

# What is adaptation?

## What are the natural hazard risks, and how are they changing?

The dynamic environment at the Head of Lake Wakatipu is regularly impacted by natural hazard events. Its landscape has a long history of large-scale environmental changes, and the processes shaping this terrain will continue.

For example:

- Migration of the braided Dart and Rees rivers across their floodplains

- Riverbed aggradation and growth of the Dart and Rees deltas

In addition, climate change is expected to bring more frequent and heavier rainfalls, increasing the flood hazard from the rivers and lake.

These changes will exacerbate many of the existing natural hazards present in this area, and the impacts of these changes on people, infrastructure, and land use in these areas are expected to get worse, particularly for low-lying lakefront areas and floodplains.

Other less frequent hazards, could also have large impacts in this area, for example:

- Earthquakes and liquefaction,
- Landslides, rockfall and Debris flows
- Tsunami triggered by a large landslide or collapse of delta sediments

## Why is an adaptation strategy needed?

Future climate and landscape changes increase the potential natural hazard consequences. We need to develop options to adapt to these risks, by understanding the risks and anticipated changes, and planning ahead for how to live with these hazards.

ORC has previously undertaken engineering works to address natural hazards issues such as flooding and river management. While engineering works provide temporary benefits, they do not fully deal with the problems permanently and are unlikely to be sustainable financially or environmentally in the long run. These types of approaches may however be suitable for specific cases, for example as temporary structures with a limited lifespan.

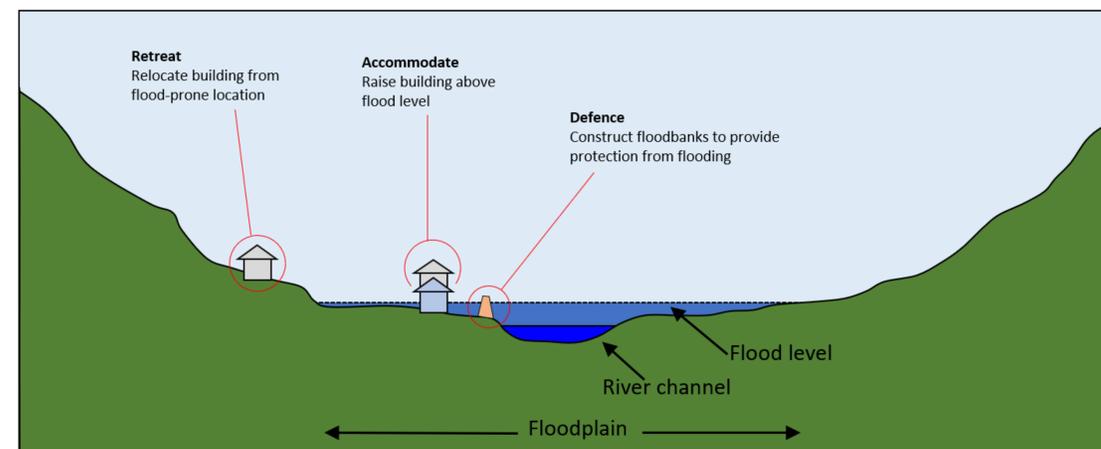
A strategic and holistic approach is needed to address these issues in the longer term, It is very important that this strategic approach is developed collaboratively with the local community and other project stakeholders and partners, and that their values and views are incorporated into this planning.

What we want to achieve by developing an adaptation strategy:

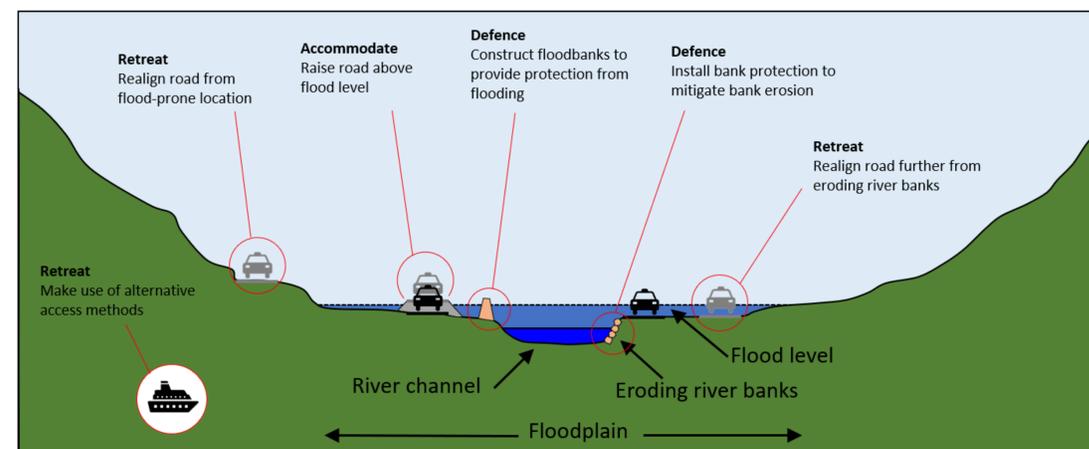
*“To provide a framework to actively manage risks associated with natural hazards for the resilience of the area located at the Head of Lake Wakatipu, including Glenorchy and Kinloch.”*

## Types of commonly-used adaptation options

### Building located in flood-prone area



### Road located on floodplain subject to flooding and erosion



## What is Adaptation?

Adaptation is a response strategy to anticipate and adjust to actual and expected changes in environmental conditions

## What is the ‘Adaptation Pathways’ approach?

- Our approach is a method known as ‘Adaptation Pathways’.
- Developed by the Ministry for the Environment as a blueprint for community-led decision making in areas affected by natural events.
- This approach has been developed specifically to help plan and adapt for situations where the future is uncertain – it allows for flexible and adaptive decision-making, and for planning under conditions of uncertainty regarding the rate, timeframes and magnitude of future changes.
- We will be collaborating with the community and our other project partners - QLDC, Kāi Tahu, and DOC – to work through this process.
- The objective is to develop an ‘Adaptation Pathway’ strategy for the area
- This adaptation strategy will include a mix of short, medium, and long-term adaptation options, selected from a range of option types available.
- We aim to agree on pre-defined decision points, or triggers, where the first options can be revisited, depending on how the future evolves.

