

Tackling climate change and its impacts on health through municipal public health and wellbeing planning

Guidance for local government, 2020



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In this document, 'Aboriginal' refers to both Aboriginal and Torres Strait Islander people. 'Indigenous' is retained when part of the title of a report, program or quotation.

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Acknowledgments

The Victorian Government acknowledges Victoria's Aboriginal community and their rich culture and pays respect to them, their culture and their Elders past, present and future. We acknowledge Aboriginal people as Australia's first peoples and as the Traditional Owners and custodians of the land and water on which we rely. We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life and how this enriches us. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.

This guidance has been prepared by the Department of Health and Human Services with input from a working group including representatives from the Department of Environment, Land, Water and Planning, Sustainability Victoria, the Municipal Association of Victoria and a number of Victorian councils.

It also includes input received through council consultation forums and written submissions. Forums were held in March and April 2020 across Victoria, with 51 out of Victoria's 79 councils represented, as well as a number of representatives from Victorian greenhouse alliances. Thirty-one written submissions were received, including 23 council submissions, submissions from individual council officers and representatives from other organisations. This input has been crucial to the development of this guidance.

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Executive summary

Climate change is both the greatest threat to public health of the 21st century and the greatest global health opportunity.^{1,2} Victorian councils are in an ideal position to take actions to mitigate and adapt to climate change and its impacts on health at the local level, and to contribute to state and national actions. Victorian councils are already making progress on actions to address climate change and its impacts on health, including delivering initiatives within Victorian communities that are both health-promoting and emissions-reducing.

The earth is warming at an unprecedented rate as a result of increasing concentrations of greenhouse gases in the atmosphere. Victoria's climate has changed over recent decades, becoming hotter and drier, and these trends are projected to continue. Victoria is already seeing direct and indirect health and wellbeing impacts associated with events such as floods, fires and heatwaves, which are occurring with greater frequency and intensity due to climate change. Without urgent action from all levels of society to mitigate and adapt to climate change it is evident that the health, safety and wellbeing of Victorians, particularly those most vulnerable, is at risk now and into the future. At the same time, there are significant opportunities for councils to take action on climate change and improve health simultaneously.

Local government is identified in the *Climate Change Act 2017* as a decision-maker that must consider climate change when preparing a municipal public health and wellbeing plan (MPHWP). Tackling climate change and its impacts on health is also a focus area of the *Victorian public health and wellbeing plan 2019–2023* and, under the *Public Health and Wellbeing Act 2008*, councils are required to have regard to the state plan when preparing an MPHWP.

The purpose of the *Tackling climate change and its impacts on health through municipal public health and wellbeing planning: guidance for local government, 2020* (this guidance) is to assist councils in meeting these legislative obligations. This guidance builds on the department's original guidance on municipal public health and wellbeing planning³ by providing information on how climate change can be incorporated in each stage of planning. It also recognises that planning is not a linear process and that councils have strategic engagement processes that will inform the development of MPHWP.

In summary:

- Pre-planning includes placing the need to tackle climate change and its impacts on health and wellbeing on the agenda at all levels within council.

- Municipal scanning includes identifying evidence of the current or potential impacts of climate change on health and wellbeing and presenting this in the profile of health and wellbeing challenges facing the municipality. To assist in this process, this guidance provides examples of potential changes in hazards and hazardous events associated with a changing climate and the health effects that may result from these changes. It also provides examples of exposure and vulnerability indicators to assist with framing the particular climate change challenges in the municipality and to inform potential priority areas of focus.
- Engagement with the community, stakeholders and within council includes identifying what is important to the community, what is already happening and where there is a need (or where there are opportunities) for further action. It can also reveal perceptions, experiences and activities that could further inform the way in which climate change is presented within the health and wellbeing profile.
- The planning decisions and implementation stages involve addressing the areas where the municipal scan and engagement indicate a need for change. Many climate change adaptation and mitigation actions overlap, so it is beneficial to consider climate change actions in an integrated way that considers the multiple co-benefits that can be delivered. This guidance provides examples of strategies across a number of theme areas that could be taken by councils to tackle climate change and its impacts on health and wellbeing, as well as a number of case studies of strategies that have been implemented by Victorian councils.

The theme areas include:

- leadership, governance and council assets
 - communication, engagement and capacity building
 - emergency management
 - environmental health services, surveillance and monitoring
 - built and natural environments
 - healthy and sustainable food systems
 - improving mental health and wellbeing and preventing family violence.
- Evaluation is concerned with demonstrating accountability for investing resources in health and wellbeing action and with learning more about what does and does not work. This guidance includes example indicators, targets and measures that could be used to track progress against actions to tackle climate change and its impacts on health and highlight improvements that can be made to increase their effectiveness.

This guidance seeks to encourage and embed action to tackle climate change and its impacts on health in municipal public health and wellbeing planning. It recognises the important role that councils can play in reducing the risks that climate change poses to the health and wellbeing of all Victorians and improving public health outcomes.

Introduction and purpose

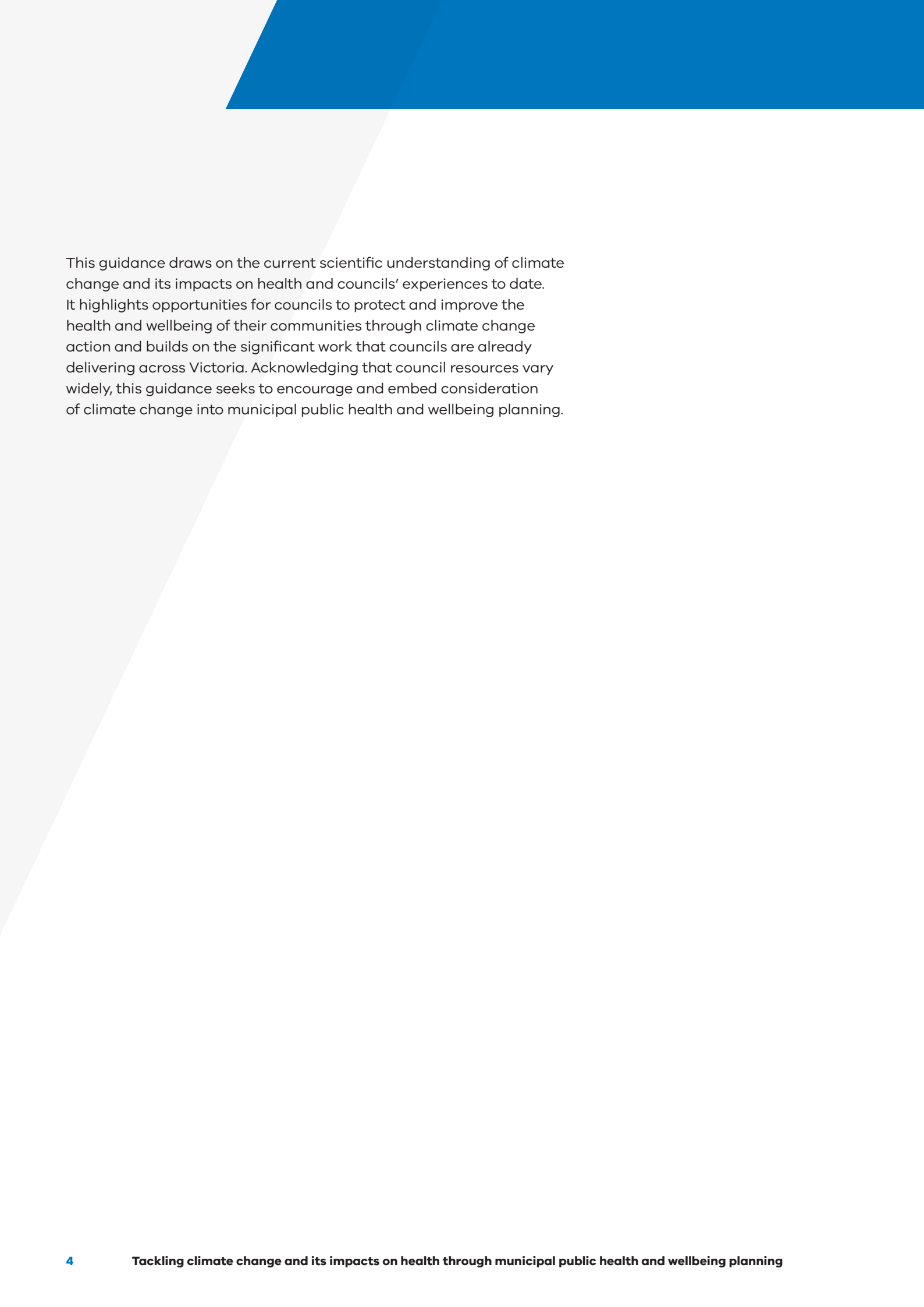
Climate change has been described as the greatest threat to public health in the 21st century.¹ At the same time, tackling climate change has been described as the greatest global health opportunity.² Addressing the threat and realising the opportunity to improve health requires global action by governments and non-government organisations at all levels and will only be achieved in close collaboration with the community. Victorian councils are already making progress on actions to address climate change and its impacts on health. This includes delivering initiatives within Victorian communities that are both health-promoting and emissions-reducing, such as those focused on increasing active transport and increasing healthy eating. However, further work is needed to ensure that action is delivered at the scale and pace required to prevent the most significant impacts that could arise as a result of climate change.

The *Climate Change Act 2017* recognises that Victoria's climate is changing and requires certain decision-makers to have regard to climate change and to consider its potential impacts and contributions to greenhouse gas emissions.⁴ Local government is identified as a decision-maker that must consider climate change when preparing a municipal public health and wellbeing plan (MPHWP).

The *Public Health and Wellbeing Act 2008* requires councils to prepare a four-year MPHWP within 12 months after each general election of the council and for councils to have regard to the state public health and wellbeing plan when preparing an MPHWP.⁵

The purpose of the *Tackling climate change and its impacts on health through municipal public health and wellbeing planning: guidance for local government, 2020* (this guidance) is to assist councils to meet their legislative obligations and to deliver actions in relation to the 'tackling climate change and its impact on health' focus area of the *Victorian public health and wellbeing plan 2019–2023*.⁶ It further describes local governments' responsibilities under relevant legislation and how climate change can be considered in MPHWPs.

This guidance builds on the department's original guidance on municipal public health and wellbeing planning by providing information on how climate change can be incorporated at each stage of planning: pre-planning, municipal scanning, engagement, planning decisions, implementation and evaluation.³ It also recognises that planning is not a linear process and that councils have strategic engagement processes that will inform the development of MPHWPs.



This guidance draws on the current scientific understanding of climate change and its impacts on health and councils' experiences to date. It highlights opportunities for councils to protect and improve the health and wellbeing of their communities through climate change action and builds on the significant work that councils are already delivering across Victoria. Acknowledging that council resources vary widely, this guidance seeks to encourage and embed consideration of climate change into municipal public health and wellbeing planning.

Context

Climate change in Victoria

The earth is warming at an unprecedented rate as a result of increasing concentrations of greenhouse gases in the atmosphere. Global warming of 1°C has occurred since pre-industrial levels, and recent studies show that at the current rate of emissions the planet could reach 1.5°C warming as early as 2030.⁷⁻¹⁰ While the extent of climate change will be contingent on the global response to limit greenhouse gas emissions, the science indicates that even if all global emissions ceased tomorrow a further warming of up to half a degree above the present level is already locked in by existing concentrations of carbon dioxide in the atmosphere.^{11,12} Without urgent action from all levels of society to mitigate and adapt to climate change, it is evident that the health, safety and wellbeing of Victorians, particularly those most vulnerable, is at risk now and into the future.¹³

In Victoria the impacts of climate change are already being felt and are expected to increase. *Victoria's climate science report 2019* outlines how the state's climate has already changed over recent decades, becoming hotter and drier, with an overall increase in the frequency of unusually hot days (extreme heat events), a decline in cool season rainfall and a greater number of very high fire danger days in spring.¹¹

The *Victorian climate projections 2019* shows the expected future changes in Victoria's climate, projected until 2090 at a 5 km by 5 km scale under both moderate and high future emissions scenarios.^{14,15} While it is expected that the timing and extent of climate changes will vary across regions, the projections indicate that Victoria will continue to get hotter and drier and experience longer fire seasons, with increased severity and frequency of bushfires. Victoria's future will include an overall decrease in total rainfall, contributing to longer and more severe droughts; however, it is expected that individual rainfall events and storms will become more intense with a greater risk of flash flooding (Figure 1).¹¹

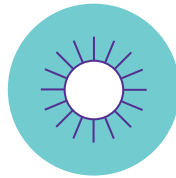
Figure 1: Summary of projected climate change impacts in Victoria by the 2050s under a high emissions scenario, compared with 1986–2005

In the future Victoria can expect:

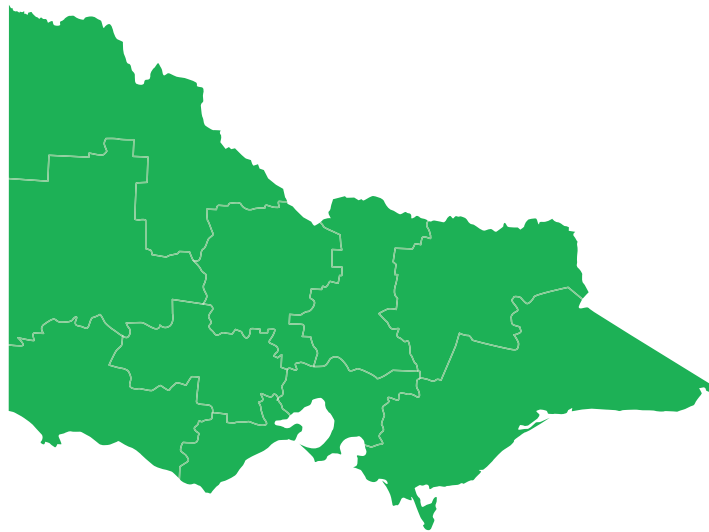
Average annual temperature increase by up to **2.4°C**



Double the number of **very hot days**



Longer fire seasons, with **up to 60% more very high fire danger days**



Sea levels will rise by **around 24 cm**



More intense **downpours**
Decline in **cool season rainfall**



Decline in alpine **snowfall of 35–75%**

Adapted from DELWP 2019, *Victoria's climate science report 2019*¹¹

Public health impacts of climate change

The World Health Organization describes climate change as the defining issue for public health in the 21st century.¹ Our health is dependent on the health of our environment. However, our changing climate has significant consequences for the environment and for public health, wellbeing and safety, the consequences of which are already being felt.

The direct and indirect impacts of climate change are likely to exacerbate existing public health risks and represent an unacceptably high and potentially catastrophic risk to human health.² Direct impacts, caused by exposure to more frequent and intense extreme weather events such as bushfires, droughts, floods and heatwaves, include hypo- and hyperthermia, heat stress, injury, trauma and death. Indirect impacts, mediated through natural and human systems affected by climate change, include:

- vector-borne diseases (those transmitted from vectors such as mosquitos to humans)
- zoonotic diseases (those transmitted from animals to humans)
- water-borne diseases (resulting from exposure to harmful algae and pathogenic microorganisms affecting drinking water, recreational water, including aquatic facilities, and water supplied for agricultural and domestic use)
- food-borne diseases (such as salmonellosis)
- exposure to contaminants such as mycotoxins in food
- impacts on the micro and macro nutritional quality of food
- exacerbation of existing chronic diseases such as cardiovascular and respiratory diseases as a result of higher temperatures, poorer air quality and airborne pollen.^{2,13}

Aside from its effects on physical health, climate change can also adversely affect mental health.¹⁶ Extreme weather events such as floods, droughts and bushfires can lead to psychological distress due to trauma, illness, loss of loved ones, destruction of property and displacement, and disruption of communities, goods and services. The incremental change to our environment and fear of what the future may bring can also have negative impacts on mental wellbeing.

