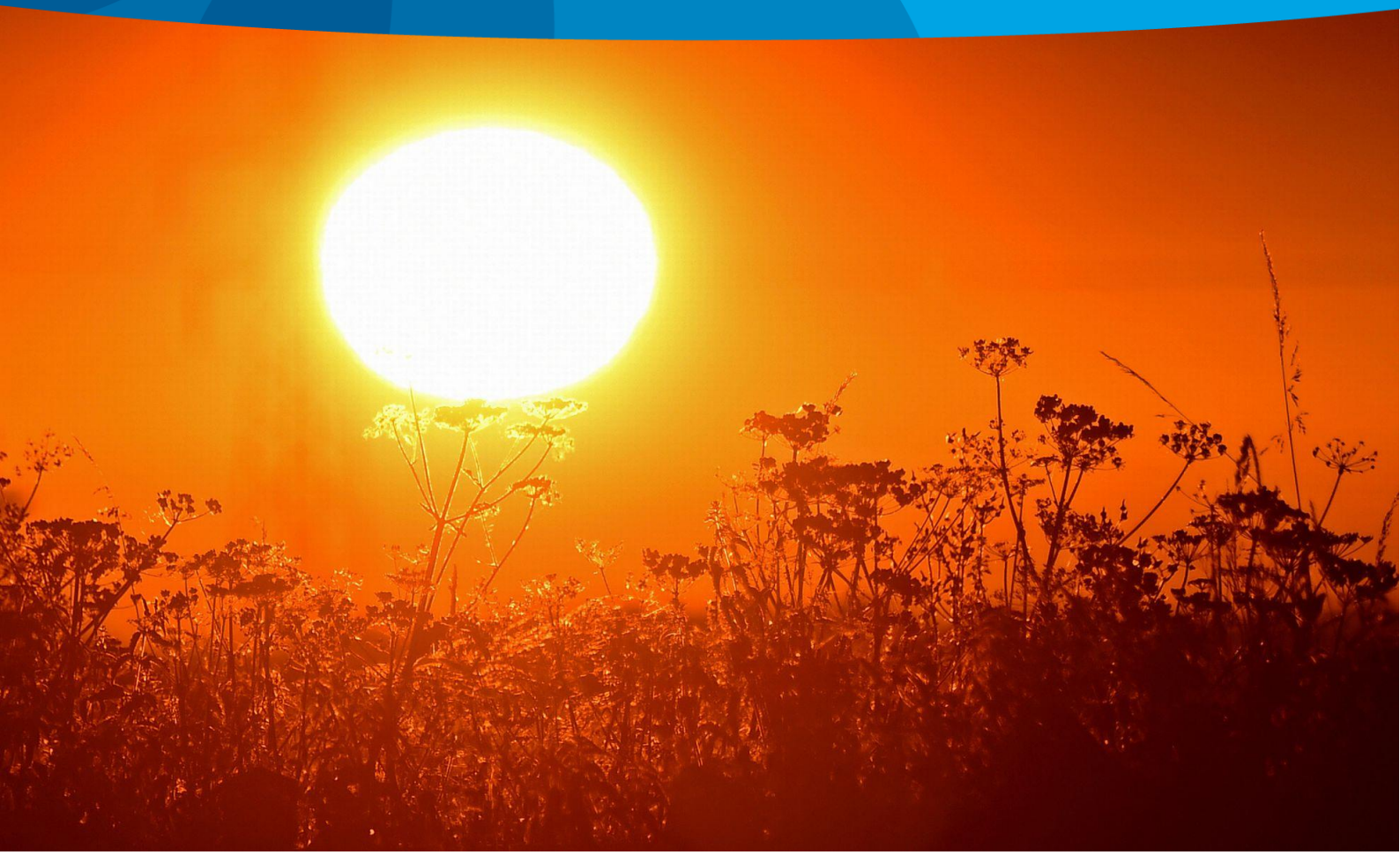
City of Whittlesea



Whittlesea Extreme Heat Sub- Plan 2022 – 2023 (Version 2.2)

This Sub-Plan shall be read in conjunction with the Whittlesea Municipal Emergency Management Plan, which is endorsed by the Municipal Emergency Management Planning Committee.

Note: DH (Department of Health) are currently undertaking a State-wide project in determining best practice for municipal heat plans. This Extreme Heat Sub-Plan will be fully reviewed with version 3 being released in 2024-2026.

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1. Introduction

1.1 Foreword

The Whittlesea Extreme Heat Sub-Plan (*the Plan*) is a sub-plan of the Whittlesea Municipal Emergency Management Plan (MEMP). It has been developed using the general principles of emergency management as a guide to planning, preparation, response and recovery.

