

Cardinia Municipal Fire Management Plan

Produced in partnership with the Cardinia Municipal Fire Management Planning Committee

Caveat

Disclaimer

This Plan provides a Framework for Municipal Fire Management Planning for the geographic region encapsulated by the Cardinia Shire Council.

The Country Fire Authority (CFA) utilises this Plan as a tool to its Fire Management Planning and Emergency Management Arrangements for the Cardinia Local Government Area, as part of its responsibilities for Fire Management Planning for the State of Victoria.

All risk and planning for bushfire specific information; including maps and tabled appendices; contained in this document have been developed and informed by the Victorian Fire Risk Register (VFRR) bushfire application, which is a systematic process that identifies assets at risk from bushfire, assesses the level of risk to assets and highlights the risk mitigation treatments currently in place, along with the responsible agencies for implementing the identified treatments.

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Authorising environment

This document has undergone extensive community consultation, been considered by Cardinia Shire Council, supported by the Southern Metropolitan Region Fire Management Planning Committee and endorsed by the Cardinia Municipal Emergency Management Planning Committee.

Endorsed by:

A handwritten signature in blue ink, appearing to read 'J. Hill', is written over a faint, larger blue signature that reads 'John Hill'.

Cardinia Municipal Emergency Management Planning Committee
September 2016

Municipal Fire Management Plan

This Municipal Fire Management Plan has been prepared by the Cardinia Municipal Fire Management Planning Committee pursuant to Section 55A of the *Country Fire Authority Act 1958*, *Emergency Management Act 1986* and *Emergency Management Act 2013*.

The Municipal Fire Management Plan will be regularly reviewed and updated to ensure it contains the most up to date information.

At present the legislative framework around Municipal Fire Management Planning is currently being reviewed. A full review of this plan will be undertaken once this review has been completed and further advice from the Victorian State Government is provided.

Amendment History

No.	Version	Date	Amendment details	Made by
1	0.1	7 March 16	Draft plan developed from existing 2012 plan and applied new Council style guide. Updates to department names and NSP locations.	Andrew Ganey
2	0.2	31 March 16	Reviewed document and developed appendices from existing 2012 MFMP	Tony Pinelli
3	0.3	12 April 16	General amendments and formatting	Tony Pinelli
4	0.4	14 April 16	Formatting on appendices	Tony Pinelli
5	0.5	15 April 16	Amendments to Appendix C	Tony Pinelli
6	0.6	10 May 16	Plan tabled at MFMP and feedback collected	Andrew Ganey
7	0.7	1 July 16	Inserted VFRR data into appendices	Sarah Peachey
8	0.8	23 July 16	Plan updated as per feedback from CFA and amended appendices formatting	Tony Pinelli
9	1	10 August 16	Plan endorsed by MFMP	Cardinia MFMP
10	1.1	19 August 16	'Warnings' and 'Evacuations' sections moved Minor updates to agency plan names and descriptions Restructure of Appendix items Update of VFRR data Update to Multi-agency collaboration plan	Andrew Ganey
11	1.2	13 September 2016	Inclusion of paragraph clarifying the status of review (see "Municipal Fire Management Plan" section). Plan endorsed by MEMPC	Andrew Ganey

Statutory framework for municipal fire management planning

The *Emergency Management Act 1986* provides the emergency management framework for the State of Victoria. Its objectives are “to ensure that the components of emergency management are organised within a structure which facilitates planning, preparedness, operational coordination and community participation.”

This includes responsibilities for the prevention of, response to and recovery from emergencies at the State, Regional and Municipal levels.

Section 20 of the Act specifies the responsibilities of Local Government Authorities (Municipal Councils) in connection with emergency management. These responsibilities include the preparation and maintenance of a municipal emergency management plan that address the geographic area of the Municipality.

The Municipal Emergency Management Plan (MEMP) documents the outcomes of the planning process conducted by the Municipal Emergency Management Planning Committee (MEMPC). The MEMPC is a multi-agency committee tasked with the development and maintenance of the MEMP for consideration by the Municipal Council.

The MEMP is the overarching emergency management plan for the Cardinia municipality. It provides information on risk management, management arrangements for emergencies and community safety planning and initiatives specific to Cardinia Shire.

The MEMP provides the context for the development and integration of risk specific response and recovery plans. It identifies what hazards are likely to impact the municipality, what steps are to be taken to prevent, respond to and recover from emergency events and the role of organisations in relation to emergencies.

It is a record of the commitment of all of the participating organisations and groups to undertake and complete the tasks assigned to them in the MEMP, and to cooperate in the delivery of the Plans objectives.

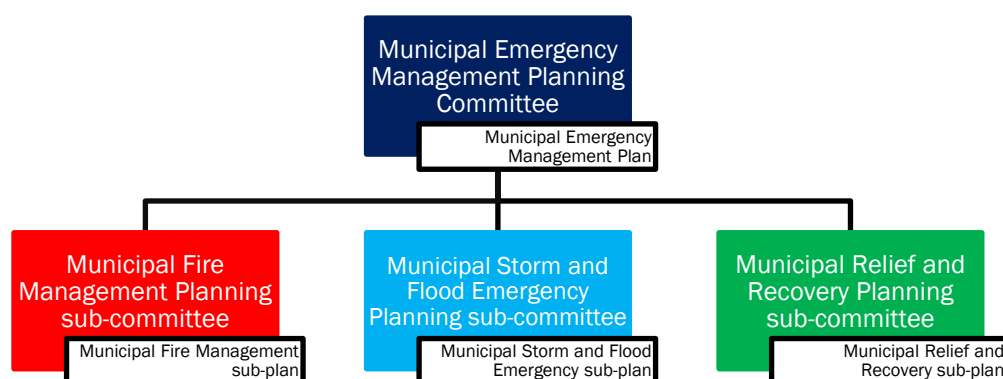
The MEMP itself does not incorporate the arrangements to deal with specific hazards such as fires, floods and storms. However, where specific hazards are identified as high risks, hazard-specific plans should be developed as sub-plans.

A sub-plan details the relevant prevention and response arrangements for a specific hazard and is referenced in the MEMP. Where a hazard is deemed to be minor the MEMP itself may contain information for that hazard.

In accordance with the Cardinia MEMP, a specialist sub-committee has been formed for bushfire.

The Cardinia Municipal Fire Management Plan is therefore a sub-plan of the Cardinia MEMP.

Figure 1: Governance of Municipal Emergency Management Committees for Cardinia Shire Council



Committee membership

The Cardinia Municipal Fire Management Planning Committee is made up of the following agencies and organisations:

- Department of Environment, Land, Water and Planning
- Country Fire Authority
- Parks Victoria
- Melbourne Water
- Victoria Police
- Cardinia Shire Council
- AusNet Services

The Plan

The Cardinia Municipal Fire Management Plan seeks to provide a framework for fire management through an all-agency approach across the spectrum of prevention, preparedness, response, relief and recovery to bushfire.

The Plan complies with both the Country Fire Authority Act 1958 and the requirements outlined within the Emergency Management Manual Victoria regarding the Municipal Fire Prevention Committee.

Under section 55A (1) of the Country Fire Authority Act 1958, “A council must prepare and maintain a Municipal Fire Prevention Plan for the relevant municipal district that:

- Identifies areas, buildings and communities at risk of fire (s.55A(2)(a)
- Specifies how to treat each identified risk (s.55A(2)(b)
- Specifies who is to be responsible for treating those risks (s.55A(2)(c)
- identifies all designated Neighbourhood Safer Places – Places of Last Resort (s.55A(2)(ca)
- designates any places that are community fire refuges (s. 55A(2)(cb) and
- Any other matter prescribed for inclusion in the plan (s. 55A(2)(d).

The legislated requirements for councils to prepare and maintain a Municipal Fire Prevention Plan remain under Section 55A(1) of the Country Fire Authority Act 1958. The Municipal Fire Management Planning Committee accepting responsibility for the Municipal Fire Prevention Plan fulfils this requirement.

Under the municipal fire management planning arrangements, each agency will maintain its existing legislative responsibilities. The agencies will seek to achieve a common understanding of fire risk within communities, assets and other values most at risk, and collectively develop the strategies needed to mitigate these risks.

Acknowledgments

The Cardinia Municipal Fire Management Planning Committee respectfully acknowledges that we are on the traditional land of the Bunurong and Wurundjeri people.

Glossary

Assets	Anything valued by the community, including human life, houses, crops, heritage buildings and places, infrastructure, the environment, businesses and forests, that may be at risk from fire.
Bushfire	A general term used to describe fire in vegetation, includes grass fire.
Bushfire hazard	The potential severity of a bushfire, which is determined by fuel load, fuel arrangement and topography under a given climatic condition.
Bushfire risk	The chance of a bushfire igniting, spreading and causing damage to the community or the assets they value.
Bushfire threat	Potential bushfire exposure of an asset due to the proximity and type of a hazard and the slope on which the hazard is situated.
Climate change	Changes in climate attributed to the human-induced increase in concentration of greenhouse gases in the atmosphere. Climate change involves increases in temperature, sea level, and increased frequency of severe weather events such as storms.
Community Fire Refuge	A Community Fire Refuge is a place that is a building open to the public that can provide short-term shelter from immediate life- threatening effects of a bushfire event.
Community Information Guide	A document which provides for a planned response by emergency services and the community to a bushfire within close proximity to a township.
Consequence	The outcome or impact of a bushfire event.
Ecological Vegetation Class	The basic groupings of vegetation communities used for biodiversity planning and conservation assessment, comprising plant communities and forest types (including species and structural information).
Fire ecology	The component of fire management that involves the study of fire and its interaction with the natural environment.
Fire frequency	The number of fires per unit time in a specified area.
Fire intensity	A general term relating to the heat energy released in a fire.
Fire interval	Time (in years) between two successive fires in a designated area (i.e. the interval between two successive fire occurrences); the size of the area must be clearly specified.
Fire management	Encompasses all aspects including fire prevention, preparedness, response, recovery and the cultural and ecological use of fire.
Fire tolerances	The measurement of a given Ecological Vegetation Class to sustain itself, measured in years since last fire. There are two measures: minimum fire

	tolerance and maximum fire tolerance.
Fuel load	The amount of available and potentially combustible material, usually expressed as tonnes per hectare.
Land Management Units	Areas of similar vegetation features.
Likelihood	The probability of a fire igniting and spreading and how often this may occur.
Major Bushfire	A bushfire that requires the attendance of multiple brigades, or causes damage to property or injury to one or more persons.
Map display area	Geographic area determined by the Municipal Fire Management Planning Committee which is used to provide a suitable area and scale for community participation and mapping display purposes.
Municipality	The geographic area covered by the local government.
Neighbourhood Safer Place – Bushfire Place of Last Resort	Areas or premises that may provide, as a last resort, some sanctuary from radiant heat associated with a bushfire.
Preparedness	Arrangements to ensure that, should an emergency occur, all the resources and services which are needed to cope with the effects can be efficiently mobilised and deployed.
Prevention	The elimination or reduction of the incidence or severity of emergencies and the mitigation of their effects.
Recovery	the co-ordinated process of supporting emergency-affected communities in the provision of services and the reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical wellbeing.
Recovery costs	The capacity of an asset to recover from the impacts of a fire.
Response	The combating of emergencies and the provision of rescue and immediate relief services.
Risk acceptance	An informed decision to accept the consequences and the likelihood of a particular risk.
Risk analysis	A systematic process to understand the nature of, and to reduce the level of, risk.

Risk assessment	The overall process of risk identification, risk analysis and risk evaluation.
Risk environments	The risk environment used in this Plan fits broadly into Human Settlement, Economic, Environment and Cultural.
Risk identification	The process of determining what, where, when, why, and how something could happen.
Risk management	A systematic process that provides a range of treatments which contribute to the well- being of communities and the environment, which suffer the adverse effects of fire.
Risk treatment	The process of selection and implementation of measures to modify risk.
Tolerable Fire Intervals	A term which expresses the minimum or maximum recommended time intervals between successive fire disturbance events at a site or defined area for a particular vegetation community. The time interval is derived from the vital attributes of plant and animal species that occupy the vegetation community. The TFIs guide how frequent fires should be in the future to allow the persistence of all species at the site or defined area.
Victorian Fire Risk Register	A geospatial register that assigns a risk assessment for bushfire based on vegetation type, slope, and distance of an asset from vegetation and vulnerability of the community.
Vulnerability	The susceptibility of an asset including human life to the impacts of fire.

Acronyms

CFA	Country Fire Authority
DELWP	Department of Environment, Land, Water and Planning
DHHS	Department of Health and Human Services
EMV	Emergency Management Victoria
HAZMAT	Hazardous Material
LGA	Local Government Authority
MEMP	Municipal Emergency Management Plan
MEMPC	Municipal Emergency Management Planning Committee
MFMP	Municipal Fire Management Planning Committee
MFB	Metropolitan Fire Brigade
RSFMPC	Regional Strategic Fire Management Planning Committee
RSFMP	Regional Strategic Fire Management Plan
VFRR	Victorian Fire Risk Register

1 Introduction

1.1 Background

Bushfires are an intrinsic part of Victoria's landscape. We need to learn from the experiences of recent fires and improve the way we mitigate the impact of, prepare for, respond to and recover from fires.

This Cardinia Municipal Fire Management Plan has been prepared by the Cardinia Municipal Fire Management Planning Committee (Cardinia MFMPC) through a collaborative approach and reflects the shared responsibilities that government, fire agencies and communities have when dealing with fire and land management. It is a strategic document that identifies community assets at risk and sets out a program of co-ordinated multi-agency treatments to reduce the risk of bushfire to human settlement and the associated assets. These treatments and their priority will be reviewed annually by the Cardinia MFMPC.

Treatments may include fuel hazard reduction burning, community education, fire trail maintenance and the establishment of community fireguard groups. Annual works programs to implement the treatments identified in this Plan will be undertaken by the relevant land managers and fire services.

This document and the accompanying appendices form the Municipal Fire Management Plan for the Cardinia Shire.

While the Municipal Fire Management Planning Committee recognises that climate change has the potential to increase bushfire risk, the Community Emergency Risk Assessment (CERA) process that has been applied in this Plan is based on current climatic conditions. The Committee will monitor information on climate change and update the Plan, as necessary and as new information and technologies come in to support evolving fire management practices.

This document is a living document and will continue to be updated to reflect the community's changing needs.

This Plan aligns with the strategic directions outlined in the Southern Metropolitan Regional Fire Management Plan and the Victorian Government's response to implement recommendations of the 2009 Victorian Bushfires Royal Commission.

1.2 Aim and objectives

The Cardinia Municipal Fire Management Plan provides a framework whereby all Fire Management Plans from across agencies, as they relate to Cardinia Shire, can be collated to provide guidance to agencies, together with the community of Cardinia Shire, to prepare for, prevent (where possible), respond to and recover from bushfire events.

"The underlying principle which drives fire management objectives at all levels is protection and preservation of life, property and the environment" (State Fire Strategy 2010).

The objectives of the Cardinia Municipal Fire Management Plan are to:

- Provide for effective co-ordination of fire-related planning and preparedness activities;
- Allow for collective identification and treatment of risks;
- Provide a framework for monitoring, reviewing and evaluating all activities across this Plan;

- Provide the community with the opportunity to participate actively in fire management planning;
- Increase the capacity of communities within the Cardinia Shire to prepare themselves and their assets in the event of bushfire; and
- Ensure the Cardinia Municipal Fire Management Plan is consistent with the Southern Metropolitan Region Fire Management Plan, August 2011.

The Municipal Fire Management Plan's intent is to bring together all agencies with legislative responsibility for fire management to work together with the community to effectively and efficiently prepare for, respond to and recover from fire. While the emphasis is currently on bushfire within the Cardinia Shire area, it is intended that other elements such as chemical and structural fire will be included in the future.

1.3 The Cardinia Municipal Fire Management Plan area

Cardinia Shire, in Melbourne's south-east growth corridor 55 kilometres from Melbourne's Central Business District, is considered one of Melbourne's largest growth 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 municipality is characterised by a linear urban growth corridor which stretches from Beaconsfield to Pakenham parallel with the Princes Highway. To the north of the residential area is a vegetated interface with the southern foothills of the Dandenong Ranges. This area includes small communities with both natural and rural attributes that attract significant tourist numbers, particularly during the warmer months. Attractions such as the Puffing Billy Railway, Emerald Lake Park, Kurth Kiln Regional Park and the Bunyip State Park provide a basis for tourism throughout the year.

The area to the south of the Princes Highway is mostly swamp flats and cleared farming land. A few pockets of vegetation exist in Heath Hill and Lang Lang.