Also affected by climate change are the wider social determinants of health including:

- early childhood experiences
- education
- employment
- income
- social and economic status
- housing and geography
- living and working conditions
- agriculture and food production
- quality of air, soil and water
- social support networks
- access and use of health services.^{6,13}

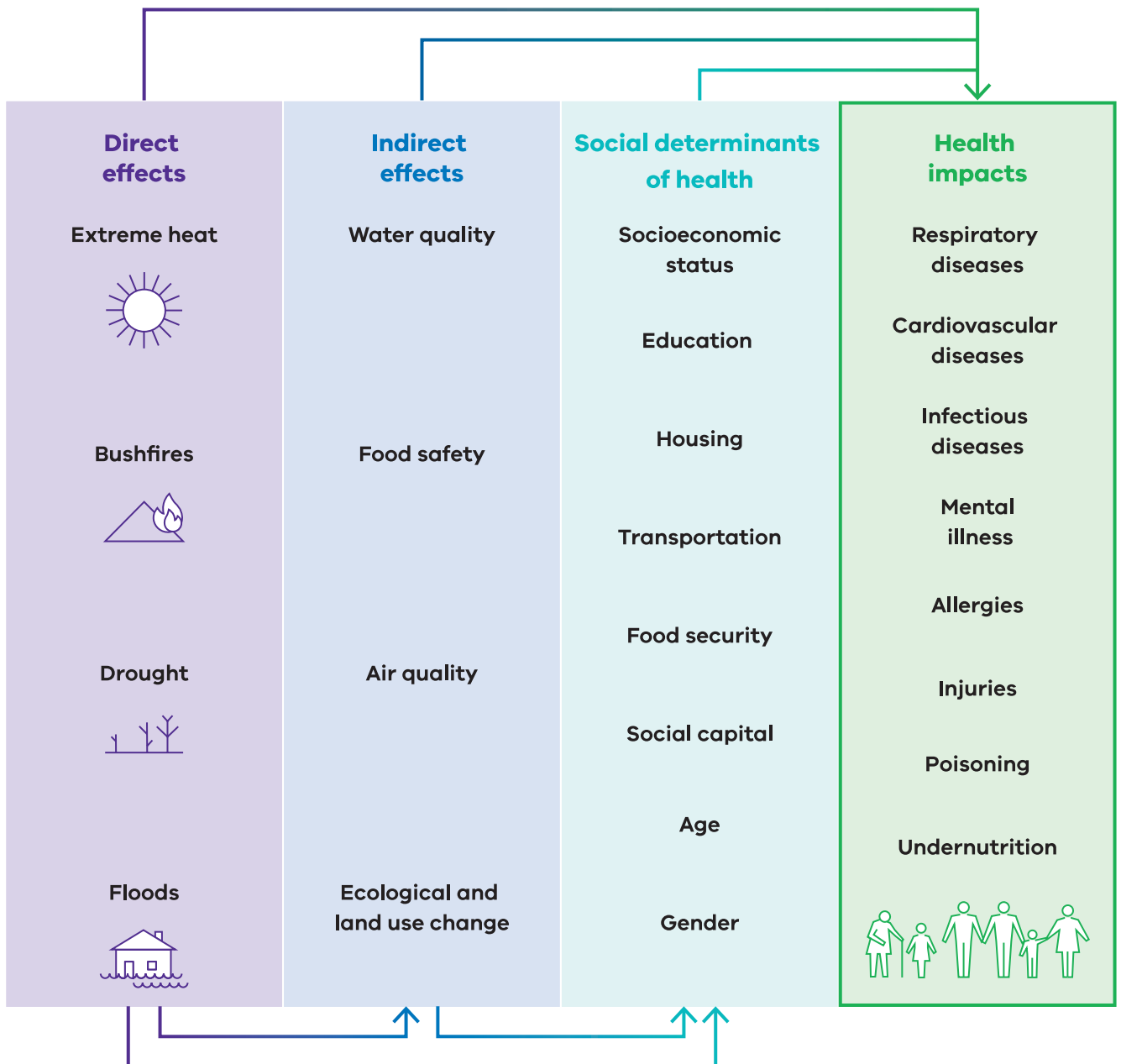
Higher outdoor temperatures increase indoor temperatures, and extreme weather events can affect transport, employment and health and human services, each affecting community health and wellbeing. Climate change can have an adverse impact on the economy, which could lead to unemployment, stress, social exclusion and increases in food insecurity.¹⁷

Figure 2 describes the categories of health and wellbeing impacts, including those that are direct, indirect and those that affect the social determinants of health and wellbeing.

Councils have long played an important role in community health through health and wellbeing, and emergency planning. While risks from climate change pose significant challenges, they also present opportunities for councils to take further action on climate change and to improve health at the same time.

Without urgent action, the effects of climate change on health will continue to spread beyond localised and current impacts – populations worldwide and future generations will all experience its multiple, increased risks, and its many and varied impacts.¹³

Figure 2: Direct and indirect effects of climate change on health and wellbeing



Adapted from Watts et al. 2015, *The Lancet, Health and climate change: policy responses to protect public health*²

Health and wellbeing impacts in Victoria

Victoria is already seeing direct and indirect health and wellbeing impacts associated with events such as floods, fires and heatwaves, which are occurring with greater frequency and intensity as a result of climate change. Examples include the 2009 Black Saturday bushfires, the 2019–20 Black Summer bushfires, the 2009 and 2014 Victorian heatwaves, and the 2016–17 Victorian floods. Some of these and others are discussed in more detail in Boxes 1–4.

Box 1: Heatwaves

Heatwaves have a direct and immediate impact on the health of the community, especially on vulnerable groups such as children, people over 65 years of age and people with pre-existing medical conditions including cardiovascular and chronic respiratory diseases. Health impacts of heatwaves include heatstroke, exacerbation of existing medical conditions and death.

Heat-related deaths due to increased hot days and heatwaves are likely to be one of the most significant health impacts of global warming, with the bulk of increased rates experienced in temperate cities.¹⁸ In Victoria during the heatwave of 2009, there were 374 excess deaths* and a 12 per cent increase in public hospital emergency department presentations;¹⁹ likewise, during the 2014 heatwave event there were 167 excess deaths* and a five-fold increase in heat-related public hospital emergency department presentations.²⁰ It is estimated that there may be an extra 402 deaths per year in Victoria by 2050 due to heatwaves if no adaptation measures are taken.²¹ Between now and the 2050s, under a high emissions scenario, the number of very hot days could approximately double across the state.¹¹

People living in urban environments are at greater risk than those in non-urban regions. Thermally inefficient housing and the urban heat island effect – whereby inner urban environments, with high thermal mass and low ventilation, absorb and retain heat – amplify and extend the rise in temperature, especially overnight.²²

* Excess deaths: the number of deaths more than would be expected in a given time period. Expected deaths are derived from pooled deaths data from previous years.

Box 2: Ross River virus outbreak, 2017

Climate change is predicted to increase rainfall variability, which can lead to more flooding.¹¹ In September 2016 above-average rainfall occurred in Australia, leading to widespread flooding across large parts of Victoria, particularly in the north-east and north-west. Above-average rainfall also occurred during the following month, causing the flooding to persist or reoccur in some areas.¹³ Persistent standing water, coupled with warmer weather in the ensuing months, led to ideal mosquito-breeding conditions in large parts of the state. On-field reports from selected local government areas indicated that mosquito abundance was high.¹³

In response to the flooding event, the Department of Health and Human Services funded an enhanced public health action plan to mitigate and manage the anticipated Ross River virus disease outbreak, including disease surveillance and control measures, and a public messaging campaign called *Beat the Bite*.

Despite this, between October 2016 and April 2017 Victoria experienced the largest Ross River virus outbreak since 1993. There were 1,974 human cases reported, which was nearly 10 times greater than the historical mean of 204 cases per year.

The health impacts of Ross River virus are significant, often resulting in an inability to work for two to three months. Approximately one-quarter of patients have symptoms that persist for a year or longer. This incurs costs on the health system and affects productivity.²³

As the incidence of flooding and warmer climate conditions increase in Victoria, it is very likely that outbreaks of Ross River virus and other endemic vector-borne diseases such as Barmah Forest virus and Murray Valley encephalitis will increase. This, coupled with the potential migration of previously unseen vectors in Victoria capable of carrying other pathogens, are a major concern.¹³

Box 3: Harmful or nuisance algae

Climate change is threatening the quality of Victoria's water, resulting in increased risks to human health. This includes warmer temperatures contributing to an increased risk of harmful algae, prolonged algal blooms, expansion of the range of previously climatically restricted pathogens, and emerging pathogens. Select harmful algal species can produce toxins that have serious health implications for humans, animals, birds and livestock if they are consumed, inhaled or come into contact with the skin.^{13,24}

For example, from December 2011 to early May 2012 a toxin-producing *Nodularia spumigena* blue-green algal bloom affected Victoria's Gippsland Lakes. This significant event led to restrictions on fishing operations and to public warnings to avoid eating fish and seafood from the lakes due to the bioaccumulation of toxins. Community members were also advised to avoid contact with the affected water. This impacted the region's tourism, recreational and commercial fishing industries. As a result of the bloom, a multi-agency response was initiated where state government departments and industry groups worked collaboratively to minimise the adverse impacts of the bloom on human, domestic animal and livestock health and to, where possible, minimise the social and economic costs to the region and the state.²⁵

Algal blooms are also increasingly impacting drinking water supplies in Victoria. For example, in 2019 a blue-green algal bloom in the raw water storage for the Tongala water supply system affected the water filtration system. As a result, the removal of microorganisms could not be assured, and a boil water advisory was issued to the Tongala township, which was in place for almost 48 hours. Other impacts included water carting from other storages to major (food production) customers and alternative water supplies to critical customers (such as nursing homes).²⁶

Climate change and warmer temperatures are likely to result in more frequent harmful algal blooms in the future, creating challenges for managing recreational water bodies and drinking water supplies. In 2020, algal blooms have continued to affect the Gippsland Lakes, and high levels of algae were still being detected in July, which is unprecedented for winter.

Box 4: Mental health impacts

Climate change and climate-related hazards can have direct, indirect and overarching consequences on mental health, which disproportionately affect those most marginalised.¹⁶

Extreme weather events can have direct impacts on mental health such as through triggering post-traumatic stress disorder (PTSD), anxiety, depression, complicated grief, survivor guilt, vicarious trauma, recovery fatigue, substance abuse and suicidal ideation.¹⁶ For example, research following the Victorian Black Saturday Bushfires found that still, several years after the bushfires, a significant minority of people from high-affected fire communities reported persistent PTSD, depression and psychological distress related to the fires.²⁷ Extreme heat and humidity can also have direct mental health consequences and impacts on those with pre-existing mental health illnesses and problems.¹⁶

Indirect mental health consequences of climate change occur through social, economic and environmental disruptions related to a changing climate – for example, as a result of damages to physical and social infrastructure, physical health effects, food and water shortages, conflict and displacement.¹⁶ Incremental climate changes, such as rising temperatures, rising sea levels and episodic drought, can also affect mental health – for example, through changed agricultural conditions, increased financial and relationship stress, increased risks of violence and aggression, and displacement of entire communities.¹⁶ Drought and its impacts are increasing with the changing climate, including the indirect impacts that drought has on mental health. This most often affects farmers and land-based workers who depend on environmental conditions for their economic livelihoods and those living in rural and remote communities. For example, a quantitative analysis study found that rural dwellers in Australia experienced increased distress during a seven-year period of major and widespread drought compared with their urban counterparts.²⁸

The risks and impacts of climate change on mental health are rapidly increasing, and actions need to be taken to tackle the problem in a holistic manner. Some examples of measures to address the mental health impacts of climate change include improving access and funding to mental health care, especially for those most marginalised, experiencing and preserving nature, and community-based interventions such as through climate change resilience plans that address psychosocial wellbeing.¹⁶

Mitigation, adaptation and health co-benefits of action

Climate change mitigation is a human intervention to reduce greenhouse gas emissions that cause climate change or to enhance the sinks of greenhouse gases.¹² Mitigation actions can be taken at the global, national, local and individual levels. Climate change adaptation is when changes are made to natural or human systems to prepare for actual or expected changes in the climate to minimise harm, act on opportunities or cope with the consequences.¹¹

While action to mitigate climate change is critical to lessening the impacts, adaptation action is also essential because a certain amount of climate change is locked in as a result of greenhouse gas emissions already trapped in the atmosphere.

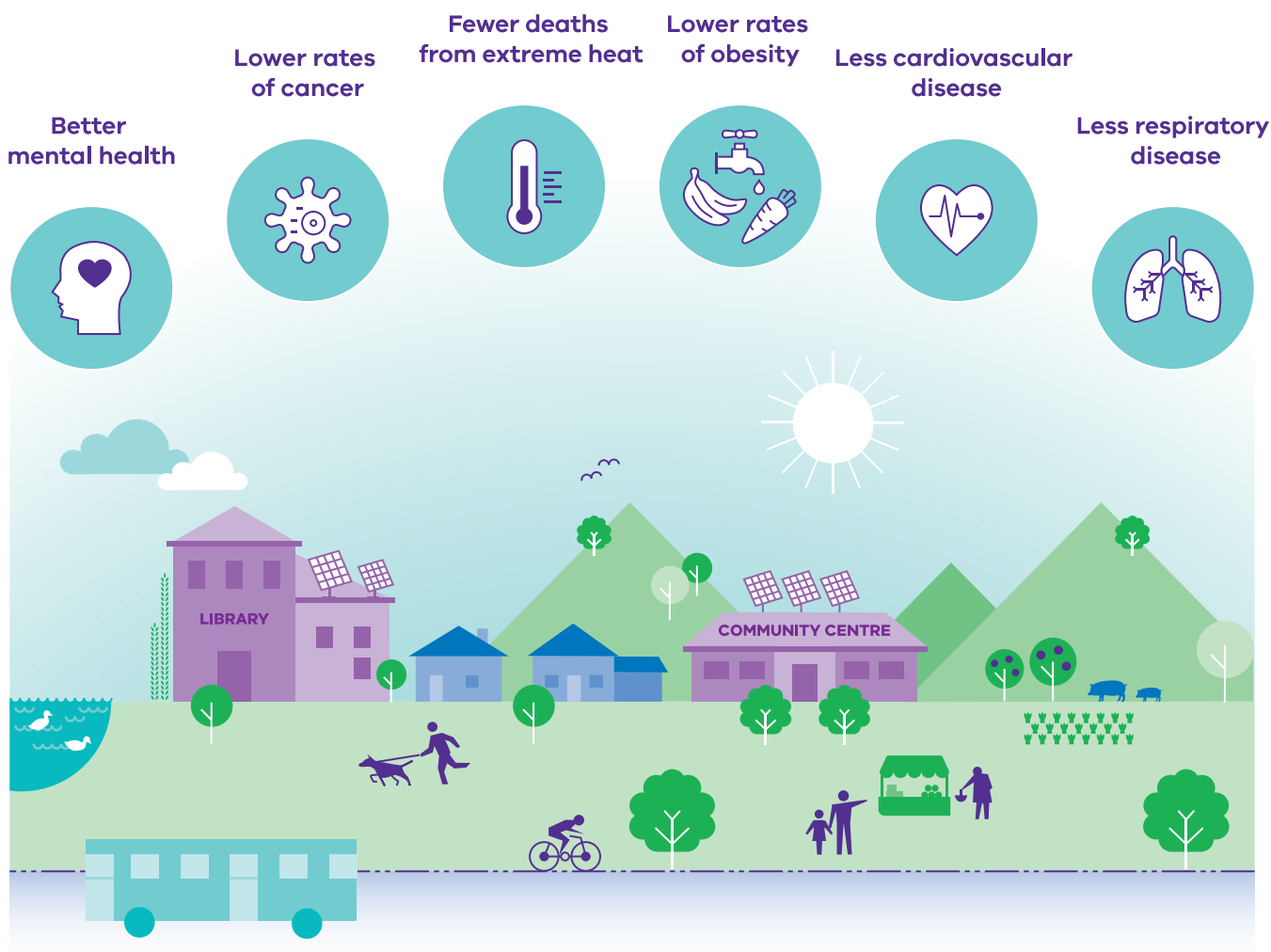
Adapting to the impacts of climate change is critical to building community resilience and managing risks including those to the health and wellbeing of communities. Adaptation actions can be taken to decrease health impacts associated with climate change through implementing a wide range of policies, strategies and measures. Government, organisations and communities all have a role to play.

