

Cardinia Municipal Fire Management Plan



Acknowledgement of Country

The Cardinia Municipal Fire Management Planning Committee recognises and values the Bunurong and Wurundjeri peoples as the original inhabitants of the land that makes up Cardinia Shire. The Committee acknowledges and pays respect to the Elders, past and present.

Acknowledgement

The Cardinia Municipal Fire Management Planning Committee acknowledges the member agencies and individuals for the work and commitment in developing this plan, along with the use of the photographs in this publication.

This plan was developed with the funding support of the State Government's Safer Together Program and supported by consultants from ResilientCo.

Approval

The Cardinia Municipal Fire Management Plan has been prepared by the Cardinia Municipal Fire Management Planning Committee and was assured by the Cardinia Municipal Emergency Management Planning Committee on the 7 March 2023 and approved by the Southern Metropolitan Region Emergency Management Committee on the 28 February 2023.

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Produced with the assistance of ResilientCo Consulting

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Foreword

The municipality of Cardinia is one of the largest and fastest growing municipalities in Melbourne¹, bringing a range of challenges when it comes to managing fire-related risks.

This is the first Cardinia Municipal Fire Management Plan (the Plan) developed under new ministerial guidelines issued in Victoria in 2020 to provide greater cohesion through integrated arrangements for emergency management planning in Victoria at the state, regional and municipal levels.

This Plan is a sub-plan to the Cardinia Municipal Emergency Management Plan (MEMP).

Through the development of the Plan, the Municipal Fire Management Planning Committee (the Committee) undertook a process to explore the fire-related challenges, risks and opportunities within the municipality in order to apply a coordinated approach to managing those risks.

This Municipal Fire Management Plan (MFMP) takes an integrated approach to the identification and management of fire risks within the municipality across agencies and partners. It recognises the shared responsibility between government, agencies, business and community in reducing those risks. The Committee has established the Plan with four focussed themes:

- Fire Risks
- Good Governance
- Shared Capability
- Knowledge Sharing

The Plan has been developed by many people and organisations committing their time and providing valuable input. The experience and knowledge of the committee members and partner agencies was integral in confirming the focus of the strategies and the actions to be undertaken.

The Plan will be monitored, and identification of improved treatments or activities will be a key deliverable in achieving the objectives in the Plan.

Callum Joy Chair, Cardinia Municipal Fire Management Planning Committee

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Introduction

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Fire events impose significant social, environmental and economic costs on Victoria.

The impact of climate change, the increasing severity and frequency of major fires and changes in population and demographics all increase the need for a coordinated and collaborative approach to fire management planning.

Victoria has emergency management arrangements that require and encourage agencies to work collaboratively alongside all levels of government, community and business before, during and after emergencies.

As a designated growth corridor with its mix of residential and rural land, as well as having large areas of environmental significance, Cardinia Shire and the agencies and services that support it must be focussed on adapting to future challenges including fire-related challenges.

The Cardinia Municipal Fire Management Plan aims to support this and achieve a consistent, effective risk-based approach for fire management planning.

Through the Committee, this will be enhanced through collaboration, information sharing and the building of collective knowledge. Many organisations undertake treatment activities in the municipality in an attempt to keep fire related risks at a lower level.

These actions may reduce the potential for loss of human life and assets, reduce the size of a fire or stop it from occurring, and reduce the exposure of people, places and valuable assets to fire.

No single action or treatment will effectively manage fire risk. It takes a partnership approach that relies on the participation of all relevant agencies as well as community to undertake their responsibilities in the municipality.

Community understanding of individual, family and neighbourhood risks, and participation in risk management is integral. How communities prepare themselves, their homes and their families, and work with their neighbours, is crucial.

It is important to understand and plan for these challenges to ensure that Council, emergency services, partners and the community are adequately prepared to respond to the likely risks.



The Cardinia Municipal Fire Management Plan is prepared and maintained as a sub-plan to the Municipal Emergency Management Plan to ensure the linkages across fire prevention, preparedness, response and recovery programs are consistent and holistic.



This plan has been developed in line with the:

- Emergency Management Act 2013 which provides the authority under which Municipal Emergency Management Planning Committees (MEMPC) operate
- Ministerial Guidelines (2020) for Preparing State, Regional and Municipal Emergency Management Plans
- State Fire Management Planning Guidance to Regional and Municipal Fire Management Planning Committees
- Cardinia Municipal Emergency Management
 Plan

The Plan is risk-based, having regard for the social, economic, built and natural environment aspects of fire, and functions as a guiding document for participants involved in fire management planning activities.

The Cardinia Municipal Fire Management Committee has undertaken a robust process to determine the risk within the municipality as well as the activities required to support better integrated outcomes.

To ensure the Cardinia Municipal Fire Management Plan provides for a current integrated, coordinated and comprehensive approach to effective fire management planning, it is to be reviewed at least every three years.

The risk context and outcomes are found in Part 1 Context and Fire Risk within this document.

The risk assessment and development process and legislative background is contained in Part 2 Municipal Fire Management Planning.

Municipal Fire Management Vision and Purpose



The Cardinia Municipal Fire Management Planning Committee has the following vision and purpose for this plan.

Vision

A safer fire-ready and resilient Cardinia Shire

Purpose of the Plan

To guide Committee members in integrated fire management planning activities, reduce risks to community, and increase the awareness of community regarding their own responsibilities.

Principles

The principles of the Cardinia Municipal Fire Management Planning Committee are:

- Collaboration of member agencies in developing and implementing shared and coordinated fire management planning and preparedness activities that reduce risks to community
- Providing a common picture that guides the collective activities and actions of committee members, agencies and community
- **3.** Accountability in supporting effective committee direction and action including reviewing, monitoring and reporting
- 4. Community focus that supports community resilience and provides communities with the opportunity to actively participate in fire management planning

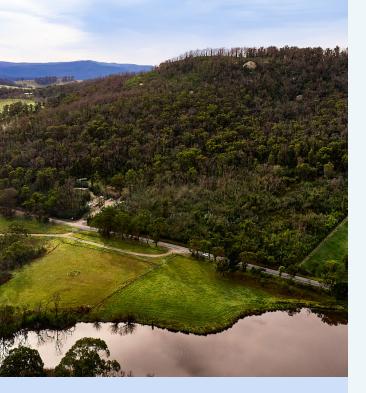
Themes, Goals and Actions

Through the fire management plan development process, the Cardinia Municipal Fire Management Planning Committee has established four focussed themes:

- 1. Fire Risks
- 2. Good Governance
- 3. Knowledge Sharing
- 4. Shared Capability

Under each theme sits an overarching goal and a number of high-level actions.

The accountability and timeframes for the actions are further explored in the separate Cardinia Municipal Fire Management Committee Action Plan, which is maintained, updated and reported against regularly.



Fire Risks

Goal:

Strengthen our focus on fire risk and the consequences of fire to ensure that hazards are reduced to the greatest reasonable extent for the greatest number of people.