The largest town within the Cardinia Shire is Pakenham, which sustains significant commercial and industrial development as well as the highest level of residential development of all the towns. 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.

Cardinia has a large interface with the Yarra Ranges Shire Council and together with the City of Casey forms the Dandenong Ranges and foothills. It has a history of large fires that have spread from the neighbouring region into the Cardinia Shire.

Cardinia Shire also 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.

1.3.1 Location and land tenure

The Cardinia Municipal Fire Management Planning Committee has responsibility for fire management planning across the geographic area known as the Cardinia Shire. The 1,280 km² of the municipal area includes a number of land tenures (see Table 1).

Table 1: Land Tenure within Cardinia Shire

Land Manager	Percent of Municipality	Hectares
Public land, including Department of Environment, Land, Water and Planning and Parks Victoria land	15%	22,000
Local government	1%	1,000
Private	77%	101,000
Melbourne Water	2%	3,000
All other (Telstra, Local Water Authorities, etc.)	5%	6,500

1.3.2 Municipal Fire Management Planning Committee agencies:

Cardinia Shire Council

Cardinia Shire Council is responsible for the management of all Council-owned property as well as ensuring that private land owners appropriately manage their land.

Each year Council inspects properties within the municipality to assess the potential risk of a bushfire. If the state of a privately owned property is deemed to contribute significantly to the risk of a bushfire, Council may issue a Fire Prevention Notice.

Council also implements the annual fire prevention roadside and reserve slashing program leading up to and during the fire season.

Council plans to implement a Fuel Management Framework in the near future that will provide a strategy for the development of plans and policies relating to fire prevention requirements and initiatives for Cardinia Shire Council.

Country Fire Authority

The Cardinia Shire is protected by 18 fire brigades with about 800 volunteer members. The brigades attend about 950 emergency calls per year.

Each year, the CFA delivers, on average, 50 bushfire community education programs in Cardinia Shire, attended by 750 community members.

The CFA also provides statutory planning referral advice pursuant to Section 52 and 55 of the Planning and Environment Act 1987 for new developments and subdivisions within Cardinia Shire and inspects private properties to provide individual advice on property preparation.

Department of Environment, Land, Water and Planning

The Department of Environment, Land, Water and Planning is responsible for fire prevention, preparedness, response and recovery on public land. This includes the state forests it manages directly and the parks and reserves managed by Parks Victoria, including Bunyip State Park. Of the 128,000 hectares of land in Cardinia Shire, 22,000 hectares is public land.

These 22,000 hectares are made up of:

- 2,641 hectares of state forest
- 2,987 hectares of other Crown land
- 1,697 hectares of Melbourne Water land
- 14,749 hectares of parks (including Bunyip State Park)

Through the effective management of fire on public land, DELWP's objective is to protect communities and critical infrastructure from fire and to promote healthy and resilient ecosystems by the considered use of fire.

Melbourne Water

Melbourne Water is a networked emergency management organisation under DELWP and through this maintains an active involvement in fire protection and suppression in its water supply storages and catchments. Melbourne Water maintains an active fire-fighting resource that includes trained fire fighters, bulldozers, large tankers, fire detection towers and a water-bombing helicopter.

Parks Victoria

Parks Victoria is part of the State Government's Networked Emergency Organisations, working under DELWP's leadership, to manage bushfires on public land. Parks Victoria, which manages more than half the public land tenure, works in close partnership with DELWP on fire and emergency response. Parks Victoria's active and effective partnership with DELWP is critical to ensuring a healthy parks system and the safeguarding of people and property.

Parks Victoria Gembrook is responsible for the management of specific parks and reserves within the Cardinia Shire including Bunyip State Park, Kurth Kiln Regional Park and Wright Forest.

Victoria Police

Victoria Police is responsible for co-ordinating response to all emergencies pursuant to the Emergency Management Act 1986 and the State Emergency Response Plan. Within the Cardinia Shire, the police have a Municipal Emergency Response Coordinator (MERC) who is the Officer in Charge at Pakenham Police Station and a District Inspector to ensure these responsibilities are carried out effectively. Victoria Police in the Cardinia Shire will, through the MERC, work to ensure effective interface between response and recovery agencies, particularly as it relates to the transition between the response phase and recovery phase of an emergency.

Some estimates indicate that more than half of all bushfires are deliberately lit. During extreme fire danger periods, 'Operation Firesetter' will be implemented within the Cardinia Shire by Victoria Police. This involves extra uniform and plain clothes patrols of areas of the Cardinia Shire deemed most at risk of arson activity in co-operation with adjoining police resources within the state, other relevant agencies and the community.

1.3.3 Southern Metropolitan Regional Strategic Fire Management Planning Committee

The Cardinia Municipal Fire Management Planning Committee is supported by the Southern Metropolitan Regional Strategic Fire Management Planning Committee which consists of the following agencies:

- Country Fire Authority
- Department of Education and Training
- Department of Health and Human Services
- The Department of Economic Development, Jobs, Transport and Resources
- Department of Environment, Land, Water and Planning
- Melbourne Water
- Metropolitan Fire Brigade
- Parks Victoria
- AusNet Services
- Victoria Police
- Victoria State Emergency Service
- VicRoads
- Representatives from municipalities across the region including City of Casey, Cardinia, Mornington, Frankston, Kingston, Dandenong and Stonnington Councils.

The Southern Metropolitan Regional Strategic Fire Management Planning Committee works collaboratively to ensure a co-ordinated approach to fire management planning at the regional level and is governed by the terms of reference set out in the Emergency Management Manual of Victoria.

1.3.4 Climate change and bushfire season

Since the 1950s, rainfall has decreased in south-east Australia, droughts have become more severe and the number of extremely hot days has risen. It is clear that hotter and drier years increase the risk of fire. Climate change projections indicate that the south-east of Australia is likely to become hotter and drier in the future.

The study Climate Change Impacts on Fire-weather in south-east Australia (Hennessey et al. 2005), predicts that it is likely there will be an increase in the frequency, intensity and size of bushfire, prolonged fire danger periods and an increase in the number of total fire ban days.

An increase in the frequency and intensity of fires would alter the distribution and composition of ecosystems, lower the yield and quality of water from fire-affected catchments and increase the risk of injury, trauma and death to humans.

1.3.5 Population and demographic information

The population of the Cardinia Shire is approximately 74,176,000. The major population centres are concentrated within the townships of Beaconsfield, Officer and Pakenham. The hills area also contains a significant population scattered across the ten township areas (Beaconsfield Upper, Cockatoo, Avonsleigh, Clematis, Emerald, Gembrook (surrounds), Maryknoll, Pakenham Upper, Officer North and Tonimbuk). 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. Cardinia Shire has seasonal population changes with high tourism areas and high numbers of people travelling out of the area to work.

The high bushfire risk townships are also tourist locations, especially the townships along the Puffing Billy railway line. Tourism numbers are much higher at Emerald and Gembrook, where the train stations provide facilities such as shops, parks and amenities. Cockatoo is smaller with fewer amenities and, as such, the visitor numbers are lower.

63% of the people who live in Cardinia Shire travel for work outside the Shire.

The hills sub-region includes the small areas of Beaconsfield Upper, Guys Hill, Dewhurst, Cockatoo, Nangana, Emerald Clematis, Avonsleigh, Menzies Creek and Gembrook.

An analysis of the family types in the hills sub-region in 2006 compared with the whole of the Cardinia Shire showed a larger proportion of couple families with children but a smaller proportion of one-parent families. Overall, 54.8% of total families were couple families with children, and 11.3% were one-parent families, compared with 51.6% and 14.1% respectively for Cardinia Shire. Overall, 76.7 % of the population owned or are purchasing their dwelling, and 17.2% are renting, which is high for the State average.

**Above statistics from the 2006 Australian Bureau of Statistics data. The 2011 statistics for the area are still being finalised.*

1.3.6 History of fire frequency and ignition cause

Cardinia Shire has experienced a number of major bushfires over the years. These include –

February 1898

Bushfires spread to the Koo Wee Rup swamp from other parts of the state, 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, *Swampland to Farmland: A History of the Koo Wee Rup Flood Protection District, 1985*, David Roberts Rural Water Commission of Victoria.

January 1939 ‘Black Friday’

Black Friday bushfires spread across many parts of Victoria. In Cardinia Shire, the fires burned in Bunyip State Park near Gembrook and Tonimbuk. For more information, visit the Department of Environment, Land, Water and Planning website.

February 1983 ‘Ash Wednesday’

Ash Wednesday bushfires spread across Victoria. In Cardinia Shire, 27 people died in Beaconsfield Upper and Cockatoo, more than 500 people lost their homes and more than 10,000 hectares were burnt. For more information, visit the Department of Environment, Land, Water and Planning website.

April 2008

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.

February 2009 ‘Black Saturday’

On 7 February 2009, Victoria was devastated by the worst bushfires in Australia’s history when 173 people lost their lives.

The Bunyip State Park Fires (near Gembrook), which started on 4 February, destroyed one house, various outbuildings and a factory. Unknown numbers of stock were lost. The fire burnt a total of 26,440 hectares.

October 2015

A small fire started in Maryknoll and impacted a small number of structures. Evacuation of the town was being organised, however, this was called off as the fire was controlled.

Cardinia Municipal Fire Management Plan
Version 1.1 (last updated 19 August 2016)



The data below represents the top three ignition sources for vegetation fires in Cardinia Shire over a ten-year period.

The data was sourced from Country Fire Authority Fire Investigation Data for 2000-2010. The percentages listed in the table are the percentages as they relate to all fires that occurred during this period and therefore do not add up to 100%.

Table 2: Ignition Sources

Causes	Total Incidents	Percentage of all fires for this period
Inadequate control of open fire, rekindled from a previous fire and unattended fires. Majority of these incidents were in the high bushfire risk townships in Cardinia Shire.	310	28%
Lightning. High Wind.	130	12%
Suspicious. Note that 81 of these incidents were in the Pakenham brigade area, which does not have a high bushfire risk.	179	16%

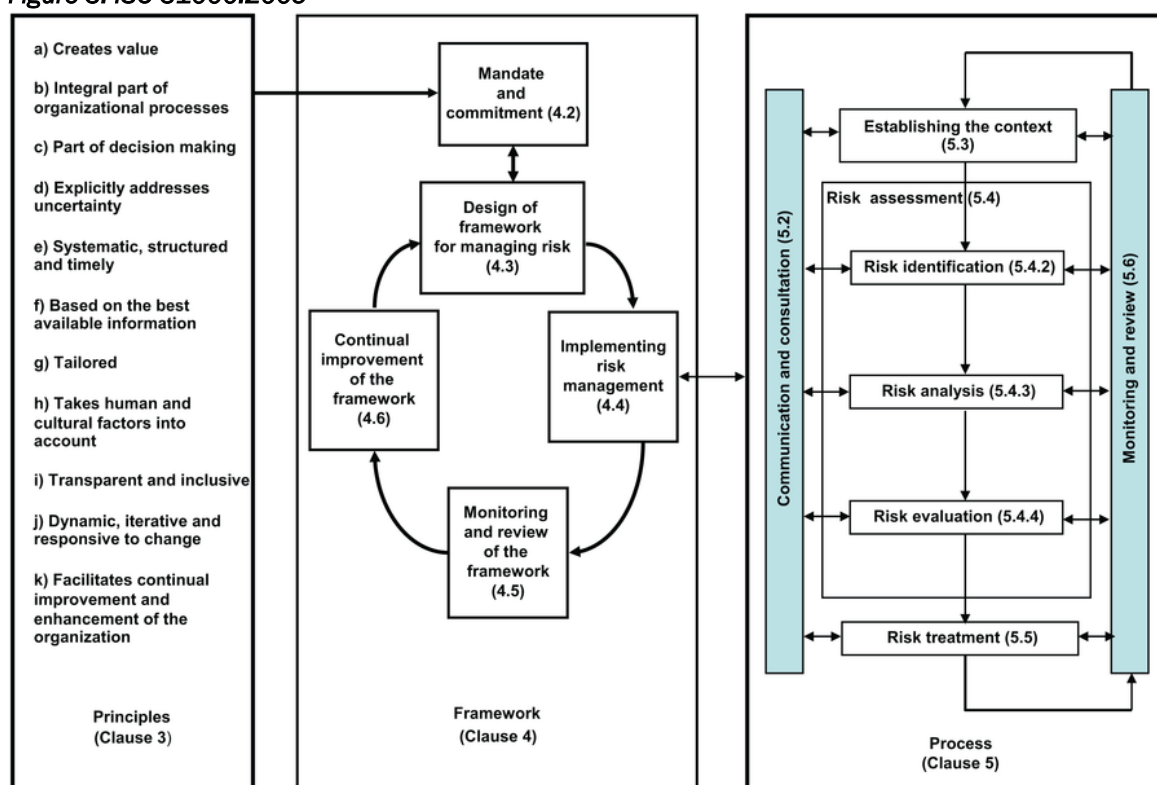
2 Identifying and assessing the bushfire risk

2.1 Process

The level of bushfire risk was determined by undertaking a rigorous risk assessment process involving all members of the Cardinia Municipal Fire Management Planning Committee and significant consultation with the communities at risk.

The International Standard for Risk Management ISO 31000:2009 was used as the basis for the risk assessment process.

Figure 3: ISO 31000:2009



2.2 Communication and consultation

Connected communities

Communities that make informed decisions and actively prepare are central to successful fire management and recovery. How communities prepare themselves, their homes and their families, and work with their neighbours, is crucial.

Keeping informed of best practice and taking action in preparedness, prevention and recovery is everyone's responsibility – whether a community member or a fire agency.

Having a predetermined 'Fire Plan', discussing this with friends, family and neighbours and being proactive in maintaining awareness of up-to-date information about weather conditions and fire events is crucial for communities to be fire ready.

Protection of life is a shared responsibility and it is vitally important that individuals help themselves, their families and the people in their street to look after each other, and for communities to work together.

Agencies working with the community

Community participation is an integral part of risk management. The community engagement strategy, used by the Cardinia Municipal Fire Management Planning Committee in preparing this Municipal Fire Management Plan, involved developing and implementing a process to address the needs, issues and concerns of stakeholders. Community engagement occurred in 2009 and 2012 in relation to the development of this plan.

Community engagement sessions were held in a number of the high-risk towns. These sessions were well attended by the local communities and enabled residents to review and discuss the plan, listen to their particular concerns and record valuable local knowledge on fire management issues.

The table on the next page outlines the community's top concerns from community engagement sessions most recently in 2012 (Table 3) and in 2009 (Table 4).