Both mitigation and adaptation-focused activities can create conditions for health co-benefits to be realised.²⁹ Health co-benefits refer to the health benefits of strategies that can be either intended or unintended.³⁰ For example, initiatives to improve active transport can help to reduce the number of trips by car and reduce emissions and can also produce health co-benefits through improvements to air quality and increasing opportunities for physical activity.²⁹

Figure 3 demonstrates some examples of climate change mitigation and adaptation interventions and health co-benefits.

Figure 3: Climate change and health co-benefits

Health benefits



Interventions

Use renewable energy and increase energy efficiency

Promote active and public transport

Increase blue-green infrastructure

Eat locally produced fruit and vegetables

Less food from animal sources

Co-benefits

Fewer fossil fuels
 Reduced damp and humidity
 Thermal comfort
 Less noise

Improved air quality
 Reduced heat in urban areas
 Lower CO₂ emissions

Less deforestation
 Reduced livestock production
 Fewer methane emissions

Adapted from BMJ 2016, *Health and climate: co-benefits*³¹

Councils develop, lead and implement policies and initiatives to influence many determinants of health. These include actions in areas such as:

- transport
- roads
- parks and open space
- waste
- land use
- housing and urban planning
- recreation
- economic development
- creating safe public places.

All of these areas will be affected by the changing climate, and action across them provides opportunities to reduce emissions, support adaptation to climate change impacts and improve health at the same time.

Box 5: Stealth interventions as a pathway to improved health

Addressing unhealthy lifestyle behaviours such as poor diet and insufficient physical activity that lead to overweight and obesity and in turn lead to risk factors for chronic diseases including cardiovascular disease, diabetes and stroke, has proved difficult. Many existing behavioural health interventions have short-term positive results but have not been successful in achieving improved long-term outcomes.³² In a search for sustainable changes in health behaviour, researchers are exploring the potential of stealth interventions.³² Stealth interventions seek to harness intrinsic motivators such as commitment to social movements – which often embrace values to make the world a better place – to realise health benefits without explicit reference to changing health behaviour.³²

A number of social and environmental movements have values and behavioural goals that connect and overlap with a healthy diet and physical activity. Research suggests that social movements with environmental sustainability and climate change goals can encourage changes in individual behaviour such as:

- eating more fruit and vegetables
- less packaged and more local foods
- less use of private vehicles and more walking and cycling
- spending more time in natural environments.³²

A desire to improve community amenity and neighbourhood quality of life can also serve as a motivator for healthy behaviours such as participating in gardening, home and neighbourhood improvement, outdoor recreation and neighbourhood social activities.³³ Such movements could be effective in realising environmental and health co-benefits, as well as offering further rewards such as social cohesion and a sense of community.³²

Legislative and policy context

Victorian public health and wellbeing plan 2019–2023

The *Victorian public health and wellbeing plan 2019–2023* sets out a comprehensive approach to delivering improved public health and wellbeing outcomes for all Victorians. The plan has 10 public health and wellbeing priorities and includes ‘tackling climate change and its impact on health’ as one of four key focus areas.⁶

The ‘tackling climate change and its impact on health’ priority aims to achieve:

- resilient and safe communities that are adapting to the public health impacts of climate change
- decreased health impacts associated with climate change
- increased action to reduce greenhouse gas emissions and realise health co-benefits.

The strategic actions for this priority are:

- continued emphasis on understanding and assessing the risks of climate change to public health
- promoting community adaptation to the public health risks associated with climate change
- assessing the health co-benefits of measures to reduce greenhouse gas emissions.

The new climate change focus area in the plan provides an important lever for strengthened action on climate change and health in MPHWP.

The plan also continues to recognise other current pressing public health issues (including healthy eating and our sedentary lifestyle) that mean Victorians are missing out on the benefits and pleasure that an active life can offer. Continued action in these areas will both improve the health and wellbeing of Victorians and reduce downstream health system costs and environmental impacts.

For example, in 2018–19 every occupied bed-day in a Victorian public hospital generated an average of 120 kg of carbon dioxide equivalents and 3.65 kg of waste and used 630 L of water.³⁴

As a result, investment in initiatives and environments to reduce rates of preventable diseases such as investment in healthy eating and active living programs will also contribute to delivering action on climate change through emissions reductions.³⁵



Public Health and Wellbeing Act 2008

The Public Health and Wellbeing Act is central to Victoria's public health legislation. It seeks to achieve the highest attainable standard of public health and wellbeing by:

- protecting public health and preventing disease, illness, injury, disability or premature death
- promoting conditions in which people can be healthy
- reducing inequalities in the state of public health and wellbeing.

In achieving the objectives of the Act, regard should be given to the guiding principles set out in ss. 5–11 of the Act. These include evidence-based decision making, collaboration, the precautionary principle and primacy of prevention. In particular, the principle of collaboration asserts that public health and wellbeing can be enhanced through collaboration between all levels of government, industry, business, communities and individuals.

Section 26 of the Act requires councils to prepare an MPHWP within 12 months after each general election of the council and for councils to have regard to the state public health and wellbeing plan when preparing an MPHWP.⁵ A council may be granted an exemption from complying with s. 26 if it includes public health and wellbeing matters in its council plan or a strategic plan, as outlined in s. 27 of the Act.

Climate Change Act 2017

Section 17 of the Climate Change Act requires certain decision-makers to have regard to climate change (listed in Schedule 1 of the Act).⁴ From the legislation listed in Schedule 1, the only specified decision or action that creates an explicit obligation for local government is the preparation of an MPHWP by a council under the Public Health and Wellbeing Act. The full text of s. 17 and Schedule 1 of the Act is provided as an appendix in this guidance.

The objective of the decision-making requirements is to establish a strong framework to reduce the future risks of climate change to Victoria.

The duty to have regard to climate change explicitly requires consideration of the potential:

- biophysical impacts
- long- and short-term economic, environmental, health and other social impacts
- beneficial and detrimental impacts
- direct and indirect impacts
- cumulative impacts.

These terms are defined in the glossary.

Assessing climate change using a framework that systematically considers the impact of climate change on the determinants of health (natural, built, social and economic) will address the range of impacts identified above.

In relation to the decisions or actions taken, the Act also requires consideration of the potential:

- short- and long-term greenhouse gas emissions
- direct and indirect greenhouse gas emissions
- increases and decreases in greenhouse gas emissions
- cumulative impacts of greenhouse gas emissions.

The Act provides Victoria with a world-leading legislative foundation to:

- manage climate change risks
- maximise the opportunities that arise from decisive action
- drive the state's transition to a climate resilient community and economy with net zero emissions by 2050.

A key feature of the Act is the requirement for certain decision-makers to have regard to climate change when making specified decisions.

Local Government Act 2020

Local government, under s. 9 of the *Local Government Act 2020* must give effect to a number of overarching governance principles in the performance of its role.³⁶

Of these, the following principles are particularly relevant to tackling climate change and its impacts on health through municipal public health and wellbeing planning:

- Priority is to be given to achieving the best outcomes for the municipal community, including future generations.
- The economic, social and environmental sustainability of the municipal district, including mitigation and planning for climate change risks, is to be promoted.
- The municipal community is to be engaged in strategic planning and strategic decision making.
- Innovation and continuous improvement is to be pursued.
- Regional, state and national plans and policies are to be taken into account in strategic planning and decision making.

The use of the word 'must' under s. 9 of the Act indicates that the overarching governance principles are compulsory and not aspirational obligations for councils to follow.



Other relevant legislation

A range of other legislation is also applicable to local government climate change responsibilities in *Victoria including the Planning and Environment Act 1987* and the *Wrongs Act 1958*, as well as common law principles and case law. Refer to the *Local government climate change adaptation roles and responsibilities under Victorian legislation: guidance for local government decision-makers* for more information.³⁷

Incorporating climate change into the planning cycle

The 2013 *Guide to municipal public health and wellbeing planning* describes six stages of planning.³ Table 1 provides a summary of how climate change can be incorporated into these stages of planning. How climate change features in each planning cycle stage is further explored in the sections that follow.

Table 1: Incorporating climate change into the MPHWP cycle

Planning cycle stage	How climate change features
Pre-planning Creates the broad processes required to plan effectively and builds the leadership and partner support necessary to develop and implement the MPHWP.	Place the need to tackle climate change and its impacts on health and wellbeing on the agenda. Make the responsibility of local government clear by identifying the legislative requirements under the Climate Change Act and the 'tackling climate change and its impact on health' focus area in the <i>Victorian public health and wellbeing plan 2019–2023</i> in briefings to council or senior management.
Municipal scanning Provides a preliminary understanding of the health and wellbeing status of the community and the determinants that contribute to this status.	Identify evidence of the current or potential impacts of climate change on health and wellbeing and present this in the profile of health and wellbeing challenges facing the municipality. Include consideration of exposure, sensitivity and adaptive capacity indicators when considering how to frame the particular climate change challenges in the municipality and to inform potential priority areas of focus.
Engagement Involves internal and external stakeholders and the community in further understanding the health and wellbeing needs and strengths of the community. This stage applies these additional perspectives to the information from the municipal scan to create a fuller picture of the challenges confronting the community.	Present climate change or specific climate issues as a health and wellbeing priority for the municipality. Incorporate relevant community, stakeholder and council perceptions, experiences and activities into the health and wellbeing profile.

Planning cycle stage	How climate change features
<p>Planning decisions</p> <p>Involves addressing those areas where the municipal scan and engagement indicate a need for change. The change sought will focus on long-term benefits and is expressed as a goal. Once the goals are identified strategies are selected to pursue the change based on the available evidence of what works.</p>	<p>Present climate change or specific climate issues as a health and wellbeing priority for the municipality to council decision-makers.</p> <p>Identify strategies and actions that could be taken to tackle climate change and its impacts on health and wellbeing.</p> <p>Consider the impact of climate change on other priorities identified in the MPHWP. Identify strategies and actions that should be taken, including aligning with and building on other activities occurring across the organisation and in partner organisations that have co-benefits for these areas to ensure integrated climate change planning.</p>
<p>Implementation</p> <p>Involves putting the MPHWP into practice.</p>	<p>As per other MPHWP priorities and strategies (refer to the department’s guidance on municipal public health and wellbeing planning).</p> <p>Implement actions and programs to tackle climate change and its impacts on health and consider a climate change lens when implementing actions related to other MPHWP priorities.</p>
<p>Evaluation</p> <p>Involves demonstrating accountability for investing resources in health and wellbeing action and for learning more about what does and does not work.</p>	<p>As per other MPHWP priorities and strategies (refer to the department’s guidance on municipal public health and wellbeing planning).</p> <p>Incorporate indicators and measures to track progress on actions to tackle climate change and its impacts on health.</p>

Pre-planning

The first stage of incorporating climate change into MPHWP is pre-planning. This includes placing the need to tackle climate change and its impacts on health and wellbeing on the agenda at all levels within council. This can be initiated by clearly identifying local government responsibilities and legislative requirements under all relevant legislation and policy, including those detailed in the 'Legislative and policy context' section in this guidance.

Information about these responsibilities and requirements can be included in briefings to councillors and senior management to prepare them for consideration of current and potential future impacts of climate change on health and wellbeing.

This early stage of planning is an ideal time for councils to consider the United Nations Sustainable Development Goals (SDGs) and how action can be taken in a local context to contribute to the global effort of achieving these goals. The SDGs recognise that human health and prosperity must go hand in hand with planetary health and sustainability.^{38,39} More details about SDGs that may be useful to consider in the context of tackling climate change and its impacts on health through MPHWP are included in Box 6.

Box 6: Sustainable Development Goals in the context of MPHWP

All of the 17 SDGs are interlinked, but some are more relevant to tackling climate change and its impacts on health through MPHWP.³⁹ These include:

- Goal 3: Good health and wellbeing – Ensure healthy lives and promote wellbeing for all at all ages
- Goal 6: Clean water and sanitation – Ensure availability and sustainable management of water and sanitation for all
- Goal 7: Affordable and clean energy – Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 11: Sustainable cities and communities – Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12: Responsible consumption and production – Ensure sustainable consumption and production patterns
- Goal 13: Climate action – Take urgent action to combat climate change and its impacts.



The consideration of climate change impacts on health and wellbeing is equally important in standalone MPHWP's and where health and wellbeing matters are integrated into a council plan or other strategic plan. The Department of Health and Human Services will provide more advice to councils on seeking an exemption to include health and wellbeing matters in the council plan in 2020.

In addition, some councils also have separate dedicated climate change action, adaptation action, emission reduction, emergency and business continuity plans. All relevant plans should be cross-referenced to help align and integrate actions across business areas within the organisation.

Pre-planning is an important stage to connect with partners and other stakeholders to promote early buy-in on climate change and health issues and ensure meaningful participation throughout the stages of planning and implementation. Developing and maintaining strong partnerships with community health services, primary care partnerships and other local services and businesses will be critical to achieving alignment of climate change and health objectives to improve the health and wellbeing of the local community. Collaboration with external partners on initiatives may also include formal partnership agreements.

The 'Planning decisions and implementation' section of this guidance provides examples of business areas within councils that may play a role in delivering strategies to tackle climate change and its impacts on health, and that could be engaged in the pre-planning phase to improve collaboration, avoid duplication and realise opportunities to deliver strengthened action. Aligning climate change and health at the policy level and applying a health lens to activities that may be delivered outside health teams (including by environmental sustainability areas) may also be beneficial.

Municipal scanning

The municipal scan provides a preliminary understanding of the health and wellbeing status of the community and the determinants that contribute to this status. A key outcome of this stage is the development of a preliminary profile of the health and wellbeing challenges facing the municipality.

