

# Bushfire planning assessment for Newstead

Final Report

12 July 2023

**Version 1.0**

**Prepared for:**

Mount Alexander Shire Council

Corner Lyttleton and Lloyd Streets

Castlemaine Vic 31450

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## About

*Kevin Hazell Bushfire Planning* is a town planning service that works with public and private sector clients to understand and apply planning scheme bushfire policies and requirements. It is led by Kevin Hazell who is a qualified town planner with extensive experience working on bushfire planning at State and local levels in Victoria.

## Kevin Hazell Bushfire Planning

KH Planning Services Pty Ltd - ABN 67 617 747 841  
PO Box 208, Malvern Vic 3144  
[www.bushfireplanning.com.au](http://www.bushfireplanning.com.au)

## Disclaimer

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## Version Control

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v0.1	27 March 2023	Preliminary report for Client review	Kevin Hazell Town Planner
v0.2	20 May 2023	Preliminary report for CFA review	Kevin Hazell Town Planner
v1.0	12 July 2023	Final Report	Kevin Hazell Town Planner

# 1. Introduction

Kevin Hazell Bushfire Planning has been engaged by Mount Alexander Shire Council (the 'Council') to prepare a bushfire assessment for Newstead. The bushfire assessment will inform future planning for Newstead through the Mount Alexander Planning Scheme (the 'planning scheme').

## 1.1 Study Area for this bushfire assessment

The Study Area is generally defined by existing urban zoned land in Newstead.

See Figure 1A: Locality map with Study Area

See Figure 1B: Locality aerial photo with Study Area

See Figure 1C: Zones

## 1.2 Scope of work

The scope of work requires the following:

1. Strategic landscape assessment to consider how landscape and strategic bushfire factors may influence future planning and how bushfire may affect different parts of the Study Area.
2. Considering the role of the Study Area on a municipal-wide basis to accommodate growth.
3. The identification of bushfire landscape types in the Study Area, using the approach set out in *Planning Permit Applications Bushfire Management Overlay Technical Guide* 2017 (DELWP).
4. Assessment of the Study Area using *c13.02-1S Bushfire Planning* of the planning scheme and the identification of directions for growth that can give effect to bushfire policies, including acceptable exposure standards and access to places of relative safety.

Engagement with the Country Fire Authority (CFA) forms part of the project to secure their advice early in the planning process.

## 1.3 Methodology

*c13.02 Bushfire Planning* includes strategies that inform how bushfire hazards are to be assessed and for considering where and how growth and new development should occur. Having regard to these strategies, this report responds to the scope of work as follows:

- Section 2 provides an overview of bushfire content in the planning scheme, especially the strategies in *c13.02-1S Bushfire Planning*.
- Section 3 describes the bushfire context using a range of information sources, mostly arising from the work of public authorities such as fire authorities and the Council.
- Section 4 describes landscape bushfire hazards that may influence the Study Area, similar to the approach for a bushfire hazard landscape assessment described in *Planning Permit Applications Bushfire Management Overlay Technical Guide* (DELWP, 2017). This includes the identification of landscape types that help understand the relative risk between different places within the Study Area.
- Section 5 describes the bushfire hazard at the neighbourhood and local scale to inform consideration of whether there is land capable of being exposed to no more than 12.5kw/sq.m of radiant heat. This is informed by the methodology for a bushfire hazard site assessment as described in *Planning Permit Applications Bushfire Management Overlay Technical Guide* (DELWP, 2017) and *AS3959-2018 Building in a Bushfire Prone area* (Standards Australia).
- Section 6 includes a discussion on a strategic approach to manage bushfire in conjunction with planning decision making and the identification of locations that could be suitable for directing growth and development. The objectives and strategies in *c13.02-1S Bushfire Planning* are used to inform the discussion.
- Section 7 includes recommendations

## 1.4 Planning context

c02.04 of the planning scheme includes the Newstead Land Use Framework Plan. The planning scheme describes Newstead as follows:

*Newstead is a local community centre, on the Loddon River. It provides services to residents of the township itself and the surrounding rural area.*

See Figure 1D: Newstead Land Use Framework Plan, c02.04 of the Planning Scheme

The Council has completed and consulted on a *Settlement Planning Assessment* (July 2022). This project is providing information to inform future strategic planning. It provides the following role and strategic directions for Newstead:

*Newstead will continue to be a local community centre providing services to residents in the town and surrounding rural areas. Growth in Newstead is to continue to be encouraged, however this needs to be carefully managed through further strategic work.*

Key issues and opportunities identified include (emphasis added):

*Newstead has the **capacity for growth**: it is well serviced and has good community infrastructure and local shopping facilities. There is available residential land supply of 306 lots in Newstead, accounting for 8.7% of the total land supply in the Shire. This excludes areas where flood risk is expected around the Loddon River. Further strategic work is needed however to manage and guide future growth including a **detailed bushfire risk assessment** and flood study (to inform planning overlays) to ensure that development is **directed to low risk areas**, and a housing and neighbourhood character strategy to address future housing needs and provide **clear guidance for future residential development in terms of its location and built form**.*

A bushfire risk assessment (as included in this report) is identified as being required for future settlement planning work.

### 1.5 A note about the bushfire assessments

This bushfire assessment has been prepared to inform decision making associated with reviews of strategies and strategic planning. The analysis is directed to this purpose with a focus on the strategic application of *c13.02-1S Bushfire Planning*.

In future, any request for a planning scheme amendment from a landowner would need to be accompanied by a bushfire hazard landscape assessment and bushfire hazard site assessment tailored to the specific site and proposal. This provides the opportunity for local and site-specific data and information to be accurately captured into any request.

This bushfire assessment does not consider bushfire for the purpose of planning applications, including under *c44.06 Bushfire Management Overlay*.

FIGURE 1A: Locality Map

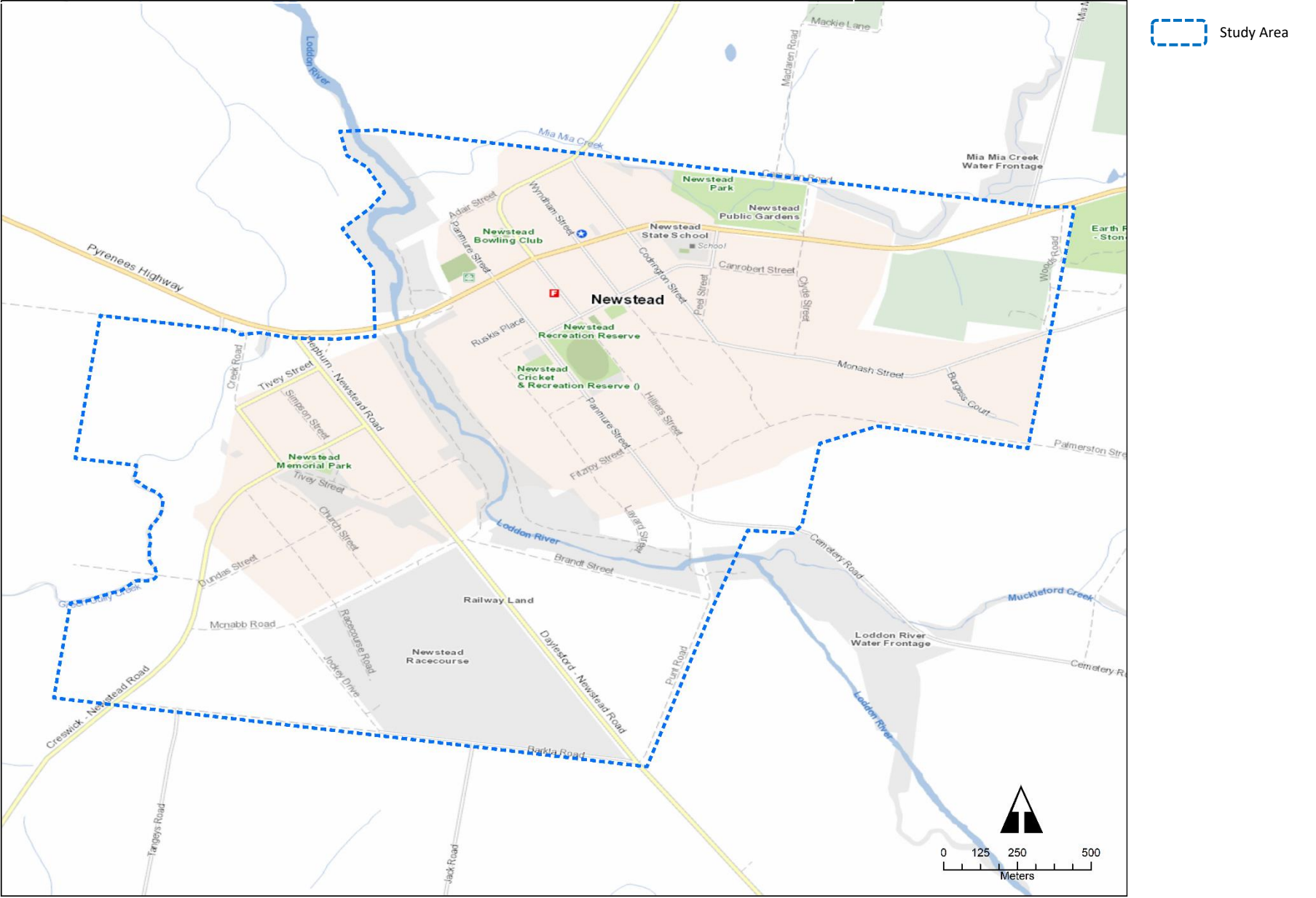




FIGURE 1B: Locality Aerial Photo





FIGURE 1C: Zones

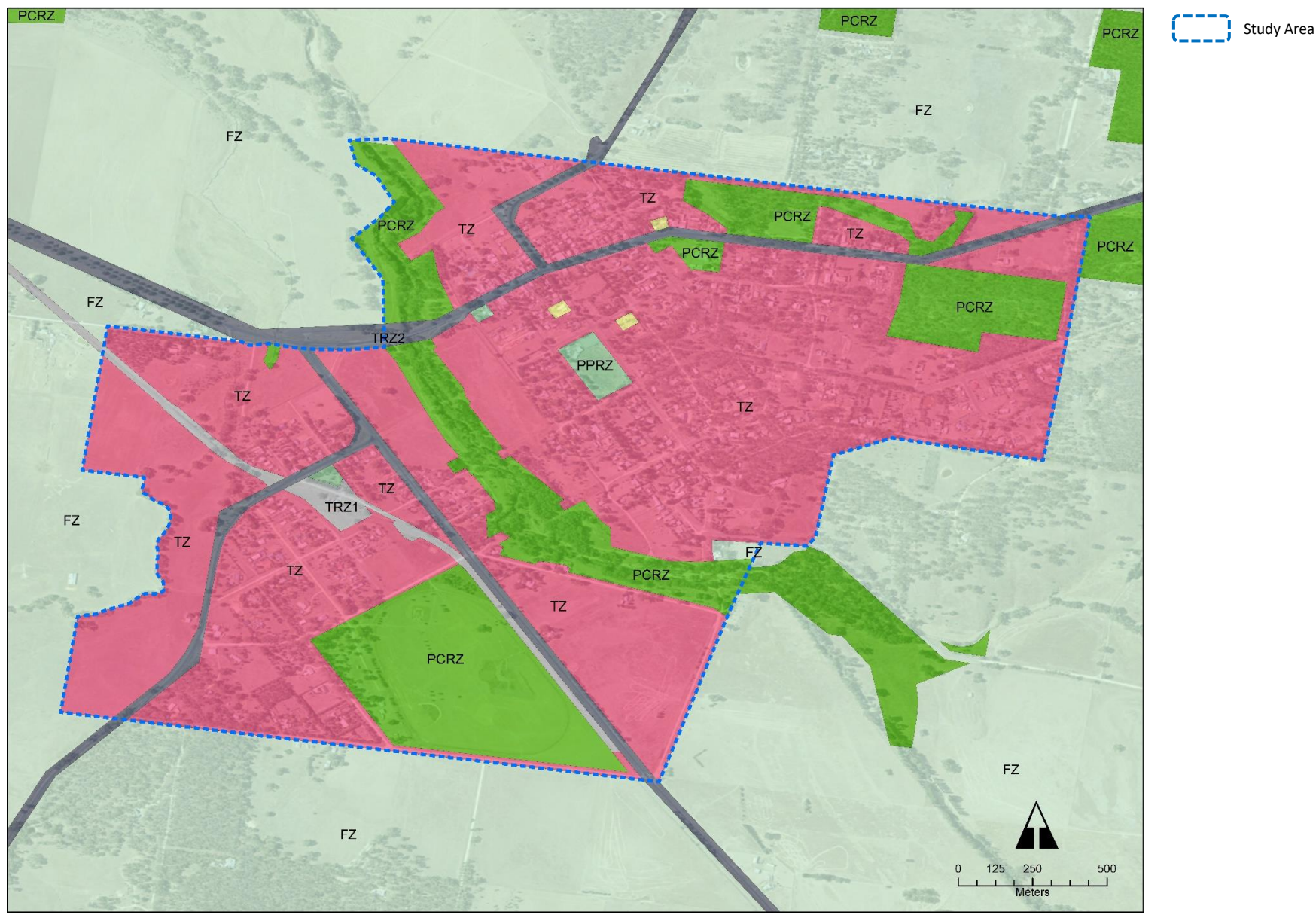
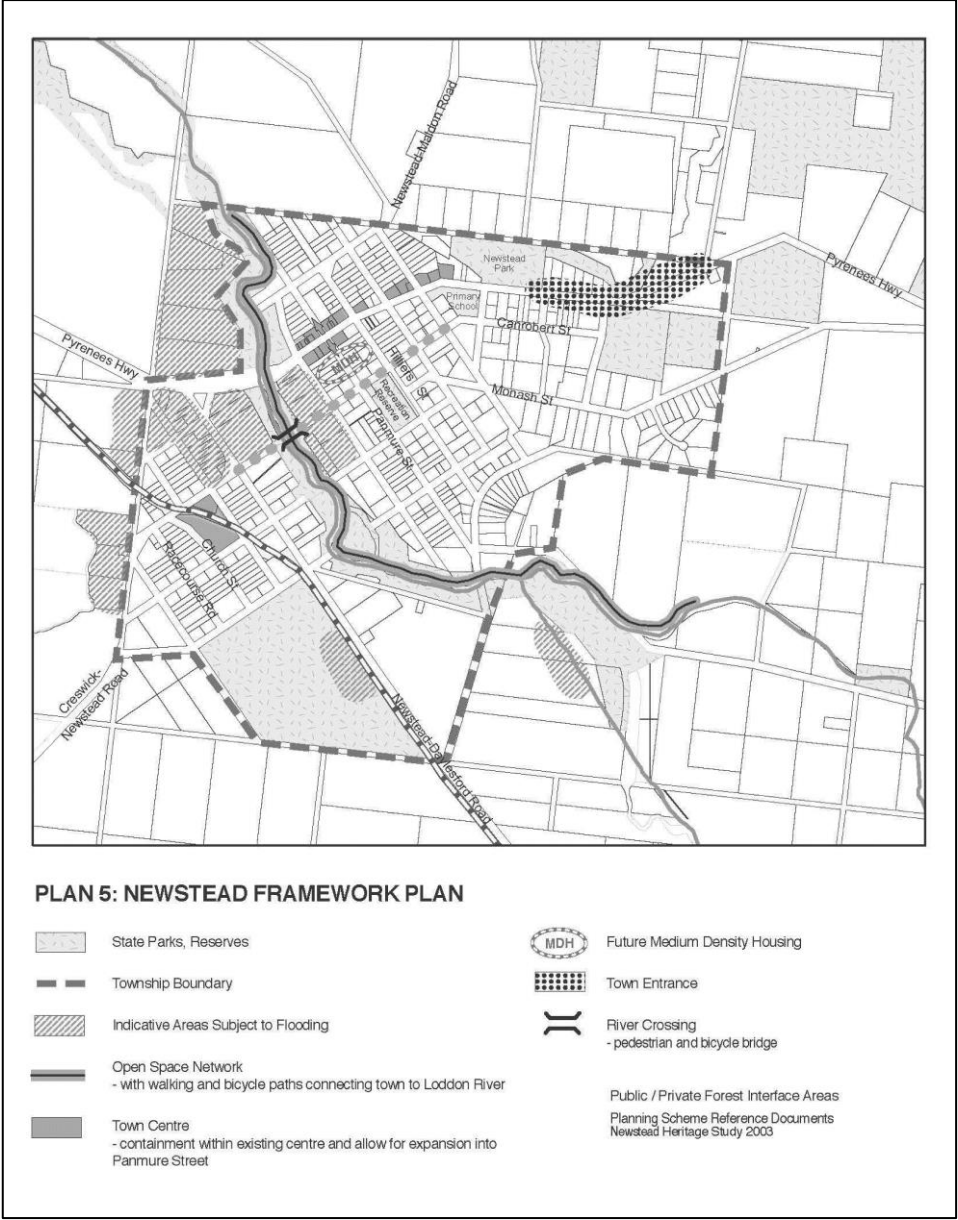


