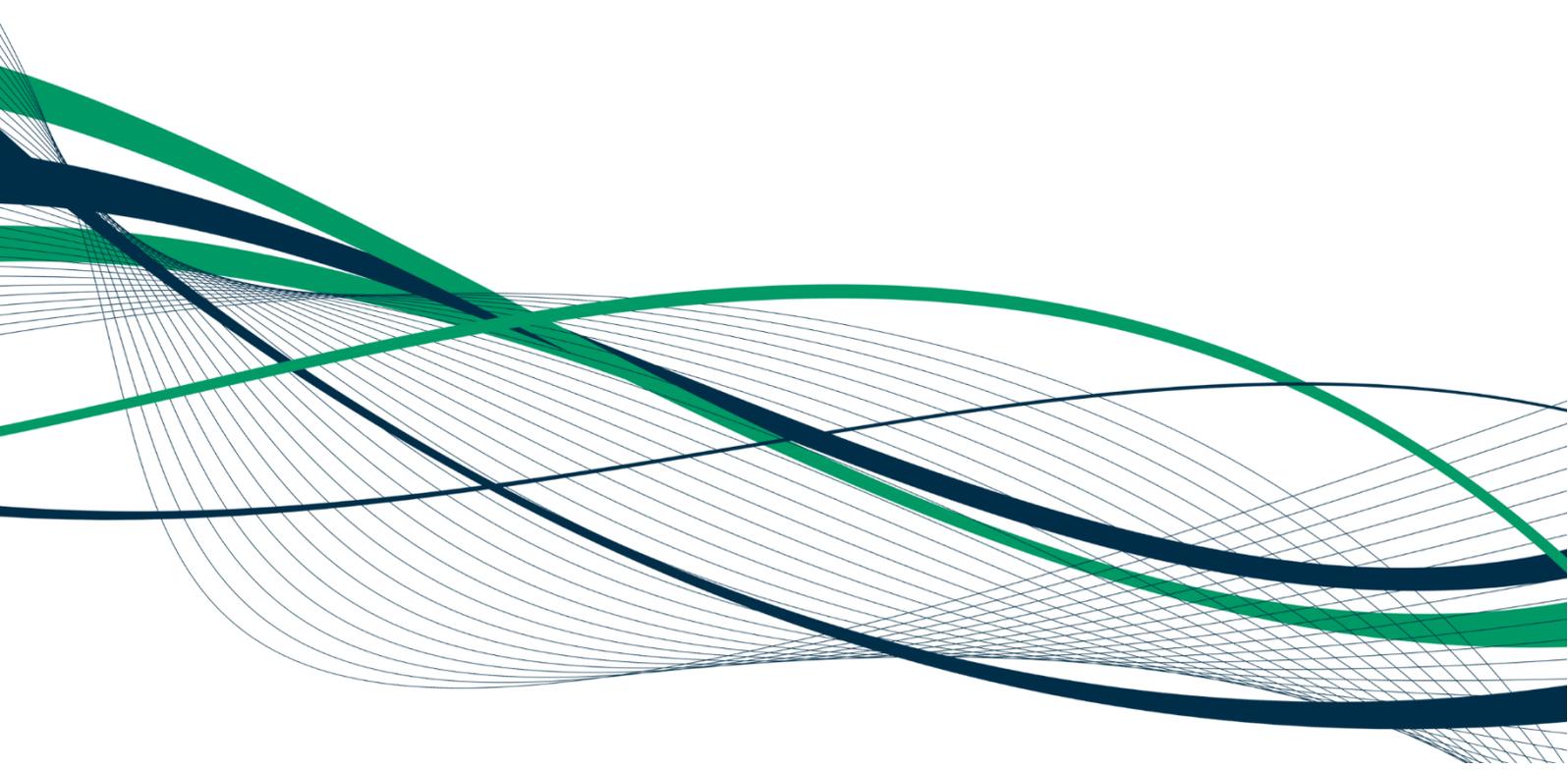




Port Fairy Coastal Climate Change Adaptation Plan

June 2018



Introduction

The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts.

The IPCC endorsed a set of three broad strategic options in response to climate change and sea level rise risks to coastal infrastructure and assets.

Protect: Reduce the risk of the event by decreasing its probability of occurrence e.g.. Seawalls, groynes, beach nourishment.

Retreat: Reduce the risk of the event by limiting its potential effects e.g.. Set-back zones, relocation of threatened buildings, no development in coastal zone.