Challenge/Opportunity:

Reducing the risk of fire to, and the impact of fire on, the community is at the heart of the Cardinia Municipal Fire Management Plan vision.

Cardinia's footprint has a large bushfire and grassfire risk with an increasing population, including residents with little awareness of what do in the event of fire, or with English as a second language.

The municipality is in a growth corridor, with agencies that work within and across responsibilities and boundaries.

Against this backdrop, the committee has identified four areas on which to collectively focus to reduce the risk of fire.

- Increase understanding of fire risk by leveraging existing tools and developing a common fire hazard and risk profile for the municipality
- Investigate opportunities to improve crossboundary relationships including risk awareness, resource sharing and program visibility
- With the assistance of agencies, council and community organisations, explore opportunities to reduce fire risk for communities, including a specific focus on culturally and linguistically diverse communities
- Investigate opportunities to strengthen emergency management planning considerations within strategic land use and land development planning



Good Governance

Goal:

Enhance effective oversight, direction and membership of the Committee to achieve its purpose, goals and actions.

Challenge/Opportunity:

In 2018 the Emergency Management Legislation Amendment Act amended the Emergency Management Act 2013 (EM Act 2013) to provide greater cohesion through new integrated arrangements for emergency management planning in Victoria at the state, regional and municipal levels.

The principal focus of the amendments is on efficiency and effectiveness, interoperability and integration, the local needs of communities, promoting community resilience and the importance of collaborative emergency management planning.

The legislative changes mean Municipal Councils are no longer solely responsible for the municipal fire management committee and the development of this Plan. The responsibilities of municipal and regional emergency management planning have also evolved.

This change is seen as an opportunity to reset the way the Committee operates and achieves its objectives.

- 1. Review and strengthen the membership of the committee, share responsibilities and build roles
- 2. Promote strong working links with relevant planning committees within the State's emergency management planning framework
- Actively advocate to the State and agencies to support the effective functioning of municipal and regional emergency / fire management planning



Knowledge Sharing

Goal:

Share knowledge and resources across the Committee membership that supports integration and effective fire management outcomes.

Challenge/Opportunity:

Through the membership agencies, the Committee has access to a range of experts and knowledge holders who are undertaking projects, or who have access to information that could support better fire management planning.

This provides an opportunity to actively seek out and share this information to support improved fire management outcomes.

It supports the approach of continuous improvement and lessons learned championed across the emergency management sector and further acknowledged within this Plan and encourages learning from both assurance activities and contemporary good practice.

- Conduct regular sessions that enable sharing of knowledge to help build both awareness and wisdom of fire threats.
- 2. Invite community groups and agencies to regularly present to the committee on aspects of specific roles, functions and projects that intersect with fire management.
- Establish mechanisms that support sharing of knowledge and resources that lead to collaborative tactical integrated fire management planning outcomes.
- Actively share agency risk, response and management data across the membership to improve individual and collective investment and direction.



Shared Capability

Goal:

Strengthen and enhance our shared capability for community-centric fire management outcomes.

Challenge/Opportunity:

Society and the environment are continually changing. Pressures resulting from population growth, development and climate change continue to stretch the capability of communities, agencies and government in preparing for, responding to and recovering from disasters.

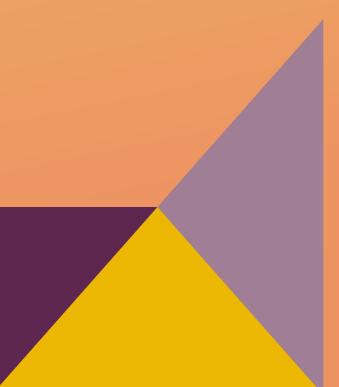
It is important that everyone who lives, works and visits the Cardinia Shire considers the risks and works to build resilience at the individual, family, business, neighbourhood and community level, understanding that managing the risk of fire is a shared responsibility.

The Committee has determined it is important to continually evolve building the capability of its membership agencies and the broader community for fire mitigation and management across a range of risks.

- Investigate ways to enhance community and agency capability and capacity at the local level
- Investigate opportunities to support the application of Indigenous fire and land management practices occurring within the municipality
- Seek out best practice examples of fire risk reduction and innovation in the sector to enhance learning



Part 1 Context and Fire Risk



Environmental Scan

Summary

Cardinia Shire is located south-east of Melbourne. It is part of the Southern Metropolitan Region and is one of 10 'interface municipalities' around the perimeter of metropolitan Melbourne, providing a transition between urban and rural areas.

The municipality features a mix of residential and rural land, and areas of environmental significance.

It can be categorised into three distinct zones: the Dandenong Ranges and the foothills; the Princes Highway and Monash Freeway corridors; and the Koo Wee Rup 'swamp'.

The Shire is bordered by Yarra Ranges Council to the north, Baw Baw Shire Council to the east, South Gippsland Shire to the south-east, Bass Coast Shire to the south, City of Casey to the west and Westernport Bay to the south-west. It also bordered by the Eastern Metropolitan Region to the north.

It has a history of large fires that have spread from neighbouring areas into the Cardinia Shire.

The largest town within the Cardinia Shire is Pakenham. Other townships and localities within the Cardinia Shire include Avonsleigh, Bayles, Beaconsfield, Beaconsfield Upper, Bunyip, Caldermeade, Clematis, Cockatoo, Cora Lynn, Dalmore, Emerald, Garfield, Gembrook, Heath Hill, Iona, Koo Wee Rup, Lang Lang, Maryknoll, Monomeith, Nar Nar Goon, Nangana, Officer, Pakenham, Pakenham South, Pakenham Upper, Tynong and Yannathan.

These towns are surrounded by significant areas of native vegetation, undulating topography and have limitations in terms of reticulated water supply and access and egress. Significant public land assets adjoin the populated areas of the Shire.

Cardinia Shire has seasonal population changes with high tourism areas and high numbers of people travelling out of the area to work.

Attractions such as the Puffing Billy Railway, Emerald Lake Park, Kurth Kiln Regional Park and the Bunyip State Park provide significant tourism throughout the year.

More information is contained within the Cardinia Municipal Emergency Management Plan.

Additionally, an environmental scan of the Southern Metro Region was undertaken in mid-2020 and is available at emv.vic.gov.au



Trends related to fire risk within the municipality broadly encompass the changing climate, the frequency of extreme weather events, increased consequences of urban and peri-urban development including changing demographics and diversity, as well as the change in working habits and locations. Many of these have enduring legacies.

People

Cardinia Shire is one of the fastest growing local government areas in Victoria. According to the 2021 Census, Cardinia's estimated population was 118,194.

The Census indicates that 21,073 people, and 19.3 percent of households in Cardinia speak a language other than English at home. Further, 2.17 percent of people that speak a language other than English indicated they speak English not well, or not at all.

Cardinia Shire is home to approximately 1145 people of Aboriginal and Torres Strait Islander status.

The 2019 Cardinia Shire Liveability Survey found residents were more commonly concerned about bushfires, with 74 percent of respondents saying they were either, very or moderately concerned, compared to 68 percent of respondents in Victoria having a similar response.