FIGURE 1D: Newstead Land Use Framework Plan, c02.04 of the Planning Scheme





## 2. Planning scheme bushfire context

The planning scheme contains provisions that inform permit requirements, application requirements and policies & decision guidelines where the bushfire hazard could be an influence on future land use and development. This section provides an overview of these provisions. Figure 2 summarises the considerations.

### 2.1 Integrated decision making (c71.02-3)

c71.02-3 requires planning authorities, in bushfire areas:

*[T]o prioritise the protection of human life over all other policy considerations.*

Bushfire considerations are not to be balanced in favour of net-community benefit, as occurs for all other planning scheme matters. The bushfire emphasis in c71.02-3 was introduced through Amendment VC140 in December 2017. Such policy settings were recommended in 2011 by the 2009 Victorian Bushfires Royal Commission.

### 2.2 Natural hazards and climate change (c13.01-1S)

The objective of the State natural hazards and climate change policy is:

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

c13.01-1S *Natural hazards and climate change* contains a series of strategies to meet the above objective:

- *Respond to 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 and climate adaptation strategies to be implemented.*
- *Site and design development to minimise risk to life, property, the natural environment and community infrastructure from natural hazards.*

### 2.3 State planning policy for bushfire (c13.02-1S)

The objective of the State planning policy for bushfire is:

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

The key strategy that directs bushfire decision making is:

*Give priority to the protection of human life by:*

- *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.*

c13.02-1S *Bushfire Planning* applies to all planning and decision making relating to land:

- *Within a designated bushfire prone area;*
- *Subject to a Bushfire Management Overlay; or*
- *Proposed to be used or developed in a way that may create a bushfire hazard.*

c13.02-1S *Bushfire Planning* contains a series of strategies and these are summarised below.

#### Landscape bushfire considerations

c13.02-1S *Bushfire Planning* requires a tiered approach to assessing the hazard:

- *Considering and assessing the bushfire hazard on the basis of [...] landscape conditions - meaning the conditions in the landscape within 20 kilometres and potentially up to 75 kilometres from a site;*
- *Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.*

#### Alternative locations for development

*c13.02-1S Bushfire Planning* includes two strategies that seek to direct new development:

- *Give priority to the protection of human life by [...] directing population growth and development to low risk locations [.]*
- *Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.*

#### Availability and safe access to areas of enhanced protection

*c13.02-1S Bushfire Planning* requires a location in easy reach that provides better protection for life from the harmful effects of bushfire:

- *Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS3959-2018 Construction of buildings in bushfire-prone areas (Standards Australia) where human life can be better protected from the effects of bushfire.*
- *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.*

#### The views of the relevant fire authority

*c13.02-1S Bushfire Planning* identifies that a key element of a risk assessment is to:

- *Consult [...] with [...] the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.*

#### Site based exposure

*c13.02-1S Bushfire Planning* provides policy directions for planning authorities about the level of acceptable exposure for new development enabled by a planning scheme amendment:

- *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 AS3959-2018 Construction of buildings in bushfire-prone areas (Standards Australia).*
- *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 AS3959-2018.*

#### Areas of high biodiversity conservation value

*c13.02-1S Bushfire Planning* provides directions on situations where a bushfire risk and biodiversity values are both present:

- *Ensure settlement growth and development approvals can implement bushfire protection measures without unacceptable biodiversity impacts by discouraging settlement growth and development in bushfire affected areas that are of high biodiversity conservation value.*

#### No increase in risk

*c13.02-1S Bushfire Planning* provides an overall view of acceptable risk:

- *Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.*
- *Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reduce bushfire risk overall.*

### **2.4 Bushfire Management Overlay (c44.06)**

The purpose of the Bushfire Management Overlay is:

- *To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.*
- *To identify areas where the bushfire hazard warrants bushfire protection measures to be implemented.*
- *To ensure development is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level.*

The Bushfire Management Overlay is generally applied to patches of vegetation (except grasslands) that are larger than 4 hectares in size. Where such a patch of vegetation exists, a 150 metre ember protection buffer is added and this land is also included in the Bushfire Management Overlay. Areas of extreme hazard are also included in the Bushfire Management Overlay.

*Planning Advisory Note 46: Bushfire Management Overlay Methodology and Criteria* (2013, DPTLI) provides more information on where the Bushfire Management Overlay is applied.

## 2.5 Bushfire Planning (c53.02)

c52.03 *Bushfire Planning* specifies the requirements that apply to a planning application under c44.06 Bushfire Management Overlay. The purpose of this provision is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.*
- *To ensure that the location, design and construction of development appropriately responds to the bushfire hazard.*
- *To ensure development is only permitted where the risk to life, property and community infrastructure from bushfire can be reduced to an acceptable level.*
- *To specify location, design and construction measures for a single dwelling that reduces the bushfire risk to life and property to an acceptable level.*

## 2.6 Bushfire prone area (c13.02-15, Building Act 1993 & Building Regulations 2018)

Bushfire Prone Areas are areas that are subject to or likely to be subject to bushfire. The Minister for Planning makes a determination to designate Bushfire Prone Areas under section 192A of the Building Act 1993.

Designated Bushfire Prone Areas include all areas subject to the Bushfire Management Overlay. Bushfire Prone Areas also include grassland areas and, occasionally, smaller patches of non-grassland vegetation.

The Building Regulations 2018 require bushfire construction standards in these areas and these are implemented by the relevant building surveyor as part of the building permit. These construction standards are referred to as bushfire attack levels (BAL).

Where land is included in the Bushfire Prone Area is also included in the Bushfire Management Overlay, the requirements of the Bushfire Management Overlay take precedence. Where this is the case, the building regulations ensure bushfire construction requirements in a planning permit are given effect to by the relevant building surveyor at the time a building permit is issued.

## 2.7 Use and development control in Bushfire Prone Areas (c13.02-15)

c13.02-15 *Bushfire Planning* includes planning requirements for Bushfire Prone Areas. These are in the form of a 'use and development control' that applies to certain uses that are in a Bushfire Prone Area.

The use and development control applies to Subdivisions of more than 10 lots, Accommodation, Child care centre, Education centre, Emergency services facility, Hospital, Indoor recreation facility, Major sports and recreation facility, Place of assembly, and any application for development that will result in people congregating in large numbers.

The use and development control requires that when assessing a planning permit application:

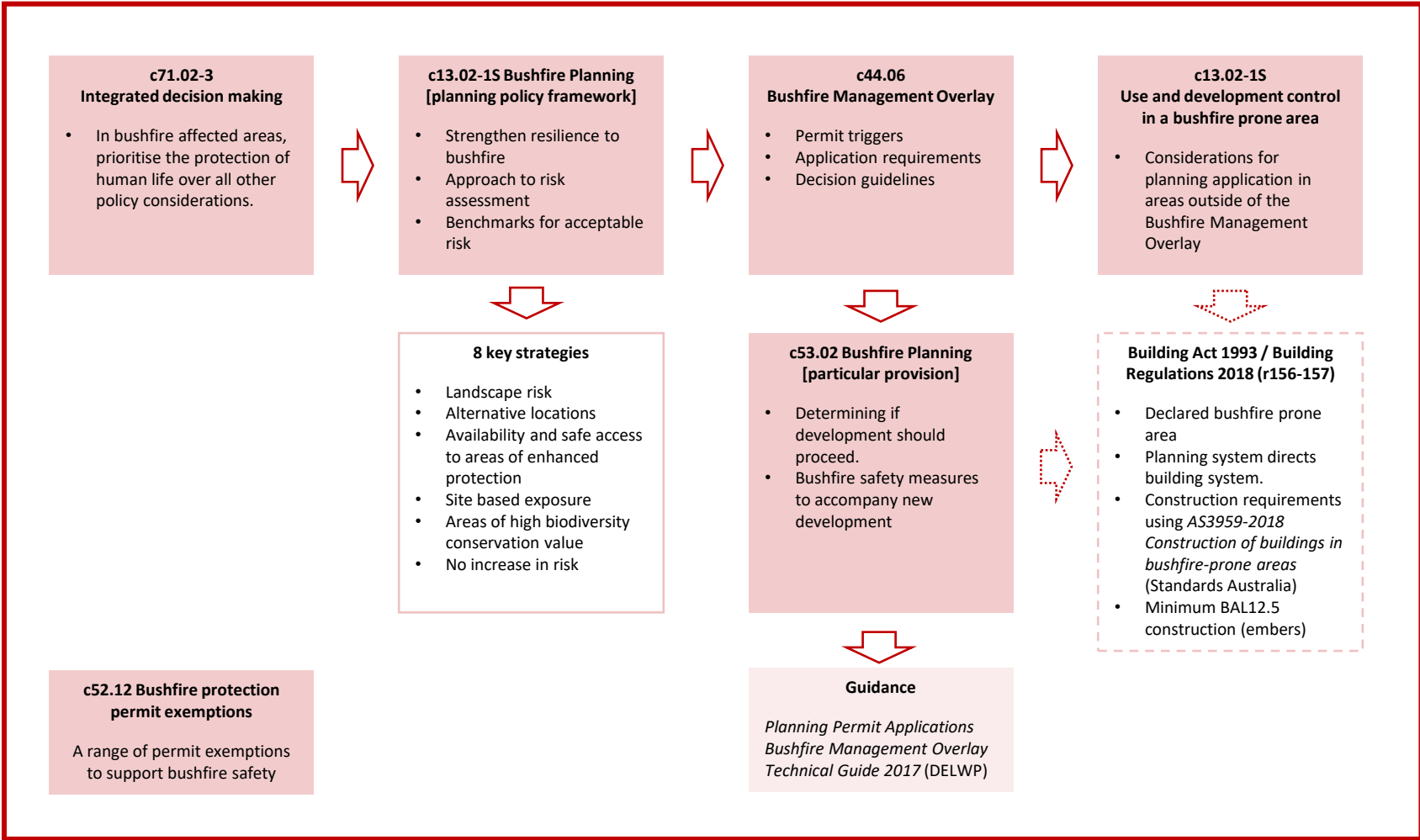
- *Consider the risk of bushfire to people, property and community infrastructure.*
- *Require the implementation of appropriate bushfire protection measures to address the identified bushfire risk.*
- *Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts.*

## 2.8 Bushfire protection permit exemptions (c52.12)

Bushfire related permit exemptions are included in c52.12 *Bushfire protection exemptions*. Exemptions are included for the following matters:

- Permit exemptions to create defendable space around existing buildings used for accommodation. They apply to bushfire prone areas, which includes land subject to the Bushfire Management Overlay. These are commonly known as the 10/30 rule and the 10/50 rule. This exemption applies to accommodation constructed or approved on or before 2009.
- Permit exemptions to create defendable space for a dwelling under the Bushfire Management Overlay, where the defendable space is specified in a planning permit issued after 31 July 2014. The permit exemption only applies to specified zones, which include residential zones. The permit exemption does not apply to defendable space specified in a planning permit for uses other than a dwelling and for any uses outside of the Bushfire Management Overlay.
- Permit exemptions for buildings and works associated with a community fire refuge and a private bushfire shelter (where a Class 10c building).