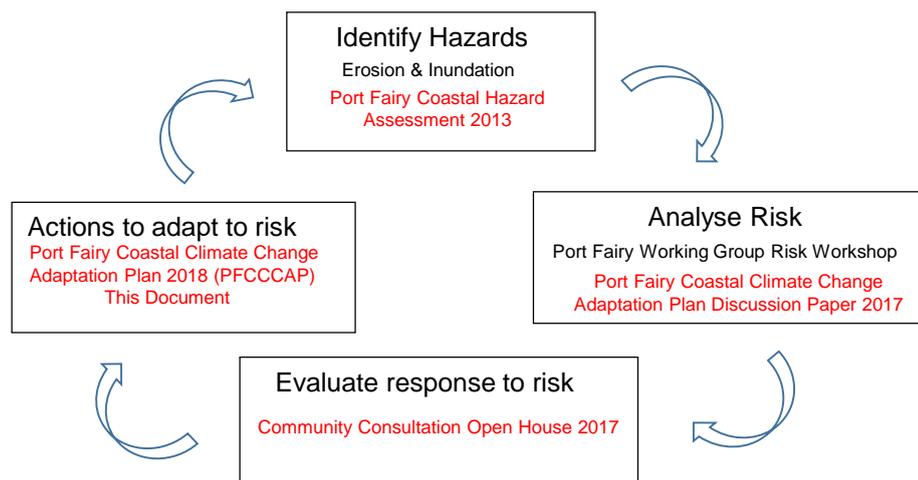
Accommodate: Increase society's ability to cope with the effects of the event eg. Emergency planning, hazard insurance, improved drainage, modification of land use and building styles and codes.

All levels of Government have a role and responsibility to defend Port Fairy against sea level rise and extreme weather events using these three strategies. Adaptation requires decision makers to acknowledge climate change risks and take action to minimise the impact.

Background

The Port Fairy coastline is subject to erosion and inundation associated with storm events that are expected to impact the coast with increasing frequency and severity. The community expects action and leadership to protect Port Fairy's natural, social, economic and built values.

In order to prepare for the next 80-100 years and build a resilient community, a risk based approach was used to identify of hazards and prioritise actions to minimise the risks. The process depicted below underpins the production of this action plan.



This plan is based on the Port Fairy Coastal Climate Change Adaptation Plan Discussion Paper released in 2017. The discussion paper reflects the findings of prior research and incorporates the risk assessment undertaken in 2016. It contains a summary of the key influences on the natural coastal processes at Port Fairy and is available at:

