

SECTION 1 STRATEGIC FRAMEWORK AND PRINCIPLES



Greater Melbourne Regional Climate Change Adaptation Strategy

2021



Greater Melbourne Regional Climate Change Adaptation Strategy



MAP OF CONTENTS

Section 1 describes the project background and how the strategic framework and guiding principles were developed.

Section 2 outlines twelve action areas that we need to focus on and lists priorities under each one.

Section 3 provides summaries of twelve projects that were delivered to help inform this Strategy.

Section 4 provides tools to help us consider how we adapt to climate change.

ABOUT THIS STRATEGY

This Strategy provides a framework for considering what we need to do to adapt to climate change in our region. It is full of ideas developed by our own communities and shows that everyone has a role to play.

The action areas in section 2 outline priorities that could be funded or co-funded by anyone: businesses, individuals, state and local government, private sector organisations, peak bodies or philanthropic groups.

We hope this Strategy will inspire communities across our region to work together to solve problems and achieve common goals.

This Strategy belongs to everyone within Greater Melbourne. The action areas and priorities were informed through an open public consultation process, learnings from projects and collaboration with a Regional

Adaptation Stakeholder Committee. Initial implementation funding will be used to prioritise and fund delivery of transformational adaptation initiatives. Securing resources to support ongoing adaptation is identified as critically important and a responsibility for us all.

This Strategy has been developed by a stakeholder committee from information collated from the people and organisations of Melbourne.

The development of the Greater Melbourne Regional Climate Change Adaptation Strategy was supported by the Victorian Government and funded through the Sustainability Fund - Supporting Our Regions to Adapt program.



Environment,
Land, Water
and Planning

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We would like to acknowledge the Kulin Nations peoples across Greater Melbourne and pay our respects to their elders, past, present and emerging. We acknowledge that the impacts of colonisation and the displacement and violence that followed are still being felt in their communities today.

STRATEGIC FRAMEWORK AND PRINCIPLES

REGIONAL ADAPTATION STAKEHOLDER COMMITTEE FOREWORD

Melbourne faces increasing impacts and risks from climate change as temperatures rise, including more frequent and severe heatwaves, bushfires, flooding and air pollution events, with less rainfall and fewer frosts. We need to reduce greenhouse gas emissions to zero to limit impacts, but many of them are inevitable and indeed already occurring.

Climate change adaptation is the way for Melbourne to achieve climate resilience. Many people and organisations across the city have already started the adaptation journey; this Strategy is about building on and learning from what's already working, but it also seeks to go beyond our business-as-usual trajectory to transformation. Climate resilience will only be achieved by coordinating our efforts and transforming the fundamental components of the system which keep the risks in place.

Therefore, we have designed this Strategy not only to achieve climate resilience but to empower all Melbourne's diverse communities to participate, innovate and work together to create a more equitable and sustainable city. We've approached Melbourne as a system of interconnecting communities, sectors, institutions and infrastructure, which all rely on each other to be resilient. Melbourne is also part of a wider system and as a capital city plays an important role in protecting the whole of Victoria from climate change. The actions in the Strategy address the major system elements and their interactions to reduce climate change impacts.

We know we don't have all the answers ourselves and climate change is inherently uncertain, so our predictions for the future are also uncertain. For this reason, this Strategy is focused on helping people learn and adapt as we go. We have included bold actions to implement in the first years of the Strategy, to kick-start the transformation, but we intend to regularly monitor and review the work to make sure we are actually achieving resilience.

This Strategy is the result of over two years of engagement and project delivery. The content in this Strategy has been developed by this committee from information collated from the people and organisations of Melbourne. It will ensure that we are positioned to consider new opportunities that arise, support our most vulnerable communities and avoid the disruption and costs of delayed action.

We'd like to thank DELWP and the Victorian Government for providing funding and support for us to deliver this important regional adaptation work. We acknowledge that addressing climate change is a collective endeavour. All levels of government, businesses, communities and households must play their part. Our intention is that this Strategy will inspire and support them to do so.

Stakeholder Committee



INTRODUCTION

Earth's climate is changing and we know the speed of this change is due to human activities. Many countries are rapidly trying to decarbonise their economies to avoid the worst impacts of climate change, and at the same time we need to adapt to current and locked-in change.

Climate projections for Greater Melbourne indicate that average temperatures will continue to increase; there will be more frequent and longer heat waves, increased severity and duration of bushfires, worsening air pollution, fewer frosts and a decline in rainfall. Sea levels are expected to continue rising, resulting in increased risk of coastal erosion and inundation. We can expect more extreme weather events including bushfires, severe storms, storm surges and heavy rainfall events.

We have already seen some events like this, remember our city covered in bushfire smoke? Destructive hailstorm events? Flash-flooding in the city?

This knowledge about climate change impacts and the massive de-carbonisation effort and changes needed can be overwhelming. We can each play a role, from the things we choose to consume and purchase, to how we live our lives and manage our homes.

While these personal choices are critically important, this Strategy is about how we function as a region and as a city. Our Stakeholder Committee has used a 'systems thinking' approach to help understand how our region works and what is important.

If we overlay increasing weather extremes onto this complex socio-ecological system, it becomes clear that some people are more at risk than others, some places are more at risk than others, and some businesses and industries are more at risk than others. Systems thinking can help us understand the things we should focus on and the things we need to do as a region.

This Strategy has been designed in four sections. The first section outlines the strategic framework and principles, and the second section outlines important action areas for effort. Each action area includes a description of the types of actions that fall under that area. The third section outlines each of the 12 projects that were delivered as part of this Strategy development. The fourth section summarises the 'ways of doing' tools and behaviours we've been testing. These tools can help us to talk about and think about climate change and how it might affect our lives, communities, important places and businesses.



Continuing rising daily temperatures



More frequent and longer heatwaves



Rising sea levels with increased risk of coastal erosion and inundation



Extreme rainfall events expected to become more intense



Rainfall expected to continue to decline in winter and spring



The fire season is longer and number of very high fire danger days in spring is increasing

ACKNOWLEDGEMENTS

We acknowledge the following individuals for their significant input into designing and shaping the process and the Strategy:

- » Regional Adaptation Stakeholder Committee members: Fran MacDonald (Western Alliance for Greenhouse Action), David Meiklejohn (Northern Alliance for Greenhouse Action), Scott McKenry (Eastern Alliance for Greenhouse Action), Dominique La Fontaine (South East Councils Climate Change Alliance), Kate Berg (City of Melbourne) and Maree Grenfell (City of Melbourne).
- » Department of Environment, Land, Water and Planning (DELWP) regional climate change adaptation team: Shirley Diez, Melinda Bowen and Ibrahim Uluca.
- » Consultant support: Special thanks to Paul Ryan from Australian Resilience Centre who assisted us with planning, designing and delivering our approach, over 18 months.
- » Strategy layout and design: Carmel Reilly from CeeDesign worked with us to design our logo, various project reports, the Discussion Paper and this Strategy.
- » Conceptual thinking and program design for the 'Supporting our Regions to Adapt program': Jessica Barnes, Evan Davies, Karyn Bosomworth, Paul Ryan.
- » Thank you to previous DELWP team members Mehdi (Paul) Hedayati, for introducing us to systems thinking and to Nina Solima for providing administrative support in the early stages of our work. Thanks also to the DELWP delivery team's Regional Manager Rod Anderson for enthusiasm, support and confidence in the process.

We acknowledge the Sustainability Fund and the DELWP 'Supporting our Regions to Adapt' Program for providing funding support for our region, and for allowing the flexibility to deliver this innovative project collaboratively.

We would like to acknowledge that the most disadvantaged people in our region will feel the impacts of climate change more profoundly than others. We hope that our strategic framework and projects tell that story clearly and inspire the people of our region to work together to address this disadvantage.

Finally, we would like to acknowledge the following groups and organisations for their support, for their time, for recommending and providing documents, and for meeting with us about our many Strategy-related projects over the past two years. We could not have covered so much ground without you.

Association of Bayside Municipalities, Municipal Association of Victoria, Enliven Victoria, Melbourne Water, Yarra Valley Water, Western Water, South East Water, City West Water, Greening the West, Australian Energy Market Operator, Banksia Gardens Community Services, Council Alliance for a Sustainable Built Environment, Bendigo Community Health Services, Campus Living Villages, Country Fire Association, Co-Health, Council on the Ageing (COTA) Victoria, Department of Health and Human Services, Department of Jobs, Precincts and Resources, Department of Transport, Department of Justice, Department of Education, Greening Australia, Ambulance Victoria, Homes

Victoria, Scientell, Melbourne Museum, Improving and Promoting Community Health (IPC Health), Think Impact, Jesuit Social Services Centre for Just Places, Exquisine, 3 Ravens, Northlink, La Trobe University, Youth Affairs Council Victoria, Youth Disability Advocacy Service, Melbourne Convention Bureau, Movement and Place, Parks Victoria, Inner Metro Climate Adaptation Network, Moreland Maternal and Child Health, Sustainability Victoria, Deakin University, Peninsula Vine Care, RMIT University, CSIRO, SGS Economics and Planning, Tract, University of Melbourne, University of Melbourne Student Union, Victorian Council of Social Services, Victorian Public Tenants Association, Victorian Multicultural Commission, Visit Victoria, Women with Disabilities Victoria, Yarra Ranges Tourism, SGS Economics, Youth Disability Advocacy Service, Victorian National Parks Association, Trust for Nature, Port Phillip and Westernport Catchment Management Authority, Geography Teachers Association Victoria, Geography students, Lord Mayors Charitable Foundation, Echo, Boon Wurrung Foundation, Bunurong Land Council Aboriginal Corporation, Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation, Pacific Australian Women of Greater Melbourne, Port Phillip EcoCentre, Rubicon Forest Protection Group, Remember the Wild, Australian Sustainable Built Environment Council, Nation Partners, Green Building Council of Australia, Council of Australia, AusNet Services, James Cook University, Bank Australia and our region's thirty-one local government councils and their officers that have contributed to many of the projects funded by this Strategy.

OVERVIEW

The Victorian Government provided \$9.3 million in funding to develop six community-led Regional Climate Change Adaptation Strategies across Victoria. These strategies provide an opportunity to identify and prioritise actions for the next five years.

A strategy can help us to start identifying ways to adapt early, to save costs and hardships, and work towards solutions.

The six regional strategies were developed at a regional level so that impacted communities, organisations and businesses could identify their concerns and what could be done.

A small Regional Adaptation Stakeholder Committee (the Committee) was established to support the process of preparing the Strategy for Greater Melbourne. The Committee is made up of representatives of our region's key stakeholders including: Western Alliance for Greenhouse Action (WAGA), Northern Alliance for Greenhouse Action (NAGA), Eastern Alliance for Greenhouse Action (EAGA), South East Councils Climate Change Alliance (SECCCA) and the City of Melbourne (Climate Change and City Resilience Group).

2018

- » Begin state-supported process
- » Preliminary work
- » Gap analysis

2019

- » Set up Stakeholder Committee
- » First Yearly Delivery Plan prepared

2020

- » 12 Projects
- » Discussion Paper
- » Community engagement
- » Other key stakeholder engagement

2021

- » Continuing the projects
 - » Continuing engagement
 - » Distilling the learnings
 - » Drafting the Strategy
- ### JULY
- » Strategy completed
 - » Second Yearly Delivery Plan process begins

FINDING WAYS TO COPE WITH EXTREME WEATHER IMPACTS AND OTHER CONSEQUENCES OF CLIMATE CHANGE IS GENERALLY REFERRED TO AS 'ADAPTATION', WHEREAS 'MITIGATION' REFERS TO FINDING WAYS TO REDUCE OUR GREENHOUSE GAS EMISSIONS.

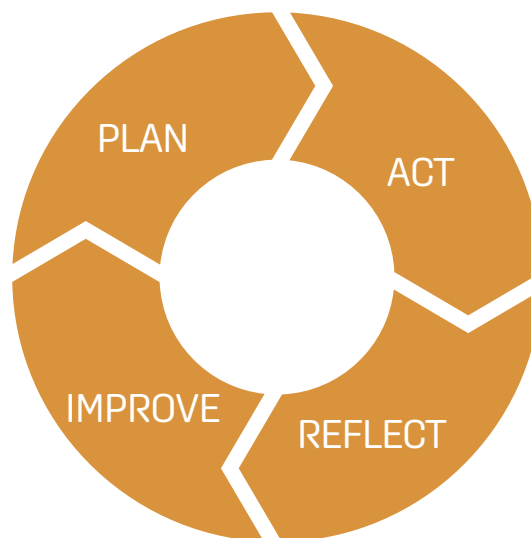
BOTH APPROACHES ARE IMPORTANT BUT FOR THIS STRATEGY WE ARE FOCUSED ON 'ADAPTATION' OR BUILDING OUR RESILIENCE, AND PREPARING OUR INDUSTRIES, COMMUNITIES AND ENVIRONMENTS TO BE ABLE TO THRIVE WITH THE FUTURE CLIMATE.

Designing our Strategy through projects

Our Strategy development process was designed with an emphasis on learning by doing and demonstrating. The process of creating the Strategy through a series of projects and forums meant we could build on an incredible amount of current knowledge across our region while increasing our capability.

The Committee delivered a set of projects and a number of forums to explore themes identified in an earlier gap analysis. These have fed into the development of our Strategy through a process facilitated by a small DELWP project team.

Learning by doing



STRATEGIC FRAMEWORK

A community-focused principle-driven approach

Our starting point is communities. That's why our projects are all about building on the current knowledge, increasing our shared knowledge and building the capability of all of us.

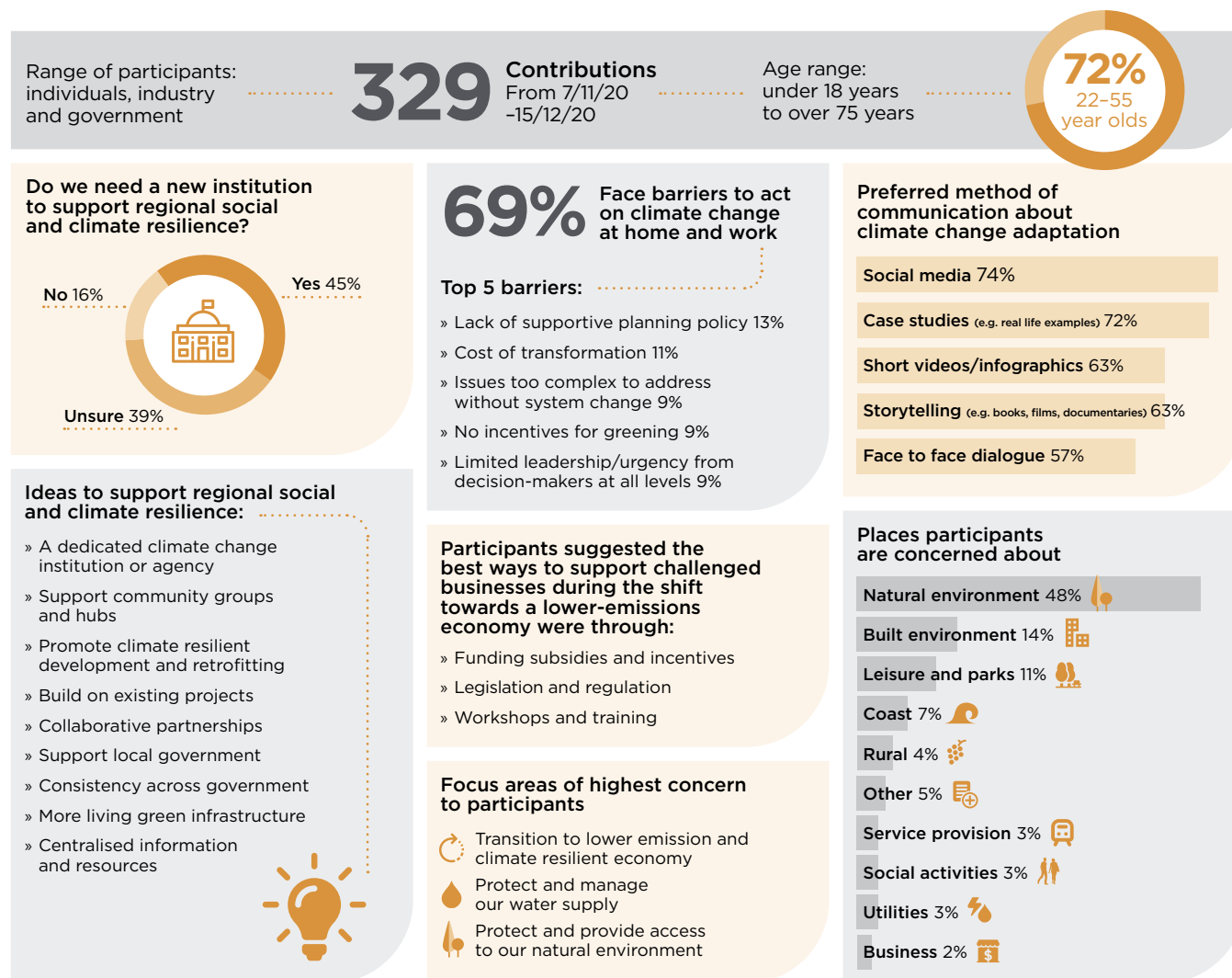
The Committee worked together to create a Discussion Paper that was informed by earlier work. It summarised a broad range of issues and options that could be considered in the region. The purpose was to stimulate conversation and provide an opportunity for online community involvement and ownership by Melbournians.