FIGURE 2: Planning Scheme Bushfire Provisions and supporting material





### 3. Bushfire context

This section describes the bushfire context of the Study Area using a range of information sources that help understand bushfire. The matters identified include information typically provided as part of a bushfire hazard landscape assessment as described in *Planning Permit Applications Bushfire Management Overlay Technical Guide* (DELWP 2017).

#### 3.1 Bushfire conditions in Victoria

The Department of Environment, Land, Water and Planning (DELWP) (2015) identifies key features relevant to bushfires in Victoria. 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 likely to arise.

DELWP notes that these weather conditions are representative of where a bushfire does most of its damage in a single day. The greatest loss of life and property in Victoria have historically been caused by such single day bushfires.

DELWP (2020) further notes that climate change is forecast to:

- Extend the bushfire season
- Make bushfires larger, more severe and more frequent
- Make days with an elevated fire danger rating more frequent
- Start the bushfire season earlier, with more bushfires starting in spring (which may also change fire weather conditions that are experienced, such as wind speed and direction).

#### 3.2 Bushfire management strategy guiding public agencies

The *Loddon Mallee Bushfire Management Strategy* (DELWP 2020) considers the long-term implications of bushfire to direct the activities of bushfire-related public agencies and to reduce bushfire risk to people, property, infrastructure and economic activity.

The bushfire management strategy contains information that assists in appreciating the landscape bushfire risk. This includes the following extracts:

*Destructive bushfire weather in Victoria is generally defined by a high-pressure system over the Tasman Sea and a cold pressure system in the Great Australian Bight. This leads to hot and dry conditions, with strong north-westerly winds followed by a mid-afternoon south-westerly change.*

*The change brings gusting winds, instability, lightning events and often no rainfall or increase in humidity to provide relief. Under these conditions, in the forests of the southern parts of the Loddon Mallee region, fires may be dominated by powerful convection columns, intense flames and ember storms.*

*Fires in the region can occur at any time of the year but are most common between October and April, and the most damaging fires have occurred from December through to February. Despite the worst bushfires occurring on days with similar weather patterns, the hot, dry climate of our region means destructive bushfire events can occur under lower fire danger conditions. Days with a fire danger rating of low to moderate — with temperatures of 20 ° C, surface winds at 20 km/hr and relative humidity of 20% — often support fast-running grass and scrub fires that can significantly impact life, property and other values.*

*Large fires in the south of the region have often been associated with extended drought periods.*

The bushfire management strategy also states that:

- *Nearly 14% of recorded bushfires in Victoria have occurred in the southern part of the Loddon Mallee region, and more than half of these can be attributed to human activities*
- *Fires can start at any time during the day, but most occur in the early afternoon between 14:00 and 15:30 hrs. This is when fire danger approaches its peak, with peak fuel dryness being a significant contributor to bushfire spread at this time of day.*

The bushfire management strategy includes simulations of house loss to identify areas across a landscape where bushfires could have the greatest impact. The outputs from these simulations show that the Study Area, comparative to other locations in the Loddon Mallee Region, is not a modelled location that is particularly high risk of house losses except for the north-east part of the Study Area.

See **Figure 3A: Modelled house loss bushfire risk**

### 3.3 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 *c13.02-15 Bushfire Planning* and approved under the Building Act 1993).

#### 3.3.1 Bushfire Management Overlay

The Bushfire Management Overlay is applied across Victoria based on areas of non-grassland vegetation larger than 4ha, with a 150m buffer applied to account for ember attack. It is also applied to land likely to be subject to extreme bushfire behaviour.

The Bushfire Management Overlay applies to the north-eastern and south-western outer edges of the Study Area where larger areas of non-grassland vegetation exist, with the 150m buffer applied.

#### 3.3.2 Schedules to the Bushfire Management Overlay

Some areas of Bushfire Management Overlay can be within a schedule. These specify bushfire protection measures to streamline decision making for the development of a lot with a single dwelling.

There are no schedules to the Bushfire Management Overlay in the Study Area.

#### 3.3.3 Bushfire prone area

The criteria for the Bushfire prone area requires that it be applied to all land within the Bushfire Management Overlay along with grassland areas, smaller patches of non-grassland vegetation and land usually within 150m or 50m of these areas.

All of the Study Area is included in the Bushfire prone area. This is a key piece of information as it shows that ember attack is expected across the entirety of the settlement, including deep into settlement areas.

#### 3.3.4 Conclusions

The effect of planning scheme bushfire designations is that there is no land within the Study Area not considered to be affected by bushfire hazards.

See **Figure 3B: Bushfire Management Overlay and Bushfire prone area**

### 3.4 Victorian Fire Risk Register

The Victorian Fire Risk Register (VFRR) is a data set prepared by fire authorities and local councils that identifies assets at risk of bushfire. The human settlement data is most relevant to planning scheme decision making. The VFRR is useful to the extent that it shows current assets (for example, settlements) at risk, according to fire authorities and the local council.

The VFRR identifies all of Newstead as a very high risk.

The VFRR needs to be carefully used in the setting of Newstead. The rating is useful to appreciate the potential for large fires to be occurring in the broader landscape and grassfires to attack the settlement, and to some extent appreciate the relative risk between settlements in Mount Alexander Shire.

However, the VFRR should not be over-emphasised in planning decision making. It has not been prepared for this purpose and the risk tends to not have a relative basis to it. For example, locations such as Lorne are also assessed as very high, whereas Lorne is a relatively much higher risk setting than Newstead.

See **Figure 3C: Victorian Fire Risk Register human settlement polygons**

### 3.5 Regional bushfire planning assessment

The *Regional Bushfire Planning Assessment Loddon Mallee 2012* (DPCD) provides information about 'identified areas' where a range of land use planning matters intersect with a bushfire hazard.

An identified areas applies to all of Newstead (53-001), and is described as:

*The township of Newstead interfaces with bushfire hazard area associated with scattered remnant vegetation patches to the east and south-west. Riparian vegetation passes through the centre of the township.*

See **Figure 3E: Regional Bushfire Planning Assessment**

### 3.6 Joint Fuel Management Program

The Joint Fuel Management Program outlines where Forest Fire Management Victoria, the CFA and (sometimes) other public agencies intend to carry out fire management operations on Victoria's public and private land over the next three years. The Joint Fuel Management Program is published by Forest Fire Management Victoria (2023).

The Joint Fuel Management Program can include the following treatments:

- Asset protection zones designed to provide localised protection to human life, property and key assets.
- Bushfire moderation zones designed to reduce the speed and intensity of bushfires.
- Landscape management zones designed to reduce overall bushfire hazard at the landscape scale, in addition to land management and ecological objectives.

At a landscape scale, there are extensive treatments in the forested areas to the north, north-east and south-west of Newstead. Within Newstead, bushland areas in the eastern part of the settlement and parts of the Loddon River are subject to treatments.

See **Figure 3D: Joint fuel management plan**

### 3.7 Bushfire history

Bushfire history can be informative to understanding possible bushfire behaviour, but where bushfire has or has not occurred in the past should not be overemphasised in planning decision making. All bushfire hazards are assumed capable of being part of a bushfire and planning decision making is required to respond to bushfire hazards on this basis.

However, bushfire history can assist in understanding how communities have previously experienced bushfire and can reiterate important features likely to arise in any future bushfire (for example, the effect of the late afternoon wind change typical in Victoria's worst bushfire weather).

The potential for bushfire around the Study Area is demonstrated by bushfire history which shows large, landscape-scale fires in hazard areas within 5-10km of Newstead. Bushfire impacting on the settlement itself is not recorded after 1960 (which is the cut off date for the data used in this report).

See **Figure 3F: Bushfire history**

FIGURE 3A: Modelled House Loss Bushfire Risk (Adapted from DELWP 2020)