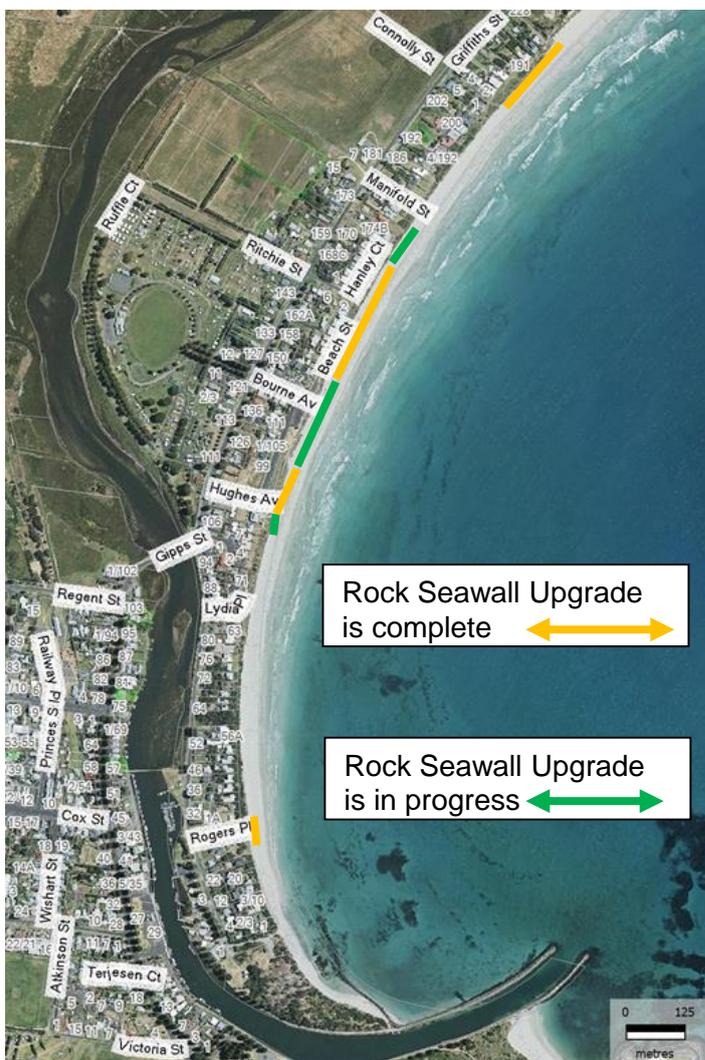
www.moyne.vic.gov.au/defendportfairy

The community consultation process included a two day drop in session on 12th and 13th of October 2017. The community took the opportunity to examine the research used in the development of the discussion paper and to speak to a consultant Coastal Engineer as well as Council Staff. The community were invited to submit feedback on the paper which was considered in the development of the final adaptation plan.

Aim

This document provides clear policy direction with regard to Council's approach to adapting to the impact of climate change and sea level rise at Port Fairy and supports Council's advocacy for increased support from State and Federal Governments.

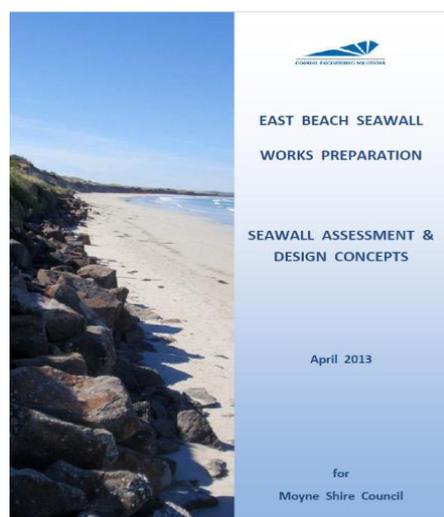
The plan is focused on addressing challenges along the coastline but it is connected to other plans and issues connected to the coast including tourism, land use and asset management.



Current Status

East Beach, Port Fairy is facing an increasing threat of dune erosion, a situation likely to be further exacerbated by climate change and sea level rise. In response to the erosion threat posed to nearby assets, seawall construction works commenced in the 1950s since then extension, repair and upgrading of the rock seawall has been undertaken. A major upgrade program commenced in 2012.

