



Northern Victorian Emergency Management Cluster



# Northern Victorian Emergency Management Cluster

## Heatwave Plan

Issue 4 - November 2018

Template Prepared by Central Victorian Greenhouse Alliance for Buloke, Central Goldfields, Gannawarra, Loddon, Macedon Ranges and Mount Alexander shire councils who participated in the Resilient Community Assets Heat Health project and City of Greater Bendigo who was involved in the early stages of the project.

The Resilient Community Assets Project — a partnership between the Victorian Government and six local councils.

## Version Control

Date	Version	Details	Officer
April 2016	2	New Municipal Heatwave Plan template developed	Central Victorian Greenhouse Alliance
July 2016	2.1	Draft Municipal Heatwave Plan developed for Heatwave Working Group	Mount Alexander Shire - Emergency Management Coordinator
October 2016	2.2	Further devp.	Mount Alexander Shire - Climate Change Coordinator
November 2016	2.3	Municipal Heatwave Workshop held – further development	Mount Alexander Shire - Climate Change Coordinator and Emergency Management Team
November 2016	3.0	Final Version	Mount Alexander Shire - Emergency Management Coordinator
May 2017	3.1	Additional developments and transition to Northern Victorian Cluster Sub Plan	Mount Alexander Shire - Emergency Management Coordinator
June 2017	3.2	Campaspe Shire information added	Mount Alexander Shire - Emergency Management Coordinator
February 2018	3.3	Document put to Northern Victorian Integrated MEMPC	Mount Alexander Shire - Emergency Management Coordinator
November 2018	4	Document updated and put to Northern Victorian Integrated MEMPC	Cluster Coordinator

## Abbreviations

ABS	Australian Bureau of Statistics
AV	Ambulance Victoria
BOM	Bureau of Meteorology
CDCH	Castlemaine District Community Health
CH	Castlemaine Health
CSU	Councils "Customer Service Unit"
DHHS	Department of Health and Human Services
DoJ	Department of Justice
EMCOP	Emergency Management Common Operating Picture
EMC	Emergency Management Commissioner
EMV	Emergency Management Victoria
HACC	Home and Community Care
MERC	Municipal Emergency Response Coordinator
MERO	Municipal Emergency Resource Officer
MRM	Municipal Recovery Manager
OH&S	Occupational Health and Safety
SC-H	State Commander - Heat
SCoT	State Coordination Team
SEIFA	Socio-Economic Indexes for Areas
VicPol	Victoria Police
VPR	Vulnerable Persons Register

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# 1. Introduction

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The impacts of extreme heat have been assessed as a significant risk facing the State of Victoria (DoJ 2014). In the last 200 years, extreme heat events have taken more lives than any other natural hazard in Australia (BoM 2015). In Victoria, the duration, frequency and intensity of heatwaves are expected to increase as a result of climate change. (Steffen et al 2014).

It is getting warmer and drier. Over the past 100 years, global surface air temperatures have risen by almost 1°C. Both the atmosphere and the oceans have warmed. Human activity is causing climate change, through our release of greenhouse gases from the burning of fossil fuels, land use change and agriculture. Atmospheric concentrations of carbon dioxide are now more than 40% higher than they were before industrialisation. In the Loddon Mallee region, the rate of warming has increased since the 1960s. On average, rainfall has declined since the 1960s, especially in autumn. The harsh Millennium Drought (1996 to 2009) ended with two of the wettest years on record in 2010–11. (This statement is from the following website: <https://www.climatechange.vic.gov.au/information-and-resources> ).

‘Three days or more of high maximum and minimum temperatures that are unusual for that location’ constitute a heatwave according to the Bureau of Meteorology in their *Heatwave service for Australia*. However the risks of high temperature extremes occur in any extreme heat event.

Heatwaves or extreme heat events can have significant impacts on human health and life. Two recent heat events in Victoria resulted in large numbers of deaths. In the 2009 heatwave an estimated 374 excess deaths occurred, much greater than the 173 deaths arising from the Black Saturday bushfires the following week. In the 2014 heatwave there were 167 excess deaths. Excess deaths are above what would otherwise be expected and may have been a result of extreme heat (DHHS 2015).

Extreme heat can affect anyone; however there are some sectors of the population that are more susceptible to its impacts. These include the elderly, the very young, those with some pre-existing medical conditions, those on particular medications and the socially isolated.

Heat events have the greatest impact on health when there are several consecutive days of extreme temperatures in association with high night time temperatures.

Extreme heat can also affect infrastructure by creating increased demand and/or failure of essential services such as power, transport and water. Failure of such infrastructure can further affect the functioning of government and community services, business and industry.

The aim of this Heat Health Plan is to support the community to prepare for, respond to and recover from heatwaves and extreme heat events.

Implementation of this Heat Plan (the Plan) will:

- ensure health information and support is available to our community
- increase the understanding and capacity of our community to respond during heat events
- manage a heat event emergency more effectively
- influence long term changes in behaviour to improve our health and wellbeing.

This will be achieved by:

- undertaking strategies and actions to increase the resilience of our community to extreme heat
- identifying and supporting vulnerable groups in the community and the risks they face during heat events
- developing partnerships with local organisations to better coordinate response to heat events
- promoting a community awareness and education component
- informing employees and community members on the dangers of heat events
- identifying, documenting and assigning tasks to be implemented during a heat event
- establishing governance arrangements to action the plan
- evaluating the ongoing effectiveness of the plan and its implementation.

## 2. Why have a plan?

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### State context and guidelines

Planning for the impacts of extreme heat and heatwave has been underway in Victoria for at least ten years. Three key documents outline this process:

- The State Heat Plan (DoJ 2014) outlines arrangements for an integrated and whole-of-government approach to the emergency management of extreme heat in Victoria.
- The *Heat Health Plan for Victoria* (DHHS 2015) outlines a coordinated approach to the prevention, preparation and management of extreme heat in Victoria, with a focus on health and community service providers and local and state government.
- State Extreme Heat Sub-Plan (Edition 2) outlines the Victorian arrangements for the coordinated response to the impacts and consequences of extreme heat events (including heatwaves) on the community, infrastructure, and services.

Each of these plans recognise the role of local government in working with local communities to prepare and plan for, respond to and recover from emergencies. They also acknowledge that each council should develop a multi-agency heat health plan as a sub-plan of the Municipal Emergency Management Plan. To support this, the then Department of Health developed a *Heatwave Planning Guide* (DHS 2009) to assist local government to develop heat health management plans.

### Heatwave and heat health within local government planning framework

Management of extreme heat and heatwave straddles a number of local government areas of responsibility including emergency management, home care services, social wellbeing, infrastructure, economic development, sustainability and environment and town planning.

The Community Emergency Risk Assessment (CERA) process for the Northern Victorian IMEMPC has identified Extreme Temperature – Heatwave, as having a “high” residual risk rating. As a result of this rating, this Heatwave Plan was developed.

### **3. Heatwave terminology**

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There have been recent changes in the terminology defining heat and heatwaves and the following terms are currently in general usage.

#### **Heatwave**

The Bureau of Meteorology's *Heatwave service for Australia* defines heatwave as 'three days or more of high maximum and minimum temperatures that are unusual for that location'. Heatwave as an emergency requiring a control agency is defined as three or more days in excess of the heat health threshold for a particular weather district.

#### **Heat Event**

The State Heat Plan uses the term heat event for periods of high temperatures regardless of duration as even one day of high temperature may result in impact and consequences on the community, Infrastructure and services, with these effects compounding over successive days of high temperature (DoJ 2014).

#### **Extreme heat**

The term extreme heat is used to describe:

- A sustained period of high temperatures (heatwave) and;
- A single day of higher than average temperature that for that time of year (a temperature that occurs infrequently or highest on record) as classified by the Bureau of Meteorology (BoM)

#### **Heat health temperature thresholds**

DHHS has identified heat health temperature thresholds for each weather forecast district in Victoria (which align with the Victorian Country Fire Authority districts). Above these thresholds heat-related illness and mortality increase substantially.

The heat health temperature threshold is based on the forecast average temperature for any given day; that is the average of the forecast daily maximum temperature and the forecast overnight temperature (the daily minimum for the following day (see Appendix 1).

#### **Heat health alerts**

Heat health alerts are issued by the Chief Health Officer for a particular district once the forecast average temperatures reach or exceed the heat health threshold for that district (see Section 5).

## 4. How heat affects our health and communities

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### Health impacts of heatwaves

As temperatures rise, so does the risk of developing a heat related illness — a medical condition that results from the body’s inability to cope with heat and cool itself. If left untreated, a heat illness can lead to serious complications, including death.

Heat related illness can make people feel uncomfortable, not so much because they feel hot, but rather because they sense how difficult it has become to lose body heat at the rate necessary to keep their inner body temperature close to 37°C. The body responds to heat stress progressively through three stages:

	Symptoms
Heat Cramps	Muscle pains Spasms in the abdomen, arms or legs
Heat Exhaustion	Pale complexion and sweating Rapid heart rate Muscle cramps, weakness Dizziness, headache Nausea, vomiting Fainting
Heatstroke (a life-threatening emergency)	Same symptoms as heat exhaustion except sweating stops Mental condition worsens, confusion Seizure Stroke-like symptoms or collapsing Unconsciousness

Source: *How to cope and stay safe in extreme heat* brochure (DHHS 2015)

### Impacts of heat wave

Heatwave place significant strain on medical services such as hospitals and ambulance services.

Statistics show that across Victoria in the January 2014 Heatwave there was 621 heat-related presentations to emergency departments. This represented a fivefold increase (105 expected) in heat related presentations for this period. Overall there was a 7% increase in (all cause) public hospital emergency departments presentations during the same period.

Ambulance Victoria also recorded a 25% increase in the case load in the metropolitan area during the January 2009 and 2014 Heatwave. However the 2014 heatwave represents a reduction of 47% case load that was experienced in the January 2009 Heatwave.

Heatwaves also place excessive strain on Victoria’s power supplies. On 29 January 2014 (during the January 2014 heatwave) the then known Energy Retailers Association of Australia (ERAA) reported that in Victoria 10,576 megawatts (MW) of power was used this was an increase of just under 4,000MW from a typical January day - the number one cause for this increase was the use of air conditioners.