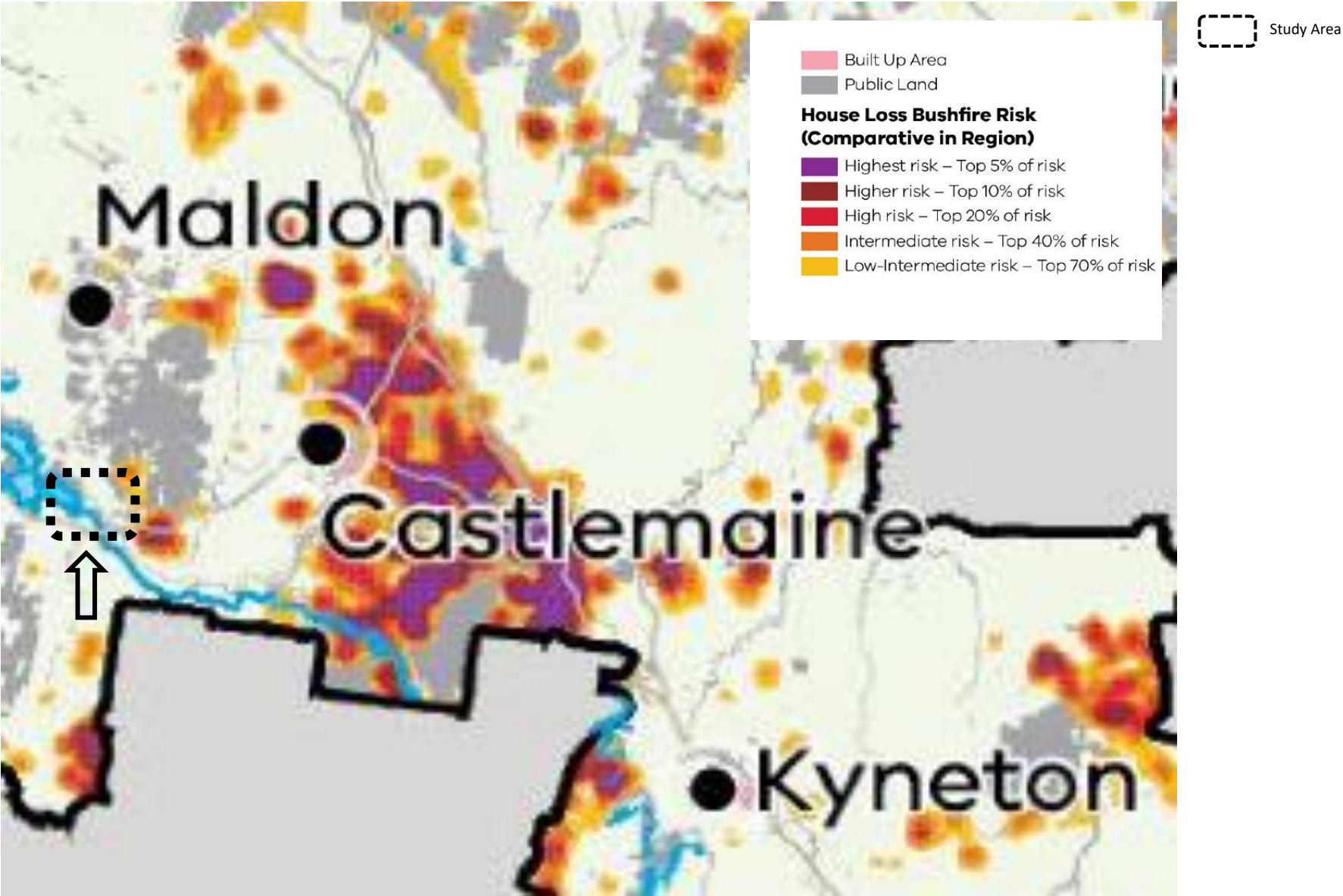




FIGURE 3B: Bushfire Management Overlay and Bushfire Prone Area

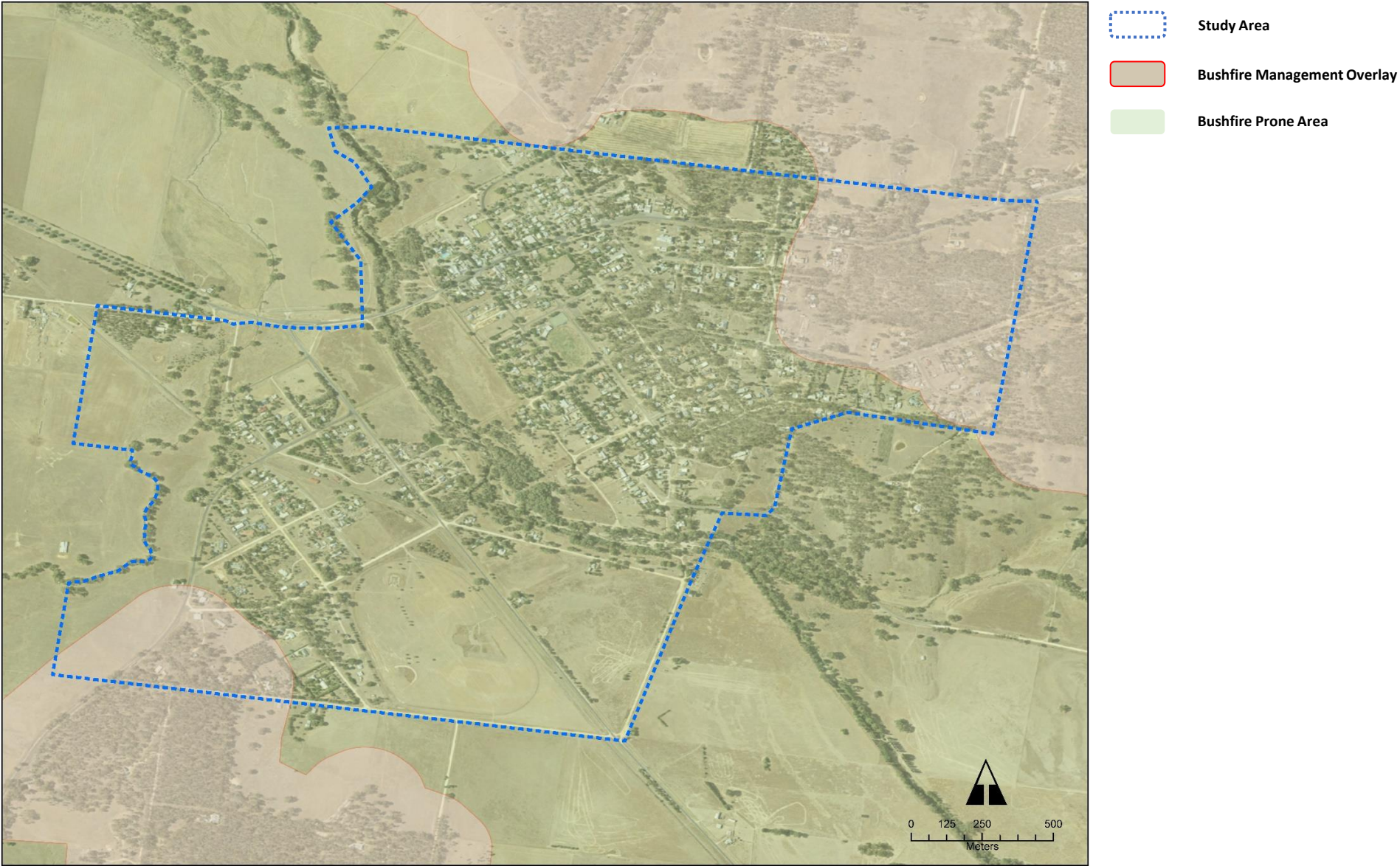




FIGURE 3C: Victorian Fire Risk Register Human Settlement

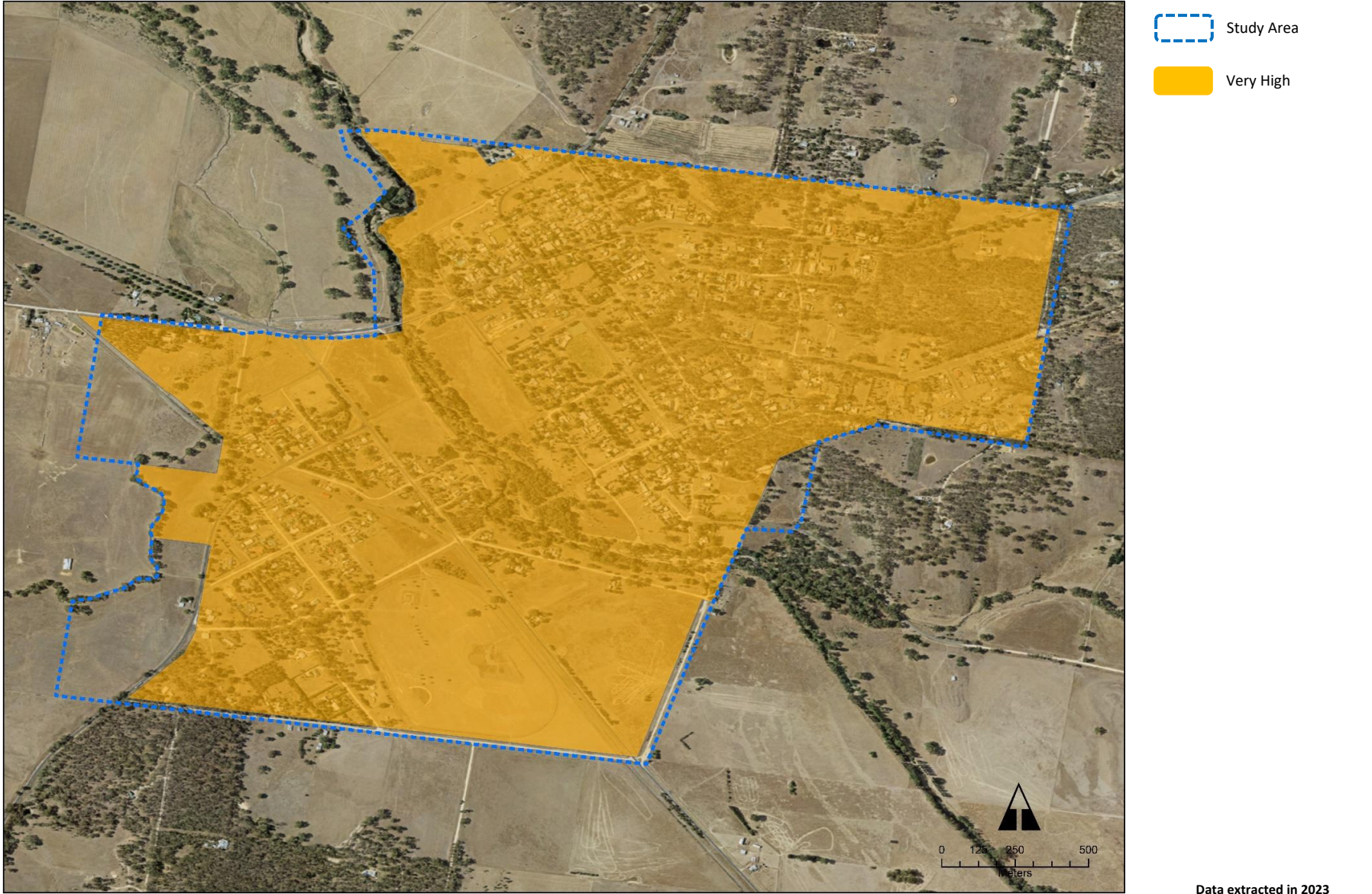
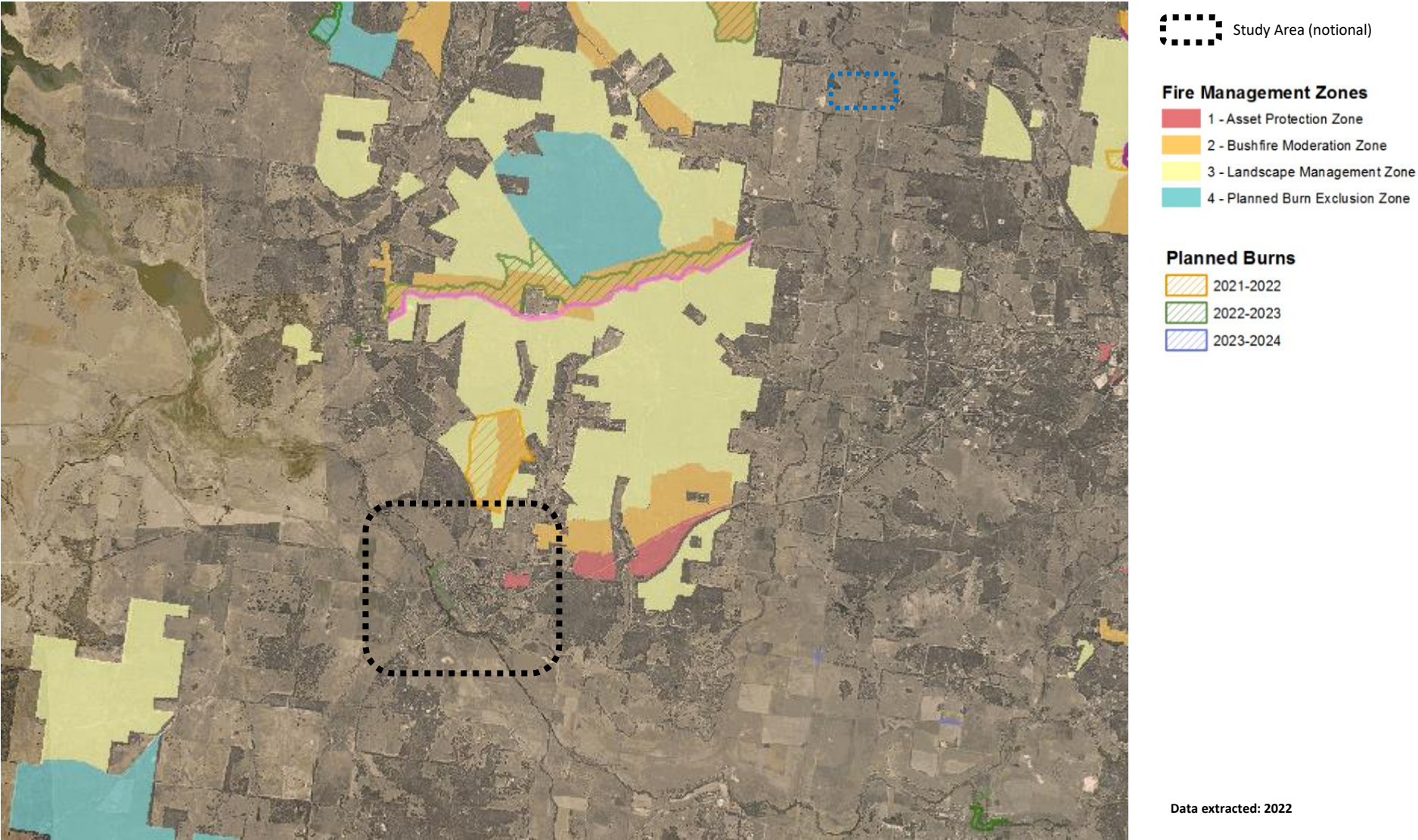




FIGURE 3D: Joint Fuel Management Plan



Source: Forest Fire Management Victoria 2022  
[www.ffm.vic.gov.au/bushfire-fuel-and-risk-management/joint-fuel-management-program](http://www.ffm.vic.gov.au/bushfire-fuel-and-risk-management/joint-fuel-management-program)

FIGURE 3E: Regional Bushfire Planning Assessment Loddon Mallee (DPCD) (with Study Area notation)

