



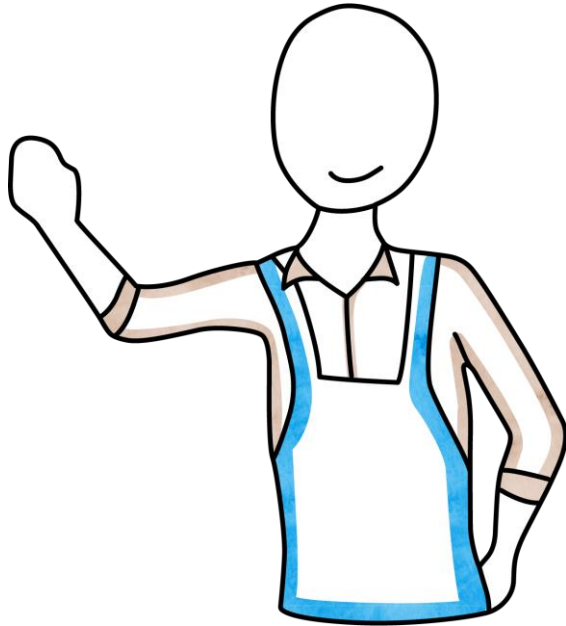
Climate Adaptation in Local Government

Required Learning

How you can help Yarra to continue to
thrive in a changing climate



Course Objectives



In this course you will learn about:

- How global heating impacts the City of Yarra
- What is climate change adaptation?
- What is the role of Local Government
- The 3 steps to factoring a climate change into your service and service planning
- How to use the Yarra Climate Adaptation Guidance tool

Overview

Welcome to 'Climate Adaptation in Local Government' training.

Climate Adaptation is everyone's responsibility and this training takes you through the three simple steps to ensure that your projects are 'climate ready' and responding in scale to the Climate Emergency.

To make planning for the future climate as easy as possible the 'Yarra Climate Adaptation Guidance Tool' has been developed. This training will introduce you to this simple tool and how it can support you in the planning phase of your project.

By designing your projects with the future climate in mind Yarra will continue to thrive, no matter how the climate changes.



What is global heating?



Global heating, also called climate change, refers to the rise in average surface temperatures on Earth.

Global heating is primarily due to burning fossil fuels, such as coal, gas and other fuels that are used to power our buildings and vehicles and create the products and services we consume.

Burning fossil fuels releases carbon (or greenhouse gas) emissions into the air, trapping heat in the atmosphere.

Clearing vegetation from land and generating waste further worsens the problem.

What is the climate emergency?

Our planet's climate is already too hot, with dangerous heatwaves, droughts, storms and flooding becoming more intense and destructive.

It is widely understood by the world's leading climate scientists that the unprecedented rate of global heating is destroying ecosystems, raising sea levels and undermining food and water security for many of the world's people.

It is not only a problem for the future - impacts are being felt here and now. These impacts will dramatically worsen as global temperatures continue to increase.

The use of the term 'emergency' signals both the gravity of the climate crisis and the need for urgent interventions that go well beyond business-as-usual.



Yarra's response to the Climate Emergency



Yarra Council was one of the first local governments in the world to declare a climate emergency, acknowledging both the scale and urgency of action needed to avoid the catastrophic impacts of global heating.

Yarra Council's first [Climate Emergency Plan](#) outlines our response to the climate emergency and identifies strategic priorities and actions to focus our work over the next four years.

A strategic priority of the Climate Emergency Plan is to 'Create a Climate Adapted City'.

What is Climate Change Adaptation ?



Climate adaptation is the process of planning, preparing and responding, to make sure the adverse impact of global heating are minimised.

