City of Casey

Climate Change in the City of Casey

Council and community working together

Projected Physical Impacts

Victoria's Largest and Most Vibrant Municipality

Projected impacts of climate change

The City of Casey may be affected by the impacts listed below. Council is building its understanding of climate change to plan for the future.

FIRE RISK WEATHER
The combination of higher maximum temperatures and evaporation rates, predicted reductions in annual rainfall and increase in drought may mean increased bushfire risk.

EXTREME TEMPERATURE
Average temperatures are predicted to increase, as is the incidence of extreme heat days and heat waves. Higher summer temperatures could impact on cooling systems, longevity of buildings and infrastructure and the health of our community.

RAINFALL & DROUGHT
The City is predicted to experience significant reductions in average rainfall resulting in decreased catchment stream flows and an increase in drought and drought severity.

RISING SEA LEVELS
Sea levels are predicted to increase. The effects of sea level rise will be most pronounced during extreme tides and storm events.

STORMS & FLOODS
The period between rains is predicted to extend and when it does rain, storm events are likely to be more extreme. Increased rainfall intensity may cause flash flooding and the strength and frequency of wind is predicted to increase.

Foreword

One of the most significant environmental issues confronting all levels of government in the 21st century is climate change.

Climate change results in changes to weather patterns and is partly caused by an increased concentration of greenhouse gases in the atmosphere. Changes in climate patterns are predicted to lead to an increase in extreme weather events such as heat waves, floods, storms, droughts and bushfires.

The City of Casey is taking a 'whole-of-Council' approach to the issue of climate change to ensure the risks to human health, the natural environment and community assets and infrastructure, are minimised.

Under the key direction 'Achieving an Environmentally Sustainable Casey' in the Council Plan 2009-2013, Council is taking steps to plan, prepare and adapt to the effects of climate change and helping our community understand the impacts of a changing climate. This booklet forms part of that commitment.

The City of Casey is working closely with other Councils in the region through the South East Councils Climate Change Alliance (SECCCA) to explore and address climate change. In 2008 SECCCA (formerly called the Western Port Greenhouse Alliance) oversaw one of five climate change projects in Australia that investigated the scientific, economic and social impacts of climate change. The result was a report called *People, Property and Place — Impacts of Climate Change on Human Settlements in the Western Port Region: An Integrated Assessment* which included CSIRO projections on sea level rise, rainfall, storm surge, temperature and fire weather.

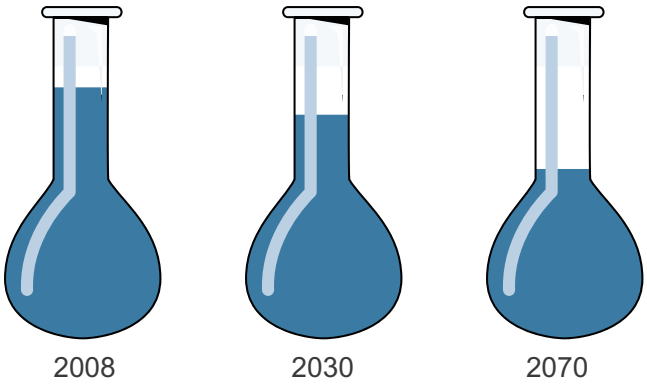
The information in this booklet is based on the CSIRO work, but it is important to note that these are projections only. The City of Casey is continuing to build its understanding of the possible impacts of climate change. As more information becomes available, we will assess the implications for the municipality and develop actions to respond to climate change impacts. Education and community engagement programs will be an important part of this effort.

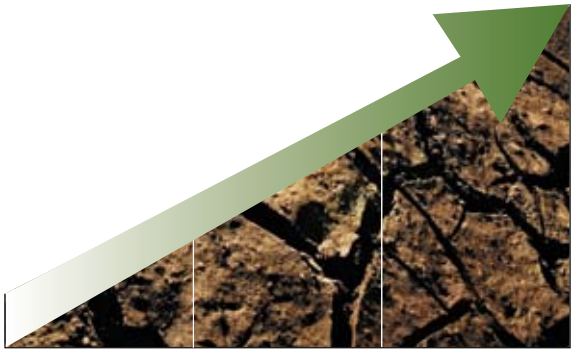
Whilst Council is preparing for the future of our municipality it's important to remember that there are little things everyone can do in their daily lives to reduce the effects of climate change, so look out for the handy hints throughout this booklet to see how you too can prepare.