The ERAA advises that historically, the risk of interrupted electricity supply has increased for two main reasons:

- a shortage of supply of electricity (too much demand/not enough power stations) resulting in planned and managed load shedding to supply
- Spikes in demand in specific parts of the network tripping the equivalent of fuses resulting in localized outages until the fault or fuse can be repaired or re-set.

Heatwaves increase the risk of both events occurring. The Australian Energy Market Operator (AEMO) advises that when there is a shortfall in the electricity supply, there can be a need to reduce demand very quickly to an acceptable level, or risk the entire electricity network becoming unstable. Load shedding generally commences with industrial and commercial customers prior to any residential customers.

Additional impacts of extreme heat exist across the range of Local Government responsibilities and other systems affecting our communities:

Personnel and staffing	Fire Danger days often occur at the same time as heat waves – leading to lower staff levels Higher levels of stress Poor rest and sleeping patterns
Infrastructure	Buildings designed for lower heat stress levels Bitumen and road-seals may lose integrity at high temperature Railways shift and buckle at high temperature Higher levels of use of public places like pools and shopping centres
Utilities	Planned power outages Potential for disruption from other emergencies – e.g. fire
Economic development	Less active consumption patterns in extreme heat Less mobility in extreme heat Less interest in destination visitation in high fire-danger periods
Emergency Services	Multiple demands and stressors on these services in extreme heat periods

For emergency services the stresses on services are compounded in the context of heatwaves, particularly where they occur simultaneously with other emergencies. An example is the connection between local, neighbouring ambulance, nurse-on-call and patient transport services. Each of these services is set up to complement the other. However in extended extreme circumstances with direct health impacts the process of prioritisation and communication between patients and agencies can become fraught.



Figure 1 – Future Climate Projections. Under climate change projections, The Northern Victorian Cluster municipalities is expected to become hotter and drier

Images from Climate-Ready Victoria: Loddon Mallee

[http://www.climatechange.vic.gov.au/\\_data/assets/pdf\\_file/0003/320889/Loddon-Mallee.pdf](http://www.climatechange.vic.gov.au/_data/assets/pdf_file/0003/320889/Loddon-Mallee.pdf)

If carbon mitigation is not addressed as part of a response to climate change, and a 4-6°C increase in temperature is experienced, then Castlemaine is expected to have a climate more like Nyngan in New South Wales, Bendigo will have a climate more like Shepparton and Echuca will have a climate more like Swan Hill.

An example is: If Castlemaine's temperature was to increase 4-6°C, it would result in an average summer temperature of 33°C (compared with around 27°C now) and annual rainfall of 481mm (compared with 591mm now).

Under a climate change scenario of around 2°C temperature increases, Castlemaine is expected to have a climate more like Gawler in SA, with an average summer temperature of 29.9°C and annual rainfall of 451mm. (CSIRO, 2015)

## 5. Roles and Responsibilities

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The responsibility for preparing and protecting vulnerable population groups is shared across state and local governments, health and community service providers and emergency management agencies.

DHHS, along with other agencies, has responsibility for reducing the impact of extreme heat on public health by preparing for, and responding to, heat events. It does this by:

- developing the *Heat health plan for Victoria* to raise awareness of the impacts of extreme heat and actions to minimise the risks
- developing the *Heatwave Planning Guide*
- issuing heat health alerts
- maintaining the heat health information surveillance system
- developing a communication strategy with a range of resources
- providing support and guidance to other agencies.

Local government, as the closest tier of government to communities, has a central role in building community capacity and resilience to prepare, plan for, respond to and recover from extreme heat events (DoJ 2014).

### Heat health alerts

The Chief Health Officer issues heat health alerts for relevant weather districts when forecast average temperatures reach or exceed threshold levels. The purpose of heat health alerts is to notify relevant agencies of forecast extreme heat conditions in preparation for enacting heat health plans (DHHS 2015). While alerts are targeted at departmental areas, health services, local government, agency partners and service providers they are available to everyone and accessible at [www.health.vic.gov.au/environment/heatwaves-alert](http://www.health.vic.gov.au/environment/heatwaves-alert). (See Appendix 1.)

When a heat health alert is issued for the **North Central or Northern Country** weather district the relevant MRM (Municipal Recovery Manager) will make the decision to activate council's Heat Health Plan.

Subscription to the heat health alert service can be made at <https://www2.health.vic.gov.au/public-health/environmental-health/climate-weather-and-public-health/heatwaves-and-extreme-heat/heat-health-alerts-subscribe>

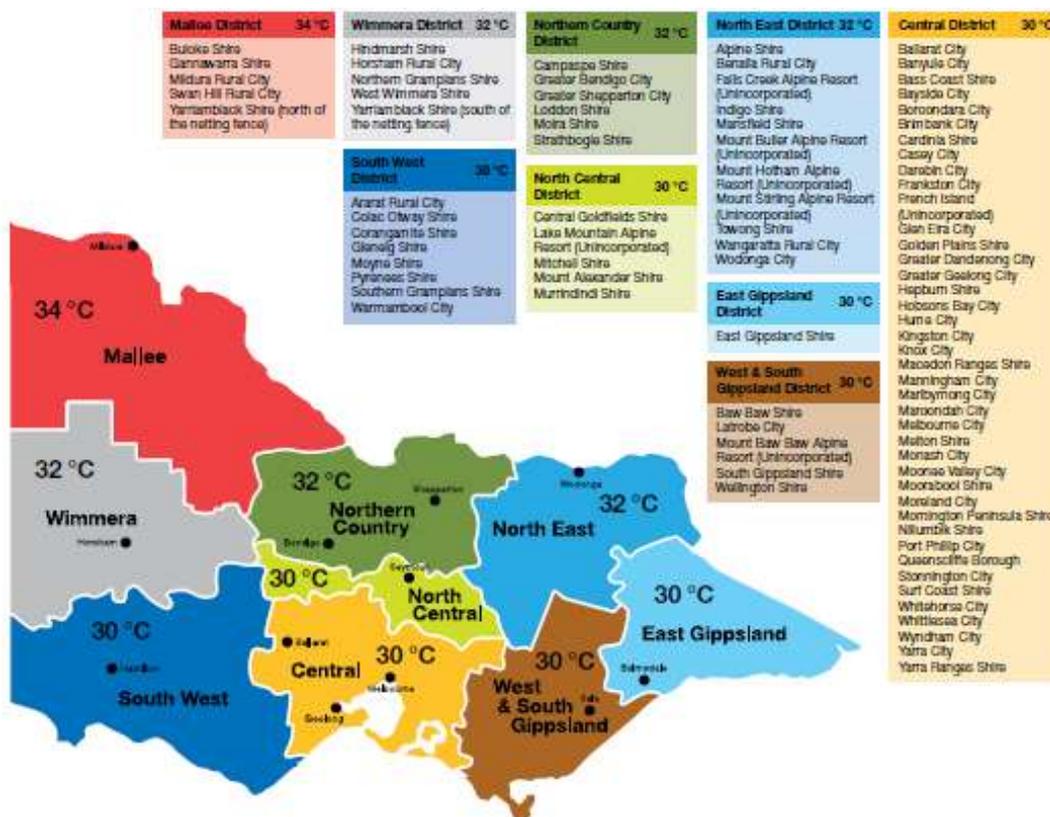


Figure 2 - Average Min + Max temperature heatwave thresholds across the state from Victorian Heat Health Plan

## Emergency management

The *State Emergency Response Plan - Extreme Heat Sub-Plan* (Edition 2) outlines the Victorian arrangements for the coordinated response to the impacts and consequences of extreme heat events (including heatwaves) on the community, infrastructure, and services.

In November 2016 the control agency for heatwaves transferred from Victoria Police to the EMC.

Heatwave is a Class 2 emergency under the *Emergency Management Act 2013* and during extreme heat events the main emergency management tasks are:

- ensuring the messages to the public are coordinated, consistent and complementary
- ensuring the impact and consequences of extreme heat on the community are identified and managed in an integrated and coordinated manner
- coordinating the whole-of-government response to the varied emergencies caused by the heat.

The EMC is the Control Agency for extreme heat events under the EMMV Part 7 – Emergency Management Roles and Responsibilities.

The response to the management of consequences of an extreme heat event will be led from State with the EMC as the Control Agency, in partnership with Chief Health Officer (CHO), Ambulance Victoria - Director Emergency Management, and key infrastructure leaders, as required.

The activation of the state tier arrangements will be at the discretion of the EMC, having considered the advice of the SCoT.

Based on processes outlined in the State Operational Arrangements – Extreme Heat, the EMC may appoint a SC-H, to lead the whole of government for the management.

The Emergency Management Commissioner has set in place a number of triggers to identify when the establishment of the State Control function and appointment of the SC-H is required. This is based on the potential or actual significant consequence and may include but is not limited to;

<b>Heat Health</b>	<ul style="list-style-type: none"> <li>• Three or more consecutive days of Heat Health Alerts issued in a weather district</li> <li>• Where Heat Health Alerts provide advice to the community of a single day of extreme heat that the general population may have difficulty coping with.</li> </ul>
<b>Warnings to the Community</b>	<ul style="list-style-type: none"> <li>• Warnings or Emergency Warnings are likely to be required, requiring SC-H approval for issue.</li> </ul>
<b>Weather Forecast</b>	<ul style="list-style-type: none"> <li>• One or more weather district forecast to experience more than 20% of the district in extreme intensity heatwave conditions</li> <li>• Majority of the State predicted or being impacted by severe intensity heatwave</li> <li>• Multiple Days of severe intensity heatwave forecast or occurring.</li> </ul>
<b>Transport</b>	<ul style="list-style-type: none"> <li>• Temperatures are greater than 38°C for one day</li> <li>• Train Infrastructure: Day/night temperatures average more than 30°C for more than two consecutive days</li> <li>• Tram infrastructure: Forecast maximum temperature of 40°C degrees or more, or three or more consecutive days of 36°C</li> </ul>
<b>Energy</b>	<ul style="list-style-type: none"> <li>• If temperature is anticipated to exceed 42°C for a period of more than 12 hours.</li> <li>• High potential for the requirement to load shed.</li> </ul>
<b>Animal Welfare</b>	<ul style="list-style-type: none"> <li>• Multiple days of extreme intensity heatwave forecast in one or more weather districts</li> </ul>

The *Heat Health Plan for Victoria* sets out the actions DHHS takes to prepare for and respond to heat events to reduce negative health impacts, including issuing heat health alerts and communicating how to survive in the heat.