The Discussion Paper was shared in late 2020 on the online Engage Victoria platform. Melbourne people had the chance to share their concerns and contribute their stories through a values map and a series of questions. The map and questions provided the opportunity for individuals that might not otherwise be engaged in climate-related discussions to be able to contribute their thoughts and ideas.

An infographic was prepared for us by Scientell consultants, using the information collected on the Engage Victoria website during November and December 2020 (image on p8). The engagement revealed valuable concerns and ideas that have been considered by our stakeholder committee and shaped the Strategy.

STRATEGIC FRAMEWORK AND PRINCIPLES

Developing a Regional Climate Change Adaptation Strategy for Greater Melbourne



Using systems thinking

Thinking about climate change adaptation is hard. Adaptation involves changing behaviours, finding new ways of doing things, new ways of thinking and problem solving. Sometimes when we talk about 'what to do' in the context of climate change, we feel overwhelmed by the breadth and depth of the challenge, and by the interconnectedness of everything.

It's difficult to work out what to focus on first. This extends to the range of options: we know there is much that can be done, but where to start even thinking about it? This is where a systems thinking approach can be helpful.

Using this way of thinking can reveal an interlinked, complex system with many components. Important or transformational actions that occur within our regional system can have systemic effects. Greater Melbourne is also a region within a wider system (the state, the nation, the world) that is in turn impacted by broader systemic effects.

Inspired by the Scientell infographic, Engage Victoria online contribution summary



STRATEGIC FRAMEWORK AND PRINCIPLES

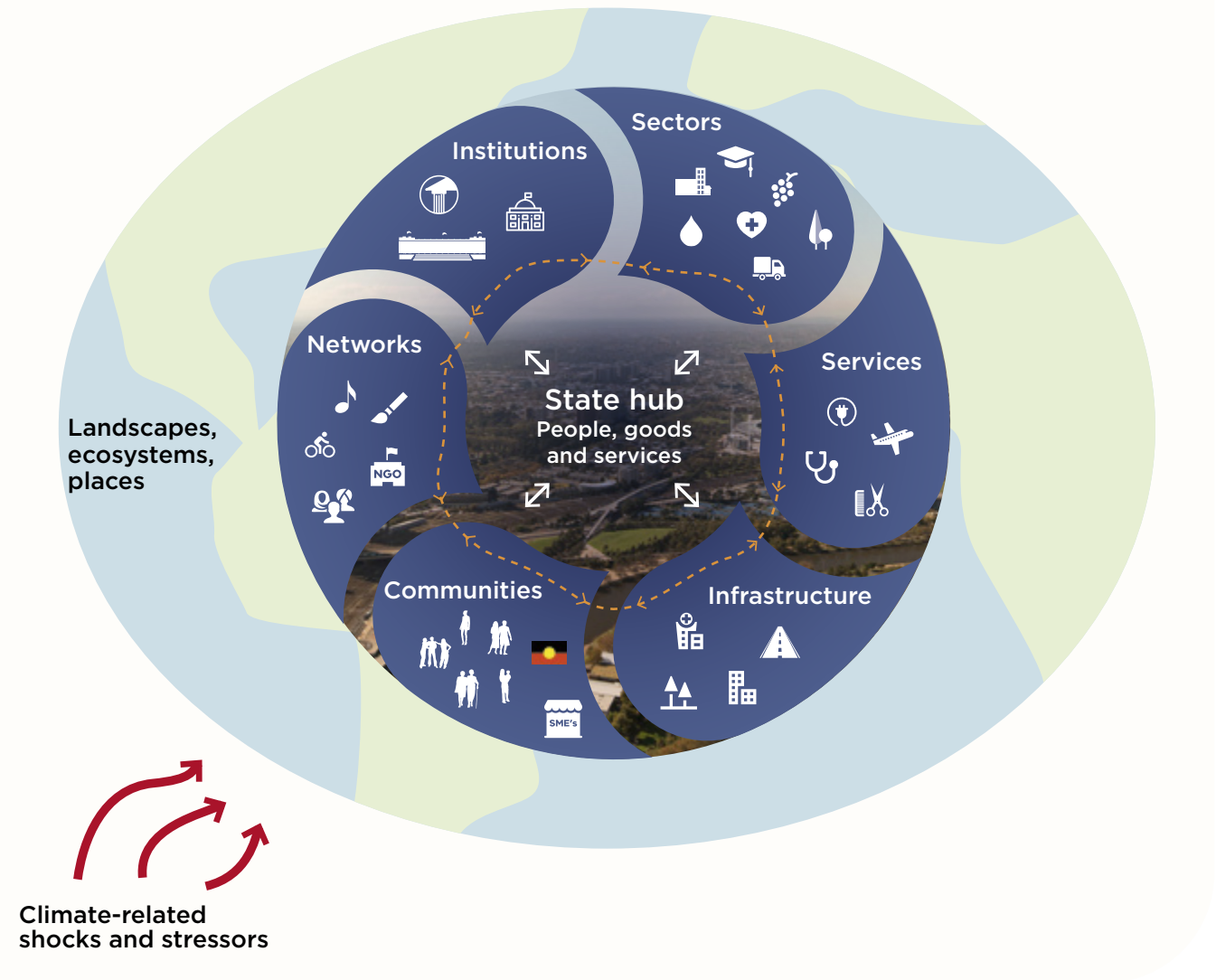
In the risks and issues project, participants began their discussions by looking at Greater Melbourne as a system that includes institutions, sectors, service providers, infrastructure, communities, networks, landscapes, ecosystems and places (see diagram).

‘Systems thinking’ discussions helped us to explore some of the complexity and inter-connectedness within the region. A shared understanding of the system allowed us to break the challenge of climate change adaptation into meaningful and practical pieces of work. These pieces became projects that in turn informed priorities.

VICTORIA'S CLIMATE CHANGE STRATEGY IS A ROADMAP TO NET-ZERO EMISSIONS AND A CLIMATE RESILIENT VICTORIA BY 2050.

More details [here](#).

Greater Melbourne Strategic connections



Our vision for the Greater Melbourne region

OUR REGION AND ITS COMMUNITIES HAVE THE AGENCY, WILL, SKILLS AND RESOURCES TO ADAPT TO CLIMATE CHANGE

We will do this by aligning our actions with the following principles:

- » Taking a systems approach
- » Creating a more equitable and sustainable society through climate adaptation
- » Learning to adapt and transform
- » Making adaptive and transformational change together
- » Understanding, informing, advocating and empowering decisions at all levels

Our change narrative

This is our coherent story of change and adaptation, an outline of the steps we need to take to adapt to climate change in our region.

The change narrative



At a 2021 workshop to explore transformational opportunities for our region, participants discussed what a successful transition could bring:

Our region's transition starts with re-imagining urban life, where the city and surrounds become not just a place to live, work and consume, but a place to grow, produce, connect and thrive. Climate change is seen as a health issue, an equity issue, and a justice issue, not a political issue. Investments in climate

adaptation, new green technologies and connections to nature are central to the 'health and wellbeing' budget approach now taken by governments.

Transformative tools and tech like micro-gridded services build resilience and buffer against shocks. These flexible systems generate income for local communities to invest in further green tech, green spaces and support for their neighbours in times of need.

The transition is supported, informed and driven by New Democracy, doing democracy differently and more directly connects a diversity of people to decisions and to their own future. This new approach begins to heal the relationship with the First Australians, their wisdom and knowledge becomes central to our approach to people and place. The city-region starts to thrive, even with a more volatile climate. Resilience to climate extremes is designed into the very core of our infrastructure and services and our paradigms, institutions and governances are well suited to this uncertain and unpredictable world. Our communities understand what it means to be prepared, to be flexible and to work together to overcome problems.

PRINCIPLES

This section outlines the principles, why they are important and which action areas sit underneath them. These principles were developed by the Stakeholder Committee during 2019 and 2020, and refined over four workshops in early 2021. Section 2 explores each Action Area in more detail and includes a set of priority actions under each.

Taking a systems approach

To understand the challenges and potential actions in our city-region we need to think and act systemically. This means using our understanding of the system and of system change to create the changes we want to see, while minimising unwanted changes. It means working across and up and down: across boundaries, institutions and at a range of scales. This principle includes exploring transformational opportunities alongside smaller scale, critical changes in behaviours and thinking. The following action areas sit under this principle:



Supporting and building skills and resources across the region



Supporting climate resilient service delivery



Improving infrastructure resilience across the whole system



Focus on issues and locations that have wider system implications



Local swimming pools are a great place to go when it's hot.
Image: Eastern Alliance for Greenhouse Action

Creating a more equitable and sustainable society through climate adaptation

Most stakeholders we spoke to during 2019 and 2020 were very aware that climate change impacts are most strongly felt by people and groups already considered 'at-risk' for other reasons. They were aware that many of the actions to support at-risk people to adapt, will also contribute to a more equitable and sustainable society.

Universally, our committee and the groups we engaged with felt that we must prioritise adaptation support for our most at-risk groups if we are to experience a successful society shift. This was so strongly felt that we referred to this principle as 'the moral conviction of the Strategy'.

This principle includes respecting the diversity of views and looking for opportunities to align climate change adaptation actions with other forms of intervention around public housing, education, and health. It includes actions to increase urban greening and protect our natural environment. The following action areas sit under this principle:



A focus on supporting the most at-risk communities and people



Increasing and enhancing the natural environment, urban green spaces and parks

VULNERABLE GROUPS IN OUR REGION INCLUDE PEOPLE:

- » Who are elderly, living alone and/or who are socially isolated
- » With chronic health issues or mental illness
- » With disabilities
- » Who are sleeping rough, live in poor quality social housing or have mortgage stress
- » With low proficiency or literacy in English
- » In transient communities such as international students and tourists
- » That are homeless or experiencing other socio-economic disadvantage



Staff from Jesuit Social Services' Ecological Justice Hub preparing meals as part of the COVID-19 Meal Drop program. The program delivered over 3000 meals to participants experiencing isolation in the City of Moreland during 2020. Image: Michael McGarvie.

Learning to adapt and transform

This principle about learning acknowledges that adapting and transforming will be ongoing processes as the climate changes and as we experience our energy transition. To meet the challenges of climate change, our society will need to deliberately learn how to adapt and how to transform, and to apply these learnings in all of our decision-making.

This principle specifically includes the following action areas:



Monitoring, evaluation and reporting for continuous improvement



Embracing transformational opportunities for our region

Making adaptive and transformational change together

This principle acknowledges that climate change is everyone's problem. The principle means that we need emphasis on collaboration, co-design, linking networks and partnering in projects. We need to acknowledge that climate change adaptation requires action here, now, and together (not over there, later, someone else)¹, that adaptation is an ongoing process, and that some locations in our region will be more severely affected than others. The following action areas sit under this principle:



Climate change is an issue for everyone



A focus on supporting problem-solving in at-risk locations



Victorian Greenhouse Alliances Conference 2019.
Image: Shirley Diez

¹ 'Here, now, together. Not over there, later, someone else' is used with thanks to Trudi at the Australian Resilience Centre.

Understanding, informing, advocating and empowering decisions at all levels

This principle acknowledges the complexities of climate change adaptation and strongly encourages evidence-based decision-making, to reduce the risk of market failures. It includes considering projects that can help us overcome barriers to taking action and move beyond our 'business as usual' approaches. In order to bring everyone along we need to ask the hard questions and advocate for change where necessary. This principle acknowledges that decisions will be made at all levels, about places, things, service delivery and behaviours. The following action areas sit under this principle:



Strengthening the knowledge, data and evidence base for decision-making



Collaboratively working towards improving the business case for investing in adaptation



Practising what to do in emergencies. Image: Eastern Alliance for Greenhouse Action

SECTION 2 ACTION AREAS



Greater Melbourne Regional Climate Change Adaptation Strategy

2021



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This section of our region's Climate Change Adaptation Strategy describes in more detail each of the action areas that fall under the principles introduced in Section 1 of the Strategy.

In the context of our region as a system, each action area is outlined, with key components described by considering where and how the action area needs to be worked on. Priorities are listed under each one.





A SYSTEMS APPROACH ACTION AREA 1

SUPPORTING AND BUILDING SKILLS AND RESOURCES ACROSS THE REGION

The direct and indirect impacts of climate change on our region will not be evenly distributed across our society. Some parts of the system will need extra support and investment in building skills. Of particular concern are small to medium enterprises, community service organisations and vulnerable industries.

Conversations with economic development officers across multiple local government areas² in Greater Melbourne indicate that climate change impacts have not yet registered as a priority for most businesses. In addition to business groups requiring support and skills building around the transition to clean energy and energy efficiency, support is also needed to increase their resilience to and manage risks from climate change. Useful resources are available at this [link](#).

Small to medium enterprises such as retail and small firms, and some sectors including horticulture, manufacturing, tourism, transport/logistics and industries with outdoor workers (e.g. construction) may need particular support. Small businesses may have less financial stability and security, making them less resilient to shocks and stressors of all kinds. Other businesses are more exposed to climate impacts in particular, due to their dependency on or exposure to weather and climatic conditions.³ It is important to include mental and physical health issues faced by the organisation's employees as poor wellbeing can also pose risks to functions and assets.

Community service organisations and local councils play an important role in supporting at-risk communities during extreme weather and other climate impacts.

For example, following significant storms in June 2021, eastern councils provided hot showers, additional waste services and relief centres to affected members of the community.

While all of our region's communities require information, the organisations that support them also require ongoing training and capability building. For example, coastal local councils and Committees of Management indicated that they need training to improve understanding of 'adaptation pathways' approaches. They also want to explore multiple climate scenarios and the options to address impacts. There are many ways we can build skills in the Greater Melbourne region, including embedding skills and knowledge on how to identify and reduce risks,⁴ building adaptation principles into existing forums, tools, training, programs, and guides.

² See 'Exploring vulnerabilities' project.

³ See 'Exploring vulnerabilities' project.

⁴ The SECCCA Asset Vulnerability Assessment project toolkit will show how to undertake vulnerability assessments and explore adaptation pathways.





