



LATROBE CITY

MUNICIPAL BUSHFIRE
RISK ASSESSMENT

July 2020



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ABBREVIATIONS & DEFINITIONS

Abbreviation	Full Title
APZ	Asset Protection Zone – utilises extensive fuel management to provide the highest level of protection to human life, property, key community assets and critical infrastructure. The goal of this aggressive fuel treatment is to reduce radiant heat and ember attack in the event of a bushfire
AS 3959:2018	Australian Standard 3959:2018 Construction of buildings in bushfire-prone areas
Bushfire	An unplanned fire in vegetation, including grassfires
Bushfire Attack Level (BAL)	Means the bushfire attack level as defined in <i>AS 3959:2018 Construction of buildings in bushfire-prone areas</i> as a “means of measuring the severity of a building’s potential exposure to ember attack, radiant heat and direct flame contact, using increments in radiant heat expressed in kilowatts per metre squared, and the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire”
Bushfire Hazard	Materials that can fuel a fire
BMO	Bushfire Management Overlay
Bushfire Prone Vegetation	Means continuous vegetation including grasses and shrubs but not including maintained lawns, parks and gardens, nature strips, horticultural areas, vineyards and orchards
Bushfire Risk	The probability of a bushfire starting and spreading, but it can also be used to describe the likelihood of an asset, such as a building, being damaged or destroyed by a bushfire
CFA	Country Fire Authority Victoria
Defendable Space	An area of managed vegetation around an asset likely to be at risk from bushfire that protects it from direct flame contact and intense radiant heat, as well as providing an area where firefighters can defend the asset
DELWP	Department of Environment, Land, Water and Planning
FFMVic	Forest Fire Management Victoria
Fine Fuel	Dead plant matter less than 6mm in diameter
FRV	Fire Rescue Victoria
Fuel Break	Synonymous with “firebreak”; any natural or constructed change in fuel characteristics, which affects fire behaviour so that fires burning into them can be more readily controlled. Fuel breaks will not stop a major bushfire but provide a fire control line from which to suppress a fire
Fuel Structure	The quantity and type of fuel at different heights above the ground usually separated into surface, near surface, elevated and bark
Hazard Reduction	Reducing fuel loads in any given area, generally by burning, mechanical, manual or chemical means
Managed Vegetation	Combustible material that is permanently maintained in a minimal fuel state, generally mechanically treated in an APZ
Minimum Fuel Condition	A condition to where fine fuels are minimised to the extent that the passage of a fire will be prevented or severely restricted. This generally requires the removal of dead fine fuel and the control of live fuel breaks in the continuity of any fuel, maintenance of a high moisture content in vegetation, or replacement of vegetation with roads, tracks, paths etc
SEIFA Index	SEIFA stands for Socio-economic Indexes for Areas. This suite of indexes ranks geographic areas across Australia in terms of their socio-economic characteristics. The SEIFA indexes are created by combining information collected in the five-yearly Census of Population and Housing
OFH	Overall Fuel Hazard (Hines, et al 2010). Classes used to quantify OFH are Low, Moderate, High, Very High and Extreme
VFRR	Victorian Fire Risk Register
WMO	Wildfire Management Overlay



EXECUTIVE SUMMARY

The Latrobe Valley is located in the Gippsland Region and is approximately two hours' drive east of Melbourne. The Latrobe Valley is settled between the Alpine and Strzelecki Ranges. Both of these Ranges consist of vegetated areas primarily made up of forest and plantations. Between the two ranges, the Valley consists of townships, farming land plantations and areas of native vegetation.

Since settlement, bushfires have been a regular occurrence in and around the Latrobe Valley. Some of these bushfires have caused major damage to properties and lives have been lost. With the effects of climate change continuing to be realised, it is expected that the likelihood and consequence of bushfires locally will increase. Whilst the ranges were spared from the 2019/2020 bushfire season, it is a clear indicator that bushfires in this type of landscape are more prevalent and will burn for longer periods of time.

The Latrobe Valley is susceptible to major bushfires that in most cases can be categorised into two scenarios. Firstly, those bushfires which burn for an extended period of time in the surrounding forested areas and continually threaten lives and property over days and in some cases weeks. Secondly, bushfires which only burn for a single day but cause significant impacts on lives and property.

In response to the recommendations arising from the Black Saturday Royal Commission, the Victorian State Government introduced Clause 13.02-1S into Planning Schemes across the state including the Latrobe Planning Scheme. This policy introduces the need for municipalities to consider the effects of bushfires burning across the landscape in addition to the Bushfire Management Overlay. The Bushfire Management Overlay is primarily restricted to managing the risk from bushfire within 150 metres of vegetation. The introduction of this Clause is a key driver for this project and subsequent recommendations.

This report outlines the bushfire risk within Latrobe City Council's footprint. This was determined by the analysis of multiple risk indicators developed by various Agencies. The outcomes have been tested with various community groups, agencies and organisations and other stakeholders. In summary, the 13 locations where detailed assessments were completed, identified a range of risk levels including extreme, significant and lower with the intent of informing settlement opportunities. There are areas of Latrobe City Council where an extreme risk level is present and settlement opportunities are very limited, including Traralgon South, Boolarra, Toongabbie North, Tyers, Yallourn North and Moe South.

The importance of aligning land use planning and fire management treatments cannot be underestimated. This report demonstrates that the two systems can no longer be implemented in isolation of each other. Fire management treatments can provide highly effective short to medium term benefits in achieving community risk reduction. With the implementation of planning treatments that are based on the outcomes of a risk assessment, this will achieve highly effective and long-term risk reduction benefits for the community.

The ongoing management of bushfire mitigation treatments is critical. There are numerous plans and strategies that, when effectively implemented, will reduce the risk to communities. However, the Municipal Fire Management Planning Committee needs to be confident that the treatments have been implemented and maintained for the duration of the fire danger period. With the Safer Together project underway, it is timely for the MFMPC to effectively engage with agencies to develop strategies to audit and check for compliance.

A key outcome of this analysis is the recommendation of the extension of the Bushfire Management Overlay to cover all areas identified as an extreme risk in the Municipal Landscape Bushfire Risk map. This is in addition to other recommendations that, if implemented, will likely reduce the risk to the communities of Latrobe City.

In summary, this report supports the assumptions, perceptions and facts that Latrobe City Council has areas that are at extreme risk from major bushfires. This is only likely to increase with the effects of climate change being experienced across the Latrobe City Council footprint. A collaborative approach by all agencies, communities and regulators will go a large way to managing this risk into the future.

1 INTRODUCTION

1.1 Purpose

The purpose of this report is to identify and assess bushfire risk and provide recommendations regarding future land use and development planning within the context and requirements of Clause 13.02. This report also outlines the detailed assessments of small towns and rural areas surrounding existing settlements that may have the ability to be rezoned for rural living purposes.

The project has three key objectives:

- Prepare a Municipal Bushfire Risk Profile Report to inform future land use planning and decision making.
- Undertake detailed assessments of bushfire risk for selected precincts.
- Translate necessary bushfire risk considerations into recommendations.

The completed assessments and recommendations will underpin future land use planning decision making where the consideration of bushfire risk is necessary.

This document is proposed to be incorporated into the Latrobe Planning Scheme as a background document.

1.2 Background

Bushfires regularly threaten and impact the communities within the Latrobe City Council's footprint. Numerous houses have been destroyed by bushfires over the last 20 years. This is in addition to the 11 people who died as a result of the 2009 Black Saturday bushfires which originated 3 kilometres south-east of the Churchill fire station. These impacts create long term psychological challenges along with the immediate impact on livelihoods and lives being lost.

Due to the ongoing presence of bushfire risk, the State Government introduced Clause 13.02-1S and Clause 71.02-3 into the Latrobe Planning Scheme to support the effective consideration of bushfire risk at multiple levels. Furthermore, Latrobe City Council introduced additional bushfire considerations at Clause 21.02-20 and Clause 21.04-12 so as to ensure the local landscape and risk were appropriately considered. To be effective, initiatives such as Clause 13.02-1S require strong and effective fire management plans to manage the risk from bushfires. Fire management treatments may include the creation of defendable space, fuel management initiatives and access and egress creation and protection. The need to balance fire management and land use planning initiatives is becoming increasingly important to reduce the negative effects of climate change.

In Victoria, bushfire safety is considered a shared responsibility between the fire services, Victorian and local government, communities and individuals. All parties are responsible for preparing all year round in order to protect themselves and their interests from the impact and effect of bushfires.

Latrobe City Council have identified a number of locations to be assessed. These locations have been threatened or impacted by bushfires over the past two decades including the 2009 Black Saturday bushfires which impacted on Churchill, Traralgon South and Koornalla with the Delburn bushfire also in 2009 impacting on Boolarra. In 2007, a bushfire that started at Coopers Creek which is located south of Walhalla, threatened Tyers and Glengarry before impacting Toongabbie.

1.3 Context

With the introduction of Clause 13.02 in the Latrobe Planning Scheme, Council is now required to ensure the risk of bushfire has been considered when determining future development options. This project represents Council's strategic response to the increased importance of bushfire risk introduced by the Minister of Planning into all Victorian planning schemes, in particular the requirement that *"the protection of human life is prioritised over all other policy considerations"* in areas subject to bushfire risk.

As required by new policy directions, Council seeks to achieve no net increase in bushfire risk to the community, but also identify opportunities to reduce risk to existing settlements from bushfire. Consideration of the role and function of the Municipal Fire Management Planning Committee (MFMP) now and in the future is a key component along with supporting the adaptation of communities in extreme risk locations to better manage the risk from bushfire.

Recognising the multiple tools and models available to represent bushfire risk, and acknowledging that available planning controls do not effectively represent locations exposed to bushfire, a key outcome of this project was to establish a 'single view' of bushfire risk to better inform land use planning decision making to assist Council in responding to the changed policy setting.

The assessment of bushfire risk relies on existing risk assessment documents that are available either publicly or have been made available to the consultants through this project. These risk assessment outputs have been developed by multiple agencies to assess risk within a particular context. When analysed together, the outcome will provide a reasonably clear and concise indication of where the highest bushfire risk locations are and the local and landscape conditions which create or influence this risk.

This project will provide information relating to bushfire risk whilst also recommending opportunities to reduce risk to existing communities. The project will make recommendations on improved bushfire management treatments to ensure the ongoing management of risk is achieved.

Latrobe City Council have identified 13 locations across the municipality which require detailed assessment. These locations include the seven small townships and selected Rural Living precincts (existing and proposed) included within Rural Living and Farming Zones. The 13 locations were identified in the Rural Land Use Strategy (Rural Framework Plan)¹ along with other areas zoned as either Rural Living Zone or Farming Zone which had been identified for potential rezoning. The areas were identified following the Rural Land Use Strategy 2019, the receipt of submissions to Amendment C105 Live Work Latrobe, consideration of existing structure plans and a review of existing land use constraints across the municipality. Numerous areas were excluded by the constraints mapping, including some areas surrounding Latrobe City's four main towns. These locations identified for further assessment were:

- Boolarra
- Churchill (East)
- Flynn
- Glengarry
- Hazelwood North
- Koornalla
- Moe South
- Toongabbie
- Toongabbie North
- Traralgon South
- Tyers
- Yallourn North
- Yinnar

A number of these locations have been threatened or impacted by bushfires over the past two decades.

The general objective of this report is to make recommendations that will guide stakeholders involved in fire management planning to mitigate bushfire risk.

In addition to the 13 locations, a municipal wide bushfire risk assessment will be conducted to identify locations with higher and lower bushfire risk in order to support or discourage settlement development opportunities..

Figure 1 outlines the localities that have been assessed.

¹https://www.latrobe.vic.gov.au/sites/default/files/Rural_Land_Use_Strategy.pdf

Fire Risk Consultants - Bushfire analysis

Latrobe City Council Bushfire Risk Assessment - Precinct Analysis

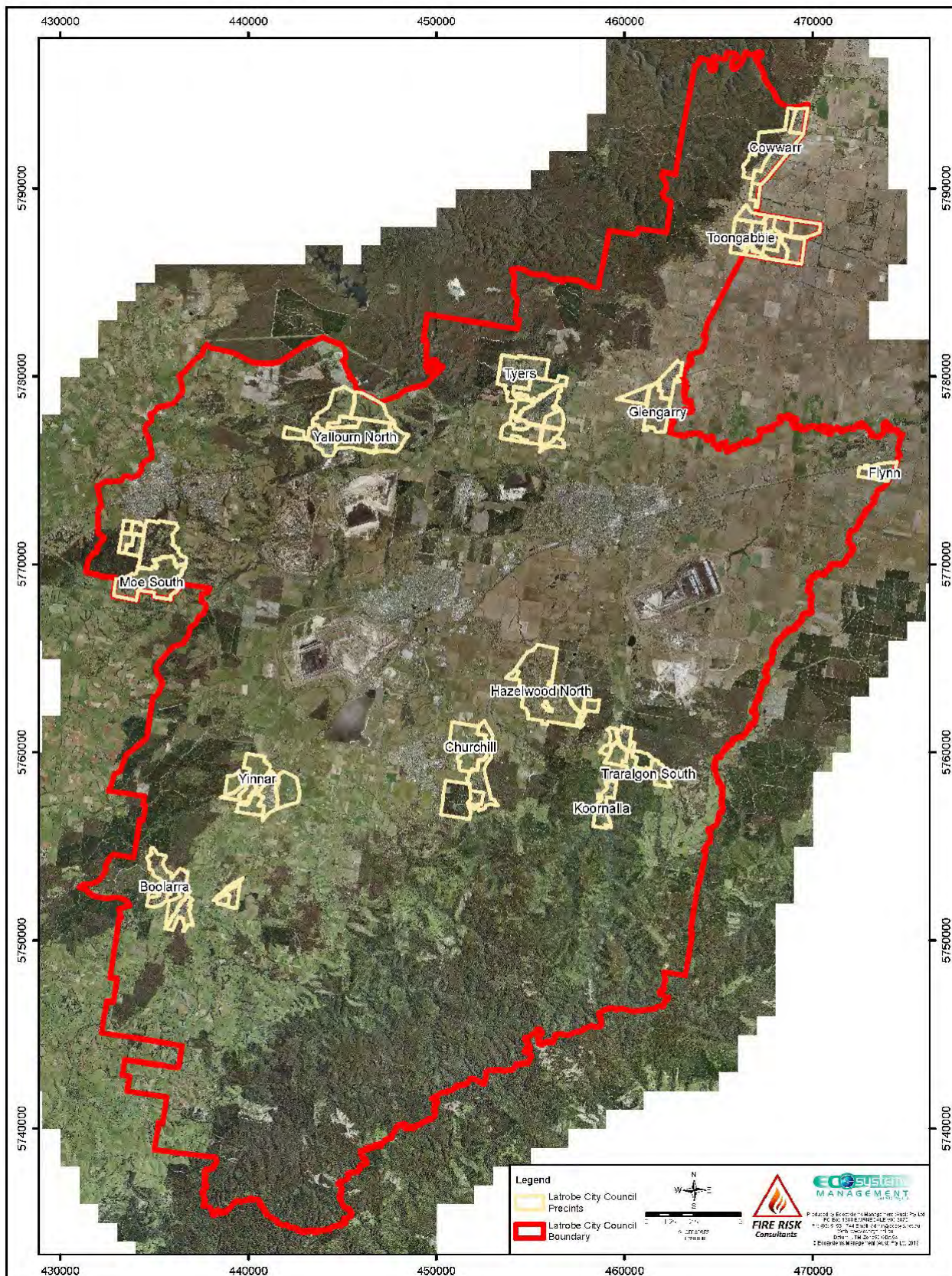


Figure 1 – Latrobe City footprint and the identified locations

1.4 Community and stakeholder consultation

Community and stakeholder consultation was undertaken and this was led by Latrobe City Council Officers as part of the preparation for the Municipal Bushfire Risk Assessment. When consulting, bushfire risk was discussed from a planning perspective as opposed to how it is defined by building and fire prevention sectors. Bushfire risk from a land use planning perspective is also how bushfire risk is discussed and assessed throughout this report.

Stakeholder consultation occurred with:

- CFA policy divisions and local brigades (now Fire Rescue Victoria (FRV) and the CFA);
- Plantation Forestry industry;
- Department of Land Water and Planning (DELWP – Regional Planning Office);
- Municipal Fire Management Planning Committee;
- Forest Fire Management Victoria – Regional office;
- Victoria Police;
- Small town Community Associations;
- Fire Risk Consultants' representatives.

Consultation took place in a variety of forms including a bus tour with key agencies and organisations. The attendees visited Toongabbie North, Toongabbie, Tyers and Traralgon South to get an appreciation of the bushfire risk from a land use planning perspective and to provide feedback to the project team on options to mitigate the risk. The attendees were requested to provide feedback/considerations from their experience on the tour. This feedback included:

- Project is heading in the right direction
- How do we engage the community?
- Good to see engagement from so many different agencies
- Importance of fire prevention planning to facilitate new development in higher risk areas
- Roadside vegetation needs a whole of agency approach to manage risk
- Traffic light map is an effective and simple strategic tool
- Private public land interface is a tricky one to manage
- The role of the Municipal Fire Action Group to be confirmed
- Subdivision results in more people, resulting in potential consequence and increased risk
- Like linking MFMP and Planning Scheme
- A multi-agency approach is required for bushfire mitigation
- Avoid categorising BMO v BPA, think of bushfire relative to risk in strategic context
- Strategic land use planning management should not rely on BMO
- Look to broad and diverse solutions to achieve bushfire mitigation
- Agree holistic fire management plan which can be relied upon for both strategic and statutory land use planning.

Latrobe City Council staff met with community groups to discuss each community's level of bushfire risk in a land use planning context, awareness and how prepared they are. Discussion of possible measures to reduce bushfire risk was also raised by community members.

The communities that were engaged were:

- Tyers & District Community Association
- Glengarry Community Association
- Yinnar & District Community Association
- Hazelwood Jeeralang Community Association
- Traralgon South & District Township Association
- Toongabbie Township Group Inc
- Yallourn North Action Group (YNAG)
- Boolarra & Community Development Group



Figure 2 – Bus tour at Toongabbie

During the community meetings a number of key themes were raised including:

- Importance of safe access and egress routes prior to and in the event of fire, the need for greater roadside fuel reduction and opportunity to secure access and use of road easements during fire events;
- Community association members in most cases understood the potential for ember attack within each location, however felt that not all community members had similar appreciation of this risk;
- Appreciation and acceptance of dryer periods being experienced in recent decades and likely increasing bushfire risk as a result of climate change;
- There was generally a good understanding of the bushfire hazard (i.e. likely source and direction of fire, prevailing wind conditions). However again, members indicated that not all community members necessarily understood this; and
- The potential for existing and new forest plantations to impact the community during bushfire and some groups indicating that buffers to urban areas should be mandatory.

The consultation and discussions informed the 24 recommendations detailed in section 12.4 of this report.

- The desire for increased fuel reduction and preparation works to reduce the risk of bushfire and their potential to negatively impact settlement areas;
- That in extreme bushfire conditions, the risk and impact of bushfire was potentially fatal;
- Those locations impacted by the 2009 Bushfires had since experienced 10 years of regrowth which has resulted in a 'thick understory' increasing fuel loads. Back burning is therefore needed in priority locations – where this will lower risk to settlements.
- Residents in higher risk locations and who had experienced a bushfire felt that they had more information and knowledge and as a result had a lower risk.

The Community groups then provided possible preparedness measures to reduce the risk from bushfire:

- Need to work with landowners adjoining townships to manage bushfire risk;
- Community information meetings are not always well attended unless there is a present bushfire risk;
- Conversely CFA community information 'events' such as the Bus Tour event were received positively;
- Support for more regular community education and promotion of measures to be taken in order to prepare for bushfire (i.e. information brochures and calendars are examples of materials that are developed and distributed by some community associations however this is not consistent across all township areas);
- State Emergency warning systems are at times confusing and not always relevant/accurate;
- Some settlement areas had experienced an increased population change, particularly in locations which had previously experienced bushfire impact and property loss during 2009;
- There was a view that the message of high bushfire risk is losing impact as this is the message most years;
- Communication systems were at risk if not working or are cut during a bushfire (i.e. NBN systems);
- There is a need to review roadside fire fuel loads on all key roads relied upon for access during fire;
- Community based emergency management is a positive initiative;
- There is a need to map roads and dead ends and identify opportunities to create access with easements in times of fire;
- 'Bush blocks' create risks to neighbours if unmanaged. Fire notices should do more than require boundary slashing;
- Small Farm Zone lots which cannot be built on were also considered to increase risk to neighbours as a result of planning restrictions;
- Providing water fill points within towns may support preparedness and responses to bushfire;
- There was generally a low degree of shared understanding of which residents would stay or leave, however there was considered to be an increasing trend of more residents leaving the area;
- It was noted that many people won't leave their homes in a bushfire event due to difficulty in relocating large animals and pets (e.g. horses/donkeys);
- Limited or no fuel management of bushland reserves is currently being undertaken;
- Early warning systems like the Latrobe Valley Information Network (LVIN) should be promoted and made more accessible for the community;
- Attention is given to burning and fuel management up in the bush yet this attention should be redirected to where it matters most – to areas adjoining towns.

2 BUSHFIRE CONTEXT

2.1 Victorian context

Victoria is one of the most fire-prone areas in the world, with a history of catastrophic bushfires such as Black Friday (1939), Ash Wednesday (1983) Alpine Fire (2003), Great Divide Fire (2006) and most recently, Black Saturday (2009). Victoria's high bushfire risk is the result of factors that increase the likelihood and consequences of fire. These factors include large areas of the state comprising of highly flammable dry eucalypt forest, protracted droughts and an increasing population density in bushfire-prone areas.

While bushfire is a significant risk facing Victoria, it is also a natural part of the environment and many plant species rely on fire to regenerate.

A variety of causes can ignite a bushfire: some bushfires result from events that are natural, such as lightning, while others result from human activity. Following ignition, the direction and speed of the fire's travel, and the height and intensity of the flames are determined by climatic and weather conditions, topography and fuel in the area.

The climate in Victoria is characterised by mild, moist winters followed by hot dry summers. The Victorian fire season typically occurs between the end of October and the start of May.

Days of higher fire risk are often typified by the passage of a cold front, which causes fires to spread rapidly and then change direction due to the wind change. Most of Victoria's catastrophic fires have been subject to this type of effect, with many fatalities resulting from people being trapped after the fire changed direction.

Topography affects fire behaviour: fires travel upslope much faster than they travel on flat land and corresponding reductions in speed apply downslope. North facing slopes are drier than south facing slopes, and fuels on north facing slopes will ignite and burn more easily than those on south facing slopes. Areas upslope of an approaching fire are considered highly dangerous.

Victoria has two main vegetation types affecting the spread of bushfires: grass and forest. Grass fires are predominantly wind driven and spread rapidly under the influence of strong winds. Grass fires burn at a lower intensity and flame height than forest fires and burn out quickly. Grass fires can often be quickly extinguished with water.

In contrast, forests have more fuel (leaf and bark litter on the ground, shrubs, grasses, trees etc.) available for a fire to burn. Wind speeds are lower in the forest and forest fires take some time to reach their full potential: however, once fully developed, forest fires usually have a greater flame height and intensity than grass fires, especially where the flames are burning in the tree canopy. Large logs continue burning after the initial fire front has passed. The high flames and intensity of forest fires make them difficult to control, and fire fighters are generally unable to control fires where the flames are over 10 metres in height.

While the weather and topography in an area cannot be modified to reduce the fire hazard, a reduction in the flammable fuels in an area can reduce the flame height and intensity of a forest fire. Reduced flame height and intensity makes it safer and easier for firefighters to suppress a forest fire. Infrastructure such as roads can also increase the speed of a fire response, allowing firefighters to safely and effectively suppress a fire before it reaches maximum intensity and flame height. Reduced fuel and improved access infrastructure can subsequently reduce the impact of the fire on communities and the environment.

The State of Victoria currently has three fire services, each of which have different responsibilities when it comes to fire prevention and suppression. These services are Fire Rescue Victoria (FRV), the Country Fire Authority (CFA) and the Department of Environment, Land, Water and Fire (DELWP).

The objective of all bushfire management activities in Victoria is to reduce the impact and consequences of bushfire on people, property and the environment, with the protection of human life the highest priority.

In Victoria, bushfire safety is considered a shared responsibility between the fire services, the Victorian Government and local government, communities and individuals. All parties are responsible for preparing prior to the fire season in order to protect themselves and their interests from the impact and effect of bushfires.

This project is aimed at supporting the management of bushfire risk through a variety of methods. Treatments such as the provision of developments with roads that provide a separation between vegetation and dwellings not only reduces the radiant heat projected onto dwellings but also allows firefighters access to areas to provide additional protection and undertake suppression activities. An example of this type of outcome supports the integration of planning and fire management treatments to get the best outcome for the community.



2.2 Bushfire risk within the Latrobe municipality

Bushfires have destroyed or threatened land and property in the Latrobe City municipality for many years. Major bushfires including those in 1939, 1944, 1983, 2006/07, 2009, 2014 and 2019 have resulted in the loss of life and property.

The landscape is conducive to the ongoing threat of major bushfires every fire season due to the large tracts of forest and plantations intermingled with residential developments and townships. There are large tracts of farmland which also contributes to the risk of bushfires and allows for rapid spread of bushfires towards community assets. Often these developments have been permitted with no consideration of bushfire risk in the land use planning context. These developments have increased bushfire risk to communities.

The Great Dividing Range to the north and the Strzelecki Ranges to the south dominate the bushfire risk to the municipality. These mountain ranges, interspersed with various parcels of native and plantation vegetation dotted around the landscape, support a bushfires ability to threaten most parts of the municipality.

Due to the type of landscape, vegetation present, seasonal and climatic conditions the risk posed from bushfires can vary significantly year to year. As plantations are established, thinned and then fully harvested the risk level fluctuates. The risk level also varies depending on the species of tree established within the plantation.

Forested areas primarily located on public land are managed through various fuel management programs. However, if targeted and comprehensive fuel reduction burning programs are not undertaken annually bushfire risk increases. An additional complicating factor in active fuel management is that forested areas on private property largely only experience some form of fuel reduction during large uncontrolled bushfire events. There are very few areas of the Latrobe municipality where the effects of a bushfire would not be felt under elevated Fire Danger Indices.

In urbanised areas, there is the potential for criminal behaviour of arson, dumping cars and setting them alight and other arson related activities. This contributes to the overall bushfire risk and the likelihood of ignitions. Whilst programs are in place to reduce the occurrence of fires in vegetated areas, this is very difficult to prevent.

On days with an elevated fire danger index (FDI), the potential for bushfires to travel long distances through forest vegetation is achievable. On these days, many communities can be under threat at the same time which places a strain on suppression capability. There is also the potential for the south west wind change to occur which is a common occurrence on days with an elevated FDI. This wind change will change the direction of the bushfire and threaten more communities. This was experienced in the 2009 Black Saturday and 2007 Coopers Creek bushfires.

There is also the potential for bushfires to start and very quickly threaten communities on the urban / rural and peri-urban interface. Examples of these locations include Edward Hunter Reserve (Moe), Traralgon Railway Reserve (Traralgon), Crinigan Road Reserve (Morwell), Bermingham Park (Glengarry) and Traralgon South Flora and Fauna Reserve (Traralgon South). These types of bushfires can start on low or high FDI days and due to proximity of dwellings, these assets could be impacted.

The fragmented nature of the landscape intermingled with forest, plantation and farmland creates issues for first responders to firstly locate a bushfire and to then organise appropriate suppression activity. In some cases, there are remote locations that require first responders to travel some distances to be able to assess a bushfire.

Located within the Latrobe Valley, there are several assets of State significant infrastructure (primarily related to the generation of power) which are nestled into areas of forest vegetation and plantations. On several occasions in the past, this critical infrastructure has come under threat by bushfire. This includes the 2009 Black Saturday bushfires where the Loy Yang power stations and coal mine came under threat from the Churchill bushfire. A major bushfire in 2014 at Hernes Oak entered the Hazelwood Coal Mine and burnt for more than a month. This bushfire also impacted the Maryvale Paper Mill and threatened to disrupt production.

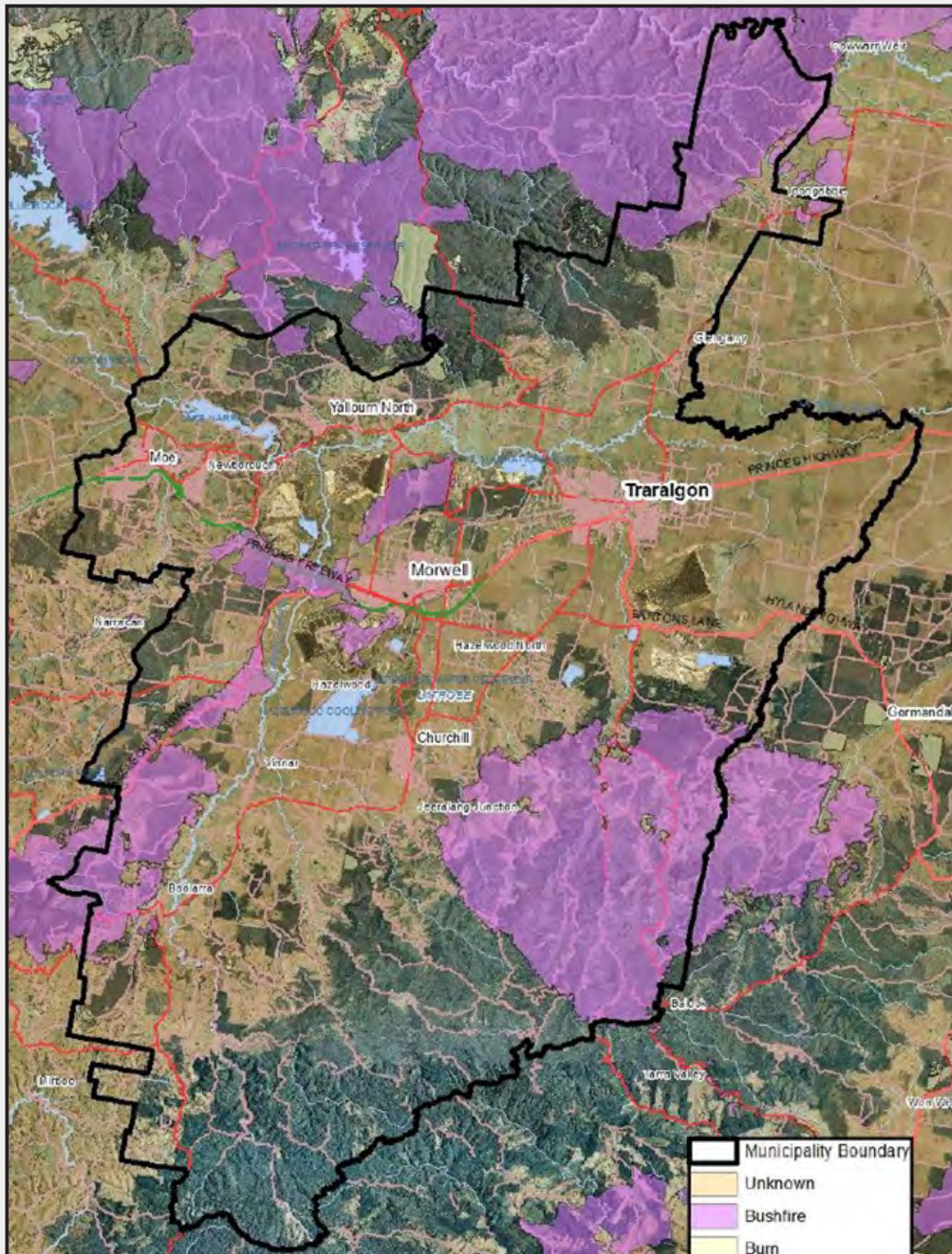


Figure 3: Known fire history within Latrobe City and adjoining municipalities, excluding Yinnar 2019 fire².



The effects of climate change will see increased occurrence of bushfires and bushfires that can no longer be controlled through initial suppression activities. This is due to the underlying dryness of the vegetation which is changing the types of fuel that have historically been in place. Areas of Latrobe City that would not have been under threat of bushfires due to the types of vegetation, are now under threat due to the drying that is occurring, particularly in and around the Strzelecki Ranges.

Figure 2 on the previous page demonstrates the known fire history within Latrobe City. It shows that, with forest vegetation to the north and south, risk is significantly influenced by hazards outside the municipality.

This is acknowledged by the Strategic Bushfire Management Plan – East Central, which explains that:

“the worst bushfires in this catchment start in the grasslands in and north of Mount Worth Park, and north of Yallourn North in the Tanjil State Forest, with bad bushfires starting many kilometres into the forest.... Planned burning to stop large bushfires spreading out of the large northern forested and Mt Worth areas is the key to reducing the risk to towns and infrastructure in this catchment.”

As bushfires do not follow municipal boundaries, the management of landscape risk will require Latrobe based fire management planners to engage with their neighbours to introduce risk reduction activities. Furthermore, with the increasing risk of bushfires within the Latrobe City footprint, the need to collaboratively manage this risk through an agency, Government and community partnership is critical.

2.2 Bushfire history within the Latrobe landscape

The threat of bushfire exists annually throughout Latrobe³. Based on historical analysis, major bushfires have Occurred every 3-4 years over the past 11 years.

The vast majority of bushfires in Latrobe, around 96%, occur in scrub or bush and grass type vegetation with some 51% of all bushfires contained to less than one hectare in size. The ignition factor of many fires is unknown. However the known causes of ignition for bushfires are:

- Deliberately lit or suspicious fires 32.7%
- Unattended or inadequately controlled fires in the open 9.4%
- Fuel reduction burns on private land 6.7%

74.3% of the Latrobe footprint is made up of “freehold” land (e.g. farming, business, and residential). Plantations make up 16.5% and 9% is Public Land (National Parks, State Forests, Conservation Reserves, etc.). While forest fires represent only 3.8% of all bushfires; when they do occur, they can have devastating consequences.

³Sourced from http://www.latrobe.vic.gov.au/Our_Community/Fire_Floods_and_Other_Emergencies/Fire

There have been a number of significant bushfires in the Latrobe area since 1906, these include (but are not limited to) the following:

Year	Start Date	Duration (days)	Incident Name	Latrobe Areas Affected	Cause	Size (ha)
2019	02/03/19	5	Yinnar South - Budgereee	Yinnar South, Budgereee	Lightning	Unknown
2014	09/02/14	45	Hernes Oak/Driffield	Moe, Hernes Oak, Driffield, Morwell, Hazelwood Coal Mine and surrounds	Deliberate lighting	Unknown
2009	07/02/09	Part of Black Saturday Fires	Glendonald Rd	Churchill, Traralgon South, Callignee, Hazelwood North, Hazelwood South	Deliberate lighting	24,500
2009	28/01/09	6	Delburn Complex	Delburn, Boolarra to Mirboo North	Deliberate lighting	6,440
2008	14/09/08	1	Brodribb Rd	Hazelwood	Unknown	Unknown
2006	14/12/06	22	Coopers Creek	Toongabbie, Cowwarr, Seaton and surrounds to the West, NW, North & NE	Unknown	25,952
2003	12/02/03	13	Princes Freeway	Morwell, Traralgon West	Vehicle	640
1998	29/09/98	1	Moondarra Control	Moondarra	Unknown	670
1997	31/12/97	12	Caledonia Fires	Caledonia River area of Alpine National Park	Campfire	32,000
1988	12/04/88	1	Yinnar	Yinnar	Burn off	
1983	08/02/83	1	Driffield	Driffield	Unknown	1,500
1978	06/03/78	1	Toongabbie	Toongabbie	Unknown	2,800
1972	06/09/72	1	Glengarry	Glengarry	Unknown	809
1965	15/02/65	17	Gippsland	Briagolong, Glenaladale, Boisdale, Licola, Stockdale	Deliberate lighting	Total for Gippsland 303,515
1944	14/02/44		Yallourn	Morwell, Yallourn	Out of control burn off	1,160,000
1939	13/01/39	7	Black Friday	Yallourn	Unknown	Unknown

Sadly, on numerous occasions the consequence of these bushfires has been the loss of life and property. In particular the Black Saturday bushfire that started in Churchill saw 11 people die and the loss of 145 houses⁴. The Delburn bushfire that occurred a week before Black Saturday saw the loss of 44 houses⁵.

The fire history analysis does indicate a reduction in the periods of time between major bushfire events, with bushfire events occurring more often since the late 1990s.

⁴ http://royalcommission.vic.gov.au/Finaldocuments/volume-1/PF/VBRC_Vol1_Chapter09_PF.pdf

⁵ http://royalcommission.vic.gov.au/Finaldocuments/volume-1/PF/VBRC_Vol1_Chapter03_PF.pdf

2.3 Climate change and bushfires

The Victorian Government's Climate Change Framework⁶ (the Framework) has identified the future impact of climate change on the emergency management sector. It states that in relation to emergency management the following scenarios will be realised:

- More complex emergency response situations as a result of increases in the frequency, intensity and severity of extreme weather events
- Response to emergency events will become increasingly more complex, especially for community preparedness and emergency responders
- Overlapping fire seasons in the northern and southern hemispheres will increase the cost of bushfire response as equipment and emergency management staff may not be able to be shared.

The Framework also identifies the changing vegetation type as our forests become drier due to reduced annual rainfall. These changes combined will mean larger and more complex emergency response situations in the future. It is also anticipated that the number of high risk days will increase which directly correlates to a reduced opportunity for Land Managers to manage the risk from their land through fuel reduction burning.

These issues strongly support the need to continually improve the way fire management planning is assessed and plans are delivered into the future. It also strongly supports the focus on effective land use planning along with fire management planning that supports the community to adapt and become more resilient to increasing bushfire risk.



⁶ https://www.climatechange.vic.gov.au/data/assets/pdf_file/0021/55254/DELWPClimateChange_Framework.pdf



3 BUSHFIRE RISK ASSESSMENT FRAMEWORK

The Bushfire Risk Assessment Framework has utilised the key policy arrangements in place to guide the process to determine the level of bushfire risk within Latrobe City Council. These are:

- Victorian Planning Provisions – Latrobe Planning Scheme Clause 13.02 – Bushfire Planning and Clause 71.02-3 – Integrated Decision Making
- Municipal Fire Management Planning
- Planning Practice Note 64 – Local Planning for Bushfire Protection

The Clause 13.02-1S (Bushfire Planning) arrangements are aimed at reducing future risk associated with land use developments.

3.1 Clause 13.02-1S and Clause 71.02-3 - Victorian Planning Provisions

The key driver for this project was the inclusion of Clauses 13.02-1S and 71.02-3 into the Victorian Planning Provisions.

These clauses introduced, amongst a range of things, a clear statement that the primacy of life is a key Planning Scheme focus.

The objective of Clause 13.02-1S is to strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life. When the clause was introduced into the Planning Scheme it introduced strategies to better identify, assess and manage bushfire hazards through the planning process.

The objectives for Settlement Planning as outlined in Clause 13.02-1S policy are:

- Directing population growth and development to low risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959:2018 Construction of buildings in bushfire-prone areas (Standards Australia, 2018).
- Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959:2018 Construction of buildings in bushfire-prone areas (Standards Australia, 2018) where human life can be better protected from the effects of bushfire.
- Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.
- Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reducing bushfire risk overall.
- Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.
- Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.
- Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS 3959:2018 Construction of buildings in bushfire-prone areas (Standards Australia, 2018).

3.2 Fire Management Planning

The Emergency Management Act 1986 and Emergency Management Act 2013 provide the emergency management framework for Victoria. Both Acts are currently in place, however, the 1986 Act will eventually be repealed. The Emergency Management Manual Victoria contains emergency-related policy and planning documents for Victoria, including the arrangements for State, Regional (Victorian State Government regions) and municipal fire management planning. The Victorian Government is currently reviewing these arrangements.

Where fire is a risk in the area, a Regional Strategic Fire Management Planning Committee and Municipal Fire Management Planning Committee is established to prepare integrated Regional Strategic Fire Management Plans and Municipal Fire Management Plans respectively.

These plans engage all agencies with a role in fire management and outline responsibilities.

The structures for fire management planning are defined in the Emergency Management Manual Victoria Part 6 Municipal Emergency Management Planning Arrangements - Guidelines for Committees. The diagram on the following page indicates these structures.

The Country Fire Authority Act 1958 relates to fire prevention and suppression in the county area of Victoria, with CFA responsible for the suppression of fire in this area. Although not explicit, the onus is on individual owners and occupiers of land to ensure their properties are free of fire hazards that may put the lives and property of other people at risk.

The Act also authorises municipalities to issue fire protection notices to landholders for fire hazard removal.

Each municipality with a bushfire risk appoints a Municipal Fire Prevention Officer. The Act authorises Municipal Fire Prevention Officers to issue Fire Prevention Notices on owners or occupiers of private properties to complete fire management works. A Municipal Fire Prevention Officer may enter private land to remove fire hazards if they are not treated within the time frame or manner stipulated on the Fire Prevention Notice.



3.2 Fire Management Planning (continued)

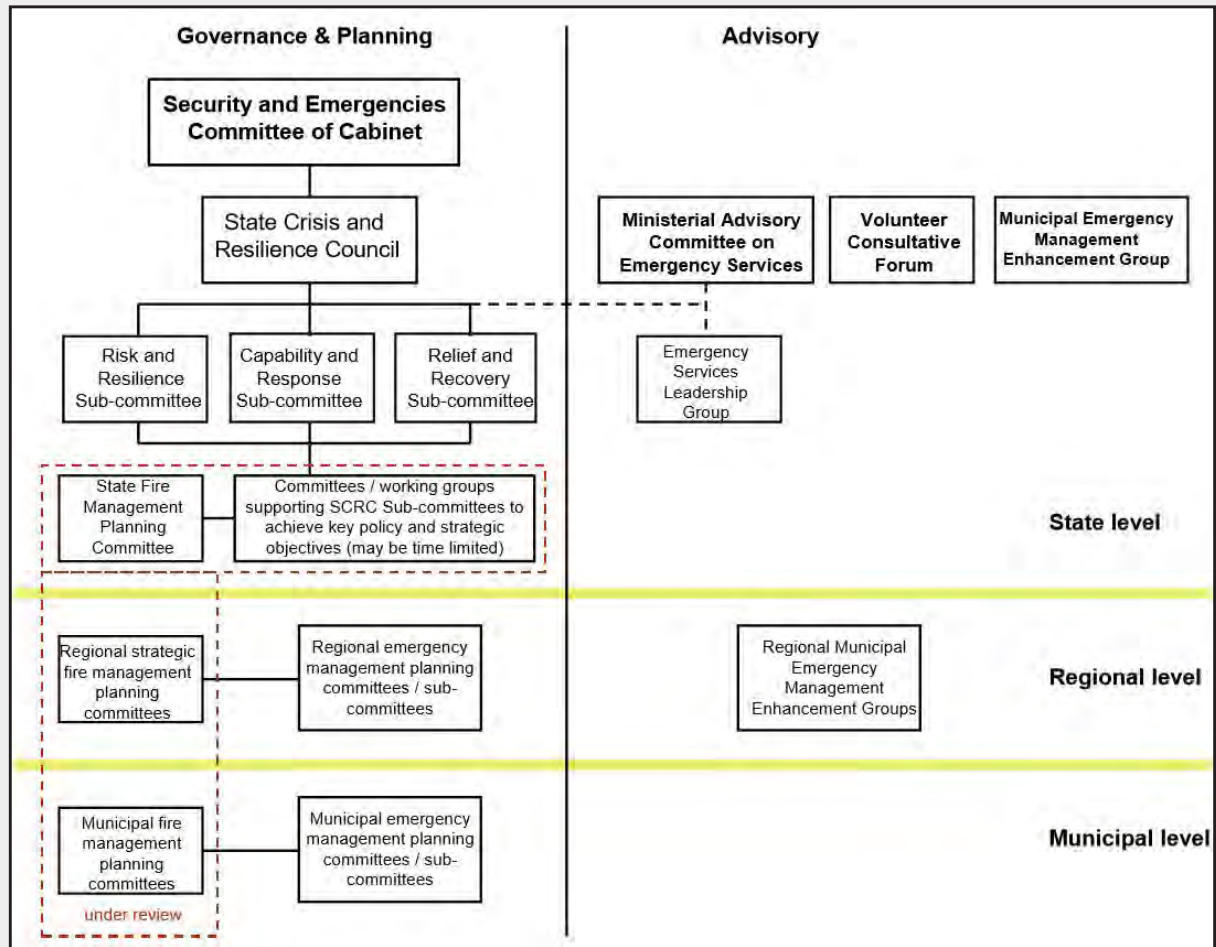


Figure 4 – An overview of the State's emergency management and planning committee structure⁷

Changes have been proposed to the emergency management structure and planning processes at the State, Regional and Municipal levels with Emergency Management Victoria (EMV) leading reforms in Victoria. The Emergency Management Legislation Amendment Act 2018 (EMLA Act) was passed through Parliament in August 2018, and will establish a new integrated, comprehensive and coordinated framework for emergency management planning. A Program Office has been set up by EMV to support the implementation of the new arrangements by 1 December 2020, when the legislation will take full effect.

⁷ The Emergency Management Manual Victoria, including Part 6 Municipal Emergency Management Planning Arrangements - Guidelines for Committees can be found at: <https://www.emv.vic.gov.au/policies/emmv>

3.2.1 Municipal Fire Management Plan

The primary document outlining the bushfire treatments within Latrobe City Council's footprint is the Latrobe City Fire Management Plan (referred to simply as Municipal Fire Management Plan or MFMP)⁸. This plan is a sub plan of the Municipal Emergency Management Plan (MEMP).

The MFMP has been produced by the Municipal Fire Management Planning Committee (MFMPC) pursuant to Section 20 of the Emergency Management Act 1986; and will be deemed to fulfil Section 55A of the CFA Act 1958.

The underlying basis of fire management planning in Victoria is the protection and preservation of life, property and the environment. Within this context the MFMPC has identified fire risks for communities in the Latrobe City being bushfire, structure fire, industrial fires and fires involving chemicals.

The purpose of the MFMP is to chart the planned and coordinated implementation of measures designed to minimise the occurrence, and mitigate the effect of fire in Latrobe, and the planned use of fire in the landscape for a variety of purposes. One important aspect of implementing the MFMP is to engage communities so that they have a valid influence in the fire management planning process. It ensures that the Latrobe MFMP responds to community needs, values and risks.

The MFMP's development includes a period of community consultation where relevant community input is sought and incorporated into the plan. The plan is then submitted for formal endorsement by Council as a sub-plan to the MEMP.

The MFMP is not designed to be a duplication of existing plans, rather it is to consolidate and coordinate the significant range of plans that exist within Latrobe that relate to fire. Attachment F of the MFMP outlines the linkages to other fire management related plans.

3.3 Safer Together

'Safer Together' is a new approach to reducing the risk of bushfire in Victoria and was adopted by the Victorian Government in 2015⁹. It is understood to be the State Government's response to the recommendations of the Victorian Bushfire Royal Commission 2009, which highlighted the importance of 'integrated fire management planning' by combining the efforts of land and fire agencies to manage fuel hazards on private and public land, based on where and how we can most effectively reduce risk.

The project focuses on the effectiveness of actions in reducing bushfire risk.

The new approach is about:

- better assessing where and when to use fuel management and other risk reduction activities;
- avoiding unacceptable impacts on the environment and communities;
- better integration across public and private land and fire managers working together and with communities to plan and deliver integrated bushfire management;
- involving local communities in decision making, drawing on local values and insights to promote resilience; and
- using world-leading science to manage fire and ecosystems.

This requires the involvement of the community, public and private land owners, utility providers, the State, Councils, and industry considering bushfire risk planning and fuel management being undertaken in a 'tenure blind' approach across both public and private land.

Safer Together requires Land and Fire agencies to plan and deliver bushfire management activities across public and private land. Safer Together is therefore based on a cross tenure approach to bushfire management to be coordinated by a range of agencies and stakeholders with varying responsibilities, obligations, expectations and capacities for bushfire risk reduction. This new approach provides a significant opportunity to reduce the risk and impact of bushfire to townships and settlements, by bringing together all agencies and the community to develop a shared understanding of bushfire risk and establishment of cross tenure fuel management. Example guidelines available to progress such planning include Community Based Bushfire Management frameworks and other materials since developed with the support of EMV such as the Bushfire Fuel Management Guide (May 2018).

⁸ http://www.latrobe.vic.gov.au/Our_Community/Fire_Floods_and_Other_Emergencies/Fire

⁹ Information on Safer Together can be found at: <https://www.safertogether.vic.gov.au/background>



3.4 Planning Practice Note 64 - Local Planning for Bushfire Protection

This Planning Practice Note (PPN) was released in September 2015 with the purpose to:

- provide guidance about local planning for bushfire protection
- assist councils to tailor the Local Planning Policy Framework in response to bushfire matters where necessary
- provide guidance on how to prepare schedules to the Bushfire Management Overlay.

The PPN provides information relating to municipalities on a range of bushfire related matters. This document has strongly influenced the areas that have been considered and the range of mitigation treatments included within this report.

The following information has been considered as part of this project:

- The Bushfire Management Overlay should not be used as the sole indicator of where bushfire matters need to be considered.
- Directing development to the lowest risk locations is the most effective way to prioritise the protection of human life.
- Due to the devastating impacts of bushfire there are some locations where the bushfire risk cannot be reduced to an acceptable level.
- Local policies that may be most effective are those that address bushfire issues spatially, identifying how bushfire affects particular locations and what the planning scheme response to this is.
- A range of tools are available at the planning scheme amendment stage that can support a tailored response to bushfire, such as building envelopes, section 173 agreements, native vegetation precinct plans and overlays such as the Development Plan Overlay.

The PPN also provides practical solutions including introducing the concept of establishing perimeter roads for subdivisions and ensuring appropriate setbacks are in place to increase the distance between vegetation and dwellings.

4 ASSESSING BUSHFIRE RISK

4.1 Introduction

There are a range of tools, systems and risk assessment processes that are utilised within Victoria to indicate bushfire risk. Some of these are aligned and others have been developed for very specific purposes. However, it is noted that reliance on information from any one area is a flawed approach. For that reason, a total of 13 indicators have been identified for the purposes of assessing bushfire risk across Latrobe City. These indicators combine to form a full picture of the bushfire risk. The background to each of the indicators is varied with some being developed through detailed scientific research while others utilise expert judgement. When these indicators are aligned, a determination of bushfire risk can be made to inform treatment planning.

Each of these indicators has been utilised in this report to inform an understanding of risk associated with each of the 13 Latrobe City precincts. Any perceived anomalies in data resulted in further analysis to ensure that a clear picture of bushfire risk was shown.

4.2 Bushfire risk indicators

4.2.1 Victorian Fire Risk Register

The Victorian Fire Risk Register - Bushfire (VFRR-B)¹⁰ is a process in which representatives from local government, fire services, public land managers, utilities and community groups map assets at risk from bushfire and assess the level of risk to the asset. Assets may include residential areas, children's services, hospitals, aged-care facilities, infrastructure, commercial industry, tourism events, flora, fauna and those that are culturally significant. Agency representatives also record the current treatments which are carried out to mitigate the risk to the asset. Treatments may include fire prevention, community education and hazard reduction activities.

The process has been facilitated in Latrobe City Council's footprint and the information is available in the Municipal Fire Management Plan. The process captures risks associated with human settlement, economic and environmental and cultural/heritage categories.

The VFRR-B supports and informs Municipal Fire Management Plans. A number of agencies are also using the VFRR-B as evidence based data to support their bushfire planning and decision making.

Figure 5 shows the human settlement risks within Latrobe City Council's footprint.

Within the Latrobe City footprint, there are a number of extreme risks that have been identified. A number of these exist within the 13 identified locations.

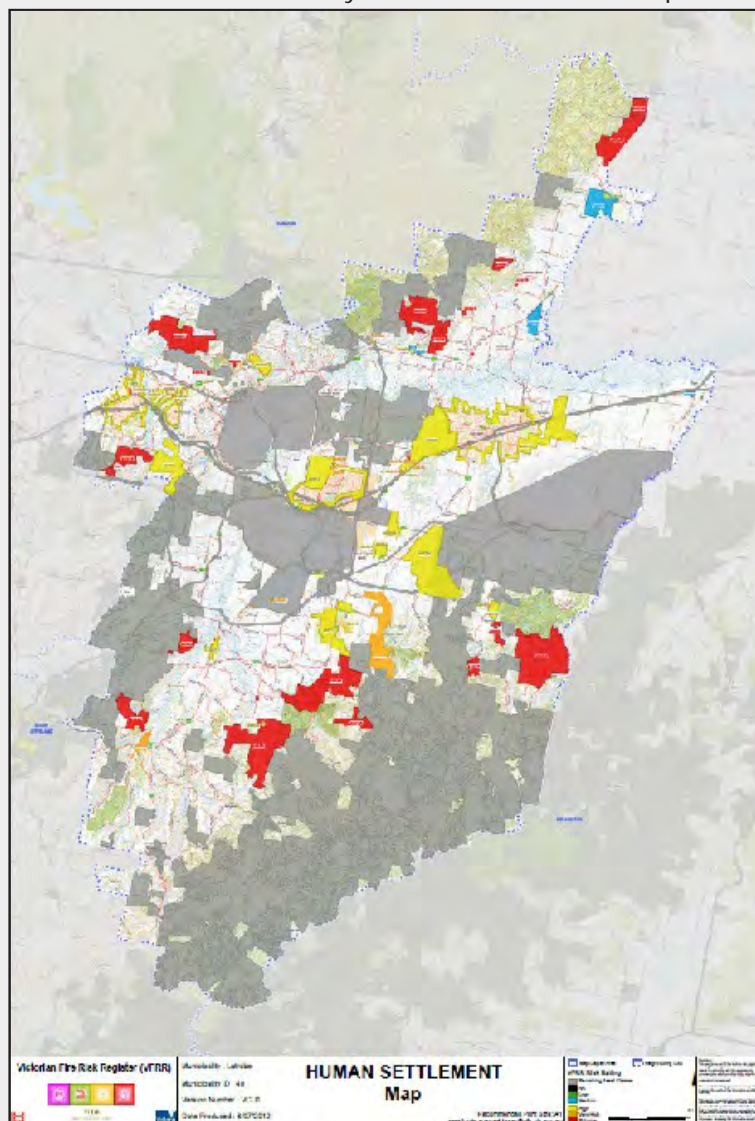


Figure 5 – VFRR human settlement map - sourced from Latrobe MFMP

A key limitation of using the VFRR tool is that it identifies areas that are developed at the time that the assessment was undertaken. It does not consider future risk through further development. During the scoring process, where possible, adjoining risk categories have been utilised to indicate the risk that may be present if development was to occur.

¹⁰ Information on VFRR can be found at www.vfrr.vic.gov.au

4.2.2 Phoenix Rapidfire

The Phoenix Rapidfire model is used to measure landscape bushfire risk. It is based on a simulation of a set of severe bushfires across the landscape. The simulated bushfires are ignited at points on a 5 km systematic grid across Victoria. Fires are ignited and simulated individually, that is, they are not modelled as if they are burning simultaneously. The measure of landscape bushfire risk for a particular set of bushfires is then produced by calculating the average modelled property impact of all fires in that set.

Bushfire impact on human life and property is estimated using modeled property loss. DELWP models property loss by comparing Victorian property addresses with the potential severe bushfires modeled by Rapidfire.

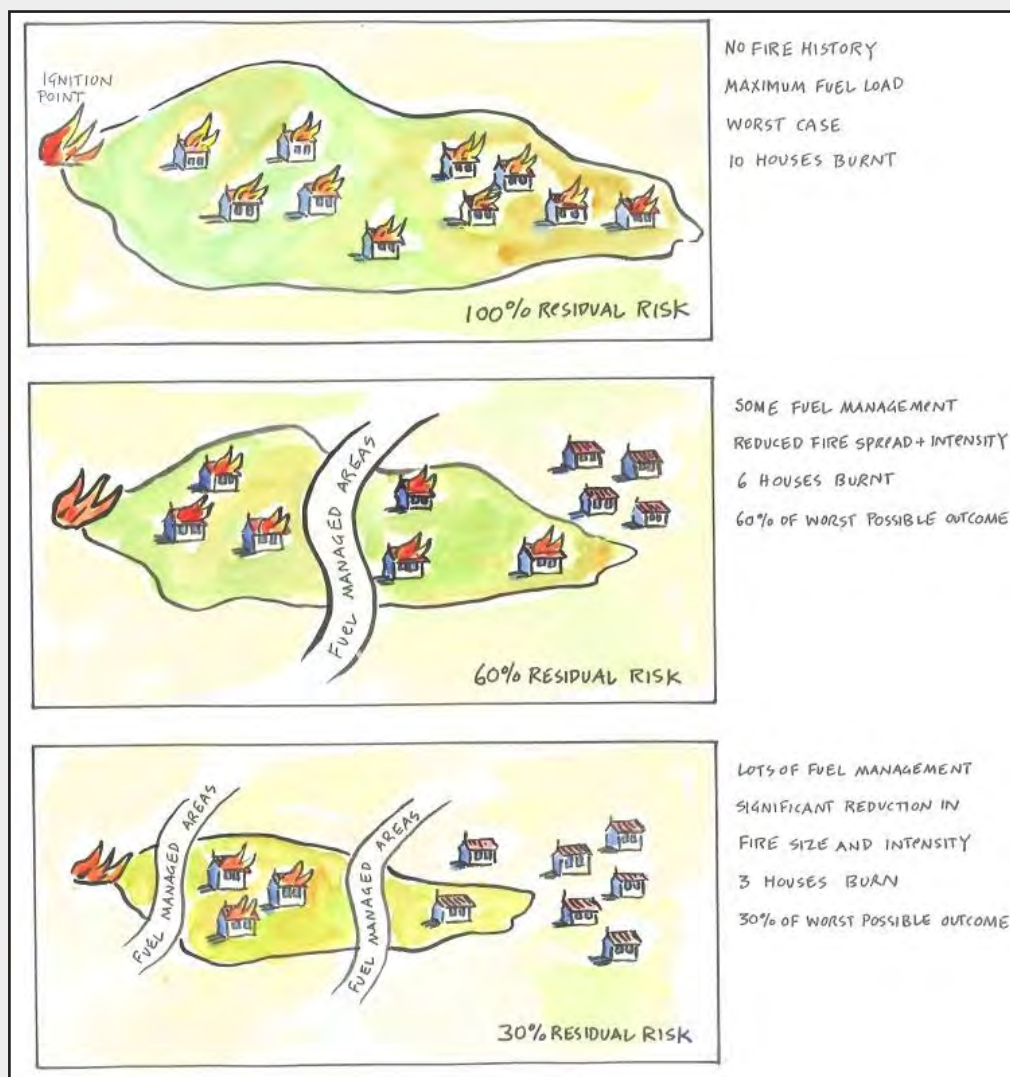
DELWP has assumed that properties will be affected when fire intensity or ember density reach particular thresholds (intensity > 10,000 kW/m or ember density > 2.5 embers/m.)

