

Kōrero mai | Let's talk

Adapting to sea-level rise

Teddington

Let's find a way

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Let's talk about sea-level rise in Teddington

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 Teddington and the wider Whakaraupō Lyttelton Harbour to Koukourarata Port Levy area by being a part of this kōrero.

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

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 Teddington 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 Teddington 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 Teddington are:

“I love being by the sea, the walkways, the natural environment”. These are the things that make it such a “beautiful, tranquil place to live”.

“We like the fishing and walking around the waterfront” and “the native bush, rocky cliffs and the working farm landscape” that make this a great place to live, work and play.

Some of your key concerns for Teddington centred around the roads:

“Teddington is at risk, as it floods now. Rising water levels could cut off access into and out of the bays.”

You also suggested some possible ways to adapt:

“Need to start building new roading protection now. Design a new route around Teddington now.”

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



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 Teddington

The natural environment

The inter-tidal mudflats and neighbouring saltmarsh, found at the head of Whakaraupō in Teddington, hold significant conservation value. Saltmarsh ecosystems are nationally rare and threatened because humans have changed many of the natural environments they exist in.

Despite being affected by farming activities and divided by a road, Teddington supports the largest and most diverse area of saltmarsh vegetation in the Waitaha Canterbury region. The saltmarsh turf is a unique mix of salt-tolerant native plant species which change into taller sea-rush and saltmarsh ribbonwood further inland. In this habitat you can find maakoako/sea primrose and the northernmost population of coastal wind grass, both of which are at risk of extinction, adding to the ecological importance of the area.

The mudflats offer necessary habitat for a range of seabirds, including the second-largest flocks of bar-tailed godwits and South Island pied oystercatchers, making them of national importance. The mudflats also make up the largest area of inter-tidal habitat in the region.

The roads

There are three key roads in Teddington that provide access to communities further around Whakaraupō and into Koukourarata: Governors Bay-Teddington Road, Gebbies Pass Road, and Charteris Bay Road.

Both Governors Bay-Teddington and Gebbies Pass roads are considered minor arterial roads because of the important role they play in providing access to communities across the harbour. These roads are used by around 2,000 and 900 vehicles respectively each day.

Charteris Bay Road is a collector road used by around 2,000 vehicles each day. Between 6 and 9 per cent of this traffic is heavy vehicles. It's not uncommon during storms for water to pond around these roads, particularly at the Gebbies Pass intersection. Flooding also happens when storms arrive at the same time as spring/king tides. Despite this, there have only been a handful of recorded closures of these roads in the Teddington area over the past decade.

The area has a rich cultural past and is important to mana whenua as a place of mahinga kai. Once a site for the catching and drying of shark, it supports a wide range of plant and animal species unique to New Zealand and even to the area.



Looking out across the head of the harbour in Teddington from Governors Bay-Teddington Road.



Flooding at the Charteris Bay-Gebbies Pass roads intersection, July 2023.

Teddington will be increasingly impacted by coastal hazards

Rising groundwater and coastal flooding pose the biggest risks to Teddington and the public roads in the area. The images below show that as sea levels rise, the area will experience deeper flood events and the roads will become more and more vulnerable. The floodwater may also stay around for longer as groundwater levels rise and it gets harder for surface water to drain away into the soil. The area affected by these hazards is unlikely to change much due to the shape of the surrounding land, which is steep, but the impacts will become more common and extreme as sea levels rise.

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



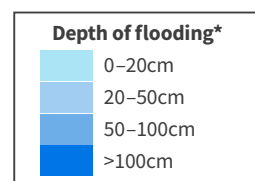
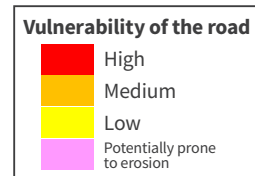
40cm sea-level rise



1m sea-level rise



2m sea-level rise



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

These images show how this area will be affected by coastal hazards as sea levels rise, during a 1-in-100-year-storm event. Over this time, the roads will become more and more at-risk.

