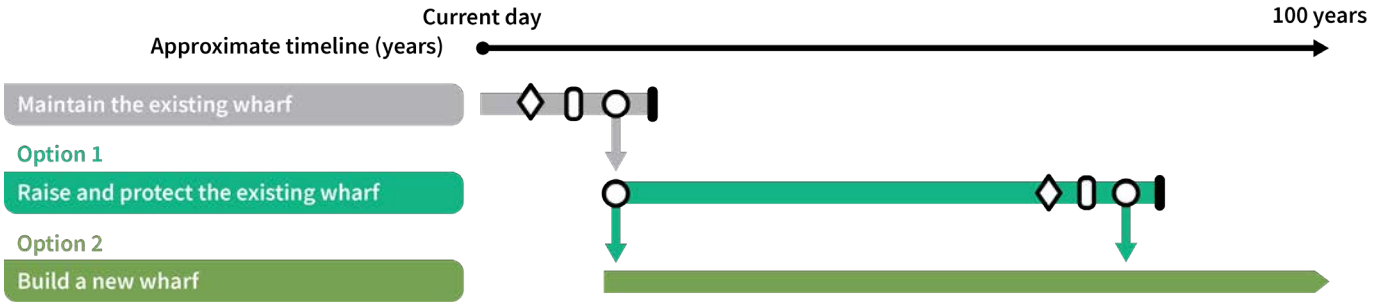
Triggers happen after signals and tell us it's time to act and change options. Making changes to infrastructure, like roads, can take a long time, so it's important that triggers take these lead-in times into account, before a threshold is met.

Transfer points indicate switching from one option to another.

Thresholds are conditions we want to avoid or a level of risk that's unacceptable. Identifying thresholds helps us to understand when we need to put a new option in place. In some cases, a threshold might reflect the community's tolerance for something (such as road closures) and can be shaped by community input.

Gallipoli Wharf

Maintaining the wharf and boat ramp is expected to become harder and more expensive over time. The adaptation pathway map below shows that at a certain point – likely around 10 to 20 years from now – changing conditions will mean maintaining the wharf may no longer be worth the increasing costs and disruption. As we near this point, we could look to raise and protect the existing wharf to different levels. Or, to buy more time, we could build a new wharf, slightly further inland.



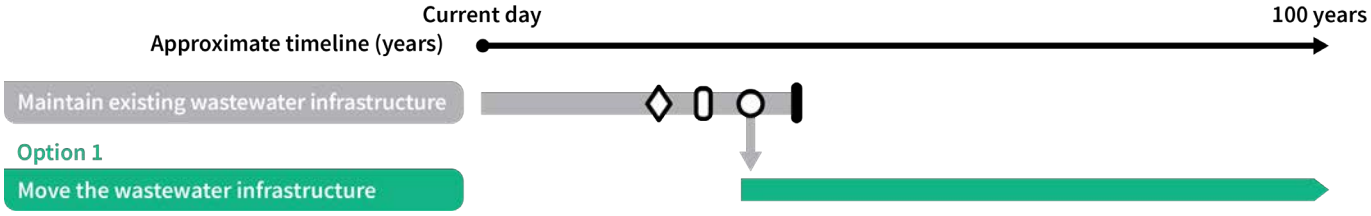
Key: Signal Trigger Transfer point Threshold (See page 10 for a detailed explanation of symbols)

Options	Opportunities	Risks
Raise and protect the existing wharf	It'd allow for public access and recreational benefits to be kept, if not improved.	There would be ongoing costs to keep maintaining the wharf as sea levels rise.
	It'd provide access options during times of emergency.	It wouldn't solve the long-term risk of coastal hazards and further works would be needed in the future.
		Rock armouring to protect access to the wharf would have environmental impacts.
Estimated cost: Our best estimate right now is about $720,000 to $1.1 million to raise and protect the existing wharf so it can last for longer.*		
Build a new wharf	It'd reduce coastal hazard risks, so the wharf could be kept for longer.	There'd be relatively high costs involved in building a new wharf.
	There'd be an opportunity to improve access and recreational benefits.	It'd still be at risk from coastal hazards and would need ongoing maintenance.
	It'd provide access options during times of emergency.	Rock armouring to protect access to the wharf would have environmental impacts.
Estimated cost: Our best estimate right now is about $3.2 million to $4.8 million to build a new, more resilient wharf.*		

*We don't yet have enough information to understand exactly what the cost of this option would be.