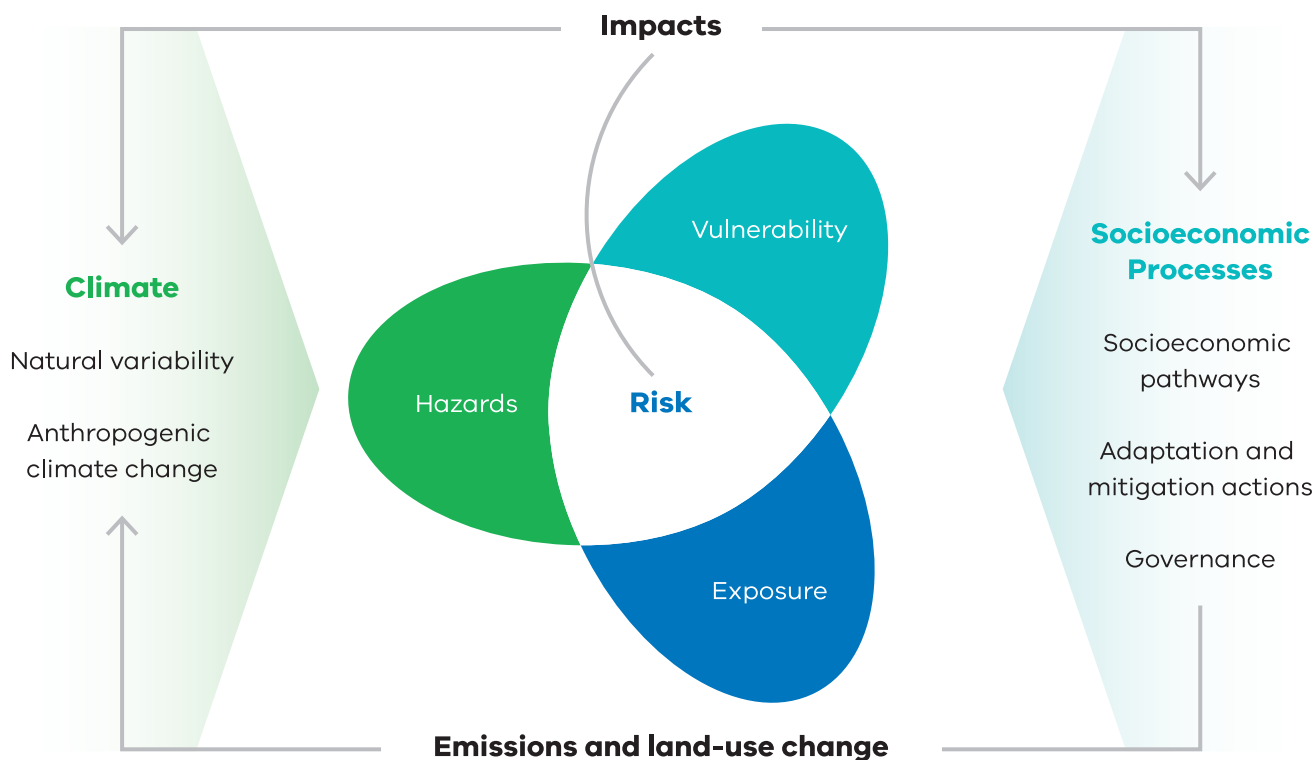
It is important to consider climate change when conducting this scan and to identify current or potential impacts of climate change on health and wellbeing. Consider also what impacts climate change could have on other health priorities and what opportunities there are to take action on climate change and improve outcomes in other areas.

The magnitude and pattern of health risks associated with climate variability and change are a function of the:

- hazards resulting from a changing climate (such as increases in the frequency, intensity and duration of extreme heat days and bushfires)
- the exposure of populations to those hazards
- the vulnerability of exposed populations.

This relationship is shown in Figure 4.

Figure 4: Framework of the risks of climate variability and change



Adapted from IPCC 2014, *Summary for policymakers: Climate change 2014: impacts, adaptation, and vulnerability*⁴⁰

Natural climate variability and anthropogenic climate change are drivers of weather and climate-related hazards, and a range of socioeconomic processes are drivers of vulnerability and exposure.⁴¹

It is important to consider how climate change has or will alter weather and climate hazards in the municipality, whether exposures are likely to change with increasing climate change, how risks to the community may be affected, and whether there are particular groups more at risk.

Table 2 provides examples of potential changes in hazards and hazardous events associated with a changing climate and potential direct and indirect health impacts.

Table 2: Potential health effects associated with climate change-related hazardous events

Hazardous event category	Examples of potential environmental changes	Examples of potential health impacts
Higher temperatures and heatwaves	<ul style="list-style-type: none"> • More frequent, severe and longer heatwaves • Overall warmer weather and increases in the number of days of extreme heat • Reduced quality of recreational and drinking water due to microbial and algal growth promoted by higher temperatures • Increased air pollution from higher levels of ground-level ozone • Increased production of pollens and spores, including as a result of longer pollen seasons 	<ul style="list-style-type: none"> • Higher incidence of heat-related illnesses such as exhaustion and heatstroke and related effects such as falls • Increases in premature deaths • Exacerbation of existing health conditions including respiratory, cardiovascular and kidney diseases • Increases in food-, water- and vector-borne diseases due to the altered distribution of vectors (including mosquitos), increases in climate-sensitive food and water-borne pathogens and toxin-producing algal species • Higher incidence of allergies caused by pollen • Higher incidence of mental health impacts • Higher incidence of family violence • Health impacts from reduced physical activity due to high outdoor temperatures
Bushfires	<ul style="list-style-type: none"> • Increased fire danger weather and an increase in the length of the fire season • Increased intensity and frequency of fires • Increased air pollution due to particulates and other contaminants in bushfire smoke • Reduced drinking and recreational water quality due to contaminants associated with bushfires 	<ul style="list-style-type: none"> • Injuries, burns and death • Health impacts associated with the displacement of populations and crowding in emergency relief centres • Exacerbations of heart and lung conditions, including asthma and increased eye, nose and throat irritation, due to exposure to bushfire smoke • Increased food- and water-borne illness due to contamination or disruption to essential services such as electricity, water and sewerage • Higher incidence of mental health impacts, trauma and longer term disruptions to social systems – for example, due to lost income and property damage or loss • Higher incidence of family violence • Health impacts from reduced physical activity due to bushfire smoke

Hazardous event category	Examples of potential environmental changes	Examples of potential health impacts
<p>Drought and overall decreased average rainfall</p>	<ul style="list-style-type: none"> • Increased drought in some areas, affecting water supplies and agricultural production and contributing to increased bushfire risk • Increased frequency of dust storms due to a drying landscape • Reduced recreational and drinking water availability and quality 	<ul style="list-style-type: none"> • Higher incidence of mental health impacts and longer term disruptions to social systems – for example, due to lost income • Exacerbations of heart and lung conditions including asthma – for example, due to exposure to dust storms • Health impacts associated with food or water shortages including reduced access to fresh, healthy and affordable food due to reduced food yield • Increase in illnesses related to drinking water and recreational water – for example, due to increases in blue-green algae • Health impacts from reduced physical activity due to degradation of public open space and sporting and recreation grounds
<p>Flood and heavy rainfall events</p>	<ul style="list-style-type: none"> • More frequent and intense thunderstorms • Increased heavy rainfall events causing flooding • Increased contamination of drinking and recreational water due to run-off from heavy rainfall and flooding 	<ul style="list-style-type: none"> • Injuries, drowning and other accidental deaths • Health impacts associated with the displacement of populations and crowding in emergency relief centres • Increased food- and water-borne illness due to contamination or disruption to essential services such as electricity, water and sewerage • Increases in mosquito-borne diseases due to increased breeding following flooding • Increased respiratory illness due to greater exposure to moulds • Higher incidence of mental health impacts, trauma and longer term disruptions to social systems – for example, due to lost income and property damage or loss • Higher incidence of family violence • Health impacts from reduced physical activity due to heavy rainfall and flooding

Sources: IPCC 2018,¹² IPCC 2014,⁴⁰ Ebi et al. 2016,⁴¹ Beggs et al. 2019⁴²

Exposure and vulnerability to hazards

In considering potential health impacts, it is important to understand how community members may be exposed to hazards and what influences their vulnerability.

The vulnerability of exposed populations is informed by two main factors:

- sensitivity – the degree to which populations are affected by climate variability or change
- adaptive capacity – the capability of populations to adjust to change, to minimise harm, to act on opportunities or to cope with the consequences.

Vulnerability assessments can be useful in this context to identify where a community's susceptibilities to injury or disease exist due to their distance and sensitivity to climate-related environmental exposures or hazards. Understanding more about communities with multiple or complex vulnerabilities can help prioritise efforts and interventions developed to protect communities from the effects of climate change.⁴³

There are many population groups or individuals who may be more sensitive to climate-related hazards, and climate change also has consequences for growing health inequalities.^{44,45} Some climate change-related health impacts also differ between genders. For example, mortality from heatwaves is higher in women,⁴⁶ and male suicide rates have been found to increase faster with increasing heat.⁴²

Adaptive capacity refers to both actual and potential features, and it captures both current coping ability and the strategies that expand future coping ability. The main determinants of the adaptive capacity of a community include economic wealth, technology, information and skills, infrastructure, institutions and equity. Current population health and wellbeing status and pre-existing disease burdens are also important determinants of adaptive capacity for public health.⁴⁷ Considering adaptive capacity in the context of municipal public health and wellbeing planning will help to identify community strengths and opportunities, as well as to prioritise areas of focus.

Adaptive capacity and exposure to climate-related hazards may be very different for people living in metropolitan, regional and rural areas due to, for example, the distance from designated bushfire-prone areas or the level of resources available to prepare for or respond to climate-related hazards.

Table 3 provides some examples of exposure, sensitivity and adaptive capacity indicators that could be considered as part of the municipal scan when considering how to frame the particular climate change challenges in the municipality and to inform potential priority areas of focus.

Table 3: Example exposure, sensitivity and adaptive capacity indicators

Example exposure indicators	Example sensitivity indicators	Example adaptive capacity indicators
Projected number of extreme heat days	Percentage of population aged 14 years or younger	Percentage of areas covered by impervious surfaces
Percentage of population living in designated bushfire-prone areas	Percentage of population aged 65 years or older	Percentage of areas not covered by tree canopies
Percentage of population living in areas experiencing drought	Percentage of older adults who live alone	Percentage of population residing within a specified distance from public transport, amenities (such as supermarkets) and key health, medical and emergency services
Percentage of population living in coastal areas that may be exposed to sea level rise	Percentage of population with one or more chronic conditions (for example, asthma, chronic obstructive pulmonary disease, cardiovascular disease, heart disease)	Number of general practitioners per x number of people
Percentage of population living in flood-prone areas	Proportion of people living in households below the poverty line	Number of community service organisations per x number of people
	Proportion of adults who ran out of food and could not afford to buy more	Proportion of population who volunteer or support community programs
	Percentage of population experiencing homelessness or insecure housing	Number of refuge centres (for example, air-conditioned leisure centres, libraries and community centres)
	Rate of incidents of family violence recorded by police	Proportion of adults unable to raise \$2,000 within two days in an emergency
	Percentage of new migrants (for example, who may experience language barriers or have limited knowledge of local warning systems, health and social services)	Proportion of adults who do not have someone outside their household that they can rely on to care for them or their children in an emergency
	Percentage of Aboriginal and/or Torres Strait Islander people	Proportion of households or businesses with private water supplies
	Number of residents receiving home and community care services	
	Number of aged care facilities	

Sources: California Department of Health 2020,⁴³ Navi et al. 2016,⁴⁸ Loughnan et al. 2014⁴⁹

While the exposure indicators included in Table 3 focus on direct exposures associated with extreme events, councils could also consider indirect exposures such as the number of blue-green algal blooms in council-managed recreational water bodies. In addition, other indicators that combine exposure, sensitivity and adaptive capacity can be considered such as the heat vulnerability index rating, which is available through the Department of Environment, Land, Water and Planning’s (DELWP) Cooling and Greening Melbourne Interactive Map.^{50,51}

Engagement

Community, stakeholder and cross-organisational engagement may reveal perceptions, experiences and activities that could further inform the way in which climate change is presented within the health and wellbeing profile. Engagement assists in identifying what is important to the community, what is already happening and where there is a need or opportunities for further action.

In engaging across the organisation and with broader stakeholders and the community, it may be useful to include examples of actions that are being (or could be) taken to adapt to the health and wellbeing impacts of climate change in the municipality and of actions that provide co-benefits both in terms of mitigating climate change and improving health outcomes.

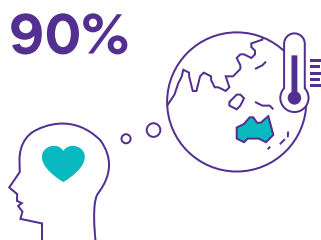
Questions that could be posed as part of this engagement include:

- What changes in climate or in the frequency and intensity of extreme weather events have been observed in the municipality or region?
- Have impacts of these changes on health and wellbeing been noted or observed in the municipality? Consider direct and indirect impacts and impacts on the built, economic, social and natural environments.
- What actions are already being taken to adapt to and mitigate these impacts? What additional or different action is required?
- What are the community's strengths (such as skills and knowledge, including local Aboriginal knowledge and connection to country) that can facilitate the community to mitigate and adapt to climate change and its impacts on health, and how can they best be deployed?
- What is the current level of understanding of climate change and health risks within the municipality? What are the main areas of concern?
- What is the perception and experience of the current impacts of climate change on health and wellbeing in the municipality?
- What is the perception of the importance of adapting to the current or predicted health and wellbeing impacts of climate change and mitigating emissions in the municipality?
- Where do opportunities exist to deliver co-benefits in terms of both emission reduction and improved health outcomes?

Victorian research on community perceptions of climate change and health may be useful in informing community and stakeholder engagement activities – for example, the research published by Sustainability Victoria in 2020 that measured the awareness and knowledge of Victorians and Victorian health professionals of the health impacts of climate change.⁵² Some of the key outcomes of the community survey components of this research are in Figure 5.

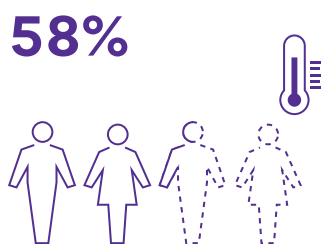
Figure 5: Victorian community perceptions of climate change and health

Victorians rank health as their top priority yet **90% haven't thought about how health is affected by climate change.**



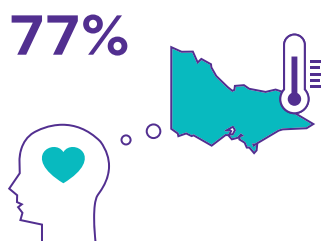
When prompted, the connection is readily accepted.

58% recognise health as one of the main ways they are likely to be affected by climate change.



More than three quarters **would like to know more** about the following:

- The health impacts of climate change
- How to reduce emissions and help stop climate change getting worse
- What behaviours will benefit health and mitigate against climate change.



Two thirds of Victorians think it is **cheaper to act on climate change now than to pay the price later.**



Adapted from Sustainability Victoria 2020, *Linking climate change and health impacts: research snapshot*⁵²

Strategic planning and community engagement principles under the Local Government Act may also be useful in informing community and stakeholder engagement as part of the development of MPHWP. More information is provided in Box 7.

Box 7: Community engagement and strategic planning principles under the Local Government Act

The Local Government Act is underpinned by five principles including community engagement and strategic planning.

The principle of community engagement seeks to better engage the community to achieve long-term and sustainable outcomes, processes, relationships, discourse, decision making or implementation. To be successful, it must encompass strategies and processes that are sensitive to the community context in which it occurs.

The Act establishes community engagement principles and requires all councils to adopt a community engagement policy that must be used in developing legislated plans including the community vision and the council plan. To support this, Local Government Victoria has provided community engagement resources, including examples of community engagement policies and frameworks, which are available on the **Engage Victoria website** <<https://engage.vic.gov.au/>>.

The Act also establishes strategic planning principles that apply to preparing council plans and other strategic plans. The strategic planning principle works with the community engagement principle to ensure communities are involved in strategic planning and decision making.

Councils are encouraged to apply these principles when developing their MPHWP.

Planning decisions and implementation

The planning decisions and implementation phase involves addressing those areas where the municipal scan and engagement indicate a need for change.

This section provides examples of strategies across a number of theme areas that could be taken by councils to tackle climate change and its impacts on health and wellbeing, as well as a number of case studies of strategies that Victorian councils have implemented.

Efforts to align and integrate planning and implementation will help identify and deliver effective strategies. These concepts are explored further in Box 8.

Box 8: Climate change and health alignment and integration

Alignment connects public health with activities in other areas of the organisation or in partner organisations, within the context of climate change. The objective is to identify activities that may have co-benefits for health and wellbeing and find opportunities to maximise these benefits.

