Waverley's Climate Scenario

Human activities are causing atmospheric concentrations of heat-trapping greenhouse gases to rise higher and faster than the past two million years. This is driving changes in the frequency, intensity, and duration of different weather events and patterns in Australia.

Australia's climate has warmed consistently since 1910. Rainfall is declining in the southeast, most notably in winter, extreme fire weather has increased, and oceans are acidifying, warming and expanding. Sea level rise and more frequent extreme weather events are increasing the risk of inundation and damage to coastal infrastructure and communities.

The impact of intensifying natural hazards, under rising global greenhouse gas emissions, increases climate change risks to human health and wellbeing, ecosystems, infrastructure and services, and will significantly impact our economy through damage costs.

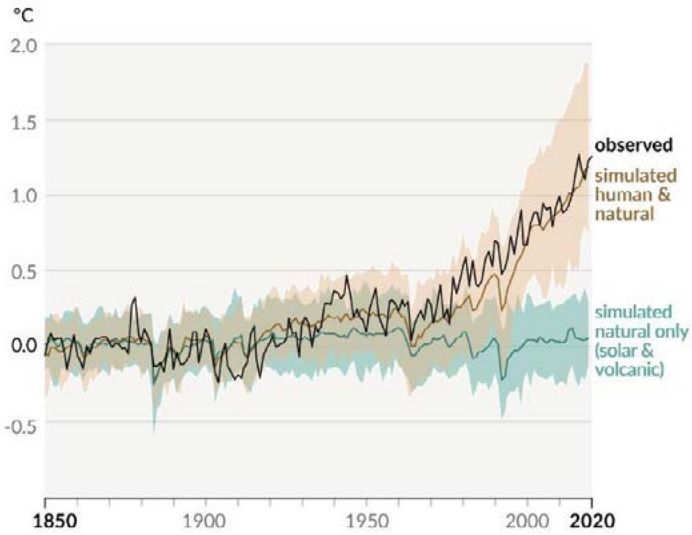


Figure 1- Change in global surface temperatures (Intergovernmental Panel on Climate Change 2021)

But while climate change is a global phenomenon, the impacts of climate change are experienced locally. So local responses are fundamental to planning, preparing and managing to local climate change impacts.

Historically, Waverley has warm to hot summers and mild to cool winters. Seasonal variation is minimal due to our coastal location. Annual rainfall is ~1200mm with significant variability year on year (between 809mm-2165mm over the last 50 years).

Going forward Waverley can expect:

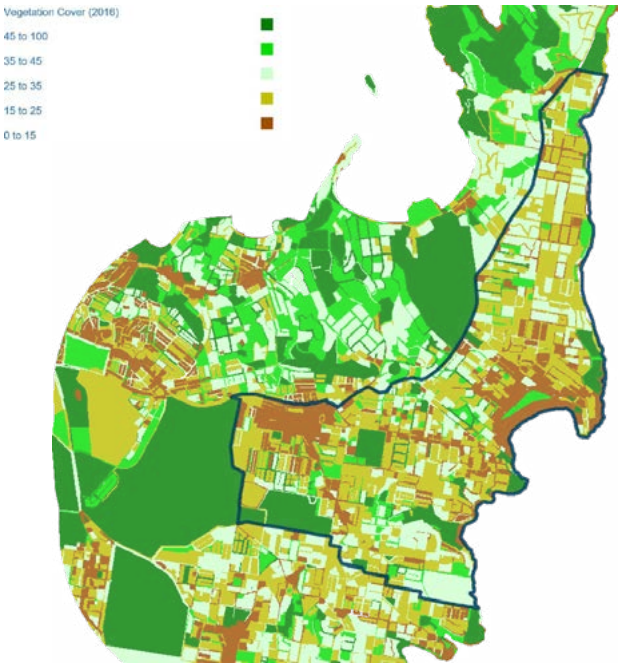
- Average temperatures to increase yearly
- More frequent extreme heat (days above of 35°C)
- Extended drought periods
- Changing seasonality of rainfall
- Increased intense rainfall events
- Increased air quality risks associated with regional bushfire
- Longer summers and shorter winters, with a likelihood of increased storm activity in Summer and Autumn
- Increasing coastal risks. Under current emission rates, Sydney's mean sea levels are projected to rise 15cm by 2030 and 50cm by 2070, but storms and wave setup can also increase local water levels (BMT 2021).

