# Coastal Management Options Accommodate



There are a mix of options for responding to sea level rise and coastal hazards for both new development and intensification of existing developed areas. All options have challenges and opportunities.

The accommodate group of options enable continued use of coastal land, but existing development is adjusted or new development is designed to anticipate coastal hazards.

Accommodate option examples include raising ground and/or floor levels of buildings, requiring relocatable houses, or providing alternative inundation pathways. Accommodate options can make use of new technologies and innovation.

A key issue with some of the accommodate options, particularly raising floor levels, is that they are unlikely to be viable with progressively rising sea levels. While houses could continue to be raised above the maximum expected sea and storm level, infrastructure servicing will become problematic and costly, particularly road access.



The decisions we make over the coming years will affect generations to come, shaping the places they live, work and value.



## Coastal Management Options Protect



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The protect group of options seek to hold the line by protecting coastal areas from the sea using soft protection and/or hard protection.

**Soft protection** such as dune and beach nourishment/replenishment (e.g. sand push-ups) and wetland restoration can assist in reducing the impacts of natural hazards on coastal development while protecting a number of other values including cultural, coastal habitats and species, landscapes, public access and recreation.

Hard protection includes hard structural measures such as coastal protection structures (sea walls), groynes, stopbanks, tide banks, and causeways. They modify natural coastal processes. Their purpose is to deter or prevent coastal erosion or seawater inundation affecting those coastal areas they are built to protect. However, they tend to shift these issues to other parts of the coast. The location and design of hard protection may result in the degradation of the environmental, cultural, access and recreational values of beaches and coastal areas. Their use can also result in unintended outcomes such as 'end wall effects' and liability issues.

The New Zealand
Coastal Policy Statement
2010 discourages the use of
hard protection structures and
promotes the use of alternatives
including natural defences/
soft protection.









#### **Coastal Management Options**

### Avoid



There are a mix of options for responding to sea level rise and coastal hazards for both new development and intensification of existing developed areas. All options have challenges and opportunities.

The avoid group of options mainly use land-use planning measures to stop people and assets from being put in harm's way. It seeks to avoid further intensification of existing built areas or the development of new sites in low lying coastal locations – this can be thought of as a "let's not make the situation worse" approach. Avoid options use measures such as policies and rules within resource management plans to control the types

and densities of land uses (via zoning), subdivision and building restrictions, and coastal setbacks.

In terms of coastal management options, the best way to minimise and reduce coastal hazard risk is to avoid areas that are, or will become, exposed to coastal hazards. In doing so, this will avoid costly and avoidable risk which the Council and community would otherwise have to address in the future.

The use of avoidance strategies gives effect to the New Zealand Coastal Policy Statement 2010 which promotes locating new development away from hazard prone areas.

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### Coastal Management Options Retreat



There are a mix of options for responding to sea level rise and coastal hazards for both new development and intensification of existing developed areas. All options have challenges and opportunities.

The retreat option applies to existing development and involves moving people, assets, and activities away from the coast and the coastal processes that threaten them. It can take place across a range of scales from individual properties (e.g. moving a building further back on a property section), to relocating whole communities and infrastructure or enabling ecological migration of coastal species and habitats.

The concept of retreat presents challenges for society as a whole and has the potential to create inequitable outcomes. In particular, the costs associated with retreat (of either public and/or private assets), and expectations of who pays is complex. Central government has signalled through the reform of the Resource Management Act 1991 that the development of a Climate Adaptation Act will address these complex legal and technical issues associated with managed retreat.