The Plan is a tool to provide the local context of heat stress and the measures that can be adopted by MEMPC member agencies and organisations, and community to mitigate the effect. By having a local plan, local conditions and resources can be utilised to better prepare for, respond to and recover from extreme heat conditions.

1.2 Purpose of the Plan

The Extreme Heat Sub-Plan has been written to:

- Be consistent with the State's SEMP Extreme Heat Sub-Plan and other planning frameworks;
- Provide residents of the City of Whittlesea, information on how they can best prepare and manage during an extreme heat event;
- Identify risk factors and potentially vulnerable cohorts within the communities of the City of Whittlesea;
- Describe key stakeholder roles and responsibilities; and
- Promote a community awareness and education component

1.3 Aim

The aim of this Extreme Heat Sub-Plan is to:

Support effective and coordinated emergency management arrangements in alignment with the SEMP Extreme Heat Sub-Plan and the Whittlesea MEMP for the prevention of, response to, provision of relief services and recovery from extreme heat events that occur in the City of Whittlesea municipal district.

1.4 Objectives of the Plan

The objectives of this Extreme Heat Sub-Plan is to:

- Compliment regional and state planning arrangements by providing a local context,
- Document agreed arrangements for the prevention of, response to, provision of relief and recovery from an extreme heat event,
- Manage arrangements for the use and implementation of municipal resources in response to an extreme heat event.

1.5 Key Stakeholders

1.6 Why the municipality needs an Extreme Heat Sub-Plan

Climate Change

Climate change is increasing the intensity and frequency of extreme heat in Australia. Heatwaves are becoming hotter, lasting longer and occurring more often. Extreme heat and heatwaves impact the community; there were significant health impacts from the last significant heatwave in Victoria – the January 2014 heatwave. There were 203 heat-related deaths, a 20-fold increase in ambulance callouts, a four-fold increase in calls to the nurse-on-call phone line, and a four-fold increase in attendance to locum doctors.

Impacts of Extreme Heat

As temperatures become extreme the range of impacts include: a significant loss of life and injury, an increase in anti-social behaviour, increase in absenteeism, substantial population displacement from housing estates, decrease in economic activity, disruption to public transport, stress to parks and gardens, short term power blackouts or brownouts, increased demand on medical and social facilities, increased probability of fire and an increased severity in the consequences of other emergency events if they transpire.

Health Impacts

Heat can affect people in several ways. The direct effects of extreme heat can cause heat stress, exacerbate the symptoms of existing or underlying illness and, in extreme cases, cause long-term impairment or death. A person's vulnerability to the effects of extreme heat is layered. High temperatures can seriously impact on the health and wellbeing of people in the municipality, particularly among vulnerable population groups such as babies and young children, older people, people with a pre-existing medical condition and people living with a disability. Socio-economic factors can also significantly impact a person's ability to manage their own safety during extreme heat.

The Pandemic

The COVID-19 global pandemic which hit Australia in March 2020 has also significantly impacted many vulnerable community members and their ability to cope with extreme heat. Key stakeholders continue to work together to identify strategies to support and empower these community members. The Multi Agency COVID-19 Consultative Group, which was formed from the Municipal Emergency Management Planning Committee, developed a taskforce to specifically review the financial impact of the pandemic and the communities ability to use their available resources within their means to stay cool.

The impact of extreme heat on the community can be lessened by adapting behaviour, homes, services and infrastructure to 'Beat the Heat'.

2. City of Whittlesea Community Profile

Population in 2021 (ABS)

229,396

with an average age of 35. This is expected to grow to 388,417 by 2041

id.com.au 2022

Number of people who identified as Aboriginal and/or Torres Straight Islanders

2,270

ABS 2021

Number of people born overseas

86,326

37.6% of the population of the City of Whittlesea

id.com.au 2022

Child Care and Education

We have:

54 Childcare Centres

42 Kindergartens

51 Primary Schools

City of Whittlesea 2022

Pregnant and nursing mothers

There were **3706** notified births in the City of Whittlesea in 2018/19

Burden of disease

14.4% of individuals rate their general health as poor or fair

Heart Disease

54.10% are overweight or obese

Heart Foundation Heart Maps 2013:
http://heartfoundation.org.au/programs/victorian-heart-maps

Aged care facilities

17 Number of aged care and nursing homes

City of Whittlesea 2022

Population mobility

33.7%	Individuals had lived at their current address for less than 5 years
10.8%	individuals who might move from their current address in the next twelve months

City of Whittlesea Household Survey Municipal Report 2019

Socio-economic status

991 is the City of Whittlesea's SEIFA Score

Socio-Economic Indexes for Areas (SEIFA) is a product developed by the ABS that ranks areas in Australia according to relative socio-economic advantage and disadvantage. The indexes are based on information from the five-yearly Census. A higher score on the index means a lower level of disadvantage. A lower score on the index means a higher level of disadvantage.

