

Coastal Adaptation Study



Council is seeking community feedback on the findings of the Coastal Adaptation Study, which has been prepared to understand the risks that may impact Victor Harbor's coastline into the future.

The Victor Harbor coastline is of significant cultural, social, environmental and economic value for the local community, Traditional Owners and visitors to the region.

The City of Victor Harbor recently commenced a project to investigate risks that may impact the local coastline as a result of the changing climate, and subsequently identify management and mitigation options.

In Phase 1 of the project, the community was consulted and encouraged to submit information and evidence of coastal changes and storm events in the Victor Harbor area. These submissions provided valuable input into the draft Coastal Adaptation Study.

Now, in Phase 2 of the project, Council is seeking community feedback on the findings of the Study. The feedback submitted as part of this Phase 2 consultation will help to inform a long-term Strategy for managing Victor Harbor's coastline.

What has the Coastal Adaptation Study investigated?

Changes in our climate are causing seas to rise over the long term. The Coastal Adaptation Study aims to understand how people, the natural environment and built assets might be impacted by rising sea levels so that Council and other stakeholders, such as State Government and private landowners, can plan for the future.

The Study is part of a broader coastal adaptation planning process as summarised in Figure 1. The Study has investigated current and future (2050 and 2100) risks to built assets, people and ecosystems located along the Victor Harbor coast in the context of projected sea level rises. The Study has adopted SA Coast Protection Board sea level rise policy projections for a 0.30m rise by 2050 and 1.00m rise by 2100, which the Board believes is based on sound advice from the Intergovernmental Panel on Climate Change.

How will the Study be used?

Following consultation, the Study will be finalised and used to inform the development of a Coastal Adaptation Strategy (2021-2031). The Coastal Adaptation Strategy will identify options for Council to plan for the future as changes occur along the Victor Harbor coast.

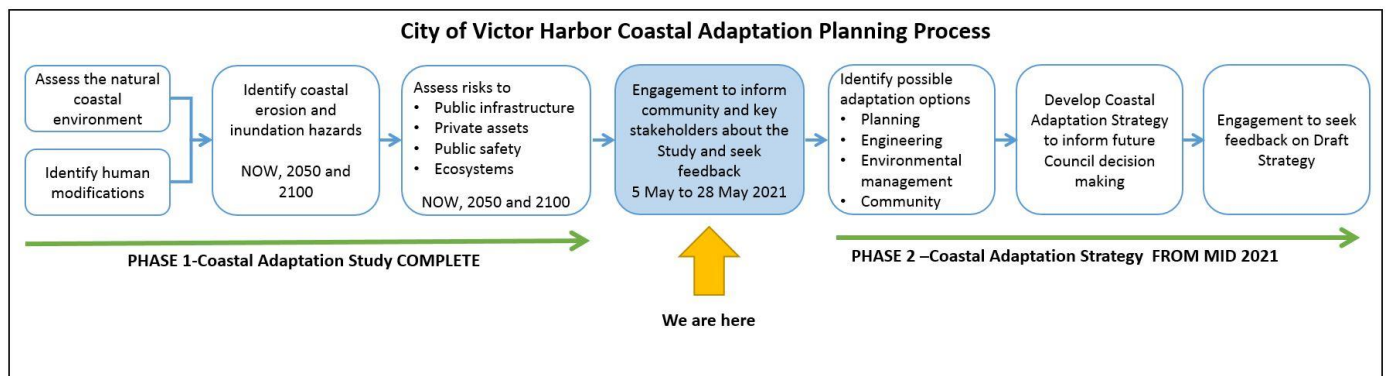


Figure 1. The City of Victor Harbor Coastal Adaptation Planning Process.

What areas have been the focus of the Study?

The Study has been divided into sections or 'cells', with a separate report prepared for each section. The cells are shown in Figure 2 below.



Figure 2. The general layout of the coastline of City of Victor Harbor (adapted from Nature Maps, Department of Environment and Water), featuring the 'cells' for the purpose of this Study

Cell 10

McCracken-Hayborough



About the McCracken-Hayborough coastline

This coastal cell includes the coastal regions of the suburbs of McCracken and Hayborough and extends from the mouth of the Hindmarsh River to the eastern border of City of Victor Harbor. This section of coast is sheltered by the Victor Harbor township and Granite Island which means the impact of waves is lower, however the energy of the waves does become a little greater near Chiton Rocks.

The key human intervention in this section of coast was the installation of the trainline in 1864 which now separates the dunes and beach from the residential development set higher up the sloping back shore. Eight pedestrian access ways traverse the trainline to connect the residential area to the beach. Over the last few decades, the mouth of the Hindmarsh River has been trained to its current position with use of rock and sandbags. As a result, the sand dunes have built up east of the river.