Including climate adaptation into the planning phase of your project is easy. When planning for a project, climate adaptation is simply about taking the time to do the following three steps:

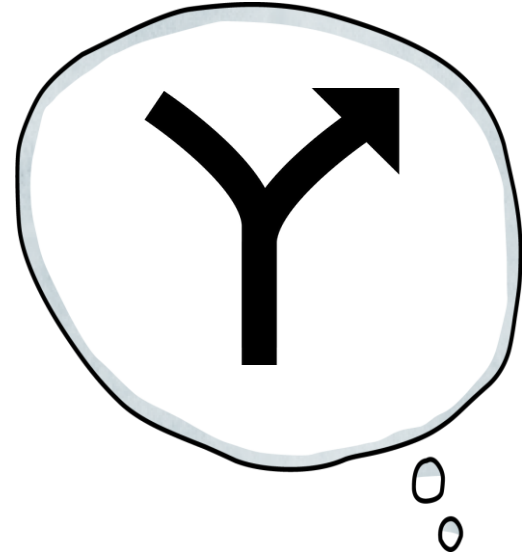
Step 1: Understand how global heating is likely to change the local climate within the timeframe of your project

Step 2: Think about how a changing climate may impact your project's service delivery objectives

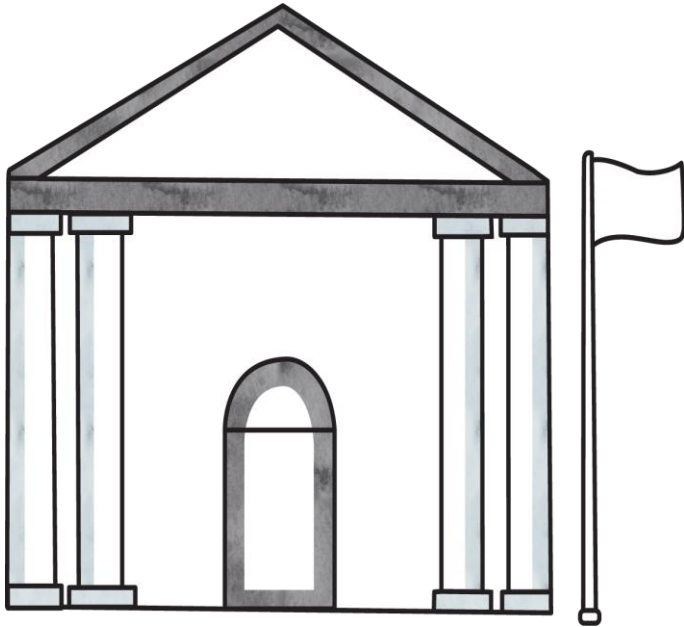
Step 3: Think creatively: what can be done to lessen the impact.

The result may be more of a 'tweak' than a major change, or even no change at all, but knowing that the risk of global heating has been addressed.

While the impacts of global heating pose significant challenges, they also present an opportunity to create a more climate resilient city that improves liveability.



Local Government has an important role

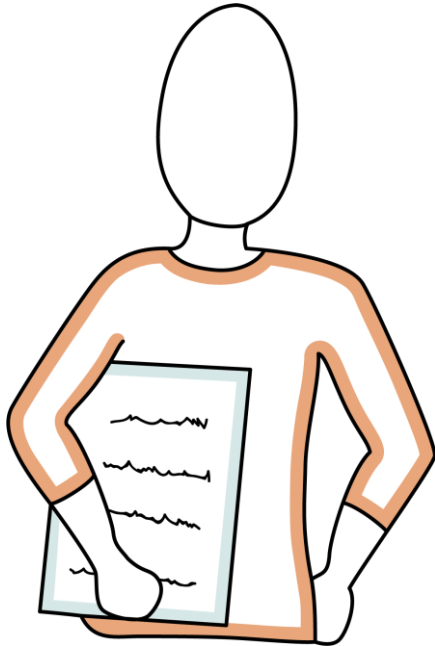


Local governments are at the heart of adaptation action as the impacts of global heating are experienced at a local level. Local government is also well placed to respond to the challenge.

Local government has an important role in planning for changes in the future climate because:

- It can directly influence the shape of the built form and infrastructure
- It is responsible for managing significant assets and delivering many types of services
- It has an understanding of, and access to, its communities through the direct services it provide
- There is an expectation within its community to prepare for extreme events that severely impact them and their environment.

What it means for your role at Council



What you can do and how relevant the impacts are will depend upon the area in Council that you work.

The changing climate affects a broad range of services provided by Yarra and most areas within council have a responsibility to plan for or respond to the impacts of global heating.