A SYSTEMS APPROACH ACTION AREA 1

SUPPORTING AND BUILDING SKILLS AND RESOURCES ACROSS THE REGION



Priorities

- » Awareness raising around climate risk, clarifying roles and responsibilities of both state and local governments, defining legal liability and ensuring agencies can exercise duty of care.
- » Continue to support local government to identify, understand and address climate change risks. The types of support and capability building might include actions like:
 - Councillor and staff training sessions on how climate change affects their roles and work.
 - Availability of data and data modelling.
 - Vulnerability assessments, adaptive capacity assessments and adaptation pathways.
- Advice on climate risk assessment and risk management.
- Feasibility studies and cost benefit analysis of adaptation measures for key assets and services in Greater Melbourne.
- Piloting significant asset adaptation projects, including business cases for expanded roll-out of successful projects.
- Access to finance and funding to implement adaptation measures.
- » Adaptation planning for specific at-risk business sectors at the state level.
- » Local approaches that support preparedness, including peer networks, trusted local leaders, mentoring and a network of community leaders.
- » Support delivery of workshops on the risks of climate change for the community sector and the emerging responsibilities in this uncertain environment.
- » Grants and resources for the business sector that help businesses conduct climate risk assessment, mitigation and planning.
- » Specific capacity building and funding for climate adaptation – e.g. by regional and industry bodies, local and state government – particularly targeting at-risk sectors.



SUPPORTING CLIMATE RESILIENT SERVICE DELIVERY



Climate change is increasing the frequency and severity of extreme weather events. This action area looks at the impact of weather extremes on the delivery of community support services (things like medical and health support, meal provision, childcare and transport) as well as the delivery of essential services like energy and water.

In our region, providers of important health and support services include local government, community support groups, state government, private organisations and community-based enterprises. During periods of extreme heat, storms and other climate-related events the delivery of services can be compromised. Fortunately, there is much that can be done to continue to provide this support and build our resilience. Funding mechanisms can be designed to support key businesses and groups to review their processes and plan ways to deliver services in extreme conditions.

Relationships and collaboration between state agencies and local government can be strengthened to promote discussions around delineation of responsibilities and where there are shared responsibilities.



WE KNOW HEAT IS A MAJOR IMPACT ON PEOPLE'S HEALTH...STRESS TESTING HELPS INFORM OUR CLIMATE STRATEGY OVERALL AND SUPPORTS US TO BETTER FORECAST AND PLAN...IT ALSO HELPS US HAVE CONVERSATIONS WITH OUR TEAMS AT AMBULANCE VICTORIA ABOUT CLIMATE CHANGE AND WHAT IT MAY MEAN FOR US IN THE FUTURE.⁵



Ambulance Victoria



Continuity of services is vital during extreme weather events.
Image: Shirley Diez

⁵ Ambulance Victoria - Victoria's Future Climate Tool - case study, see <https://www.climatechange.vic.gov.au/victorias-changing-climate>



SUPPORTING CLIMATE RESILIENT SERVICE DELIVERY

Support could be provided for Victorian councils to increase the resilience of their services. Standards and protocols could be developed to protect people working under extreme conditions. Scenario planning sessions can be delivered to assist people, groups and businesses to plan ahead. Service delivery timing can be designed to be flexible during extreme weather events.

Sudden or acute weather impacts (like wildfire, storms or extreme heat) as well as more chronic climate impacts like declining rainfall can affect water and energy infrastructure.

Important energy and water infrastructure components are located across all parts of our region. This means that localised extreme weather events can result in damage that has significant flow-on effects. For example, in August 2020 thousands of households across Melbourne's north and east were advised to boil their water, after storms caused electrical damage that caused pump failures, which resulted in contamination.

More recently, in June 2021 the Dandenong Ranges and parts of suburban Melbourne were seriously impacted by storms and severe winds that toppled large trees, damaging houses, cars and powerlines. Thousands of homes were without power for weeks as service providers and emergency authorities raced to clear trees and assist people.

Extreme rainfall can result in the flooding of electrical substations (the interface between transmission and distribution lines), resulting in the loss of power.

Extreme heat increases the level of demand for electricity (e.g. due to increase cooling load) and can increase the likelihood of infrastructure failure at the generation, transmission or distribution level – these impacts can result in widespread power outages at a time when power is needed most, and can often have serious health impacts. In these instances, the region's support facilities (particularly emergency relief centres) need to be able to ensure power continuity whilst maintaining safe indoor temperatures if servicing vulnerable people.



Storm damage in June 2021. Image: Rod Anderson

SUPPORTING CLIMATE RESILIENT SERVICE DELIVERY



Priorities

- » Identify key services that are at risk from climate change across our region.
 - » Develop benchmarks for health and support service delivery, model impacts of climate change on current service levels, and set targets and performance levels for these services. Commit to mitigating climate change impacts on these services.
 - » Support projects that promote benchmarked levels and targets, and that improve performance of health and support services above these targets.
 - » Deliver projects that continue to test the applicability of a shared-services model for resource-constrained organisations to come together and explore climate risks for their service delivery.
- » Scale learnings and successful programs across the sector (and share with other applicable sectors).
 - » Support projects that consider the complexity and uncertainty inherent in climate change adaptation planning for community-facing local government services.
 - » Deliver programs that continue to build collaborative relationships between state agencies and local government, the community sector and other stakeholders.
 - » Improve energy reliability and thermal performance at local government emergency relief centres.
 - » Facilitate collaborative programs between councils and distribution network service providers that build resilience in the energy system by decreasing reliance on centralised energy supply.

COMMUNITIES CONSULTED DURING OUR ONLINE PUBLIC ENGAGEMENT PROCESS IDENTIFIED THAT PROTECTION AND MANAGEMENT OF OUR WATER SUPPLY IS AN 'AREA OF HIGHEST CONCERN'.



A SYSTEMS APPROACH ACTION AREA 3

IMPROVING INFRASTRUCTURE RESILIENCE ACROSS THE WHOLE SYSTEM

The built environment is at risk from a range of climate impacts, such as damage from extreme weather events, inundation and erosion due to sea level rise, the accelerated wear and tear of materials, structures and foundations.

Infrastructure such as water and sewerage pipes can be damaged by severe wetting and drying cycles that crack and damage pipes. Different types of infrastructure can be exposed to multiple climate impacts which can have short-and long-term effects.

Often, the appropriate response to the impacts identified will depend on the expected lifespan of the asset. For assets with short life spans (e.g. electrical assets) or periodic replacement requirements (e.g. pavement surfacing), adaptation measures will be implemented on an ongoing basis as their design lives are reached. For assets with longer lifetimes (e.g. bridges), the appropriate response would be to build adaptation measures into the construction requirements

and to maintain existing long-life assets to ensure they operate as intended.⁶

There are significant opportunities to improve liveability and wellbeing through better planning and through modification of existing built infrastructure. Understanding where and how existing assets can be better used to support communities is crucial. Public and some commercial building assets can be modified so they can be used as climate refuges, support communities during disruption, or act as support and information hubs during extreme events. These assets occur in all communities and can form a climate refuge web across our region.

Two of our Strategy development projects examined buildings, community relief centres, bridges, roads and drainage. They found that much of our local government managed community infrastructure is not able to cope with existing and future climate impacts.



Urban greening. Image: Shirley Diez

⁶ Information and concepts from Ernst and Young report (EAGA)





A SYSTEMS APPROACH ACTION AREA 3

IMPROVING INFRASTRUCTURE RESILIENCE ACROSS THE WHOLE SYSTEM



Priorities

- » Establish a regional partnership to build on previous work and share knowledge about climate change impacts to critical system interdependencies and flow on impacts to the community.
- » Upgrade existing building stock, focusing on existing housing, to improve climate resilience.
- » Provide a consistent framework for vulnerability assessments for local governments.
- » Identify adaptation requirements of Greater Melbourne's key community infrastructure and develop adaptation project pipelines for them.
- » Move towards an efficient, fair and adaptive sustainable transport model.

- » Provide new infrastructure to maximise active transport opportunities, reduce congestion and prepares for expected population growth.
- » Replicate and scale up '20 minute neighbourhood' models of living and working.
- » Undertake trial projects that increase the capability of the planning and buildings systems to increase climate resilience.
- » Develop and deliver projects that continue to improve our capability in understanding and addressing local climate impacts and financial/legal consequences.

CLIMATE PROOFING OUR SPORTS FIELDS. KINGSTON CITY COUNCIL HAS GROWING DEMAND FOR ITS SPORTS FACILITIES BUT RECOGNISES THE INCREASINGLY DRIER CONDITIONS AND EXTENDED PERIODS OF HOT WEATHER NEGATIVELY IMPACT ITS PLAYING FIELDS. IT UNDERTOOK A SUITE OF INTERCONNECTED MEASURES TO ENSURE BETTER QUALITY PLAYING SURFACES, WHILE REDUCING USE OF POTABLE WATER AND IMPROVING STORMWATER FLOWS.





A SYSTEMS APPROACH ACTION AREA 4

FOCUS ON ISSUES AND LOCATIONS WITH WIDER SYSTEM IMPLICATIONS

This action area acknowledges the challenges in balancing effort between issues that are widespread across the region (e.g. extreme heat) and issues that are location specific but with potential for wider system implications (e.g. local impacts on critical infrastructure). There are a number of themes that could continue to emerge here – four key themes have been described.

Extreme heat as a key issue affecting the whole system

Our most at-risk groups are extremely vulnerable to the impacts of extreme heat. It is our biggest weather-related killer. Heat exacerbates existing pressures on our whole system – those affected include people, infrastructure, horticultural enterprises, service delivery, transport and energy provision. Flow-on effects include isolation, heat-related illnesses, energy bill stress, poor quality sleep and impacts on mental health. These impacts can be significant for the whole system. There are many things that can be done to reduce the impacts of heat.

These include:

- » sharing knowledge about how to be safe in heatwaves and address the ‘communication gap’⁷
- » provision of emergency/temporary cool indoor spaces/refuges
- » heat mitigation in homes
- » provision of additional cool outdoor spaces
- » greening our streets, and
- » regularly reviewing our data and mapping to ensure the most at risk areas are identified.

Severe floods and storms as a key issue that can impact large parts of the system

Severe storms can result in significant local and acute impacts that can also flow on to large parts of the community. When essential services such as energy are impacted, flow on effects can mean that emergency services can be stretched, and the stress on communities can be extreme.

Impacts of wildfire as a key issue with flow-on effects for the entire region

There are many complex issues related to wildfire that affect our region. The immediate impacts can be devastating: in our region we have experienced terrible events where human lives were lost, wildlife and livestock were killed, and property and infrastructure such as powerlines were destroyed and damaged.

There are also significant flow-on effects from wildfires: the impacts of smoke inhalation can be severe, the mental trauma associated with significant events can be ongoing in some communities, productivity of horticulture and viticulture enterprises can be impacted. Tourism, accommodation and related small businesses can be impacted. Our region's water resources can also be affected, for example, water quality is impacted if catchments are burnt, and pumps and other machinery can be damaged.

⁷ From ‘Sweltering Cities’ project





A SYSTEMS APPROACH ACTION AREA 4

FOCUS ON ISSUES AND LOCATIONS WITH WIDER SYSTEM IMPLICATIONS

Planning system as a lever for change and improvement

Many local government and other stakeholders in the planning and building sectors consider the authorising environment for Victoria's planning and building system to be inadequate to address climate change.

The *Planning and Environment Act 1987*, which establishes the legal framework for the use, development and protection of land, and the Victoria Planning Provisions, that underpin the Act itself, provide limited consideration to climate change, but it is argued that this does not reflect the priority placed on climate change in other legislation relevant to our region. Plan Melbourne considers climate change principally and directly. The overarching governing principles in the *Local Government Act 2020* promote mitigation and planning for climate risks.

At the state-wide level, the *Climate Change Act 2017* ensures that decision makers consider the impacts of climate change relevant to economic, environmental, health and other social impacts. Reform of the planning system presents substantial opportunities to align the *Planning and Environment Act 1987* with these legislative frameworks.

Building sector practitioners and others also argue that the National Construction Code does not sufficiently take account of climate change adaptation and natural hazard mitigation. In the context of extreme heatwaves and power outages, for instance, some buildings have indoor temperatures that exceed international health standards. Many of our region's buildings are vulnerable to other extreme weather events without changes to building standards.

Other opportunities to improve in our planning and building system include:

- » Environmentally Sustainable Design measures by the Victorian Government may not support climate change adaptation and hazard mitigation without broad reforms across the planning and building systems
- » The absence of a legislative mandate for zero carbon targets for new development
- » Limited awareness in the building and planning sectors of how to achieve a climate-resilient built environment
- » Little incentive for local governments and developers to undertake innovative practices to improve climate adaptation



FOCUS ON ISSUES AND LOCATIONS WITH WIDER SYSTEM IMPLICATIONS



Priorities

- » Recommend that local and state government collaborate to create a climate-resilient planning system.
 - » Give consideration to declaring a climate emergency for Victoria
 - » Consult broadly across all planning sector stakeholders around opportunities to reform Victoria's planning system.
 - » Pursue any legislative (and other changes) to ensure the planning scheme can deliver a zero emissions and resilient community.
 - » Support projects that prioritise health and well-being in climate change.
 - » Support projects that directly link climate action to social and economic recovery from COVID-19.
 - » Support projects that enhance Melbourne's capacity to help and link to regional Victoria.
- » Support conservation of Melbourne's water catchments and Victoria's native forests.
 - » Encourage every local government area in our region to develop regional active transport plans, including mapping specific infrastructure requirements, with communications of health and climate benefits.
 - » Develop new cross sector planning process to harmonise land use planning and energy sector planning processes which currently occur in isolation.
 - » Emergency response – Include extreme heat waves as an emergency that requires a coordinated response.
 - » A focus on Heat Planning system communications and Energy Transport Emergencies.
 - » Rapid response to reconnect/provide power after disasters.



Incident control centre
Image: DELWP



CREATING A MORE EQUITABLE AND SUSTAINABLE SOCIETY ACTION AREA 5

A FOCUS ON SUPPORTING THE MOST AT-RISK COMMUNITIES AND PEOPLE

Across our region some groups of people are more at risk from the impacts of climate change than others. They may find it difficult to access or interpret timely and relevant information about what to do in extreme weather conditions like heat waves, bushfires or flash-flooding. Our key stakeholders agree that we need to address inequality and prioritise assistance for those living in disadvantaged areas.

Important factors which constrain a person's ability to be informed, understand and take action on climate change in parts of our region can include low literacy levels, poor English skills, low income levels and unemployment. Other factors include living in high-density public housing, rental housing, having pre-existing health conditions, or being elderly. Vulnerability to climate change impacts such as extreme heat and reduced air quality due to bushfires, is exacerbated in relatively disadvantaged communities.

Programs to support and train community leaders will ensure provision of clear information about options available locally during significant weather events. Locally based community support groups such as EnLiven, Co-Health and Jesuit Social Services are also well-placed to provide important local messages about where to go and what to do. There is also a significant role for state and local government as well as private investors to provide support under this action area.

OUR WORK OVER THE PAST 18 MONTHS HAS MADE IT CLEAR THAT SUPPORTIVE CLIMATE-RELATED MESSAGING IS BEST DELIVERED LOCALLY AND BY TRUSTED COMMUNITY LEADERS.