Comparing aerial photographs from 1949 to the present shows that this section of coast has been very stable, and in some instances has accreted, which means that sand and vegetation has increased, and the shoreline has moved seaward. This accretion may be in part due to the coastal management strategies that have been employed since the 1970s. These strategies include pedestrian access controls, vegetation and weed eradication programs.

Coastal hazards

Now to 2050

In the shorter term (next 20-30 years), if seas continue to rise as projected, waves will break closer to the base of the dunes during high water and storm events, impacting dune stability and causing the shoreline to move inland. This is known as shoreline recession. However, as this is a low energy beach and the slope landward of the beach is quite steep, it is likely that recession would be less than 10m by 2050. Impacts are likely to be limited to beach access points and some loss of vegetated dune.

2050 to 2100

In the second half of this century, seas are projected to rise at a faster rate and therefore high water and storm events are likely to have a much greater impact on the coastal dunes and the embankment upon which the trainline is situated. Shoreline recession of between 10m and 20m has been projected for this section of coast.

The map in Figure 3 shows the extent of shoreline recession which would significantly impact the dunes and the embankment under the trainline. Assets at risk along this section of coast include beach access points, which would become increasingly difficult to maintain, and the trainline.



Figure 3. The extent of shoreline recession anticipated for 2050 to 2100, which would significantly impact the dunes and embankment under the trainline.

Cell 11

Victor Harbor Central



About the Victor Harbor Central coastline

The coastal area of this cell is known as the Victor Harbor Lowland and is situated between the Inman River and the Hindmarsh River. This lowland was developed primarily on former sand dunes and sediments when seas were higher and the last time the earth was free of ice. Therefore, the Victor Harbor coastline is very young in geological terms. The current position of this erodible coastline has been established by the wave patterns that are generated around the granite outcrops (The Bluff, Granite Island and Wright Island).

The sheltering effects of these outcrops, combined with various reefs and seagrass beds situated in shallow water, reduce the energy of the swells from the Southern Ocean. However, larger swells combined with storm conditions have routinely impacted the beaches. The storm record shows repeated impact in the vicinity of the gardens and playing fields along Flinders Parade, and a period of significant erosion occurred on The Esplanade Beach from 2007 to 2012.

To manage these actions of the sea, various protection structures and strategies have been implemented over the last 100 years. A seawall was installed to the Flinders Parade foreshore in 1920 to provide protection to the gardens and playing fields. The seawall has been progressively increased in magnitude and length. Lines of sandbags have been installed along beaches, sand imported from other locations, and a concrete block wall installed on The Esplanade Beach.

Coastal hazards

Now to 2050

In the shorter term (next 20-30 years), if seas continue to rise as projected, waves will break closer to the base of the dunes during high water and storm events, impacting dune stability and causing the shoreline to move inland. This is known as shoreline recession and is likely to take place on The Esplanade Beach. In places that already have protection, such as Flinders Parade, increased loss of sand from the beach is likely, and overtopping of seawater is expected more frequently.

2050 to 2100

In the second half of this century, seas are projected to rise at a faster rate and therefore high water and storm events are likely to have a much greater impact on the shoreline. Recession of the dunes along The Esplanade Beach is estimated at 35m to 69m which would impact carparks and coastal infrastructure such as gardens, outdoor furniture, and toilet blocks.

The impact along Flinders Parade at the gardens and the playing fields would be significant, with increased overtopping of seawater, increased undermining of protection structures, and declining sand levels that would likely result in the loss of the beach. The impact upon this section of coast may mean the coastal area is unusable if seas rise as projected. Figure 4 shows projected recession of The Esplanade Beach and the likely sea flood pattern for Flinders Parade by 2100.

