

## **Strategic planning for bushfire in the City of Ballarat**

**PREPARED FOR THE CITY OF BALLARAT**

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Version 0.3

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#### Disclaimer

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## 1. Introduction

The City of Ballarat (the '*Council*') seeks to embed bushfire considerations into the earliest stages of strategic planning projects and as part of preparing amendments to the Ballarat Planning Scheme (the '*planning scheme*').

This document supports strategic planning by providing a starting point for how to consider bushfire at the beginning of strategic projects. By providing geographic (or spatial) information on the bushfire characteristics and landscape risk in different parts of the municipality, more detailed place-based strategic planning can emerge. This includes in the commissioning of further bushfire assessments.

By using this document and further locally specific bushfire assessments, information on the relative bushfire risk of different locations can inform how bushfire-related policies in the planning scheme are applied. This includes policies that seek to assess alternative locations for growth as part of settlement planning and that direct growth to locations that are lower risk.

See **Figure 1: Key planning scheme bushfire policies in the Ballarat Planning Scheme**

This document also identifies selected areas as being lower risk locations for urban growth and as suitable locations to direct greenfield urban development. This enables these areas to not need further assessment based on strategic and landscape factors as part of potential future planning scheme changes.

Strategic planning relevant to this report includes the setting of directions for growth and change that may be included into the planning scheme through the preparation, authorisation, adoption, and approval of a planning scheme amendment. It does not include decisions under the planning scheme (for example, planning permit applications and development plan approvals). Information in this document should only be used to inform strategic planning activities being undertaken by the Council.

**FIGURE 1: KEY PLANNING SCHEME BUSHFIRE POLICIES IN THE BALLARAT PLANNING SCHEME****c13.01-15 Natural hazards and climate change**

The objective is:

*To minimise the impacts of natural hazards and adapt to the impacts of climate change through risk-based planning.*

Strategies to meet the above objective include:

- Consider the risks associated with climate change in planning and management decision making processes.
- Identify at risk areas using the best available data and climate change science.
- Integrate strategic land use planning with emergency management decision making.
- Direct population growth and development to low risk locations.
- Develop adaptation response strategies for existing settlements in risk areas to accommodate change over time.
- Ensure planning controls allow for risk mitigation or risk adaptation strategies to be implemented.
- Site and design development to minimise risk to life, property, the natural environment and community infrastructure from natural hazards.

**c13.02-15 Bushfire Planning**

The objective is:

*To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.*

Strategies that direct bushfire decision making include:

- Prioritising the protection of human life over all other policy considerations.
- Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.
- Reducing the vulnerability of communities to bushfire through the consideration of bushfire risk in decision making at all stages of the planning process.

Strategies that seek to direct new development:

- Directing population growth and development to low risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under *AS3959-2009 Construction of Buildings in Bushfire-prone Areas* (Standards Australia, 2009)<sup>1</sup>.
- Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.
- Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.
- Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS 3959-2009.

<sup>1</sup> *AS3959-2018 Building in a bushfire prone area* (Standards Australia) has superseded the 2009 edition

## 2. The bushfire context of the municipality

### About the municipality

The Council's municipal fire management plan describes the municipality as follows:

*The City of Ballarat is in the Grampians Region, strategically located in the Central Highlands Region of Victoria, and surrounded by the municipalities of Hepburn, Pyrenees, Golden Plains and Moorabool. Ballarat is 115 kilometres west of Melbourne and just over one-hour drive on the Western Highway. Ballarat is one of Australia's largest inland cities and the third largest city in Victoria.*

*The municipality covers some 740 square kilometres of a wide range of land types from steep incised areas to the northwest and northeast of the City to the flatter basaltic plains of the southwest area, and to the south. Significant land managers in the municipality include the City of Ballarat and DELWP*

*(City of Ballarat, 2018).*

The eastern part of the municipality contains the settlement of Ballarat. The north east of Ballarat contains state forest, several small reserves and scattered small and rural-residential settlements. The south and south-eastern parts of Ballarat contain the hilly and undulating terrain of Mount Clear, Mount Helen and the foothills of Mount Buninyong. Plantations and heavily vegetated forests border the linear settlement pattern in these areas. The northern and western areas of the municipality are dominated by large lots generally devoid of expansive woodland or forest vegetation (DPCD, 2012).

### When are bushfires likely to occur?

The climate in the municipality is dominated by warm dry summers and cool wet winters. The bushfire season generally runs from December to April. Whilst bushfires can start any time of the year, most occur between October and April. The largest and most damaging bushfires generally occur from December through February, with about one-quarter of bushfires in January (DEWLP, 2015).

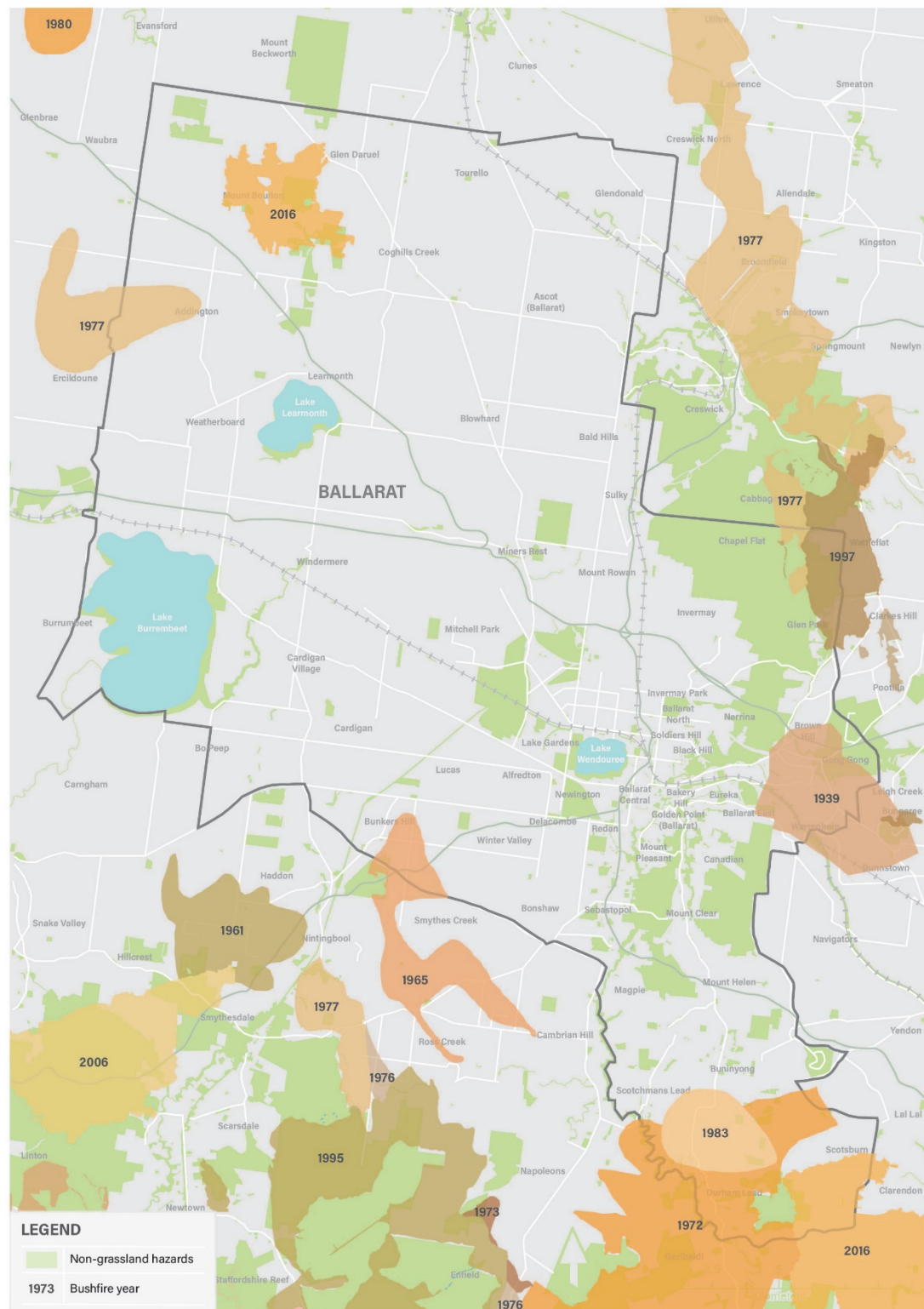
### Bushfire conditions anticipated in the municipality

