

EASTERN ALLIANCE FOR GREENHOUSE ACTION

# Climate Change Adaptation Roadmap 2022-25

## Acknowledgement of Country

The Eastern Alliance for Greenhouse Action (EAGA) represents eight councils in Melbourne's east, covering a large area of Traditional Land. Wurundjeri Woi-wurrung and Bunurong<sup>1</sup> are names for the Indigenous language groups of First Nations peoples whose lands cover the northern, eastern and south-eastern regions of Victoria. The approximate boundaries of these two language groups extend to the Wombat State Forest in the west, the Great Dividing Range to the north, the Upper Yarra mountains to the east, and a complex southern boundary, which was recently redrawn

EAGA acknowledges the Wurundjeri Woi-wurrung and Bunurong peoples of the Kulin Nation as the Traditional Owners and Custodians of the land on which EAGA councils occupy.

We pay our respects to their Elders past and present. We acknowledge and uphold their continuing relationship to this land and recognise that sovereignty was never ceded.

Eastern Alliance for Greenhouse Action, Melbourne, July 2022.

<sup>1</sup>Also known as the Bunurong, Bunwurrung, Boonwerung, Bunurowrung, Bururong and Boon Wurrung

### Statement by the Chair



**Cr Jude Dwight,** EAGA Chair, Knox City Council

As the third and final section of the latest IPCC climate science report

summons us with its clear "now or never" message<sup>2</sup>, it is an honour to endorse EAGA's Climate Change Adaptation Roadmap 2022-26. This updated plan comes off the back of the original Roadmap released in 2015. Since this time, the impacts of climate change have continued to intensify. In June 2021, parts of eastern Melbourne and Victoria experienced extreme storm and wind events, which toppled thousands of trees across the region and damaged hundreds of homes<sup>3</sup>. Around 220,000 homes were left without power for a number of days<sup>4</sup>. These local, extreme weather events come on top of national and global storms, floods, droughts and bushfires, underscoring the need for urgent climate action by all levels of government. While strong leadership and action by our state and federal leaders will be essential in building resilience within communities to cope with the impacts of a rapidly warming planet, councils can and must continue to play a leading role in both mitigation and adaptation.

EAGA's Adaptation Roadmap is intended to assist councils in planning and managing regional adaptation initiatives that would not otherwise be possible at the individual council level. EAGA's Roadmap has been updated to take into account the increased urgency for strong climate action, as well as to reflect practical changes that have occurred at the state and federal level in the intervening years. Planning for adaptation now will allow EAGA councils to take proactive steps to protect our community, places and assets from the increasing risks posed by climate change. The power of an alliance like EAGA is premised on our ability to act together. We've demonstrated this power through years of bold climate action. A collective approach to climate change adaptation will allow EAGA councils to deliver projects and action at increased scale and effectiveness, into the future.

<sup>2</sup>Intergovernmental Panel on Climate Change, Sixth Assessment Report, Climate Change 2022: Mitigation of Climate Change, the Working Group III, accessed 10 May 2022. https://www.ipcc.ch/ report/sixth-assessment-report-working-group-3/

<sup>3</sup>ABC News, Victorians count the cost after violent storm sends trees crashing through homes', 10 June 2021, accessed 31 March 2022, https://www.abc.net.au/news/2021-06-10/wild-weatherbatters-victoria/100203532

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## Introduction

As part of our commitment to good governance and transparency, in 2021, EAGA commissioned an independent evaluation of its first Climate Change Adaptation Roadmap to assess progress against its stated objectives within the context of a rapidly changing legislative and socio-economic environment. The review found that EAGA has generally made positive progress against most of the Roadmap's objectives, with some room for improvement. A key finding of the evaluation was that the objectives and the priorities should remain broadly similar to the original Roadmap, and that actions be explicitly focused around regional-level priorities and actions, rather than individual council action. Consequently, this Roadmap is an update of the original plan, rather than a completely new strategy.

It should be noted that a detailed risk assessment has not been repeated to accompany this revised Roadmap. Whilst most of the climate change risks have increased in severity over time, the risks themselves remain largely the same.

