

MANSFIELD SHIRE COUNCIL

Bushfire Planning Provisions

Mitigating risk in small townships

15 April 2014

Acknowledgements

The development of the Bushfire Planning Provisions – Mitigating bushfire risk in small townships was funded by the Department of Planning and Community Development¹. Mansfield Shire Council acknowledges this funding support and the administrative support provided by the Department of Planning and Community Development.

The task of developing this report and implementation plan involved many stakeholders and their commitment and support. Mansfield Shire Council acknowledges and thanks all involved for their contribution.

¹Since receiving funding for this project, the Department of Planning and Community Development converged with the Department of Transport to become the Department of Transport, Planning and Local Infrastructure.

Note from Councillors

Council wishes to advise that bushfire mitigation is a shared responsibility between Council, the Country Fire Authority, private land owners, public land managers and the State Government.

The key purpose of this report is to implement the recommendations of the Victorian Royal Bushfire Commission into the Black Saturday fires. In particular Council recognises it has a role to play in responding to the Commission's calls for improved planning policy in relation to bushfire mitigation and the protection of human life through more sophisticated and locally responsive planning controls.

As a way of demonstrating our commitment to doing what we can in terms of mitigating bushfire risk for any new development in our small townships in areas subject to high bushfire risk we have included the following action in the 2013 – 17 Mansfield Shire Council Plan under Goal 5.3 **“Our Community is able to prepare for and effectively manage natural disasters”**:

5.3.4 Implement the findings of the Bushfire Mitigation Study in partnership with the Country Fire Authority and Department of Sustainability and Environment to support small townships located in high bushfire prone areas to manage, and respond to bushfire risk.

All of the findings, outcomes and recommendations that form this document are the result of extensive expert input and advice from various stakeholders in particular the Country Fire Authority (CFA).

Please note that the content of the report is based on the current existing Bushfire Management Overlay maps that form part of the Mansfield Planning Scheme as of 14th January 2014. We acknowledge that the State Government may make further changes to the extent of the Bushfire Management Overlay in the future, however this report can only be based on the current application of the Overlay across our Shire.

Authorisation

This Bushfire Planning Provisions – Mitigating bushfire risk in high-risk communities report and implementation plan was adopted through a formal motion by Council at their meeting on 15th April 2014.

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Executive Summary

The Department of Transport, Planning and Local Infrastructure (DTPLI) funded the Mansfield Shire Council to undertake a study to look at land use planning bushfire mitigation measures. The funding included two project extensions. The first funding extension was for the purchase of suitable software and in field hardware to support proactive enforcement of planning permit conditions and to record fire prevention inspections.

The purchase and development of an application that interfaces with Councils property management system was developed and is accessible on ipad to enable access of recording of data on in the field. The completion of this project was in November 2012 and was successfully used for the 2012/2013 fire season.

The second extension of funding was for a study and implementation plan for townships at high risk of bushfire in Mansfield Shire which is the basis of this report. This includes investigating modified requirements for the drafting of schedules to the Bushfire Management Overlay (BMO) and the drafting and implementation of a Local Planning Policy in relation to Fire Management.

The number of small townships that contain extensive Residential 1 or Township zoning within the Shire results in defendable space requirements required by the planning scheme being unachievable within the boundaries of an individual lot. This circumstance additional to the land being adjacent to, or surrounded by, land covered by the Bushfire Management Overlay, abutment to Crown Land, single access and egress and the relative density mean that they are more susceptible to bushfire risks than other settlements.

Mansfield's relative small permanent population with a high percentage of non resident ratepayers and absentee land owners has resulted in lower levels of maintenance of vegetation and education contributing to the risk of the area.

Information contained and sought in this report is to provide a basis and support on the bushfire characteristics of Mansfield as a whole and individual at risk study areas. The key recommendations of the report include:

- Planning Scheme review: To ensure that the planning scheme considers bushfire risk as part of the review process and that any environment risk or township risk factors are included as part of the review. To identify future growth areas outside of the bushfire risk areas.
- Provide basis and justification where appropriate for Schedules to the Bushfire Management Overlay.
- Introduce a Local Planning Policy on Fire Management into the Planning Scheme.

During the undertaking of the project there have been a number of positive developments and some limitations highlighted. Council has worked productively with stakeholders in particular with the Country Fire Authority (CFA) to build and strengthen these relationships. The CFA and Council have worked together to undertake the community consultation sessions for both residents and for non resident ratepayers by holding a workshop and information session in Melbourne.

Limitations that have been highlighted by this report are that there is limited availability to apply mitigation measures to existing established townships. The information in this report is also based on existing Bushfire Management Overlay mapping which will need to be considered if and when the

introduction of new mapping is introduced by the State government as part of the Royal Bushfire Commission Recommendation 37.

Mansfield Shire Council has consulted with the DPCD and the CFA throughout the progress of this report.

1. Introduction

The Bushfire Planning Provisions Project has been prepared by the Mansfield Shire Council to provide a basis for incorporation of local bushfire planning provisions into the Mansfield Planning Scheme. The report will provide Council with the information necessary to guide the planning and future provisions of land within high risk bushfire communities. Additionally it will highlight and inform the public to the risks of bushfire and those areas likely to be affected.

The aim of the study is to identify what mitigation methods can be applied to the higher risk small townships within Mansfield Shire to provide more certainty and clarity for land owners and all emergency management stakeholders. Once adopted by Council the Bushfire Planning Provisions report is to be referenced in the Mansfield Planning Scheme and used to update the planning scheme in relation to bushfire mitigation, in particular the addition of a Local Planning Policy relating to fire management, Schedules to the Bushfire Management Overlay, and updates and reference to settlements throughout the Municipal Strategic Statement. Developing a Local Planning Policy and schedules to the Bushfire Management Overlay will supplement the provisions of the State to adapt circumstances locally.

The Department of Transport Planning and Local Infrastructure (DTPLI) prepared a Regional Bushfire Planning Assessment (RBPA) for the Hume Region. The initiative responded to Recommendation 28 of the 2009 Victorian Bushfire Royal Commission report to implement a regional settlement policy that takes account of bushfire risk, including risks associated with undeveloped rural lots. The RBPA provided regional and municipal information to inform strategic planning for settlements in areas where bushfire issues impact on planning objectives and to identify where further planning investigations may be required.

Mansfield Shire contains a number of small townships that contain extensive Residential 1 or Township zoning. As a consequence, lots sizes are small, often less than 800m², and are relatively densely populated. The small lot size means that fire protection zones cannot be achieved within the boundaries of an individual lot. These circumstances, when added to the facts that these townships are surrounded by land covered by the Bushfire Management Overlay, sometimes immediately abut Crown land and often have only one access road in and out, mean that they are more susceptible to bushfire risk than other settlements. The accumulation of all of these factors also means that individual lots, as they are currently configured, may not be able to be developed.

As a result of the work undertaken by DTPLI and the limiting factors of some of the small townships in Mansfield Shire, ten highrisk communities have been identified being Tolmie, Bonnie Doon, Goughs Bay, Macs Cove, Howqua Inlet, Jamieson, Kevington, Gaffneys Creek, Woods Point and Sawmill Settlement / Alpine Ridge.

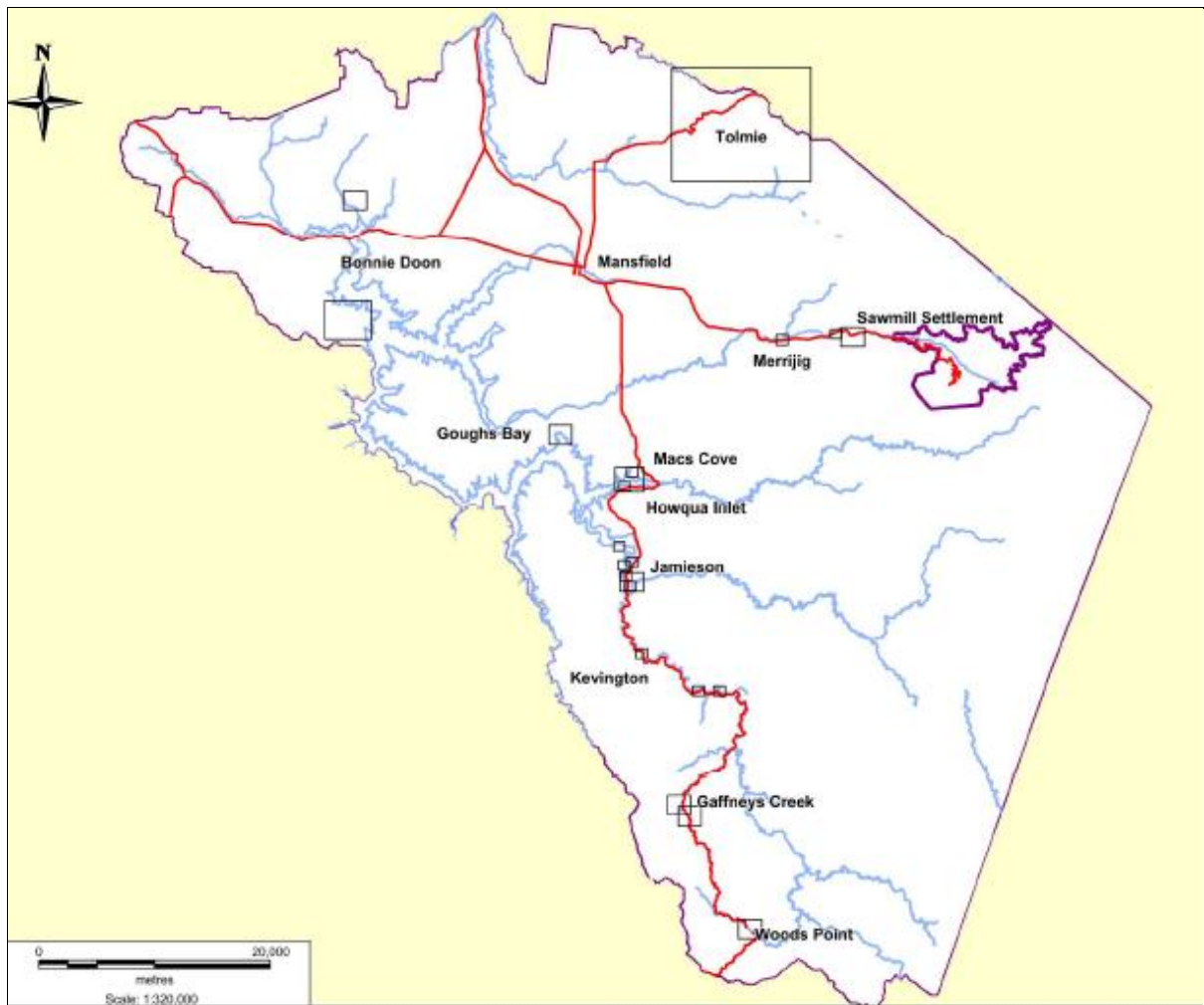


Figure 1: Mansfield highrisk communities

Many of these townships have relative small permanent populations, with a high percentage of absentee land owners. The vacancy rate and the transient tourist population in these areas can lead to increased bushfire risk due to lower levels of maintenance of vegetation. It also poses complications as people are not fully aware of what to do in the case of a bushfire, as they often spend little time in a rural environment and may not know the area well.

This report looks at a number of aspects relevant to the provisions of bushfire mitigation and delivers an understanding of key planning issues in relation to the location of high risk settlements of bushfire, in addition to an analysis of risk for each of the identified areas.

2. Fire factors and behaviour

Bushfire mitigation measures to inform land use planning and related bushfire mitigation planning, requires an understanding of factors that influence bushfire behaviour and the impact that the fire behaviour may have on a community.

Fire behaviour is dependent on three main factors, fuel, weather and topography with fuel determining the level of fire hazard in any given area. The slope of the ground, weather and the size, quantity, type arrangement and moisture content of the fuel will determine how hot a fire burns and how quickly it spreads. The intensity and speed a bushfire travels depends on the amount and arrangement of the available fuel, moisture content of the fuel, wind speed near the fuel, wind speed near the flaming zone, the terrain and slope (Gould, 2005). Topography on fire dynamics finds that bushfires spread more quickly and burn more intensely on upward slopes than on flat landscapes and spread more slowly on downward slopes. (Preston et al 2009).

When considering bushfire impact that presents significant risk to either life, loss of property or infrastructure it is important to note that fire danger is the result of both constant and variable fire danger factors affecting the development, spread and difficulty to control fires, and the damage they cause. Constant factors are ones which change slowly with location including slope, aspect and fuel loads. Variable factors change rapidly with time, can influence large areas and include wind speed and direction, relative humidity and temperature.

Relevant risks that occur as a result of a bushfire or grass fire include flame exposure, radiant heat, ember attack and weather conditions.

Flame exposure is the result produced by the main fire front and is affected by wind and slope. Flames are naturally vertical but are moved horizontally with wind. Land slope causes flames to lean towards the slope when a bushfire is travelling uphill. This impacts the potential of the flame to impact on objects further up slope of the fire front and preheats fuels. Properties that are adjacent to vegetated areas such as crown land within the Mansfield Shire risk exposure of flame contact.

Topography can determine the impact of a fire with the slope affecting the speed or rate of spread of a fire. The fire front has a tendency to move faster up slope and slower down slope. For every 10 degrees of upslope you can double the rate of the spread of the fire front. For every 10 degrees downslope you can half the rate of the spread of the fire front.

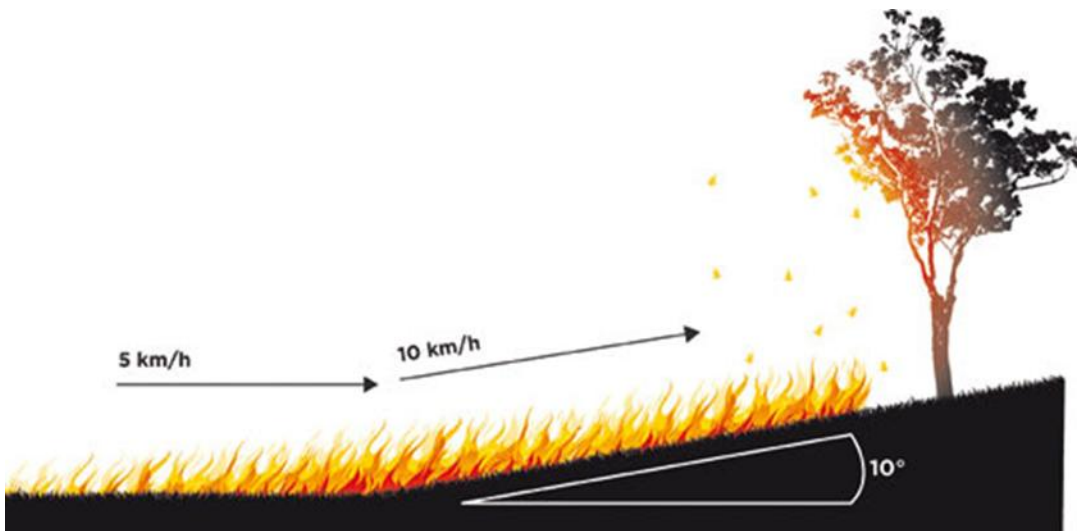


Figure 2: Topography effects on fire frontage (CFA, 2012a)

Wind and changes in wind direction strength is the most critical climatic aspect that affects fire behaviour. Wind speed will affect the intensity of a fire and the way in which a fire will travel. Strong wind results in a longer and narrower fire front and can be the cause of increased ember attack, carrying burning material ahead of the fire front. Increased wind speeds will increase the spread of a fire. A change in wind direction quickly changes the direction of the fire front presenting new threats and possibly increasing the length of the fire front.

Ember attacks can occur before the arrival of a fire front, at the fire front and for a length of time after the fire front has passed. During a bushfire, floating fine fuels emitted by the bushfire can be carried by wind to varying distances in the surrounding area. They can act as an ignition source starting fires ahead of the fire front. Embers are usually tree bark or fine vegetation litter that is burning or has been recently burnt. Embers have the ability to travel up to 10kms from the fire front although shorter distance embers tend to be in greater numbers and pose the bigger risk to surrounding environments as potential ignition sources.

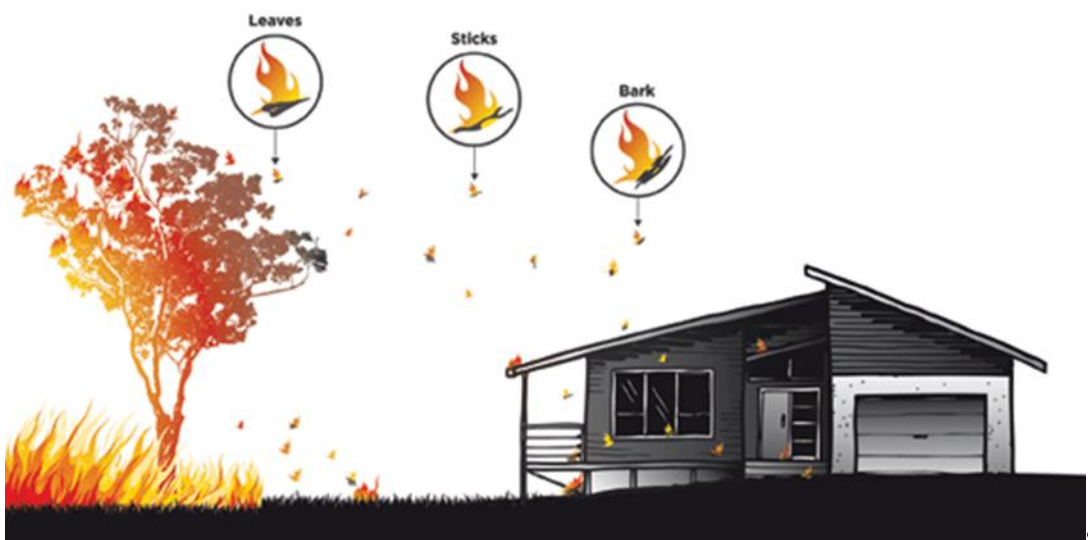


Figure 3: Ember attacks (CFA 2012a).

The most important factor when considering bushfire risk hazard is fuel. Fuel types involved in bushfires typically include grass, forest litter lying on the ground, small shrubs and scrub along with trees, logs, stumps and bark. The more available fuel that there is the greater the intensity of the fire will be. Vegetation varies significantly across landscapes, vegetation types, aspect and time. The accumulation of fuel load also varies in different ecosystems and vegetation types.

Radiant heat poses significant risk when in contact with a fire front. Radiant heat is the transference of heat energy into the surrounding environment and is a result of flame size, fire behaviour, fuel and the proximity to the object. Reduction of radiant heat exposure can be reduced by increasing the distance from flames or by providing a barrier between the flame and the object/human. The shielding of humans/objects reduces the radiation as radiation travels in straight lines.



Figure 4: Radiant heat (CFA 2012b).

Radiation exposure is measured in kilowatts. Approximate levels of radiation heat exposure are as follows:

- 0.5kW/m² : heat of direct sunlight felt on a bright sunny day.
- 2kW/m² : Causes pain to bare skin. Fire fighters can withstand this exposure level when fully kitted out in protective clothes for a couple of minutes before their core body temperature will rise.
- 12kW/m² : Glass windows will break and dry wood elements will ignite in a bushfire.
- 40kW/m² : Toughened glass windows can break and flame contact is probably imminent (Leonard, Bianchi, 2012).

Radiant heat is a considered fire factor when assessing the bushfire attack levels applied to new dwellings and structures.

Weather condition effects on bushfire are calculated using Forest Fire Danger Index (FFDI). When rating the danger of a fire the assessment of the difficulty of suppression of a fire burning under those conditions is considered. FFDI is the key tool for assessing fire danger. The formula for calculating is based on the temperature, wind speed, relative humidity and a component representing soil dryness called the Drought Factor. The Drought Factor is a representative of recent temperature and rainfall events on fuel availability. The FFDI values are each given a fire danger

rating (Dowdy et al 2009). FFDI takes into account the likelihood of a fire starting, the rate of spread of a fire and the difficulty of suppressing fire.

These are:

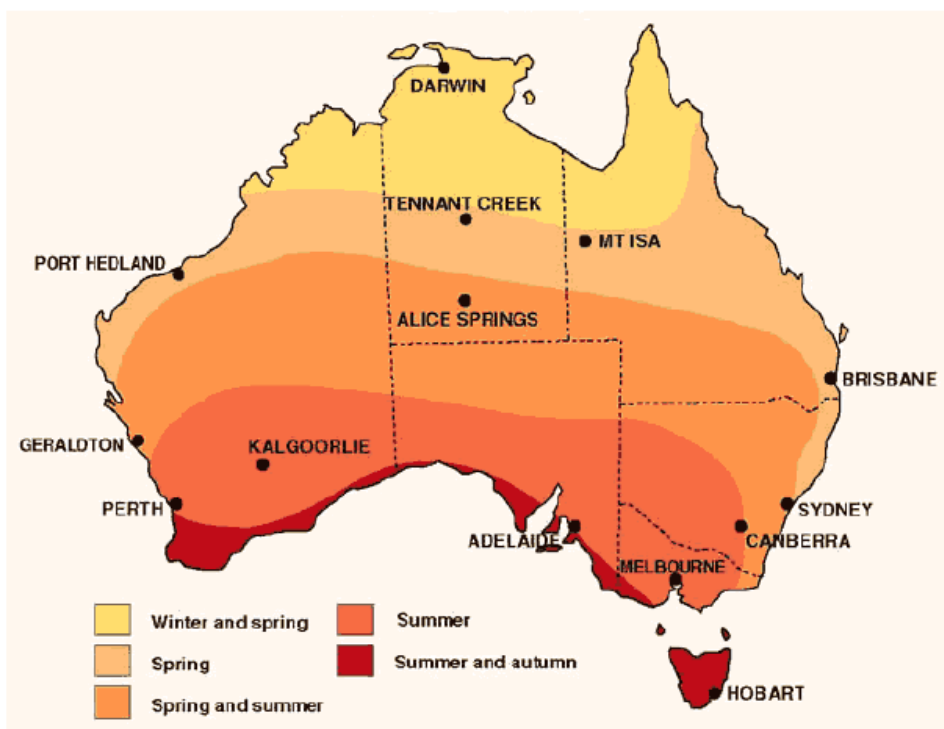
- 0-5 Low – Fires easily suppressed with hand tools and water.
- 5-12 Moderate – Fire usually suppressed with hand tools and easily suppressed with bulldozers. Generally the upper limit for prescribed burning.
- 12-24 High – Fire generally controlled with bulldozers, working along the flanks to pinch the head out under favourable conditions. Back burning may fail due to spotting.
- 24-50 Very High – Initial attack generally fails but may succeed in some circumstances. Back burning will fail due to spotting. Burning out should be avoided.
- 50+ Extreme – Fire suppression virtually impossible on any part of the fire line due to the potential for extreme and sudden changes in fire behaviour. Any suppression actions such as burning out will only increase fire behaviour and the area burnt.

Land use planning, building design, fuel management and community preparedness are effective defence mechanisms once the FFDI has reached a level of 50.

3. Weather conditions and fire occurrence

Australia is one of the most vulnerable developed nations with respect to variable climatic conditions. Bushfires represent one of the most significant climate related hazards in Australia. The relative aridity of the Australian landscape combined with considerable vegetation, high summer temperatures, fuel types and frequent windy conditions contribute to significant bushfire risk in southeast Australia.

Australia is the most vulnerable continent to bushfires with Victoria being the most vulnerable state. Although Victoria is only 3% of Australia's land mass it has sustained around 50% of the economic damage from bushfires. Between 1967 and 1999 bushfires cost the Australian economy around \$2.5 billion. From 1960 – 2001 there were 224 bushfire related deaths and 4,505 injuries in Australia. Australia's climate and vegetation combine to ensure that there is a threat of bushfire almost every summer somewhere in the country (Dowdy et al, 2009).



Source: Bureau of Meteorology, <www.bom.gov.au>, cited by Lindesay, J 2003, 'Fire and climate in Australia', in G Cary, D Lindenmayer & S Dovers (eds), *Australia Burning: fire ecology, policy and management issues*, CSIRO Publishing, Melbourne.

Figure 5: Threat of bushfire

The relationship between weather, climate and bushfire risk is a complex one, with a number of the direct and indirect effects of variable climatic conditions anticipated to increase the frequency and severity of bushfires in Australia. Climate change is projected to increase average and extreme temperatures and wind speeds while reducing average annual rainfall and relative humidity which contributes to more extreme fire weather conditions. Fertilisation effects of enhanced atmospheric carbon dioxide concentrations may also enhance vegetation productivities leading to more rapid increases in fuel loads on the landscape and faster regrowth in the wake of fire events (Dowdy et al, 2009). The current significant bushfire threat combined with the likelihood that the threat is to rise in the future makes bushfire vulnerability and its management a key concern.

South eastern Australian climate change projections indicate that the number of **very high** and **extreme** fire danger dates could increase by 4-25% by 2020 and 15-70 percent by 2050 (Dowdy et al, 2009). Increases in mean and maximum temperatures in Australia are attributed to climate change with mean maximum temperature increase of about 0.6 degrees Celsius from 1950 to 1999. Analysis of extremes in Australia finds a trend in warming of temperature extremes and a significant increase in the duration of heat waves from 1957 to 1999 (Dowdy et al, 2009).

During the summer months in Mansfield Shire the weather pattern is often north westerly winds accompanied by high daytime temperatures, low relative humidity and a south westerly wind change later in the day. The wind direction change is a fire risk as the flank of a running fire will become a large fire front when the wind changes. Extreme fire danger events in south east Australia are often associated with very strong northerly winds bringing hot dry air from central Australia.

Average summer temperatures in Mansfield are in the high 20's degrees Celsius and the average rainfall for the Shire is 774mm. It is expected that there will be a larger number of hotter days and a greater incidence of drought in the future. Climatic changes such as these are likely to increase the possibility of fire in the area. An increase in heat waves and storms will also increase the risk of fire and fire behaviour becoming more unpredictable (Mansfield Shire Council, 2012a).

During 2000 – 2009 summer seasons there was an increase in the length of bushfire season due to drought impacts from extended warm dry conditions. Longer fire seasons are predicted to be a common occurrence in the future.

Settlement patterns are important when understanding bushfire risk as the impact of bushfire increases in areas where people live, work and visit. Access of humans to bushfire prone areas is acknowledged as an important contribution to bushfire risk due to accidental or intentional acts by humans to cause bushfires. Tourism is also a risk factor as it increases the population significantly during the summer months when fire risk is at its peak. Often these areas are also high fire risk locations. (Hume Regional Strategic Fire Management Planning Committee 2011). Limited development, in areas of significant vegetation increases sensitivity to bushfire whereas areas that are more developed are less likely to be as sensitive.

4. History of fires in Victoria

There have been many fires across Victoria with the frequency of occurrence increasing with climatic changes. Over the last 300 years there have been a number of fires that have threatened the Mansfield Shire (See Appendix 1 – History of fires in Mansfield Shire map). There have also been a number of deaths across the State of Victoria as a result of significant bushfires namely Ash Wednesday 1983 with the loss of 75 people (47 in Victoria), Black Friday 1939 with the loss of 71 people and Black Saturday 2009 with the loss of 173 people. The highest temperature in Victoria was recorded on 7th February 2009 at 48.8 degrees when the Black Saturday fires started.

“The last decade has seen a dramatic increase in the number, size and severity of bushfires. Major fire events such as the 2003 Alpine Fire, the 2006/2007 Grampians Fire, the 2006/2007 Great Divide Fire and the devastating 2009 Black Saturday fires are evidence of increasing risk.”(Fire services commissioner, 2012).

In more recent years there have been large areas burnt in North East Victoria. During 2003 large areas burnt along the borders of Mansfield Shire. In 2006-2007 there was collection of bushfires in the Victorian Alpine region which burnt for 69 days across 1 million hectares and had impact on the catchment area and the Mansfield tourism industry. To add to this more recently were the 2012 Alpine Fire and Grampians Fire (Mansfield Shire Council, 2012a).