Built

Cardinia Shire provides a major transport and energy link between Gippsland and metropolitan Melbourne with the Princes Highway and rail corridor, and the south-eastern transmission lines.

Cardinia Shire's infrastructure includes (but is not limited to):

- A number of gas distribution lines running from East to West providing natural gas to broader Melbourne
- The BassGas Lang Lang gas plant (MHF)
- Main transmission lines from Latrobe Valley power generation to Melbourne
- A boost pump for the desalination plant and associated pipework to provide water to key reservoirs including Cardinia Reservoir
- A passenger and freight train line extending from the eastern border to the western border of the Shire
- Cardinia Reservoir Domestic water supply managed by Melbourne Water
- METRO trains Pakenham East maintenance and stabling yard

Cardinia Shire is one of the fastest growing local government areas in Victoria with a large amount of development occurring. Additionally, the municipality has 76 retirement homes.

Environment

Cardinia Shire includes an area of approximately 1,281 square kilometres. Primary production utilises almost two thirds of land (64.5 percent) and includes fruit and vegetable growing, farming of dairy and beef and small-scale orchards, market gardens and egg producers.

The Koo Wee Rup swamp is a dominant landscape feature. The Heath Hill area is recognised as being of landscape significance by the National Trust. Sea grass, saltmarsh and mangroves collectively make up an internationally significant 'RAMSAR' area along the Shire's coast.

Within the Cardinia Shire there are 22,000 hectares of forested public land and about 55,836 hectares of vegetated private land.

Cardinia's Climate Change Adaptation Strategy indicates the Shire has experienced changes to the intensity of rainfall, an increase to the number of bushfire risk days as well as more severe and frequent storms.

Data provided by CFA indicates that in the five years from 2015, the duration of the Fire Danger Period in Cardinia was 111 days, with the average date of the Fire Danger Period (FDP) starting on December 15. Over the last 10 years, the average length of the FDP for Cardinia has increased by 5 days.

During the period between 21 October 2016 and 30 April 2021, the number of Total Fire Bans declared in the Central Fire Weather District was 18.

At the time of writing the Plan, the last major fire event in Cardinia was the Bunyip Complex event in early March 2019, which resulted in the loss of 29 houses and more than 200 private assets being impacted.

The event was marked by drought conditions with the fire generating a pyro cumulonimbus cloud under forecast Fire Danger Ratings of 'Very High'.

Economy

Cardinia Shire's Gross Regional Product is estimated at \$4.46 billion, which represents 0.94 percent of the state's GSP (Gross State Product). In 2021, the goods-related sector accounted for 42.9 percent of employment in Cardinia Shire.

Education and training remains as the largest employer in the Shire.

Future Trends and Fire Risk

Longer term trends for fire in the municipality focus on the continuing change to climate, the impact and consequences of increasing severe weather events, changing population, demographics and community need.

People

The Victorian Government has nominated Casey–Cardinia as one of five areas around the fringe of metropolitan Melbourne where new housing and population growth is to be concentrated.

The municipality's population is expected to increase by approximately 53,491 over the next 10 years (2031) and 74,054 over the next 20 years (2041), to a total of approximately 200,238².

While culturally and linguistically diverse communities comprise only a small proportion of the overall Cardinia Shire population, this number is projected to increase in line with the current population growth.

The Department of Environment, Land, Water and Planning (DELWP) Bushfire Management Strategy in 2020 noted that climate change is predicted to extend the area that experiences extreme weather conditions, increasing the frequency of these for communities that may have never, or have only infrequently, experienced such conditions.

Community responses to the 2019 Liveability Survey identified that 74 percent of Cardinia residents have concerns about bushfires over the next 10 years. There were higher instances of "very concerned" recorded for severe bushfires in the ranges.

Environment

Victoria's climate is becoming hotter and drier. The latest climate projections for Victoria suggest that by the 2050s under a high emissions future scenario, Victoria will have to cope with more extreme heat and longer droughts, as well as increased risks of extreme bushfires, storms and floods.

According to CSIRO analysis, there is high confidence that climate change will result in more incidences of severe bushfire danger.

The Cardinia Climate Change Adaptation Strategy 2023-33 says that by 2090, severe fire danger days are projected to become twice as frequent under an RCP (Representation Concentration Pathways) 8.5 high emissions scenario.

Additionally, Cardinia Shire Council has a ten-year Biolink Plan in place to increase vegetation for wildlife habitats and reduce the impacts of land-use changes.

² Cardinia Shire Annual Report 2020-2021

Built

In line with Victorian Government plans, the Casey and Cardinia area is one of 5 regions around the fringe of metropolitan Melbourne where new housing and population growth is to be concentrated, this is likely to create extra pressure on the roads, new residents without fire knowledge or history, and additional medium residential development.

Additionally, as outlined in the Cardinia Shire 2020-2021 Annual Report, Council continues to advocate to the Victorian Government to identify a suitable site in the southeast for an airport development, which would also boost employment opportunities, investment and visitation to the region.

As the Cardinia Climate Change Adaptation Strategy 2023-33 notes, increased incidence of bushfire weather and the number of severe fire weather days could result in direct damage to essential infrastructure as well as increased bushfire-related air pollution and dust impacting building ventilation systems and the health and safety of the Cardinia Shire community.

Economy

Population growth will continue to put pressure on services and infrastructure available in the municipality.

The impact of bushfire on communities is more than financial, but a major fire in the Shire would have a significant economic impact across business, tourism and infrastructure.

The cost of managing emergencies in Victoria, and nationally, is expected to increase significantly in the future.

The total economic cost of natural disasters in Victoria will reach \$3.2 billion a year by 2050, a growth rate of 3.6 percent per year according to the 2017 Building Resilience to Natural Disasters in Our States and Territories report.

Insights into Cardinia's Fire Risk

Overview

The fire risk across Cardinia can be divided up into five broad categories and geographical areas. These are the parks, hills communities, foothills communities, urban and urban-rural interface communities, and the small town and rural farming communities.

The **Bunyip State Park** is located in the foothills of the Great Dividing Range and is approximately 16,600 hectares in size. It creates a distinctive bush atmosphere. Foothill forests of Silvertop and Messmate are found in the higher elevated areas with Mountain Ash growing on the steep southern slopes in the northern end of the park. Swamp heath land covers much of the low poorly drained areas where heath and Prickly Tea-Tree are found. Mixed pastureland abuts the southern slopes of the State Park which leads into the communities of Maryknoll, Tynong North, Tonimbuk and Garfield North.

The **Kurth Kiln Regional Park** is approximately 3,500 hectares in size and is also located northeast of the Bunyip State Park. The park has several plant communities ranging from mountain ash forest and riparian forest to shrubby foothill forest and swamp heathland. Both the Bunyip State Park and Kurth Kiln Regional Park are managed by Parks Victoria.

In the **hills communities**, there are several small towns and many pockets of dwellings that exist within and around major tracts of native eucalypt forest. Stringybark, messmate canopies with thick elevated understorey with high bark loadings and heavy to extreme ground fuels are commonplace.