## Adaptation Context

A lot has changed since the Roadmap was first released in 2015. As carbon dioxide continues to accumulate in the atmosphere (now at 418 parts per million<sup>5</sup>) due to increasing rates of fossil fuel burning, the impacts of climate change continue to intensify in frequency and magnitude. Victoria has already experienced at least one degree Celsius of warming since 1910<sup>6</sup>.



<sup>5</sup>NASA, Carbon Dioxide latest measurement: February 2022, accessed 4 April 2022, https://climate.nasa.gov/vital-signs/carbon-dioxide/

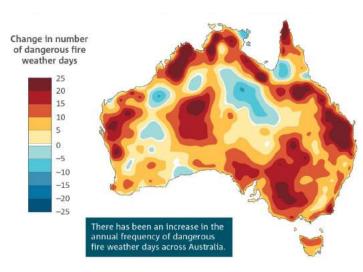
<sup>6</sup>Department of Environment, Land, Water and Planning (DELWP), Victoria's Climate Science Report Melbourne, 2019.

### Fire

Record-breaking bushfires destroyed twenty four million hectares of forest across Australia during the 2019-20 Black Summer fires<sup>7</sup>. In Victoria, 1.5 million hectares of public and private land was affected by fire<sup>8</sup>. Many parts of EAGA are located in high-risk bushfire areas. These risks will increase as a result of climate change (see Figure 1).

#### Figure 1

shows the number of days with dangerous weather conditions for bushfires<sup>9</sup>



\* This is based on the change in the annual (July to June) number of days between the two periods: July 1950 – June 1985 and July 1985 – June 2020 that the Forest Fire Danger Index exceeds its 90th percentile, which is an indicator of dangerous fire weather conditions for a given location

#### Floods

In Australia, concurrent floods and drought have caused widespread destruction across the east coast of country in 2022. With many parts of the EAGA region in high-risk flooding areas, flooding events will continue to increase in frequency and intensity as extreme rainfall events increase.

### Rainfall

Major weather and rainfall patterns have already changed notably. For example, rainfall in the northern parts of the state have increased during the warmer months and decreased in the southern half of the state (see Figure 2).

Cool season rainfall has declined across the whole state in the past 30 years (see Figure 2. Hot days, which are a key driver of hospitalisations and death in Australia<sup>10</sup>, have also increased between 1910-2019, particularly in the past 30 years (see Figure 2).

<sup>7</sup> National Recovery and Resilience Agency, Bushfires - Black Summer, accessed 20 July 2022, https://knowledge.aidr.org.au/resources/black-summer-bushfires-vic-2019-20/ <sup>8</sup> Ibid

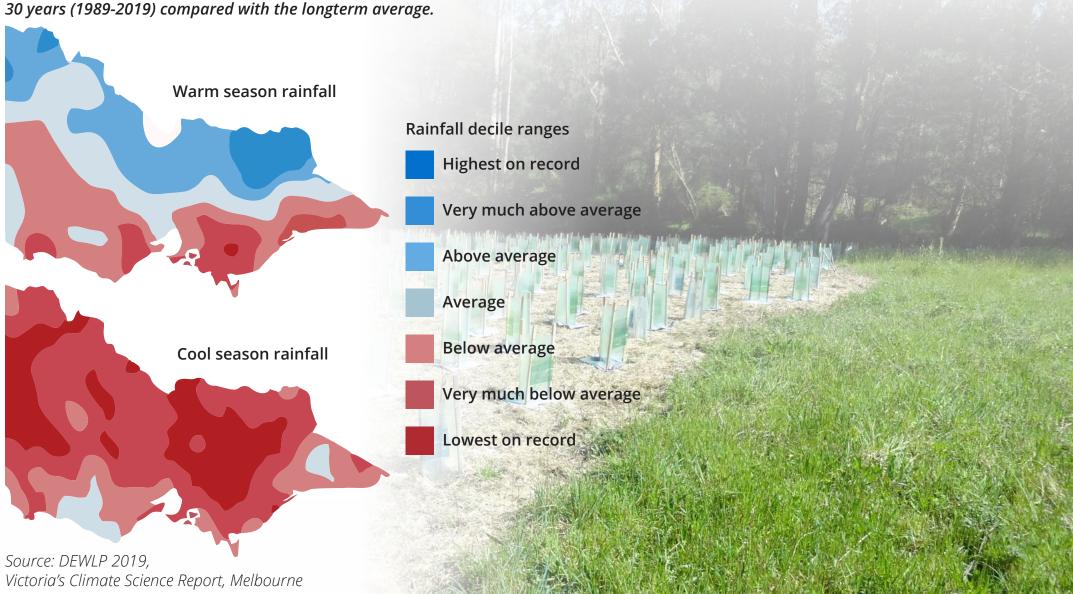
<sup>9</sup> Bureau of Meteorology 2020, State of the Climate 2020: Australia's changing climate, accessed 12 September 2022, http://www.bom.gov.au/state-of-the-climate/australias-changing-climate.shtml