The Department of Environment, Land, Water and Planning identifies key features relevant to bushfires in the municipality. These include:

- A forest fire danger index of well over 100.
- Severe drought conditions.
- Temperatures above 40°C.
- Relative humidity below 10%.
- Strong to gale-force north-westerly winds.
- A strong to gale-force west-south-westerly wind change that turns the eastern flank of a running bushfire into a wide new fire front

These conditions can create bushfires with powerful convection columns. Ember storms, wind-blown debris, downbursts, fire tornadoes and explosive flares of igniting eucalyptus vapour are common. DELWP notes that these weather conditions are representative of where a bushfire does most of its damage in a single day.

Due to the fragmentation of native vegetation, bushfires in the municipality are not usually as protracted as they can be in the large forests in eastern Victoria. The main damage from bushfire occurs on the first day. The greatest loss of life and property have historically been caused by such single day bushfires (DEWLP, 2015).



## Changing bushfire conditions

Long-term records show an increase in bushfire danger and the length of the bushfire season for Victoria in recent decades. Projections for Victoria's future climate indicate that the frequency and intensity of bushfires in south-east Australia will continue to increase (*DELWP, 2015*). It is predicted that there may be an increase in the number of extreme fire danger days (with FFDI greater than 75) by between 15% and 70% by 2050.

## How and where bushfires start

Bushfires can start from accidental causes, such as machinery, trains and escapes from campfires and burn-offs. Deliberate action by people can cause bushfire, and natural causes, such as lightning, also causes bushfires. A high proportion of ignitions occur around the population centre of Ballarat (*DELWP, 2015*).

See **Figure 2: Bushfire history in and around the City of Ballarat**

## Measures to reduce the impact of bushfire

The Council, Forest Fire Victoria and the Country Fire Authority (CFA) carry out fire management operations on public and private land in the municipality. This includes extensive interventions in public land to the east and north east of Ballarat.

## Potential for destructive bushfires

Areas most likely to be subject to larger bushfires include settlement areas of Ballarat that are in the path of bushfires that can start up to 50km away. The greatest-impact bushfires tend to start in agricultural land and become large by the time they enter forested areas. They then emerge from the forests to threaten residential areas to their east, such as Buninyong and the southern suburbs of Ballarat (*DELWP, 2015*).

The catchments' mostly undulating terrain is largely grassy/heathy dry forest with small patches of foothill forest. These are eucalypt forests with a shrubby understorey and potentially high bark hazard. Bushfires in these areas may be high intensity, with high levels of convection and ember production. Softwood plantations can increase the intensity of bushfires.

See **Figure 3: Spatial representation of bushfire in the City of Ballarat**

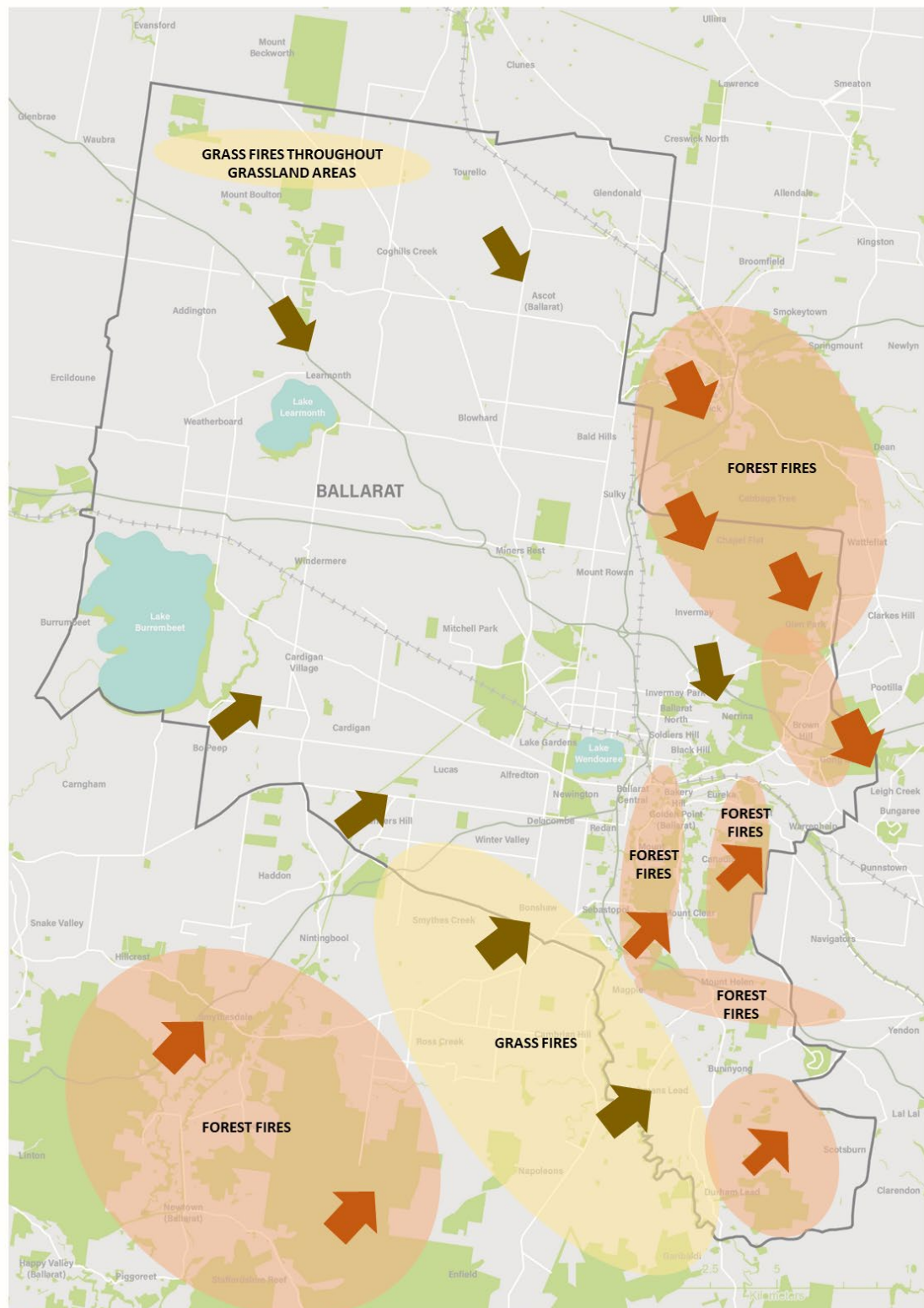
## Planning scheme bushfire designations