Table 3: Community concerns (2012)

Issues	What are agencies doing?
<p>2009 Victorian Bushfires Royal Commission</p> <p>The Plan should recognise and provide an update on the progress of implementation of the Recommendations from the 2009 Bushfires Royal Commission.</p>	<p>All member agencies of the Municipal Fire Management Planning Committee are progressing the implementation of the VBRC recommendations.</p> <p>Cardinia Shire Council has undertaken a Gap analysis exercise that has identified the areas/plans that are required to implement the VBRC recommendations.</p> <p>The Council, DELWP, CFA and Victoria Police are also strategic partners in the development of the Dandenong Ranges Bushfire Landscape Strategy; which is an initiative led by Emergency Management Victoria. This initiative will also address recommendations from the VBRC.</p> <p>All member agencies also support the Emergency Management Victoria strategic statement for Fire and Emergency Services in Victoria, which is directing fire and emergency services to work with the community, Government and business as one integrated and unified team. The goals of this statement are to engage with the people, build a safer community and achieve organisational excellence.</p>
<p>Relief and recovery arrangements</p> <p>Relief and recovery arrangements at the municipal level and other government assistance schemes need to be noted in the plan.</p>	<p>Council is addressing requirements for Relief and Recovery during emergency events with support from DHHS. Cardinia Council are leading the development of these arrangements as part of the Dandenong Ranges Bushfire Landscape Strategy.</p> <p>Cardinia Shire Council is driving the development of the strategy relating to relief and recovery namely; the development of an 'Integrated, Community focused, consequence driven, Relief and Recovery arrangements'.</p> <p>The National Strategy for Disaster Resilience (COAG) is a key reference document for the development of this approach.</p>
<p>Climate change</p> <p>The research relating to and advice on the impacts of climate change should be factored into bushfire planning to protect the communities of Cardinia in the future.</p>	<p>Cardinia Shire Council is a stakeholder in the South East Councils Climate Change Alliance (SECCCA); which is a Council supported research initiative focussed on local Climate Change issues.</p> <p>Council is also a Strategic partner in the development of the Dandenong Ranges Bushfire Landscape Strategy; which is an initiative led by Emergency Management Victoria.</p>

Issues	What are agencies doing?
	<p>These two initiatives in conjunction with internal ongoing liaison with Council's environment and planning business units and external liaison with government departments (DELWP and Parks Victoria), will enable Councils Emergency Management business unit to incorporate climate change considerations into emergency management planning both now and into the future.</p>
<p>Local knowledge Use the experience of local people, who have good knowledge of the technical aspects of prevention and survival of a major fire event.</p>	<p>Local knowledge will continue to be sourced and capture via Council's community consultation process, CFA's engagement of its brigades and DELWP and Parks Victoria community engagement associated with planned burning. All agencies are working together to develop integrated awareness programs where applicable.</p>
<p>Victorian Fire Risk Register Some townships expressed concerned regarding the Victorian Fire Risk Register. (VFRR) applied to certain sections of their communities as not being an appropriate reflection of what risk currently exists at these locations. This needs to be changed as to be reflective of actual risk in some areas.</p>	<p>The VFRR is a geospatial register that is a tool that is managed and implemented by the Country Fire Authority (CFA). It assigns a risk assessment for bushfire based on vegetation type, slope, and distance of an asset from vegetation and vulnerability of the community.</p> <p>Any alterations to currently designated risk assessments for townships/locations within Cardinia Shire Council require reassessment by CFA using the specified criteria under the VFRR tool. Council cannot change any risk ratings assign by the VFRR without formal requests for reassessment by CFA. Council will request reassessment for identified townships in the future.</p>
<p>Fuel management Vegetation and fuel management is an on-going bushfire risk in Cardinia Shire Council. Specific concerns were expressed about poor access and egress, heavy fuel loads along roadsides strategic and tactical firebreak roads, and locked gates.</p>	<p>Fuel management; including access and egress, maintenance of fire breaks and access gates; is continually managed through Council's Roadside and Bushfire Management Plans and DELWP in their Fire Operations Plans.</p> <p>Council, under its Fuel Management Framework, will ensure continual review and updating of these internal 'operational' plans to ensure their currency with fuel management requirements across the Shire.</p>
<p>Green waste collection Increase green waste collection to weekly during the fire season for high risk areas.</p>	<p>Green waste collection schedules are frequently reviewed by the Council's waste management unit. The Councils Emergency Management business unit will continue to liaise with waste management to investigate options and strategies for green waste management throughout the Shire.</p>

Issues	What are agencies doing?
<p>Environmental considerations</p> <p>Fuel reduction burning can reduce fuel loads and also improve ecological health.</p>	<p>DELWP, CFA and Cardinia Shire Council are strategic partners in the development of the Dandenong Ranges Eastern Central Landscape Bushfire project; which is an initiative led by Emergency Management Victoria.</p> <p>A key deliverable of the project is to develop and implement fuel and land management initiatives across public and private land (cross tenure).</p> <p>These initiatives will include analysis of fuel types, structures and loads hazard identification and community risk vegetation clearance programs which may include fuel reduction burning;</p> <p>Environmental considerations regarding fuel reduction burning is continually investigated as part of the review and updating of agencies plans for fuel management. This will ensure the most current practices are applied to the Cardinia landscape.</p>
<p>Vulnerable residents</p> <p>Concern was expressed for vulnerable people in the community who would need assistance; people who are frail, elderly, disabled or don't drive.</p>	<p>Cardinia Shire Council is working with Department of Health and Human Services on a project to develop the Vulnerable Persons State-wide Database.</p> <p>In addition, Cardinia Shire Council monitors and updates a local list of vulnerable people. This list can be accessed by authorised emergency services personnel and utilised for both preparedness programs and during times of emergency response, relief and recovery activities.</p> <p>Future planning will focus on relief and recovery as opposed to the centres in which it occurs (relief centres will continue to be included) but will also consider access and egress, movement of population options, vulnerable people (including young children and teenagers) along with different delivery models .</p>
<p>Neighbourhood Safer Places - Bushfire Place of Last Resort</p> <p>There were strong concerns and confusion expressed about the role, location and safety of Neighbourhood Safer Places – Bushfire Place of Last Resort, fire refuges and evacuation points.</p>	<p>The future development of the Neighbourhood Safer Places – Bushfire Places of Last Resort is a component of the Shelter in Place options which is being examined by the Emergency Management Victoria as part of Dandenong Ranges Bushfire Landscape Strategy.</p> <p>The designation of Neighbourhood Safer Places – Bushfire Places of Last Resort is, through an assessment and approval process defined by the State Government, a responsibility of Cardinia Shire Council. The decision however to designate or</p>

Issues	What are agencies doing?
	<p>decommission a site is a multi-agency decision.</p> <p>Neighbourhood Safer Places – Bushfire Places of Last Resort are identified for Cardinia Shire Council via the CFA assessment and approval process defined by the Victorian State Government (Emergency Management Victoria). Approvals of all locations identified are subject to this approval process.</p> <p>The identification and designation of Bushfire Places of Last Resort sites is an ongoing process and any declared locations will be communicated to the community via awareness programs.</p> <p>There are 3 designated Neighbourhood Safer Places – Bushfire Places of Last Resort at;</p> <ul style="list-style-type: none"> • Gembrook Community Centre (car park only) Corner of Pakenham- Gembrook Rd and Beenak East Rd, Gembrook • Cockatoo Sports Ground (basketball stadium only), Mountain Road, Cockatoo • Worrell Reserve oval and car park (not buildings), 402A Belgrave-Gembrook Road, Emerald.
<p>Community Fire Refuges</p> <p>Community Fire Refuges need to be identified and listed publicly for residents of Cardinia Shire.</p>	<p>A community fire refuge is a designated building open to the public that can provide short-term shelter from the immediate life- threatening effects of a bushfire event.</p> <p>Community fire refuges are one of a number of contingency shelter options contained in Victoria's Bushfire Safety Policy Framework and should be considered in the context of all of the survival options available to a community in a high bushfire risk area.</p> <p>Victoria's Community Fire Refuges policy, released by the-then Fire Services Commissioner on 13 October 2011, delivers on the recommendation of the 2009 Victorian Bushfires Royal Commission that the State releases a new refuges policy. It provides the framework for identifying, establishing, managing and maintaining community fire refuges in areas of very high risk where other bushfire survival options are limited.</p> <p>Emergency Management Victoria is working with State and local government representatives to implement the policy.</p> <p>The Community Fire Refuges Practices and</p>

Issues	What are agencies doing?
	<p>Procedures document sets out the principles and guidelines to be followed when identifying, establishing, managing and operating a community fire refuge.</p> <p>Community Fire Refuges are a new concept, and are not currently designated for Cardinia Shire Council. Council will continue to be involved in this process in partnership with the Emergency Management Victoria.</p>
<p>Water supplies</p> <p>Water supply, markers, recording and mapping of water points.</p>	<p>Water supply for firefighting purposes is currently under consideration with Melbourne Water, CFA and Cardinia Shire being key partners in the review of marking and mapping of key water points.</p>
<p>Community education</p> <p>Concerns were expressed about general apathy and community complacency about the threat of fire.</p> <p>Education, signage, meetings and working with 'Friends of 'groups to increase awareness and knowledge of bushfire prevention and management.</p>	<p>The development of a multi-agency approach to the delivery of community education and awareness programs is underway.</p>
<p>Warnings and telecommunications</p> <p>Concerns were raised about poor telecommunications with many areas having poor reception.</p>	<p>Emergency Management Victoria has issued a policy on the use of sirens as an early warning system - Community Alert Sirens Policy and Guidelines, January 2016.</p> <p>Progress continues to be made in the development and enhancement of the Emergency Alert warning system with the development of the location-based component which will have the capability to disseminate SMS messages to both home landlines and mobile phones within a designated area.</p>
<p>Community resilience</p> <p>The protection of life is a shared responsibility and Council should support communities to work together and help themselves with appropriate guidelines and policies. Community Fireguard Groups are a good example.</p>	<p>Building resilience within in the community is one of the Council's focal points in relation to community education and awareness programs and initiatives.</p> <p>Council, DHHS and agencies will strive to work with the community to develop community groups that are able to provide immediate focus for a town during the initial stage of an emergency and provide a voice for the town in managing its recovery from an emergency.</p>

Table 4: Community concerns (2009)

Issues	What are we doing?
<p>Roadside management</p> <p>There was community concern over the works undertaken on roadsides throughout the high fire danger areas. Roadsides are managed by Council or VicRoads depending on the road.</p>	<p>Council's Roadside Management Plan, Works Plan and the previous Municipal Wildfire Preparedness Plan all identify treatments for roadsides. These plans are continually reviewed.</p> <p>VicRoads engaged the services of a consultant to undertake a bushfire risk assessment of Victorian roads. This information is now being considered in the ongoing reviews of the above identified management plans.</p>
<p>Reserve Management</p> <p>Residents listed a number of reserves where there were concerns at the level of works undertaken. These included reserves managed by Council and the Department of Environment, Land, Water and Planning.</p>	<p>Works undertaken on reserves managed by the Department of Environment, Land, Water and Planning are incorporated into their Fire Operations Plan. These plans outline the works programmed over a three-year period. The community input to the Fire Operation Plan is undertaken during the consultation phase which occurs in August each year.</p> <p>Information on the Fire Operations Plan can be found at www.DELWP.vic.gov.au</p> <p>All works on Council-managed reserves are carried out in line with the Fuel Management Strategy.</p>
<p>Warning Systems</p> <p>Some residents in the community feel they need early warning systems such as sirens.</p>	<p>Emergency Management Victoria has issued a policy on the use of sirens as an early warning system - Community Alert Sirens Policy and Guidelines, January 2016.</p> <p>Progress continues to be made in the development and enhancement of the Emergency Alert warning system with the development of the location-based component which will have the capability to disseminate SMS messages to both home landlines and mobile phones within a designated area.</p>
<p>Clearing of fuel around power lines</p> <p>Some residents were concerned with the overgrown vegetation around power lines and asked who is responsible for clearing the vegetation.</p>	<p>Under the Electricity Safety Act 1998, the responsibility for managing the vegetation around electrical power lines is distributed between power distribution businesses, other owners of electrical infrastructure, land owners, occupiers and public land managers.</p> <p>Municipal Councils are responsible for trees on public land within their municipalities.</p> <p>Work is under way between a number of Local Government Authorities and Ausnet Services to develop a procedure for reporting hazardous trees around electrical power lines.</p>

Issues	What are we doing?
	<p>AusNet Services developed Fire Hazard Mapping in the Cardinia Shire as part of its fire mitigation program. Priority areas have been identified, which now guide where works need to be undertaken from a vegetation management perspective.</p> <p>If residents have concerns about hazardous trees or fuel clearance around or under power lines AusNet Services can be contacted on 1300 360 795.</p>
<p>Cardinia Shire Council's Open Air Burning Policy Some residents, especially those in full-time employment, see Cardinia Shire's Open Air Burning Policy as too restrictive.</p>	<p>Cardinia Shire Council's Open Air Burning Policy and Local Law 17 have been approved for implementation. The policy went through community consultation and these were considered in the policy development.</p> <p>Information on Council's currently endorsed Open Air Burning Policy can be found at www.cardinia.vic.gov.au</p>
<p>Vulnerable people in the community – where to go? This included concerns about families with young children, the elderly, and the disabled or ill requiring extra help.</p>	<p>Cardinia Shire Council is working with Department of Health and Human Services on a project to develop the Vulnerable Persons State-wide Database.</p> <p>In addition, Cardinia Shire Council monitors and updates a local list of vulnerable people. This list can be accessed by authorised emergency services personnel and utilised for both preparedness programs and during times of emergency response, relief and recovery activities.</p> <p>Future planning for Relief and Recovery Centres will consider access and egress matters and other requirements for vulnerable people and young children.</p>
<p>Private fuel management Some residents want to have more authority to clear their properties.</p>	<p>The 10/30 or 10/50 clearing right enables certain residents within Cardinia Shire Council to clear properties for creating defensible space for fire prevention. Full details of the 10/30 or 10/50 clearing right can be found at www.cfa.vic.gov.au</p> <p>The Country Fire Authority offers a free Home Bushfire Advice visit to assist residents on:</p> <ul style="list-style-type: none"> • How to decide what you and your family should do on high fire risk days • Where fire hazards are on your property, and how to manage them • Options for property maintenance and improvements • Your level of bushfire risk.

Issues	What are we doing?
	Further information about this service can be found at www.cfa.vic.gov.au or by phoning the Victorian Bushfire Information Line (VBIL) on 1800 122 969.
Increased green waste collections The community would like access to green and hard wastes services to assist with managing their properties.	Cardinia Shire Council offers two green and hard waste collections per year. Additionally, a green garden waste bin can be obtained from the Council for a fortnightly collection at a reasonable cost. Further information about Council's waste services can be found at www.cardinia.vic.gov.au

2.3 Identifying bushfire risk

When identifying the level of bushfire risk, the protection of life is paramount. The most important community asset is human lives.

The Cardinia Municipal Fire Management Plan risk assessment gives priority to human settlements, based on the implicit assumption that people inhabit the houses – it is not just the houses themselves which are assets.

Within the community there are vulnerable groups of people and individuals who are potentially more exposed to the impacts of fire and require greater assistance to effectively prepare for, and respond to, an emergency such as a bushfire.

Once a risk is identified, the likelihood and consequence is assessed and ratings allocated.

2.3.1 Assets

Cardinia Municipal Fire Management Planning Committee members and the community, including Country Fire Authority volunteers, identified assets within the Cardinia Shire that are at risk of bushfire. The assets were divided into four categories:

Human Settlement

- Residential areas, including urban bushland interface areas and rural properties
- Special fire protection areas, including schools, hospitals, nursing homes, and tourist facilities
- Other human settlement areas, including commercial and industrial areas where distinct from major towns.

Economic

- Agricultural, e.g. regional saleyards, cropping/grazing land
- Commercial/industrial, e.g. major industries, waste treatment plants, sawmills
- Infrastructure, e.g. large power lines, gas and oil pipelines, railway lines, electricity substations and communication facilities
- Tourist and recreational areas, e.g. tourist sites and facilities, resorts, retreats and mines
- Commercial forests e.g. pine plantations, eucalypt plantations and commercial native forests; and drinking water catchments.

Environmental

- Threatened species, populations and ecological communities and wetlands
- Locally important species and ecological communities, those especially sensitive to fire.

Cultural

- Aboriginal significance – Aboriginal places and items of significance
- Non-Indigenous heritage – places and items arising from the early occupation by European or other non- Indigenous settlers
- Other cultural assets – community halls, churches, clubs and recreational facilities.

Appendix A contains the assets recorded in the Victorian Fire Risk Register for the Cardinia Municipal Fire Management Plan area.

2.3.2 Assessing the Bushfire risk – consequence

Once the assets are identified, the consequences of a bushfire are assessed. The different asset types had different assessment processes:

Human Settlement

A potential fire behaviour model using vegetation type, slope and separation distance was used to produce a threat rating for human settlement assets. The vulnerability of the asset to a bushfire was also assessed and a rating assigned. These ratings were then used to assess the consequence of a bushfire affecting a human settlement.

Special Fire Protection assets were considered inherently more vulnerable due to mobility, knowledge or other issues relating to their inhabitants (e.g. the elderly, infirm, children or tourists) and stricter rating requirements were applied.

Economic

The level of economic impact, e.g. local, regional or state, as well as the economic recovery costs (how long and complicated a financial recovery will be) of the asset were identified. These ratings were used to assess the consequence of a bushfire affecting an economic asset.

Environmental

Environmental assets with known minimum tolerable fire intervals were assessed to determine if they were at risk of a bushfire within the Cardinia Municipal Fire Management Plan using fire history data. The vulnerability of an environmental asset was determined by its conservation status and its geographic extent (distribution across the landscape). Vulnerability and potential impact of bushfire were used to assess the consequence of a bushfire affecting an environmental asset.

Cultural

For historical, Indigenous and other cultural assets, a potential fire behaviour model using fuel load, slope and proximity was used to produce a threat rating. The physical vulnerability of the asset to a bushfire was also assessed. These ratings were then used to assess the consequence of a bushfire affecting a cultural asset.

Cultural Heritage values in Fire Management

All Aboriginal sites, places and objects in Victoria are protected under the Aboriginal Heritage Act 2006. Land managers are required to ensure Aboriginal cultural heritage values are protected during fire management activities (prevention, preparedness and response).

Planning staff have access to Aboriginal Affairs Victoria's, Aboriginal cultural heritage data through the Department of Environment, Land, Water and Planning's Fire-Web mapping system – Fire-Map, and Land Managing authorities have protocols and policies that articulate when Aboriginal Affairs Victoria or Registered Aboriginal Parties must be consulted for recommended management actions and inspections.