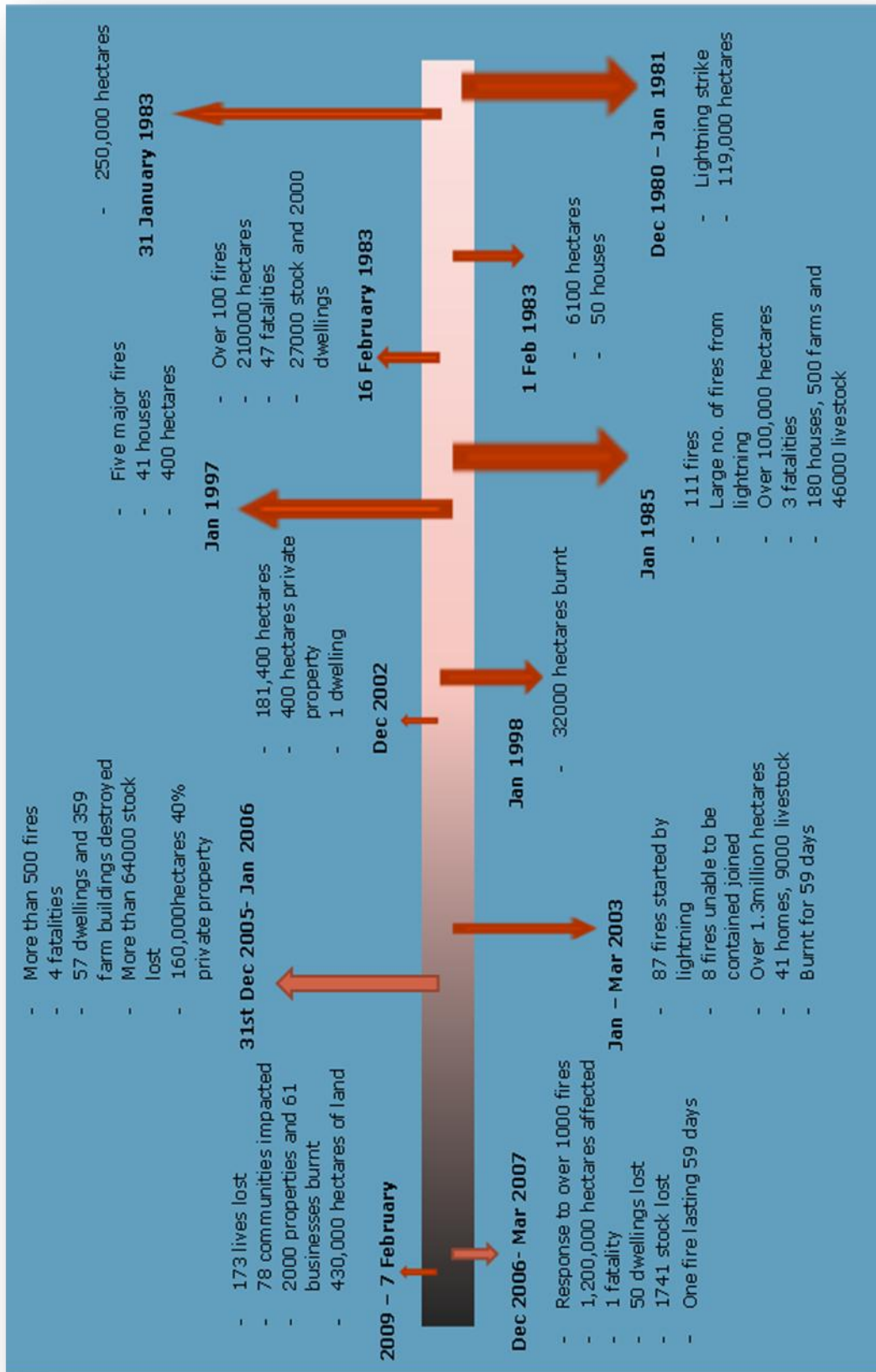


Figure 6: Timeline of fire history in Victoria (1980 +)

5. Risk management and responsibility

Hazards are a situation that involves a level of threat. That threat can be to life, health, property or environment. Hazards that occur in vulnerable situations or location create a risk. Bushfires are considered to be natural hazards as they are naturally occurring events that may have a negative impact. The threat of bushfire can be caused by lightning, drought, human negligence or arson.

The assessment of risk is the sum of consequences and likelihood of consequences. Risk is the interaction between hazard, community elements exposed and their vulnerability. (SMEC 2006). An increase or decrease in any of these elements (exposure, vulnerability and hazard) would diminish or increase the risk. For example, an increase in poorly designed development located in a high risk fire area will increase the risk of fire. (SMEC 2006).

In the event of bushfire the consequence can be the loss of life, dwellings, environment and infrastructure. In assessing the risk of bushfire in specific areas the likelihood should consider the weather conditions occurring and the probability of the chance of ignition along with the possible severity and intensity of the fire. Consequences vary depending on the severity of the fire conditions but generally consist of dwelling and infrastructure loss and loss of life.

When considering the hazards of an area it is important to consider the landscape and possible bushfire scenarios, vegetation and fuel loads, topography, weather, history of fires and fire behaviour. Looking at risk for individual settlements starts with the management of the fire risk requiring hazard identification. This includes looking at the slope of land, the accessibility to water, access/egress, the fuel loads surrounding the property, the capability of landowners and work undertaken to reduce risk.

Assessment of bushfire risk is undertaken on a number of levels including state, local and individual risk. Risk assessments of individual properties can be carried out by the Country Fire Authority (CFA) or on a personal basis using the CFA Prepare Act Survive Fire Ready Kit. The kit looks at preparation for leaving early in the event of a bushfire, preparedness of a property, and a plan for survival. Reducing hazards is one way to reduce risk of damage to homes and structures. The CFA have released Township Protection Plans relevant to certain townships that give a hazard rating on the basis of the risk of bushfire.

Mitigation of risk from natural hazards is an accepted and basic principle of urban planning in Australia. The Governments policy on bushfire risk reduction is one which is a shared responsibility between the Government and the public. Private land managers, owners and or occupiers are responsible for protection of existing dwellings, major buildings and other assets on their properties. Hazard reduction for protection purposes in these instances are the responsibility of the land owner or manager. Bushfire risk needs to take into account site specific conditions, use of risk assessment, opportunities and constraints analysis and the integration of findings of the latest bushfire research.

Local Government challenges, with meeting bushfire mitigation within planning procedures, are:

- Limited availability of experienced and qualified staff for planning, inspections and community support relating to bushfires.
- Tensions between good practice planning decisions and commercial pressures for development.
- Planning decisions by local government frequently being contested.

- The need to resolve the problem of varying resident attitudes to the level of risk and risk management responses.
- Significant resourcing often required for the maintenance of public land in bushfire zones. (Ellis et al. 2004).

Subdivision controls in rural zones vary greatly across the State. Some zones allow small lots to be excised complementary to subdivisions so increasing the potential for dispersed rural dwelling construction and pockets of localised, increased density with the resultant increased risk. The pattern of existing small lots in Mansfield Shire has led to incremental poorly planned adhoc dwelling construction throughout rural areas. People will build on existing small lots and newly subdivided lots in higher risk locations. Dwellings are continually constructed in close proximity to remnant native vegetation and subdivisions on land containing significant native vegetation. Both actions have the potential to result in the exposure of more people to increasing risk from fire by introducing developments and uses into vegetated areas, while constantly degrading and reducing the remnant native vegetation. In rural areas the risk from introducing uses and developments where they are incompatible with native vegetation should be recognised by limiting or preventing dwelling construction and further subdivision of vegetated land. (Buxton et al 2009).

Many Mansfield residents choose to live close to the natural environment. The aesthetics of being surround by trees, shrubs and wildlife is a major attraction of rural living within the Mansfield Shire. Settlement patterns as a result of occupations, economic factors, new subdivision areas and lifestyle choice have all contributed to people that are living close to bushland. The increased density of people living close to bushland increases the risk of bushfire to individuals, assets and communities (Ellis et al 2004).

Mitigation of bushfire risk through land use planning should focus on the reduction of potential consequences. Methods for limiting the consequences can be applied through the building controls as they reduce the vulnerability of buildings in bushfires, and access provisions to and from locations for public and fire-fighters, as this increases the resilience of a location or area.

Areas that are considered low risk of fire may require little or no treatment for that risk where as high risk areas require detailed assessment of the area and possibly mitigation measures. These assessments may suggest that a development of area be inappropriate for further development (Leonard and Blanche, 2012).

Much of Mansfield Shire is covered by the Bushfire Management Overlay. Many developments in these areas have over time been approved despite the inherent bushfire risk. The change in attitudes to planning in fire prone areas since the Victorian Black Saturday 2009 bushfires and the resultant new planning and building controls will have effect in these high risk areas but only when approval for building alterations or land reconfiguration is sought.

For Council there are minimal opportunities to change or reduce risk for already developed settlements. Impacts of bushfire hazards may be able to be reduced by:

- Prohibiting or controlling land use and development within high fire risk areas through the application of zones or overlays.
- Requiring fire retardant building materials.
- Requiring buffer zones (or fire breaks) to separate bushland and residential areas.
- Provisions of static water supply. (SMEC 2006).

There are a number of documents to be considered when dealing with bushfire and risk of bushfire. Below are the documents that should be considered when dealing with issues around bushfire and their relevant responsible authority.



Figure 7: Fire management documents

In the Mansfield Shire Municipal Fire Management Plan (MFMP) there are a number of risks that have been identified. The relevant risks identified in the (MFMP) include:

Risk to lifestyle and small communities (people and residences and infrastructure) surrounded by forest and grassland with limited access and egress from fire on very high and above FDR days.

LIKELY CAUSES: Lightning, bushfire, recreational users, non residential owners.

IMPACT: Loss of life, loss of assets, time and cost of recovery, loss of biodiversity, loss of public confidence.

There are a number of non-residential owners with limited fire knowledge.

LIKELIHOOD: Possible. **RISK RATING:** Moderate

Risk to community in Sawmill Settlement (people, residences and infrastructure) surrounded by forest with limited access and egress from fire on very high and above FDR days.

LIKELY CASUES: Lightning, bushfire, recreational users, non residential owners.

One road in and out – very limited access and egress, heavy fuel loads, houses of lower standards, sloping ground and houses situated amongst trees. Recommendation is for people to leave early on high FDR days.

LIKELIHOOD: Possible **RISK RATING:** Moderate

6. Vegetation

Vegetation is a major component of assessing bushfire risk. The Mansfield Shire falls within Highlands Northern Fall, Highlands Southern Fall, Victorian Alps and Central Victorian Uplands bioregions. Bioregions are determined by natural and physical attributes.

Each of the bioregions and their characterising features are listed below:

Highlands Northern Fall

- Moderate to steep slopes.
- High plateaus.
- Alluvial flats along main valleys.
- Herb rich foothill forest.
- Shrubby dry ecosystems dominating large areas of lower slopes.
- Montane dry woodland and healthy dry forests on upper slopes and plateau.
- Grassy dry forest and valley grassy forest ecosystems associated with major river valleys.

Highlands Southern Fall

- Moderate to steep slopes.
- High plateaus and alluvial flats along main valleys.
- Shrubby dry forest and damp forest on the upper slopes.
- Wet forest ecosystems in the valleys.
- Montane dry woodland and Montane damp forest and Mwet forest ecosystems in the high altitudes.

Victorian alps

- High plateaus and peaks
- Plateaus area subalpine woodland, treeless sub alpine mosaic and sup alpine grassland ecosystems
- Upper slopes dominated by Montane dry woodland, Montane damp forest, Montane wet forest and Montane grassy woodland ecosystems.

Central Victorian uplands

- Low lying corridors of valleys and plains
- Dominated by plains grassy woodland and valley grassy forest ecosystems on the fertile plains
- Grassy woodland and floodplain riparian woodland ecosystems on the river courses
- Herb rich foothill forest and shrubby foothill forest ecosystems on fertile slopes
- Less fertile hills support grassy dry forest and heathy dry forest ecosystems.

The Bushfire Management Overlay requires vegetation to be classified to determine the required Bushfire Attack Level and defendable space requirements for new developments in the overlay. Vegetation type and having a fuel reduced area to eliminate attack of radiant heat or flame contact by siting a building or managing vegetation to reduce the fire intensity is the basis of CFAs education programs and is incorporated through land use planning controls.

For dwellings that existed prior to 10 September 2009 there are a number of State planning provisions in the Mansfield Planning Scheme for which there can be removal of native vegetation without the need for a planning permit.

The 10/30 rule applies to a building used for accommodation that was:

- Constructed before 10 September 2009 or approved by a planning or building permit issued before 10 September 2009.

The rule allows land owners to:

- Remove, destroy or lop any vegetation within 10 metres of an existing building used for accommodation
- Remove, destroy or lop any vegetation, except trees within 30 metres of an existing building used for accommodation
- Remove, destroy or lop any vegetation for a combined maximum width of 4 metres either side of an existing fence on a boundary. The fence must be between properties of different ownership and have been constructed before 10 September 2009.

The 10/50 rule only applies to land in the Bushfire Management Overlay. It applies to a building used for accommodation that were:

- Constructed before 10 September 2009 or lawfully erected before 18 November 2011 without the need for a planning permit
- Approved by a planning or building permit before 10 September 2009 and erected before 18 November 2011
- Approved by a building permit before 10 September 2009 and erected before 18 November 2011.

The 10/50 rule allows landowners to:

- Remove, destroy or lop any vegetation within 10 metres of an existing building used for accommodation.
- Remove, destroy or lop any vegetation, except trees within 50 metres of an existing building used for accommodation
- Remove, destroy or lop any vegetation for a combined maximum width of 4 metres either side of an existing fence on a boundary between properties. The fence must be between properties of different ownership and have been constructed before 10 September 2009.

7. Overview and Strategic Context

7.1 Victorian Bushfire Royal Commission

The 2009 Victorian Bushfire Royal Commission investigated the causes and responses to the bushfires in Victoria in January and February 2009 and proposed changes to the Victorian Planning Provision ‘...to ensure development does not occur in areas in which the bushfire risk or environmental cost of making people safe is too high’(VBRC 2010) (GBGA 2011).

Planning and building recommendations from the Bushfire Royal Commission included:

Recommendation 37

The State identify a central point of responsibility for and expertise in mapping bushfire risk to:

- Review urgently the mapping criteria at present used by the Country Fire Authority to map the Wildfire Management Overlay, to ensure that the mapping used to determine building and planning controls is based on the best available science and takes account of all relevant aspects of bushfire risk.
- Map and designate Bushfire-Prone Areas for the purposes of planning and building controls, in consultation with municipal councils and fire agencies.
- Finalise the alignment of site-assessment methods for planning and buildings purpose, taking into account bushfire risk to human safety as well as to property.

Recommendation 39

The State amend the Victorian Planning Provision in relation to bushfire to ensure that the provisions give priority to the protection of human life, adopt a clear objective of substantially restricting development in the areas of highest bushfire risk – giving due consideration to biodiversity conservation – and provide clear guidance for decision makers. The amendments should take account of the conclusions reached by the Commission and do the following:

- Outline the State’s objectives for managing bushfire risk through land-use planning in an amended State planning policy on bushfire, as set out in clause 15.07 of the Victoria Planning Provisions.
- Allow municipal councils to include a minimum lot size for use of land for a dwelling, both with and without a permit, in a schedule to each of the Rural Living Zone, Green Wedge Zone, Green Wedge Zone, Rural Conservation Zone, Farming Zone and Rural Activity Zone.
- Amend clause 44.06 of the Victoria Planning Provisions to provide a comprehensive Bushfire prone Overlay provision.

Recommendation 45

The State press municipal council – in particular Murrindindi Shire Council – to urgently adopt a bushfire policy in their Local Planning Policy Framework and incorporate bushfire risk management in their planning policies and strategies for rebuilding communities such as Marysville, Kinglake and others affected by the January – February 2009 fires.

7.2 Planning and Environment Act 1987

The *Planning and Environment Act 1987* considers any significant effects a development application or planning scheme amendment may have on the environment, or which the environment might have on any use or development. The purpose of the *Planning and Environment Act 1987* is to establish a framework for planning the use, development and protection of land in Victoria in the present and long-term interests of all Victorians.

Section 4 of the Act sets out the objectives of planning in Victoria which includes:-

Planning and Environment Act 1987 - SECT 4

Objectives

4. Objectives

(1) The objectives of planning in Victoria are-

- (a) to provide for the fair, orderly, economic and sustainable use, and development of land;
- (b) to provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity;
- (c) to secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria;
- (d) to conserve and enhance those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value;
- (e) to protect public utilities and other assets and enable the orderly provision and co-ordination of public utilities and other facilities for the benefit of the community;
- (f) to facilitate development in accordance with the objectives set out in paragraphs (a), (b), (c), (d) and (e);
- (g) to balance the present and future interests of all Victorians.

Figure 8: Planning and Environment Act objectives

Relevant sections of the act also includes Section 6 2(e) which states that the planning scheme may regulate or prohibit any use or development in hazardous areas or in areas which are likely to become hazardous areas.

7.3 State Planning Policy

Following on from the *Planning and Environment Act 1987*, the State Planning Policy Framework at 13.05 – *Bushfire* provides context for bushfire planning strategies and principles. The objective of the

policy is to assist to strengthen community resilience to bushfire. The overarching strategies of the policy state:

- *Prioritise the protection of human life over other policy considerations in planning and decision making in areas at risk from bushfire.*
- *Where appropriate, apply the precautionary principle to planning and decision-making when assessing the risk to life, property and community infrastructure from bushfire.*

The State Planning Policy Framework further emphasises the need for consideration of the risk from bushfires to persons and property. It states that in consultation with relevant fire authorities, planning authorities must identify wildfire risk environments in planning schemes; and fire hazards must be considered in planning decisions affecting wildfire risk environments to avoid intensifying the risk through inappropriately located or designed uses or developments.

This study meets the Planning Scheme implementation strategies listed in 13.05 - Bushfire, in particular the requirements to:

- *Ensure that planning schemes, in particular the Municipal Strategic Statement, Local Planning Policies and zones applying to land provide for use and development of land in a manner compatible with the risk from bushfire.*
- *Ensure that planning schemes support bushfire management and prevention and emergency services actions and activities.*

The State Policy is strengthened through Clause 44.06 Bushfire Management Overlay and Clause 52.47 Bushfire Protection: Planning requirements of the Mansfield Planning Scheme.

7.4 Mansfield Shire municipal profile

Located 180kms north east of Melbourne, Mansfield Shire has an area of 3,892 square kilometres much of which is densely vegetated and at risk of bushfire. The major urban centre of Mansfield Shire is Mansfield with a population of 8,031 with many other smaller settlements throughout the municipality. Many of the smaller settlements have a denser population throughout the holiday periods and weekends. These areas only have a small number of permanent residents in many of the smaller settlements. Approximately 3,291 of the 7,422 rateable entities are owned by part time residents which is around 45% of the ratepayer base

The forecasted population for Mansfield by 2031 is up to 10,153 (DTPLI, 2012). The annual growth rate for Mansfield Shire is 1.7% which compared with regional Victoria at 1.4%. There are approximately 2,942 households in the Shire. The key economic drivers are tourism, farming and lifestyle living. Currently there is over 10,000ha of private land zoned as rural living within the Mansfield Shire as a result of demand for lifestyle living alternatives. Based on the projections, it is likely that demands for lifestyle living within the Mansfield Shire will remain strong. Much of this growth is expected to be people moving from city areas or part time residents making permanent moves into holiday homes. Smaller settlements such as Bonnie Doon, Merrijig, Sawmill Settlement, Goughs Bay and Mountain Bay are expected to see much of this growth. Approximately 1.2million visitors per annum visit Mansfield Shire. A large number of these applications for dwellings in rural living areas are in areas within the Bushfire Management Overlay (See Appendix 2 – Applications since 2009 in the WMO/BMO).

The Draft Hume Regional Growth Plan projects the requirement for new private dwellings in Mansfield to have been 5600 in 2011 and to be 6600 in 2021 and 7700 for 2031 (DPCD, 2013a).

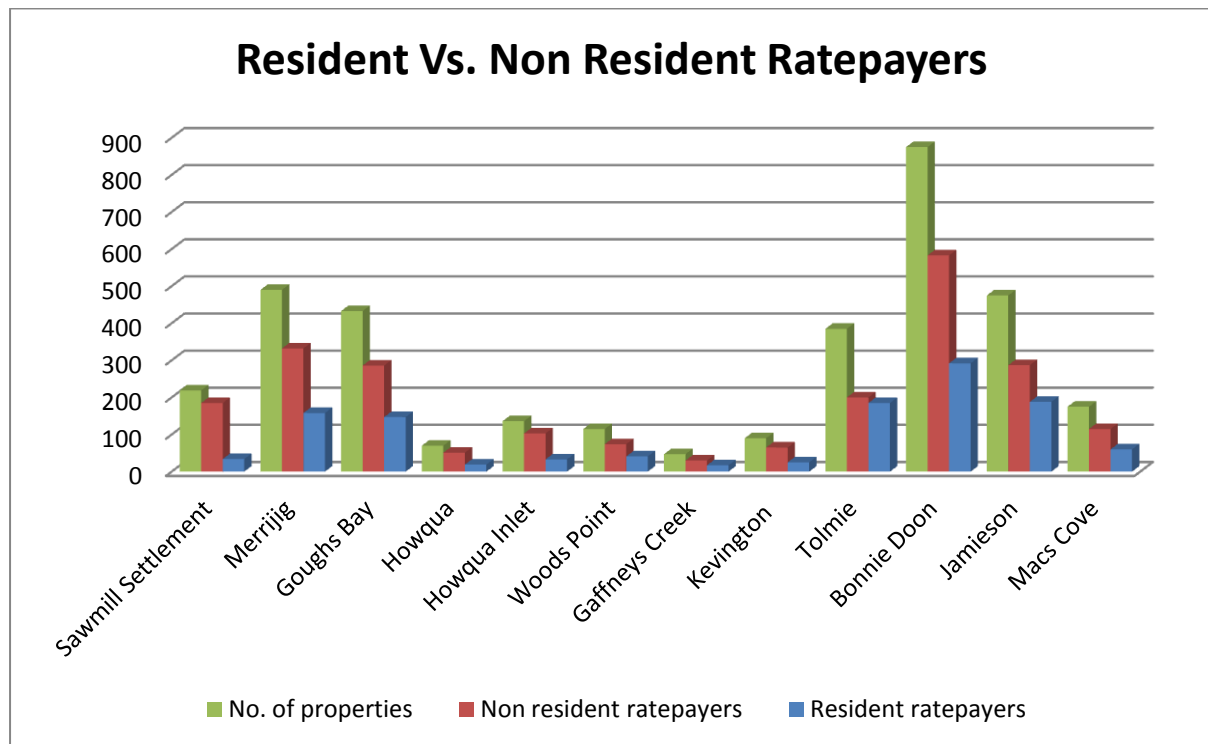


Figure 9: Resident Vs No Resident Ratepayers graph

Significant landscape makes up much of Mansfield Shire with features including Mount Buller, Mount Stirling and the Great Dividing Range. Features of the natural environment such as part of Lake Eildon, Alpine National Parks, Valleys of the Howqua, Delatite and Goulburn Rivers make areas in the regions in high demand for recreational lifestyle activities. The alpine resorts areas of Mount Buller and Mount Stirling are wholly surrounded by the municipal district but are not included within the municipality. More than 60% of land within the municipality is Crown land with more than 30% being owned by private landholders.

The Shire is characterised by cleared grazing land, valleys, foothills and mountains which extend from the Western side of the Great Dividing Range. Part of the Alpine National Park falls in the Shire's boundary's along with the part of the Lake Eildon National Park. Due to the modifications of the landscape for grazing, areas of significant biodiversity are primarily limited to the undulating landscapes adjacent to the Alpine and Lake Eildon National Parks, along watercourses and in some areas of scattered vegetation. The clearance of native vegetation is managed through the Environmental Significance and Significant Landscape Overlays which apply to water supply catchments, remnant vegetation patches and significant vegetated landscapes. Areas where development pressure is being experienced are near forested land and often in locations where there is only one access road (DTPLI 2012).

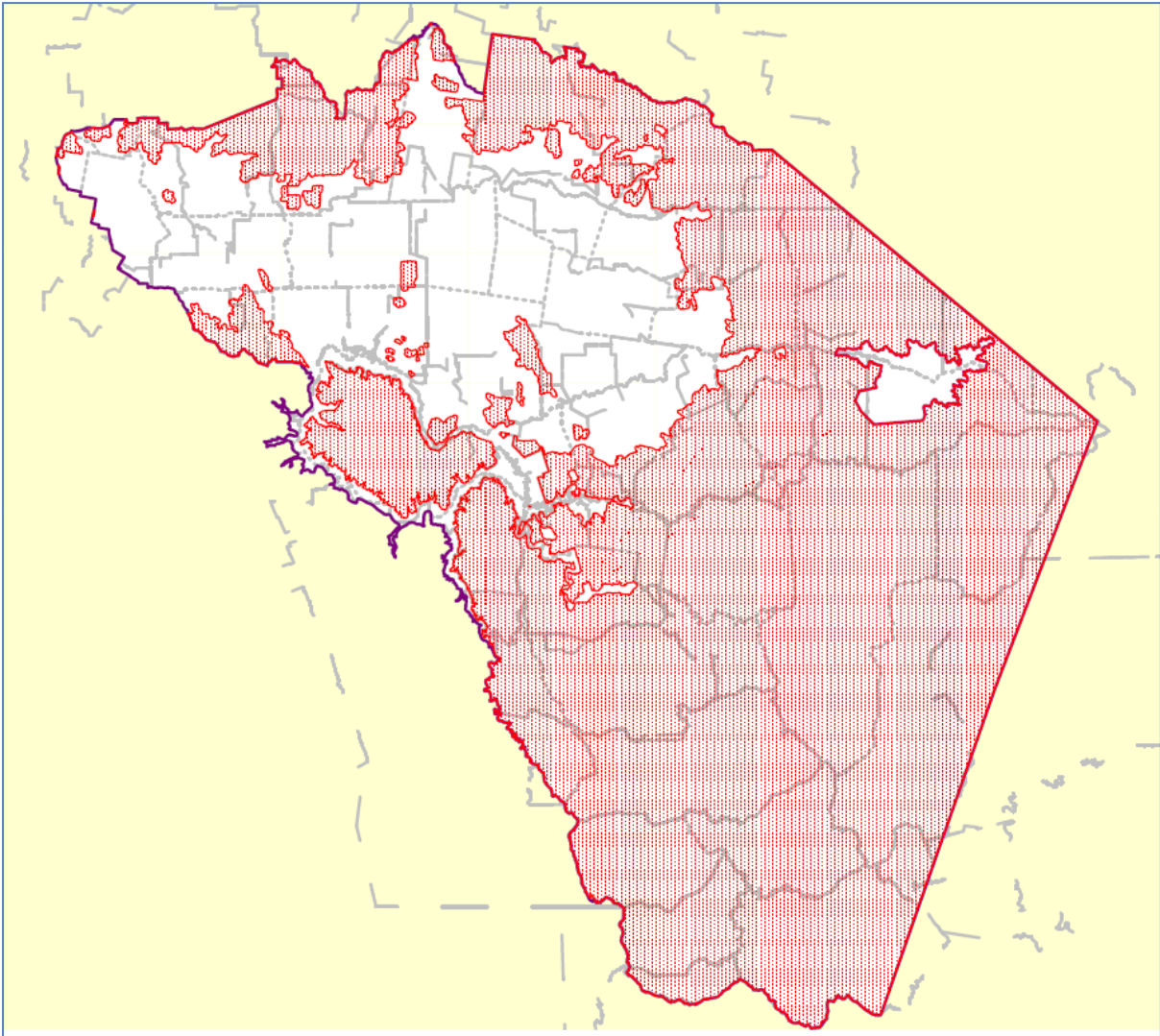


Figure 10: Bushfire Management Overlay

The Southern area of the shire is predominantly public land, including the Alpine National Park. Some settlements exist along Mansfield-Woods Point Road which follows a narrow valley between Jamieson and Woods Point. The settlements interact with bushfire hazard areas of dense vegetation considered to be of high or very high conservation significance. This valley contains single access road arrangements.

The northern area of the shire contains the majority of settlements. Settlements adjacent to the Alpine National Park in the north interface with bushfire hazard areas. In addition to these existing settlements, there is development pressure in a number of areas in the region, including land adjacent to the Lake Eildon foreshore and pockets adjoining the Alpine National Park to the east.

Vegetated areas extend from the National Park towards the agricultural landscape in the centre of the municipality's northern area. While some areas are devoid of significant vegetation, there are pockets of vegetation mapped as being high or very high conservation significant scattered throughout the landscape, mainly to the north and north east (DTPLI, 2012).

The northern part of the Shire is hilly to undulating whilst the southern area is hilly to mountainous. Lake Eildon, Mt Buller and Mt Stirling are locations that show the variety of the terrain. The average annual rainfall is in excess of 730mm in the elevated areas.

The topography of the Shire is mountainous in sections to the south and east particularly extending towards Woods Point. There are a number of steep escarpments with the topography varying dramatically. These areas are also heavily vegetated with minimal access and egress.

Mansfield Shire falls within a number of bioregions being Highlands Northern Fall, Highlands Southern Fall, Victorian Alps and Central Victorian Uplands Bioregion. The region is made up of wet and dry sclerophyll forests. Over two thirds of Mansfield is managed as State or Crown Land. Mansfield Shire is approximately 85% covered with tree cover. Of this area 11% of private land is covered in native vegetation. These areas include the Alpine National Park, Lake Eildon National Park and a number of State Parks and Forests. Of the overall tree cover in Mansfield Shire less than 1% falls into existing road reservations. Eight hundred and twenty kilometres of roadsides need maintaining within the Shire.

Department of Environment and Primary Industries (DEPI), Goulburn Murray Water (GMW) and Parks Victoria (PV) are the major land owners of the Crown land area. Mansfield Shire Council owns approximately 3% of the land and HVP plantations are also a landowner. The remaining 30% of the land is privately owned.

7.5 Bushfire Management Overlay

The Bushfire Management Overlay is incorporated as part of the Mansfield Planning Scheme and has the following purposes:

- *To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.*
- *To assist to strengthen community resilience to bushfire.*
- *To identify areas where the bushfire hazard requires specified bushfire protection measures for subdivision and buildings and works to be implemented.*
- *To ensure that the location, design and construction of development considers the need to implement bushfire protection measures.*
- *To ensure development does not proceed unless the risk to life and property from bushfire can be reduced to an acceptable level.*

The overlay has been adapted from that of the pre-existing Wildfire Management Overlay as part of the Council planning schemes to address recommendation 27 of the VBRC. The overlay considers permit requirements for subdivision, buildings and works and application requirements including the support of a Bushfire Management Statement for planning applications.

The overlay applies to areas that are at risk of extreme bushfire behaviour. Applying for a planning permit under the BMO requires a site based assessment of bushfire hazard as part of the application.

The Victorian Planning Provisions allow for the support of a schedule to the Bushfire Management Overlay. The role of the schedule is to tailor local conditions and circumstances to a specific geographical area and to provide consistency. In this case schedules will be applied to already subdivided areas that contain lot sizes that are able to accommodate the protection measures

specified in the Bushfire Management Overlay. The schedules must be in line with State planning Policy for bushfire and be justified that they provide bushfire protection measures.

A schedule to the Bushfire Management Overlay allows Council to specify permit requirements that are different from the requirements outlined in the BMO. It may also modify standards of Clause 52.47 Bushfire Protection – Planning Requirements, as long as the alternatives still meet the objectives of Clause 52.47; include decision guidelines, include permit conditions and set out requirements for referral and notice.