Planning schemes identify potentially bushfire affected land through the inclusion of land into the Bushfire Management Overlay or within a designated bushfire prone area (referenced in c13.02-1S Bushfire Planning and approved under the building regulations).

See **Attachment 1: Bushfire Management Overlay and bushfire prone area in the City of Ballarat**



### FIGURE 3: SPATIAL REPRESENTATION OF BUSHFIRE



### 3. Bushfire landscape areas

The following parts of this document identify bushfire landscape areas. These provide a spatial representation of how different parts of the municipality are affected by different landscape scale bushfire hazards. Based on this information, places that are relatively higher or lower risk emerge.

Bushfire landscape areas are described according to the landscape typology set out in *Planning Permit Applications Bushfire Management Overlay Technical Guide (DELWP, 2017)*. These typologies, when applied, provide a basis for considering the relative bushfire risk of different locations based on strategic factors. They therefore are an important tool to support strategic planning decision making.

See **Figure 4: An overview of bushfire landscape types**

The landscape areas are:

LANDSCAPE TYPE	DESCRIPTOR
Landscape type 1	Grasslands
Landscape type 2	West of forest hazards
Landscape type 2 or 3	Grasslands near forest hazards
Landscape type 3a	Areas near forest hazards
Landscape type 3b or 4	Forest hazards
The core area of Ballarat is not assigned a landscape type	

See **Figure 5: Bushfire landscape areas**

For each landscape area, the following is included:

- A description of the area, including whether they are likely to be within the Bushfire Management Overlay or a declared bushfire prone area.
- Whether the *Victorian Fire Risk Register* (Victorian Government) or the *Regional Bushfire Planning Assessment – Grampians Region* (DPCD, 2011) include the area as at risk.
- A high-level assessment against *c13.02-1S Bushfire Planning*, focused on the extent of landscape hazards and the availability of low fuel areas<sup>2</sup> for shelter.
- Mitigation that would likely need to accompany planning scheme decision making, focused on strategic justification for any proposals and impacts on environmental objectives and building construction.
- The outputs to be anticipated in preparing an evidence base to support bushfire decision making under the planning scheme.
- Key messages based on the landscape area that may be of assistance in the early stages of community engagement.

This report represents bushfire landscape areas in a schematic format. They are not intended to be scalable to property boundaries given the strategic purpose for which they have been prepared<sup>3</sup>.

<sup>2</sup> Low fuel areas referenced in this report are areas capable of being assessed as BAL:Low under *AS3959-2018 Building in a bushfire prone area* (Standards Australia) or areas that already comply with *c53.02 Bushfire Planning, Table 6 Vegetation management*

<sup>3</sup> The bushfire landscape areas do not provide sufficient information for the purpose of a bushfire hazard landscape assessment required under *c44.06 Bushfire Management Overlay* and the content of this report should not be used for that purpose.

#### FIGURE 4: OVERVIEW OF BUSHFIRE LANDSCAPE TYPES

*Planning Permit Applications Bushfire Management Overlay Technical Guide* (DELWP, 2017) identifies landscape types to inform decision making based on the risk from the landscape beyond the site. They enable landscape bushfire information to be described according to a simple framework to assist planning decision making.

Landscape types assist in:

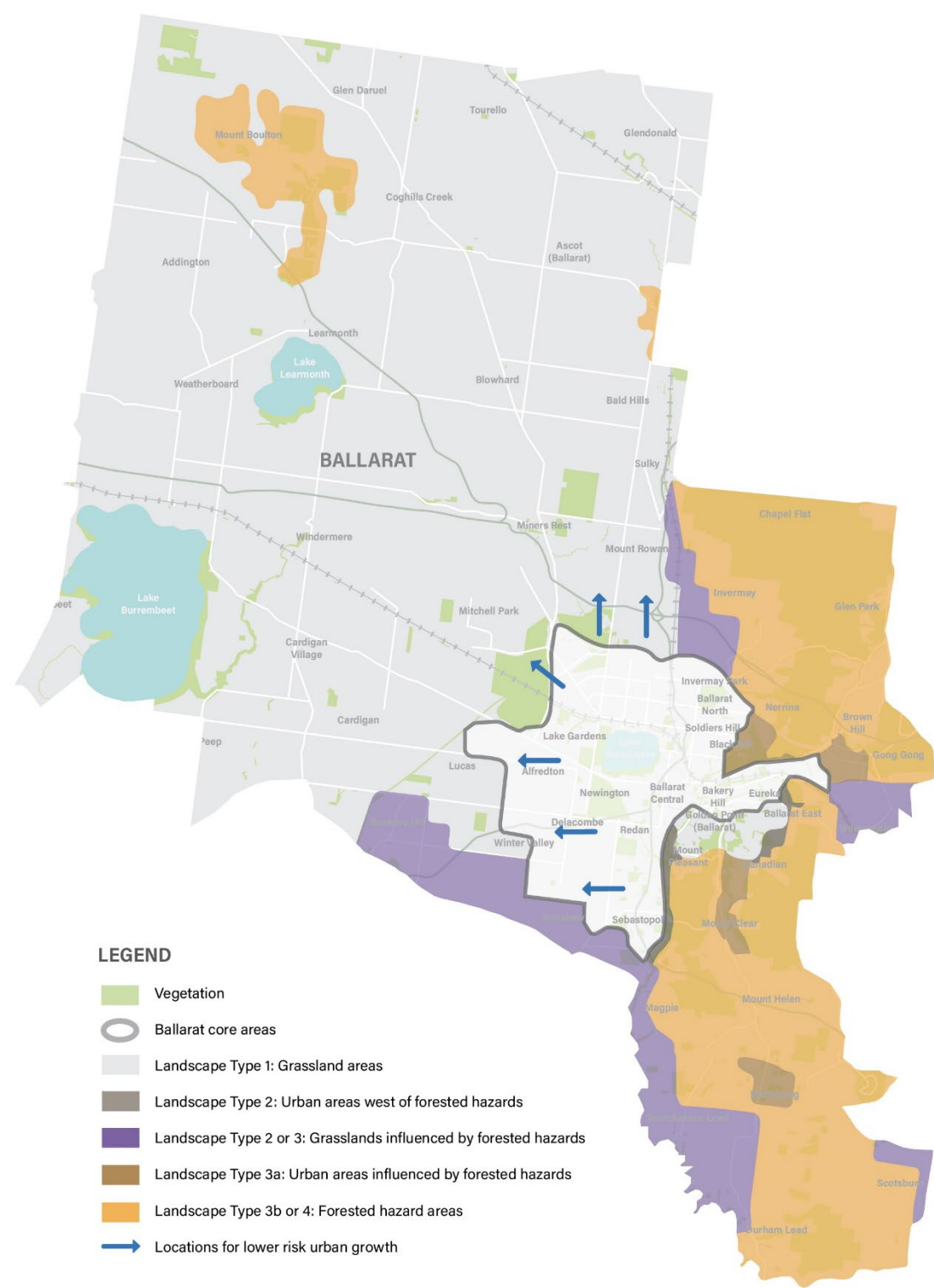
- Consistently describing landscape hazards. Landscape hazards are bushfire hazards more than 150m from an area that inform the likelihood of a bushfire threatening a location and its likely intensity and destructive power.
- Describing proximity and access to low fuel areas that may provide shelter from bushfire. In these areas, people may avoid flame contact and can withstand the effects of radiant heat from a moving bushfire.
- Understanding the relative risk between different locations.