The State uses Phoenix RapidFire to model fire scenarios before and after fire risk reduction works, such as fuel management activities, to calculate residual risk.

However, Phoenix Rapidfire simulations have limitations¹¹, including the use of input data of varying quality.

The results of Phoenix Rapidfire simulations need to be validated against the information collected from on-site data collection, as this provides a more accurate overview of the fire risk and residual risk from fire hazard mitigation works.

Within Latrobe City a detailed Phoenix Rapidfire assessment has been undertaken which has been utilised where possible to support the risk assessment in each of the locations. The analysis for Latrobe City has identified areas where the potential for large numbers of asset losses could occur. These areas include Toongabbie, Traralgon South and Moe South.



**Figure 6 –
Phoenix Rapidfire -
Determining residual
risk and modeling the
change**

¹¹ DELWP Measuring Bushfire Risk in Victoria http://www.delwp.vic.gov.au/_data/assets/pdf_file/0009/318879/DELWP0017_BushfireRiskProfiles_rebrand_v5.pdf



4.2.3 Fire Hazard Ratings (Electrical Line Vegetation Clearance)

Under Section 80 of the Electricity Safety Act 1998, FRV assigns “low” and “high” fire hazard ratings for electric lines to parcels of land in the country area of Victoria. The classification of low and high risk areas aims to safeguard life and property by preventing overhead electric line-related ignitions.

FRV¹² maintains a GIS data base that shows the Low Bushfire Rated Areas (LBRA) and the High Bushfire Rated Areas (HBRA) in relation to electric lines.

The ratings are used to identify low and hazardous bushfire risk areas for the Electricity Safety (Electric Line Clearance) Regulations 2015, Electricity Safety (Installations) Regulations 2009 and Electricity Safety (Bushfire Mitigation) Regulations 2013.

The ratings can affect the extent of vegetation clearance adjacent to overhead electric lines. Authorities responsible for the overhead electric lines include electricity distribution businesses, municipal councils and private land owners.

It can also affect overhead electric lines on private land. Under the Electricity Safety (Installations) Regulations 2009, a private electric line needing substantial reconstruction must be replaced underground, if it is within hazardous bushfire risk area category (as defined under the Regulations). Note: Private electric lines in low bushfire risk areas are exempt from this requirement.

Fire hazard ratings for electric lines contrasts significantly with other risk mapping assessments and has been developed explicitly for its legislative requirements.

Within the Latrobe City footprint, a significant part of the landscape is covered by a ‘high’ fire hazard rating. All of the locations assessed in detail were covered 100% by a ‘high’ rating. As such, this risk indicator is not utilised within the scoresheet.

¹²Information sourced from - <https://www.cfa.vic.gov.au/plan-prepare/electric-line-vegetation-clearance>

4.2.4 Community awareness and preparedness for bushfire

What people do before, during and after a bushfire, either individually on their property, or collectively in their township influences the bushfire risk profile for their community. Whilst the hazard of fire varies across the landscape – the ability of the community to prepare and work together allows the community to become more resilient and adapt to increasing bushfire risk.

The summary below of community preparedness and awareness draws on information from three groups:

1. Latrobe City Population and Demographics
2. Safer Together community consultation undertaken across Gippsland as part of the preparation of the Strategic Bushfire Management Plan.
3. Community Development Associations and Community Recovery Committees; across Latrobe City including small townships.

Latrobe City Population and Demographics Summary¹³

Latrobe City is the fourth-largest city in regional Victoria by population and is a major service centre for Gippsland and eastern Victoria.

With a population of over 75,000 people, Latrobe City is intended to become a focal point for growth, infrastructure and service investment, serving as Victoria's only eastern regional city. The City is the residential and commercial hub of a larger catchment of 262,000 people stretching across the Latrobe Valley and Gippsland region.

Local policy encourages urban growth within four urban centres which make up Latrobe City (Moe-Newborough, Morwell, Churchill and Traralgon). To establish a connected regional city, planning across the four centres will need to allow for the right type of growth in the right locations.

The latest (2018) estimated residential population for Latrobe is 75,211 people. The total number of people that were usually resident in Latrobe on Census night in 2016 was 73,257 people, an increase of 1.2% from the 72,395 people that were usually resident on Census night 2011 (Remplan 2019).

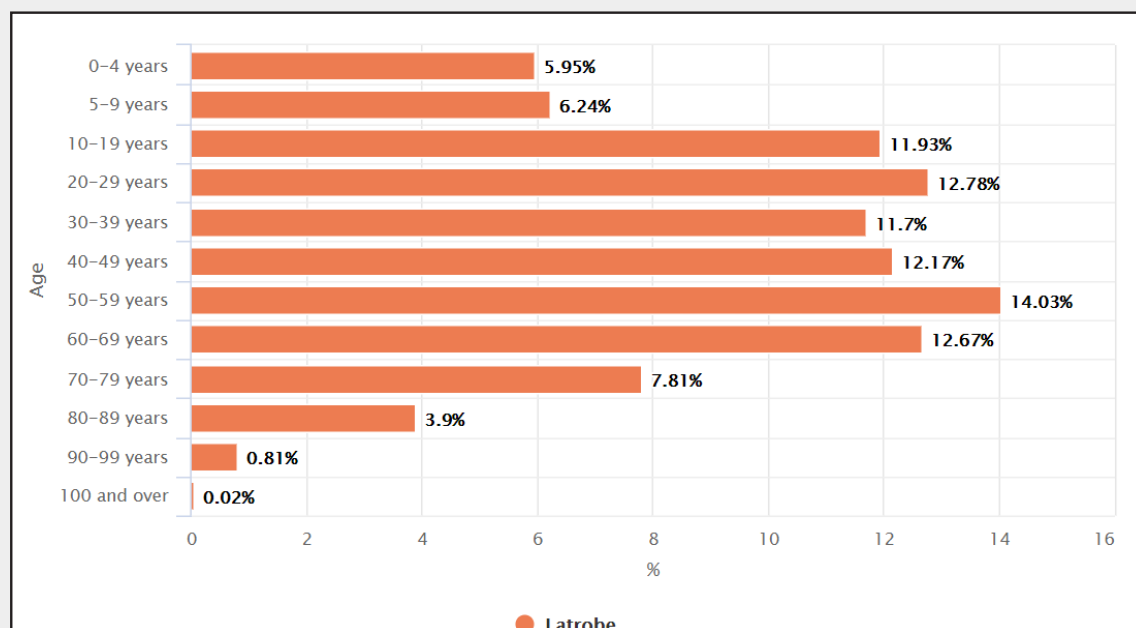


Figure 7 –
Latrobe City age
profile

Latrobe City has a significantly older population with an increasing aging trend over the coming decades. Areas with large numbers of children and adolescents' demographics may change considerably over the next decade. Conversely a location with a large number of 40-50 year olds may see an increase in the vulnerable risk profile as they age in place. Regional Victoria is experiencing structural ageing and there continues to be an increasing number of older people in areas of natural bushfire hazard.

An older population is generally associated with reduced safety and increased evacuation issues.

¹³

Sourced from <https://communityprofile.com.au/#latrobe>

Total population numbers sourced from the 2016 Census results generally representing each of the 13 precincts is provided in the table below.

Estimated Residential Population						
	2011	2012	2013	2014	2015	2016
Boolarra	1,021	1,025	1,000	993	987	989
Churchill	5,891	5,846	5,887	5,861	5,785	5,739
Cowwarr West	473	481	493	485	493	511
Flynn	181	183	181	182	182	184
Glengarry	1,088	1,072	1,032	1,018	1,001	1,006
Hazelwood North	1,407	1,400	1,387	1,370	1,375	1,384
Koornalla	101	101	99	98	97	99
Moe South	1,003	1,005	1,004	1,001	1,012	1,020
Toongabbie	922	940	946	954	979	1,022
Traralgon South	848	861	857	863	883	905
Tyers	827	847	830	837	842	847
Yallourn North	1,064	1,055	1,096	1,096	1,121	1,120
Yinnar	826	847	852	873	895	918

Figure 8 –
Total population
numbers for 13
precincts in Latrobe
City Council¹⁴

Expanded population data for the Latrobe municipality is available from the Latrobe City Council website.

Community Resilience

Fire is a part of the Australian landscape, however changing climatic conditions is seeing the risk and impact of fire increasing, which requires the consideration and interplay of hazard, exposure and vulnerability. The consideration of community demographics and their views, preparedness and awareness of bushfire risk, and how they are able to respond is therefore an important consideration.

There is a wide range of data available which can be used to highlight particular population vulnerabilities including age, income, education and other relevant factors. It is acknowledged that measures of vulnerability are indicative and do not predict how individuals respond to a bushfire event, however research shows the vulnerability level of a household is most often determined by its weakest rather than its strongest member.

As an initiative of the Latrobe Valley Industry and Employment Roadmap, the Gippsland Regional Resilience Monitor: Socio- economic and Liveability Dimensions Report 2015¹⁵ was completed by Federation University. The findings focus on three Gippsland local government areas: Baw Baw Shire Council, Latrobe City Council and Wellington Shire Council. Essentially, the report found Latrobe City to have a relatively higher level of resilience than other parts of Gippsland.

The Demographics for Bushfire Risk Analysis Regional Victoria and peri-urban Melbourne report (DELWP 2016)¹⁶ utilises research studies to map characteristics of the population which are associated with an individual's level of vulnerability before, during or after a disaster. The 2016 DELWP report shows that despite the significant personal and financial impacts of major bushfires on communities and assets, population levels and growth rates have been shown to generally return to the pre-disaster situation within 3-5 years.

A summary of key elements of this report as it relates to the consideration of bushfire risk within the Latrobe City context is provided below. Key points include:

- Measures of vulnerability are indicative – they do not predict how a particular individual will respond to a specific event.
- Research studies show that some characteristics are associated with an individual's level of vulnerability before, during or after a disaster.
- The vulnerability level of a household will be determined by its weakest rather than its strongest member.
- A community which has low levels of vulnerability can be considered to be more resilient.
- Population data shows that major bushfire events, including Black Saturday have had only short term impacts on population growth in affected areas, as people either return or new populations migrate into these locations.

¹⁴ <https://www.communityprofile.com.au/latrobe/>

¹⁵ https://pdfs.semanticscholar.org/a230/06db7dcc9184c1a1716bcf5a0f7fd2702f46.pdf?_ga=2.243323141.1093992226.1578902746-251738197.1578902746

¹⁶ https://www.planning.vic.gov.au/data/assets/pdf_file/0035/97685/Demographics-for-Bushfire-Risk-Analysis-web.pdf

Vulnerability factors were developed for use by the Geoscience Australia Risk Impact and Analysis Group which were informed by literature review and stakeholder feedback. The indicators were used in demographic research undertaken by the CSIRO Bushfire Research following the 2009 Black Saturday fires. These indicators can be utilised to assist in future settlement planning and decision making, preparedness and recovery from bushfire.

Criteria	Description
Young at risk	The very young are at risk because they are dependent on others for care.
Elderly at risk	Elderly tend to be more frail, have more health issues and may be dependent on others for care. While individual older people may be fit and active, aggregate data show that the number of people needing assistance increases with age.
Single parents	Single parents may face the demands of dependent children but with no additional support.
Volunteering	People who undertake volunteer activity within their community are more likely to have social networks which can be of assistance in times of emergency by providing information, support and resources.
Income	Low income individuals may face more difficulty in recovering materially from a disaster. They may also be underinsured or uninsured.
New to region	If a person has moved to an area in recent years, they may be unfamiliar with local environmental hazards and may be unaware of procedures for preparing for, or responding to, an emergency.
Public housing	Socio-economic disadvantage is a requirement for receiving public housing and those who are disadvantaged are likely to have a variety of social and economic problems that may require additional support in an emergency situation.
Educational level	People with high levels of education are more likely to understand a range of information related to risk and preparation as well as warning information.
Need assistance	People who identify that they have a need for assistance with self-care are likely to need help in an emergency, for instance with evacuation.
Car ownership	People with no car access will be unable to evacuate themselves in an emergency.
Insufficient English	People with limited English may find it more difficult to access or understand various emergency messages and information.
Indigenous	Indigenous Australians are more likely to have socio-economic disadvantage in relation to health status, education and employment outcomes and life expectancy compared to non-indigenous.
Unoccupied dwellings	Absentee owners may not have high levels of engagement with the local community nor may they have the time to attend meetings or undertake full fire preparations on their property.

Figure 9 – Population vulnerability indicators relevant to natural hazard risk analysis

(Source: Demographics for Bushfire Risk Analysis Regional Victoria and peri-urban Melbourne).

Socio Economic Index for Areas (SEIFA)

The Socio Economic Indexes for Areas (SEIFA) measures the relative level of socio-economic disadvantage based on a range of Census data including: income, education, unemployment, occupation, single parent families, rental price and English proficiency. A lower score means a higher level of disadvantage and a high score means lower level of disadvantage.

It is important to recognise that the numerical score fails to articulate the reasons why an area has relatively higher or lower disadvantage, and areas with a similar score may have different characteristics and contributing factors. Latrobe City ranked as the 7th most disadvantaged community across the state, with a score of 940 in the 2011 Census. When compared to the other four regional cities, Latrobe City (940) ranked the most disadvantaged, followed by Ballarat (981), Bendigo (983) and Geelong (993).

While the Community Resilience data suggested Latrobe City's access, services and relative density broadly contributed to the resilience of the community, the localised SEIFA map suggests that there are higher levels of disadvantage in the main towns (where the services and facilities are condensed), and higher advantage in the rural areas. There are a variety of factors which may contribute to this.

Socio demographic analysis is an important factor in assessing the risk from bushfire. A study completed by the University of Melbourne¹⁷ states the following:

While not a factor that is directly dealt with in this study, it is important to note that Blanchi and Leonard (2008) found that human influence, in the form of a number of factors, plays a major role in house loss. Some of the factors relevant to loss in a bushfire event are related to the presence of an able person before during and after the fire event. Whittaker et al. (2012, p.1) note that bushfire research in Australia has focused on physical characteristics of fire hazard, with 'relatively little consideration of how cultural, economic, political and social factors shape vulnerability'.

The relationship between socio-demographic factors and bushfire risk is now an emergent theme in literature and policy. Writing on wildfire risk in the US, Muller and Schulte (2011, p.62) identify four 'channels of influence' through which demographic characteristics shape the fire risk of communities. These are the effect of rural or urban residence on attitudes toward the role of government, the effect of income and education on attitudes toward risk reduction, the effect of housing tenure and occupancy on risk mitigation, and effects of high population growth on perception of risk.

Whilst the Latrobe MFMP analyses some demographics it doesn't analyse the socio demographic status of the high risk communities. This is emerging knowledge and subject to regular change.



Figure 10 – SEIFA rating per locality¹⁸

It is important to note that there has been no research undertaken to determine the relationship between a SEIFA score and bushfire risk. However, it does provide an opportunity to compare the 13 identified locations against each other to provide an additional risk indicator as to the locations where risk acceptance and understanding may be challenging.

¹⁷ https://msd.unimelb.edu.au/_data/assets/pdf_file/0005/2590628/Indices-report-Final-2014-April.pdf

¹⁸ <https://communityprofile.com.au/latrobe/wellbeing/seifa#?seifaBar:i=0>

4.2.5 Overall fuel hazard rating

The overall fuel hazard (OFH) rating is determined using the Overall Fuel Hazard Guide (Hines, et al 2010) and is used to make a rapid, visual assessment of fuel arrangement, and gain an understanding of how this will affect the chances of controlling a bushfire. Classes used to quantify OFH are Low, Moderate, High, Very High and Extreme.

The guide identifies that whilst it has principally been developed to be used by firefighters to assess the difficulty of controlling a bushfire, it can also be used for gathering information on fuel arrangement by asset owners and managers to assess potential bushfire risks to assets, land and fire managers to provide a measurable objective and trigger for fuel management in fire management plans and a range of other uses.

When using the guide at a landscape level, it needs to be used with caution. This is because an average of the fuel arrangement surrounding a community has been used for this project. In some cases the maximum and minimum fuel hazard ratings within an identified location could be significant.

4.2.6 Ignition history

Data¹⁹ is available that provides a municipal wide indication of ignition history. This map has been developed by FRV and only includes data resulting from burnoffs, grass and scrub fires, non structure fires, powered fires and vehicle fires.

The map indicates that the larger the town, the more ignitions that occur which would be a direct correlation to the increased population in those areas. The map also indicates the number of fires that occur on roadsides or in close proximity to roads.

4.2.7 Bushfire history

The Latrobe City footprint has experienced a number of bushfires in the past decade. Whilst these areas have always been at risk from bushfires, the last decade has seen a heightened level of activity. Events including Black Saturday, Delburn and other bushfires demonstrated the damage that can be caused to lives and properties.

Using bushfire as a risk indicator can be challenging to analyse at a location level. Therefore this indicator has not been utilised within the scoresheet. If these types of assessments are undertaken at a broader scale such as at regional level, this would be an important indicator to utilise.

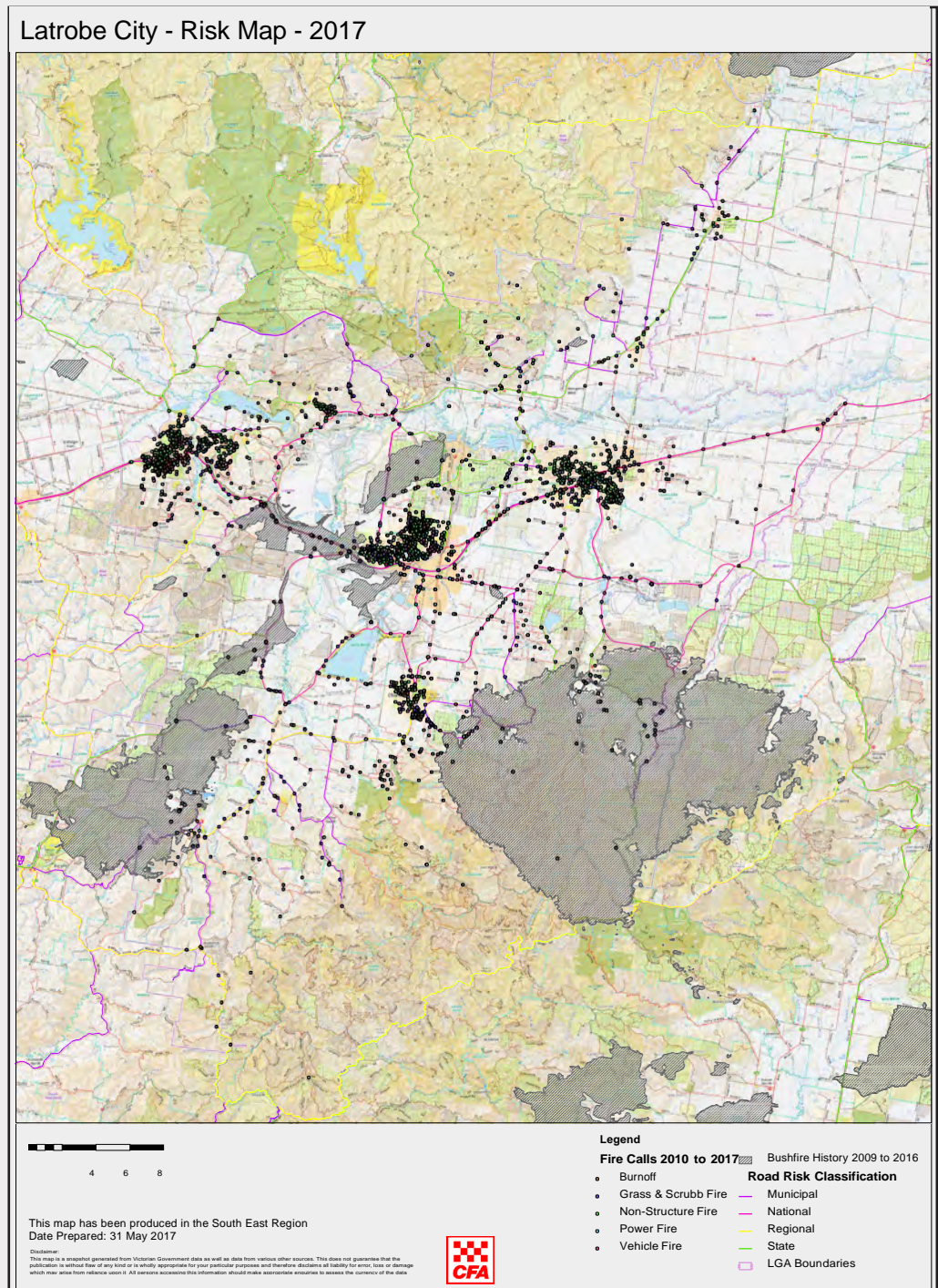


Figure 11 - Latrobe City ignition map and past bushfire history

¹⁹ Information sourced from - <http://www.communitybushfireconnection.com.au/wp-content/uploads/2017/10/latrobeignitionmap.pdf>

4.2.8 Access/egress

An important factor in assessing locations, in particular in the context of their potential for future development, is the ability for the community to leave an area safely but also for emergency service agencies to access a site safely.

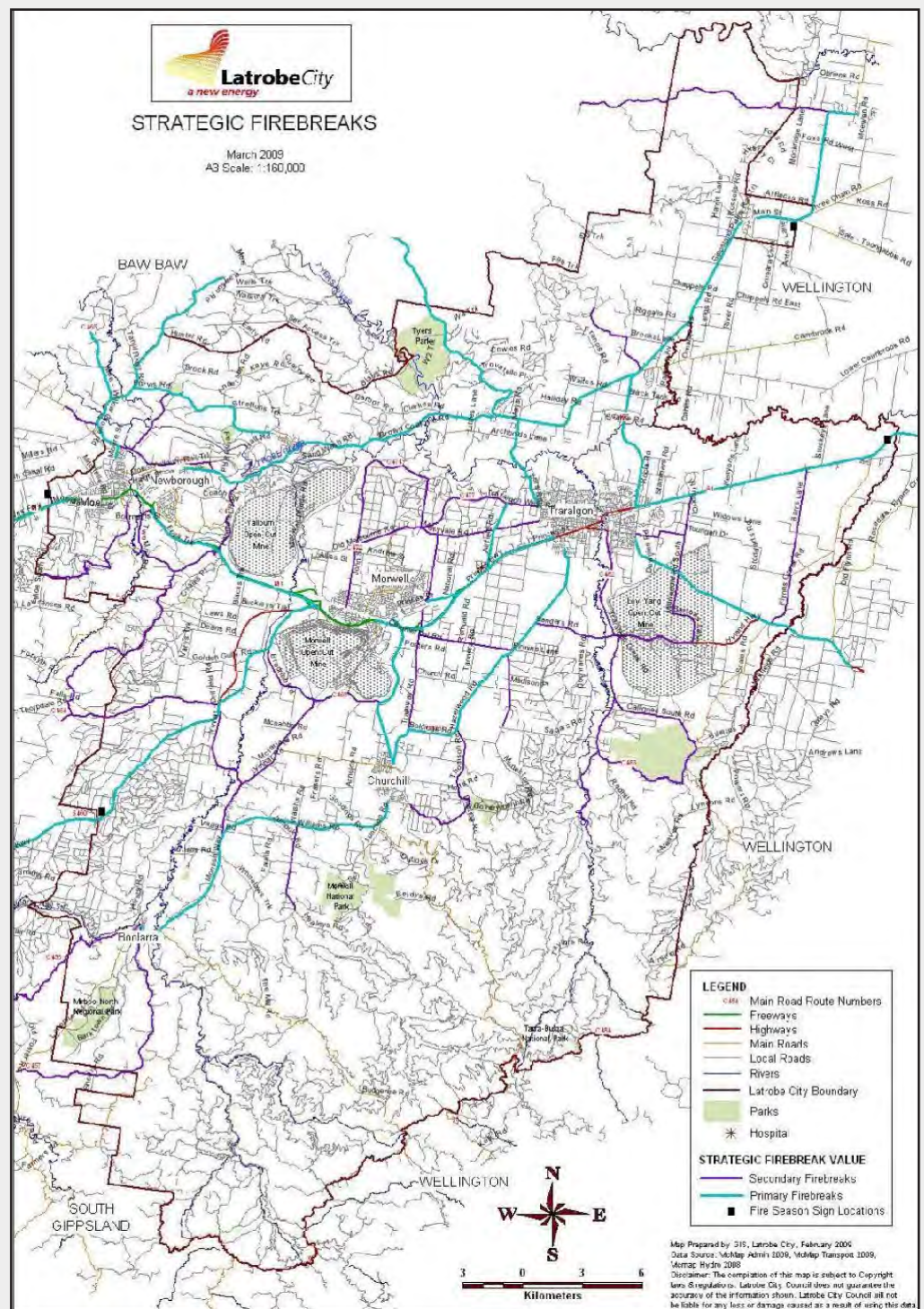
Considerations for access and egress in relation to a location includes the following:

- Is more than one option available for access/egress from a community or location available.
- Are the access/egress corridors free from vegetation that may generate fire activity along these corridors.
- Are there large trees present along the roadsides that, in the event of high winds or fire activity, may fall onto the roadway and impede access/egress.
- Is the road listed as a strategic firebreak within the MFMP in either the primary or secondary category.

A number of roads across the Latrobe City footprint have been identified as strategic fire breaks within the MFMP and these have the ability to influence the effectiveness of access and egress across the municipality. Providing these are maintained in accordance with the firebreak specifications, they can be considered as supporting access and egress from a location.

Whilst there is a level of subjectivity in the assessment of access and egress, it is an extremely important risk indicator that must be considered.

Figure 13- Strategic firebreaks within Latrobe City²⁰



²⁰ http://www.latrobe.vic.gov.au/Our_Community/Fire_Floods_and_Other_Emergencies/Fire

4.2.9 Bushfire attack potential

Bushfires impact on lives and properties primarily through three methods:

- Ember attack
- Radiant heat
- Flame contact

The three methods are used as the basis for AS 3959:2018 construction techniques along with education materials produced by FRV and other fire agencies across Australia.

Figure 13²¹ outlines how bushfires destroy houses from FRV's publication 'Your Guide to Property Preparation'.

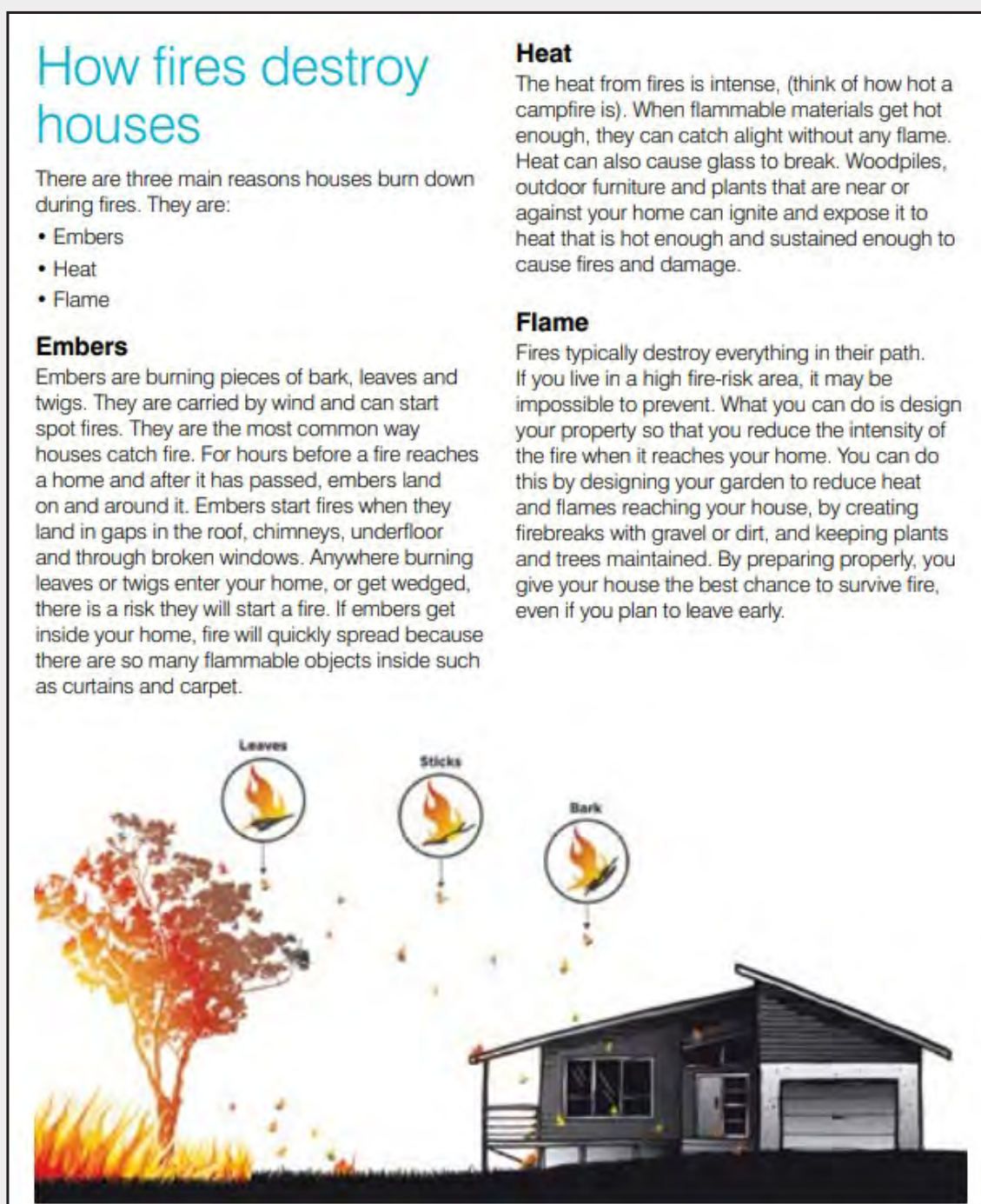


Figure 14 - Sourced from FRV publication - Your Guide to Property Preparation

²¹ Sourced from https://www.cfa.vic.gov.au/documents/20143/71585/Your-Guide-to-Property-Preparation_WEB.pdf/a0cfdac9-99ca-48e6-d36f-b3a5ef9c6a9c

4.2.10 Topographical influence

The influence of slope and other topographical features can affect fire behaviour in a significant way, in particular where the landscape has been assessed as undulating. This type of landscape can be prone to slope driven fire behaviour. This means that a bushfire can burn in multiple directions under the influence of various slopes and aspects.

Where there are slopes in excess of 10°, this can create situations where the landscape will have an impact on fire behaviour. From the communities' perspective, this will generate challenges where it is difficult to forecast how a bushfire will impact on a dwelling. This type of bushfire behaviour is also not consistent with the education programs where a strong focus is placed on a north westerly influence followed by a south westerly wind change.

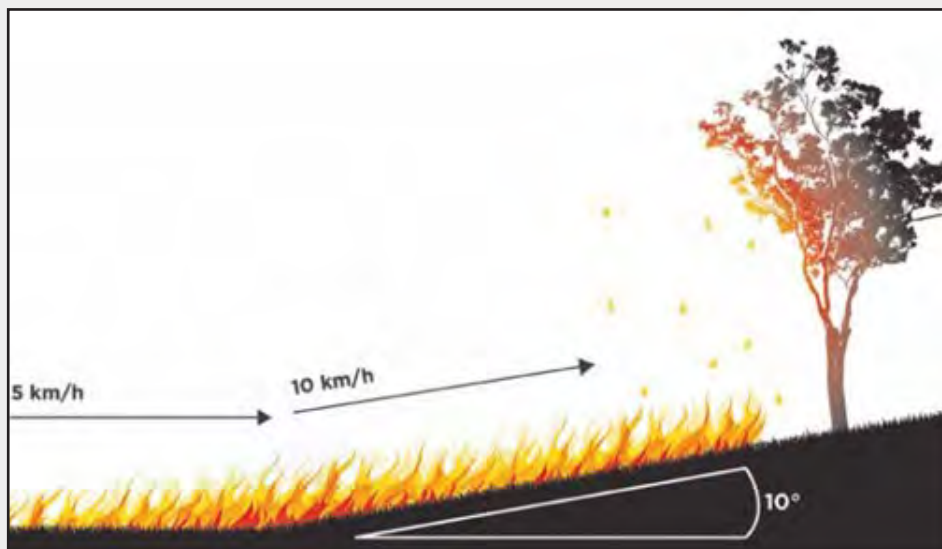


Figure 15- Diagram demonstrating fire spread increase in relation to slope²²

4.2.11 Landscape risk assessment

Within the Planning Scheme, clause 53.02 - Bushfire Planning requires the consideration of the risk to subdivisions and in some situations to dwellings from the landscape. The Bushfire Management Overlay Technical Guide²³ outlines the four types of landscapes that may exist. Each of these landscapes presents different levels of risk to new developments.

Landscape type	Description
Type 1	<ul style="list-style-type: none"> There is little vegetation beyond 150 metres of the site (except grasslands and low threat vegetation). Extreme bushfire behaviour is not possible. The type and extent of vegetation is unlikely to result in neighbourhood-scale destruction of property. Immediate access is available to a place that provides shelter from bushfire.
Type 2	<ul style="list-style-type: none"> The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. Bushfire can only approach from one aspect and the site is located in a suburban, township or urban area managed in a minimum fuel condition. Access is readily available to a place that provides shelter from bushfire. This will often be the surrounding developed area.
Type 3	<ul style="list-style-type: none"> The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. Bushfire can approach from more than one aspect. The site is located in an area that is not managed in a minimum fuel condition. Access to an appropriate place that provides shelter from bushfire is not certain.
Type 4	<ul style="list-style-type: none"> The broader landscape presents an extreme risk. Fires have hours or days to grow and develop before impacting. Evacuation options are limited or not available.

²²Sourced from https://www.cfa.vic.gov.au/documents/20143/71669/FIRE+READY+KIT_2018v.pdf/9e7a76a2-3479-c282-dae3-153ca7989efb

²³Technical Guide – Planning Permit Applications – Bushfire Management Overlay https://www.planning.vic.gov.au/_data/assets/pdf_file/0029/107669/Technical-Guide-Planning-Permit-Applications-Bushfire-Management-Overlay.pdf

4.2.12 Bushfire Management Overlay

The Bushfire Management Overlay (BMO)²⁴ is applied to land that has been considered as having an extreme bushfire hazard. New development and uses in the BMO may require a planning permit. This ensures that bushfire hazards, such as vegetation, slope and site access are assessed, and that bushfire protection measures are in place to manage risk.

The mapping criteria was developed by DELWP, CFA and CSIRO based on the best available science and knowledge gained from previous bushfires. The three criteria for determining if a property is in the Bushfire Management Overlay are:

Criteria	Description
Criteria 1 Vegetation type and size	Forest, woodland, scrub, shrubland, mallee and rainforest vegetation that is 4 hectares or more in size
Criteria 2 Ember buffer	A 150m buffer is applied from the edge of vegetation identified in Criteria 1
Criteria 3 Extreme risk inclusions	Areas that fire authorities have advised may be subject to extreme landscape bushfires

Although bushfire hazard varies across the state, the bushfire protection measures in the BMO require future development and use to:

- Build to current bushfire construction standards
- Locate buildings away from the bushfire hazard
- Manage vegetation and fuel loads
- Install a water tank and provide fire truck access
- Refer the planning permit application to fire authorities, if required.

Vulnerable uses and developments such as schools and childcare facilities, and proposals in areas with significant landscape risk, may require additional protection measures. In these cases, broader landscape issues such as evacuation and availability of safer places must be considered as part of the planning permit process.

Within the Latrobe City foot print, the Bushfire Management Overlay has been applied to a large part of the area. Figure 16 shows the areas of Latrobe City that are covered by a Bushfire Management Overlay. As the 13 locations have a Bushfire Management Overlay present, this has not been considered within the scoresheet as an indicator.

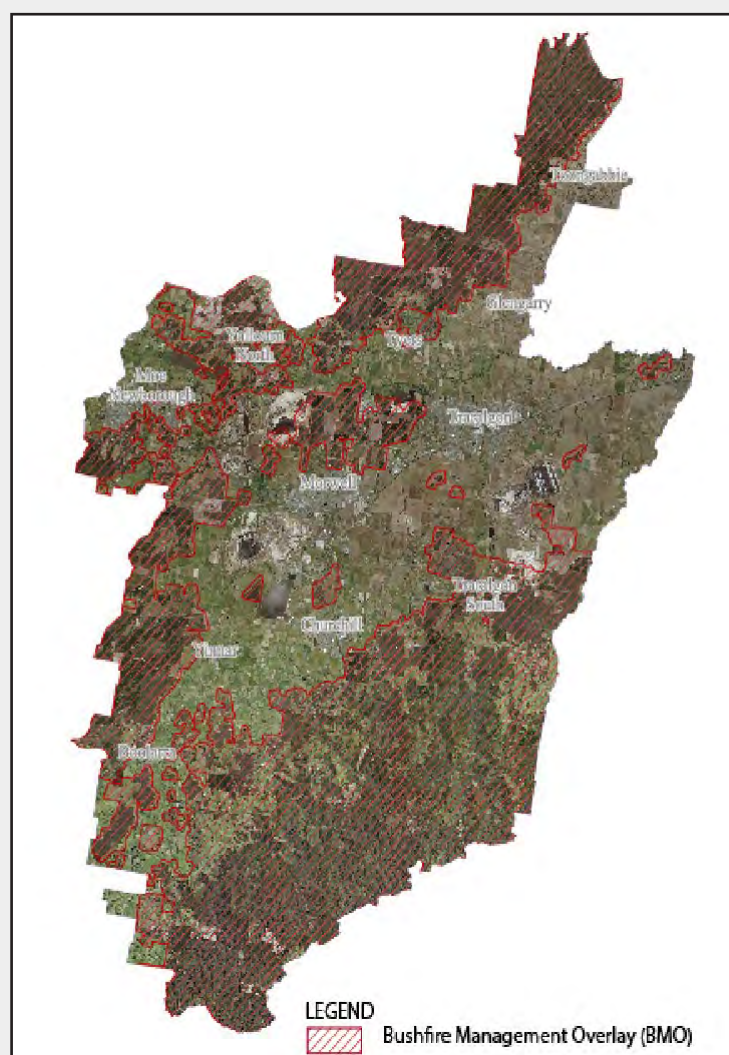


Figure 16 - Bushfire Management Overlay in relation to major Latrobe City centres

²⁴Sourced from https://www.planning.vic.gov.au/_data/assets/pdf_file/0025/107548/BMO-Information-for-Landowners.pdf

4.3 Bushfire Prone Area

Bushfire Prone Areas are areas that are subject to, or likely to be subject to, bushfires.

The Minister for Planning has determined that specific areas are designated Bushfire Prone Areas for the purposes of the building control system.

Specific bushfire construction standards apply in designated bushfire prone areas in Victoria. These bushfire construction requirements are aimed at improving bushfire protection for residential buildings. The creation of the Bushfire Prone Area Map fulfils one of the 67 recommendations made by the Victorian Bushfires Royal Commission.

Figure 17 shows that the Bushfire Prone Area covers a major portion of the municipality with only the main centres of Traralgon, Morwell, Moe and Churchill being exempt.

A minimum construction standard applies to new residential buildings, schools, child care centres, hospitals, aged care facilities and associated buildings in designated Bushfire Prone Areas. Landowners are required to build to a minimum Bushfire Attack Level of 12.5.

A Bushfire Attack Level (BAL) is a way of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact.

There are six Bushfire Attack Levels that form part of the Australian Standard for construction of buildings in bushfire prone areas (AS 3959:2018):

- BAL-LOW
- BAL-12.5
- BAL-19
- BAL-29
- BAL-40
- BAL-FZ (Flame Zone)

These construction levels are outlined in figure 18.



Figure 17 - Bushfire Prone Areas in relation to major centres within Latrobe

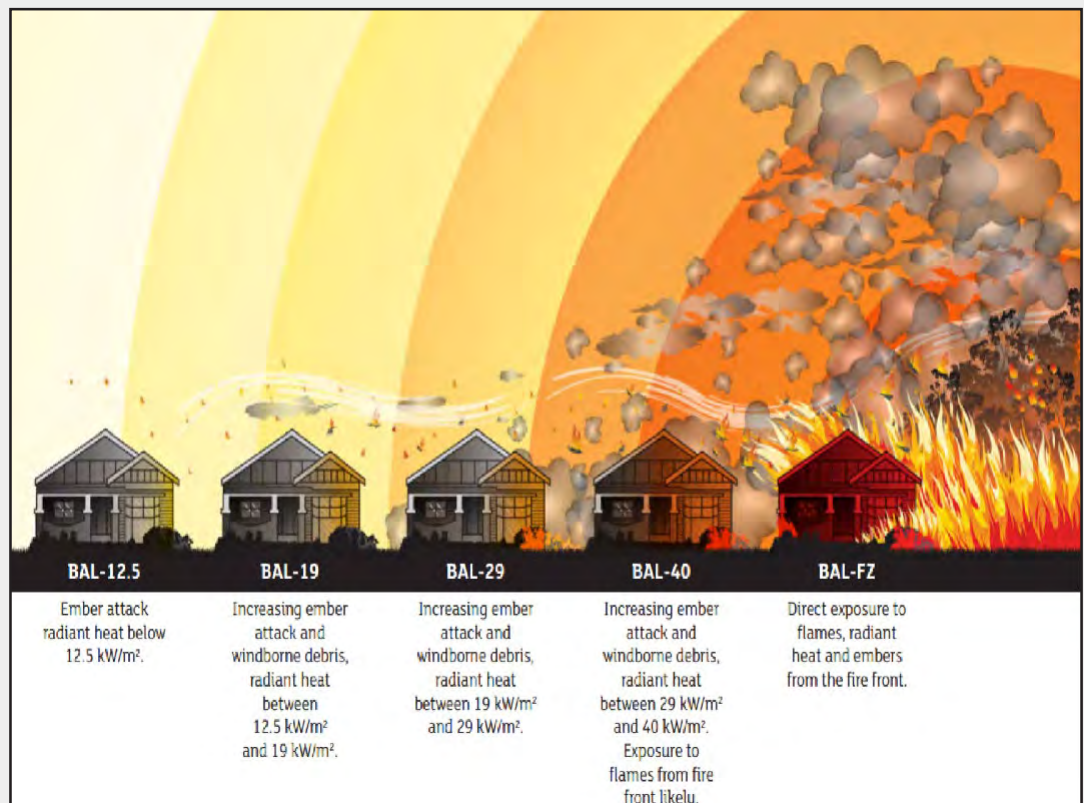


Figure 18 -
BAL Levels explained

5 BUSHFIRE RISK ANALYSIS OUTCOMES

Following the consideration of the risk indicators outlined in Section 4 of this report, along with the requirements outlined within Clause 13.02-1S of the Latrobe Planning Scheme the bushfire risk assessment has produced the following products:

- Landscape bushfire risk assessments – 1km and 20km
- Mapping products
- Risk indicators scoresheet
- Detailed precinct bushfire analysis
- Municipal Landscape Bushfire Risk Map

The 13 identified locations have been individually assessed and the results can be found in Section 11.

Section 'bushfire identification and assessment' of Clause 13.02-1S 'Bushfire Planning', outlines the need to utilise best available science, consider the best available information and consult with emergency management agencies. As a result of this activity, the decision to analyse multiple risk indicators and score them to determine a score that enables a comparative assessment is important.

5.1 Landscape bushfire risk assessment - 1km and 20km

Clause 13.02-1S - Bushfire Planning from the Latrobe Planning Scheme requires the consideration of landscape risk to support the bushfire hazard identification and assessment. The Policy outlines the requirements to consider the bushfire hazard on the basis of landscape conditions and local conditions.

To meet the requirements of the 13.02 Policy, the bushfire risk assessment has considered landscape conditions at the 20km and 1km distances. Each of the 13 locations have had landscape scenarios mapped and a description provided.

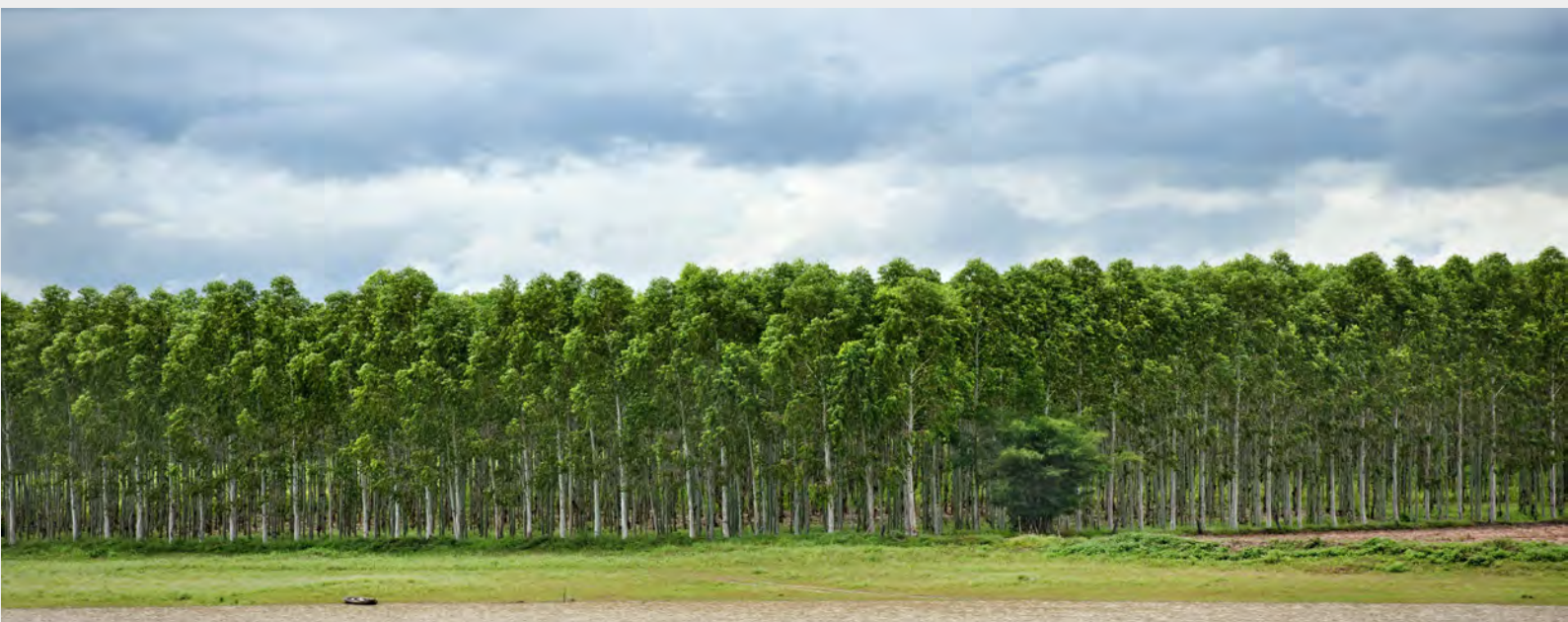
5.2 Bushfire analysis

The bushfire analysis has captured the available spatial data onto a single map. Whilst this is a complex map, it allows for some analysis to occur and to analyse data alignment. The data on each map includes:

- Bushfire Management Overlay
- Fire Hazard Ratings – Electrical Line Clearance
- Victorian Fire Risk Register – human settlement and economic categories
- Public Land
- Plantations

In most cases the data aligns to demonstrate where the risk from bushfire exists.

These maps show the location of precincts. These are geographical areas that have been developed to allow for further analysis to occur in a location.



5.3 Risk indicators scoresheet

A score-sheet was developed to enable the collation of the relevant risk indicators. The scoresheet provides a total score against either a location or precinct. The score-sheet is designed to allow the comparison between precincts and where possible locations. It is a comparison tool only and relies on a consistent analysis of the risk indicators. This will reduce the subjectivity of the outputs.

The tool provides a hierarchical outcome that supports ongoing discussions for determining future development options, if any exist.

Each of the precincts within the 13 locations have been assessed and the results provided in Section 11. The risk indicators that have been utilised, as confirmed by the CFA, combine to form a full picture of the bushfire risk. The risk indicators used for the purposes of this assessment are:

Risk indicator	Scoring	Description
Overall fuel hazard	1 – low 2 – moderate 3 – high 4 – very high 5 – extreme	The Overall Fuel Hazard Guide provides the ability to allow people to make a rapid, visual assessment of fuel arrangement and gain an understanding of how this will affect the chances of controlling a bushfire. This is available at https://www.ffm.vic.gov.au/_data/assets/pdf_file/0005/21110/Report-82-overall-fuel-assess-guide-4th-ed.pdf
Proximity to dwellings	1 – 50 metres 2 – 40 metres 3 – 30 metres 4 – 20 metres 5 – 10 metres	The closer vegetation is, the greater the radiant heat that will impact on the dwelling.
Ignition history	1 – rarely 2 – occasionally 3 – often	Ignition history is outlined within a CFA produced map and is available at http://www.communitybushfireconnection.com.au/wp-content/uploads/2017/10/latrobeignitionmap.pdf . This map allows consideration of the likelihood of a fire starting within a particular area.
Phoenix impact risk	1 – low 2 – moderate 3 – high 4 – very high 5 – extreme	The Phoenix model allows the simulation of the spread of fires across the landscape. http://www.communitybushfireconnection.com.au/wp-content/uploads/2017/03/RiskProfile_Latrobe_2015_Published.pdf
Political/social	1 – rarely 2 – occasionally 3 – often	The presence of community groups and how active they are in managing the risk from bushfire is a key indicator as to the level of acceptance of bushfire risk.
Access/egress	1 – excellent 2 – very good 3 – average 4 – poor 5 – very poor	This is the assessment of the number of safe escape routes and the quality of management programs in place to reduce the risk along roads identified as providing access and egress opportunities during a bushfire.
Demographics/vulnerability	1 – low vulnerability 2 – medium vulnerability 3 – high vulnerability 4 – very high vulnerability	The SEIFA index provides an indication of the socio demographic status of the community. The higher the SEIFA index score, the higher it is assumed that the community will be able to prepare for and respond and recover from bushfire.
Bushfire attack potential	1 – ember attack 2 – radiant heat 3 – flame contact	This is an assessment of the types of attack methods that a location will experience. The attack methods are embers, radiant heat or direct flame contact.

Topographical influence	1 – flat and undulating 2 – some slope exists 3 – medium slope effect 4 – high slope effect	An undulating landscape will support bushfires to be erratic and unpredictable. This assessment categorises the topography within the local area.
Landscape risk assessment	1 – type 1 2 – type 2 3 – type 3 4 – type 4	The Technical Guide outlines the types of landscape risk that may exist within Victoria. The categories are Types 1 – 4. https://www.planning.vic.gov.au/_data/assets/pdf_file/0029/107669/ Technical-Guide-Planning-Permit-Applications-Bushfire-Management-Overlay.pdf
Victorian Fire Risk Register (VFRR)	1 – low 2 – medium 3 – high 4 – very high 5 – extreme	The VFRR system is managed by CFA and inputs are provided at the municipal level. The outputs in the form of maps and tables are provided within the Municipal Fire Management Plan. http://www.latrobe.vic.gov.au/Our_Community/Fire_Floods_and_Other_Emergencies/Fire
Bushfire Management Overlay (BMO) mapping	N/A	The BMO mapping product is an assessment of vegetation with an additional 150m buffer added. This is an indication of areas where the bushfire hazard is extreme. The BMO triggers a site specific risk assessment that will then determine a risk based solution.
Bushfire Prone Area (BPA) mapping	N/A	BPA mapping is an assessment of vegetation where a bushfire can burn. Apart from the central areas of Traralgon, Moe, Morwell and Churchill the remainder of the municipality is covered by a BPA.

5.4 Municipal Landscape Bushfire Risk map

A key output of the bushfire risk analysis is the production of a Municipal Landscape Bushfire Risk map that considers CFA Guideline FSG LUP 008 – Strategic Land Use Planning – Bushfire²⁵. This map is intended to provide the following:

- Identify areas of Latrobe City where development should be avoided, where development can proceed following in depth analysis of bushfire risk and areas where development can proceed with no or little restrictions.
- Support future development planning through the identification of areas where the risk from landscape scale bushfires is reduced.
- Assist decision makers in their consideration of Clause 13.02 - Bushfire Planning by encouraging use of the Municipal Landscape Bushfire Risk map.
- To promote consistent application of Clause 13.02 - Bushfire Planning.

The CFA Guideline identifies lower (green) risk locations as:

- Not within the Bushfire Management Overlay,
- Having good road access, and
- Located more than 700 metres from large areas of vegetation (such as National Parks, state parks).

Throughout this project additional criteria have been developed to further understand and map the variations between the risk areas:

- Where bushfires have the ability to undertake long runs through forest vegetation the 700m specified by CFA will be increased.
- The boundaries between the traffic light colours will, where possible, align with fuel breaks that may consist of roads or other features.
- In the event that more than one piece of vegetation is in close proximity to each other and complex fire conditions could be generated.

Latrobe City has been divided into Red, Yellow and Green. These areas have been classified in accordance with the following:

Risk level	Description
Extreme	<ul style="list-style-type: none"> • Pose an extreme risk to life safety • Limited access and egress options available. • Vegetation close to the site. • Significant ember attack would impact the area.
Significant	<ul style="list-style-type: none"> • Pose a significant risk to life safety • Mitigation options are available. • Development will likely reduce the risk to adjoining land and on the site. • Access and egress options
Lower	<ul style="list-style-type: none"> • Pose a lower risk to life safety • Little Vegetation is present. • Excellent access and egress is available.

The results of this analysis have identified various treatments that are recommended to do the following:

- Maintain the current level of bushfire risk;
- Seek to reduce the bushfire risk; or
- Not increase the level of risk (as required by Clause 13.02-1S)

Recommendations by this report will include both municipal wide fire treatments and planning treatments.

When applied together, it is expected that communities will be safer.

²⁵ https://www.cfa.vic.gov.au/documents/20143/69382/Final_FSG_Strategic_land_use_planning_-_bushfire_Feb_2014.pdf/a920f7b1-7f04-a1a6-6e12-d1c0a50c1fe7

5.4 Municipal Landscape Bushfire Risk map (continued)

The Map is primarily based on the risk indicators analysis and the results from using the scoresheet that is outlined within section 5.3 of this report. Where a precinct scores in excess of 30, the area is colour coded red to indicate that this is a location where development should be avoided. Yellow areas are between 25 and 29 and may be suitable for further development, subject to further investigation and consideration. Finally, the green areas are between 13 and 24 and are areas that could support future development as there is limited landscape risk present. Note that a score of 13 is the minimum available score.



It is important to understand the difference between Bushfire Management Overlay mapping and landscape risk assessment outcomes. Both use the term 'extreme' however in the context of the BMO this relates to an extreme hazard, whereas, the landscape risk is identifying an extreme landscape risk. AS ISO 3100:2018 – Risk management guidelines outlines the difference between a hazard and risk.