<sup>10</sup> Gissing, A, and Coates, L., Heatwaves are Australia's deadliest natural hazard and many of us are unprepared, ABC News, 8 January 2018, accessed 31 March 2022, https://www.abc.net.au/news/2018-01-18/heatwaves-australias-deadliest-hazard-why-you-need-plan/9338918

## Adaptation context

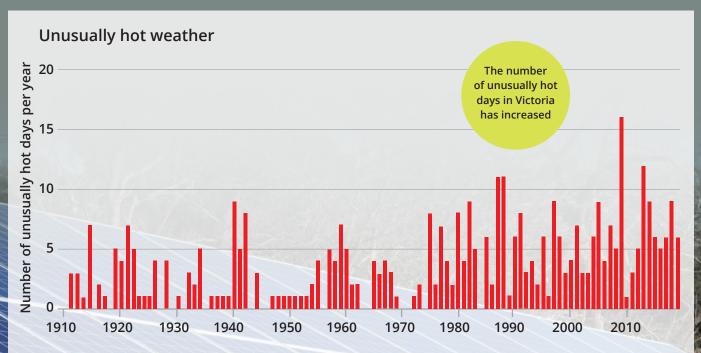
### Figure 2

Changing Victorian rainfall patterns over the past 30 years (1989-2019) compared with the longterm average.



## Adaptation context

## *Figure 3* Extreme heat events in Victoria 1910-2019



Source: DEWLP 2019, Victoria's Climate Science Report, Melbourne

### Federal

Following years of advocacy from communities and councils across Australia for bold climate action from our federal leaders, the 2022 federal election saw a number of new politicians elected to parliament who ran on a strong climate action platform. While the newly elected Albanese Government has pledged to cut Australia's emissions by 43 percent on 2005 levels by 2030, EAGA will continue to push for the federal government to strengthen its national emissions reduction target to be consistent with the latest science.

### Victorian

Victoria was one of the first jurisdictions in the world to legislate a net-zero emissions target with the Climate Change Act 2017 (the Act). The Act requires the Victorian Government to develop plans addressing the impacts of climate change and identifies seven key systems that each require an Adaptation Action Plan (AAP). The AAPs are complemented by six Regional Adaptation Strategies (RAS) that are 'place-based' frameworks for driving regional adaptation initiatives. Whilst the RAS for Greater Melbourne encompasses the EAGA region, the RAS is a cross sectoral framework with action areas that are aligned to this Roadmap in various ways. This coordination is a result of the intensive work of the RAS stakeholder committee comprised of representatives from EAGA and the Victorian Greenhouse Alliances.

### Local government

Under the Local Government Act 2020 and Climate Change Act 2017, Councils have a 'duty of care' to manage foreseeable risks. The Victorian Government's legal review of the obligations of councils identified that failure to act on known risks may leave councils open to claims of negligence.<sup>11</sup>

In turn, communities are increasingly expecting their local governments to take serious climate change action. The Climate Emergency movement has gained momentum on the back of these expectations.