Under the Local Government Act 1989 local government has a responsibility to protect public health in emergencies (DoJ 2014). The *Heat health plan for Victoria* encourages local government to address this responsibility by planning for heat events, enacting arrangements to support vulnerable members of the community, communicating heat health messages and coordinating ongoing support and local recovery activities as required (DHHS 2015).

Local Government has a range of statutory responsibilities that are impacted by heatwaves. Clear communications to staff and recipients of these services are essential in heat events. Messaging for these communications should be consistent and clear in addressing effects on services and the community.

## 6. Prevention, Preparedness, Response and Recovery

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Prevention, preparedness, response and recovery are commonly employed phases of emergency management and are promoted in the *Heatwave Planning Guide* (DHS 2009) as an option for planning for heat event management.

In this plan:

- Prevention refers to eliminating or minimising the impacts of extreme heat on communities and individuals.
- Preparedness refers to planning and raising community awareness in the lead up to summer and heat events.
- Response refers to implementation of pre-determined actions in the event of extreme heat and providing relief and recovery services
- Recovery refers to follow up actions to support persons affected by the event to achieve proper and effective levels of functioning.

This plan groups actions into the following themes:

- **Planning:** Longer term planning and environmental interventions will be relevant in reducing the ongoing effects of extreme heat.
- **Organisational capacity:** Training of council staff to deliver care and support to individuals during extreme heat events, assisting service providers and ensuring that crucial council services continue to be run during a heat event.
- **Stakeholder partnerships:** Actions to engage, support and work with partner agencies in preparing for and responding to heat events.
- **Community support:** A strategy and set of actions to identify, prepare and support vulnerable or isolated individuals and sectors of the community in preparation for, or in response to, an extreme heat events.
- **Communications:** Educational information that can be distributed to the community and service providers, describing the risks of extreme heat and personal steps to reduce the effects.

## 7. How this plan was developed

Building on a Heat Health Plan template, this plan was adapted for the needs of Council and referred to relevant personnel internally.

A draft plan was developed by the Emergency Management and Climate Change Coordinators. This was approved by managers and then circulated as a draft to key external and internal stakeholders.

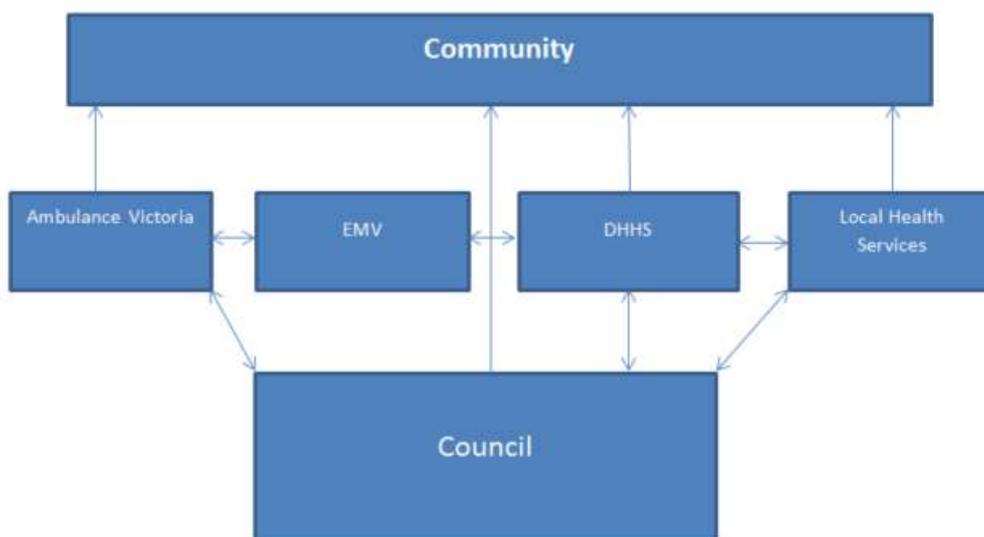
These key stakeholders met as a group to discuss and modify the plan. In conducting this process they shared current heatwave practices and experience and compared plans and levels of awareness around heatwave management.

The plan was reviewed in order to understand how best it could serve the needs of Council, but also complement other agencies and account for the interests of the community more broadly. This was vital to gaining clarity of definitions responsibilities in extreme heat events.

The stakeholders consisted of:

<u>Internal to Council</u>	<u>External agencies</u>
Municipal Emergency Management Coordinator (or similar)	Local hospital representative
Climate Change Coordinator (or similar)	Local hospital representative
Manager that covers HACC teams	Manager Public Health (DHHS)
	Group Manager Ambulance Victoria(AV)

While Council has a key coordination and facilitation role in extreme heat events, it is one of a number of agencies responsible for minimising the impact of heat on the community. Council can contribute to greater community capacity and resilience in addressing heat events by providing input into the heat health plans developed by other stakeholders and also by engaging stakeholders in the development and review of council's heat health plan.



## 8. Local weather / climate statistics

Table 1 below identifies the number of days over 32 degrees in Castlemaine, Maryborough and Echuca since 2006/2007FY (not representative of heat health alerts). Note that some data missing on BOM records and very limited data avail Q1/2012 for Echuca resulting in non-useable statistic for Echuca in 2011/12 FY

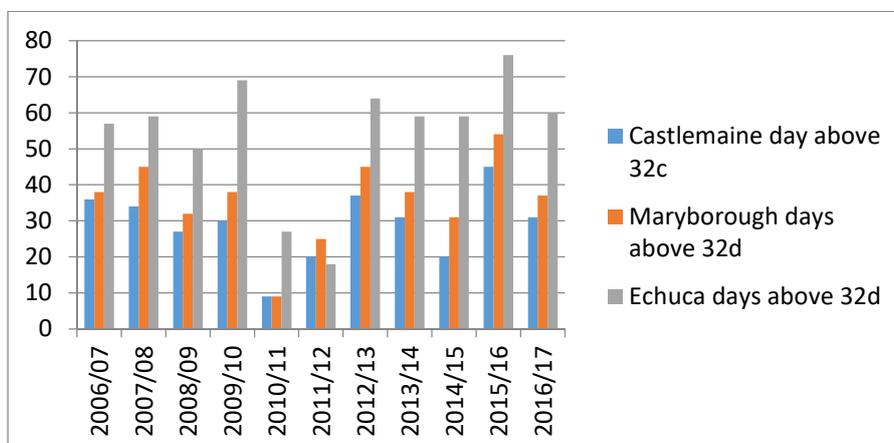


Table 2 below identifies historic and projected average heatwave days from 1974 – 2030.

Location	Average heatwave days / year			Average consecutive heatwave days / year		
	Historic (1974 - 2003)	Projected (2030)	% Change	Historic (1974 - 2003)	Projected (2030)	% Change
Greater Bendigo	2.60	5.23	100%	0.03	1.87	6,200%
Mildura	4.33	8.00	85%	1.80	3.20	78%
Whitehorse	2.20	3.36	63%	0.03	0.40	330%
Yarra Ranges	0.07	0.70	900%	0.03	0.10	230%

### North Central District

North Central has a typically Mediterranean climate, with cool damp winters and hot dry summers. Between Castlemaine and Maryborough the month with the highest average temperatures is February with a mean maximum of approximately 28.5°C and a mean minimum of 13.5°C. The other summer months also have average maximum temperatures over 25°C and mean minimums of over 10°C – indicating that these months are periods in which heatwaves are likely.

The average annual rainfall in Castlemaine is 591mm and Maryborough 528mm. (BOM, 2017)

Up-to-date and live weather reports and predictions can be found at the Bureau of Meteorology (BoM) website and app (web addresses in Part 20). It should be noted that local weather conditions may vary to reported statistics.

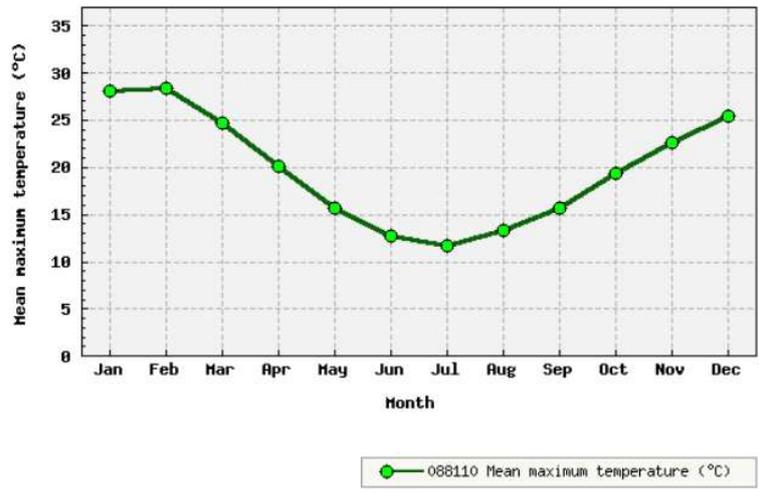


Figure 3 - Average daily maximum temperatures recorded at Castlemaine Prison (BOM, 2016)

Table 3 below identifies the number of days where a heat health alert was issued for North Central Weather District.