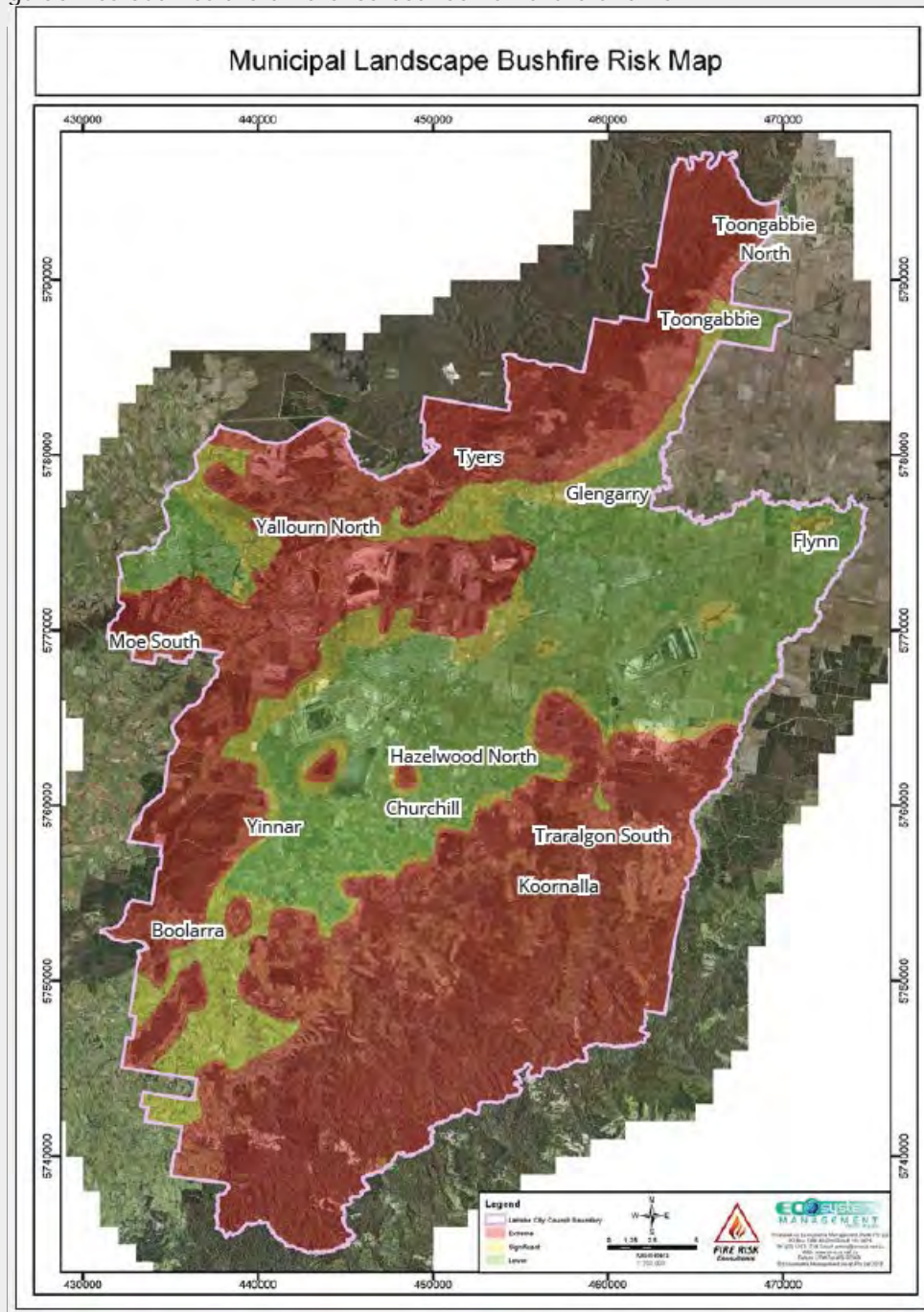


Figure 19 - Municipal landscape bushfire risk map

6 BUSHFIRE PLANNING WITHIN LATROBE

6.1 Latrobe Planning Scheme and bushfire

The Latrobe Planning Scheme incorporates Statewide bushfire provisions and considerations, as well as localised provisions specific to the Latrobe Planning Scheme.

Figure 19 outlines the existing arrangements as it relates to bushfire and the current policies and provisions relating to Bushfire are outlined in the table below:

State Policy & Provisions	Overview
Clause 13.02-1S – <i>Bushfire</i>	State Bushfire Policy
Clause 13.02-1S <i>Bushfire Planning</i>	<p>Objective:</p> <ul style="list-style-type: none"> <i>To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.</i> <p>The overarching policy direction for consideration of bushfire in land use development and settlement planning.</p> <p>Applies to land located within Bushfire Management Overlay and, or, Bushfire Prone Areas.</p>
Clause 44.06 <i>Bushfire Management Overlay</i>	<p>Purpose:</p> <ul style="list-style-type: none"> <i>To implement the Municipal Planning Strategy and the Planning Policy Framework.</i> <i>To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.</i> <i>To identify areas where the bushfire hazard warrants bushfire protection measures to be implemented.</i> <i>To ensure development is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level.</i> <p>Triggers consideration for buildings, works, and subdivision applications for ‘uses’ as outlined within Clause 44.06, including Accommodation.</p> <p>Refers to Clause 53.02 – Bushfire Planning.</p> <p>Land within Bushfire Management Overlay takes benefit of defendable space exemptions for new development (dwelling) at Clause 52.12 – Bushfire Protection: Exemptions.</p>
Clause 53.02 <i>Bushfire Planning</i>	<p>Purpose:</p> <ul style="list-style-type: none"> <i>To implement the Municipal Planning Strategy and the Planning Policy Framework.</i> <i>To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.</i> <i>To ensure that the location, design and construction of development appropriately responds to the bushfire hazard.</i> <i>To ensure development is only permitted where the risk to life, property and community infrastructure from bushfire can be reduced to an acceptable level.</i> <p>To specify location, design and construction measures for a single dwelling that reduces the bushfire risk to life and property to an acceptable level.</p> <p>A particular provision outlining the approved measures for buildings and works associated with specific land uses as outlined in Clause 44.06, and subdivision applications.</p>
Clause 52.12 <i>Bushfire Protection Exemptions</i>	<p>Vegetation exemptions to allow for provision of onsite defendable space around dwellings, buildings used for accommodation, and fences.</p> <p>Exemptions for new dwelling developments only apply where the land is within Bushfire Management Overlay.</p>
Clause 52.13 <i>Bushfire Recovery Exemptions</i>	<p>Purpose:</p> <ul style="list-style-type: none"> <i>To support recovery operations following the 2009 Victorian bushfires</i> <p>The provision exempts use and development of temporary accommodation; and, any other use directly associated with bushfire recovery. Scheduled to expire 20 March 2020.</p>
Clause 52.14 <i>Bushfire Replacement Exemptions</i>	<p>Purpose:</p> <ul style="list-style-type: none"> <i>To support the rebuilding of dwellings, dependent persons’ units and buildings used for agriculture damaged or destroyed by the 2009 Victorian bushfires.</i> <p>The provision exempts development associated with rebuilding a dwelling, dependent persons’ unit or agricultural buildings damaged or destroyed by a bushfire that occurred between 1 January 2009 and 31 March 2009.</p> <p>It is understood that this exemption has expired in instances where a Site Plan has not been submitted to the Responsible Authority by 30 September 2017.</p>
Clause 71.02-3 <i>Integrated Decision Making</i>	<p>Directs decision makers to balance conflicting objectives of the Planning Scheme in favour of net community benefit and sustainable development for the benefit of the present and future generations.</p> <ul style="list-style-type: none"> <i>... ‘However, in bushfire affected areas, planning and responsible authorities must prioritise the protection of human life over all other policy considerations’.</i>

Local Policy & Provisions	Overview
Clause 21.02 <i>Housing and Settlement</i>	This policy outlines relevant buffer distances between urban settlements and the fire hazard of open cut mining.
Clause 21.04 <i>Environmental Risks</i>	This policy includes Clause 21.04-4 – <i>Bushfire</i> which currently frames the bushfire context.
Schedule 1 to Clause 44.06 <i>Bushfire Management Overlay Schedule 1</i>	Applies to areas within the townships of Boolarra, Moe, Morwell, Newborough, Yallourn, Yallourn North, Traralgon South allowing a 'deemed acceptable' outcome resulting in: <ul style="list-style-type: none"> BAL-12.5 construction; and. Onsite defendable space for 30 metres, or to the property boundary whichever is lesser; and, Vegetation management requirements in accordance with Table 6 at Clause 53.02 with a variation of canopy separation from 5 m to 2 m respectfully; and, A static water supply and vehicle access in accordance with Clause 53.02.

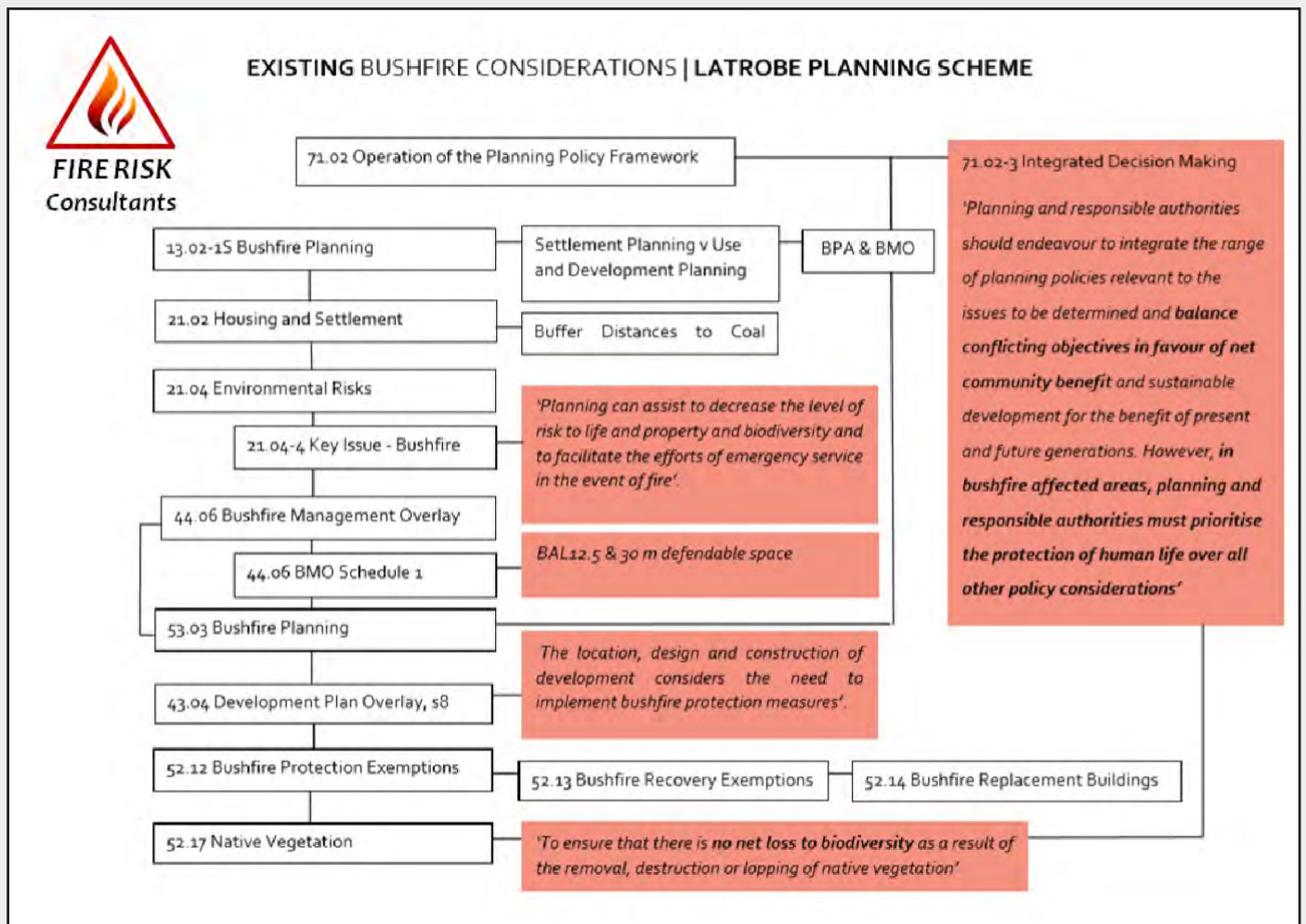


Figure 20 – Existing bushfire considerations within the Latrobe Planning Scheme

6.2. Latrobe Planning Scheme and Bushfire - Amendment C105

Bushfire was a strong consideration in Planning Scheme Amendment C105 Live Work Latrobe. This amendment was gazetted on 14 November 2019. Bushfire planning matters were weaved throughout all relevant local planning policies and the following opportunities for further work were identified.

- Provide a localised Bushfire Planning Policy to sit under Clause 13.02-1S which speaks to the local bushfire profile, the Municipal Bushfire Landscape Risk Map, Latrobe City Council's approach to consideration of bushfire planning matters, minimum application requirements and relevant decision guidelines as appropriate.
- Where the Bushfire Management Overlay does apply, it is expected that adequate bushfire protection measures will be applied, to the satisfaction of the Responsible Authority.
- Introduce a new Schedule to the Bushfire Management Overlay to respond to BAL-29 areas to give certainty to the community and decision makers with respect to 'deemed to satisfy' outcomes.
- Extend the Bushfire Management Overlay to areas identified as extreme landscape bushfire risk and have the Bushfire Management Overlay trigger consideration for development [associated with uses specified in Clause 44.06], and application of Clause 53.02 respectfully.
- Consider application of a Design and Development Overlay Schedule to areas identified as significant landscape bushfire risk to create a permit trigger for buildings and works associated with accommodation, seeking to ensure that the landscape risk is not increased over time. Rather, through effective site-by-site management, it is expected that the landscape risk will reduce over time.
- Consider the appropriateness of precinct specific Development Plan Overlay/s where opportunity is identified for future settlements, further to rigorous assessment against Clause 13.02-1S and all other relevant planning considerations.
- Consider a strategic approach to the direction of native vegetation offsets. A Native Vegetation Precinct Plan can be an effective tool to achieve this.

6.3 Fire management planning within Latrobe

Fire management planning within the Latrobe City footprint is coordinated by the Latrobe Municipal Fire Management Plan (MFMP). The MFMP is developed by the Municipal Fire Management Planning Committee (MFMPC).

The MFMP is produced by agencies and organisations who have a legislative responsibility and other organisations which have a role in fire management and fire prevention planning. Attachment F of the MFMP outlines 22 organisations who are involved in fire management planning. These 22 organisations produce 43 separate plans that address fire management, fire risk management, fire prevention and local actions. This does not include the plans that exist within the critical infrastructure industries of the power and mining sector of the Latrobe Valley.

Traditionally, the role of Council is to provide leadership and coordination for the MFMPC. This is consistent with the former Municipal Fire Prevention Committee (MFPC) where it was the responsibility of Council to coordinate and facilitate the meetings and plans. The role of Council has changed as it has been important for other Agencies and organisations to increase their involvement. This is aimed at creating a shared responsibility for planning and implementation works and also recognises the accountability of organisations other than Council.

Council has a range of responsibilities during their day to day activities including planning, enforcement, emergency management, fire prevention programs, education, advocacy and land manager. These responsibilities in addition to their expertise make them an important stakeholder in fire management planning.

Recommendation 1: LCC remain an active participant on the MFMPC to support cooperative bushfire fuel reduction works necessary to reduce the risk and impact of bushfire to community, assets and biodiversity.

Following a review of the treatments along with visits to the various locations, it was difficult to ascertain the level of compliance with the MFMP. It is our understanding that the MFMPC doesn't focus on the implementation of treatments by the various agencies and organisations, in particular prior to the Fire Danger period. Due to the number of plans in effect across the municipality that relates to fire management, the auditing of the implementation of treatments can be a challenging process.

Recommendation 2: Council encourages the MFMPC to review their role and ensure an achievable works plan is in place to manage the numerous plans and multiple stakeholders.

Recommendation 3: Council request that the MFMPC review and report annually on the implementation and effectiveness of identified treatments included within the MFMP.

The MFMP and MFMPC requires access to informed and current information to enable them to meet their purpose. Throughout this project, the project team were provided access to a variety of bushfire risk indicators that would be relevant for the MFMPC to be aware of and be able to consider how this influenced the assessment of bushfire risk within the MFMP. In some cases, we were advised that this information may not have been shared with the MFMPC and their feedback requested. This potentially creates issues in that the MFMPC may be making decisions that are not informed by available data. It is critical for all agencies to understand the role of the MFMPC in that they have a legislated responsibility to coordinate the treatment of bushfire risk across the municipality.

Recommendation 4: Communicate to all Agencies and Organisations that are involved in fire management planning of the importance to communicate changes to bushfire risk analyses to the MFMPC.

The MFMP also identifies the accountabilities of each agency to ensure they are contributing to the implementation of treatments and completing their allocated responsibilities. However, the MFMP does not identify the process to reassess a risk when a treatment is not implemented by an agency or organisation. The reasons for not implementing a treatment in most cases are valid, however, it should be expected for other fire management activities to be increased or further treatments implemented to offset the risk.

Section 3.2 outlines the proposed changes that are occurring in the emergency management sector within Victoria. The

Recommendation 5: Council encourage the MFMPC to introduce a process that requires consideration of alternate treatments when a planned treatment is not implemented, resulting in appropriate alternate risk mitigation.

MFMPC needs to ensure they are updated regularly on the progress of these changes. These changes have the potential to alter the model that has been operating for a number of years.

7 PLANNING AND FIRE MANAGEMENT INTEGRATION

To effectively manage bushfire risk, particularly at a landscape level, the integration of the planning and fire management systems at state, regional and local level is critical. Whilst both systems have the ability to reduce risk to existing and proposed communities, they can operate far more effectively when the systems are considered at the same time.

A report requested by the Commonwealth of Australian Governments (COAG) in 2002 entitled 'Natural disasters in Australia – Reforming mitigation, relief and recovery arrangements'²⁶ identified the following:

Land use planning which takes into account natural hazard risks has been identified ... as the single most important mitigation measure in preventing future disaster losses in areas of new development. The professions involved with urban planning and design have important roles and responsibilities.

The Report²⁷ from the Black Saturday Royal Commission stated:

Good planning offers the potential to help people who choose to leave their property in the face of a fire by allowing for the development of evacuation routes. It can also make it easier for firefighters to gain access to and defend a property by imposing entry, exit and water supply requirements. Additionally, planning decisions in relation to settlement matters, land use and development, and the location of individual buildings on a property can potentially reduce bushfire risk by, among other things, restricting development in the areas of highest risk, where people's lives may be gravely endangered in the event of extreme bushfire.

The MFMP prepared by the Latrobe MFMPCC identifies the provisions within the Victorian Planning Scheme as a key bushfire risk treatment along with compliance and enforcement of the various pieces of legislation. This demonstrates the connection between fire management planning and land use planning to reduce the risk to the community.

The relationship between fire management and land use planning can be demonstrated in Figure 5. Often fire management planning treatments including fuel reduction burning, roadside vegetation management, community education and other treatments largely provide short term benefits. To achieve a long-term risk reduction benefit, the use of land use planning to guide future development away from high risk locations but to also reduce the risk to existing developments is important. The diagram also demonstrates that if a fire management planning only approach is utilised, the benefit lasts for the short to medium term only. In some cases, these treatments provide benefits for a very short period of time. An example of a short-term treatment is grass slashing which is required to be maintained regularly to provide a risk reduction outcome. A medium-term benefit would include fuel reduction burning.

Land use planning treatments will in most cases provide a medium to long term benefit to the community. However, these treatments may take some time to realise their benefit. As the benefit is not seen immediately, they are often overlooked for other shorter-term treatments. It is critical that fire management and land use planning treatments are considered at the same time.

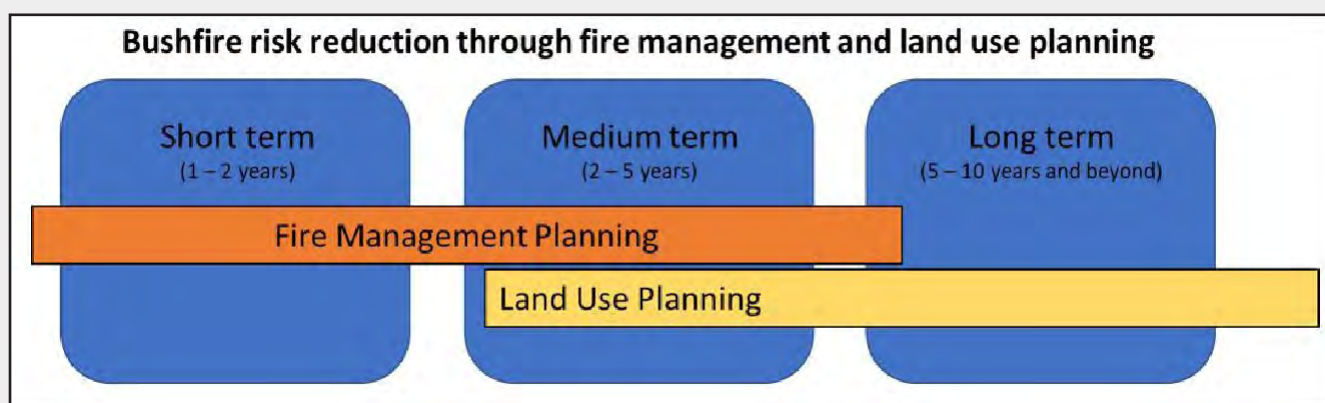


Figure 21 – overview of fire management and land use planning integration

There is no doubt that the integration of these two treatments to reduce bushfire risk to the community is critical. Ensuring that both treatments are considered at all stages of the planning process will improve the community's safety.

²⁶ <http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan024728.pdf>

²⁷ http://royalcommission.vic.gov.au/finaldocuments/volume-2/PF/VBRC_Vol2_Chapter06_PF.pdf

8 PLANNING TREATMENTS

The planning treatments available have been identified following assessment and analysis of bushfire hazards, as instructed by Clause 13.02-1S – Bushfire Planning and consideration of guidelines provided within Planning Practice Note 64 - Local Planning for Bushfire Protection²⁸.

Key directions provided by Clause 13.02-1S includes direction for the identification of bushfire hazard and assessment as follows:

Bushfire hazard identification and assessment

'Identify bushfire hazard and undertake appropriate risk assessment by:

- *Applying the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard.*
- *Considering the best available information about bushfire hazard including the map of designated bushfire prone areas prepared under the Building Act 1993 or regulations made under that Act.*
- *Applying the Bushfire Management Overlay to areas where the extent of vegetation can create an extreme bushfire hazard.*
- *Considering and assessing the bushfire hazard on the basis of:*
 - *Landscape conditions - meaning conditions in the landscape within 20 kilometres (and potentially up to 75 kilometres) of a site;*
 - *Local conditions - meaning conditions in the area within approximately 1 kilometre of a site;*
 - *Neighbourhood conditions - meaning conditions in the area within 400 metres of a site; and*
 - *The site for the development.*
- *Consulting with emergency management agencies and the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.*
- *Ensuring that strategic planning documents, planning scheme amendments, planning permit applications and development plan approvals properly assess bushfire risk and include appropriate bushfire protection measures.*
- *Not approving development where a landowner or proponent has not satisfactorily demonstrated that the relevant policies have been addressed, performance measures satisfied or bushfire protection measures can be adequately implemented'.*

The emphasis throughout the detailed analysis is placed on the relationship between the assessment against the criterion at Clause 13.02-1S and the recommended planning treatments.

The bushfire hazard and identification assessment undertaken as part of this project has:

- Applied the best available science to identify the vegetation and relevant topographical and climate conditions that create a bushfire hazard; and,
- Considered the best available information about the bushfire hazard including bushfire prone mapping, bushfire management overlay mapping, and various other resources as introduced in Part 1 of this assessment; and,
- Considered the landscape, local and neighbourhood conditions of each precinct assessed as part of this project through data analysis and onsite inspections; and,
- Consulted with emergency management agencies and the relevant fire authority through meaningful engagement; and,
- Identified areas inside the BMO where the landscape risk is not extreme; and,
- Identified areas outside the BMO whereby the landscape risk is extreme; and,
- Directed the planning treatments recommended.

When considering bushfire matters in context of planning, it is Clause 13.02-1S, sitting within the Victorian Planning Provisions, that directs municipalities to consider 'bushfire' irrespective as to whether the land is currently affected by Bushfire Management Overlay. Further, it directs a considered approach to bushfire hazard identification and assessment.

²⁸ https://www.planning.vic.gov.au/data/assets/pdf_file/0023/97331/PPN64-Local-Planning-for-Bushfire-Protection_September-2015.pdf

Following consideration of the bushfire hazard and risk assessment, the development of the *Municipal Landscape Bushfire Risk* map, review of the Latrobe Planning Scheme, a number of improvements have been identified that will increase community safety.

The specific planning 'tools' are a logical choice when considering the outcomes sought to be achieved and these tools have been tested with Latrobe City Council and external stakeholders including CFA to confirm that the recommended approach generally aligns with current and future practice, given the evolving nature of the application of Clause 13.02 and Clause 13.02-1S.

It is noted that the need and extent of planning mechanisms recommended in this report (and provided for the individual precincts) will need to be determined on balance with the ability to introduce alternative intervening measures to manage and lower landscape and precinct scale bushfire risk.

This will require consideration of Council's ability to resource and support increasing fuel management interventions which may be enabled via alternate measures outlined in the report (such as increasing the scope and extent of Fire Prevention Notices). Should such measures be introduced, this may reduce the need for additional mitigating provisions for bushfire risk being achieved by the Planning Scheme. For example, where Fire Prevention Notices are extended to include increased management of defensible space around dwellings, this may negate the need to apply a Design Development Overlay in certain locations, where the sole objective is to achieve appropriate vegetation management and maintenance of defensible space.

The recommended Planning Treatment tools include:

Provision	Overview	Treatment Recommendation
Clause 13.02-1R <i>Latrobe Bushfire Policy</i>	<ul style="list-style-type: none"> To introduce the Latrobe Bushfire Risk Profile including the specific townships assessed. This policy will underpin all planning treatment recommendations. 	<p>It is recommended that a localised Bushfire Policy be introduced into the Latrobe Planning Scheme that:</p> <ul style="list-style-type: none"> Communicates the unique bushfire landscape of Latrobe City, informing community and decision makers alike. Reinforces the importance of a municipal wide approach to bushfire treatments. Introduces the Municipal Landscape Bushfire Risk Map. Introduces the Municipal Fire Management Plan and Municipal Bushfire Risk Assessment 2020 as background documents.
Clause 44.06 <i>Bushfire Management Overlay</i>	<ul style="list-style-type: none"> To recognise areas where the landscape bushfire hazard is considered extreme. As expressed at Clause 13.02-1S: 'Applying the Bushfire Management Overlay to areas where the extent of vegetation can create an extreme bushfire hazard'. Schedules should be considered where a landscape risk assessment would not otherwise be required, providing certainty to community and decision makers with respect to approved measures. 	<p>It is recommended that:</p> <ul style="list-style-type: none"> The Bushfire Management Overlay mapping be applied to specific areas, as assessed within this project, identified as an extreme landscape risk area. Schedule 1 be reviewed to ensure that it reflects the existing landscape profile and associated risk area. The detailed assessment has identified specific areas where Schedule 1 should be removed as the deemed to satisfy requirements are not considered adequate. A new Schedule be applied to land identified as BAL-29 areas whereby BAL-29 construction standards compounded with onsite vegetation management, water supply and access requirements, as required, is considered 'deemed to satisfy' based on a detailed landscape risk assessment.

Provision	Overview	Treatment Recommendation
Clause 43.02 <i>Design and Development Overlay</i>	<ul style="list-style-type: none"> An effective control to influence siting and design outcomes. Intended to implement requirements based on a demonstrated need to control built form and the built environment. Provide solutions for areas outside the Bushfire Management Overlay that are currently zoned to allow site by site development. The specific solutions will be influenced by the landscape risk level. 	<p>It is recommended that:</p> <ul style="list-style-type: none"> In areas not affected by, nor proposed to be affected by Bushfire Management Overlay: Apply a new Schedule to Design and Development Overlay with associated scheduling at Clause 52.12 or Clause 52.17 seeking onsite defensible space and vegetation management around new development. Firm exemptions are recommended as to limit consideration to development of building or works associated with accommodation. <p>In order to secure the requirement for ongoing fuel management, Latrobe City Council have indicated a desire to consider the need for additional measures to be introduced:</p> <ul style="list-style-type: none"> Insertion of a decision guideline to the DDO to consider whether a Section 173 agreement is necessary to requiring ongoing fuel management and maintenance of defensible space in accordance with an approved Vegetation Management Plan. An alternative to introducing a requirement for a Section 173 Agreement would be to rely upon the enforcement of the planning permit condition, whereby properties with an approved Vegetation Management Plan for bushfire are referred to Council's annual Fire Prevention Notice program, providing a reminder to current and future residents of the need to manage fuel loads and defensible space in accordance with the Vegetation Management Plan. <p>It is important that planning decision making fully understands the implications of ongoing vegetation management, including the need to adjust the municipal fire management plan to reflect additional fuel management commensurate with expanding and new development.</p>

8 Planning treatments (continued)

Provision	Overview	Treatment Recommendation
Clause 43.04 <i>Development Plan Overlay</i>	<ul style="list-style-type: none"> The Development Plan Overlay is a flexible tool used to implement a plan to guide future use and development of land. The primary purpose of the Development Plan Overlay within a bushfire landscape situation is to manage the subdivision layout at precinct level to ensure that the landscape risk does not increase over time and that any such development can practicably implement the requirements as expressed at 'Settlements' within Clause 13.02-1S. For land proposed to be rezoned for urban purposes, the proposed planning scheme provisions should require a buffer to be established to all areas of permanent bushfire hazard, achieved by a combination of measures including the creation of perimeter roads, introduction of building envelopes and lineal reserves. Such a requirement can be secured through an overlay such as the Development Plan Overlay for precinct scale subdivisions. 	<p>It is recommended that:</p> <ul style="list-style-type: none"> Development Plan Overlay be considered where precinct scale developments are proposed and the landscape risk is currently lower, or has opportunity to result in no net increase of risk. Subject to further strategic work to justify the DPO to land in multiple ownership, when balancing all other planning considerations. The Overlay to be prepared in accordance with <i>Practice Notes 23 and 64</i>.
Clause 52.16 <i>Native Vegetation Precinct Plan</i>	<ul style="list-style-type: none"> A Native Vegetation Precinct Plan (NVPP) provides for the strategic management of native vegetation for a defined area or precinct. 	<p>It is recommended that:</p> <ul style="list-style-type: none"> Consideration be given to the preparation of a Native Vegetation Precinct Plan (NVPP) to strategically direct offsets to areas that are not expected to result in a net increase to the landscape risk of urban areas.
Clause 52.12 Bushfire Protection: Exemptions and Clause 52.17 Native Vegetation	<ul style="list-style-type: none"> The Schedules to Clause 52.12 and Clause 52.17 provide an opportunity to exempt native vegetation removal from requiring a planning permit 	<p>It is recommended that Council investigate the appropriateness of including the DDO areas proposed in the Schedule to Clause 52.12 or Clause 52.17 so as to facilitate the vegetation removal and maintenance requirements sought to be achieved.</p>
Section 173 agreements	<ul style="list-style-type: none"> Council have indicated a desire to further explore the role of Section 173 Agreements. Section 173 Agreements may provide a useful mechanism to ensure bushfire requirements need only be considered once and are secured early in the settlement planning process. They may be particularly useful at securing ongoing requirements to current and future landowners for ongoing vegetation management. 	<p>Council will consider:</p> <ul style="list-style-type: none"> The application of Section 173 Agreements to secure ongoing fuel management and prevent a significant increase of re-vegetation where this would likely result in a cumulative increase in bushfire risk at either a neighbourhood, precinct or landscape scale. This measure however should only be applied in locations likely to experience significant ember attack, where the presence of additional fuel loads would result in the spread of fire resulting in risk to life and property. This may be achieved at the subdivision stage or in association with the application of draft DDOs provided in this report.

Through adoption of the planning treatments recommended, the Planning Scheme is expected to represent the schematic in Figure 6 resulting in a strengthened policy framework in context of Bushfire Planning whilst presenting a well-considered response to biodiversity protection.

8.1 Bushfire Policy

Based on the outcomes of the assessment of the Latrobe Planning Scheme along with the bushfire risk analysis, it is important for the Scheme to strongly acknowledge the existence of this risk. The introduction of a local Bushfire Policy outlining the Bushfire Risk Profile of Latrobe and the specific townships assessed will be a step forward for the Latrobe Municipality.

The Localised Bushfire Policy should respond to the municipal landscape risk profile to give clear direction to decision makers and permit applicants whilst relying heavily on Clause 13.02-1S – Bushfire Planning. This policy will introduce the Municipal Landscape Bushfire Risk Map to guide applicants and decision makers and trigger assessment against Clause 53.02 for all land use and development Applications on land identified in areas mapped as significant and extreme.

Through this policy, the Municipal Landscape Bushfire Risk Map and Municipal Fire Management Plan will be introduced into the Planning Scheme as background documents.

8.2 Development Plan Overlay (DPO)

A DPO Schedule to be considered in areas where:

- Future subdivision potential exists; and
- The landscape risk is low or significant

The DPO provides solutions around new settlement and their response to Clause 13.02-1S as well as a wide range of other considerations.

Specific bushfire risk solutions will be influenced by the landscape risk level. The purpose of the DPO within a bushfire landscape situation is to manage the landscape so that it doesn't increase the risk in the future.

It is important to note that the DPO cannot be introduced until further strategic work to justify the DPO when balancing all other planning considerations has been completed.

Consider introducing a DPO to land earmarked for rezoning, or precinct development in low or significant risk areas. This could also be introduced to areas specifically referenced below (responding to C105), seeking staging of development and Section 173 Agreements to ensure properties do not abut unmanaged vegetation both during subdivision staging and at completion. It is also important for the DPO to ensure appropriate road layout for effective access and egress with a view that the DPO, once acted upon, will result in a net reduction of landscape risk resulting from improved infrastructures, perimeter roads, water bodies (if/as appropriate), and effective vegetation management.

Subdivision design can establish passive risk mitigation that ensures new development is not exposed to direct flame contact or excessive levels of radiant heat. It can also ensure that fire authorities are able to establish control lines, effectively attack a bushfire and implement fuel management strategies such as prescribed burning.

For land proposed to be rezoned for urban purposes, the proposed planning scheme provisions should require a buffer to be established to all areas of permanent bushfire hazard, achieved by a combination of measures including the creation of perimeter roads, introduction of building envelopes and lineal reserves. A perimeter road, water bodies and open spaces managed in a minimal fuel state are examples of effective buffers (source: Planning Practice Note 64: Local Planning for Bushfire Protection²⁹).

These requirements can be secured through an overlay such as the Development Plan Overlay for precinct scale subdivisions, applied as part of land rezoning.

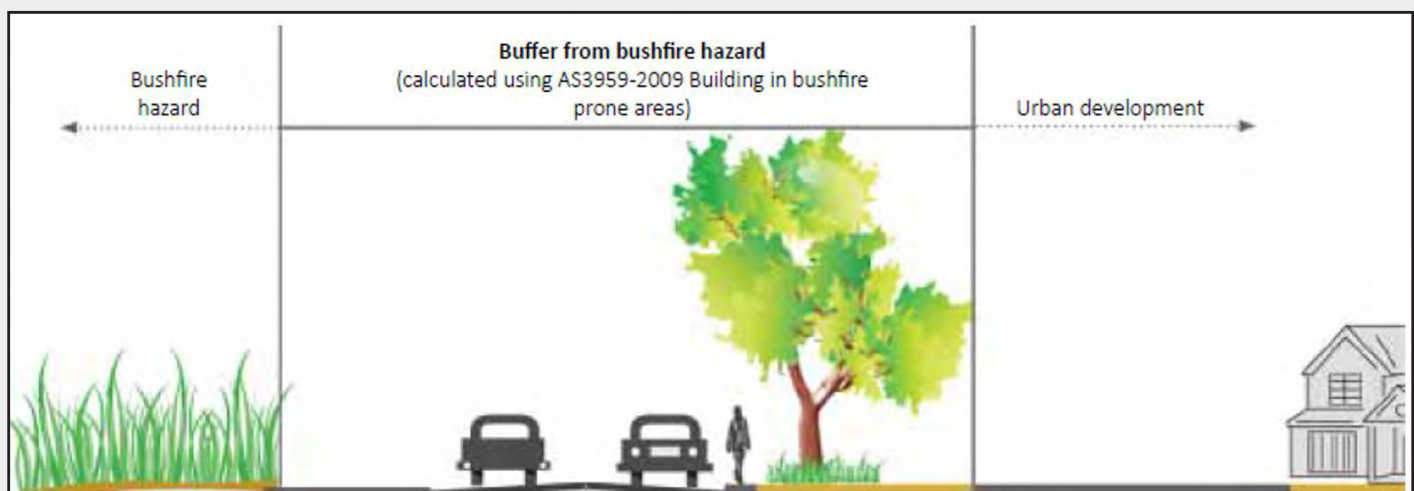


Figure 23 - Using perimeter roads to deliver bushfire protection in new subdivisions⁶

Recommendation 7: Apply a Development Plan Overlay to guide precinct scale subdivision to ensure a robust siting and design response to identified bushfire risk where the possible development yield justifies its application.

8.2 Design and Development Overlay (DDO)

DDO Schedule to be applied to land not affected by BMO to:

- Trigger a planning permit for buildings and works associated with Accommodation where additional controls could assist in lowering bushfire risk with a higher standard of dwelling, that will provide Council the opportunity to consider the proposed development
- Manage the landscape risk of fire through the introduction of siting and onsite vegetation management requirements and a directly linked native vegetation exemption at Clause 52.12 or Clause 52.17 of the Planning Scheme.

The specific solutions will be influenced by the landscape risk level.

The DDO will provide for defensible space creation as a minimum. Defendable space conditions should be constructed to not allow any increase in the landscape risk associated with development

Council have expressed a desire to consider the need for additional measures to be introduced. This is aimed at improving the ability to ensure defensible space conditions will be implemented and maintained. Council advised during the project that they will explore the following options:

²⁹ https://www.planning.vic.gov.au/data/assets/pdf_file/0023/97331/PPN64-Local-Planning-for-Bushfire-Protection_September-2015.pdf

- Insertion of a decision guideline to the DDO to consider whether a Section 173 agreement is necessary to require ongoing fuel management and maintenance of defendable space in accordance with an approved Vegetation Management Plan.
- An alternative to introducing a requirement for a Section 173 agreement would be to rely upon the enforcement of the planning permit condition, whereby properties with an approved Vegetation Management Plan for bushfire are referred to Council's annual Fire Prevention Notice program. This will provide a reminder to current and future residents of the need to manage fuel loads and defendable space in accordance with the Vegetation Management Plan secured by the planning permit applying to the land.

It is important that planning decision making fully understands the implications of ongoing vegetation management, including the need to adjust the MFMP to reflect additional fuel management commensurate with expanding and new development.

Where necessary, Council may consider the need to also explore vegetation removal exemptions available within the BMO for land within the recommended DDO by amending the Schedule to Clause 52.12 or Clause 52.17. Alternatively, exemptions may be enacted under Section 41 of the Country Fire Authority Act 1958.

Recommendation 8: Introduce planning mechanisms that require ongoing bushfire fuel management and ensure that no increased bushfire risk is created following the approval of new developments.

8.3 Bushfire Management Overlay (BMO)

Following the assessment of the Bushfire Management Overlay and how it has been introduced into the Latrobe Planning Scheme has identified areas for improvement. In addition, following the bushfire risk analysis, some areas have been identified where the risk is so high that the BMO should be extended to cover these areas.

The bushfire risk analysis has identified areas where consideration should be provided to extend the BMO. In relation to the 13 locations that were assessed as part of this project, the BMO should be extended to cover some or all of these areas.

Recommendation 9: Extend the Bushfire Management Overlay (BMO) to those locations (not presently included within the BMO) that are identified on the Bushfire Risk Landscape Map as being located in an areas of extreme landscape bushfire risk.

The benefits of this approach are three-fold. Firstly, application of the Bushfire Management Overlay will ensure that all new development has proper regard for the localised extreme landscape bushfire risk profile. Secondly, in residential areas, including rural living zones, the land owner takes benefit of the defendable space exemptions at Clause 52.12-5. Finally, the Responsible Authority takes benefit of the mandatory conditions of Clause 44.06 – Bushfire Management Overlay, including, not limited to:

'The bushfire protection measures forming part of this permit or shown on the endorsed plans, including those relating to construction standards, defendable space, water supply and access, must be maintained to the satisfaction of the responsible authority on a continuing basis. This condition continues to have force and effect after the development authorised by this permit has been completed.'

Further, the purpose-fit Bushfire Management Overlay is a statewide provision proven to be effective in application.

Recommendation 10: Review locations to which Schedule 1 to the BMO presently applies to ensure that the requirements present an adequate response to the landscape bushfire risk.

Recommendation 11: Introduce a new BMO Schedule (BMO2) to precincts identified at Extreme Risk within Traralgon South, Tyers and Yallourn North seeking to mandate a minimum BAL- 29 building construction standard with 30 m defendable space.

8.4 Utilising Section 173 Agreements

During project consultation, Council indicated a desire to explore the use of Section 173 Agreements. It was explained that they can provide a useful mechanism to ensure bushfire requirements need only be considered once and are secured early in the settlement planning process. They may be particularly useful at the planning scheme amendment stage where a site-specific amendment is proposed.

A Section 173 Agreement can also be used to secure various ongoing requirements to current and future landowners, such as ongoing vegetation management.

They provide the added benefit of being visible on property title and are enforceable, and can be established to compel landowners to undertake certain actions, such as the management of bushfire fuels on property, or prevent extensive re-vegetation of property.

Recommendation 12: Within extreme and significant bushfire risk locations, explore and apply statutory planning permit conditions for ongoing fuel management. This should include the consideration of 173 agreements and/or a Schedule to Clause 52.17 that aligns with the DDO areas proposed.

8.5 Native Vegetation Precinct Plan

When considering the recommended planning treatments and their response to the objective and strategies of Clause 13.02-1S, consideration must also be given the matters of biodiversity, native vegetation and associated landscape protection.

Seeking to ensure that the landscape bushfire risk does not increase over time, it is not expected that the planning treatments recommended will result in a loss to Latrobe's biodiversity or landscape values.

Rather, offsets, where required, should be directed to the highest quality landscapes and outside the urban areas of Latrobe City. It is recommended that Latrobe City Council consider preparation of a Native Vegetation Precinct Plan to be incorporated into Clause 52.16 – Native Vegetation Precinct Plan to strategically direct native vegetation offsets in appropriate locations whereby no net loss is expected to result over time. The Strzelecki – Alpine Biolink introduced into the Planning Scheme by Amendment C105 provides an example of a potential landscape area which may be suited to this opportunity.

The three-step approach, as outlined within Clause 52.17 – Native Vegetation should be adopted by any applicant seeking to remove native vegetation, other than vegetation that is exempt from consideration:

1. *Avoid the removal, destruction or lopping of native vegetation.*
2. *Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.*
3. *Provide an offset to compensate for the biodiversity impact if a permit is granted to remove, destroy or lop native vegetation. To manage the removal, destruction or lopping of native vegetation to minimise land and water degradation.*

Recommendation 13: Explore appropriate landscape settings and prepare a Native Vegetation Precinct Plan to direct native vegetation offsets outside urban areas, urban interface and rural living areas in accordance with Guidance for the Preparation of Native Vegetation Precinct Plan (NVPP), December 2017.

8.6 Native Vegetation Exemptions

In order to allow for creation and maintenance of defensible space in areas that are proposed to be protected by the DDO, appropriate native vegetation removal exemptions are required. Investigation is required to ascertain whether the Schedule to 52.12 or the Schedule to 52.17 is a better tool to achieve this outcome. This is further discussed in section 9 below.

9 PLANNING EXEMPTIONS INFLUENCING PLANNING TREATMENTS

The Victorian Planning Provisions outline a suite of exemptions relating to vegetation removal for the purpose of bushfire protection. Clause 52.12 – Bushfire Protection Exemptions are the most relevant to new development whereby Clause 52.12-5- Exemption to create defendable space for a dwelling approved under Clause 44.06 of this planning scheme provides exemptions for vegetation removal for the provision of defendable space where the following criteria is met:

- Land is in the Bushfire Management Overlay.
- Land is in the General Residential Zone, Residential Growth Zone, Neighbourhood Residential Zone, Urban Growth Zone, Low Density Residential Zone, Township Zone, Rural Living Zone, Farming Zone or Rural Activity Zone.
- The removal, destruction or lopping of vegetation: Does not exceed the distance specified in Table 1 to Clause 53.02-3 of this planning scheme, based on the bushfire attack level determined by a relevant building surveyor in deciding an application for a building permit under the Building Act 1993 for a dwelling or alteration or extension to the dwelling; or, Is required to be undertaken by a condition in a planning permit issued after 31 July 2014 under Clause 44.06 of this scheme for a dwelling or an alteration or extension to the dwelling.

Other relevant exemptions which influence the proposed Planning Treatments include Clause 52.12-1 - Exemption to create defendable space around buildings used for accommodation which relate to existing buildings used for accommodation, constructed or approved before 10 September 2009 allowing, as summarised:

- Vegetation removal and management, including trees, within 10 meters of an existing building; and,
- Vegetation removal and management, excluding trees, within 30 meters of an existing building; and,
- Vegetation removal and management, excluding trees, within 50 meters of an existing building erected before 18 November 2011, where the land is within the Bushfire Management Overlay.

And, Clause 52.12-2 - Exemption for vegetation removal along a fence line allowing for:

- The removal, destruction or lopping of any vegetation for a combined maximum width of 4 metres either side of an existing fence on a boundary between properties in different ownership that was constructed before 10 September 2009.

Through the practical implementation of these exemptions, it is expected that the landscape risk with the urban areas of Latrobe will not increase. Rather, opportunity exists to reduce the existing landscape risk through effective vegetation management in accordance with the relevant exemptions.

Where necessary, Council may consider the need to also explore vegetation removal exemptions available within the BMO for land within the recommended DDOs by amending the Schedule to Clause 52.17. Alternatively, exemptions may be enacted under the Section 41 of the Country Fire Authority Act 1958.

Recommendation 14: Promote awareness of the Bushfire Protection Exemptions at Clause 52.12 with a view to see enhanced vegetation management around existing dwellings, other buildings used for accommodation, and fences.

10 FIRE MANAGEMENT TREATMENTS

As discussed previously in this report, in responding to forecast increases in bushfire risk it is acknowledged that further alignment of the Municipal Fire Management Plan, ongoing fuel management works and land use planning will be necessary.

The key focus for the MFMP is to ensure that the plans of individual agencies are linked and complement each other. Following the analysis of bushfire risk within the 13 locations and more broadly across the Latrobe City footprint, the need to introduce additional fire management treatments has been identified. In addition to this is the need to ensure that those treatments specified within the MFMP and the associated organisational plans have been implemented.

There is a need to assess bushfire risk at the local level and to then overlay the fire management treatments on this assessment. This is an effective way of checking both the overlaps in planning and identify any shortfalls. The advantage of this project was the ability to focus to a very detailed level in the 13 locations. This allowed a detailed suite of fire management treatments to be identified. In some cases, the treatments may already be specified within an organisational plan. The project team didn't assess fire management plans beyond the MFMP. However, there are examples of guidelines and planning being completed to reduce fuel loads at a more localised scale for township and settlements.

One such example is the *Bushfire Fuel Management for the Protection of Townships and Settlements (May 2018)*³¹ which was developed by the Southern and Eastern Metropolitan Fuel Management Working Group with the support of CFA, DELWP and EMV. This guideline provides a useful example and template for communities and fire management practitioners who are seeking to improve the protection of townships and settlements from the threat of bushfire. The guideline provides direction to establish a collaborative approach to fuel management and reduction works being undertaken across both public and private land, which is a core objective of the State Government's Safer Together initiative and supported by Community Based Bushfire Management principles.

Fuel management actions are one of a suite of tools available to communities to increase their protection and resilience from bushfires. This report recommends that Council, in collaboration with CFA, undertake necessary planning to align fuel reduction works at a township and property scale for all townships and settlements identified as being with extreme bushfire risk landscapes by the Municipal Landscape Bushfire Risk Map (See Section 2, Figure 3).

Implementation of active fuel management within and surrounding settlements provides the opportunity to contribute to the following outcomes:

- The development or acknowledgement of 'safer centres' within towns or settlements where communities usually or traditionally gather.
- The protection of critical community assets including schools, shops, meeting places, and homes.
- Ensuring that critical community assets remain to support recovery after a fire.
- A demonstration and strengthening of shared responsibility.
- Landowners and land managers who:
 - are better informed and empowered to act
 - understand the role of fuel management in landscape scale risk mitigation and how it integrates with other risk treatments
- Effective implementation of strategic, integrated fuel management across the landscape.

(Source: Bushfire Fuel Management Guide May 2018³²).

As part of this work, it will be necessary to consider all stakeholders, tenures, agencies, landowners and managers of land within the legislative, regulatory and planning context. In particular, bushfire management prevention works must take into account land use planning arrangements which empower, guide, and control vegetation management across tenures.

³⁰ <https://files-em.em.vic.gov.au/public/EMV-web/State-Bush-Fire-Plan-2014.pdf>

³¹ https://www.safertogether.vic.gov.au/_data/assets/pdf_file/0016/409120/Bushfire-Fuel-Management-Guide-Final-10th-May-2018.pdf

Following the detailed assessment and analysis of Government and Agency guidance, the following areas should be focused on when considering risk reduction treatments:

- Defendable space
- Access/egress
- Fuel management
- Other treatments

These categories have been utilised to align treatment options. The importance of each of these categories is outlined below:

Category	Description
Defendable space	The creation of defendable space provides for a cleared break or area between dwellings and vegetation that may carry a bushfire. Defendable space can be a highly effective tool to reduce bushfires spreading towards dwellings. Defendable space treatments are often associated with the protection of a building (dwelling, community infrastructure, etc).
Access/egress	Consideration of the ability for the community/firefighters to access and egress a location is critical. Treatments may include dangerous tree assessments and road maintenance. During drought periods, trees falling onto roadways occurs often and creates issues for firefighters or the community to both access or leave a location.
Fuel management	Fuel management relates to the reduction or alteration of fuel in and around townships or for the creation of strategic breaks that will reduce a bushfires intensity. Treatments can include fuel reduction burning, mulching or clearing.
Other	Other treatments may include community education, provision of additional firefighting infrastructure such as water supply and access roads. The establishment of Strategic Fire breaks should also be considered utilising native vegetation removal exemptions available within Clause 52.17 of the Planning Scheme.

Recommendation 15: Support communities situated in high bushfire risk landscapes to prepare bushfire fuel management plans, utilising guidelines and principles outlined by the Bushfire Fuel Management Guide May 2018.

³² https://www.safertogether.vic.gov.au/data/assets/pdf_file/0016/409120/Bushfire-Fuel-Management-Guide-Final-10th-May-2018.pdf

10.1 Defendable space

Defendable space creation can be achieved through a range of methods. The treatment is aimed at reducing the level of radiant heat that is generated by a bushfire and reducing the potential for the structure or area to be exposed to direct flame contact. The creation of defendable space is often seen as the most effective treatment to reduce bushfire impact.

CFA guidance³³ outlines the purpose of defendable space as:

Defendable space is an area of land around a building where vegetation (fuel) is modified and managed to reduce the effects of flame contact and radiant heat associated with a bushfire. Defendable space is one of the most effective ways of reducing the impact of bushfire on a building.

It also states that the objectives of defendable space creation is:

- Maintain integrity of building (avoid compromise to building structure)
- Reduce the carry of surface fire (horizontal separation)
- Reduce the carry of a canopy fire (horizontal separation)
- Reduce fuel ladders (vertical separation)

The creation and maintenance of defendable space is seen as a critical tool to ensure the safety to the broader community. Defendable space can be created at a very localised or much broader level. Regardless, defendable space won't provide sufficient community protection when considered at a local level. The most effective treatment is to consider defendable space as a network of activity across a broad multi tenured landscape.

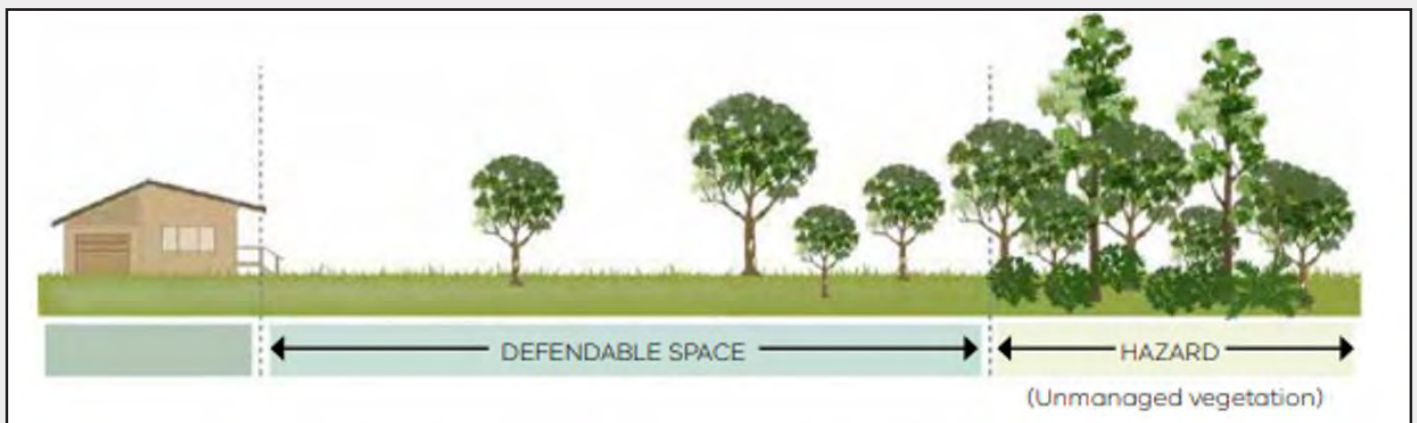


Figure 24- Overview of defendable space³⁴

The BMO requires the creation of defendable space at the local level through the allocation of requirements in the Planning Permit. These requirements can also be used to guide the creation of defendable space for other purposes including existing dwellings and community infrastructure. The BMO requirements are:

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 centimetres in height must not be placed within 3 metres of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 sq. metres in area and must be separated by at least 5 metres.
- Trees must not overhang or touch any elements of the building.
- The canopy of trees must be separated by at least 5 metres.
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

³³ <https://www.cfa.vic.gov.au/documents/20143/69511/CFA-BMO-Defendable-space-Aug-14.pdf/3b306f02-ac41-7110-ec40-68f0acd6a64a>

³⁴ https://www.planning.vic.gov.au/data/assets/pdf_file/0015/80016/Technical-Guide_Planning-Permit-Applications-Bushfire-Management-Overlay_Sept-2017.pdf

10.1.1 Strategic firebreaks

The Latrobe City Municipal Fire Management Plan outlines strategic firebreaks across the municipality. At present these are outlined in the MFMP and shown in Figure 9. The MFMP outlines strategic firebreaks as:

Strategic firebreaks are established where sites are identified because of their ability to be used as a firebreak and a major traffic corridor. There are primary and secondary breaks. All strategic firebreaks are the highest priority for both fire prevention works and road surface maintenance.

The MFMP defines a primary and secondary firebreak as:

- **Primary Firebreaks:** Breaks designed to provide protection to the municipality as a whole and are usually along the declared highways and main (arterial) road system or rail system.
- **Secondary Firebreaks:** Additional breaks designed by the MFPC and local brigades to provide protection at a local level and strategically dividing the municipality.

The definition of a firebreak provided within the MFMP is:

Firebreaks by definition are a minimum 10 metre strip of land (includes road surface where applicable) or suitable area, or at the discretion of the MFPO, in consultation with the relevant authorities, upon which the fuel load, particularly fine fuels, have been greatly reduced. Within the municipality there are no formal firebreaks other than the road strategic system that require construction or maintenance by the City or Vic Roads.

There are extensive firebreaks on DELWP managed land and in the numerous plantations. It is paramount that these firebreaks are maintained by DELWP and the plantation owners. The works shall be carried out in accordance with the Fire Protection Plans developed by DELWP and the plantation industries.

Following the site inspections of the 13 locations a number of locations have been identified as high risk, and of these, some areas (Traralgon South, Koornalla) do not have a strategic firebreak network. However, it is not clearly outlined what the purpose of a strategic firebreak is within the MFMP. It is important for this to be clearly defined to enable the consideration of this treatment in relation to all other plans that relate to managing bushfire risk.

Any definition of a strategic firebreak should include the following:

- Support the ability for the community and responders to access and egress from a high risk location.
- Break up vegetation to reduce the potential for a bushfire to travel across the landscape uninterrupted.
- Reduce the incidence of bushfires starting on roadsides.

CFA guidance material³⁵ outlines the purpose of roadside management programs as:

1. Prevent fires on roadsides
2. Contain roadside fires
3. Manage safety of road users
4. Provide control lines
5. Recovery from roadside fires

Recommendation 16: Seek the support from the MFMPC to review the purpose, location and management of strategic and primary fire breaks across Latrobe City and update MFMP accordingly. This review should consider the establishment of additional fire breaks where they may provide greater protection for communities, assets and important biodiversity values in either Extreme or Significant Bushfire risk landscapes.

10.1.1 Compliance and enforcement opportunities

Due to the introduction of the Bushfire Management Overlay and its predecessor the Wildfire Management Overlay (WMO), there are a number of developments that have occurred where Bushfire related planning permit conditions are in place. These conditions are an opportunity to ensure landscape risk is managed. An underlying assumption of the defendable space provisions of the BMO is to change and manage the landscape risk associated with development.

To achieve a safer landscape, enforcement of defendable space is critical. The treatment of risk through compliance inspections and subsequently enforcement programs can be seen as an effective method of ensuring the risk across the landscape is managed.