Applicants that are required to develop land for a single dwelling in a Bushfire Management Overlay are required to undertake a Bushfire Management Statement and a bushfire site assessment that is assessed against the relevant standards and show that the standards have been met. These applications are required to be referred to the relevant fire authority. If a schedule has applied to the land than alternative requirements are in the schedule and applicant can choose to undertake the application using the requirements in the schedule and no further justification or referral will be required, or they can continue to undertake their own application assessment.

7.6 Clause 52.47 Bushfire Protection: Planning requirements

Clause 52.47 of the Mansfield Planning Scheme sets out a number of provisions that must be considered when applying for an application to subdivide land, construct a building or construct or carry out works under the provisions of the Bushfire Management Overlay.

Applying schedules to the BMO will negate the need for specific applications to address the requirements of this Clause if they are building to the designed Bushfire Attack Level (BAL) that is stated in the schedule. The applicant, if they chose, can address the provisions of the clause if they feel that they can make a case for reducing the BAL level specified to their property.

One of the requirements of bushfire protection is to provide a defensible space area around new dwellings. A defensible space is a physical space between unmanaged vegetation and a dwelling. The defensible space width is determined by slope, vegetation, weather conditions and acceptable radiant heat flux. The defensible space is categorised into an inner and outer zone. The inner zone is to reduce the radiant heat impacting on a dwelling and prevent flame contact. The outer zone is to draw the fire out of the tree canopy before it reaches the inner zone.

7.7 Building Code and bushfire attack levels

Majority of Mansfield Shire is designated as being within bushfire prone area. The Building Code of Australia provides a national standard for building compliance which seeks to reduce vulnerability of a building. Building standards for bushfire have been in place since the early 1990s (SMEC 2006).

Bushfire prone area maps have been introduced across Victoria. The bushfire prone area maps designated construction standards for residential buildings within the areas. These areas have been mapped as they are likely to be subject to bushfires based on factors including weather, topography and vegetation. Refer to figure 11.

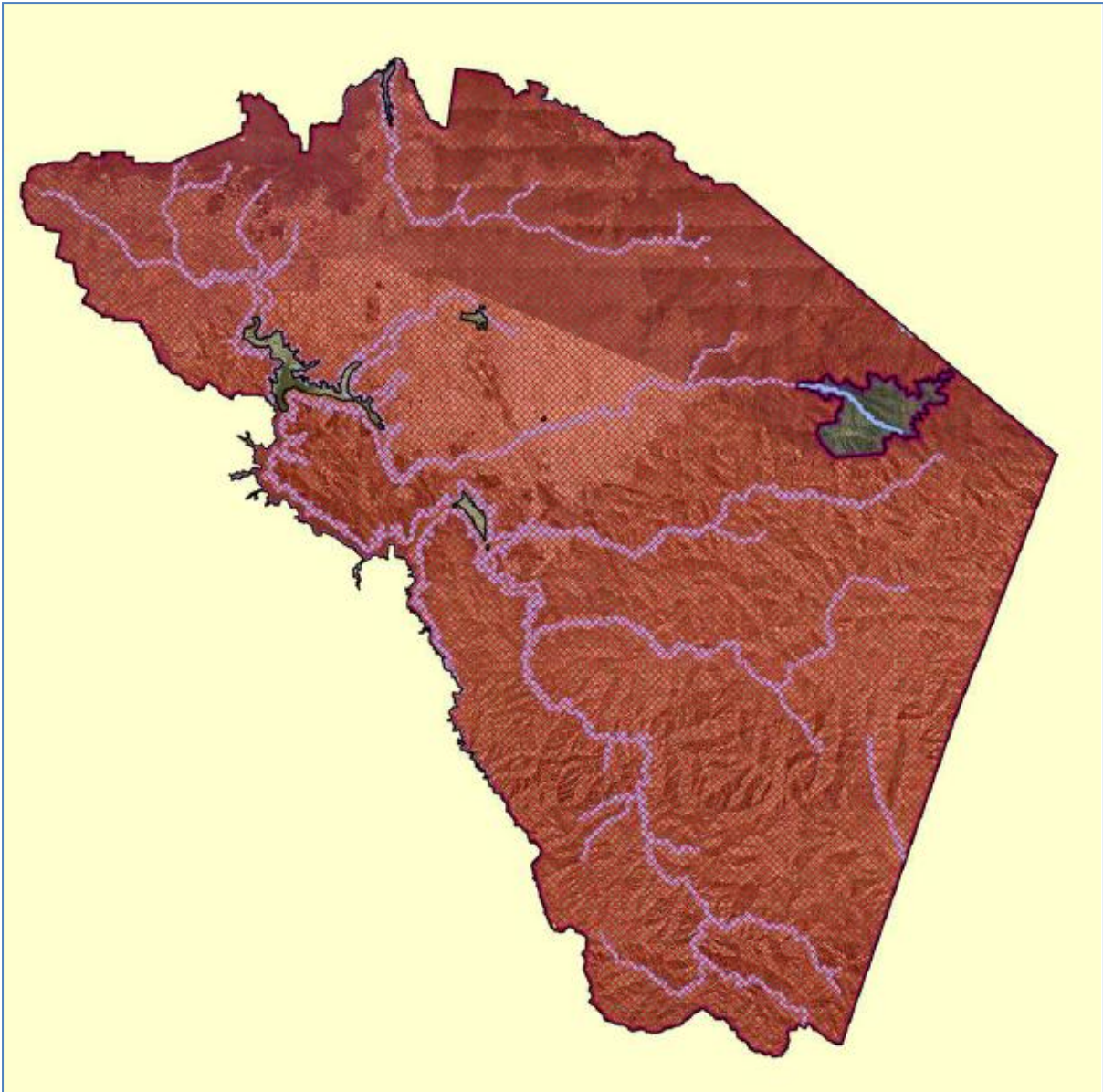


Figure 11: Bushfire prone area map.

All new homes to be constructed in a Bushfire Prone Area must be built to a minimum Bushfire Attack Level (BAL) of 12.5. This is to ensure that the building can help to withstand ember attacks and include sealing roofs, sealing around doors and windows and screening window. Higher construction levels may be required given the site of a new dwelling.

Construction Level AS:3959-2009 is the construction standard that determines building requirements in levels of ember attack, radiant heat and flame contact that may impact on a dwelling. These classifications are rated as BAL – Low to BAL FZ which equates to a radiant heat influx of 40kW/m² and the possibility of flame contact.

Bushfire Attack Levels Explained

Bushfire Attack Level (BAL)	Radiant Heat Exposure (AS 3959) and levels of exposure	Description of predicted bushfire attack and levels of exposure
BAL-LOW	Insignificant	The risk is very low, radiant heat on the building is insignificant to warrant specific construction requirements, however ember attack may still occur. If you are in a designated BPA, you must however construct to a minimum BAL 12.5
BAL-12.5	0 to 12.5 kW/m ²	Primarily risk of ember attack; risk of radiant heat is considered low
BAL-19	12.5 to 19 kW/m ²	Risk is considered moderate with increasing levels of ember attack and burning debris ignited by wind borne embers; increasing likelihood of exposure to radiant heat
BAL-29	19 to 29 kW/m ²	Risk is considered to be high with increasing levels of ember attack and burning debris ignited by wind borne embers; increasing likelihood of exposure to radiant heat
BAL-40	29 to 40 kW/m ²	Risk is considered to be very high. Increasing levels of ember attack and burning debris ignited by wind borne embers; increasing likelihood of exposure to radiant heat and some direct exposure to flames possible
BAL-FZ	40 kW/m ² plus (Flame Contact)	Risk is considered to be extreme. Direct exposure to flames from fire front is likely in addition to high levels of radiant heat exposure and ember attack

Figure 12: Bushfire Attack Levels (Building Commission, 2011).

8. Stakeholder consultation

8.1 Project processes

Throughout the entirety of the undertaking of this project report there have been many meetings with both the DTPLI and CFA about various outputs and undertakings of different aspects of the report. One of the main outcomes to arise from this report was to be the implementation of schedules to the new Bushfire Management Overlay maps which were to be implemented and introduced into planning scheme by the State Government. Currently these maps are yet to be introduced into the Planning Scheme. As a result aspects of this report in relation to drafting of schedules have been made on the basis of the current maps which are included in the Mansfield Planning Scheme.

The whole of the undertaking of this project has been under the direction of a steering committee. The steering committee has been made up of a representative from each of the referral authorities and representatives from different council departments along with emergency management departments.

The Steering Committee involved representatives from the following:

- State Emergency Services
- Department of Sustainability and Environment
- Victoria Police
- Country Fire Authority
- Goulburn Murray Water
- Goulburn Valley Water
- Vic Roads
- Goulburn Broken Catchment Management Authority
- SP Ausnet
- Environment Protection Agency
- Telstra
- Heritage Victoria
- Aboriginal Affairs Victoria
- Council

The Bushfire Planning Provisions project and report was coordinated by a Council Strategic Planner in consultation with the Steering Committee. The following are the major steps in the undertaking of this project.

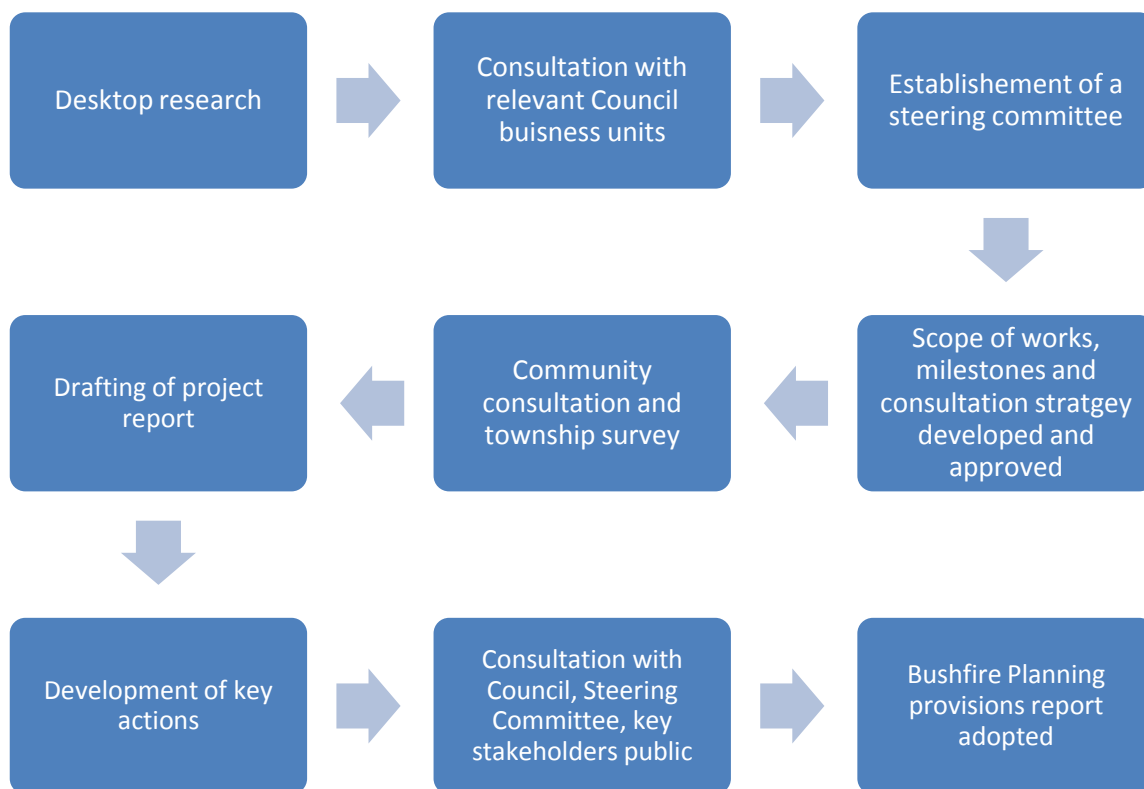


Figure 13: Flow chart of project steps

The draft report was placed on public exhibition and community members and other stakeholders were asked to contribute to feedback. XXXX submissions were received and this final version of the Bushfire Planning Provisions report incorporates XXXX of the feedback received.

The Bushfire Planning Provisions report was tabled with Council for adoption on XXXX.

8.2 Community Consultation

Decisions about bushfire mitigation and management are highly dependent on data and information and the knowledge derived. Therefore the knowledge base can include both traditional and local knowledge, as well as individual and organisational experiences. Local knowledge refers to the thoughts, perceptions experiences and beliefs of residents, landholders, fire fighters and other involved in fire mitigation and management at the local level. It embraces individuals memories and experiences of past fire events and specific knowledge of elements and processes in the current environment. (Ellis et al 2004).

As part of the study Council in conjunction with the CFA ran a number of Fire Safety Awareness and project workshops with ratepayers. Various questions were raised and discussion held to gain an insight into each of the high risk settlements. This assisted in providing an understanding of the perceived hazards in each of the settlements and the opportunities and constraints surrounding each community.

Each identified high-risk community received notification of a number of workshops to be held around the Mansfield Shire. The workshops covered the following Council topics:

- Staying or leaving on a code red day.

- Infrastructure available in the event of a bushfire.
- Bushfire hazards.
- Community involvement in mitigating bushfire risk.
- Conditional or limited future development.
- Risk levels.

The CFA presented their Fire Safety Awareness session at each of the workshops which covered aspects of preparing for a bushfire and safety in the event of a bushfire.

Informed and prepared individuals and communities minimise risk to people, property and environment. Having an informed and prepared community helps land managers and fire agencies in producing outcomes to minimise risks. Community education and awareness is major part of ensuring that the communities are sharing responsibility of risk management and understand the dangers in high risk areas. Effectiveness of community preparation and information programs depends on the community's commitment and interest uptake to offers of education.

The CFAs policy of go early or stay and defend is effective with community education programs to teach preparedness and support of informed decision making. Community related bushfire mitigation methods will only be significant if the community is educated and engaged (COAG).

“Communities need to better understand the reasons behind land use planning and development controls in risk mitigation. While it is evident that understanding of the need to apply land use planning controls is growing in some specific areas (for example bushfire prone areas) increased effort in this regard is warranted.” (SMEC 2006).

General outcomes that arose from the community consultations included (See Appendix 3 – Table of community consultation outcomes):

1. New residents lack awareness of bushfire risk.
2. Increasing age of population increasing dependence on emergency services.
3. Some evidence of individuals engaging other community members to increase household preparedness through personal networks and fireguards.
4. A gap between bushfire awareness and preparedness.
5. Trade offs people make between lifestyle choice, environmental and economic values.
6. Denial of risk.
7. Part time residents don't want to spend time doing mitigation work on their properties.

Many of the residents in each of the areas that were consulted choose to stay on a Code Red Day and would stay and defend in the event of a fire (See figure 13 below). As the participatory numbers at the community consultation was low the below figure cannot be considered overly representative of each area.

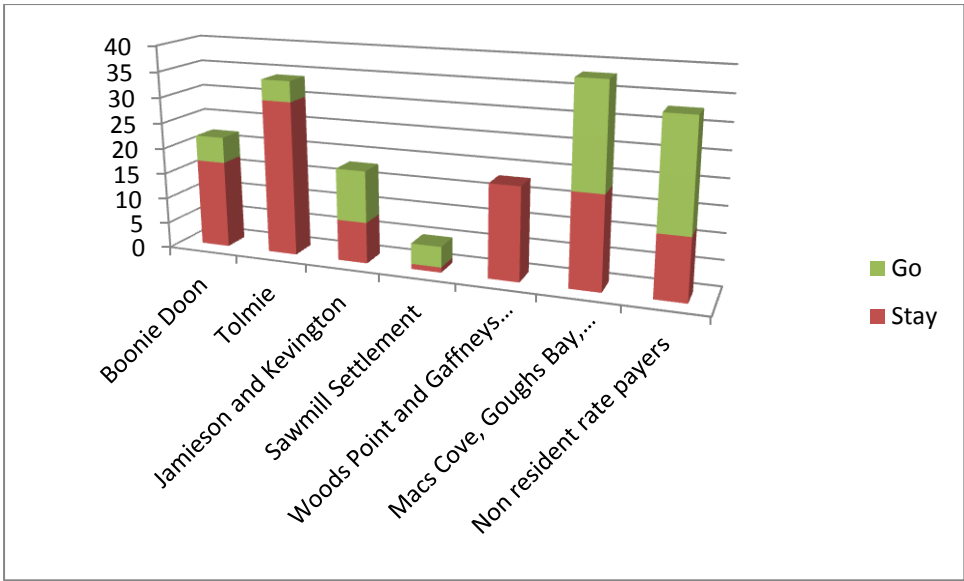


Figure 14a: No. of people who will Stay vs Go on a Code Red Day.

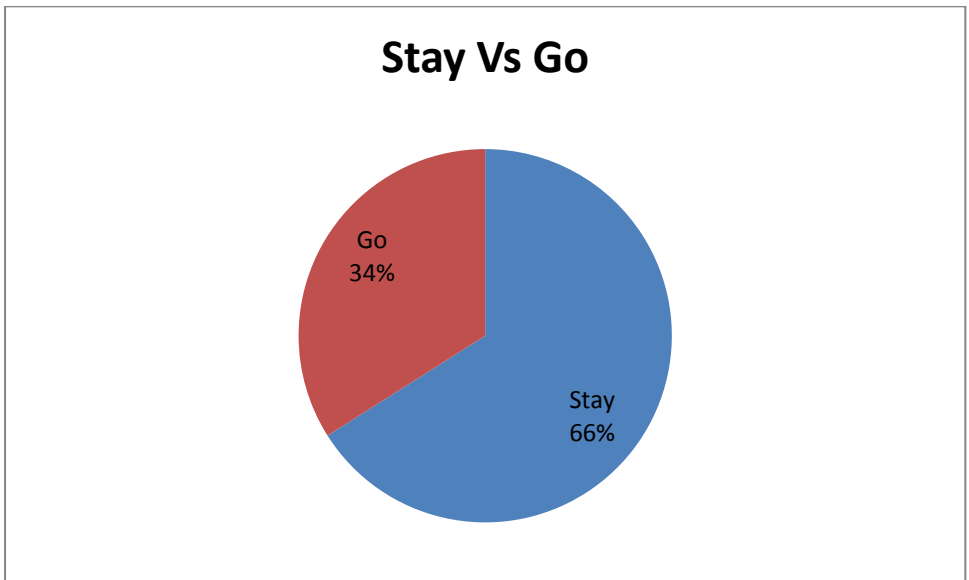


Figure 14b: Percentage of people who will Stay Vs Go on a Code Red Day.

Many people who intend to leave before being threatened by a bushfire neither plan nor prepare to do so safely. Many people who intend to leave take the wait and see approach as to when and if they will leave when under threat.

Other issues and information sought throughout the consultations were:

ISSUE	INFORMATION
Illegal Structures	There are a number of illegal structures across the Mansfield Shire which has been highlighted by community members as contributing to the risk of the area. If brought to the attention of Mansfield Shire then enforcement procedures can be undertaken. Mansfield Shire Council does not have an enforcement planner dedicated to

	seeking out existing illegal structures at this time.
Fuel hazard enforcement	Site inspections for fuel hazards are undertaken by Council under the CFA Act. Where a fuel hazard is perceived to be problematic on private land, a notice to comply to remove a fuel hazard is issued to the landowner. In the event that there is a failure to comply with the removal of the fuel hazard, a fine of \$1408 is issued.
Mechanical and chemical fuel reduction	Property owners can take onus on themselves to slash the property or to spray land to achieve a fuel reduction zone. This can be extended to adjoining roadsides under certain conditions.
Landscaping maintenance	Property maintenance is the most highlighted concern
Controlled burns and responsibility	The Department of Environment and Primary Industries (DEPI) has a Fire management Plan with a rolling three-year Fire Operations Plan for each Fire District to show the location of intended fire prevention and preparedness works such as planned burning.
Neighbourhood Safer Places	See Appendix 4 for a list of Neighbourhood Safer Places.
Driveways to dwellings	Driveways are often covered by vegetation or trees which can prove hazardous for access for larger fire fighting vehicles. Whilst defence of dwellings is not a CFA priority, the CFA may decide not to access a property that has limited access or has limited turning space.
Grazing	Grazing land reduces the risk of fire outbreak and ground fuels.
Access and egress roads	Road movement in the event of a bushfire is a particular hazard with the smoke, disorientation and panic causing issues on the road. Roadsides can be narrow and there may be heavy fuel loads nearby on adjacent land. Fallen trees or electrical wires can also add to the hazards of driving in bushfire events.
Native vegetation removal	Clause 52.17 Native Vegetation of the Mansfield Planning Scheme gives the provisions and exemptions of needing a permit for native vegetation removal. Clause 52.48 Bushfire Protection: Exemptions also gives exemptions for native vegetation removal for dwellings constructed prior to 10 th September 2009 in the Bushfire Management Overlay.
Accessible water	There are six major rivers that run through the

	Mansfield Shire area being the Broken, Delatite, Howqua, Goulburn, Big and Jamieson Rivers.
Cost estimate for BAL houses	The Building Commissions fact sheet on Victoria's Bushfire Mapping System highlights that the additional cost to build a minimum 12.5 BAL construction level house depends on the design of the home. Estimated additional requirements would amount to \$3,400 or more which would include sealing roofs, windows and doors. This is based on a three bedroom brick-veneer construction with single carport.
Roadside vegetation management	VicRoads and local councils are mainly responsible for roadside management. Roadside fuels are managed through a risk assessment process with treatment where considered appropriate. Mansfield Shire has 820 kilometres of roads and roadsides to maintain.

In the wake of the community consultation it was apparent that there was confusion as to where development would be approved and what conditions would be required for development. This in conjunction with the VBRRR recommendations prompted the writing of a Local Planning Policy addressing Fire Management in the Shire. The policy will apply to the whole of the Shire and has been drafted in consultation with the CFA and DPCD.

9. Sawmill Settlement and Alpine Ridge Overview

Sawmill Settlement and Alpine Ridge are located 30kms to the south east of Mansfield along the Mount Buller Tourist Road. Sawmill Settlement and the adjoining Alpine Ridge and Pinnacle Valley act as a settlement that caters predominantly for non-resident land-owners, holiday makers and tourists. There are few permanent residents in these areas.



Figure 15: Sawmill Settlement and Alpine Ridge landscape

Sawmill Settlement / Alpine Ridge is already subdivided and predominately made up of Residential 1 zoned lots with Farming Zone to the south and west. To the north land is zoned Public Conservation Zone. All land within the area is covered by the Bushfire Management Overlay and the Significant

Landscape Overlay. There is also a small parcel of lots that are covered by the Development Plan Overlay.

Majority of the development within Sawmill Settlement / Alpine Ridge is over ten years old (See Appendix 5 – Dwelling ages and vacant land in Sawmill Settlement mapping). There are a number of vacant parcels within Sawmill Settlement and Alpine Ridge. In particular there is a new subdivision area located in the south eastern corner of Sawmill Settlement that is yet to be developed.

Sawmill Settlement has been assessed as having an **EXTREME** bushfire risk in accordance with the Victorian Fire Risk Register. In 2006/2007 a major fire surrounded Sawmill Settlement for a period of three weeks and came within a couple of kilometres of the settlements. Vegetation on roadsides and throughout Sawmill Settlement presents a direct threat to homes and properties (CFA 2011a).

The residential zoned properties in Sawmill Settlement are located within a heavily vegetated areas and there is no separation between the hazard and the settlement.

The area is surrounded by the Alpine National Park with the vegetation considered to be sheltered and high altitude dry forests See Appendix6 – Vegetation Cover map, Sawmill Settlement (DSE, 2013). Settlement is undulating and the settlement is heavily vegetated throughout. The topography immediately surrounding Sawmill Settlement / Alpine Ridge is characterised by steep slopes, long ridges and deep valleys that extend for many kilometres. The hazard is characterised by continuous vegetation with high fuel loads in a landscape with steep topography. A fire is likely to fully develop in the heavily vegetated mountain ranges of the Alpine National Park and there is the potential for long run fires. Alpine Ride is located in a small clearing but has complex local topography with some steep slopes in and around the existing settlement. There is a grassfire risk to Alpine Ridge from the west and south.

The area has a strong valley that has a relative flat pastured floor with remnant vegetation along road and fences. The upper Delatite River and offspring creeks run through the area. Dense woodland surrounds the area to the north, south and east.

Access and egress is via a two lance constructed road (Mount Buller Tourists Road) that leads to Mansfield to the northwest and Mt Buller to the south east. The road passes through heavily vegetated areas towards Mt Buller and about 1.52 kilometres of the road towards Mansfield is through heavily vegetated areas. Roads within the Sawmill Settlement area are narrow with wide culverts on either side. The roads have poor lines of sight as they are curvaceous with high fuel loads of roadside vegetation.

Overview	
Telecommunications	Nil
Access and Egress	There is only one access egress to Sawmill Settlement from Mount Buller Tourists Road.
Road conditions	Internal roads are sealed, steep, rough and have large ditches to each side of the road with culverts.
Vegetation	Dense woodland to the north, south and east
Water accessibility	Delatite river on valley floor and community water tank.
Land slope	Land slopes upwards to the north and south of the of the valley floor.

Alpine Ridge is located to the west of Sawmill Settlement in a valley (approximately 1.8 kilometres in length and 1.2 kilometres wide) that contains some fragmented vegetation within the settlement and some grassland.

There severe topography and continuous vegetation in the broader landscape is likely to produce extreme fire behaviour. There is significant potential for large fires to develop and grow with strong and damaging convective influences. A bushfire in this landscape will produce fire behaviour that is likely to overcome minor fragmentation and modification in fuels (for example the small cleared valley).

Given the location of Sawmill Settlements within the vegetation, the settlement is likely to be exposed to all three forms of bushfire attack from a fire front: flame contact, radiant heat and ember attack. There is no separation between the settlement and the hazard.

For Alpine Ridge, parts of the settlement adjacent to the Alpine National Park, particularly to the north and east are likely to be exposed to flame contact and radiant heat from a fire front.

The Forest vegetation will produce significant amounts of embers that will result in extreme ember attack impacting across the whole settlement.

A majority of properties within the Alpine Ridge settlement are exposed to hazard from grassfire. The complex topography throughout the settlement will influence the fire behaviour for both the grassfire and forest hazards.

There are currently no designated Neighbourhood Safer Places (NSP) in Alpine Ridge or Sawmill Settlement.

The Upper Delatite River System services the area of Sawmill Settlement,. The area has a current bulk entitlement of 235ML/year of which the 2009 actual demand was 62ML/year and the Yield was 84ML/year (Mansfield Shire, 2012d).