The Climate Emergency movement has helped to spearhead climate action at the local government level, both in terms of mitigation and adaptation. The Local Government sector continues to lead other levels of government, both in the scale of their ambition and their demonstrated track record on delivering outcomes for a safer climate.



<sup>11</sup>State of Victoria, Local Government Climate Change Adaptation Roles & Responsibilities under Victorian legislation Guidance for local government decision-makers, Melbourne, 2020.

	Objective	Proposed new priority action	Proposed new complementary action
1	Improve the resilience of existing and new infrastructure and assets to cope with current and projected climate change impacts	<ul> <li>Develop a clear evidence base on the costs and benefits of adapting assets and infrastructure to fast track investment and funding for adaptation initiatives.</li> <li>One of councils' key responsibilities is to manage and maintain their own assets and infrastructure. Climate change and extreme weather events are already impacting vital council infrastructure and services delivery in the form of damage to council facilities, increased maintenance costs, reduced asset lifespan, increased OHS hazards, and reduced service delivery. Responsible asset management therefore requires consideration of how climate change will impact those assets and how they can be more effectively managed and adapted.</li> <li>EAGA is currently leading numerous projects to ensure council buildings and assets are planned, managed and maintained in line with best-practice adaptation principles.</li> <li>At a broader policy level, EAGA councils are involved in the state-wide, multi-alliance campaign to reform the Victorian planning system. This project is also assisting councils in developing internal knowledge and expertise around how the state's development approvals process interacts with climate policy, including adaptation.</li> </ul>	<ul> <li>Facilitate capacity building and cross regional communities of practice for asset managers.</li> <li>Incorporate EAGA's streamlined building vulnerability assessment checklist into ongoing asset management plans and condition assessment processes.</li> <li>Advocate for improvements to the Victorian Planning Scheme to ensure planning can deliver zero carbon resilient communities, utilising the findings from the Climate Change &amp; Planning in Victoria - ensuring Victoria's planning system effectively tackles climate change, report.</li> <li>Leverage findings from adaptation cost benefit analysis work to engage with philanthropic and other investors to fund adaptation projects across the region.</li> </ul>

Objective	Proposed new priority action	Proposed new complementary action
2 Reduce the heat island effect through the region to mitigate temperature increases	<ul> <li>Pursue shared service delivery models to coordinate and implement initiatives that support the expansion of the urban forest</li> <li>As Australia's summers become hotter and drier due to climate change, there is a growing community awareness and understanding of the urban heat island effect and how it impacts on people's mental and physical health, as well as community laces and infrastructure<sup>12</sup>.</li> <li>Consequently, urban designers, city planners, climate change practitioners, and health experts are increasingly looking for innovative interventions to help reduce temperatures in urban settings.</li> <li>While 'green infrastructure' interventions like street trees, green roofs and walls are fairly accepted ways to achieve urban heat island mitigation, there is a growing interest in integrating traditional green infrastructure approaches with 'blue' infrastructure interventions, like water sensitive urban design, storm water retention, and urban wetlands into an integrated, whole-of-council approach to urban heat mitigation. City of Stonnington is leading some of this work, investigating how water sensitive urban design and urban forest interventions can be better integrated to achieve urban cooling and improved urban forest health outcomes.</li> <li>While EAGA councils are progressing positively towards expanding urban canopy cover in the public realm, the loss of significant trees in the private<sup>13</sup> realm due to development, is a significant challenge. Transformational action is required to reverse the current and future decline of the city's green infrastructure and sustain Melbourne's liveability for people and nature, across the entire city and its suburbs. Councils will collectively pursue the following actions to achieve this:</li> <li>Set canopy cover targets and track progress</li> <li>Scale up greening in the public and private realms</li> <li>Collaborate across sectors and regions</li> </ul>	<ul> <li>Leverage DELWP's Urban Ecosystems Accounts for Greater Melbourne to develop a more detailed assessment of the economic benefits of addressing urban heat through increasing blue/green infrastructure.</li> <li>Develop an evidence base for understanding the relationship between urban forest, water sensitive urban design, and blue/green infrastructure to achieve urban heat island effect mitigation, particularly in activity and strip shopping centres.</li> <li>Pursue a joint Planning Scheme Amendment process across EAGA councils that seeks strong and effective planning protection for significant vegetation and trees from development in the private realm.</li> <li>Investigate the establishment of an alliance modelled on the Greening the West alliance to advocate for increased canopy cover across EAGA council regions.</li> <li>Work with regional agencies such as VicTrack, VicRoads, Public Transport Victoria and gas and water providers to implement and coordinate investment in green infrastructure when they are doing works for other purposes. It is noted that VicTrack manage a vast network of public land which represents an ideal opportunity for increased planting and active transport improvements.</li> <li>Work with regional stakeholders to pilot more heat tolerant, permeable and reflective bitumen/pavement materials, particularly in activity and strip shopping centres.</li> <li>Work with research institutions to map thermal hotspots and social vulnerability at higher resolution.</li> <li>Seek further funding for reporting and analysis of the EAGA Biodiversity Monitoring Framework and developing regional responses.</li> </ul>