The opportunities for compliance inspection programs and/or enforcement include:

Priority	Description	Proposed treatments
1	Development that exists within the BMO and has been issued a planning permit that addresses bushfire risk (this could have occurred under the BMO or WMO)	Ensure Planning Permit conditions have been implemented and evidence of maintenance is available
2	Development that has occurred within the BMO that was undertaken prior to the introduction of the WMO/BMO.	Issue a Fire Prevention Notice (FPN) that requires 10/50 conditions around the structure and boundary line vegetation management.
3	Development outside the BMO that has been identified as being at extreme risk resulting from the landscape risk assessment (Municipal Landscape Risk Map – red zone).	Issue a FPN that requires 10/50 conditions around the structure and boundary line vegetation management.
4	Development outside the BMO that has been identified as having a significant risk resulting from the landscape risk assessment (Municipal Landscape Risk Map – Yellow zone).	Issue a FPN that requires 10/30 conditions around the structure and boundary line vegetation management.
5	All other areas.	Establish an education program to inform the occupiers of the importance of managing the landscape to reduce the effects of bushfire.

Recommendation 17: Extend Latrobe City Council's Fire Prevention Notice program to include enforcement of approved planning permit conditions which require ongoing property and vegetation management for bushfire risk.

10.2 Access and egress provisions

Whilst this treatment category can be considered similar to the defendable space treatment in that it largely involves the reduction of fuel, it is about targeting the fuel management treatments to those roads that have been identified as being a key access/egress route for a community and responders.

In some situations, the provision of a firebreak does not align with the need to provide a community or firefighters with the ability to egress from their location before, during or after a bushfire. Hence why the identification of key access and egress routes should be listed within the MFMP to ensure they are captured and form part of the works plan.

Recent bushfires (Bunyip 2019) have demonstrated the challenges where trees under stress from low rainfall and other environmental factors, following the effects of a bushfire including wind and fire damage will fall over roadsides. A number of these trees following an assessment pre bushfire season, would likely be identified and works undertaken to remove them. These trees create a risk to the community and firefighters when left unmanaged.

Recommendation 18: Council encourages the MFMP to develop a list of key access/egress roads within the Latrobe City footprint and include these in the MFMP.

Recommendation 19: Council encourages the MFMP to develop a consistent treatment/prescription description for key access/egress roads and include this in the MFMP.

10.2.1 Management of roadside bushfire risk

Councils manage roadside bushfire risk by means of a number of instruments, including Municipal Fire Management Plans (MFMP), Road Management Plans (RMP), Road Vegetation Management Plans (RVMP) and local laws. The MFMP focuses primarily on bushfire prevention and fire management, whereas RMPs and RVMPs cover overall policies for roads.

Prior to the establishment of MFMPs, Councils were required to establish Municipal Fire Prevention Plans (MFPP).

Before engaging in roadside clearing, road managers must consider the implications of the Commonwealth Environment Protection and Biodiversity Conservation Act and the Victorian Flora and Fauna Guarantee Act. These Acts have different processes to regulate activities that could affect native flora and fauna. The species protected under the Acts are also slightly different, and this adds to the complexity for road managers, although generally similar information is required for both processes. The Environment Protection and Biodiversity Conservation Act includes exemptions for bushfire risk, but these are complex and do not sit well with road managers' obligations to manage bushfire risk.

Council officers have advised that there are a number of regulatory limitations to undertake road side fuel management under the FFA Act and EBPC Act.

Under s. 42 of the Country Fire Authority Act, CFA brigades are empowered but not obliged to engage in roadside fuel reduction works, including prescribed burning. These works must be carried out with the consent of, or at the request of, the road manager. If the road manager requests the works it is obliged to pay the CFA for the work carried out.

The Commission recommended that:

"The State amend the exemptions in clause 52.17-6 of the Victoria Planning Provisions to ensure that the provisions allow for a broad range of roadside works capable of reducing fire risk and provide specifically for a new exemption where the purpose of the works is to reduce bushfire risk."

Recommendation 20: That Council work with the CFA and MFMP to review roadside fuel management and regulatory barriers in order to actively reduce fuel management of identified priority roadsides necessary for safe access and egress.

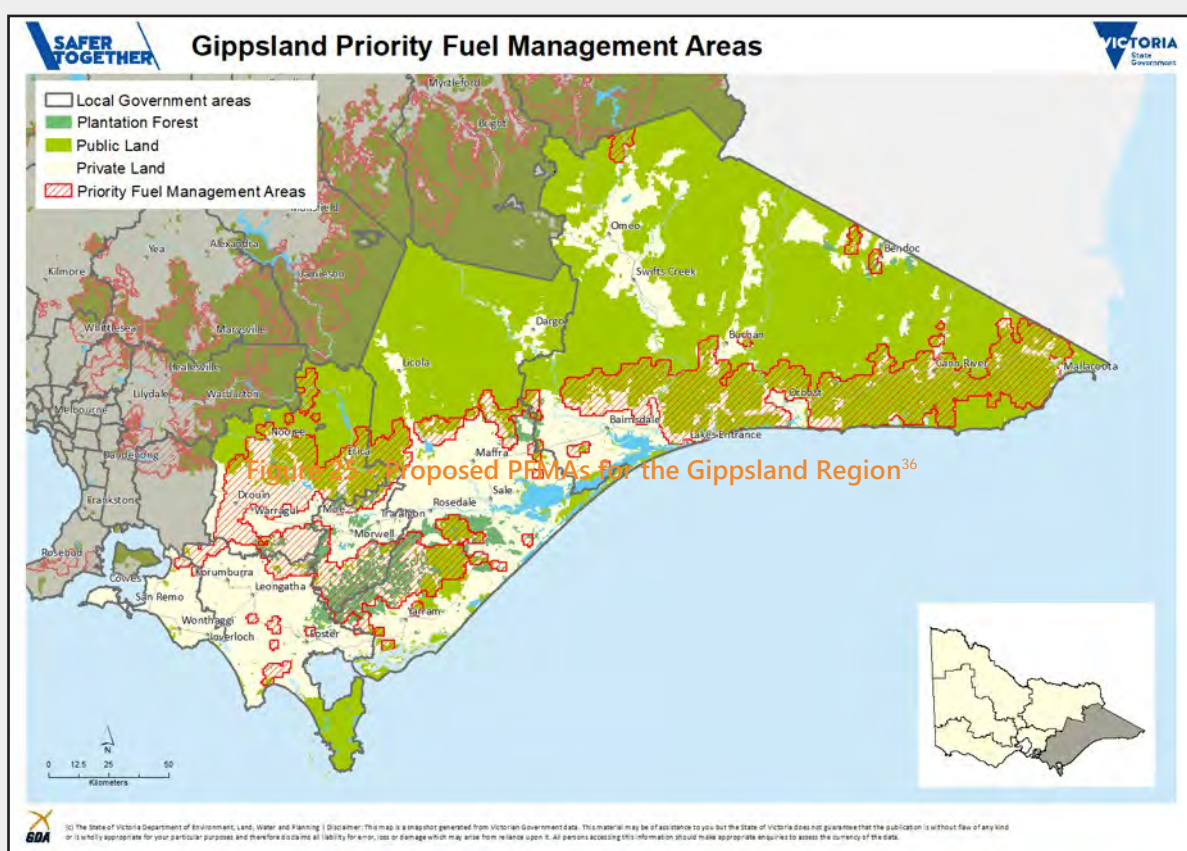
Recommendation 21: That Council advocate for revisions to Clause 52.17 as recommended by the 2009 Bushfire Royal Commission and subsequently adopted by the State Government.

10.3 Fuel management

Fuel management relates to the overall management of fuel across the landscape. Effective fuel management will reduce the ability of a bushfire to impact on communities. The Victorian Government has announced the introduction of the 'Safer Together' project that, amongst other objectives, is aimed at developing a land tenure blind understanding of risk and the implementation of treatments. The project has proposed Priority Fuel Management Areas (PFMAs) which are explained as:

Priority Fuel Management Areas (PFMAs) show where bushfire fuel treatments will most effectively reduce long-term bushfire risk to communities. These areas cross both public and private land tenure and form part of bushfire management strategies.

Figure 10 outlines the PFMAs proposed for the Gippsland Region. There is a level of consistency between the development of the Municipal Landscape Bushfire Risk map and PFMAs.



³⁶ <https://engage.vic.gov.au/bushfire-planning/gippsland>

10.2.1 Management of roadside bushfire risk

The MFMP and other planning documents provide an effective indication of where risk areas are located across the Latrobe City footprint. The key treatment method of fuel reduction burning can be sometimes difficult to implement for a range of reasons that may include, vegetation moisture content, community objections and lack of resources. Within Victoria, the large majority of bushfire treatment plans identify the use of fuel reduction burning to reduce the risk from bushfires. However, when this treatment is unable to be implemented, the MFMP needs to ensure other treatments are considered and implemented to offset this.

These treatments may include:

- Vegetation removal and/or modification through mulching, clearing, etc.
- Increased community engagement to inform the surrounding area of the non-achievement of fuel reduction burning plans
- Increased response planning in the event of a bushfire

The development of PFMA's has also encouraged the consideration of reducing bushfire risk through a land tenure blind approach. This is critical as Figure 11 demonstrates the need to manage both public and private land to effectively reduce risk to the community. The forested areas that are not shaded is private land. Some of this is plantation. The picture clearly shows the importance of ensuring both public and private land are managed to reduce the risk to communities.

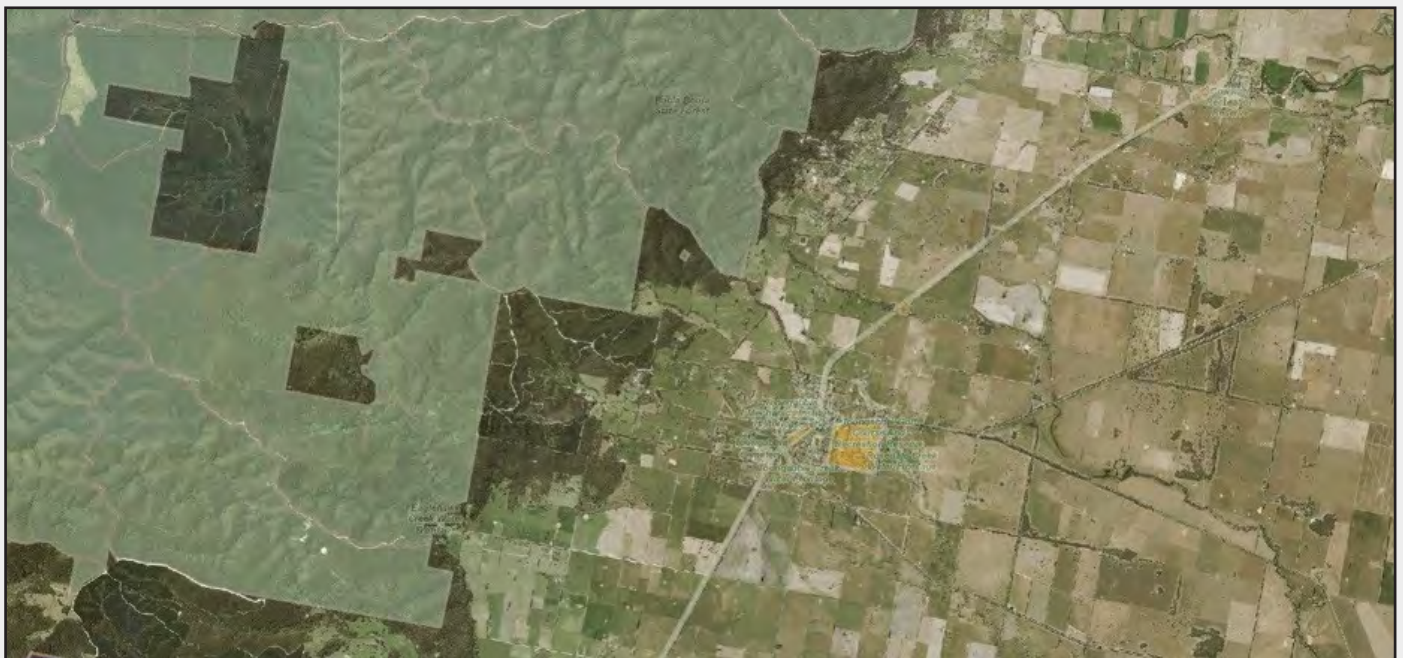


Figure 26 - Public land surrounding the Toongabbie township

Fuel management is an opportunity for Council and the other stakeholders to support the reduction of bushfire risk. Council manages a number of reserves that consists of forest vegetation. Fuel management across these reserves should be seen as a priority.

10.4 Other treatments

10.4.1 Latrobe Valley Information Network (Attentis)

Technology is already an integral part of everything we do before, during and after fires, but will play an even larger role in the future. Emerging technologies are being developed, such as the combining of existing technologies to allow early detection and intervention of fires, and our constantly growing capability to connect with each other and share information. Technology has advanced rapidly over recent years, and the potential ways in which technology can help us achieve our goals are almost endless (2009 Royal Commission Report).

Latrobe City Council is currently working to expand the drive to innovation and community resilience through its use and development of the Latrobe Valley Intelligence Network (LVIN). Ten of the sensor units have been strategically located with the ability for early detection of fire in the landscape and the provision of early notification of fire ignitions to residents within each sensor locality.

Whilst the data that is being captured by these sensors is still new, once the system has been in place for a number of years, this data will provide the ability to undertake detailed analysis of localised weather conditions and other research.

Recommendation 22: To support greater community resilience and their ability to respond and act to bushfire, explore ongoing funding and increased utilisation of the fire detection/thermal imaging capability of the Latrobe Valley Intelligence Network (LVIN).

10.4.2 Community education and engagement

A range of community education and engagement programs are periodically undertaken each year. These include Community FireGuard programs, bushfire awareness sessions and other community action and education programs such as the Latrobe Valley Community Bushfire Connection and Local Emergency Action Plans. Community Based Bushfire Management (CBBM) is also an initiative led by DELWP.

The Latrobe Valley Community Bushfire Connection program is an example of a program undertaken to better understand and inform what people do before, during and after a bushfire; either individually on their property, collectively in their township or as an organisation involved in emergency management. This program was held from 2014 to 2018.

The program delivered three community-based bushfire-related events across Latrobe Valley communities, including: Callignee, Tyers, Yallourn North, Yinnar, Toongabbie, Glengarry, Boolarra, Jeeralang, Moe South, Morwell and Churchill.

The project:

- Focused on specific small townships around the Latrobe Valley;
- Provided information and latest research directly to residents;
- Assisted in development or upgrading of individual and township plans;
- Provided an opportunity, via a bushfire scenario, to test these plans in a simulated bushfire event; and
- Gathered information to drive further improvement and identify ways to work collaboratively across agencies, townships and individuals.

Some key benefits the project achieved were:

- a 'joined up' approach to planning across individuals, townships and organisations;
- action learning;
- enhanced community resilience;
- improved trust between agencies and community; and
- sharing of experiences and knowledge.

Local Emergency Action Plans (LEAP) are developed by the community for the community. They use local knowledge about people, history, potential risks, vulnerability, infrastructure and services to enhance emergency preparation, response and recovery - whether it be a fire, flood, landslip or power outage.

LEAPs provide people with information, skills and key contacts for developing their own approach to emergency planning, they provide advice on roles and responsibilities of agencies and organisations and assist communities to make better decisions in an emergency.

10.4.2 Community education and engagement (continued)

The purpose of a LEAP is to:

- Raise awareness within the community of peoples' actions and decisions
- Support community members to work with their neighbours in preparing for emergency events (i.e. preparing property to reduce fuel loads).
- Provide individuals, families and communities with information, skills and key contacts for developing their own approach to emergency planning
- Resource communities to enable good decision-making in an emergency by strengthening community involvement
- Provide a better understanding of the roles and responsibilities of emergency management agencies and organisations
- Recognise that the impact of a disaster is complex and dealing with loss and trauma is difficult.

LEAPs aim to build greater social capacity and establish sustainable, long-term community action plans. Latrobe City Council has assisted small town communities to implement a Local Emergency Action Plan (LEAP), with plans being completed for Callignee – Traralgon South, Boolarra – Yinnar and Hazelwood – Jeeralang. These plans can be sourced from <https://www.communitybushfireconnection.com.au/community-plans/>.

Recommendation 23: In partnership with key agencies and community, continue to support community-based programs to support community awareness and preparedness for bushfire.

10.4.3 Local Law and bushfire safety

Local Government has the ability to introduce Local Laws for the following purpose:

- provide for the peace, order and good government of the municipal district;
- prohibit, regulate and control activities, events, practices or behaviour in public places so that no detriment is caused to the amenity of the neighbourhood, nor nuisance to a Person nor detrimental effect to a Person's property;
- protect the Council's assets and land and to regulate their use;
- promote a physical and social environment free from hazards to health in which the residents of the municipal district can enjoy a quality of life that meets the general expectations of the community;
- provide for those matters which require a Local Law under the Act and any other Act; and
- provide for the administration of Council powers and functions.

There is the potential to introduce additional controls within a Local Law to support the regulation of bushfire safety requirements, in particular defensible space. Division 19 of the Latrobe City Council Local Law No. 2 should be assessed to include the requirements, upon receiving a direction from a Council Officer, to introduce defensible space either surrounding a dwelling or to support the protection of adjoining dwellings.

Recommendation 24: Undertake a review of Latrobe City Council Local Law 2 and the extent of requirements for community responsibilities to prepare property for bushfire risk, with a view to strengthening fuel management on private land in locations likely to experience high and extreme bushfire risk.

11 BUSHFIRE RISK ASSESSMENTS

The project has identified a range of treatments associated with the 13 locations. The table below outlines the key findings associated with the risk assessment against each precinct. This is followed by recommendations on additional fire management and planning treatments required to either reduce or manage risk into the future.

Each of the identified locations has undergone a detailed assessment to determine the level of bushfire risk. Figure 1 on page 8 shows the location of each precinct. The outcomes of this assessment will enable consideration of treatments that are aimed at reducing the short and long term bushfire risk. Clause 13.02 assessments are to be conducted as part of Latrobe City Council's Rural Living Strategy once appropriate precincts for potential rezoning have been confirmed by the assessments in section 11 of this report, an assessment of land supply and demand and consideration of all other relevant planning constraints and opportunities.

Each section provides an overview of the location in the context of bushfire. It then provides information specific to access and egress, a landscape risk assessment (including bushfire scenarios) and development opportunities overview. The information relating to development opportunities was provided by Latrobe City Council. This information supports the scoresheet analysis and the resulting risk level.

11.1 Boolarra

11.1.1 Location overview

Boolarra is located at the southern end of the Latrobe City municipality. The township consists of reasonably flat land with dwellings along the ridgeline and located within forest vegetation. In 2009 this area was impacted by bushfires which saw the loss of a number of dwellings.

The township is largely surrounded by plantations on three sides. In areas there are also parcels of native vegetation that creates a continuous fuel supply through the community. This, mixed with the undulating topography, creates challenges for fire suppression activities.

There are areas of the township where previous development has allowed dwellings and properties to be located against various types of vegetation including forest and grassland. Further development that is planned with bushfire safety as a key consideration could see a net risk reduction for the entire community.

11.1.2 Access and egress

The main access/egress route is towards the north towards Churchill and whilst it travels through some heavily vegetated areas, the road is considered effective. Again, late evacuation would likely see challenges for the community to leave the township to get to a safer location.

11.1.3 Landscape risk assessment

The likely bushfire scenarios that may impact on Boolarra include:

- A bushfire burning under a northerly influence and travels through the plantations and impacts on the township. The dwellings adjoining the vegetation could be impacted by flame contact and/or radiant heat. It is likely for spot fires to start in the outdoor areas.
- A bushfire burning under a south westerly influence through the plantations and impacts onto the community primarily through ember attack. Those properties adjoining the vegetation could be impacted by radiant heat and/or flame contact.

Both of these scenarios would create unsafe conditions for the community that lives in the Darlimurla Road area. Access and egress would likely be interrupted during a bushfire and late evacuation would be considered dangerous.

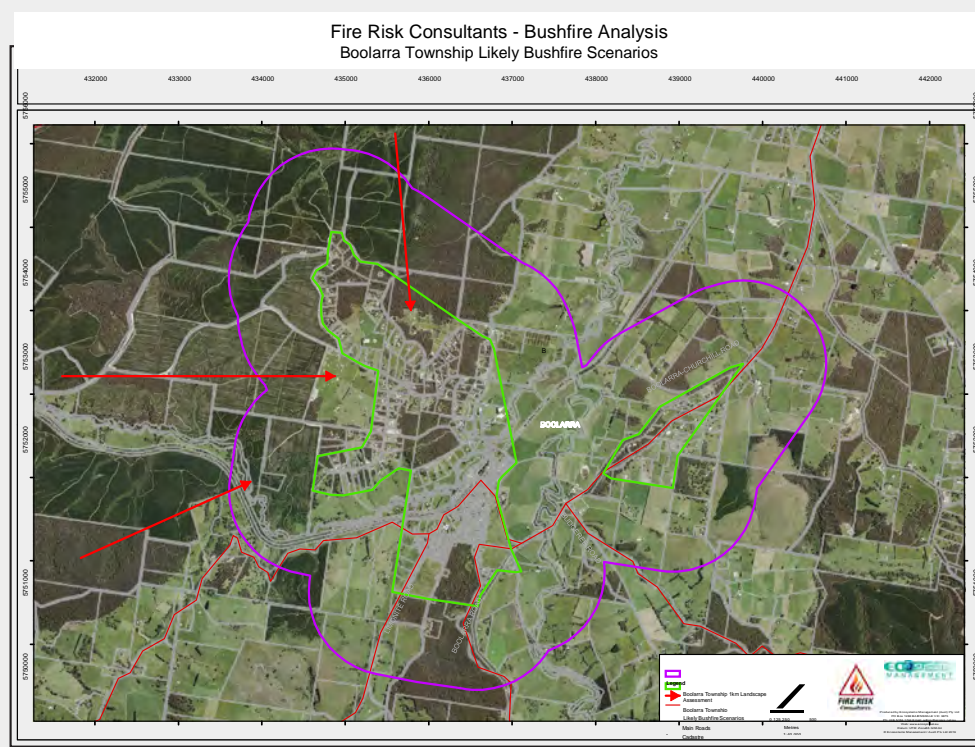


Figure 27 - Boolarra likely bushfire scenarios (1km)

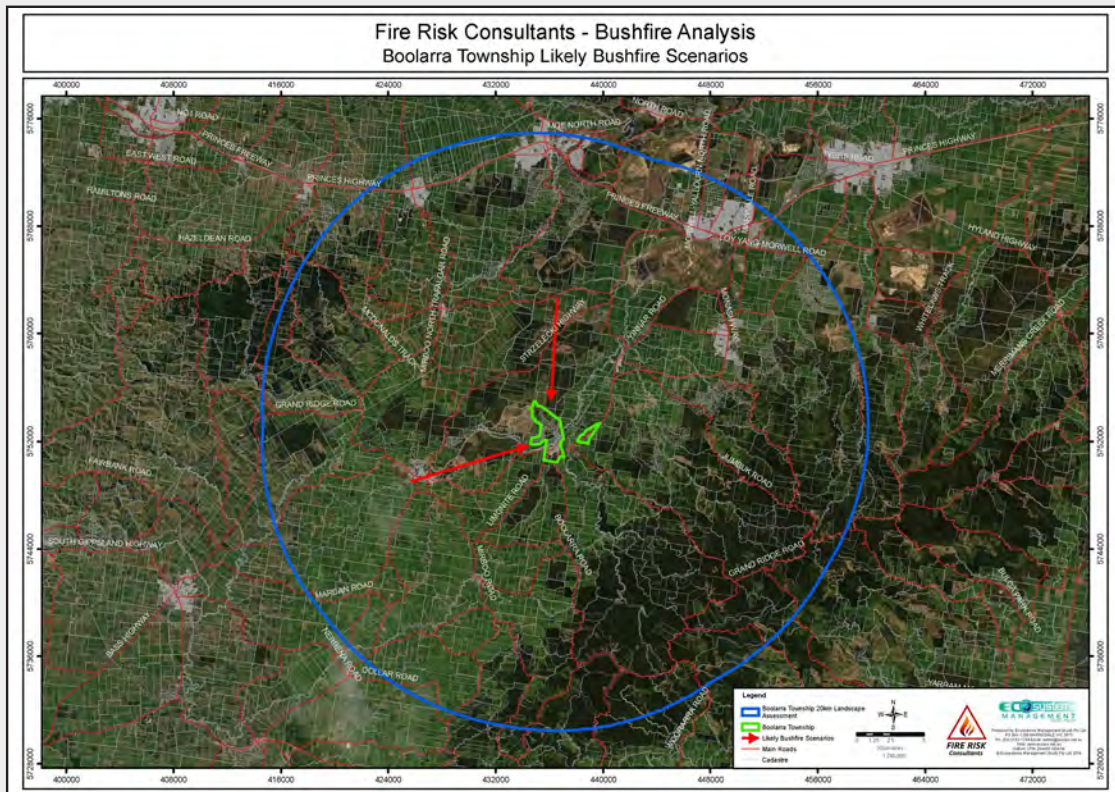


Figure 28 - Boolarra likely bushfire scenarios (20km)

11.1.4 Development opportunities

Areas identified for investigation for rezoning from FZ to RLZ were identified by the Rural Land Use Strategy and submissions received through Amendment C105. Most lots within these areas contain dwellings, however there are a number of large lots which still retain subdivision potential.

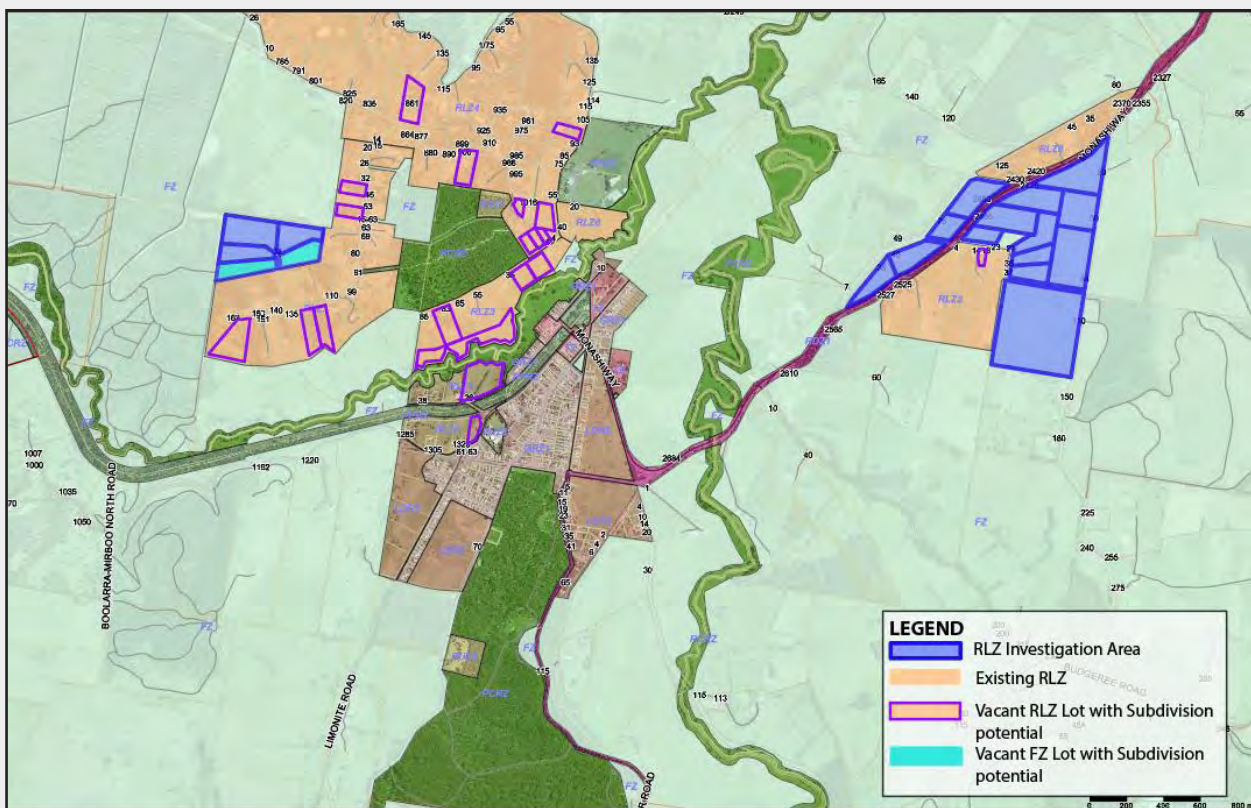


Figure 28 - Boolarra development opportunities (supplied by LCC)

11.1.5 Scoresheet analysis

The figure below shows the precincts within Boolarra.

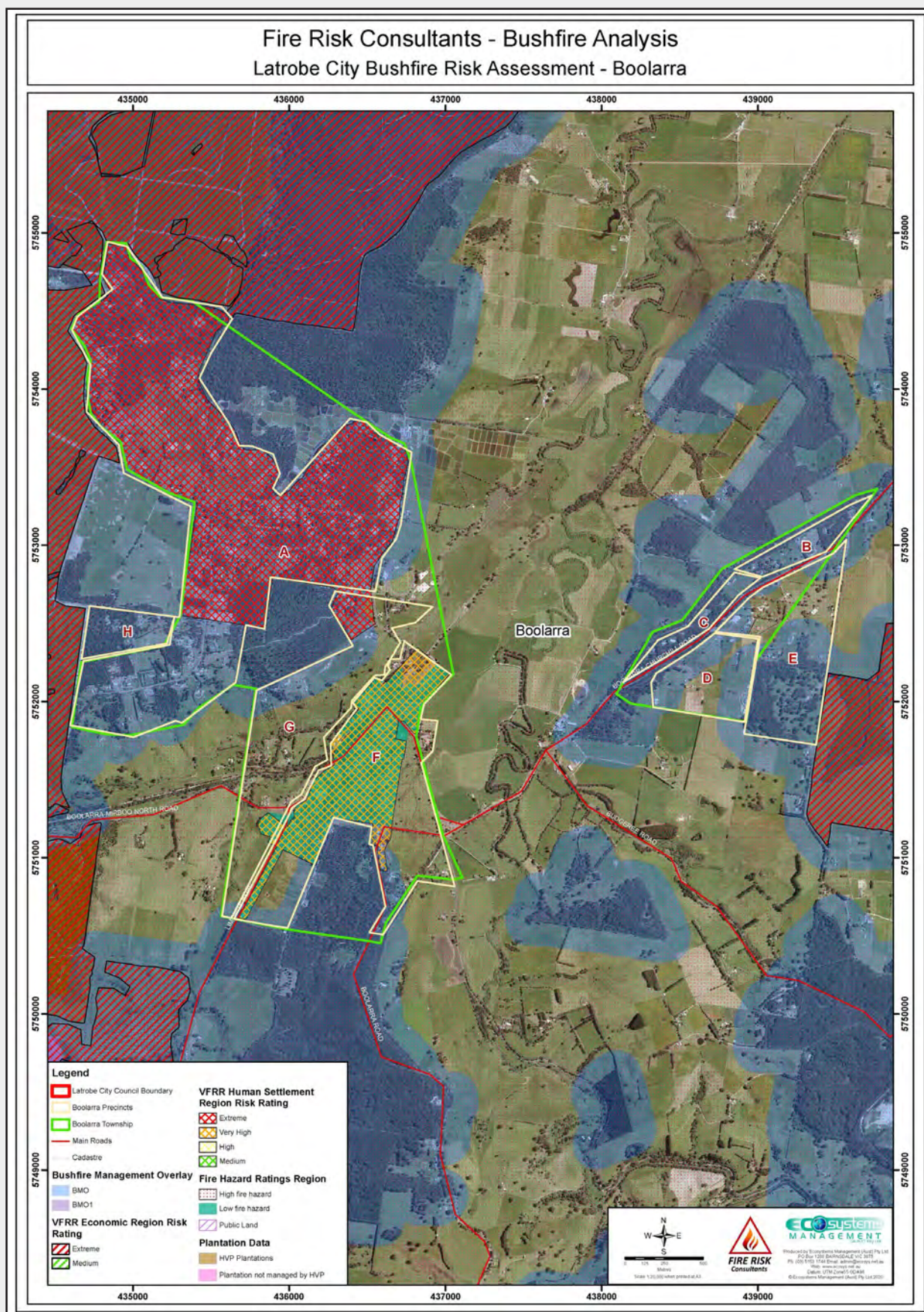


Figure 29 - Boolarra precinct and risk analysis map

11.1.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Boolarra.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
<p>Boolarra - Precinct A (FZ1)</p> <p>Score - 38</p>	<p>This precinct is located above the Boolarra township. The area experienced bushfire in 2009 which saw the loss of a number of houses. The risk to this precinct is primarily from the plantation and private vegetation that in some cases abuts and extends into the precinct. The entire precinct is covered by a Bushfire Management Overlay. To the north of the precinct there are larger blocks which contain forest vegetation. The entire northern section of the precinct abuts plantations. Access and egress would be challenging and potentially dangerous during a bushfire.</p>	<p>Increase the level of fuel management along Darlimurla Road and Mackintoshs Road to support better access and egress.</p> <p>Work with private landowners at the northern end of the RLZ along Mackintoshs Road to reduce the fuel loads around their properties and to create a landscape interruption.</p> <p>Work with the private landowners to manage the vegetation to the north of the township along Hirsts Road. This vegetation provides connections from the plantation to the township and should be a priority location for fuel reduction burning or other types of fuel management activity.</p> <p>Explore opportunities to increase the separation distance between the plantations and private forest to create a fuel break.</p>	<p>Let the BMO operate as intended.</p>
<p>Boolarra - Precinct B (RLZ1)</p> <p>Score - 29</p>	<p>There are areas of this precinct which have forest vegetation surrounding existing houses. The precinct is located on Monash Way which is the main thoroughfare from Boolarra to the major centres of the Latrobe Valley. There is also forest vegetation to the north of this precinct that would support a bushfire to travel across the landscape. Access and egress is affected by roadsides with forest vegetation along the corridor.</p>	<p>Undertake vegetation management activities including fuel reduction burning along Monash Way. Engage with private landowners to reduce vegetation on their properties to reduce the landscape effects. This precinct's risk can be reduced by better management of the private forest located to the north. Increase fuel management of the roadsides along Guthries Hill Road and Scheibels Road.</p>	<p>Let the BMO operate as intended.</p>
<p>Boolarra - Precinct C (FZ1)</p> <p>Score - 28</p>	<p>There are existing dwellings within this precinct that are surrounded by forest vegetation. This vegetation along with forested areas to the north contributes to the potential spread of bushfire across the landscape. Access and egress from the precinct is reasonably good however heavy forest vegetation along Monash Way would make conditions unsafe during a bushfire.</p>	<p>Undertake vegetation management activities including fuel reduction burning along Monash Way. Engage with private landowners to reduce vegetation on their properties to reduce the landscape effects. The precinct risk can be reduced by better management of the private forest located to the north of the precinct. Better management of the roadsides along Guthries Hill Road and Scheibels Road is required to support access and egress.</p>	<p>Let the BMO operate as intended. Due to extent of native vegetation, further infill development will likely result in unacceptable biodiversity outcomes. Therefore, rezoning to allow for further subdivision potential is not considered appropriate. Rezoning for rural living purposes not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i>. However, rezoning potential for Farming Zone, Schedule 2 does exist.</p>
<p>Boolarra - Precinct D (RLZ1)</p> <p>Score - 25</p>	<p>This precinct is located to the south of Boolarra precincts B and C. Due to the forest vegetation to the north, the impact from a bushfire could be damaging. Access and egress from this precinct is along Monash Way which is heavily forested in some areas.</p>	<p>Improve the management of fuel along Monash Way including fuel reduction burning. The precinct risk can be reduced by better management of the private forest located to the north of the precinct.</p>	<p>Let the BMO operate as intended.</p>

Figure 30 - Boolarra assessment and treatment table

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
<p>Boolarra - Precinct E (FZ1)</p> <p>Score - 25</p>	<p>Forest vegetation exists to the south of the precinct. This precinct adjoins precincts B, C and D and is affected by the landscape risk from the forest vegetation to the north.</p> <p>The precinct also adjoins plantations to the east which extends for some distance.</p> <p>This precinct is also reliant on travel along Monash Way for access and egress during a bushfire.</p>	<p>Improve the management of fuel along Monash Way including fuel reduction burning.</p> <p>Increase the vegetation separation along Halls Road to provide a fuel break to reduce the impact of bushfires from the east.</p>	<p>Let the BMO operate as intended.</p> <p>Due to the immediate landscape risk to the east, rezoning to allow for further subdivision potential is not considered appropriate.</p> <p>Rezoning for rural living purposes not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i>. However, rezoning potential for Farming Zone, Schedule 2 does exist.</p>
<p>Boolarra - Precinct F (NRZ4, LDRZ, TZ)</p> <p>Score - 25</p>	<p>This is the existing township of Boolarra. There is forest vegetation to the north and south.</p> <p>Access and egress is available from Boolarra to the north to the major centres of the Latrobe Valley and to the south which leads to Mirboo North. In most cases access and egress is likely to be to the north due to the undulating nature of the landscape to the south and the presence of plantations.</p> <p>In some areas forest vegetation extends into the residential areas of Boolarra. Some of these areas have reduced understorey and is managed annually.</p>	<p>Increase fuel management of the public land within the central areas of Boolarra including the public and private forest to the south of the township. Consider increased vegetation management and/or clearing of undergrowth within proximity to the township.</p> <p>Ensure the rail trail is maintained, in particular within the township boundary.</p> <p>Increase fuel management activities in the private forest to the north.</p>	<p>Retain BMO1 as existing (BAL12.5 + 30 separation distance).</p> <p>Investigate application of a DDO to the LRDZ affected land. This land requires onsite vegetation management to 30m (in line with veg management requirements at Table 6 to Clause 53.02).</p> <p>Also investigate application of native vegetation removal exemptions to achieve and maintain defendable space under the Schedule to Clause 52.12 or 52.17.</p>
<p>Boolarra - Precinct G (RLZ1, LDRZ, FZ1)</p> <p>Score - 27</p>	<p>This precinct is to the west of the township.</p> <p>Access and egress into the township is good however beyond the township is similar to other precincts.</p> <p>The norther section of the precinct abuts a plantation.</p>	<p>Ensure the forest areas to the north of the precinct is managed through fuel reduction burning or other programs.</p> <p>Continue to manage the rail trail.</p> <p>Further fuel management is required along Monash Way to support access and egress options from the township.</p>	<p>Investigate application of a DDO to the LRDZ and RLZ affected land which requires onsite vegetation management to 30m (in line with veg management requirements at Table 6 to Clause 53.02).</p> <p>Also investigate application of native vegetation removal exemptions to achieve and maintain defendable space under the Schedule to Clause 52.12 or 52.17.</p> <p>Consider extending BMO to the rear of lots along Piggery Road.</p>
<p>Boolarra - Precinct H (FZ1)</p> <p>Score - 39</p>	<p>This is a small area that adjoins precinct A. It abuts plantations and private forest to the west and south.</p> <p>Access and egress options from this area are limited and would be compromised during a bushfire.</p>	<p>Work with the landowners to introduce fuel management programs to reduce the vegetation continuity from the plantations to the dwellings.</p> <p>Improve fuel management along Bunderra Drive to support access and egress during a bushfire.</p>	<p>Let the BMO operate as intended.</p>

Figure 30 - Boolarra assessment and treatment table (continued)

11.1.6 Precinct treatments (continued)

The map below demonstrates the risk classification for each precinct in Boolarra.

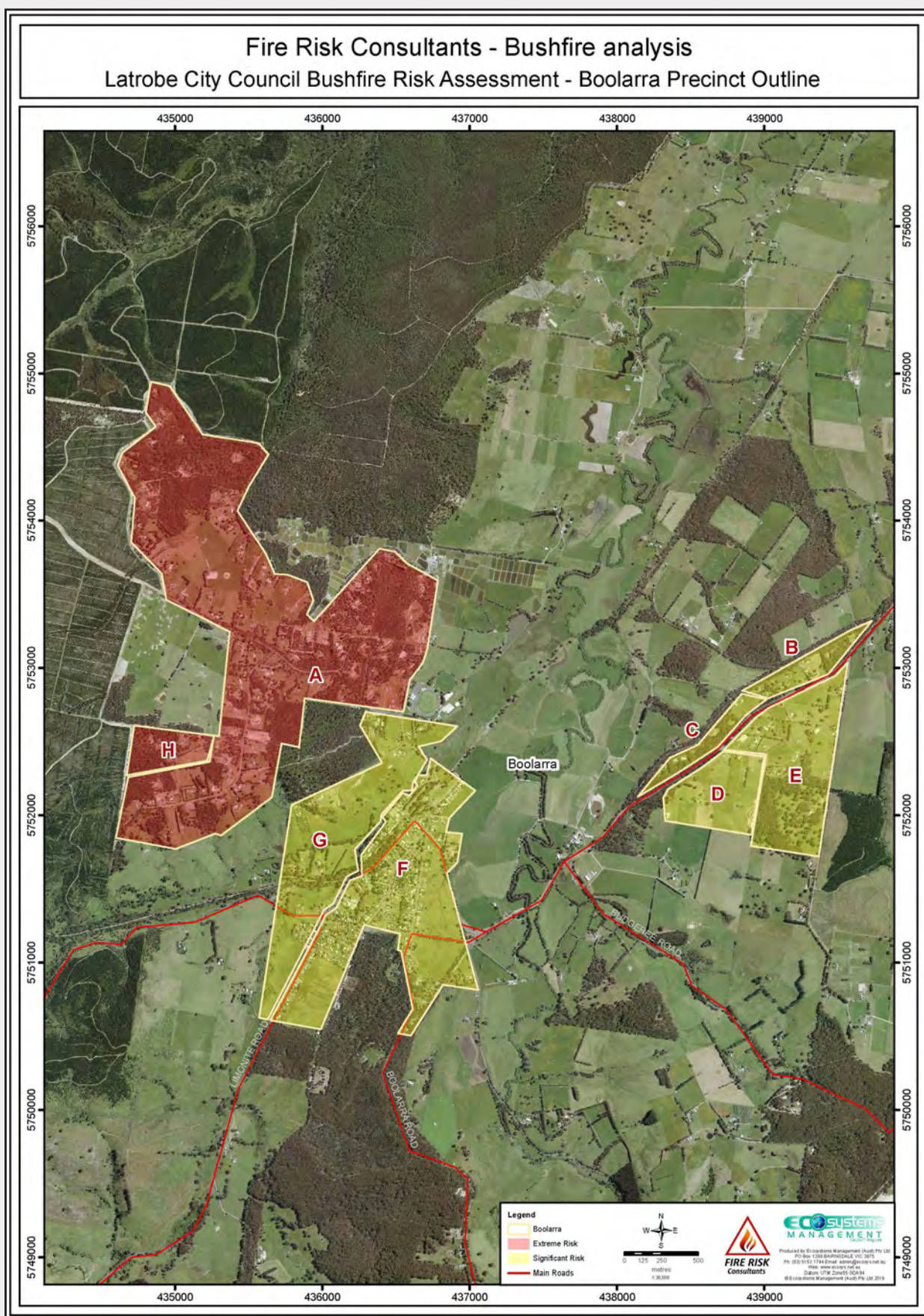


Figure 31 - Boolarra risk classification map

11.2 Churchill (East)

11.2.1 Location overview

The area of Churchill that is the focus of this risk assessment is located to the east of the township. It primarily consists of existing areas that are covered by a Rural Living Zone and farming areas. There is a plantation to the south of the area that is also being considered as part of this risk assessment.

The area is reasonably flat and any bushfires from the north would be via a grassfire with the risk from the south being from the existing plantations.

A portion of the identified area has a Bushfire Management Overlay with the remaining areas covered by a Bushfire Prone Area.

11.2.2 Access and egress

Access and egress from the areas to the north of the precincts would be acceptable and multiple options are available whilst the areas to the south could be challenging. This is due to the vegetated roadsides including the plantations.

11.2.3 Landscape risk assessment

The likely bushfire scenarios that may impact on Churchill (East) include:

- A bushfire burning under a southerly influence that travels through the existing plantations and impacts on the precincts. It would be likely for numerous spot fires to be generated along with radiant heat and in some cases flame contact for those dwellings located close to the vegetation.
- A grassfire under a northerly influence that enters the precinct areas. This type of fire would generate embers and start spot fires ahead of the fire front.

Both scenarios would affect access and egress with the areas located near forest vegetation potentially closing roads. This would be more prevalent in the southern area of the precincts.

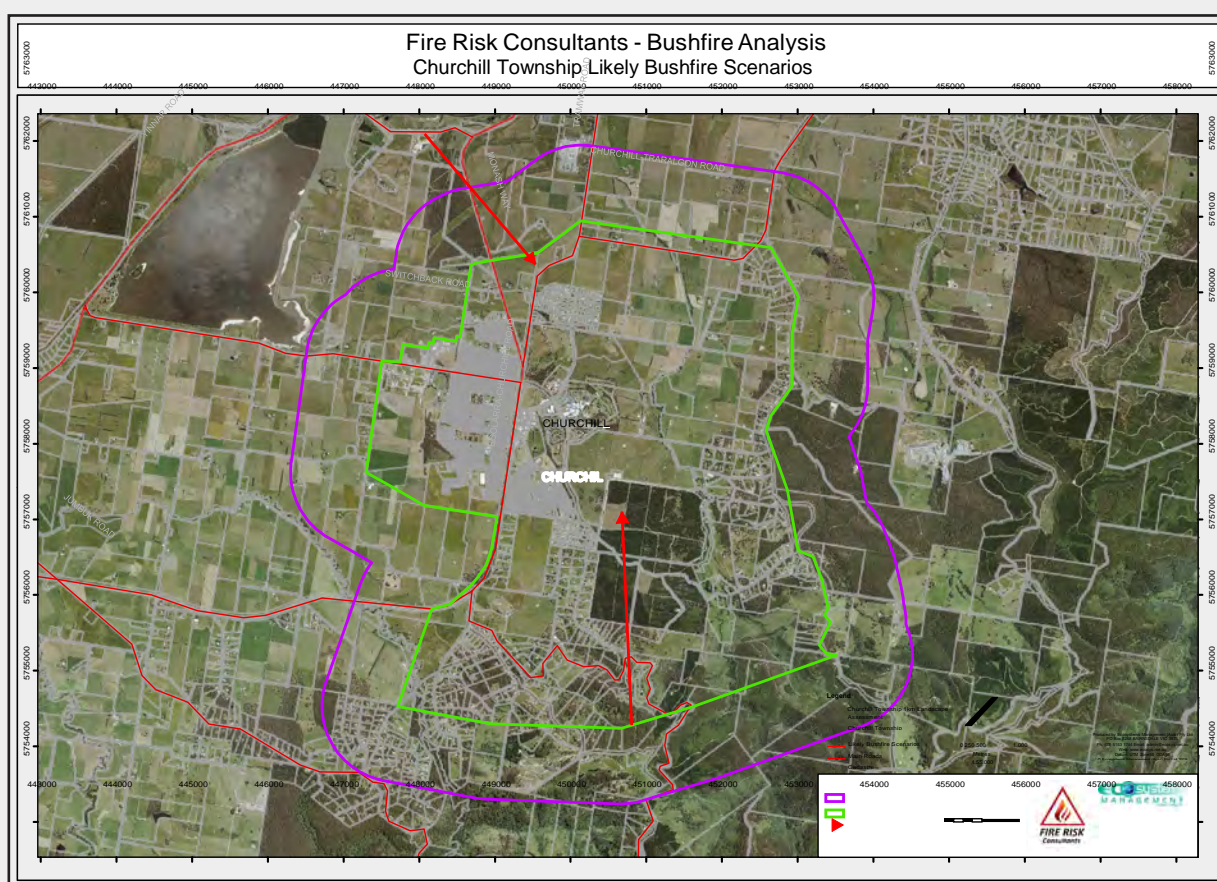


Figure 32 - Churchill likely bushfire scenarios (1km)

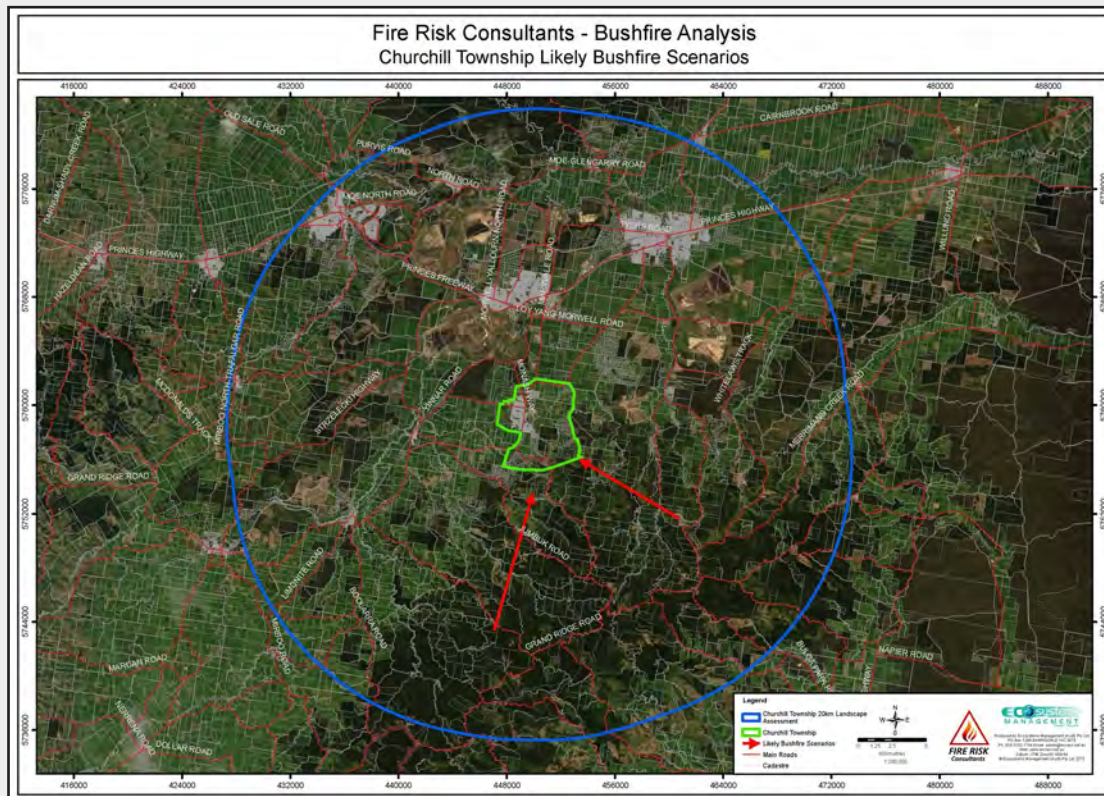


Figure 33 -
Churchill likely
bushfire scenarios (20km)

11.2.3 Development opportunities

The northern precinct was exhibited for inclusion within a Rural Living Zone within Amendment C105 yet not progressed. Previous detailed bushfire risk assessments for this area have been completed.

The Southern Precinct was identified by HVP in their submission to Amendment C105, requesting that it be considered for inclusion in a Rural Living Zone. This outcome would see this precinct transition from Forestry. Such an outcome would likely reduce fire risk to the Rural Living Zone Land (south west and north east).

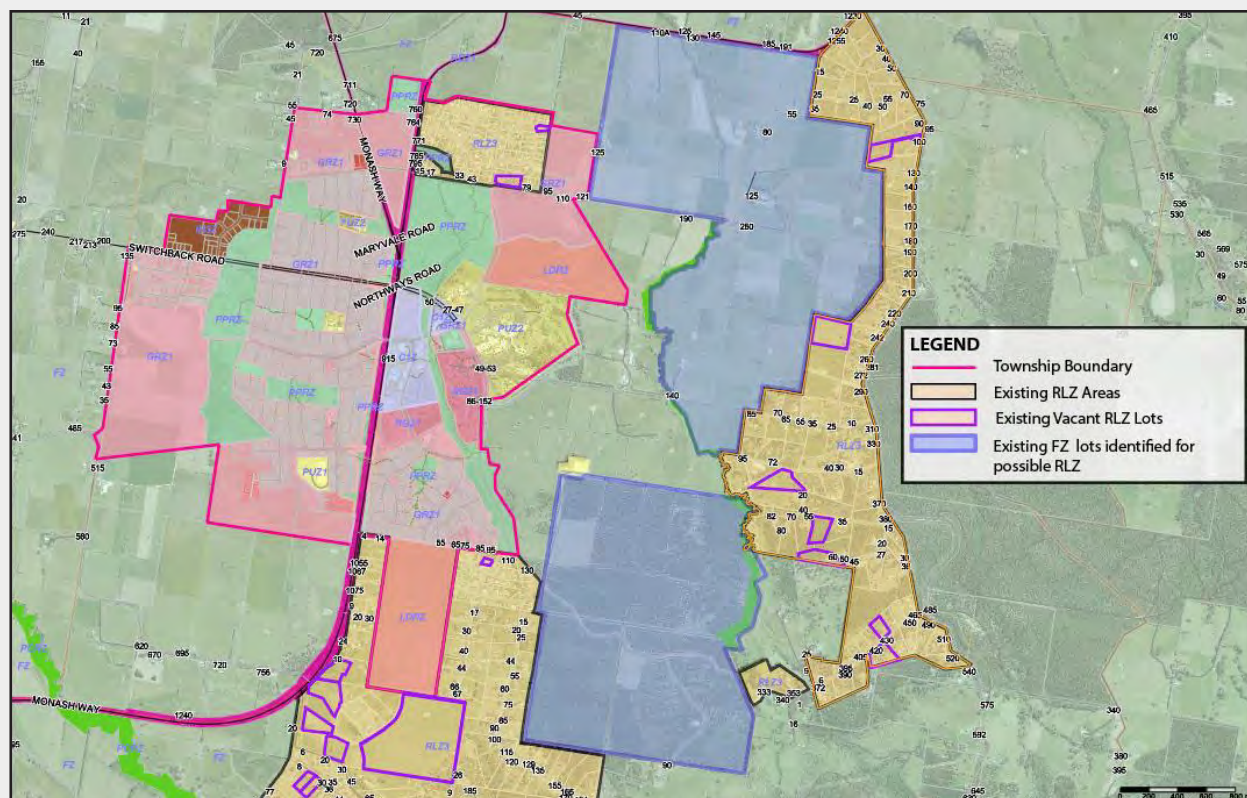


Figure 34 - Churchill development opportunities (supplied by LCC)

11.1.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Churchill.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Churchill - Precinct A (FZ) Score - 17	This precinct is located between the Churchill township and forest to the east. The forest consists of both private forest and plantations. It is separated from the forest by an existing residential development. Plantations are located approximately 2- 3 kms away to the north west. The primary bushfire risk to this area is from grassfires. The access and egress ability into the Churchill township is effective.	No increased treatments recommended.	Given the low-risk context, rezoning potential may exist, pending an application presenting an appropriate response to Clause 13.02-1S – <i>Settlement Planning</i> .
Churchill - Precinct B (RLZ, FZ1) Score - 29	This precinct abuts private forest and plantation to the east with existing dwellings scattered across the area. The area to the north of this precinct would be considered as a lower risk if assessed separately. Access and egress could be considered as satisfactory as there are a number of options to travel into the Churchill township which could be considered a safe location. There is a plantation to south west of this area that is described within precinct D.	Increase vegetation management along Thomsons Road to create a fuel break between the RLZ and bushland areas. In the southern section of the precinct, engage with residents to support fuel management programs that will reduce the fuel loads within the forested areas.	Let the BMO operate as intended. Investigate application of a DDO to RLZ affected land which requires onsite vegetation management to 30m (in line with veg management requirements at Table 6 to Clause 53.02). Also investigate application of native vegetation removal exemptions to achieve and maintain defendable space under the Schedule to Clause 52.12 or 52.17.
Churchill - Precinct C (FZ1) Score - 31	Forest vegetation to the east and plantations to the west are close to this precinct. Access and egress is challenging with the need to travel through heavily forested roadsides. Both access and egress options are surrounded by forest and/or plantations. Bushfire behaviour in this area would be erratic and unpredictable. There are existing dwellings in this area that experienced bushfire in 2009.	Increase roadside vegetation management programs along Glendonald and Thomsons Roads to provide access and egress options. Explore opportunities to undertake fuel management activities in the private forest areas abutting the plantations.	Let the BMO operate as intended. Opportunities may be possible in precinct C if a land use change occurs in precinct D.
Churchill - Precinct D (FZ1, RLZ1) Score - 31	This precinct is currently a plantation. In the event that the plantation was removed, this would reduce the landscape risk to the surrounding areas. This area is where the 2009 Churchill bushfire started. Effective plantation management is required to reduce the risk as much as possible.	Assess the buffers between the plantation and surrounding residential areas to ensure they are providing as much separation as possible. Fuel management treatments to be implemented that create strategic fuel breaks to disrupt the ability for a bushfire to travel across the landscape.	Rezoning not suitable due to vegetation risk posed by the plantation. Opportunity may exist in future if the plantation is removed. If the plantation is removed and rezoning considered in future, application of a DPO should be considered where the proposed development meets the tests of Clause 13.02-1S – <i>Settlement Planning</i> whilst reducing landscape risk to nearby urban context. Through the preparation of a development plan, explore options for the land on the east portion of the site together with perimeter roads and/or open space to ensure ongoing management of the 'buffer zone'.

