


Climate Change Adaptation Snapshot Greater Melbourne



The Greater Melbourne region encompasses the Melbourne CBD, outer suburbs and growth corridors, Port Phillip and Western Port Bays, Mornington Peninsula, the Yarra Ranges, the Dandenongs and the Western Grasslands.

What are the regional climate change adaptation snapshots?

In 2017 the Victorian Government committed another \$9.3 million over three years to support regional solutions through the *Supporting our Regions to Adapt* program. To ensure this funding addresses the most critical needs, officers from the Department of Environment, Land, Water and Planning (DELWP) examined regional impacts of climate change and existing adaptation projects and strategies. Officers spoke to community members, businesses, researchers and government bodies in each region and assessed priorities for communities based on the impacts they're facing as well as their needs and values.

In early 2018, DELWP completed climate change gap analyses in six regions across the state. This report presents a high-level summary of the analysis in the Greater Melbourne area. It provides a snapshot of impacts, actions, gaps and priorities in the region.

Climate change impacts are already being felt in Victoria—and successful adaptation requires solutions that are identified, owned and driven locally.

Within Victoria, communities, industry and local government are already leading the way.



State of climate change adaptation in Greater Melbourne 2018

Over the last year, DELWP Regional Officers conducted a high-level overview of the climate change adaptation projects already under way. We held discussions and surveyed people in community groups, not for profit organisations, education, transport, agriculture, local government, health, natural environment, water and emergency services sectors.

In our region, people's understanding of potential climate change impacts is generally high. Among those impacts, they're most worried about the effect on community health and wellbeing, business operations and productivity, building and infrastructure integrity, as well as transport and communication. Eight out of ten people in the Greater Melbourne Region are concerned about climate change, according to research by Sustainability Victoria in 2017.

We looked at over 150 adaptation projects in the region. We know there are many more. Some key areas of focus include the impact of extreme heat on the most vulnerable, tackling the urban heat island effect, and improving stormwater harvesting and irrigation.

What we heard: regional priorities

People identified many actions or projects that could help our region adapt to climate change. This is some of what we heard:

INFORMATION

Communities and local governments can have difficulty interpreting climate information and may have insufficient resources to access and use up to date data.

Actions: Improve information quality and reframe it into scenarios and tools to support future planning.

HOLISTIC RESPONSES

Groups need to work together to ensure adaptation responses are complementary, known risks are integrated into strategic management and frameworks support the transition process.

Actions: Ensure long term risks are incorporated, and facilitate sector/industry forums for capacity building.

ENGAGING COMMUNITIES

Interconnected networks and information services are needed to help our region engage and inform residents/sectors about climate change impacts and adaptation practices.

Actions: Develop a communications and engagement strategy for the region, to provide opportunities for vulnerable groups to learn about climate change risks and adaptation options.

VULNERABLE GROUPS

Vulnerable people in our region require specific, targeted efforts to ensure they have the information and resources to respond to extreme climatic events.

Actions: Provide tailored information in accessible formats, and encourage private and philanthropic organisations to extend their support to vulnerable groups.

BUILT ENVIRONMENT

Sectors and organisations talked about the need to plan for a built environment with decreasing emissions and reduced exposure to climate shocks and stressors.

Actions: Provide resources, coordination and programs to assist building owners to address issues related to climate extremes. Support local governments to develop integrated approaches to asset and facility management.

PUBLIC TRANSPORT

An effective public transport system is critical for our city, and some risks have been identified for the network and users during climate extremes.

Actions: Plan for a reliable transport network during the transition to a decarbonised economy, develop an electric bus fleet, and provide shade and amenity at bus shelters.

COASTAL FRINGE

Our region has valuable natural and cultural assets and infrastructure that will become more exposed with sea level rise and extreme weather events.

Actions: More information sharing about the dynamic nature of the coast and its particular sensitivity to ongoing sea level rise and climate change.

EMERGENCY MANAGEMENT

Emergency management remains an ongoing priority in the context of a growing population and climate change.

Actions: Ensure local governments engage with Emergency Management Victoria and each other before, during and after emergency events.