Alignment may:

- connect the known or predicted health and wellbeing impacts of climate change with other initiatives within council or its partner organisations. This may reveal existing co-benefits for health and wellbeing or provide opportunities to influence these initiatives in order to improve the adaptive capacity of the community.
For example, if a street tree policy is being reviewed there may be an opportunity to influence the tree species used to maximise shading, reduce the urban heat island effect during heatwaves, minimise water usage and reduce pollen levels through selecting low or non-allergenic tree species.
- identify co-benefits between climate change and sustainability initiatives and priorities for the MPHWP.
For example, initiatives to address and reduce the impact of drought on public open space, such as using alternative water supplies like stormwater for irrigation, could have co-benefits in promoting physical activity and improving health and wellbeing.

Councils should apply the lens of climate change to all the priorities identified in the MPHWP to identify opportunities to improve outcomes in those areas. This should include identifying other climate change-related activities occurring within the organisation or in partner organisations that may produce co-benefits for these priority areas and aligning these to strengthen and maximise the benefits.

Integration takes the concept of 'alignment' a step further, recognising that climate change is a cross-sectoral issue and that linkages exist not just between health and other areas of the organisation but between all areas of the organisation and its partners. Therefore cross-organisational planning needs to recognise climate change as a common issue, and the impact of climate change work in one area can influence other areas.

Integration involves driving organisational commitment to embedding the consideration of climate change in all activities and establishing ongoing dialogue between all areas on climate change issues. This should lead to integrated climate change planning across the organisation and more coordinated and effective responses.



Leadership, governance and council assets

Victorian councils have demonstrated leadership in climate change action for many years and are ideally placed to contribute to locally relevant, integrated and long-lasting climate action. Many have made significant progress in reducing greenhouse gas emissions within their own operations and implementing actions to support adaptation to climate change impacts, as well as implementing initiatives to support action by businesses and the broader community in their municipalities.

Examples of council roles, business areas and strategies that could be implemented in the theme area of leadership, governance and council assets are included in Table 4.

Councils can demonstrate leadership and commitment to tackling climate change and its impacts on health by taking action within their own organisations, including through facilitating cross-council engagement and action.

Table 4: Examples of leadership, governance and council assets strategies

Example roles and business areas	Example strategies
<p><i>Councils can demonstrate leadership and commitment to tackling climate change and its impacts on health by taking action within their own organisations, including through facilitating cross-council engagement and action.</i></p> <ul style="list-style-type: none"> • Mayors and councillors • Sustainability • Building and asset management • Traffic and civil engineering • Health and wellbeing • Corporate and human resource services • Environment • All other council business areas 	<ul style="list-style-type: none"> • Demonstrate leadership and commitment to addressing climate change and its impacts on health within the community through a strategic approach at multiple levels of decision making across all council business areas • Provide an enabling policy framework for integrating climate change and health actions across all relevant organisational policies, plans and strategies, including municipal public health and wellbeing planning and corporate planning, with a whole-of-council approach for joint ownership and management of issues • Include climate change and its impacts on health in the organisation’s risk management activities including risk registers and risk reviews • Develop and implement strategies to reduce council greenhouse gas emissions towards net-zero such as through reduced electricity consumption and solar generation • Move towards net-zero emissions in new council buildings, in construction and operation, and reduce emissions in existing council buildings through strong building design, using renewable energy and implementing energy efficiency upgrades • Upgrade public lighting, such as lights on main roads, residential streets and in parks, to the most energy-efficient technology • Encourage and support council employees to participate in climate change and health professional development opportunities • Encourage employees to use public and active transport during the commute to and from work including investment in end-of-trip facilities and for other travel within the workday • Develop and implement a healthy and sustainable food procurement policy for food and drinks purchased for council events and meetings • Embed climate adaptation approaches across council works, strategies and policies including in the design, building and management of council infrastructure and assets (for example, for parks and reserves, buildings, roads, streetscapes and drainage networks)

Case study: City of Ballarat Carbon neutrality and 100% renewables action plan 2019–2025⁵³

In its *Carbon neutrality and 100% renewables action plan 2019–2025*, the City of Ballarat articulates its vision to achieve zero net carbon emissions from its own corporate activities. The plan provides a pathway for the council to address climate change by reducing its own emissions and by modelling low energy strategies that the community as a whole can adopt to mitigate climate change.

Initiatives to date include installation of a solar park, solar on City of Ballarat facilities and a 30-megawatt battery storage complex, green waste service and use of recycled water for irrigation.

These achievements have delivered many benefits to Ballarat residents such as cost savings, environmental benefits, sport and active living opportunities and community education.

The plan encompasses five key areas for achieving its targets including integration of sustainability culture, promoting energy efficiency and renewable energy sources, improvement of waste management initiatives and community engagement and collaboration. Some examples of actions included in this plan are:

- continue efforts on greening Ballarat through its *Urban forest strategy* to reduce heat island effect
- promote low carbon transportation options in the Council's fleet and public transport for minimising emissions and improving air quality
- facilitate integration of ecologically sustainable design principles in construction and refurbishment of buildings for better energy efficiency, which improves the health and wellbeing of the building occupants
- collaborate with community partners including Ballarat Health Services for funding applications on cost-efficiency and renewable energy programs.

For more information visit the **City of Ballarat website** <<https://www.ballarat.vic.gov.au/city/strategies-plans-and-policies>>.

Case study: Healthy Wellington 2017–2021⁵⁴

Wellington Shire Council's *Healthy Wellington 2017–2021* is a strategic plan that includes addressing climate change as one of its priorities through the following two focus areas:

- increase capacity for climate change adaptation
- improve community resilience and municipal relief and recovery planning in the event of extreme weather and/or a natural disaster.

Healthy Wellington recognises the need to focus on climate change and acknowledges the complexity and interconnection with other areas. The plan identifies the potential impacts of climate change on health and wellbeing through the built, natural, economic and social environments.

The priority area includes policy actions such as 'Support the development and implementation of government policies that guide practice in sustainable living, and climate adaptation / mitigation' and 'Support the development of emergency plans and policies that support local communities to adapt and minimise the health impacts of extreme weather events', along with other actions in areas such as capacity building within environments and community voice and advocacy.⁵⁴

The plan also includes a natural environment theme to 'Build resilience in our communities and landscapes to mitigate risks from a changing climate'.⁵⁴

For more information visit the **Wellington Shire Council's website** <<https://www.wellington.vic.gov.au/publications/healthy-wellington>>.

Councils, in collaboration with the community, can raise awareness about the impacts of climate change on health and support action within their municipalities to mitigate and adapt to impacts.

Communication, engagement and capacity building

Because of their strong connections to the community and local knowledge, councils play an important role in working with communities to prepare for the current and projected health impacts of climate change and to support action to reduce emissions across their municipalities. Working together, councils and their communities can raise awareness of the actions that can be taken to build resilience and stay healthy in a changing climate while also reducing their impact.

Effective community engagement can strengthen a council's climate change and health programs and policies in many ways, particularly by enabling broader and deeper community input to inform locally owned and tailored actions.

Examples of council roles, business areas and strategies that could be implemented in the theme area of communication, engagement and capacity building are included in Table 5.



Table 5: Examples of communication, engagement and capacity building strategies

Example roles and business areas	Example strategies
<p><i>Councils, in collaboration with the community, can raise awareness about the impacts of climate change on health and support action within their municipalities to mitigate and adapt to impacts.</i></p> <ul style="list-style-type: none"> • Communications and community engagement • Health and wellbeing, health promotion • Community services • Youth services • Sustainability • Environmental health • Economic development • Urban design and planning • Family and children’s services 	<ul style="list-style-type: none"> • Engage with the community to understand their experiences of climate change and its impacts on health, their key concerns and opportunities and suggestions for action • Engage with the community to raise awareness about climate change and its impacts on health and actions that can be taken to stay healthy in a changing climate** • Develop, implement and support programs that increase awareness of, and participation in, health-promoting and emissions-reducing activities including active transport and healthy eating • Develop and implement strategies to support the community and local businesses to reduce greenhouse gas emissions such as through switching to renewable energy, reducing electricity consumption, energy efficiency upgrades and solar generation • Build collaborative partnerships to support whole-of-community action to mitigate emissions and adapt to climate change <p><small>** The Victorian climate projections 2019 and climate change and health resources on Victoria’s Better Health Channel provide information that would be useful in informing such work.</small></p>

Case study: Yarra City Council – Engagement with the community about climate change and sustainability

In 2019, Yarra City Council ran a series of engagement programs including workshops and forums relating to climate change and sustainability. Some of these programs included:

- **Climate Emergency Forum** – expert presenters from the Bureau of Meteorology and the Climate and Health Alliance discussing the latest climate science and the implications for human health <<https://www.yarracity.vic.gov.au/events/2019/04/04/climate-emergency-forum>>
- **Talking with children about the climate crisis** – a forum bringing together an expert psychologist and academic and students to discuss how to explore the issues of climate change with our children <<https://www.yarracity.vic.gov.au/events/2019/11/07/talking-with-children-about-the-climate-crisis>>
- **Student climate justice training** – a full day of skill-sharing for secondary school students run by and for young people through the Australian Youth Climate Coalition to learn about working for a safer climate future and driving the clean energy transition <<https://www.yarracity.vic.gov.au/events/2019/08/25/student-climate-justice-summit>>
- **Solar and battery information sessions** – several sessions to hear from experts on how to install affordable, quality solar through Yarra Energy Foundation’s Solar Bulk Buy initiative <<https://www.yarracity.vic.gov.au/events/2019/07/25/solar-and-battery-information-session>>
- **How to stay engaged to act in a climate crisis: strategies from psychology and community activism** – a presentation and Q&A panel discussion with a psychologist and researcher and speakers from the Australian Conservation Foundation, Climate Council and the Schools Strike for Climate movements <<https://www.yarracity.vic.gov.au/events/2019/08/14/how-to-stay-engaged-in-a-climate-crisis>>
- **Citizen science study on extreme heat in Yarra** – an opportunity to participate in a study with RMIT and UNSW universities in their research of urban heat and local climate change to help better understand how we can reduce extreme heat and adapt <<https://www.yarracity.vic.gov.au/events/2019/01/30/join-a-study-on-extreme-heat-in-yarra>>
- **Climate emergency plan consultation** – a public forum and online engagement for community members to help shape Yarra’s first climate emergency plan <<https://yoursayyarra.com.au/yarras-climate-emergency-plan>>.

Box 9: Climate change and health communication

The VicHealth report *Healthy persuasion: a message guide for health promotion practitioners* is about messaging for effective communication such as framing an issue to appeal to people's values.⁵⁵ The tips provided in this guide are:

- Externalise the problem – frame problems in terms of external barriers to healthier living rather than in terms of individual choice.
- Use values (not facts) to persuade – appeal to people's deeply held values to change the way they feel about the issue, instead of confronting people with facts.
- Stick to your story (don't tell theirs) – stick to your story to activate and strengthen useful perspectives rather than myth-busting or reminding people of other perspectives, which can have a counterproductive effect.
- Create something good – rather than stopping something bad and framing solutions as 'banning' and 'reducing' things, frame solutions in terms of creating something good and use terms like 'more' and 'better'.

This is a helpful resource to refer to when sharing information with the community and stakeholders and when designing health promotion and behaviour change programs. Shifting attention away from individuals and their choices and by appealing to people's values rather than confronting people with facts can assist with building stronger public support for policies and programs.⁵⁵ This could be beneficial when engaging with communities about climate change and health, particularly in relation to health promotion activities focused on active transport and healthy eating, which have co-benefits to both health and climate change emissions reduction. To request a copy of this report, register your interest on the **VicHealth website** <<https://www.vichealth.vic.gov.au/media-and-resources/hpcomms>>.

The Monash Climate Change Communications Research Hub conducts social research and leads projects to build climate literacy in Australia. Their report, *A literature review of best practice communication of climate science and impacts: guide for policy makers*, identifies key recommendations for communicating climate science.⁵⁶ These include the need to:

- formulate clear messages that are repeated often by trusted sources to targeted or general audiences
- keep climate change information local rather than focusing on national and global information
- consider enlisting not only climate scientists to communicate the science and impacts of climate change but also farmers, firefighters, paramedics, doctors, nurses and weather presenters, who have been identified as highly trusted sources.

Most people associate climate change with risks to the environment but struggle to connect the impacts of climate change on health. Once the connection is established, the health impacts of climate change are impactful because they are believable, personally relevant, universally applicable and signify high risk. Framing climate change around health makes the impacts of climate change more immediate, important and tangible and, as a consequence, action is more likely.⁵⁷

Councils can incorporate climate change and its impacts on health into all emergency management and planning strategies and policies.

Emergency management

Councils play a critical role in preventing, preparing for, responding to and supporting recovery from impacts associated with emergencies such as bushfires and floods. As the intensity, severity and duration of these and other events in Victoria rise, councils will increasingly be called upon to manage the consequences, including public health impacts, and to support community recovery.

Examples of council roles, business areas and strategies that could be implemented in the theme area of emergency management are included in Table 6.

Table 6: Examples of emergency management strategies

Example roles and business areas	Example strategies
<p><i>Councils can incorporate climate change and its impacts on health into all emergency management and planning strategies and policies.</i></p> <ul style="list-style-type: none"> • Emergency management • Environmental health • Sustainability • Health and wellbeing • Health planning 	<ul style="list-style-type: none"> • Ensure new and updated emergency management plans and strategies consider projected changes in Victoria’s climate and climate-related health risks (for example, municipal emergency management plans, municipal fire management plans, heatwave plans), including impacts on assets and the provision of essential health and community services • Engage with the community to raise awareness about the projected impacts of climate change on the frequency and intensity of events including bushfires, storms, floods and heatwaves in the municipality, the potential for direct and indirect health impacts and what actions can be taken to prevent impacts • Plan for and invest in cooler and cleaner air spaces to provide community respite to ‘cleaner air’ when local air quality becomes heavily impacted by smoke from large-scale or prolonged bushfire activity and during periods of extreme heat⁵⁸



Case study: Greater Shepparton City Council – Heatwave plan 2018–2021⁵⁹

The Greater Shepparton City Council *Heatwave plan 2018–2021* outlines the council's strategic planning response to minimise the harmful effects of extreme hot weather conditions for the community, particularly for sensitive population groups. The plan considers the impact of changing climatic conditions on extreme heat and heatwave conditions and the population health risks that they pose. It identifies the projected changes to the climate in the Greater Shepparton municipality that strongly suggest an increased risk and severity of bushfires, heatwaves, floods and drought. The plan indicates potential impacts and costs to industries, infrastructure, environment and people that should be considered in planning.

There are many municipal heatwave plans that already recognise the impacts of climate change on the risk and severity of extreme heat and heatwaves and the direct health effects on the community. These increased risks will continue, and climate change should be considered in all heatwave plans.

For more information visit the **Greater Shepparton website** <<https://greater-shepparton.com.au/community/emergencies/heatwave>>.

Environmental health services, surveillance and monitoring

Environmental health teams in councils are already responding to the public health impacts of climate change in their day-to-day work and will increasingly be called upon to respond to a range of impacts as a result of projected changes. For example, this may include increases in blue-green algal blooms in council-managed recreational water bodies (due to lower water levels and increased temperatures), cryptosporidium outbreaks in public aquatic facilities as a result of increased patronage during heatwaves and food-borne disease outbreaks as a result of increases in climate-sensitive pathogens.

Environmental health teams in councils also play a leading role in emergency management preparedness, response and recovery associated with events such as bushfires and floods, which are increasing in frequency and intensity due to climate change.