Figure 36 - Churchill assessment and treatment table

Fire Risk Consultants - Bushfire analysis

Latrobe City Council Bushfire Risk Assessment - Churchill Precinct Outline

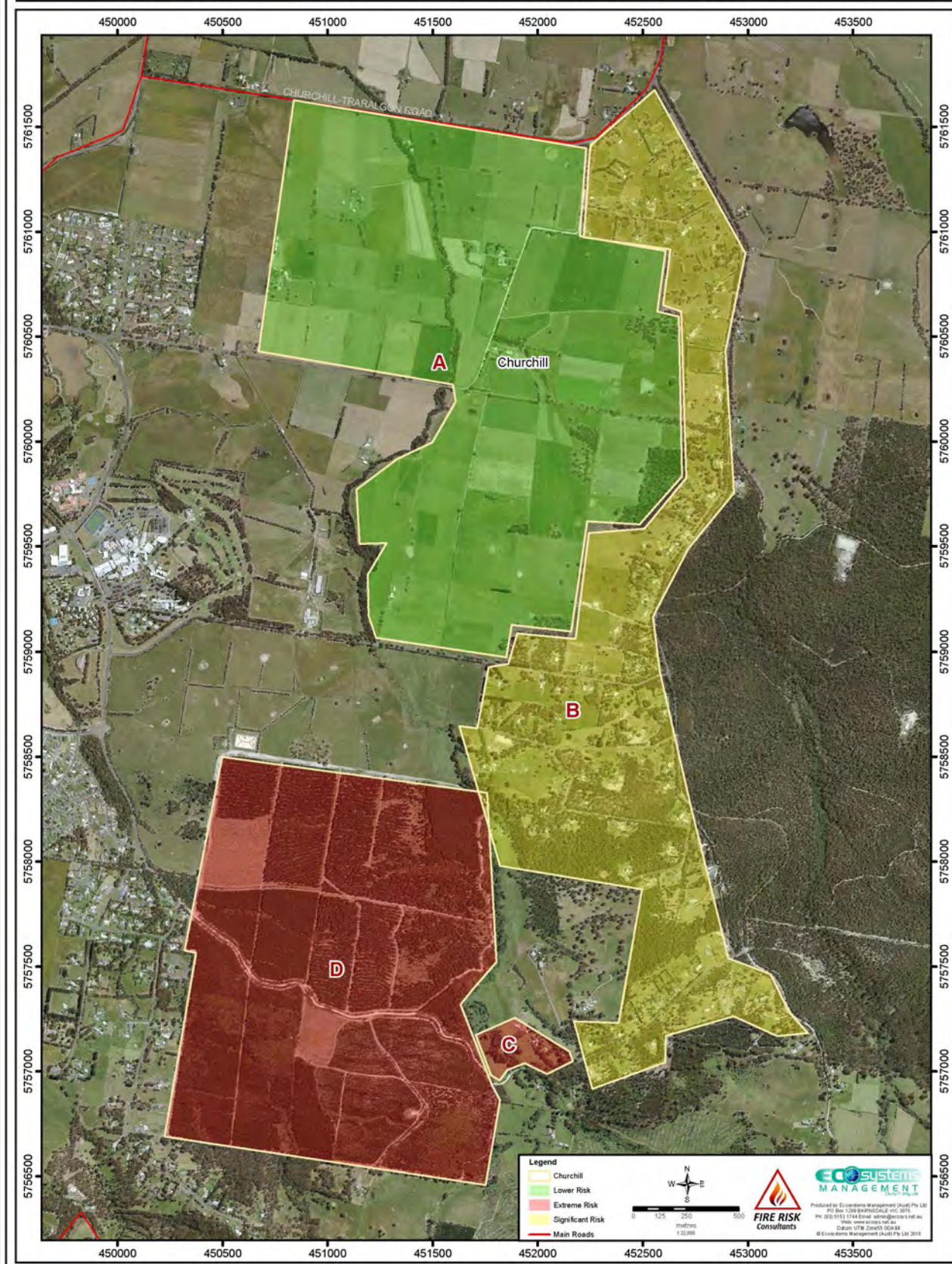


Figure 37 - Churchill risk classification map

11.3 Flynn

11.3.1 Location overview

Flynn is located on the Princes Highway between Traralgon and Rosedale. It is a small community with a small number of dwellings. Whilst grassfires are an ongoing risk to the community, due to the lack of forest vegetation surrounding the community, it is not expected for large bushfires to impact on the area. The presence of the Latrobe River to the north and associated floodplains would limit the ability for a bushfire to travel into Flynn from the north.

To the north the topography slopes up to the township and this could be a factor if a fire does cross the Latrobe River. Currently this area is dominated by irrigated farmland, in the event that this changes the Princes Highway would be a key fuel break to limit the grassfires impact on the township.

11.3.2 Access and egress

Flynn has very good access and egress options with travel either east or west achievable along the Princes Highway. The surrounding areas also consist of farming land which is well managed throughout the year through farming practices.

11.3.3 Landscape risk assessment

The likely bushfire scenarios that may impact on Flynn include:

- A bushfire burning from the north that crosses the Latrobe River and travels through grassland. Ember attack would impact on the township and potentially start spot fires. The Princes Highway would be an effective fuel break and depending on the conditions may assist with stopping the spread of the fire.
- A bushfire burning under a south westerly influence and travelling through grassland and impact the township on the southern and western edges.

Both scenarios would not see flame contact or radiant heat from a bushfire impact on the township. There would likely be localised radiant heat from vegetation surrounding houses.

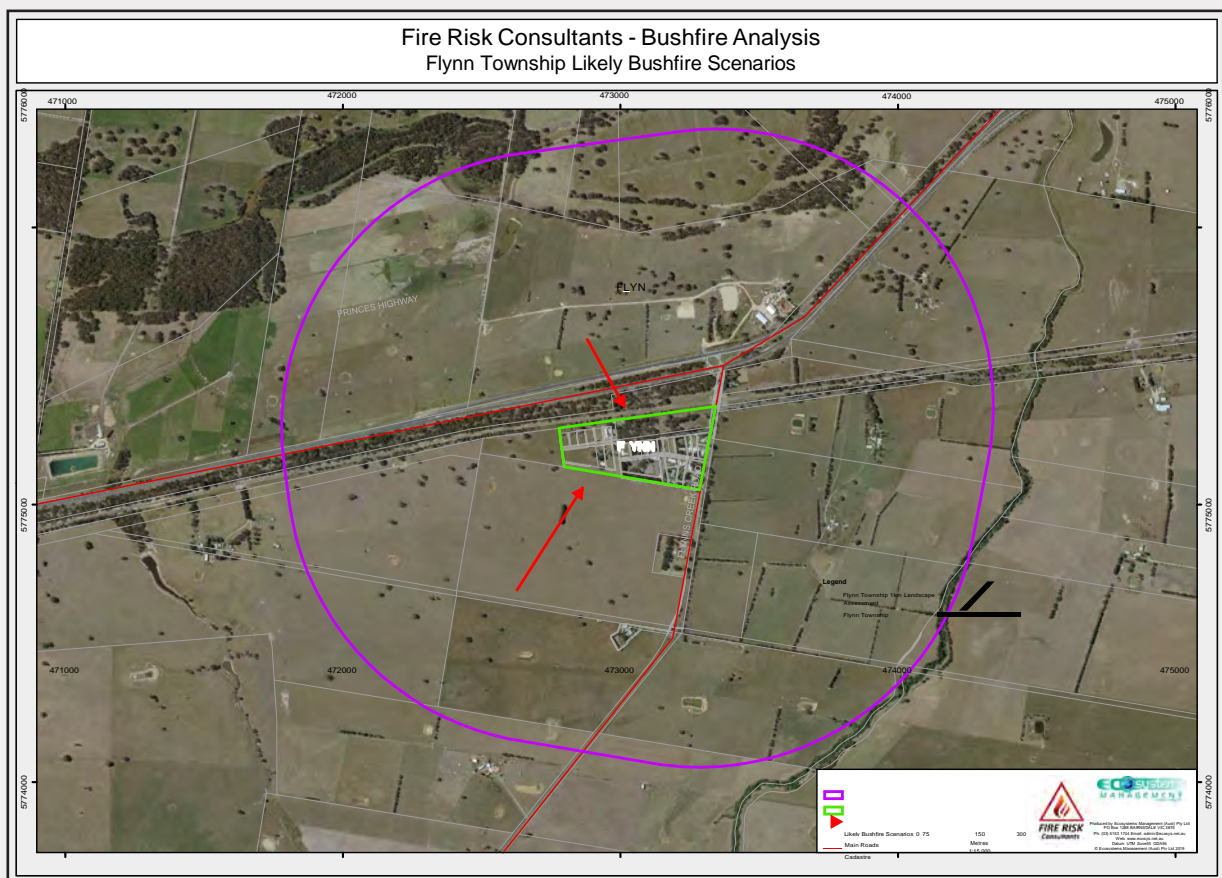


Figure 38 - Flynn likely bushfire scenarios (1km)



11.3.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Flynn.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Flynn - Precinct A (FZ1) Score - 15	This precinct is the existing township. Access and egress opportunities are present due to the close proximity of the Princes Highway. The area is primarily grassland with no forest vegetation present for some distance.	Maintain current fire management treatments.	Given the low-risk context, rezoning potential may exist, pending an application presenting an appropriate response to Clause 13.02-1S – <i>Settlement Planning</i> and an assessment against Planning Practice Note 37 Rural Residential Development.
Flynn - Precinct B (FZ1) Score - 15	Access and egress opportunities are present due to the close proximity of the Princes Highway. The area is primarily grassland with no forest vegetation present for some distance.	Maintain current fire management treatments.	Given the low-risk context, rezoning potential may exist, pending an application presenting an appropriate response to Clause 13.02-1S – <i>Settlement Planning</i> and an assessment against Planning Practice Note 37 Rural Residential Development.
Flynn - Precinct C (FZ1) Score – 15	Access and egress opportunities are present due to the close proximity of the Princes Highway. The area is primarily grassland with no forest vegetation present for some distance.	Maintain current fire management treatments.	Given the low-risk context, rezoning potential may exist, pending an application presenting an appropriate response to Clause 13.02-1S – <i>Settlement Planning</i> and an assessment against Planning Practice Note 37 Rural Residential Development.

Figure 42 - Flynn assessment and treatment table

11.3.6 Precinct treatments (continued)

The map below demonstrates the risk classification for each precinct in Flynn.



Figure 43 - Flynn risk classification map



11.4.4 Development opportunities overview

An assessment of the Glengarry Structure Plan directions and land identified for future Rural Living Zone (Southern precinct) is considered necessary in response to changed policy directions introduced by VC140. Land north of Black Tank Road is shown as future low density/rural living zone. Land south of Black Tank Road is identified as a Rural Living investigation area in the Rural Land Use Strategy.



11.4.5 Scoresheet analysis

The figure below shows the precincts within Glengarry.

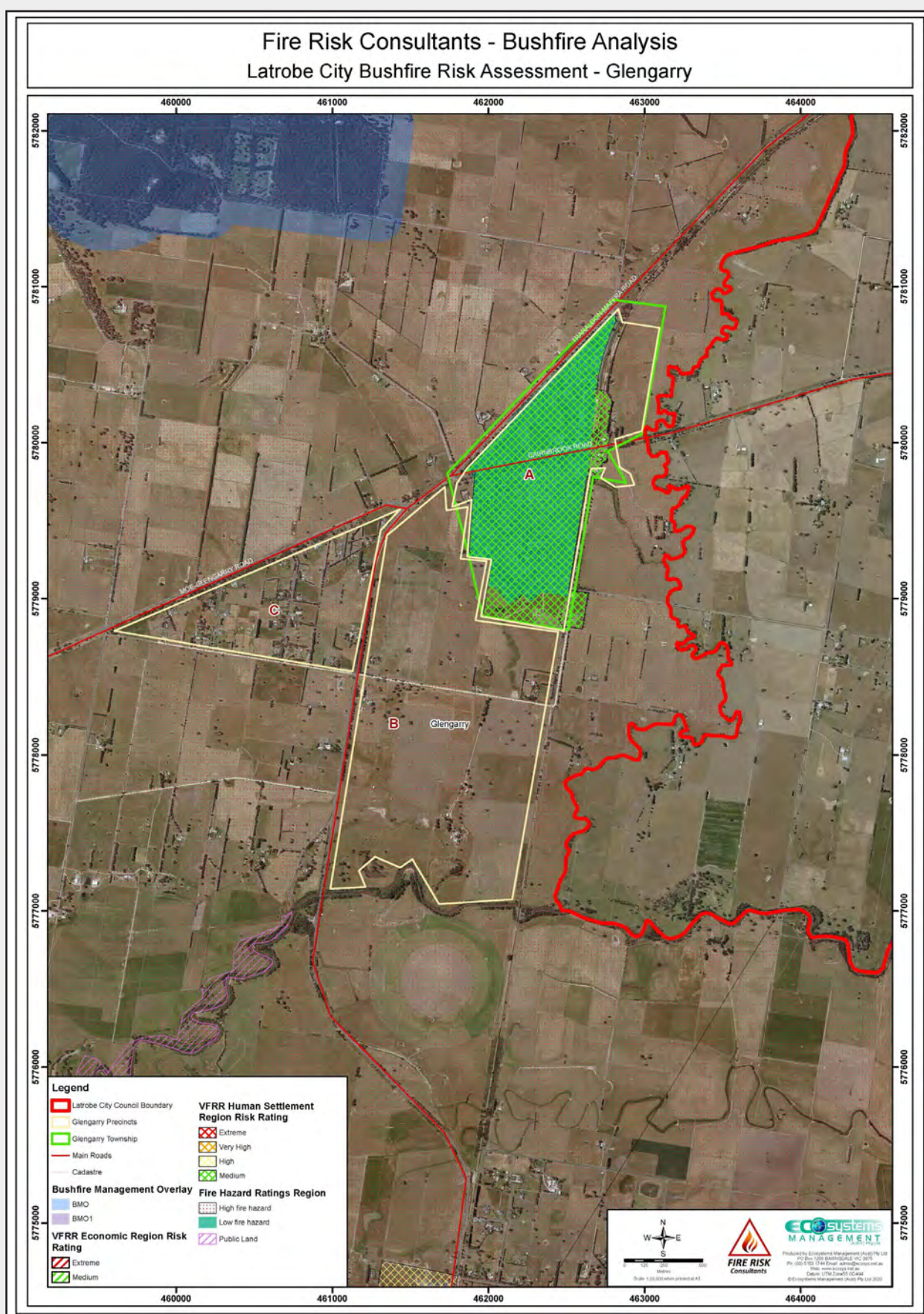


Figure 47 - Glengarry precinct and risk analysis map

11.4.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Glengarry.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Glengarry - Precinct A (NRZ4, GRZ4) Score – 19	This precinct is the current township. The township does have areas where small blocks are adjoining grassland areas. The township is provided a level of protection from a bushfire coming from the public land to the north west by the Traralgon Maffra Road. Access and egress from the precinct is considered good.	Maintain current fire management treatments.	No further treatment required.
Glengarry - Precinct B (FZ1) Score – 16	Access and egress is considered effective. The precinct is to the south of the main roads and some distance from the forest vegetation to the north	Maintain current fire management treatments.	In the event that this area is developed through a subdivision, introduce a DPO that requires subdivision staging to consider the need to ensure properties do not abut unmanaged vegetation both during subdivision staging and at completion. The DPO will also ensure road layout allows for effective access and egress and reduces the use of dead end roads.
Glengarry - Precinct C (RLZ1) Score – 17	Access and egress from the area is good with multiple options available. The precinct is to the south of the main roads and some distance from the forest vegetation to the north.	Maintain current fire management treatments.	No further treatment required.

Figure 48 - Glengarry assessment and treatment table

The map below demonstrates the risk classification for each precinct in Glengarry.

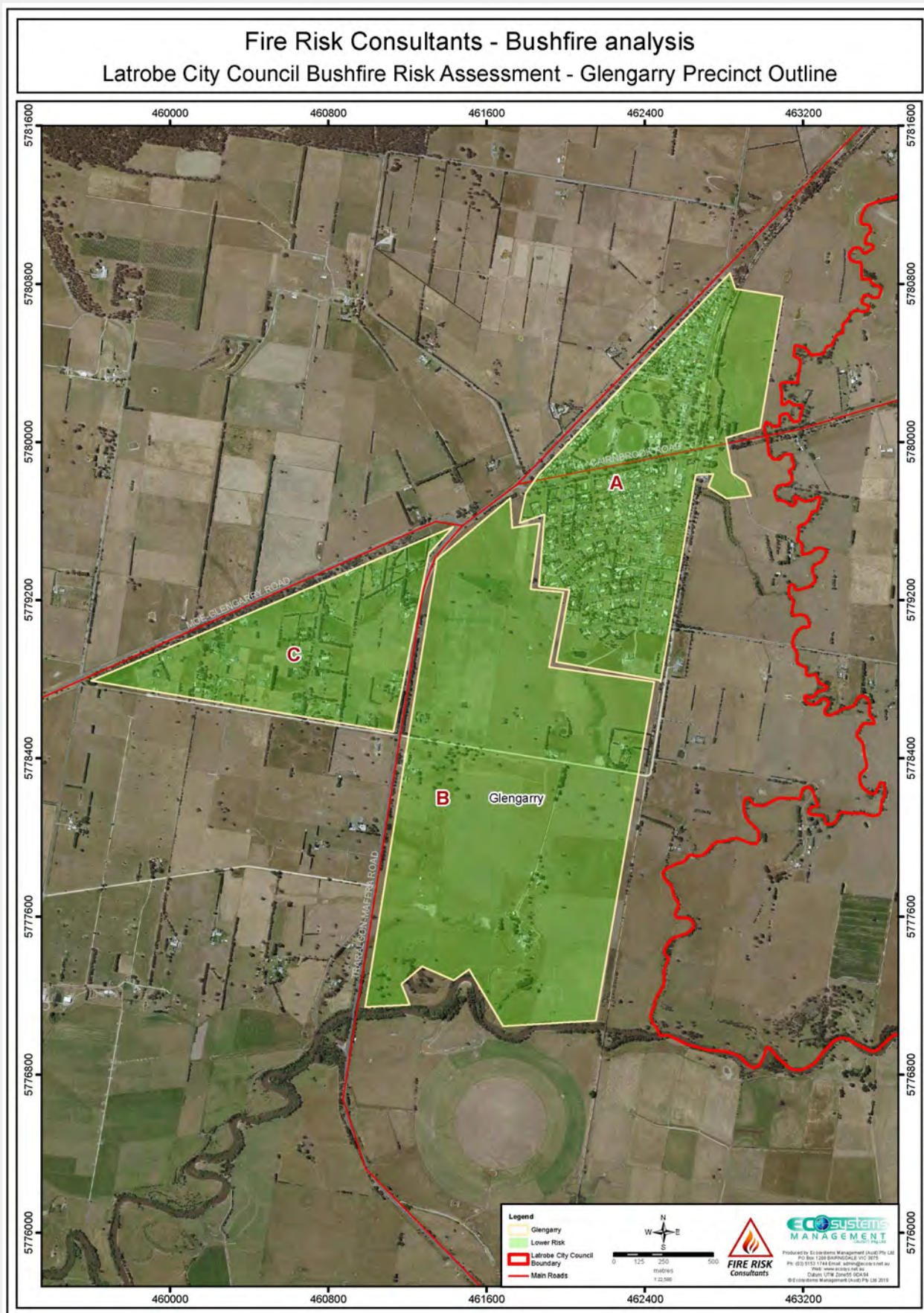


Figure 49 - Glengarry risk classification map

11.5 Hazelwood North

11.5.1 Location overview

Hazelwood North is located between Traralgon and Churchill and consists of a mix of open farmland, lifestyle blocks and in some areas, adjoining vegetation. To the east of the township there are large parcels of plantations. These, mixed with a variety of vegetation within the township, could see bushfires be erratic and challenging to suppress.

Vegetation management within this area is critical to ensure there is no increased risk to the community. Some dwellings would have been constructed under a Wildfire Management Overlay or Bushfire Management Overlay and vegetation management conditions would have been imposed. The collective achievement of these conditions means the landscape does not increase the risk to the broader community.

There are proposals to extend the Hazelwood North township closer to the plantations to the east of the township and this should be discouraged.

11.5.2 Access and egress

Access and egress for the large part of Hazelwood North is effective providing the community leave early. Late evacuation will likely see some roads cut off and not allow egress to occur safely. Further treatment of roadside within this township would see improved access and egress during a bushfire.

11.5.3 Landscape risk assessment

The likely bushfire scenarios that may impact on Hazelwood North include:

- A bushfire burning under a north easterly/easterly influence that impacts onto the Hazelwood North community. This bushfire would travel through the plantations and generate embers that would start multiple spot fires. The dwellings adjoining the vegetation could be impacted by flame contact and/or radiant heat.
- A bushfire burning under a southerly influence through the plantations to the south of the township and impact onto the community primarily through ember attack. Those properties adjoining the vegetation would be impacted by radiant heat and/or flame contact.

Both scenarios would affect access and egress with the areas located near forest vegetation potentially closing roads. This would be more prevalent in the southern area of the township.

Due to the nature of lifestyle blocks within Hazelwood North, the bushfires spread through the township would be erratic and difficult to suppress. The vegetation along fence lines and on properties would generate localised flame contact and/or radiant heat. This type of landscape also generates embers that start spot fires ahead of the fire front.

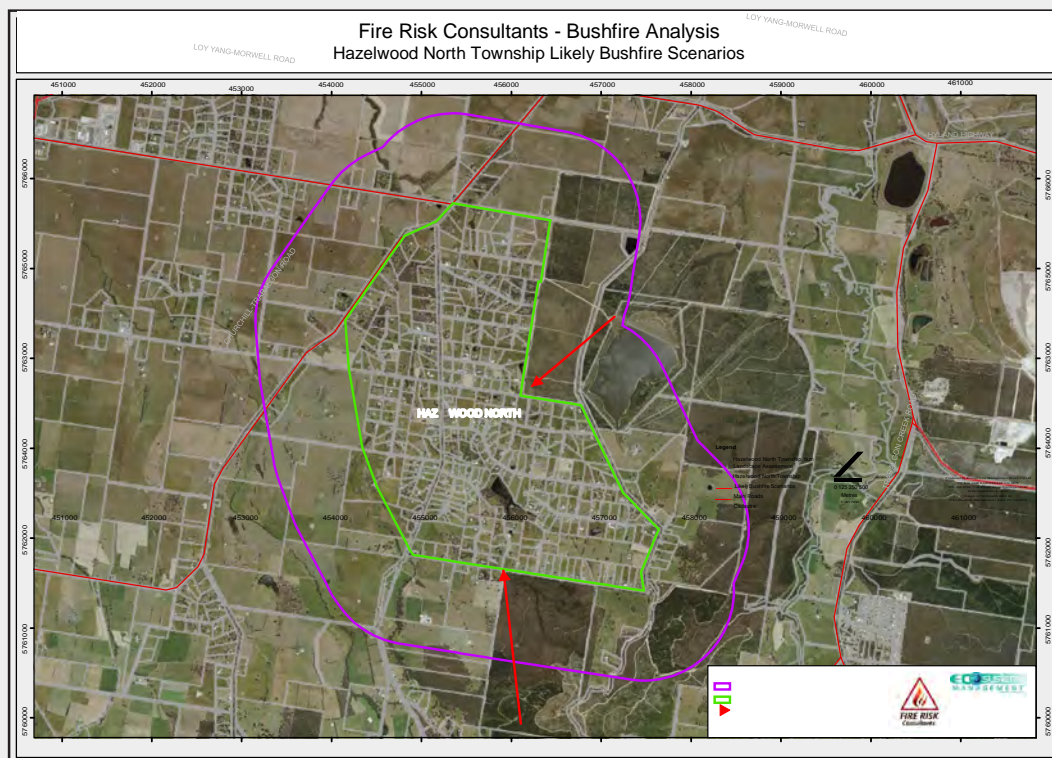


Figure 50 - Hazelwood North likely bushfire scenarios (1km)

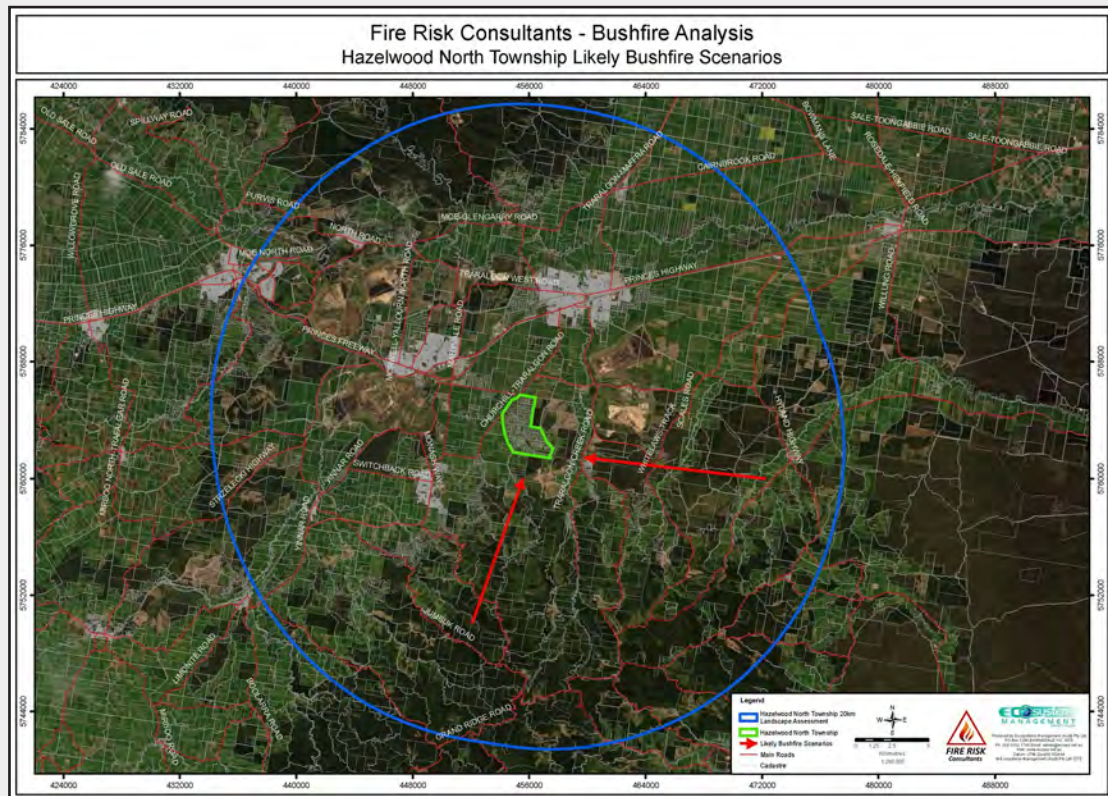


Figure 51 - Hazelwood North likely bushfire scenarios (20km)

11.5.4 Development opportunities

The subject area consists of lots within and adjoining the existing rural living areas. These sites were selected due to submissions received for Amendment C105, and review by Officers for zoning anomalies. Large lots presently located in an RLZ with further subdivision opportunity are also shown.

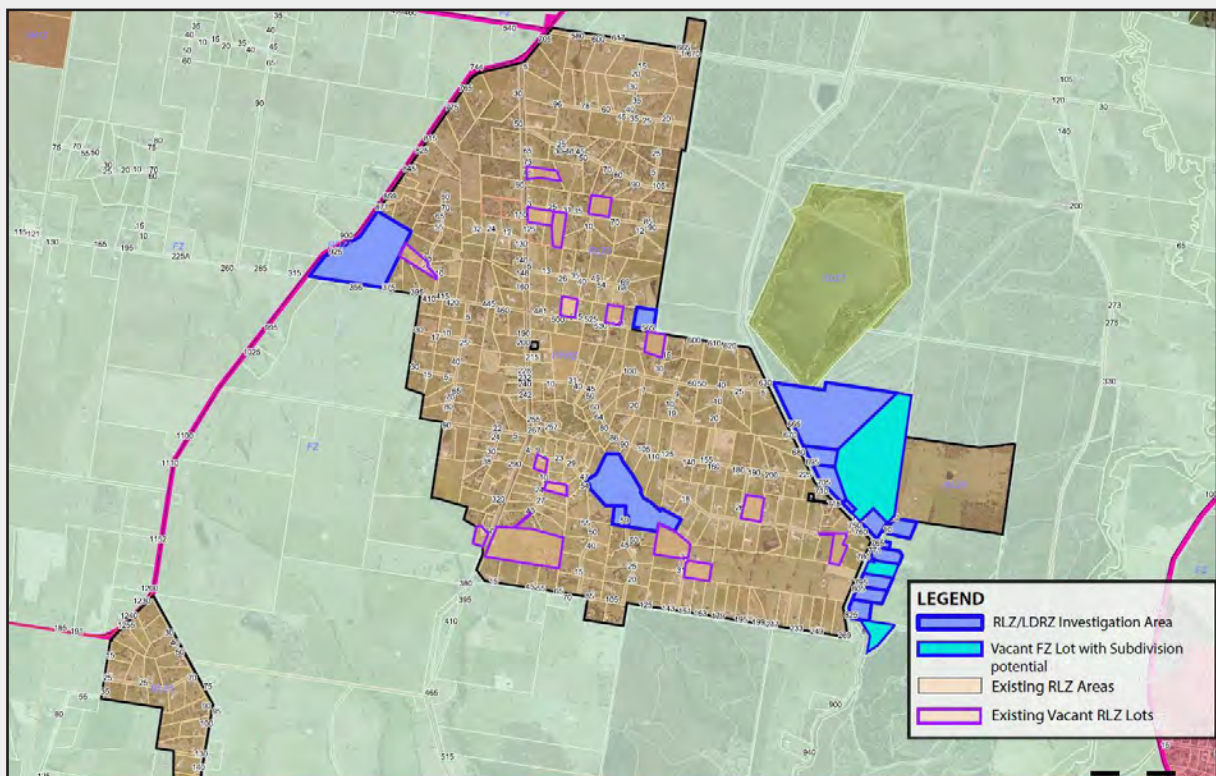


Figure 52 - Hazelwood North development opportunities (supplied by LCC)

11.5.5 Scoresheet analysis

The figure below shows the precincts within Hazelwood North.

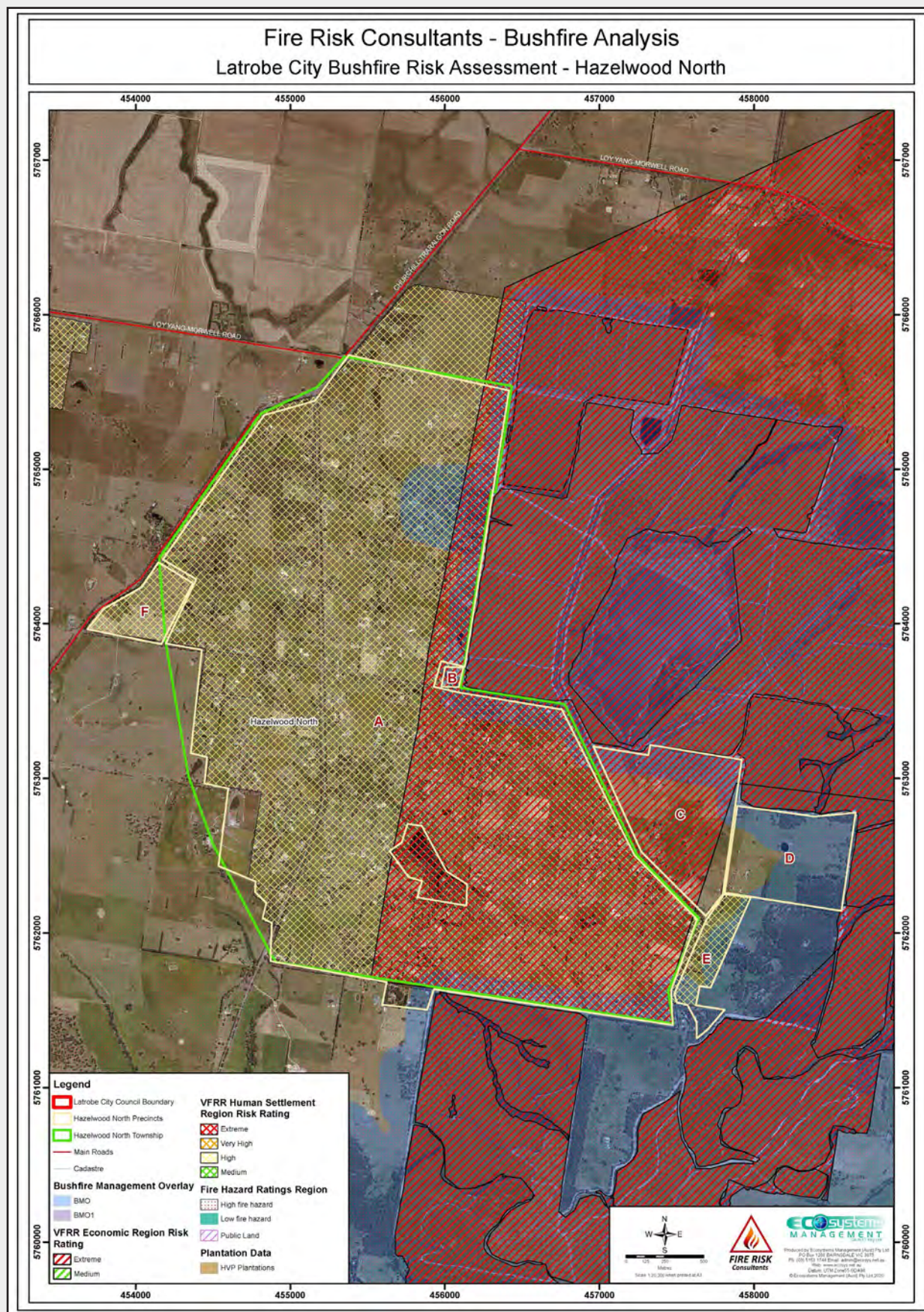


Figure 53 - Hazelwood North precinct and risk analysis map

11.5.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Hazelwood North.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Hazelwood North - Precinct A (RLZ1) Score - 25	This precinct largely consists of the existing township of Hazelwood North. It is primarily lifestyle blocks with a variety of uses. Due to the residential development there has been an increase in vegetation. The area to the east of the precinct if assessed separately may result in a lower risk category being allocated. It is assumed that the amount of vegetation will increase in the future due to the typical revegetation that occurs in Rural Living Zones. Access and egress is reasonable however this will diminish over time if roadsides are not maintained.	Increase the separation distance between the residential land and the plantations on the eastern edge of the precinct. Manage the vegetation along roadsides to improve the access and egress capability during emergencies.	Let the BMO operate as intended Investigate application of a DDO to RLZ affected land that does not have a BMO. This land requires onsite vegetation management to 30m (in line with veg management requirements at Table 6 to Clause 53.02). Also investigate application of native vegetation removal exemptions to achieve and maintain defensible space under the Schedule to Clause 52.12 or 52.17.
Hazelwood North - Precinct B (FZ1) Score - 29	This is a small block adjoining the plantations. There is an existing dwelling on the block. This property would be exposed to radiant heat and ember attack. Access and egress will be challenging due to the forest vegetation along roadsides and adjoining plantations. It is noted that the property contains a single dwelling and no further development would be possible.	Increase the separation distance between the residential areas and the plantations. Manage the vegetation along roadsides to improve the access and egress capability during emergencies. E.g. assess dangerous trees, etc	Let the BMO operate as intended. Rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S - <i>Settlement Planning</i> .
Hazelwood North - Precinct C (FZ1) Score - 30	This precinct is located to the south of plantations. It would be impacted by bushfire from the plantations. The northern sections of this precinct would experience radiant heat and flames contact with the remaining sections being exposed to embers. Access and egress will be compromised during a bushfire and should not be relied upon.	Increase the separation distance between the residential areas and the plantations. Manage the vegetation along roadsides to improve the access and egress capability during emergencies. E.g. assess dangerous trees, etc	Let the BMO operate as intended. Rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S - <i>Settlement Planning</i> .
Hazelwood North - Precinct D (RLZ2) Score - 31	Access and egress would be difficult from this precinct and relies on a single access road. This area would be compromised in the event of a bushfire. The area is largely surrounded by private forest and plantations. Bushfire behaviour in this area would be extremely dangerous.	Increase the separation distance between the residential areas and the plantations. Manage the vegetation along roadsides to improve the access and egress capability during emergencies. E.g. assess dangerous trees, etc	Let the BMO operate as intended.
Hazelwood North - Precinct E (FZ1) Score - 28	The precinct is adjoining open farm land with tree canopy over some of this. Further to the east it consists of native forest and plantations. This precinct would be impacted on by embers. Access and egress would be compromised early during a bushfire.	Increase the separation distance between the residential areas and the plantations. Manage the vegetation along roadsides to improve the access and egress capability during emergencies. E.g. assess dangerous trees, etc	Let the BMO operate as intended. Rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S - <i>Settlement Planning</i> .
Hazelwood North - Precinct F (FZ1) Score - 19	This precinct is surrounded by farm land and is close to a main thoroughfare which provide effective access and egress away from the location.	Maintain current fire management treatments.	Given the low-risk context, rezoning potential may exist, pending an application presenting an appropriate response to Clause 13.02-1S - <i>Settlement Planning</i> and an assessment against Planning Practice Note 37 Rural Residential Development.

Figure 54 - Hazelwood North assessment and treatment table

11.5.6 Precinct treatments (continued)

The map below demonstrates the risk classification for each precinct in Hazelwood North.

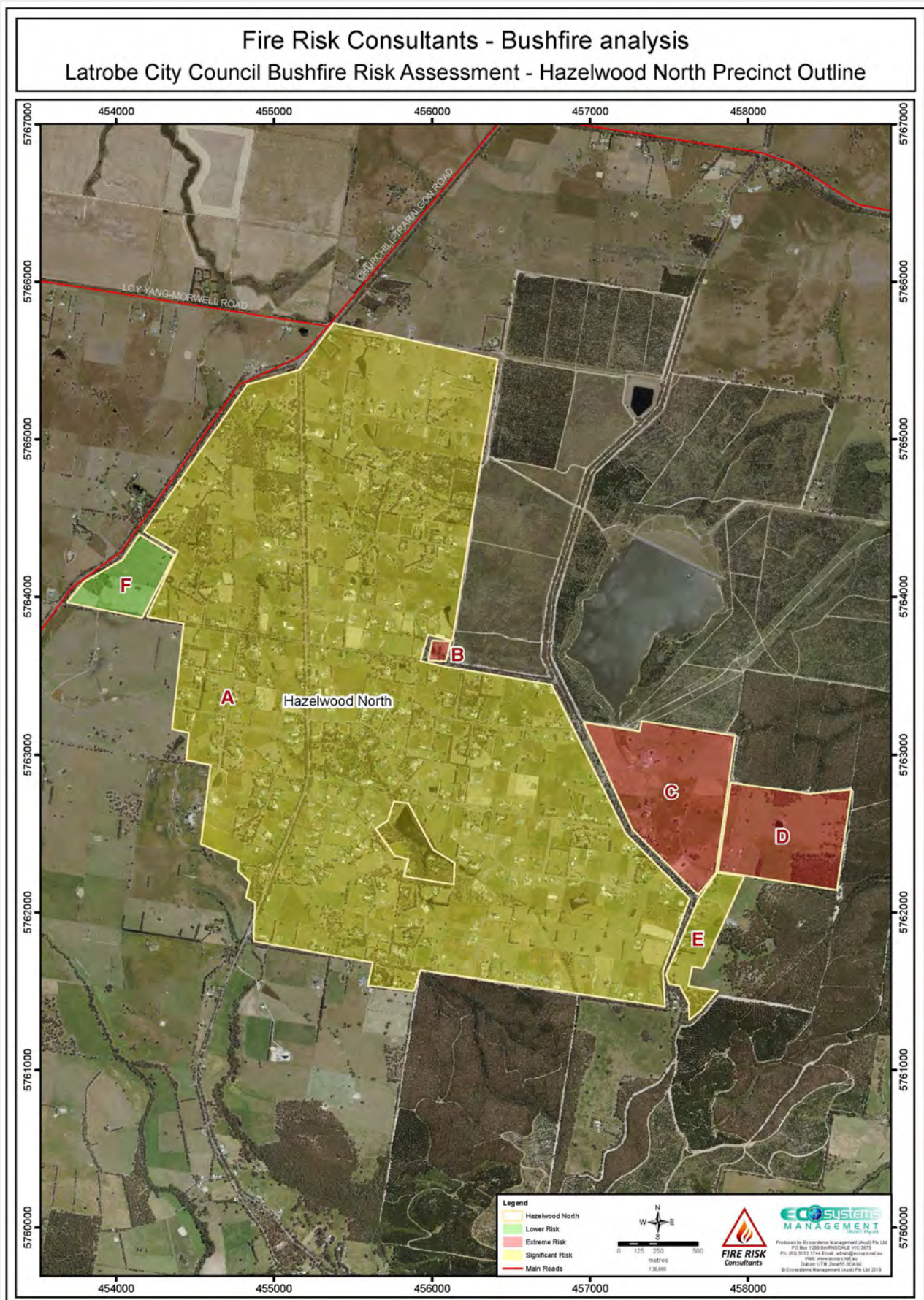


Figure 55 - Hazelwood North risk classification map

11.6 Koornalla

11.6.1 Location overview

Koornalla is located to the south of the Traralgon South township. It is a small community with dwellings located primary on the valley floor with steep slopes on either side. This area was devastated by the 2009 Black Saturday bushfires with a large number of dwellings lost.

Due to the major losses during the Black Saturday bushfires, the majority of dwellings have been constructed since and would have been constructed with bushfire protection measures. They would also have vegetation management and water supply conditions.

The landscape risk assessment has identified the potential for long running bushfires to impact on this area. In particular under a south westerly influence. This is a location where due to the topography, bushfires can approach the township from any direction. Some parts of the township would be impacted by flame contact and radiant heat with the primary attack method being from embers.

11.6.2 Access and egress

There is only one road that allows access and egress. There is a secondary access and egress opportunity but this travels south from the town into heavily vegetated areas. The exit route from the township is along a winding road that has areas with heavy vegetation. During a bushfire it is expected that this will be compromised.

11.6.3 Landscape risk assessment

The likely bushfire scenarios that may impact Koornalla include:

- A bushfire burning within under a south westerly influence and impacting on the township. This bushfire has the ability to burn for some distance prior to affecting the township. This could result in a bushfire burning on a wide front and generating spot fires well ahead of the fire front. Due to the topography within the township, it would be expected for bushfire behaviour to be highly erratic.
- A bushfire burning from the north through the plantations and impacts on the township. The main egress route would be compromised quickly and may limit the ability for the community to evacuate.

The scenarios could see parts of the community exposed to direct flame contact and radiant heat. The entire community is likely to be impacted by ember attack during any of the scenarios. Due to the topography within the local area this will likely generate erratic bushfire behaviour in some areas of the township.

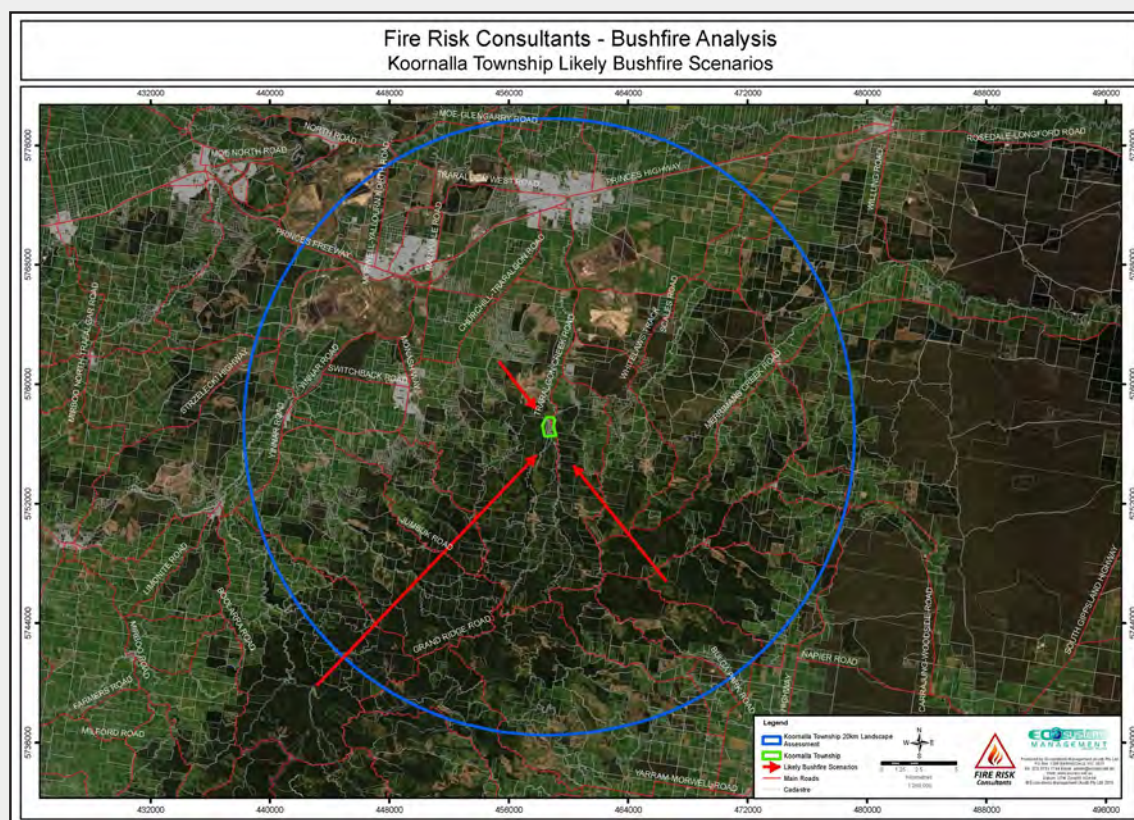


Figure 56 - Koornalla likely bushfire scenarios (20km)

11.6.3 Landscape risk assessment (continued)



Figure 57 - Koornalla likely bushfire scenarios (1km)

11.6.4 Development opportunities

The Rural Land Use Strategy identifies the study area to be investigated for either a Farming Zone Schedule 2 or Rural Living Zone.

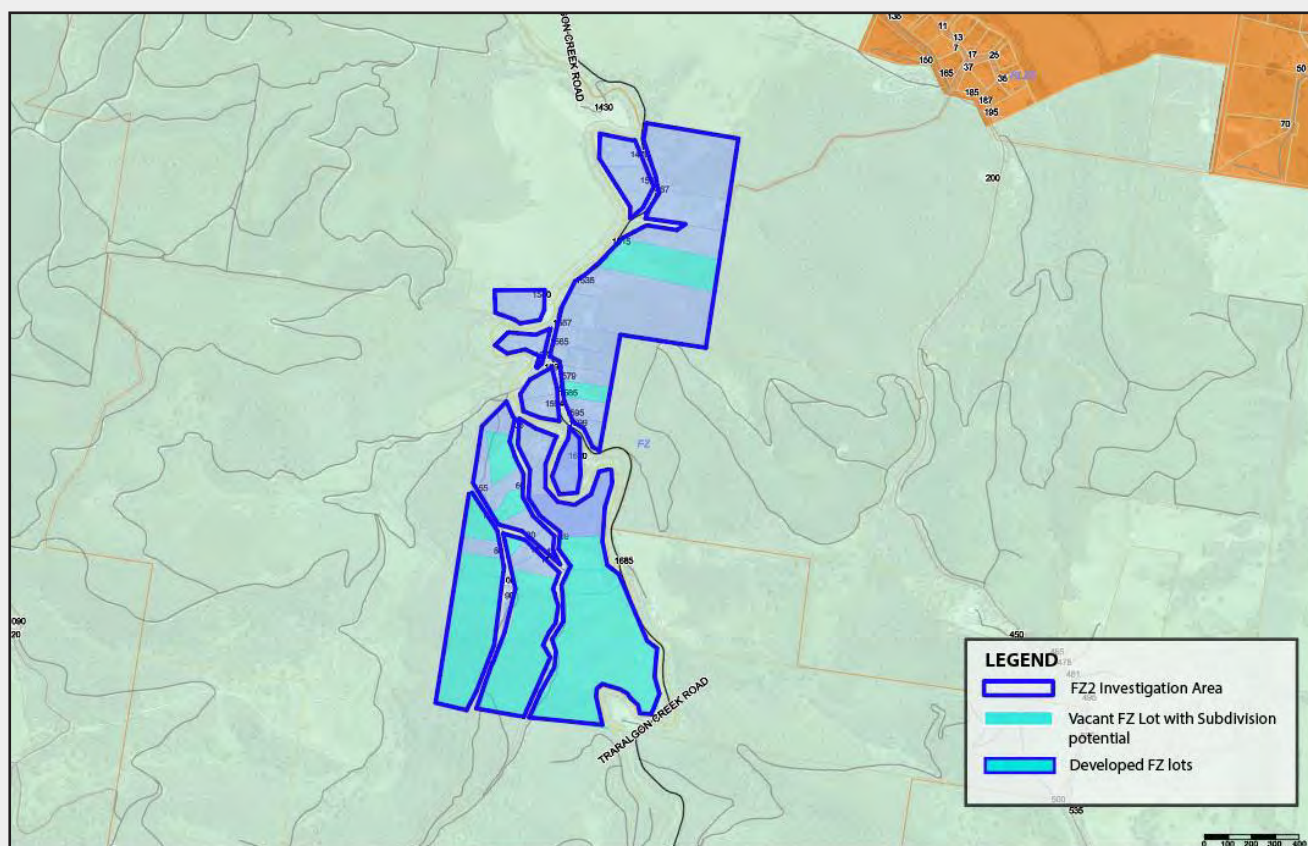


Figure 58 - Koornalla development opportunities (supplied by LCC)



11.6.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Koornalla.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Koornalla - Precinct A (FZ1) Score – 41	This precinct is surrounded by an undulating landscape along with large tracts of private forest and plantations. This area was impacted during the 2009 bushfires. This scenario could occur again due to the surrounding vegetation and the undulating topography. Very steep slopes exist in parts of the area. Access and egress would be very challenging during a bushfire.	Undertake additional roadside management work on the Traralgon Creek Road to improve the ability for it to be traversed during bushfires. Explore opportunities to increase the distance between dwellings and vegetation. This vegetation is contained within plantations or private bush. Reduce vegetation adjoining Taylors Road to provide better access and egress.	Let the BMO operate as intended Rezoning for rural living purposes not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> . However, rezoning potential for Farming Zone, Schedule 2 does exist.

The map below demonstrates the risk classification for each precinct in Koornalla.

Figure 60 (above) -
Koornalla
assessment and
treatment table

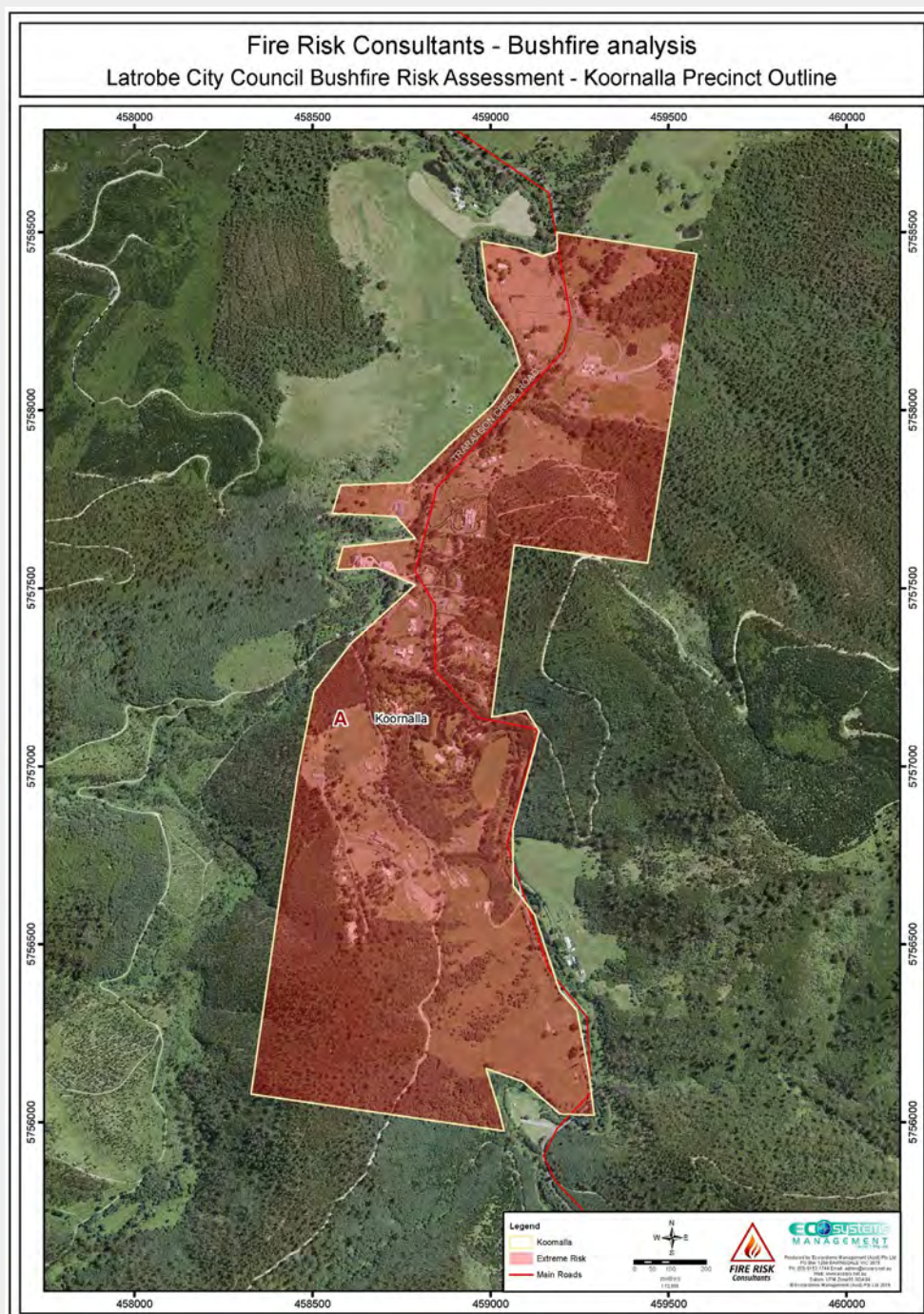


Figure 61 -
Koornalla risk classification map

11.7 Moe South

11.7.1 Location overview

The locality of Moe South is situated south of the main centre of Moe. It is abutted to the north west by plantations and to the north by the Edward Hunter Reserve. Land to the east consists primarily of farmland with scattered forest vegetation. The overall area is a mix of plantations, forests on private and public land and farmland.

There are managed plantation assets and native vegetation dotted across the landscape of Moe South. In some locations there is heavy fuel on roadsides and private property, which is more prevalent further to the south.

Topography of the area is gently rolling hills that appear to become steeper to the south of the existing Moe South precinct. Land adjacent to the Princes Highway is a mixture of agricultural pursuits including hardwood plantations.

A fire occurring under an elevated fire danger index would travel across the Moe South landscape via spotting from vegetation into open grassland, plantation and other areas of native vegetation. To recognise the bushfire risk to the areas of Moe South, a Bushfire Prone Area and Bushfire Management Overlay has been allocated to much of the locality.

11.7.2 Access and egress

The primary access and egress route for the area is via Coalville Road. Parts of this road traverse through forest vegetation that is associated with the Edward Hunter Reserve. This area would be particularly susceptible to ember attack from an intense bushfire burning within the Edward Hunter Reserve under prevailing north westerly winds. There are some road travel options in other directions, however these are often winding and, in some parts, heavily vegetated.

11.7.3 Landscape risk assessment

The likely bushfire scenarios that may impact on Moe South include:

- A bushfire starting along the Princes Highway travelling through the grassland on the north side of the highway into the native vegetation and plantations. This would generate ember attack once the bushfire enters the forested areas and support rapid fire spread along with long distance spotting over the Moe South Road ridgeline.
- A bushfire originating in or near the Edward Hunter Reserve, burning under a north westerly or south westerly influence, impacting on the dwellings immediately adjoining the Reserve. There would be ember attack onto the properties south of the Reserve.
- A bushfire burning through the plantation under a westerly influence and impacting on the adjoining properties. This bushfire would generate ember attack to the east of the plantations.
- A bushfire burning under a south westerly influence that originates more than 1 kilometre from Moe South and impacts on the area through a large and complex fire front. Ember attack would impact on dwellings well before the fire front arrives.

A bushfire in the Moe South community under elevated fire danger indices would burn uncontrollably through the forested areas. It is likely for bushfire behaviour to change once it enters private land by becoming influenced by the numerous spot fires that would be caused by ember attack. Due to the undulating nature of the area, the bushfire will burn in multiple directions and be largely slope influenced.