Cr Lorraine Wreford
Mayor, City of Casey

Rainfall & drought

Under CSIRO's projections, the City of Casey is predicted to experience significant reductions in average annual rainfall resulting in decreased catchment stream flows and an increase in drought frequency and drought severity.





AVERAGE RAINFALL DECREASES

Average annual rainfall is predicted to decrease by 8% in 2030, and decrease by up to 23% in 2070.

DROUGHT INCREASES

Droughts are predicted to increase in frequency and severity.

Potential impacts on the City of Casey

- Increased drought frequency and severity.
- Drying of wetlands, creeks, water bodies.
- Management issues for parks and gardens, recreational areas (playing fields).
- Increased water prices.
- Impact on water-dependent businesses (nurseries, garden services, water suppliers and retailers).
- Impact on infrastructure/maintenance costs.

What the City of Casey is doing about it

City-wide water resource management
- Drought-tolerant turf types on playing fields and centralised irrigation systems for efficient water-use.
- Rainwater tanks for sports pavilions/club rooms.

Alternative water sources
- Use of recycled water to irrigate sports grounds and tree plantings.
- Encourage the adoption and use across the City of recycled Class A water for industry, agriculture and recreational purposes.

Public facilities
- Inclusion of rainwater tanks in many of the City's building refurbishment works.

Paths & Roadways
- Regular maintenance and reseal program to maintain/improve current road surfaces.
- Planting of drought and heat tolerant landscapes in public open space.

More information

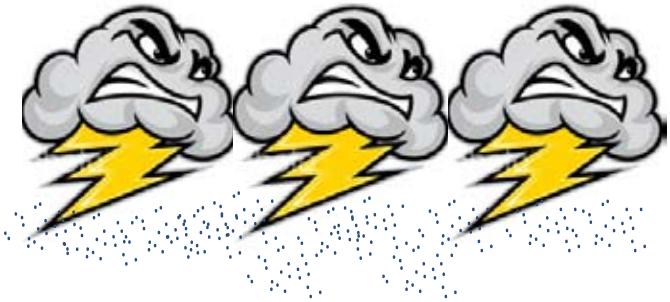
Bureau of Meteorology – www.bom.gov.au
City of Casey – www.casey.vic.gov.au

Note: diagrams are indicative only

Storms & floods

With increased frequency and severity of drought, the period between rainfalls increases. When it does rain, storm events are predicted to be more intense as the rain that does fall occurs in a shorter time. Increased strength of wind is also predicted.

NOW



FUTURE - Storm events predicted to be more extreme and predicted increase in flooding frequency and severity.

Potential impacts on the City of Casey

- 3,800 residential and 210 industrial and commercial properties are predicted to be at risk of increased local flooding.
- Increased impact on public infrastructure including schools, facilities, halls, reserves and parks.
- Increased impact on roads, drainage, sewerage, water and rail infrastructure.
- Increased emergency and medical services demand and cost.
- Disruption to transport services, electricity and telecommunications infrastructure.
- Reduced agricultural production.
- Health impacts related to disruption of water and sewerage services.
- Stress and social disruption to residents.
- Low-quality buildings, people with low income, ill-prepared or under-insured homes or businesses, properties with large trees potentially vulnerable.
- Communities at risk: much of the east and south sections of the City.

What the City of Casey is doing about it

Coastal Management Plans
- Development of a long-term vision and protection of foreshore reserves, environmental, heritage and recreational values.

Storm water and flood water run off
- Artificial wetlands to 'filter' stormwater/floodwater.

Infrastructure
- Unsealed roads program to prioritise and plan for construction of sealed roads to minimise environmental effects including erosion and gravel and sediment run-off.
- Proper maintenance of stormwater and drainage systems.

Emergency response
- In times of emergency the City of Casey activates its Municipal Emergency Management Plan at the request of Victoria Police.

More information

State Emergency Service Victoria – www.ses.vic.gov.au
The Commonwealth Government's flood ready website – www.floodready.gov.au
City of Casey – www.casey.vic.gov.au