In the **foothills communities**, there is a mixture of fuel types ranging from tracts of bushland to open paddocks and grass which are used for the grazing of livestock. The bushland is mainly stringybark with large stands of peppermint gums. The understorey is a mix of banksia, prickly mosses and native grasses.

The urban, and urban rural interface communities are expanding quickly. A significant urban / rural interface exists approximately 1 - 2 km north of the Princes Hwy between Beaconsfield and Pakenham East, a stretch of approximately 18km. The grass fuel load often remains higher in this area due to lower numbers of livestock and reduced levels of hay bailing on properties in the range of 2 - 10 hectares.

The small town and rural farming communities are relatively flat and are mainly subject to running grassfires. Fuel loads in the latter half of summer are usually low due to livestock grazing. There are some small pockets of bush in and around Lang Lang which carry small size trees and heathland like scrub.





Cardinia Shire has experienced a number of major structure fires and bushfires over the years.



Bushfire

Bushfires spread to the Koo Wee Rup swamp from other parts of the State in February, resulting in the loss of crops, fences, houses and tea tree. The extremely dry underlying peat soil, with its highly organic content, caught fire and burnt beneath the surface for months.

1906

Widespread Victorian Bushfires

Throughout January 1906 fires raged across Victoria impacting into Cardinia Shire. Temperatures were extraordinarily high.



Black Friday Bushfires

The Black Friday bushfires spread across many parts of Victoria. In Cardinia Shire, the fires burned in Bunyip State Park near Gembrook and Tonimbuk.

Ash Wednesday Bushfire

On 16 February, over 100 fires burned 210,000 hectares and 47 people died. In Cardinia Shire, 27 people died in Beaconsfield Upper and Cockatoo, more than 500 people lost their homes and more than 10,000 hectares burned.



Bushfire

In April, a bushfire in the Bunyip State Forest burned approximately 475 hectares near Tynong North. No lives, stock or assets were lost. 30 hectares within the Bunyip State Park were also impacted.



Black Saturday Bushfires

The Black Saturday bushfires over January and February 2009 caused state-wide, longterm devastation. The Bunyip State Park Fires started on 4 February, destroyed one house, outbuildings and a factory. Unknown numbers of stock were lost. The fire burnt a total of 26,440 hectares, including 45 percent of the Bunyip State Park.

2015

Maryknoll Bushfire

A small fire started in Maryknoll in October and impacted several structures. Evacuation of the town was organised but called off once the fire was controlled.



Pakenham Structure Fire

The Pakenham Hotel was significantly damaged by fire.



Gembrook Structure Fire

The Gembrook Hotel was significantly damaged by fire.

2019

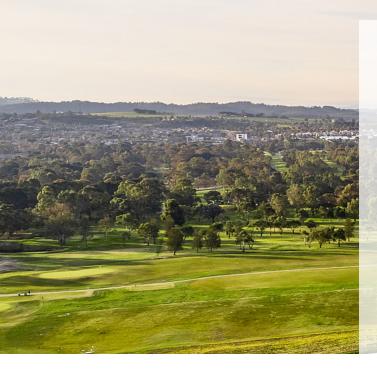
Bunyip State Park – Bushfire

The Bunyip Complex Fires directly affected the communities of Tynong North, Garfield North, Bunyip North, and Tonimbuk. 29 houses were destroyed. A separate fire destroyed two houses at Yinnar South.

2019

Pakenham Structure Fire

This fire occurred in a residential aged care facility and required the evacuation of approximately 35 residents. One resident was hospitalised with minor burns to hands. It was a major event that involved the re-location of an entire floor of residents.

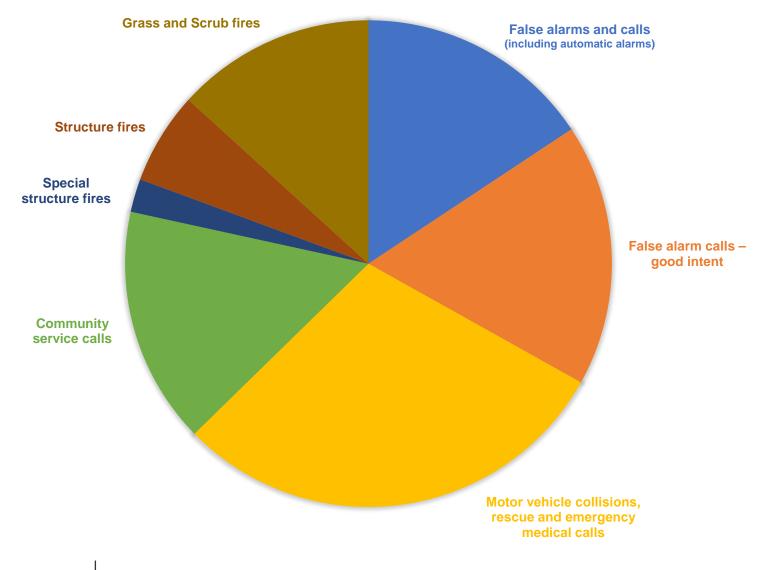


Incidents within Cardinia Shire

The following data has been provided by CFA as part of the risk assessment process for the development of this Plan. It provides a snapshot of incidents responded to within the Cardinia local government area.

From 1 January 2015 to 31 December 2021, CFA responded to a total of 8,031 incidents in the Shire.

This pie chart below provides a breakdown of the incidents by type reported by the primary CFA brigade that responded.

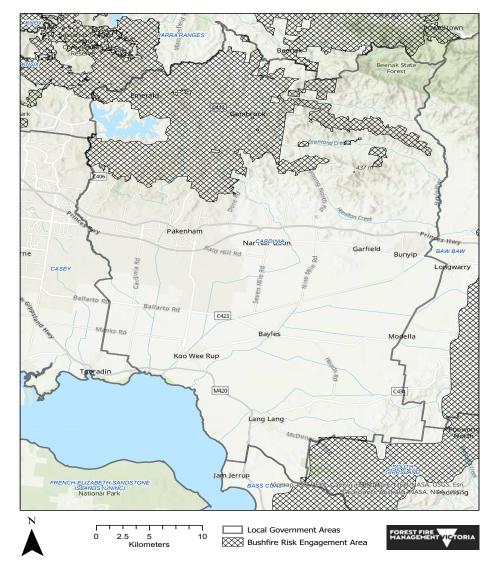


Bushfire and Grassfire

The Community Emergency Response Assessment (CERA) process, CFA incident snapshot and history of significant fire all indicate that bushfire and grassfire remain a significant risk to the Cardinia Shire.

This is due to its landscape, topography, the large number of people living in and visiting high fire risk locations during the Fire Danger Period and the devastating consequences that characterise some of the more significant fires in the municipality.

The map below (figure 1) indicates the Bushfire Risk Engagement Areas (BREAs) for Cardinia developed as part of the 2020 Bushfire Management Strategy (Metropolitan) which covers both private and public land.