7.1 Planning and building context

ZONING: Residential 1 Zone (R1Z)

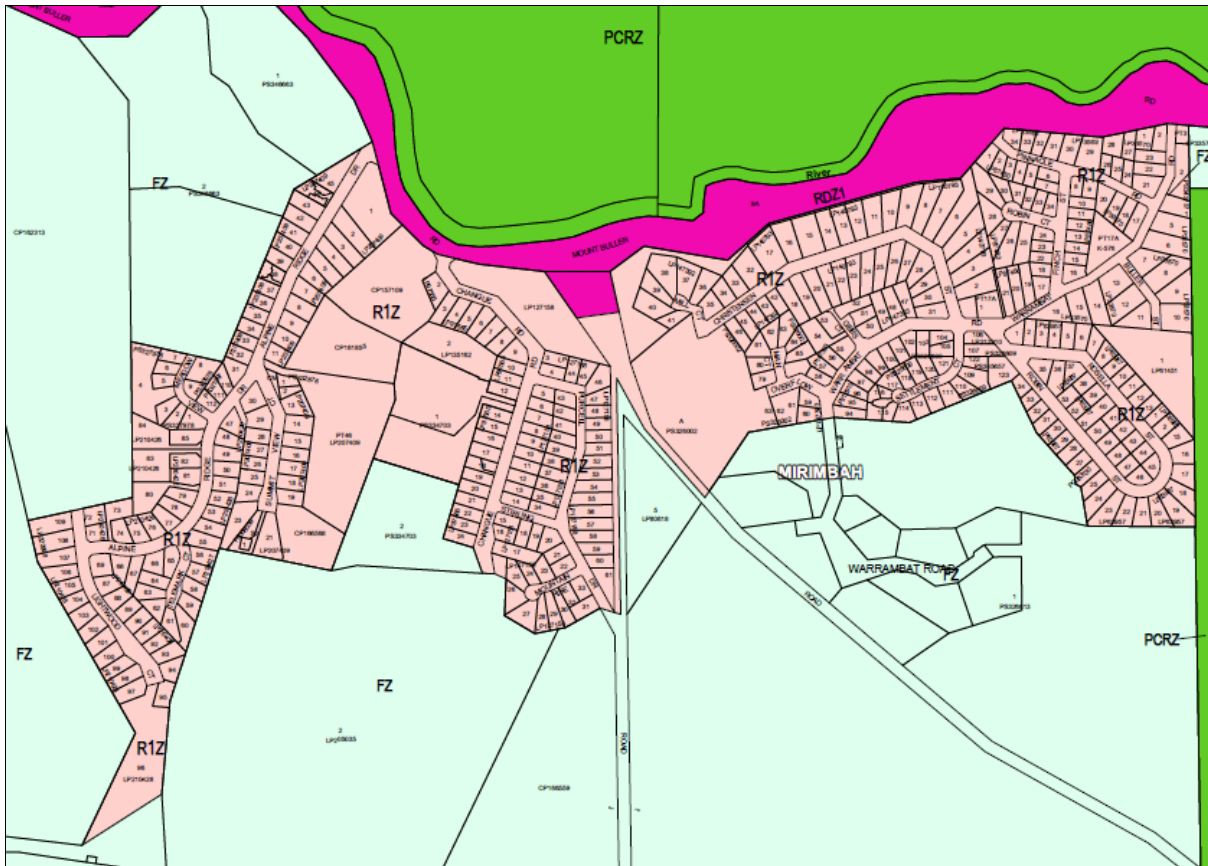


Figure 16: Sawmill settlement zoning map 16 (DPCD, 2013)

OVERLAYS: Significant Landscape Overlay (SLO)

- SLO1 Alpine Approach Significant Landscape Area

Development Plan Overlay (DPO)

- Schedule 1

Bushfire Management Overlay (BMO / WMO)

The purpose of the Significant Landscape Overlay is to:

- Identify significant landscapes
- Conserve and enhance the character of significant landscapes

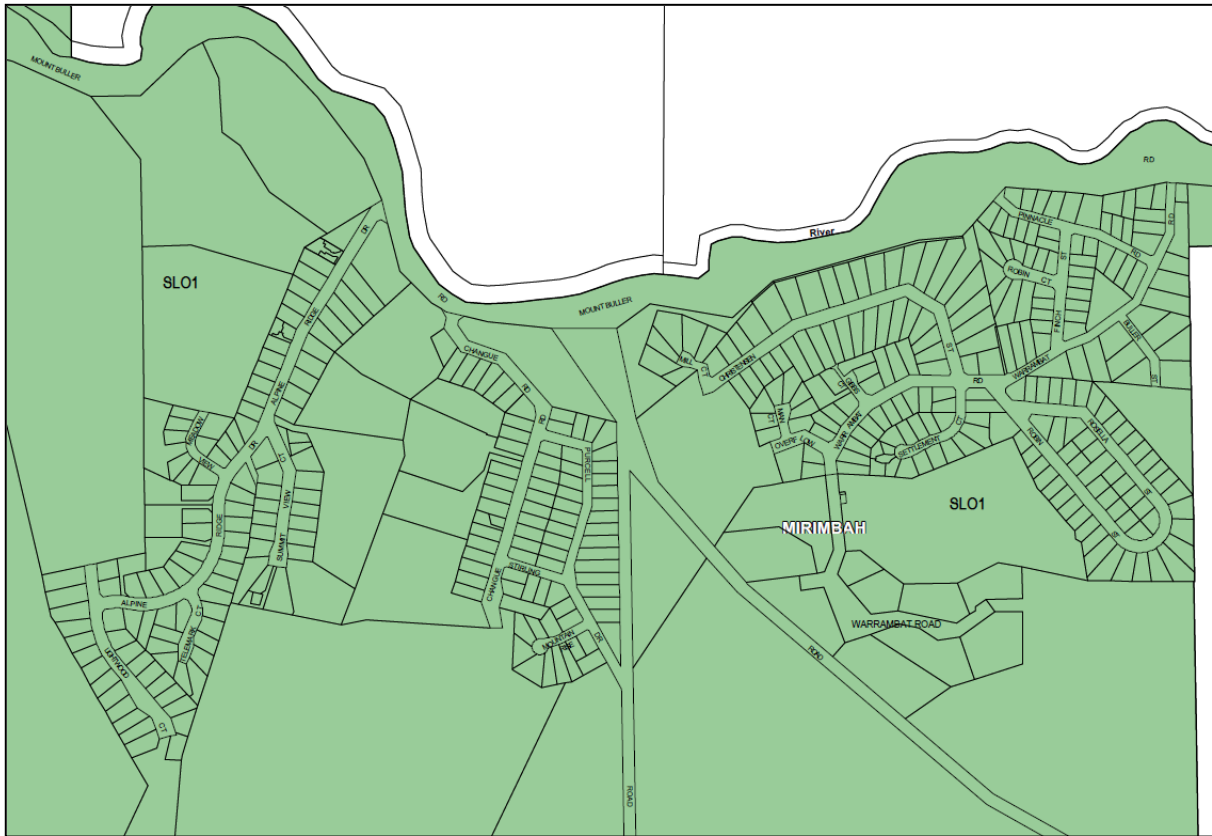


Figure 17: Significant Landscape Overlay Map 16 (DPCD, 2013)

Schedule 1 of the SLO aims to identify and protect the visual values of the landscape on the approaches to mountains and ranges including Mount Buller from the Mt Buller Road. Visual impacts from buildings and works must be avoided in this landscape.

The purpose of the Development Plan Overlay is to:

- To identify areas which require the form and conditions of future use and development to be shown on a development plan before a permit can be granted to use or develop the land.
- To exempt an application from notice and review if it is generally in accordance with a development plan.

Schedule 1 to the Development Plan overlay applies to an area of land in Alpine Ridge that Residential 1 Zone and Mixed Use Zone.

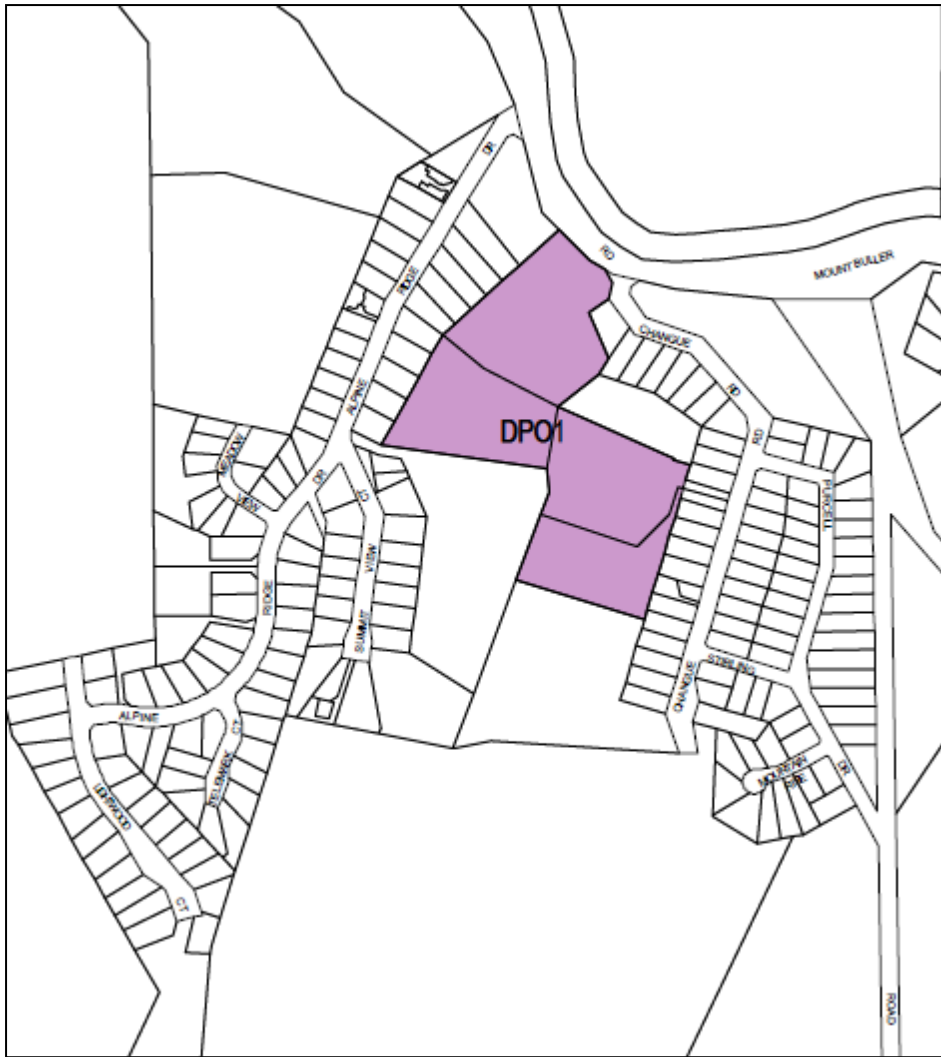


Figure 18: Development Plan Overlay Map 16 (DPCD, 2013)

The area of Sawmill Settlement and Alpine Ridge are also a designated bushfire prone area under the Building Amendment (Bushfire Construction) Regulations 2011. As the land is covered by the Bushfire Management Overlay a planning permit is triggered resulting in an individual site assessment for any new dwellings or extensions to existing dwellings.

7.2 Planning provision mitigation measures

Due to the landscape risk these two settlements, careful consideration of any additional development is required.

Sawmill settlement is not considered to be suitable for a schedule to the Bushfire Management Overlay as it is anticipated that the majority of lots would be subject to direct flame contact. The BMO is the appropriate planning tool to trigger a planning response for a site by site assessment of the risk.

For Alpine Ridge the extreme ember attack risk should be carefully considered and whether the bushfire risk has been reduced to an acceptable level in accordance with the Clause 13.05 of the State Planning Policy Framework.

Consideration of broader fire management planning is an important part of enhancing resilience within this settlement.

Currently the Mansfield Shire Planning Scheme promotes Sawmill Settlement in conjunction with Alpine Ridge and Pinnacle Valley as a future development area. This is given that Merrijig is highlighted to become a local alternative township service centre area. No mention is made in regards to the environmental risks of the area. The Planning Scheme review of the Mansfield Shire Planning Scheme should reconsider the values and risk of future development in these areas. Whilst some further infill development may be appropriate in Alpine Ridge and Pinnacle Valley, no further development should be substantiated within the area of Sawmill Settlement. The area should also be highlighted as high risk of bushfire and no longer promoted as an affordable and attractive housing choice. Furthermore lineal development along the Mount Buller Tourists Road that is the main thoroughfare to Mansfield and the Mount Buller resort should not be encouraged or supported past the point of Merrijig. Given the use of the road as a main connection and escape route to Mansfield, the use and development of areas along this road should take into consideration traffic impact and the effect that may have on nearby settlements.

Given the extent of vegetation located in and around Sawmill Settlement a schedule to the bushfire management overlay stating modified requirements is not appropriate. The vacant lots in Sawmill Settlement are unable to meet defendable space requirements for the application of dwellings. Therefore any application for a dwelling must be considered carefully giving the prioritisation to the protection of human life and any application must be referred to the local fire authority and additional protection measures considered.

The number of vacant subdivided lots within Sawmill Settlement lends itself to the application of a Restructure Overlay. In particular the restructure overlay would require the redistribution of vacant lots to accommodate a dwelling that is able to achieve the appropriate defendable space boundaries required by the building code of Australia. Only one dwelling should be developed on each restructure lot and the applicants for a dwelling should be in accordance with a restructure plan for the area.

Before a planning permit is granted for a dwelling in accordance with a restructure plan for the area, all lots within the relevant restructure lot for which the dwelling is proposed must be consolidated with a title issued for the new consolidated lot. Any further subdivision of the area should be refused given the nature of the risk in the area and the already small lot sizes that cannot meet the defendable space requirements for development of new dwellings or buildings.

With the introduction of the new residential zones, Sawmill Settlement should be rezoned to the Neighbourhood Residential Zone which has the role of restricting housing growth in areas identified for urban preservation. This new zone can be used in areas where single dwellings prevail and change is not identified due to environmental or landscape significance.

The distribution of vacant lots within the Alpine Ridge area and the distance that many of these lots have from any significant vegetation there is cause for the application of a schedule to the Bushfire Management Overlay in this area. Planning applications for dwellings, replacement dwellings or extension to dwellings can benefit from the schedule if sited away from significant vegetation. Some lots along Lightwood Court, Alpine Ridge Drive, Telemark Couth, Summit View Couth and Change

Road can benefit from a schedule with a proposed Bushfire Attack Level of 29. These lots are all sited a minimum of 50 plus meters from significant vegetation classified as Woodland in accordance with the planning scheme and are all located on flat land or upslope from the vegetation. Below are the proposed modified requirements to the Bushfire Management Overlay for the highlighted lots:

Standard	Modified Requirement
BF3	Standard BF3 does not apply if all of the following requirements are met: <ul style="list-style-type: none"> • The application is to construct or extend one dwelling on a lot. • The modified requirement for Standard BF6.2 is met.
BF6.1	Standard BF6.1 does not apply if all of the following requirements are met: <ul style="list-style-type: none"> • The application is to construct or extend one dwelling on a lot. • The modified requirement for Standard BF6.2 is met.
BF6.2	Standard BF6.2 does not apply if all of the following requirements are met: <ul style="list-style-type: none"> • The application is to construct or extend one dwelling on a lot. • The construction or extension of the dwelling achieves a BAL of 12.5
BF9	Standard BF9 does not apply if all of the following requirements are met: <ul style="list-style-type: none"> • The application is to construct or extend one dwelling on a lot. • The modified requirement for Standard BF6.2 is met.
BF10	Standard BF10 does not apply if all of the following requirements are met: <ul style="list-style-type: none"> • The application is to construct or extend one dwelling on a lot. • If the lot has an area of less than 1,500 square metres a 2,500 litre static water supply located within 10 metres of the dwelling and made of non-combustible material is provided and maintained solely for fire fighting purposes. • For lots 1,500 square metres of more, Mandatory Standard BF10 applies.

The proposed modified requirements apply to lots that are distant from classifiable vegetation. The modified requirements give weight to the bushfire characteristics and site constraints in the area. The modified requirements to Clause 52.47 of the planning scheme do not apply to other development where planning approval is required under the BMO.

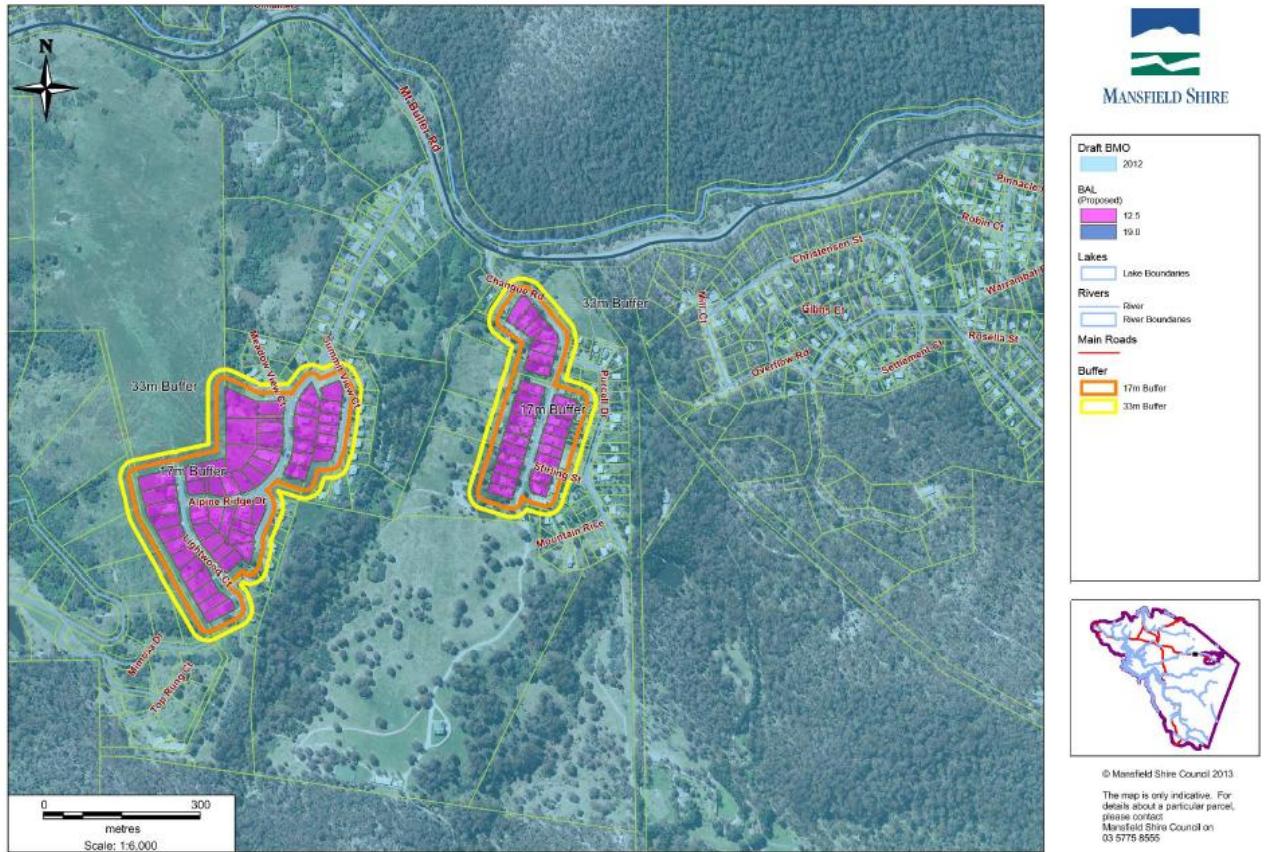


Figure 19: Proposed Bushfire Management Overlay Schedule area.

10. Bonnie Doon Overview

Bonnie Doon is located 22 kilometres west of Mansfield via the Maroondah Highway. The area is a mix of residential, business, public use, rural living and farming zone surrounding Lake Eildon. The whole area is within the Environmental Significance Overlay given its proximity to Lake Eildon as a major catchment area.

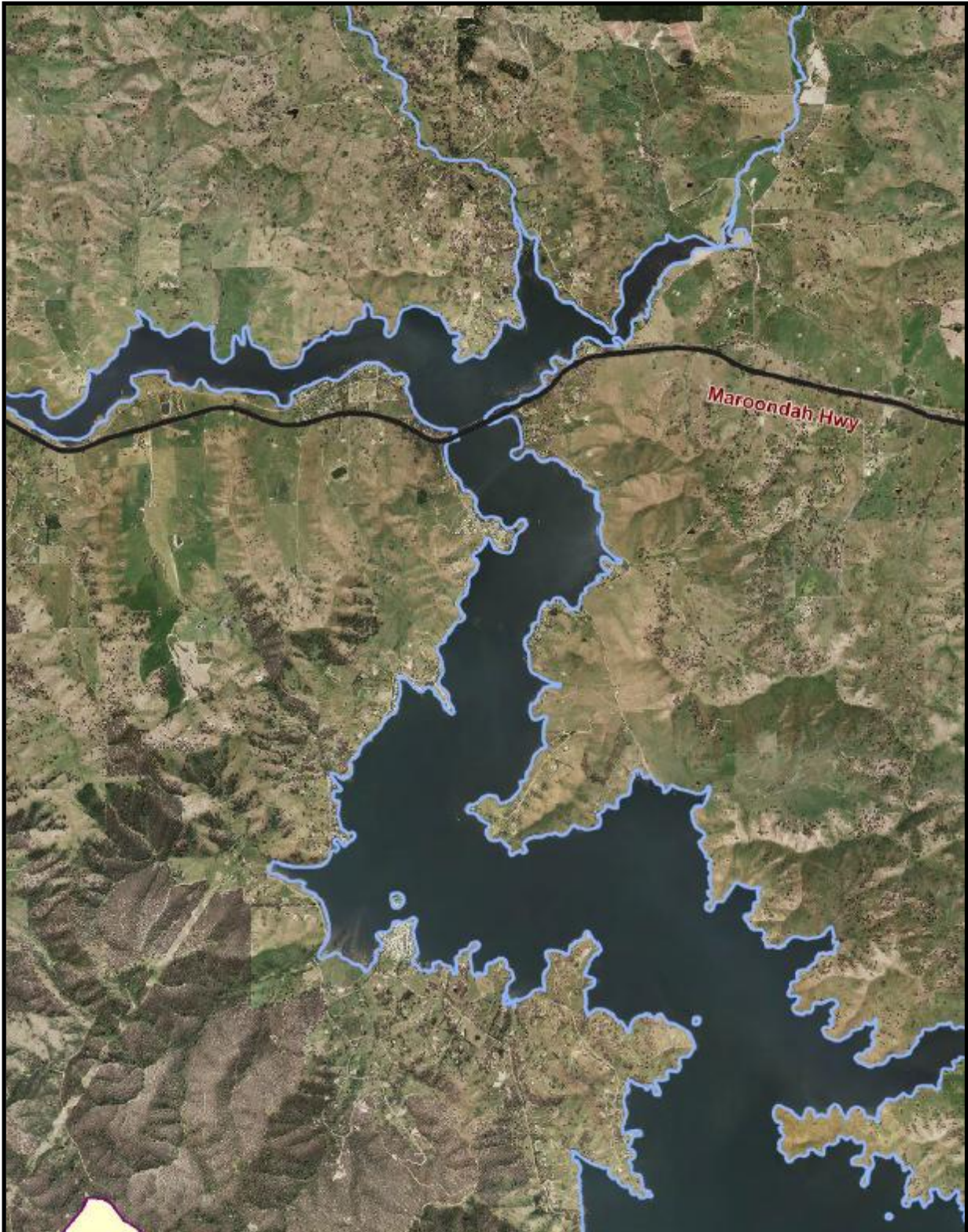


Figure 20: Bonnie Doon landscape

The proximity to Lake Eildon has highlighted Bonnie Doon a minor tourist town for water activities. Like the majority of small townships in Mansfield Shire, Bonnie Doon has a number of holiday homes. There are currently over 800 properties in Bonnie Doon with less than 300 of these being properties of resident ratepayers.

Development pressure is being experienced to the north and south of Bonnie Doon including stretching along Lake Eildon towards a bushfire hazard area associated with scattered remnant vegetation and pine plantations. Properties in the south of Bonnie Doon along Sonnberg Drive into Alexandra and along Mantongoon Road are at higher risk of fire given the topography of the area and the density of the surrounding native vegetation. To the north of Bonnie Doon along Dry Creek Road there is also a number of properties with close proximity to scattered remnant vegetation that are at risk of being affected by fire (See Appendix 7 – Bonnie Doon dwelling ages and vacant land mapping).

Around the Mantongoon Road area there are a number of properties that are undeveloped. To the South of Bonnie Doon in Peppin Point is the location of a caravan park. The Neighbourhood Safe Place for the area is located at the Peppin Point Holiday Park on to the Tennis Court / swimming pool area.

Bonnie Doon has a current bulk water entitlement of 112ML/year from the Brankeet Creek branch of Lake Eildon in the Goulburn River system. In 2009 the actual demand was 45ML/year and the Yield was 112ML/year.

Bonnie Doon is made up of dry forests either exposed or sheltered at lower altitude. There are also tracks of riparian forests running through the area. (See Appendix 8 – Vegetation cover map – Bonnie Doon).(DSE, 2013).

Overview	
Telecommunications	Unreliable coverage over the area with Telstra and Optus networks.
Access and Egress	Maroondah Highway is the main connection Road to Mansfield.
Road conditions	Majority sealed narrow roads.
Vegetation	Dense native vegetation and pine plantations located to the south of Bonnie Doon.
Water accessibility	Lake Eildon.
Land slope	To the south of Bonnie Doon land slopes upwards to the south west.

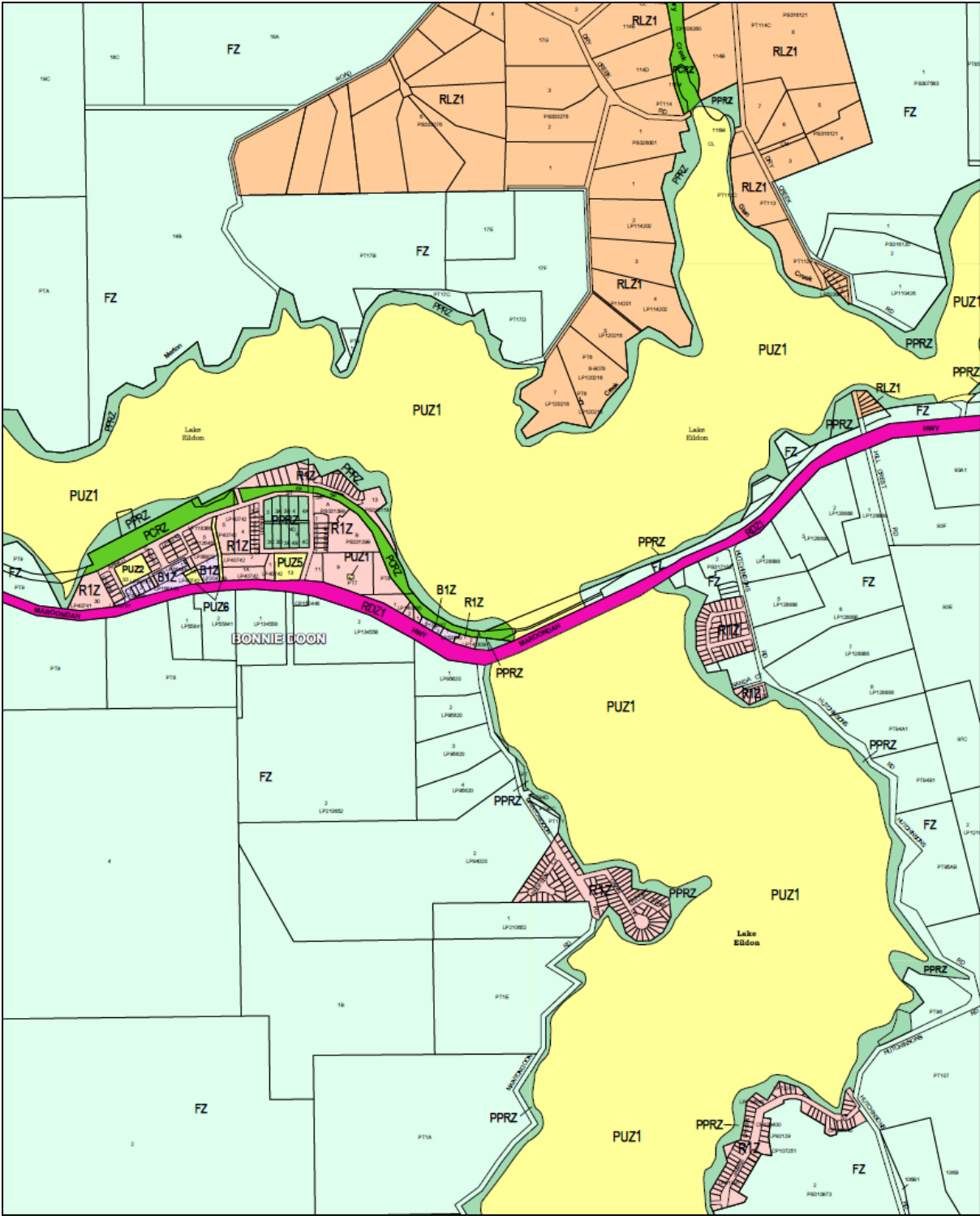


Figure 21a: Bonnie Doon zoning map 7 (DPCD, 2013).

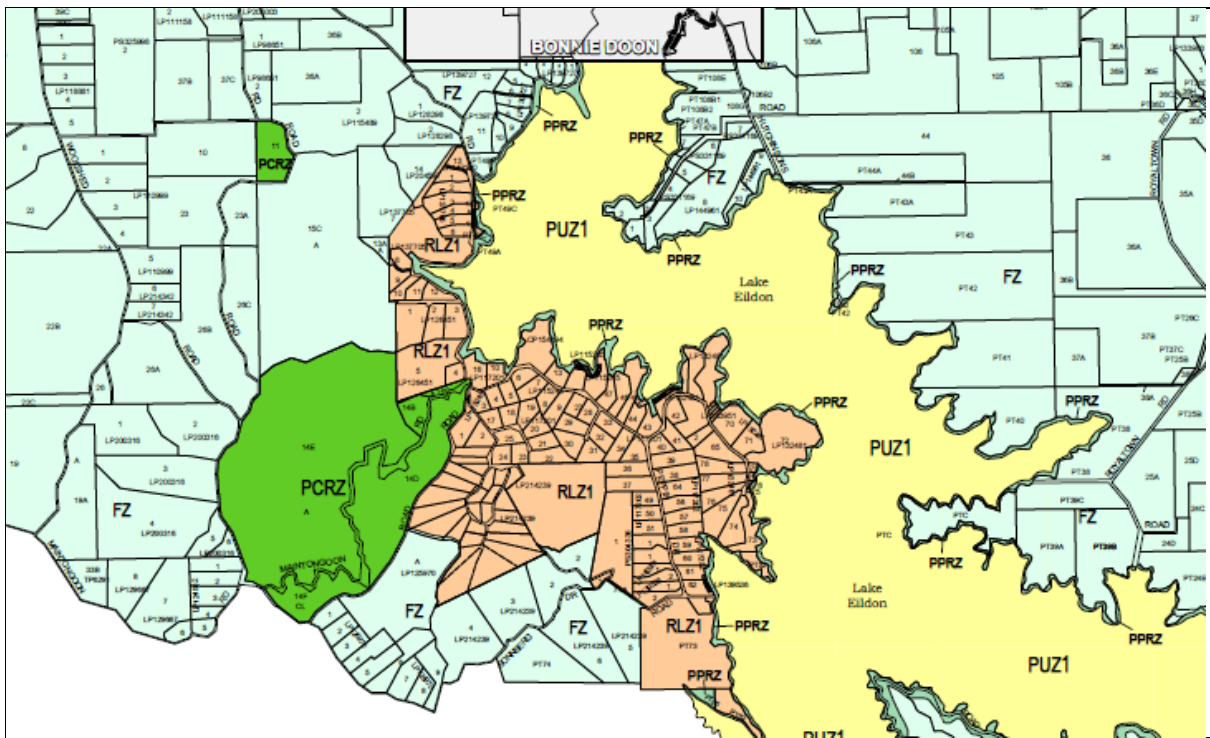


Figure 21b: Bonnie Doon zoning map 6 (DPCD, 2013).

8.1 Planning and building context

ZONING: Residential 1 Zone (R1Z), Public Use Zone (PUZ), Rural Living Zone (RLZ) and Farming Zone (FZ).

OVERLAYS: Environmental Significance Overlay

- Schedule 1.