Note: diagrams are indicative only

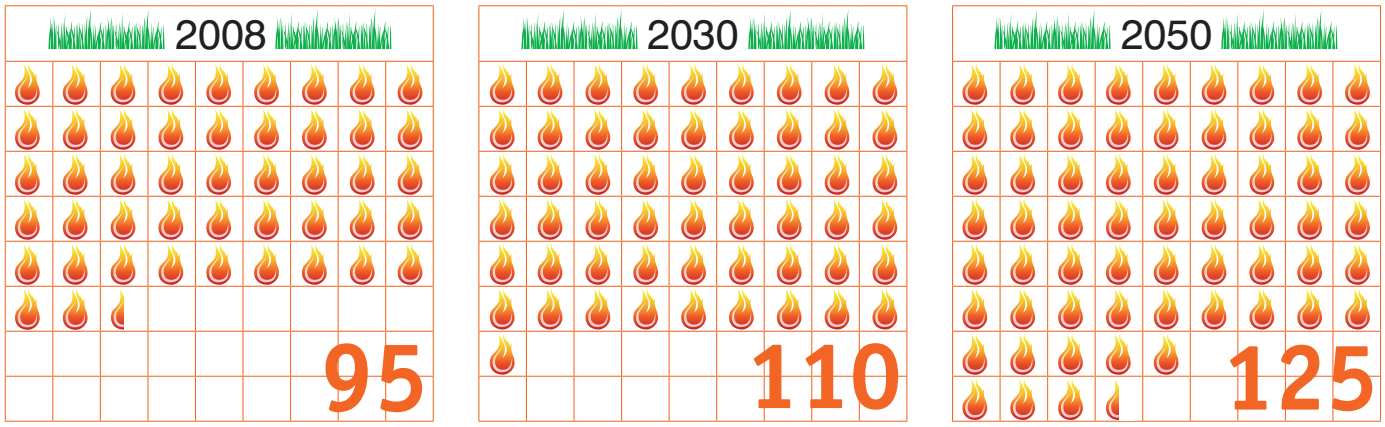
Fire risk weather

With the combination of higher maximum temperatures and evaporation rates, along with possible reductions in annual rainfall and increase in drought, increased fire risk weather has the potential to affect people, homes, infrastructure, major transport corridors, electricity supply and required emergency services.

Potential impacts on the City of Casey

- Impacts on public facilities including schools, reserves and parks.
- Roads and railways exposed to increased fire risk.
- Demand for emergency response, medical assistance and recovery increased.
- Community anxiety.
- Health impacts including decreased air quality and potential loss of life.
- Communities at risk: settlements in bushfire prone areas, elderly households that might have difficulty defending their own homes.

WILD FIRE RISK DAYS PER YEAR



equals two days

The number of severe, extreme and catastrophic (code red) wild fire risk days are predicted to increase from about 95 days per year currently, up to 110 in 2030 and up to 125 days per year in 2050.

What the City of Casey is doing about it

Measures to reduce fire incidence
- Annual fire prevention inspection program.
- Increased funding for fire prevention works.
- Implementation of the Municipal Fire Management Plan.
- Implementation of the Fire Management Communications Plan.

Integrated approach/partnerships
- All fire agencies, councils and non-government organisations who have a responsibility to deal with fire work in a co-ordinated cohesive approach to fire management. Integrated information from all agencies is also more useful to fire fighters and the community.
- Support the development of Township Protection Plans.

Emergency response
- The City is working with emergency services, government agencies and community groups to prevent or reduce the causes or effects of emergencies.
- Implement the Municipal Emergency Management Plan to manage the activation and coordination of municipal resources in response to emergencies, the arrangements for the provision of assistance to the community during recovery from emergencies.
- Installation of water tanks for use by Emergency Services in communities subject to wild fire threat.

Assistance to community
- Development and distribution of “A Resilient Casey” booklet to assist residents prepare for recovery from emergencies.
- Provide linkages via Council website to up-to-date information on fire risks.