The diagram below summarises landscape types. For this report, landscape type 3 has been adjusted into type 3a and 3b to better reflect access to low fuel areas and the variability of landscape risk within the landscape type 3 spectrum.

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

<sup>4</sup> Adapted by author

FIGURE 5: BUSHFIRE LANDSCAPE AREAS



## 4. Ballarat core areas

### Description

These locations comprise urban areas within Ballarat. They are developed low fuel areas that have minimal interaction with landscape hazard areas. Bushfire is not a relevant strategic planning factor in these areas. This is because they lack classifiable vegetation<sup>5</sup>, contain no riparian and vegetated corridors that create hazard paths into urban areas and they have a configuration of vegetation (including in open spaces) that is unlikely to carry a moving bushfire front. The potential for ember attack in these areas is low.

Subject to more detailed assessments as part of any strategic planning proposal, these areas can generally be defined as land more than 100m from the edge of a declared bushfire prone area. These locations are not included within the Bushfire Management Overlay or a declared bushfire prone area. These areas are sufficiently low risk that they do not fall within a landscape type.

### Joining up with other bushfire products

The Victorian Fire Risk Register (Victorian Government) does not include any human settlement at-risk assets in these areas. The *Regional Bushfire Planning Assessment – Grampians Region* (DPCD, 2011) does not include any 'identified areas'.

### Strategic assessment against c13.02-1S Bushfire

These locations are low risk as they have limited interaction with bushfire hazards. Planning proposals are likely to be favourably assessed against *c13.02-1S Bushfire Planning* because:

- There is limited (or no) exposure to large, landscape-scale bushfire.
- The potential for neighbourhood scale destruction is low.
- These areas are low fuel through their urban structure and extent of urban infrastructure.

### Mitigation to inform strategic planning decisions

Mitigation is delivered through the geographic separation from landscape hazard areas and the existing physical characteristics of these locations. Bushfire-related construction requirements do not arise in these areas as they are outside of a bushfire prone area.

### A bushfire evidence base for strategic projects

A bushfire evidence base for strategic projects should:

- ✓ Confirm the locality is consistent with the description identified in this document. It is anticipated the Council can confirm this in-house, without the need for further expert advice.
- ✓ Include descriptive content from this document into the bushfire section of a planning scheme amendment explanatory report.

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<sup>5</sup> Classifiable vegetation is hazardous vegetation as defined in AS3959-2018 Building in a bushfire prone area (Standards Australia)

## Key messages for engagement activity on planning scheme changes

The following can be considered for inclusion into communication material associated with strategic planning proposals:

*The bushfire risk according to planning scheme considerations is low. Planning scheme bushfire considerations do not impact on how the Planning Authority plans and delivers planning scheme changes in these areas.*

## 5. Landscape type 1: Grasslands

### Description

These locations comprise grassland areas in the western and northern parts of the municipality. Within these areas are the smaller settlements of Cardigan Village, Miners Rest and Learmonth.

Some of the grassland areas are in a managed setting because of agricultural activities. However, when considering the landscape risk associated with grasslands for strategic planning decisions it is prudent to assume that grasslands are unmanaged as they may become so in future.

Interspersed with grassland areas are areas of fragmented vegetation. These will include clumps of non-grassland vegetation, roadside vegetation, strips of trees (for example, along vehicle accesses and water courses) and the occasional smaller patch of non-grassland vegetation. The extent of fragmentation will be a factor when considering bushfire at the local scale but the impact on landscape-scale bushfire is minimal. The grassland vegetation will be the dominant driver of bushfire behaviour in these grassland areas.

Subject to more detailed assessments as part of any strategic planning proposal, these areas can generally be defined as areas with managed or unmanaged grasslands in the western and northern parts of the municipality. They will be within bushfire prone areas.

### Figure 5: Key characteristics of grassfires (CFA, 2020)

- Grassfires can start and spread quickly and are extremely dangerous.
- Grassfires can travel up to 25 km per hour and pulse even faster over short distances.
- Grass is a fine fuel and burns faster than bush or forests.
- Grassfires tend to be less intense and produce fewer embers than bushfires, but still generate enormous amounts of radiant heat.
- The taller and drier the grass, the more intensely it will burn.
- The shorter the grass, the lower the flame height and the easier the fire will be to control.
- Grassfires can start earlier in the day than bushfires, because grass dries out more quickly when temperatures are high.

### Joining up with other bushfire products

The Victorian Fire Risk Register (Victorian Government) includes the settlements in these areas as a risk. The *Regional Bushfire Planning Assessment – Grampians Region* (DPCD, 2011) does not include any ‘identified areas’ relevant to these areas.

These grassland areas are not included within the Bushfire Management Overlay. Grassland areas are included within the declared bushfire prone area as referenced in *c13.02-1S Bushfire Planning*.

### Strategic assessment against *c13.02-1S Bushfire Planning*

These locations are lower risk compared to other parts of the municipality that have non-grassland landscape bushfire hazards. Planning proposals are likely to be favourably assessed against *c13.02-1S Bushfire Planning* because:

- There is limited (or no) exposure to large, landscape-scale bushfire.
- The potential for neighbourhood scale destruction is low, although the edges of grassland areas need to be separated from new development at the local scale.



- Settlements within these areas (Cardigan Village, Miners Rest and Learmonth) contain low fuel areas where protection from the harmful effect of bushfire is provided. This is typically achieved by walking away from grassland hazard edges deeper into settlement areas.