Melbourne Markets. Image: Anggun Tan, unsplash.com



CREATING A MORE EQUITABLE AND SUSTAINABLE SOCIETY ACTION AREA 5

A FOCUS ON SUPPORTING THE MOST AT-RISK COMMUNITIES AND PEOPLE



Priorities

- » Ensure that the people most at risk are not worse off in a changing climate. This is an opportunity to address the disadvantage and inequality that exists today.
 - » Provide programs that support our most at-risk communities to become more resilient to extreme weather events.
 - » Deliver communications and engagement projects for at-risk groups, including Identifying a network of community leaders.
 - » Identify, map and monitor climate-vulnerable populations across Greater Melbourne, including mapping of cool routes for at-risk communities.
 - » Support community service organisations to build their resilience and business continuity to minimise disruptions to service delivery.
 - » Provide support for a Community of Practice for the community service sector to share knowledge and learn from each other.
- » Build and/or upgrade existing community buildings, such as Community and Neighbourhood Houses, to create a network of safe resilient places where people can go in weather extremes.
 - » Identify and set a target for adequate passive open space (POS) across all municipalities, develop climate-resilience and safety guidelines for POS, and pilot projects which build climate-resilience and safe POS.
 - » Set minimum standards for energy efficiency, cooling and other climate resilient measures.
 - support low-income homeowners to meet these minimum standards.
 - retrofit public/social housing to meet these minimum standards.
 - ensure rental properties meet these minimum standards.



A solo busker is sitting in front of the Flinders Street Train Station. Image: Adobestock.com





CREATING A MORE EQUITABLE AND SUSTAINABLE SOCIETY ACTION AREA 6

INCREASING AND ENHANCING THE NATURAL ENVIRONMENT, URBAN GREEN SPACES AND PARKS

There are two key considerations to be covered in this action area. Firstly, the need to increase the amount of vegetation and green spaces in our region to help buffer urban heat and other extremes, and secondly, to acknowledge that our existing ecosystems and parks will be under additional pressure as our climate changes.

The importance of nature to human health and wellbeing is well documented and our online public engagement showed a very strong desire for protection and enhancement of our region's natural environment and parks. Living green vegetation can also provide mental as well as physical health and wellbeing outcomes. Increasing the amount of trees and plants in the city has obvious benefits like providing shade, soaking up carbon and helping to buffer temperature extremes. This can also translate into economic benefits: the amenity value of the City of Melbourne's urban forest has been estimated at around \$700 million, which is in addition to the environmental and social benefits that this asset provides.⁸

Incorporating more elements of nature into our cities can also help us to deal with some of the immediate effects of climate change. For example, we can reduce the impact of heavy rainfall events by capturing and storing water to sustain our urban forest. We can reduce the effect of heat waves in urban areas by incorporating street trees, green walls and green roofs in areas that would otherwise store heat.

Melbourne's green wedges and coastal areas also include natural vegetated areas that people value greatly. In our region these areas are vulnerable to the impacts of climate change as well as the impacts of increasing visitor use. Land tenures and management approaches vary widely across our region, as do the amount of resources and investment available. A well-supported, coordinated approach to managing the precious natural areas in our region could help address some of the climate-related challenges ahead.



IN ORDER TO IMPROVE THE QUALITY OF LIFE OF CITY-DWELLERS, URBAN DECISION-MAKERS MUST BECOME CHAMPIONS OF URBAN BIODIVERSITY AND MOVE AWAY FROM VIEWING BIODIVERSITY LOSS AS A RURAL CONCERN.....CITIZENS OF ALL AGES MUST BE EMPOWERED TO BE STEWARDS OF NATURE. WE MUST ALL WORK IN SYNCHRONY TOWARDS ENCOURAGING CITIES TO WORK FOR BOTH PEOPLE AND THE PLANET TO ENSURE THEIR LONG-TERM VIABILITY.'



How to reimagine our cities as hubs for biodiversity conservation and climate resilience' by Mauricio Rodas Espinel and Lena Chan, for World Economic Forum 5 June 2021.

⁸ Figures in this paragraph taken from 'Exploratory Study: quantifying costs and options for climate change adaptation investments in Greater Melbourne'





CREATING A MORE EQUITABLE AND SUSTAINABLE SOCIETY ACTION AREA 6

INCREASING AND ENHANCING THE NATURAL ENVIRONMENT, URBAN GREEN SPACES AND PARKS

Along the coast there are additional issues. Firstly, coastal vegetation, including internationally significant salt marshes and mangroves, can be subject to 'coastal squeeze': it can be locked in between the water and developed land or roads, preventing its natural inland migration response to changing sea levels. Addressing what to do in situations like this may require extensive public engagement and deliberation. Secondly, for other areas there will be opportunities to explore how the restoration of mangroves and sea grass beds can act as important buffer areas to reduce the intensity of erosion and damage from storm surges.



Altona foreshore. Image: Parks Victoria



CREATING A MORE EQUITABLE AND SUSTAINABLE SOCIETY ACTION AREA 6

INCREASING AND ENHANCING THE NATURAL ENVIRONMENT, URBAN GREEN SPACES AND PARKS



Priorities

- » Commit to an urban canopy cover target of 30-40% by 2050 . This could be delivered by State government departments, agencies, and local government) Targets must be supported with measurement and tracking of progress.
- » Accelerate investment in street trees, parks and gardens, water sensitive urban design, stormwater capture and reuse and permeability.
- » Create local carbon sinks and protect existing mature trees.
- » Trial more Water Sensitive Urban Design (WSUD) elements with links to living green infrastructure in high profile public areas.
- » Support projects and planning approaches that protect and increase vegetation cover on private land.
- » Support behaviour change programs and create consistent communications that encourage and raise awareness about the value of vegetation on private land.
- » Support community urban greening activities and include a public awareness campaign to improve community attitudes to greening.
- » Create cool, green, water-sensitive streets, including all street infrastructure – roads, verges, footpaths, drainage.
- » Support actions and investments that will help to enhance our urban forest and enable the 'Living Melbourne' Strategy.
- » Support adaptation projects that also improve biodiversity, and consider site and species selection to build resilience and decrease maintenance requirements.
- » Support projects that protect and re-create coastal areas of mangroves and sea grass - to increase biodiversity as well as providing a natural buffer to coastal erosion in key places.
- » Support collaborations and projects that move toward a more connected, regional approach to managing and restoring native vegetation and other natural assets such as wetlands, rivers and parks.





LEARNING TO ADAPT AND TRANSFORM ACTION AREA 7

MONITORING, EVALUATION AND REPORTING FOR CONTINUOUS IMPROVEMENT

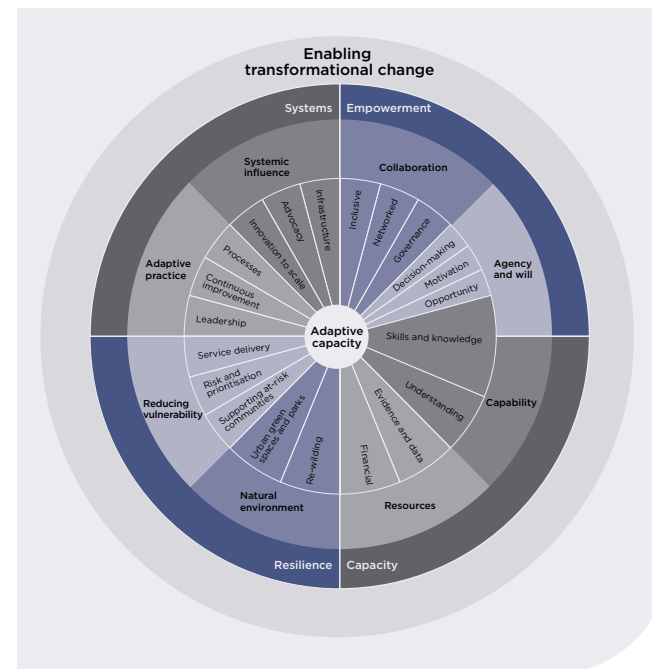
THIS ACTION AREA EMPHASISES THE IMPORTANCE OF SETTING ASIDE TIME AND RESOURCES TO DELIBERATELY ASSESS THE EFFECTIVENESS OF ADAPTATION ACTIONS DELIVERED BY OUR INDUSTRIES, BUSINESSES AND SERVICE PROVIDERS.

By setting time aside regularly, public and private enterprises can ensure they are on a path of continuous learning and improvement. Transparent reporting facilitates trust and collaboration between organisations and their communities.

Tools and support can assist with this process: for example, our Stakeholder Committee worked with Think Impact to develop our evaluation approach for the delivery of this Strategy. The diagram outlines how we will monitor and evaluate our region's entire adaptation program delivery (including our development design, our projects, the Strategy and its impacts).

This action area also includes encouraging public and private organisations to report on and share learnings about climate change impacts on their enterprises and their responses to those impacts. It includes projects that are supportive of ongoing sector or industry workshops to learn from each other and promote the use of best practice decision-making. It includes projects that support greater transparency and accessibility of reports and data about climate change, and deliberately sharing these with affected communities.

It includes public and private enterprises and their communities working together, potentially as Communities of Practice, to explore specific adaptation issues, using tools such as scenario planning and 'Pathways' approaches. The action area also includes regularly checking government policy, guidelines, Acts and legislation to ensure they are supportive of monitoring, evaluation and reporting on climate change and responses.



Impact Framework. Developed by Think Impact for our Regional Adaptation Strategy.



LEARNING TO ADAPT AND TRANSFORM ACTION AREA 7

MONITORING, EVALUATION AND REPORTING FOR CONTINUOUS IMPROVEMENT

It also includes encouragement for private organisations to check their own policies and strategies are still meeting their adaptation needs.

While monitoring, evaluation and reporting cannot resolve all questions associated with adaptation, they can provide a greater understanding of:

- » The ways in which climate change is impacting community-facing services
- » Emerging risks to assets
- » Institutional processes to support adaptation planning
- » Community awareness of and support for adaptation
- » The impact of climate change on an organisation's resources.

This allows more informed decision-making practices that emphasise learning, reduce the extent of unknown factors in adaptation planning and avoid maladaptation.⁹



Monitoring and evaluation of projects, policies and programmes forms an important part of the adaptation process.

ULTIMATELY, SUCCESSFUL ADAPTATION WILL BE MEASURED BY HOW WELL DIFFERENT MEASURES CONTRIBUTE TO EFFECTIVELY REDUCING VULNERABILITY AND BUILDING RESILIENCE. LESSONS LEARNED, GOOD PRACTICES, GAPS AND NEEDS IDENTIFIED DURING THE MONITORING AND EVALUATION OF ONGOING AND COMPLETED PROJECTS, POLICIES AND PROGRAMMES WILL INFORM FUTURE MEASURES, CREATING AN ITERATIVE AND EVOLUTIONARY ADAPTATION PROCESS.



(UNFCCC, 2010, p. 4).

Project outcomes

- To what extent is there progress towards outcomes? Are there any unintended negative or positive outcomes occurring?
- Do any of the actions exacerbate other impacts of climate change (lead to maladaptation)?
- How can future climate change adaptation actions be improved?

Strategic outcomes

- To what extent is there progress towards outcomes? Are there any unintended negative outcomes occurring?
- Does the RAS 'lock in' outcomes? Are the outcomes robust across different scenarios?
- How can future climate change adaptation actions be improved?
- To what extent have actions been delivered to the adaptation priorities of the Climate Change Act and the Regional Adaptation Plan

Adaptive capacity

To what extent is adaptive practice occurring within the system? How is the system learning? How rapidly can the system learn from new information and insights? What are the barriers and enablers to learning? What adaptive practice examples exist within the region? What lessons have been learned about the adaptation process? How can these be used to enhance future actions and build adaptive capacity? Which relevant departments, agencies and systems are involved?

Key evaluation domains and questions. Developed by Think Impact for our Regional Adaptation Strategy.

⁹ Western Alliance for Greenhouse Action (WAGA) and RMIT University. How Well Are We Adapting - Final Project Report 23 July 2020





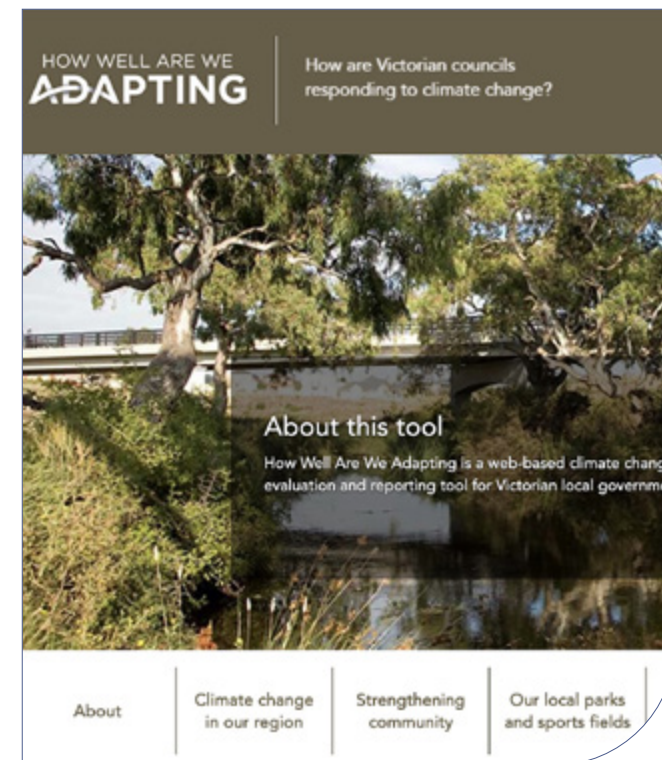
LEARNING TO ADAPT AND TRANSFORM ACTION AREA 7

MONITORING, EVALUATION AND REPORTING FOR CONTINUOUS IMPROVEMENT



Priorities

- » Expand and promote existing monitoring, evaluation and reporting programs, such as How Well Are We Adapting.
- » A coordinating group will
 - apply the monitoring, evaluation and reporting framework to undertake a biennial review of progress on delivering this Strategy.
 - take steps to ensure that the Strategy is transformational and make adjustments as needed.
 - undertake a regular review to identify a transformational action to deliver at least every two years.
- support projects and programs which improve the availability, accuracy and accessibility of data on climate change risks, impacts and responses.
- » Continue to support programs, training, projects and case studies that demonstrate and teach the importance of monitoring, evaluation and continuous learning.
- » Support activities and projects that have a focus on making knowledge and data more accessible and transparent.



Snapshot of the 'How well are we adapting' website





LEARNING TO ADAPT AND TRANSFORM ACTION AREA 8

EMBRACING TRANSFORMATIONAL OPPORTUNITIES FOR OUR REGION



Priorities

- » Encourage projects which:
 - Are innovative and push beyond known best practice and/or
 - Support zero GHG emissions by 2050 and/or
 - Are designed to reach the whole community or at least engage whole sectors and/or
 - Promote or develop new sustainable models and values, such as 'doughnut economics'.
 - » Encourage all climate change adaptation and resilience projects to reach beyond minimum standards.
- » Undertake a review every two years of the Regional Adaptation Strategy to assess its trajectory towards transformation.
 - » Hold workshops every two years to explore how we are progressing and what we are learning.
 - » A project to examine the benefits of establishing a separate agency focused on regional, social and climate resilience.



Talking about Climate Change Innovation projects.
Image: DELWP Port Phillip Region





MAKING ADAPTIVE AND TRANSFORMATIONAL CHANGE TOGETHER ACTION AREA 9

CLIMATE CHANGE IS AN ISSUE FOR EVERYONE

Because climate change is impacting everyone, everyone needs to be part of the adaptive and transformative actions proposed in this Strategy. By 'everyone' we mean households, individuals, businesses, community groups, industries, service providers, rural communities, local government, state government, residents, and visitors. If we don't share knowledge and work together now, the costs to adapt individually or to adapt later, may be too high. We need to bring everyone along by engaging widely.

Even while we reduce our reliance on fossil fuel energy sources, the climate will keep changing for some time. We need to build a shared understanding of the ongoing nature of climate impacts. That means that all areas of decision-making and planning will need to anticipate future conditions that are more extreme than what we have experienced in the past. In our region we may also need to consider issues around climate change and disaster-related migration, displacement and planned relocation; and how to support climate change affected communities.

Resilience is so much more than just responding to and bouncing back after extreme events. The ability of the whole community to change and adapt to changing conditions through cooperation and learning is essential. Citizen engagement in decisions and actions has multiple benefits including securing local ownership and support; creating heightened trust, transparency and credibility for decisions; making policies practical and relevant, and reducing costs.