Year	Month	Number of heat health alerts issued	Comments
2012/13 – 8 Heat Health Alerts issued across Victoria with 6 issued in North Central District	November	1	
	December	1	
	January	4	
2013/14 – 11 Heat Health Alerts issued across Victoria with all 11 issued in North Central District	December	1	North Central District had 5 consecutive days over Jan/Feb of Heat Health Alerts
	January	7	
	February	3	
2014/15 – 3 Heat Health Alerts issued across Victoria with 2 issued in North Central District	January	2	
2015/16 – 9 Heat Health Alerts issued across Victoria with all 9 issued in North Central District	December	3	Three consecutive days of Heat Health Alert in March – Heatwave declared
	January	2	
	February	1	
	March	3	
2016/17	December	1	
	January	1	
	February	2	

## Northern Country District

The Northern Country district climate ranges from cold winters with occasional frosts through to arid summers that peak with an average high temperature of 35°Cs in the months of January, February and March, making these the most likely months for heatwaves to occur.

The average annual rainfall in Echuca is 400mm. (BOM, 2016)

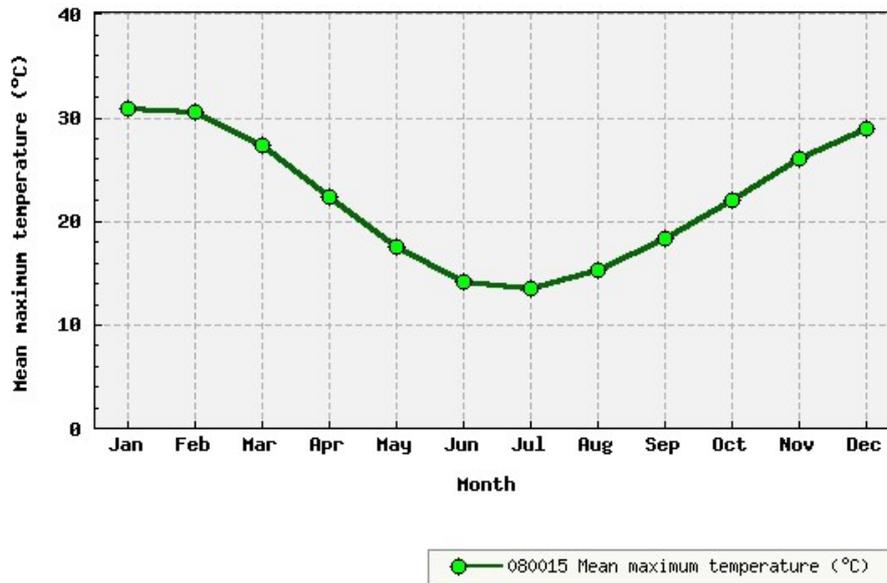


Figure 4 - Average daily maximum temperatures recorded at Echuca Aerodrome (BOM 2017)

Up-to-date and live weather reports and predictions can be found at the Bureau of Meteorology (BoM ) website and app (web addresses in Part 20). It should be noted that local weather conditions may vary to reported statistics.

Table 4 below identifies the number of days where a heat health alert was issued for Northern Country Weather District.

Year	Month	Number of heat health alerts issued	Comments
2012/13 – 8 Heat Health Alerts issued across Victoria	November	1	
	January	2	
2013/14 – 11 Heat Health Alerts issued across Victoria	January	3	
	February	2	
2014/15 – 3 Heat Health Alerts issued across Victoria	January	2	
2015/16 – 9 Heat Health Alerts issued across Victoria	December	2	
	January	1	
	February	1	
	March	1	
2016/17 - 9 Heat Health Alerts issued across Victoria	December	1	
	January	1	
	February	1	

## 9. What we are going to do

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To be better prepared for extreme heat each summer council will undertake a range of actions to:

- Include heatwave mitigation, preparation, response and recovery into existing municipal plans
- Work with our community, agencies and organisations to support vulnerable populations
- Develop a communication strategy using heat health alert messages consistent with DHHS materials.
- Continued promotion of the Heatwave Help website ([www.heatwavehelp.com.au](http://www.heatwavehelp.com.au)) and supporting publications.
- Respond to state activated heat health alert system in a planned and considered way.

Our action plan provides year round guidance to preventing, preparing, responding to and recovering from extreme heat events. The actions are divided into five stages of prevention, preparation, response and recovery.

Stage 1: Long term prevention actions

Stage 2: Pre summer preparation

Stage 3: Preparation immediately before forecast extreme heat events

Stage 4: Extreme heat event response

Stage 5: Post event recovery.

There are a range of corporate and stakeholder plans that should take into account the concerns raised in this document.

<b>Relevant Municipal Emergency Management Plan and Sub Plans</b>	<b>Relevant agency plans</b>
Northern Victorian Integrated Municipal Emergency Management Plan	State Health Emergency Response Plan
Municipal Relief and Recovery Plan (where applicable)	Regional Climate Adaptation Plan Community Health Emergency Plans
Municipal Public Health Emergency Management Plan (where applicable)	Hospital Emergency Plans

## 10. Stage 1: Longer term prevention and mitigation actions

The following actions are anticipated to be those relevant to minimising the impacts of heatwaves. They are **suggested rather than directed actions** and should be reviewed in the context of actual heatwaves in order to ensure they are as relevant as possible.

Actions recommended by the State Heat Health Plan are marked in orange

<b>PLANNING</b>	
<b>Action</b>	<b>Suggested lead agency or personnel</b>
Advocate for a review of planning scheme and building codes to increase thermal efficiency of homes and buildings	<b>Council and relevant agencies</b>
Advocate for support to install climate mitigating measures in vulnerable people's homes e.g. Solar and AC	<b>Council and relevant agencies</b>
Undertake assessment of heat island effect of urban areas	<b>Council</b>
Increase shade in public spaces	<b>Council</b>
Ensure planting of suitable street trees	<b>Council</b>
Improve public access to drinking water	<b>Council</b>
Heat proofing of public buildings	<b>Council</b>

<b>ORGANISATIONAL CAPACITY</b>	
<b>Action</b>	<b>Suggested lead agency or personnel</b>
Ensure power supply back up for critical services	<b>Health Services and relevant agencies</b>
Advocate for better power disruption notifications and services	<b>Council and Health Services</b>
Undertake risk assessment and planning for Council's ability to maintain adequate staffing and delivery of services in extreme heat events	<b>Council and Health Services</b>

<b>COMMUNITY SUPPORT</b>	
<b>Action</b>	<b>Suggested lead agency or personnel</b>
Seek opportunities for funds to retrofit dwellings for thermal efficiency, particularly those of vulnerable and low income residents	<b>Council and relevant agencies</b>
Develop community social capital by fostering neighbourhood connections	<b>Council and community agencies</b>
Encourage incorporation of extreme heat issues and management in Community Planning Projects and community plans	<b>Council</b>
Develop or link into existing all hazards look after your neighbours campaign	<b>Council and relevant agencies</b>

## 11. Stage 2: Pre summer preparation actions

Actions recommended by the State Heat Health Plan are marked in orange

<b>PLANNING</b>	
<b>Action</b>	<b>Suggested lead agency or personnel</b>
Review and update the heat health plan and other relevant heat plans, including business continuity plans	All agencies
Develop and document a clear process for responding to heat health alerts including clearly identified responsible officers and contact details for all relevant staff and agencies (see Part 20)	All agencies
Develop extreme heat event checklists for council staff and facilities	Council
Review council Extreme Heat / Heatwave Policy for: <ul style="list-style-type: none"> <li>○ Community use of council facilities</li> <li>○ Rescheduling of Planned Activity Group activities</li> </ul>	Council and relevant agencies

<b>ORGANISATIONAL CAPACITY</b>	
<b>Action</b>	<b>Suggested lead agency or personnel</b>
Participate in exercises and forums to discuss and improve individual and collective responses to extreme heat events	All agencies
Train Council staff and service providers to support individuals during extreme heat events	Council
<ul style="list-style-type: none"> <li>• Ensure service provider staff are appropriately trained to identify clients who may need assistance</li> </ul>	Council
<ul style="list-style-type: none"> <li>• Provide heat health information to staff engaged in delivering client services so they can raise awareness</li> </ul>	Council and relevant agencies
<ul style="list-style-type: none"> <li>• Encourage staff to download the Better Health Channel app from <a href="http://www.vic.gov.au/social-media/mobile-apps/betterhealth-channel-health-information-and-services.html">www.vic.gov.au/social-media/mobile-apps/betterhealth-channel-health-information-and-services.html</a></li> </ul>	All agencies
<ul style="list-style-type: none"> <li>• Encourage staff to download the BOM app</li> </ul>	All agencies
<ul style="list-style-type: none"> <li>• Encourage staff to subscribe to receive heat health alerts from <a href="http://www.health.vic.gov.au/environment/heatwaves-alert.htm">www.health.vic.gov.au/environment/heatwaves-alert.htm</a></li> </ul>	All agencies
<ul style="list-style-type: none"> <li>• Establish a cancellation policy for outdoor sport and recreation events and other events with large gatherings of people during extreme heat events</li> </ul>	All agencies

<b>STAKEHOLDER PARTNERSHIPS</b>	
<b>Action</b>	<b>Suggested lead agency or personnel</b>
Engage with key stakeholders and community members to raise awareness about the risks of extreme heat	Council and appropriate agencies
Convene an annual heat event roundtable or exercise of relevant stakeholders	Council
Encourage and support other stakeholders (e.g. health services providers, medical clinics, aged care facilities) to develop heat health plans and ensure their plans are integrated with this plan	Council

<b>COMMUNITY SUPPORT</b>	
<b>Action</b>	<b>Suggested lead agency or personnel</b>
Determine the level of service that council will provide to vulnerable persons in extreme heat events e.g. check-up via phone calls, welfare visits	<b>Council</b>
Identify established and informal networks to connect and engage with Aboriginal and culturally and linguistically diverse communities	<b>Council and relevant agencies</b>
Identify and assess at risk populations and individuals	<b>Council and relevant agencies</b>
Determine the most appropriate list or register for vulnerable and at risk residents. It has been identified that the Vulnerable Persons Register doesn't necessarily capture those most at risk from extreme heat	<b>All agencies</b>
<b>Action</b>	<b>Suggested lead agency or personnel</b>
Use and update relevant lists of people who may be at risk of extreme heat that are current, including people who receive HACC services or Meals on Wheels, in heat health planning	<b>Council</b>
Review and update council residents listed on the Vulnerable Persons Register	<b>Council</b>
Develop and document a clear process for providing support and contact to vulnerable clients on days of extreme heat e.g. phone checks or welfare visits	<b>Council</b>
Community Care workers will: <ul style="list-style-type: none"> <li>○ Provide heat help action kits to vulnerable clients.</li> <li>○ Assess vulnerable client's homes for the ability to cope with extreme heat.</li> <li>○ Provide advice to vulnerable clients on how to manage their homes in extreme heat events</li> </ul>	<b>Council</b>
Update individual heat health plans for clients and vulnerable-client lists	<b>Council</b>
Talk with clients, family and carers about downloading the Better Health Channel app and subscribing to receive heat health alerts	<b>Council</b>
Encourage / support households and individuals to prepare all hazards plans e.g. Red Cross Rediplan	<b>All agencies</b>
Promote <a href="http://www.heatwavehelp.com.au">www.heatwavehelp.com.au</a> and heatwave guides (How to beat extreme heat – Your guide, Heatwave Action Plan and Heatwaves and Health – staff guides)	<b>Council</b>