(2016 *SEIFA index via id.com.au)*

Financial vulnerability

Median weekly household income	$1,573
Median weekly rent	$ 346
Median monthly mortgage repayments	$1,809

2021 Census ABS

Income, Rent and Mortgage

36.9%	21.0%	32.7%	18.2%
persons with an individual income less than $400 per week	households with an income less than $650 per week	Households where rent payments are 30%, or greater, of household income	Households where mortgage payments are 30%, or greater, of household income
City of Whittlesea Household Survey Municipal Report 2019	*City of Whittlesea Household Survey Municipal Report 2019*	*id.com.au 2021*	*id.com.au 2021*

Dwelling structure

86.4%	10.7%	2.8%
Live in a seperate detached house	Live in a semi-detached, row or terrace house or townhouse	Live in a flat ror apartment

ABS 2021

Single person households

18.2% percent of households are sole parent households

ABS 2021

Single car households

4.1% Households that do not own a motor vehicle

31.1% Households own just 1 vehicle

id.com.au 2021

Disability

42.5%

individuals who have at least one long-term health condition

ABS 2021

Labour Force

persons aged 15 years and over working full time	67.3%
persons aged 15 years and over working part time or casual	18.9%
persons aged 15 years and over unemployed	4.7%

City of Whittlesea Household Survey Municipal Report 2019

3. Impacts of Extreme Heat and Heatwave

3.1 Weather Trends and Extreme Heat

The nature of heatwaves in Australia is also changing; they are becoming hotter, lasting longer, starting earlier, and occurring more frequently (Perkins and Alexander 2013; Climate Council of Australia 2014).

In line with state and national trends, the future climate of Whittlesea is expected to be much hotter and drier than it is today, with prolonged periods of above average temperatures according to climate change projections published by the Victorian Government based on research by CSIRO and the Bureau of Meteorology. By 2050, both temperature and annual rainfall across the City of Whittlesea would resemble those of present-day Bathurst in New South Wales.

Warming is likely to be greatest in the summer, while the greatest reductions in rainfall are likely to occur in spring. Although average changes in temperature, rainfall and evaporation will have long term consequences for the region, the impacts of climate change are more likely to be felt through extreme events such as the number of hot days which are projected to double by 2070. Bushfire risk is also expected to increase.

Although average annual and seasonal rainfall is expected to decline slightly, the intensity of heavy daily rainfall is likely to increase in most seasons by 5 to 10%. However, fewer rain days are anticipated with more droughts.

3.2 What is a Heatwave?

The Bureau of Meteorology issues heatwave warnings when 10 percent or more of a weather district is in a severe or extreme heatwave. A heatwave is three or more days in a row when both daytime and night-time temperatures are unusually high—in relation to the local long-term climate and the recent past. Heatwaves are classified into three types, based on intensity: Low intensity, severe and extreme, and are outlined in the SEMP Extreme Heat Sub-Plan.

In Victoria, a heatwave is generally defined as a period of abnormally and uncomfortably hot weather that could impact on human health, community infrastructure and services.

3.3 Heat Health Thresholds

The Department of Health has developed heat health temperature thresholds for the whole of Victoria, based on the minimum temperature threshold that is likely to impact on the health of a community. This is calculated by taking the average of the forecast daily maximum temperature and the forecast overnight temperature (which is the daily

minimum for the following day). For **Melbourne** (Central District), the threshold is an average of **30°C.**

3.4 Heat Health Warning

When the Bureau of Meteorology issues a heatwave warning (for severe or extreme heatwaves), the Department of Health will issue a heat health warning. The heat health warning notifies the Victorian community of the risk and likely negative impact on human health.

The Chief Health Officer may also issue a heat health warning for a single day of extremely high temperatures if it is considered to poses a health risk.

Subscribe to heat health alerts via this link: [Subscribe to alerts, advisories and newsletters | health.vic.gov.au]

3.5 People most affected by heat

Extreme heat and heatwaves impact the whole community in many ways. As well as the physical and health impact of extreme heat, there is also a social and cultural impact (which may mean more or less social contact depending on the person and their situation), an economic impact, and a natural and built environment impact.