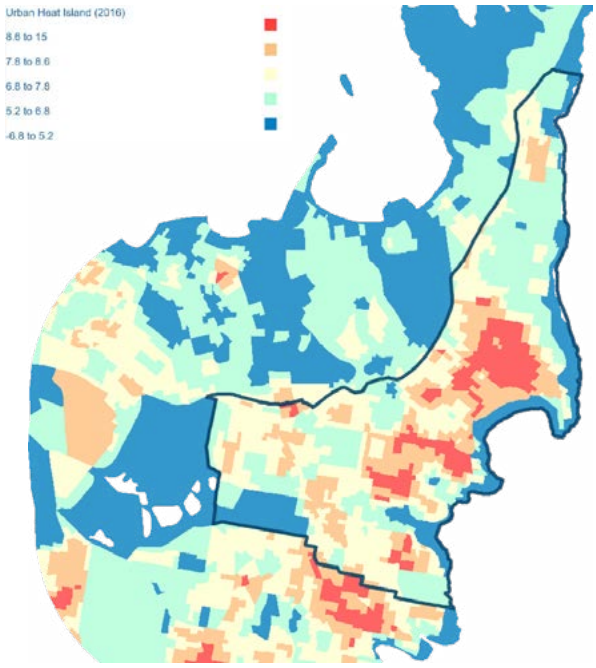
How can we Plan and Respond?

It's important we plan to reduce climate related vulnerabilities in Waverley now, as risks are likely to increase in the future. Planning and responding to changes in climate can involve adaptation to practices, policies, designs and materials. There is no single solution, but by working together with community, business and government we can increase our climate resilience.

We can:

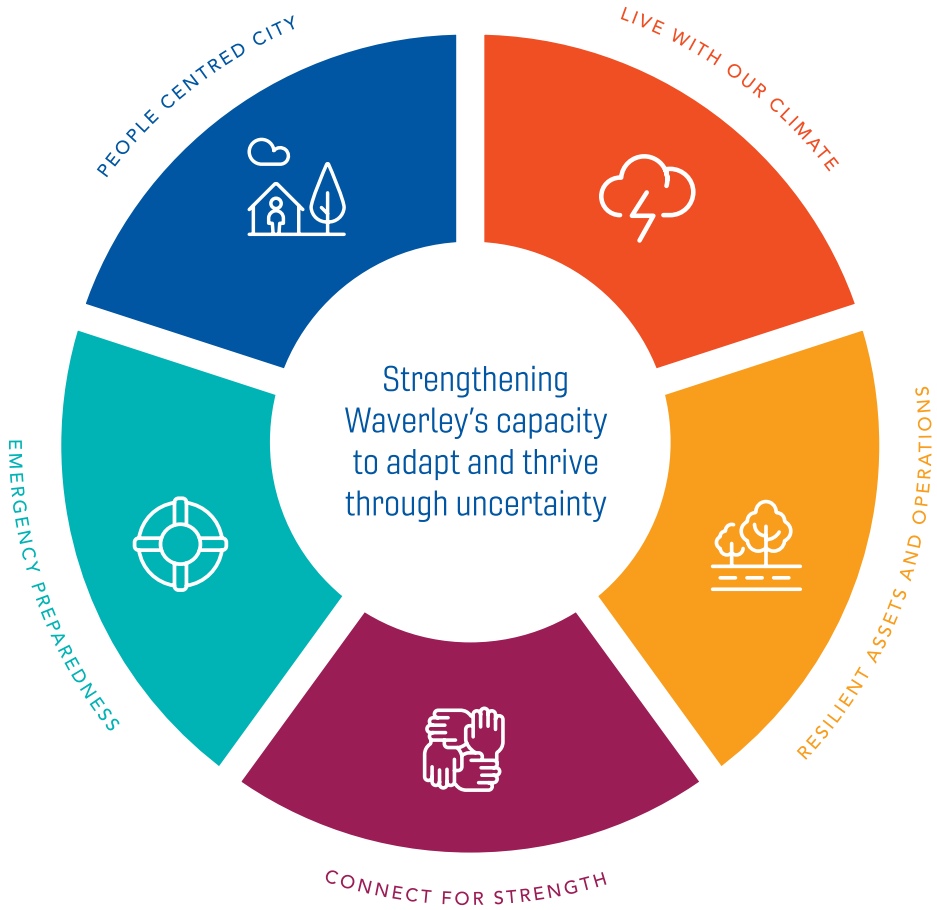
- Increase and protect urban vegetation to provide cooling and health and wellbeing benefits
- Engage with communities to prepare for emergencies resulting from extreme weather
- Ensure appropriate design of buildings (e.g. shaded windows, insulation and effective ventilation).
- Protect essential services at risk from climate hazards (e.g. transport, telecommunications and water infrastructure).
- Identify thresholds for unacceptable change in natural areas.
- Incorporate future sea level rise risk into coastal infrastructure planning.
- Develop community led responses to build neighbourhood resilience to climate change.





Maps of Waverley Council showing the correlation between Vegetation Coverage and Urban Heat Island Effect, where colour represents degrees of temperature difference to a natural surface (vegetation) on a hot day. (NSW DPIE 2019)

Waverley's Resilience Framework



Community aware & Safe
Local Emergency Management officers

Access & opportunity
Strategic Planning

Reduce climate risks
Environmental Sustainability

Resilient Systems
Asset Management

Improve social cohesion
Community Programs

References for Waverley's Climate Scenario on pages 4 and 5

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