COMMUNICATIONS	
Action	Responsible agency or personnel
Develop and annually update a heat health communication plan. (see section 15) <ul style="list-style-type: none"> <li>○ The communication strategy will cover both internal and external audiences</li> <li>○ Annually prepare communication resources, draft media releases, contact lists</li> <li>○ Identify target groups for awareness campaigns (vulnerable, aged care facilities, sporting clubs, caravan parks, tourism operators)</li> <li>○ Identify appropriate communications methods and materials for different target audiences, age groups and culturally and linguistically diverse communities as relevant</li> </ul>	<b>Council with support from Agencies</b>
Engage staff across Council to identify opportunities to promote heat health and enhance activities to respond to extreme heat	<b>Council</b>
Order and display the department's heat health brochure in the lobby and other council venues and distribute to clients	<b>Council</b>
Distribute the department's heat health brochures and other communication materials to other service providers e.g. senior citizens centres, medical clinics and pharmacies.	<b>All agencies</b>

HEATWAVE AWARENESS	IMPROVE YOUR HOME	KEEP YOURSELF COOL	MANAGE YOUR LIVING SPACE	TAKE EMERGENCY ACTION
Be aware and understand the dangers of heatwaves and be prepared to take action. 	Understand the benefits of retrofits to your home and make necessary improvements to help keep your home cooler. 	Be aware of heatwave conditions. Extended periods of extreme heat will impact on health risks. 	Consider smart, simple and cost effective actions to maintain a comfortable home. 	When you feel affected by extreme heat, you need to know what emergency action to take. 

## 12. Stage 3: Preparation immediately before forecast extreme heat events

Actions recommended by the State Heat Health Plan are marked in orange

### ORGANISATIONAL CAPACITY

Action	Responsible agency
Take action in accordance with heat health plans or other plans containing heat-related actions such as service continuity plans, emergency management plans and occupational health and safety plans	Relevant staff
Activate heat health alert process – internal and external (see Part 20)	Municipal Recovery Manager
Monitor local weather conditions on the Bureau of Meteorology's website	All agencies
Reschedule services to the cooler part of the day	All agencies
Ensure appropriate staffing levels and consider staff and client safety in hot weather	Managers
Coordinate staff to implement Council support process for identified vulnerable clients	Council
Ensure Council and other agency display stands etc. are stocked with extreme heat event information and brochures such as those produced by DHHS	Council
Review organisational service delivery changes for Extreme Heat &/or Total Fire Ban days	All agencies

### STAKEHOLDER PARTNERSHIPS

Action	Responsible agency or personnel
Work with partner agencies as identified in this plan and the MEMP to undertake preparation activities	MEMPC / Heatwave Committee

### COMMUNITY SUPPORT

Action	Responsible agency or personnel
Alert clients on vulnerable persons register or other council registers of upcoming extreme heat events	Council
Provide consistent heat health messages during client visits or telephone calls	Agencies
Ensure staff engaging with the public are aware of what the council is doing to support and protect those at risk such as where people can go to stay cool	Council

<b>Action</b>	<b>Responsible agency or personnel</b>
Advise organisers of outdoor and sporting events to consider postponing or cancelling events - this applies to events organised by council	<b>Council</b>
Encourage organisers of outdoor and sporting events to register for heat health alerts	<b>All agencies</b>
Provide information to the community regarding cool spaces (including pool and library opening and closing times)	<b>Council</b>
Consider providing free pool passes to disadvantaged or vulnerable persons	<b>Council</b>
Advise food premises re extra caution with food hygiene during heat event	<b>Council</b>
Contact clients in the event of known power failures to check for welfare of vulnerable clients.	<b>Council</b>

<b>COMMUNICATIONS</b>	
<b>Action</b>	<b>Responsible agency or personnel</b>
Utilise the media kit developed by DHHS as a basis for all media and communications with adaptations for local conditions	<b>All agencies</b>
Instigate consistent community messages through local media or other communication channels	<b>All agencies</b>
Update the Council website with consistent heat health information or message from the mayor or CEO	<b>Council</b>

### 13. Stage 4: Extreme heat event response actions

Actions recommended by the State Heat Health Plan are marked in orange

<b>ORGANISATIONAL CAPACITY</b>	
<b>Action</b>	<b>Responsible agency or personnel</b>
Undertake council activities in the Municipal Emergency Management Plan if required	<b>Council</b>
Reschedule any non-essential events, meetings and services to another day or in the cooler part of the day	<b>All agencies</b>

<b>STAKEHOLDER PARTNERSHIPS</b>	
<b>Action</b>	<b>Responsible agency or personnel</b>
Work with partner agencies as identified in this plan and the MEMP to activate designated roles and activities.	<b>MEMPC and Heatwave Committee</b>

<b>COMMUNITY SUPPORT</b>	
<b>Action</b>	<b>Responsible agency or personnel</b>
Instigate council support process for identified vulnerable clients e.g. phone checks or welfare visits	<b>Council</b>
Remind vulnerable clients of key actions to take in extreme heat events	<b>All client service agencies</b>
Monitor temperatures in client areas of agency buildings	<b>All agencies</b>
Ensure adequate drinking water is available for clients, visitors and staff	<b>All agencies</b>

<b>COMMUNICATIONS</b>	
<b>Action</b>	<b>Responsible agency or personnel</b>
Increase community messaging through local media and standard communication channels	<b>All agencies</b>

## 14. Stage 5: Post event recovery actions

Actions recommended by the State Heat Health Plan are marked in orange

<b>ORGANISATIONAL CAPACITY</b>	
<b>Action</b>	<b>Responsible agency or personnel</b>
Convene a post event debriefing session	<b>Council with support from Heatwave Committee</b>
<ul style="list-style-type: none"> <li>○ Review the impact of the event including information collated by DHHS, council and other agencies: the number of ambulance call outs, hospital admissions and fatalities, the number of vulnerable persons contacted by council staff, impacts of power blackouts (if any), use of cool spaces / refuges (official and unofficial)</li> </ul>	
<ul style="list-style-type: none"> <li>○ Consider what worked well and what could be improved in preparation for further heat</li> </ul>	
<ul style="list-style-type: none"> <li>○ Evaluate the effectiveness of internal communications and processes</li> </ul>	
<ul style="list-style-type: none"> <li>○ Evaluate the effectiveness of community education and awareness campaigns</li> </ul>	
Notify DHHS (as central agency) of any staffing changes due to heat or fire danger days	
Annually review and update this plan	<b>Council with support from Heatwave Committee</b>

<b>COMMUNITY SUPPORT</b>	
<b>Action</b>	<b>Responsible agency</b>
<ul style="list-style-type: none"> <li>• Consider local recovery activities if required</li> </ul>	<b>Council</b>
<ul style="list-style-type: none"> <li>• Contact and assess vulnerable persons in days immediately after the event</li> </ul>	<b>All client services agencies</b>
<ul style="list-style-type: none"> <li>• Talk with clients about how they are recovering from the heat</li> </ul>	<b>All client services agencies</b>