Contributing to a 'climate ready' Yarra means that on a day-to-day basis you factor in the changing climate and possible impacts when:

- Planning projects
- Considering and creating project funding bids
- Creating budgets
- Strategic planning
- Undertaking Service Reviews
- Managing and maintaining built assets
- Managing and maintaining outdoor areas and assets
- Planning outdoor activities and events.

What is Climate Adaptation

- The rise in average surface temperatures on Earth
- The process of planning, preparing and responding, to make sure the adverse impact of climate change are minimised**
- The process of reducing the amount of greenhouse gases in the Earth's atmosphere

Assessment



Local Government has an important role in planning for changes in the future climate because:

- It can directly influence the shape of the built form and infrastructure
- it is responsible for managing significant assets and delivering many types of services
- It has an understanding of, and access to, its communities through the direct services it provide
- There is an expectation within its community to prepare for extreme events that severely impact them and their environment
- All of the above**

Assessment



Yarra is likely to experience

- More frequent days of extreme heat and heatwaves
- Increase in rainfall intensity and more frequent and intense storm events
- Less annual rainfall and longer and more frequent periods of drought
- All the above**

Assessment



Climate change adaptation only effects a couple of council services

- True
- False**

Step 1: Understand how global heating will change our local climate



Melbourne's changing climate: Expected climate changes



'In Melbourne, between 1981 and 2010, we experienced an average of eight days per year when the temperature exceeded 35°C. By the 2050's with increased emissions and heating, this is expected to rise to between 13 and 21 days on average.'

Department Environment, Land, Water and Planning (2019). Greater Melbourne Climate Projections. Yarra Climate Emergency Plan



MORE DAYS OF
EXTREME HEAT



HARSHER
FIRE WEATHER



RISING
SEA
LEVEL



MORE
FREQUENT AND
INTENSE HEAVY
DOWNPOURS



LESS
RAINFALL

Climate Risks for Melbourne
Department of Environment, Land, Water and Planning (2019)
Greater Melbourne Climate Projections

The first step of climate change adaptation is to have a general understanding of how the climate is expected to change locally, within the timeframe of your project:

In the future, Melbourne will experience ongoing changes to its climate including:

- more frequent days of **extreme heat and heatwaves**
- increase in rainfall intensity and more frequent and intense **storm events**
- less annual rainfall and longer and **more frequent periods of drought**

By the 2050s the climate of Melbourne could be more like the current climate of Wangaratta.

Refer to [2019 Greater Melbourne Projections](#) for more information about predicted changes in the Greater Melbourne region.

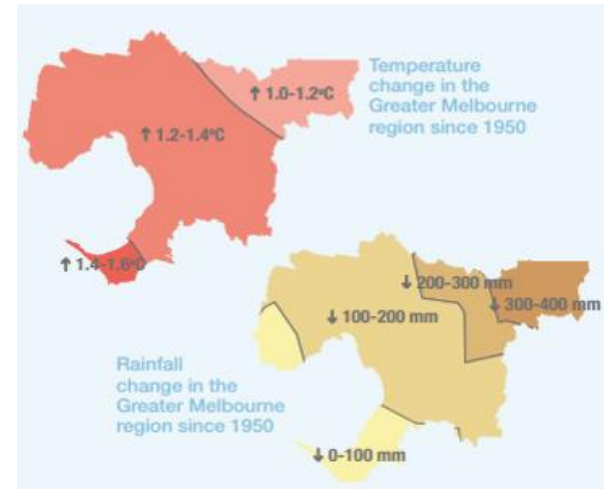
Yarra's changing climate: Impacts already being felt



These climatic trends are already being experienced locally. Our local climate is already warmer and drier than historical averages.

'In Melbourne, we are seeing an increase in the frequency of extreme heat events, with January 2019 being the hottest ever month on record.'

Yarra Climate Emergency Plan 2020-2024.