Climate Change Adaptation in Victoria

To find out more about adaptation in Victoria

 [Victoria's Climate Change Adaptation Plan 2017-2020](#)

Values and perceptions

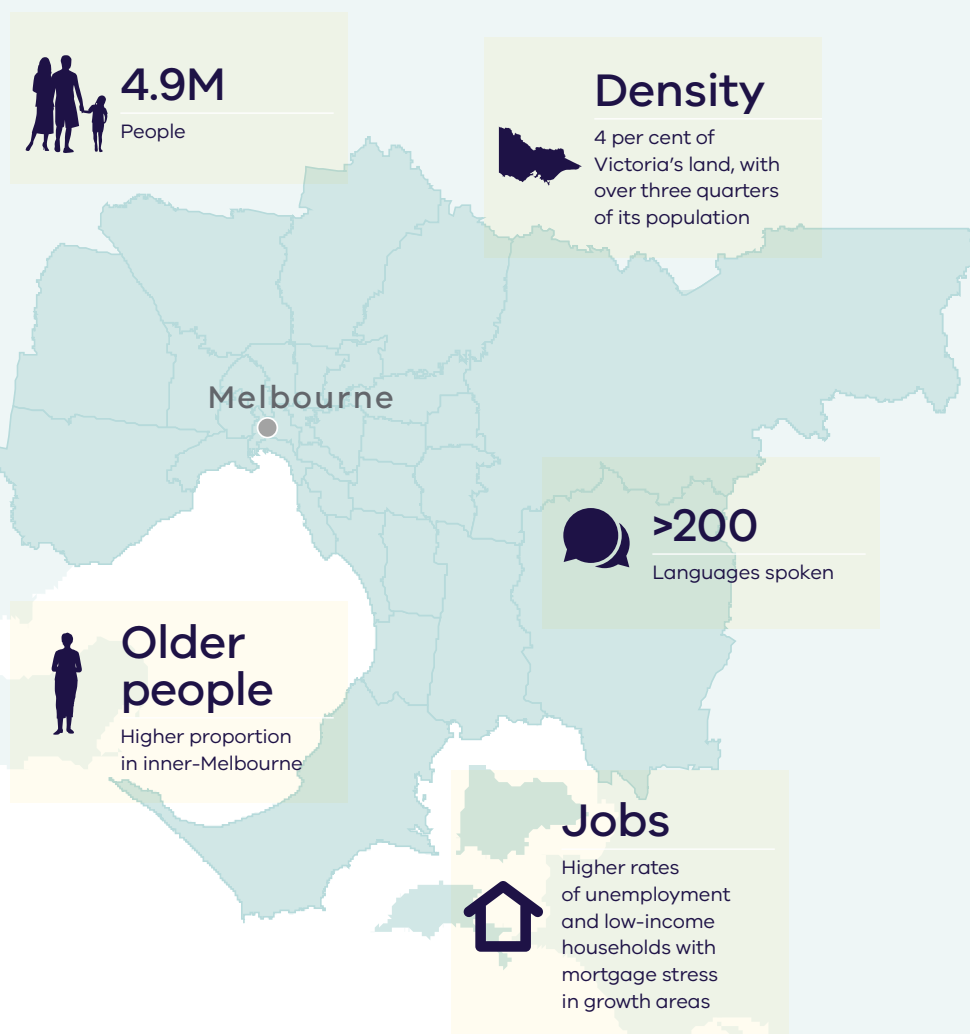
In late 2017 and early 2018, we held discussions and conducted a survey with people in business, education, transport, agriculture, local government, health, natural environment, water and emergency services. We also drew on the expertise of stakeholders embedded in the region, including local council greenhouse alliances, academics and industry bodies.

People's understanding of potential climate change impacts is generally high. Among those impacts they worry most about the effect on community health and wellbeing, business operations and productivity, building and infrastructure integrity, and transport and communication. To a lesser degree they're also troubled about what will happen to the economy, food and water security, energy, and the environment and biodiversity.

Most people expect their organisation to take action on climate change adaptation in the next five years. They look to government to set the agenda and provide leadership. They seek out partnerships—most often local government and universities—to better understand what they need to do. Government can improve adaptation by setting the agenda and providing leadership, funding adaptation initiatives, and facilitating research and knowledge sharing.