After planned burning operations or a major bushfire event, previously unknown Aboriginal Cultural Heritage sites and places may be identified as the burnt vegetation allows a greater degree of ground visibility. Part of the recovery process involves field surveys to take up this opportunity so new sites can be registered.

2.3.3 Assessing the risk of bushfire

The likelihood of a bushfire occurring was assessed for all asset types. This involved considering fire history, including ignition causes and patterns, known fire paths, access, containment and potential fire run.

Cardinia has 77,836 hectares of vegetated area, which includes areas such as Bunyip State Park, Cardinia Reservoir and Wright Forest.

2.3.4 Identifying the level of risk

The consequence and likelihood ratings were used to identify the level of risk.

Appendix A contains the assets and risk ratings recorded in the Victorian Fire Risk Register for the Cardinia Municipal Fire Management Plan area.

2.3.5 Evaluating the bushfire risk

Once the risk ratings for each asset were identified, they were evaluated to:

- Confirm that risk levels identified in the risk analysis process are appropriate and reflect the relative seriousness of the bushfire risk;
- Identify which assets require treatments; and
- Identify treatment priorities.

This process was undertaken with the Council, fire services, land managers and Victoria Police.

2.3.6 Prioritising treatments

No organisation has limitless resources to deal with adverse risk; it is necessary to define priorities. The bushfire risk ratings were used to prioritise the risk treatments. Areas of extreme risk were considered a priority for risk treatments.

2.3.7 Risk acceptability

Risks below a certain level were assessed as not requiring extra treatments within this edition of the Plan. This is due to a combination of distance from fuel, slope, access and egress and resilience of communities. Within the Cardinia Shire, the level of risk acceptability is high. Areas of medium or low risk are likely to be managed by routine procedures and do not require a specific application of resources.

3. Treating the risk

3.1 Bushfire risk environment

Within the Cardinia Shire there are 22,000 hectares of forested public land and about 55,836 hectares of vegetated private land. Most of this heavy fuel area exists north of the Princes Highway.

Assessment of the fuel hazard in this area considers the vegetation type, the rate of accumulation of fuel in each vegetation type and the time since it was last burnt. From this, the level of fuel hazard can be modelled. The modelled hazard level is based on assumptions regarding fire history, vegetation mapping and fuel hazard accumulation. With respect to the grasslands (60% of the Shire), the hazard is more dynamic and depends on their status (grazed, eaten out, cropped or natural) and the estimated curing, which varies widely depending on the time of year and particular season.

The fuel hazard levels map (figure 4) provides an assessment of forest fuels and provides a reasonable indication of the hazard level across Cardinia Shire. The relative hazard in grass areas will vary during the year and the hazard rating in these areas should be used with more caution.

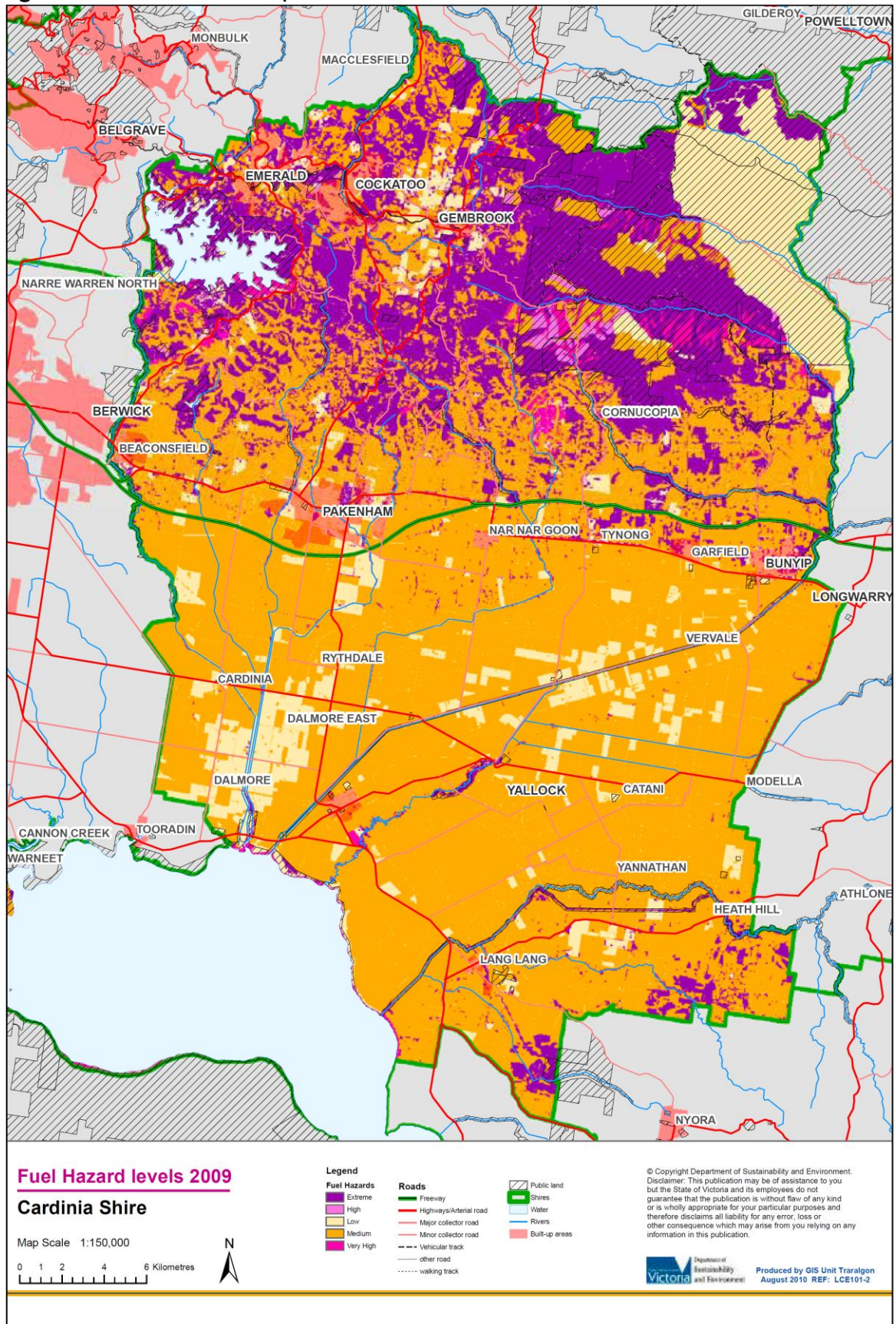
As the map indicates, forest fuel levels are at extreme levels across the landscape both on public land and private forested areas and need to be managed where there is a defined risk.

In addition to this map, a computer simulation has been undertaken on a 100 metre grid across the Shire to model the intensity of a fire if it started at each grid point. The model uses the fuel hazard data, topographic features (like slope) and climatic conditions similar to a Code Red rated fire day (e.g. Black Saturday/Ash Wednesday conditions). The resultant map shows the areas which can be expected to generate the highest fire intensity in the Shire and hence identify key risk areas. This needs to be considered relative to the proximity of assets which may be threatened by such a fire; however, they will assist in prioritising areas for fuel management, most likely by planned burning. Where fire intensity exceeds 3,500 kW then direct frontal attack on the fire is unsafe and unlikely to succeed. Where fire intensity exceeds 10,000 kW within 50 metres of a house there is a high risk of loss.

The map shows areas of predicted high fire intensity, under extreme weather conditions that exist across the Shire, as indicated by the fuel hazard. These span from the Cardinia reservoir to private forested areas around Cockatoo, Beaconsfield Upper, Pakenham Upper, Gembrook, Nar Nar Goon North and Maryknoll, across to public managed land such as Bunyip State Park in the east.

Planned burning programs aim to reduce the fuel accumulation across the landscape and are targeted at the areas of highest risk. These are identified using a combination of complex fire modelling tools (including Phoenix Rapidfire), local knowledge and asset data.

Figure 4: Fuel Hazard Levels Map



Planned burning on public land

The Department of Environment, Land, Water and Planning (DELWP) Code of Practice for Bushfire Management on Public Land (2012) outlines a zoning system to prioritise which public land areas are to be burnt. Fire Management Zones (FMZs) are areas of public land where fire is used for specific asset, fuel and overall forest and park management objectives. FMZs describe fuel treatment aims (with associated performance measures) in a particular area.

Four zones have been identified, each with different management objectives.

The four Fire Management Zones are:

- Asset Protection Zone
- Bushfire Moderation Zone
- Landscape Management Zone
- Planned Burning Exclusion Zone

Each of the four FMZs differs in its intended fuel treatment aims and associated performance measures.

Asset protection zones

Using intensive fuel treatment, the Asset Protection Zone (APZ) aims to provide the highest level of localised protection to human life and property and key community assets. The goal of fuel treatment is to reduce radiant heat and ember attack in the event of a bushfire. Fuel treatment will be carried out in the APZ through a combination of planned burning and other methods such as mowing, slashing or vegetation removal.

In these zones fuels are managed intensively to provide the highest level of strategic protection for human life and property, from bushfire through radiant heat and ember attack. Typically, these areas abut or surround areas where a risk to human life and property exists, and may involve impacts on other values such as the environment.

Bushfire Moderation Zone (BMZ)

This zone aims to reduce the speed and intensity of bushfires. This zone complements the APZ in that the use of planned burning in the BMZ is designed to protect nearby assets, particularly from ember spotting during a bushfire.

Where practicable, the BMZ will aim to achieve ecological outcomes by seeking to manage for ecologically desirable fire regimes, provided bushfire protection objectives can still be met. This may include using other fuel management methods.

This consists of strategic areas of sufficient width and continuity to provide a substantial barrier to the spread of a bushfire. This zone aims to reduce the speed and intensity of fires and potential for spot fires.

Landscape Management Zone (LMZ)

Within this zone, planned burning will be used for three broad aims:

- bushfire protection outcomes by reducing the overall fuel and bushfire hazard in the landscape
- ecological resilience through appropriate fire regimes
- management of the land for particular values including forest regeneration and

- protection of water catchments at a landscape level. Other fuel reduction methods will be used within this zone as appropriate.

Planned Burning Exclusion Zone (PBEZ)

This zone excludes the use of planned burning primarily in areas intolerant to fire.

3.2 Cardinia Shire wide treatments

As fire may occur anywhere in the Shire, not just within high bushfire risk areas, the following risk mitigation treatments are applied across all or part of the Municipal Fire Management Planning Committee area as designated by legislation or agency policy:

Bushfire Prone Areas & the Bushfire Management Overlay

These maps identify bushfire-prone land and trigger the need for a planning permit for any development. If approval is given, a planning permit will contain any conditions which need to be adhered to, in order for the use and/or development to continue.

This assessment process requires applications for development to include bushfire protection measures. Bushfire Attack Level assessments are now required for homes that are being constructed within areas where bushfires pose a hazard

Permits to burn during the Fire Danger Period

During the Fire Danger Period, a permit is required to light a fire in the open. Permits specify conditions such as firefighting equipment that must be on site, or restrict burns based on weather conditions. They are issued by the Municipal Fire Prevention Officer from Cardinia Shire Council or the CFA District Operations Officer.

Fire response activities

Responding to bushfire is a normal business activity for the fire-fighting authorities. How agencies prepare for, and respond to, bushfires are documented in Readiness and Response Plan (DELWP), Bushfire Response Plans (CFA), Local Response Plans (CFA) and Readiness and Response Plans (Melbourne Water). Co-ordination of these fire services falls under the command and control arrangements from Emergency Management Victoria.

Evacuations

Evacuation is a risk management strategy which may be used as a means of mitigating the effects of an emergency or disaster on a community. It involves the movement of people to a safer location. However, to be effective it must be correctly planned and executed. The process of evacuation is usually considered to include the return of the affected community.

As with all emergency response activities, the main priority when deciding to undertake an evacuation is protection of life.

The decision to recommend that people evacuate is made by the Incident Controller. In making this decision, the Incident Controller should, if time permits, consult with police and consider other expert advice. Applied to evacuations, messages to the community will be either a warning to affected people that they prepare to evacuate or a recommendation that they evacuate immediately. The Incident Controller is responsible for authorising and issuing such messages to the community.

Victoria Police is the responsible agency for implementing evacuation plans, processes and operations once an evacuation order has been made by the agency responsible for control of the emergency. Evacuation is the planned relocation of people from a dangerous or potentially

dangerous situation. The need for, and scale of, any evacuation will vary according to the bushfire intensity and behaviour.

In Victoria, people with pecuniary interest in a property cannot be forced to evacuate. Under certain circumstances evacuation may not be a safe option and be unable to be implemented. Evacuations are risky and unreliable. The safest option is to leave early.

The ways in which evacuations and the assisted relocation of people in the event of a fire or other emergency is under investigation and likely to focus on vulnerable groups in the community, such as the elderly.

Warnings

The purpose of a warning is to provide advice on impending emergencies or appropriate information or advice on heightened risk situations. This is so people can act to ensure their own safety and minimise the negative impacts of the emergency.

A warning's effectiveness will depend on its timeliness, the extent to which it reaches the at-risk community, the language it uses, the information and advice it contains, and the action that the community takes as a result.

The Emergency Management Manual Victoria (EMMV) states that *'protection of life must be the main priority when agencies are responding to an emergency.'*

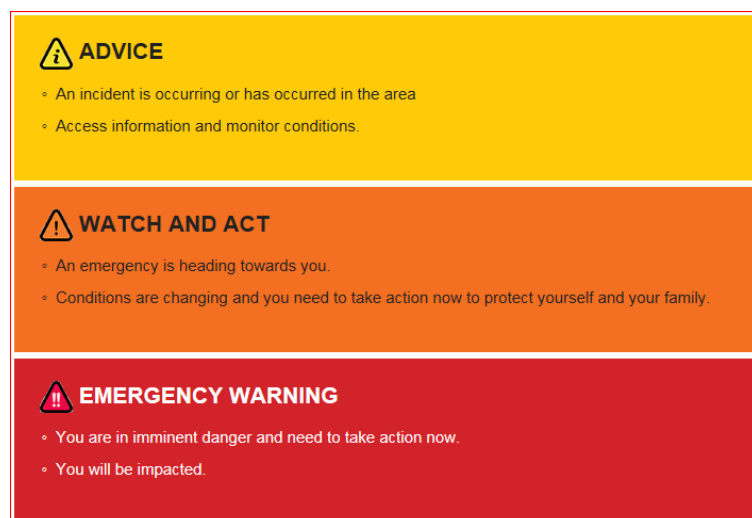
Warnings play a critical part in the protection of life and should be used under specific circumstances where community action is necessary.

The EMMV also states *'Control Agency (the agency nominated to control the response activities for a specified type of emergency) has the responsibility to issue warnings to potentially affected communities, and to other agencies.'*

Emergency response agencies are required to provide co-ordinated and consistent direction on warning information when it became necessary to inform communities of a potential or actual emergency event.

There are three distinct levels of alerts which may be utilised during a bushfire emergency for community warnings.

Figure 6: Different levels of warnings



This message may be preceded by the Standard Emergency Warning Signal (SEWS) and could be disseminated through various methods, including the Emergency Alert system.

Once it is determined that the emergency has passed, at-risk communities should receive an advice message that states that the emergency situation is now over.

Public Information

There are two types of public information: public information which provides on an on-going basis, information on previous emergencies, maps and other issues relevant to at-risk communities; and information provided in the lead up to, during and recovery from an emergency.

When disseminating public information or warnings during an emergency multiple approaches should be taken to ensure maximum penetration and saturation of the messages. Members of the public may receive this information from:

- official warning agencies
- state and local radio, television and media
- telephony based alerting systems (Emergency Alert)
- agency websites
- sirens
- e-mails
- local automated warning systems
- phone messages (including SMS)
- person-to-person
- social media i.e. Facebook, Twitter

See the back page of this document for community emergency information.

3.2.1 Cardinia Shire Council

Open Air Burning Policy

Cardinia Shire Council has an Open Air Burning Policy in place. The Policy defines burn off and no burn off areas within the Shire boundaries. These areas are determined by using the Bushfire Prone Area mapping from the *Building Regulation 2006*. The burn off area has specific restrictions/conditions for all open air burning activities undertaken by residents on private land. There are legal implications for residents who do not comply with this policy, including official warning notices and infringements.

For further information on the policy, visit: www.cardinia.vic.gov.au

Annual Fire Hazard Inspections

Under the Country Fire Authority Act (1958), the Municipal Fire Prevention Officer may issue Fire Prevention Notices on private properties where the inspecting officer deems that further land management work is required in order to protect life or property. Typically, a notice will be served on a property for the removal or mitigation of a fuel hazard that is likely to impact on the ability of surrounding properties to be effectively defended in the event of fire. The Municipal Fire Prevention Officer will inspect the high-risk areas identified in this Plan as a priority and will serve notices to offending properties prior to and throughout the Fire Danger Period.