Most people have the knowledge, ability and capacity to look after themselves in extreme heat and will respond appropriately to public health messages. However, many people's capacity to respond to the heat is impaired for a variety of reasons. The following table outlines the most vulnerable groups in the municipality and how extreme heat and heatwaves affect them. An understanding of who is the most vulnerable allows targeted action to assist those most in need.

An extreme (i.e. prolonged) heatwave event has the potential to severely affect everyone, especially if there is a prolonged power outage due to infrastructure stress.

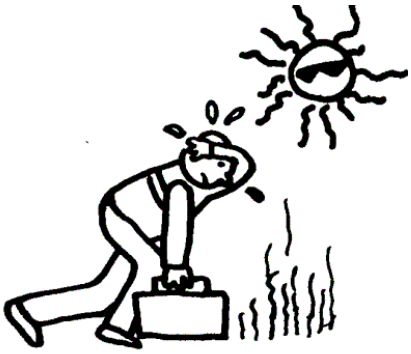
Vulnerable People	How they are affected
Aged (over 65)	Older adults in our community are more prone to heat stress. Thermoregulation[1] ability declines with age as does the perception of hydration resulting in vulnerability to heat stress and illness. There is a high likelihood to have at least one, if not multiple other vulnerabilities. The percentage of residents in the 65+ population in the City of Whittlesea (12.6%) is lower on average than Greater Melbourne (14.1%), although the percentage is expected to grow by 2026.
Overweight or Obese	Greater mass to surface ratio makes it harder for the body to cool down. The Heart Foundation estimates that 54.10% of the City of Whittlesea population is overweight or obese which is higher on average than Greater Melbourne.
Pregnant women, nursing mothers and babies and young children (0-4 years)	Pregnant women/nursing mothers: greater body mass to cool, higher than normal hydration needs and hormonal variation that can affect the perception of heat and hydration. Babies/young children: particularly sensitive to the effects of high temperatures and can quickly get stressed by heat. They may not always show signs or symptoms even though they have been affected. A child's thermoregulation capacity is also still developing. In 2021, there were 16,508 children aged 0-4, representing 7.2% of the population in the City of Whittlesea.
Chronic illnesses/people on medication	Medical conditions that affect the cardiovascular, respiratory, renal and endocrine systems or thermoregulation capacity may mean that the ability to perceive and respond (consciously and unconsciously) to the environment is impaired. Some medications increase the risk of heat stress, as the ability of the body to respond to temperature variation may be impaired. How this works varies according to the medication. In the City of Whittlesea, 42.5% of the population have at least one long-term health condition.
Impaired sweating	Limits the ability to cool the body.
People with a disability	A disability can affect a person's capacity to cope with heat by a reduction in the ability to regulate body temperature; limited mobility to adapt to the physical environment to make it cooler or to seek cool respite; limited capacity to receive information, advice and support; or a cognitive impairment which means the person may not be able to communicate distress or "feel" the heat.

[1] Ability to perceive and adapt to temperature variation

Anyone who cannot find relief from the heat for at least 2 hours per day	2 hours relief provides the body with critical recuperation time[2]. People at risk of heat stress can include public housing residents, those that are socially isolated, housing insecure, outdoor workers and homeless people/rough sleepers. There are at least 700 people in the City of Whittlesea who are homeless, living on the street, out of their car with their children, or in over-crowded houses.
People with low socioeconomic status	People in this group are more vulnerable to heatwaves due to several factors including: living in poor quality housing and less likely to have air-conditioning; people on government benefits who are likely to have health problems, such as older people or people with disabilities; reduced access to health and wellbeing services; or people with reduced mobility preventing them from accessing cool places. In the City of Whittlesea, Thomastown and Lalor have consistently been shown to be amongst the most socioeconomically disadvantaged localities in Victoria.

[2] *Heat Health Plans,* WHO Europe, 2006

3.6 How Heatwaves affect our health



As temperatures rise, so does the risk of contracting 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, even 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.

When the ambient temperature is greater than skin temperature, *the only means by which the body can lose heat is by evaporation.* A person working outdoors, or gardening can lose up to 15 litres of fluid a day through sweating.

Effect of dehydration

Stage 1: Thirst is not sensed until > 2% dehydration.

Drinking as much as you feel like, does not replace all fluid losses

Stage 2: > 2% dehydration leads to impaired thinking, increased risk of injury and increased susceptibility to heat stress illness

Stage 3: > 3% dehydration increases stress on body systems

Note: Dehydration may not be easily identifiable

The Symptoms of Heat-Related Illness

Heat-related illness occurs when the body is unable to adequately cool itself. Heat-related illness can range from mild conditions, such as a rash or cramps, to very serious conditions, such as heat stroke, which may be fatal.