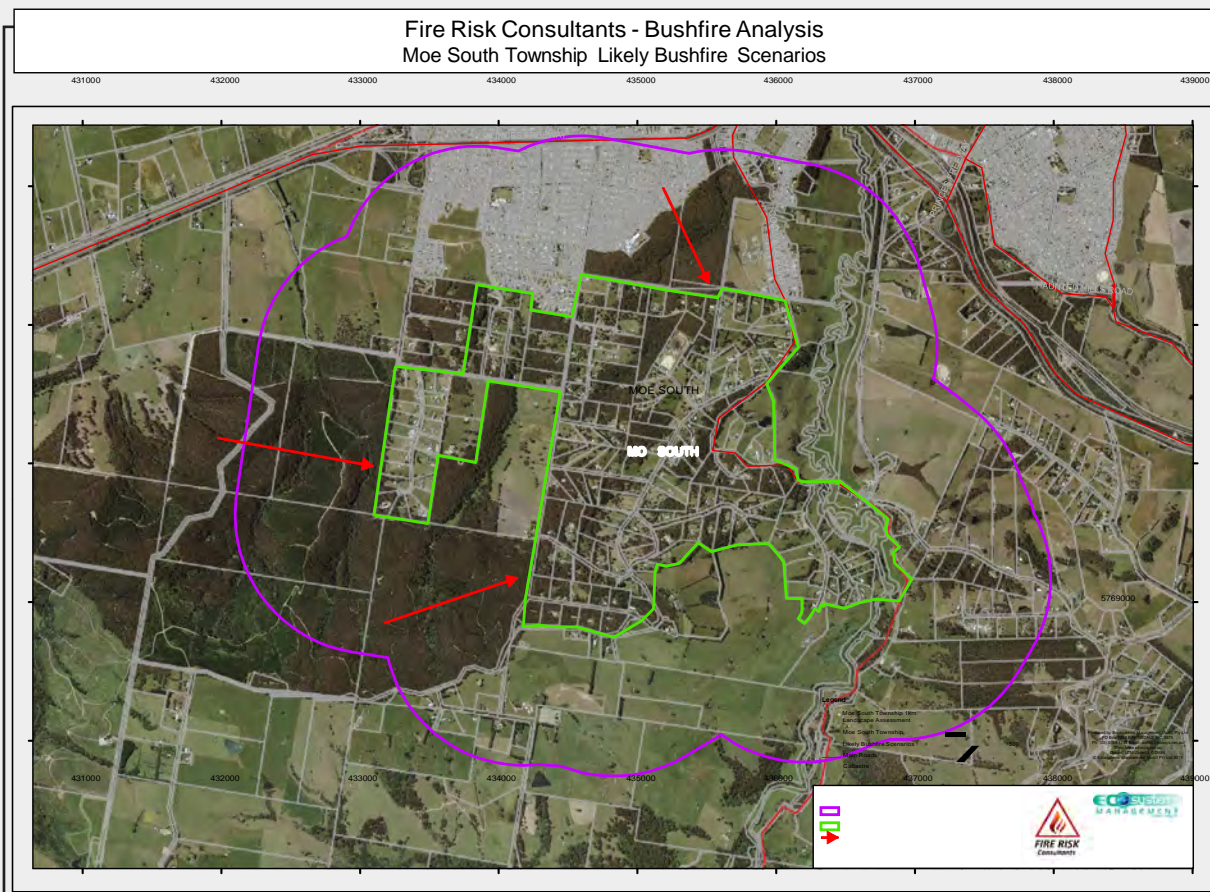


Figure 62 - Moe South likely bushfire scenarios (1km)

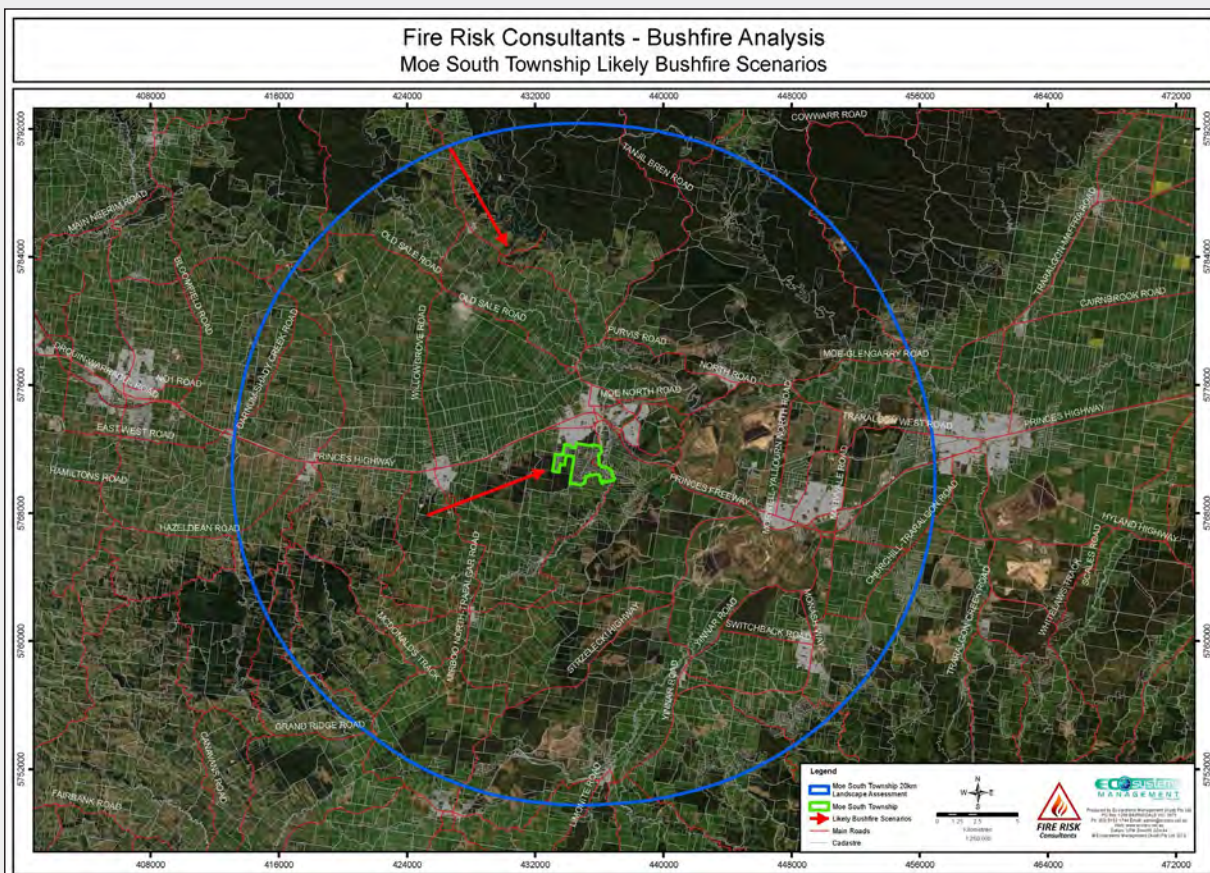


Figure 63 - Moe South likely bushfire scenarios (20km)

11.7.4 Development opportunities overview

The northern most precinct of properties were identified by submission to Amendment C105 requesting rezoning to a Rural Living Zone.

The middle and south precinct was exhibited for rezoning to a Rural Living Zone by C105. This was not progressed on the basis of a fire risk assessment completed at that time.

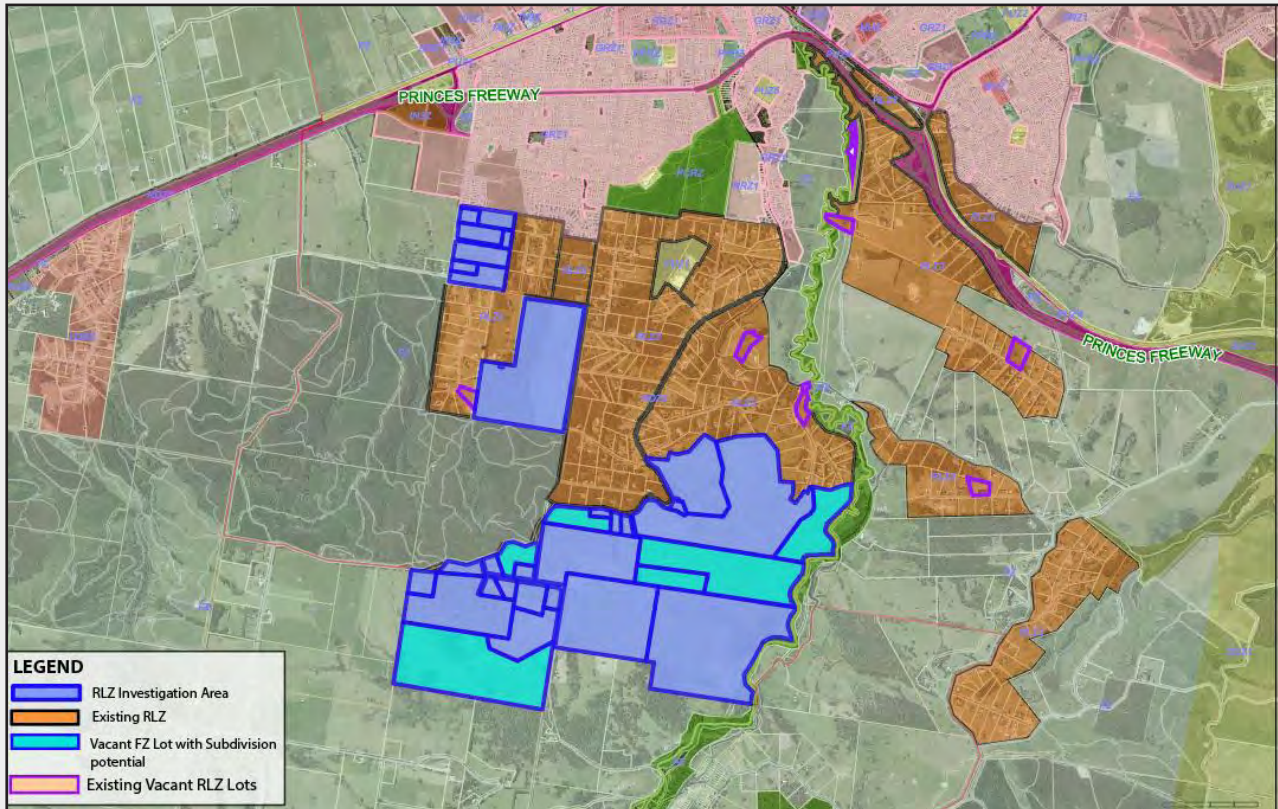


Figure 64 - Moe South development opportunities (supplied by LCC)

11.7.5 Scoresheet analysis

The figure below shows the precincts within Moe South.

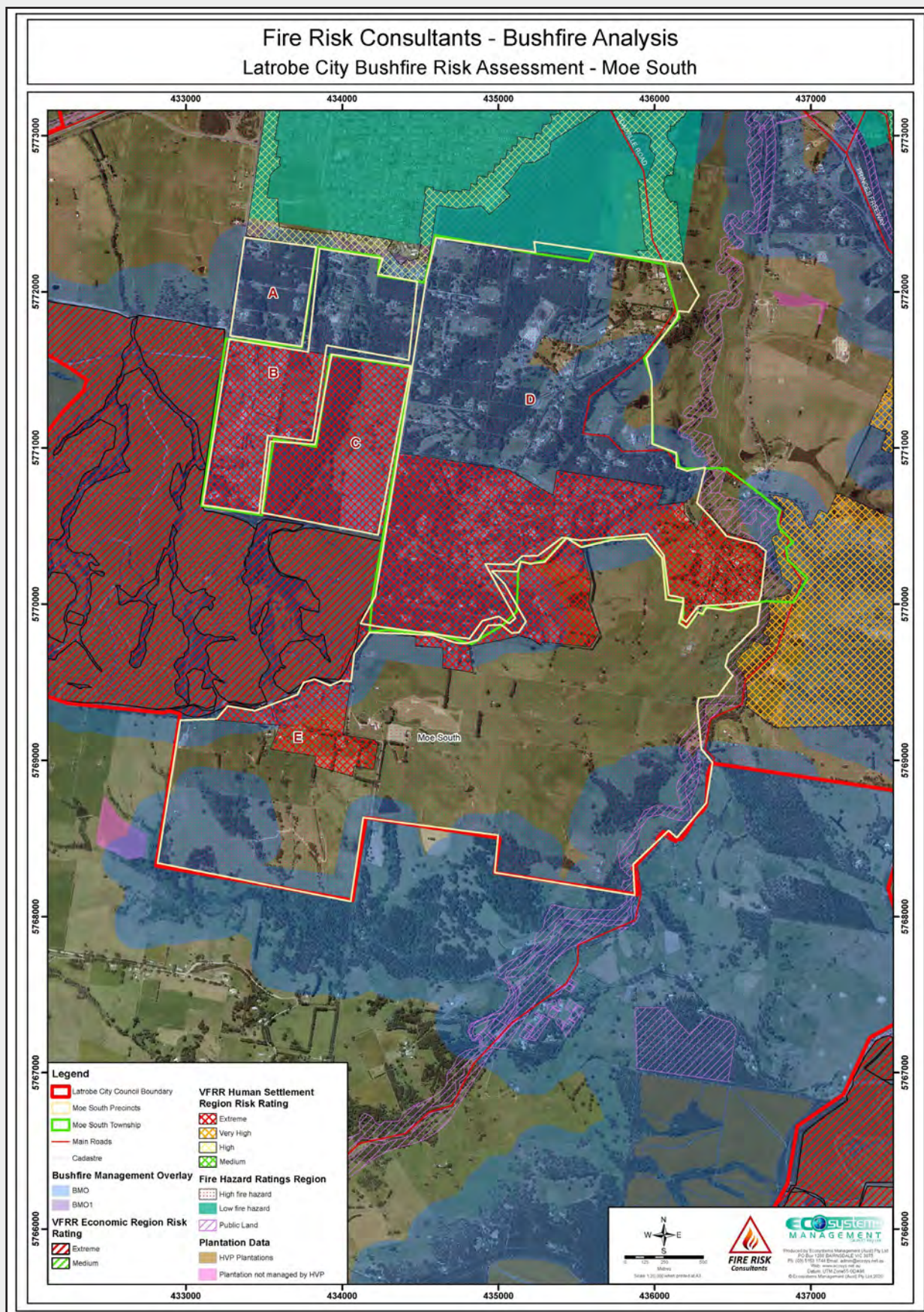


Figure 65 - Moe South precinct and risk analysis map

11.7.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Moe South.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Moe South - Precinct A (FZ1) Score – 31	Some of the blocks have cleared the undergrowth however there are plantations and private forest within close proximity to the area. Due to the forest vegetation, extreme bushfire behaviour would be experienced. Some properties would be exposed to direct flame contact. Access and egress would be satisfactory once the resident gets to the residential development area to the north of the precinct. However, the travel to this point is through forested roadsides.	Continue with the fuel management works currently being funded by the Safer Together project. Manage the vegetation on the roadsides and adjoining Watsons Road. Explore opportunities with the private landowners to further reduce fuels in this precinct. Explore opportunities to increase the separation distance between the plantations on the west side of Watsons Road and the residential areas.	Let the BMO operate as intended. Rezoning for rural living purposes not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> . However, rezoning potential for Farming Zone, Schedule 2 does exist.
Moe South - Precinct B (RLZ1) Score – 37	Access and egress will be challenging from this area during a bushfire. A large plantation is located to the west of the properties. Private forest is located to the east. This area is likely to be impacted by embers and radiant heat from the plantations and private forest.	Increase the separation distance between the rear of the properties and the adjoining plantation. Reduce fuel on the Tambo Road to support access and egress.	Let the BMO operate as intended
Moe South - Precinct C (FZ2) Score – 39	This precinct consists of forest vegetation in all directions. There are plantations on adjoining land. Access and egress from this area is considered poor. The likely bushfire behaviour in this precinct and the lack of egress options, conditions would be extremely challenging.	Increase fuel management along Wirraway Street and surrounding areas to improve access and egress. Enact the Edward Hunter Reserve management plan.	Let the BMO operate as intended Rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> .
Moe South - Precinct D (RLZ1) Score – 37	This precinct consists of pockets of forest vegetation with open grassland areas. Access and egress are considered poor in parts of this precinct. The forest vegetation connects with the Edward Hunter Reserve and creates a landscape bushfire risk.	Enact the Edward Hunter Reserve management plan. Increase vegetation management along all roadsides. Develop Borrmans Road as a fuel break. Reduce fuel on the roadsides of Moe South Road to improve access and egress.	Let the BMO operate as intended Extend the BMO to cover the RLZ affected land.
Moe South - Precinct E (FZ1) Score – 32	Due to the slope that is present within this precinct and the vegetation to the north and south it is deemed that the landscape risk is extreme. Bushfire behaviour in this area would be erratic and unpredictable. A bushfire from the north in the plantations would generate ember attack into this area and the Moe South Road would be compromised due to flame contact when the bushfire reached the ridgeline. Access and egress in this area is poor.	Explore increasing the separation distances between the plantation along the Moe South Road in particular along the ridgeline. Increase management of the Moe South Road to provide better access and egress ability.	Let the BMO operate as intended Rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> .

Figure 66 - Moe South assessment and treatment table

The map below demonstrates the risk classification for each precinct in Moe South.

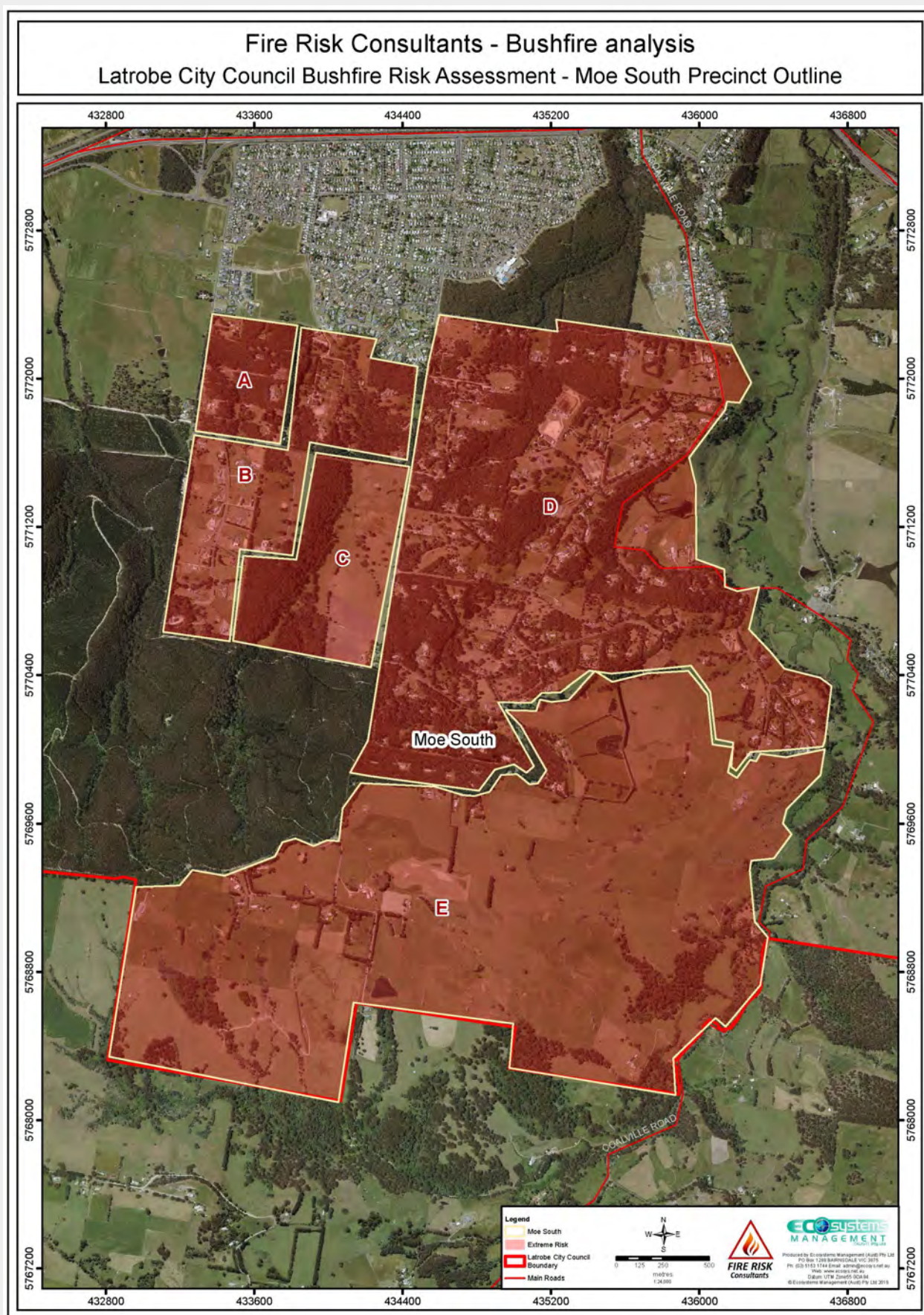


Figure 67 - Moe South risk classification map

11.8 Toongabbie

11.8.1 Location overview

Toongabbie is situated to the north of the municipality and is located on the Traralgon Maffra Road. The township is surrounded by forest vegetation to the west and north and farmland to the east and south. The primary source of forest is public land with the vegetation closest to the township under private ownership. Some plantations exist within the public land and to the south west of the township.

The likely bushfire scenarios are primarily driven by the forest vegetation to the west and north. There are a number of times in recent history where the potential for a bushfire to burn uncontrollably within the public land and to impact on Toongabbie has been high. The types of bushfire behaviour that would be experienced in and around Toongabbie will be very dense ember attack with radiant heat from localised flaming. Whilst it is not expected for the vegetation to generate radiant heat onto the existing dwellings, it would be expected for ember attack to impact on the township.

The topography is not a major influence in this location. The township is located on reasonably flat areas with steep slopes existing in the public land to the west and north.

To recognise the bushfire risk to the areas of Toongabbie a Bushfire Management Overlay is in place abutting the forest vegetation with the entire area covered by a Bushfire Prone Area.

Due to historical developments that have likely not considered the risk from bushfire, there is a potential to improve bushfire safety to the entire community by allowing some development to occur on the northern and western sides of the township. These would need to be well designed with bushfire risk reduction as the key focus.

11.8.2 Access and egress

The primary access and egress route is the Traralgon Maffra Road. This location has excellent access and egress provisions with the ability to travel to an area of safety being achievable due to the road network.

11.8.3 Landscape risk assessment

The likely bushfire scenarios that may impact on Toongabbie include:

- A bushfire burning in the public land to the north and west and impacting on the private land to the west of the township. The impact on the township will be through grassfires that would have generated from spot fires that started from ember attack.
- A bushfire burning under a south westerly influence and travelling through the public land and impacting on the private land around Toongabbie. This scenario could see the main access and egress compromised however other roads exist that direct people away from the bushfire.

In the event of a bushfire burning in or around the Toongabbie township, it would be highly likely that this would be the result of multiple fires that have started from ember attack. These would likely be easily controlled by suppression efforts, however due to the complexity of this situation, the fires may burn uncontrollably for some time. The key influence of fire behaviour in the township is how long the bushfire has been burning in the public land. If the bushfire has been burning for multiple days then the fire that impacts on Toongabbie could be from a wide fire front and be very difficult to control.

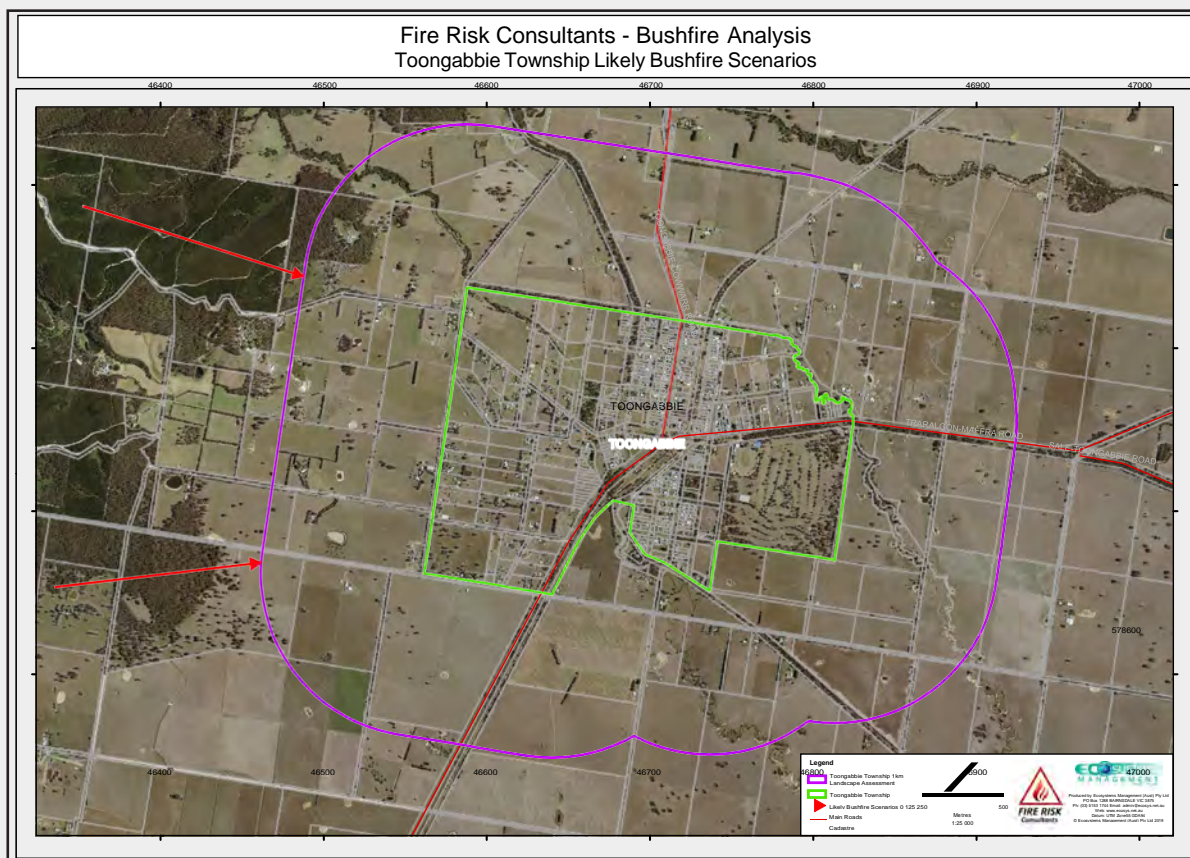


Figure 68 - Toongabbie likely bushfire scenarios (1km)

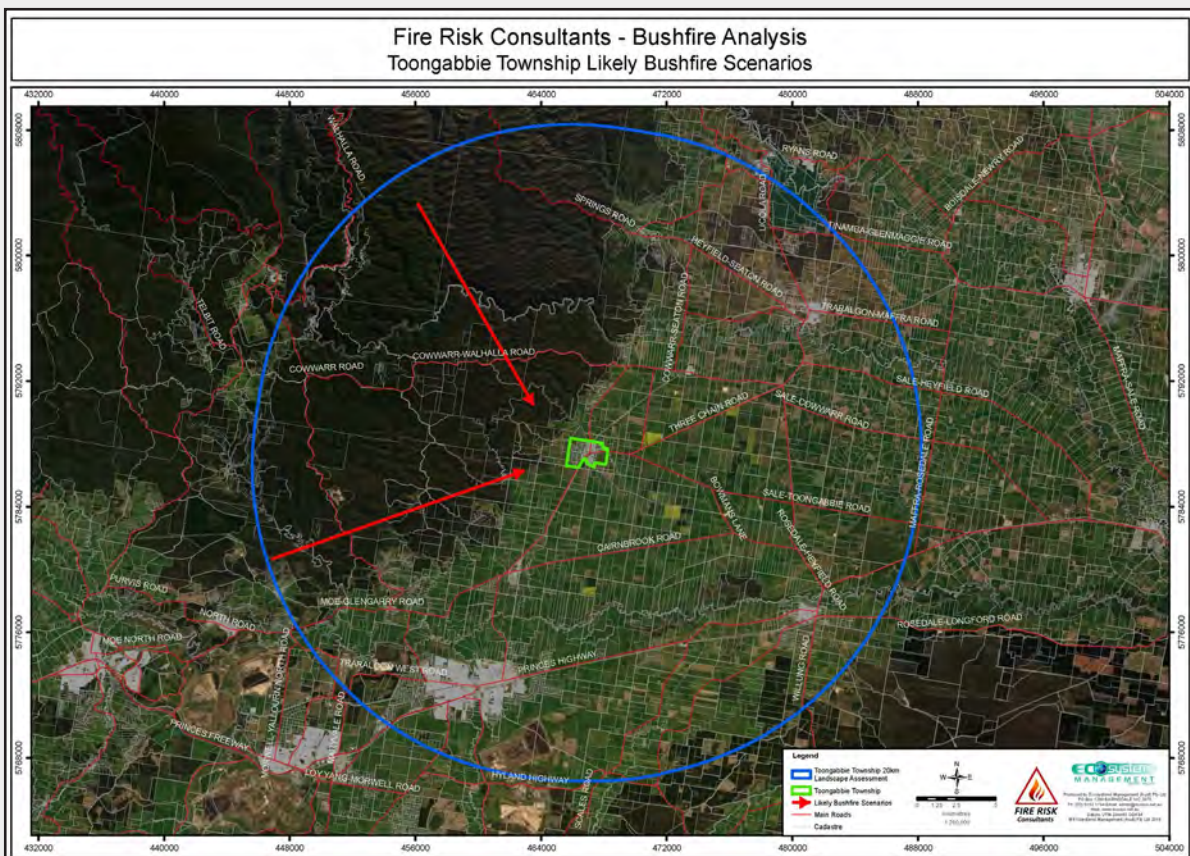


Figure 69 - Toongabbie likely bushfire scenarios (20km)

11.8.4 Development opportunities overview

Following the finalisation of the Bushfire Assessment Project Brief – the development of a Structure Plan for Toongabbie has been progressed. Given this, anticipated direction and form of future growth has changed from what was previously exhibited by the Rural Land Use Strategy.

For land zoned as residential there are currently 46 properties that are either vacant titles or properties, or properties that are large enough to further subdivide. If those properties were built on at the average lot size in Toongabbie of 2000 square metres it would equate to 99 additional houses. If lots were of a standard residential density, a possible 297 houses may be added. However, sewer capacity would likely limit this opportunity.

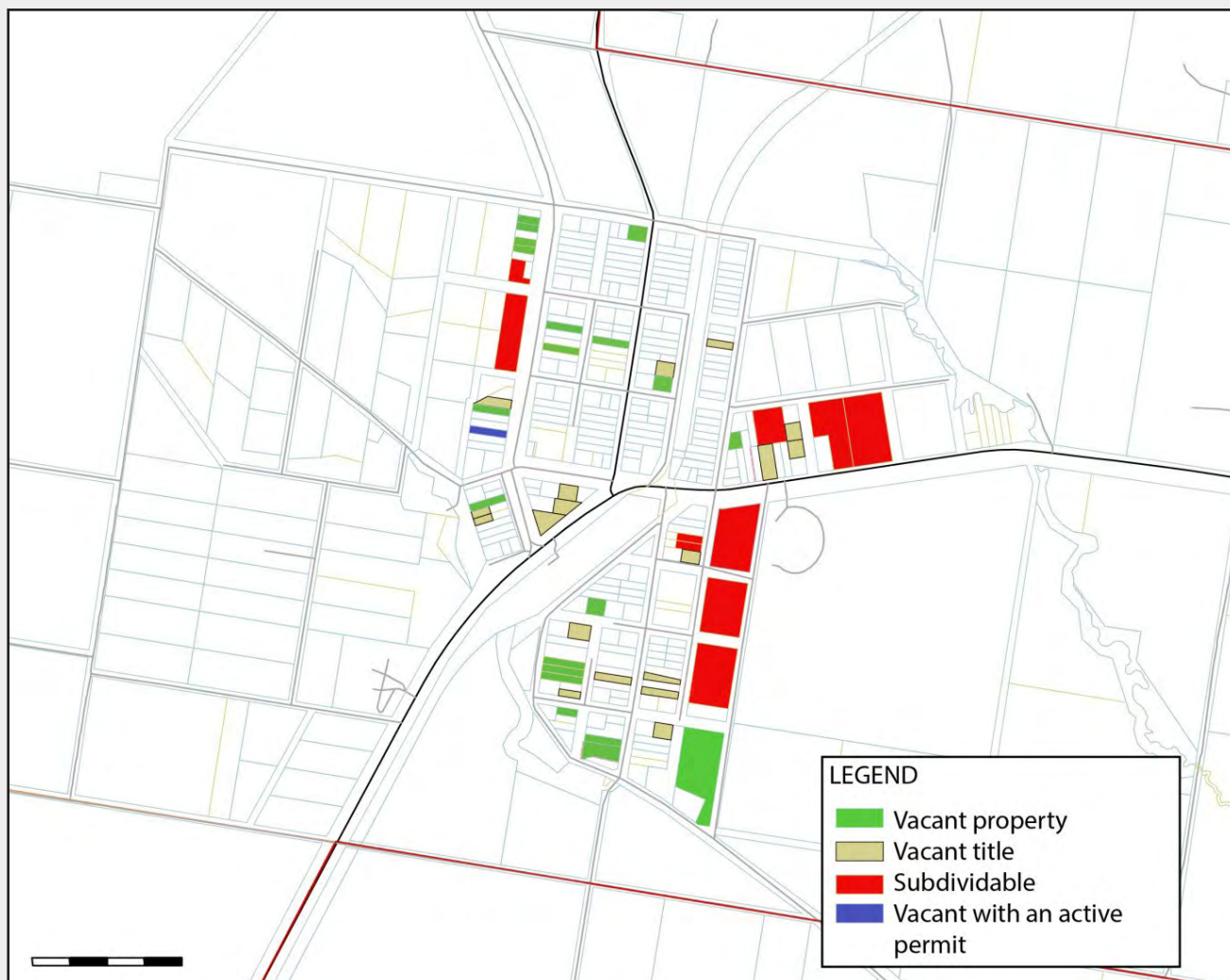


Figure 70 - Toongabbie development opportunities (supplied by LCC)

During consultation for Amendment C105 Live Work Latrobe, the public highlighted a need for further Rural Living and/or Low Density Residential types of land. As such, Council have explored the possibility of growth in the areas shown in Figure 34 on the following page, where Rural Living Zone 1 has a minimum subdivision size of 2 Hectares and Rural Living Zone 2 has a minimum subdivision size of 4 hectares. The Low Density Residential Zone could vary between 4000 square metres or 2000 square metres depending on the availability of other services.

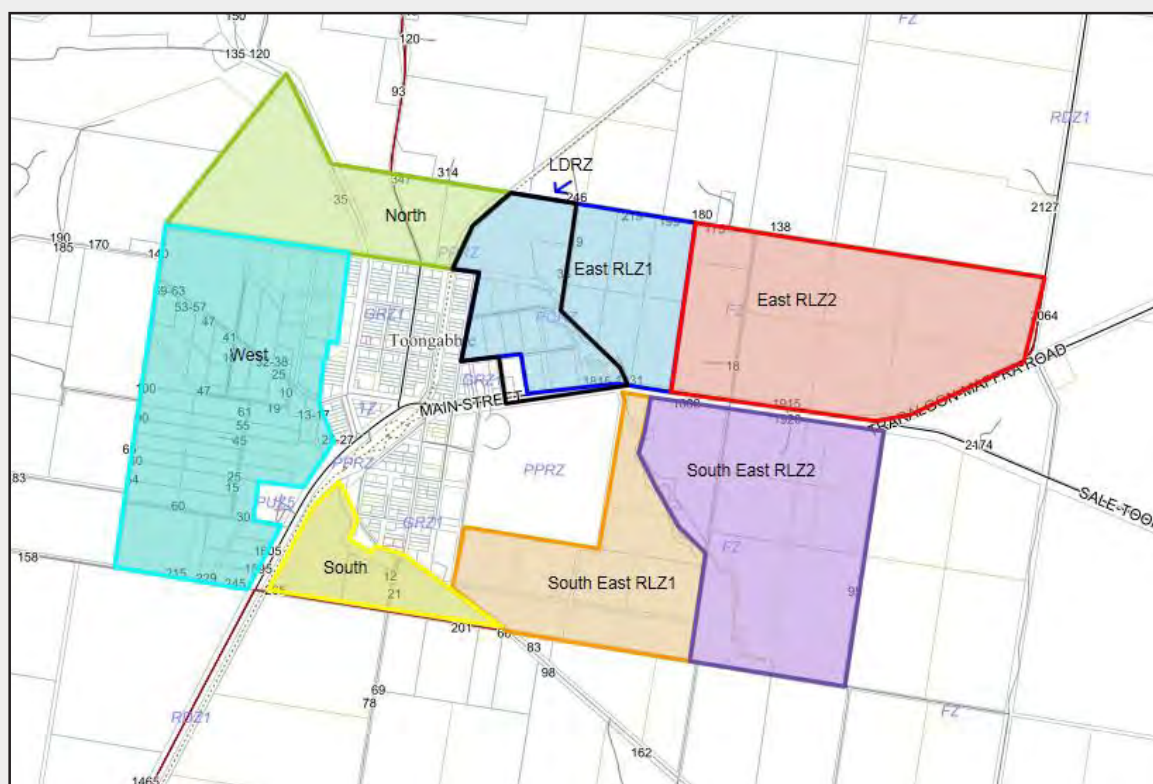


Figure 71 -
Toongabbie
outskirts
development
opportunities
(supplied by LCC)

Council analysis has identified that each of these areas has the potential to be released as new growth fronts.

Layer	Metadata
West RLZ1 Precinct	All lots to the west of Toongabbie, bound by Hill Street, Harris Lane, Guyatts Road, Main Street and King Street excluding residential lots. Includes approximately 26 new houses and 11 new lots.
North RLZ1 Precinct	Lots to the north of Toongabbie between the Gippsland Plains Rail Trail, Afflecks Road, Hill Street and the lot at 30 Walhalla Road, Toongabbie. Includes approximately 25 new lots and houses.
East RLZ1 Precinct	Lots to the east of Sparks Lane not in a residential zone up to the 5 lots east of Packett Road. Includes approximately 23 new houses and 22 new lots.
East RLZ2 Precinct	Lots to the east of Toongabbie, including two lots to the west of Nippe Lane and all lots east of Nippe Lane between Traralgon-Maffra Road and Afflecks Road. Includes approximately 27 new lots and houses.
South RLZ1 Precinct	Lots south of Toongabbie between the Gippsland Plains Rail Trail, Henderson Road and Guyatts Road. Includes approximately 10 new lots and houses.
South East RLZ1	Lots South of the Toongabbie golf course, between Heywood Street, Hendersons Road, Guyatts Road and Nippe Lane. Includes approximately 34 new houses and 33 new lots.
South East RLZ2 Precinct	Lots South of Traralgon –Maffra Road east of Nippe Lane and Anton Lane Including the title west of Nippe Lane until the creek. Includes approximately 26 new lots and houses.
East LDRZ Precinct	All lots generally bounded by the Gippsland Plains Rail Trail, Afflecks Road, Packett Road, the creek, Main Street, Campbell Street, and Sparks Lane, includes approximately 84 new lots and houses.
South LDRZ Precinct	Lots south of Toongabbie between the Gippsland Plains Rail Trail, Henderson Road and Guyatts Road. Includes 53 new lots and houses.

11.8.5 Scoresheet analysis

The figure below shows the precincts within Toongabbie.

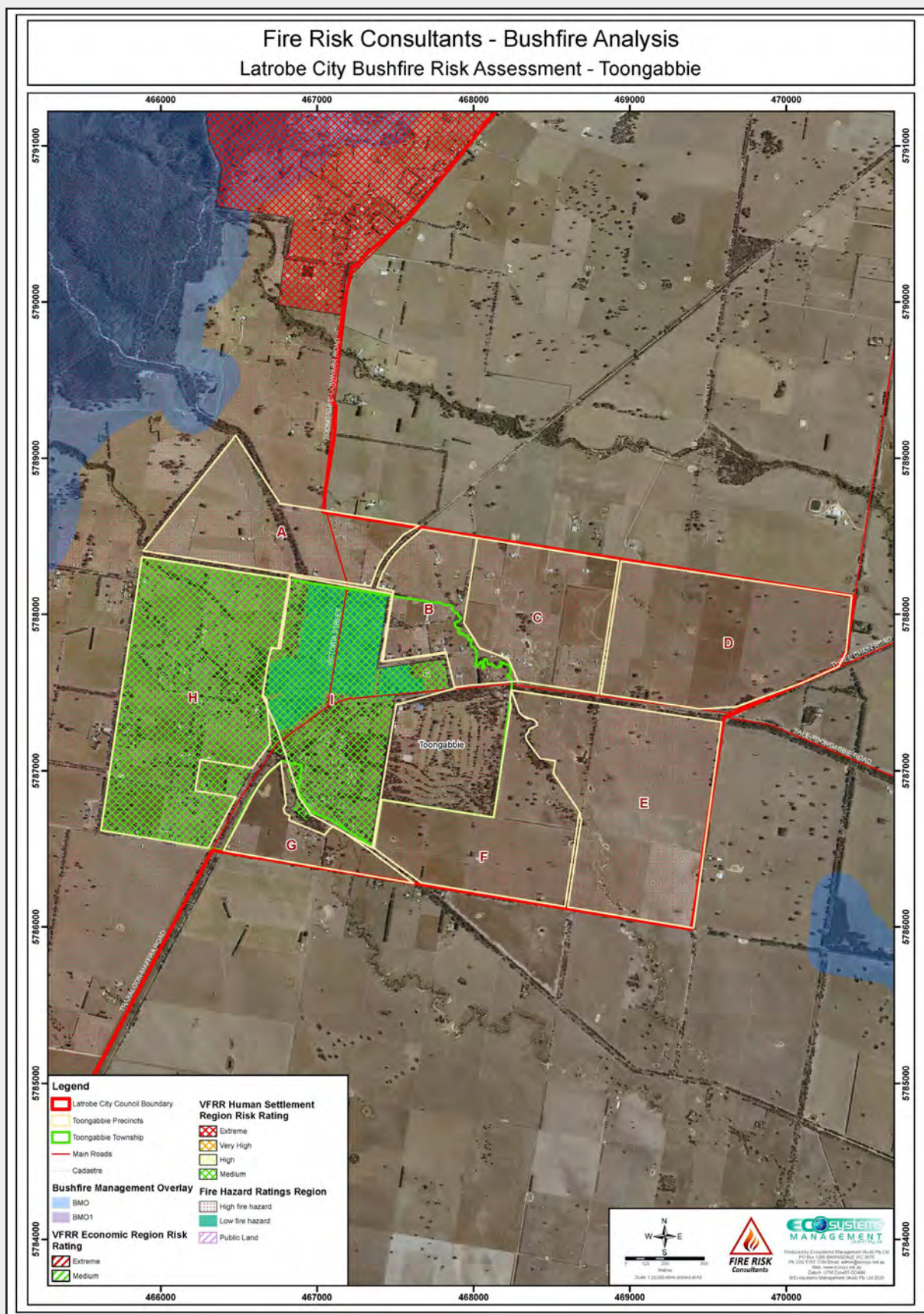


Figure 72 - Toongabbie precinct and risk analysis map

11.8.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Toongabbie.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Toongabbie - Precinct A (FZ1) Score – 25	This precinct is located to the north of the existing town and is primarily grassland. A stretch of Old Walhalla Road exists in the precinct that can support a bushfire travelling into the township. To the north and north west of the precinct exists large tracts of forest in both private and public land. Access and egress is good.	Old Walhalla Road to be treated regularly to ensure there is limited undergrowth present. The private and public forest vegetation to the north and north west requires a collaborative approach by landowners and Agencies to reduce the fuel loads. A strategic firebreak should be established to the north and north west of the township. Hill Street requires roadside management fence to fence so that it performs as a strategic firebreak.	Rezoning is not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – Settlement Planning. Hill street is deemed to act as an appropriate hard edge between the anticipated fire run and the residential properties in the township (south).
Toongabbie - Precinct B (FZ1) Score – 17	This precinct is surrounded by grassland and is located to the east of the township. Access and egress is effective. There are a number of features that would limit a bushfires spread from the private and public forest to the west including roads and managed properties.	Continue to maintain roadsides in a reduced fuel state.	In the event that this land is zoned rural residential, consider a DPO that requires subdivision staging to consider the need to ensure properties do not abut unmanaged vegetation both during subdivision staging and at completion. The DPO will also ensure road layout allows for effective access and egress and reduces the use of dead end roads.
Toongabbie - Precinct C (FZ1) Score – 16	This precinct is surrounded by grassland and is located to the east of the township. Access and egress is effective. There are a number of features that would limit a bushfires spread from the private and public forest to the west including roads and managed properties.	Continue to maintain roadsides in a reduced fuel state.	In the event that this land is zoned rural residential, consider a DPO that requires subdivision staging to consider the need to ensure properties do not abut unmanaged vegetation both during subdivision staging and at completion. The DPO will also ensure road layout allows for effective access and egress and reduces the use of dead end roads.
Toongabbie - Precinct D (FZ1) Score – 15	This precinct is surrounded by grassland and is located to the east of the township. Access and egress is effective. There are a number of features that would limit a bushfires spread from the private and public forest to the west including roads and managed properties.	Continue to maintain roadsides in a reduced fuel state.	In the event that this land is zoned rural residential, consider a DPO that requires subdivision staging to consider the need to ensure properties do not abut unmanaged vegetation both during subdivision staging and at completion. The DPO will also ensure road layout allows for effective access and egress and reduces the use of dead end roads.

Figure 73 - Toongabbie assessment and treatment table

11.8.6 Precinct treatments (continued)

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Toongabbie - Precinct E (FZ1) Score – 15	This precinct is surrounded by grassland and is located to the east of the township. Access and egress is effective. There are a number of features that would limit a bushfires spread from the private and public forest to the west including roads and managed properties.	Continue to maintain roadsides in a reduced fuel state.	In the event that this land is zoned rural residential, consider a DPO that requires subdivision staging to consider the need to ensure properties do not abut unmanaged vegetation both during subdivision staging and at completion. The DPO will also ensure road layout allows for effective access and egress and reduces the use of dead end roads.
Toongabbie - Precinct F (FZ1) Score – 15	This precinct is surrounded by grassland and is located to the east of the township. Access and egress is effective. There are a number of features that would limit a bushfires spread from the private and public forest to the west including roads and managed properties.	Continue to maintain roadsides in a reduced fuel state.	In the event that this land is zoned rural residential, consider a DPO that requires subdivision staging to consider the need to ensure properties do not abut unmanaged vegetation both during subdivision staging and at completion. The DPO will also ensure road layout allows for effective access and egress and reduces the use of dead end roads.
Toongabbie - Precinct G (FZ1) Score – 16	This precinct is surrounded by grassland and is located to the east of the township. Access and egress is effective. There are a number of features that would limit a bushfires spread from the private and public forest to the west including roads and managed properties.	Continue to maintain roadsides in a reduced fuel state.	In the event that this land is zoned rural residential, consider a DPO that requires subdivision staging to consider the need to ensure properties do not abut unmanaged vegetation both during subdivision staging and at completion. The DPO will also ensure road layout allows for effective access and egress and reduces the use of dead end roads.
Toongabbie - Precinct H (FZ1) Score – 25	This precinct is located to the west of the town. Access and egress is reasonably effective. Increased vegetation is located on some roadsides. Private and public forest is located to the west of this precinct.	Maintain King Street in a low fuel state and ensure that limited re-vegetation activities occur. Increase roadside vegetation management programs on strategic north/south roads including Nicholsons Road and Harris Lane. The private and public forest vegetation to the north and north west requires a collaborative approach by landowners and Agencies to reduce the fuel loads.	Consider rezoning of six lots west of King Street that adjoins residential context from FZ to LDRZ to result in a reduced landscape risk to land affected by Township Zone. Opportunity exists to manage road layout, access and a density that achieved an appropriate transition between the Township Zone and the FZ. It is suggested that a DPO be explored.

Figure 73 - Toongabbie assessment and treatment table (continued)

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Toongabbie - Precinct I (NRZ4, TZ) Score – 19	This is the existing township. In some locations residential blocks are located against unmanaged grassland. Access and egress is reasonably effective.	Ensure fuel management programs are in place to reduce landscape effects of a bushfire burning towards the township under a north westerly or south westerly. Continue to maintain Traralgon Maffra Road as a strategic access and egress route.	Investigate application of a DDO for siting and vegetation management (to 30m) to residential lots to the west side of King Street to offset risk from adjoining Farming Zone (moderate landscape risk). Also investigate application of native vegetation removal exemptions to achieve and maintain defendable space under the Schedule to Clause 52.12 or 52.17.

The map below demonstrates the risk classification for each precinct in Toongabbie.

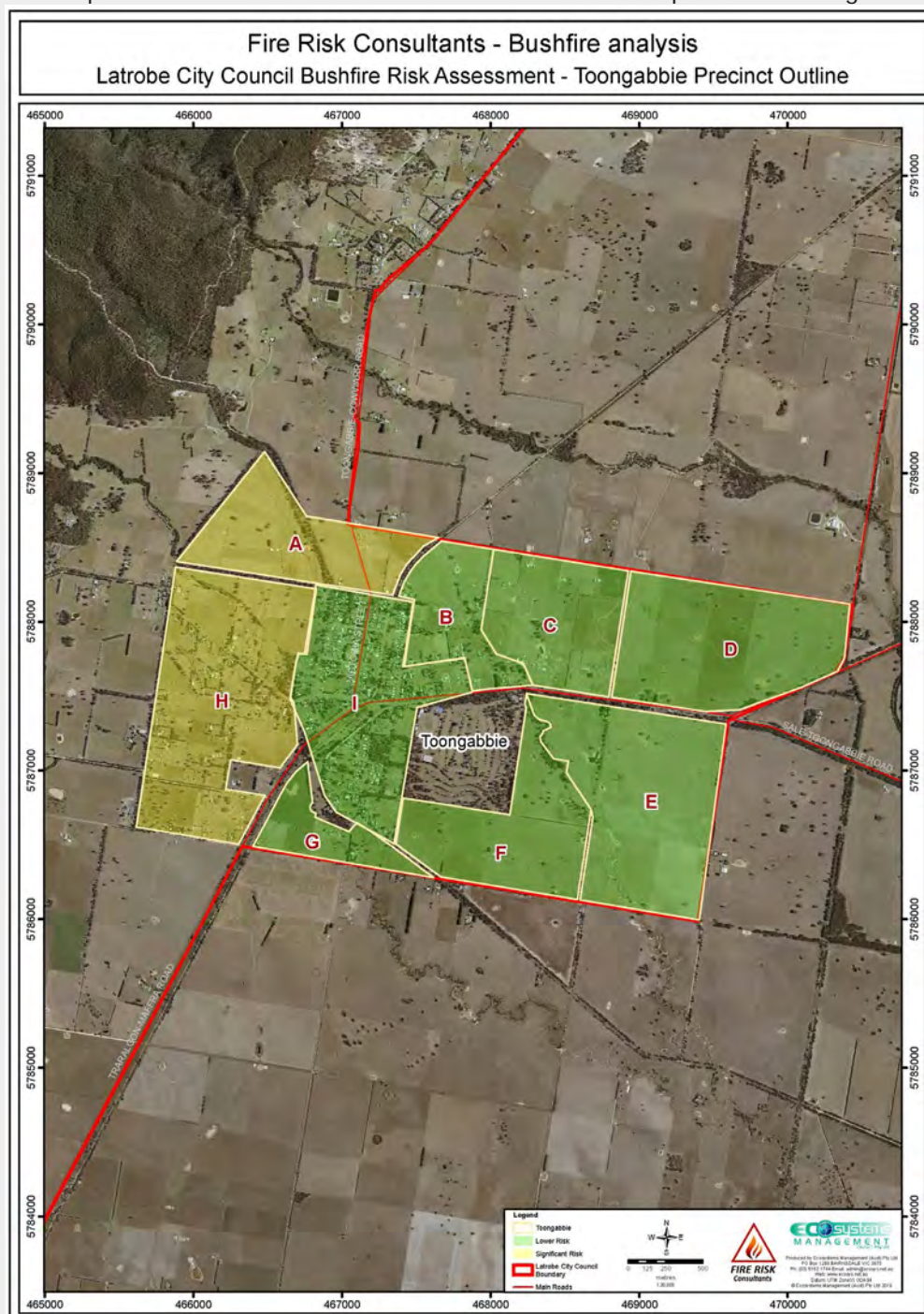


Figure 73 (above) - Toongabbie assessment and treatment table (continued)

Figure 74 - Toongabbie risk classification map

11.9 Toongabbie North (Cowwarr)

11.9.1 Location overview

Toongabbie North (Cowwarr) is located to the north of Toongabbie to the east of the public land. This area has been either impacted or under threat by bushfires in recent history. To the immediate east of the properties is vegetated private land that adjoins the public land.

The landscape assessment has identified numerous possibilities for a bushfire to impact on this location. Bushfire scenarios consist of bushfires impacting on the properties under either north westerly or south westerly influences.

Topography is also an influence in this area with an undulating landscape. This will support erratic bushfire behaviour in the area and make fire suppression activities very difficult. This is consistent with the landscape to the east of the area.

It is highly likely that the dwellings in this location would be impacted by flame contact, radiant heat and ember attack if the fire danger indices are at the upper levels.

11.9.2 Access and egress

Due to the location and prevalence of vegetation, access and egress could be challenging in this area. There are two key options to egress from the area and both of these could be impacted by bushfire.

11.9.3 Landscape risk assessment

The likely bushfire scenarios that may impact on Toongabbie North include:

- A bushfire burning in the public land to the north and west and impacting on the private land. The impact on the township will be through flame contact, radiant heat and ember attack. It would be expected for numerous spot fires to start in and around the community.
- A bushfire burning under a south westerly influence and travelling through the public land and impacting on the private land.

Both scenarios would see access and egress being compromised with late evacuation being considered very dangerous. Fire suppression activities could also be compromised through the inability to access this area during a bushfire.

This area is also prone to having bushfires burning in the public land for some time prior to it impacting on private land. This will allow the bushfire to impact on private land on a wide front which will make conditions dangerous and life safety would be compromised.

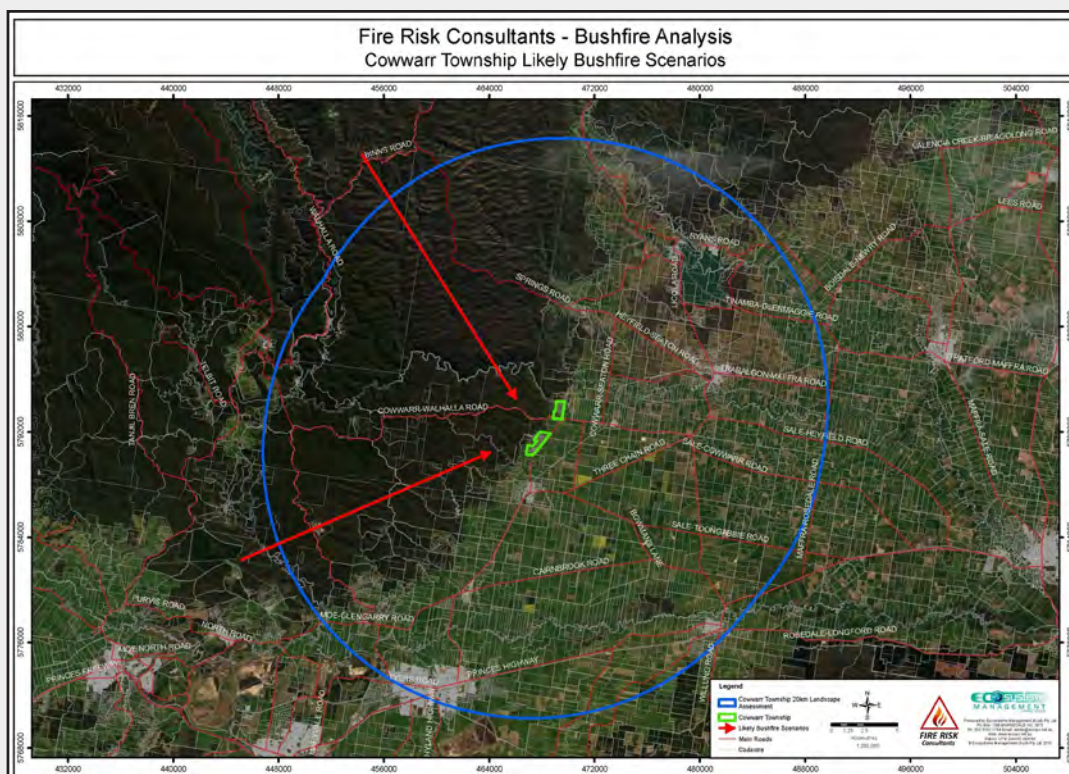


Figure 75 - Toongabbie North likely bushfire scenarios (20km)

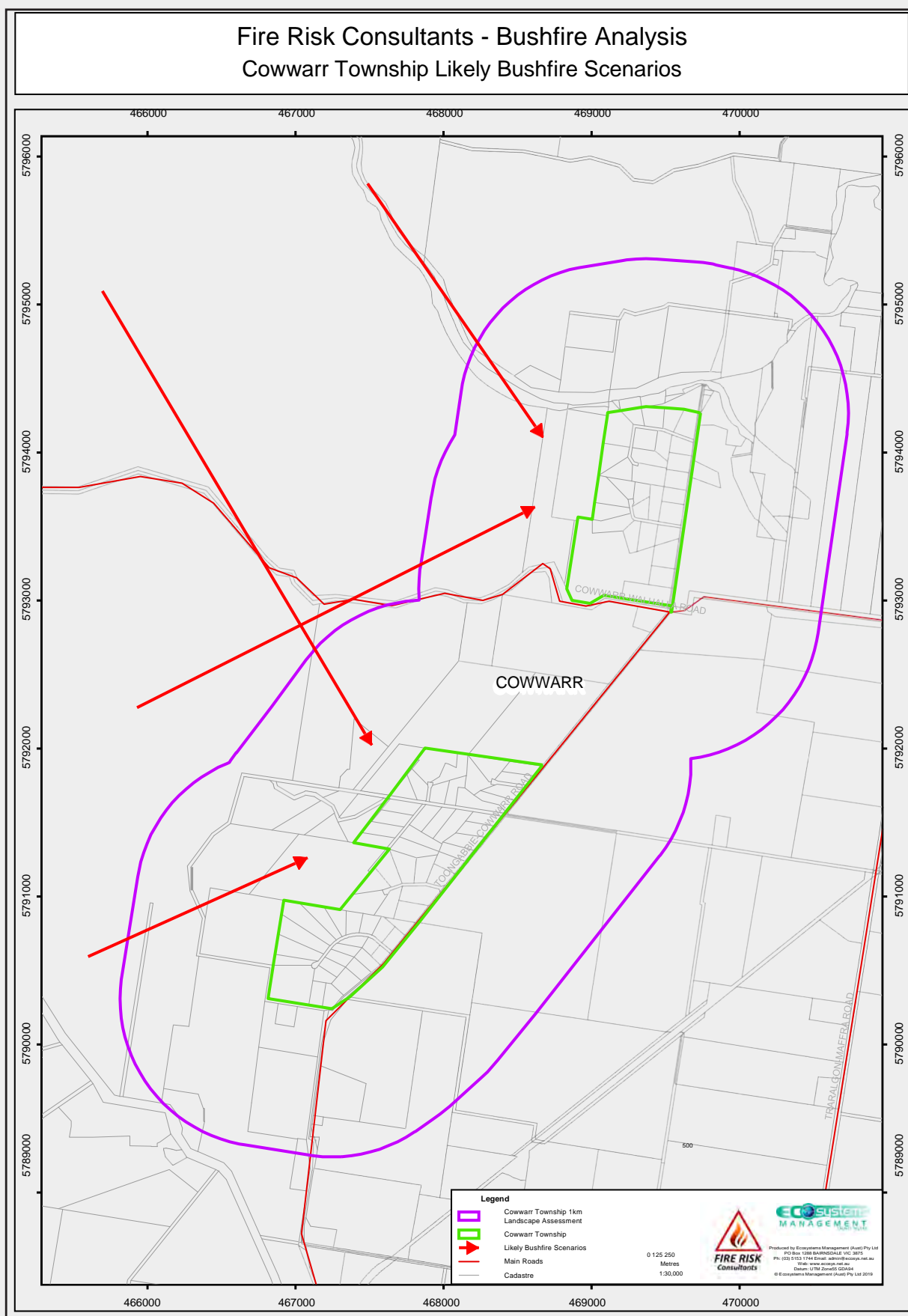


Figure 76 - Toongabbie North likely bushfire scenarios (1km)

11.9.4 Development opportunities overview

The study areas for Toongabbie North include two existing Rural Living Zone 4 precincts. Land to the west and south of these are zoned Farming Zone and are to be investigated for potential FZ2, in response to a number of submissions received through the Rural Land Use Strategy as part of Amendment C105.