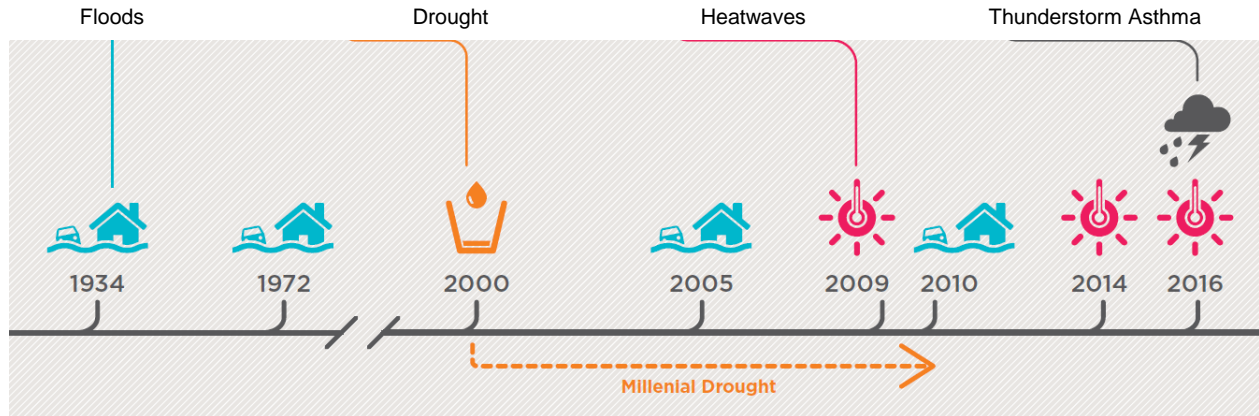
Sourced from Victoria State Government

Yarra's changing climate: Impacts already being felt



Over the past 20 years Melbourne has already experienced many extreme weather events including drought, flooding and heatwaves (as shown below).

An additional event is the unprecedented bushfires in 2019/2020 which led to hazardous air quality in Melbourne. The devastating bushfires were a result of extended drought and extreme temperature.



Step 2: Think about how a changing climate may impact your project's objectives



Service Delivery Objective

Now you know how the climate is likely to change in Yarra, **Step 2** is to consider how your project may be impacted by these changing conditions.

To assess how your project may be impacted you first need a clear idea of the service delivery objective it is providing to the community. You can then review how the predicted changes in the climate may effect this objective.

For example, the service objective of road re-sheeting is the provision of a safe and durable road surface for commuters e.g. cars and bike riders. Yarra is likely to experience more frequent days of extreme heat which, if nothing was changed in the project, could shorten the life of the road surface and impact upon the service delivery objective.

The next three slides provide examples of how global heating may impact upon the service delivery objectives of projects/programs delivered by Yarra.



Impact of global heating in Yarra: Extreme heat and heatwaves



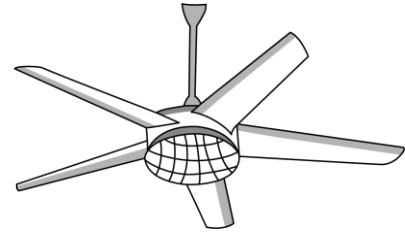
Below are examples of how more frequent days of extreme heat and heatwaves is likely to impact different service provisions in Yarra if nothing was altered:

Vulnerable members of the community: The service delivery objective to improve the well being of vulnerable members of the community, is likely to be impacted by more frequent days of extreme heat through inability to access cool spaces and the energy cost of air-conditioning, leading to heat stress and decline in mental health.

Office buildings: The service delivery objective to provide conditions for high productivity is likely to be impacted by more frequent days of extreme heat and heatwaves through power outages leading to inoperable buildings.

Swimming Pools: The service objective to provide a high quality and safe recreational experience is likely to be impacted by more frequent days of extreme heat and heatwaves through significantly increased attendance, leading to reduction in water quality and compromised supervision.

Economic activity: The service objective to support a prosperous economic community is likely to be impacted by more frequent days of extreme heat and heatwaves through less activity along shopping strips, leading to reduced trade.



Impacts of global heating in Yarra: Storm event impacts

Below are some examples of how an increase in rainfall intensity and more frequent and intense storm events is likely to impact different service provisions in Yarra if nothing was altered:

Buildings: The service objective to design and build facilities with low maintenance costs is likely to be impacted by more frequent and intense storm events through flood and /or hail damage.

Sports fields: The service objective to provide a high quality sporting facility to the community is likely to be impacted by more frequent and intense storm events through more frequent flooding/water logging of sports fields.