Illness	Symptoms	What to do
Heat cramps	• Muscle pains • Spasms in the abdomen, arms, or legs	• Stop activity and sit quietly in a cool place • Increase fluid intake • Rest a few hours before returning to activity • Seek medical help if cramps persist
Heat exhaustion	• Pale complexion and sweating • Rapid heart rate • Muscle cramps, weakness • Dizziness, headache • Nausea, vomiting • Fainting	• Get the person to a cool area and lie them down • Remove outer clothing • Wet skin with cool water or wet cloths • Seek medical advice
Heat stroke **This is a medical emergency and requires urgent attention.**	Heatstroke occurs when the core body temperature rises above 40.5 °C and the body's internal systems start to shut down. The person may stagger, appear confused, have a fit or collapse and become unconscious. As well as effects on the nervous system, there can be liver, kidney, muscle, and heart damage. • The symptoms of heatstroke may be the same as for heat exhaustion, but the skin may be dry with no sweating and the person's mental condition worsens.	• Call an ambulance • Get the person to a cool area and lie them down • Remove clothing • Wet the skin with water, fanning continuously • Position an unconscious person on their side and clear their airway

Source - Department of Health. Heat stress and heat-related illness

3.7 Suburbs most affected by heat

Extreme heat and heatwave are not uniform in its effects. As outlined above, several factors affect the level of impact on individuals and the community. The following table ranks the order of vulnerability for Whittlesea suburbs based on heatwave indicators developed by Monash University for the Department of Health.

'Everyone is at risk'

It is important to note, even if you live in a suburb with a low or very low ranking for heatwave vulnerability, you may still be at risk depending on human factors.

Heatwave Vulnerability	Suburb
Extremely High	Lalor, Thomastown and Bundoora
Very High	Epping
High	South Morang
Medium	Humevale, Kinglake West, Whittlesea, Donnybrook, Woodstock, Eden Park, Yan Yean
Low	Beveridge
Very Low	Mernda and Doreen

Loughnane, Nicholls, Tapper, 'Hot Spots' Project – Spatial vulnerability to heat events in Melbourne Australia

Urban heat island

Another factor to be considered in managing the effects of heat is the **Heat Island Effect**. Urban areas that are more densely built and populated absorb and trap more heat relative to suburban residential and rural farmland areas. This means that both daytime temperatures, where more heat is absorbed, and night time temperatures, where heat is released more slowly, can be higher in these areas.

As a result, established suburbs such as Lalor, Thomastown and Bundoora can be higher than newer suburbs such as Mernda and Doreen, which have been designed with green spaces and waterways to provide cooling.

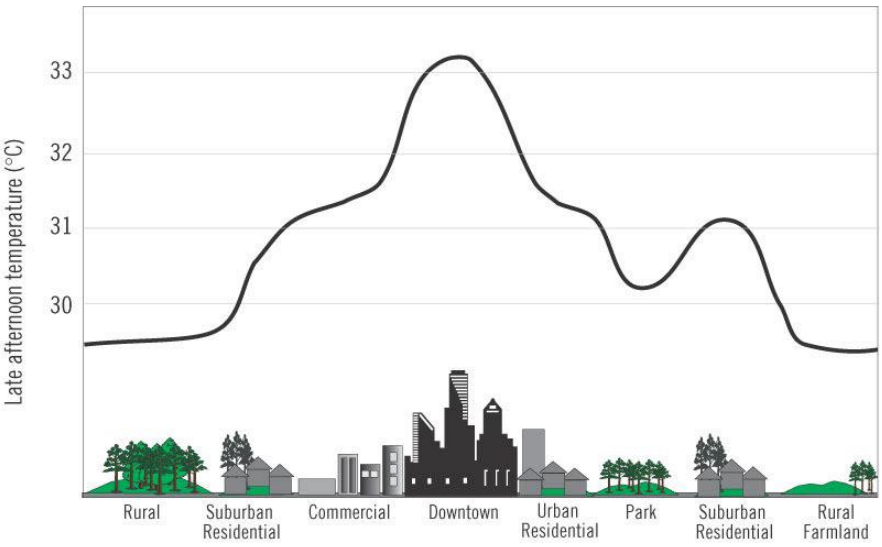


Figure: Effect of heat islands (source: - http://eetd.lbl.gov/Heatisland/HighTemps)