Bushfire Management Overlay (BMO / WMO)

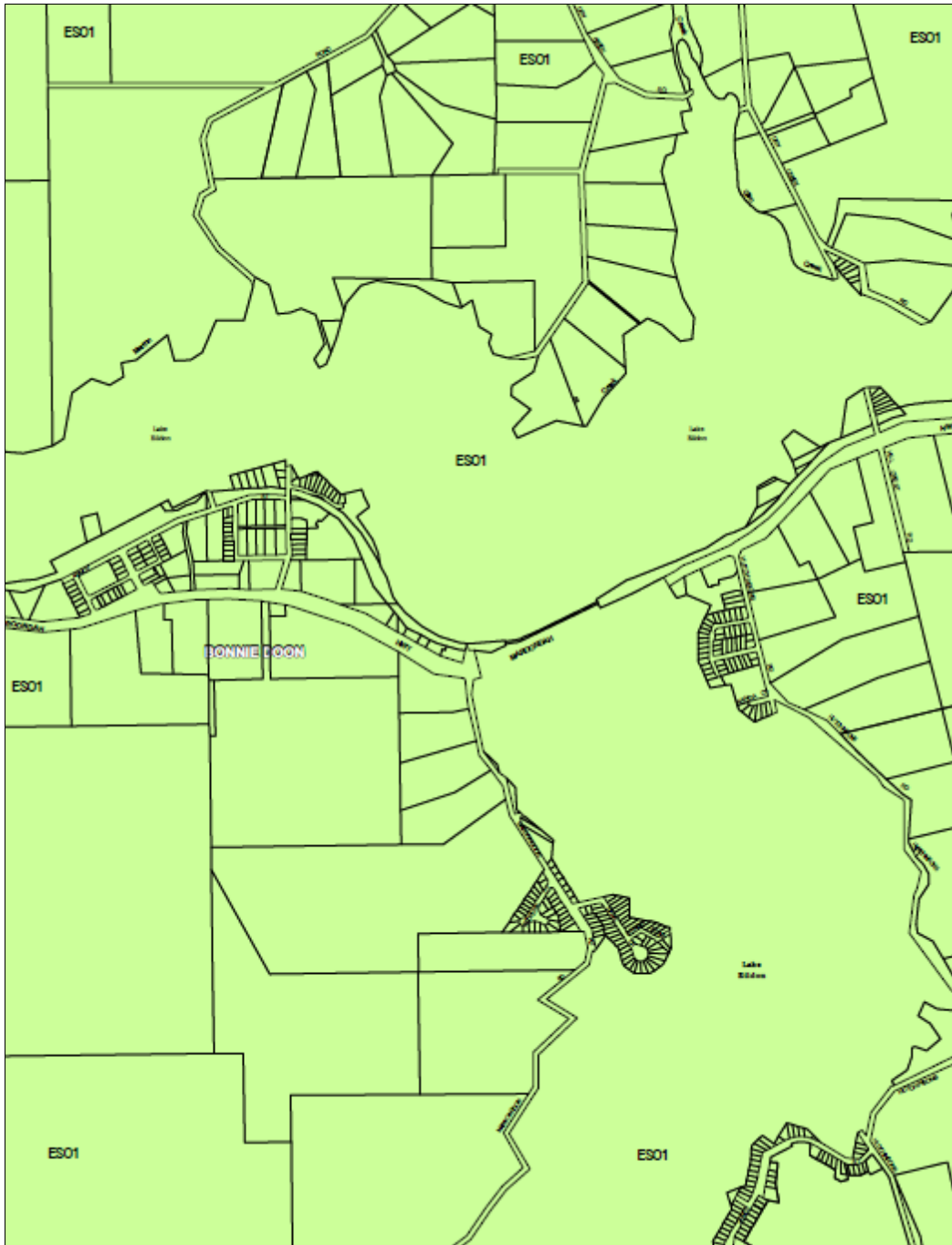


Figure 22: Bonnie Doon ESO map 7 (DPCD, 2013).

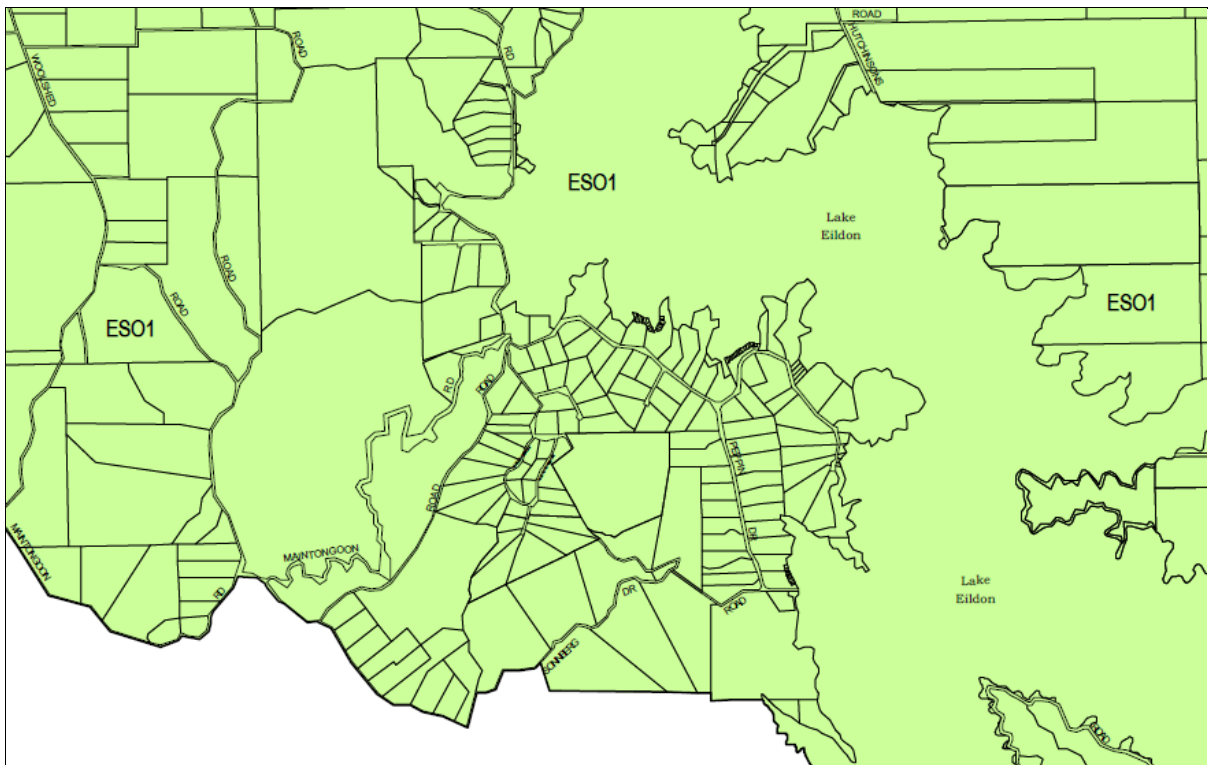


Figure 23: Bonnie Doon ESO map 6 (DPCD, 2013).

The purpose of the Environmental Significance Overlay is to:

- Identify areas where development of land may be affected by environmental constraints.
- Ensure that development is compatible with identified environmental values.

Schedule 1 of the ESO aims to:

- Improve water quality in the watercourses contributing to Lake Eildon, as well as the lake itself.
- Discourage land uses in the catchment that contribute to the degradation of downstream water quality in the Goulburn River.
- Encourage land management practices that minimise impacts on water quality.
- Ensure water is provided to waterways in volume, quality and seasonal patterns that conserve or enhance natural biological processes/approximate natural conditions.
- Encourage the retention or re-establishment of native vegetation in rural areas.
- Ensure breeding habitats of aquatic and riparian native flora and fauna are protected.
- Protect and enhance the visual amenity and landscape of the catchment area.

Bonnie Doon is designated bushfire prone area under the Building Amendment (Bushfire Construction) Regulations 2011. As the land is covered by the Bushfire Management Overlay a planning permit is triggered resulting in an individual site assessment for any new dwellings or extensions to existing dwellings.

10.1 Planning Provision mitigation measures

The Mansfield Planning Scheme highlights that Bonnie Doon is to be promoted as a town catering for a significant permanent population, as well as a number of non-resident landowners and tourists. The Planning Scheme also states that additional land may be made available for new residential development. The Planning Scheme should be updated to highlight specific future growth areas of development in Bonnie Doon, particularly encouraging development to shy away from the environmental risk areas to the south of Bonnie Doon given the highlighted extent of fire risk, expanse of native vegetation, and topographical region of the area.

The Bonnie Doon area has approximately 3.03ha zoned for residential purposes and 759.71 hectares zoned for the purposes of rural living. Given the large expanse of rural living area it is expected that the lots affected the bushfire management overlay be able to meet defendable space requirements in the confines of the lot boundaries.

11. Goughs Bay overview

Goughs Bay is located on the banks of Lake Eildon approximately 21 kilometres south of Mansfield. There are a substantial number of dwellings on larger rural-residential lots in this locality with the bushfire hazard associated with scattered native remnant vegetation and pine plantations. Main Street, extending from Howes Creek-Goughs Bay Road is the primary access route for dwellings in Goughs Bay.

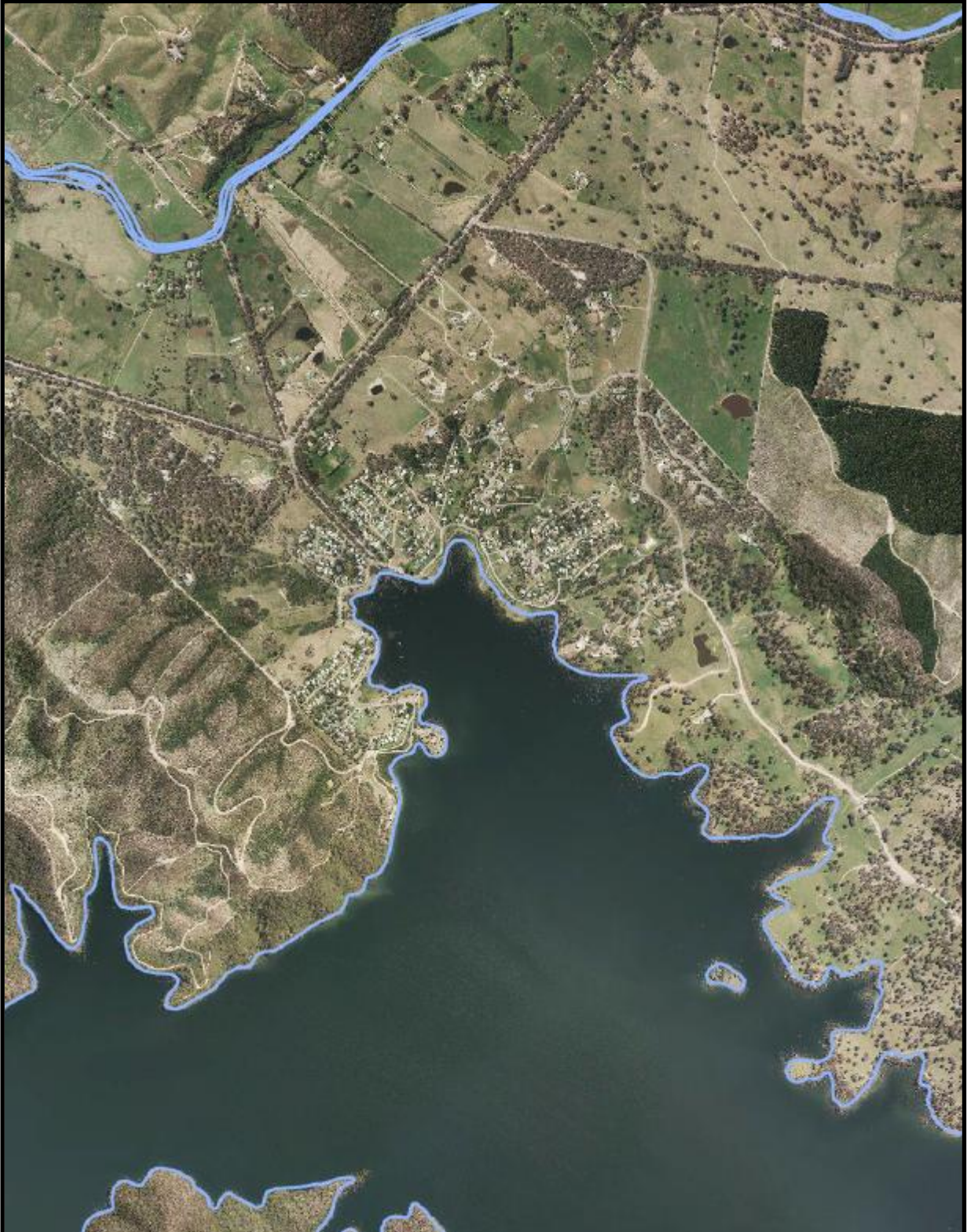


Figure 24: Goughs Bay landscape

Residential lots in a golf estate are in proximity to the bushfire hazard areas associated with Lake Eildon National Park to the west and the reserve to the east. Residential lots in Goughs Bay are serviced with wide roads of good condition and are mainly cleared of native vegetation.

The area is serviced by the Howes Creek – Goughs Bay Road and Piries – Goughs Road which connects to the Mansfield – Woods Point Road to Mansfield.

Goughs Bay has been assessed as having a **VERY HIGH** bushfire risk in accordance with the Victorian Fire Risk Register. Goughs Bay has experienced one major fire in the last 10 years on Piries-Goughs Bay Road. Bushfires move quickly uphill, so properties situated in the valley edges against bushland will be at greater risk (CFA, 2011b).

Majority of the lots are zoned Residential 1 Zone with some Low Density Residential and Rural Living Zone. There are also a small amount of Business 1 Zone lots and stretches of Public Park and Recreation Zone. To the east is zoned Special Use Zone. The whole area is covered by the Environmental Significance Overlay as it is part of the Lake Eildon Catchment. The bushfire Management Overlay covers land zoned Low Density Residential Zone on the western side of Goughs Bay and parcels of land to the east and south east of Goughs Bay (See Appendix 9 – Goughs Bay dwelling ages and vacant land mapping).

The scattered remnant native vegetation through the Goughs Bay area and the denser vegetation located adjacent to the south east of the Goughs Bay developed area is all a mix of sheltered and or higher altitude dry forests and exposed or lower altitude dry forests (See Appendix 10 – Vegetation cover map – Goughs Bay) (DSE, 2013).

The topography immediately in and around Goughs Bay is undulating and slopes down toward Lake Eildon. The broader landscape include the mountainous topography of Lake Eildon National Park to the west and southwest and the hilly terrain to the east to Macs Cove. There is scattered vegetation and grassland throughout the existing settlement.

The major bushfire hazard is Lake Eildon National Park and the State Forest to the southwest, and the pine plantations to the west and east of the existing settlement. The vegetation in both the National Park and the pine forest is classified as Forest. There is a distinct 'edge' to the main hazard, where the plantation boundaries meet the residential zoned land on the periphery of the existing settlement. Beyond this interfaces there is scattered vegetation throughout the Goughs Bay which would be classified as Woodland for the purposes of AS3959-2009.

The existing settlement is separated from the hazard due to the fragmentation in the vegetation covering a majority of land immediately in and round the town centre. There are several subdivisions to the south west of the main settlement that directly abut the hazard.

Grassland is also a fire hazard particularity to the north of Goughs Bay.

In most years Lake Eildon will provide a buffer to the hazard, however the water level fluctuates seasonally. When the water level is lower, there may be some revegetation in the lake. Although the revegetated areas are unlikely to reach maturity and there will be limited understory, when present, the vegetation will become fuel for a fire and should be considered.

Large areas to the southwest of Goughs Bay in the Lake Eildon National Park were burnt in the 1939 bushfires. The Department of Environment and Primary Industries (DEPI) website identifies areas to

the south and southwest of Goughs Bay that have been subject to planned burns in 2009, 2011 and 2013.

The most likely fire scenario is a fire approaching from the southwest in Lake Eildon National Park or in the plantations to the west and east of Goughs Bay. A fire in the National Park has the potential for along fire run and can fully develop as consistent with the assumptions of AS3959-2009. The patch of forest to the east has a shorter potential fire run, but due to the size and type of vegetation as well as the topography, this landscape would sustain a fire consistent with the assumption of AS3959-2009.

The main form of bushfire attack will be embers, the grassland is also a hazard. Due to the fragmentation of the vegetation and the lack of understory there may be some direct flame contact and radiant heat exposure from individual flaming elements (isolated trees, sheds etc), however the major form of bushfire attack will be embers.

There are currently no designed Neighbourhood Safer Places (NSP) in Goughs Bay.

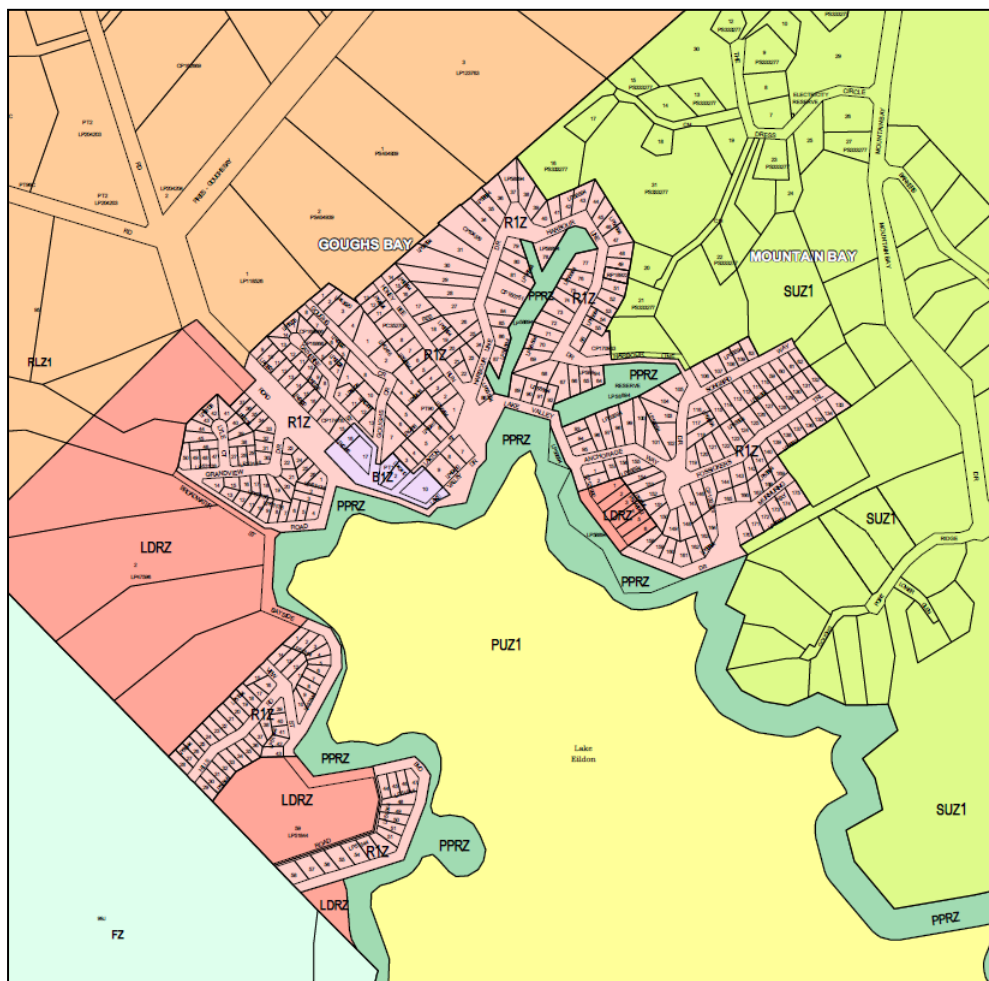


Figure 25: Goughs Bay zoning map 21 (DPCD, 2013).

Overview	
Telecommunications	Unreliable mobile service and abc radio cover.
Access and Egress	Howes Creek-Goughs Bay Road, Piries-Goughs Road.

Road conditions	Wide roads, good condition, cleared of native vegetation.
Vegetation	Scattered remnant vegetation throughout the area. Dense dry forest located to the south east.
Water accessibility	Lake Eildon.
Land slope	Slight undulation sloping north away from Lake Eildon.

9.1 Planning and building context

ZONING: Residential 1 Zone (R1Z), Public Use Zone (PUZ), Rural Living Zone (RLZ), Low Density Residential Zone, Special Use Zone and Farming Zone (FZ).

OVERLAYS: Environmental Significance Overlay

- Schedule 1
- Bushfire Management Overlay (BMO / WMO)

The purpose of the Environmental Significance Overlay is to:

- Identify areas where development of land may be affected by environmental constraints.
- Ensure that development is compatible with identified environmental values.

Schedule 1 of the ESO aims to:

- Improve water quality in the watercourses contributing to Lake Eildon, as well as the lake itself.
- Discourage land uses in the catchment that contribute to the degradation of downstream water quality in the Goulburn River.
- Encourage land management practices that minimise impacts on water quality.
- Ensure water is provided to waterways in volume, quality and seasonal patterns that conserve or enhance natural biological processes/approximate natural conditions.
- Encourage the retention or re-establishment of native vegetation in rural areas.
- Ensure breeding habitats of aquatic and riparian native flora and fauna are protected.
- Protect and enhance the visual amenity and landscape of the catchment area.

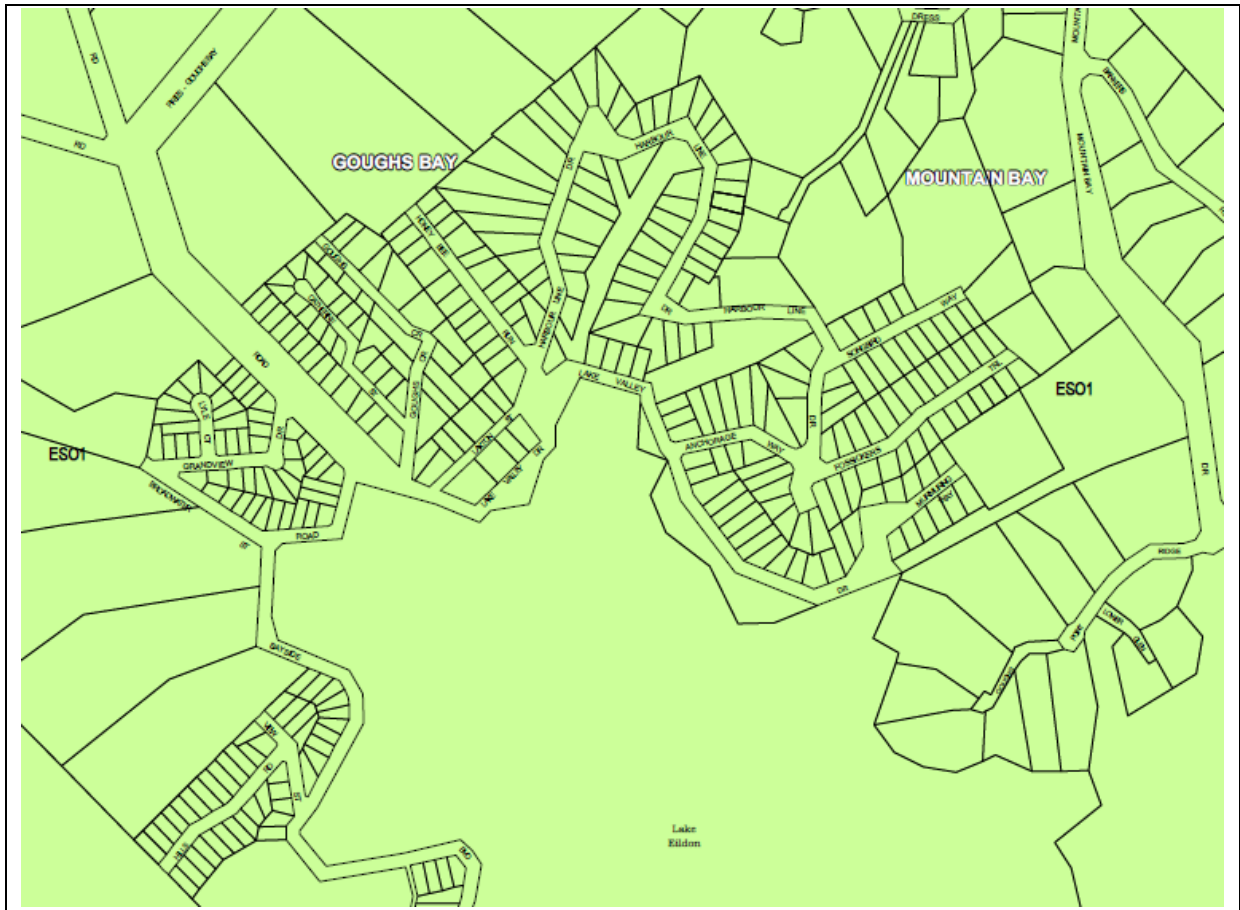


Figure 26: Goughs Bay ESO Map 21 (DPCD, 2013).

Goughs Bay is designated bushfire prone area under the Building Amendment (Bushfire Construction) Regulations 2011. As the land is covered by the Bushfire Management Overlay a planning permit is triggered resulting in an individual site assessment for any new dwellings or extensions to existing dwellings.

9.2 Planning Provision mitigation measures

Council should carefully consider and determine whether the risk has been reduced to an acceptable level in accordance with the Clause 13.05 of the SPPF.

Consideration of broader fire management planning is an important part of enhancing resilience within this settlement.

The majority of the Goughs Bay area, whilst designated bushfire prone under the Building Amendment Regulations, is not currently covered by the Bushfire Management Overlay (BMO). Given that the Building regulations require any new dwellings to meet construction standards of a minimum bushfire attack level of 12.5 there is no significant value in the application of a schedule to the BMO in this area for lots that intersect with the BMO. Should the area be included into the BMO with the introduction of the new hazard mapping undertaken by the Country Fire Authority and the Victorian State Government then the area should be considered for the application of a schedule in the future.

The Mansfield Planning Scheme highlights that Goughs Bay was planned as a settlement to cater predominately for non-resident landowners and holidaymakers. A large percentage of these

dwellings are now being converted from holiday homes to permanent dwellings. Any new extensions, redevelopment of dwellings or buildings, or replacement dwellings or buildings that require a planning permit should consider the risk of the area and building regulation standards and be assessed on its merits. In considering the risk of fire in this area accessibility to service roads and infrastructure should be assessed accordingly. The Mansfield Planning Scheme should be updated to highlight the adjacent risk of fire to Goughs Bay and the affect that ember attacks may threaten the area.

Goughs Bay is made up of 5.28ha of Residential land, 142.64ha of rural living land and 24.10ha of low density residential land. Given the locality of the area no further land should be made available for residential growth. The Mansfield Planning Scheme should be updated to reflect the environmental risk to the area and the amount of residential land available negating the need for future growth to be highlighted in this area.

12. Macs Cove Overview

Macs Cove is located 20 kilometres south of Mansfield accessed via the Mansfield Woods Point Road. The area is characterised by a number of rural living properties in the Farming zone with gravel road access. Many of the dwellings are 50's fibro housing (See Appendix 11 – Macs Cove dwelling ages and vacant land mapping).

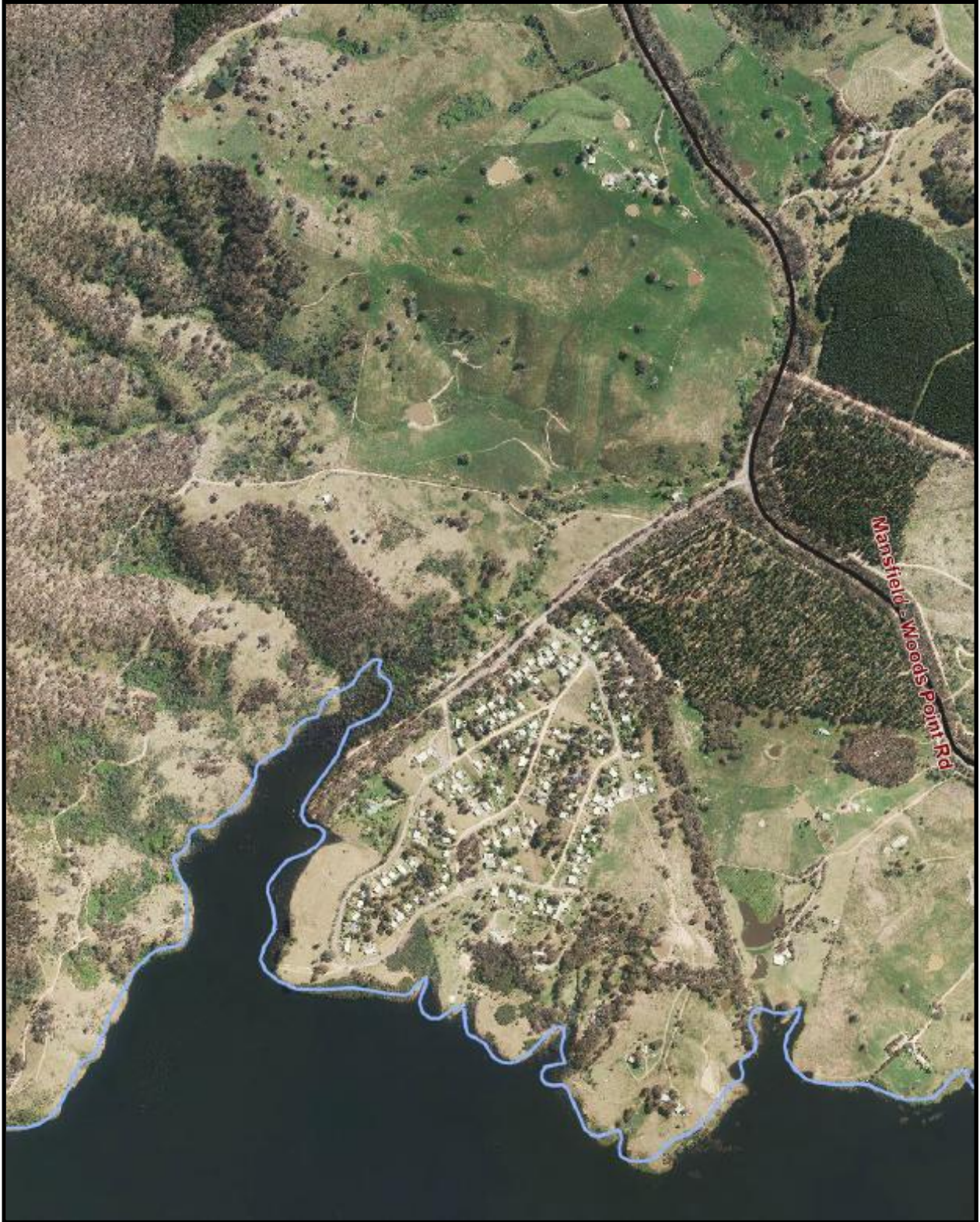


Figure 27: Macs Cove landscape.