Cardinia Shire Council Bushfire Risk Engagement Areas

Figure 1

Essential Infrastructure

Large bushfires and to a lesser extent grassfires in Cardinia Shire have the potential to severely impact essential infrastructure. This can lead to secondary consequences that severely impact environment, community, services and business more broadly than the area directly impacted by fire.

Essential infrastructure is increasingly interconnected and interdependent, meaning disruption to one essential service can have consequences for multiple sectors and society in general.

Essential infrastructure includes those physical facilities, supply chains, systems, assets, information technologies and communication networks which if destroyed, degraded, or rendered unavailable for protracted periods would significantly impact on the social or economic wellbeing of the community.

Figure 2 over the page shows an example of the consequential impact of fire within the Shire.

Further information can be found in the Municipal Emergency Management Plan and the Southern Metro Environmental Scan.

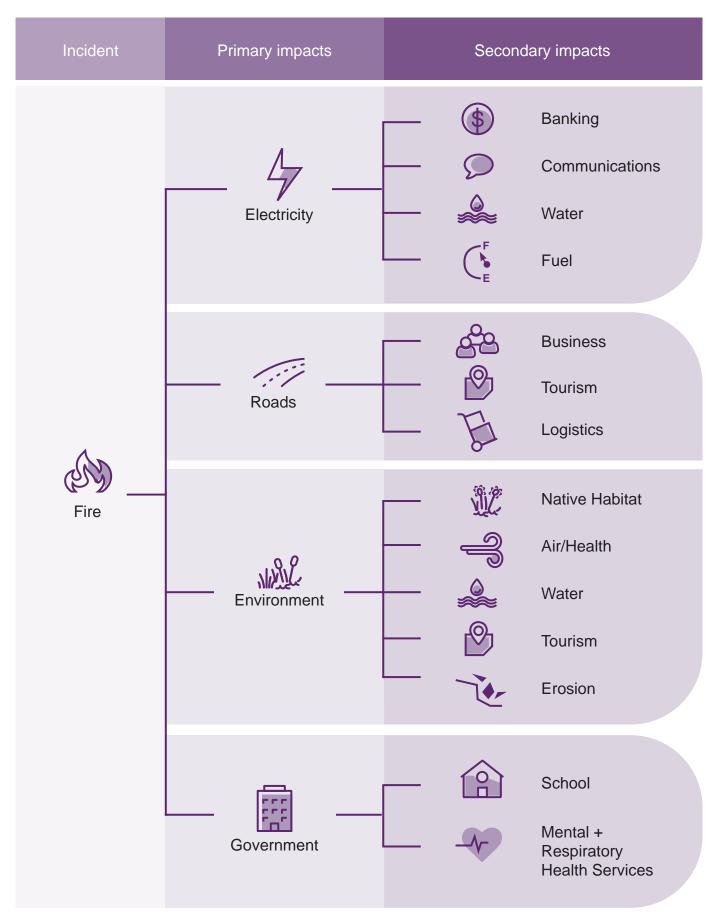


Figure 2

Globally, governments tend to under-invest in mitigation measures and over-invest in disaster response.

Every disaster experiences direct or indirect losses that can have monetary or non-monetary value.

The Australian bushfires in 2019-20 left a devastating impact on communities, through loss of lives, destruction to homes, farmland, infrastructure, crops and conservation land and the corresponding impact on livelihoods. As at May 2020, the Insurance Council of Australia had estimated the total insurance loss attributed to the bushfires nationwide to be \$2.3 billion with over 38,000 claims.

According to the CSIRO 2022 global megatrends report, the cost of natural disasters in Australia is projected to reach \$39.3 billion per year by 2050, at the same time as insurance premiums are either rising, or hard-hit households are forgoing it.

Risk mitigation can reduce the costs of fires by reducing the likelihood of bushfires starting in the first place, and by reducing the consequences or impacts of bushfires when they do occur.

Research undertaken by the Australian Business Roundtable for Disaster Resilience and Safer Communities in 2013 found, for particular events, that for every dollar spent on disaster mitigation between three and eight dollars is saved in terms of damages avoided.

In An Unmitigated Disaster: Shifting from Response and Recovery to Mitigation for an Insurable Future, authors Eliza de Vet et al in their review found that, unlike post-disaster response and recovery, investment in mitigation measures works to intercept and lessen the potential impact before damage is done.

This extends to reducing the impact of physical and emotional trauma through damage to, or erasure of, local environments and livelihoods, social relations, and daily routines, which aid everyday meaning-making and a sense of security.

The authors also highlighted that the implementation of mitigation measures would likely improve insurance affordability and provide insurance options where they had previously been unavailable.

The value of mitigation activities is more than economic, given the long-term nature of environmental, infrastructure and social recovery often required after major disasters.



Community and Mitigation

There is a limit to the capacity of agencies and government in their collective planning to effectively mitigate all risk.

It is important that everyone who lives, works and visits the Cardinia Shire considers the risks and works to build resilience at the individual, family, business, neighbourhood and community level, understanding that managing the risk of fire is a shared responsibility.

More resilient communities:

- Are mindful of the risks that may impact them and their vulnerabilities
- Use their abilities, experience and resources to prepare for, and manage the consequences of emergencies
- Work together to support each other and emergency service organisations before, during and after emergencies

Businesses, agencies, government and community all have a role to play in risk mitigation and management.

Examples of where the community has a role to play include:

- Understanding their own risk
- Planning for their own circumstances in the event of fire
- Recognising and mitigating the risk on private landholdings including properties and structures
- Supporting friends and neighbours to reduce their exposure and risk

Major Fire Hazards

Given Cardinia's landscape and demographics, the following hazards were determined by the Committee to be of greatest risk to the community.

- Bushfire
- Grassfire
- Structure House and high density residential
- Transport (Roads and Rail) Fire

The descriptions in the next section provide a snapshot of the hazard, consequences, relevant agencies, mitigation activities or programs in place and community actions.

Mitigation actions are guided by broad range of programs, plans and documents^{*}. Some of these plans can be found in Appendix 3, along with reference to some of the response plans in place.

*The list of mitigation and programs used in the Hazard section is representative, not exhaustive.

Bushfire



Description

Bushfire is assessed as a significant risk in Victoria's State-level emergency risk assessment, Emergency Risks in Victoria, published in 2020. It is a risk across the municipality.

Bushfires can start for many reasons, including:

- Accidents such as mishandled campfires or barbecues
- Malicious activity such as arson
- Infrastructure incidents such as sparks from electricity lines or rail transport
- Natural phenomena such as lightning

Hot, dry and windy weather are ideal conditions for bushfires to start and spread.