4. What the community can do

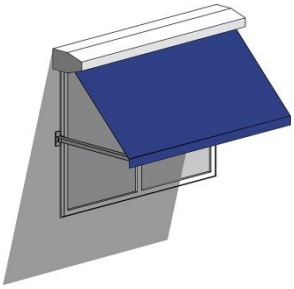
4.1 Heat illnesses are preventable

1. Keep out of the heat

- If a heatwave is forecast, try to plan your day in a way that allows you to stay out of the heat
- If you can, avoid going out in the hottest part of the day (11am – 3pm)
- If you can't avoid strenuous outdoor activity, like sport, DIY, or gardening; keep it for cooler parts of the day, like early morning or evening
- If you must go out, stay in the shade. Wear a hat and light, loose-fitting clothes, preferably cotton. If you will be outside for some time, take plenty of water with you

2. Stay cool

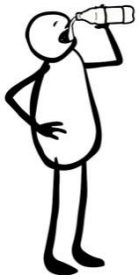
- A loose damp cloth or scarf on the back of the neck or spraying or splashing your face and the back of your neck with cold water several times a day can help keep you cool
- Stay inside in the coolest rooms in your home as much as possible - Move to the coolest room to sleep
- Turn off non-essential lights and electrical equipment
- Reduce heat from sunlight coming through the windows. External shading, e.g. canvas blinds are best. Internal blinds or curtains can also help, so keep them drawn during the hot parts of the day



- Keep windows closed while the room is cooler than it is outside. Open windows when the temperature inside rises above the outside temperature. It is also helpful to open windows at night for ventilation. If you are worried about security, a security screen door will allow breezes through your house at night, or open windows on the first floor and above
- Indoor and outdoor plants will help keep your home cool due to evaporation and the shading from trees and bushes
- Take cool showers or baths

3. Drink regularly

- Drink regularly even if you do not feel thirsty – water or fruit juice are best
- Try to avoid alcohol, tea and coffee. They make dehydration worse
- Eat as you normally would. Try to eat more cold food, particularly salads and fruit, which contain water



4. Seek advice if you have any concerns

- Contact Nurse on Call, your doctor, a pharmacist if you are worried about your health during a heatwave, especially if you are taking medication, if you feel unwell or have any unusual symptoms
- Watch for cramp in your arms, legs or stomach, feelings of mild confusion, weakness or problems sleeping
- If you have these symptoms, rest for several hours, keep cool and drink water or fruit juice. Seek medical advice if they get worse or don't go away

Remember, heatstroke can kill. It can develop very suddenly, and rapidly lead to unconsciousness. If you suspect someone has heatstroke, call 000 immediately.

5. Helping others

- If anyone you know is likely to be at risk during a heatwave help them get the advice and support, they need. Older people living on their own should be visited daily to check they are OK
- If someone has any of the above heat related illnesses, whatever the underlying cause of heat related symptoms, the treatment is always the same – move the person to somewhere cooler and cool them down

6. While waiting for an ambulance

- If possible, move the person somewhere cooler
- Increase ventilation by opening windows or using a fan
- Cool them down as quickly as possibly by loosening their clothes, sprinkling them with cold water or wrapping them in a damp sheet
- If they are conscious, give them water or fruit juice to drink
- Do not give them aspirin or paracetamol

7. If the power is out

Often heatwaves and power outages occur together. Remember that if the power goes out, air conditioners, fans, lights, fridges and freezers won't work, making it hard to keep cool and ensure that foods don't spoil. Also, radios and walk-around telephones may not work if they need power making it very hard to contact clients to make sure that they are coping with the heat.

