

# What are the options for adapting to sea-level rise?

There are five types of options for adapting to sea-level rise:

In choosing your options you will need to consider:

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Low – high  
Potential cost to  
government and regulators



Short- to long-term  
Protection



## 1 Planning options

Scope objectives, strategies and policies

Taking account of risk and sensitivity to impact

Coastal hazard mapping

Mapping areas at risk of erosion and inundation, and mapping minimum floor height to avoid risk

Risk management

Cost-benefit analysis, vulnerability assessment, impact assessment

Emergency planning and preparedness

Prepare emergency plans for flooding, upgrade resources to match risk

## 2 Regulatory options

Regulation of land use

Zoning to regulate land use, establish minimum setback and building elevation etc.

Development permits

Requirements or regulation on specific developments to protect from hazard

Building regulation

Control design elements (e.g. materials)

## 3 Land use change or restriction options

Transfer of development potential

Land swap to allow development on low-risk land

Land acquisition

Purchase land at high risk and rezone

Land trusts

Manage land for conservation benefits, restrict development

Easements and covenants

Restrictions or conditions attached to land title

Foreshore tenure

Lease or license from crown so adjoining properties can develop integrated foreshore management

## 4 Structural options

Scour protection

Foundation protection for new or existing buildings

Structural elevation

Infill to raise land for building or habitable areas above flood risk

Sea walls, groynes etc

Hard shoreline structures to protect from flooding

Other hard protection

Storm-surge barrier, secondary protection e.g. raised roads

Flood proofing

Use building materials that can withstand short-term flooding, locate services (e.g. electricity) above flood level

## 5 Soft options

Dune building or rehabilitation

Creation or rehabilitation of dunes or offshore islands to buffer flood risk

Coastal wetland creation or restoration

Buffer to reduce wave energy

Beach nourishment

Addition of sediment to continually replenish loss from natural erosion

## You are also likely to need to combine options

For example, zoning of at-risk areas as unsuitable for development + a sea wall to protect high-value assets already in place