Consequences

Consequences of bushfires are also potentially significant and varied including:

- Human (loss of life, serious injury, respiratory impacts)
- Environmental impacts (loss of vegetation, biodiversity, cultural values)
- Built form (damage to onsite and neighbouring property and infrastructure)
- Economic (business interruptions, loss of tourism, assets and livestock)

Relevant agencies

- Fire Rescue Victoria (FRV)
- Department of Environment, Land, Water and Planning (DELWP)
- Forest Fire Management Victoria (FFMVic)
- Parks Victoria
- Country Fire Authority (CFA)
- Victoria Police
- Cardinia Shire Council
- Department of Transport
- Melbourne Water

What is being done

Bushfire mitigation strategies, controls and assessments include:

- Bushfire Management Strategy 2020
- Victorian Fire Risk Register
- Land use planning controls:
 - Bushfire Management Overlay
 - Bushfire Risk Engagement Areas

Programs and plans include:

- Community Safety Education programs (FRV and CFA)
- Fuel management projects Joint Fuel Management Plan
- Roadside fuel management
- Safer Together Programs including the Bushfire prepare program
- Fire Infrastructure Grant Scheme
- Total Fire Ban and Fire Danger Period requirements
- Agency operational plans including local CFA plans
- Evacuation and Traffic Management guidelines (VicPol)
- Advertising campaigns (Vic Government)

What community members can do

People living in high risk fire areas should actively seek information from agencies in relation to their fire risk and prepare fire plans appropriate to their circumstances.

A well thought out bushfire survival plan can help if you live, or holiday in, high-risk bushfire areas of Victoria. People living near areas of bushfire risk need to understand their bushfire risk and know what to do if a fire starts near them or if conditions are forecast that would present a high risk to them.

They should:

- Monitor conditions outside. Access information from VicEmergency App, website, emergency broadcasters
- Follow all directions from emergency services
- Act early, even a warning hasn't been received. Plan to leave high risk bushfire areas early on high fire danger days.
- Understand the fire danger rating system and know the triggers for action

Prepare through the Bushfire Prepare Program or CFA's range of community programs including Fire Preparation Meetings or Community Fireguard programs, (available for residents in high-risk bush or grass fire areas). These are designed to help assist with:

- 1. Planning for a range of scenarios
- 2. Making informed decisions when it counts
- 3. Maintaining a fire smart house and garden
- 4. Working together with community to reduce everyone's bushfire risk

Further information on how to prepare for bushfires www.emergency.vic.gov.au or www.cfa.vic.gov.au

Grassfire



Description

Hot, dry and windy weather are ideal conditions for grassfires to start and spread. Grassfires can start in urban areas and travel very quickly. Grassfires can ignite from:

- Natural phenomena such as lightning
- Equipment including vehicles and machinery sparks
- Malicious activity such as fire-starting
- Infrastructure incidents such as sparks from electricity lines or rail transport

Consequences

Consequences of grassfires are varied, including:

- Human (loss of life, serious injury, respiratory impacts)
- Environmental impacts (loss of vegetation and biodiversity)
- Built form (damage to onsite and neighbouring property and infrastructure)
- Economic (business interruptions, loss of tourism, assets and livestock)

Relevant agencies

- FRV
- DELWP
- FFMVic
- Parks Victoria
- CFA
- Victoria Police
- Cardinia Shire Council

What is being done

A number of strategies, controls and assessments currently exist:

- Bushfire Management Strategy 2020
- Victorian Fire Risk Register
- Land use planning controls:
 - Bushfire Management Overlay
 - Bushfire Risk Engagement Areas

Programs and plans include:

- FRV and CFA Community Safety Education programs
- Fuel Management Programs Joint Fuel Management Plan
- Roadside fuel management
- Fire Infrastructure Grants Scheme
- Agency operational plans including local CFA plans
- Evacuation and Traffic Management guidelines
- Total Fire Ban and Fire Danger Period requirements
- Victorian Government advertising campaigns

What community members can do

People living in high risk fire areas should actively seek information from agencies in relation to their fire risk and prepare fire plans appropriate to their circumstances.

Grassfires can start and move quickly, including in urban areas. Many Victorians live next to parks, reserves, open grasslands, paddocks or bush, even in urban areas.

Prepare through the Bushfire Prepare Program or CFA's range of community programs including Fire Preparation Meetings or Community Fireguard, available for residents in high-risk bush or grass fire areas.

People living near areas of grassfire risk need to understand their grassfire risk and know what to do if a grassfire starts near them. They should:

- Monitor conditions outside. Access information from VicEmergency App, website, emergency broadcasters
- Follow all directions from emergency services
- Act early, even if a warning hasn't been received

If a grassfire starts on the urban fringe and residents are at home, they should:

- If residing next to grassland and a grassfire starts, walk at least two streets back from the fire
- If residing two streets or more from grassland and a grassfire starts, stay in home, and follow all directions from emergency services
- Keep all windows and doors closed and place towels or blankets around windowsills and door gaps. Do not use the air conditioner

Further information on how to prepare for a grass fire visit www.emergency.vic.gov.au

Structure -

House and high density residential



Description

The municipality has a range of high-density residential buildings including aged care facilities and apartment complexes.

On average there are 3,000 house fires each year in Victoria, and a majority of these are preventable.

Common reasons for residential fires include:

- Unattended cooking
- Electrical faults
- Improper use of electrical items including overloading power boards and/or leaving appliances on surfaces that can burn
- Cigarettes, candles, incense, and oil burners left unattended
- Storage of combustible materials on balconies

Consequences

Consequences can include:

- Human (loss of life, serious injury, displacement from home)
- Built form (damage to property and neighbouring property)
- Environmental impacts (damage to local vegetation, run off into waterways)
- Business disruption (damage to businesses in the building e.g., aged care facilities, ground floor restaurants)

Relevant agencies

- FRV
- CFA
- Victoria Police
- Victorian Building Authority (VBA)
- Cardinia Shire Council
- Office of Housing (DFFH)

What is being done

A number of strategies, controls and assessments currently exist:

- Community education programs
- Multicultural programs
- Specific building fire plans
- Councils have responsibility under the Building Act 1993 for the enforcement of building safety
- Owners are responsible under Building Regulations 2018 to ensure that essential safety measures including exit doors and fire sprinklers are maintained
- Landlords are responsible for ensuring rental properties have smoke alarms
- The Owners Corporation Act 2006 states that the owners corporation must, among other things, manage, administer, repair and maintain the common property.

What community members can do

Once a fire starts it can spread rapidly putting you and your loved ones at risk. How you can protect yourself, your family and your home:

- Have a working smoke alarm and test it regularly
- Look out for fire hazards in the home
- Have a home fire escape plan and practice it regularly
- If a fire occurs in your home, get out, stay out and call Triple Zero (000)
- Report residential hoarding to your local Council
- Clean up and around the property and ensure equipment including barbeques are in good working order
- Ensure children are educated on fire safety

The added dangers associated with evacuating a building mean it is critical to plan for and to know how to respond quickly and safely if there is a fire or other emergency.