## 15. Communications plan

Diagram 1 - Heat Health Alert notification for up to two consecutive days

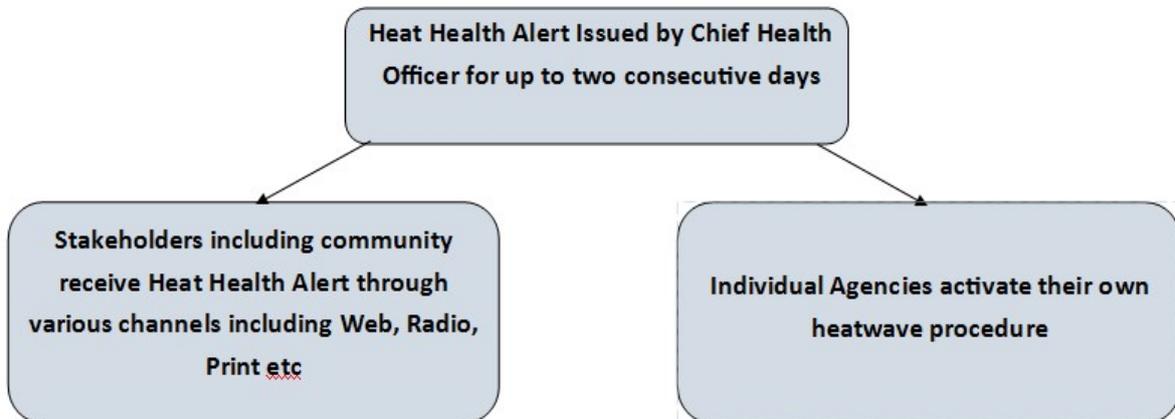
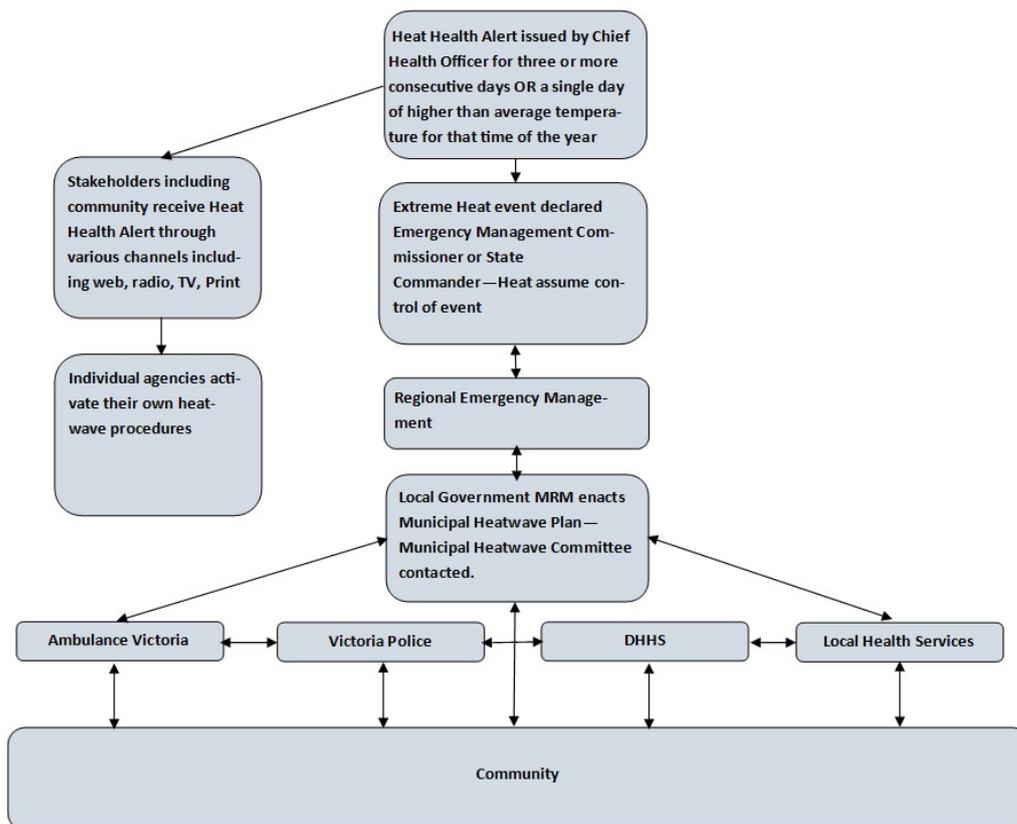


Diagram 2 - Heat Health Alert notification for three consecutive days or more OR single day with higher than average temperature for that time of year



## Heatwave Communications Package – Department of Health and Human Services

Each year in the lead up to the summer season, the Department of Health and Human Services will provide a Heatwave Communication Package to Local Government.

Typically this package will contain:

- Template media releases
- Key messages
- Social media messaging

These resources are available from:

- <https://www.betterhealth.vic.gov.au/council-media-kit-survive-the-heat>
- <https://www2.health.vic.gov.au/public-health/environmental-health/climate-weather-and-public-health/heatwaves-and-extreme-heat/heatwave-community-resources>

Heatwave Help Project – Communication/education tools.

The Central Victorian Greenhouse Alliance in partnership with Mount Alexander, City of Greater Bendigo, Buloke, Loddon, Central Goldfields and Gannawarra Councils has developed a Heatwave Action Kit to assist with community education of the impacts of heatwave and to build community resilience in dealing with heatwave.

This Kit contains:

- How to beat extreme heat – your guide
- Magnetic Thermometer
- Fan
- Magnetic Heatwave Action Plan

Additional products have also been developed through this project including:

- Heatwave Health in Community Care – education video
- Heatwave Help: Local stories on dealing with heatwaves – educational video

Electronic copies of these resources are available from <https://heathealth.cvga.org.au/>



## 16. Evaluation process

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Undertake an annual evaluation of this plan at the end of each summer season. The evaluation will:

- Involve all relevant stakeholders
- Be evidence based and conducted against clear and measurable goals
- Review whether actions contained in the plan occurred in reasonable timelines with effective outcomes
- Inform revision and improvement of the plan.

Reviews can be carried out:

- early in the summer season, for example, after the first heat health alert is issued
- following a major heatwave event, such as a prolonged period of extreme heat or an emergency-level heatwave
- at the end of each summer.

The State Government's Heatwave Plan review tool suggests practical steps to manage reviews at all stages.

### Mini review

Trends show that heat health alerts are likely to be issued several times during summer. Currently, major heatwave events occur less frequently, perhaps every few years (though climate experts predict increasing frequency).

Regular mini-reviews of this plan will ensure that it is current and relevant. These should be held twice a year in November and April, before and after the main heatwave season.

This type of review targets specific aspects such as:

- whether you distributed the Department of Health's heat health alert to internal and external stakeholders successfully
- whether your services were appropriately adapted and delivered as planned.

A smaller review could be conducted:

- early in the summer season, for example, after the first heat health alert is issued
- following a major heatwave event, such as a prolonged period of extreme heat or an emergency-level heatwave.

The information gathered from the mini review will typically provide direct benefit in supporting your planning and preparation processes, so you might consider updating the plan immediately rather than waiting until the end of summer.

### Full review

Following summer, the Heatwave stakeholder group should review this heatwave plan in its entirety. The review should look at how well local processes worked and explore ways of improving your plan.

The review will identify how well your heatwave plan:

- worked with other plans and strategies
- addressed the needs of clients and community members most at risk to extreme heat
- engaged internal and external stakeholders and community partners
- actioned heatwave-related activities before, during and after extreme heat
- adapted services in response to forecasted conditions
- provided key health messages to clients, staff and local community members
- distributed to internal and external stakeholders and community partners
- outlined its review strategy.

For a comprehensive investigation of best practice around reviewing heatwave plans you can access the Department of Health - Heatwave Review Tool (2011) at <https://www2.health.vic.gov.au/public-health/environmental-health/climate-weather-and-public-health/heatwaves-and-extreme-heat/heatwave-planning>

### **Relevant agencies**

The following agencies have been party to the formation of this document.

- Integrated Municipal Emergency Management Planning Committee members
- Local health providers.

## **17. Items for future reviews**

A number items have been identified through the heat wave planning process that warrant further consideration in later iterations of the plan:

- Further effects on community, infrastructure and environment
- Community support – internal and external responsibilities
- Outreach to CALD communities
- Sharing vulnerable persons register information across agencies
- Review sections 10-15 with relevant staff and unit buy-in, clarify and streamline these sections
- Email distribution list in Communications plan section (Part 15).

# 18. Appendices

## Heat health temperature thresholds.



### Introduction

The Department of Health and Human Services Heat Health Alert System notifies councils, departmental program areas, hospitals, health and community service providers and the public of forecast extreme heat conditions which are likely to impact on human health.

**A heat health alert is issued when mean temperatures are predicted to reach and exceed heat health thresholds. It is recommended that recipients continue to monitor local conditions and take action in accordance with their own heat plans, service continuity plans and occupational health and safety (OH&S) plans.**

The Heat Health Alert System operates each year from December to the end of February of the following year.

**Figure 1: Weather forecast districts and corresponding heat health temperature thresholds**  
Image adapted from the Country Fire Authority's 'Know your total fire ban district'.

### Weather forecast districts

The Heat Health Alert System is based on the Bureau of Meteorology weather forecast districts and boundaries (Figure 1).

### Heat health temperature thresholds

The Department of Health and Human Services has identified heat health temperature thresholds for Victoria, above which heat-related illness and mortality increases substantially.

These thresholds differ across the state to recognise the higher temperatures experienced in northern parts of Victoria. A heat health temperature threshold has been established for each of the nine weather forecast districts as shown in Figure 1.



The department monitors the Bureau of Meteorology forecast daily minimum and maximum temperatures and calculates the daily average temperature for each weather forecast district (Figure 2).

Figure 2: Example calculation of the daily average temperature

**Calculating the average temperature**

The average temperature is calculated from the forecast **daily maximum** (in this case Tuesday) and the forecast overnight temperature, which is the **daily minimum for the following day** (in this case Wednesday).

An example of this calculation is demonstrated below:

<p><b>Melbourne</b></p> <p>Tuesday</p> <p>Min: 20 °C</p> <p>Max: 38 °C</p> <p>Wednesday</p> <p>Min: 25 °C</p> <p>Max: 31 °C</p>	<p><b>Average calculation for Tuesday</b></p> <p><math>(38+25)/2 = 31.5^{\circ}\text{C}</math></p> <p>The threshold for Melbourne = average of 30°C.</p> <p>The temperature forecast indicates that the threshold will be exceeded.</p>
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This calculation will be repeated for each of the seven days included in the daily forecast.

The average temperature for any given day is the average of the forecast daily maximum temperature and the forecast overnight temperature (which is the daily minimum for the following day).

When forecast average temperatures are predicted to reach or exceed the heat health temperature threshold for a specific weather forecast district, the department will issue a heat health alert for that district.

### Heat health alerts

Heat health alerts are issued via the departments' subscription service. To subscribe to receive heat health alerts and other emergency advice from the department go to <http://www.health.vic.gov.au/subscribe/>.

The departments' subscription service is available to organisations and individuals. Generic email inboxes or individual email addresses should be used to subscribe. Please note that an email will be sent requesting confirmation of the subscription. **Please ensure the email requesting confirmation is actioned as the subscription will not be activated.**

**Once a heat health alert is issued, local councils, departmental program areas and health and community service providers should respond in accordance with their heat plans. Individuals should also take action to prepare for extreme heat to protect themselves and those in their care from the impact of extreme heat particularly those most at risk.**

The department may also be considering other factors that may influence vulnerability, such as very high maximum or minimum temperatures and high temperatures over a prolonged consecutive period. High temperature alerts may be issued in these circumstances even if the average temperature threshold is not exceeded. Prolonged high temperatures below threshold levels can still impact on health services.