Trends across Greater Melbourne

Key demographic statistics









Greater Melbourne has been getting warmer and drier

In the future we can expect



Climate change sector impacts in the Greater Melbourne region

	BUILT ENVIRONMENT 	HEALTH AND HUMAN SERVICES 	PRIMARY PRODUCTION 
KEY CLIMATE IMPACTS AND RISK FACTORS	<ul style="list-style-type: none"> » Increasing sea level, storm surges and flooding » Increasing hot days, heat waves and fire weather » High vulnerability to urban heat island effect » Low-lying areas vulnerable to flooding 	<ul style="list-style-type: none"> » Increasing fire weather, solar radiation and heat waves » Increased risk of flash-flooding » Ageing population » Outer suburbs are among the fastest growing in Australia 	<ul style="list-style-type: none"> » Decreasing rainfall » Increasing temperature, hot days and fire weather » Altered growing seasons
POTENTIAL IMPACTS	<ul style="list-style-type: none"> » Increased flood damage » Increased maintenance costs and disruption to services » Extreme heat impacts » Road closures, changes in land value and insurance costs in low-lying areas 	<ul style="list-style-type: none"> » More pressure on health and emergency services » More heat-related deaths, particularly among the elderly and disadvantaged » Impacts on outdoor and sporting events » Risks to visitors unfamiliar with conditions » Increasing demands on emergency services 	<ul style="list-style-type: none"> » Earlier flowering and planting times » Changed distribution of pests and diseases » Increased bushfire risk in some areas » Changes in pasture growth » Impacts on water security
	NATURAL ENVIRONMENT 	TRANSPORT 	WATER 
KEY CLIMATE IMPACTS AND RISK FACTORS	<ul style="list-style-type: none"> » Increasing hot days and fire weather » Decreasing rainfall » Increasing sea temperature and ocean acidification » Unknown climate impacts on pollinators, flowering times and aquatic systems 	<ul style="list-style-type: none"> » Increasing sea level, storm surges and flooding » Increasing hot days, heat waves, fire weather » Public transport capacity already stretched, especially on key rail lines 	<ul style="list-style-type: none"> » Increasing sea level, storms and storm surges » Ageing infrastructure » Increasing population with increasing water demands
POTENTIAL IMPACTS	<ul style="list-style-type: none"> » Amplification of existing threats to plants and animals » Changes to habitat condition » Changing dynamics of invasive species, and arrival of new species » Coastal inundation and erosion » Impacts on marine life and associated tourism 	<ul style="list-style-type: none"> » Increased damage to road infrastructure from floods and other extreme events » Closures on arterial roads could disrupt supplies » Increased disruption to public transport services » Increased fuel and energy costs 	<ul style="list-style-type: none"> » Increased runoff and flash flooding » Storm water system unable to cope with extreme rainfall » Increasing droughts and reduced urban water supply » Increased water demand for horticulture

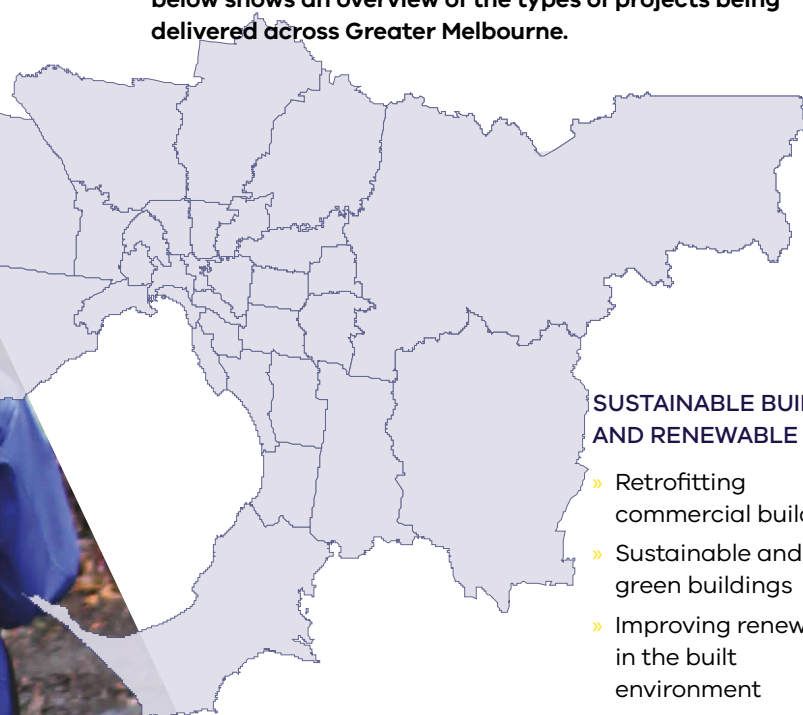
Greater Melbourne Climate Ready Fact Sheets