<sup>12</sup>Victorian Council of Social Services, Feeling the Heat, Melbourne, 2021.

<sup>13</sup>Hurley J, Saunders A, Both A, Sun C, Boruff B, Duncan J, Amati M, Caccetta P, and Chia J., Urban Vegetation Cover Change in Melbourne: 2014 - 2018, RMIT University, University of Western Australia, Clean Air and Urban Landscapes Hub, CSIRO, Melbourne, 2019.

	Objective	Proposed new priority action	Proposed new complementary action
3	Reduce impacts of heat waves on vulnerable members of the community	<ul> <li>Provide direct support to vulnerable community members to stay cool with solar, improve thermal comfort with energy efficiency upgrades, and develop energy literacy with educational resources.</li> <li>In Australia, extreme heat is one of the leading causes of death compared with other natural disasters<sup>14</sup>. The impacts of extreme heat disproportionately impact on people and communities living with existing disadvantages, such as poorquality housing, low incomes, insecure work, health issues, and language barriers.</li> <li>Thus, tackling heat stress is both an environmental and social justice issue that councils can help lead. As the climate continues to warm, the community will likely turn to local governments to assist in minimising the effects of extreme heat.</li> <li>Findings from Sustainability Victoria's Healthy Homes Program demonstrates that energy efficiency upgrades of up to \$3,500 can deliver significant health outcomes and deliver overall net benefits to the State.</li> </ul>	<ul> <li>Extend and expand the Solar Savers program. EAGA's iconic program will continue to alleviate bill stress and enable low income (and other) households to stay cool in summer and warm in winter through the provision of solar and storage. The program will also be available to renters and small businesses.</li> <li>Assist at-risk and Culturally and Linguistically Diverse (CALD) groups to stay thermally comfortable all year round through energy efficiency literacy education.</li> <li>Sustainability Victoria's Healthy Homes research demonstrates that minor, home energy-efficiency upgrades are a cost-effective way to improve health outcomes and reduce emissions. Opportunities exist to collaborate with other regions on capacity-building initiatives for Home and Community Care (HACC), 'meals on wheels', and maternal child health services staff to facilitate minor home energy efficiency upgrades for at-risk households.</li> </ul>
4	Improve emergency preparedness and response	<ul> <li>Improve the resilience of the region's emergency relief centres and other, local community facilities.</li> <li>EAGA's Resilient Emergency Relief Centres project demonstrated council buildings are at risk from climate change related events. These risks are more extreme when the sites are activated as emergency relief centres (ERCs) versus standard building use. This is particularly acute when ERCs are required in heat wave events and cannot maintain safe indoor temperature while providing refuge to vulnerable community members.</li> <li>The building vulnerability assessment (BVA) process enables councils to act on climate change risks in an informed way. By implementing the findings of BVAs, buildings are likely to be safer, more comfortable, more affordable to operate (and lower greenhouse gas emissions).</li> </ul>	<ul> <li>Upgrade community buildings, such as Community and Neighbourhood Houses, and emergency relief centres, to create a network of safe, resilient places where people can seek refuge during emergencies.</li> <li>Conduct streamlined vulnerability assessments of secondary ERCs not captured in the RERC project.</li> <li>Develop the capacity of Emergency Management officers to better plan and prepare for climate change-induced emergencies.</li> </ul>

<sup>14</sup>Victorian Council of Social Services, Feeling the Heat, Melbourne, 2021.