For further information on the annual fire hazard inspection program, visit:
www.cardinia.vic.gov.au

Bushfire Hazard Complaints

If there is a concern about possible bushfire hazards on any property, this should be reported to Cardinia Council's Emergency Management team. The complaint will be investigated and may result in a notice being issued. Annual fire hazard inspections are carried out by the Emergency Management team.

Vulnerable People

A list of agencies responsible for the wellbeing of vulnerable people (with contact details of people available 24 hours a day) is contained in the Cardinia Municipal Emergency Management Plan. The Vulnerable person's register is maintained on Crisisworks which agencies have access prior to and during an emergency.

Vulnerable people are encouraged to have a 'leave early' plan for days of high fire danger rating and above. Families of these people can access the Red Cross / Country Fire Authority Leave Early Plan (RediPlan) and are encouraged to be well prepared for potential bushfires.

For more information in relation to the Red Cross RediPlan, visit, www.redcross.org.au

Cardinia Shire Council Roadside Management Plan

Local Government is responsible for most roadsides throughout Victoria and must decide, in consultation with other authorities, on the appropriate management for each road. The Roadside Management Plan addresses many issues involved in roadside management throughout the municipality and sets up procedures whereby future conflicts can be resolved. It provides for fuel hazard management, road safety and conservation, and advocates a collaborative approach to determine the treatment of roadsides.

The Cardinia Shire Council Roadside Management Plan is reviewed internally on a regular basis.

For further information on this plan, visit: www.cardinia.vic.gov.au

Power lines and Hazardous Trees

Section 86B of the Electricity Safety Act 1998 states that a municipal council must specify, within its Municipal Fire Prevention Plan:

- a) procedures and criteria for the identification of hazard trees; and
- b) procedures for the notification of responsible persons of trees that are hazard trees in relation to electric lines for which they are responsible.

The Electrical Safety Act 1998, identifies a hazard tree as a tree which 'is likely to fall onto, or come into contact with, an electric line'. The Electricity Safety (Electric Line Clearance) Regulations 2015 further provide that a responsible person may cut or remove such a tree 'provided that the tree has been assessed by a suitably qualified arborist; and that assessment confirms the likelihood of contact with an electric line having regard to foreseeable local conditions.

The criteria and procedures once developed will be transferred to the Municipal Fire Management Plan.

See Appendices C for identification and notifying of hazard trees.

Municipal Relief and Recovery sub-plan

The Emergency Management Act 1986 requires municipal councils to prepare a Municipal Emergency Management Plan. This Plan details the local arrangements for the management of relief and recovery activities.

The Municipal Relief and Recovery sub-plan of the Municipal Emergency Management Plan details local arrangements for impact and needs assessments, access into service systems, clean-up activities, co-ordination of services, volunteer co-ordination, community consultation and for the identification and support of vulnerable populations.

The Municipal Relief and Recovery sub-plan also identifies local resources that can be used to assist individuals and communities affected by emergencies. These resources may include council-owned or controlled assets, council-employed or contracted personnel, local agencies that have agreed to participate in the formal emergency recovery arrangements and local community agencies that have a capacity to assist people affected by emergencies and private businesses and provide emergency recovery services or activities.

For further information on this plan, visit: www.cardinia.vic.gov.au

Code Red/Extreme closures

Cardinia Shire will close Emerald Lake Park on days declared as Code Red or Extreme Fire Danger Ratings.

3.2.2 Country Fire Authority

Local Response Plans

The Country Fire Authority's Local Response Plans for the Cardinia Shire area are response plans for high-risk bushfire areas. The plan details topography, fuel loading, infrastructure and other assets, operations points, staging areas, communications and potential traffic management points.

Operations Plans

District Operations Management Plan – an internal CFA plan describing operational preparedness arrangements and response procedures, processes and guidelines for CFA District 8 and 13.

Region Operations Management Plan – an internal CFA plan describing operational preparedness arrangements and response procedures, processes and guidelines for CFA Southern Metropolitan Region.

The Country Fire Authority is the lead agency in assisting members of the community to be prepared for bushfires. There are a number of programs Country Fire Authority conduct to prepare communities and implement the Victorian Bushfire Safety Policy. These include;

Fire Ready Victoria (FRV) Sessions

These are information and education sessions relating to bushfire risks. These sessions are held as community meetings. Residents can find Fire Ready sessions in their local area by visiting www.cfa.vic.gov.au.

The extensive Fire Ready Victoria media campaign is conducted through print, radio and television advertising. Local papers and newsletters are also used. Bushfire safety messages directed at tourists have been developed and include other publications such as 'Holiday Planners' and newspaper inserts.

Bushfire Planning Workshops

Workshops designed for residents who live in a high bushfire risk area. At a Bushfire Planning Workshop residents will work in small groups (up to 20 people per session) with trained facilitators to understand what needs to be included in a Bushfire Survival Plan and the process of putting one together. This concept has been piloted however future planned workshops will require local co-ordination and resourcing. The workshops are focusing on specific interest groups not individual house holders.

Culturally and Linguistically Diverse (CALD) campaign

A bushfire awareness campaign targeting culturally and linguistically diverse groups is conducted each season.

A CFA bushfire awareness radio advertisement is translated into 11 languages and run on SBS radio over a seven-week period. Copies of the translated messages are distributed to nine regional CALD community stations for community announcements.

Property Advice Visit Service

PAVs aims to improve individual residents' knowledge of their local bushfire hazard, relevant preparation and mitigation activities, and leave early planning. The service is delivered face to face by CFA members, at the homes of residents living in the highest bushfire locations in Cardinia.

Establishing a relationship with residents in high fire risk areas promotes opportunities to provide further services, and encourage involvement in other programs and local community events. Targeted Property Mapping is used to identify homes that are most at risk of bushfire.

Community Fireguard groups

A Community Fireguard group is a group of neighbours who work together to improve the safety of their local area by reducing fuel, preparing their houses and supporting local and personal bushfire survival plans, whether they intend to leave early or stay and defend. It provides the technical knowledge to make informed decisions. Residents can join an existing group or start up a new one by visiting www.cfa.vic.gov.au.

Formal groups aren't for everyone. Research shows that connected communities are better prepared to respond to emergencies effectively. Neighbours and family helping each other prepare and discuss their fire plans are vitally important.

Caravan Park Inspections

CFA carries out inspections on caravan parks located in high risk areas and works with managers of the parks to ensure they comply with regulations relating to the installation of smoke alarms, fire prevention and safety, emergency management plans and maintenance of movable dwellings, existing buildings and prefabs.

3.2.3 Department of Environment, Land, Water and Planning

Fire Operations Plan

Each year the Department of Environment, Land, Water and Planning produces a Fire Operations Plan which identifies priority areas for planned burning and other fire preparedness works on public land (this includes State Forest, Bunyip State Park and Melbourne Water land). These plans are the accumulation of planning and public input over a 12-month period. They are rolling three-year plans, reviewed and amended each year and are prepared to allow for changes according to changed circumstances and favourable conditions.

When making decisions about the location of planned burns, DELWP depends on valuable local knowledge provided by partners and communities. Each year DELWP consults with Parks Victoria, partner agencies, local Country Fire Authority, research partners, councils and stakeholders on a range of fire management activities, including where and why to carry out planned burns. Within the department, DELWP fire managers have similar discussions with biodiversity experts and managers of forests, parks and public land. Throughout the year, DELWP invites community members, grape growers, beekeepers and other interested groups and individuals to contribute to planned burn decisions.

The discussions, negotiations and comments help DELWP balance the many and varied opinions about the location and timing of burns with the need for protection against uncontrollable bushfires.

The Operations Plan includes planned burns, slashing, mowing and clearing works, construction of roads and bridges for fire access and works to maintain firebreaks.

For further information on Department of Environment, Land, Water and Planning's Fire Operations plan, visit: www.delwp.vic.gov.au.

Readiness and Response Plan

DELWP's readiness and response plan outlines the resources available for deployment to fires and the organisational arrangements related to preparedness and the level of readiness of resources to respond to a bushfire at various levels of fire danger over the summer fire period.

Besides people, these resources include a network of fire towers, bulldozers, fire tankers, 4WD vehicles and aircraft.

DELWP co-ordinates the resources of a number of partner agencies including Parks Victoria, Vic Forests, the Department of Planning and Community Development, the Department of Primary Industries and Melbourne Water. In all, more than 700 personnel are available within the DELWP Port Phillip Region to assist in the response to bushfire.

In addition, as part of the organisation's preparedness, forest access tracks, fuel breaks, water points, fire towers and other fire-fighting assets are maintained.

The Model of Fire Cover

Each year, DELWP reviews its current firefighting resources (personnel and expertise) against the requirements determined as necessary to meet the Department's responsibilities for fire suppression on public land. This includes prompt first attack from designated work centres and ability to resource two concurrent Level 3 incidents within the Area.

This document assists in assessing both training and recruitment needs for Department of Environment, Land, Water and Planning and its partner agencies such as Parks Victoria, Vic Forests and Department of Primary Industries to achieve this model of cover.

3.2.4 Department of Education and Training

On days of Code Red fire danger, the Department of Education and Training has a policy to close schools, kindergartens and licensed childcare centres that have been identified through the department's risk assessment process as being at high fire risk. This affects many schools within the hills sub-region of Cardinia Shire. These facilities are listed in Department of Education and Training's Bushfire At-Risk Register which is accessible on its website: www.education.vic.gov.au.

Schools and children's services will give parents as much notice as possible of closures. Planned closures will be confirmed the day before. Once a decision to close has been confirmed, there will be no change, regardless of improved weather conditions overnight, to prevent confusion. Staff will not be onsite during a closure.

The Bushfire At-Risk Register is reviewed every year.

Family Day Care providers are not included on the register. For more information on the status of your local Family Day Care service or planned closures, contact your Family Day Care Service manager.

3.2.5 Melbourne Water

Fire Protection Plan Cardinia Catchment

The Melbourne Water Fire Protection Plan outlines the strategies adopted by Melbourne Water for protecting the Cardinia Reservoir Water Supply Catchment and associated assets from bushfire and limiting the potential for spread of fire from the catchment to the surrounding areas. The aim of this document is to detail Melbourne Water's fire protection and suppression planning for Melbourne Water land in the Cardinia Reservoir Catchment and the associated buffer areas and water transfer systems, a total area of 2,800 hectares.

Readiness and Response plans

The Melbourne Water Fire Readiness and Response Plan defines the preplanning, detection and suppression arrangements to be adopted by all Melbourne Water staff for bushfires in, and threatening, water supply catchments and land managed by Melbourne Water.

The plan details bushfire suppression arrangements in relation to preplanning, readiness levels and arrangements, detection of fires, initial attack and extended attack.

Cardinia Water Supply Catchment Management Plan

This management plan details the catchment management of all land on that area of land owned, controlled and managed by Melbourne Water and known as the Cardinia Reservoir catchment area.

The initiatives for the management of the Cardinia catchment area are in accordance with Melbourne Water's Catchment Management Policy.

3.2.6 Parks Victoria

Parks Victoria, as the Department of Environment, Land, Water and Planning partner agency, is responsible for managing fire on Victoria's public land and refers to the DELWP Fire Protection Plan, Fire Operations Plan, and Readiness and Response Plan.

Total fire Ban closures

Parks Victoria will close some parks and reserves in Cardinia on days declared Code Red Fire Danger Rating. This includes: Aura Vale Lake Park, Bunyip State Park, Cardinia Reservoir Park, Kurth-Kiln Regional Park. See www.parks.vic.gov.au for further information.

3.2.7 AusNet Services

AusNet Services plans include Transmission Line Bushfire Mitigation and Power line Bushfire Mitigation Plans. It also has Safety Guidelines for fire crews under transmission lines.

3.2.8 VicRoads

VicRoads has Roadside Management Plans and Vegetation Plans for Electric Line Clearance to manage the reduction of the risk and intensity of bushfires along roadsides. VicRoads' Diversion Route Planning is undertaken to provide a quick response to emergency events and they work with Victoria Police and Cardinia Shire Council to designate predetermined Traffic Management Points for road closures.

3.2.9 Victoria Police

Victoria Police Traffic Management Guide Cardinia PSA

This document is designed to assist with the implementation of CFA's local response plans. The incident controller is responsible for developing and monitoring a traffic management plan, which may include establishing traffic management points to restrict access. Victoria Police coordinates the implementation of the plan.

The Southern Metro Division 3 Bushfire Response Standard Operating Procedures

These are standard operating guidelines for police responding to bushfire emergencies that either threaten or are within Cardinia. All police that may be required to perform duties at bushfire incidents must be aware of these procedures and suitably trained to ensure their duties are carried out safely and effectively in protecting life and property. Training and emergency exercises are carried out periodically to ensure these procedures are kept relevant and up-to-date.

Prosecution of arsonists/offenders

Under the Crimes Act 1958, Summary Offences Act 1966 and the Country Fire Authority Act 1958 persons may be prosecuted for breaching the conditions on a fire permit, lighting a fire during a Total Fire Ban, allowing fire to escape their property, or other breaches of the Act.

'Operations Firesetter'

During periods of extreme fire danger Victoria Police conducts police patrols in high-risk areas. Extra police operate, including uniform patrol and plain clothed police in unmarked vehicles. Agencies and the community are encouraged to immediately report any suspicious activity so that patrols can respond. This operation complements the Victoria Police Bushfire Arson Prevention & Detection Strategy.

Victoria Police Bushfire Arson Prevention & Detection Strategy

Some estimates indicate that more than half of all bushfires are deliberately lit. In response to the 2009 Victorian Bushfires Royal Commission recommendations and Government approval, the Victoria Police Crime Strategic Advisory Group (CrimeSAG) is responsible for overseeing the development and implementation of this strategy state-wide. Cardinia police will co-operate in a co-ordinated approach that will combat bushfire arson more effectively to best protect the community.

This strategy in summary will include:

- Geospatial analysis to identify risk locations and periods concerning bushfire arson activity;
- Enhanced monitoring and analysis by Arson & Explosives Crime Desk to identify serial and recidivist bushfire arson activity;
- Police Youth Resource Officers to support local education initiatives concerning juvenile fire-setters;

- Improved police information, intelligence and assessment processes in respect of bushfire arson suspects and incidents;
- Police attendance at all suspicious bushfires and investigation by Criminal Investigation Unit detectives;
- High visibility deterrent and detection patrols focused on high risk times and locations; and increased interaction and co-operation between Victoria Police, local fire agencies (Country Fire Authority/Department of Environment, Land, Water and Planning/Parks Victoria) and local government authorities concerning bushfire arson.

3.3 Asset specific treatments

There are broad treatment strategy groups available to treat the bushfire risk to assets identified in the Cardinia Municipal Fire Management Plan.

The types of asset specific treatments in each strategy group used in the Cardinia Municipal Fire Management Planning Committee area are listed in Table 4.

Table 4: Examples of asset specific treatments

Strategy	Example
Ignition Management	<ul style="list-style-type: none"> • Fire tower and patrol activities • Vegetation management around power lines • Restrict access to forested land, and parks on days of high fire potential
Hazard Reduction	<ul style="list-style-type: none"> • Planned burn program • Strategic fuel breaks
Community Education	<ul style="list-style-type: none"> • Fire Ready Victoria • Community Fireguard • Brigades in Schools
Property Planning	<ul style="list-style-type: none"> • Develop specific facility bushfire safety plans • Develop Community Information Guides • Vacant property inspections
Preparedness	<ul style="list-style-type: none"> • Construct and/or maintain fire trails • Fire access roads

3.4 Community Information Guides – for high-risk areas

Community Information Guides are developed for towns that have an extreme rating in the Victoria Fire Risk Register. These plans contain a map with key elements about the town's bushfire risk and document key bushfire safety information to help residents and visitors to the area prepare in the case of a bushfire.

There are seven Community Information Guides, including Community Information Maps, have been developed by the Country Fire Authority and endorsed by Cardinia Shire:

- Beaconsfield Upper

- Cockatoo
- Gembrook
- Maryknoll
- Pakenham Upper
- Emerald/Avonsleigh
- Garfield North/Tonimbuk

Further information on these Community Information Guides can be found on the Country Fire Authority website www.cfa.vic.gov.au.

Neighbourhood Safer Places – Bushfire Places of Last Resort

Neighbourhood Safer Places – Bushfire Places of Last Resort are identified buildings or spaces within the community that may afford some protection from radiant heat, the biggest killer during a bushfire. They are a place of last resort in emergencies only.