Drainage: The service objective to convey stormwater to prevent it from harming people, public/private infrastructure and waterways is likely to be impacted by more intense storm events due to the limited capacity of Yarra's old drainage system, leading to flooding and possible inundation of buildings.



Impacts of global heating in Yarra: *Longer and more frequent periods of drought impacts*

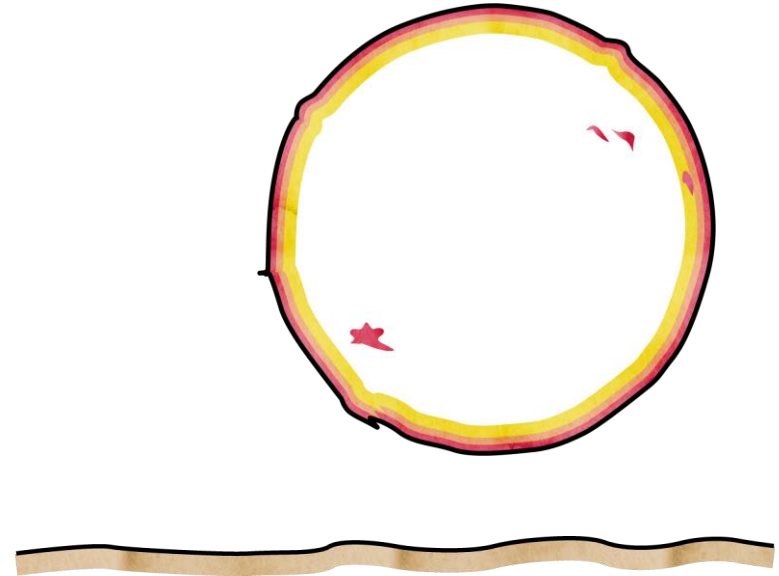


Below are examples of how longer and more frequent periods of drought is likely to impact different service provisions in Yarra if nothing was altered:

Local Parks: The service objective to provide high amenity local parks to the community is likely to be impacted by less rainfall and longer and more frequent periods of drought through water restrictions, leading to browning of grass and die-off of trees.

Flora and Fauna: The service objective to protect the biodiversity within Yarra is likely to be impacted by less rainfall and longer and more frequent periods through changes to habitat and the changing dynamics of invasive species.

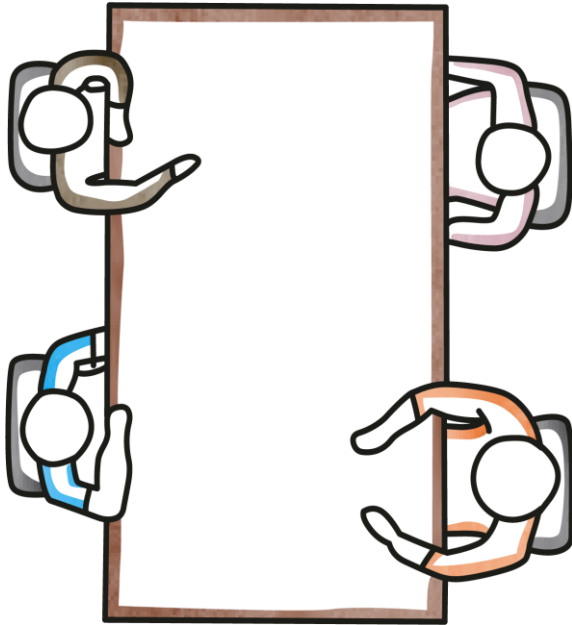
Buildings: The service objective to design and build facilities with low maintenance costs is likely to be impacted by less rainfall and longer and more frequent periods through failure of foundations.



Step 3: Think creatively - what can be done to lessen the impact



What can be done to lessen the impact?



Now you understand how the climate in Yarra is likely to change and identified how these changes may impact upon the service delivery objectives of your project, **Step 3** is to use your knowledge of the subject area and think about how best to lessen the impact.

You could explore possible actions with a couple of work colleagues or seek further information such as through the internet. To make this even easier, we have developed a Yarra Climate Change Adaptation Guidance Tool, which we will step you through later.

To give you an idea of some actions that can be undertaken, the next two slide provides examples of ways in which Yarra is already adapting to global heating.