More on projected climate impacts for Greater Melbourne

 [Climate Ready Greater Melbourne](#)

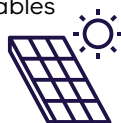
Climate action in Greater Melbourne

We reviewed many climate adaptation projects that covered a broad range of topic areas. The diagram below shows an overview of the types of projects being delivered across Greater Melbourne.



SUSTAINABLE BUILDINGS AND RENEWABLE PROJECTS

- » Retrofitting commercial buildings
- » Sustainable and green buildings
- » Improving renewables in the built environment



PROJECTS AIMED AT BUILDING SUSTAINABLE AND RESILIENT COMMUNITIES

- » Knowledge and capacity building
- » Green infrastructure projects
- » Planning & land management
- » Local Government adaptation planning



PROJECTS PROTECTING ECOSYSTEMS AND NATURAL ENVIRONMENTS

- » Protecting marine environments and wetlands
- » Ecosystem and biodiversity preservation
- » Climate-ready species selection, research and modelling



Virtual Centre for Climate Change Innovation

The Virtual Centre for Climate Change Innovation (VCCCI) has been established to strengthen Victoria's role as a climate change leader.



WATER PROJECTS

- » Climate modelling and risk assessment
- » Flood and drainage management
- » Stormwater harvesting and irrigation



PROJECTS IMPROVING PREPAREDNESS FOR CLIMATE CHANGE

- » Reducing the impacts of extreme temperature and heatwaves
- » Planning for the effects of urban heat
- » Flood management
- » Managing climate impacts on primary production