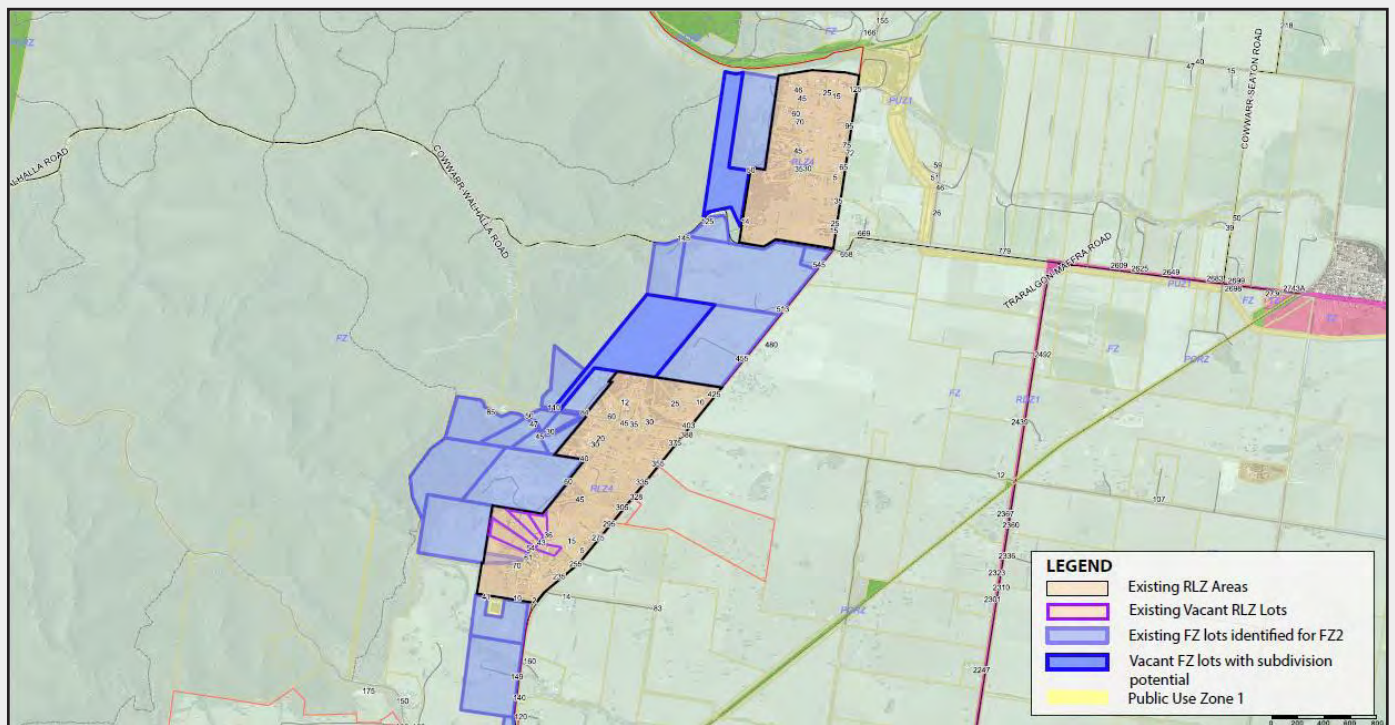


Figure 77 - Toongabbie North development opportunities (supplied by LCC)

11.9.5 Scoresheet analysis

The figure below shows the precincts within Toongabbie North.

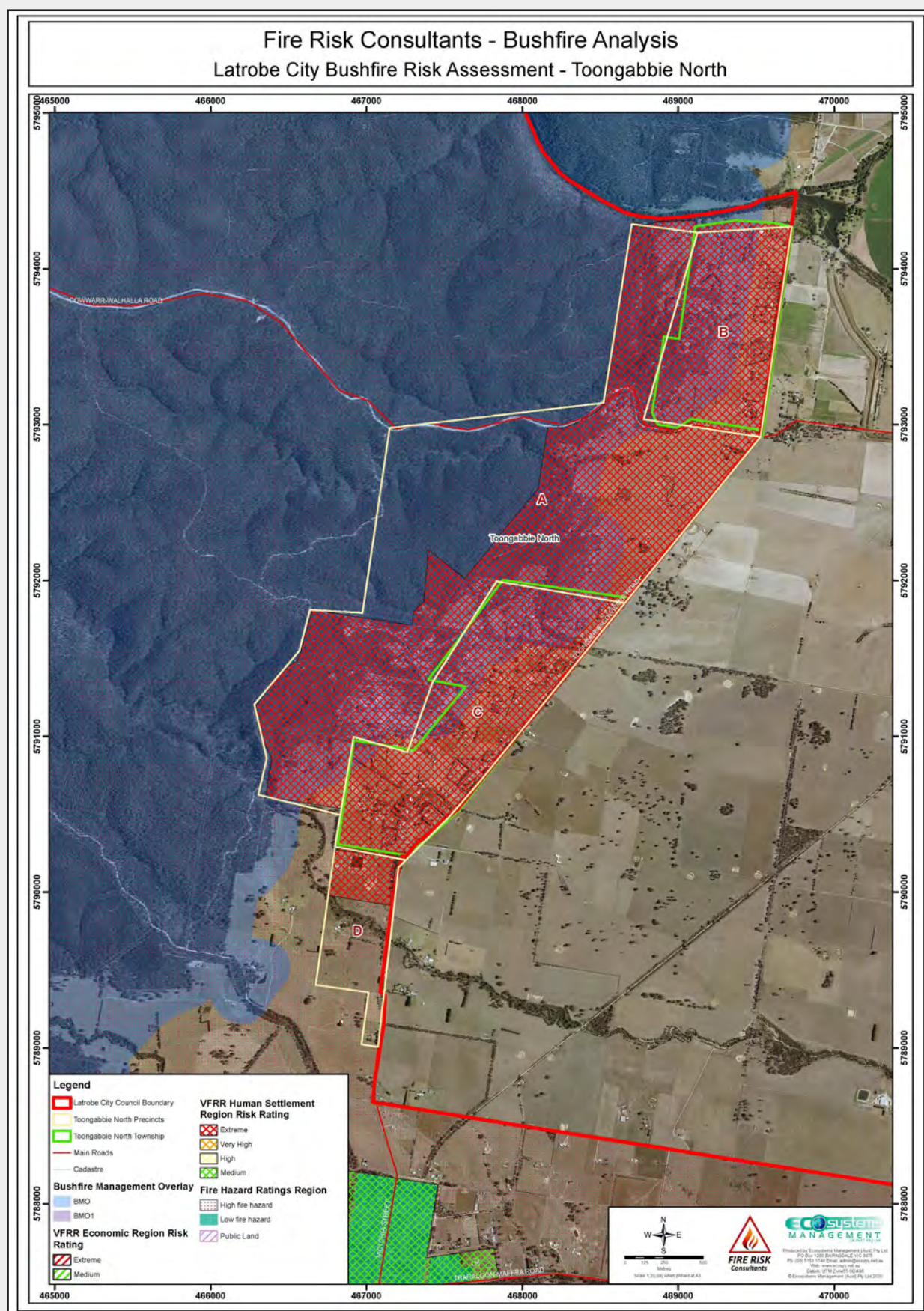


Figure 78 - Toongabbie North precinct and risk analysis map

11.9.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Toongabbie North.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Toongabbie North - Precinct A (FZ1) Score – 40	<p>This precinct consists of private bush along with vacant farm land. The private bush that is connected to the public land to the east would support a bushfire's ability to impact onto the dwellings both existing and proposed.</p> <p>The connection of private forest to the public forest further to the west results in the ability for bushfire to travel well into the residential areas unimpeded.</p> <p>There is a lack of a strategic fuel break to the west of the residential areas that would support back burning or fuel reduction burning operations.</p> <p>Access and egress is very poor from this area due to the amount of vegetation along roadsides along with the close proximity of the public and private forest to the key access and egress route.</p>	<p>The provision of static water supplies should be considered to support firefighting operations.</p> <p>Strategic fuel breaks to be constructed on both public and private land to the west of the residential areas and maintained annually.</p> <p>Undertake fuel reduction burning in the private forested areas to reduce the landscape risk.</p> <p>Undertake fuel management works on roadsides including Foxs and Wykes Roads.</p>	<p>Let the BMO operate as intended.</p> <p>Extend the BMO to the area south of Thompson River to Reservoir road, and west of Toongabbie-Cowwarr Road, resulting in a 'hard edge' to the Overlay.</p>
Toongabbie North - Precinct B (RLZ2) Score – 38	<p>The precinct has poor access and egress arrangements.</p> <p>Private forest adjoins the area to the east with public land further to the west. These areas have been threatened or experienced a bushfire on a number of occasions in recent history.</p> <p>There is a lack of fuel breaks in place between vegetation and forest to the west of this area.</p>	<p>The provision of static water supplies should be considered to support firefighting operations.</p> <p>Strategic fuel breaks to be constructed on both public and private land to the west of the residential areas and maintained annually.</p> <p>Undertake fuel reduction burning in the private forested areas to reduce the landscape risk.</p> <p>Undertake fuel management works on roadsides including Cowwarr – Walhalla Road and Hillier Lane.</p>	<p>Let the BMO operate as intended.</p> <p>Extend the BMO to the area south of Thompson River to Reservoir road, and west of Toongabbie-Cowwarr Road, resulting in a 'hard edge' to the Overlay.</p>
Toongabbie North - Precinct C (RLZ2) Score – 34	<p>This precinct consists of existing dwellings that are located to the west of Toongabbie Cowwarr Road.</p> <p>Patches of forest vegetation create a connection with the forested areas to the west. The forest areas are initially private and then become public land.</p> <p>With the residential development, re-vegetation has occurred which supports a bushfire to travel across the landscape.</p>	<p>The provision of static water supplies should be considered to support firefighting operations.</p> <p>Strategic fuel breaks to be constructed on both public and private land to the west of the residential areas and maintained annually.</p> <p>Undertake fuel reduction burning in the private forested areas to reduce the landscape risk.</p> <p>Undertake fuel management works on roadsides including Cowwarr – Walhalla Road.</p>	<p>Let the BMO operate as intended.</p> <p>Extend the BMO to the area south of Thompson River to Reservoir road, and west of Toongabbie-Cowwarr Road, resulting in a 'hard edge' to the Overlay.</p>
Toongabbie North - Precinct D (FZ1) Score – 31	<p>This precinct is in close proximity to the public and private forests to the west of the site.</p> <p>This area has been threatened or impacted by recent bushfires.</p> <p>Due to the presence of Fells Creek and the associated vegetation along the banks, this would support a bushfire to travel well into the precinct.</p> <p>Access and egress would be challenging during a bushfire.</p>	<p>The provision of static water supplies should be considered to support firefighting operations.</p> <p>Strategic fuel breaks to be constructed on both public and private land to the west of the residential areas and maintained annually.</p> <p>Undertake fuel reduction burning in the private forested areas to reduce the landscape risk.</p> <p>Undertake fuel management works on roadsides including Cowwarr – Walhalla Road.</p>	<p>Rely on Clause 13.02-1S assessment and Municipal Landscape Bushfire Risk Map when considering buildings and works. Rezoning to FZ2 may be appropriate.</p>

Figure 79 - Toongabbie North assessment and treatment table

The map below demonstrates the risk classification for each precinct in Toongabbie North.

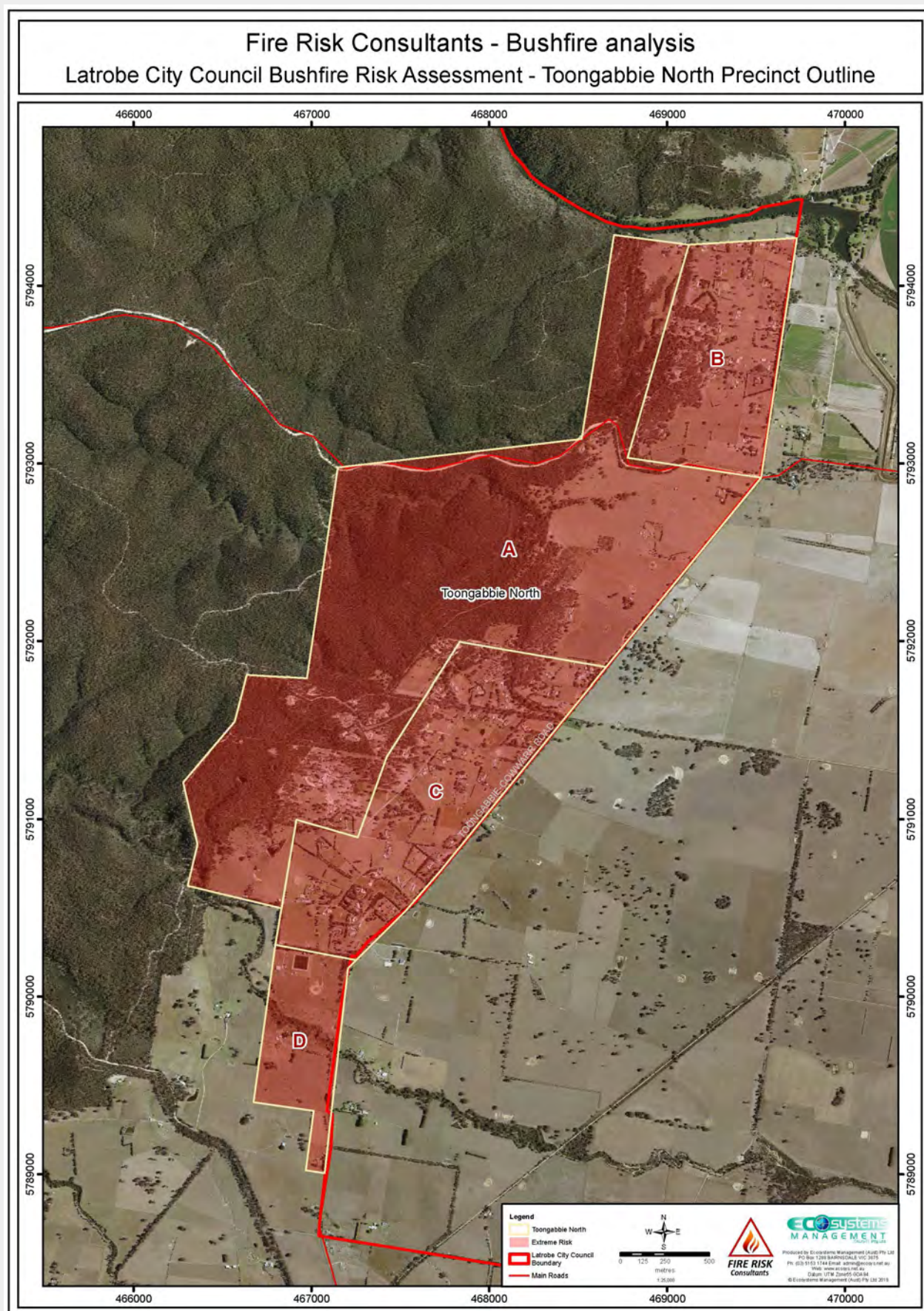


Figure 80 - Toongabbie North risk classification map

11.10 Traralgon South

11.10.1 Location overview

Traralgon South is located in an area of extreme bushfire risk. The risk is largely driven by the reserve to the east of the township and the plantations to the south. However, there are areas with forest vegetation primarily within gullies.

The bushfire scenarios include bushfires impacting on the community from multiple directions. In 2009 the Black Saturday bushfires impacted on this area from the south west and caused life and property loss.

Topography is a key influence for bushfire behaviour within Traralgon South. Due to the undulating landscape bushfire behaviour will be influenced by the topography. This could result in highly erratic bushfire behaviour.

11.10.2 Access and egress

Access and egress from the township is challenging and due to the vegetation along the roadsides could be compromised quickly as a result of strong winds or bushfire impact. During a bushfire the only egress route is to the north towards Traralgon. Whilst there is a sealed road to the south, this is heavily vegetated and would not be a safe option.

11.10.3 Landscape risk assessment

The likely bushfire scenarios that may impact Traralgon South include:

- A bushfire burning within the Traralgon South Reserve when under an easterly that is also influenced by the topography impacts on the township. Whilst bushfire behaviour may be less than that under a north westerly or south westerly, ember attack would likely occur and start spot fires in and around the township.
- A bushfire burning from the north through the plantations and impacts on the township. The main egress route would be compromised quickly and may limit the ability for the community to evacuate.
- A bushfire burning under a south westerly influence and impacts the community. This bushfire would generate ember attack and likely start numerous spot fires in and around the township.

All three scenarios could see parts of the community exposed to direct flame contact and radiant heat. The entire community is likely to be impacted by ember attack during any of the scenarios. Due to the topography within the local area this will likely generate erratic bushfire behaviour in some areas of the township.

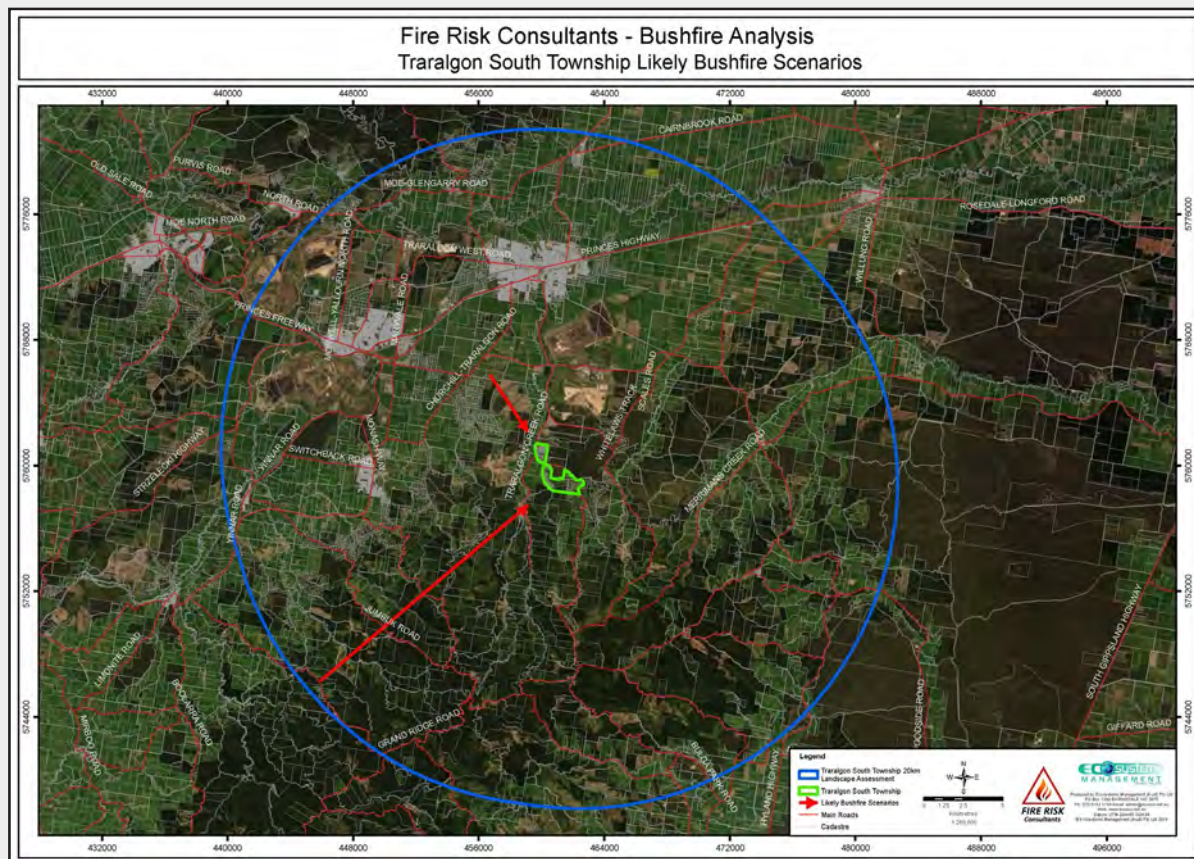


Figure 81 - Traralgon South likely bushfire scenarios (20km)

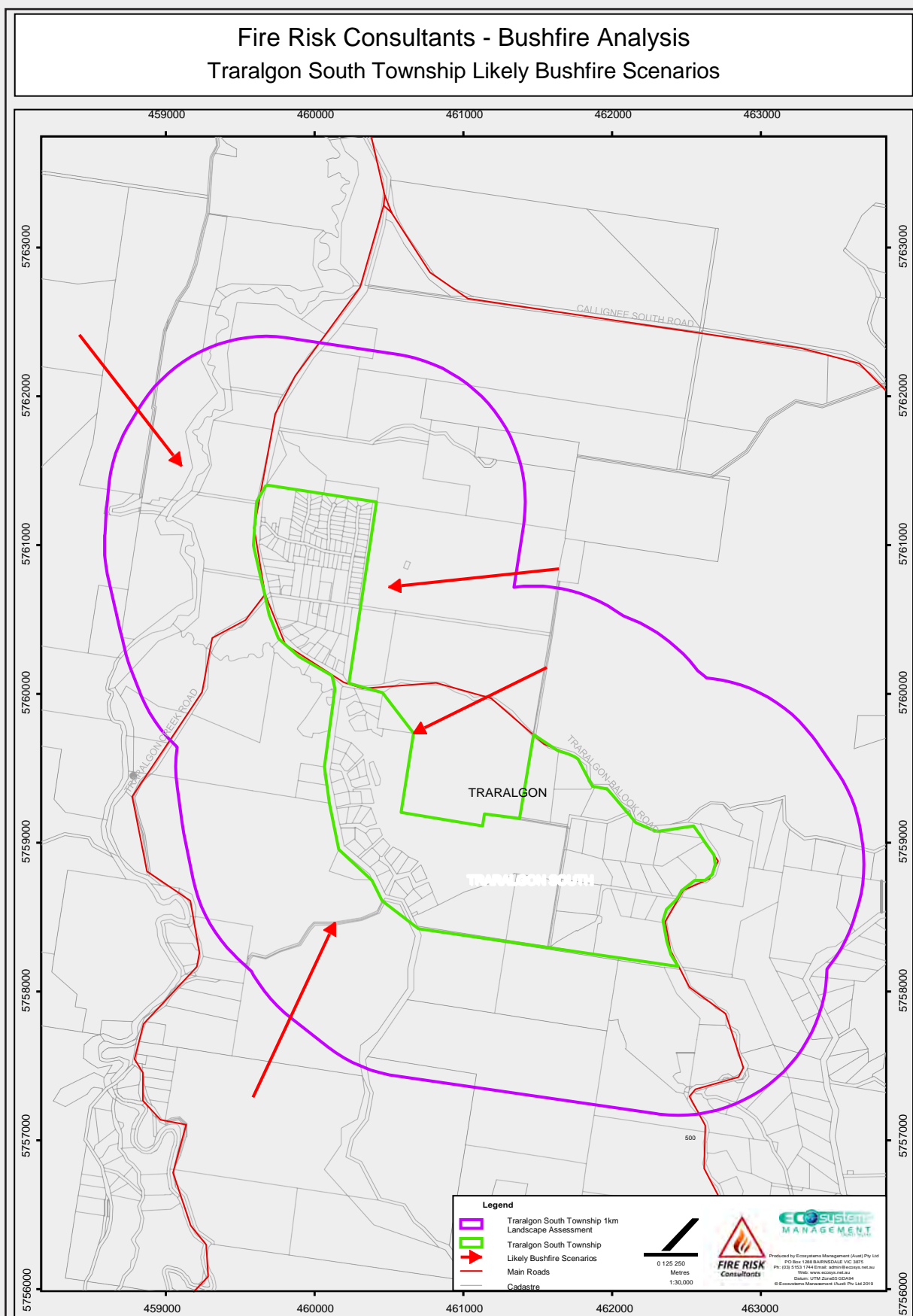


Figure 82 - Traralgon South likely bushfire scenarios (1km)

11.10.4 Development opportunities

Traralgon South does not have a structure plan. There are development constraints including floodplain constraints to the west and surrounding forestry risk. The study area includes existing FZ adjoining the Rural Living Zone 6 (RLZ6) which is owned by HVP who identified the land as surplus to their needs. This could be explored for a rezoning to RLZ. The RLZ6 land could be explored for back zoning to FZ2.

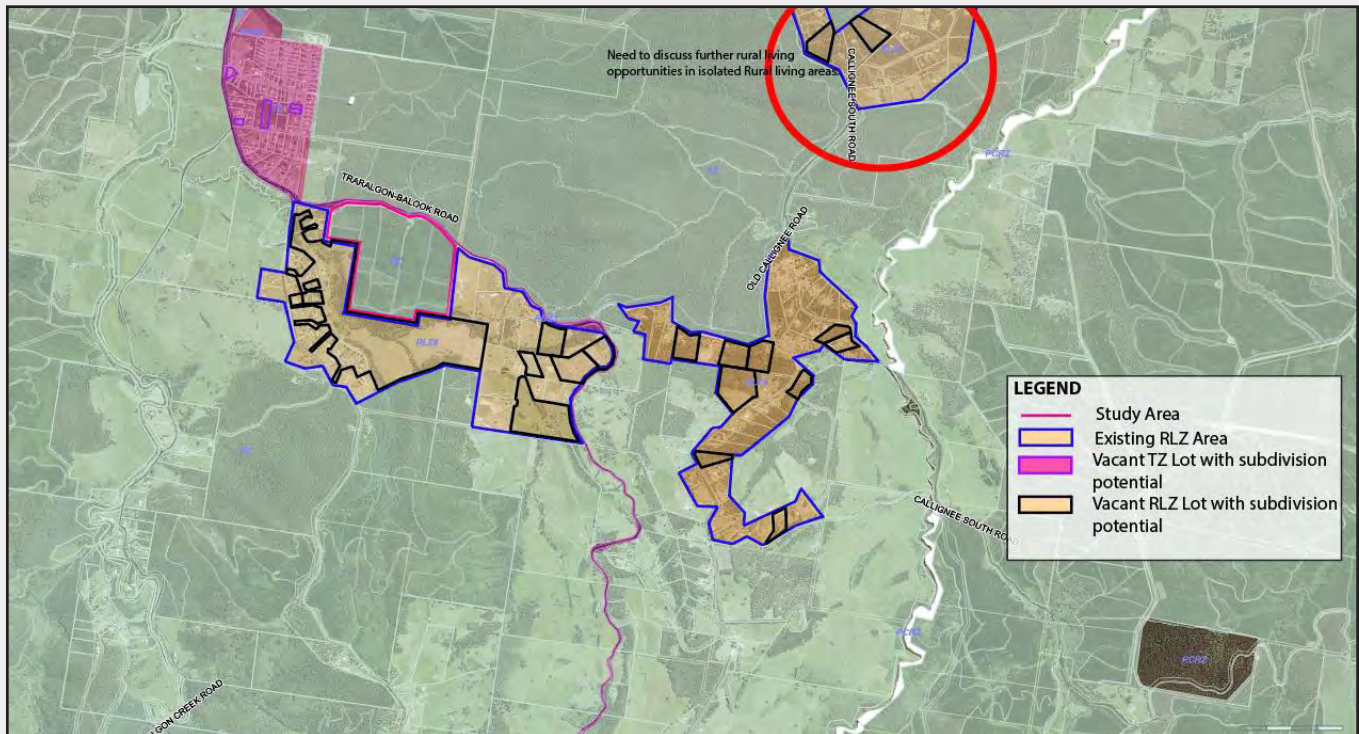


Figure 83 - Traralgon South development opportunities (supplied by LCC)

11.10.5 Scoresheet analysis

The figure below shows the precincts within Traralgon South.

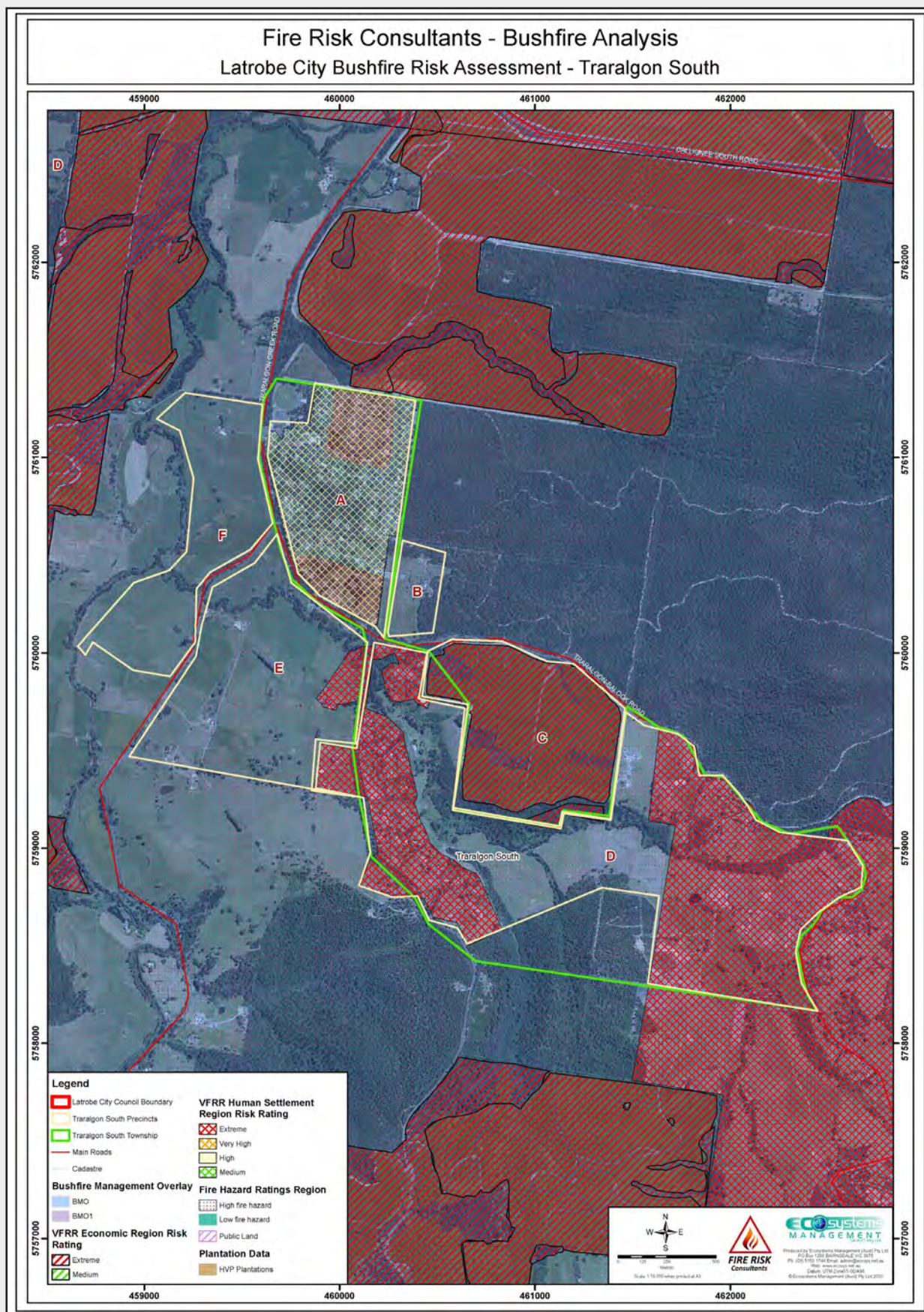


Figure 84 - Traralgon South precinct and risk analysis map

11.10.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Traralgon South.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Traralgon South - Precinct A (TZ) Score – 34	There is a large tract of forest to the east of the township. This vegetation is located behind existing dwellings. A fuel break has been in place for some time. Access and egress is challenging from this precinct due to the vegetation along roadsides within the township and the Traralgon Creek Road. There are patches of vegetation within the township that could support a bushfire.	Increase the width of the existing fuel break on the east and north side of the township between the rear of dwellings and the flora and fauna reserve. Increase roadside vegetation management along the Traralgon Creek Road.	Remove the BMO1 schedule that is in place for a small part of the precinct as this does not address the landscape risk Introduce BMO2 to land west of Cashmere Drive that provides for: <ul style="list-style-type: none"> BAL29 minimum construction Vegetation management to a minimum of 30 m or to the property boundary Water supply as standard Access as required Vegetation management as per Table 6
Traralgon South - Precinct B (FZ1) Score – 34	This precinct is next to the flora and fauna reserve. Access and egress would be challenging during a bushfire.	Increase fuel management programs along roadsides within the precinct. Increase the separation between the private and public forest and the private land. Investigate fuel management programs that reduce the fuel loads within the forested areas.	Let the BMO operate as intended Rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> .
Traralgon South - Precinct C (FZ1) Score – 34	This precinct is currently covered by a plantation. Access and egress along Traralgon Creek Road and Traralgon Balook Road would be challenging during a bushfire. To the north of this precinct is the Traralgon South Flora and Fauna Reserve. To the south of this precinct is further private forest and plantations. In the event that the plantation was removed, it is not likely to reduce the extreme risk that exists within Traralgon South. At the local level, the removal would benefit surrounding properties.	Increase roadside management of Traralgon Creek Road and Traralgon Balook Road. If the planation remains, increase the separation distance along the Traralgon Balook road and on the western side. This will also provide a buffer between the plantation and the Traralgon South Flora and Fauna Reserve.	Discuss increasing the vegetation management buffer between the plantation and rural living properties to the north of RLZ6 with the MFMP. Let the BMO operate as intended Rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> .
Traralgon South - Precinct D (RLZ3) Score – 32	This precinct is adjoining plantations and public and private forest. Access and egress from this area is poor. In particular the western end of the precinct where the community are required to travel along heavily vegetated roadsides to egress from the area.	Increase vegetation management along Traralgon Balook Road and Redhill Road. Increase fuel management within the Traralgon South Flora and Fauna Reserve. Increase the separation between private land and the plantations.	Let the BMO operate as intended Rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> .

Figure 85 - Traralgon South assessment and treatment table

The map below demonstrates the risk classification for each precinct in Traralgon South.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Traralgon South - Precinct E (FZ1) Score – 27	Access and egress from this precinct would be challenging during a bushfire. The precinct adjoins the vegetation along the Traralgon Creek to the west. There are numerous plantations within close proximity to this area.	Increase roadside fuel management programs along Traralgon Creek Road and Redhill Road.	Let the BMO operate as intended. Rezoning for rural living purposes not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> . However, rezoning potential for Farming Zone, Schedule 2 does exist.
Traralgon South - Precinct F (FZ1) Score – 23	Access and egress from this precinct would be challenging during a bushfire. The precinct adjoins the vegetation along the Traralgon Creek to the west. There are numerous plantations within close proximity to this area.	Increase roadside fuel management programs along Traralgon Creek Road and Redhill Road.	Let the BMO operate as intended. Rezoning for rural living purposes not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> . However, rezoning potential for Farming Zone, Schedule 2 does exist.

Figure 85 - Traralgon South assessment and treatment table (continued)

11.10.6 Precinct treatments (continued)

The map below demonstrates the risk classification for each precinct in Traralgon South.

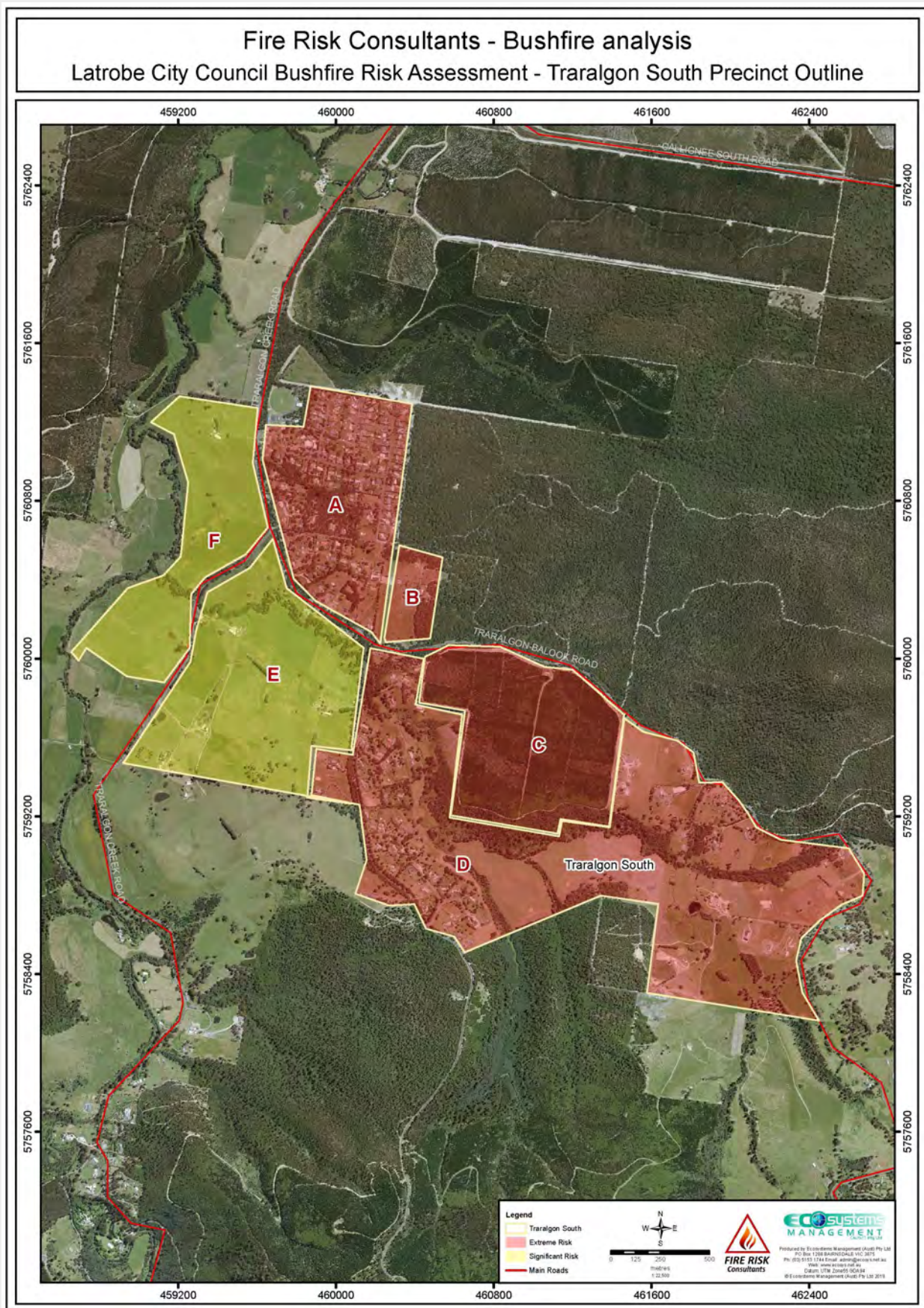


Figure 86 - Traralgon South risk classification map

11.11 Tyers

11.11.1 Location overview

Tyers is a township that is spread over a variety of landscapes including a township, open farming areas and dwellings located in undulating country that is associated with the foothills of the Great Dividing Range. To the north of the locality are large tracts of plantations that immediately abuts public land. The vegetation to the north of the locality extends for some distance. The presence of large tracts of forest vegetation to the north of the township is a key driver for the extreme bushfire risk.

The landscape risk assessment identifies bushfires being able to travel towards the locality under various directions including westerly, northerly and easterly aspects. The existing developments to the north of the township exist in an undulating landscape where bushfire behaviour would likely be erratic and difficult to suppress. This is due to the mix of vegetated gullies and dwellings located primarily on the ridgelines.

The area to the south of the township is in open farmland and whilst it has the potential to experience grassfires, it is at much less risk than the northern parts of the township.

11.11.2 Access and egress

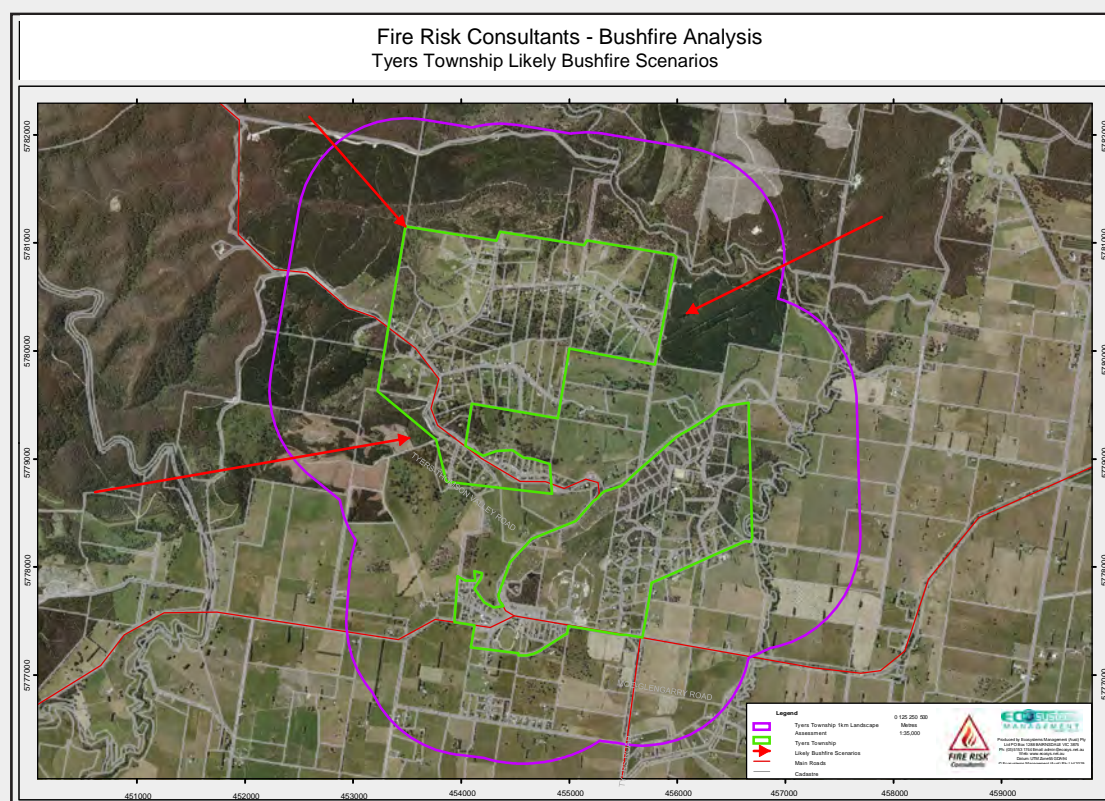
Access and egress for the township and the areas to the south of the township is good. There are multiple options available to leave the township and travel to a safer location. Those residing in the northern areas of the township have limited options available to them to leave the area in the event of a bushfire.

11.11.3 Landscape risk assessment

The likely bushfire scenarios that may impact on Tyers include:

- A bushfire burning in the public land and plantations to the north, west or east and impacting on the township. These bushfires will generate embers that will start spot fires in and around the township. Due to the undulating landscape in the northern section of the township, bushfire behaviour will be erratic and unpredictable.
- A bushfire burning under a south westerly influence and travelling through the farmland and impacting on the southern edge of the township. Due to the layout of the township, the grassfire could penetrate well into the township due to the lack of natural or man made fuel breaks.

Any bushfire that impacts on the township is likely to start numerous spot fires. Bushfires that have been burning for some time north of the township have the potential to approach the township with a wide front. This would likely result in damage to life and property.



11.11.3 Landscape risk assessment (continued)

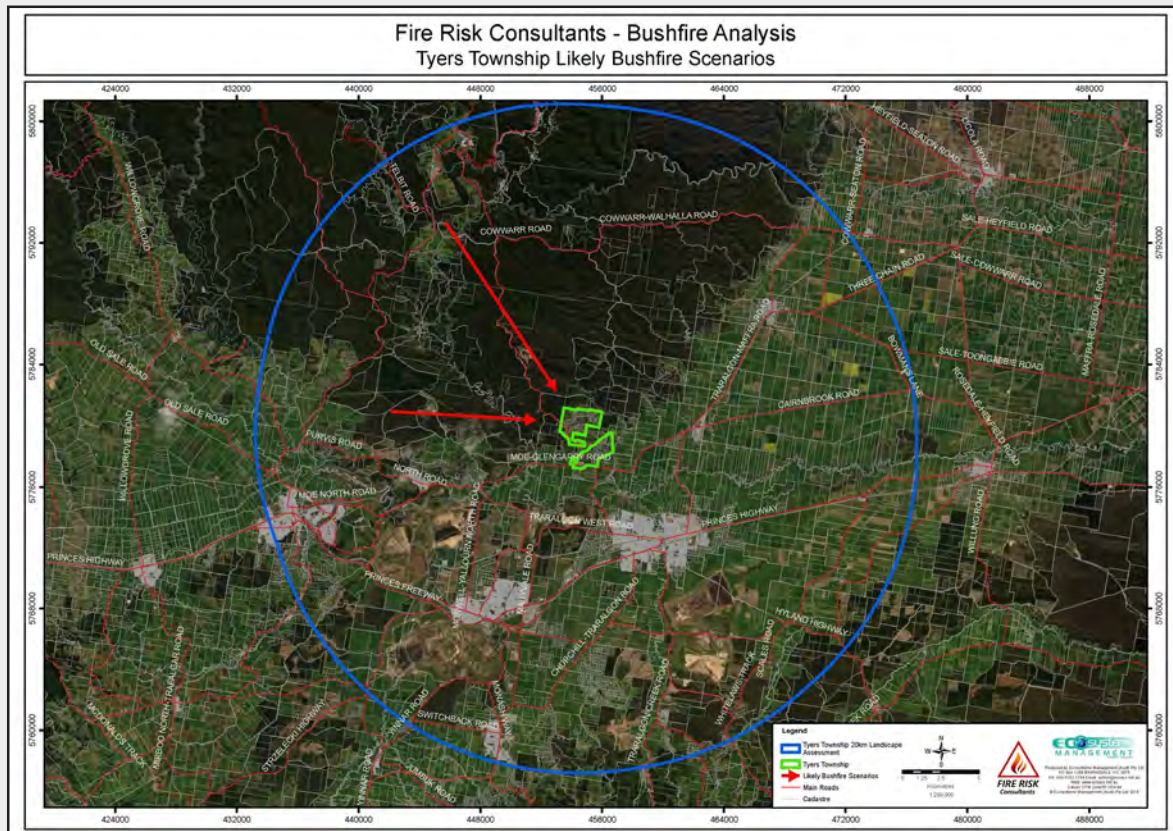


Figure 88 - Tyers likely bushfire scenarios (20km)

11.11.4 Development opportunities

The study areas for proposed Rural Living Zone are in accordance with the current Tyers structure plan. The eastern area is identified for future Rural Living Zone/Low Density Rural Zone opportunity. The land to the west is previously a quarry that has been rehabilitated. A Submission was received through Live Work Latrobe requesting this parcel be zoned to Rural Living Zone.

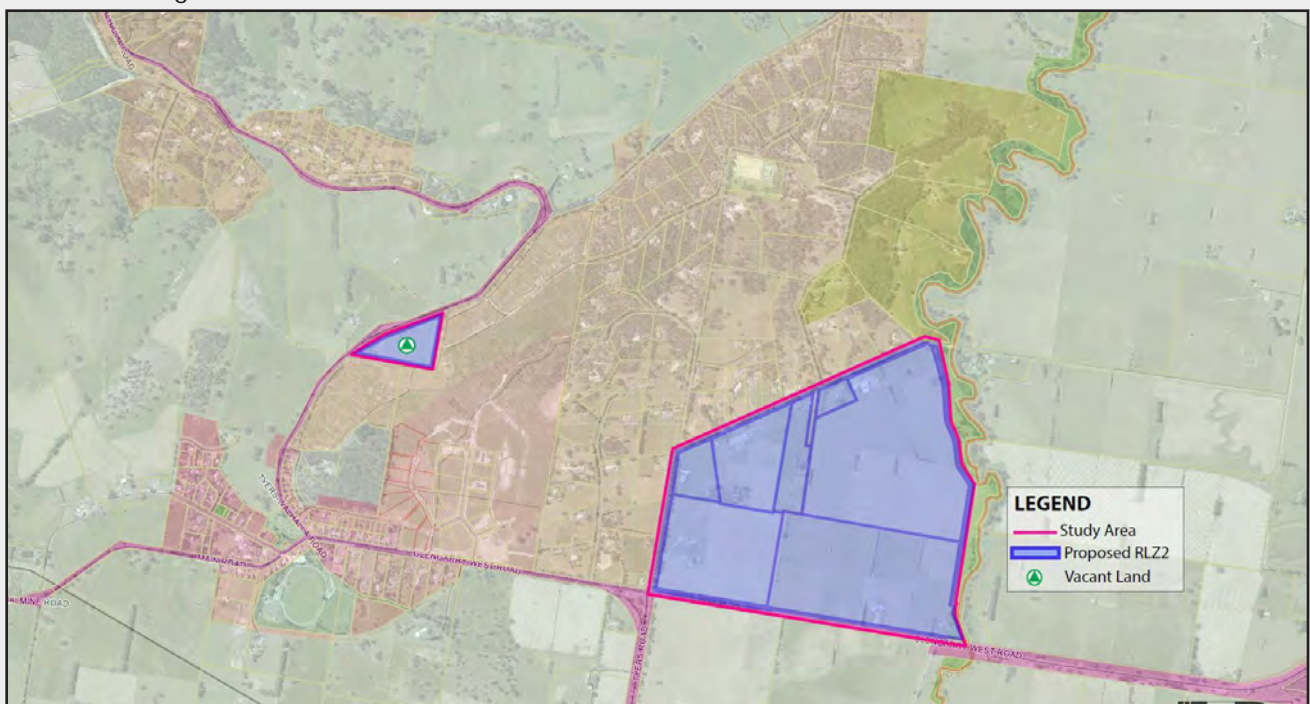


Figure 89 - Tyers development opportunities (supplied by LCC)

11.11.5 Scoresheet analysis

The figure below shows the precincts within Tyers.

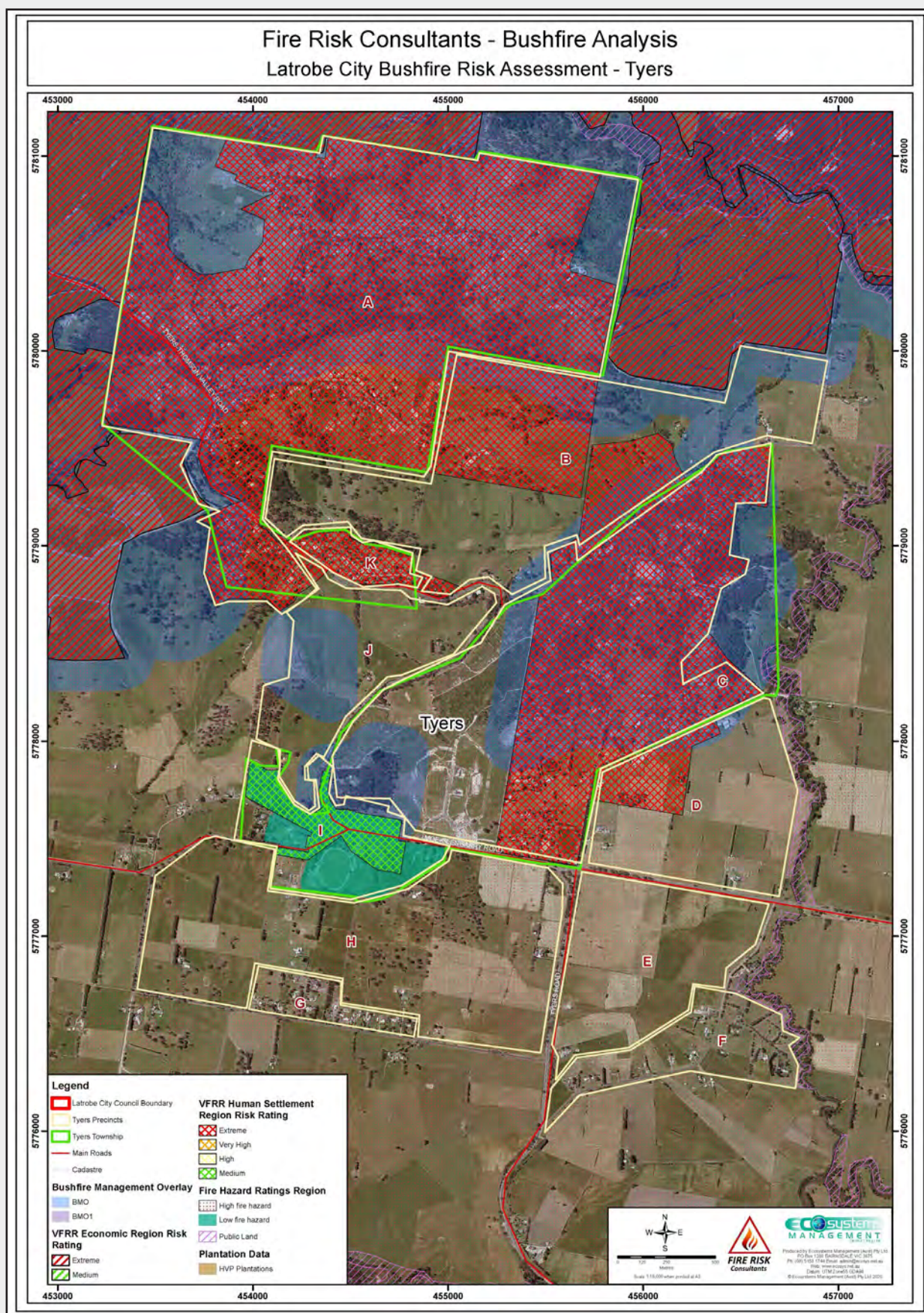


Figure 90 - Tyers precinct and risk analysis map

11.11.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Tyers.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Tyers - Precinct A (RLZ2) Score – 42	Access and egress is challenging from this precinct due to the presence of vegetation along roadsides. The landscape topography is undulating. The majority of the dwellings in this area are located along ridgelines. There are numerous plantations to the north along with forest on public land.	Increase roadside fuel management along the Walhalla Road. Explore increasing the level of separation between the plantations and private land. Ensure areas where re-vegetation activities appear to be in place, are done so in accordance with bushfire considerations being in place.	Extend the BMO south toward Tyers-Walhalla Rd to the junction of Fitzgibbons Road. Introduce BMO2 to land, excluding lots that adjoin plantations, that provides for: <ul style="list-style-type: none"> BAL29 minimum construction Veg management to a minimum of 30 m or to the property boundary Water supply as standard Access as required Veg management as per Table 6
Tyers - Precinct B (FZ1) Score – 42	Access and egress is challenging from this precinct due to the presence of vegetation along roadsides. The landscape topography is undulating. The majority of the dwellings in this area are located along ridgelines. There are numerous plantations to the north along with forest on public land.	Increase roadside fuel management along the Walhalla Road. Explore increasing the level of separation between the plantations and private land. Ensure areas where re-vegetation activities appear to be in place, are done so in accordance with bushfire considerations being in place.	Extend the BMO south towards Tyers-Walhalla Rd to the junction of Fitzgibbons Road.
Tyers - Precinct C (LDRZ & RLZ2) Score – 39	This precinct is located to the north east of the Tyers township. The topography is undulating with some steep slopes present. Whilst a plantation was removed some years ago, there is regrowth occurring that is increasing the risk to the township. Access and egress is reasonably effective from this area. If the southern section of the precinct was assessed separately, it would likely be reduced to a significant risk.	With increased vegetation management this area could potentially reduce to a moderate risk. This would assist the adjoining precincts including the township precinct. Increase vegetation management surrounding the water treatment facility. Increase vegetation management in the private bush adjoining the township. The undulating nature of this precinct increases the risk	Investigate application of a DDO where existing S173 Agreements are not applied on title for onsite vegetation management. Also investigate application of native vegetation removal exemptions to achieve and maintain defendable space under the Schedule to Clause 52.12 or 52.17 for potential DDO areas. Let the BMO operate as intended. Rezoning for rural living purposes not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> . However, rezoning potential for Farming Zone, Schedule 2 may exist.
Tyers - Precinct D (FZ1) Score – 24	This precinct is located to the north of the Moe Glengarry Road. Access and egress is reasonably effective. The topography to the north of the precinct is undulating with the area being flat closer to the Glengarry West Road.	Maintain current fire management treatments.	Let the BMO operate as intended. Rezoning for the precinct as a whole not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> .
Tyers - Precinct E (FZ1) Score – 16	This precinct is located to the south of the Glengarry West Road. The landscape is dominated by grassland mainly associated with farming activities. Access and egress is effective with a number of options available.	Maintain current fire management treatments.	Given the low-risk context, rezoning potential may exist, pending an application presenting an appropriate response to Clause 13.02-1S – <i>Settlement Planning</i> and an assessment against Planning Practice Note 37 Rural Residential Development.