There are a number of ski lodges and shared accommodation located throughout the area. The area is predominately non-resident landowners and holidaymakers. The cluster of residential lots at Macs Cove is in a bushfire hazard area associated with remnant vegetation principally to the north-west and east.

Macs Cove is zoned Residential 1 Zone with a small amount of Business Zone. To the north, east and west is Farming zone with Lake Eildon to the South and Public Park and Recreation Zone along the edges of Lake Eildon. The whole area is covered by the Environmental Significance Overlay as it is within the Lake Eildon Catchment. The Bushfire Management Overlay surrounds all adjoining land to Residential and business area of Macs Cove.

There are pine plantations to the north east of Macs Cove. The native vegetation located around the Macs Cove area is all a mix of sheltered and or higher altitude dry forests and exposed or lower altitude dry forests (See Appendix 12 – Vegetation cover map – Macs Cove) (DSE, 2013).

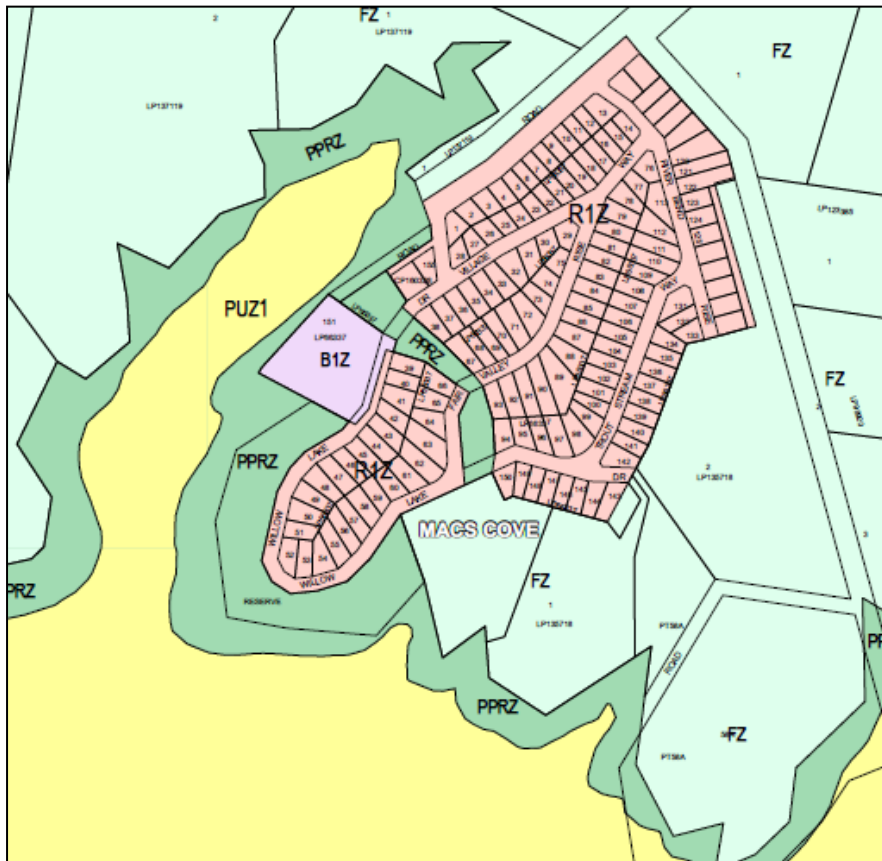


Figure 28: Macs Cove zoning Map 22 (DPCD,2013).

Overview	
Telecommunications	Poor mobile coverage in limited areas.
Access and Egress	Mansfield-Woods Point road is the only arterial in and out of Macs Cove.
Road conditions	Sealed and gravel
Vegetation	Dry forests located adjacent to the area in the North, east and west.
Water accessibility	Lake Eildon
Land slope	Slightly undulating away from Lake Eildon.

10.1 Planning and building context

ZONING: Residential 1 Zone (R1Z), Public Park and Recreation Zone (PPRZ) Business 1 Zone (B1Z) and Farming Zone (FZ).

OVERLAYS: Environmental Significance Overlay

- Schedule 1.

The purpose of the Environmental Significance Overlay is to:

- Identify areas where development of land may be affected by environmental constraints.
- Ensure that development is compatible with identified environmental values.

Schedule 1 of the ESO aims to:

- Improve water quality in the watercourses contributing to Lake Eildon, as well as the lake itself.
- Discourage land uses in the catchment that contribute to the degradation of downstream water quality in the Goulburn River.
- Encourage land management practices that minimise impacts on water quality.
- Ensure water is provided to waterways in volume, quality and seasonal patterns that conserve or enhance natural biological processes/approximate natural conditions.
- Encourage the retention or re-establishment of native vegetation in rural areas.
- Ensure breeding habitats of aquatic and riparian native flora and fauna are protected.
- Protect and enhance the visual amenity and landscape of the catchment area.

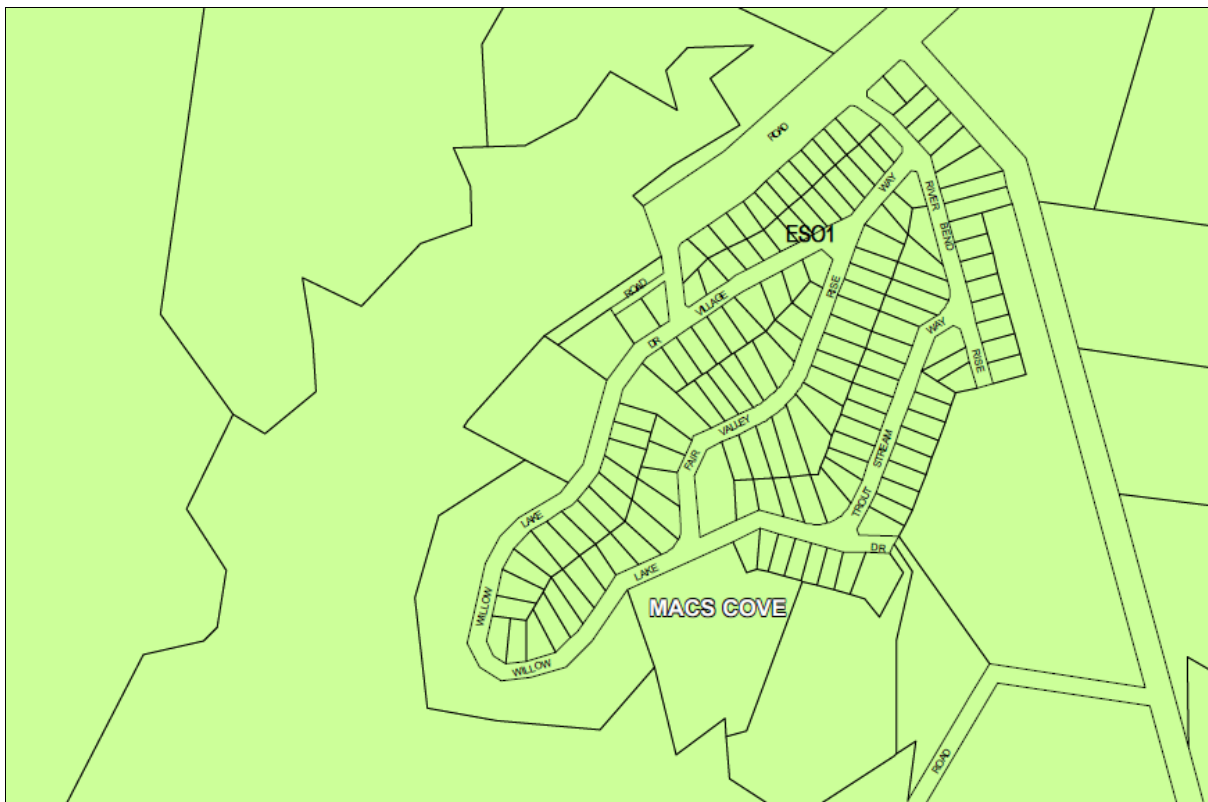


Figure 29: Macs Cove ESO Map 22 (DPCD, 2013).

Macs Cove is designated bushfire prone area under the Building Amendment (Bushfire Construction) Regulations 2011. As the land is covered by the Bushfire Management Overlay a planning permit is triggered resulting in an individual site assessment for any new dwellings or extensions to existing dwellings.

12.1 Planning provision mitigation measures

The majority of the Macs Cove area whilst designed bushfire prone under the Building Amendment Regulations is not covered by the Bushfire Management Overlay. Given that the Building regulations require any new dwellings to meet construction standards of a minimum bushfire attack level of 12.5 there is no value add in including a bushfire management overlay schedule in this area given that the majority of the residential lots within the area fall outside the Bushfire Management Overlay.

The Mansfield Planning Scheme highlights that Macs Cove was planned as a settlement to cater predominately for non-resident landowners and holidaymakers. A large percentage of these dwellings are now being converted from holiday homes to permanent dwellings. Any new extensions, redevelopment of dwellings or buildings, or replacement dwellings or buildings that require a planning permit should consider the risk of the area and building regulation standards. The Mansfield Planning Scheme should be updated to highlight the adjacent risk of fire to Macs Cove and the affect that ember attacks may threaten the area.

Macs Cove currently has 3,365 hectares of residential land. The Planning Scheme currently highlights that there is limited additional land available for development and that no additional parcels of land will be made available or new development of any natures without strict development requirements, design restrictions, and infrastructure requirements. Any review of the planning scheme should continue to highlight that no additional land will be made available for development without the above listed requirements.

13. Howqua Overview

Howqua is located approximately 25 kilometres south of Mansfield located to the west of the Mansfield Woods Point Road.

Majority of the area is characterised by narrow sealed roads, lightly undulating land with scattered remnant native vegetation throughout the area.



Figure 30: Howqua landscape.

There are clusters of rural-residential lots east of Howqua between Mansfield-Woods Point Road and Lake Eildon. Howqua Hills has a cluster of developed and undeveloped small rural-residential properties surrounded by Alpine National Park. The cluster of residential lots at Howqua Inlet are in a bushfire hazard associated with surrounding remnant vegetation (See Appendix 13 Howqua dwelling ages and vacant land mapping).

The area is zoned Residential 1 zone with Lake Eildon to the north along with Public Park and Recreation Zone and Farming Zone to the south, east and west. Howqua is totally confined within the Environmental Significance Overlay given the proximity to Lake Eildon as a recognised catchment.

The native vegetation located around the Howqua area is all a mix of sheltered and or higher altitude dry forests and exposed or lower altitude dry forests (See Appendix 12 – Vegetation cover map – Howqua) (DSE, 2013).

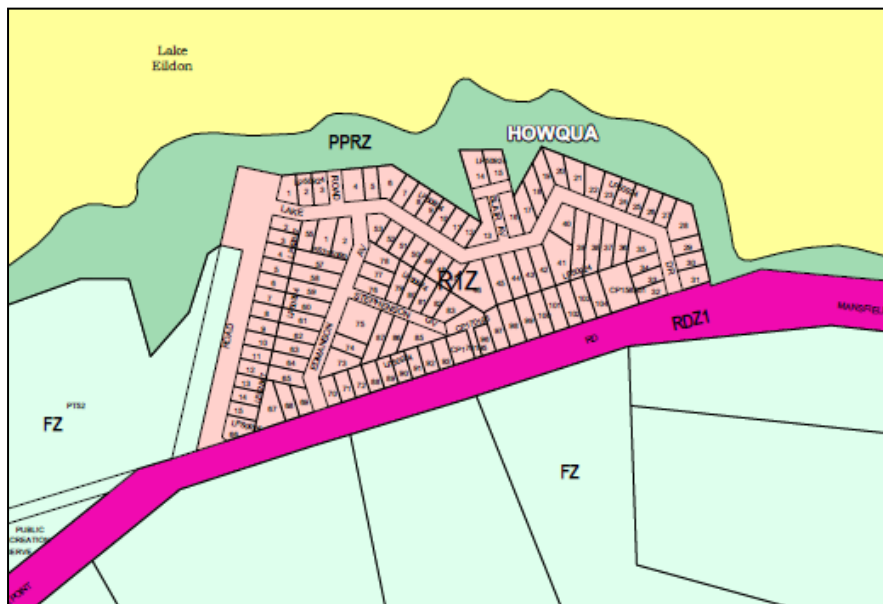


Figure 31: Howqua zoning map 22 (DPCD, 2013)

Overview	
Telecommunications	No mobile coverage.
Access and Egress	Mansfield Woods Point Road
Road conditions	Sealed narrow roads. Mansfield Woods Point Road is the main road traversing the southern boundary of Howqua
Vegetation	Native vegetation throughout the settlement area.
Water accessibility	Lake Eildon.
Land slope	Lightly undulating land up away from Lake Eildon.

11.1 Planning and building context

ZONING: Residential 1 Zone (R1Z), Public Park and Recreation Zone (PPRZ) and Farming Zone (FZ).

OVERLAYS: Environmental Significance Overlay

- Schedule 1.

Bushfire Management Overlay (BMO / WMO)

The purpose of the Environmental Significance Overlay is to:

- Identify areas where development of land may be affected by environmental constraints.
- Ensure that development is compatible with identified environmental values.

Schedule 1 of the ESO aims to:

- Improve water quality in the watercourses contributing to Lake Eildon, as well as the lake itself.
- Discourage land uses in the catchment that contribute to the degradation of downstream water quality in the Goulburn River.
- Encourage land management practices that minimise impacts on water quality.
- Ensure water is provided to waterways in volume, quality and seasonal patterns that conserve or enhance natural biological processes/approximate natural conditions.
- Encourage the retention or re-establishment of native vegetation in rural areas.
- Ensure breeding habitats of aquatic and riparian native flora and fauna are protected.
- Protect and enhance the visual amenity and landscape of the catchment area.

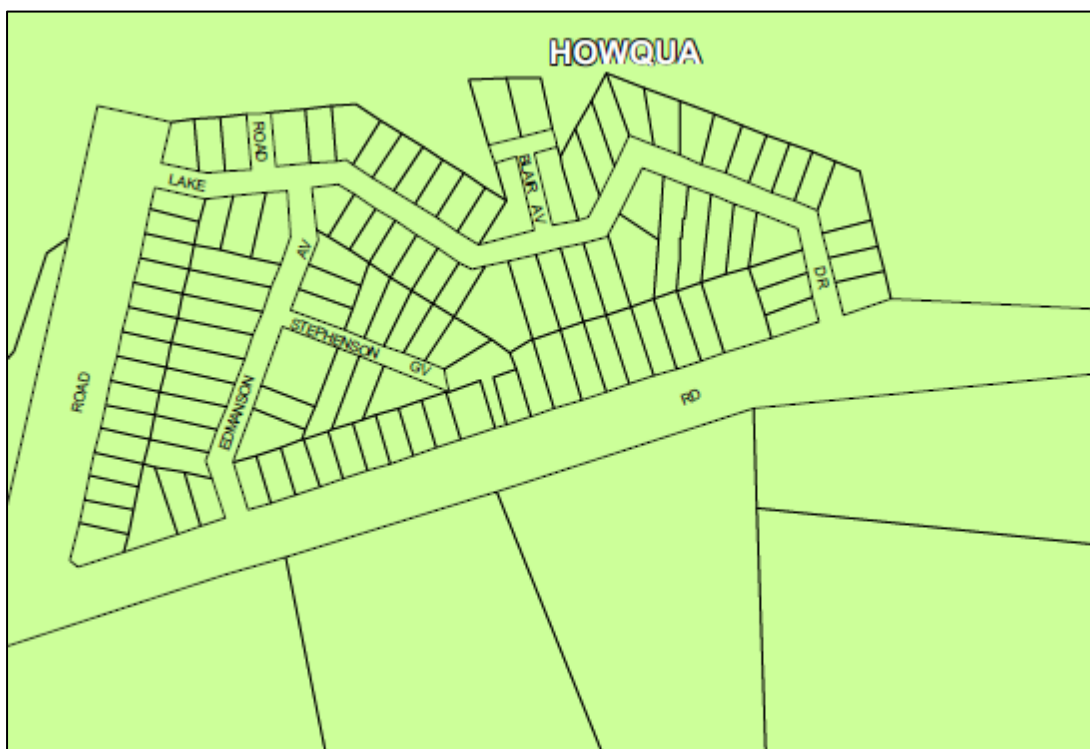


Figure 32: Howqua ESO map 22 (DPCD, 2013).

The Howqua area is designated bushfire prone area under the Building Amendment (Bushfire Construction) Regulations 2011. As the land is covered by the Bushfire Management Overlay a

planning permit is triggered resulting in an individual site assessment for any new dwellings or extensions to existing dwellings.

13.1 Planning provision mitigation measures

The majority of the Howqua area whilst designed bushfire prone under the Building Amendment Regulations is not covered by the Bushfire Management Overlay. Given that the Building regulations require any new dwellings to meet construction standards of a minimum bushfire attack level of 12.5 there is no value add in including a bushfire management overlay schedule in this area given that the majority of the residential lots within the area fall outside the Bushfire Management Overlay.

The Mansfield Planning Scheme highlights that Howqua was planned as a settlement to cater predominately for non-resident landowners and holidaymakers. A large percentage of these dwellings are now being converted from holiday homes to permanent dwellings. Any new extensions, redevelopment of dwellings or buildings, or replacement dwellings or buildings that require a planning permit should consider the risk of the area and building regulation standards. The Mansfield Planning Scheme should be updated to highlight the adjacent risk of fire to Macs Cove and the affect that ember attacks may threaten the area.

The Planning Scheme currently highlights that there is limited additional land available for development and that no additional parcels of land will be made available or new development of any natures without strict development requirements, design restrictions, and infrastructure requirements. Any review of the planning scheme should continue to highlight that no additional and will be made available for development without the above listed requirements.

14. Jamieson overview

Jamieson is located 37 kilometres south of Mansfield along the Mansfield Woods Point Road, which generally runs along the river with the forest abutting it to the east. Clusters of rural-residential lots along Mansfield-Woods Point Road are in the bushfire hazard area associated with the surrounding lake Eildon National Park and Alpine National Park. Existing vegetation includes areas of high and very high conservation significance (See Appendix 14 – Jamieson dwelling ages and vacant lots mapping).

The CFA have classified Jamieson as having a **HIGH** bushfire risk, and the surrounding forest as an **EXTREME** bushfire risk, in accordance with the Victorian Fire Risk Register. Properties situated in the valley edges against bushland will be at greater risk. Mobile phone coverage is poor to non-existent outside of the Jamieson township. For the purpose of leaving early the only option is Mansfield Woods Point Road if safe to do so (CFA, 2013).

The Jamieson area is made up of Residential 1 Zone, Business 1 Zone, Rural Living Zone, Low Density Residential Zone, Farming Zone, Public Use Zone, Public Conservation Zone and Public Park, Rural Conservation Zone and Recreation Zone. Most of the area, excluding the township, is covered by the Bushfire Management Overlay with some Environmental Significance recognised to the north west of Jamieson as it falls in the Lake Eildon catchment area.

The vegetation in the area is a mix of dry forests with a high or exposed vegetation and low or sheltered vegetation along with lower slopes of hills of woodland with some areas of wet or damp forest (See Appendix 15 – Vegetation cover map – Jamieson) (DSE, 2013).

Jamieson is located at the junction of the Goulburn and Jamieson Rivers in a small relatively flat valley, surrounded by the Lake Eildon and Alpine National Parks. The settlement itself has sparse vegetation throughout and is generally flat or undulating. The landscape immediately surround the existing settlement is heavily vegetated with Forest, has steep topography on all aspect with large mountain ranges and deep valleys that extended for many tens of kilometres in all directions.

There is significant potential for large fires to develop in the National Parks the surround Jameison. The continuous vegetation, severe topography and converging valleys are likely to produce extreme fire behaviour with strong convective influences. The vegetation is continuous for many kilometres and would also a fully developed fire to build and grown across the mountainous landscape.

The major bushfire hazard is the Forest in the National Parks surrounding Jamieson. The hazard is characterised by continuous vegetation with high fuel loads, in a landscape with severe topography, where there is signify cant potential for a fire to grow large and develop strong and damaging convective influences.

The residential zoned properties in the existing settlement are bordered to the west and south by the Goulburn and Jamieson Rivers, The riparian vegetation provide some separation from the main hazard abutting the river.

To the northwest of the existing settlement the river follow the valley floor to Howqua Inlet and Lake Eildon. The vegetation abutting the river consists mostly of scattered trees and grassland. The topography immediately adjoining the river rises steeply to ridges and valleys that are heavily vegetated with Forest.

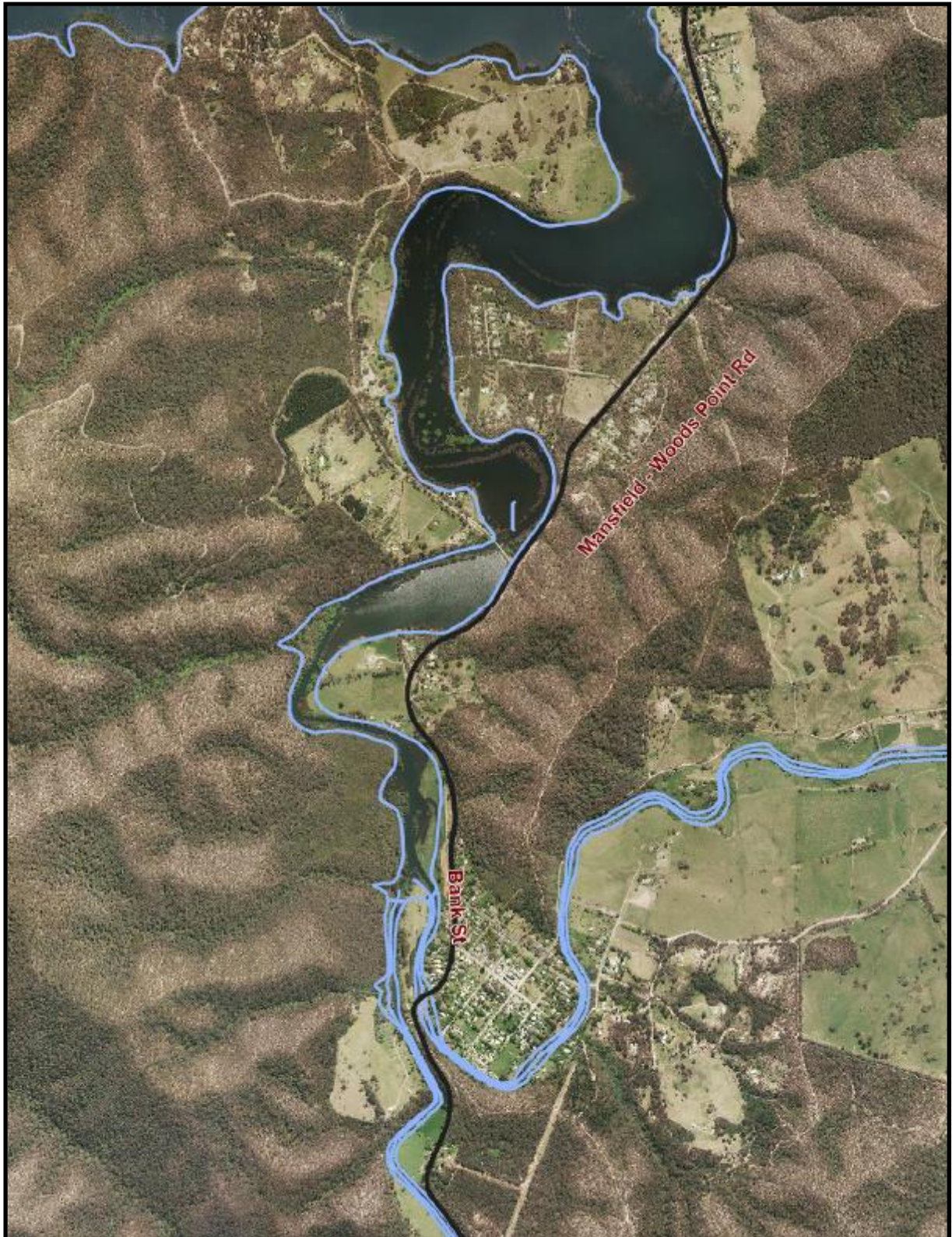


Figure 33: Jamieson landscape.

School Hill to the north directly abuts the existing settlement. There is no separation from the hazard to those properties on the interface of the existing settlement. Land to the northeast along Jamieson – Licola Road, adjoining the river is largely cleared farmland with scattered dwellings on

larger rural properties. The cleared part of the valley is approximately 6 kilometres in length and between 500 meters to 2 kilometres in width.

There are several small subdivisions to the north of the main town centre along Mansfield Woods Point Road that directly interface with the hazard.

The most recent bushfires in this area were the 2007 Alpine fires which burnt large areas surrounding Jamieson (the township itself was not affected). In 2002 there was a smaller (approximately 15 hectare) bushfire to the north of Jamieson. Prior to this, in the major bushfires of 1939 vast areas of Victoria, including Jamieson and the Alpine National Park were affected by the Black Saturday bushfires.

Given the location of Jamieson in the valley of a mountainous landscape and its proximity to the hazard, the existing settlement is likely to be exposed to all three major forms of bushfire attack: flame contact, radiant heat and ember attack.

Although the main bushfire hazard is upslope from Jamieson and there is fragmentation in the vegetation within the settlement, the steep topography, continuous vegetation and mountainous terrain in the broader landscape, will produce fire behaviours that is likely to overcome minor fragmentation and modification in fuels (for example the small cleared valley). The many kilometres of heavily vegetated and mountainous topography produces extreme fire behaviour with strong convective influences.

The existing properties on the edge of the settlement are within close proximity to the bushfire hazard. They are likely to be impacted by direct flame contact and will be exposed to significant levels of radiant heat and extreme ember attack. The forest vegetation in the broader landscape can produce significant amounts of embers that can carry kilometres away from the main fire. The whole valley will be exposed to extreme ember attack.

Properties beyond the interface with the hazard will have lower levels of radiant heat exposure and potential for localised flame contact, but will be subject to extreme ember attack.

Mansfield Woods Point Road is the major access route into Jamieson from the north. It is a constructed, two lane road which follows the Goulburn river through to Lake Eildon. The road abuts the forest on the eastern side with the cleared land to the west along the river. It is the single access route in and out of Jamieson from the north. Mansfield Woods Point Road also runs south to Kevington, winding through the valley with heavily vegetated landscape on both sides. To the northeast, the Jamieson Licola Road follows through the valley floor and passes through farmland, which is largely cleared of vegetation for approximately 6 kilometres.

There are currently two neighbourhood Safer Plans (NSP) in Jamieson. They are located at:

- Paradise Point Holiday Park – 11 The Avenue Jamieson
- Jamieson Memorial Hall – Corner Perkins Street and Grey Street Jamieson.

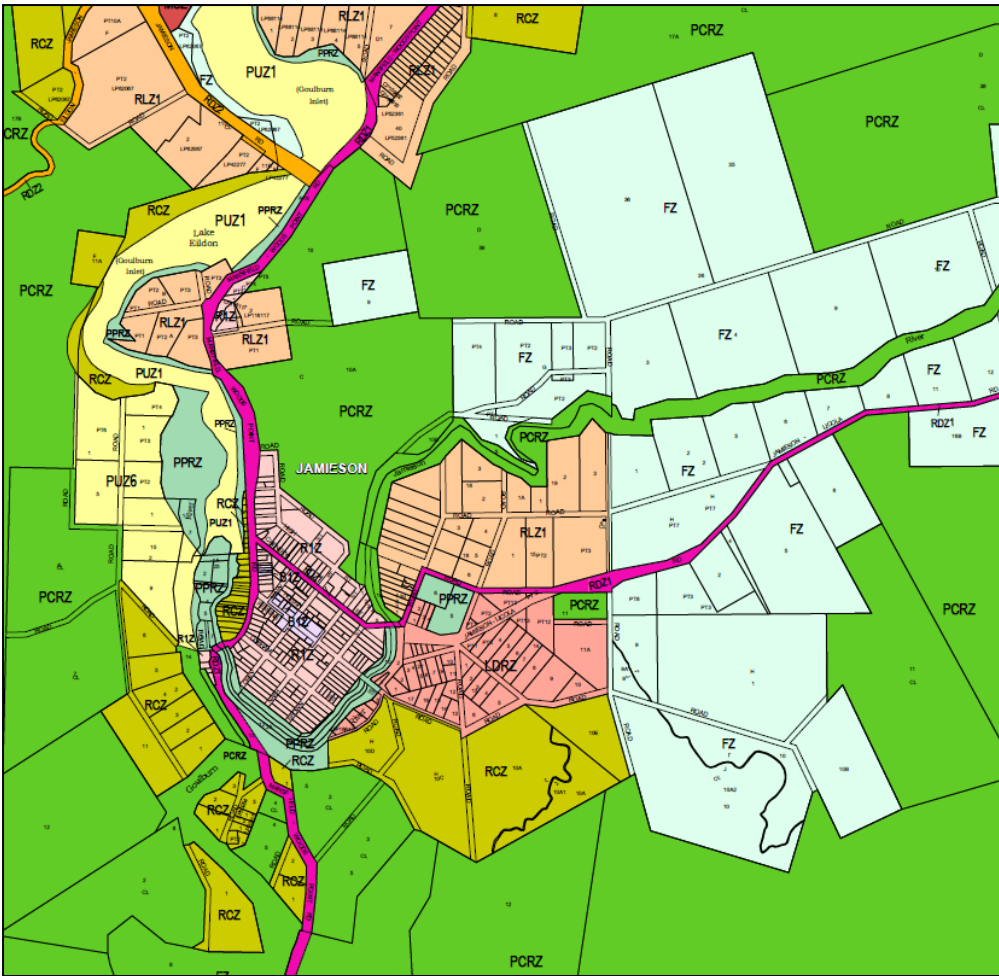


Figure 34: Jamieson zoning map 26 (DPCD, 2013).