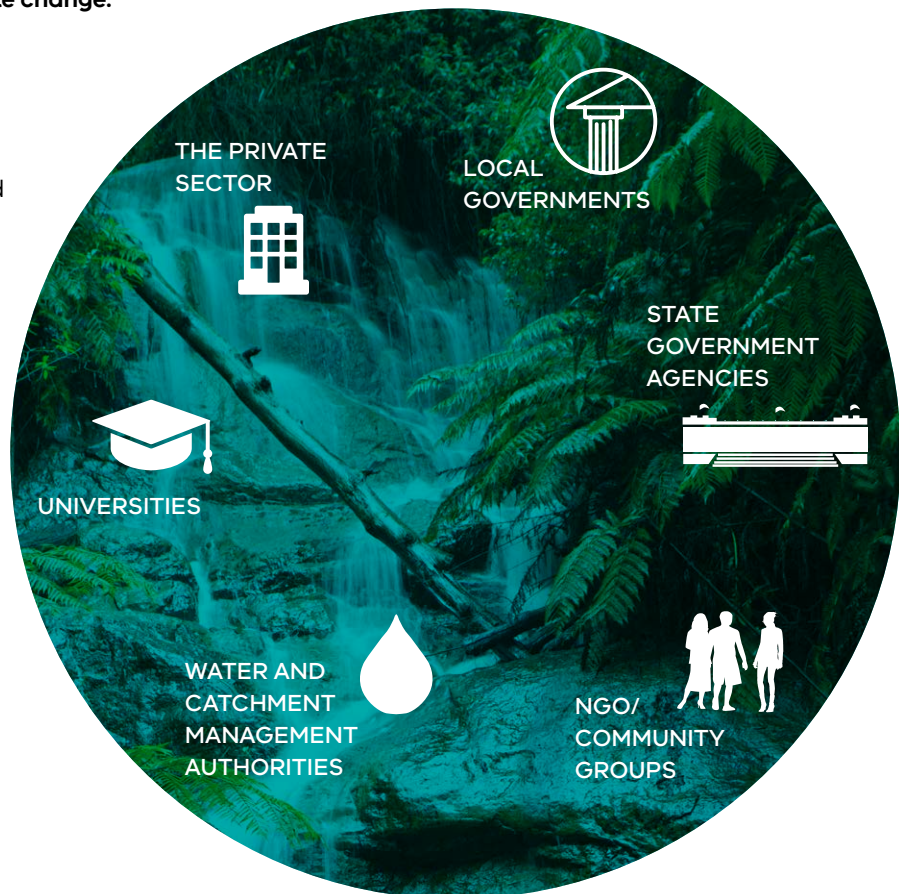


Who is delivering projects in our region?

Climate change actions have been taken in almost every economic sector in Greater Melbourne to adapt to, or mitigate, the impacts of climate change.

Projects have been led by a broad and diverse range of public, private and not-for-profit organisations.

The majority of projects identified as part of the Gap Analysis were led by state or local government and almost a third were led by universities, non-government organisations (NGOs) or community organisations.



Project spotlight: How Well Are We Adapting?

How Well Are We Adapting is an online monitoring, evaluation and reporting tool for eight councils in Melbourne's west. It has a public reporting section that allows residents to view information about climate change impacts in the region, as well as demographic profiles highlighting who's likely to be at risk from these impacts. It also has an internal reporting section, which supports local government decision-makers to track the impact of climate change and evaluate and report on their responses.

The Western Alliance for Greenhouse Action designed the framework to focus on learning rather than measuring success or failure. It evaluates processes and outcomes against objectives and historic baseline data. So far, the framework is being used to monitor councils' work in community wellbeing, emergency management, open space and water security.

Key climate change adaptation gaps for Greater Melbourne area

During the consultation, people identified key climate change adaptation gaps for our region. They identified the need for more information on climate change impacts, more coordinated and holistic adaptation responses, and the engagement of broader sections of the community. Some specific gaps are listed below:

Adaptation activities

- » insulating rental properties and medium density residential units against extremes of heat or cold
- » holistic approaches across planning schemes
- » planning for an equitable, reliable and accessible public transport system

Knowledge and understanding

- » understanding how adaptation relates to climate change impacts and the best methodology for adaptation plans and strategies to achieve consistency
- » understanding liability issues for local governments and statutory bodies in relation to climate change impacts
- » integrating climate adaptation information and actions within and across industry groups

Platforms and networks

- » a regional way for local governments to connect with each other
- » connecting local government with all portfolios impacted by climate change, not only the current limited connection with sustainability departments
- » linking electricity network planning and land-use planning

Adaptive capacity and capability

- » promoting community leadership to encourage local resilience by fostering trust, facilitating wide engagement, valuing different views, and integrating different types of knowledge
- » recognising and strengthening the role of the education and training sector in building adaptive capacity and capability in community and industry

Information and data research

- » modelling of storms, droughts, heat waves, floods, and sea level rise to understand their risks and assist with future planning
- » supporting environmental conservation bodies and land managers to take a regional view for conservation planning

Adaptation Challenges

Among the biggest challenges for the Greater Melbourne region are its population and demographics. By mid-century, we could number 8 million people and we'll be significantly older—one-fifth will be 65 and older, compared with just over one-eighth in 2011. These rapid changes will affect how we adapt to climate impacts.

Greater Melbourne has a significant population with many vulnerable people among them. Stakeholders told us these people are a priority. Making sure they aren't left behind will require bold and sustained effort, and involve two other key challenges our work identified: coordination and information sharing.

What's next?

The information gathered through the Greater Melbourne climate change adaptation gap analysis will inform priorities for action under the *Supporting our Regions to Adapt* program over the next three years.

This program will ensure government works in partnership with communities in the region. We'll collaborate to support action that reduces the risk presented by climate change and help Victorians meet the challenges and act on the opportunities of climate change.

**FOR MORE INFORMATION ON WHAT IS HAPPENING
IN GREATER MELBOURNE CONTACT:**

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Climate Action in Victoria

To find out about other
Victorian Government
climate actions visit:

climatechange.vic.gov.au

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