Important things to know

- While we're planning for communities as a whole, the Council will focus its public funds towards public infrastructure. In Teddington, this means the focus of adaptation planning will be the public roads.
- 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/coastal hazards info
- 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 Teddington?

Maintaining the roads in their current state is expected to become much harder and more expensive over time. In around 25 to 40 years, the mounting maintenance costs and impacts of coastal hazards on access will mean we need to make a change.

You've told us how important you think it is to keep vehicle access around the coast, to make sure you have access between the city and your homes over the long term. The importance of this is reflected in the community objective about infrastructure.

With all of this in mind, the Coastal Panel has considered all workable adaptation options and, in agreement with expert advice from the Specialist and Technical Advisory Group, is proposing two possible ways to address the risks to the roads as sea levels rise. These two options are:

1. Flood-proof the roads

This option could be used to address coastal-hazard risks over the next 100 years. Flood-proofing the road could happen in a number of different ways, including raising the surface of the road above future flood levels, using more flood-resilient materials and/or installing more culverts to help with drainage.

Some of the low-lying sections of road near the coast and streams may also need to be reinforced with things like rock armouring to protect them against erosion and to make sure any flood-proofing would work.

There are opportunities and risks for any option. Here are some for flood-proofing.

Opportunities:

- It could lower the risk of flooding and rising groundwater, allowing the road to be used for longer.
- The short-term costs of this option would be lower than moving the road to higher ground.
- There are a range of ways to flood-proof roads over different lengths of time, making this a flexible option.

Risks:

- It's likely that raising the road would require major works to widen its base. These works would have an impact on the significant saltmarsh ecosystem in the area.
- While the road would be more resilient for a time, it'd still be in a risky area. This option wouldn't reduce the risk completely or forever, and more investment would be needed further down the track.
- The ground in Teddington could be unstable because of the loose sediments and silts in the area. This could make any building work challenging and expensive.

At this early stage in the process, we don't yet have enough information to understand exactly what the cost of flood-proofing and raising the road would be. Our best estimate right now is anywhere between \$15 million and \$50 million to raise the road between 40 centimetres and one metre.

2. Move the road to higher ground

We could move the at-risk sections of Governors Bay-Teddington Road and Charteris Bay Road to connect with Gebbies Pass Road further inland. This would create a new road in a place with no risk of coastal hazards.

By removing the existing road, we could change the way the land is used, allowing native plants to grow back where the old road used to be. Another option could be to close the existing road or maintain it to a lower standard once the new road was built. It could be used for recreation or as a backup road for a while, until this was no longer workable.

To build the new road, we'd need to purchase private property at some point in the future, which the Coastal Panel and the Council acknowledge could be a difficult process for the landowners.

It's also important to remember there are several other sections of road at risk from coastal hazards in Whakaraupō and Koukourarata. Moving the road in Teddington would only solve part of the problem.

Here are some opportunities and risks for moving the road.

Opportunities:

- Moving the road out of the hazard zone would completely avoid the risk of it being affected by coastal hazards and would allow long-term access through the Teddington area.
- If the old road is removed rather than just closed, it'd take away the hard barrier it currently creates in the natural environment and allow the inter-tidal mudflats and saltmarsh ecosystems to naturally expand inland as sea levels rise and conditions change. This restoration and enhancement of the environment would align with mana whenua and community values and the Council's guiding principles.

Risks:

- It'd be a very costly and lengthy process to build a new road, particularly on the hillside due to the extra engineering work needed. The cost of purchasing private property would also need to be considered.
- The cost to maintain a road on a hillside is usually higher than on the flat.
- Moving the road could affect people's access to their homes and properties in Teddington. If this happened, property owners would need new access routes to and from the new road.
- While this road is very important to its users, usage numbers are low when compared to other roading projects of this scale across the district. This could be a challenge when trying to weigh up the large cost of moving it versus spending the money on other projects or options.

At this early stage in the process, we don't yet have enough information to understand exactly what the cost of moving the road would be. Our best estimate at this point in time is about \$170 million to move all at-risk sections of road.