	Objective	Proposed new priority action	Proposed new complementary action
5	Improve the adaptive capacity of the regional economy to climate change	<ul> <li>Provide services and programs to enable the business community to adapt and build resilience, including Solar Savers, Energy Savers and Environmental Upgrade Finance</li> <li>Improving the energy performance of businesses produces a range of flow-on benefits in addition to cutting greenhouse gas pollution.</li> <li>Businesses that run on energy efficient appliances in buildings that are thermally efficient, are likely to be more productive, as their energy savings can be redirected towards productivity improvements<sup>15</sup>. These cost savings and productivity gains can help strengthen the local economy. Energy efficient buildings are also likely to be more resilient during extreme weather events, due to their improved quality and design.</li> </ul>	<ul> <li>Identify and assist cohorts of Energy Savers and Solar Savers participants to conduct climate risk assessments.</li> <li>Identify key services that are at risk from climate change across our region.</li> <li>Benchmark services levels and model impacts of climate change on current service levels and identify specific service delivery and performance levels and targets for these services.</li> </ul>
6	Improve the resilience of electricity infrastructure to extreme weather events	<ul> <li>Work with Distribution Network Service Providers to identify initiatives for improving electricity network reliability and community resilience</li> <li>Extreme weather events linked to climate change, like bushfires and storms, are already damaging critical energy infrastructure, causing outages and disruptions. These events will not only impact on council service delivery, but also produce financial costs to DNSPs who can be penalised for power failures. Thus, there is a strong shared incentive to improve the resilience of electricity infrastructure to respond to the impacts of climate change.</li> <li>As communities continue to take leadership on energy resilience through local energy projects, the importance of working collaboratively with DNSPs is becoming more evident, since the delivery of such projects typically requires close coordination between different stakeholders.</li> <li>Councils are uniquely placed to facilitate this engagement to ensure that all stakeholders are working effectively and efficiently, as well as leveraging the capacities and resources of public and private stakeholders to help deliver innovative energy projects.</li> </ul>	<ul> <li>Extend longstanding formal advisory role to AusNet via the newly established "innovation advisory committee."</li> <li>Undertake neighbourhood battery feasibility and trials to enhance resilience and extend DER hosting capacity on the region's networks.</li> <li>Participate in UE/CP/PC Neighbourhood Battery Initiative Project.</li> <li>Support regional demand response programs (such as Summer Savers) to assist households and businesses reduce peak demand.</li> </ul>

<sup>15</sup>Energy Efficiency Council, Energy efficiency in commercial buildings: why be energy efficient in commercial buildings?, accessed 7 April 2022, https://www.eec.org.au/for-energy-users/energy-efficiency-in-commercial-buildings/overview#/overview