- Actively practice building evacuation drills and assist building managers by monitoring any damage to building safety equipment.
- Ensure that all exits and paths of travel to exits are kept readily accessible and clear of obstructions
- Store combustible materials appropriately

For more information on safety in apartments and the home visit www.frv.vic.gov.au or www.cfa.vic.gov.au

Transport (Roads and Rail) Fire



Description

Road and rail fire can be caused by:

- Traffic accident, mechanical failure or human error, fatigue
- Mechanical failure or faulty equipment
- Human error or fatigue
- Littering (cigarette butts)
- Environmental events such as severe storms or lightning
- Malicious events including arson

Consequences

Consequences can include:

- Human (loss of life, serious injury)
- Environmental (toxic plume, runoff into waterways)
- Social (impact on access to public and private transportation)
- Built form (damage to property and infrastructure)
- Economic (widespread business interruption, supply chain disruption)

Relevant agencies

- FRV
- CFA
- Department of Transport
- Victoria Police
- Cardinia Shire Council

What is being done

A number of strategies, controls and assessments currently exist:

- Victorian Road Safety Strategy 2021-2030
- Bus Safety Act 2009
- Transport Accident Act
- Roadside fuel management
- Driver education programs and advertising campaigns

What community members can do

- Be aware of fire in the area by following emergency services information sources including local emergency broadcasters and the VicEmergency app.
- Monitor the VicTraffic app for road closures and traffic alerts.
- Report road hazards to the Department of Transport or Cardinia Shire Council.
- Report dangerous driving to the Police, including reckless behavior.
- TAC provides information for all types of road users on how to drive safe and prevent accidents.



Part 2

Municipal Fire Management Planning Process

Municipal Fire Management Planning Committee (MFMPC)

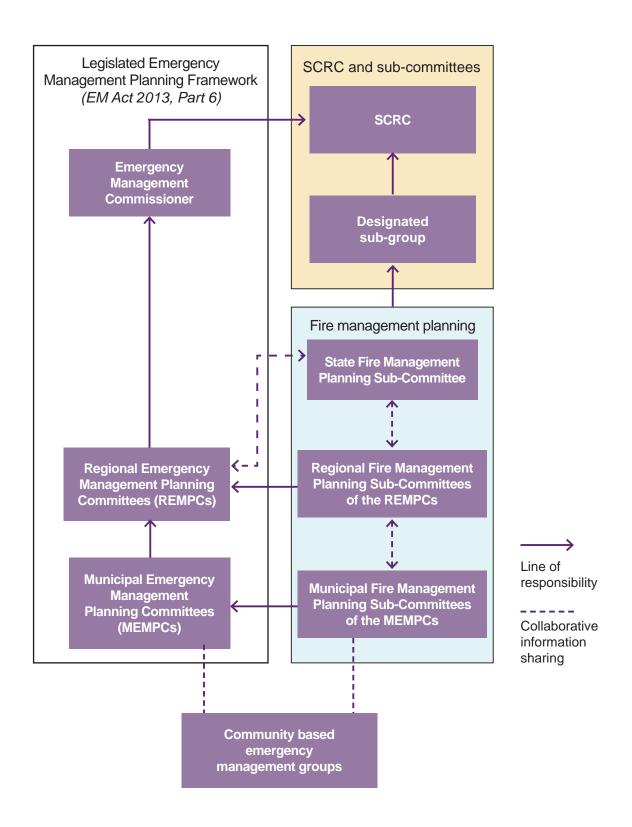
In 2018 the Emergency Management Legislation Amendment Act amended the Emergency Management Act 2013 (EM Act 2013) to provide greater cohesion through new integrated arrangements for emergency management planning in Victoria at the state, regional and municipal levels.

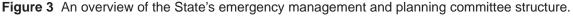
The principal focus of the amendments is on efficiency and effectiveness, interoperability and integration, the local needs of communities, promoting community resilience and the importance of collaborative emergency management planning.

Section 59 of the Emergency Management Act 2013 provides the authority under which Municipal Emergency Management Planning Committees (MEMPC) operate as a multi-agency collaboration whose members bring organisation, industry and personal expertise to the task of emergency management planning.

Under this legislation, municipal fire management planning committees are sub-committees of the respective Municipal Emergency Management Planning Committee. The Municipal Fire Management Planning Committee (MFMPC) informs the MEMPC of emerging risks and changes in the municipality that may require attention.

Municipal Fire Management Planning Committee members work together to achieve a consistent, effective, risk-based approach for fire management planning.





Municipal Fire Management Planning Committee membership:

- Department of Environment, Land Water and Planning (represented by FFMVic personnel)
- Fire Rescue Victoria
- CFA
- Parks Victoria
- Melbourne Water
- Cardinia Shire Council
- Victoria Police
- Department of Transport

The Cardinia Municipal Fire Management Planning Committee Terms of Reference contains more information.

Supporting community in its role

The Municipal Fire Management Planning Committee and its member agencies have a role to play in supporting communities to build capacity and resilience. The sections Major Fire Hazards and Community and Fire Mitigation within this Plan, as well the actions and tasks within the Action Plan speak to this.

Victoria's emergency management planning arrangements allow communities to undertake their own localised planning and connect their plans into Victoria's emergency management planning framework.

Examples of groups undertaking activities in reducing community fire risks include Neighbourhood Houses, Community Fireguard Groups and organisations that support community relief.

Support can be made available for groups that may wish to explore developing a community level plan that assists in building community preparedness and resilience to emergencies.

Establishing mechanisms and networks to integrate fire management planning while acknowledging the legislative responsibilities of all stakeholders.

Plan assurance and approval

Under the planning arrangements, the Municipal Emergency Management Planning Committee is responsible for assuring any of its sub-plans, of which this Plan is one.

This Plan has been prepared in accordance with the EM Act 2013 and State Fire Management Planning Guidance to Regional and Municipal Fire Management Planning Committees.

A Statement of Assurance (Appendix 1) has been prepared and submitted to the Southern Metropolitan Region Emergency Management Planning Committee for Plan approval. This Plan comes into effect when it is published and remains in effect until superseded by an approved and published update.

To ensure the Cardinia Municipal Fire Management Plan provides for a current integrated, coordinated and comprehensive approach to effective fire management planning, it is to be reviewed at least every three years.

Risk Assessment

The Municipal Emergency Management Planning Committee (MEMPC) used a risk assessment process consistent with ISO31000. This process was facilitated by the Victoria State Emergency Service (VICSES) and is known as the Community Emergency Risk Assessment (CERA).

The CERA approach aims to understand the likely impacts of a range of emergency scenarios upon community assets, values and functions.

The CERA process for the Cardinia Shire was undertaken in June 2022. It identified that the residual risk rating for grassfire/bushfire remained high. Structure fire was removed from the CERA risks because it is considered business as usual for agencies.

Structure fire is captured in this Plan along with other fire related hazards that have been reviewed by the fire management committee. The Committee has recorded relevant preparations, mitigations and provided advice for further community action and education.

During the development of this Plan, Committee members built on the CERA process to identify and further refine the high-level fire risks of specific relevance to the Shire. This has helped to determine the focus areas of this Plan.

The Committee and any working groups of this Committee will undertake a continual process to identify and address fire risks within the municipality using data around emerging risks, discussions and reviews.

This will further inform actions undertaken by the Committee and its members.

Plan Development Process

The Cardinia Municipal Fire Management Planning Committee was supported by ResilientCo in the development of this Plan.

