

Coastal Hazards Adaptation Planning

Ministry for the Environment guidance and Dynamic Adaptive Policy Pathways (DAPP) planning fact sheet

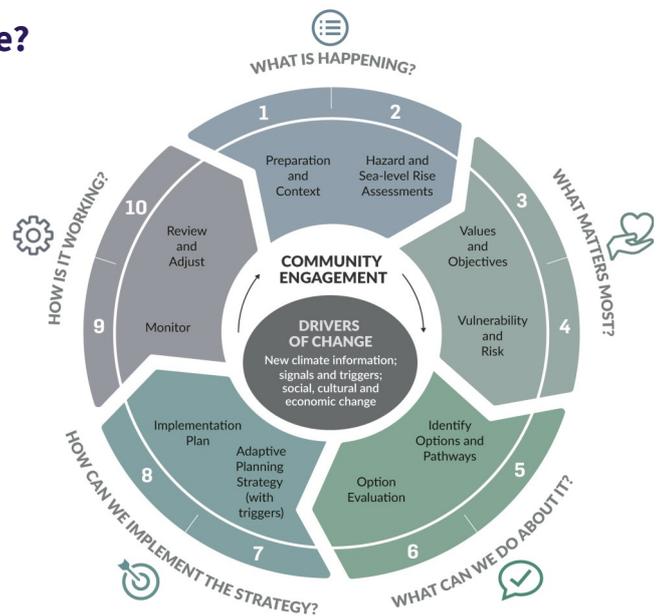
ccc.govt.nz/coastalhazards

Christchurch City Council

What is the Ministry for the Environment guidance?

As the climate changes, sea levels rise and storms become more frequent and intense, we will see an increase in the risk of coastal hazards impacting our communities. The 2017 Ministry for the Environment's *Coastal Hazards and Climate Change Guidance for Local Government*¹ (MFE Guidance) helps councils work with communities to develop pathways that enable communities to adapt to change.

The MfE guidance sets out a recommended 10-step process for councils to follow when adapting to coastal hazards.



1. **Preparation and Context** - Get the team together, determine the scope and shape of the work, develop an understanding of the legal and social context and evaluate uncertainties.
2. **Hazard and Sea Level Rise Assessment** - Determine the extent of risk, identify the sensitivity of the environment, and undertake a coastal hazard assessment.
3. **Values and Objectives** - Collect community and council values and develop these into objectives to be considered throughout the process.
4. **Vulnerability and Risk** - Identify when and how communities and assets will be impacted.
5. **Identify Options and Pathways** - Identify the range of adaptation options and pathways.
6. **Option Evaluation** - Evaluate options against a range of criteria.
7. **Adaptive Planning Strategy** - Determine signals and triggers for adaptation pathways and work through response options.
8. **Implementation Plan** - Create an implementation plan using the Dynamic Adaptive Policy Pathways (DAPP) planning framework.
9. **Monitor** - Establish coastal hazards monitoring within Council and determine objectives and methods for monitoring the effectiveness of the pathways.
10. **Review and Adjust** - Regularly review signals and triggers, and adjust the adaptation pathway and process to changing conditions.

¹Ministry for the Environment. (2017). *Coastal Hazards and Climate Change Guidance for Local Government*.

Dynamic Adaptive Policy Pathways (DAPP) planning

The MfE guidance recommends the DAPP planning approach to identify adaptation pathways.

While we know sea levels are rising and weather events are becoming more severe, the climate is a complex system and there is uncertainty in the exact timing and extent of climate change impacts. The DAPP planning approach therefore has a strong focus on adaptability which allows us to plan around uncertainty by focusing on pre-determined signals, triggers and thresholds, instead of timeframes.

As shown in Figure 1 below, trigger points allow us to take action in response to signals to prevent an unacceptable threshold being reached. This approach reduces the risk of maladaptation by ensuring the most appropriate action is taken at the right time, and helps to effectively allocate resources. At each stage of the adaptation pathway, options are reassessed as new information and technology becomes known. This approach keeps the pathway flexible and avoids path dependencies where possible.