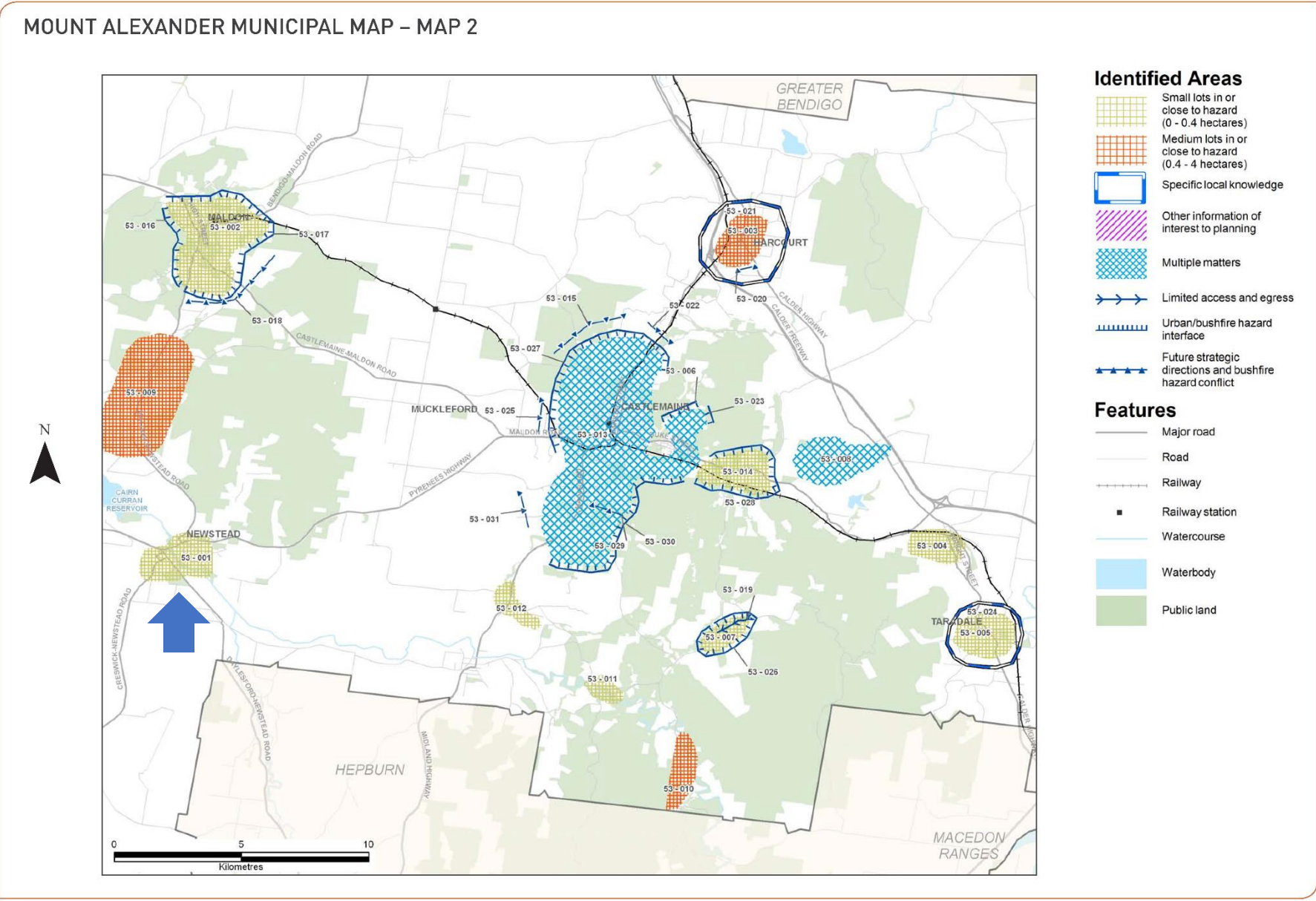
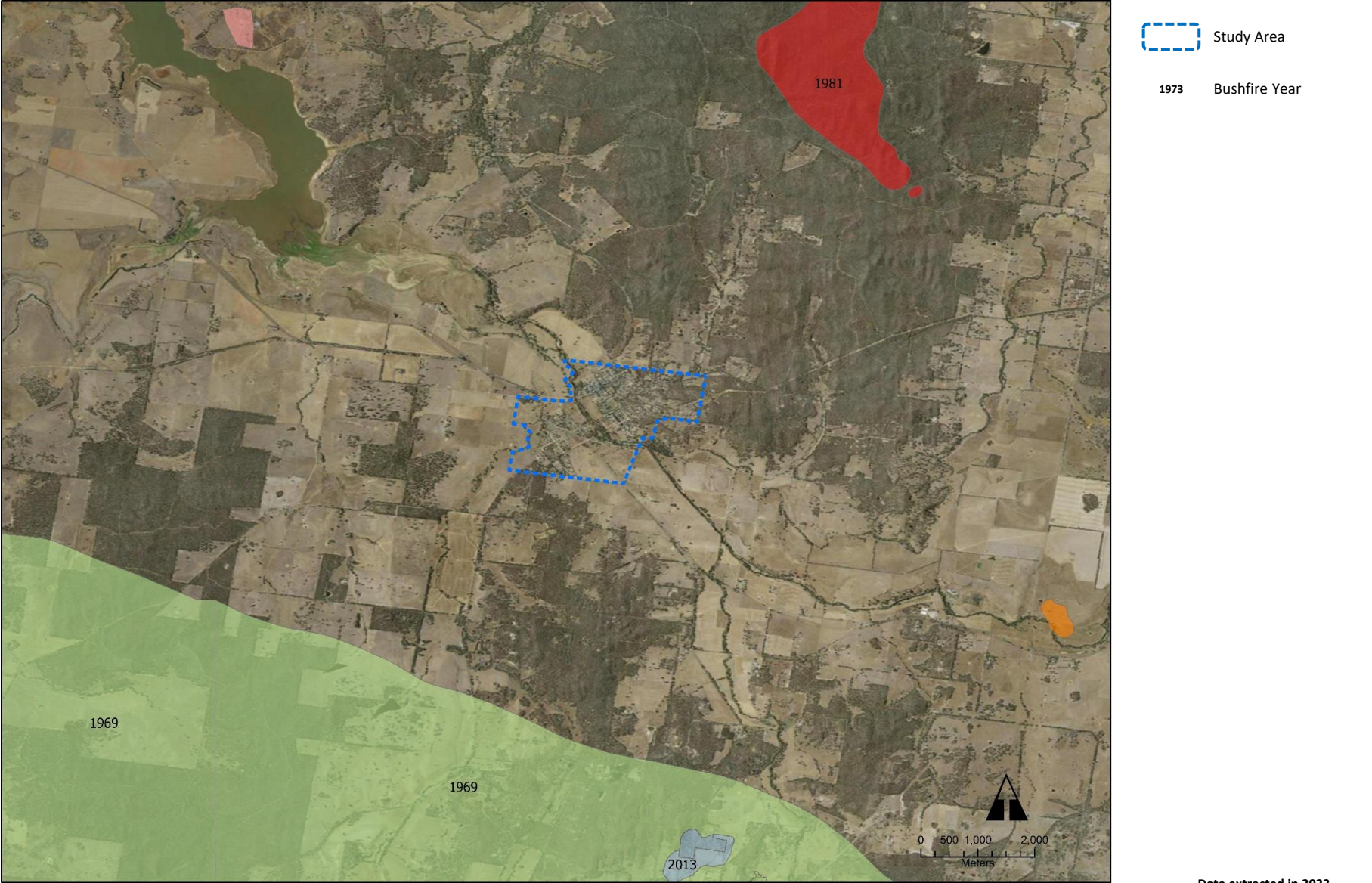




FIGURE 3F: Bushfire History



## 4. Landscape and strategic bushfire considerations

This section describes landscape bushfire hazards. Having regard to the contextual information in Section 3, it considers how the bushfire hazard in the surrounding landscape may affect the Study Area.

Landscape bushfire hazards are important because they help to understand how bushfire may impact on a location, including the likelihood of a bushfire threatening a location, its likely intensity and destructive power, and the potential impact on life and property.

The extent of the surrounding landscape that is relevant is determined by factors such as the extent and continuity of vegetation, potential fire runs and where a bushfire can start, develop and grow large. The extent of bushfire hazard relevant may be 1-2km or up to 50km, depending on the locality.

The landscape analysis in this section takes a similar approach to a bushfire hazard landscape assessment described in *Planning Permit Applications Bushfire Management Overlay Technical Guide* (DELWP 2017). This includes the identification of landscape types that help understand the relative risk between different places.

See **Figure 4A: Overview of landscape types**

The section enables key strategies in *c13.02 Bushfire Planning* to be considered. These strategies include the following:

### Landscape bushfire considerations

c13.02-1S Bushfire Planning requires a tiered approach to assessing the hazard:

- *Considering and assessing the bushfire hazard on the basis of [...] landscape conditions - meaning the conditions in the landscape within 20 kilometres and potentially up to 75 kilometres from a site.*
- *Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.*

### Availability of safe areas

c13.02-1S Bushfire Planning requires a location in easy reach that provides absolute protection for life from the harmful effects of bushfire:

- *Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS3959-2018 Construction of Buildings in bushfire-prone areas (Standards Australia) where human life can be better protected from the effects of bushfire.*
- *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.*

Landscape areas schematically illustrated in this section are derived from two key variables:

- Landscape bushfire hazards and their potential to generate extreme fire behaviour and neighbourhood scale destruction; and
- Availability and access to low fuel areas that may provide shelter from the harmful effects of bushfire.

See **Figure 4D: Assessed landscape types**

### **4.1 Landscape bushfire hazards**

The Study Area is within a landscape containing extensive bushfire hazards. This includes forested areas with some rugged terrain that has the potential to generate extreme fire behaviour. How this may impact on the Study Area is variable, and depends on the location within the Study Area in relation to likely fire runs under prevailing bushfire weather.

### North

Landscape hazards most severely affect the northern part of the Study Area where Newstead has interfaces with forested land. There is an approximately 500m grassland buffer between the Study Area and forested areas, which removes the potential for extreme forest fire behaviour in the form of flame contact and radiant heat to affect the settlement.

However, the effect of the proximity of these forested areas is that there remains the potential for ember attack at higher levels into the Study Area. Forest fires may also move into grassland areas and along with ember ignited grassfires, increasing the likelihood and extent of grassfires.

### West and south

Landscape hazards to the west and south comprise forested areas and grasslands.

Forested areas to the west are 2-5km away and to the south are 1-3km away. These separation distances mean the potential for extreme forest fire behaviour (flame contact and radiant heat) to affect the Study Area is removed.

Some smaller areas of forest (and also woodland) exists to the immediate south of the settlement (south of McNabb Road). This elevates the risk in this part of the settlement, but the forest (or woodland) fire run here is relatively small at 600m (on a landscape scale). Unlike the northern edge of the Study Area, the potential for the forested areas to generate extreme levels of ember attach into the Study Area is low.

Grasslands are the most relevant landscape hazard to the west and south of the Study Area. There is the potential for forest fires to move into grassland areas and for ember ignited grassfires, increasing the likelihood and extent of grassfires. However, with the separation provided to forested areas, the risk increase is somewhat marginal for the purpose of planning decision making for the southern parts of the Study Area.

### East

To the east of the Study Area are further areas of landscape scale forest hazards. Prevailing bushfire weather in Victoria would be moving a bushfire in this area away from the Study Area. It is unlikely to be generating fire behaviour that materially impacts on the Study Area in a way that other considerations would not otherwise address, including responding to forests to the north and site based exposure requirements from all vegetation in and adjoining the Study Area.

It is relevant to the extent that it affects and reinforces the lack of viable movement options from Newstead to the east before and during a bushfire.

### Within the Study Area

The Loddon River is oriented north-west to south-east as it travels through Newstead. To the north west are grassland hazards. This north west aspect is a likely aspect where fire could be moving towards Newstead and the orientated of the river corridor is such that a moving fire could enter and penetrate deep into the settlement. On the urban / river interfaces, there is a heightened bushfire risk because of this.

### A note about grassfires

The Country Fire Authority (2023) identify the following grassfire characteristics:

- 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.

Interspersed with the grasslands around the Study Area is 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 grassland areas.

### **4.2 Likely landscape bushfire scenarios**

There are three likely bushfire scenarios.

First, large landscape scale bushfires burning in the forests to the north of Newstead. Under prevailing bushfire weather it would be moving towards Newstead. Ember attack is to be expected. Any forest fire would move into grassland areas, potentially creating a long grassfire front and/or multiple ember ignited grassfires. These grassfires would impact on the north of the Study Area and would move into the settlement where there is available hazard paths (which there are).

Second, grassfires on the western and southern aspects. These may be ignited from ember attack from forest hazards further away or from forest fires moving into grassland areas. Grassfires would move into the settlement where there are available hazard paths (which there are).

Thirdly, localised fires in the Loddon River corridor or bushfire in hazard areas within the Study Area. These may be ignited by landscape bushfire conditions, including fire running into them, or through ember ignited fires in patches of hazards. Their likely ignition from landscape scale hazards makes these important sources of landscape risk to the Study Area.

The effect of the likely bushfire scenarios is that many parts of the Study Area may experience neighbourhood scale destruction. A key objective in planning future development is to avoid this in new development and seek to better manage existing development.

See **Figure 4B: Landscape bushfire analysis**

Figure 4E provides a generalised understanding of how bushfire threatens settlements. This is highly consistent with what is to be expected in Newstead.

See **Figure 4E: Generalised understanding of how bushfire threatens settlements**

### 4.3 Low fuel areas

An assessment has been made of the location and access to places that are lower fuel where human life can be better protected from the harmful effects of bushfire. Low fuel areas can provide protection by enabling people to move away from bushfire hazards if they need to. This is an important layer of resilience to consider.

*c13.02-1S Bushfire Planning* defines low fuel places as BAL:Low. BAL:Low places are where hazardous vegetation is more than 100m away (50m for grasslands). Hazardous vegetation for the purpose of BAL:Low is defined as vegetation that cannot be excluded under 2.2.3.2 of *Australian Standard AS3959:2018 Construction of buildings in bushfire-prone areas* (Standards Australia).

In BAL:Low places, people sheltering in the open air will not be exposed to flame contact and the highest levels of radiant heat from a moving bushfire, although radiant heat from some hazards may still be life threatening. BAL:Low places may also be subject to localised fires, which could include gardens and structures on fire. BAL:Low places do not consider ember attack, which may occur into these areas.

BAL:Low places are present in the central part of the Study Area, orientated around the Pyrenees Highway and Panmure Street. This correlates with the more urban and heavily built-up areas within Newstead.

Beyond these defined areas of BAL:Low, limited reliable lower fuel areas arise. This reflects the presence of bushfire hazards in many parts of the Study Area, including as a result of riparian corridors, bushland open spaces, vacant land in residential development east of the Loddon River, and large areas of undeveloped grassland areas west of the Loddon River.

See **Figure 4C: Low fuel areas and BAL:Low capable land**

(Note: Figure 4C includes the buffer line used to define the vegetation edge and from where the 100m or 50m buffer was applied.)

### Other places of shelter

A designated neighbourhood safer place is located at Newstead Community Centre in Lyons Street (Pyrenees Highway), Newstead.

See: **Figure 4C: Neighbourhood Safer Place locations**

Consistent with CFA advice, designated places of safety are not afforded any weight in this bushfire assessment. This is because designated places of safety are not a justification to enable new risk to be introduced that is otherwise not consistent with planning scheme policies. They may also be undesignated or moved.

### Ember attack

All areas within the landscape, including BAL:Low areas and designated neighbourhood safer place, are likely to be subject to ember attack. Sheltering in lower fuel locations and traveling to these locations during a bushfire may be uncomfortable and potentially dangerous for people.