The Cardinia Shire Council has formally designated the following sites as Neighbourhood Safer Places – Bushfire Places of Last Resort (Table 5).

Table 5: Neighbourhood Safer Places – Bushfire Place of Last Resort

Township	Location	Address
Gembrook	Gembrook Community Centre (car park only)	Corner of Pakenham-Gembrook Rd and Beenak East Rd, Gembrook
Cockatoo	Cockatoo Sports Ground (basketball stadium only)	Mountain Road, Cockatoo
Emerald	Worrell Reserve oval and car park (not buildings)	402A Belgrave-Gembrook Road, Emerald

This list may be updated over time as further sites are designated. The list of designated Neighbourhood Safer Places – Bushfire Place of Last Resort is also available from the Country Fire Authority website: www.cfa.vic.gov.au.

Community Fire Refuges

There are no Community Fire Refuges located in Cardinia Shire.

3.5 Ecological use of fire

Cardinia Shire's native flora, fauna and the ecosystems they form are adapted to fire of varying frequencies, intensities and seasonality. Fire, and its exclusion, can have positive and negative consequences for native flora and fauna.

The management of fire in the native forests and ecosystems that occur throughout the Cardinia Shire region aims to achieve an approach that considers the protection of assets, including human life, building assets and environmental significance.

Fire ecology assessments by Department of Environment, Land, Water and Planning and Parks Victoria staff guide the planned burning program on public land. They also consider native

vegetation on private land and therefore assist decision making regarding burning across the landscape.

Fire ecology assessments are based on geographical areas called Land Management Units. These are areas of similar vegetation features. Two Land Management Units occur in Cardinia Shire, the Yarra Ranges Land Management Unit (includes Bunyip State Park) and the Dandenong Land Management Unit which includes much of the private forested land within Cardinia shire around Cockatoo, Beaconsfield Upper and Gembrook. An ecological assessment has been completed for Yarra Ranges and the Dandenong Land Management Units.

Fire ecology assessments are undertaken through analysis of the native vegetation which is divided into communities of similar species composition known as Ecological Vegetation Classes (EVCs) and fire history that has occurred in these classes. From this each EVC is divided into growth stages, which depict time since fire. The area of each growth stage per EVC is calculated and compared to a theoretical ideal distribution. The theoretical area of each growth stage is derived from the total area and fire cycle of that EVC. One of the key principles of a fire ecology assessment is to maintain a range of vegetation growth stages.

Areas that are under-represented compared with the ideal distribution are generally protected from burning, whilst areas that are over-represented compared with the benchmark are available for burning.

Another consideration of fire ecology assessments is the Tolerable Fire Interval (TFI). The minimum TFI is based on the longest time for flora species in an EVC to reach reproductive maturity. The maximum TFI is based on the shortest time post fire when flora species will disappear from an EVC as they are no longer able to reproduce. Generally, fire is excluded from areas below minimum TFI, whilst areas above maximum TFI are often high priority burn areas. That median of the minimum and maximum TFI gives the fire cycle of an EVC.

For example, a Minimum TFI of 8 years, and Maximum TFI of 60 years, gives a Fire Cycle of 34 years and this is broadly the recommended frequency of fires within this vegetation community to maintain its biodiversity.

It is recommended that ecological assessments of those areas of Cardinia Shire outside the Yarra Ranges Land Management Unit, primarily the 20,000ha of private forest to the west of Bunyip State Park, are assessed before the next review of the Cardinia Municipal Fire Management Plan.

3.6 Implementation

Each agency is responsible for the delivery of specific plans as listed in this document and the collaborative actions outlined in **Appendix C**, and will report on progress quarterly to the Municipal Fire Management Planning Committee, the Municipal Emergency Management Planning Committee and the Southern Metropolitan Regional Strategic Fire Management Planning Committee.

Under the new arrangements, the Municipal Fire Management Planning Committee and the Southern Metropolitan Region Fire Management Planning Committee report to the State Fire Management Planning Committee, which is chaired by Emergency Management Victoria.

4 Performance, monitoring and reviewing

4.1 Review

The Cardinia Municipal Emergency Management Planning Committee will ensure that the Plan is reviewed annually or as required.

4.2 Monitoring

The Cardinia Municipal Fire Management Planning Committee is required to monitor progress towards the completion of treatment works listed in the Cardinia Municipal Fire Management Plan.

This is done quarterly at committee meetings and documented in the minutes.

A template for agency reporting is included in **Appendix C**.

Continuous Community monitoring

As the Cardinia Municipal Fire Management Plan is a living document, we invite the community to have input into the Plan's review. Residents are encouraged to e-mail the committee: mempc@cardinia.vic.gov.au with the words 'fire planning' in the subject line. All correspondence will be forwarded to the committee.

The Municipal Fire Management Planning Committee is committed to continuous improvement and remains open all year round to consultation with the communities it serves.

4.3 Reporting

The Cardinia Municipal Fire Management Planning Committee is required to report quarterly to the Cardinia Municipal Emergency Management Planning Committee and Southern Metropolitan Region Strategic Fire Management Planning Committee on its progress in implementing the fire risk management activities identified in this Plan. These reports will also be monitored by Emergency Management Victoria.

4.4 Performance measurements

State-wide performance measurements for the Cardinia Municipal Fire Management Plan are under development. The Victorian Government adopted the Royal Commission recommendation and appointed an independent monitor to assess the progress with implementing reform in fire management. A report to Parliament and the people of Victoria was submitted on 31 July 2012. This report included all of the actions that have arisen from the 2009 Victorian Bushfires Royal Commission, i.e. Neighbourhood Safer Places – Bushfire Place of Last Resort.

The prevention component of this Plan will continue to be subject to three-year audits by the Country Fire Authority to meet section 52A of the Country Fire Authority Act 1958.

The Victorian State Emergency Service will also have a role in monitoring and auditing these plans as sub-plans of the Municipal Emergency Management Plan, which are listed in the Emergency Management Manual Victoria, and comply with the Emergency Management Act 1986.

All Municipal Fire Management Planning Committees will be using these new performance monitoring standards to monitor and report on their success in reducing the bushfire risk in their Municipal Fire Management Planning Committee area.

Appendix A – Bushfire Risk Register

A.1 – Cardinia assets and risk ratings

ID	Asset Class	Asset Subclass	Asset Name	Location	Consequence Rating	Likelihood Rating	Risk Rating	Priority Rating
13003	Human Settlement	Special Fire Protection	Avonsleigh South	Avonsleigh	Catastrophic	Almost certain	Extreme	1A
13004	Human Settlement	Residential	Clematis	Clematis	Catastrophic	Almost certain	Extreme	1A
13006	Human Settlement	Residential	Maryknoll	Maryknoll	Catastrophic	Almost certain	Extreme	1A
13011	Human Settlement	Special Fire Protection	Cockatoo PS	19-33 Belgrave-Gembrook RD Cockatoo	Catastrophic	Almost certain	Extreme	1A
13017	Human Settlement	Residential	Pakenham Upper and Nar Nar Goon North	Pakenham Upper and Nar Nar Goon North	Catastrophic	Almost certain	Extreme	1A
13019	Human Settlement	Residential	Emerald South	Emerald South	Catastrophic	Almost certain	Extreme	1A
13020	Human Settlement	Residential	Upper Beaconsfield Surrounds	Upper Beaconsfield	Catastrophic	Almost certain	Extreme	1A
13021	Human Settlement	Residential	Officer North	Officer North	Catastrophic	Almost certain	Extreme	1A
13032	Human Settlement	Residential	Emerald North	Emerald North	Catastrophic	Almost certain	Extreme	1A
13034	Human Settlement	Special Fire Protection	Cockatoo Childcare Centre	75-77 Pakenham RD Cockatoo	Catastrophic	Almost certain	Extreme	1A
13037	Human Settlement	Special Fire Protection	Cockatoo Kindergarten	Cnr Bailey and Station RD Cockatoo	Catastrophic	Almost certain	Extreme	1A
13041	Human Settlement	Special Fire Protection	Gillwell Park Scout Camp	2555 Gembrook-Launching Place RD Gembrook	Catastrophic	Almost certain	Extreme	1A
13046	Human Settlement	Special Fire Protection	Salisbury Lodge	3-9 Salisbury RD Upper Beaconsfield	Catastrophic	Almost certain	Extreme	1A
13061	Human Settlement	Residential	Cockatoo East	Cockatoo East	Catastrophic	Almost certain	Extreme	1A
13062	Human Settlement	Special Fire Protection	Puffing Billy Rail Line	Cardinia	Catastrophic	Almost certain	Extreme	1A
1351593	Human Settlement	Special Fire Protection	Upper Beaconsfield Pre Kinder	McBride RD Beaconsfield Upper	Catastrophic	Almost certain	Extreme	1A
1351594	Human Settlement	Special Fire Protection	Emerald OSHC	536 Main RD Emerald	Catastrophic	Almost certain	Extreme	1A
1351597	Human Settlement	Special Fire Protection	Cockatoo PS Council OSHC	Gembrook RD Cockatoo	Catastrophic	Almost certain	Extreme	1A
1352038	Human Settlement	Special Fire Protection	Gossern Park Camp Site	Woori Yallock RD opp Rainy Hill Rd Cockatoo	Catastrophic	Almost certain	Extreme	1A
13209	Economic	Infrastructure	Cardinia Reservoir CP	Lysterfield	Catastrophic	Likely	Extreme	1B
13238	Economic	Drinking Water Catchment	Cardinia Water Catchment	Cardinia	Catastrophic	Likely	Extreme	1B
13016	Human Settlement	Residential	Gembrook East	Gembrook	Catastrophic	Likely	Extreme	1B
13018	Human Settlement	Residential	Cockatoo South	Cockatoo	Catastrophic	Likely	Extreme	1B
13043	Human Settlement	Special Fire Protection	Stringy Bark Lodge	Beenak RD Gembrook	Catastrophic	Likely	Extreme	1B
13045	Human Settlement	Special Fire Protection	Alcheringa Campsite Tynong North Guide Camp	555 Tynong North RD Tynong North	Catastrophic	Likely	Extreme	1B
13049	Human Settlement	Special Fire Protection	GWS Anderson Scout Camp	Dickie RD Officer	Catastrophic	Likely	Extreme	1B
13050	Human Settlement	Special Fire Protection	Dallas Brooks Scout Camp	Hardfield RD Upper Beaconsfield	Catastrophic	Likely	Extreme	1B
13057	Human Settlement	Residential	Warrick RD Gembrook	Gembrook	Catastrophic	Likely	Extreme	1B
13058	Human Settlement	Residential	Currawong DR Gembrook	Gembrook	Catastrophic	Likely	Extreme	1B
13063	Human Settlement	Special Fire Protection	Dandenong Ranges Steiner School	110 Duffys RD Emerald	Catastrophic	Likely	Extreme	1B
13064	Human Settlement	Special Fire Protection	Gumbya Park	2705 Princes FWY Tynong	Catastrophic	Likely	Extreme	1B
13066	Human Settlement	Special Fire Protection	Watson Park Camp Site	Bridal RD Tonimbuk	Catastrophic	Likely	Extreme	1B
13068	Human Settlement	Residential	Ladd RD	Emerald	Catastrophic	Likely	Extreme	1B
1351992	Human Settlement	Residential	Wright RD	Avonsleigh	Catastrophic	Likely	Extreme	1B
1352040	Human Settlement	Special Fire Protection	Helios Camp	Old Soldier RD Gembrook	Catastrophic	Likely	Extreme	1B
13601	Cultural Heritage	Other	Puffing Billy Rail Stations	Belgrave to Gembrook	Major	Almost certain	Extreme	1C
13218	Economic	Tourist & Recreational	Puffing Billy Rail Line	Belgrave to Gembrook	Major	Almost certain	Extreme	1C
13007	Human Settlement	Residential	Pakenham Upper Township	Pakenham Upper	Major	Almost certain	Extreme	1C

ID	Asset Class	Asset Subclass	Asset Name	Location	Consequence Rating	Likelihood Rating	Risk Rating	Priority Rating
13010	Human Settlement	Special Fire Protection	Emerald SC	423-425 Belgrave-Gembrook RD Emerald	Major	Almost certain	Extreme	1C
13014	Human Settlement	Residential	Tonimbuk and Garfield North	Tonimbuk and Garfield North	Major	Almost certain	Extreme	1C
13031	Human Settlement	Special Fire Protection	Jolly Jumbucks Childcare Centre	267-271 Belgrave-Gembrook RD Emerald	Major	Almost certain	Extreme	1C
13039	Human Settlement	Special Fire Protection	Upper Beaconsfield Kindergarten	Stoney Creek RD Upper Beaconsfield	Major	Almost certain	Extreme	1C
13047	Human Settlement	Special Fire Protection	Emerald Glades Aged Care	15 Emerald-Monbulk RD Emerald	Major	Almost certain	Extreme	1C
13053	Human Settlement	Residential	Upper Beaconsfield Township	Upper Beaconsfield	Major	Almost certain	Extreme	1C
13054	Human Settlement	Residential	Guys Hill	Guys Hill	Major	Almost certain	Extreme	1C
13060	Human Settlement	Residential	Emerald South East	Emerald South East	Major	Almost certain	Extreme	1C
13230	Economic	Infrastructure	Cardinia WTP	Cardinia	Major	Likely	Very High	2A
13239	Economic	Infrastructure	Cardinia Reservoir Drainage WPS	Cardinia	Major	Likely	Very High	2A
13036	Human Settlement	Special Fire Protection	Avonsleigh Kindergarten	Avon RD Avonsleigh	Major	Likely	Very High	2A
13040	Human Settlement	Special Fire Protection	Mill Valley Ranch Recreation Camp	525 Tynong North RD Tynong North	Major	Likely	Very High	2A
13048	Human Settlement	Special Fire Protection	Hillview Bunyip Aged Care	22 A'beckett RD Bunyip	Major	Likely	Very High	2A
13059	Human Settlement	Special Fire Protection	Wandana Rehabilitation Centre	150 Snell RD Maryknoll	Major	Likely	Very High	2A
1351605	Human Settlement	Special Fire Protection	Nar Nar Goon Kindergarten	13 Main ST Nar Nar Goon	Major	Likely	Very High	2A
1351606	Human Settlement	Special Fire Protection	Nar Nar Goon PS	27 Spencer ST Nar Nar Goon	Major	Likely	Very High	2A
1351924	Human Settlement	Special Fire Protection	St James School	Iona Campus	Major	Likely	Very High	2A
13203	Economic	Infrastructure	HWTS-CBTS 500KV Transmission Line 3	South Princes HWY	Moderate	Almost certain	Very High	2C
13204	Economic	Infrastructure	HWTS-SMTS 500KV Transmission Line 1	Bunyip State Park	Moderate	Almost certain	Very High	2C
13205	Economic	Infrastructure	YPS-ROTS 220KV Tranmission Line 8	North Princes HWY	Moderate	Almost certain	Very High	2C
13206	Economic	Infrastructure	Gippsland Rail Line	South Princes HWY	Moderate	Almost certain	Very High	2C
13208	Economic	Tourist & Recreational	Emerald Lake Park	Emerald Lake RD Emerald	Moderate	Almost certain	Very High	2C
13214	Economic	Infrastructure	Upper Beaconsfield Water and Communications Tower	Upper Beaconsfield	Moderate	Almost certain	Very High	2C
13221	Economic	Infrastructure	Wellington RD	Cardinia Creek RD to Belgrave-Gembrook RD	Moderate	Almost certain	Very High	2C
13225	Economic	Infrastructure	Princes FWY	Tynong North RD to Cardinia Creek	Moderate	Almost certain	Very High	2C
13226	Economic	Infrastructure	South Gippsland HWY	Tooradin to Bass HWY Interchange	Moderate	Almost certain	Very High	2C
13228	Economic	Infrastructure	HWPS-ROTS 220KV Transmission Line 2	Cardnina	Moderate	Almost certain	Very High	2C
13232	Economic	Infrastructure	HWTS-CBTS 500KV Transmission Line 4	Cardinia	Moderate	Almost certain	Very High	2C
13233	Economic	Infrastructure	HWTS-SMTS 500KV Transmission Line 2	Cardinia	Moderate	Almost certain	Very High	2C
13234	Economic	Infrastructure	YPS-ROTS 220KV Transmission Line 7	Cardinia	Moderate	Almost certain	Very High	2C
13235	Economic	Infrastructure	YPS-ROTS 200KV Transmission Line 6	Cardinia	Moderate	Almost certain	Very High	2C
13236	Economic	Infrastructure	YPS-ROTS 220KV Transmission Line 5	Cardinia	Moderate	Almost certain	Very High	2C
13237	Economic	Infrastructure	HWPS-ROTS 220KV Transmission Line 1	Cardinia	Moderate	Almost certain	Very High	2C
13008	Human Settlement	Special Fire Protection	Beaconsfield Upper PS	40 Stoney Creek RD Upper Beaconsfield	Moderate	Almost certain	Very High	2C
13009	Human Settlement	Special Fire Protection	Emerald PS and OSHC	4-10 Heros AVE Emerald	Moderate	Almost certain	Very High	2C
13015	Human Settlement	Residential	Tynong North	Tynong North	Moderate	Almost certain	Very High	2C
1351589	Human Settlement	Special Fire Protection	Officer PS	Tivendale RD Officer	Moderate	Almost certain	Very High	2C
1351590	Human Settlement	Special Fire Protection	Officer PS Combined OSHC	Trivendale RD Officer	Moderate	Almost certain	Very High	2C
1351591	Human Settlement	Special Fire Protection	Mission Australia Learning Services Officer	454 Princess HWY Officer	Moderate	Almost certain	Very High	2C
1351592	Human Settlement	Special Fire Protection	Upper Beaconsfield Community Centre	Sailsbury RD Beaconsfield Upper	Moderate	Almost certain	Very High	2C
1351595	Human Settlement	Special Fire Protection	Emerald Community House	356 Main RD Emerald	Moderate	Almost certain	Very High	2C
1351596	Human Settlement	Special Fire Protection	Emerald Preschool	7-9 Kings RD Emerald	Moderate	Almost certain	Very High	2C
1351598	Human Settlement	Special Fire Protection	Garfield North Special School Camp	335 Garfield North RD Garfield North	Moderate	Almost certain	Very High	2C