Wastewater infrastructure

In time, coastal erosion will threaten wastewater pipes and the local wastewater pumping station. When this occurs, they'll need to be moved to ensure affected properties have access to the wastewater system and to avoid the risk of environmental impacts from damaged pipes. The affected wastewater infrastructure would likely be moved to run underground further inland.



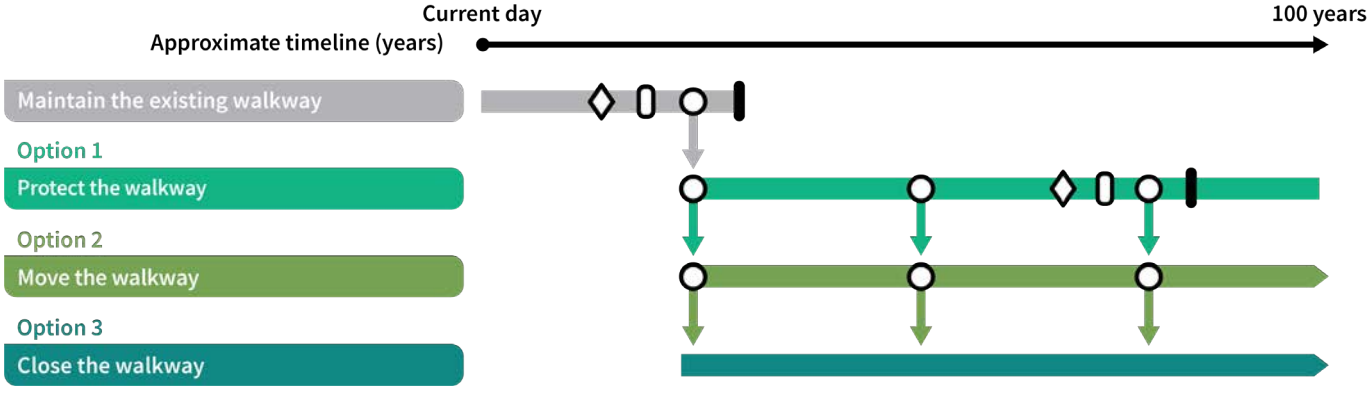
Key: Signal Trigger Transfer point Threshold (See page 10 for a detailed explanation of symbols)

Option	Opportunities	Risks
Move the wastewater infrastructure	It'd solve foreseeable coastal hazard risks.	A suitable location would need to be found to move the pumping station to.
	There'd would be low future maintenance costs.	There may be environmental impacts from laying new pipes.
Estimated cost: Our best estimate right now is about $165,000 to $250,000 to relocate the wastewater pipes further inland.*		

*We don't yet have enough information to understand exactly what the cost of this option would be.

Walkway

Maintaining the walkway is expected to become harder and more expensive over time. The adaptation pathway map below shows that at a certain point – likely around 10 to 30 years from now – changing conditions mean action will need to be taken to make sure the walkway is safe to use. This could involve protecting the walkway in its current location until this becomes unworkable. Alternatively, we could look to close or relocate the walkway in the first instance, or at a point in time when protecting it becomes less effective.