Overview	
Telecommunications	Poor to non-existent phone coverage
Access and Egress	Mansfield Woods Point road is the only arterial road to and from Jamieson.
Road conditions	Sealed
Vegetation	Dense forest surrounding Jamieson particularly to the south east and south west.
Water accessibility	Lake Eildon
Land slope	Township is flat with land sloping up and away to the south east and south west.

14.1 Planning and building context

ZONING: Residential 1 Zone (R1Z), Public Park and Recreation Zone (PPRZ) Rural Living Zone (RLZ) Low Density Residential Zone (LDRZ) Rural Conservation Zone (RCZ) and Farming Zone (FZ).

OVERLAYS: Bushfire Management Overlay (BMO / WMO)

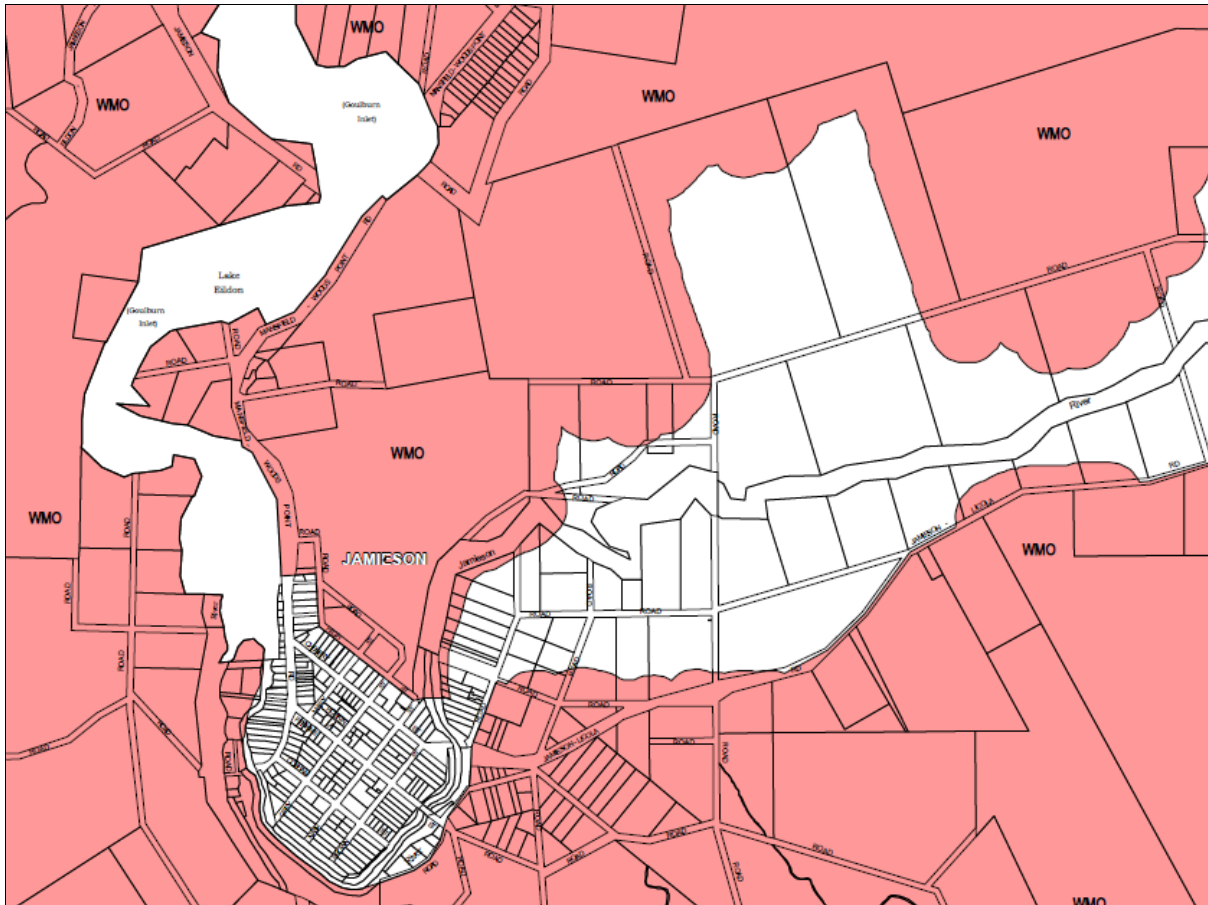


Figure 35: Jamieson WMO map 26 (DPCD, 2013).

Jamieson is designated bushfire prone area under the Building Amendment (Bushfire Construction) Regulations 2011. As the land is covered by the Bushfire Management Overlay a planning permit is triggered resulting in an individual site assessment for any new dwellings or extensions to existing dwellings.

14.2 Planning provision mitigation measures

Due to the landscape risk, careful consideration of any additional development is required.

Careful consideration and determinate of bushfire risk is required and determination of bushfire risk being reduced to an acceptable level in accordance with Clause 13.05 of the State Planning Policy Framework. Consideration for broader fire management planning is an important part of enhancing resilience within this settlement.

The Mansfield Planning Scheme highlights that Jamieson is a local service centre that caters for the surrounding rural community and tourists as well as a number of non-resident property owners. It also states that no additional large parcels of land will be made available for new development. Any review of the planning scheme should continue to highlight that no additional land will be made available for development.

Any new extensions, redevelopment of dwellings or buildings, or replacement dwellings or buildings that require a planning permit should consider the risk of the area and building regulation standards.

The Mansfield Planning Scheme should be updated to highlight the adjacent risk of fire to Jamieson and the affect that ember attacks may threaten the area.

The Jamieson township area whilst designed bushfire prone under the Building Amendment Regulations is not covered by the Bushfire Management Overlay. Given that the building regulations require any new dwellings to meet construction standards of a minimum bushfire attack level of 12.5 there is no value add in including a bushfire management overlay schedule in this area given that the majority of the residential lots within the area fall outside the Bushfire Management Overlay.

Given the locality of the area to significant woodlands and the minimal setbacks there are from the township area to the vegetation it would be recommended that the area built to a minimum BAL 19.

The area is made up of 1.71 hectares of residential 1 zone, 8.30 hectares of rural living zone and 2.50 hectares of low density residential zone. With the translation of the zoning to the new residential zoning reforms it is expected that Jamieson would be rezoned to Neighbourhood Residential Zone to reflect the restriction on housing growth in areas identified for urban preservation. This new zone is applicable as single dwellings prevail and change or growth is not identified due to environmental or landscape significance.

15. Kevington overview

Kevington is located 47kms south of Mansfield and lots used for residential purposes area zoned Rural Conservation Zone. The lots are scattered along the Mansfield Woods Point Road and surrounded by Public Conservation Zone in all directions. The whole area is within the boundaries of the Bushfire management Overlay.



Figure 36: Kevington landscape

Clusters of rural-residential lots along Mansfield-Woods Point Road are in a bushfire hazard area associated with the surrounding lake Eildon National Park and Alpine National Park. Existing vegetation includes areas of high and very high conservation significance (See Appendix 16 – Kevington dwelling ages and vacant land mapping).

Kevington has been assessed as having an **EXTREME** bushfire risk in accordance with the Victorian Fire Risk Register. Kevington is located in a heavily vegetated, steep river valley and only one winding road in and out. Fire can come from all directions. Valley wind effect will make fire behaviour unpredictable. During a fire the travel route will be limited or blocked and can be affected by landslips and rockfalls. Mobile phone reception is very limited (CFA, 2011c)

The vegetation in the area is a mix of dry forests with a high or exposed vegetation and low or sheltered vegetation along with some areas of wet or damp forest (See Appendix 17 – Vegetation cover map – Kevington).

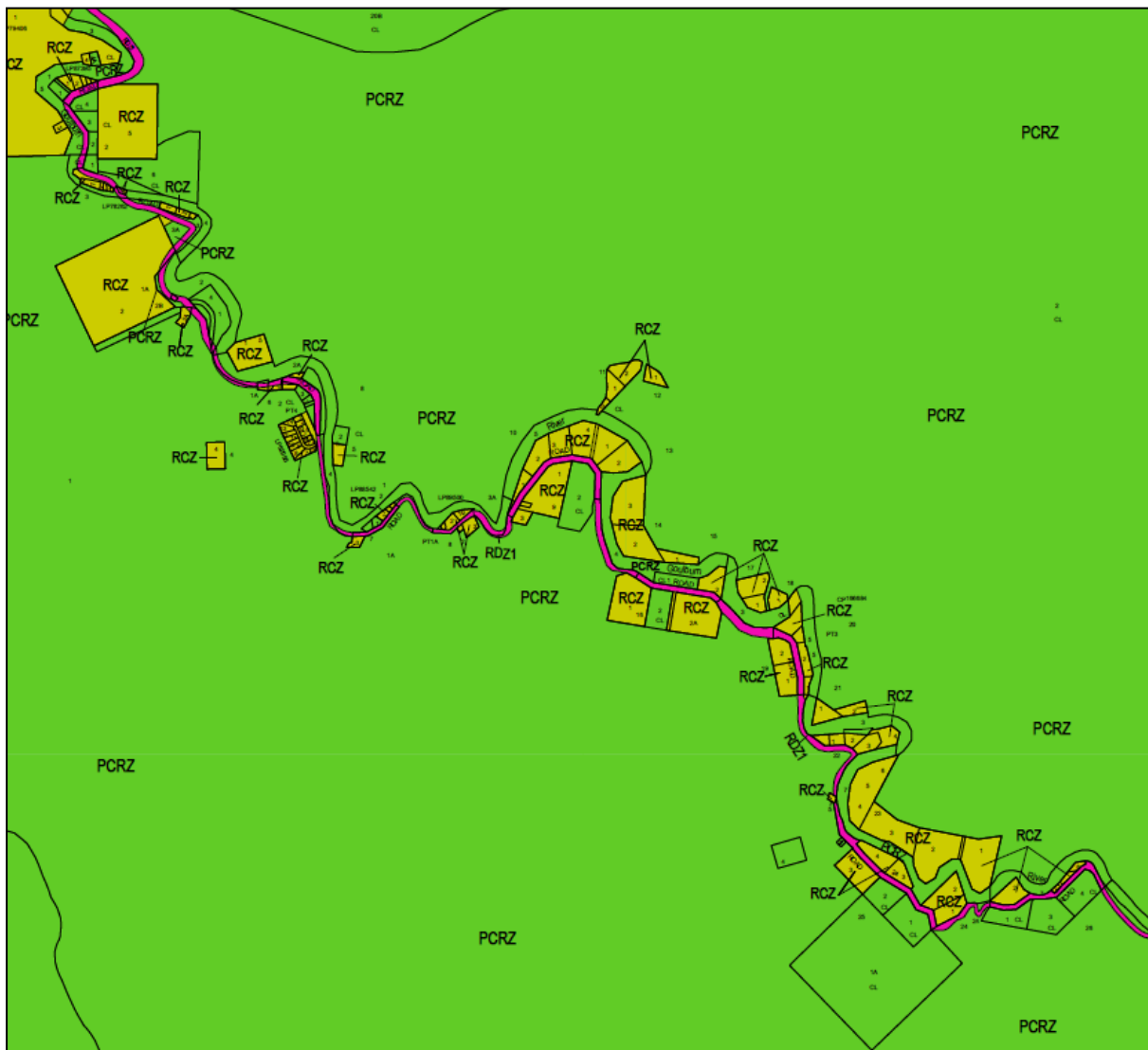


Figure 37: Kevington zoning map 29 (DPCD, 2013).

Overview	
Telecommunications	Limited mobile reception
Access and Egress	Mansfield Woods Point Road
Road conditions	Sealed windy road
Vegetation	Dense forest in all directions
Water accessibility	Lake Eildon.
Land slope	Steep river valley

15.1 Planning and building context

ZONING: Rural Conservation Zone (RCZ) and Public Conservation and Recreation Zone (PCRZ).

OVERLAYS: Bushfire Management Overlay (BMO / WMO)

Kevington is designated bushfire prone area under the Building Amendment (Bushfire Construction) Regulations 2011. As the land is covered by the Bushfire Management Overlay a planning permit is triggered resulting in an individual site assessment for any new dwellings or extensions to existing dwellings.

15.2 Planning provision mitigation measures

The Mansfield Planning Scheme states that no additional large parcels of land will be made available for new development of any nature without strict development requirements, design restrictions, infrastructure requirements. Given the nature of the area, the limited accessibility, density and proximity of vegetation it is considered that no further new growth development should be considered in this area and should be highlighted in the planning scheme as such.

Given that the Planning Scheme states that this area is best suited to remaining remote, secluded and largely untouched servicing the tourist population and surrounding farming communities who enjoy lifestyle activities, stating no further development is inline with previously policy directions. The Planning Scheme should also highlight the environment risk of the area and the risk to transient populations during fire season.

The nature of the environment in the area with the density and proximity of the large expanses of bushland, the lack of accessibility and telecommunication services a bushfire management schedule is not appropriate in this instance as many of the properties could not meet defendable space allowances, would be an extreme risk of ember attack and be directly in a flame contact zone.

In addition the lots in the Kevington area are zoned Rural Conservation Zone and many of the lots are under the minimum required minimum lot sizes for the zone which inhibits the use of the lots for a dwelling in addition to the BMO and environmental risk of the area.

16. Gaffneys Creek overview

Gaffneys Creek is located 74 kilometres south of Mansfield along the Mansfield Woods Point Road. Clusters of rural-residential lots at Gaffney Creek along Mansfield Woods Point Road area in the bushfire hazard area associated with the surrounding Lake Eildon National Park and Alpine National Park. Existing vegetation includes areas of high and very high conservation significance (See Appendix 18 – Gaffneys Creek dwelling ages and vacant land mapping).

Topography in the area is hilly with the Mansfield Woods Point Road winding along the bottom of the gully with dense vegetation sloping upwards and away from the roadside.

The 2006 fires destroyed many houses in this area. The 2009 bushfires came within 8kms of this area.

The lots are zoned Township Zone located in a lineal strip along the Mansfield woods point road. The area is surrounded by Public Conservation Zone to the north, south, east and west. The Mansfield Woods Point Road is the only access in and out of the area with the road being long, windy and made up of partially sealed and gravelled road. The whole area is covered by the Bushfire Management Overlay.

The vegetation in the area is a mix of dry forests with a high or exposed vegetation and low or sheltered vegetation along with some areas of wet or damp forest. Additionally there are lineal areas of Montane Woodlands to the east and west of the area (See Appendix 19 – Vegetation cover map – Gaffneys Creek) (DSE, 2013).



Figure 38: Gaffneys Creek landscape.

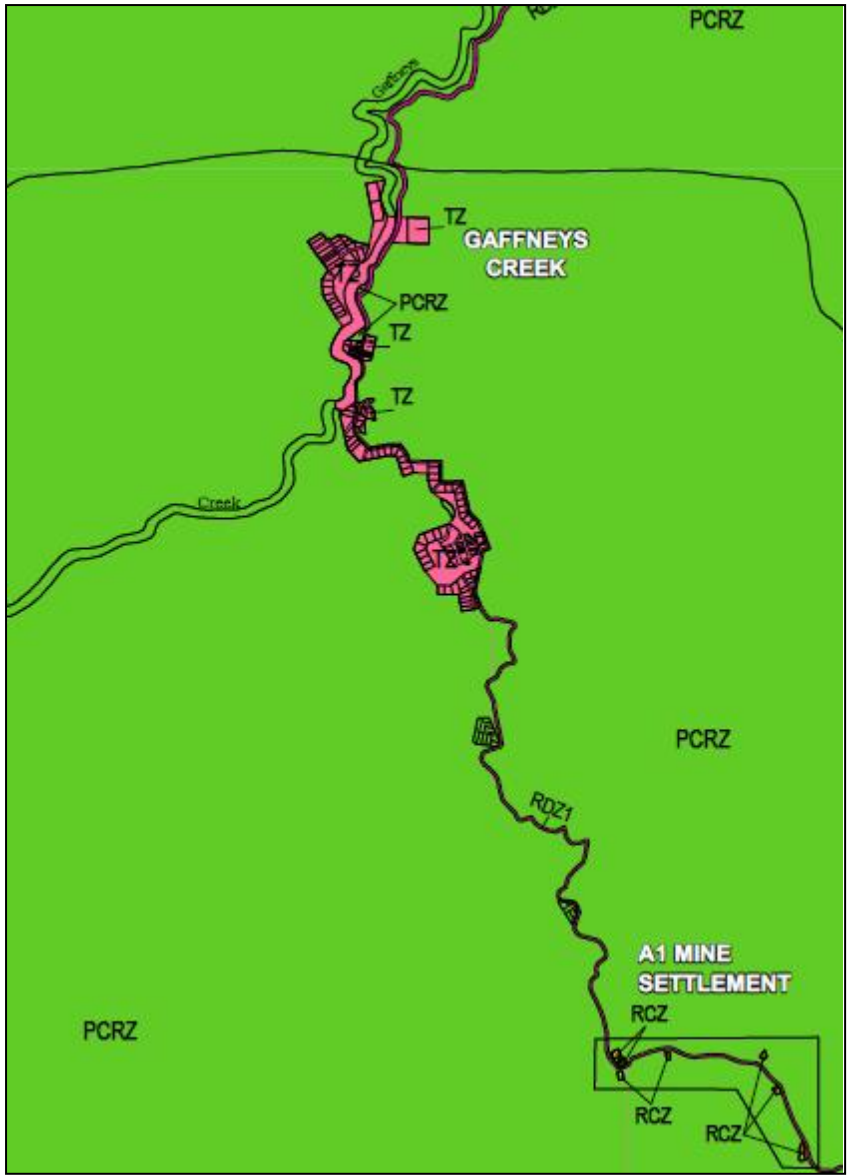


Figure 39: Gaffneys Creek zoning map 31 (DPCD, 2013)

Overview	
Telecommunications	Nil
Access and Egress	Mansfield Woods Point road only.
Road conditions	Gravel road, sealed in a northern direction
Vegetation	Denser forest on all sides.
Water accessibility	Shallow Sub- tributary creek runs through the area.
Land slope	Upwards to the south west and north east.

16.1 Planning and building context

ZONING: Township Zone (TZ) and Public Conservation and Recreation Zone (PCRZ).

OVERLAYS: Bushfire Management Overlay (BMO / WMO)

Heritage Overlay (HO65)

The purpose of the Heritage Overlay is to:

- Conserve and enhance heritage places of natural or cultural significance,
- To conserve and enhance those elements which contribute to the significance of heritage places.
- To ensure that development does not adversely affect significance of heritage places.
- Conserve specifically identified heritage places by allowing a use that would otherwise be prohibited if this will demonstrably assist with the conservation of the significance of the heritage place.

HO65 applies to Gaffney’s Creek Conservation area where tree controls apply.

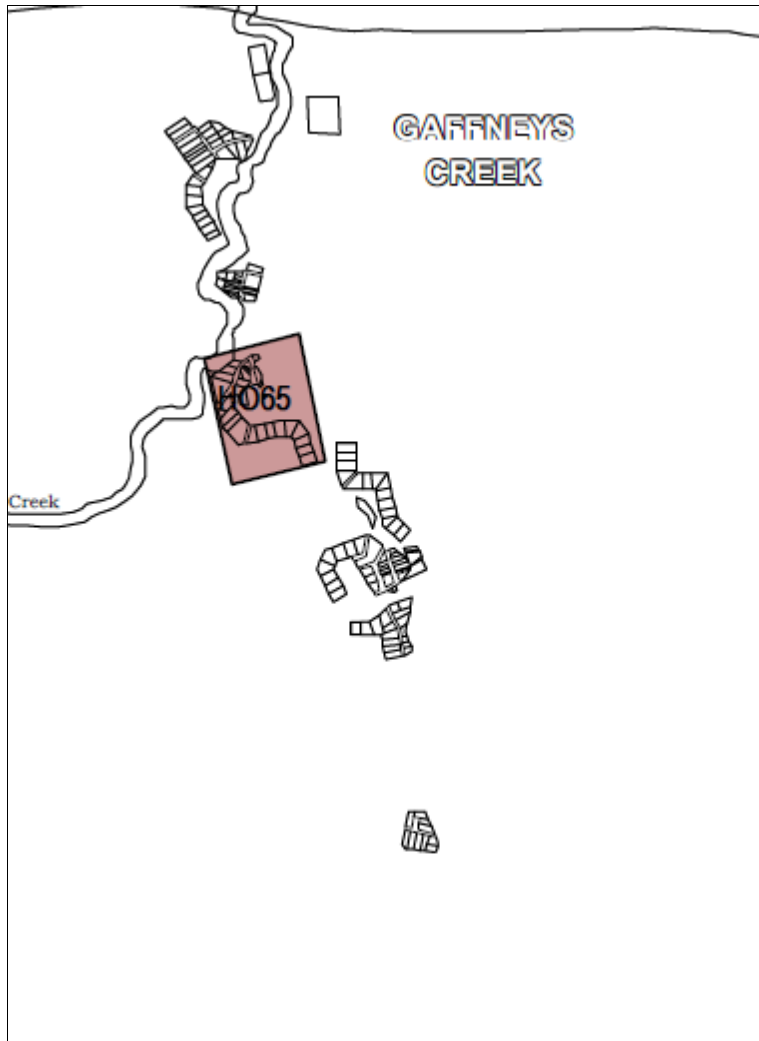


Figure 40: Gaffney’s Creek HO Map 31 (DPCD, 2013).

Gaffney’s Creek is designated bushfire prone area under the Building Amendment (Bushfire Construction) Regulations 2011. As the land is covered by the Bushfire Management Overlay a planning permit is triggered resulting in an individual site assessment for any new dwellings or extensions to existing dwellings.

16.2 Planning provision mitigation measures

The Mansfield planning scheme states that no additional large parcels of land will be made available for new development of any nature without strict development requirements, design restrictions,

infrastructure requirements. Given the nature of the area, the limited accessibility, density and proximity of vegetation it is considered that no further new growth development should be considered in this area and should be highlighted in the Planning scheme as such.

Given that the planning schemes that this area is best suited to remaining remote, secluded and largely untouched servicing the tourist population and surrounding farming communities who enjoy lifestyle activities, stating no further development is inline with previously policy directions. The Planning Scheme should also highlight the environment risk of the area and the risk to transient populations during fire season.

The nature of the environment in the area with the density and proximity of the large expanses of bushland, the lack of accessibility and telecommunication services a bushfire management schedule is not appropriate in this instance as many of the properties could not meet defendable space allowances, would be an extreme risk of ember attack and be directly in a flame contact zone.

In addition the lots in the Gaffney's Creek area are zoned Rural Conservation Zone and many of the lots are under the minimum required minimum lot sizes for the zone which inhibits the use of the lots for a dwelling in addition to the BMO and environmental risk of the area.

17. Woods Point overview

Woods Point is approximately 90kms south of Mansfield. Situated in the Upper Goulburn River Valley and is the largest town and focal point in this area. The area is heavily vegetated with bushland, State Forests and Parks which are accessed mainly by steep rocky 4WD tracks. Access from the north is via the Mansfield Woods Point Road, southern access is via the Walhalla Woods Point Road of the Warburton Woods Point Road. Residential lots in the township of Woods Point located in a bushfire hazard area associated with the surrounding forest and undulating topography (See Appendix 20 – Woods Point dwelling ages and vacant land mapping).

The residential area is zoned Township Zone with scattered Farming zone lots throughout the area. Surrounded by Public Conservation Zone on all sides the area is totally within the confines of the Bushfire Management Overlay. The Black Saturday bushfires came within 11kms west of Woods Point. Temperatures in the area range from -5 in June to 30 degrees in February.

The vegetation in the area is a mix of dry forests with a high or exposed vegetation and low or sheltered vegetation along with some areas of wet or damp forest. Additionally there are lineal areas of Montane Woodlands to the east and west of the area (See Appendix 21 – Vegetation cover map – Woods Point) (DSE, 2013).

Woods Point has a current water entitlement of 30ML/year from the Brewery Creek of the Goulburn River system. In 2009 the actual demand was 17ML/year with a yield of 30ML/year. (Mansfield Shire Council).

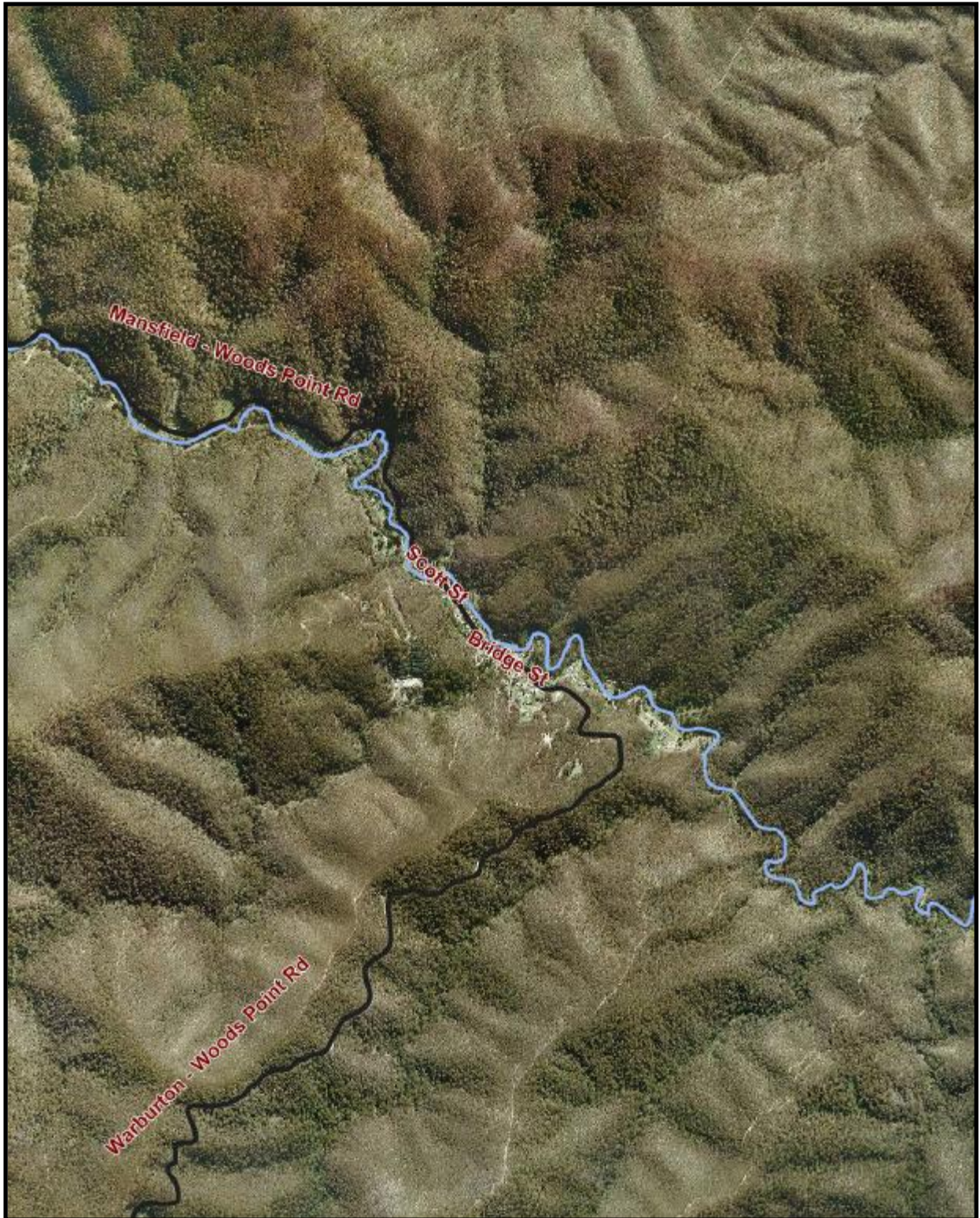


Figure 41: Woods Point landscape.

It is noted that Woods Point has access to an abandoned mining tunnel which has been designated as a fire refuge that is located within the township.



Figure 42: Woods Point zoning map 34 (DPCD, 2013)

Overview	
Telecommunications	Nil
Access and Egress	Mansfield Woods Point Road
Road conditions	Graded / ungraded gravel windy road. Poor condition.
Vegetation	Dense vegetation surrounding whole area
Water accessibility	Shallow sub tributary creek running through Woods Point.
Land slope	Upwards to the north east and south west.

17.1 Planning and building context

ZONING: Township Zone (TZ), Farming Zone (FZ) and Public Conservation and Recreation Zone (PCRZ).

OVERLAYS: Heritage Overlay (HO44)

Bushfire Management Overlay (BMO / WMO)

The purpose of the Heritage Overlay is to:

- Conserve and enhance heritage places of natural or cultural significance,
- To conserve and enhance those elements which contribute to the significance of heritage places
- To ensure that development does not adversely affect significance of heritage places.
- Conserve specifically identified heritage places by allowing a use that would otherwise be prohibited if this will demonstrably assist with the conservation of the significance of the heritage place.

HO44 applies to Woods Point Conservation Area, Woods Point where External Paint controls and tree controls apply.