Examples of how Yarra is already adapting

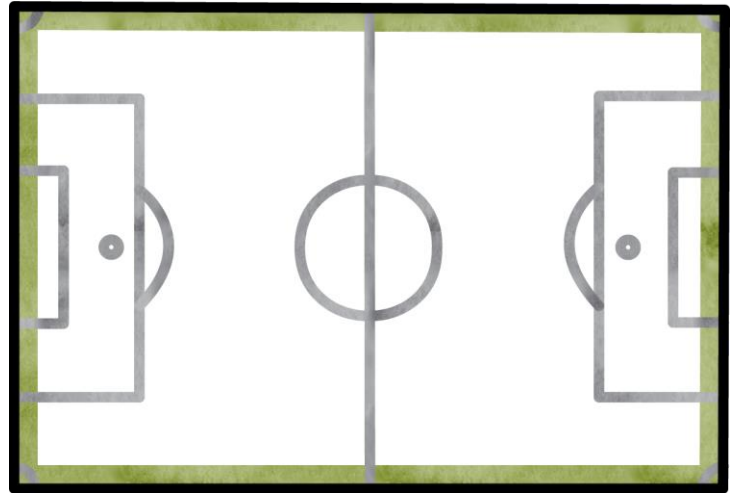


More intense rainfall events impacting drainage and watercourse:

All new housing developments are required to improve and show how they will detain water onsite, reducing flow and allowing drainage to better cope.

More frequent days of extreme heat and heatwaves impacting on sports training:

During pre-season (Jan-March) sporting clubs are able to change training times and if they have access to the sports lights, to turn them on.



Examples of how Yarra is already adapting



The overall changing climate impacting upon a variety of open space services:

The project brief for the development of the new Open Space Strategy identified climate change as a driver of change and requested that the new strategy consider climate change adaptation strategies.

More frequent days of extreme heat and heatwaves impacting on the community and Yarra Leisure staff:

During heatwave conditions Yarra's outdoor aquatic facilities' open hours are increased into the evening. To decrease heat stress on lifeguards misting- fans have been installed on the pool deck and shifts are shortened.



The Yarra Climate Adaptation Guidance Tool



Overview

To make this three step process even easier the Yarra Climate Adaptation Guidance Tool has been developed.

Application of the Guidance Tool to your project will help it to address any climate risks and be more resilient to predicted future climate. The Tool takes you through the three key steps of climate adaptation planning which this training has introduced you to.

The next slides provides a brief look at the key features of the Guidance Tool.



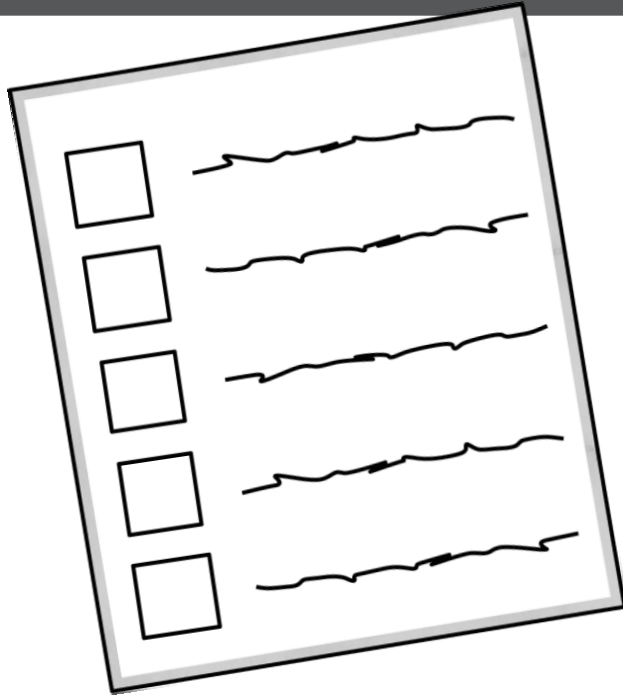
Helping you to work out the impacts



The Yarra Climate Adaptation Guidance Tool provides you with information on the expected changes in the local climate by 2030 or 2070 depending upon the nature of your project.