A smaller, representative working group was formed to guide the development process of the Plan on behalf of the Committee.

As part of the development, the working group has reviewed and sought to align with existing legislation, frameworks and procedures including the:

- A. Guidelines for preparing State, Regional and Municipal Emergency Management Plans
- B. Guidance to Regional and Municipal Fire Management Planning Committees
- C. Victorian Preparedness Framework
- D. Community Resilience Framework for Emergency Management
- E. Assurance Framework for Emergency Management
- F. National Emergency Risk Management Guidelines
- G. Community Emergency Risk Assessment (CERA)

A workshop was undertaken with the Cardinia Municipal Fire Management Planning Committee members and a broader stakeholder group to explore the following four areas through a fire management lens:

1. History of Fire

The group undertook an exercise to explore and discuss significant fire events that have occurred not only within the municipality and the region but also nationally and internationally.

2. Environmental Scan

The environmental scan explored factors impacting fire management in its current and future states through four areas:

- a. People, society and culture
- b. Built and essential infrastructure
- c. Environment
- d. Economy and political arrangements

3. Threats, Opportunities Weakness Strengths (TOWS) Analysis

The committee then undertook a TOWS analysis that explored the committee's role and function. It interrogated its, threats, opportunities, weaknesses and strengths which allowed the findings to unpack a number of actions to assist in further advancing its capacity to strengthen and deliver on its function as a committee.

4. High Level Risk Assessment

The fourth section of the workshop completed a high-level risk assessment that discussed and explored the relevant fire risks that are present within the municipality. The session explored existing and emerging mitigation strategies and actions to reduce the likelihood and consequence of fire.

Monitoring, Evaluation, and Review Process

This Plan will be reviewed every three years to ensure it is current, integrated, coordinated and comprehensive.



The Action Plan will be periodically updated to reflect the current status of identified risks as well as to reflect emerging risks and any strategies required to address them.

As well as having a standing agenda item at MFMPC meetings, the Committee will periodically report to the Municipal Emergency Management Planning Committee on the Actions, and the Tasks identified against them.

Additionally, the Cardinia MFMPC supports the State's commitment to a culture of continuous improvement. This approach is outlined in the Emergency Management Victoria 2015 EM-LEARN Framework and is acquitted through:

- Sharing lessons, including positive actions, to sustain and identify areas of improvement
- Encouraging learning from both assurance activities and contemporary good practice
- Recognising that identifying and implementing sustainable solutions takes time, resources and opportunity

Appendices

Appendix 1 - Statement of Assurance

Municipal Emergency Management Planning Statement of Assurance

Part 2: Certificate of Assurance for the Cardinia Shire Fire Municipal Emergency Management Plan sub-plan

Plan Preparer: Municipal Fire Management Planning Sub Committee - Cardinia Shire MEMPC

I certify that the attached Municipal Emergency Management Plan sub-plan complies with the requirements of the *Emergency Management Act 2013*, including having regard to any relevant guidelines issued under section 77 of that Act, to the extent outlined in the attached checklist.

The last review of the plan was conducted on 7/12/2022

(For MEMP and MEMP sub-plans) On behalf of the Municipal Emergency

Management Planning Committee:

SM

Stewart Matulis Chair, Municipal Emergency Management Planning Committee 7/03/2023 (For sub-plans only, if prepared by an agency on behalf of the MEMPC)

Nominated representative of preparer:

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Appendix 2 - Acronyms

This section contains acronyms that may be used in this Plan.

CERA	Community Emergency Risk Assessment
CFA	Country Fire Authority
DELWP	Department of Environment, Land, Water and Planning (VIC)
EMV	Emergency Management Victoria
EPA	Environment Protection Authority
FFMVic	Forest Fire Management Victoria
FRV	Fire Rescue Victoria
LGA	Local Government Area
MEMPC	Municipal Emergency Management Planning Committee
MFMPC	Municipal Fire Management Planning Committee
MFMP	Municipal Fire Management Plan
VBA	Victorian Building Authority

Appendix 3 - Mitigation and Response Plans

Mitigation Plans

Mitigation actions are guided by the following plans:

Plan name	Owner/s	Location
Joint Fuel Management Plan (JFMP)	Multi-agency (FFMV-led)	https://www.ffm.vic.gov.au/bushfire- fuel-and-risk-management/joint-fuel- management-program
Metropolitan Bushfire Management Strategy	Multi-agency (FFMV-led)	https://www.safertogether.vic.gov.au/ data/assets/pdf_file/0026/493532/DELWP_ BushfireManagementStrategies_2020_ Metro_PortPhillip_rr.pdf
Roadside Fuel Management Plan (in development)	MFMPC	Cardinia Shire Council SharePoint
Council Reserves Fire Management Plans	Cardinia Shire Council	Cardinia Shire Council SharePoint
Council Bushfire Fuel Breaks Management Plan (in development)	Cardinia Shire Council	Cardinia Shire Council SharePoint

Response Plans

Response actions are guided by the following plans:

Plan name	Owner/s	Location
CFA Local Response Plans (Stored in EM-COP) Cockatoo Dandenong Ranges Garfield North/Tonimbuk Gembrook Harkaway (City of Casey) Maryknoll Pakenham Upper Upper Beaconsfield	CFA	https://files-cfa.em.vic.gov.au/LRP/EMV- LRP-Menu.htm
DELWP Readiness and Response Plans (Tarnook)	DELWP	Tarnook https://tarnook.ffm.vic.gov.au/ library/Documents
Traffic Management and Evacuation Plans	VicPol	Vicpol IT systems/EMCOP/Crisisworks
South Metro Regional plans (EM-COP link)	Multi-agency	https://files-em.em.vic.gov.au/OpFac/SMR/ SMR-Plans.htm?v=1
Cardinia Shire Fire Management Resource Guide (Fire Access Tracks and Firefighting water tanks)	Council	Hard copies, EMCOP and Council SharePoint

Appendix 4 - Support Material

Support material	Author
Emergency Management Act 2013	Issued by the Victorian Government
Lessons management framework (EM- LEARN)	Emergency Management Victoria
Guidelines for preparing State, Regional and Municipal Emergency Management Plans	Issued by the Minister for Emergency Services
Guidance to Regional and Municipal Fire Management Planning Committees	Emergency Management Victoria
Victorian Preparedness Framework	Emergency Management Victoria
Community Resilience Framework for Emergency Management	Emergency Management Victoria
Assurance Framework for Emergency Management	Emergency Management Victoria
National Emergency Risk Management Guidelines	Emergency Management Australia
Community Emergency Risk Assessment (CERA)	State Emergency Service Victoria
Southern Metro Regional Emergency Management Plan	Emergency Management Victoria
Southern Metro Region Environmental Scan	Emergency Management Victoria
Emergency Risks in Victoria	Emergency Management Victoria
Cardinia Shire's Liveability Plan 2017-2029	Cardinia Shire Council
Cardinia Shire Council Annual Report 2020-2021	Cardinia Shire Council

Cardinia Municipal Fire Management Plan 2022 - 2025