For example, following bushfires, this role typically includes:

- secondary impact assessments for damaged properties (including onsite wastewater systems and private drinking water supplies)
- assessing risks to and from temporary accommodation, regulated premises such as food businesses and prescribed accommodation
- providing public health information at relief and recovery centres.

Examples of council roles, business areas and strategies that could be implemented in the theme area of environmental health services, surveillance and control strategies are included in Table 7.

Table 7: Examples of environmental health services, surveillance and control strategies

Example roles and business areas	Example strategies
<p><i>Councils can incorporate climate change and its impacts on health into all environmental management and planning strategies, policies and programs.</i></p> <ul style="list-style-type: none">• Environmental health• Sustainability• Health and wellbeing• Health planning• Council and community facilities	<ul style="list-style-type: none">• Consider how climate change will affect environmental health teams and services (including the delivery of surveillance, regulatory and emergency management functions)• Ensure climate change and its impacts on health are considered in relevant environmental health policies, plans and procedures• Support community engagement activities to raise awareness about potential impacts of climate change on public health in the municipality and what actions can be taken to improve preparedness and resilience

Councils can incorporate climate change and its impacts on health into all environmental management and planning strategies, policies and programs.

Box 10: Disaster and emergency management for environmental health practitioners: a guide for environmental health practitioners in managing disasters and emergencies in an Australian setting⁶⁰

enHealth's *Disaster and emergency management for environmental health practitioners guide* recognises that with the frequency and magnitude of disasters intensifying, in part due to the impact of climate change, disasters such as bushfires, floods and cyclones are an increasingly major public health problem for Australia. It recognises that environmental health plays a role in disaster and emergency management by being both strategic and practical, bringing together a multidisciplinary skill set that is consistent with the preventative nature of the all-hazards approach.

The guide is a resource that assists a range of environmental health practitioners including environmental health officers, directors and managers of environmental health, environmental health technicians, environmental health scientists, and policy and support staff in planning for and responding to disasters and emergencies.

It aims to connect the fields of emergency management and environmental health and provide a baseline for environmental health practitioners in developing disaster response competencies.

For more information visit the **Department of Health's website** <<https://www1.health.gov.au/internet/main/publishing.nsf/Content/health-pubhlth-publicat-enviro.htm>>.



Built and natural environments

Councils have considerable influence over the built and natural environment in their municipalities. Climate change poses significant challenges and risks to communities, but it also presents opportunities for councils and communities to make improvements to the built and natural environments that will benefit health and wellbeing as well as the environment. Interactions with the natural world through public parks and other open settings provide opportunities for being outdoors where connection with nature has physical, mental, cultural and social health and wellbeing benefits.⁶¹

There are many adaptation and mitigation actions that can be taken including in urban planning and design of communities to improve accessibility to walking and cycling paths, public transport and key services, as well as initiatives focused on blue-green infrastructure solutions such as greening urban areas. These actions can reduce carbon emissions, increase carbon capture, improve air quality, reduce flooding risks, cool local environments and provide shade, as well as improve physical and mental health, increase community resilience to extreme heat events and create more opportunities for people to connect with nature.

Examples of council roles, business areas and strategies that could be implemented in the theme area of built and natural environments are included in Table 8.

Councils can incorporate sustainability, climate change and health considerations within planning and development of the local built and natural environment.

Table 8: Examples of built and natural environment strategies

Example roles and business areas	Example strategies
<p><i>Councils can incorporate sustainability, climate change and health considerations within planning and development of the local built and natural environment.</i></p> <ul style="list-style-type: none"> • Urban design and open space planning (both strategic and permit approvals) • Community planning • Asset management • Traffic and civil engineering • Transport • Urban agriculture • Sustainability • Environmental health • Health and wellbeing, health promotion • Local laws 	<ul style="list-style-type: none"> • Enhance urban planning and design of the built environment and open spaces to encourage more frequent walking and cycling, which will reduce greenhouse gas emissions and have physical and mental health benefits for the community (including improving the quality, accessibility and connectivity of existing footpaths and bike lanes) • Implement urban greening and cooling strategies to increase tree canopy cover and vegetation, green walls, green roofs, green corridors and public open space • Incorporate water-sensitive urban design approaches in the design and retrofit of neighbourhoods to reduce pressure on drinking water supplies, reduce pollution of waterways and increase the security of water supplies (including the use of alternative water supplies such as stormwater for irrigation) • Improve access to public and active transport and encourage these options to reduce reliance on private vehicles and associated greenhouse gas emissions. Consideration should be given to large trip generators in the municipality such as hospitals that cater to outpatients, staff and visitors who have the potential to use public and active transport • Support sporting clubs to upgrade active sports fields to warm season grasses that require less watering to allow the fields to be used by the community for more of the year, delivering improved public health outcomes and reducing pressure on drinking water supplies • Encourage leadership in local development through solutions that deliver low carbon and climate-adapted neighbourhoods • Develop and implement, or support, programs that improve energy efficiency and thermal comfort, maintain safe indoor temperatures and reduce bill stress in homes in the municipality (for example, through energy efficiency programs focused on vulnerable households)

Case study: Greening the West⁶²

Greening the West is a regional partnership with a vision to 'enable sustainable, liveable, healthy communities through urban greening'.⁶² Since 2013, Greening the West has generated around \$40 million worth of green infrastructure projects that have delivered benefits to the environment and to the health and wellbeing of local communities. Urban greening is a low-cost strategy that brings high-impact results to existing and established suburbs to mitigate pollution and heat stress while creating a resilient urban environment that supports the community through shocks from climate change events and pandemics.

Greening the West has 23 partner organisations from local government, state government, universities, industry, various agencies and the community that share knowledge and promote and seek solutions for greening in the western municipalities of Brimbank, Hobsons Bay, Maribyrnong, Melton, Moonee Valley and Wyndham. This partnership has resulted in seven industry awards, with the most recent in 2019 winning the Environmental Projection Category in the annual Premier's Sustainability Awards.

Greening the West's strategic plan identifies eight key goals including goals focused on improving the quality and functionality of green space, improving the health and social wellbeing of residents and maximising sustainable water supplies to establish and maintain green space that will contribute to a greener and healthier west.⁶²

For more information visit the **Greening the West website** <<https://greeningthewest.org.au/>>.

Case study: Walk, cycle Greater Bendigo strategy⁶³

Through engagement with the community, the City of Greater Bendigo established that walking and cycling were the community's most simple forms of independent transport and popular recreation. These are accessible activities with significant physical and mental health as well as environmental benefits. Walking and cycling, as alternatives to using private vehicles, are zero-emission forms of travel and have benefits for improving air quality, urban congestion, social interaction, equity and the health of the society.

A range of key infrastructure projects have been incorporated into the *Walk, cycle Greater Bendigo strategy*, including implementing the University to City Centre walking and cycling route, linking towns to Bendigo and developing a 25-kilometre Regional City Trail to form a trail loop around Bendigo's inner suburbs. The strategy also identifies a number of decision-making, communication and activation programs that enhance community participation in the activities that are included in the strategy.

The strategy is closely integrated with other key plans, the *Greening Greater Bendigo strategy 2020–2070*, the *Greater Bendigo public space plan* and the *Bendigo city centre plan*. *Greening Greater Bendigo strategy* is Bendigo's first Urban forest strategy and it aims to increase tree cover and improve tree health across urban areas and townships of Greater Bendigo. The other two plans encompass linked strategies to protect and develop parks, gardens, creek corridors, bushland and sporting reserves, as well as urban spaces. Together these strategies deliver improved environmental health and community health and wellbeing outcomes.

For more information visit the **City of Greater Bendigo website** <<https://www.bendigo.vic.gov.au/walkcyclegb>>.

Case study: City of Greater Geelong – Summer Heatwaves and Sustainability project⁶⁴

The City of Greater Geelong's Summer Heatwaves and Sustainability project was designed to assist vulnerable populations, including older Victorians, to improve their domestic energy efficiency, manage the economic impact of heatwaves better, reduce their energy bills and improve their ability to manage the internal temperature of their homes. The program linked participants into appropriate services such as financial counselling, family services, health services and utility retailers' hardship schemes. Home sustainability visits were conducted, and council home and community care staff were trained to assist their clients in managing the health impacts of heatwaves.

The objectives of this project were to:

- positively impact the health of the local community and deliver on the core roles of local government by contributing to health protection, promotion and prevention (*Geelong public health & wellbeing plan 2013–2017*)
- work with vulnerable populations to understand and respond to climate change (*Geelong climate change adaptation strategy 2010*)
- assist the community to reduce their greenhouse gas emissions.

This program delivered 134 home sustainability visits and 36 community information sessions with more than 450 attendees, and vulnerable households saw \$20,000 of financial savings and benefits.⁶⁵

For more information, view the cases studies on the **City of Greater Geelong's Climate Resilience Training webpage**
<<http://coggresilience.loopandco.com.au/>>.



Box 11: Creating a city of 20-minute neighbourhoods

Plan Melbourne 2017–2050 is the Victorian Government's long-term planning strategy, guiding the way the city will grow and change to 2050. *Plan Melbourne* supports a new approach to planning, which seeks to deliver more inclusive, vibrant and healthy neighbourhoods. It is supported by the principle of 20-minute neighbourhoods, which give people the ability to meet most of their daily needs within a 20-minute walk from home, with access to safe cycling and local transport options.⁶⁶

20-minute neighbourhoods: creating a more liveable Melbourne presents the outcomes of the 20-Minute Neighbourhood Pilot Program, which was led by DELWP in partnership with the Heart Foundation (Victoria), Victoria Walks and local government.⁶⁷ It emphasises the multiple health, economic, social and environmental benefits that can be delivered through walkable neighbourhoods including:

- helping to reduce CO₂ emissions and pollution
- delivering a \$13 benefit for every dollar spent
- improving health and wellbeing
- halving household transport costs
- enhancing the sense of community and social cohesion
- supporting health, infrastructure and environmental savings to the Victorian economy
- increasing retail trading by up to 40 per cent
- providing a higher return than rail or road
- increasing safety.

For more information visit the **Plan Melbourne webpage** <<https://www.planning.vic.gov.au/policy-and-strategy/planning-for-melbourne/plan-melbourne/20-minute-neighbourhoods>>.

Box 12: Mapping and analysis of vegetation, heat and land use

DELWP has worked in partnership with RMIT University, the CSIRO and the Clean Air and Urban Landscapes Hub of the National Environmental Science Program to map and analyse vegetation, land use and urban heat across metropolitan Melbourne.⁵¹

This mapping and analysis aids in understanding the relationship between urban vegetation cover and the urban heat island effect and can assist in identifying areas that are vulnerable to heatwaves. This work also recognises that socioeconomic factors play an important role in a community's vulnerability to heat and in their ability to prepare for, respond to and recover from heat.⁶⁸

This resource could assist metropolitan Melbourne councils to plan tree and vegetation planting and reduce urban heat.

For more information visit the **Plan Melbourne webpage**

<<https://www.planning.vic.gov.au/policy-and-strategy/planning-for-melbourne/plan-melbourne/cooling-greening-melbourne/mapping-and-analysis-of-vegetation,-heat-and-land-use>>.

Box 13: Council Alliance for a Sustainable Built Environment⁶⁹

The Council Alliance for a Sustainable Built Environment (CASBE) is an association of Victorian councils committed to ensuring future generations can enjoy a sustainable built environment. CASBE enables broad-scale positive change to Victoria's built environment through collaborative, local government-led action, with a focus on applying environmentally sustainable development principles to the built environment through the statutory planning system. This coordinated program of formal and consistent measures is called the Sustainable Design Assessment in the Planning Process framework. The framework was developed by Victorian councils to provide a streamlined and consistent methodology for requesting, receiving and assessing built environment sustainability outcomes through the planning process. By implementing the framework and using its tools, councils can encourage climate-resilient and sustainable outcomes from their local built environment for the long-term benefit of their community. CASBE also advocates for Victorian Government policy changes that focus on improving the sustainability assessment process for developments. CASBE is supported by the Municipal Association of Victoria.

For more information visit the **CASBE website**

<<https://www.casbe.org.au/>>.

Healthy and sustainable food systems

Councils play an important role in leading initiatives that support healthy and sustainable food practices, resulting in benefits for both the environment and health.

Research shows that the global adoption of healthy diets and sustainable food production is not only essential to improving the health of the global population but it is also a critical contribution to climate change mitigation.⁷⁰ To make an impact on global emissions, consumers must change to a sustainable diet high in plant-based foods and with fewer animal-sourced foods. At the global level, change will require reorientation of food production, but much can be done at the local level to mitigate climate change and realise health co-benefits by implementing policies to change food orientation and promote sustainable food production.⁷⁰ Much can also be done at the local level to raise awareness about the importance of reducing food waste, which is a significant contributor to greenhouse gas emissions.⁷¹

The *Australian dietary guidelines* recommend eating a diet rich in foods such as fruit, vegetables, nuts, seeds and whole grains and limiting intake of foods containing saturated fats such as processed meat.⁷² When coupled with an active lifestyle a plant-rich diet can play an important part in reducing obesity and lowering cholesterol and blood pressure. Eating fresh, local produce also reduces carbon emissions compared with highly processed food.

At the same time, climate change is expected to have an impact on food security including the ability to access and purchase healthy foods. A changing climate, combined with increases in extreme weather events are likely to not only affect agricultural production cycles but also disrupt supply chains. For example, the 2005–2007 Australian drought was identified as the primary contributor to increased fruit and vegetable prices (33 per cent and 43 per cent respectively).⁷³

Councils can implement a wide range of healthy and sustainable food system initiatives to help mitigate emissions, improve access to fresh, healthy and affordable food and improve health outcomes.

Examples of council roles, business areas and strategies that could be implemented in the theme area of healthy and sustainable food system are included in Table 9.



Table 9: Examples of healthy and sustainable food system strategies

Example roles and business areas	Example strategies
<p><i>Councils, as providers of services, programs and facilities, can promote health and wellbeing to the community in a variety of areas including healthy and sustainable food systems.</i></p> <ul style="list-style-type: none"> • Health and wellbeing, health promotion • Early years, youth, aged and social planning • Urban agriculture • Open space planning and design • Community services • Community facilities • Sustainability 	<ul style="list-style-type: none"> • Engage with the community to raise awareness about the benefits of healthy and sustainable food choices and practices on mitigating climate change and staying healthy at the same time • Promote and support participation in home gardening activities and community gardens, which help people to stay healthy and active and increase community connection • Expand spaces to grow food locally, including new community gardens, to foster more resilient food systems and reduce the emissions associated with food transport • Develop programs and partnerships with local food providers to encourage environmentally sustainable business practices and to improve community access to healthy and sustainable food choices • Consider the impacts of climate change and sustainability in food waste management – for example, through education programs and diversion of food waste away from landfill



Councils, as providers of services, programs and facilities, can promote health and wellbeing to the community in a variety of areas including healthy and sustainable food systems.

Case study: My Smart Garden⁷⁴

My Smart Garden is an initiative of Moonee Valley, Hobsons Bay, Maribyrnong, Brimbank, Wyndham and Stonnington City councils. It is a free sustainable gardening program designed for the community to assist people to grow food in their own gardens, whether that be yards, balconies or pots. The program recognises that 'as our climate changes, our approach to gardening must change too'.⁷⁴

My Smart Garden offers a range of events and workshops to encourage sustainable gardening on topics such as edible gardens, summer and winter vegetable gardening, healthy fruit trees and composting and worm farming. The program website also offers downloadable guides and resources and access to monthly newsletters.

The program assists in improving access to healthy, local and sustainably produced food while also providing opportunities for community connection.

For more information visit the **My Smart Garden website** <<http://www.mysmartgarden.org.au>>.