The tool then prompts you to document the project's service delivery objective and then to consider how the provided climate projections may impact upon the objective.

Supporting you in choice of actions



For capital works projects, the Tool then provides a list of common adaptive actions tailored to the selected capital works project type e.g. roads, drainage, buildings.

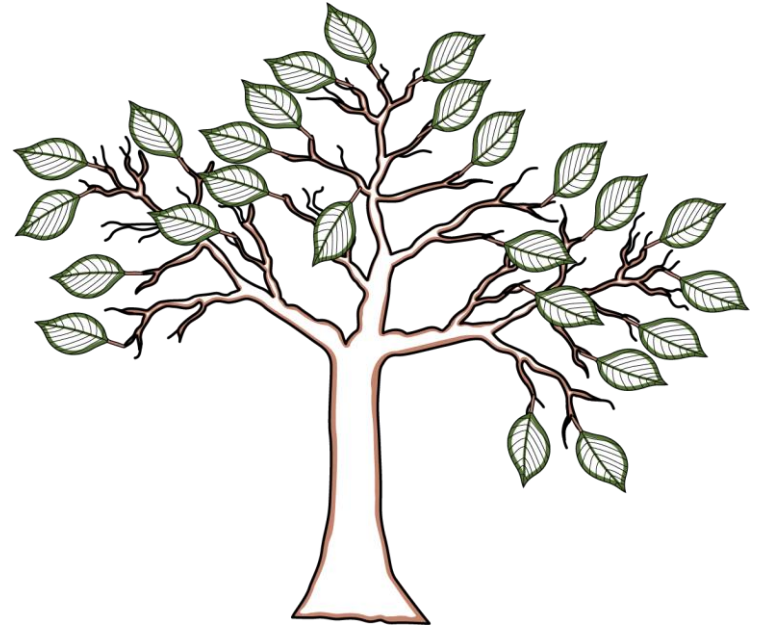
You are able to choose and rank the actions which are most effective in minimising the adverse impacts of global heating. Additional actions can also be added to the table and selected.

For operational projects, examples are provided on how to lesson the impacts of global heating on your strategy/policy or program's service delivery objective.

The actions you choose are then populated into the next page of the tool, for further consideration.

Action Screening

For capital works projects, the Tool provides a criteria to help decide whether the actions you have selected will be useful and relevant under a range of different climatic conditions, are practical and not going to further contribute to global heating.



A mini climate action plan



The result of stepping through the Tool is a simple 'Climate Adaptation Action Plan' for your project, whether it be a capital works or an operational project.

The mini action plan includes consideration of possible barriers to the selected actions and 'next steps'.

This action plan can be included in with your planning documents.



Assessment



Yarra is already adapting to the changing climate

- True**
- False**

Assessment



Climate change adaptation involves consideration of the future climate:

- When the project is near completion
- When a heatwave is predicted
- At the planning stage of your project**

Assessment



Successfully imbedding Climate Adaptation into your project requires you to:

- Understand how the climate is likely to change
- Think creatively: what can be done to lessen the impact
- Think about how a changing climate may impact your project's objectives
- All of the above**

Summary



The impact of global heating are being felt here and now. These impacts will dramatically worsen as global temperatures continue to increase

We know how the climate is likely to change in Yarra

Local government has an important role in planning for changes in the future climate

Climate adaptation effects a broad range of council services and is everyone's responsibility. Your role can contribute to Yarra continuing to thrive no matter how the climate changes

Climate adaptation involves consideration of the future climate at the planning stage of your project and can be summarised into a simple three step process:

- **Step 1:** Understand how the climate is likely to change
- **Step 2:** Think about how a changing climate may impact your project's objectives
- **Step 3:** Think creatively: what can be done to lessen the impact

The Yarra Climate Adaptation Guidance Tool is a straightforward tool which steps you through this process and results in a simple 'climate adaptation action plan' for your project and program

You're Done

Well done, you have now completed the 'Climate Adaptation at Yarra' training.

Local government has an important role in planning for changes in the future climate. Climate change adaptation affects a broad range of council services and is everyone's responsibility. Your role can contribute to Yarra continuing to thrive no matter how the climate changes.

More information can be found on [Climate Adaptation in Yarra](#) intranet page.