ID	Asset Class	Asset Subclass	Asset Name	Location	Consequence Rating	Likelihood Rating	Risk Rating	Priority Rating
1352037	Human Settlement	Special Fire Protection	Cannibal Creek Reserve	Off North Garfield RD Garfield North	Moderate	Almost certain	Very High	2C
13602	Cultural Heritage	Non-Indigenous	Kurth Kiln (Cardina)	Beenak RD, Bunyip	Moderate	Likely	High	3A
13603	Cultural Heritage	Non-Indigenous	Silverwells	330 Ure RD Gembrook	Moderate	Likely	High	3A
13215	Economic	Tourist & Recreational	Gumbuya Park	2705 Princes HWY Tynong	Moderate	Likely	High	3A
13227	Economic	Infrastructure	Princes FWY	Tynong North RD to Bunyip River	Moderate	Likely	High	3A
13231	Economic	Drinking Water Catchment	Bunyip Water Catchment	North Labertouche	Moderate	Likely	High	3A
13240	Economic	Infrastructure	Cardinia Reservoir Bypass WPS	Cardinia	Moderate	Likely	High	3A
13055	Human Settlement	Residential	Avonsleigh North	Avonsleigh North	Moderate	Likely	High	3A
13056	Human Settlement	Residential	Gembrook South	Gembrook South	Moderate	Likely	High	3A
13067	Human Settlement	Special Fire Protection	Emerald Lake	Emerald	Moderate	Likely	High	3A
1351580	Human Settlement	Special Fire Protection	Lang Lang Preschool	3 Whitstable ST Lang Lang	Moderate	Likely	High	3A
1351581	Human Settlement	Special Fire Protection	Westernport Child Care Centre	1 Station ST Lang Lang	Moderate	Likely	High	3A
1351582	Human Settlement	Special Fire Protection	Lang Lang PS	52 Westernport RD Lang Lang	Moderate	Likely	High	3A
1351583	Human Settlement	Special Fire Protection	St John the Baptist's School	172 Station ST Koo Wee Rup	Moderate	Likely	High	3A
1351584	Human Settlement	Special Fire Protection	Koo Wee Rup PS and OSHC	Moody ST Koo Wee Rup	Moderate	Likely	High	3A
1351585	Human Settlement	Special Fire Protection	Westernport Childcare Centre and Kindergarten Koo Wee Rup	344 Rossiter RD Koo Wee Rup	Moderate	Likely	High	3A
1351586	Human Settlement	Special Fire Protection	Koo Wee Rup Preschool	356 Rossiter RD Koo Wee Rup	Moderate	Likely	High	3A
1351587	Human Settlement	Special Fire Protection	Koo Wee Rup SC	Rossiter RD Koo Wee Rup	Moderate	Likely	High	3A
1351599	Human Settlement	Special Fire Protection	Bunyip Kindergarten	29 Princess ST Bunyip	Moderate	Likely	High	3A
1351600	Human Settlement	Special Fire Protection	Bunyip Childcare Centre	65 Hope ST Bunyip	Moderate	Likely	High	3A
1351601	Human Settlement	Special Fire Protection	Garfield PS	84 Railway AVE Garfield	Moderate	Likely	High	3A
1351602	Human Settlement	Special Fire Protection	Garfield Kindergarten	29-31 Garfield RD Garfield	Moderate	Likely	High	3A
1351603	Human Settlement	Special Fire Protection	Bayles Regional PS	3730 Ballarato RD Bayels	Moderate	Likely	High	3A
1351604	Human Settlement	Special Fire Protection	Bayles Kindergarten	Main ST Bayles	Moderate	Likely	High	3A
1351923	Human Settlement	Special Fire Protection	Columba Catholic School	28-36 Hope ST Bunyip	Moderate	Likely	High	3A
1351925	Human Settlement	Special Fire Protection	Bunyip PS and OSHC	1290 Nar Nar Good- Longwarry RD Bunyip	Moderate	Likely	High	3A
1351926	Human Settlement	Special Fire Protection	Sherpa Kids Garfield	84 Railway AVE Garfield	Moderate	Likely	High	3A
13044	Human Settlement	Special Fire Protection	Wombat Corner Camp	Emerald Lake RD Emerald	Major	Possible	High	3B
13212	Economic	Infrastructure	Upper Beaconsfield Equestrian Centre	76 Beaconsfield-Emerald RD Upper Beaconsfield	Minor	Almost certain	High	3D
13220	Economic	Infrastructure	Belgrave Gembrook RD	Menzies Creek to Gembrook-Launching Place RD	Minor	Almost certain	High	3D
13222	Economic	Infrastructure	Koo Wee Rup RD	Koo-Wee-Rup-Longwarry RD to Beaconsfield -Nar Nar Goon RD	Minor	Almost certain	High	3D
13223	Economic	Infrastructure	Bullarto RD	Clyde to Bayles	Minor	Almost certain	High	3D
13224	Economic	Infrastructure	Princes HWY East	Nar Nar Good to Berwick	Minor	Almost certain	High	3D
13241	Economic	Infrastructure	Pakenham RD	Beaconsfield - Nar Nar Good RD to	Minor	Almost certain	High	3D
13242	Economic	Infrastructure	Worri Yallock RD	Belgrave - Gembrook RD to Nangana	Minor	Almost certain	High	3D
13244	Economic	Infrastructure	Beaconsfield - Emerald RD	Belgrave - Gembrook RD to Princes HWY East	Minor	Almost certain	High	3D
13029	Human Settlement	Residential	Officer	Officer	Minor	Almost certain	High	3D
13033	Human Settlement	Residential	Emerald	Emerald	Minor	Almost certain	High	3D
13207	Economic	Tourist & Recreational	Gembrook Town Centre	Gembrook	Moderate	Unlikely	Low	NA
13211	Economic	Infrastructure	Gembrook Water and Communications Tower	Gembrook	Moderate	Unlikely	Low	NA
13245	Economic	Commercial	Simplot	Racecourse RD Pakenham	Minor	Unlikely	Low	NA
13001	Human Settlement	Residential	Pakenham Interface	Pakenham	Minor	Possible	Low	NA
13013	Human Settlement	Special Fire Protection	Gembrook PS	48-50 Main RD Gembrook	Moderate	Unlikely	Low	NA


ID	Asset Class	Asset Subclass	Asset Name	Location	Consequence Rating	Likelihood Rating	Risk Rating	Priority Rating
13038	Human Settlement	Special Fire Protection	Gembrook Preschool	10-21 Belgrave-Gembrook RD Gembrook	Moderate	Unlikely	Low	NA
1351922	Human Settlement	Special Fire Protection	Gembrook PS OSHC	48-50 Main ST Gembrook	Moderate	Unlikely	Low	NA
13002	Human Settlement	Residential	Gembrook	Gembrook	Minor	Likely	Medium	4
13022	Human Settlement	Residential	Bunyip	Bunyip	Minor	Likely	Medium	4
13023	Human Settlement	Residential	Garfield	Garfield	Minor	Likely	Medium	4
13024	Human Settlement	Residential	Nar Nar Goon	Nar Nar Goon	Minor	Likely	Medium	4
13025	Human Settlement	Residential	Bayles	Bayles	Minor	Likely	Medium	4
13026	Human Settlement	Residential	Koo-Wee-Rup	Koo-Wee-Rup	Minor	Likely	Medium	4
13027	Human Settlement	Residential	Lang Lang	Lang Lang	Minor	Likely	Medium	4
13028	Human Settlement	Residential	Tynong	Tynong	Minor	Likely	Medium	4
1351588	Human Settlement	Special Fire Protection	Little Beacons Learning Centre	84 Toomuc Valley RD Pakenham	Moderate	Possible	Medium	4
13604	Cultural Heritage	Non-Indigenous	Bunyip Railway Station				TBC	
13605	Cultural Heritage	Non-Indigenous	Bayles Bridge No 1 and 2	Longwarry RD			TBC	
13606	Cultural Heritage	Non-Indigenous	Monomeith Homestead				TBC	
13607	Cultural Heritage	Non-Indigenous	Harewood	South Gippsland HWY			TBC	

A.2 – Asset treatments (Extreme risks)

ID	Asset Class	Asset Subclass	Asset Name	Location	Risk Rating	Priority Rating	Treatments
13011	Human Settlement	Special Fire Protection	Cockatoo PS	19-33 Belgrave-Gembrook RD Cockatoo	Extreme	1A	201,202,221,222,420,500,232,303,407,109,438
13034	Human Settlement	Special Fire Protection	Cockatoo Childcare Centre	75-77 Pakenham RD Cockatoo	Extreme	1A	202,217,203,409,413,307,219,222,224,420,500,700,303
13037	Human Settlement	Special Fire Protection	Cockatoo Kindergarten	Cnr Bailey and Station RD Cockatoo	Extreme	1A	202,217,203,207,413,307,219,222,224,420,500,700,303,401,407,109
13041	Human Settlement	Special Fire Protection	Gillwell Park Scout Camp	2555 Gembrook-Launching Place RD Gembrook	Extreme	1A	202,217,203,409,307,100,224
13046	Human Settlement	Special Fire Protection	Salisbury Lodge	3-9 Salisbury RD Upper Beaconsfield	Extreme	1A	202,203,207,409,413,219,222,420,500,303,401
1351593	Human Settlement	Special Fire Protection	Upper Beaconsfield Pre Kinder	McBride RD Beaconsfield Upper	Extreme	1A	202,203,207,409,413,219,222,420,500,303,401,407
1351594	Human Settlement	Special Fire Protection	Emerald OSHC	536 Main RD Emerald	Extreme	1A	222,500,303,402,407
1351597	Human Settlement	Special Fire Protection	Cockatoo PS Council OSHC	Gembrook RD Cockatoo	Extreme	1A	201,202,221,222,420,500,232,303,407
1352038	Human Settlement	Special Fire Protection	Gossern Park Camp Site	Woori Yallock RD opp Rainy Hill Rd Cockatoo	Extreme	1A	201,202,409,221,222,420,500,232,303
13062	Human Settlement	Special Fire Protection	Puffing Billy Rail Line	Cardinia	Extreme	1A	700
13003	Human Settlement	Special Fire Protection	Avonsleigh South	Avonsleigh	Extreme	1A	205,100,222,500,303
13004	Human Settlement	Residential	Clematis	Clematis	Extreme	1A	206,100,219,222,225,420,303,401
13006	Human Settlement	Residential	Maryknoll	Maryknoll	Extreme	1A	207,413,100,219,222,420,500,303,401
13017	Human Settlement	Residential	Pakenham Upper and Nar Nar Goon North	Pakenham Upper and Nar Nar Goon North	Extreme	1A	207,413,100,219,222,420,303,401
13019	Human Settlement	Residential	Emerald South	Emerald South	Extreme	1A	206,413,100,219,225,500,303,401
13020	Human Settlement	Residential	Upper Beaconsfield Surrounds	Upper Beaconsfield	Extreme	1A	202,203,207,409,413,100,219,222,420,500,303,401
13021	Human Settlement	Residential	Officer North	Officer North	Extreme	1A	207,100,219,222,303,401
13032	Human Settlement	Residential	Emerald North	Emerald North	Extreme	1A	207,100,219,222,420,500,700,303,401
13061	Human Settlement	Residential	Cockatoo East	Cockatoo East	Extreme	1A	201,202,100,221,222,420,500,232,303
13043	Human Settlement	Special Fire Protection	Stringy Bark Lodge	Beenak RD Gembrook	Extreme	1B	409,415,224,500,231,232,303
13045	Human Settlement	Special Fire Protection	Alcheringa Campsite Tynong North Guide Camp	555 Tynong North RD Tynong North	Extreme	1B	202,207,409,219,222,224,500,303,401
13049	Human Settlement	Special Fire Protection	GWS Anderson Scout Camp	Dickie RD Officer	Extreme	1B	207,409,219,222,303,401
13050	Human Settlement	Special Fire Protection	Dallas Brooks Scout Camp	Hardfield RD Upper Beaconsfield	Extreme	1B	202,409
13063	Human Settlement	Special Fire Protection	Dandenong Ranges Steiner School	110 Duffys RD Emerald	Extreme	1B	407
13064	Human Settlement	Special Fire Protection	Gumbya Park	2705 Princes FWY Tynong	Extreme	1B	409
13066	Human Settlement	Special Fire Protection	Watson Park Camp Site	Bridal RD Tonimbuk	Extreme	1B	409
1352040	Human Settlement	Special Fire Protection	Helios Camp	Old Soldier RD Gembrook	Extreme	1B	409,100
13016	Human Settlement	Residential	Gembrook East	Gembrook	Extreme	1B	202,217,207,413,307,100,219,222,224,420,500,303,401
13018	Human Settlement	Residential	Cockatoo South	Cockatoo	Extreme	1B	202,217,203,207,413,307,100,219,222,224,420,500,700,303,401
13057	Human Settlement	Residential	Warrick RD Gembrook	Gembrook	Extreme	1B	415,100,224,500,231,232,303
13058	Human Settlement	Residential	Currawong DR Gembrook	Gembrook	Extreme	1B	219,224,231,303
13068	Human Settlement	Residential	Ladd RD	Emerald	Extreme	1B	206,100,219,222,303
1351992	Human Settlement	Residential	Wright RD	Avonsleigh	Extreme	1B	202,415,100,223,224,700
13238	Economic	Drinking Water Catchment	Cardinia Water Catchment	Cardinia	Extreme	1B	214
13209	Economic	Infrastructure	Cardinia Reservoir CP	Lysterfield	Extreme	1B	214
13010	Human Settlement	Special Fire Protection	Emerald SC	423-425 Belgrave-Gembrook RD Emerald	Extreme	1C	207,219,222,420,500,700,303,401,407
13031	Human Settlement	Special Fire Protection	Jolly Jumbucks Childcare Centre	267-271 Belgrave-Gembrook RD Emerald	Extreme	1C	222,420,500,303,407
13039	Human Settlement	Special Fire Protection	Upper Beaconsfield Kindergarten	Stoney Creek RD Upper Beaconsfield	Extreme	1C	206,413,222,303,407,233
13047	Human Settlement	Special Fire Protection	Emerald Glades Aged Care	15 Emerald-Monbulk RD Emerald	Extreme	1C	207,409,219,222,420,500,700,303,401
13007	Human Settlement	Residential	Pakenham Upper Township	Pakenham Upper	Extreme	1C	207,413,100,219,222,420,500,401
13014	Human Settlement	Residential	Tonimbuk and Garfield North	Tonimbuk and Garfield North	Extreme	1C	202,217,203,207,416,307,100,219,222,224,420,500,303,401

ID	Asset Class	Asset Subclass	Asset Name	Location	Risk Rating	Priority Rating	Treatments
13053	Human Settlement	Residential	Upper Beaconsfield Township	Upper Beaconsfield	Extreme	1C	206,413,100,222,303,233
13054	Human Settlement	Residential	Guys Hill	Guys Hill	Extreme	1C	202,100,219,222,223,303
13060	Human Settlement	Residential	Emerald South East	Emerald South East	Extreme	1C	207,410,413,100,222,303
13218	Economic	Tourist & Recreational	Puffing Billy Rail Line	Belgrave to Gembrook	Extreme	1C	700
13601	Cultural Heritage	Other	Puffing Billy Rail Stations	Belgrave to Gembrook	Extreme	1C	700