Case study: Cardinia community food strategy⁷⁵

The *Cardinia community food strategy 2018–26* was co-developed by the Cardinia Food Movement and Steering Group. The strategy aims to establish a healthy, delicious, sustainable and fair food system for all residents of Cardinia Shire. It identifies the issues facing the municipality and sets out a plan for working together as an organisation, and with industry, business and the community, to ensure future generations have access to affordable, nutritious food. The strategy links to Cardinia Shire's *Liveability plan's* objective (4) of 'increasing access to affordable, nutritious food'.

The strategy's five key areas are:

- Protect and utilise fertile land as a source of fresh food for current and future generations.
- Grow a vibrant local food economy which supports growers and enables people to access locally produced food.
- Enhance food knowledge, skills and culture within schools, workplaces, clubs and the wider community.
- Reduce and divert food waste from landfill and reuse water to grow food.
- Build capacity across the community to lead, participate in and support food system work.

With more than 20 partners leading numerous local actions in the local food system, from food literacy projects to community and school gardens and increasing healthy, locally sourced options at cafes, community grocer markets and many others, this strategy is a leading example of a healthy and sustainable food system initiative.

For more information visit the **Cardinia Food Movement website** <<https://www.cardiniafoodmovement.org/>>.

Box 14: A menu for change

A menu for change: using behavioural science to promote sustainable diets around the world is a useful resource that makes the case for a global shift towards more sustainable and healthier diets.⁷⁶ It uses well-evidenced behavioural science and offers routes through which governments and others can help to deliver a healthier and more sustainable food system.

It encourages policies and programs that promote healthy and sustainable diets as appealing, normal and easy by using positive messages and ensuring that sustainable and healthy options are readily available.

For more information visit the **Behavioural Insights Team website** <<https://www.bi.team/publications/a-menu-for-change/>>.

Improving mental health and wellbeing and preventing family violence

Improving mental health and wellbeing and preventing violence are key health and wellbeing priority areas for many Victorian councils and are priorities in the *Victorian public health and wellbeing plan*.

Mental health refers to states of mental wellness, emotional resilience and psychosocial wellbeing, as well as mental illness, mental problems and mental disorders. Climate change and climate-related hazards can have direct, indirect and overarching consequences on mental health. As outlined in Box 4, extreme weather events can trigger PTSD, anxiety, depression and vicarious trauma.¹⁶ Climate change can also have indirect effects on mental health – for example, as a result of damaged physical and social infrastructure, changed agricultural conditions and increased financial and relationship stress. Mental health can be negatively affected through unemployment arising from economic shock or related downturns in businesses or industries.

The overarching psychosocial and mental health consequences of climate change relate to the awareness of the threats and impacts of climate change on the current and future health of the earth and its inhabitants and can lead to long-term emotional distress, despair and hopelessness.¹⁶ Language such as climate anxiety or ecological anxiety and grief is becoming more common to describe some of the impacts that can be induced by the 'wicked problem' of addressing the threat of climate change.^{16,77} These conditions disproportionately affect children and young people and people who rely on the land and land-based activities for their livelihood and wellbeing such as Indigenous peoples and farmers.⁷⁷

As with other health impacts, marginalised and vulnerable populations tend to be the most affected by the mental health impacts of climate change and reduced access to health services.¹⁶ Improving health equity and access and funding to culturally relevant mental health care and practitioners familiar with climate-related anxiety and grief will build the resilience of mental health systems as climate change continues.⁷⁷ Active hope, which involves moving from hopeful intentions to actively addressing climate change through mitigation and adaptation actions and behaviours, will be important for addressing climate change and has benefits for mental health.¹⁶ An increase in the frequency and severity of events such as bushfires, floods and droughts due to climate change is associated with an increase in family violence and abuse.^{78,79} Violence and abuse are also associated with economic stress and unemployment, which can be affected by these events. For example, bushfires can cause social dislocation, reduce community cohesion and family health, and increase the likelihood of aggression and family violence. An increased incidence

and severity of family violence was recorded for more than 50 per cent of women interviewed in affected shires following the Black Saturday bushfires,⁸⁰ and the department and community service organisations responded to increased incidences of PTSD, depression and anxiety.⁸¹

The increased frequency and intensity of extreme events are likely to place stresses on service provision and could exacerbate personal and structural barriers that may already be experienced by vulnerable groups accessing mental health care services.

In 2017 the department provided guidance for local government, *Family violence and municipal public health and wellbeing planning*, which remains current.⁸² It provides examples of practical measures councils can take to reduce family violence and respond to the needs of victims, as well as resources and case studies to support councils when preparing an MPHWP.

Examples of council roles, business areas and strategies that could be implemented to improve mental health and wellbeing and prevent family violence are included in Table 10.

Table 10: Examples of improving mental health and wellbeing and preventing family violence strategies

Example roles and business areas	Example strategies
<p><i>Councils, as providers of services, programs and facilities, can promote health and wellbeing in the community in a variety of areas including mental health and violence prevention services and support frontline workers to address the challenges posed to these areas by climate change.</i></p> <ul style="list-style-type: none"> • Health and wellbeing, health promotion • Early years, youth, aged and social planning • Community services • Community facilities • Emergency management (response and recovery) • Sustainability 	<ul style="list-style-type: none"> • Promote and support conversations about climate change with the community, especially with children and youth, including proactive action that can be taken to address climate change and its impacts on health • Promote and support programs for the community to experience and take part in preserving nature, which can provide a sense of personal investment and help people overcome feelings of hopelessness and anxiety • Promote and support conversations and mental health services for people who may be affected by extreme events such as bushfires and floods • Undertake prevention work and develop programs to assist individuals who may be at increased risk of family violence and abuse during and after emergencies and disasters

Councils, as providers of services, programs and facilities, can promote health and wellbeing in the community in a variety of areas including mental health and violence prevention services and support frontline workers to address the challenges posed to these areas by climate change.

Case study: Macedon Ranges Shire Council – Prevention of violence against women in emergencies^{83,84}

Violence against women increases during and after emergencies and disasters, both in severity for women already experiencing violence and for first-time occurrences.^{85,86}

In response, the Macedon Ranges Shire Council develops annual 'Prevention of violence against women in emergencies' action plans. These plans aim to prevent violence before it occurs in the context of emergencies while also addressing family violence before, during and following an emergency. The plans consider community members affected by emergencies as well as volunteers and staff working in emergency response, relief and recovery.

Actions have included producing materials to raise awareness of the probability of increased family violence after natural disasters and to provide information on where people can find help and support. The materials include the 'disaster is no excuse for family violence...' poster, flyer and wallet card, which are based on text from a postcard produced by the Gender and Disaster Pod and are designed to be used after an incident in relief and recovery centres and other locations in affected areas.^{83,87}

For more information visit the 'Prevention of violence against women' page on **Macedon Ranges Shire Council's website** <<https://www.mrsc.vic.gov.au/Live-Work/Healthy-Living/Violence-Against-Women>>.

Evaluation

Evaluation is concerned with demonstrating accountability for the investment of resources in health and wellbeing action and with learning more about what does and does not work. Evaluation is most effective when designed early in the planning cycle and when councils work with their communities, agencies and services to plan, identify actions for, implement and evaluate the MPHWP. Evaluation should be designed to answer the following questions about the goals and strategies included in the MPHWP:³

- Have we done what we said we would do?
- Are we having the influence we expected?
- Have we achieved the change we sought?
- What worked well and what needs improvement?

Answering these questions requires consideration of relevant indicators, targets and measures. Effective indicators, targets and measures can track progress that has been made and highlight when and where midcourse corrections would increase the effectiveness of climate change programs.⁸⁸

Climate change and health indicators have been developed by researchers and organisations within Australia and internationally and are typically grouped into a number of categories or domains. These include groups of indicators related to exposure and vulnerability (including adaptive capacity), indicators related to climate change impacts on health (often termed climate-sensitive 'health outcome' measures or indicators), adaptation and mitigation indicators (including those relevant to health co-benefits), economics and finance indicators (including losses, costs and investment) and indicators associated with public and political engagement.^{42,48,88-90}

As outlined in the 'Municipal scanning' section above, indicators of exposure, vulnerability and adaptive capacity can be useful in undertaking vulnerability assessments to determine key risks and in identifying and prioritising interventions. In the context of evaluating the effectiveness of interventions, it can be useful to consider:

- process measures (which indicate whether programs or activities are being implemented as intended). In the context of climate change and health, this would include indicators of strategies implemented to prevent and manage climate-sensitive health outcomes (including implementation of strategies detailed in MPHWPs and integrated council plans, as well as those detailed in any linked climate change adaptation and mitigation plans)



- outcome measures (which measure program effectiveness in the target population by assessing the progress and achievement of goals and objectives and the extent to which the program contributed to the desired change). In the context of climate change and health, this would include indicators of whether adaptation and mitigation goals are being met.

For example, process measures may track whether actions specified as part of a council's heat health plan have been implemented as specified, while outcome measures would help determine how well the plan is protecting health during periods of extreme heat.

At the state level, the *Victorian public health and wellbeing outcomes framework* includes several targets and measures that can be used to help track efforts to improve the health and wellbeing of Victorians in the context of a changing climate. These include measures that could be used to directly measure progress on mitigating emissions associated with climate change, such as renewable energy generation as a proportion of total energy generation, as well as progress on efforts that deliver co-benefits to both health and climate change mitigation. This could include measures such as the proportion of journeys that use active transport, where measures have been put in place to reduce car trips, delivering both emissions reduction and improved health outcomes, including reductions in the rates of obesity.

In terms of monitoring changes in health impacts associated with climate change over time, this field is still in its infancy and is the focus of active research (see Box 15).

Box 15: Climate change and health impact attribution^{42,90-92}

In climate science, 'extreme event attribution' involves estimating the change in likelihood of a severe weather-related event due to underlying specific mechanisms, including climate change. In recent years, extreme event attribution studies have begun to calculate the climate change-related health impacts of certain weather events. These studies typically include statements that indicate the degree to which anthropogenic climate change is thought to have increased the risk of morbidity or mortality. For example, one such study concluded that during the 2003 European heatwaves, anthropogenic climate change increased the risk of heat-related mortality in central Paris by ~70 per cent and by ~20 per cent in London.

However, this field is still in its infancy and is complex, particularly because most climate-sensitive health impacts have many causal factors in addition to climate and because the causal relationships between climate change and public health can be indirect and non-linear. A number of technical questions remain unresolved, such as which physical climate models to employ, how to measure impacts and how to suitably merge these respective fields in standardised approaches for effective attribution. Nevertheless, early work undertaken to date in this area shows great potential.

At the local government level, councils have adopted several indicators, targets and measures to track progress against actions to tackle climate change and its impacts on health. These include climate change-specific measures, such as those focused on monitoring and evaluating:

- integration of climate change considerations and assessments into relevant plans, policies, procedures and programs
- awareness of and engagement with council staff and councillors on climate change
- impacts of climate change on assets, service delivery, budgets and finance
- the effectiveness of initiatives specifically focused on reducing emissions associated with climate change and increasing community adaptation to the health impacts of climate change.

Of these, a number are associated with delivering initiatives that have co-benefits for climate change mitigation, adaptation and health.

Some examples of indicators, targets and measures are included in Table 11.

Table 11: Example indicators, targets and measures

Theme area	Example indicators	Example targets	Example measures
<p>Leadership, governance and council assets</p>	<p>Increase inclusion of actions to tackle climate change and its impacts on health in relevant council plans, policies and programs</p> <p>Increase council employee engagement in climate change and health-related discussions, program delivery and training</p> <p>Increase the energy efficiency of council infrastructure</p> <p>Increase trips by active and public transport and decrease trips by car</p> <p>Reduce overweight and obesity and associated diseases</p> <p>Reduce emissions</p>	<p>By x year, increase the percentage of council buildings that have undergone energy efficiency upgrades (or that are producing net-zero emissions) by x per cent</p> <p>By x year, increase the proportion of relevant plans, policies and programs that recognise and address the health impacts of climate change by x</p> <p>By x year, increase the percentage of council employees engaged in climate change and health-related planning discussions, program delivery and training by x per cent</p> <p>By x year, increase the percentage of expenditure on food and drinks purchased for council events and meetings that is in line with healthy and sustainable food procurement principles or policies by x per cent</p>	<p>Percentage of council buildings that have undergone energy efficiency upgrades or that are producing net-zero emissions</p> <p>Proportion of relevant council plans, policies and programs that include actions to tackle climate change and its impacts on health</p> <p>Percentage of council employees engaged in climate change and health-related planning discussions, program delivery and training</p> <p>Proportion of council employees using public and active transport during the commute to and from work and/or for travel during the workday</p> <p>Percentage of expenditure on food and drinks purchased for council events and meetings that is in line with healthy and sustainable food procurement principles or policies</p>
<p>Communication, engagement and capacity building</p>	<p>Increase community understanding of actions they can take to stay healthy in a changing climate and reduce their impact</p> <p>Reduce morbidity and mortality associated with climate change-related hazards and events</p> <p>Reduce emissions</p>	<p>By x year, increase the percentage of community members who report understanding the actions they can take to stay healthy in a changing climate and reduce their impact by x per cent</p> <p>By x year, increase the percentage of community members who report making changes to become more resilient to climate impacts and to reduce their impact by x per cent</p>	<p>Percentage of surveyed community members who report understanding the actions they can take to stay healthy in a changing climate</p> <p>Percentage of surveyed community members who report making changes to become more resilient to climate impacts and to reduce their impact</p>

Theme area	Example indicators	Example targets	Example measures
Emergency management	<p>Increase integration of actions to tackle climate change and its impacts on health in relevant emergency management plans and strategies</p> <p>Increase community access to cooler and cleaner air spaces</p> <p>Reduce the morbidity and mortality associated with climate change-related hazards and events</p>	<p>By x year, increase the proportion of emergency management plans and strategies that recognise and address the health impacts of climate change by x</p> <p>By x year, increase the number of community facilities that can provide cooler and cleaner air spaces by x</p> <p>Number of residents seeking refuge at council-managed facilities (for example, when local air quality becomes impacted by smoke from bushfire activity and during periods of extreme heat)</p>	<p>Proportion of emergency management plans and strategies that recognise and address the health impacts of climate change</p> <p>Council employee time dedicated to planning, training and exercises focused on protecting the community from direct and indirect health impacts associated with extreme weather events</p> <p>Number of residents seeking refuge at council-managed facilities (for example, when local air quality becomes impacted by smoke from bushfire activity and during periods of extreme heat)</p>
Environmental health services, surveillance and monitoring	<p>Increase integration of actions to address increased risks to public health associated with climate change in relevant environmental health policies, plans and procedures</p> <p>Reduce the morbidity and mortality associated with climate change-related hazards and events</p>	<p>By x year, increase the proportion of environmental health policies, plans and procedures that recognise and address increased risks to public health associated with climate change by x</p>	<p>Proportion of environmental health policies, plans and procedures that recognise and address the increased risks to public health associated with climate change</p>
Healthy and sustainable food systems	<p>Increase the proportion of the community consuming diets rich in fruits, vegetables, nuts, seeds and whole grains</p> <p>Reduce overweight and obesity</p> <p>Increase community connection</p> <p>Reduce emissions</p> <p>Increase green space for local food production</p>	<p>By x year, increase the number of community garden plots by x</p> <p>By x year, increase the number of community members and businesses participating in council-led healthy and sustainable food system initiatives</p>	<p>Number of community garden plots</p> <p>Percentage of community members and businesses participating in council-led healthy and sustainable food system initiatives</p> <p>Proportion of adults, adolescents and children who are overweight and obese</p> <p>Proportion of adults, adolescents and children who consume sufficient fruit and vegetables</p>