Where possible, heat health alerts will be issued 3-4 days prior to forecast extreme heat conditions providing recipients with an early warning. Whilst the department will be monitoring forecast temperatures across the state, it is important for councils and other organisations to continue to monitor local conditions. **It may be necessary for councils to activate heat plans in the absence of a heat health alert being issued.** Council contacts are encouraged to monitor local conditions using the Bureau of Meteorology at <http://www.bom.gov.au/>

The heat health alerts are available from the Department of Health website at <http://www.health.vic.gov.au/heat-health-alert-system/index.htm>

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© State of Victoria, Department of Health and Human Services, December 2015.  
Available at <https://www2.health.vic.gov.au/public-health/environmental-health>



Source: Department of Health and Human Services. <https://www2.health.vic.gov.au/public-health/environmental-health/climate-weather-and-public-health/heatwaves-and-extreme-heat/heat-health-alerts>

## Mount Alexander Municipal Profile

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Mount Alexander Shire covers 1529km<sup>2</sup> incorporating the townships of Nuggetty, Baringhup, Maldon, Walmer, Ravenswood South, Harcourt, Sutton Grange, Welshmans Reef, Newstead, Sandon, Yapeen, Guildford, Castlemaine, Chewton, Elphinstone, Metcalfe, Fryerstown and Taradale.

Mount Alexander Shire is a predominantly rural area with many townships and communities located amongst bush and grass landscapes. The municipality still has significant residential areas such as the township of Castlemaine. The Shire's topography varies with undulating country in the centre of the shire surrounded by grasslands in outer areas of the shire. The municipality also has elevated areas consisting of Mount Tarrengower and Mount Alexander.

Climate is mild with hot dry summer periods.

### Demographics

The population of the Shire is estimated at 18,761 (ABS Census 2016).

Estimated residential population<sup>1</sup>:

- |                                    |      |
|------------------------------------|------|
| • Maldon – Tarrengower – Nuggerty  | 1734 |
| • Rural West – Newstead            | 2885 |
| • Rural East – Taradale            | 3710 |
| • Campbells Creek                  | 1692 |
| • Castlemaine South – Chewton      | 2833 |
| • Castlemaine East                 | 2465 |
| • Castlemaine West – McKenzie Hill | 2768 |

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<sup>1</sup> <http://profile.id.com.au/mount-alexander/population-estimate?WebID=160&DataType=en>

## Vulnerable Groups (2016 Census data)

Some groups are more susceptible to the health effects of heatwave

Group	Local Context and heatwave effects
Babies and Pre-schoolers (0 – 4)	At the 2011 Census, there were 839 people (4.5% of the population) living within Mount Alexander.
Young People (5 – 14)	At the 2016 Census, there were 1,985 people (10.6% of the population) living within Mount Alexander.
People over 65	At the 2016 Census, there were 4,356 people (24% of the population) living within Mount Alexander.  There were 6,630 presentations of people over 65 at hospitals across Victoria during the 2014 heatwave. This was higher than the 5,627 presentations expected. This is a 33% increase when compared to non-heatwave events presentations
Overweight and obese, and those with poor cardio-vascular fitness	The Department of Human Services Burden of Disease report (2001) estimates that 2.9% of males and 2.4% of females in Mount Alexander suffer from cardiovascular disease. This is a higher proportion than the Victorian population more generally.
Pregnant and breastfeeding mothers	Maternal and Child Health (MCH) statistics show that there approximately 150 births annually in the municipality in recent years.
People with chronic medical illnesses or conditions	The Department of Human Services Burden of Disease report (2001) estimates that 15.8% of males and 13.9% of females in Mount Alexander suffer from some form of disease. This is a higher proportion than the Victorian population more generally.
People with a physical or cognitive disability	At the 2016 Census, 933 residents in Mount Alexander were described as requiring assistance. Of these residents 10 were 0-4 years of age and 514 were 65 years or older.
People who live alone or are socially isolated	At the 2016 Census, Mount Alexander had a high proportion of single person households 2,426 people
Low-socio economic groups, including homeless people	The ABS Index of Relative Socio-Economic Disadvantage (SEIFA) suggests the Mount Alexander community is more disadvantaged than the state more generally. There are particular pockets of disadvantage in Chewton, South Castlemaine and McKenzie Hill.  CDCH advises that they have an annual client intake of approximately 36 people who have been sleeping rough. They estimate that the real number may be in vicinity of 120 people however.
Those living or camping in caravans and tents	At the 2016 Census, 72 people were living within 43 other types of dwellings such as caravans, tents or similar type of accommodation.

## Loddon Municipal Profile

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The Shire of Loddon is located in North Central Victoria. It has a total area of almost 7000km<sup>2</sup> and is largely comprised of agricultural land, both irrigated and dry land, but also contains large areas of State Forest. The Shire is interspersed with approximately 27 small townships and hamlets, none of which having a population in excess of 1,000 people.

The Shire extends from Eddington in the south to Pyramid Hill in the north, from Wychitella in the west to Leichardt in the east. The northern section of the Shire is predominantly agricultural land. This area is largely flat cleared land, with few remaining forest areas.

The southern area of the Shire is hillier country which consists of a mix of dry land agricultural land, rural residential properties and large tracts of State Forest.

### Demographics

The population of the Shire is estimated at 7,516 (ABS ERP 2016).

Estimated residential population<sup>2</sup>:

• Boort	873
• Wedderburn	941
• Inglewood	855
• Pyramid Hill	558
• Bridgewater	142
• Tarnagulla	133
• Serpentine	192
• Korong Vale	168
• Newbridge	192
• Mitiamo	117
• Eddington	196

(Figures based on ABS 2016 data)

In addition to the above towns the following small Hamlets are located within the Shire; Kingower, Rheola, Wychitella, Logan, Arnold, Bears Lagoon, Jarklin, Durham Ox, Mincha, Calivil, Dingee, Mysia, Borung, Eastville and Fernihurst.

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<sup>2</sup> <http://profile.id.com.au/loddon/population-estimate?WebID=10>

## Vulnerable Groups (2016 Census data)

Some groups are more susceptible to the health effects of heatwave

Group	Local Context and heatwave effects
Babies and Pre-schoolers (0 – 4)	At the 2016 Census, there were 335 people (4.5% of the population) living within Loddon.
Young People (5 – 14)	At the 2016 Census, there were 856 people (11.4% of the population) living within Loddon.
People over 65	At the 2016 Census, there were 2,012 people (26.8% of the population) living within Loddon.  There were 6,630 presentations of people over 65 at hospitals across Victoria during the 2014 heatwave. This was higher than the 5,627 presentations expected. This is a 33% increase when compared to non-heatwave events presentations
Pregnant and breastfeeding mothers	Maternal and Child Health (MCH) statistics show that there approximately 62 births annually in the municipality in recent years.
People with a physical or cognitive disability	At the 2016 Census, 553 residents in Loddon were described as requiring assistance, equating to 7.3% of the population. Of these residents 3 were 0-4 years of age and 329 were 65 years or older.
People who live alone or are socially isolated	At the 2016 Census, Loddon had a high proportion of single person households (32%) this equates to 1,015 persons.
Low-socio economic groups, including homeless people	The ABS Index of Relative Socio-Economic Disadvantage (SEIFA) suggests the Loddon community is more disadvantaged than the state more generally.  Inglewood and Districts Health Service advises that they have no annual client intake of people who have been sleeping rough. In no way does this affirm no people are sleeping rough within the municipality however.
Those living or camping in caravans and tents	At the 2016 Census, 62 people were living within other types of dwellings such as caravans, tents or similar type of accommodation.

## Central Goldfields Municipal Profile

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The Central Goldfields Shire covers an area of 1534 square kilometres and is either forested or used for mixed farming purposes. There has been extensive rural residential development in the Shire and many of these rural residential areas abut State Forest.

The Shire is bounded by the Avoca River in the North West, the Bet Bet Creek in the South West, the Joyces Creek, Cairn Curran Reservoir and Deep Creek in the East. The Bet Bet Creek traverses the Shire in the central north of the shire. The Eastern and Western edges of the Shire are basalt plain, while the central portion of the Shire is undulating to hilly country.

### Demographics

In the 2016 census the Central Goldfields Shire had a total population of 12,995.

Population figures:

#### Township Population

• Maryborough	7921
• Dunolly	893
• Bealiba	206
• Moliagul	88
• Carisbrook	1115
• Bowenvale	181
• Majorca	211
• Talbot	442

## Vulnerable Groups (2016 Census data)

Some groups are more susceptible to the health effects of heatwave

Group	Local Context and heatwave effects
Babies and Pre-schoolers (0 – 4)	At the 2016 Census, there were 586 people living within Central Goldfields.
Young People (5 – 11)	At the 2016 Census, there were 924 people living within Central Goldfields.
People over 60	At the 2016 Census, there were 4,686 people living within Central Goldfields. This is an increase from 3,656 from the 2006 Census.  There were 6,630 presentations of people over 65 at hospitals across Victoria during the 2014 heatwave. This was higher than the 5,627 presentations expected. This is a 33% increase when compared to non-heatwave events presentations
Pregnant and breastfeeding mothers	Maternal and Child Health (MCH) statistics show that there are approximately 115 births annually in the municipality in recent years.
People with a physical or cognitive disability	At the 2016 Census, 1,161 residents in Central Goldfields were described as requiring assistance. Of these residents 7 were 0-4 years of age and 582 were 65 years or older.
People who live alone or are socially isolated	At the 2016 Census, Central Goldfields had a 1,906 single person households.
Low-socio economic groups, including homeless people	The ABS Index of Relative Socio-Economic Disadvantage (SEIFA) suggests the Central Goldfields community is more disadvantaged than the state more generally.  Maryborough District Health Service advises they have no annual client intake for people who have been sleeping rough. In no way does this affirm no people are sleeping rough within the municipality however.
Those living or camping in caravans and tents	At the 2016 Census, 106 people were living within other types of dwellings such as caravans, tents or similar type of accommodation.

## City of Greater Bendigo Municipal Profile

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The City of Greater Bendigo is located in the geographic centre of Victoria. Greater Bendigo has a population of just over 111,000 and covers almost 3,000 square kilometres of the Central Victorian landscape of which a significant proportion is national park, regional park, reserve or bushland. Smaller townships are located at Axedale, Elmore, Goornong, Heathcote, Marong and Redesdale.