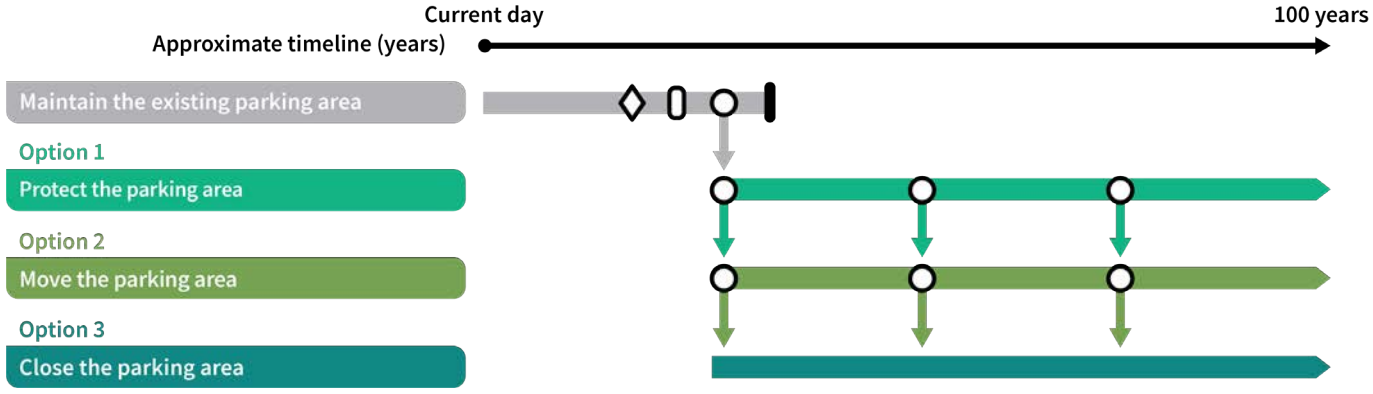
Key: Signal Trigger Transfer point Threshold (See page 10 for a detailed explanation of symbols)

Options	Opportunities	Risks
Protect the walkway (‘Hold the line’ approach)	It extends the useable life of the walkway and keeps its recreational benefit.	Maintenance costs would increase as sea levels rose.
	Most of the walkway is at low risk of erosion, so it‘d be unlikely to need works in the short-term.	The land above and below the walkway is also at risk from landslip. Protecting the walkway wouldn’t remove that risk.
		Building the protection work would likely have an impact on the environment.
		It could be difficult to consent due to the environmental impacts.
Estimated cost: Our best estimate right now is about $590,000 to $880,000 to protect the walkway with rock armouring.*		
Move the walkway (‘Work with nature’ approach)	It’d solve long-term coastal hazard risks to the walkway and most likely reduce future maintenance costs.	It’d be quite expensive to build a new walkway, depending on where and how the new walkway was constructed.
	It may allow public access to the beach to be kept.	It could be challenging to find a suitable site for the new walkway. There’s a lot of steep land and it’s not owned by the Council.
	It’d allow the coastal margin to work naturally again.	An alternate site for the walkway could be steeper and less user-friendly.
Estimated cost: Our best estimate right now is about $900,000 to $1.3 million to move the walkway further inland.*		
Close the walkway (‘Work with nature’ approach)	It’d remove the risk and reduce future maintenance costs.	It may be unpopular with the community, as it’d remove the formal accessway to the beach.
	It’d allow the coastal margin to work naturally again, without the walkway as a barrier.	
Estimated cost: The cost to close the walkway would be relatively low, involving things like signage and, potentially, landscaping. It’s likely to be less than $10,000.*		

*We don’t yet have enough information to understand exactly what the cost of this option would be.

Parking area

The shorefront parking area and the seaward end of the access road are at risk from future coastal hazard impacts. Maintaining these areas is going to become harder and more expensive over time as sea levels rise. The adaptation pathway map below shows that at a certain point – likely in around 20 to 40 years from now if the existing rock wall is maintained – action will need to be taken to make sure the parking area is safe to use. At this point, we could look to improve the existing protection to keep the parking area in the same location, or to relocate some or all of the parking area to another location, or close the area as a public carpark.