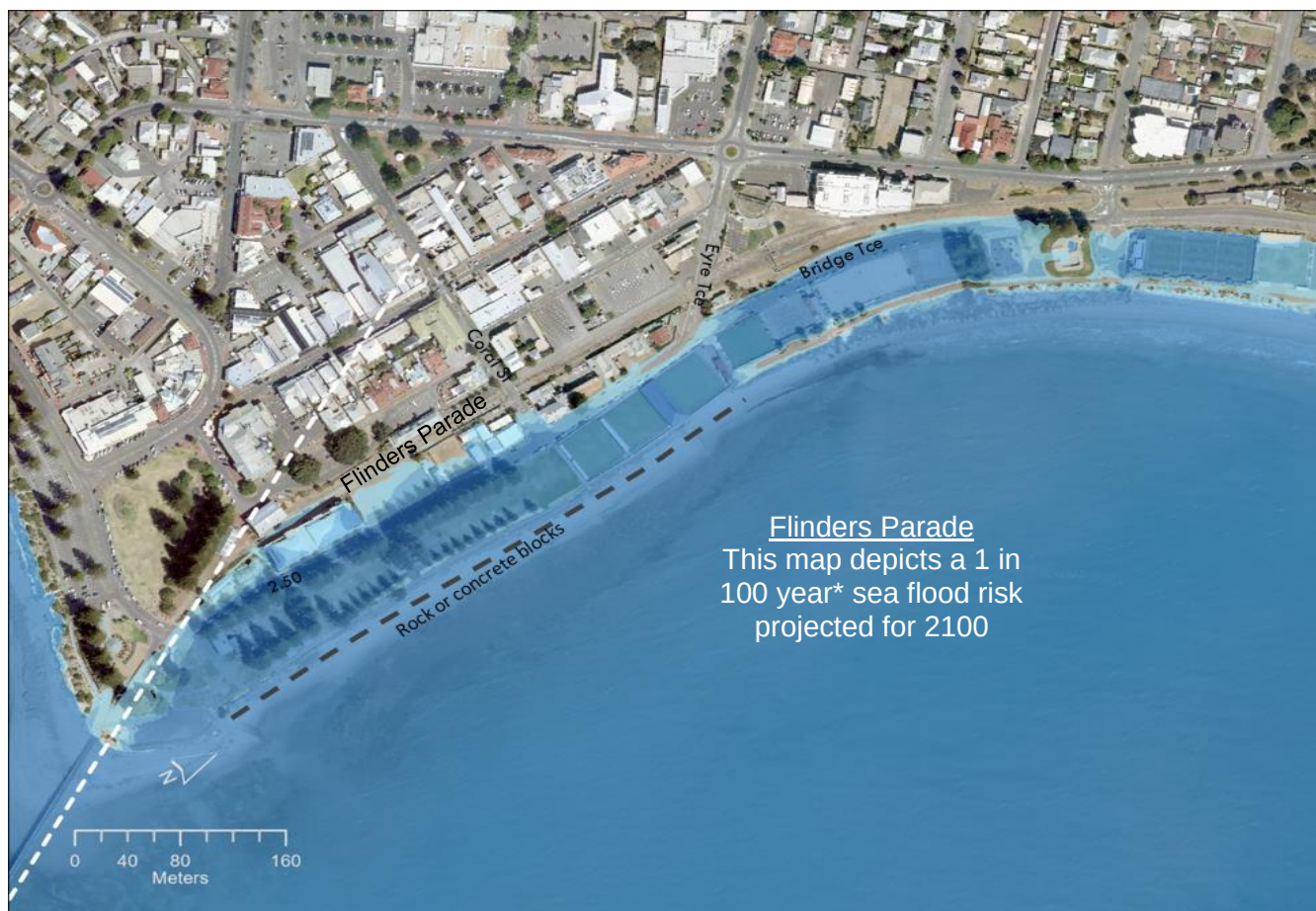


Figure 4. The likely pattern of sea flooding in the Flinders Parade area, with a rare storm event depicted.

Cell 12

Encounter Bay



About the Encounter Bay coastline

This coastal cell extends from the Bluff Boat Ramp to Kent Reserve. The position of this erodible coastline has been established by the wave patterns that are generated around the granite outcrops (The Bluff, Granite Island and Wright Island). The sheltering effects of these outcrops, combined with various reefs and seagrass beds situated in shallow water, reduce the energy of the swells from the Southern Ocean.

The key human intervention in this section of coast was in 1854 with the installation of Franklin Parade from The Bluff to Yilki (Tabernacle Road). Franklin Parade was extended to Kent Reserve in the 1960s and the Encounter Bikeway was installed in the 1990s. These interventions covered over the former sand dunes and reduced the ability of the coastline to adjust to periods of erosion that are caused by larger than normal swells from the Southern Ocean. Since 1990, rock and concrete protection structures have been placed in the backshore to prevent ongoing erosion.

Comparing aerial photographs from 1949 to the present shows that this shoreline undergoes minor cycles of recession and accretion (where the shoreline builds out towards the sea). An example of larger accretion has occurred at Kent Reserve which built out 35m to 55m over a 60 year period, and over the last 10 years has receded 10m to 12m. This demonstrates that this coastline is a dynamic environment that responds to various actions of the sea.

Coastal hazards

Now to 2050

In the shorter term (next 20-30 years), if seas continue to rise as projected, waves will break closer to the base of the dunes during high water and storm events, impacting dune stability and causing the shoreline to move inland which will threaten the Encounter Bikeway and carparks. This is known as shoreline recession. In places that already have protection, increased loss of sand from the beach is likely. In locations such as the coastline between Whalers Road and Tabernacle Road, increased overtopping of seawater is likely to occur.

2050 to 2100

In the second half of this century, seas are projected to rise at a faster rate and therefore high water and storm events are likely to have a much greater impact on the shoreline.

Seawater flows would increase over Franklin Parade, especially west of Tabernacle Road. Increased intensity of wave action will occur on the embankment and cause significant erosion in unprotected areas. It is also likely to cause failure of existing protection which would result in erosion of the bikeway and carparks.