## Mitigation to inform strategic planning decisions

Mitigation is delivered through the geographic separation from non-grassland hazard areas, avoiding the potential for more destructive bushfires to arise in these areas. Mitigation is likely to include:

- Confirming that site-based exposure is no more than 12.5kw/sq.m of radiant heat.
- Confirming access is available to low fuel areas.

A low-fuel area adjoining grassland can ensure that a moving grassfire cannot approach development. Planning scheme changes should not introduce fuels that undermine a defined hazard edge to grassland areas or a low fuel area where people may move to for enhanced safety.

Bushfire-related construction requirements will arise throughout grassland areas and on the grassland hazard interface. Planning scheme changes should not impact on buildings and works being constructed to bushfire vegetation standards<sup>6</sup>.

## A bushfire evidence base for strategic projects

A bushfire evidence base for strategic projects should:

- ✓ Confirm the locality is consistent with the description identified in this document. It is anticipated that this can be confirmed by the Council in-house, without the need for further expert advice.
- ✓ Confirm that site-based exposure benchmarks can or will be met. This will require a bushfire hazard site assessment to be prepared.
- ✓ Confirm that low fuel areas are available.

The bushfire evidence base for strategic projects can draw on this document when preparing an explanatory report for a planning scheme amendment.

## Key messages for engagement activity on planning scheme changes

The following can be considered for inclusion into communication material associated with strategic planning proposals:

*Grassfires can be dangerous to people and assets throughout grassland areas. They move fast and you may not have much warning before it approaches. Planning scheme bushfire considerations require the Planning Authority to ensure grassfires cannot enter settlements or approach new development. To do this existing vegetation close to new development may need to be managed for bushfire protection purposes. Planning scheme changes need to demonstrate that these outcomes will be met.*

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<sup>6</sup> Bushfire vegetation standards are defined in Table 6 in c53.02 Bushfire Planning



## 6. Landscape type 2: West of forest hazards

### Description

These locations are near forested areas where bushfires can start and grow large. However, they are located to the west of forests and comprise lower-fuel urban land. Despite their proximity to landscape scale hazards, they are at a lower risk to bushfire as any bushfire under Victoria's dominant bushfire weather would be pushing a bushfire away from these areas.

These areas can generally be defined as urban areas to the west of forested areas in Sebastopol, Canadian and Ballarat East. Parts are included in the Bushfire Management Overlay and/or a bushfire prone area because an ember protection buffer applies based on the forest hazards in the locality<sup>7</sup>.

### Joining up with other bushfire products

The *Victorian Fire Risk Register* (Victorian Government) does not include these areas as a risk. The *Regional Bushfire Planning Assessment – Grampians Region* (DPCD, 2011) reflects the interface with landscape hazard areas to the east.

### Strategic assessment against c13.02-1S Bushfire Planning

These locations are lower risk. Strategic planning proposals can be favourably assessed because there is limited exposure to large bushfires under Victoria's dominant north-west and south-west bushfire winds. These locations are mostly low fuel areas. The potential for neighbourhood scale destruction is limited.

### Mitigation to inform strategic planning decisions

Mitigation is delivered through the favourable location west of landscape hazard areas. The potential for large bushfires to impact on these areas is avoided. Mitigation is likely to include:

- Confirming that site-based exposure is no more than 12.5kw/sq.m of radiant heat.
- Confirming access is available to low fuel areas. Existing low fuel areas should be maintained.
- Confirming the edges of development are separated from forested areas.

Opportunities for environmental enhancements can be contemplated where they will not create a bushfire hazard to existing and new development.

Bushfire-related construction requirements will arise in these areas. Planning scheme changes should not impact on buildings and works being constructed to bushfire standards.

### A bushfire evidence base for strategic projects

A bushfire evidence base for strategic projects should:

- ✓ Confirm the locality is consistent with the description identified in this document. It is anticipated that this can be confirmed by the Council in-house, without the need for further expert advice.

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<sup>7</sup> The Bushfire Management Overlay and bushfire prone area do not consider wind direction or aspect in applying the ember protection buffer

- ✓ Confirm that site-based exposure benchmarks can or will be met. This will require a bushfire hazard site assessment to be prepared.
- ✓ Confirm that low fuel areas are available.
- ✓ Confirm with municipal bushfire experts that the Victorian Fire Risk Register (human settlement) does not identify any at-risk assets in an area proposed for planning scheme changes.

The bushfire evidence base for strategic projects can draw on this document when preparing an explanatory report for a planning scheme amendment.

### Key messages for engagement activities

The following can be considered for inclusion into communication material associated with strategic planning proposals:

*Urban areas west of forested hazards are favourably located as any bushfire would likely to be pushed away under dominant bushfire weather. These areas are also lower fuel. The bushfire risk according to planning scheme considerations is lower because of this.*

*It is still important that development immediately adjoining hazard areas are carefully planned, and we should seek to keep fuels low. However, planning scheme bushfire considerations are not a significant influence on how the Planning Authority plans and delivers planning scheme changes in these areas.*

## 7. Landscape type 2 or 3: Grasslands near forest hazards

### Description

These locations comprise grassland areas that are influenced by forested areas<sup>8</sup> in the surrounding landscape. They include grassland areas on the south-west local government area boundary, in proximity to Mount Rowan, Warrenheip and east of Mount Helen.

These grassland areas are higher risk as they are influenced by nearby forested areas. Because of this, they are more susceptible to fire because bushfire in forested areas may run into them through continuous fuel paths and they may experience more grassfires through ember attack from forested areas.

These areas can generally be defined as managed or unmanaged grasslands that are exposed to bushfire in nearby forested areas. Areas closest to forested areas will be within a Bushfire Management Overlay and all these areas are within a bushfire prone area.

### Joining up with other bushfire products

The *Victorian Fire Risk Register* (Victorian Government) includes many of these grassland areas as a risk where there is development (for example, houses). The *Regional Bushfire Planning Assessment – Grampians Region* (DPCD, 2011) includes ‘identified areas’ associated with low density and rural living development.

### Strategic assessment against c13.02-1S Bushfire Planning

These locations have an elevated bushfire risk arising from being in proximity to larger hazard areas. There areas require a nuanced assessment because:

- There is potential for neighbourhood scale destruction through ember attack and ember ignited grassfires.
- There may or may not be immediate access to low fuel areas where protection from the harmful effect of bushfire is provided. Strategic projects need to consider whether such areas are available or should be provided.

### Mitigation to inform strategic planning decisions

Mitigation is not being delivered through the geographic separation from landscape hazard areas. There remains the potential for large bushfires to impact, including through ember attack. Mitigation is likely to include:

- Confirming that site-based exposure is no more than 12.5kw/sq.m of radiant heat.
- Confirming access is available to low fuel areas. Existing low fuel areas should be maintained.

The above may be difficult to achieve given the extent of bushfire hazards and the lack of low fuel areas. The advice of the relevant fire authority and municipal bushfire experts will be important inputs to decision making.

Planning scheme changes that have the effect of introducing fuels into these areas may create continuous hazard paths for a moving bushfire to move into and around these areas. This needs to be minimised in strategic planning proposals. Creating a defined edge to bushfire hazards will be important.