A.3 – Asset treatment codes

VFRR-B Treatment Overview			
2016 Version 1			
			
TREATMENT NAME	TREATMENT DEFINITION	RESPONSIBLE AGENCY	TREATMENT NUMBER
COMMUNITY EDUCATION (100 SERIES)			
Community Education/Engagement	Bushfire education, engagement and training programs targeted at numerous community groups including school children, elderly, employees, and businesses.		
		CFA	100
		LGA	101
		DET	102
		Utility	103
		MFB	121
Agricultural Management	Agriculture bushfire management and safety issues for landowners/managers to assist in the preparation of property fire management plans.		
		CFA	104
		DELWP; PV	105
Community Fire Guard	A CFA key engagement strategy, community development program to help reduce the loss of lives and homes in bushfires.		
		CFA	106
Fire Ready Victoria	Assists in perception and understanding bushfire risk.		
		CFA	107
Public Awareness	Fire information through notice boards, brochures, signage etc to raise awareness of fire risk.		
		Utility	108
		CFA	109
		LGA	110
		Other	120
		MFB	122
		DELWP; PV	124
Tourism Fire Awareness	Community education and information for tourists about Bushfire risk in the area.		
		CFA	111
		DELWP; PV	112
		LGA	113
		Tourism Victoria	117
Multicultural/ Special Needs Engagement	Translations of campaigns to suite all multicultural and special needs persons.		
		LGA	115
		CFA	116
		MFB	123
HAZARD REDUCTION (200 SERIES)			
Bum Program	Removal of selected vegetation in large patches.		
		LGA	201
		CFA	202
		Utility	203
		DELWP; PV	221
Crown and Freehold Land Fuel Reduction	Reducing fuel loads on crown land and freehold land.		
		DELWP; PV	203
		Utility	224
Fuel Hazard Management	Modification of vegetation: Altering vegetation structure and/or separation distance between asset and fuel load.		
		Other	205
		Utility	206
		LGA	207
		CFA	208
		DELWP; PV	232
Routine Maintenance of Rail Line	Removal of vegetation on and around rail lines to ensure protection of assets, minimise ignition potential, and ensure adequate access and egress.		
		Utility	209
		DOT	210
		CFA	211
Routine Asset Site Maintenance	Ongoing mowing/ slashing/ spraying of sites to reduce fuel loads for protection of assets or adjoining properties.		
		Other	212
		DET	213
		Utility	214
		DELWP; PV	215
		LGA	216
Asset Protection Zones	Buffer zone between bushfire hazard and the asset.		
		DELWP; PV	227
Fire Management Zones	To provide areas of sufficient width to reduce the spread of bushfire.		
		DELWP; PV	217
		Other	228
		LGA	229
Powerline Clearance	Vegetation management around powerlines.		
		LGA	218
		Utility	219
		Telstra	221
Roadside Vegetation Management	Removal of vegetation along roadsides.		
		LGA	222
		VicRoads	223
		DELWP; PV	224
		Other	225
		Private	226
IGNITION MANAGEMENT (300 SERIES)			
Operations Restrictions	Operation of machinery restricted on elevated fire weather days.		
		HVP Plantations	300
		Utility	310
Patrol/ Inspection	Inspections of assets to ensure compliance with regulations and safety requirements and to assess for fire hazards.		
		LGA	303
		CFA	304
		DELWP; PV	305
		MFB	306
		Victoria Police	309

Pre Summer Inspections	Inspections of land holders according to Bushfire risk over the summer season including exit routes, locks, gates etc.	Utility	308
PREPAREDNESS (400 SERIES)			
Hazard Identification	Preparedness including risk ratings, inspections, maintenance and response arrangements.	Utility	401
Fire Protection Plan	Fire Protection Plans are prepared to ensure that proper and sufficient works for Bushfire prevention and suppression activities are taking place.	Other	400
		CFA	402
		DEHS	406
		Utility	407
		HVP Plantations	409
		DELWP; PV	444
Fire Plug and Hydrant Installation and Maintenance	Works carried out to ensure that the system will operate correctly when required to do so.	LGA	404
Emergency Water Supply	Emergency water supply and maintenance for fire fighting purposes, including water catchments and policy.	Government Agencies	405
		DELWP; PV	411
		LGA	412
		Utility	430
		Other	440
Emergency Management Plan (Site)	Established framework for the effective handling of emergencies and/ or disaster.	Utility	406
		DET	407
		CFA	408
		Other	409
		LGA	410
		DELWP; PV	442
Fire Access Roads and Tracks	Establishment of constructed and maintained roads, bridges and tracks to allow safe passage for firefighting vehicles.	LGA	413
		CFA	414
		DELWP; PV	416
		Utility	445
Traffic Diversion Plans	Establishment of an appropriate traffic flow, through traffic management in the community and appropriate access and egress for property and business owners.	Victoria Police	417
		VicRoads	418
		LGA	419
Township Protection Plans	Planned response (for both emergency services and the community) to a bushfire within close proximity to a township, which has the potential to impact on the local community.	CFA	420
Fire Operations Plan	Proposed fire prevention activities.	DELWP; PV	423
		Utility	446
Public Land Management Plans	Each year a statewide program of activities is planned, completed and evaluated to continue progress towards achieving natural values objectives.	DELWP; PV	424
		LGA	441
Community Activities/Planning	Local based planning/community groups who repair and manage natural resources for the event of a bushfire.	DET	421
		LGA	422
		Community Groups	425
		CFA	433
Event Management Plan	Emergency management planning of events that occur in the Fire Danger Period (FDP).	LGA	432
Fire Refuge	A declared fire refuge for the use as a last resort under direct fire attack.	Other	435
		LGA	436
Bushfire and Emergency Self Assessment	Develop a more detailed understanding of the bushfire risk to your school.	DET	438
PROPERTY PLANNING (500 SERIES)			
Wildfire Management Overlay	Planning referral for new subdivisions, buildings and works that increase population. Applies conditions for access, Water Supply, Buildings/ Works and Vegetation Management.	LGA	500
		Utility	502
Agreements	Acts and agreements for Rural Residential Areas.	LGA	501
OTHER (700 SERIES)			
Asset Specific Treatments	Municipal or Asset Specific Plan (details can be found in the VFRR Document)	All Agencies	700
TO BE IDENTIFIED (800 SERIES)			
To be identified	Treatments to be identified		800
This treatment list has been created from the input of mitigation works identified through the 'Implementation Stage'. The list has been modified to capture all works the Risk Intelligence Team are currently aware of. If you have any comments or feedback, please contact us via riskintelligence@cfa.vic.gov.au			

Appendix B – Multi-agency collaboration plan

The multi-agency collaboration plan has been developed to capture additional work and partnerships between MFMPC representative agencies. These are activities or projects that have not been identified as VFRR treatments matrix but still contribute to reducing bushfire risk.

Activity	Engagement level	External stakeholders	Timeframe	Agencies
Deliver CFA module “ <i>Bushfire Safety for workers in Bushfire Prone Areas</i> ” to Vic Pol staff to enhance safety of members.	Inform		October 2016	CFA & VicPol
Develop an information sheet for Vic Pol staff who are coordinating a Traffic Management Point during an incident.	Inform	General community	October 2016	CFA & VicPol
Work together to identify appropriate Traffic Management Points for Local response Plans.	Collaborate		September 2016	CFA & VicPol
Deliver cross agency Burn OIC mentor Program.			TBC	CFA & DELWP

Appendix C – Agency report (example)

Note: This is an example only and the actual treatments listed below may not be accurate for the specified asset.

Multi agency collaboration plan	
Activity	Progress Report
Deliver CFA module “Bushfire Safety for workers in Bushfire Prone Areas” to Vic Pol staff to enhance safety of members.	

Cardina wide treatments				
Treatment ID	Treatment Strategy	Action	Agency	Progress Report
T001	Community Education	Community Education/Engagement	Council	
T002	Hazard Reduction	Roadside Vegetation Management	Council	
T003	Property Planning	Bushfire Management Overlay	Council	

Asset specific treatments								
Asset Name	Location	Risk	Priority	Treatment ID	Treatment Strategy	Action	Agency	Progress Report
Emerald North	Emerald North	Extreme	1C	T105	Hazard Reduction	Burn Program	Council	
				T106	Hazard Reduction	Fuel Hazard Management	Council	

Appendix D – Identification and reporting of hazardous trees around powerlines

Hazard Trees – Identification and notification procedures

The Electricity Safety Act 1998 (Vic) (ES Act) 86 B provides the obligation for municipal councils in:

86 B Municipal fire prevention plans must specify procedures for the identification of trees that are hazardous to electric lines

- a) procedures and criteria for the identification of trees that are likely to fall onto, or come into contact with, an electric line (hazard trees); and
- b) procedures for the notification of responsible persons of trees that are hazard trees in relation to electric lines for which they are responsible.

Under the ES Act, the person responsible for maintaining vegetation and clearance space around power lines is referred to as the 'responsible person'.

The procedures outlined in this section of the MFMP seek to address the requirement detailed above.

Each responsible person should have its own internal procedure regarding the steps that will be taken when it receives notification of a hazard tree.

What is a hazard tree?

According to the ES Act, a hazard tree is a tree which 'is likely to fall onto, or come into contact with, an electric line'.

The Electricity Safety (Electric Line Clearance) Regulations 2010 further provide that a responsible person may cut or remove such a tree 'provided that the tree has been assessed by a suitably qualified arborist; and that assessment confirms the likelihood of contact with an electric line having regard to foreseeable local conditions.'

Due to legal requirements which require a clearance space be maintained around an electric line, hazard trees are usually located outside the regulated clearance space. Despite being outside the clearance space, the tree may still have the potential to contact the line due to its size or because of a structural fault or weakness which renders part, or all, of the tree likely to contact or fall onto the line.

Who is responsible for a hazard tree?

Under the ES Act, the person responsible for maintaining vegetation and clearance space around power lines is referred to as the 'responsible person'. This includes responsibility for keeping the whole or any part of a tree clear of the line.

Under the ES Act, responsibility is allocated between distribution businesses and other owners of electricity infrastructure, land owners and occupiers for clearance of private power lines, public land managers where they are identified as the responsible person such as municipal councils, DELWP and VicRoads.

Responsible Persons within Cardinia Shire

There are a number of organisations that have responsibility for line clearance in Cardinia Shire Council, including:

- AusNet Services
- VicRoads
- Cardinia Shire Council

There is only one electricity distribution business in Cardinia Shire Council, which is AusNet Services.

Declared Areas

There are three declared areas (as per Section 81 of the ES Act) within Cardinia Shire in the towns of Emerald, Beaconsfield and Pakenham, where the responsibility lies with the Shire to identify, assess and remedy any hazard tree that falls within the declared area.

Other relevant information

Responsible persons, other than private persons, must have an electric line clearance management plan in place for areas for which they have responsibility (refer Electricity Safety (Electric Line Clearance) Regulations 2010).

Procedures and criteria for identifying hazard trees

In the course of everyday duties, potentially hazard trees may come to the attention of Council staff or volunteer members of the entities with representation on the Municipal Fire Management Planning Committee, staff of the distribution businesses or other persons, including members of the public.

There are a range of factors which may indicate that a tree is a hazard tree. That is, a tree which is likely to fall onto, or come into contact with, an electric line. Some of these factors will be obvious when looking at the tree but many may only be apparent when the tree is assessed by a person with specific expertise and training, such as an arborist.

The following criteria may be used to assist in identifying a hazard tree:

- The size of the tree suggests that it is likely to come into contact with the electric line, for example because it appears to be encroaching or growing into the line clearance space
- There is an excessive lean on the tree, or branches hanging off the tree and the tree is in proximity to an electric (power) line
- The size or appearance of the tree suggests it could come into contact with the line including under foreseeable local conditions
- Structural weakness.

If a hazard tree is identified, the notification procedure outlined below should be followed. Where a responsible person becomes aware of a hazard tree for which they have responsibility, they must follow their own applicable internal procedure and the notification procedure described below does not apply.

Procedures and criteria for notifying hazard trees

To ensure that information regarding hazard trees is captured in an efficient manner and, as appropriate, referred to the responsible person for action, the following procedure for the notification of hazard trees should be followed:

- The organisation with responsibility for the highest percentage of lines within the municipality (the primary responsible person) is AusNet Services and therefore the person to whom hazard trees should be reported if the hazard tree is identified outside of the declared area.
- The organisation with the responsibility for power lines that fall within the declared area is Cardinia Shire Council.
- Where any person becomes aware of, or receives a report of, a hazard tree within the municipality, this should be referred to AusNet Services in the first instance and Cardinia Shire Council if the potential hazard tree is within the townships of Emerald, Beaconsfield and Pakenham. Where the Committee becomes aware of, or receives a report of, a hazard tree within the municipality, this must be referred to AusNet Services.
- Reports of hazard trees must be provided to AusNet Services for action as soon as practicable. Reports must include, as far as practicable:
 - The name and contact details and any relevant qualifications where known of the person making the report
 - As much detail as possible about the location of the tree (including, where known, GPS coordinates, details of numerical/name plate on nearest pole, name of nearest road or crossroads, closest landmark, whether tree is on private land or road reserve etc.)
 - A description of the tree (including, if known, the genus and species of tree)
 - The primary reasons given for the tree being identified as a hazard tree (eg. tree is in proximity to an electric line AND there is evidence of structural weakness and/or excessive lean and/or appears to be encroaching into line clearance space etc.)
 - An indication of whether or not urgent action is required.
- AusNet Services or Cardinia Shire Council must take all necessary steps to advise the person responsible for the tree that it may be hazardous where they are not the responsible person.

Primary Responsible Person Representative (PRPR)

For the purposes of this part of the Plan, the primary responsible person responsible for areas outside of the declared area is AusNet Services:

Contact details for AusNet Services, are as follows:

Agency name	AusNet Services (contracting Select Solutions)
Position title of contact person	Peter Scotto
Telephone	03 9237 4419 or 0408 403 749
Email address	peter.scotto@select-solutions.com.au
After Hours Number	03 9237 4419

Within the declared area it is Cardinia Shire Council.

Procedures for Notification of Responsible Persons

Where a potentially hazardous tree has been reported to AusNet Services, the procedure outlined below should be followed.

AusNet Services and all responsible persons should put in place mutually agreed arrangements for the manner in which reports of hazard trees are passed on to responsible persons.

Reporting Timelines

AusNet Services should provide reports to the relevant responsible person as soon as practicable.

In circumstances where:

- the hazard tree is located within a high bushfire risk area (as per s.80 of the Emergency Safety Act 1998) and the hazard tree is reported during the fire danger period declared under the Country Fire Authority Act 1958 (Vic); or
- the report indicates that there is an imminent danger that the tree will contact or fall onto lines as a result of minor environmental changes;

The hazard tree must be referred to the relevant responsible person for action as soon as possible, and by close of the next business day.

Each responsible person (other than the primary responsible person) must provide AusNet Services with contact details of the person (position title) who reports should be provided. It is the responsibility of each responsible person to ensure that AusNet Services is provided with up-to-date contact details.

Register

It is recommended that AusNet Services maintain a register in which all notifications are recorded together with the date of receipt of the notification and the date the notification was reported to the responsible person.

It is recommended that responsible persons also maintain a register of notifications received of hazard trees for which they are the responsible person.

Primary Responsible Person Consultation

The Committee notes that AusNet Services as the Primary Responsible Person was consulted in relation to the development of these procedures.

Procedure for Cardinia Shire Council and hazard trees in the Declared Area

Report comes into Council (either through external agency/organisation, member of the public or internal staff/contractors) of hazard tree likely to fall or come into contact with powerlines.

Hazard tree is logged into CRM (Councils internal management and tracking system) and is assigned to the primary responsible person responsible. This person determines who is responsible for the hazard tree. If the hazard tree is in the declared area of Emerald, Beaconsfield and Pakenham the hazard tree is assessed and designated into one of the following categories:

- Hazard Tree (assessed)
- Not a Hazard Tree (assessed)

If the tree is not a hazard tree, then it is closed off in CRM.

If the tree is a hazard tree, then the primary responsible person responsible is required to action a process to have the hazard tree treated (i.e., trimmed or removed) and update CRM as appropriate.

Once the identified hazard tree has either been treated, deemed safe or completely removed, the assessor is again required to update CRM as such. Once the 'end point' has been reached for each individual tree, sign off is required within CRM to ensure each individual tree is closed off.