More information

Country Fire Authority – www.cfa.vic.gov.au
City of Casey – www.casey.vic.gov.au

Note: diagrams are indicative only

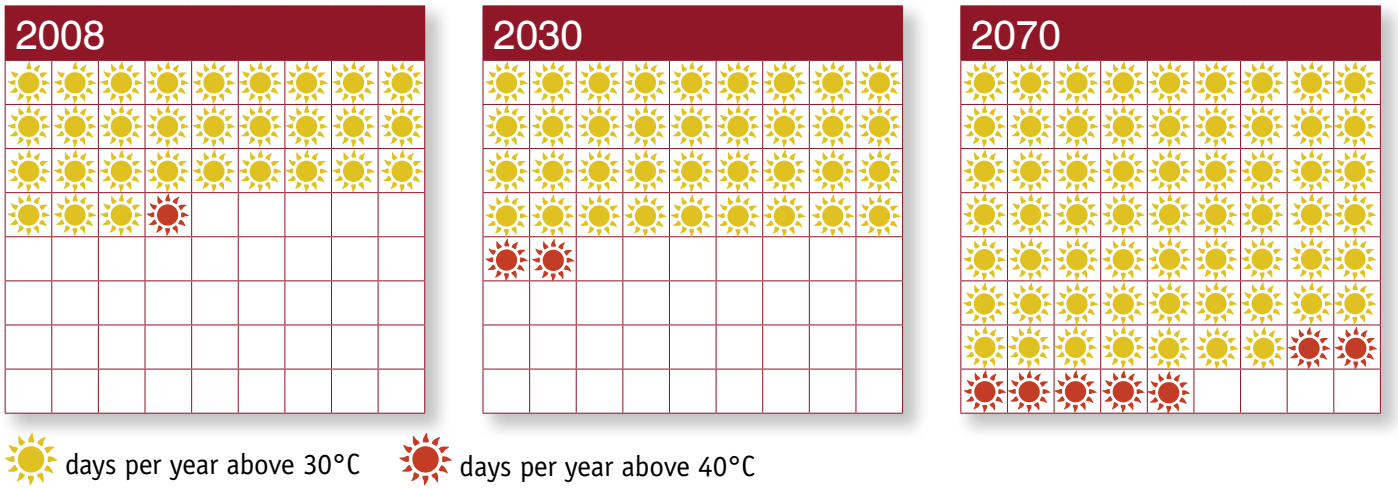
Extreme temperature

Average temperatures have increased 0.9°C since 1950, with significant regional variations. The frequency of hot days and nights has increased and the frequency of cold days and nights has declined.

The increased incidence of extreme heat days and heat waves, in conjunction with a growing and ageing population in the City of Casey, has the potential to contribute to significant mortality in future decades.

Higher summer and winter temperatures will also impact on the heating and cooling used by residents and businesses, resulting in an increase in greenhouse gas emissions from increased electricity usage.

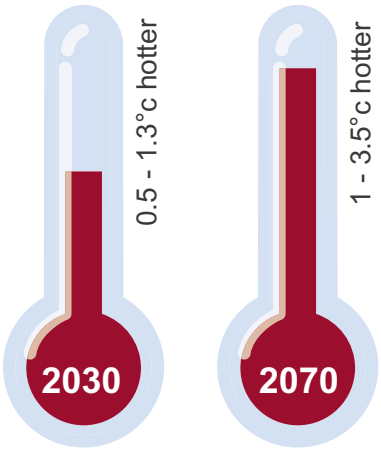
Rising temperatures may also affect the longevity or degradation of building materials and infrastructure.



Average annual temperature is predicted to increase by up to 1.3 degrees in 2030, and up to 3.5 degrees in 2070.

The number of days above 30 degrees is predicted to increase by up to six in 2030 and up to 25 in 2070, while the number of days above 40 degrees is predicted to increase by one day in 2030 and up to five days in 2070.

Heat waves occur when there are runs of consecutive hot days. In the Western Port region, runs of three to five days where the temperature is at least 30 degrees occur, on average, three times each year. By 2030, this is predicted to rise to five and in 2070 up to seven — heat waves are expected to be more common.



AVERAGE TEMPERATURE PROJECTIONS

Note: diagrams are indicative only

Potential impacts on the City of Casey

- Ability to affect entire population, with the elderly and infants more susceptible to heat stress.
- Increased number of power outages in summer.
- Increased energy costs (to cool homes, businesses, schools, etc).
- Roads, railways and building materials sensitive to high temperatures.
- Residents in homes with little insulation or shading vulnerable.
- Communities at risk: areas with high concentration of elderly and infants/young.

What the City of Casey is doing about it

Heat wave response

- The City of Casey has developed procedures to identify and support isolated elderly residents.

Paths and roadways

- Planning for the effects of extreme temperature on roads and paths through work programs and the selection of construction materials.

Community

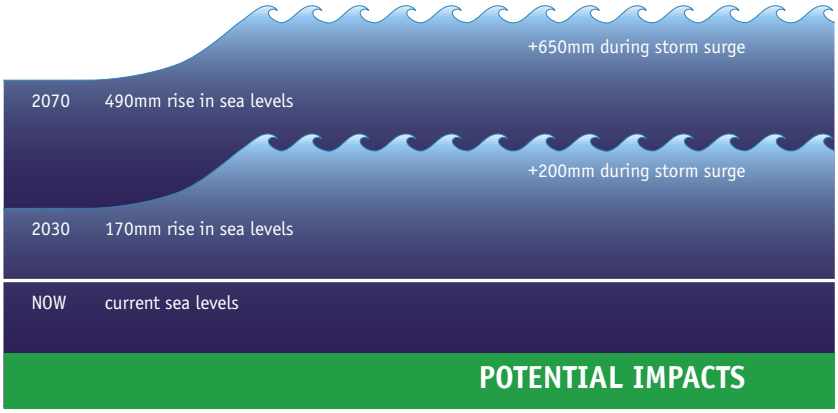
- Maintaining contact with Health and Community Care clients during extreme temperatures or natural emergencies.
- Annual assessments of sporting ground surfaces to limit potential for injury resulting from drought.
- Development of behaviour change programs at the Cranbourne East sustainability hub in partnership with SECCCA.