### 4.4 Landscape types

Based on the likely bushfire scenarios, the potential for neighbourhood scale destruction and the availability and access to low fuel areas, landscape types can be applied. The identified landscape types are necessarily strategic and are not intended to be scaled to apply to individual properties. They do however provide an indication on the relative risk in different parts of the Study Areas based on a settlement-level scale of assessment.

The following landscape types are assessed for the Study Area.

Landscape type 2 is assessed in the built-up central part of the Study Area and in adjoining areas. This best fits Landscape type 2 as described by DELWP (2017) as follows:

- *The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site*
- *Bushfire can only approach from one aspect and the site is located in a suburban, township or urban area managed in a minimum fuel condition*
- *Access is readily available to a place that provides shelter from bushfire. This will often be the surrounding developed area.*

Both the eastern part of the Study Area and land west of the Loddon River best fits Landscape type 3 as described by DELWP (2017) as follows:

- *The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site*
- *Bushfire can approach from more than aspect*
- *The area is located in an area that is not managed in a minimal fuel condition*
- *Access to an appropriate place that provides shelter from bushfire is not certain.*

Landscape type 3 is assessed in the eastern part of the Study Area. This is driven by:

- The hazards within the Study Area itself that include more heavily residential lots and larger patches of vegetation / bushland areas.
- The proximity to landscape scale forested to the north.
- Proximity to low fuel areas which is reasonable adjoining the BAL:Low area but the journey becomes progressively longer and less certain in other parts.

Landscape type 3 is assessed for all of the Study Area to the west of the Loddon River. This is driven by hazards within the Study Area itself (grasslands) and the lack of a reliable low fuel area and BAL:Low area meaning travel to the east of Loddon River and through hazard areas is likely contemplated. This journey is sub-optimal during a bushfire.

The potential to create a reliable low fuel area to the west of the Loddon River would warrant an assessment of Landscape type 2, based simply on realising a place of shelter west of the Loddon River. This is further considered later in the report.

There is no landscape type 4 assessed in the Study Area.