	Objective	Proposed new priority action	Proposed new complementary action
7	Improve the region's drought and flood resilience by diversifying water supply, improving water use efficiency and redirecting stormwater overflow	Collectively work with Melbourne Water and water retailers to maximise opportunities for alternative water use including identification of regional stormwater capture and reuse opportunities. Climate change poses risks to the region's water supply due to the potential for increased likelihood of flooding events and reduced rainfall patterns. Diversifying the region's water supply will assist community resilience. This will become increasingly important as the region's population increases, which will produce higher demand for water. Integrated Water Cycle Management (IWCM) considers the water cycle holistically. It looks at different approaches to water supply and demand management, stormwater management and wastewater treatment against multiple criteria, including environmental, social, technical and economic factors as well as those concerning biodiversity and public health. Facilitating IWCM is an important climate adaptation response, and successful implementation across the region will reduce many of the existing water management risks already being realised by EAGA councils. Given that water catchments and distribution networks cross council boundaries, a coordinated approach to water management and diversification across EAGA councils will be crucial to delivering programs, policies and projects efficiently and effectively.	<ul> <li>Recognise the significance of key nature corridors, including Gardiners Creek (KooyongKoot) and Dandenong Creek to the region in terms of biodiversity and recreation, and advocate for their improved health and resilience.</li> <li>Continue to advocate through MAV for new revenue streams for councils to fund IWCM and for increased funding and resources for SES.</li> <li>Promote IWCM and WSUD design principles at plan making and development assessment stages and promote water sensitive precincts.</li> <li>Seek to use existing heat vulnerability data to identify priority areas for WSUD (See action 2).</li> <li>Promote water recycling initiatives and fit for purpose water sources.</li> <li>Advocate to relevant water authorities to achieve increased environmental water entitlements for regional waterways to improve biodiversity for streams and wildlife corridors.</li> <li>Work with other stakeholders such as the Cooperative Research Centre (CRC) for Water Sensitive Cities to improve regional downscaled modelling of climate change and associated hydrological projections.</li> </ul>

	Objective	Proposed new priority action	Proposed new complementary action
8	Build organisational capacity across EAGA Councils to respond to climate change risks	<ul> <li>Embed climate change adaptation into Council Plans and facilitate capacity-building programs for Councillors, Executives and other decision makers.</li> <li>As EAGA councils continue to lead on climate action by implementing significant environment and energy projects, decision-makers must continue to be supported in their climate change commitments through knowledge and capacity-building programs.</li> <li>As EAGA councils continue to increase their climate change ambitions at the political level, these commitments will need to be translated into permanent changes to core council business. This will involve integrating climate change (mitigation and adaptation) into key governance and administrative processes, which may include (but is not limited to):</li> <li>Requiring all council reports to consider climate change as a standalone consideration in addition to other pillars (social, economic and environmental)</li> <li>Embedding climate change within the selection criteria for coordinator positions (and above)</li> <li>Ensuring position descriptions require staff to assess and manage climate risks (adaptation and mitigation)</li> <li>Embedding climate change into council asset management plans</li> </ul>	<ul> <li>Continue to embed climate change risks and responses in council risk registers, strategies and plans.</li> <li>Update NAGA guides for embedding climate change into councils' plans and resources for "Your Councils and Climate Change: Understanding the Risks and Learning to Adapt" training program.</li> <li>Update internal procurement policies to reference circular economy as a key strategic objective, incorporating changes to encourage the uptake of recycled content in council buildings and infrastructure.</li> <li>Continue to support decision-makers in developing skills and knowledge by replicating the approach taken in 2021 whereby Alliances worked with DELWP to develop materials and resources and delivery of training to those responsible for councils plans.</li> <li>Facilitate information and data- sharing between EAGA members and other councils via the annual Greenhouse Alliances conference</li> </ul>
9	Secure funding and resources to undertake adaptation initiatives and monitor and evaluate progress over time.	EAGA will work collaboratively with the Victorian Greenhouse Alliances to secure funding for a coordinated, state-wide program of support for Victorian local governments to strengthen their knowledge, skills and capacity to manage and prepare for climate-related disasters such as heatwaves and storms. This will include centralised monitoring, evaluation and reporting tools and guidance, plus reporting frameworks to demonstrate impact, track progress over time, and support the case for further investment in adaptation.	<ul> <li>Work collaboratively with the Stakeholder Committee for RAS for Greater Melbourne to facilitate funding for Roadmap priorities under each annual delivery plan.</li> <li>Actively pursue grant opportunities arising from state and federal strategic adaptation plans, such as DELWP's Adaptation Action Plans 2022-26 and Emergency Management Victoria's climate risk and resilience grants.</li> <li>The Roadmap will also leverage existing, adaptation-focussed programs being developed by the Victorian Greenhouse Alliances, including potential shared funding arrangements.</li> </ul>

