Research



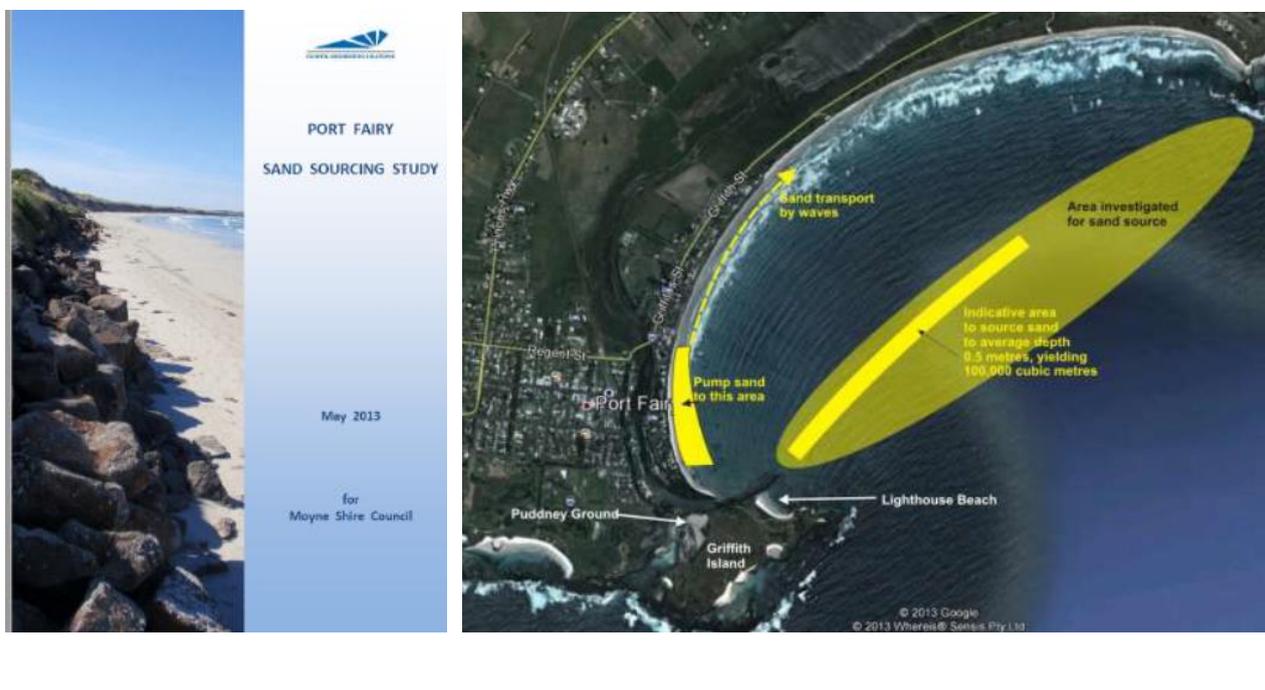
AIM: DEFEND COASTAL ASSETS ON EAST BEACH FROM EROSION & INUNDATION

ACTIONS	TIMING ESTIMATE	COST ESTIMATE
Develop a masterplan for East Beach foreshore precinct	2019/2020	\$25,000
Continue to upgrade the East Beach seawall to a standard that is effective until at least 2100 considering forecast sea level rise.	Commenced	\$3,000,000
Reconfigure the Port Fairy Surf Club Ramp to prevent wave run up.	2018	\$500,000
Continue to lobby government for financial assistance to construct seawalls on East Beach.	Commenced	In Kind
Develop a policy to clarify protocols for the construction of rock seawalls in front of private property.	2019	In Kind

Current Status

East Beach, Port Fairy is located on the northern side of the Moyne River entrance. The rock training walls constructed at the entrance to the river intercept the natural flow of sand along the shoreline. Studies have established that East Beach would be enhanced with a “top-up” of approximately 100,000 m³ of sand from the nearshore area in water depths of 8 to 10 meters. Restoring sand to the beach will provide beach for residents and tourists and protect dunes from erosion including the nearby tip sites. Smaller annual replenishment would also be required to maintain the sand volume, utilising sand dredges from the river for Port use.

Research



AIM: INCREASE SAND SUPPLY TO EAST BEACH FOR RESIDENTS, TOURISTS AND AS A DEFENSE AGAINST SEA LEVEL RISE

ACTIONS	TIMING ESTIMATE	COST ESTIMATE
Obtain approvals to dredge sand from Port Fairy Bay.	2019	\$200,000
Advocate for funding to renourish East Beach with sand dredged from Port Fairy Bay.	2018	In Kind
Re-nourish East Beach with sand sourced from Port of Port Fairy annual maintenance dredging program.	Ongoing	In Kind
Redevelop East Beach foreshore to provide useable and convenient public space during periods of beach inundation.	2020	\$1,500,000

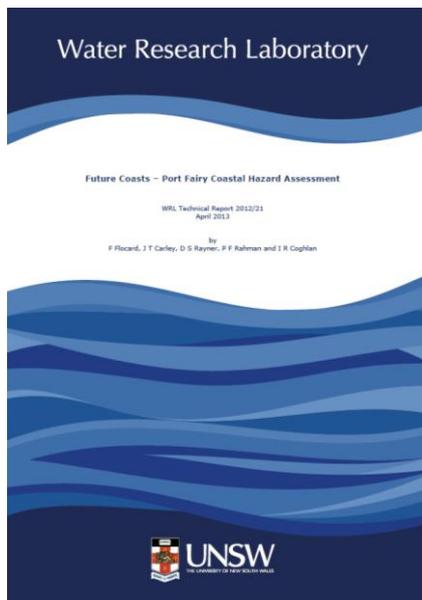
Current Status

Seawater washes over Ocean Drive and onto adjoining land during high seas. The frequency and severity of wave run-up along the southern coastline at Port Fairy is expected to increase as the climate changes and sea levels rise.

Relocating rocks at strategic points on the beach adjacent to Ocean Drive will prevent waves washing across the road.