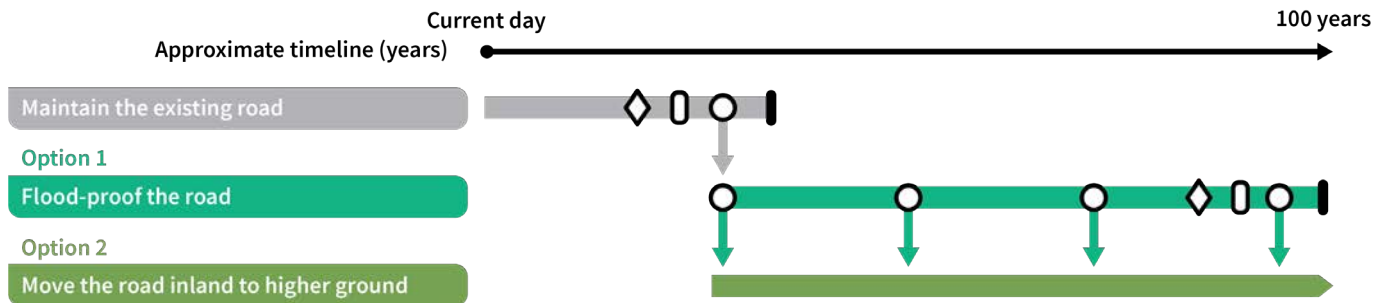


An adaptation pathway

The adaptation pathway map below helps to show the options we've talked about and how they could work over time. It shows that at a certain point – likely around 25 to 40 years from now – changing conditions will mean maintaining the existing road is no longer worth the increasing costs and disruption. As we near this point, we could look to flood-proof the road to different levels to either buy us a bit more time or a lot more time.

Alternatively, we could move the road straight away, or wait until a point in time when flood-proofing wasn't working as well, and then move it. If and how we combine these two options is something we want your feedback on.

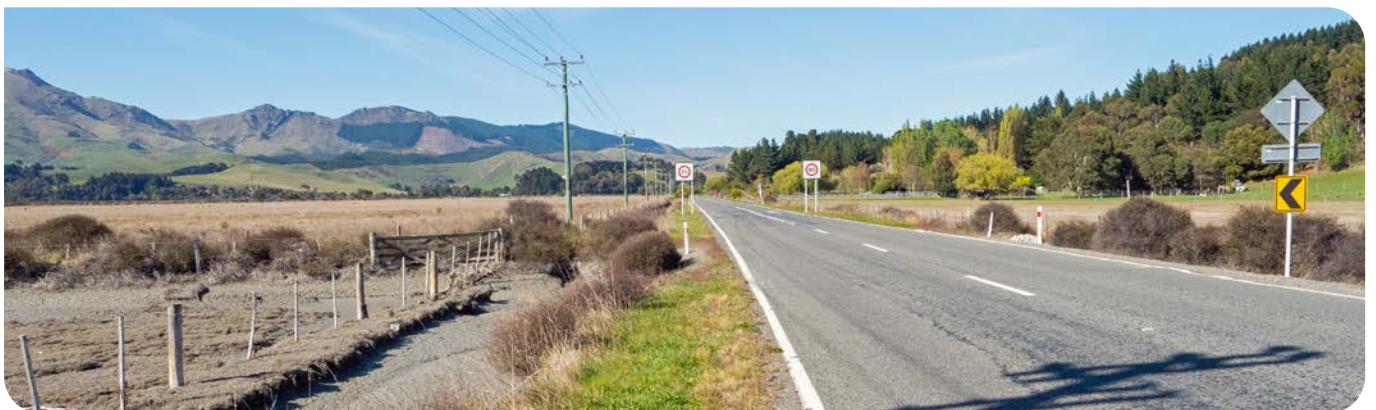
Acting at the right time is an important part of a pathway. For example, it's hard to predict when it will become too costly and disruptive to keep repairing the road, and it's likely some parts will have issues before others. To get around this uncertainty, we'll make the decision to move from one option 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.



Moving around the harbour in the future

The main road here and in other communities around the harbour is 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 Teddington'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 Teddington, 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

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

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