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<sup>8</sup> For this report, forested areas includes areas that may be assessable under AS3959-2018 *Building in a bushfire prone area* (Standards Australia) as woodland vegetation or assessed as modified vegetation using Table 2 to c53.02 *Bushfire Planning*.

Environmental enhancements need to focus on win-win outcomes for bushfire (life safety) and environmental objectives. This will require strong partnership working with the relevant fire authority. Introducing new fuels can be contemplated where they can be assessed as low-threat and will not enable a bushfire to propagate through an area. Such fuels would be consistent with bushfire vegetation standards<sup>9</sup>. Proposals should not make it more difficult to provide bushfire vegetation standards.

Bushfire-related construction requirements will arise in these areas. Planning scheme changes should not impact on buildings and works being constructed to bushfire standards.

### A bushfire evidence base for strategic projects

A bushfire evidence base for strategic projects should:

- ✓ Confirm the locality is consistent with the description identified in this document. It is anticipated the Council can confirm this in-house, without the need for further expert advice.
- ✓ Confirm that site-based exposure benchmark of 12.5kw/sq.m of radiant heat is met by separating new development from bushfire hazards. Proposals that make achieving this outcome more difficult would not satisfy site-based exposure benchmarks.
- ✓ Confirm that an area of low fuel is available. For development in or close to an existing settlement, this may be available in nearby urban developed areas. It may also need to be created as part of the justification for planning scheme changes.

The bushfire evidence base for strategic projects can draw on this document when preparing an explanatory report for a planning scheme amendment.

### Key messages for engagement activities

The following can be considered for inclusion into communication material associated with strategic planning proposals:

*Grasslands areas that can be impacted by bushfires in surrounding forests are a bushfire risk. These areas can also be some distance from low fuel areas where shelter from bushfire can be provided.*

*Planning scheme bushfire considerations require the Planning Authority to plan for any proposals for new growth or change carefully. We will need to make sure people can find places where they can shelter from bushfire and survive its harmful effects. Because of this changes to the bushfire hazard need to be carefully managed. Where possible, reducing fuels is likely to be the priority.*

*Opportunities to enhance the environment are still possible, but these need to be carefully planned on a site-by-site and street-by-street basis. We especially need to make sure vegetation close to development are as bushfire ready as possible. Planning scheme changes that would increase fuels in these areas are unlikely to satisfy planning scheme bushfire policies.*

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<sup>9</sup> Bushfire vegetation standards are defined in Table 6 in c53.02 Bushfire Planning

## 8. Landscape type 3a: Areas near forest hazards

### Description

These locations are near forested areas where bushfires can start and grow large. They are generally lower fuel where a moving bushfire front is unlikely. They will be subject to high levels of ember attack. This can create localised<sup>10</sup> fires throughout these areas. These locations will also be areas of movement before, during and after a bushfire as people closer to and within more hazardous areas seek enhanced safety.

These areas can generally be defined as areas outside of the Bushfire Management Overlay in Mount Clear, Mount Pleasant, Buninyong, and low fuel urban areas in Brown Hill. They will be extensively within a bushfire prone area. Some limited areas may not be in either the Bushfire Management Overlay or a bushfire prone area.

### Joining up with other bushfire products

The *Victorian Fire Risk Register* (Victorian Government) includes these areas as a risk. The risk reduces the further away from forested areas. The *Regional Bushfire Planning Assessment – Grampians Region* (DPCD, 2011) includes many 'identified areas' associated with proximity and interface with large hazard areas.

### Strategic assessment against c13.02-1S Bushfire Planning

There is an elevated bushfire risk from being in proximity to forested areas. The areas are mostly lower fuel developed areas that can provide shelter from the harmful effects of flame contact and radiant heat from a moving bushfire. They will be subject to ember attack and the potential for fires started by ember attack. But their low fuel existing characterises are a favourable locational attribute despite their proximity to forested areas.

Strategic planning proposals require a nuanced assessment against c13.02-1S *Bushfire Planning* to demonstrate the risk is not increased and, where possible, reduced, especially in response to ember attack.

### Mitigation to inform strategic planning decisions

Mitigation is mostly delivered through the geographic separation from forested areas, but the potential for ember attack into these areas and localised fires is on-going. Mitigation is likely to include:

- Confirming that site-based exposure is no more than 12.5kw/sq.m of radiant heat.
- Confirming access is available to low fuel areas. Existing low fuel areas should be maintained.

Changes should not introduce fuels that undermines a defined hazard edge or low fuel areas. Fuels should be consistent with bushfire vegetation standards. However, where they are consistent opportunities for environmental enhancements can be contemplated. These will need to be carefully planned on a site-by-site and street-by-street basis. Detailed analysis of changes arising from environmental initiatives should inform strategic planning.

Bushfire-related construction requirements will arise in these areas. Planning scheme changes should not impact on buildings and works being constructed to bushfire standards.

### A bushfire evidence base for strategic projects

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<sup>10</sup> Localised fires can arise from ember attack creating fires in houses and other structures and in vegetation on roadsides, parks and gardens.

A bushfire evidence base for strategic projects should:

- ✓ Confirm the locality is consistent with the description identified in this document. This may require further bushfire evidence to be prepared.
- ✓ Confirm that site-based exposure benchmarks can or will be met. This will require a bushfire hazard site assessment to be prepared.
- ✓ Confirm that low fuel areas are available.
- ✓ Respond to the ongoing risk of ember attack. This may require bushfire vegetation standards to be applied in areas proposed for change.

The bushfire evidence base for strategic projects can draw on this document when preparing an explanatory report for a planning scheme amendment.

### Key messages for engagement activities

The following can be considered for inclusion into communication material associated with strategic planning proposals:

*Areas near forest hazards perform a mixed role. They are themselves at risk of bushfire, including from ember attack. They also provide shelter for people moving away from more dangerous areas closer to the forest. .*

*Planning scheme bushfire considerations require the Planning Authority to plan for any proposals for new growth or change carefully. We will need to make sure people in these areas and from nearby areas can find places where they can shelter from bushfire and survive its harmful effects. Because of this changes to the bushfire hazard need to be carefully managed. Where possible, reducing fuels is likely to be the priority.*

*Opportunities to enhance the environment are still possible, but these need to be carefully planned on a site-by-site and street-by-street basis. We especially need to make sure vegetation close to development is as bushfire ready as possible. Planning scheme changes to increase fuels need to be carefully considered.*

## 9. Landscape types 3b and 4: Forest hazards

### Description

These locations are within or close to forest hazards. Moving bushfire fronts and ember attack are likely in these areas. They include large areas that are not managed in a low fuel condition. Larger fires and neighbourhood scale destruction from bushfires are likely to arise in these areas. The ability for people to move away from hazardous areas is not certain, meaning people may need to shelter on their own land or they may have limited shelter options (for landscape type 3b) or no shelter options (for landscape type 4).