See **Figure 4D: Assessed Landscape Types**

FIGURE 4A: Overview of Landscape Types

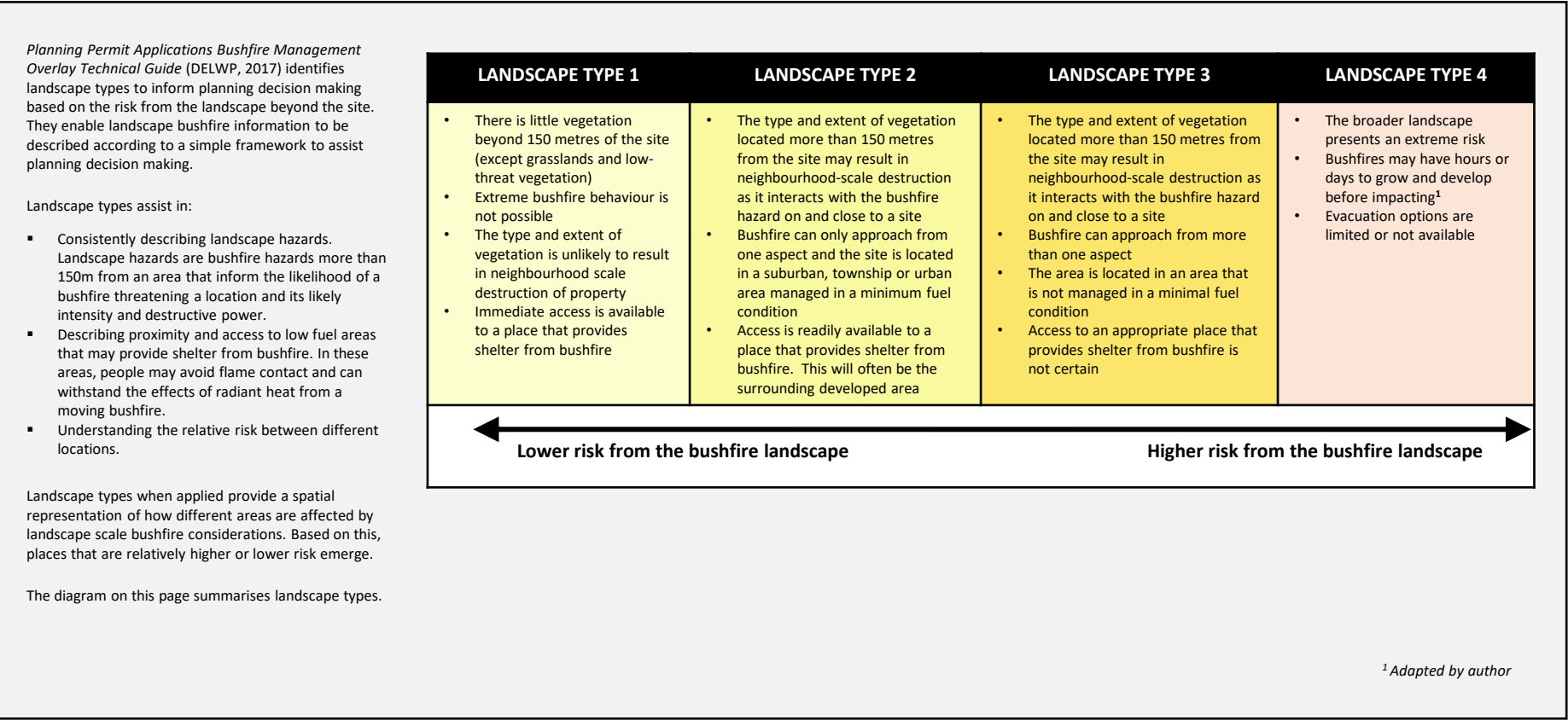




FIGURE 4B: Landscape Bushfire Analysis

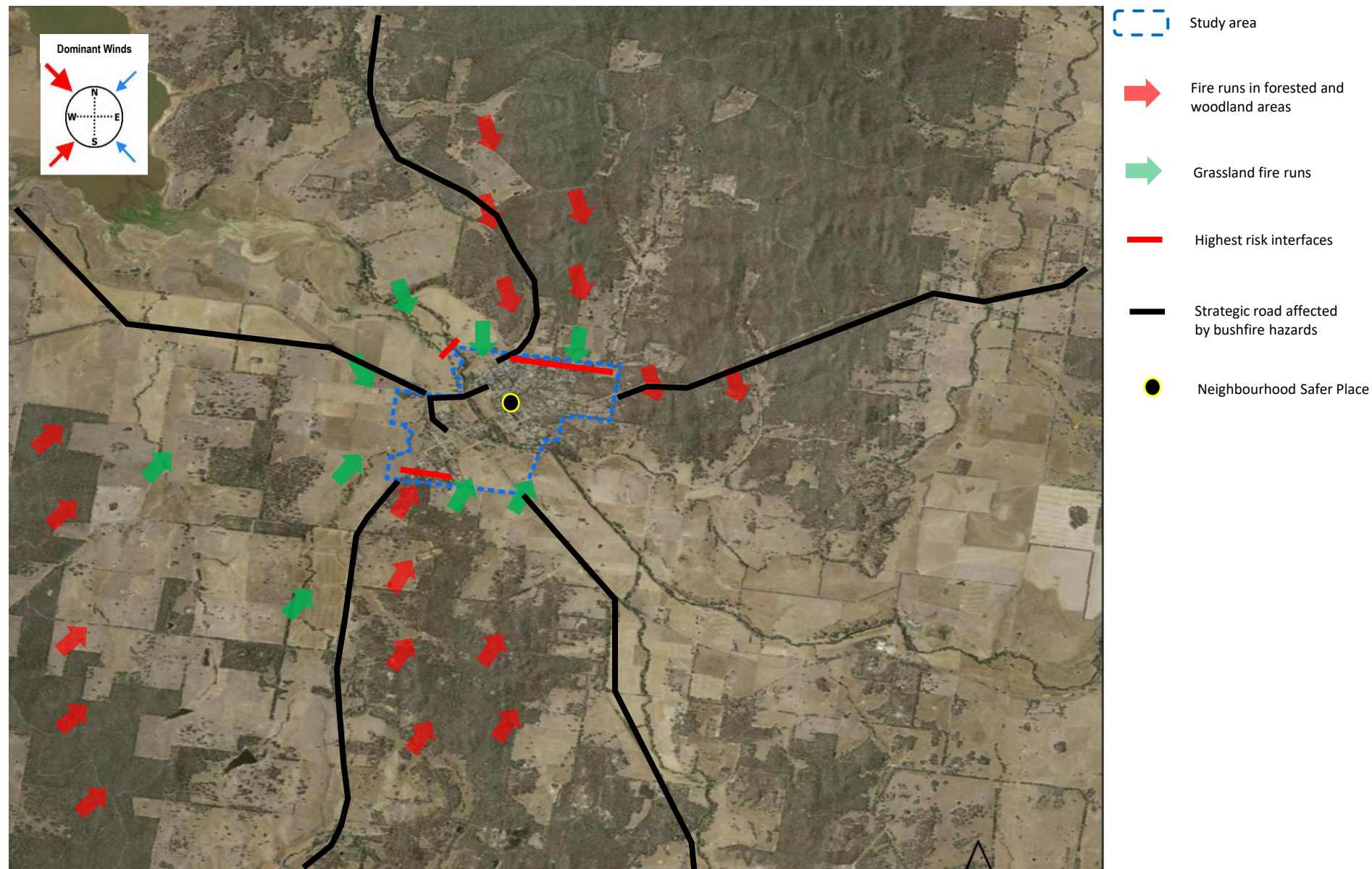




FIGURE 4C: Low Fuel Areas and BAL:LOW capable Land

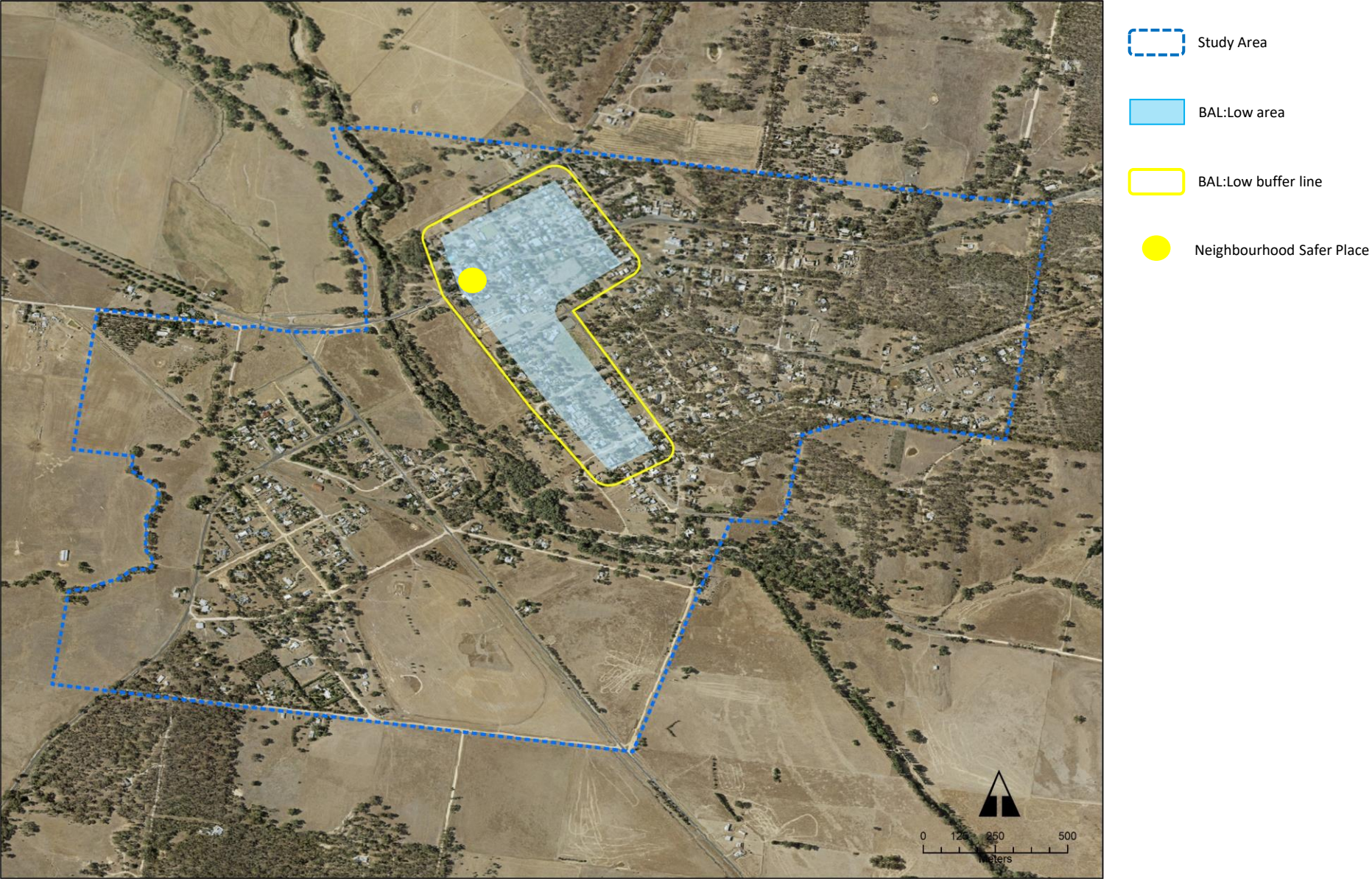




FIGURE 4D: Assessed Landscape Types

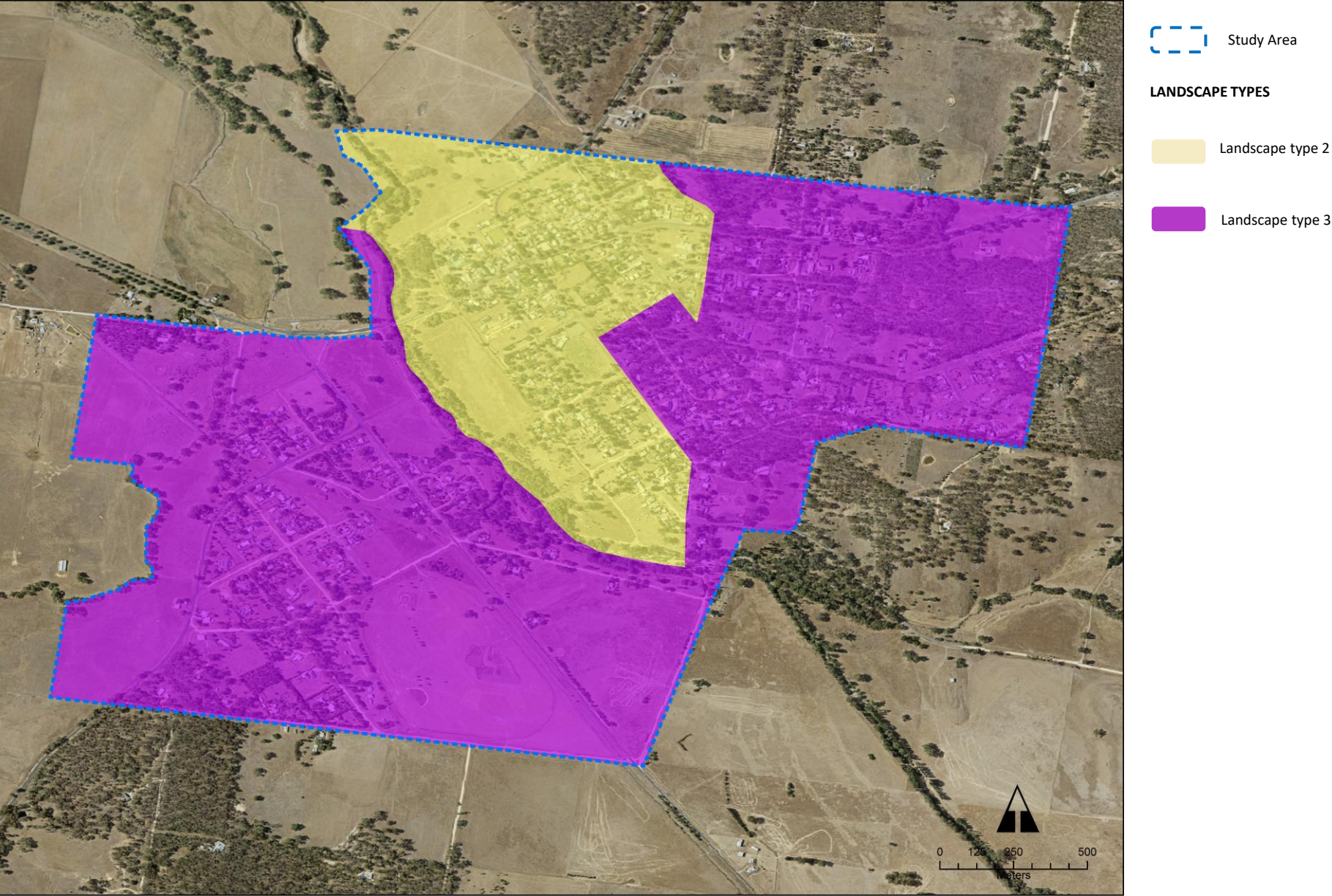


FIGURE 4E: Generalised understanding of how bushfire threatens settlements (DELWP 2020)

### Understanding the bushfire threat

#### Landscape scale bushfire threats

Vegetation, topography and weather conditions are the three major characteristics that contribute to landscape scale bushfire threat.

The intensity and duration of a bushfire is largely influenced by these factors. These broader landscape characteristics strongly impact how a fire is likely to act and its probable size, intensity and destructive power and therefore its level of risk and potential to impact people and safety. In some circumstances the risk from a large bushfire cannot be mitigated, which is why development should be avoided in the areas of highest risk.

#### How bushfire may threaten a settlement

Bushfires are complex and many factors contribute to their behaviour and the threat they can pose. For the purpose of addressing bushfire through the planning scheme, there are three main factors to be considered at the settlement scale.

1. Flame contact and radiant heat
2. Ember Attack
3. Bushfire 'fuels' in vegetated areas

#### 1. Flame contact and radiant heat

The settlement interface with the bushfire hazard is where a moving bushfire front will create flame contact and radiant heat that are harmful to human life and likely to destroy buildings.

Part 2 of the Guidelines provides direction on how to design the settlement interface to mitigate the impact of flame contact and radiant heat from a moving fire front.

#### 2. Ember attack

Land on the settlement interface and land throughout a settlement may be exposed to ember attack.

Ember attack occurs when small burning twigs, leaves and bark are carried by the wind, landing throughout a settlement and igniting fuel sources. Fuel sources typically include vegetation but can also include buildings and sheds.

When ignited from embers, these fuel sources can generate flame contact and levels of radiant heat that are harmful to human life and can destroy buildings. Ember attack is the most common way that structures catch fire during a bushfire. Refer to Parts 1 & 3 on how to manage the threat from ember attack within a settlement.

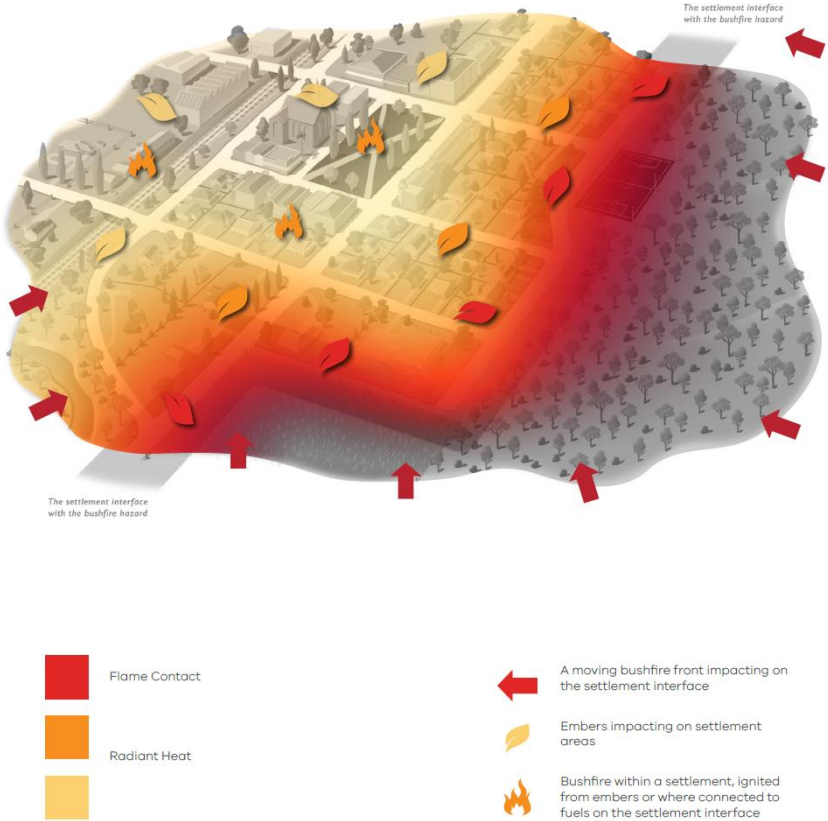
#### 3. Bushfire 'fuels' in vegetated areas

'Fire runs' is the term given to describe how a bushfire will likely 'run' or move through a landscape. Fire runs are fuelled by vegetation and can be ignited where there is a continuous fuel path. This path may be from a forest and lead to a settlement. If the fuels at the interface are not managed it enables deeper penetration of a moving fire front or ember attack potential.

Vegetated areas within a settlement, such as nature reserves, river corridors and areas of remnant vegetation, can create a larger fire run by creating a continuous fuel path within or through a settlement.

Therefore, large vegetated areas may contribute to the fire run potential and therefore the risk to human life.

Refer to 1.4, 2.2, 3.1 and Attachment 1 on how to manage the threat from vegetated areas within a settlement.





## 5. Exposure to bushfire at the neighbourhood and local scale (12.5kw/sq.m of radiant heat)

Exposure to bushfire at the neighbourhood and local scale assesses the level of radiant heat likely to arise from hazardous vegetation within and in proximity (150m) to the Study Area. Considering exposure to bushfire enables new development to be separated from hazardous vegetation so that radiant heat of less than 12.5kw/sq.m arises, as required by *c13.02-1S Bushfire Planning* for new development enabled by a planning scheme amendment.

This section enables key strategies in *c13.02 Bushfire Planning* to be considered. These strategies include the following:

### Site based exposure

- *Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS 3959-2018.*
- *Directing population growth and development to low-risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959-2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).*

### 5.1 Methodology to determine exposure to bushfire

The methodology for a bushfire hazard site assessment as described in *Planning Permit Applications Bushfire Management Overlay Technical Guide* (DELWP 2017) and *AS3959-2018 Building in a Bushfire Prone area* (Standards Australia) informs the assessment. Key assumptions include a Fire Danger Rating of 100 and a flame temperature of 1080°C.

The following inputs were used.

#### 5.1.1 Hazard identification

##### *Vegetation types*

Hazardous vegetation was identified within and around (150m) the Study Area using expert judgment based on field work and aerial photography. Ecological vegetation classes (EVCs) were also reviewed. Figure 5C includes the vegetation types applied.

The predominant hazards are woodland and grasslands. Some woodland assessed vegetation may be better assessed as Forest.

Low-threat vegetation as described in *AS3959-2018 Building in a Bushfire Prone area* (Standards Australia) was excluded as it is not considered hazardous under the planning scheme.

Grassland hazards within the Study Area and hazards within smaller urban lots are assessed as low threat and non-hazardous as it is assumed they would be modified to be non-hazardous as part of any development proceeding.

##### *Slope*

Slope under hazardous vegetation was assessed using the 10m contour, having regard to topographical information. Slope under hazardous vegetation informs how fast a bushfire may travel. Where possible, slope is based on vegetation north-west and south-west which are likely bushfire directions of travel in Victoria.

See **Figure 5A: Ecological vegetation classes**  
See **Figure 5B: Slope based on a 10m contour**

#### 5.1.2 Applied setbacks

Setbacks from hazardous vegetation (except grasslands) were applied based on Column A in Table 2, *c53.02-3 Bushfire Planning*. This setback provides for exposure to be no more than a radiant heat flux of 12.5 kilowatts/square metre, as required by *c13.02-1S Bushfire Planning*.

Setbacks from grasslands of 50m were applied. This simplified the assessment given the variability of slope along grassland interfaces. Applying 50m exceeds the set back specified Column A in Table 2, *c53.02-3 Bushfire Planning* in all cases, and therefore takes a cautious approach.

At a strategic scale, the difference between assessed vegetation types or slopes used in determining exposure is limited (for example, setbacks may vary 19m-30m). The potential for variation on the site-scale should be considered when reading Figure 5D. This necessitates a bushfire hazard site assessment being prepared for any individual planning scheme amendment or development proposal. This is required under the ordinary operation of the Bushfire Management Overlay or as part of preparing a planning scheme amendment, in any event.

See **Figure 5C: Vegetation assessment, applied slope and Column A setback**

## 5.2 Land likely to be exposed to no more than 12.5kw/sq.m of radiant heat

Land likely to be exposed to no more than 12.5kw/sq.m of radiant heat emerges from applying the above methodology. In these places, exposure to bushfire is likely to satisfy the requirement in *c13.02-1S Bushfire Planning*. It is discussed later in this report that the required exposure may vary for the Study Area as the land is mostly already in a zone that enables development to proceed.

See **Figure 5D: Land likely to be exposed to no more than 12.5kw/sq.m of radiant heat**

## 5.3 Points to note about using this assessment

It is yet to be fully resolved how exposure is to be considered in every circumstance, especially in locations which are not proposing outward expansion of settlements or where the underlying zone need not change even if a strategic planning document promoted intensification. It is also the case that planning schemes routinely permit development with higher exposure through its ordinary operation.

Despite these limitations, considered exposure assists to understand the relative risk between different locations and, on a neighbourhood and local scale, lower risk places. It is important to note that the neighbourhood and local risk is always considered alongside landscape and strategic bushfire considerations and is not in isolation determinative of acceptable risk outcomes.

Exposure using the bushfire hazard site assessment relates to radiant heat and flame contact. Ember attack is assumed in all areas and the severity of ember attack is not separately assessed at the site scale (for example, the different ember generating potential within a fuel type is not assessed or considered in the bushfire hazard site assessment). The severity of ember attack is considered as part of the landscape scale assessments as included in this report.