Today, Bendigo is the major regional centre for North Central Victoria and the fourth largest urban area in Victoria. Bendigo features a major public hospital (Bendigo Health) and several smaller health services (Anne Caudle Centre, Eaglehawk Day Hospital, Heathcote Hospital and private hospital St. John of God).

### Demographics

The City of Greater Bendigo had a population of 110,477 in the 2016 Census.

Population figures:

#### Township Population

• Bendigo	5,616
• Eaglehawk - Eaglehawk North - Sailors Gully	6,516
• East Bendigo	2,151
• Elmore - Rural North	3,481
• Epsom - Ascot	6,233
• Flora Hill - Quarry Hill - Spring Gully - Golden Gully	9,595
• Golden Square	8,996
• Heathcote and District	3,910
• Huntly	2,490
• Kangaroo Flat - Big Hill	10,799
• Kennington	5,728
• Long Gully - West Bendigo – Ironbark	4,905
• Maiden Gully	5,095
• Marong - Rural West	4,456
• North Bendigo - California Gully	8,531
• Axedale – Sedgwick - Longlea - Junortoun	7,705
• Strathdale	5,722
• Strathfieldsaye	5,490
• White Hills - Jackass Flat	4,369

## Vulnerable Groups (2016 Census data)

Some groups are more susceptible to the health effects of heatwave

Group	Local Context and heatwave effects
Babies and Pre-schoolers (0 – 4)	At the 2016 Census, there were 7, 075 people (6.4% of the population) living within City of Greater Bendigo.
Young People (5 – 11)	At the 2016 Census, there were 10, 041 people (9.1% of the population) living within City of Greater Bendigo.
People over 60	At the 2016 Census, there were 26, 410 (23.9% of the population) living within City of Greater Bendigo.  There were 6,630 presentations of people over 65 at hospitals across Victoria during the 2014 heatwave. This was higher than the 5,627 presentations expected. This is a 33% increase when compared to non-heatwave events presentations
Pregnant and breastfeeding mothers	Maternal and Child Health (MCH) statistics show that there has been an average of 1,369 births annually in the municipality in past 3 years.
People with a physical or cognitive disability	At the 2016 Census, 6, 546 residents in City of Greater Bendigo were described as requiring assistance, equating to 5.9% of the population. Of these residents 109 were 0-4 years of age and 3,505 were 65 years or older.
People who live alone or are socially isolated	At the 2016 Census, City of Greater Bendigo had 11,567 people living alone.
Low-socio economic groups, including homeless people	The ABS Index of Relative Socio-Economic Disadvantage (SEIFA) suggests the City of Greater Bendigo had a lower score (983.1) than the Victorian state average (1010) and higher than the Regional Victoria average (977.7).  There are particular pockets of disadvantage in Long Gully, West Bendigo, Ironbark, North Bendigo and California Gully.  Using Homelessness Australia data it states that 'on any given night 1 in 200 people are homeless'.  In City of Greater Bendigo it is estimated at any one time over 500 people are homeless or living rough.  Some significant reasons for homelessness/living rough include domestic violence and relationship issues, accommodation issues, financial difficulties and health reason.
Those living or camping in caravans and tents	The 2016 Census shows , 233 people were living within other types of dwellings such as caravans, tents or similar type of accommodation.

## Campaspe Municipal Profile

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The Shire of Campaspe is a predominantly rural area, but has significant residential areas in the townships of Echuca and Kyabram. The largest town is Echuca, followed by Kyabram. Smaller townships include Gunbower, Lockington, Rochester, Rushworth, Stanhope and Tongala. The Shire encompasses a total land area of about 4,500 square kilometres. Land is used mainly for agriculture, particularly dairy farming, cereal and grain growing and sheep grazing. Tourism is also an important industry.

### Demographics

The Campaspe Shire a population of 37,061 in the 2016 Census.

Population figures:

#### Township Population

• Echuca (Central - East)	5,598
• Echuca (South - East)	2,823
• Echuca (West)	5,338
• Kyabram (East)	3,255
• Kyabram (West)	4,204
• Lockington - Gunbower and District	3,990
• Rochester	3,077
• Rushworth and District	2,438
• Stanhope and District	2,496
• Tongala and District	3,564

## Vulnerable Groups (2016 Census data)

Some groups are more susceptible to the health effects of heatwave

Group	Local Context and heatwave effects
Babies and Pre-schoolers (0 – 4)	At the 2016 Census, there were 2,075 people (5.6% of the population) living within Campaspe.
Young People (5 – 14)	At the 2016 Census, there were 4,561 people (12.3 of the population) living within Campaspe. This is a decrease from 3,775 (10.4%) from the 2006 Census.
People over 60	At the 2016 Census, there were 11,099 (30.1% of the population) living within Campaspe.  There were 6,630 presentations of people over 65 at hospitals across Victoria during the 2014 heatwave. This was higher than the 5,627 presentations expected. This is a 33% increase when compared to non-heatwave events presentations
Pregnant and breastfeeding mothers	Maternal and Child Health (MCH) statistics show that there approximately 422 births annually in the municipality in recent years.
People with a physical or cognitive disability	At the 2016 Census, 2,357 residents in Campaspe were described as requiring assistance, equating to 6.4% of the population. Of these residents 20 were 0-4 years of age and 1,482 were 65 years or older.
People who live alone or are socially isolated	At the 2016 Census, Campaspe had 3,908 people living alone.
Low-socio economic groups, including homeless people	The ABS Index of Relative Socio-Economic Disadvantage (SEIFA) suggests the Campaspe Shire community had a lower score (967) than the Victoria (1010) and regional Victoria (977) average scores, indicating a higher level of relative socio-economic disadvantage. Campaspe Shire was ranked 22nd lowest out of 79 Victorian LGAs
Those living or camping in caravans and tents	At the 2016 Census, 133 people were living within other types of dwellings such as caravans, tents or similar type of accommodation

## **19. Heatwave planning and response partner contact details**

Please refer to the Northern Victorian Emergency Management Cluster Contacts, Suppliers and Facilities Database at <http://contacts.regional.em.vic.gov.au/>

Emergency Management Agencies can request access to the database by contacting the relevant Council - Emergency Management Coordinator.

## 20. References and Resources

Bureau of Meteorology (BoM) 2015. *About the Heatwave Service for Australia*, <http://www.bom.gov.au/australia/heatwave/about.shtml>

Bureau of Meteorology & CSIRO 2014. *State of the Climate 2014*. <http://www.bom.gov.au/state-of-the-climate>

Bureau of Meteorology (BoM) 2016. *Climate Statistics for Australian Locations: Monthly Climate Statistics* [http://www.bom.gov.au/climate/averages/tables/cw\\_088110.shtml](http://www.bom.gov.au/climate/averages/tables/cw_088110.shtml)

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Department of Environment, Land, Water & Planning 2015. *Climate Ready Victoria – Loddon Mallee Region*. State Government of Victoria, Melbourne. [http://www.climatechange.vic.gov.au/data/assets/pdf\\_file/0004/323554/Loddon-Mallee.pdf](http://www.climatechange.vic.gov.au/data/assets/pdf_file/0004/323554/Loddon-Mallee.pdf)

Department of Health 2014. *The health impact of the January 2014 heatwave in Victoria report*, State Government of Victoria, Melbourne.

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Department of Health and Human Services (DHHS) 2015. *Heat health plan for Victoria*. State Government of Victoria, Melbourne.

Department of Justice (DoJ) 2014. *State Heat Plan 2014*. State Government of Victoria, Melbourne.

Department of Health and Human Services 2016. Health.vic website *Extreme heat and heatwaves*, viewed 17 February 2015. State Government of Victoria, Melbourne. <https://www2.health.vic.gov.au/public-health/environmental-health/climate-weather-and-public-health/heatwaves-and-extreme-heat>

Steffen, W., Hughes, L. and Perkins, S. 2014. *Heatwaves: Hotter, Longer, More Often*. Climate Council of Australia Limited.

Victorian Auditor-General 2014. *Heatwave Management: Reducing the Risk to Public Health*. State Government of Victoria, Melbourne.

Wellington Shire Council 2015. *Wellington Municipal Heatwave Plan V2.1*. Wellington Shire Council, Sale, Victoria.

Emergency Management Victoria (EMV) 2017. *Interim State Extreme Heat Health Sub-Plan, Emergency Management Victoria, Melbourne*

## Resources

### **Bureau of meteorology**

Website - <http://www.bom.gov.au/>

App - <http://www.bom.gov.au/app/>

Regional Climate Change Explorer - <http://www.climatechangeinaustralia.gov.au/en/climate-projections/future-climate/regional-climate-change-explorer/super-clusters/>

### **Climate Ready Victoria – Loddon Mallee Region**

Website - [http://www.climatechange.vic.gov.au/data/assets/pdf\\_file/0003/320889/Loddon-Mallee.pdf](http://www.climatechange.vic.gov.au/data/assets/pdf_file/0003/320889/Loddon-Mallee.pdf)

### **Heatwave Planning Resources – Department of Health and Human Services**

Website - <https://www2.health.vic.gov.au/public-health/environmental-health/climate-weather-and-public-health/heatwaves-and-extreme-heat/heatwave-planning>

State Heat health plan - <https://www2.health.vic.gov.au/Api/downloadmedia/%7B5151AA4E-D2FD-4DD8-AA58-3F74A63F2066%7D>

### **Central Victorian Greenhouse Alliance**

Heatwave training video - <https://heathealth.cvga.org.au/heatwave-help-downloads/>

Central Victorian Greenhouse Alliance: Heatwave Help- <https://heathealth.cvga.org.au/>

### **Emergency Management Victoria**

Website - <https://www.emv.vic.gov.au/>

State Heat Plan - <http://files.em.vic.gov.au/EMV-web/State-Heat-Plan.pdf>

Interim State Emergency Response Plan Extreme Heat Sub-Plan - <http://files.portal.em.vic.gov.au/refdocs/EMK-01.19-HeatSubplan.pdf>

Emergency Management Common Operating Picture (EMCOP) - <http://app.prod.cop.em.vic.gov.au/sadisplay/nicslogin.seam>

Vic Emergency Website - Public emergency warning service - <http://emergency.vic.gov.au/respond/>