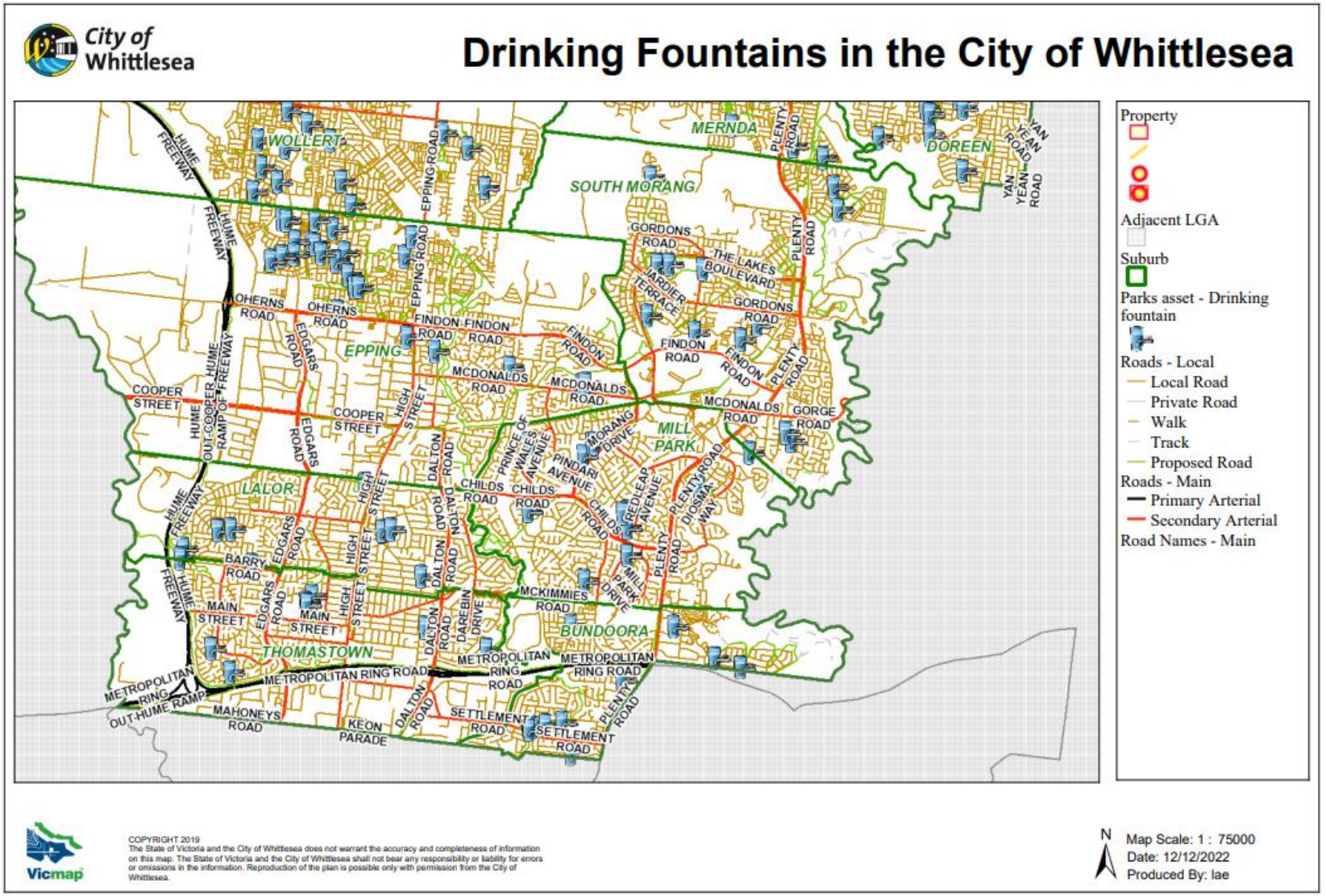
4.2 Air-conditioned public places

Normal operating hours apply for each venue. We suggest you call to confirm the centre is open before traveling to the venue. Please call the City of Whittlesea on 9407-5929.

Sites located in a high bushfire risk area will be closed on Catastrophic (fire danger rating) declared days.

Place	Name	Address
Community Centres	**Epping Views FACC**	15 Lyndarum Drive, Epping North 3076
	Galada Community Centre	10A Forum Way, Epping 3076
	Gambu Gulijn Community Centre	55 Macedon Parade, Wollert 3750
	Jindi FACC	48 Breadalbane Avenue, Mernda 3754
	Laurimar CAC	110 Hazel Glen Drive, Doreen 3754
	May Road Senior Citizens	2B May Road, Lalor 3075
	Mernda Village CAC	70 Mernda Village Drive, Mernda 3754
	Whittlesea CAC	57-61 Laurel Street, Whittlesea 3757
Community Learning Houses	**Creed's Farm Living & Learning Centre**	2 Snugburgh Way, Epping North 3076 (Aurora)
	Lalor Living and Learning Centre	47A French Street, Lalor 3075
	Thomastown Neighbourhood House	52 Main Street, Thomastown 3074
	Whittlesea Community House	92 Church Street, Whittlesea 3757
Public Libraries	**Lalor Library**	2A May Road, Lalor 3075
	Mill Park Library	394 Plenty Road, MILL Park 3082
	Thomastown Library	52 Main Street, Thomastown 3074
	Whittlesea Library	57-61 Laurel Street, Whittlesea 3757
Swimming Pools	**Mill Park Leisure & Services Centre**	33 Morang Drive, Mill Park 3082
	Thomastown Recreation & Aquatic Centre	54 Main Street, Thomastown 3074
	Whittlesea Swim Centre	50 Walnut Street, Whittlesea 3757