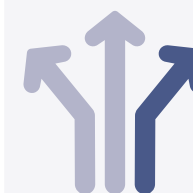
This action area includes:

- » Projects that support deliberate and purposeful engagement about climate change adaptation impacts and actions. This engagement can be broad or targeted to specific at-risk and vulnerable groups or people.
- » Projects that promote collaborative problem-solving to support adaptation as an ongoing process. These will be collaborative projects that encourage sharing of information and promote the concept of 'learning by doing'.



ENGAGE ON THESE ISSUES?

BRING EVERYONE ALONG?



ONE WAY IS TO SHARE AUTHENTIC STORIES OF ADAPTATION IN OUR REGION, AND TO CONTINUE TO SUPPORT AND PROMOTE COLLABORATIVE MULTI-PARTNER PROJECTS.



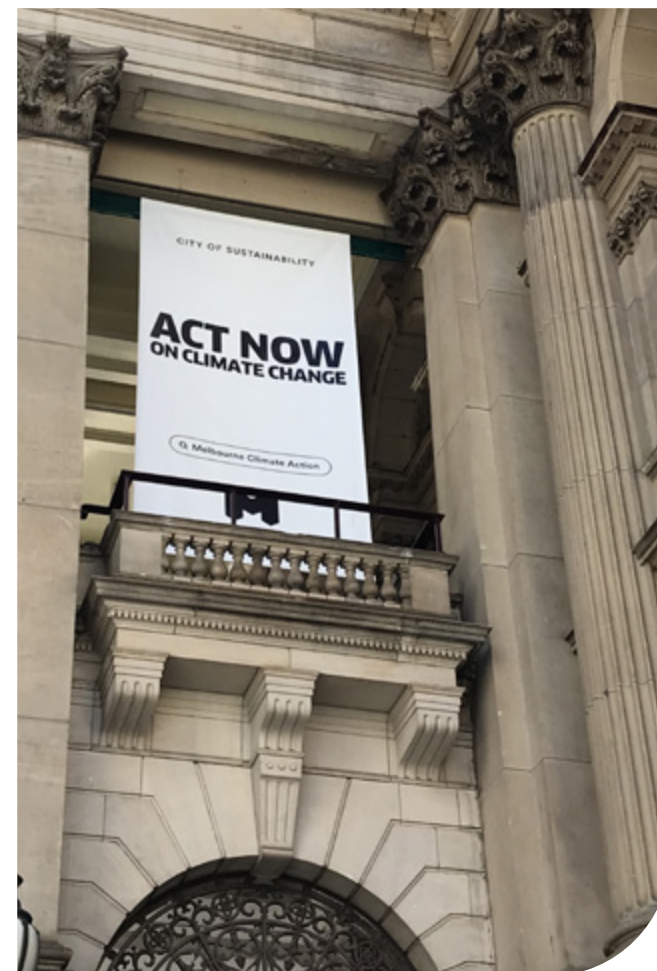
MAKING ADAPTIVE AND TRANSFORMATIONAL CHANGE TOGETHER ACTION AREA 9

CLIMATE CHANGE IS AN ISSUE FOR EVERYONE



Priorities

- » Deliver engagement and communications that link specifically to adaptation projects.
 - » Support and reward groups and projects that work collectively, encourage citizen engagement with (and ownership of) adaptation measures, encourage and demonstrate learning, improving, and skills sharing.
 - » Invest in seed funding to establish Communities of Practice that can explore various approaches together. Prioritise support for a Community of Practice for Coastal adaptation issues and a Community of Practice for heat-related health issues.
 - » Support communications innovation and research – new messaging and new ways to disseminate the messages.
- » Support projects that encourage bold conversations around climate change solutions.
 - » Support groups working with at-risk people in Greater Melbourne to develop their own engagement materials.
 - » Support scenario planning and testing of plans, and communities practicing what to do in weather emergencies.
 - » Support a health and climate campaign promoting the links between climate resilience and other important concerns such as health, waste minimisation, and local food production.



City of Melbourne 'Act now'
Image: Shirley Diez





This action area acknowledges that some locations within our region will be at greater risk from the impacts of climate change than others. Three examples of at-risk locations are outlined below.

Complexities around the coast

Due to the combination of ongoing sea level rise, the expected increase in severe storms and associated storm surges, coastal areas are vulnerable to the impacts of climate change. Greater Melbourne has more than 600 kilometres of coast, including Port Phillip Bay and Westernport. Many people live and holiday near the coast, and research has demonstrated a strong and important link between the quality of the coastal environment and the quality of life for many Victorians. It is a very dynamic part of the landscape in our region, and we know that extreme weather events, increased wave action, storm surges and sea level rise will alter sand movements and increase erosion rates.

The impacts on the coast will continue to intensify and will be felt on private property and public land, natural wetlands and vegetation, as well as roads, surf clubs and tourist destinations. How we manage issues around the coast as a society will set us up for dealing with similarly complicated discussions about other things in the future.

Coastal areas are characterised by complex, interconnected socio-ecological systems. A key challenge for our region is to adapt these systems by managing risks to the natural and built environments, and to the communities that depend on these environments.

A Coastal Adaptation Pathways project is complementing broader state-wide initiatives by supporting coastal land managers through region-specific capacity building activities. These activities, designed to build the skills of coastal land managers, also establish channels for collaborative practices and learning opportunities across organisations. Collaboration can provide a whole-of-region lens to identify and manage risks to our coastal communities and environments.



Storm surge damage at Edithvale.
Image: Darren James

Complexities around our urban fringes

The urban fringes are often places where Melbourne's boundaries are expanding to accommodate population growth and new developments. Some of these areas will also be exposed to heat and bushfire weather resulting in increased severity and frequency of grass fires. Rural enterprises may also be at risk from wildfires.

The costs of bushfires go beyond lives lost and physical injury, they can also include impacts on mental health, alcohol and drug misuse, chronic disease, family violence and the environment.¹⁰ While the management of bushfire risk is a complex issue and is addressed in detail elsewhere,¹¹ this Strategy emphasises promoting the benefits of scenario planning and the importance of delivering local actions to support at-risk people.

While agriculture and rural land values can be at risk from weather extremes, rural industries can also be significant carbon emitters. However, rural industries can and should play a major role in building regional resilience and absorbing carbon.

As the climate changes, agriculture and other rural industries are also transitioning. For example, crops can be selected to suit changing environmental conditions and some types of land use can capture carbon in soils. Technological advances are also playing a role in changing how and where we grow food, and how local growers can respond to potential changes in people's diets and nutritional demands.



Land use and agriculture on the fringes of our region will continue to change. Image: Shirley Diez

¹⁰ For example, see <https://esv.vic.gov.au/wp-content/uploads/2021/01/REFCL-CBA-Public-Report.pdf>

¹¹ For example [Safer Together – Safer Together](#)

Complexities of heat in our city centre and built-up areas

Some climate change challenges are increased by our large urban area. Built up areas function as a 'heat island' when daytime heat is absorbed into hard structures like buildings and roads. The heat is then released overnight, keeping the average overnight temperatures higher. Without overnight cooling during heat waves, people can be more vulnerable to health impacts. For example, after three consecutive days of extreme heat, services like Ambulance Victoria report increases in emergency cases and heat-related hospital admissions, as well as significant numbers of excess deaths.¹²

Healthcare professionals are particularly concerned about people living in poor quality housing without efficient heating or cooling.

The impact of extreme heat in urban areas can be reduced by using reflective or heat-resistant materials and by incorporating green infrastructure such as street trees, green walls and green roofs. Living plants can help cool urban environments by providing moisture and shade as well as some health and wellbeing benefits.

Mapping is available that identifies areas of high heat vulnerability that could be used to prioritise areas for greening or related heat-mitigating activities.¹³ In many instances the distribution of high heat areas aligns with areas of socio-economic disadvantage.



Urban greening can help to cool the city:
Parliament House green roof. Image: Shirley Diez

¹² <https://www2.health.vic.gov.au/Api/downloadmedia/%7B959CCD3C-8285-4938-872E-62E15AA62C62%7D>

¹³ <https://www.planning.vic.gov.au/policy-and-strategy/planning-for-melbourne/plan-melbourne/cooling-greening-melbourne/cooling-and-greening-melbourne-interactive-map>



Priorities

- » Prioritise, fast-track and scale-up investment in cooling and greening activities in places where high heat vulnerability aligns with areas of socio-economic disadvantage.
 - » Problem-solving projects that maximise engagement to address the complexities, e.g. scenario-planning exercises on coastal adaptation with all stakeholders.
 - » For places most at risk from climate impacts, explore the range of adaptation options available, including 'planned retreat' and nature-based methods.
- » Explore climate-resilient ways to manage vegetation and landscapes to reduce bushfire risk (for example by increasing water retention in the landscape).
 - » Encourage development of climate plans and governance structures in specific at-risk locations.
 - » Build capability for local government, coastal committees of management and other land managers to use pathways approaches and other tools for complex decision-making.



Centre place, Melbourne

Image: Steven Groeneveld, unsplash.com



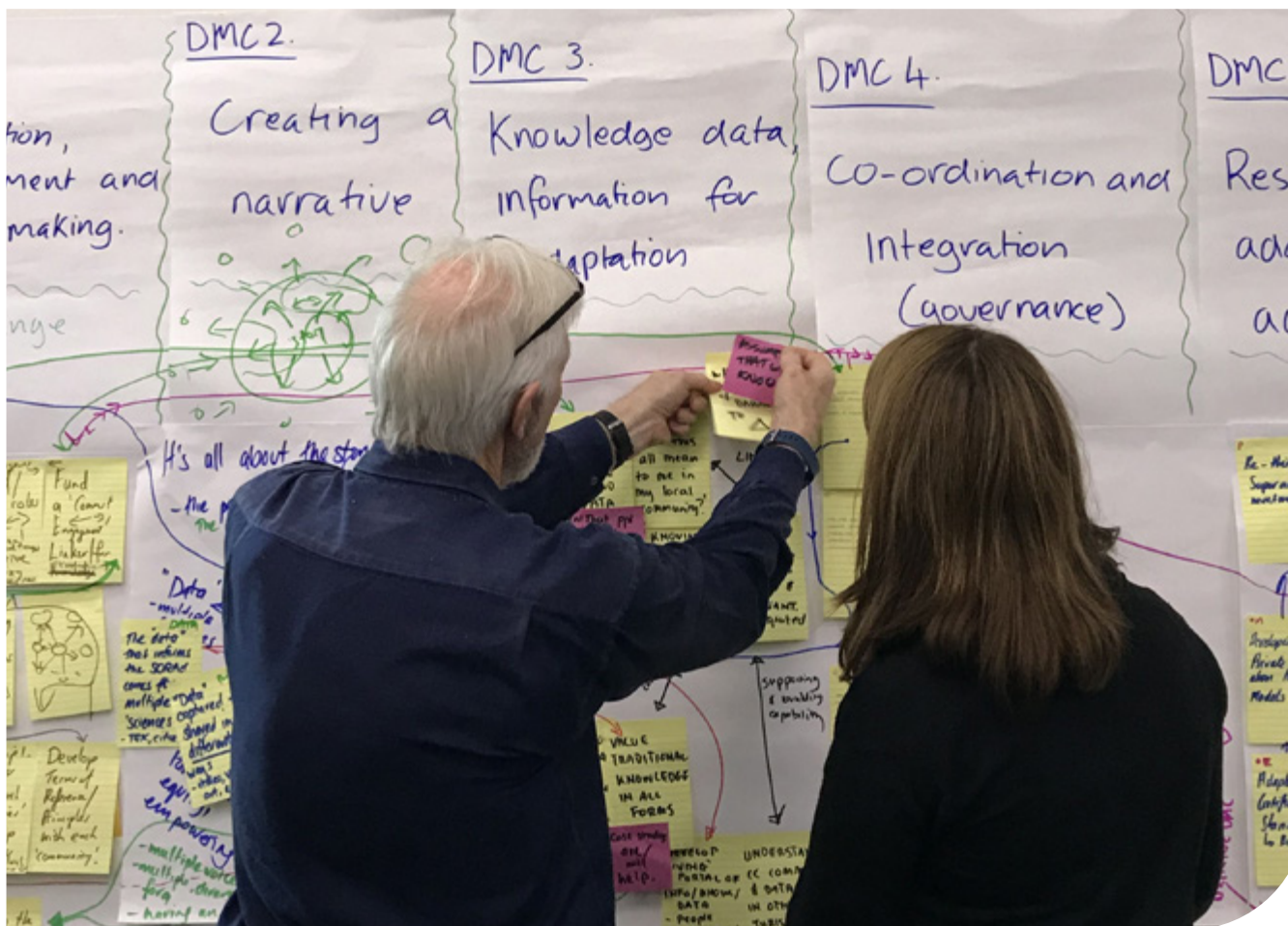
UNDERSTANDING, INFORMING, ADVOCATING AND EMPOWERING ACTION AREA 11

STRENGTHENING THE KNOWLEDGE, DATA AND EVIDENCE BASE FOR DECISION-MAKING

This action area addresses several points about data and decision-making. Firstly, we don't always have all the information we need in order to act. Businesses, organisations and sectors may need to gather data about what parts of their organisations are at risk or exposed. They will need to access and interpret data on climate risks, the financial or non-financial consequences, and the costs/benefits of potential adaptation measures.

Secondly, we need to support a mind-set and practice of ongoing monitoring and evaluation to ensure we learn from each other and adapt. Many organisations already do regular risk analysis which can be extended to include climate impacts. Any actions taken to reduce risks should be documented and regularly assessed to ensure they achieve what is intended.

Finally, we need to improve our capability in understanding and addressing financial and legal consequences. Businesses will need to come to grips with increased legal liability in the areas of occupational health and safety, customer safety and boards' obligations.



Strategic planning for adaptation. Image: Shirley Diez





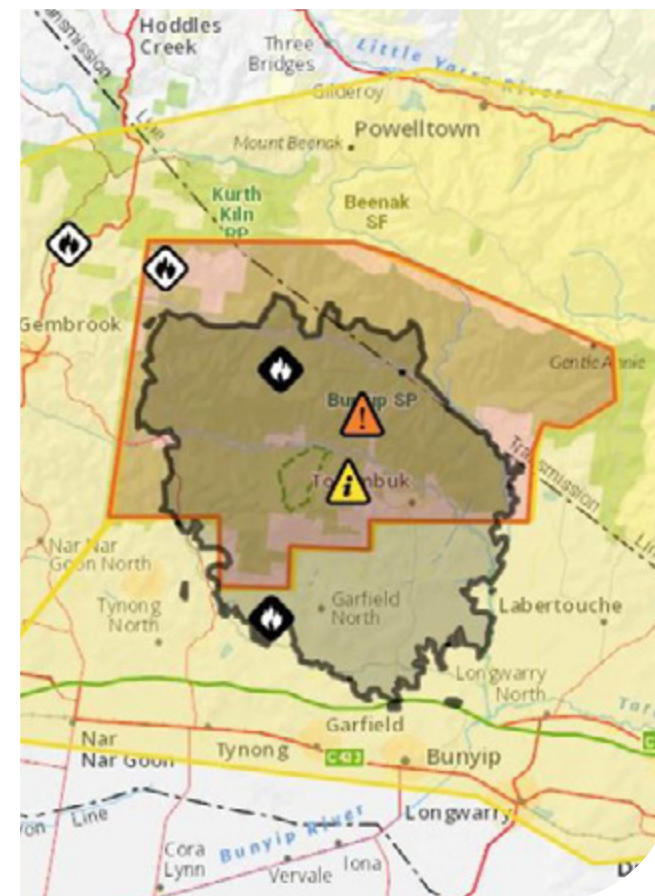
UNDERSTANDING, INFORMING, ADVOCATING AND EMPOWERING ACTION AREA 11

STRENGTHENING THE KNOWLEDGE, DATA AND EVIDENCE BASE FOR DECISION-MAKING



Priorities

- » Deliver projects that will improve understanding of legal implications in disclosure and decision-making about climate-related issues in our region.
 - » Encourage the delivery of projects that explore ways to collate and share data about soils, future climate and suitable crops for rural parts of our region.
 - » Establish an 'open data platform' to inform adaptation decision making as per the Australian Business Roundtable for Disaster Resilience and Safer Communities recommendations, 'Building an Open Platform for Natural Disaster Resilience Decisions'.¹⁴
- » Explore options that enable the provision of centralised information and resources specific to the region.
 - » Provide training and resources that support documented decision-making approaches like pathways approaches.
 - » Address key data gaps that emerge after the development of a cost/benefit framework for our region.
 - » Build on the evidence base to ensure that the costs and benefits of adaptation options can be appropriately monetised and incorporated into standard decision-making frameworks (i.e. business cases).