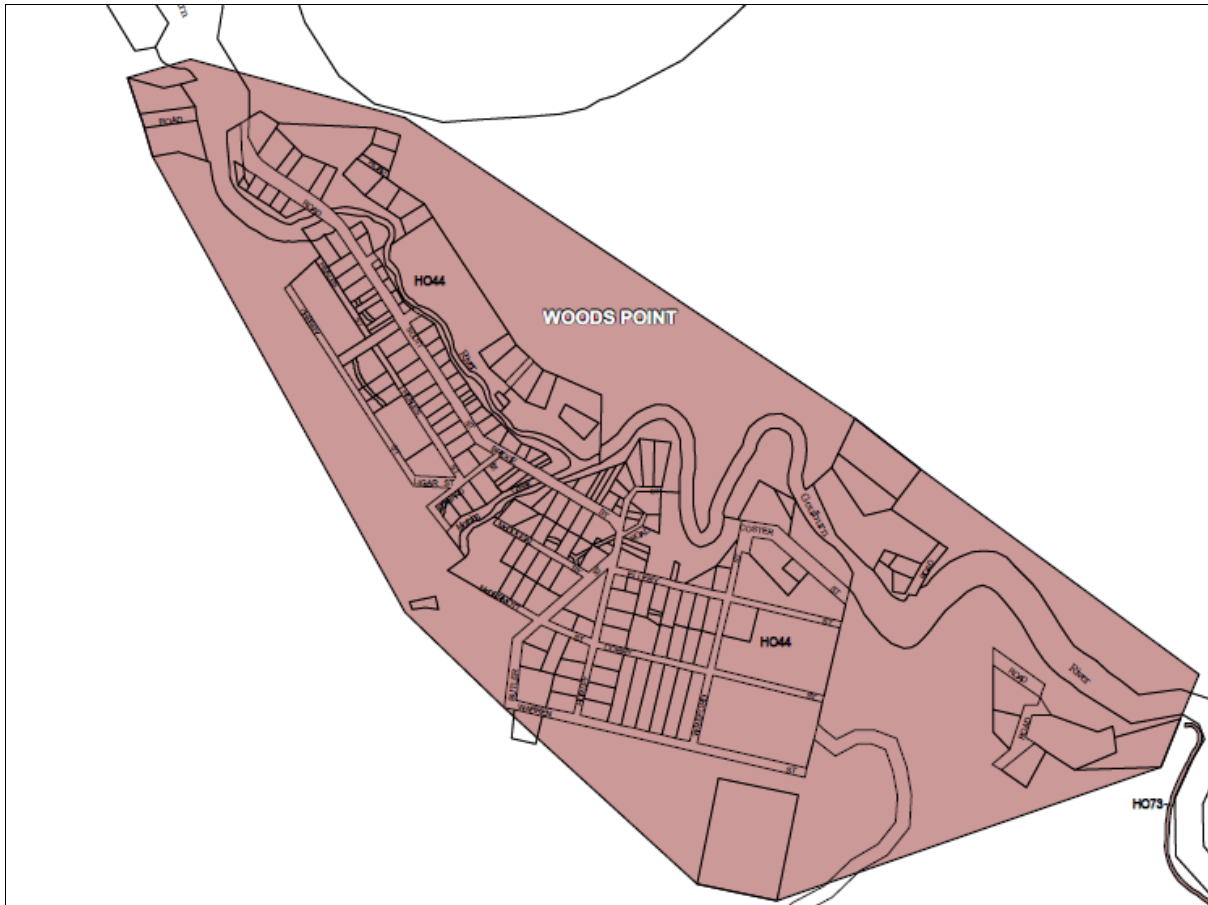


Figure 43: Woods Point HO map 34 (DPCD, 2013).

Woods Point is designated bushfire prone area under the Building Amendment (Bushfire Construction) Regulations 2011. As the land is covered by the Bushfire Management Overlay a planning permit is triggered resulting in an individual site assessment for any new dwellings or extensions to existing dwellings.

17.2 Planning provision mitigation measures

The Mansfield planning scheme states that Woods Point should continue to be promoted as an important heritage town, appealing to those interested in the towns history and outdoor pursuits. It also states that residential development should be encouraged within the existing urban area. The planning scheme should be updated to reflect the environmental risk of fire to the area, including the extreme risk of ember attack and the lack of escape in the event of bushfire. No further growth development should be considered given the proximity to the dense expanse of vegetation that surrounds the area and the lack of communications and infrastructure support.

It is also noted that there is the possibility of a number of illegal dwellings and habitable buildings in the area that should be highlighted for enforcement action given the risk that the buildings impose on the habitants and the surrounding area.

Approximately 1.8 hectares of Woods Point is zoned Township Zone. The area should be rezoned to Neighbourhood Residential Zone under the new residential zoning reforms to indicate both the heritage value and environmental risk to the area given that the area is predominately single dwellings and little to no expected growth and development can occur due to environmental risk.

18. Tolmie overview

Tolmie is located 31kms north east of Mansfield and is predominately made up of rural residential lots. There are a number of plantations around Tolmie that contribute to the local bushfire risk. Rural-residential lots along Bunston Road and on the Tatong-Tolmie Road are both in proximity to a bushfire hazard area associated with remnant vegetation and plantation. Most dwellings in the locality rely on Altmans Road / Old Tolmie Road for access and egress from the area (See Appendix 22 – Tolmie dwelling ages and vacant land mapping).



Figure 44: Tolmie landscape.

Fire Authorities have assessed Tolmie as having a **VERY HIGH** bushfire risk in accordance with the Victorian Fire Risk Register. Tolmie has experience two major bushfires in recent history. Due to the variation in Tolmie’s vegetation and topography, fire behaviour can be very unpredictable (CFA, 2013a). The area came under direct threat of the 2009 bushfires but no damage occurred to property.

Most of the lots in the area are zoned Rural Living with some Farming Zone and Recreation Conservation Zone and Public Consecration Zone in the area. Majority of the southern portion of Tolmie is covered by the Environmental Significance Overlay as it is in the Lake Nillahcootie catchment area. The Bushfire Management Overlay covers the majority of the Tolmie area.

The majority of vegetation in the area is classified as high altitude or sheltered dry forests (See Appendix 23 – Vegetation cover map – Tolmie) (DSE, 2013).

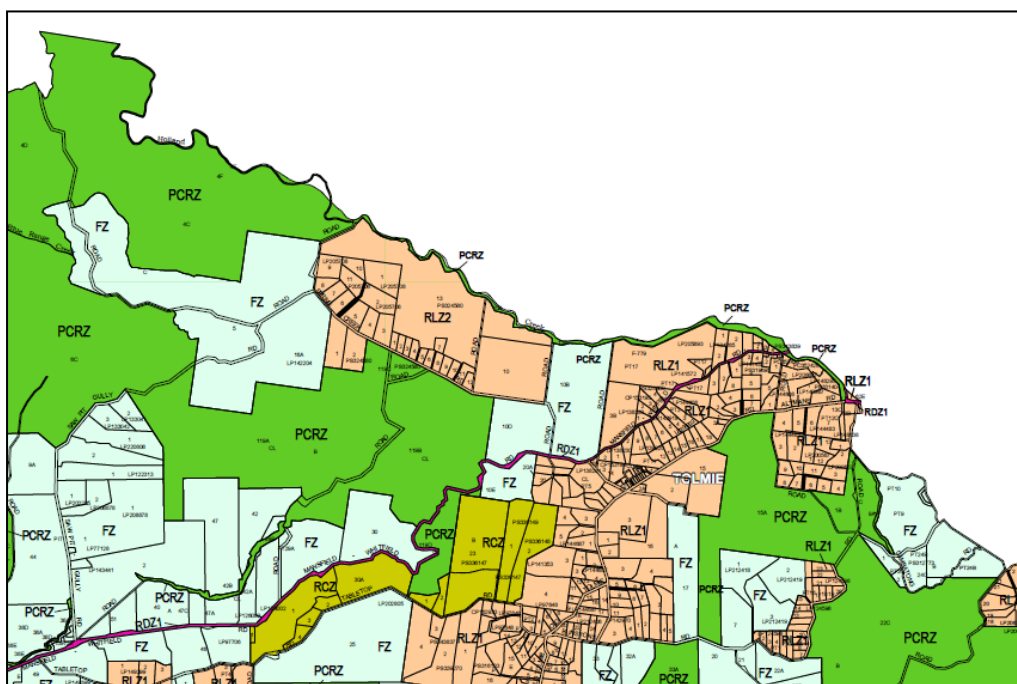


Figure 45: Tolmie zoning map 3 (DPCD, 2013).

Overview	
Telecommunications	Unreliable communication services throughout the area.
Access and Egress	Altmans Road / Old Tolmie Road
Road conditions	Sealed roads with some dirt side roads.
Vegetation	Scattered remnant vegetation throughout the area with dense vegetation to the south east and north west of the main area of Tolmie.
Water accessibility	Dams and water tanks.
Land slope	Undulating, slowly rising to the north.

18.1 Planning and building context

ZONING: Farming Zone (FZ), Public Conservation and Recreation Zone (PCRZ), Rural Living Zone (RLZ) and Rural Conservation Zone (RCZ).

OVERLAYS: Development Plan Overlay (DPO)

- Schedule 3

Environmental Significance Overlay (ESO)

- Schedule 2

Bushfire Management Overlay (BMO / WMO)

The purpose of Development Plan Overlay is to:

- Identify areas which require the form and conditions of future use and development to be shown on a development plan before a permit can be granted to use or develop the land.
- To exempt an application from notice and review if it is generally in accordance with a development plan.

Schedule 3 of the Development Plan Overlay applies to the land.

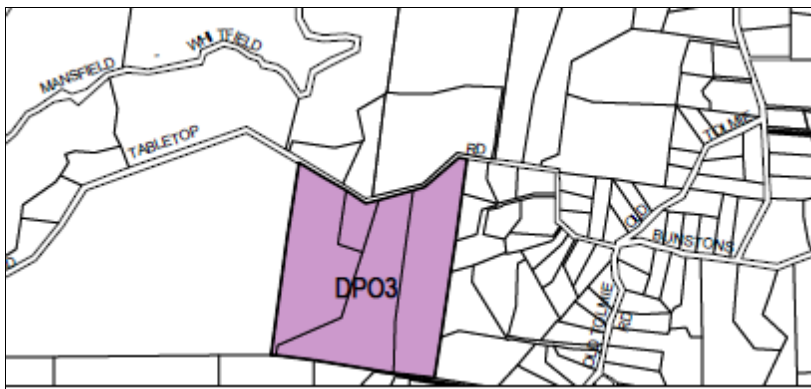


Figure 46: Tolmie DPO Map 3 (DPCD, 2013).

The purpose of the Environmental Significance Overlay is to:

- Identify areas where development of land may be affected by environmental constraints.
- Ensure that development is compatible with identified environmental values.

Schedule 2 of the ESO aims to:

- Ensure the protection and maintenance of water quality and water yield within the Lake Nillahcootie Proclaimed Catchment Area.
- Protect and enhance the visual amenity and landscape of the catchment area.

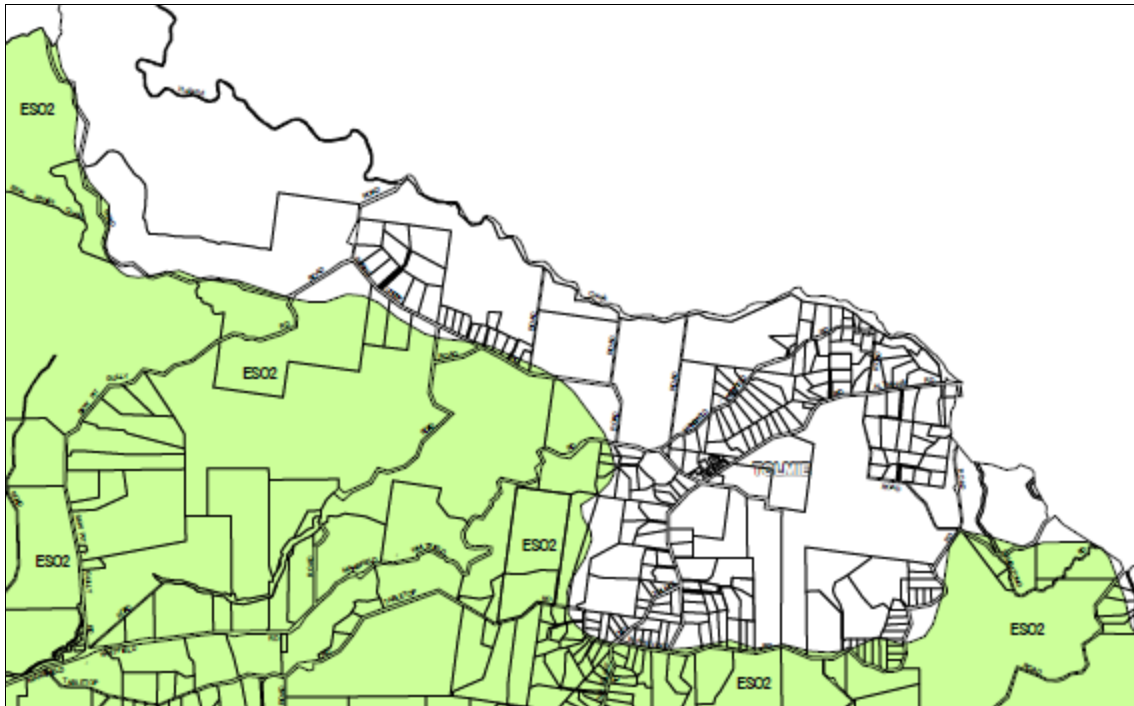


Figure 47: Tolmie ESO Map 3 (DPCD, 2013).

Tolmie is designated bushfire prone area under the Building Amendment (Bushfire Construction) Regulations 2011. As the land is covered by the Bushfire Management Overlay a planning permit is triggered resulting in an individual site assessment for any new dwellings or extensions to existing dwellings.

18.2 Planning provision mitigation measures

The Mansfield planning scheme states that Tolmie has been identified as the preferred Rural Living Zone node in the north east of the Shire. The planning scheme needs to be updated to reflect the environmental risk of fire that is in the area.

Tolmie has approximately 759.63 hectares of rural living zone 1 and 418.13 hectares of rural living zone 2 totalling 1177.76 hectares of rural living zone. No further subdivision is expected for further rural living in the area given the environmental significance and environmental risk in the area.

It is expected that applications for dwellings in the area that are affected by the Bushfire Management Overlay will be able to meet the defendable space requirements within the confines of the applicable lot.

19. Discussion

There are minimal opportunities to provide for applying mitigation measures to already developed settlements. In these settlements responding to how the settlements grow or if they should grow should consider all judgement of potential risk.

Elimination risk or minimising risk is more effective than the management of risk. Developed settlements have very few opportunities to provide for risk mitigation. As a result any growth of these settlements should be seriously considered not only against the Mansfield Planning Scheme provisions and State Policy in regards to bushfire, but also against actual risk of bushfire hazard. Keeping in mind that majority of the settlements, at least around the fringes will be subject to direct flame contact in the event of a bushfire. Majority of all of the settlements discussed will at the least be subject to ember attack in the event of a bushfire. It is imperative to consider any new development or infill development looking at the long term prospects at the area forever being at risk of ember attack or worse.

A property covered by the Bushfire Management Overlay does not determine the risk from bushfire. The mapping implies that there is a significant risk potential to that area to warrant planning authorities, designers, and individuals to consider the risk of bushfire during the process of subdividing or developing the land.

The Mansfield Planning Scheme can be used to help control development to ensure safe working and living environments and to minimise impacts on communities. Any recommended requirements for separation distances can be imposed through the AS3959 – 2009 and through consideration of the planning scheme ensuring that the development meets the objectives of the Planning and Environment Act 1987. Any requirements on development imposed through the planning scheme should be consistent with the requirements imposed by the Building Act

Two critical factors for managing bushfire risk are access to adequate water for fire fighting purposes and access to the property.

The most crucial factor in already developed communities is continuing education. Education is the most effective tool for ensuring that residents are knowledgeable and prepared for the event of bushfire. The CFA Fire ready meetings and Council communication, among other things, should be an ongoing event every season to ensure the high risk communities are aware and prepared

With residents and visitors to the Mansfield Shire being attracted to areas of high bushfire hazard, and future climate projections indicating that bushfire frequency is likely to increase due to a greater number of high fire index days increasing each year regional policy discourages fragmentation of development on rural lots (DPCD 2013a).

The high proportion of non resident rate payers in the Mansfield shire supports anecdotal evidence that a high proportion of non resident ratepayers plan to become resident in regional areas when they retire. This has contributed to the ageing population in the area and therefore an increased high risk population.

The Mansfield Shire has approximately 4,000 hectares of land zoned for rural living and residential purposes. Given the extent of land zoned in the Shire for these purposes and the significance of environmental risk throughout the Shire it is expected that any future required rezoning and subdivisions will be encouraged and occur in areas of low environmental significance and low

environmental risk. No further significant future growth or development should be supported in high-risk townships where safety prioritising human life cannot be demonstrated.

ZONING	TOTAL NO. OF HECTARES IN SHIRE
Rural Living Zone 1	2,683.04hectares
Rural Living Zone 2	784.89 hectares
Township Zone	15.45 hectares
Residential 1 Zone	476.48 hectares
Low Density Residential Zone	96.25 hectares
TOTAL	4,056.11hectares

20. Implementation Plan

IMPLEMENTATION PLAN			
1. Sawmill Settlement			
1.1	Strengthen community resilience to bushfire via the planning scheme.	EASY: Include into the Mansfield Planning Scheme the environment risk of bushfire to the Sawmill Settlement and Alpine Ridge area highlighting that no future growth development should be considered in Sawmill Settlement erasing the reference to Sawmill Settlement as a future growth area.	Responsibility: Planning
			Resourcing: \$
			Priority: High
Partners	DPCD		
1.2	Apply appropriate zonings using the new residential zones.	Moderate: Apply the new neighbourhood residential zone to the Sawmill Settlement and Alpine Ridge as part of the new residential zoning reforms.	Responsibility: Planning
			Resourcing: \$\$
			Priority: Moderate
Partners	DPCD		
1.3	Community Engagement	Moderate: Develop community hazard and information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Responsibility: Planning and Community Engagement
			Resourcing: \$
			Priority: Moderate
Partners	Council – Community Engagement		
1.4	Restructure overlay	Complex: Apply a Restructure Overlay to the vacant parcels of land within Sawmill Settlement to enable lots to meet defensible space requirements.	Responsibility: Planning
			Resourcing: \$\$
			Priority: High
Partners	DPCD, CFA		
1.5	Schedule to the Bushfire Management Overlay	Complex: Introduce a schedule to the Bushfire Management Overlay to highlight lots within Alpine Ridge that can build to a predetermined BAL 29.	Responsibility: Planning
			Resourcing: \$\$
			Priority: High
Partners	DPCD, CFA		
1.6	Strengthen community resilience to bushfire via the planning scheme.	Easy: Include into the Mansfield Planning Scheme that lineal development along Mt Buller Tourists Road past Merrijig will not be supported due to the	Responsibility: Planning
			Resourcing: \$
			Priority: High

		environmental risk and traffic impact at times or highrisk fire danger.	
Partners	DPCD, CFA		
2. Bonnie Doon			
2.1	Strengthen community resilience to bushfire via the planning scheme.	Easy: Update the Planning Scheme via a planning scheme amendment to direct development in Bonnie Doon away from fire hazards areas to the north and south of Bonnie Doon.	Responsibility: Planning Resourcing: \$ Priority: High
Partners	DPCD		
2.2	Community Engagement	Moderate: Develop community hazard and information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Responsibility: Planning and Community Engagement Resourcing: \$ Priority: Moderate
Partners	Council – Community Engagement		
3. Goughs Bay			
3.1	Strengthen community resilience to bushfire via the planning scheme.	Easy: Update the Planning Scheme via a planning scheme amendment to highlight the environmental risk to Goughs Bay highlighting that no further residential growth of the area should be considered.	Responsibility: Planning Resourcing: \$ Priority: Ongoing
Partners	DPCD		
3.2	Community Engagement	Moderate: Develop community hazard and information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Responsibility: Planning and Community Engagement Resourcing:\$ Priority: Moderate
Partners	Council – Community Engagement		
3.3	Apply appropriate zonings using the new residential zones.	Moderate: Apply the new neighbourhood residential zone to Goughs Bay as part of the new residential zoning reforms.	Responsibility: Planning Resourcing: \$\$ Priority: Moderate
Partners	DPCD		
4. Macs Cove			
4.1	Strengthen community resilience to	EASY: Include into the Mansfield Planning Scheme the	Responsibility: Planning

	bushfire via the planning scheme.	environment risk of bushfire to the Macs Cove area highlighting that no future growth development should be considered in Macs Cove.	Resourcing:\$ Priority: High
Partners	DPCD		
4.2	Apply appropriate zonings using the new residential zones	Moderate: Develop community hazard and information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Responsibility: Planning Resourcing:\$ Priority: Moderate
Partners	DPCD		
4.3	Community Engagement	Moderate: Develop community hazard and information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Responsibility: Planning and Community Engagement Resourcing: \$ Priority: Moderate
Partners	Council – Community Engagement		
5. Howqua			
5.1	Strengthen community resilience to bushfire via the planning scheme.	Easy: Include into the Mansfield Planning Scheme the environment risk of bushfire to the Howqua area highlighting that no future growth development should be considered in Howqua.	Responsibility: Planning Resourcing: \$ Priority: High
Partners			
5.2	Apply appropriate zonings using the new residential zones.	Moderate: Apply the new neighbourhood residential zone to the Howqua area as part of the new residential zoning reforms.	Responsibility: Planning Resourcing:\$ Priority: Moderate
Partners			
5.3	Community Engagement	Moderate: Develop community hazard and information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Responsibility: Planning and community engagement Resourcing: \$ Priority: Moderate
Partners	Council – Community Engagement		
6. Jamieson			
6.1	Strengthen community resilience to bushfire via the planning scheme.	Easy: Include into the Mansfield Planning Scheme the environmental risk of bushfire to the Jamieson area	Responsibility: Planning Resourcing: \$

		highlighting that future growth in the area should be limited.	Priority: High
Partners	DPCD		
6.2	Apply appropriate zonings using the new residential zones.	Moderate: Apply the appropriate new residential zone to the Jamieson township as part of the new residential zoning reforms.	Responsibility: Planning Resourcing: \$\$ Priority: Moderate
Partners	DPCD		
6.3	Community Engagement	Moderate: Develop community hazard and information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Responsibility: Planning and Community Engagement Resourcing: \$ Priority: Moderate
Partners	Council – Community Engagement		
7. Kevington			
7.1	Strengthen community resilience to bushfire via the planning scheme.	Easy: Include into the Mansfield Planning Scheme the environmental risk of bushfire to the Kevington area highlighting that no future growth development should be considered in Kevington.	Responsibility: Planning Resourcing: \$ Priority: High
Partners	DPCD		
7.2	Apply appropriate zonings using the new residential zones.	Moderate: Apply the appropriate zoning as part of the new residential zoning reforms.	Responsibility: Planning Resourcing: \$\$ Priority: Moderate
Partners	DPCD		
7.3	Community Engagement	Moderate: Develop community hazard and information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Responsibility: Planning and Community Engagement Resourcing: \$ Priority: Moderate
Partners	Council – Community Engagement		
8. Gaffney's Creek			
8.1	Strengthen community resilience to bushfire via the planning scheme.	Easy: Include into the Mansfield Planning Scheme the environmental risk of bushfire to Gaffney's Creek area highlighting that no future growth development	Responsibility: Planning Resourcing: \$ Priority: High

		should be considered in Gaffney's Creek.	
Partners	DPCD		
8.2	Apply appropriate zonings using the new residential zones.	Moderate: Apply the new neighbourhood residential zone to the Gaffney's Creek as part of the new residential zoning reforms.	Responsibility: Planning Resourcing: \$\$ Priority: Moderate
Partners	DPCD		
8.3	Community Engagement	Moderate: Develop community hazard and information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Responsibility: Planning and Community Engagement Resourcing: \$ Priority: Moderate
Partners	Council – Community Engagement		
9. Woods Point			
9.1	Strengthen community resilience to bushfire via the planning scheme.	Easy: Include into the Mansfield Planning Scheme the environmental risk of bushfire to the area highlighting that no future growth development should be considered in the area.	Responsibility: Planning Resourcing: \$ Priority: High
Partners	DPCD		
9.2	Apply the appropriate zonings using the new residential zones.	Moderate: Apply the new neighbourhood residential zone to the Woods Point area as part of the new residential zoning reforms.	Responsibility: Planning Resourcing: \$\$ Priority: Moderate
Partners	DPCD		
9.3	Community Engagement	Moderate: Develop community hazard and information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Responsibility: Planning Resourcing: \$ Priority: Moderate
Partners	Council – Community Engagement		
10. Tolmie			
10.1	Strengthen community resilience to bushfire via the planning scheme.	Easy: Include into the Mansfield Planning Scheme the environmental risk of bushfire to areas in Tolmie.	Responsibility: Planning Resourcing: \$ Priority: High
Partners	DPCD		
10.2	Community Engagement	Moderate: Develop community hazard and	Responsibility: Planning and

		information guides for new resident ratepayers to be included in resident ratepayers welcome packs.	Community Engagement Resourcing: \$ Priority: Moderate
Partners	Council – Community Engagement		
11. Other			
11.1	Planning Scheme Review	EASY: Ensure that planning scheme reviews consider bushfire risk as part of the review process and that any environment risk changes or township risk factors are included as part of the review. Consider the Regional Bushfire Planning Assessment (RPBA) as part of the review process and ensure consistency with the State planning policy for bushfire.	Responsibility: Planning Resourcing: \$ Priority: Ongoing
Partners	DPCD		
11.2	Consider future township growth in the context of fire hazards.	MODERATE: Update the Planning Scheme to highlight areas of future growth that are outside the risk of bushfire hazard.	Responsibility: Planning Resourcing:\$ Priority: High
Partners	CFA, DPCD		
11.3	Consider the views of the relevant fire authorities when considering development that may impact or be within fire hazard area.	EASY: Ensure that applications that may be impacted on by the environmental hazard of fire are referred to the relevant fire authority and all consideration is give to the prioritising of human life.	Responsibility: Planning Resourcing: \$ Priority: Moderate
Partners	CFA		
11.4	Future development	MODERATE: Consider development pressure that may potentially conflict with bushfire hazard.	Responsibility: Planning Resourcing:\$ Priority: High
Partners			
11.5	Strengthening the planning scheme	MODERATE: Consider the application of overlays and schedules with the updated State policy for bushfire including provisions that seek to control activities which may be exempt from the need for a planning permit.	Responsibility: Planning Resourcing:\$ Priority: Ongoing
Partners			

11.6	Strengthening the planning scheme	MODERATE: Consider the application of zones in the context of the Bushfire Management Overlay and whether the purpose of the zone is compatible with bushfire hazard.	Responsibility: Planning Resourcing:\$ Priority: Ongoing
Partners			
11.7	Strengthening the planning scheme	MODERATE: Introduce a new Local Planning policy on Fire Management into the Planning Scheme to be considered for all planning applications within the Shire.	Responsibility: Planning Resourcing: \$\$ Priority: High
Partners			
11.8	Enforcement	EASY: Ensure ongoing mowing / slashing / spraying of sites to reduce fuel loads to ensure protection of assets, minimise ignition potential and ensure adequate access / egress.	Responsibility: Local Laws Resourcing: \$\$ Priority: Ongoing
Partners	Council – Local Laws		
11.9	Infrastructure	HARD: Establishment of additional constructed and maintain roads, bridges and tracks to allow passage for fire fighting vehicles and the provision of additional water points.	Responsibility: Infrastructure and Engineering Resourcing: \$\$\$ Priority: Low
Partners	Council – Infrastructure and Engineering		
11.10	Governance and Regulation	EASY: Advice to landholders to manage vegetation and lower bushfire risk including notification processes and enforcements.	Responsibility: Planning and environment Resourcing:\$ Priority: Ongoing
Partners	Council - Environment		
11.11	Enforcement	MODERATE: Inspections of lots and assets to ensure planning permit conditions and safety regulation requirements are adhered to including identifying and tacking action on illegal development.	Responsibility: Local Laws and Planning Resourcing:\$ Priority: Moderate
Partners	Council – Local laws		
11.12	Community Engagement	MODERATE: Look at ways of engaging and maintaining non resident rate payers regarding property	Responsibility: Planning and local laws

		maintenance and fire hazards.	Resourcing: \$\$
			Priority: Moderate
Partners	Council – Local laws		

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Appendix 1 – History of fires in Mansfield Shire Map.

Appendix 2 – Applications since 2009 in the BMO/WMO

Appendix 3 – Table of community consultation outcomes

Appendix 4 List of Neighbourhood Safer Places

Appendix 5 - Dwelling ages and vacant land in Sawmill Settlement mapping

Appendix 6 - Vegetation cover map – Sawmill Settlement

Appendix 7 - Bonnie Doon dwelling ages and vacant land mapping

Appendix 8 – Vegetation cover map – Bonnie Doon

Appendix 9 – Goughs Bay dwelling ages and vacant land mapping

Appendix 10 – Vegetation cover map – Goughs Bay

Appendix 11 – Macs Cove dwelling ages and vacant land mapping

Appendix 12 – Vegetation cover map – Macs Cove and Howqua

Appendix 13 – Howqua dwelling ages and vacant land mapping

Appendix 14 – Jamieson dwelling ages and vacant land mapping

Appendix 15 – Vegetation cover map – Jamieson

Appendix 16 – Kevington dwelling ages and vacant land mapping

Appendix 17 – Vegetation cover map – Kevington

Appendix 18 – Gaffneys Creek dwelling ages and vacant land mapping

Appendix 19 – Vegetation cover map – Gaffneys Creek

Appendix 20 – Woods Point dwelling ages and vacant land mapping

Appendix 21 – Vegetation Cover map – Woods Point

Appendix 22 -Tolmie dwelling ages and vacant land mapping

Appendix 23 – Vegetation cover map - Tolmie