Research



3. INUNDATION AT SOUTH BEACH

AIM: PREVENT WAVE RUN-UP IMPACTING ASSETS ALONG OCEAN DRIVE AND PORT FAIRY WEST

ACTIONS	TIMING ESTIMATE	COST ESTIMATE
Design shoreline restructure and obtain cost estimate	2019	\$40,000
Obtain approvals to reconfigure shoreline	2020	To Be Determined
Advocate for funding to reconfigure shoreline	2021	In Kind
Reconfigure shoreline	2022	\$500,000
Investigate methods to prevent seawater backing up storm water system	2020	\$20,000

Current Status



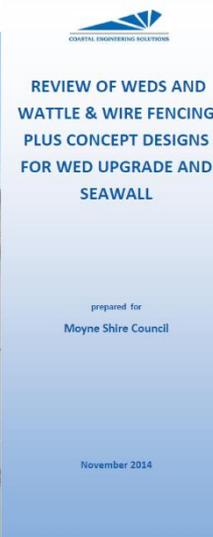
Two landfill sites were established in the sand dunes north of Port Fairy during a period when the dunes were considered to be stable. Over time the sand dunes eroded resulting in landfill waste being exposed.

Moyne Shire and Department of Environment Land Water and Planning (DELWP) manage a landfill site each. Moyne Shire Council manages the northern most landfill referred to as the 'Old Landfill'. The Department of Environment Land Water & Planning manages the southern most landfill referred to as the 'Night Soil Site'.

The estimated cost to remove the 100,000 tonnes of waste in the Old Landfill is \$22 million if the depth of the waste is up to 4 metres and is taken to Naroghid Landfill near Camperdown. This prompted DELWP and Moyne Shire to engage Geophysicists from MALA GPR Australia to complete "Dual-Array Electromagnetic" conductivity testing (DUALEM) to identify the presence of buried metal and "Ground Penetrating Radar" scanning (GPR) to determine depth of buried objects at both the Old Landfill and at the Old Nightsoil Site. This information will assist Tonkin Taylor Consultants with providing a report on the long term management options at both Landfills.

In May 2014 a low level breakwater – Wave Energy Dissipation Structure (WEDS) was constructed as a trial to protect the Old Landfill from erosion and a 'wattle and wire' sand trap fence was installed at the "Night Soil Site".

Research



AIM: ACTIVELY MONITOR AND MANAGE THE OLD LANDFILL AND NIGHT SOIL SITE TO PREVENT LANDFILL WASTE FROM ENTERING THE OCEAN

ACTIONS	TIMING ESTIMATE	COST ESTIMATE
Continue to monitor and maintain the WEDS.	Ongoing	\$2,000/year
Commission a technical report with recommendations for the long term management of the East Beach landfills.	2018	\$150,000
Monitor dune erosion in order to pre-empt a failure of the dunes.	Ongoing	In Kind
Establish an emergency management plan to initiate a rapid response to any breach of the landfills.	2018	In Kind

Research



Moyne Shire Climate Adaptation Plan 2017

Moyne Shire - a safe, vibrant, liveable, and prosperous community



Current Status

Council continues to repair beach access points, roads, car parks, bridges and river training walls damaged by sea storms.

Moyne Shire acknowledges that it is not viable to continually replace and repair damaged assets without taking into account the increasing impact of a changing climate.

The Moyne Shire Climate Adaptation Plan encourages Council service providers and asset managers to consider how to incorporate climate change into service delivery and asset management.



Pea Soup



Beach Access Ramp



South Beach Access Steps

AIM: INCORPORATE CLIMATE CHANGE CONSIDERATIONS INTO COASTAL ASSET MANAGEMENT

ACTIONS	TIMING ESTIMATE	COST ESTIMATE
Establish and maintain a GIS asset register of all Moyne Shire managed coastal assets.	2018	In Kind
Develop a coastal asset management plan to identify how assets are to be managed with regard to climate change.	2019	In Kind
Include climate change considerations into the development of coastal open space master plans.	2018	In Kind

Current Status

The Port Fairy Coastal Group (PFCG) was founded in 2011 by community members who were concerned about the erosion of beaches and sand dunes at Port Fairy. The group is comprised of volunteers who monitor and record beach profiles in Port Fairy every month and inform Council of significant changes.



The PFCG also lead students from local primary schools to monitor beach profiles at Pea Soup and South Beach.



Research

Beach monitoring uncovered a significant increase in dune erosion in 2013. PFCG were then able to alert Council and initiate immediate action.

In 2015 the PFCG conducted an extensive community survey to capture community concerns and ideas in relation to coastal management in Port Fairy. Key Learnings were:

- All respondents acknowledged there are issues on our coast;
- Protection of the environment and habitat and beach access/car parks should be the priority for funding; and
- Environmental Integrity is important to the community.