Using data and mapping to assist in decision-making.
Image: DELWP

¹⁴ <http://australianbusinessroundtable.com.au/our-research>





UNDERSTANDING, INFORMING, ADVOCATING AND EMPOWERING ACTION AREA 12

COLLABORATIVELY MAKING THE BUSINESS CASE FOR INVESTING IN ADAPTATION

Implementing priorities in this Strategy will take significant resources.

In order to attract adaptation investment to our region, we need to clearly outline the case for investment, and gather solid data to underpin what actions come next.

We know that defining the value proposition and the financial benefit of adaptation projects is a barrier to financing. As a society we understand and are familiar with the 'costs of recovery', now we need a greater understanding about the cost benefits of 'preparedness' as well.

Other parts of this Strategy build the case for investment, but it's such a critical need in itself that we're devoting a whole Action Area to it. This action area highlights that more work and effort is needed to understand how funding can be directed to support a range of adaptation projects.

Research delivered as part of this Strategy¹⁵ identified that further work is required to build on the evidence base to ensure that the costs and benefits of adaptation options can be appropriately monetised and incorporated into business cases. The report identified that 'Most climate adaptation projects... do not fit traditional cost benefit models and do not fit the current schemes and systems that are in place. Mitigation projects for instance have undergone these changes and innovation, where reduction in carbon is seen as a key metric (with associated financial values). No such metrics exist for adaptation as yet... many adaptation projects simply do not fit and do not pass the test of being able to deliver more benefits to costs, particularly over longer time periods with traditional discount rates.'

The project highlighted that one of the most effective ways to address this problem was to start looking at adaptation financing as risk mitigation. This allowed planning for projects that had benefits much further into the future that typically would have been discounted away.

This action area includes exploring new funding models, forming new partnerships and collaborations (notably cross-sector, inter-agency collaboration). By working in this way, we can all reduce the costs of adaptation.

¹⁵ Exploratory Study: quantifying costs and options for climate change adaptation investments in Greater Melbourne





UNDERSTANDING, INFORMING, ADVOCATING AND EMPOWERING ACTION AREA 12

COLLABORATIVELY MAKING THE BUSINESS CASE FOR INVESTING IN ADAPTATION



Priorities

- » Develop and promote application of new cost benefit frameworks, which include the costs of not implementing adaptation (i.e. 'the counterfactual' or 'business as usual'), to assess the value of adaptation measures.
- » Establish an ongoing program of support for councils to collate data and quantify the monetary costs and benefits of adapting public infrastructure, assets and associated community services.¹⁶
- » Outline the types of funding mechanisms that can help, with a shift from funding and grants to sustainable finance opportunities including public private partnerships.
- » Develop a regional 'investment prospectus' to support private and public investment in adaptation measures in Greater Melbourne.



Aerial view of residential houses in Melbourne.
Image: Adobe Stock

¹⁶ 'How Well Are We Adapting' includes specific indicators to monitor climate change-related costs of community services and assets over time.

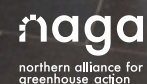


SECTION 3 THE PROJECTS



Greater Melbourne Regional Climate Change Adaptation Strategy

2021



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SECTION 3 THE PROJECTS

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Our Stakeholder Committee wanted the Strategy development process to emphasise learning by doing, to see knowledge as a public good, to focus on collaboration and to apply a social equity lens. That is why this Strategy has been created and informed by a series of projects.

THE PROJECTS

INTRODUCTION

In this section you will find the details of the range of projects that were delivered to progress our understanding of climate change adaptation across Greater Melbourne. The projects explore ways of telling stories, sharing hopes and fears, and learning. They include art projects (that will result in delivery of a street art mural in inner Melbourne), a green wall installation, a community values map on Engage Victoria and a questionnaire for secondary school geography students. These projects provide a way of collecting and sharing community information, points of view and preferences.

We delivered several projects focused on building the adaptive capacity and knowledge of a range of key groups across our region. We are establishing a learning framework to evaluate our Regional Adaptation Strategy and ensure that our Strategy meets DELWP policy and program obligations.

Our committee is very aware of the mismatch between funding availability and funding demand. Several pieces of work are intended to help our region move toward a clearer understanding of what needs to be done, what levels of funding are required, and who might contribute. They focus on discovering (with our partners and stakeholder groups) key vulnerabilities and potential ways of considering and acting on them. It includes a range of projects where selected participants learn about methods of decision-making in uncertainty. There is also an emphasis on growing our knowledge by coordinating, sharing, and collaborating.



Eastern suburbs.
Image: Craig Moodie



CLIMATE READY COUNCILS

Project detail

This project was designed to improve how climate change adaptation is embedded across councils at the governance level and to identify how to improve their adaptive capacity. It included testing an adaptive capacity 'self-assessment' process with councils through training workshops, materials and one-on-one mentoring. It also involved identifying how councils can develop a council plan that ensures climate change is prioritised and embedded across councils' governance processes.

Rationale

Embedding consideration of climate change as an integral part of council operations is key to ensuring successful adaptation responses within the local government sector. This requires understanding the strengths and weaknesses

of the council and the interaction between the organisation and specific climate change impacts. It requires moving beyond an ad hoc approach to climate-related governance.

Successful embedding needs to be measured and new methodologies tested for their effectiveness. Assessing a council's adaptive capacity will show how 'climate ready' the organisation is to progress effective climate change strategies and actions, mitigate and manage risks and vulnerabilities, and identify those governance and organisational areas needing strengthening or further support. Identifying a process specifically to develop a 'climate ready' council plan will identify how this important document can reflect and drive climate change action and embedding, particularly as organisational governance is such a key condition for strong adaptive capacity.



Monitoring and recording data.
Image: Scott Graham, unsplash.com



CLIMATE READY COUNCILS

What we did

The project was undertaken as a partnership between WAGA, based at Brimbank City Council, NAGA, based at Hume City Council, and the Climate Change Exchange (CCE), an initiative led by RMIT University's Centre for Urban Research. An Adaptive Capacity Checklist (ACC) and associated guidance materials was finalised and made available to ten Greater Melbourne councils (and one regional council) online. These councils were at different stages in embedding climate change adaptation. They were provided with the opportunity to implement the checklist – one group with active support, and one group without active support, and the experiences of both groups were compared and evaluated. Councils were supported to embed climate change in their Council Plan development process through a webinar to share ideas, an online forum to continue that discussion and a Guide produced with input from councils. After Council Plans are submitted in October 2021 the project team will review how well councils integrated climate change into their latest Council Plan, what opportunities and challenges it produced, and produce recommendations for the next Council Plan process and for embedding climate change in other council strategic plans.

What we have learnt so far

Adaptive Capacity Checklist:

- » Councils will be helped to better understand their adaptive capacity through a quick and user-friendly tool that can be self-administered.
- » Councils see the value in a tool that is specifically tailored to the local government context. The adaptive capacity checklist is beneficial because it was designed for councils and can be used flexibly alongside or integrated with existing processes to add value.
- » Council officers are seeking practice-relevant advice, resources and evidence to build the business case for adaptation internally and to engage with other teams across different operational areas. The additional resources provided in this project including the survey, resource library and 'next-step' suggestions can be used by councils to develop capacity at their own pace.
- » Councils are seeking opportunities to engage in benchmarking to track their progress and to understand how they compare to other local government areas.

Council Plans and Climate Change:

- » Councils are still learning the best way to embed climate change in their Council Plans due to the high-level nature of Council Plans and their unique place as the plan most strongly reflecting community and councillor aspirations and commitments.
- » Councils wanted a framework / guidance to help them embed climate change in their Council Plans, but councils differed on how prescriptive it should be.
- » Some councils struggled to have climate change as a leading factor in their Plans due to no clear guidance or reporting framework on how the climate change elements of the Local Government Act should be implemented. Mandating embedding climate change in all key strategic plans would be useful.
- » More than in previous Council Plans, councils are seeking to include climate change as a cross-cutting theme rather than limiting it to one part.
- » Education for staff, executive and councillors on climate change and what it means for their service(s) would help to embed climate change into their plans and programs.

More details [here](#).



EXPLORING VULNERABILITY: COMMUNITY AND BUSINESS

Project detail

This project was led by the Northern Alliance for Greenhouse Action. The project explored the particular vulnerabilities of at-risk communities and business sectors, assessed their level of preparedness for climate change impacts, and identified possible ways to raise their levels of preparedness for and resilience to these impacts.

Rationale

The regional climate change gap analysis of the Greater Melbourne region (previous work to inform this Strategy) identified that communities and the business sector were experiencing negative impacts of climate change and were at high risk of experiencing such impacts in future. Some communities lacked the knowledge to prepare themselves, while others faced structural barriers to adaptation. The strategies for addressing these two kinds of vulnerability are different, and both kinds must be addressed in order to protect at-risk communities.

What we did

This project involved:

- » conducting a desktop review based on a literature review of relevant government, community, media and academic documents
- » Semi-structured interviews with more than twenty representatives working in peak bodies, networks and organisations within the community, government, educational and business sectors and surveys of community organisations and businesses
- » A webinar for businesses: 'Your business and climate shocks: Are you prepared?' In collaboration with NORTH Link NAGA developed and delivered a business webinar to raise awareness of climate impacts and risks, and strategies to manage them, amongst businesses and council workers who support them. It featured a panel discussion and question and answer session with two local businesses who have been proactive in managing climate risks, Exquisite and 3 Ravens.

- » A three-part workshop series for community service organisations (CSOs) and council workers who work with at-risk communities was held in March 2021. In collaboration with VCOSS, enliven, Jesuit Social Services Centre for Just Places and the City of Greater Dandenong, NAGA developed workshops to help the community sector build their organisational capacity to adapt to climate impacts, support at-risk communities experiencing climate impacts, and to articulate their support needs and contribute to regional adaptation planning processes and thinking.
- » A report has been prepared detailing recommendations on how to address the vulnerabilities of at-risk communities and businesses at the individual, community, sectoral and state level.

What we learnt

Addressing the need for knowledge of unprepared at-risk communities will at best lead to a level of personal preparedness that is a necessary but not sufficient factor for



EXPLORING VULNERABILITY: COMMUNITY AND BUSINESS

at-risk communities in adapting to climate change. Best practice community-based communications approaches will be needed to make sure that information on climate risks and impacts, and on personal preparedness, is reaching all at-risk communities.

Addressing the vulnerability of 'aware and prepared but vulnerable' at-risk communities involves breaking down systemic barriers and building long-term solutions to deep-rooted issues of equity, such as providing housing for people who don't have homes, investing in preventative health, and investing in at-risk communities themselves as well as the organisations they rely on.

There are few explicitly adaptation-focused interventions in the business world, let alone tailored for at-risk business sectors, however, there is great potential to incorporate adaptation into existing programs. Support is needed at the individual business level, the sectoral level, and the state level to address key risks to businesses, such as workforce and economic risks, and to build the capacity of at-risk sectors to plan and prepare for climate change impacts.

More details [here](#).



Bushfire smoke over Melbourne. Image: Greg Brave, Shutterstock.com



CITY ENGINE: URBAN SYSTEMS HEAT VULNERABILITY ANALYSIS

Project detail

City of Melbourne and DELWP are working in partnership on a pilot project to assess the impact of extreme heat on critical interconnected urban systems and services across inner Melbourne. These systems support our most basic needs and enable us to connect and grow as a city and community, which is why it is important to analyse Melbourne at a systems-level to understand the susceptibility of both individual and interdependent systems to shock and stresses, with a specific lens on extreme heat.

Rationale

The complexity of urban systems and the services they provide is increasing given trends such as population growth and urban density. More people than ever before are reliant on systems that the city provides including electricity, water, transport and health systems. The impacts of climate change on Melbourne's urban systems are wide and varied, with future predictions showing the likelihood of exacerbating and compounding impacts as a result of interconnecting shocks and stresses.

Understanding the impact of climate events on our interdependent urban systems and the cascading impacts is critical to identifying the potential socio-economic disruption, informing interventions and improving the climate resilience of our city users.

What we did

To gain deeper insight into nine urban systems, associated interdependencies and past exposure to climate hazards, as well as increase understanding of the vulnerabilities that arise because of these interdependencies, numerous engagement activities were undertaken. This included two workshops and one-on-one interviews with key stakeholders.

The first workshop focused on the cascading impacts of climate events on dependent urban systems. The City Engine team used the outputs of this workshop to develop a series of urban system interdependency maps. The second workshop built on this thinking and focused on the impact of extreme heat coupled with a bushfire scenario. The aim of the second workshop was to understand system dependencies and implications for city users from a Community Capitals perspective, as well as to consider potential adaptation interventions.





CITY ENGINE: URBAN SYSTEMS HEAT VULNERABILITY ANALYSIS

What we learnt

The City Engine project has provided the following insights:

- » A systems approach provides a greater depth of understanding on potential climate risks. By assessing the potential impact of climate events on the systems that support community wellbeing, beyond the bounds of City of Melbourne's jurisdiction, the City Engine project has identified a range of additional risks and opportunities relevant to Council operations and the community.
- » The importance of the people who operate urban systems and the importance of people in responding to an event (for example crews to re-establish electricity connections) needs to be further recognised. People need to be identified as a 'key component' in each critical urban system.

- » The importance of engagement and working in partnership is critical to tackling wicked problems. Delivery of the City Engine project involved approximately 40 meetings or discussions with system representatives and two facilitated workshops. These activities provided a richness of understanding and insight into each system. Further, it provided a foundation for a longer-term relationship between the City of Melbourne and key system and community representatives.

More details [here](#).



Melbourne city with Bass Strait.
Image: City of Melbourne





ASSET VULNERABILITY ASSESSMENT TOOLKIT

Project detail

This project was delivered in the south east of Melbourne with eight of the South East Climate Change Councils Alliance (SECCCA) council members. The project is building local government capacity by documenting and sharing the processes and approaches developed during the delivery of 'SECCCA's Asset Vulnerability Assessment Project', forming a council toolkit. This end product will be a guide to assist other Victorian councils to undertake the assessment process themselves.

The engagement of assets teams across the asset classes of roads, buildings and drainage and the consultation process required to determine an appropriate methodology and framework to meet the desired outcomes of the project will be considerable.

This also includes the process and narrative used to gain support and involvement from the assets teams to participate in the project.



Current drainage infrastructure may be inadequate for severe weather events. Image Shirley Diez



ASSET VULNERABILITY ASSESSMENT TOOLKIT

Rationale

Ultimately, the asset teams understanding, commitment and application of the approaches developed during the project will ensure that climate change asset resilience planning and implementation becomes business as usual.

Capturing this will enable SECCCA and other councils to build on and refer to these approaches as this work continues over time.