Figure 1: Map of Drinking Fountain Locations



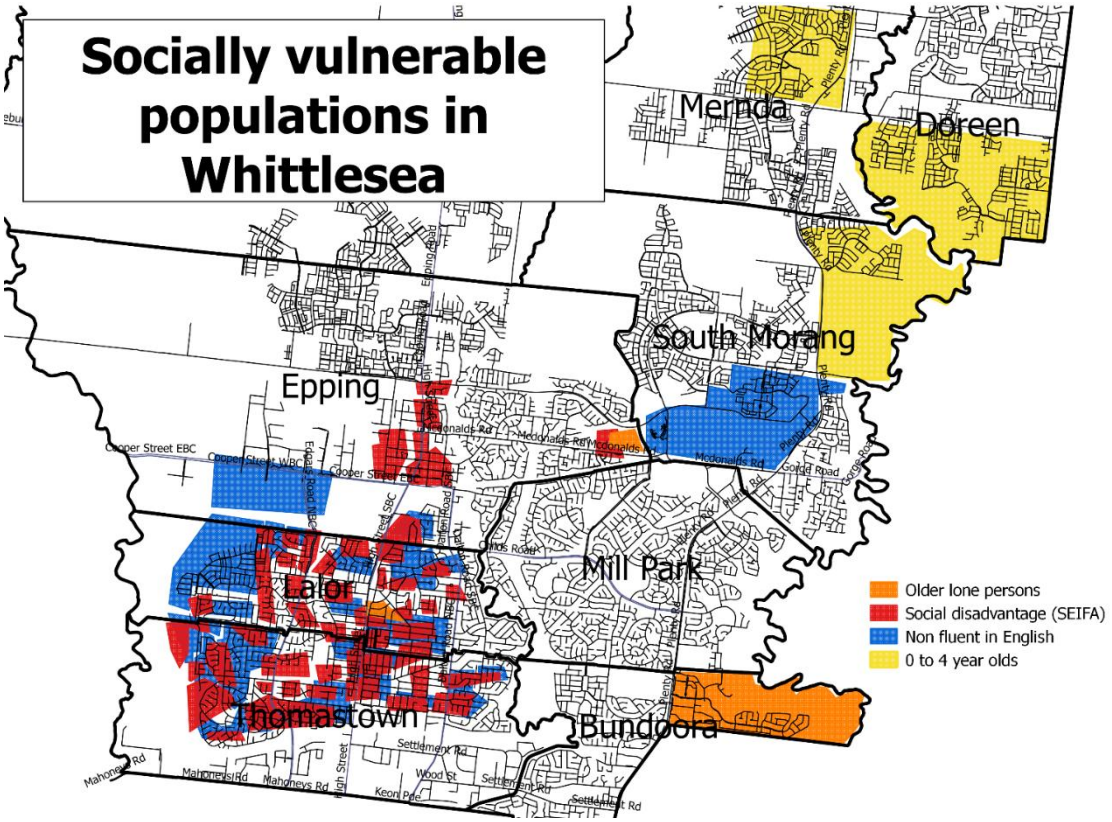


Figure 2: Socially vulnerable populations in Whittlesea

5. Document control sheet

5.1 Version control

Document Name	Municipal Extreme Heat Sub-Plan
Document no. and version	2.2
Date Revised	December 2022
Author	Team Leader Resilience and Emergency Management
Authorised By	Manager, Community Wellbeing

5.2 Change history

All changes to the Extreme Heat Sub-Plan must be approved and authorised by the City of Whittlesea Team Leader Resilience and Emergency Management. The record below is to be completed by the person making the amendment(s). Minor modifications do not require a new version of the document to be issued.

Issue No	Issue Date	Nature of Amendment	Amended By
1.0	November 2015	Working Draft for comment	Andrew Tierney
1.1	September 2016	Major revision – Separating municipal sub-plan from council plan	Andrew Tierney
1.2	January 2017	MEMPC comments incorporated	Andrew Tierney
1.3	June 2018	Update Statistics	Justin Justin
1.4	July 2018	Council Action Plan added	Justin Justin
2.0	November 2019	Revised/rewrite	Emma Renowden
2.1	December 2020	Basic review and reference to COVID-19. Extraction of Council Action Plan from municipal sub-plan	Jacinta Elliott
2.2	December 2022	Superficial Update	Lauren Elovaris