More information

Department of Human Services, Victoria – www.dhs.vic.gov.au
City of Casey – www.casey.vic.gov.au

Rising sea level

The effects of sea level rise are predicted to be most pronounced during extreme tide and storm events.



Sea level is predicted to rise up to 490mm in 2070, and in the event of storm surges, are predicted to increase storm tide up to 650mm. This is consistent with the data in the Victorian Coastal Strategy, with the projections to plan for a sea level rise of not less than 0.8 metres by 2100.

Potential impacts on the City of Casey

- Impacts on low lying residential and commercial properties due to flooding. Damage or loss of beaches, coastal wetlands and foreshore reserves and their amenities.
- Potential to damage roads, foreshore and boating facilities, and cause drainage problems.
- Impacts on businesses dependent on beach-related tourism.
- Low income households vulnerable through under-insurance.
- Communities at risk: particularly Warneet and Tooradin.

What the City of Casey is doing about it

Coastal management plans
- Planning for areas prone to storm surge and coastal flooding.

Boating and coastal action plans
- Long-term planning for safe boating and harbours.

Planning schemes
- Renewing zoning and development laws regarding coastal areas.
- Advising applicants of risks in flood prone areas.

Storm water and flood water
- Artificial wetlands to 'filter' stormwater/floodwater before it reaches the sea.

Working with state government
- The City is working with the state government's Future Coasts project to increase our understanding of how climate change will impact on the coastline around Western Port. The information will be used for future planning.
- Participating in the Melbourne Water Floodplains Management Review.

More information

Victoria's climate change website – www.climatechange.vic.gov.au (click on Future Coasts link on this page)
Bureau of Meteorology – www.bom.gov.au
State Emergency Service Victoria – www.ses.vic.gov.au
City of Casey – www.casey.vic.gov.au

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How you can contribute to reducing greenhouse gases

1. Be part of the solution
Learn more at www.seccca.org.au. Check out the answers to frequently asked questions – download page at http://www.seccca.org.au/ppp.asp

2. Turn off electrical devices
Simply turning off your television, DVD player, stereo and computer when you're not using them will save you thousands of kilograms of carbon dioxide a year.

3. Plant a tree
A single tree will absorb one tonne of carbon dioxide over its lifetime.

4. Move your thermostat down two degrees in winter and up two degrees in summer.
You could save about 900kg of carbon dioxide a year with this simple adjustment.

5. Avoid products with a lot of packaging
You can save 545kg of carbon dioxide if you cut down your garbage by 10%.

6. Use less hot water
It takes a lot of energy to heat water – use less hot water by installing an energy efficient triple A rated showerhead (3 tonnes of carbon dioxide saved per year) and washing your clothes in cold or warm water (225kg saved per year).

7. Check your tyres
Keeping your tyres inflated properly can improve your car's fuel efficiency. Every litre of petrol saved keeps 2.5kg of carbon dioxide out of the atmosphere!

8. Recycle more
You can save 1000kg of carbon dioxide per year by recycling just half of your household waste.

9. Drive less
Walk, bike, carpool or take public transport more often. You'll save 1.5kg of carbon dioxide for every 5km you don't drive!

10. Change a light
Replacing six regular light bulbs with compact fluorescent light bulbs will save 400kg of carbon dioxide a year.

For more information visit the City of Casey website www.casey.vic.gov.au

For more information about the City of Casey's climate change adaptation initiatives please contact the City on: 9705 5200 or e-mail caseycc@casey.vic.gov.au

The report *Impacts of Climate Change on Settlements in the Western Port Region: An Integrated Assessment* project is a two-year project examining climate change impacts on the region's built environment and communities as well as local adaption responses to those impacts. The project was funded by the Commonwealth Department of Climate Change through its Human Settlements sub-programme and the Department of Sustainability and Environment (Victoria) and co-managed by the Western Port Greenhouse Alliance and Marsden Jacob Associates. For more information about the report please refer to the South East Councils Climate Change Alliance website at: www.seccca.org.au

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City of Casey

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