Theme area	Example indicators	Example targets	Example measures
Improving mental health and wellbeing and preventing family violence	<p>Reduce rates of climate anxiety and grief</p> <p>Increase access to services and programs to assist individuals who may be at increased risk of family violence during and after emergencies and disasters</p> <p>Reduce rates of family violence</p>	<p>By x year, increase the number of forums about climate change available to children, young people and families by x</p> <p>By x year, increase support services and programs to assist individuals who may be at increased risk of family violence during and after emergencies by x</p>	<p>Percentage of community members participating in council-led events focused on proactive action that can be taken to address climate change and its impacts on health</p> <p>Proportion of community members accessing family violence services and programs</p>
Built and natural environments			
Active living and transport	<p>Increase trips by active and public transport and decrease trips by car</p> <p>Reduce overweight and obesity</p> <p>Reduce emissions</p>	<p>By x year, increase the percentage of roads with cycle paths by x per cent</p> <p>By x year, increase the total kilometres of bike paths, shared paths and footpaths by x</p>	<p>Percentage of the population within the municipality that regularly cycles and/or walks</p> <p>Total kilometres of bike paths, shared paths and footpaths</p> <p>Percentage of roads with cycle paths</p> <p>Proportion of adults, adolescents and children who are overweight and obese</p>

Theme area	Example indicators	Example targets	Example measures
Green and blue-green infrastructure and water use	Increase canopy cover and shading	By x year, increase canopy cover (and/or open space) within the municipality by x per cent	Percentage of tree canopy cover in municipality
	Reduce urban heat island effect		
	Decrease heat-related morbidity and mortality	By x year, decrease urban heat temperature in x area by x°C	Percentage of open space in municipality
	Improve health and wellbeing		
	Reduce emissions		Urban heat surface temperature
Healthy and energy-efficient homes and businesses	Increase water security	By x year, x per cent of total water use by council for non-drinking purposes to come from alternative sources (for example, harvested rainwater and stormwater)	Council water usage
	Maintain and enhance public open space, sporting grounds and tree canopy		
	Improve health and wellbeing	By x year, decrease the percentage of complaints associated with low-quality public open space and hard outdoor playing surfaces by x per cent	Increase in self-reported community satisfaction with quality of public open space and sporting grounds (for example, during periods of drought)
	Reduce emissions		
	Increase energy efficiency of homes and businesses and decrease energy costs	By x year, increase the percentage of households participating in healthy and energy-efficient homes programs by x per cent	Increase in self-reported health and wellbeing
Increase thermal comfort and decrease temperature-related morbidity and mortality			
Reduce emissions	By x year, increase the percentage of businesses participating in healthy and energy-efficient business programs by x per cent	Decrease in self-reported bill stress	
Increase social inclusion			

Sources: Ebi et al. 2018,⁸⁸ Western Alliance for Greenhouse Action 2020,⁹³ Patrick & Kingsley 2019⁹⁴

Several Victorian councils have adopted indicators in the 'How well are we adapting?' framework.⁹³ Further detail on this framework is included in Box 16.

Box 16: 'How well are we adapting?' framework⁹³

How well are we adapting? is a tool and program for monitoring, evaluating and reporting on climate change adaptation performance that has been developed for councils by the Western Alliance for Greenhouse Action (WAGA) in partnership with the Centre for Urban Research, RMIT University, with support from the Victorian Government.

How well are we adapting? is intended to build the capacity of councils to respond to and manage climate change impacts and risks and includes indicators to monitor adaptive capability and capacity in relation to four theme areas:

- open space and water security
- planning, building and regulation
- assets and infrastructure
- community wellbeing and emergency management.

Under these theme areas, indicators include those related to:

- service vulnerability or resilience
- institutional capacity
- budgeting and finance
- participation and awareness.

From November 2020, the program will be sustained primarily through a subscription service for councils.

For more information email the **How Well Are We Adapting team** <howwellareweadapting@gmail.com> or visit **the program's website** <<http://adapt.waga.com.au/>>.

Resources

Department of Health and Human Services resources

Public health and wellbeing planning

<<https://www2.health.vic.gov.au/about/health-strategies/public-health-wellbeing-plan>>

Health and wellbeing planning guides

<<https://www2.health.vic.gov.au/public-health/population-health-systems/municipal-public-health-and-wellbeing-planning/health-and-wellbeing-planning-guides>>

Climate change and health – HealthVic

<<https://www2.health.vic.gov.au/public-health/environmental-health/climate-weather-and-public-health/climate-change-and-health>>

Climate change and health – Better Health Channel

<<https://www.betterhealth.vic.gov.au/health/HealthyLiving/climate-change-and-health>>

Guidance for local government – Supporting people when air quality is heavily impacted by bushfire smoke

<<https://www2.health.vic.gov.au/about/publications/policiesandguidelines/supporting-people-air-quality-impacted-bushfire-smoke>>

Pilot health and human services climate change adaptation action plan 2019–21

<<https://www2.health.vic.gov.au/public-health/environmental-health/climate-weather-and-public-health/climate-change-and-health/strategy>>

Planning and assessment tools and resources

Climate Change in Victoria – Department of Environment, Land, Water and Planning

<<https://www.climatechange.vic.gov.au/>>

Plan Melbourne 2017–2050 – Department of Environment, Land, Water and Planning

<<https://www.planmelbourne.vic.gov.au/>>

Linking climate change and health impacts 2020 – Sustainability Victoria

<<https://www.sustainability.vic.gov.au/>>

Framework for a national strategy for climate, health and well-being for Australia – Climate and Health Alliance

<<https://www.caha.org.au/national-strategy-climate-health-wellbeing>>

National Climate Resilience and Adaptation Strategy – Australian Government

<<https://www.environment.gov.au/climate-change/adaptation/strategy>>

Community engagement resources – Local Government Victoria and Engage Victoria

<<https://engage.vic.gov.au/local-government-act-2020/community-engagement-workshop-feedback-themes>>

How well are we adapting? – Western Alliance for Greenhouse Action

<<http://adapt.waga.com.au/>>

Achievement Program – Cancer Council Victoria and Victorian Government

<<https://www.achievementprogram.health.vic.gov.au/>>

Other climate change and health resources

Climate change – World Health Organization

<<https://www.who.int/health-topics/climate-change>>

COP4 Special report: Health & Climate Change – World Health Organization

<<https://www.who.int/globalchange/publications/COP24-report-health-climate-change/en/>>

The Lancet Countdown on Health and Climate Change

<<https://www.thelancet.com/climate-and-health>>

Climate and Health Program – United States Centers for Disease Control and Prevention

<<https://www.cdc.gov/climateandhealth/>>

Community resilience and vulnerability, the potential for adaptation – National Climate Change Adaptation Research Facility

<<https://www.nccarf.edu.au/synthesis/synthesis-summary-5-community-resilience-and-vulnerability>>

Appendix:

Decision-making duties under the Climate Change Act

The following is an excerpt from s. 17 of the *Climate Change Act 2017*.⁴

17 Decision makers must have regard to climate change

- (1) This section applies to any decision made or action taken that is authorised by—
 - (a) the provision of an Act specified in Schedule 1; or
 - (b) any other prescribed provision of an Act specified in Schedule 1; or
 - (c) any prescribed provision of a subordinate instrument made under an Act specified in Schedule 1.
- (2) A person making a decision or taking an action referred to in subsection (1) must have regard to—
 - (a) the potential impacts of climate change relevant to the decision or action; and
 - (b) the potential contribution to the State's greenhouse gas emissions of the decision or action; and
 - (c) any guidelines issued by the Minister under section 18.
- (3) In having regard to the potential impacts of climate change, the relevant considerations for a person making a decision or taking an action are—
 - (a) potential biophysical impacts; and
 - (b) potential long and short term economic, environmental, health and other social impacts; and
 - (c) potential beneficial and detrimental impacts; and
 - (d) potential direct and indirect impacts; and
 - (e) potential cumulative impacts.
- (4) In having regard to the potential contribution to the State's greenhouse gas emissions, the relevant considerations for a person making a decision or taking an action are—
 - (a) potential short-term and long-term greenhouse gas emissions; and
 - (b) potential direct and indirect greenhouse gas emissions; and
 - (c) potential increases and decreases in greenhouse gas emissions; and
 - (d) potential cumulative impacts of greenhouse gas emissions.
- (5) The requirements of this Part apply in addition to and without limiting the power or duty of a person making a decision or taking an action referred to in subsection (1) to consider any other matter.
- (6) Nothing in this Part limits the power of a person making a decision or taking an action not referred to in subsection (1) to consider any potential impacts of climate change or potential contributions to the State's greenhouse gas emissions in making any other decision or taking any other action under any other Act or subordinate instrument.

Schedule 1 of the Act is included in the table on the following page.

Schedule 1: Acts and decisions or actions

Name of Act	Decision or action
<i>Catchment and Land Protection Act 1994</i>	<p>An approval or refusal of an approval of a management plan by the Minister, or the return of a plan to the Authority with any recommendations for change, under clause 3 of Schedule 2</p> <p>The revocation of a management plan by the Minister under clause 7 of Schedule 2</p>
<i>Marine and Coastal Act 2018</i>	<p>Consideration by the Minister of a Marine and Coastal Policy under Division 1 of Part 4</p> <p>Consideration by the Minister of a Marine and Coastal Strategy under Division 2 of Part 4</p>
<i>Environment Protection Act 1970</i>	<p>A recommendation of the Environment Protection Authority under s. 16</p> <p>A recommendation of the Environment Protection Authority under s. 16A</p> <p>The issue of or refusal to issue a works approval by the Environment Protection Authority under s. 19B</p> <p>A decision by the Environment Protection Authority relating to the licensing of scheduled premises under s. 20</p>
<i>Flora and Fauna Guarantee Act 1988</i>	<p>The preparation, making and amendment of a Biodiversity Strategy by the Secretary under ss. 17, 18, 18B and 18C</p> <p>The preparation and amendment of an action statement by the Secretary under s. 19</p> <p>The preparation of a management plan by the Secretary under s. 21</p> <p>The amendment or revocation of a management plan by the Secretary under s. 22</p> <p>The review of a management plan by the Secretary under s. 24</p> <p>The preparation and making of a habitat conservation order by the Minister under ss. 26 and 28</p> <p>The confirmation, amendment or revocation of a habitat conservation order under s. 29</p> <p>The amendment of a habitat conservation order by the Minister under s. 31</p>
<i>Public Health and Wellbeing Act 2008</i>	<p>The preparation of a municipal public health and wellbeing plan by a Council under s. 26</p> <p>The preparation of a State Public Health and Wellbeing Plan by a person under s. 49</p>
<i>Water Act 1989</i>	<p>Consideration of a draft Sustainable Water Strategy by the Minister under s. 22G</p>

Glossary of key terms

The following table defines key terms and definitions used in this guidance. These definitions have been described within the context of climate change and MPHWP.

Term	Definition
Adaptation	Changes made to natural or human systems to prepare for actual or expected changes in the climate in order to minimise harm, act on opportunities or cope with the consequences.
Biophysical impacts	In the context of the MPHWP, relevant biophysical impacts are those that directly and indirectly affect health through changes to the natural environment.
Climate	The average weather experienced at a site or region over a period of at least 30 years.
Climate change	A change in the world's weather systems that occurs over decades, including an increase in the occurrence of extreme weather events, long-term changes in weather patterns and sea level rise. More of the recent changes in our climate have been brought about by human activity, and these changes are often referred to as anthropogenic climate change.
Co-benefits and health co-benefits	<p>Co-benefits: The positive effects that a policy or measure aimed at one objective might have on other objectives, thereby increasing the total benefits for society or the environment. Co-benefits are often subject to uncertainty and depend on local circumstances and implementation practices, among other factors. Co-benefits are also referred to as ancillary benefits.</p> <p>Health co-benefits: Implementation of climate policies that lead to improvements in health. For example, many climate change mitigation measures that reduce greenhouse gas emissions in various sectors, including housing, transportation and energy, have co-benefits that lead to substantial health gains and reduced health risks.</p>
Cumulative impacts	The effects of climate change may be compounded over time or impacts may interact to produce cumulative impacts. For example, increased temperatures during periods of reduced rainfall will likely result in greater water stress.
Direct and indirect impacts	<p>Direct impacts occur at the same time and place as a weather event. For example, floods can cause immediate injury and death.</p> <p>Indirect impacts caused by climate change occur later in time or further removed in distance. Indirect health impacts may result from changes to the social, built, economic and natural environments. For example, drought may cause changes to the social and economic environments, resulting in increased anxiety and depression.</p>
Emissions scenario	A plausible representation of the future development of greenhouse gas emissions (such as Representative Concentration Pathways or 'RCPs') based on a set of assumptions about factors such as demographic and socioeconomic development and technological change.

Term	Definition
Exposure	The presence of people; livelihoods; species or ecosystems; environmental functions, services and resources; infrastructure; or economic, social, or cultural assets in places and settings that could be adversely affected.
Extreme weather	A weather event that is rare at a particular place and time of year. Definitions of rare vary, but an extreme weather event would normally occur less than 10 per cent of the time.
Global warming	The gradual increase, observed or projected, in global surface temperature.
Greenhouse gas	Gaseous components of the atmosphere, both natural and human-generated, that absorb and emit solar radiation at specific wavelengths. Water vapour (H ₂ O), carbon dioxide (CO ₂), nitrous oxide (N ₂ O), methane (CH ₄) and ozone (O ₃) are the primary greenhouse gases in the earth's atmosphere.
Hazard	The potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources.
Impacts (consequences, outcomes), beneficial and detrimental impacts	<p>The consequences of realised risks on natural and human systems, where risks result from the interactions of climate-related hazards (including extreme weather and climate events), exposure and vulnerability. Impacts generally refer to effects on lives; livelihoods; health and wellbeing; ecosystems and species; economic, social and cultural assets; services (including ecosystem services); and infrastructure. Impacts may be referred to as consequences or outcomes and can be adverse (detrimental) or beneficial.</p> <p>Beneficial and detrimental impacts: In some settings climate change may have beneficial impacts. For example, increased temperatures may allow for a new range of crops to be grown. In Australia, it has been predicted that increased average daily temperatures will result in fewer cold-related deaths (significantly offsetting the increase in heat-related deaths). Detrimental impacts are those that negatively affect health.</p>
Long- and short- term economic, environmental, health or other social impacts	In the context of the MPHWP, these are changes to the built, social, economic and natural environments that impact on health and wellbeing within either short or long timeframes. Councils will need to consider the practicality of adaptation planning for impacts that may occur within long timeframes and whether it is appropriate for the MPHWP to address this.
Mitigation	A human intervention to reduce emissions or enhance the sinks of greenhouse gases.

Term	Definition
Preparedness	The knowledge and capacity of governments, emergency management organisations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely or actual hazard events.
Resilience	The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation.
Risk	The potential for consequences where something of value is at stake and where the outcome is uncertain. Risk is often represented as a probability of occurrence of hazardous events or trends multiplied by the consequences if these events occur.
Vulnerability, sensitivity and adaptive capacity	<p>The degree to which a system, sector or social group is susceptible to the adverse effects of climate change; vulnerability depends on the nature of the climate changes to which the system is exposed, its sensitivity to those changes and its adaptive capacity.</p> <p>Sensitivity: The degree to which populations are affected by climate variability or change.</p> <p>Adaptive capacity: The capability of populations to adjust to change, to minimise harm, to act on opportunities or to cope with the consequences.</p>

Definitions are sourced from DELWP 2019, *Victoria's climate science report 2019*,¹¹ DELWP 2016, *Victoria's Climate Change Adaptation Plan 2017–2020*,⁹⁵ and IPCC 2018, *Annex I: Glossary of Global Warming of 1.5°C*.⁹⁶

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