Figure 91 - Tyers assessment and treatment table

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Tyers - Precinct F (RLZ1) Score – 16	This precinct is located to the south of the Glengarry West Road. The landscape is dominated by grassland mainly associated with farming activities. Access and egress is effective with a number of options available.	Maintain current fire management treatments.	No further treatment.
Tyers - Precinct G (RLZ1) Score – 16	This precinct is located to the south of the Glengarry West Road. The landscape is dominated by grassland mainly associated with farming activities. Access and egress is effective with a number of options available.	Maintain current fire management treatments.	No further treatment.
Tyers - Precinct H (FZ1) Score – 16	This precinct is located to the south of the Glengarry West Road. The landscape is dominated by grassland mainly associated with farming activities. Access and egress is effective with a number of options available.	Maintain current fire management treatments.	Given the low-risk context, rezoning potential may exist, pending an application presenting an appropriate response to Clause 13.02-1S - <i>Settlement Planning</i> and an assessment against Planning Practice Note 37 Rural Residential Development.
Tyers - Precinct I (TZ, LDRZ) Score – 25	This precinct covers the township. Access and egress is good. Dwellings are located on small blocks on the southern side and could be exposed to a bushfire coming from the south west. There is a parcel of forest vegetation to the north of the township.	Consider the removal or alteration of the vegetation to the north of the township which will reduce the overall risk to low. Continue to maintain the Glengarry West Road.	Let the BMO operate as intended
Tyers - Precinct J (FZ1) Score – 29	This precinct is located just north of the township and consists of steep slopes. The primary vegetation is grassland associated with farming activities.	Consider removing the plantation that is located within this precinct. The majority of the precinct is too steep to support any further development. The area should be kept in a low fuel state so that it can support the separation between the township and plantations and public land.	Let the BMO operate as intended Rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S - <i>Settlement Planning</i> .
Tyers - Precinct K (RLZ2) Score – 29	This precinct is located along the Tyers – Walhalla Road. The topography is undulating with the dwellings located on the top of the ridgeline. Access and egress would be challenging during a bushfire.	Increase roadside fuel management along the Walhalla Road. Explore increasing the level of separation between the plantations and private land. Ensure areas where re-vegetation activities appear to be in place, are done so in accordance with bushfire considerations being in place.	Extend the BMO south toward Tyers-Walhalla Rd to the junction of Fitzgibbons Road and apply BMO2 to the precinct.

Figure 91 - Tyers assessment and treatment table (continued)

11.11.6 Precinct treatments (continued)

The map below demonstrates the risk classification for each precinct in Tyers.

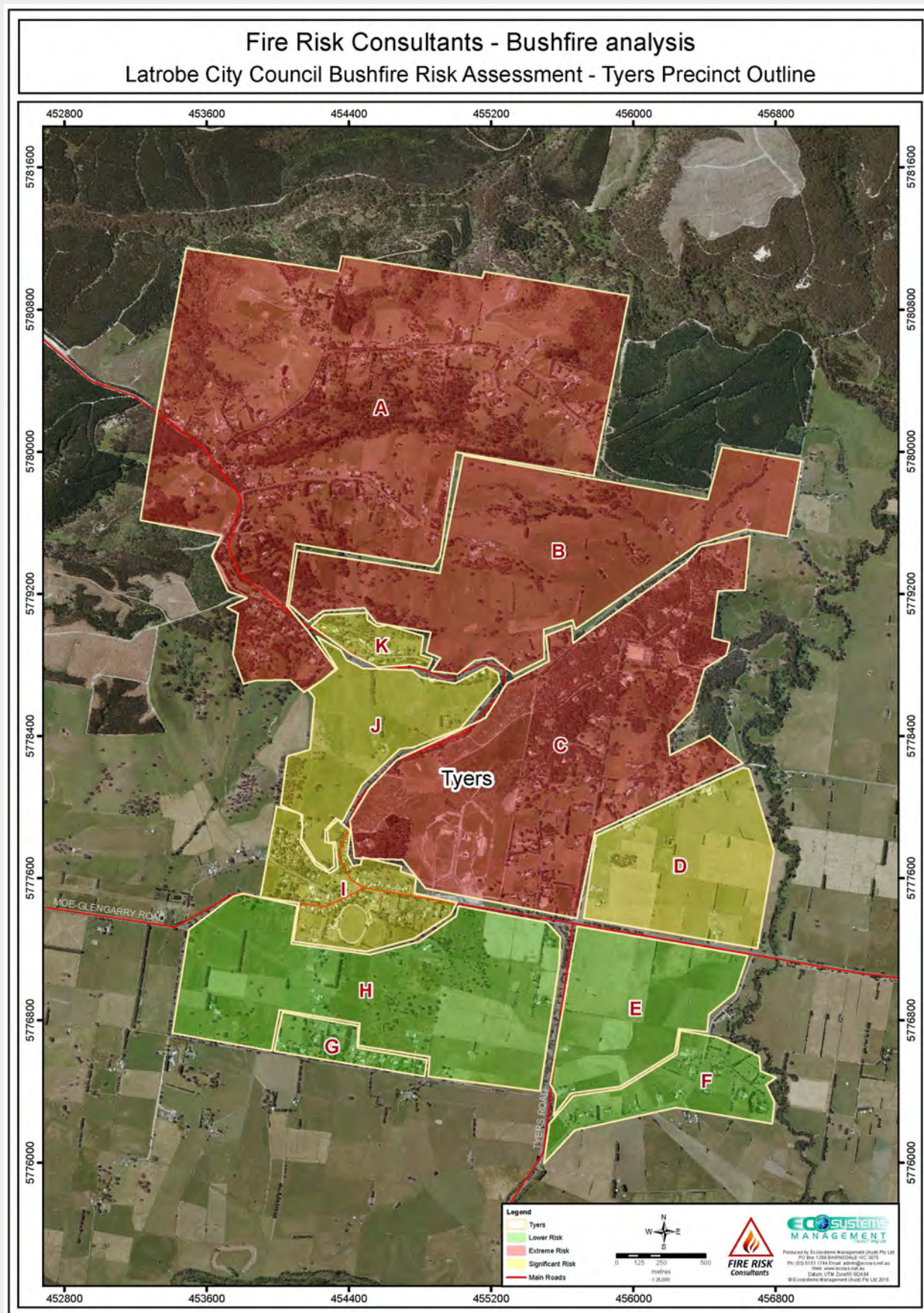


Figure 92 - Tyers risk classification map

11.12 Yallourn North

11.12.1 Location overview

The locality of Yallourn North is situated to the south of large tracts of plantations and public land. There is scattered vegetation surrounding the township associated with both public and private land. Due to the vegetation connections that run north/south, the township is at a significant risk from bushfire.

The township of Yallourn North consists of housing that was largely constructed in the 1950s and 60s. The dwellings would not have been required to achieve any form of bushfire construction measures and would be prone to damage from ember attack.

Recently, a decision by the State Government has seen an area that was cleared, again being utilised as a plantation. This area will support the penetration of bushfires into the Yallourn North township. Engagement has commenced with Vic Forests to ensure effective mitigation plans are in place.

The landscape bushfire risk to the township is complex and a bushfire could impact on the area from a multiple range of scenarios. In addition to this, the topography surrounding the township is undulating and will generate localised bushfire behaviour.

To recognise this risk, the vast majority of the township and the local area is designated as being in the Bushfire Management Overlay and a Bushfire Prone Area.

11.12.2 Access and egress

Access and egress from the Yallourn North township is reasonable with at least two options available to the south of the township. There is a third option to the north however it would be expected that this will be compromised by an approaching bushfire.

11.12.3 Landscape risk assessment

The likely bushfire scenarios that may impact on Yallourn North include:

- Bushfires starting in the public land or plantations to the north of the township. This bushfire event would generate significant ember attack that would impact on Yallourn North and surrounds. Due to the undulating landscape, bushfire travel would be difficult to predict and fire behaviour would be erratic. Depending on the distance between the township and the ignition point, this will determine the scale of the bushfire that impacts on the township. Due to the long tracts of forest vegetation to the north, a bushfire could travel some distance before impacting on the township.
- A bushfire that starts south west of the township and follows the vegetation along the Latrobe River towards the town. Again, this would generate significant ember attack onto the township and fire behaviour would be erratic.

Any bushfire that travels up to the edge of the Yallourn North township will likely generate ember attack into the township. Due to the age of the buildings it would be expected that damage to dwellings will occur.



11.12.4 Development opportunities overview

Land generally north of Kelso Road does not have reticulated sewer available. Given this, further subdivision potential will likely be limited to a minimum lot size of 1 acre for onsite wastewater treatment (septic tank). This would generally equate to a Low Density Residential Zone outcome to be considered during preparation of Structure Plan for the town commencing 2019. Larger lots with significant further subdivision potential have been highlighted.

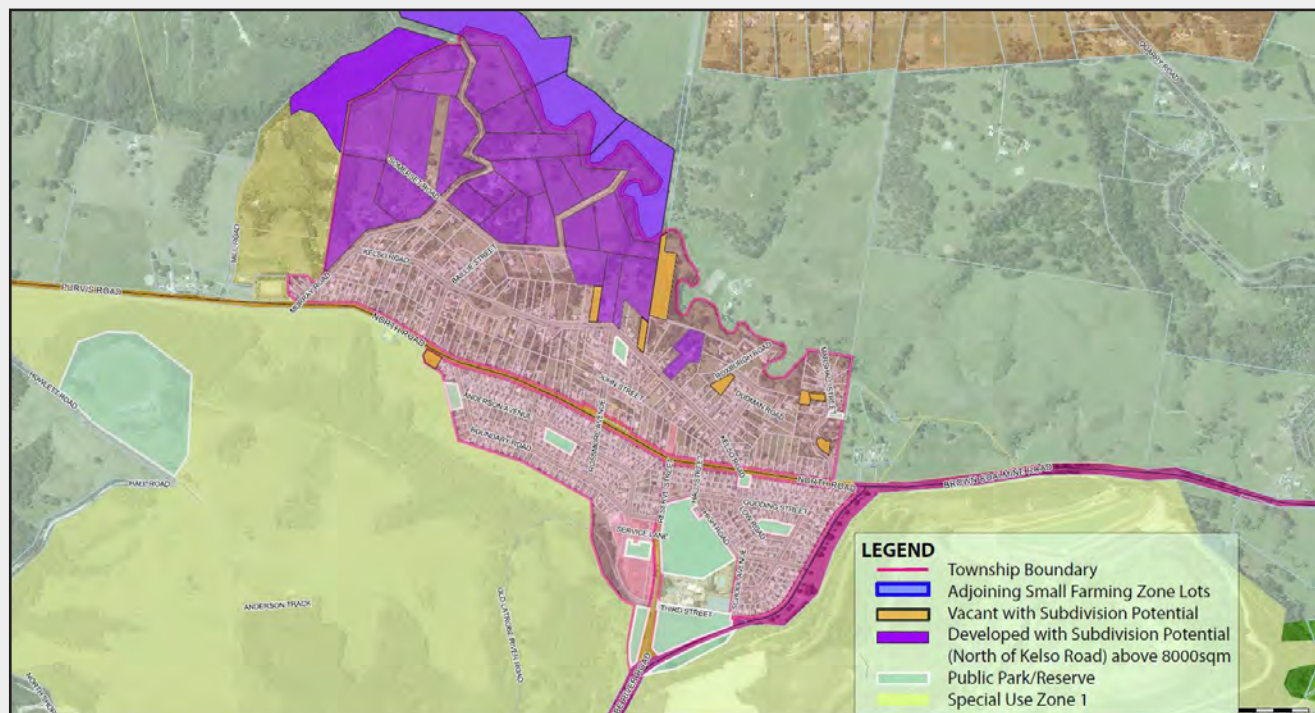


Figure 95 - Yallourn North development opportunities (supplied by LCC)

11.12.5 Scoresheet analysis

The figure below shows the precincts within Yallourn North.

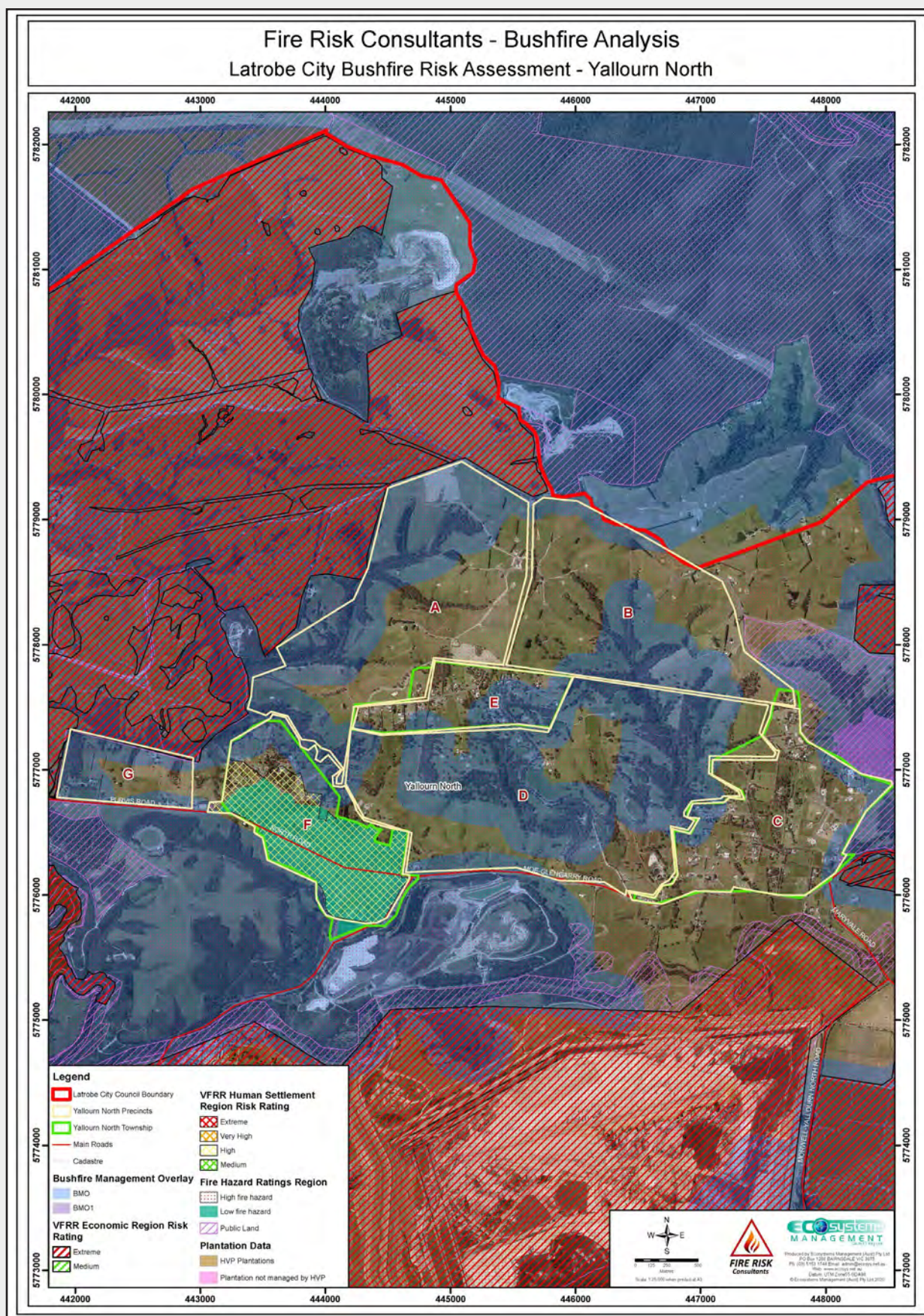


Figure 96 - Yallourn North precinct and risk analysis map

11.12.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Yallourn North.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Yallourn North - Precinct A (FZ2) Score – 38	This precinct abuts the plantations to the north and the landscape is dominated by vegetation in the gullies. Access and egress would be challenging during a bushfire. The topography is undulating	Manage the vegetation within the gullies to reduce fuelloads. Increase the vegetation management on Quarry Road to improve access and egress provisions. Explore the potential to increase the separation distances between the plantations and private land.	Let the BMO operate as intended.
Yallourn North - Precinct B (FZ1) Score – 38	This precinct is directly south of plantations which adjoin public land. Access and egress is poor. The area is undulating with steep slopes present.	Manage the vegetation within the gullies to reduce fuelloads. Increase the vegetation management on Manuels Road to improve access and egress provisions.	Let the BMO operate as intended.
Yallourn North - Precinct C (RLZ1) Score – 29	This precinct does not directly abut plantations or forested areas other than vegetated gullies within close proximity. Access and egress is considered as average.	Establish programs that manage the vegetation within this area so that the risk does not increase over time. Undertake roadside vegetation management programs to improve the ability to access and egress during a bushfire.	No treatment proposed.
Yallourn North - Precinct D (FZ1) Score – 33	This precinct is dominated by an undulating landscape. It includes a mix of heavily vegetated gullies and open farmland. Access and egress is challenging.	Manage the vegetation within the gullies to reduce fuelloads. Increase the vegetation management on Quarry Road to improve access and egress provisions.	Let the BMO operate as intended.
Yallourn North - Precinct E (RLZ1) Score – 29	This precinct is an existing development with large tracts of plantations and forest on public land. Access and egress are considered poor from this precinct with limited options available. This precinct's risk is elevated and was very close to being considered an extreme risk.	Manage the vegetation within the gullies to reduce fuelloads. Increase the vegetation management along roadsides to improve access and egress provisions.	No treatment proposed.
Yallourn North - Precinct F (GRZ1, GRZ4, NRZ4) Score – 31	This precinct is the Yallourn North township. Access and egress is considered poor. There are numerous vegetated gullies to the north and west of the township. Large tracts of plantations and forest areas are to the north of the township.	Undertake vegetation management programs to create appropriate defensible space around the township. Consider engaging with adjoining landowners to undertake fuel reduction burning programs	Extend the BMO to GRZ1 and apply BMO2 to the precinct.
Yallourn North - Precinct G (FZ2) Score – 37	This precinct is to the west of the Yallourn North township and is surrounded by a mix of native forest and plantations. Access and egress would be difficult from this precinct.	Reduce vegetation along Purvis Road to allow for better access/egress.	Let the BMO operate as intended.

Figure 97 - Yallourn North assessment and treatment table

11.12.6 Precinct treatments (continued)

The map below demonstrates the risk classification for each precinct in Yallourn North.

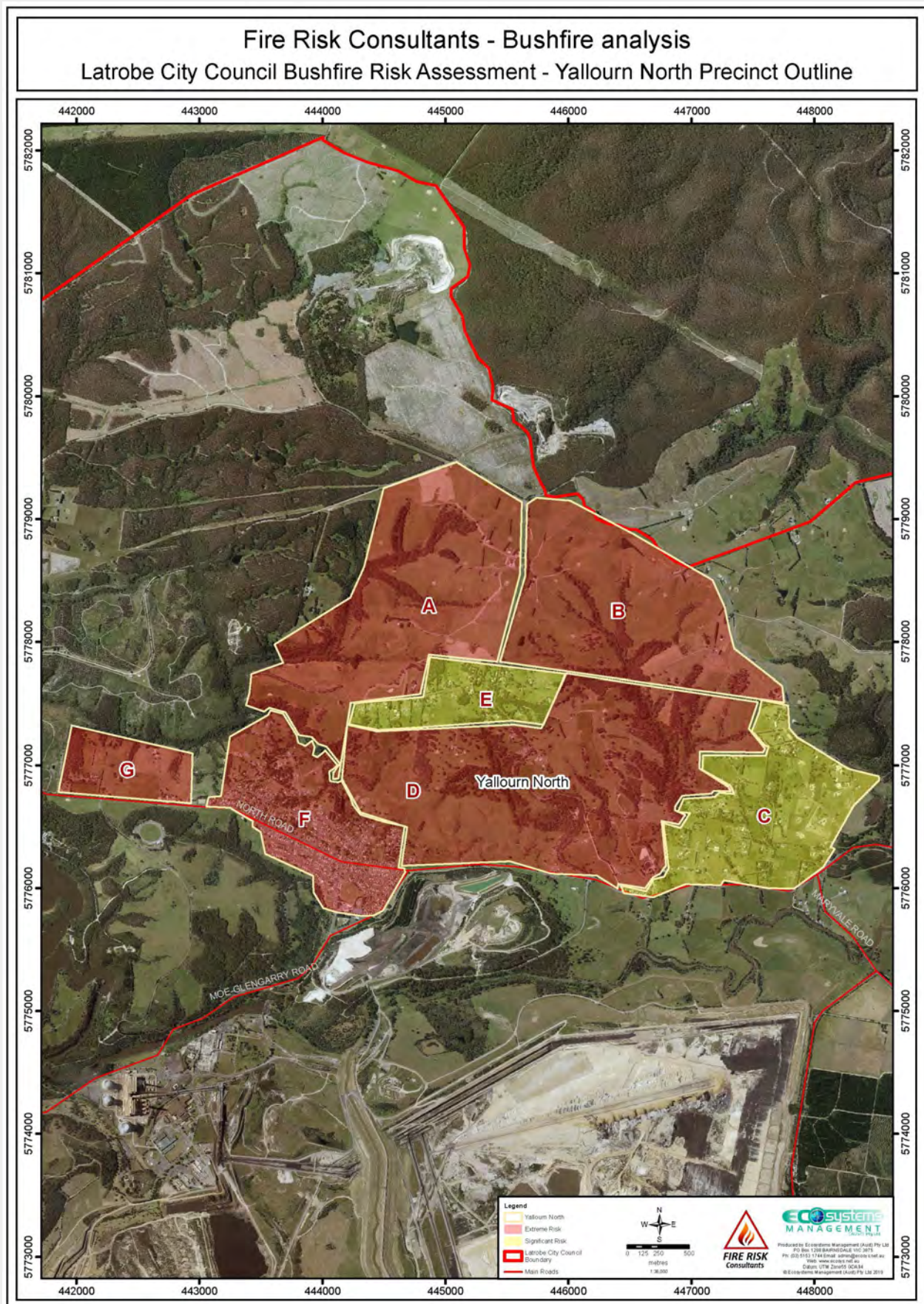


Figure 98 - Yallourn North risk classification map

11.13 Yinnar

11.13.1 Location overview

Yinnar is located to the south of Churchill. It is a community made of the township on the eastern side of the river with some development being allowed in Creamery Road on the western side of the River. There are large parcels of plantations on the western side of the township and parts of these were destroyed during the 2009 bushfires. These bushfires threatened the Yinnar community for a number of days.

Recently, development has been permitted to the south of the existing township. Whilst the analysis has indicated this type of development in this area is satisfactory, it has clearly not been influenced by layout and staging considerations that are influenced by bushfire safety requirements. In particular the importance of maintaining separation from new dwellings and grassland areas during the staged development process.

11.13.2 Access and egress

Access and egress for the majority of the Yinnar community is effective. There are multiple options available to the north in the event of a bushfire. However, as with all locations, late evacuation is a very dangerous practice and roads will likely be affected by bushfires.

11.13.3 Landscape risk assessment

The likely bushfire scenarios that may impact on Yinnar include:

- A bushfire burning under a north westerly influence that impacts onto the Yinnar community. This bushfire would travel through the plantations to the north west of the township. The Morwell River provides some protection to the main township however on high fire danger days its effectiveness would be limited. It would be likely for embers to start spot fires in and around the township and spread through the grassland areas.
- A bushfire burning through the grassland areas surrounding the township and running up to the dwellings. This type of fire would start spot fires ahead of the front.

As the township is provided with multiple access and egress options, evacuation from the township to a safer location would likely be achieved. Again, as with all other locations, late evacuation may not allow this with the bushfire having made these routes unsafe.

Apart from the Creamery Road area where the bushfire would likely impact the location through flame contact and radiant heat, the remainder of the township would likely receive embers.

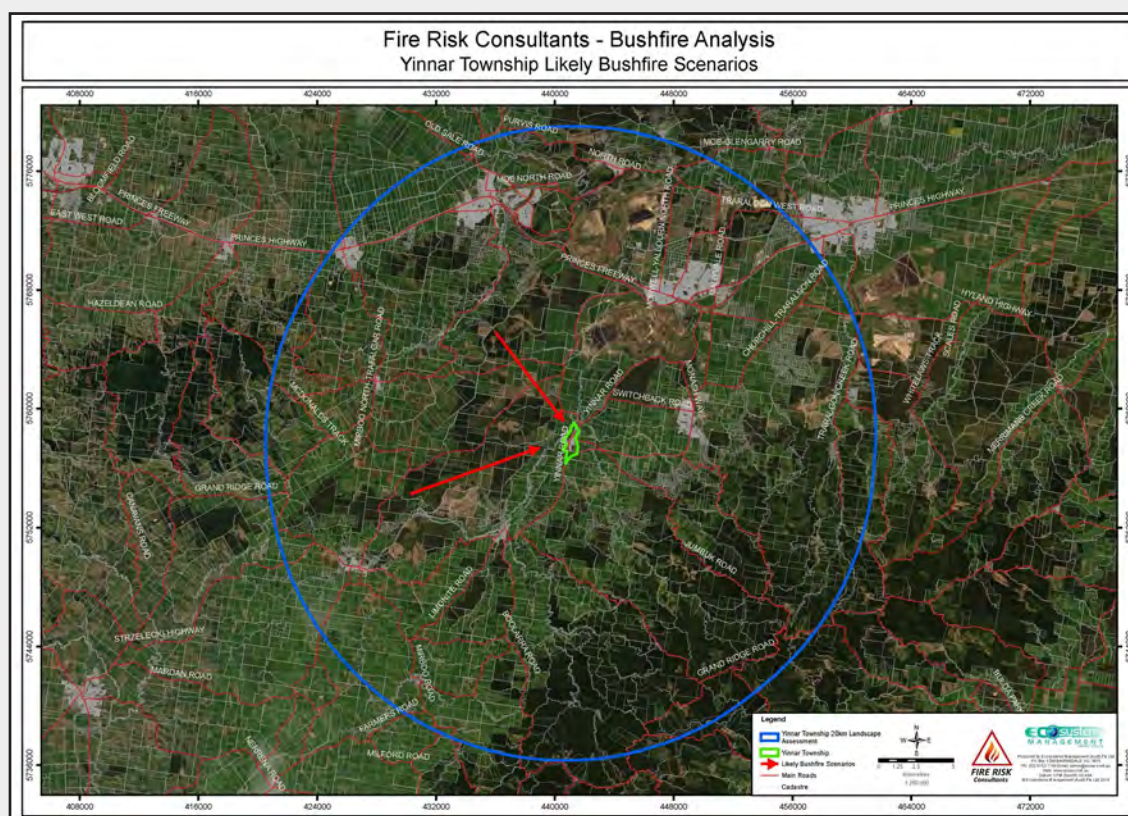


Figure 99 - Yinnar likely bushfire scenarios (20km)

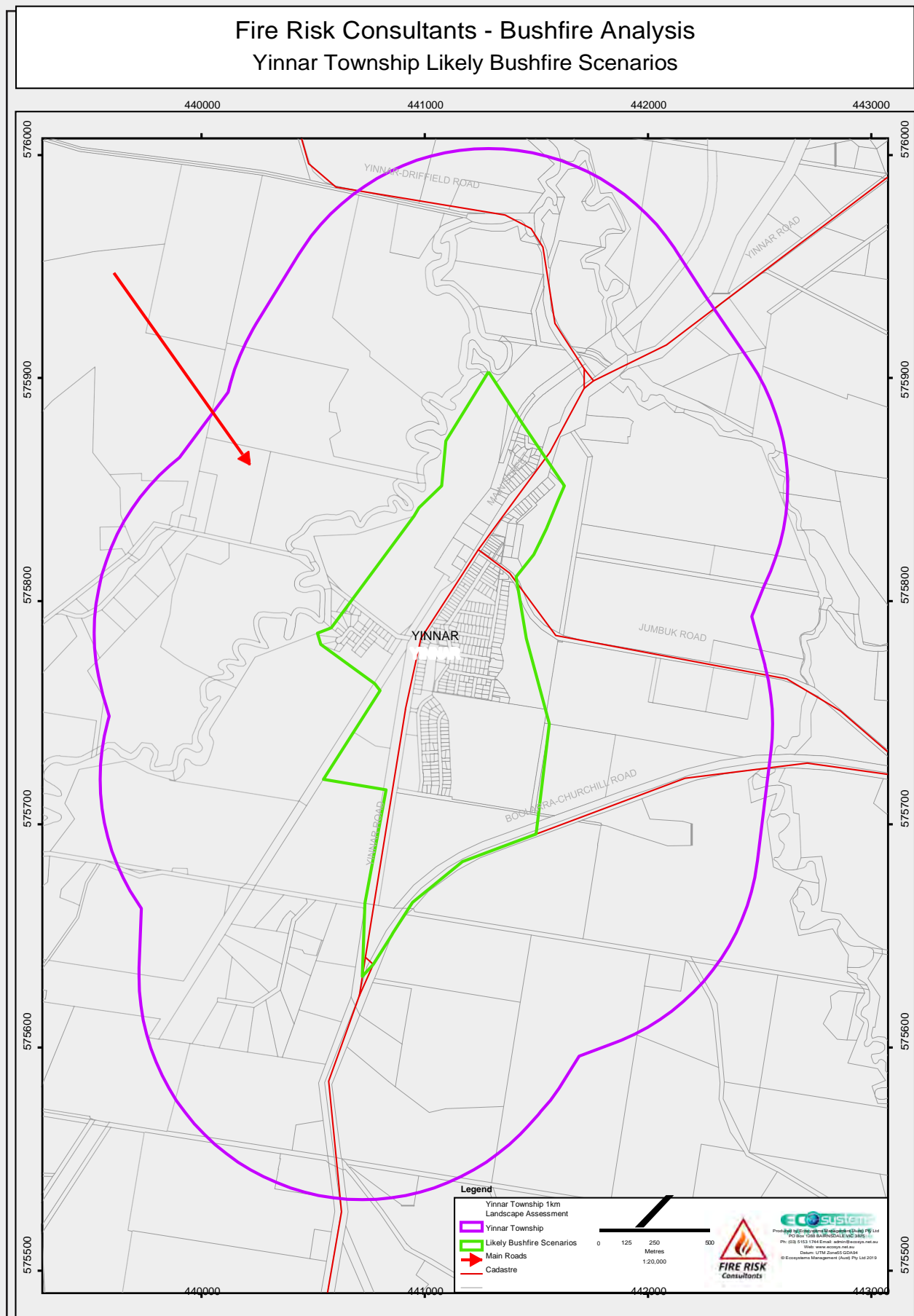


Figure 100 - Yinnar likely bushfire scenarios (1km)

11.13.4 Development opportunities

Assessment of the Yinnar township is considered necessary in terms of future development considerations (in particular large parcels presently within a General Residential Zone). The eastern precinct was identified by Council officers following a review of GIS mapping.

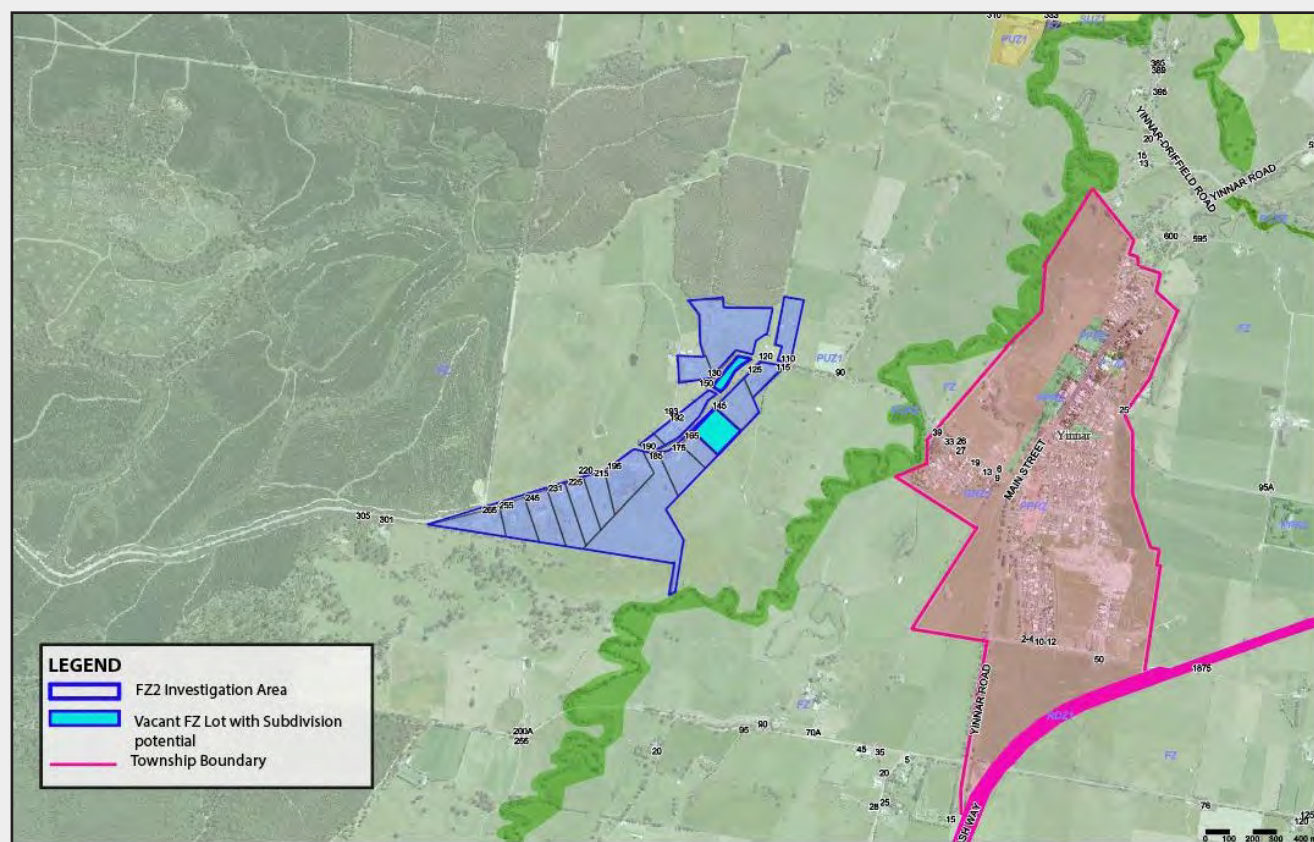


Figure 101 - Yinnar development opportunities (supplied by LCC)

11.13.5 Scoresheet analysis

The figure below shows the precincts within Yinnar.

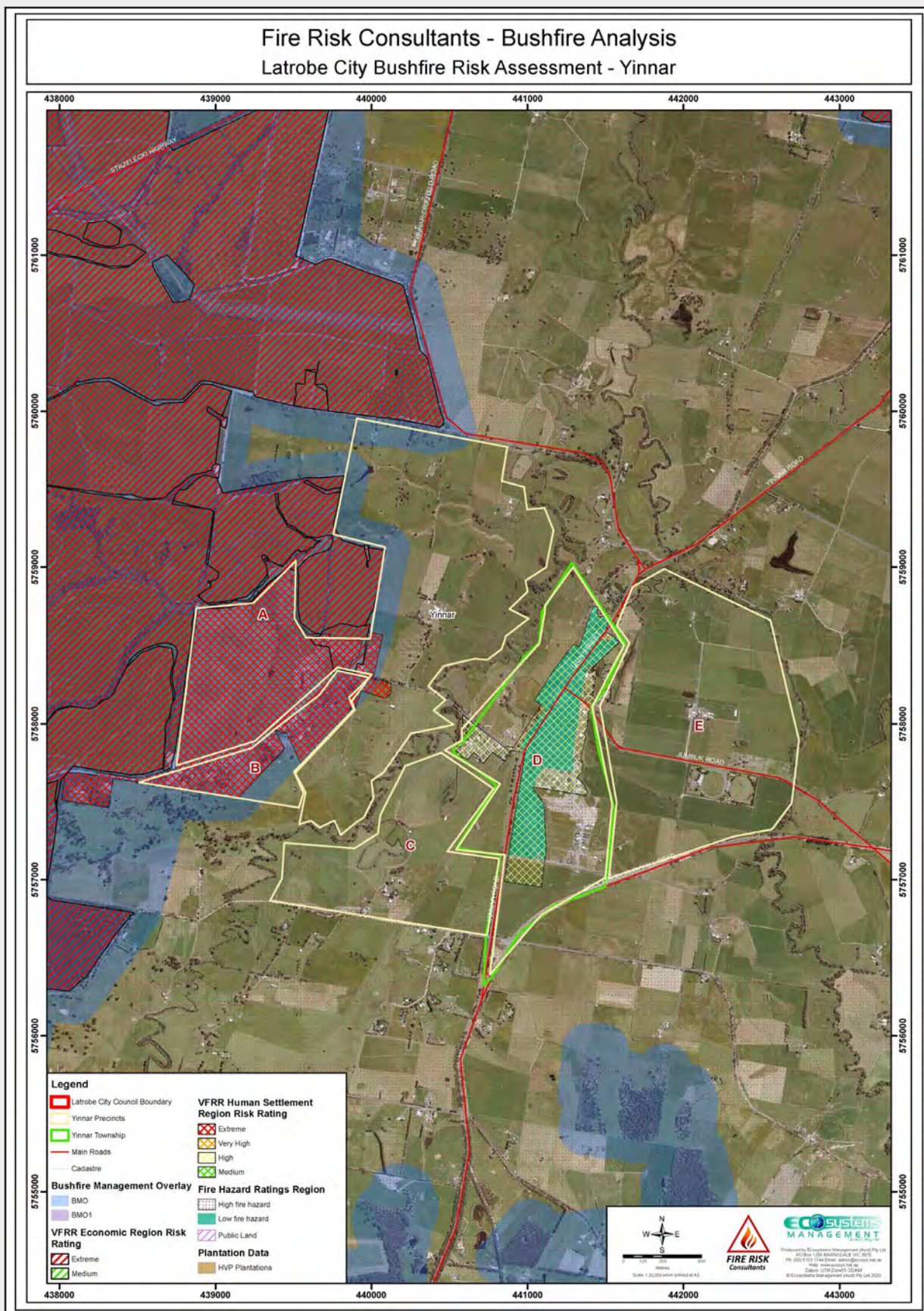


Figure 102 - Yinnar precinct and risk analysis map

11.13.6 Precinct treatments

The table below outlines the precinct assessments and proposed treatments for Yinnar.

Precinct	Bushfire Risk Analysis Findings	Proposed Fire Management Treatments	Proposed Bushfire Planning Treatments
Yinnar - Precinct A (FZ1) Score – 33	The western edge of this precinct is nestled within the plantations. Access and egress from the western side of the River would likely be challenging and would be easily compromised by a bushfire. If the eastern areas of this precinct were assessed separately, it is likely for it to be a significant risk.	Improve the roadside vegetation management along Creamery Road to allow for better access and egress.	Let the BMO operate as intended. Rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> .
Yinnar - Precinct B (FZ1) Score – 32	This precinct contains existing dwellings. Access and egress would be difficult during a bushfire.	Improve the roadside vegetation management along Creamery Road to allow for better access and egress. Explore opportunities to reduce fuel around the existing residential development along Creamery Road.	Let the BMO operate as intended. Rezoning for rural living purposes not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> . However, rezoning potential for Farming Zone, Schedule 2 does exist.
Yinnar - Precinct C (FZ1) Score – 16	This precinct is located to the east of the river. Effective access and egress is available.	Maintain current fire management treatments.	Albeit in a 'low risk' area, rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> .
Yinnar - Precinct D (NRZ4) Score – 17	This is the existing township. Access and egress is effective.	Maintain current fire management treatments.	Apply Clause 13.02 landscape risk assessment to all subdivision applications, seek a staged approach where possible that avoids residential lots abutting hazards. Greater thought to be applied when considering access layout and connecting roads.
Yinnar - Precinct E (FZ1) Score – 16	This precinct is located to the east of the river. Effective access and egress is available.	Maintain current fire management treatments.	Albeit in a 'low risk' area, rezoning not supported as it does not present an appropriate response to the tests at Clause 13.02-1S – <i>Settlement Planning</i> .

Figure 103 - Yinnar assessment and treatment table

11.13.6 Precinct treatments (continued)

The map below demonstrates the risk classification for each precinct in Yinnar.

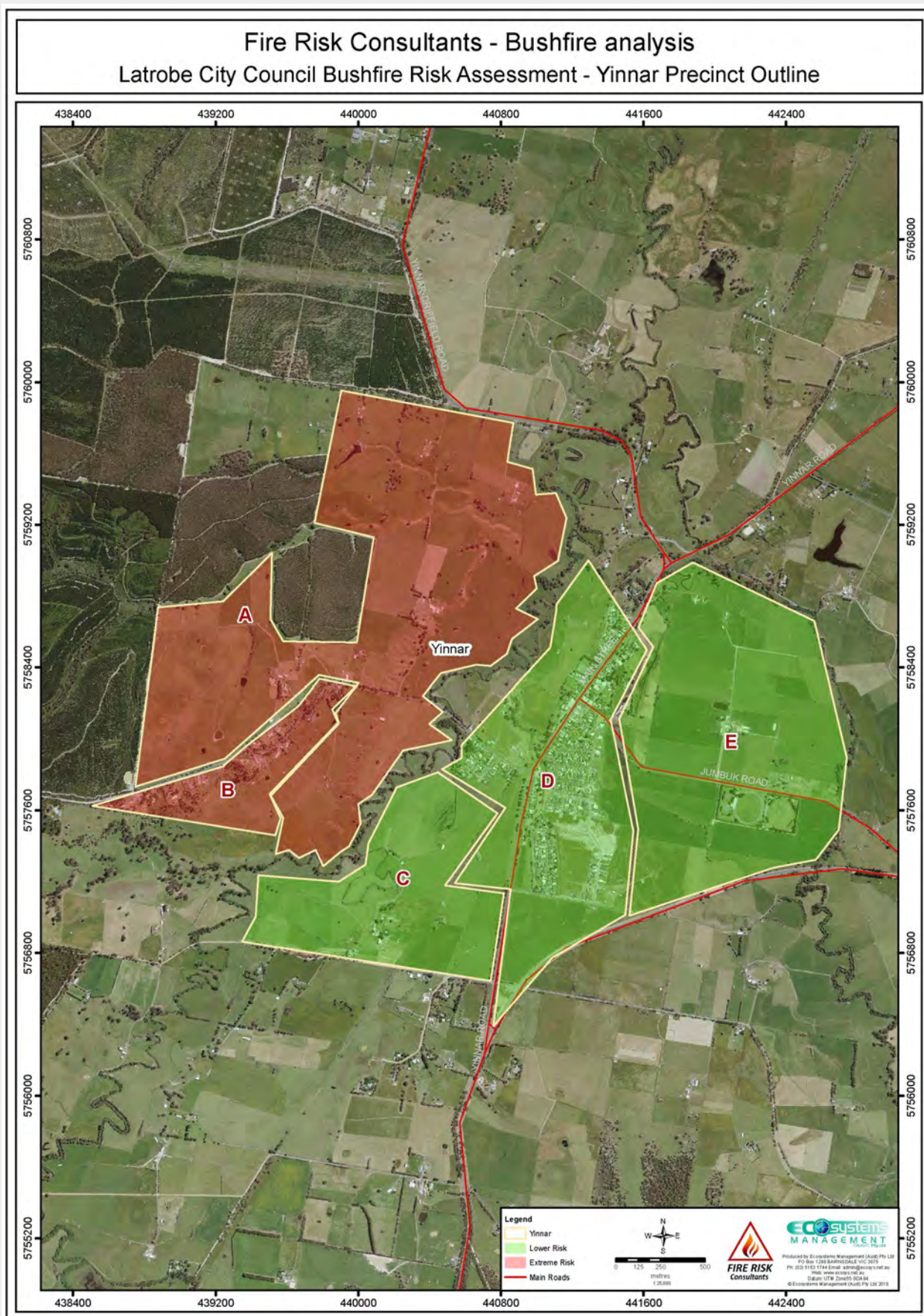


Figure 104 - Yinnar risk classification map

12 RECOMMENDATIONS SUMMARY

Provided below is a consolidated list of recommendations which respond to the assessment of bushfire risk across the Latrobe City municipal area and selected precincts.

These recommendations are intended to inform future land use planning policy and decision making whilst also supporting greater alignment with fire prevention and mitigation activities outlined by the Municipal Fire Management Plan (MFMP).

Recommendations to review and improve the function and focus of the Municipal Fire Management Planning Committee (MFMP) are also included, acknowledging the forthcoming changes to be introduced by Emergency Management Victoria (EMV).

It is acknowledged that responsibilities for consideration of bushfire risk in land use planning and risk reduction activities are shared across various stakeholders, and that Latrobe City Council will play different roles in the implementation of recommendations and that this will require the support, partnership and at times direction from a range of partners.

12.1 Council's role

Council responsibilities will vary between the roles of Planner, Provider, Advocate, Partner, Educator and Regulator. A description of these various roles is provided below:

- Planner – in relation to its strategic and statutory planning responsibilities.
- Advocate – representing community needs and interests to Commonwealth, State Governments and the private sector.
- Partner – working closely with various agencies, authorities, developers, special interest groups, committees and industries which share responsibilities or interest in bushfire risk planning, management and mitigation.
- Educator – provide information to community, prospective developers, permit applicants and special interest groups.
- Regulator – ensuring those property owners, land managers, industry and the broader community meet town planning, building and land management obligations in relation to responding to and reducing community and asset exposure to bushfire risk.

12.2 Partner organisations

The implementation of a number of recommendations will require participation and collaboration with various State, regional and local organisations and industry. These include, but are not limited to the agencies listed below. Many of these organisations were consulted during the completion of the project. It is recommended that Council continue to collaborate on implementation of recommendations as necessary, including its role on the MFMP.

- Department of Environment, Land, Water and Planning (Regional Planning Office)
- Country Fire Authority (District 27)
- Country Fire Authority (Policy and Planning Divisions)
- MFMP
- Parks Victoria
- Victoria Police
- Industry
- Community

12.3 Priority

Recommendations have been prioritised into high, medium, low and ongoing. It is acknowledged that the allocation of resources will be subject to further consideration by Council and partners along with future funding opportunities. This may alter the suggested priority, timing and implementation of recommendations outlined. The indicative timeframe for completing prioritised actions is as follows:

- High – Action to occur over the next 1-2 years
- Medium – Action to occur over the next 3-5 years
- Low – Action to occur over the next 6+ years
- Ongoing – Action to be undertaken on an ongoing basis

12.4 Recommendations Table

The recommendations below are provided to Latrobe City Council to support improved community safety, preparedness and resilience to Bushfire. It is acknowledged that actioning these recommendations will require the continued participation of community and the multiple agencies currently taking action and which share responsibilities for bushfire risk planning and prevention.

The following summary table is provided to enable Council to allocate priorities and partners. Further work will then be required to investigate practical implementation and costs of projects.

Recommendations Summary	Priority	Council Role	Partner
Recommendation 1: Council remain an active participant on the Municipal Fire Management Planning Committee to support cooperative bushfire fuel reduction works necessary to reduce the risk and impact of bushfire to community, assets and biodiversity.	Ongoing	Partner	Municipal Fire Management Planning Committee (MFMP)
Recommendation 2: Council encourages the MFMP to review their role and ensure an achievable works plan is in place to manage the numerous plans and multiple stakeholders.	High	Advocate	MFMP
Recommendation 3: Council request that the MFMP review and report annually on the implementation and effectiveness of identified treatments included within the MFMP.	High	Advocate	MFMP
Recommendation 4: Communicate to all Agencies and Organisations that are involved in fire management planning of the importance to communicate changes to bushfire risk analyses to the MFMP.	High	Advocate	MFMP DELWP Country Fire Authority (CFA) Fire Rescue Victoria (FRV) Parks Victoria
Recommendation 5: Council encourage the MFMP to introduce a process that requires consideration of alternate treatments when a planned treatment is not implemented, resulting in appropriate alternate risk mitigation.	High	Advocate	MFMP
Recommendation 6: Introduce a local Bushfire Policy to the Latrobe Planning Scheme that requires consideration of the MFMP and Municipal Landscape Bushfire Risk Map to inform settlement planning and statutory planning assessments.	High	Planner	Nil
Recommendation 7: Apply a Development Plan Overlay to guide precinct scale subdivision to ensure a robust siting and design response to identified bushfire risk.	High	Planner	DELWP CFA FRV
Recommendation 8: Introduce planning mechanisms that require ongoing bushfire fuel management and ensure that no increased bushfire risk is created following the approval of new developments.	Ongoing	Planner	DELWP CFA FRV
Recommendation 9: Extend the Bushfire Management Overlay (BMO) to those locations (not presently included within the BMO) that are identified on the Bushfire Risk Landscape Map as being located in an area of extreme landscape bushfire risk.	High	Planner	DELWP CFA FRV
Recommendation 10: Review locations to which Schedule 1 to the BMO presently applies to ensure that the requirements present an adequate response to the landscape bushfire risk.	Medium	Planner	DELWP CFA FRV
Recommendation 11: Introduce a new BMO Schedule (BMO2) to precincts identified at Extreme Risk within Traralgon South, Tyers and Yallourn North seeking to mandate a minimum BAL - 29 building construction standard with 30 m defensible space.	High	Planner	DELWP CFA FRV
Recommendation 12: Within extreme and significant bushfire risk locations, explore and apply statutory planning permit conditions for ongoing fuel management. This should include the consideration of 173 agreements and/or a Schedule to Clause 52.17 that aligns with the DDO areas proposed.	High	Planner	DELWP CFA FRV

Recommendations Summary	Priority	Council Role	Partner
Recommendation 13: Explore appropriate landscape settings and prepare a Native Vegetation Precinct Plan to direct native vegetation offsets outside urban areas, urban interface and rural living areas in accordance with <i>Guidance for the Preparation of Native Vegetation Precinct Plan (NVPP)</i> , December 2017.	High	Planner	DELWP CFA FRV
Recommendation 14: Promote awareness of the Bushfire Protection Exemptions at Clause 52.12 with a view to see enhanced vegetation management around existing dwellings, other buildings used for accommodation, and fences.	Ongoing	Planner and educator	Nil
Recommendation 15: Support communities situated in high bushfire risk landscapes to prepare bushfire fuel management plans, utilising guidelines and principles outlined by the Bushfire Fuel Management Guide May 2018.	Ongoing	Educator	MFMP CFA FRV
Recommendation 16: Seek the support from the MFMP to review the purpose, location and management of strategic and primary fire breaks across Latrobe City and update MFMP accordingly. This review should consider the establishment of additional fire breaks where they may provide greater protection for communities, assets and important biodiversity values in either Extreme or Significant Bushfire risk landscapes.	High	Advocate	MFMP
Recommendation 17: Council introduce a compliance inspection program that enforces the requirements of Planning Permits.	Medium	Planner	Nil
Recommendation 18: Council encourages the MFMP to develop a list of key access/egress roads within the Latrobe City footprint and include these in the MFMP.	High	Advocate	MFMP
Recommendation 19: Council encourages the MFMP to develop a consistent treatment/prescription description for key access/egress roads and include this in the MFMP.	High	Advocate	MFMP
Recommendation 20: That Council work with the CFA and MFMP to review roadside fuel management and regulatory barriers in order to actively reduce fuel management of identified priority roadsides necessary for safe access and egress.	Medium	Partner	MFMP FRV CFA
Recommendation 21: That Council advocate for revisions to Clause 52.17 as recommended by the 2009 Bushfire Royal Commission and subsequently adopted by the State Government.	High	Advocate	DELWP
Recommendation 22: To support greater community resilience and their ability to respond and act to bushfire, explore ongoing funding and increased utilisation of the fire detection/thermal imaging capability of the Latrobe Valley Intelligence Network (LVIN).	Medium	Planner	LVIN
Recommendation 23: In partnership with key agencies and community, continue to support community-based programs to support community awareness and preparedness for bushfire.	Ongoing	Partner	MFMP CFA FRV
Recommendation 24: Undertake a review of Latrobe City Council Local Law 2 and the extent of requirements for community responsibilities to prepare property for bushfire risk, with a view to strengthening fuel management on private land in locations likely to experience high and extreme bushfire risk.	High	Planner	Nil

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- Clause 13.02-1S – Bushfire Planning http://planningschemes.dpcd.vic.gov.au/schemes/vpps/13_02-1S.pdf
- Code of Practice for Bushfire Management on Public Land can be found here: https://www.ffm.vic.gov.au/_data/assets/pdf_file/0006/21300/Code-of-Practice-for-Bushfire-Management-on-Public-Land.pdf
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- East Central Strategic Bushfire Management Plan (2014) can be found at: http://www.delwp.vic.gov.au/_data/assets/pdf_file/0006/318849/DELWP0016F_BMP15_EastCentral_web_v2.pdf
- Emergency Management Manual Victoria, including Part 6 Municipal Emergency Management Planning Arrangements - Guidelines for Committees can be found at: <https://www.emv.vic.gov.au/policies/emmv>
- Fire Danger Rating information can be found on the CFA website at <http://www.cfa.vic.gov.au/warnings-restrictions/total-fire-bans-and-ratings/>
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PROJECT PARTNERS

GRAEME TAYLOR

DIRECTOR - FIRE RISK CONSULTANTS



Graeme Taylor has extensive strategic and operational management experience and a strong focus on leadership and critical decision making, in an emergency management environment.

Graeme provides support to agencies, local government and industry before, during and after emergencies. He is able to lead the development of risk reduction and fire protection planning, including fuel modification and management. He prides himself on his ability to promote planned burning as an effective risk reduction method. Alongside this, he also assists in preparing communities and other stakeholders for natural disasters.

MARK POTTER

SENIOR CONSULTANT - FIRE RISK CONSULTANTS



Mark Potter is a proven executive with experience in providing leadership across complex and diverse roles. He has a strong background in developing internal and external relationships, operating in complex and technical environments, leading teams through significant change and steering strategy into action.

He has extensive experience in assessing bushfire risk from landscape level to individual properties and turning this into bushfire management plans that when implemented reduce the risk to life and property through practical and effective methods. He has the ability to work with clients to achieve satisfactory solutions that do not impede day to day operations.

MELINDA RYAN

DIRECTOR & TOWN PLANNING CONSULTANT - TOWN PLANNING & CO.



Strategic minded and project focused with more than 15 years' professional experience spanning public and private sectors in areas of property and planning, Melinda influences positive project outcomes in the most complex of circumstances.

Well versed with the Victorian Planning Provisions, Melinda has personally led hundreds of Planning Projects across Victoria, working with a variety of Planning Schemes and project teams. Planning with purpose, Melinda is inspired by the natural and built environment.

KELSEY LONG

SPATIAL INFORMATION OFFICER - ECOSYSTEMS MANAGEMENT



Ecosystems Management (Aust) Pty Ltd, (EMA) provides a broad range of services to the Natural Resource Management sector. EMA provides consulting and contracting services to a range of industries and resource managers, covering all aspects of project planning and management.



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