What we did

The project included the development of guidelines involving:

- » Project methodology and council engagement approaches.
- » Identify exposure to climate change variables (temperature, rainfall and sea level rise) now and in 2030 and 2050.
- » Vulnerability of these asset classes (roads, drainage and buildings). Those that will be assessed will be prioritized and depending on risk level will receive a desktop or full risk assessment.
- » Options to improve the resilience of these assets.
- » Financial modelling approaches and cost implications of options focusing on the long-term financial and asset management planning.
- » Alignment with council strategic risk registers and business continuity plans.

What we learnt

The lessons learnt focus on enabling project elements of planning, governance, budget, the project processes/format, engagement, and work practices.

- » Having the right people in the room is essential
- » Language clarity is fundamental
- » Scope creep needs to be actively managed
- » Engagement and broad communication are essential
- » Asset vulnerability assessment projects need champions
- » 'Data Quality' is a multi-faceted element, and all facets need some focus
- » The Project Control Group needs to be two or three steps ahead

More details [here](#).



RESILIENT EMERGENCY RELIEF CENTRES

Project detail

Emergency relief centres provide support, essential services and refuge to communities affected by emergencies. This project assessed selected secondary Emergency Relief Centres (ERC's) to identify opportunities to improve the resilience of the facilities to likely climate change events. Assessment findings informed the development of action plans for each site, prioritising specific building upgrades to address the identified vulnerabilities. The project sought to build the capacity of council facility managers to address climate change risks in their day to day asset management planning and processes.

What we did

Twenty-three buildings were assessed using a Climate Change Building Vulnerability Assessment (BVA) framework, which was also reviewed as a key project output. A shared staff member worked across the eight participating councils to build capability within each of the facility management teams. Council specific recommendation reports were provided to the participating councils. Project learnings will be shared through a regional summary report, video tutorials and case studies.

What we learnt

Council buildings are at risk from climate change related events. These risks are more extreme when the sites are activated as 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.

Buildings are likely to be safer, more comfortable, more affordable to operate (and lower greenhouse gas emissions) following implementation of the recommended adaptation measures. Simplifying and streamlining the BVA framework will be necessary before it can be effectively mainstreamed in asset management practices in councils.

The BVA process enables councils to act on climate change risks in an informed way. Under current legislation (*Local Government Act 2020*, *Climate Change Act 2017*), councils have a 'duty of care' and failure to act on known risks may leave councils open to claims of negligence.

More details [here](#).



Box Hill Town Hall was assessed for its resilience.
Image: Eastern Alliance for Greenhouse Action.





CLIMATE PERSPECTIVES: TRADITIONAL OWNER PROJECTS, MULTICULTURAL STORIES PROJECT

Project detail

We met several times with representatives of three of our region's aboriginal community organisations to explore how they wanted to engage on issues related to climate change and nature in the city. We also spoke with a peak body for Melbourne's multi-cultural communities to explore opportunities to learn from migrant experiences.

Rationale

This project draws upon the rich cultural heritage of our traditional owners and the experiences of our multicultural communities by sharing their stories with young people.

What we did

We are working with our traditional owners, geography teachers and Melbourne's multicultural communities to deliver a range of story-telling activities and educational resources. Activities with traditional owner groups will help deliver place-specific storytelling interventions for young people.

Students will have the opportunity to hear and learn from our elders and then reinterpret these stories using creative mediums, in a way that is relevant to their own lived experience.

The Geography Teachers' Association of Victoria will work closely with Melbourne's multicultural communities to develop educational resources for geography students in years seven and eight. Proposed resources include short video interviews with people who have migrated from regions faced with serious water scarcity issues. This resource will help to inform students of the experience of our migrant communities adapting to a changing climate. Importantly, these students will have a resource to utilise when considering how to adapt our region to drier conditions predicted in the future.

What we learnt

Narratives are a powerful tool for how we relate to and understand a changing climate. This project is continuing.

More details [here](#).



We have much to learn from each other and narratives are a powerful tool. Image: Johan Mouchet, unsplash.com



EXPLORATORY STUDY: QUANTIFYING COSTS AND OPTIONS

QUANTIFYING COSTS AND OPTIONS FOR CLIMATE CHANGE ADAPTATION INVESTMENTS IN GREATER MELBOURNE

Project detail

The purpose of the study was to assist in quantifying climate change costs and impacts and identify options for adaptation investment for Greater Melbourne. The Eastern Alliance for Greenhouse Action engaged Ernst and Young to scope and develop a clearer evidence base on the costs of climate impacts on public and private assets and infrastructure and identify relevant adaptation measures, and scope associated costs and benefits.

Rationale

The purpose of the project was to assess whether these types of adaptation measures are applicable to 'impact investors' and test the feasibility of a regional investment prospectus.

What we did

The first stage of the project involved a literature review on a number of asset classes including energy, buildings, green infrastructure, roads, rail, shipping and ports and water.

The analysis identified three major areas of focus for which reasonable conclusions could be drawn - the electricity sector, the urban forest and the building sector. Consultations were conducted to discuss the outcomes of the literature review, examine data gaps, and explore the relevance of the findings for the region. These interviews also served to identify further areas of research required to enable more robust quantification of adaptation costs and benefits.



Updating street lighting to be both resilient and energy efficient.
Image: Eastern Alliance for Greenhouse Action

EXPLORATORY STUDY: QUANTIFYING COSTS AND OPTIONS

What we learnt

It is clear that significant work is required over the coming years to ensure that the Greater Melbourne region can continue to prosper and thrive in the face of a changing climate. This will require support from both the public and private sectors, and at the organisational and individual levels. In order to be successful, this Strategy must consider the existing gaps in understanding the impacts, both financial and non-financial, of climate risk and related adaptation measures, and then seek to drive investment in such measures.

More details [here](#).

AREA	FINDING
General	Public information is not sufficient to allow for a reliable estimate of the cost of climate impacts or the level of adaptation investment required for the Greater Melbourne region.
Electricity Sector	The need for further adaptation is understood, however modelling, planning and regulatory barriers prevent sufficient investment.
Urban Forest	Previous analysis has made it difficult to holistically and accurately understand the cost and benefits of investment in Greater Melbourne's urban forest.
Building Sector	The focus in this sector has been on mitigation of emissions rather than adaptation to climate impacts.
Adaptation Investment	The barriers to adaptation have resulted in a significant investment deficit at global and regional levels.

Table identifying areas of focus for the study.
The analysis identified three major areas of focus for which reasonable conclusions could be drawn.



Buildings used as Emergency Relief Centres are important assets to maintain.
Image: Eastern Alliance for Greenhouse Action



COASTAL ADAPTATION SCENARIOS/PATHWAYS

Project detail

This project is an example of ‘problem solving in an at-risk location’ and is supporting coastal land managers to deal with the impacts of climate change to coastal environments by building their capacity to apply the adaptation pathways approach. This methodological framework is especially suited to long-term, iterative and complex adaptative planning practices for coastal areas.

What we did

The project’s first component invited coastal land managers across our region to identify their individual and organisational knowledge and use of the pathways approach. We found that an overwhelming majority of respondents expressed a clear need for capacity building activities to further their understanding and use of this approach.

We held our first workshop in early June 2021. This workshop brought together coastal land managers, representing coastal local governments, coastal committees of

management, state government agencies and the Bunurong Land Council Aboriginal Corporation. In small groups, we considered adaptation options in order of: non-intervention, avoid, nature-based methods, accommodate methods, retreat and protect, as guided by the Marine and Coastal Policy (2020).

What we learnt

We learnt that this collaborative approach supported stakeholders to develop their understanding and apply the pathways approach to issues relevant for Great Melbourne’s coastal communities. We also learnt that this workshop provided an opportunity for coastal land managers from diverse backgrounds to share learnings and support each other to deal with complex and difficult issues in coastal areas. This workshop will help pave the way for a community of practice to provide ongoing support, encouraging collaboration across local government, traditional owners, state government and committees of management.

More details [here](#).



Coastal erosion. Image: Tamara van Polanen Petel





CLIMATE RESILIENT SERVICE DELIVERY

Project detail

This project was led by the Western Alliance for Greenhouse Action in partnership with RMIT University's Centre for Urban Research and with a selection of councils from across Melbourne. Applied scenario planning was used to consider the complexity and uncertainty inherent in climate change adaptation planning for community-facing local government services and develop appropriate guidance for their design and future use. The project worked with the participating councils on the impact of more frequent and severe heatwaves on two key services: maternal and child health services and passive open space.

Rationale

Climate change is increasing extreme heat events, with more frequent and longer heatwaves projected for the future. Communities, particularly at-risk populations, must be supported to cope with the impact of heat events on community services, and local governments play a key role in delivering these services.

The Climate Resilient Service Delivery project will be used to inform climate change adaptation for these services across local government. It will provide a methodology and learnings for applying scenario planning for further important community services and will contribute to data and understanding of climate change responses by local government through the 'How Well Are We Adapting' (HWAWA) program.

What we did

Workshops were held with the community care and health services teams and open space planners and other relevant officers within the selected councils. Briefs with key considerations and recommendations were developed and will be distributed for us by all councils in Victoria.

What we learnt

Passive open space:

- » Water Sensitive Urban Design (WSUD) is an important lever to help keep our parks and open space green to realise public health and wellbeing benefits, act as flood mitigation infrastructure, manage stress and potential mortality of vegetation, and help realise the cooling benefits of urban greening. While WSUD cannot decrease the extent of uncertainty with relation to other policy levers, it may help with water availability for the irrigation of passive open space and decrease reliance on external water allocations.
- » Many potential adaptations remain untested at the local level, and the extent to which interventions such as changed planting choices or the adoption of specific WSUD features will be successful is dependent on specific geographies, including not just the bio-physical, but how individuals and communities relate to these interventions. Organisation's should plan in ways that incorporate flexibility through, for example, iteratively incorporating new information to inform different actions to reach a strategic objective.



THE PROJECTS

CLIMATE RESILIENT SERVICE DELIVERY

- » Community education, engagement, and ownership may assist with community acceptance and use of passive open space, as well as other benefits such as fostering community connection or a sense of environmental stewardship. This could encompass a wide range of activities: for example, education activities contributing to community acceptance of particular features, park design activities fostering a sense of ownership or utilisation, through to more substantive power-sharing arrangements.

Maternal and child health services:

- » Investment in future needs is essential, and consideration should be given to improving long-term infrastructure and accessibility of the services under scenarios of increased heatwaves.
- » An important consideration is how heatwaves may extend service hours and how that would impact staff retention.
- » Facilities in high-risk settings should be regularly audited for how they will be impacted by heatwaves. Heating, ventilation and cooling systems may be particularly important to assess.

More details [here](#).



The use of passive open space. Image: Wyndham City Council



GREEN WALL AND URBAN GREENING DEMONSTRATION PROJECT

Project Detail

The main purpose of this project was to demonstrate the potential for green walls in the urban environment and to share information about how the use of watered living plants can provide localised cooling in hot exposed places subject to the heat island effect. Sharing information and learnings from the project with the metropolitan network of councils and the local community was also an important project goal.

Rationale

Climate change will make the urban areas of Melbourne much hotter with impacts on human health. Green walls and other green infrastructure can reduce heat (through shade and evaporative cooling), increase and improve comfort levels for people as well as make spaces more attractive.

International studies indicate that bare walls can be up to 20° C hotter than walls with vegetation. The importance of cooling walls in summer is highlighted through 3D models, that show walls comprise a large surface area compared to rooftops and footpaths.

Barriers to installation of green walls in Victoria include lack of knowledge and concerns around cost and potential vandalism. We wanted to build understanding and knowledge of the potential for green infrastructure with a small pilot at a high profile public site in a local government area significantly impacted by urban heat.

What we did

The regional DELWP team partnered with Moreland City Council to install a 3x2m native plant green wall at the Coburg Library. We documented the process of selecting a site and installing the wall. Several community drop in sessions were held at the site and local native plants were handed out with each conversation.

The installation included an interpretations board with information about the native plants being used. We also showed interested community members the heat image photography produced by a heat gun that provided the current temperature on both exposed and green walls.

A workshop with the green wall installer was held at the library to share knowledge and key learnings with interested local government practitioners.



GREEN WALL AND URBAN GREENING DEMONSTRATION PROJECT

What we learnt

Finding suitable sites to place a green wall takes time and patience. Many issues needed to be considered when selecting a suitable site for installation of a modular green wall. Issues such as heritage status of the building or restricted site access, impacts on footpath accessibility, safety for visually impaired people, unknown strength of walls, and concerns about the footings of buildings being impacted. Wall orientation was also an important factor to achieve the cooling effect from the greening.

There were some concerns around local cultural communities potentially not being interested in native plants, with potentially greater interest in lush tropical species. This has not appeared to be the case – at our drop-in sessions locals showed interest in native wildflowers that could do well in their gardens without watering.

One of the biggest concerns was that the modular green wall would be damaged or vandalised. After almost two years since the installation, the wall had not been damaged. Occasionally some pieces of plant material showed signs of being removed, and a small amount of graffiti was found on one of the accompanying signs.

More details [here](#).



Native plant green wall at Coburg library. Image: Shirley Diez



CLIMATE CHANGE NARRATIVES

YOUTH ENGAGEMENT, ART PROJECTS, COMMUNICATING WITH AT-RISK GROUPS

We have worked closely with educators, community groups and artists to engage young people in the development of our Strategy and more broadly to craft narratives related to climate change adaptation. We have partnered with the Geography Teachers' Association of Victoria, Blender Studios, the Arthur Rylah Institute, Enliven, the Jesuit Social Services and the Victorian Council of Social Services to deliver a series of activities involving young people. These activities have encouraged young people to express their voices on climate change and to contribute their creative ideas through positive explorations about our city's climate change future.

Rationale

Young people will be one of the groups most impacted by a changing climate. These activities have been designed to elevate the role of young people in our Strategy's development and to provide a creative outlet to share positive ideas about our city's climate change future.

What we did

We have delivered a series of art competitions with our partners. This included the *Hot Houses Cool Art*, *Cool City* and *Urban Dreaming*, Urban Greening art competitions. This art series challenged young people to question underlying assumptions about our city-region's climate change future, by asking them to envisage the adaptive role of urban greening and cooling practices to help achieve a sustainable future. We received dozens of submissions from young people as part of our art competition series.



Cool City art competition.
Image: Coco and Gab's cool city entry



CLIMATE CHANGE NARRATIVES

Our most recent art competition, *Urban Dreaming, Urban Greening*, will invite students to participate in a workshop with Blender Studios to co-design a climate change mural in Melbourne's CBD.

In partnership with the Geography Teachers' Association of Victoria we ran surveys asking students about their experiences, observations and opinions on climate change. 50 students participated in the survey, representing Melbourne's eastern, northern, western and south-eastern suburbs. Schools from both private and public sectors were surveyed.

These students demonstrated a strong understanding of climate change, with many experiencing the impacts of climate change first-hand, through bushfires and extreme and unpredictable weather patterns. Students offered a range of innovative approaches to climate change adaptation for our city-region

Enliven recently commenced a project in partnership with the Jesuit Social Services for Just Places and the Victorian Council of Social Services to develop a picture-story book containing climate change messages for culturally and linguistically diverse communities about the impacts of heat. These messages will be crafted in collaboration with these communities. The children from these communities will also be given the opportunity to provide illustrations for the book. Once published, this book will be assigned by schools as 'home reading' between school students and parents and grandparents to help bridge generational and cultural knowledge about climate change. This project will be trialled in Melbourne's south-eastern suburbs using one or two schools with community hubs linked to community houses and a local library service.

What we learnt

Findings from the survey and arts competitions highlight the importance of innovative practices. We learnt from young people that the following areas should be prioritised to adapt our region: technology, behavioural changes through regulatory interventions, urban greening and cooling, water sensitive designs and public campaigns to raise awareness. We also received art submissions that offered interpretations for a sustainable and green vision for our region through illustrations of sustainable and active transport options, canopy coverage and technological innovations.