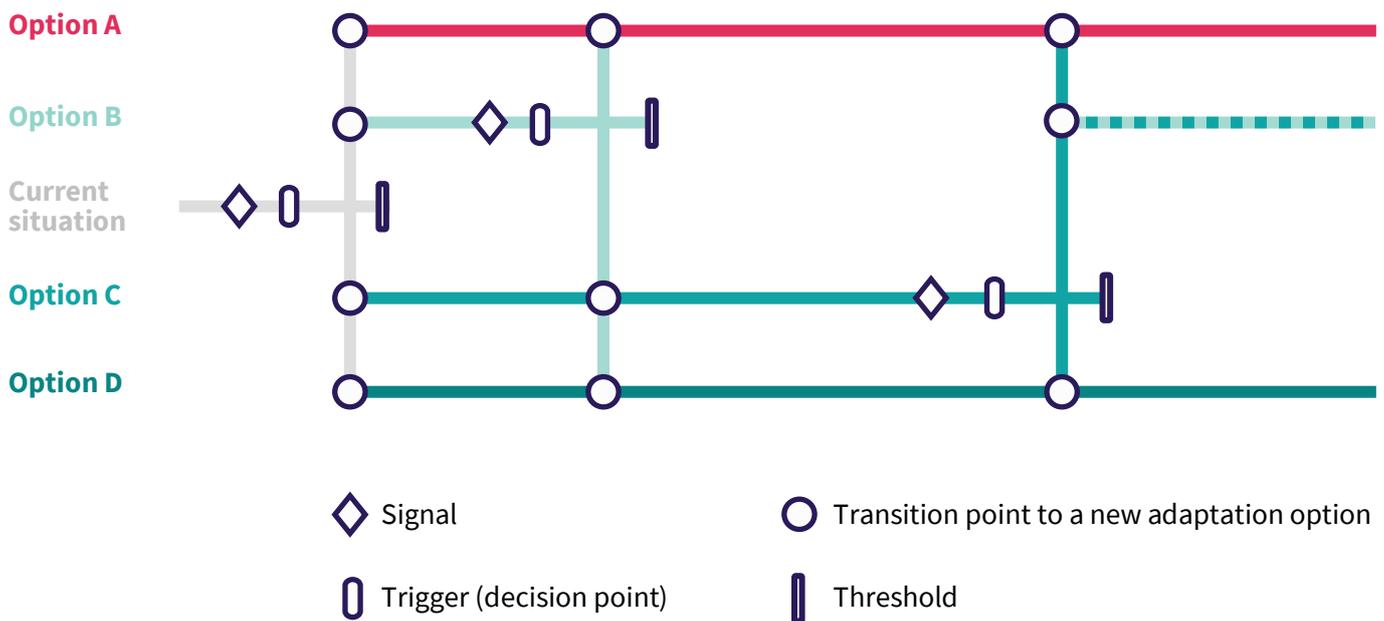


Figure 1: An example of an adaptation pathway using the DAPP planning approach. For example option, B may be the most appropriate option in the short term but as conditions change over time it stops being effective, so a different adaptation option is selected that is likely to be more effective in the new conditions.

Key Terms:

Adaptation: The process of adjusting to change.

Adaptation options: Available and appropriate interventions for addressing adaptation. These include policies, practices, ecological interventions and built structures.

Adaptation pathways: A sequence of adaptation options, as well as decision-points that will be revisited over time.

Maladaptation: A trait which is more harmful than helpful.

Path dependencies: A situation where decisions, events or outcomes at one point in time constrain adaptation, mitigation or other actions or options at a later point in time.

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.

Trigger: Triggers activate a chain of decisions to ensure that implementation of an option is complete before a threshold is reached.

Threshold: Thresholds describe possible scenarios that mean we have not acted quickly enough to address a risk. These scenarios may be time-based or event-based.