These areas can generally be defined as areas within or within 150m of forested areas. These areas will be extensively within the Bushfire Management Overlay and within a bushfire prone area.

### Joining up with other bushfire products

The *Victorian Fire Risk Register* (Victorian Government) includes urban areas, some low-density / rural living areas and smaller settlements as a risk. The *Regional Bushfire Planning Assessment – Grampians Region* (DPCD, 2011) includes many ‘identified areas’.

### Strategic assessment against c13.02-1S Bushfire Planning

These locations are a high bushfire risk as they are in or in very close proximity to larger forested areas. There is potential for neighbourhood-scale destruction and because of this strategic planning proposals may be less favourably assessed against c13.02-1S Bushfire Planning. This is because:

- There is potential for neighbourhood scale destruction.
- These areas are not managed in a low fuel condition.
- Survivability and the ability to move away from bushfires is not certain and will be complex before, during and after a bushfire event. There is not typically immediate access to low fuel areas where protection from the harmful effect of bushfire is provided.

### Mitigation to inform strategic planning decisions

Mitigation is not being delivered through the geographic separation from hazard areas, so there remains the potential for large bushfires to impact. Mitigation is likely to include confirming that site-based exposure is no more than 12.5kw/sq.m of radiant heat.

Ensuring access is available to low fuel areas. This may be within a development proposal or on nearby low-fuel land. Existing low fuel areas should be maintained and, where possible, enhanced. This may be difficult to achieve given the extent of bushfire hazards and the lack of low fuel areas. The advice of the relevant fire authority and municipal bushfire experts will be important inputs to decision making.

Environmental enhancements need to focus on win-win outcomes for bushfire (life safety) and environmental objectives. This will require strong partnership working with the relevant fire authority. Introducing new fuels can be contemplated where they can be assessed as low-threat and will not enable a bushfire to propagate through an area. Such fuels would be consistent with bushfire vegetation standards. Proposals should not make it more difficult to meet bushfire vegetation standards.

Bushfire-related construction requirements will arise in these areas. Planning scheme changes should not impact on buildings and works being constructed to bushfire standards.

## A bushfire evidence base for strategic projects

A bushfire evidence base for strategic projects will require further bushfire assessments. It will be necessary to:

- ✓ Confirm the locality is consistent with the description identified in this document. This will require further bushfire evidence to be prepared. It will be particularly important that further assessments determine whether a locality best fits within Landscape type 3b (a shelter option can be confirmed or created) or landscape type 4 (no shelter option is not available). Where not available, proceeding with changes need to be carefully considered.
- ✓ Confirm that site-based exposure benchmarks can or will be met. This will require a bushfire hazard site assessment to be prepared.
- ✓ Confirm that low fuel areas are available.

## Key messages for engagement activities

The following can be considered for inclusion into communication material associated with strategic planning proposals:

*Places in proximity to large, forested hazard areas are some of the most dangerous places in the municipality. Bushfire in these areas are a real possibility every fire season and protecting human life as best as possible is a priority when doing strategic planning in these areas.*

*Planning scheme bushfire considerations require the Planning Authority to be extremely cautious when contemplating increasing bushfire risk in these areas, either through new strategic growth proposals or through planning scheme changes that impact on bushfire safety. Where possible, reducing fuels is likely to be the priority.*

*Opportunities to enhance the environment are possible, but these will need to be managed to be bushfire ready. Planning scheme changes cannot have the effect of enabling a bushfire to spread more easily through these areas.*

*Planning scheme changes require the Planning Authority to work closely with the Country Fire Authority and the Minister for Planning. Only with their agreement can we proceed with proposals. We need to work with the community to identify proposals that can meet the needs of these other stakeholders and demonstrate the bushfire is fully considered and addressed.*

*The safety of the community will be paramount in decision making.*



## 10. Locations for lower risk urban growth

Locations for lower risk urban growth are shown schematically (using arrows) on **Figure 5: Bushfire landscape areas**.

Urban growth can be directed to these locations having regard to planning scheme bushfire policies that support growth being directed to lower risk areas. These areas are lower risk because they have:

- Limited exposure to large, landscape-scale bushfire.
- Minimal potential for neighbourhood-scale destruction.
- Good shelter options found in nearby low fuel urban areas or the ability to create shelter options as part of urban development.

The residual landscape risk, which is from grassland hazards, can be mitigated through passive measures as part of proposals for urban growth. This can include creating a permanent hazard edge that delivers exposure at no more than 12.5kw/sq.m of radiant heat by:

- Providing bushfire vegetation standards on the hazard edge to stop a grassfire from entering developed areas.
- Providing a perimeter road to create a well-designed interface with hazard areas.
- Ensuring open spaces and riparian corridors do not create continuous fuel paths into developed areas.

The lower risk is reinforced by the typology of development which is likely to include urban lots and urban style infrastructure. These have a reduced potential to carry increased fuels and are likely to provide future occupants with access on foot to low fuel areas.

Further information on these directions for lower risk urban growth can be found in *the Ballarat Northern Growth Area* (Bushfire Planning, 2020a) and *Ballarat Western Growth Area Bushfire Assessment* (Bushfire Planning, 2020b).

## References

Ballarat Planning Scheme

*Ballarat Northern Growth Area Bushfire Assessment*, Bushfire Planning, 2020a.

*Ballarat Western Growth Areas Bushfire Assessment*, Bushfire Planning, 2020b.

*Grassfires – Rural*, Country Fire Authority, 2020 (access at [www.cfa.vic.gov.au/plan-prepare/grassfires-rural](http://www.cfa.vic.gov.au/plan-prepare/grassfires-rural)).

*Measuring Bushfire Risk in Victoria*, Department of Environment, Water, Land and Planning, 2015.

*Municipal Fire Management Plan 2018-2021*, City of Ballarat, 2018.