6. BEACH MONITORING

AIM: TO UNDERSTAND THE DYNAMICS OF THE PORT FAIRY BEACHES AND FACILITATE INFORMED DECISION MAKING

ACTIONS	TIMING ESTIMATE	COST ESTIMATE
Support the PFCG beach monitoring team by providing resources including the beach buggy, monitoring equipment and secure data storage.	Ongoing	\$1,000/year
Monitor dune stability at the Old Landfill on a six-monthly basis.	Monthly	In Kind
Partner with the PFCG to support continued community based monitoring of the coastline.	Annually	In Kind
Use Unmanned Aerial Vehicles to routinely obtain aerial imagery to monitor changes in beach profiles.	Ongoing	\$2,000/year
Establish photo points to monitor the sand dune containing the Old Landfill and the effectiveness of the WEDS.	2018	In Kind

Current Status

The Port Fairy Coastal and Structure Plan is one of two pilot projects that received State funding to translate a local coastal hazard assessment into strategic planning policy. In May 2017, Council sought community feedback on issues and opportunities for the Port Fairy Coastal and Structure Plan.

A public consultation on the draft Port Fairy Coastal and Structure Plan was held between 25 October and 21 November 2017. The plan will provide long term future land use and development framework for the township of Port Fairy to 2041.



AIM: PROVIDE A LONG TERM FUTURE LAND USE AND DEVELOPMENT FRAMEWORK FOR THE TOWNSHIP OF PORT FAIRY

ACTIONS	TIMING ESTIMATE	COST ESTIMATE
Adopt the Port Fairy Coastal & Structure Plan	2018	\$100,000
Commence process to amend the Moyne Planning Scheme	2019	

Conclusion

Coastal hazards are being experienced by communities all over the world. This document provides clear actions in response to research into the effects of climate change on coastal Port Fairy. No solution is ever final and any projects that are undertaken should be treated as a trial, with careful ongoing monitoring. It is important that we continually assess past successes and failures. This adaptation plan and the risk assessment undertaken in the discussion paper will assist in providing a resilient Port Fairy into the future.

List of Supporting Documents

Documents available for download at www.Moyne.vic.gov.au

- “Defend Port Fairy” – Port Fairy Coastal Climate Change Adaptation Plan - Discussion paper October 2017
- Port Fairy Coastal and Structure Plan (draft) November 2017
- Port Fairy Sand Sourcing Study – Coastal Engineering Solutions– May 2013
- East Beach Seawall Assessment & Design Concepts – Coastal Engineering Solutions – April 2013
- Future Coasts - Port Fairy Coastal Hazard assessment – Water Research Laboratory University of New South Wales – April 2013
- East Beach Coastal Erosion Engineering and Feasibility Study Peer Review - Aurecon – July 2010
- Port Fairy East Beach Coastal Erosion Engineering and Feasibility Study – BMT WBM – August 2007

Other supporting documents include:

- Moyne Shire Climate Adaptation Plan – Arup & Climate Resilient communities of the Barwon South West - 2017
- Pea Soup Beach Seawall Design Report – Coastal Engineering Solutions – September 2015
- Review of WEDS and Wattle and wire fencing – Coastal Engineering Solutions – November 2014
- Groundwater Assessment Report – Old East Beach Landfill – May 2014
- Ocean Drive Foreshore Protection – Coastal Engineering Solutions – February 2014
- Landfill Site Investigation Allotment 36A Griffiths Street Port Fairy – Senversa – October 2012
- East Beach Landfill Investigation – ENSR AECOM – March 2008
- Port Fairy Shoreline Stability Study – Coastal Engineering Solutions - October 2007
- Coastal Study of East Beach – WBM Oceanics Australia - 1997

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Vision

Moyne Shire will be a vibrant, liveable, and prosperous community.
People are diverse, resilient and feel happy and safe.

Purpose

To work responsibly with the community to provide opportunities,
respond to issues, look after assets, encourage investment and
empower communities to help themselves.

Local call number **1300 656 564**

SMS text number **0429 166 506**

Website **www.moyne.vic.gov.au**

Email **moyne@moyne.vic.gov.au**

Facebook **[@moyneshire](https://www.facebook.com/moyneshire)**

Twitter **[@moyne_shire](https://twitter.com/moyne_shire)**