Estimating shoreline recession within this cell is very difficult but if this coastal region was in its natural state, it would be likely to erode 20m in the region of the Bluff Boat Ramp, and in excess of 40m in other areas. Figure 5 shows the likely pattern of sea flooding in the Yilki and Bluff Boat Ramp area, with these being the most vulnerable to seawater flooding.

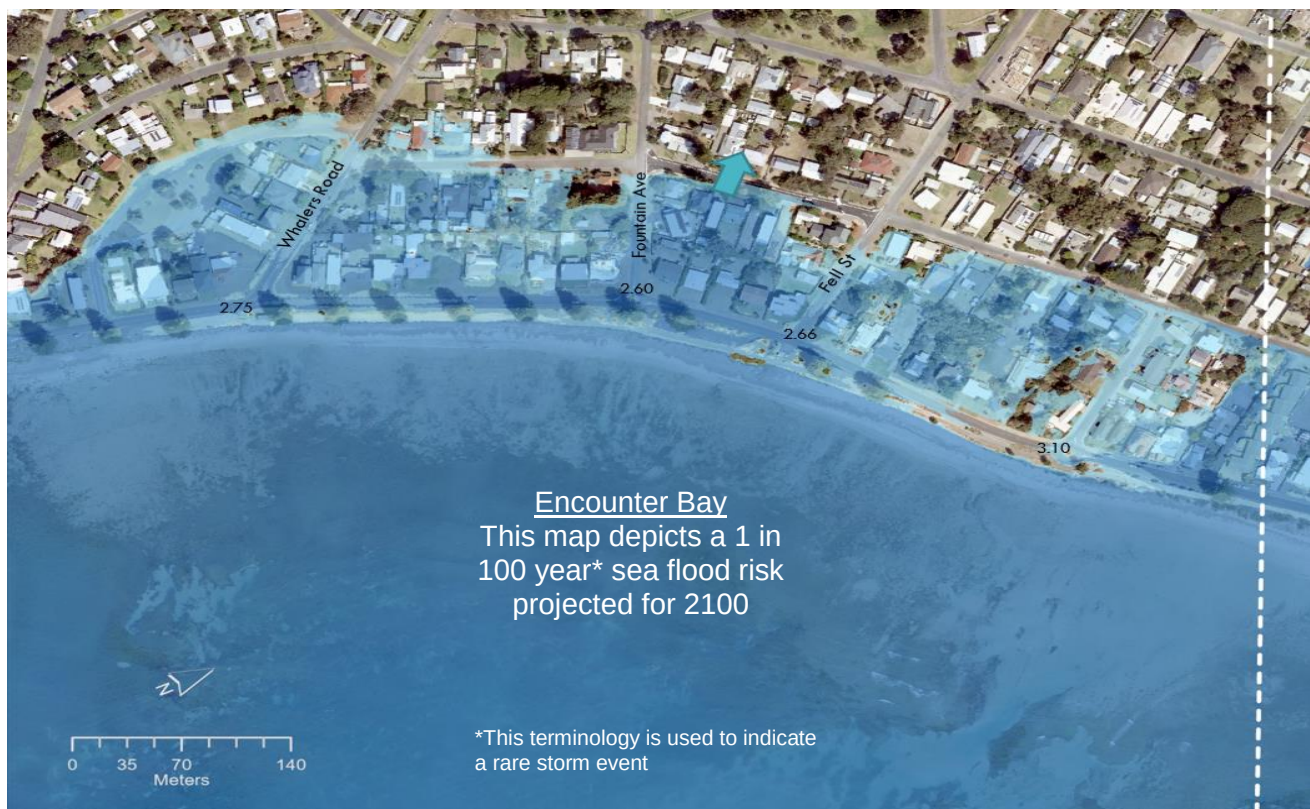


Figure 5. The likely pattern of sea flooding in the Yilki area, with a rare storm event depicted.

Learn more and share your feedback

The community is encouraged to discover more about the Coastal Adaptation Study and share feedback on the findings. There are several ways you can get involved.

- **View the Study Report** – visit yoursay.victor.sa.gov.au or view the hardcopy at the Civic Centre, 1 Bay Road, Victor Harbor
- **Complete the feedback form** – visit yoursay.victor.sa.gov.au or collect a hardcopy form from the Civic Centre, 1 Bay Road, Victor Harbor. All feedback must be submitted before 5pm on Friday, 28 May 2021
- **Join the community webinar** – Follow the prompts at yoursay.victor.sa.gov.au to register for the webinar on 11 May 2021 from 6:30pm to 7:30pm. The webinar will be recorded and available for viewing on yoursay.victor.sa.gov.au from 13 May 2021

More information?

For further information, please email localgov@victor.sa.gov.au or call (08) 8551 0500.