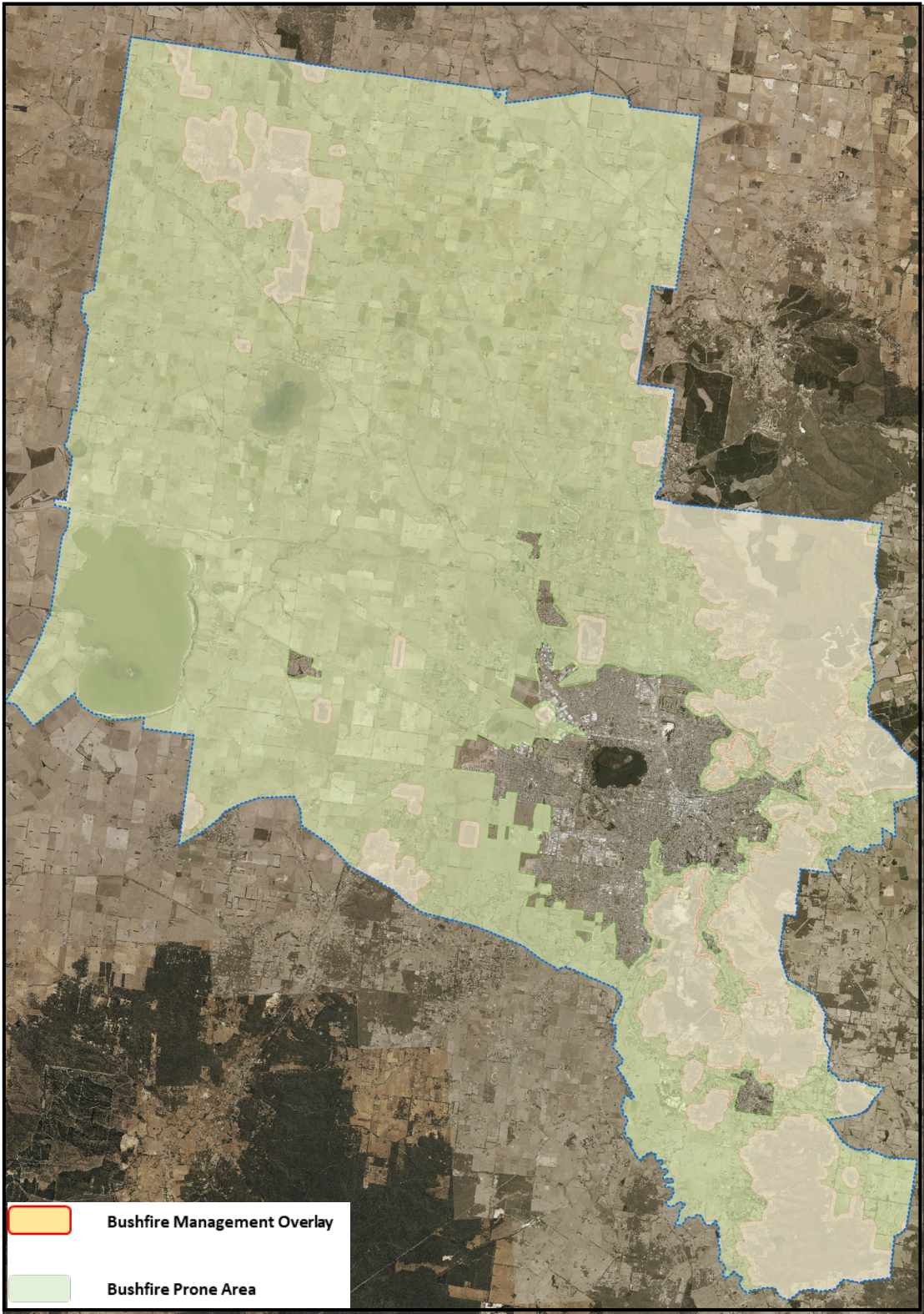
*Planning Permit Applications Bushfire Management Overlay Technical Guide*, Department of Environment, Land, Water and Planning, 2015.

*Regional Bushfire Planning Assessment – Grampians Region*, Department of Planning and Community Development, 2012.

*Strategic Bushfire Management Plan West Central*, Department of Environment, Land, Water and Planning, 2015.

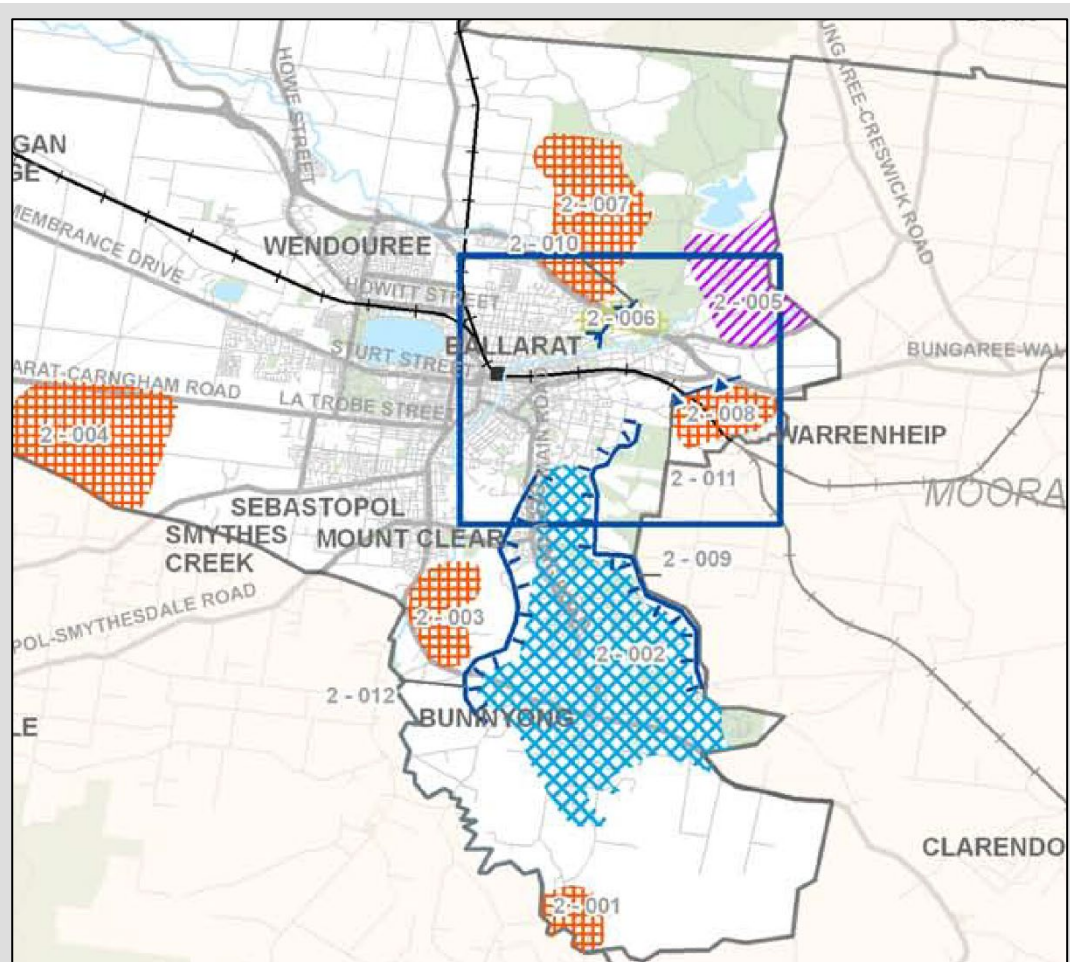
*Victorian Fire Risk Register – Ballarat Output 03 (human settlement)*, Country Fire Authority, 2020.

Attachment 1: Bushfire Management Overlay and bushfire prone area





## Attachment 2: Regional bushfire planning assessment extract



## Identified Areas

-  Small lots in or close to hazard (0 - 0.4 hectares)
-  Medium lots in or close to hazard (0.4 - 4 hectares)
-  Specific local knowledge
-  Other information of interest to planning
-  Multiple matters
-  Limited access and egress
-  Urban/bushfire hazard interface
-  Future strategic directions and bushfire hazard conflict