Key: Signal Trigger Transfer point Threshold (See page 10 for a detailed explanation of symbols)

Options	Opportunities	Risks
Protect the parking area (‘Hold the line’ approach)	It’d reduce the risk of coastal erosion.	It wouldn’t reduce the risks over the long term.
	It’d also provide protection to other assets and areas that sit behind.	There’d be high costs involved in improving and maintaining the protection.
Estimated cost: Our best estimate right now is about $1.2 million to $1.8 million to protect the parking area with rock armouring.*		
Move the parking area (‘Work with nature’ approach)	It’d solve the foreseeable coastal hazard risk.	A suitable alternate site would need to be found.
	There’d be low future maintenance costs due to being away from hazards.	
	It’d allow the coastal margin to work naturally again, without the parking area as a barrier.	There may be environmental impacts from building a new parking area and access.
Estimated cost: Our best estimate right now is about $2.3 million to $3.5 million to build a new parking area further inland.*		
Close the parking area (‘Work with nature’ approach)	It’d solve the foreseeable coastal hazard risk.	It’d affect public access to the beach.
	There’d be no future maintenance costs.	The at-risk section of road that provides access to the parking area may need to be removed.
Estimated cost: The cost to close the parking area would be relatively low, involving things like signage and, potentially, landscaping. It’s likely to be less than $10,000.		

*We don’t yet have enough information to understand exactly what the cost of this option would be.

Moving around the harbour in the future

Many roads around the harbour are at risk from coastal hazards, placing the whole network under threat. Over time, it may be realistic and necessary to live with more frequent road disruptions and inconveniences as storms and king tides cause damage. There are also other hazards, such as landslips, that will impact the roads more in the future. Better communication about road closures and detours, such as timely updates to a website or to people's phones, could help road users plan their trips or plan to work from home when it's a better option.

Similarly, jetties, wharves and boat ramps could provide alternative access during or after extreme weather events. In the long term, water access may even provide an alternative to roads, but this would depend on things like the size of the populations that would benefit from it and the cost and alternatives.

Help us plan for Rāpaki's future

Let us know what you think by 10 December 2023.

Your feedback will help the Coastal Panel work out which combination of options to put forward to Christchurch City Council as the preferred pathway for Rāpaki, once the options have been developed in greater detail. If approved by the Council, this pathway will guide the management of the public assets in this area over the coming decades – so it's important we get as much feedback from communities as possible.

Spread the word and make sure your friends and whānau living in the area also have a chance to shape their futures.

Online (preferred): **letstalk.ccc.govt.nz**

Email: **letstalk@ccc.govt.nz**

Deliver to:
Attention: Krystle Anderson, Engagement Advisor
Te Hononga Civic Offices
at 53 Hereford Street

by 10 December 2023

Post to: Freepost 178 (no stamp required)
Adapting to sea-level rise
Attn: Krystle Anderson, Engagement Advisor
Christchurch City Council
PO Box 73016
Christchurch 8154

Webinars

We're holding online webinars to talk about the options and to answer questions.

Rāpaki and Allandale
Wednesday 8 November, 6–7.30pm

Teddington and Charteris Bay
Wednesday 15 November, 6–7.30pm

Purau and Koukourarata
Tuesday 21 November, 6–7.30pm

If you're unable to attend, the webinars will be recorded and uploaded to our webpage and can be watched anytime.

Please register online at **letstalk.ccc.govt.nz**

Community meetings

If there's a community meeting you'd like us to attend, please let us know. You can also phone to speak to us.

Krystle Anderson, Engagement Advisor
03 941 8096
letstalk@ccc.govt.nz

Let's find a way

letstalk.ccc.govt.nz

Help us all get ahead of the impacts of sea-level rise in the wider Whakaraupō Lyttelton Harbour to Koukourarata Port Levy area by being a part of this kōrero.

Find out more about the draft adaptation pathways and provide your feedback.

letstalk.ccc.govt.nz

You need to give us your feedback by 10 December 2023.

Christchurch City Council

INF6528 October 2023