Through the surveys we also learn that most students singled out the Greater Melbourne region as the geographical scale best suited to tackle climate change. Reasons identified relate to our region's unique set of characteristics: concentration and density of people, economic resources and political influence. In their responses, students highlighted the effectiveness of managing and regulating climate change related issues at the city-region level.

More details [here](#).



SCOPING STUDY: COSTS AND BENEFITS OF ADAPTATION OPTIONS FOR COMMUNITY ASSETS

Project Details

The purpose of this project is to develop a clearer understanding of the costs and benefits of different adaptation options, focusing on community assets and infrastructure owned and managed by local government.

A scoping study is currently underway to develop a cost-benefit analysis framework for each major asset class and establish a robust methodology for assessing and prioritising adaptation options in subsequent project phases. More details about the project can be found at [\[link\]](#).

What we did

The first stage of this project, will:

- » Identify sources of quantitative estimates of the monetary impacts of climate change on community assets and infrastructure owned and managed by all councils within the Greater Melbourne region
- » Consult with stakeholders to assess the extent and quality of existing data and information relevant to these assets and explore emerging trends and needs

- » Collate data from local government to develop a baseline profile around costs and benefits of adaptation for important asset classes
- » Identify gaps and develop a clear methodology for addressing data and information gaps
- » Use the findings to develop a cost-benefit framework to use to carry out a cost benefit analysis in a future phase of the project and which will be useful for both public and private stakeholders in future assessments
- » Report and make recommendations for undertaking subsequent cost benefit modelling and key priorities
- » Plan for the second stage of this project by prioritising opportunities.

The health, safety and prosperity of all Victorians is dependent upon the services that the state's assets and infrastructure provide. Primary responsibility to strengthen the resilience of infrastructure and limit the impacts of climate change rests with owners and operators of these assets.

Findings from this project will be used to develop a cost-benefit framework to inform the second stage of the project. Recommendations will also be made for further work to fill any gaps in data. This framework will be available for use by public and private sector stakeholders to carry out their own cost-benefit analysis for assets they own and manage in the types identified.

In addition to the assessment of local government assets, the final report will consider areas where there is opportunity for local and state government collaboration to implement appropriate adaptation solutions. The project will be delivered in close consultation with DELWP and seek to align with and complement the Victorian Adaptation Action Plans (sector-based plans). The project, as a key component of the Strategy, will enable both the Victorian Government and the councils of Greater Melbourne to move forward with confidence in planning for climate change adaptation.

More details [here](#).





REGIONAL RISKS AND ISSUES DISCUSSIONS

Rationale

In this project we wanted to introduce systems thinking to some of our region's key stakeholders and explore what issues and risks were emerging in our city-region. We wanted to build skills in this area by thinking about our city as a system and understanding how others saw the system.

What we did

We held two rounds of discussions, with 56 people from 38 organisations, to build participants' understanding of the city-region as a complex socio-ecological system. Representatives of different organisations and interests were invited to ensure that a range of views were heard. The discussions explored different views of the system, roles in the system and how operations might be affected by extreme weather events such as heatwaves. We then discussed what various organisations might do to respond to events, and then how other groups or people might respond to those changes.

What we learnt

We learnt that stakeholders were willing to allocate time to exploring risks and issues related to climate change. We learnt that people see the city-region slightly differently and that by merging our perspectives we can get a deeper understanding of adaptation concerns and issues. We found that many climate-related events are significant enough to cause flow-on effects or impacts to the functioning of our region.

By setting aside time to discuss problems with a range of perspectives, we are more likely to be able to decide on courses of action that are practical and cost-effective. Discussion like these can provide an opportunity for the discovery of innovative, cheap and practical solutions.

More details [here](#).

Impacts



Heatwaves



Bushfires



Reduced local food production



Transport interruption



Health impacts



Increased staff demand



Over use of nature (parks and beaches)

Snapshot of findings from Scientell report.

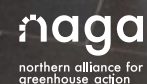


SECTION 4 TOOLS
WAYS OF THINKING, TALKING,
COLLABORATING AND DOING



Greater Melbourne Regional Climate Change Adaptation Strategy

2021



SECTION 4 TOOLS – WAYS OF THINKING, TALKING, COLLABORATING AND DOING

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While delivering projects and preparing this Strategy, several tools and approaches for considering climate change adaptation were discussed, trialled and explored.

Some of the approaches focus on new ways of thinking, communicating, working together and problem-solving. The process of adaptation will be ongoing for as long as our society is experiencing change. This section explores ways we can think about, talk about, collaborate and act on the impacts of climate change.



WAYS OF THINKING ABOUT ADAPTATION

Why do we need to think about climate-related problems differently?

Climate-related problems are different to other problems, because the exact impacts, timing and effects of acute or chronic weather events are uncertain. We can no longer use our knowledge of past events to plan for the future. The events we are responding to may be long or short term, severe or mild. We must prepare for a range of potential impacts and avoid locking ourselves into any one response. For example, planning new infrastructure must consider many impacts the asset may face over its expected lifetime.

We must also ensure we don't invest unnecessarily in something that inadvertently makes a situation worse. Fortunately, there are a number of ways to tackle problems and approach decision-making in complicated situations.

What ways did we try?

- » Scenario planning – working through imagined experiences to explore what might happen, and how we might respond
- » Pathways approaches – to assist in thinking about longer-term choices for areas like the coast, and at what point choices might have to be made
- » Systems thinking – looking at the whole system to reveal unexpected connections and solutions
- » Cost benefit analysis – to reveal more about future costs that could be avoided

What did we learn?

The problem-solving and decision-support processes we have tried through various projects have been incredibly valuable and well received by people in organisations across Greater Melbourne.

There is a clear need to ensure ongoing support for decision-makers and those involved in planning for the future. Communities of Practice could be established to support those working in this area. Some contexts, such as decision-making about infrastructure, cultural values and biodiversity values on the coast, are more urgent than others.





WAYS OF TALKING ABOUT ADAPTATION

Why do we need to engage and communicate differently when talking about climate change?

Many of us enjoy stability and predictability. Knowing what's ahead helps us plan for the future with confidence, while uncertainty can be destabilising and cause people to ignore things that make them feel afraid or unsure.

Across Greater Melbourne there are already many people who support communities and groups to consider and prepare for the impacts of climate change. They have told us that, especially for our society's most vulnerable, planning for a range of scenarios is empowering.

We already know a lot about communicating about climate change; there have been many valuable resources produced to help us do this.¹⁷ We know that many people in our region have first-hand experience of extreme heat, bush-fire smoke and localised flash-flooding, and that people consider climate change in the framing of their own personal values.

Communicating about climate change (it's impacts and what can be done to adapt) is an important part of our regional approach. A person's response to climate issues is based on their personal values, so engaging with them needs to factor in the diversity of our multi-cultural and multi-faith community. There is no 'one size fits all' for engaging on this issue. Every group, community and household will consider the implications of extreme weather events differently.

As community leaders, government authorities, organisations and businesses, it is our role to share information in a way that can be received locally.

As part of our Strategy development, we used a range of approaches, which may provide inspiration for engaging with your community.

¹⁷ For example <https://www.monash.edu/mcccrh/home> and <https://www.climatecouncil.org.au/uploads/17b92edd3cb161a99b455b9b6bf08dc6.pdf>





WAYS OF TALKING ABOUT ADAPTATION

What ways did we try?

- » Online engagement with a values map to encourage communities to think about the local impacts of climate change, and what they value most
- » Convening, talking and communicating in smaller groups to reveal and understand problems
- » Art competitions to help young people explore issues in their own way. (The works have been generally positive and hopeful, and reveal a desire to transition from current arrangements to living spaces that are more supportive and balanced with nature.)

- » Working with Melbourne's Aboriginal communities to explore and develop ideas for story-telling in traditional and modern ways
- » Supporting multi-cultural groups to develop story-telling opportunities so we can learn from climate issues in other countries
- » Designing tailored communications materials with local culturally and linguistically diverse communities

What did we learn?

We listen and learn from those we trust

People learn from those they respect and trust: We learnt that you know your family, your business, and your community better than anyone. We learnt that we need to continue to provide support to you to help inform those you work with or care about to understand some of the risks and some of the actions we can take. We heard that materials should be designed in a way that they can easily be tailored to a local group or community. We heard that it's not enough to translate engagement materials into local languages: people in our region look to trusted leaders in their communities for information.





WAYS OF TALKING ABOUT ADAPTATION

What did we learn?

People and communities have different communication needs

We spoke to people who represent traditional owner groups in our region and heard a range of ideas of how they would like to engage on climate change with their communities. Each of the three communities we spoke to had different preferences around ways of story-telling and documenting the stories. Students have shown that some of them prefer to use art as a communication medium.

Some people are more vulnerable than others

We learnt that it is useful to think about at-risk individuals and communities as falling into one or both of these cohorts: those who lack the knowledge to prepare themselves for climate change impacts, and those who lack resources or face systemic barriers.

The strategies for addressing these two kinds of vulnerability are different and involve different ways of communicating and engaging. Both kinds must be addressed in order to protect at-risk communities.

We can solve problems by getting together and talking

People learn in groups and in settings where they can discover problems and solutions together. Our 'Regional Risks and Issues' and 'Exploring Vulnerabilities' projects enabled groups of people who have similar roles but come from different parts of the region, to come together to workshop suitable recommendations and interventions for a range of situations. This Strategy recommends the establishment of 'Communities of Practice' and other supports.

Best practice community-based communications (extract from 'Exploring Vulnerabilities' project)

The COVID-19 pandemic has highlighted what has long been known at the local level: that at-risk communities are best reached with community-based outreach. This approach includes:

- » Context-specific and place-based information.
- » Multiple avenues of communication.
- » Accessible information in multiple languages
- » Multiple media of communication (going beyond translated written materials and including videos, social media, and community-based means of communication).
- » Use of trusted local sources that are embedded in local communities to distribute information.
- » Tailoring and distribution of needs-specific information, such as specific personal preparedness information for people with disabilities.
- » Ensuring pandemic conditions are factored in.





WAYS OF COLLABORATING ON ADAPTATION

Why do we need a particular focus on collaboration in relation to climate change adaptation?

The climate change problem is too big and complex for any of us to tackle alone. While we can make personal choices about our food and resource consumption patterns, when it comes to our region's practical participation in adaptation, collaborative problem-solving is needed. This is because the impacts of global climate change play out at a local level – on our businesses, communities, industries and agencies – and we will all make choices about our infrastructure, our service delivery, our staff and the places we live and work.

The importance of collaborative networking across the region is a key component of our approach to climate change adaptation in our region. It can help us to:

- » understand what work is already happening
- » communicate and share what is already known
- » identify pieces of work that are most needed
- » discover cost sharing opportunities

What ways did we try?

We supported engagement with at-risk community members by encouraging a team of community-support providers to develop an inclusive engagement approach.

We delivered this adaptation Strategy together, as a group of stakeholders, in an organic way that evolved more loosely than a traditional strategy.

We allowed the project development process to occur in parallel with the strategy development process. This created connectivity between the projects – they linked and informed each other where practical, so we could continually learn and improve together.

Our Committee supported the delivery of a 3 Horizons workshop to identify opportunities for transformation.



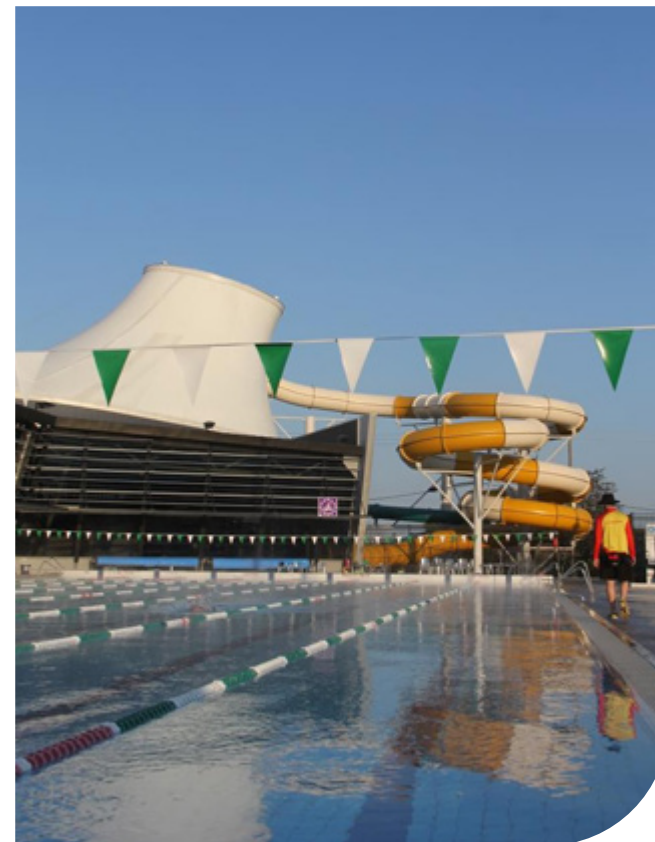
WAYS OF COLLABORATING ON ADAPTATION

What did we learn?

By practising active collaboration in the development of our Strategy and projects, we learnt that there are many ways to collaborate, and that the process aligns well with good management approaches. This is because an early investment in exploring what's already been done locally and what has been learnt can save time and money for everyone. It can provide an opportunity to join forces and stretch limited resources further.

Active collaboration requires a more sharing mindset; addressing some of the most pressing issues for our community's most vulnerable people will require a more open approach to ideas around data and information 'ownership'. It means we need to build systems and processes that reward knowledge sharing rather than knowledge holding.

Active collaboration focuses on preferred outcomes and learnings, rather than who or which organisation does what.



Delivering services during heat events.
Image: Eastern Alliance for Greenhouse Action



WAYS OF DOING ADAPTATION

Why do we need to think about ways of doing adaptation?

‘Doing’ adaptation will be the natural result of all the thinking, talking and collaborating parts of our adaptation work. ‘Doing’ adaptation will be an on-going process – as long as there is change, we will need to adapt to that change. Adaptation is not something we can simply ‘do’ once and then forget about. It will mean slight or large alterations to nearly every aspect of our modern lives.

Our projects have revealed that adaptation can apply to how we deliver our day-to-day services, for example, modifying work hours during extreme heat waves. It can involve physically retrofitting old infrastructure or improving building materials and designs to cope better under more extreme conditions. It can also involve data-driven planning for the future in particularly exposed places and locations.

What ways did we try?

- » We demonstrated the use of a ‘systems thinking’ approach to examine our complex city-region
- » We delivered projects that examined material actions and costs in two asset vulnerability assessment projects.
- » We examined how to ensure climate-resilient service delivery – exploring ways to keep functioning when the weather extremes make movement around the city-region challenging.
- » We allocated time to explore scenarios and opportunities for action



Flinders street station with Yarra Bridge
Image: D Hannah





WAYS OF DOING ADAPTATION

What did we learn?

- » Systems thinking is a very useful approach for unravelling some of the key problems and opportunities that might emerge in several possible scenarios. It can be used as an initial approach to explore what's really happening in a part of the system prior to developing any action plans.
 - » The material costs of upgrading some of our most important community infrastructure may be much higher than we expect. There is an urgency in ensuring that any new buildings or other infrastructure are designed and built to take future climate conditions into account.
- » Our region is service-delivery intense: much of our workforce provides a range of services, upon which many people rely. How these services and supports are delivered during weather events such as heat-waves is very important to our region. Our projects have shown that simple tweaks and significant overhauls are required for the service-delivery industry to adapt to more extreme weather events.
 - » There are significant practicalities and benefits of deliberately allocating time to considering transformative ideas and opportunities.
 - » Having a learning and sharing mindset is critical as we adapt to climate change in our region. This includes monitoring what we do, evaluating its effectiveness, reporting so others can learn from it, and improving our approaches so we can do even better next time.



Footprints. Image: Rhianna King

