

Our Coastal Future Port, Leighton and Mosman Beaches

What is Coastal Adaptation Planning?



Coastal erosion following storms in Port, Leighton and Mosman Beaches.



The coast has always been a dynamic, changing environment. As we have settled on the coast, continued changing of the coast line presents risk and impacts to our coastal assets – including social, environmental, and economic assets and values. Adaptation planning is about being ready to manage the risks and impacts of changes to our coast line, by planning for the most appropriate decisions and options to implement over time.

Erosion and inundation

Erosion refers to shoreline movement where the shoreline shifts landwards; potentially reducing the width of the coastal foreshore reserve or reducing the distance to fixed features on the land. Erosion is the result of sediment being transported either offshore or along the shore by waves and currents. Erosion can be a slow seasonal process, such as sand moving from one end of a beach to the other and back over a year as a result of change in seasonal wind and wave directions, or it can be sudden, resulting in sudden changes in the shape of the beach or vertical drops in the sand level such as after storm events. Erosion is a natural process, with beaches “self healing” over time in some instances, dependant on the nature and severity of the erosive event.

Inundation is the flow of water onto previously dry land. It may either be permanent (for example due to sea level rise) or a temporary occurrence during a storm. Other than the regular short term variations in water levels caused by tides, other temporary effects on water level include falling barometric pressure which allows water surfaces to rise (inverse barometric effect), the action of wind and waves that can cause water to pile up against the coastline (setup) and waves breaking and pushing water up the beach face (wave run-up).

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Visit the website:

www.fremantle.wa.gov.au/coastplan



This project is funded by the Western Australian Planning Commission through the Coastal Management Plan Assistance Program.

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What are the available options?



Above, erosion in front of a sea wall has resulted in a loss of beach area.

Below, groynes and offshore breakwaters are interim protection options that can assist in alleviating erosion for a time.



There are four key coastal adaptation options available when making decisions about managing coastal risks. These are:

- **Avoid** development in the area of risk
- **Retreat** (relocate) assets and development away from the risk
- **Accommodate** the risks (e.g. occasional flooding) through retrofitting
- **Protect** the assets through coastal engineering works.

The most appropriate adaptation option may differ based on the values to be protected in a certain location.

For example, land protection measures (sea walls) can exacerbate erosion and severely affect beach amenity, compared to retreat which enables retention of a natural beach environment.

Interim protection options can help, but may not be permanent or appropriate in all situations.

Groynes and offshore breakwaters are examples of passive interim protection measures. This groyne example (left) is made from geotextiles. Groynes can also be constructed from rocks to extend their design life. Offshore breakwaters can interrupt open views of the ocean, and groynes can create a barrier along the beach.

Sea walls are an example of active interim protection measures. Designed well, they can integrate well into the development of beach amenities, although they can exacerbate erosion (beach loss) in front of the wall over time if ongoing sand nourishment is not undertaken.

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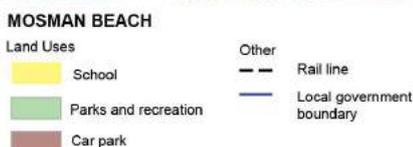
Coastal Values

The most appropriate adaptation options are informed by the values of the coast. This includes more than the economic value or cost of assets that may be impacted; it includes the social and environmental values of a place.

Social and environmental values can be heavily compromised by adaptation measures, such as engineered protection options used to protect land and assets. It is important that coastal adaptation projects take into account the broader community values and public benefits of the coast so the right decisions are made.

You can contribute to the project by highlighting the key things you enjoy and value about the coast in our community survey located on the project website by 15 August 2016.

The maps on this page show some of the key assets and land uses in the area within and surrounding Port, Leighton and Mosman Beaches.



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