FIGURE 5A: Ecological Vegetation Classes

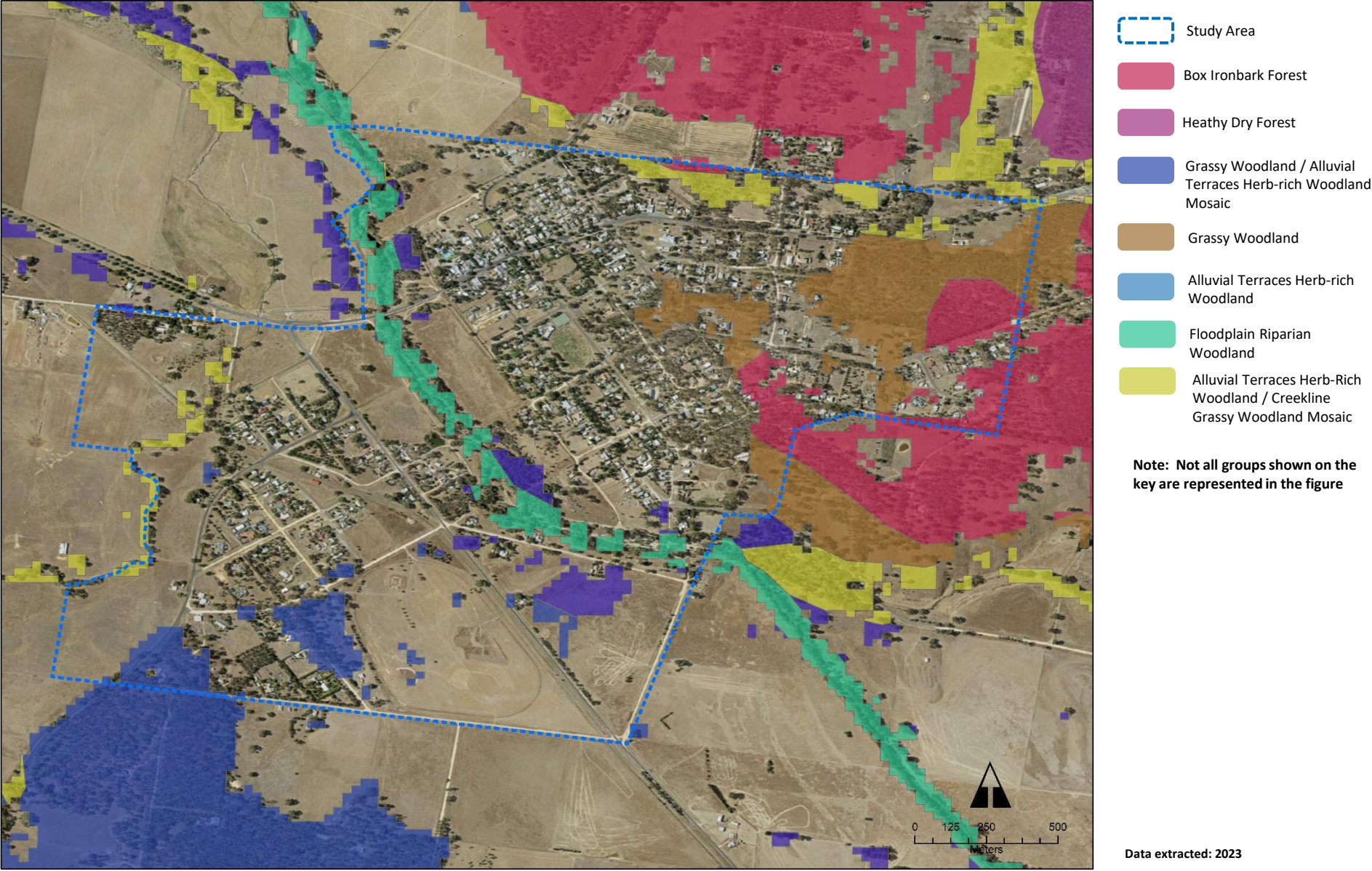




FIGURE 5B : Slope based on a 10m Contour





FIGURE 5C: Vegetation assessment, applied slope and applied Column A setback

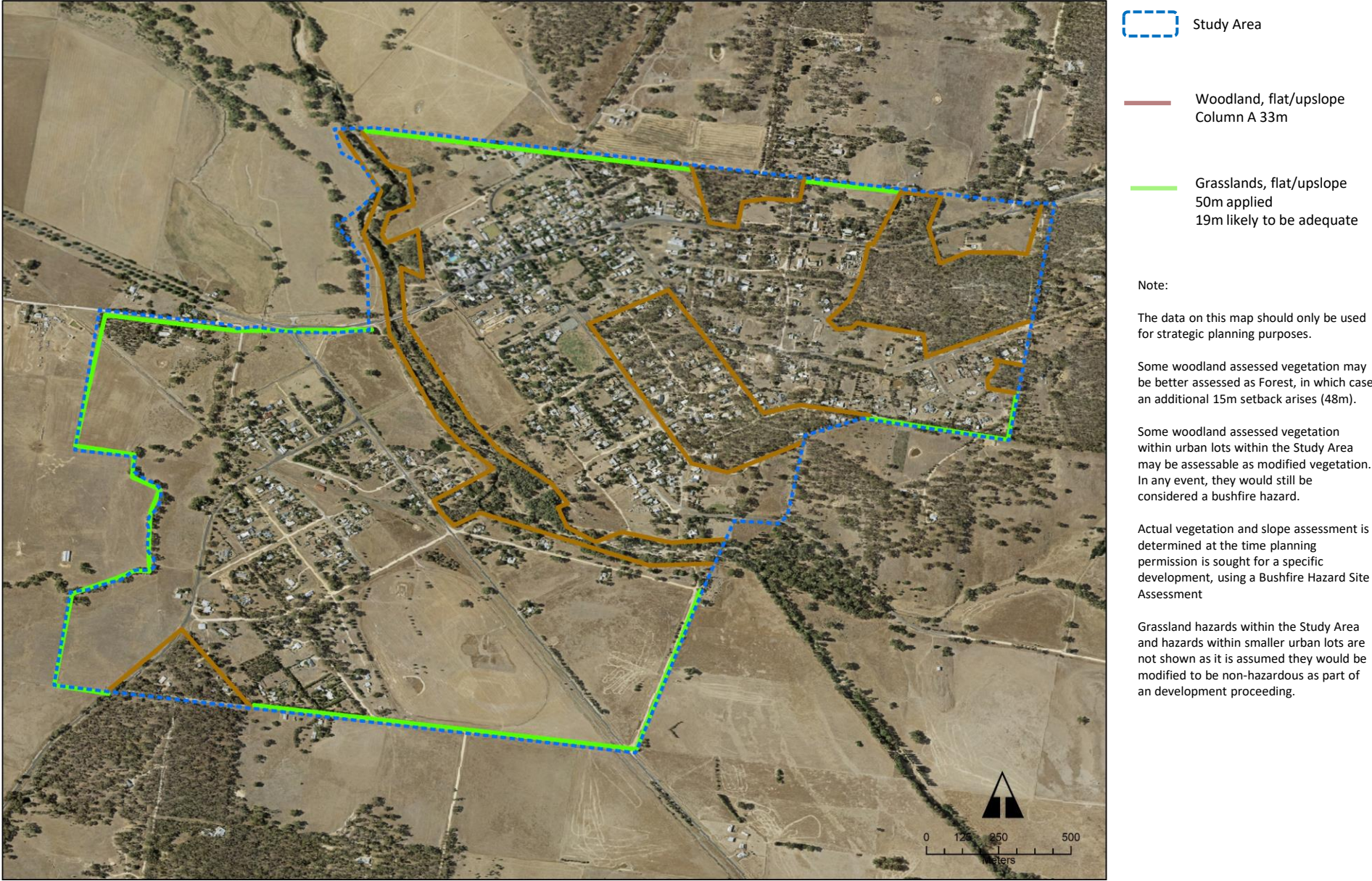
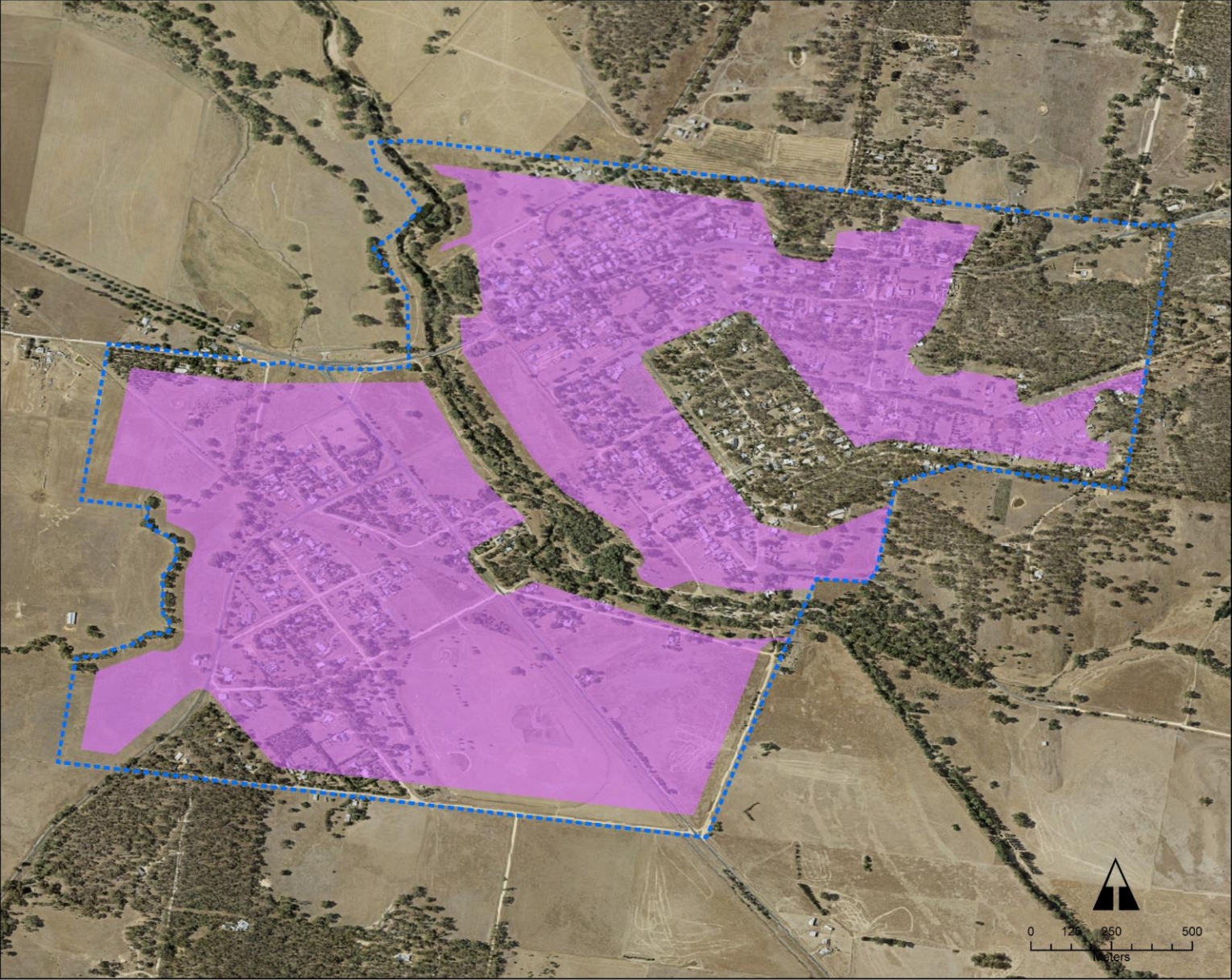





FIGURE 5D: Land likely to be exposed to no more than 12.5kw/sq.m of radiant heat



 Study Area

 Land likely to be exposed to no more than 12.5kw/sq.m of radiant heat

**Note:**

The data on this map should only be used for strategic planning purposes.

Grassland hazards within the Study Area are assumed to be modified to be non-hazardous within and adjoining future development, so an exposure of no more than 12.5kw/sq.m could be achieved.

Other areas may also achieve exposure of no more than 12.5kw/sq.m if vegetation was removed.

## 6. Assessment against *c13.02-1S Bushfire Planning* and other bushfire provisions

This report has considered the bushfire context of the Study Area, the landscape hazard, the availability of low fuel areas and whether there are locations that could satisfy the *c13.02-1S Bushfire Planning* exposure requirement. This section uses that information to consider strategic and settlement policies in *c13.02-1S Bushfire Planning*.

### 6.1 *c13.02-1S Bushfire Planning*

#### 6.1.1 Alternative locations for development and landscape risk

*c13.02-1S Bushfire Planning* includes strategies that seek to direct new development and to manage bushfire risk overall.

- *Give priority to the protection of human life by [...] directing population growth and development to low risk locations[.]*
- *Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.*

*c13.02-1S Bushfire Planning* requires a tiered approach to assessing the hazard:

- *Considering and assessing the bushfire hazard on the basis of [...] landscape conditions - meaning the conditions in the landscape within 20 kilometres and potentially up to 75 kilometres from a site.*
- *Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.*

#### *Municipal context*

The larger settlements in Mount Alexander Shire comprise Castlemaine / Campbell Creek / Chewton, Maldon, Newstead and Harcourt. All of these settlements are within areas of bushfire hazard.

Newstead is relatively lower risk than Maldon and Chewton primarily owing to forested bushfire hazards not being on all sides of the settlement. Its risk is comparable to Harcourt and Campbells Creek, where landscape-scale forested hazards affect part of the settlement but other parts contain lower risks areas with more favourable characteristics, including low fuel areas.

Like many settlements in Mount Alexander, the sub-regional or municipal scale of assessment may be less informative where the settlement and neighbourhood scale of assessments is more purposeful to demonstrating that bushfire planning scheme policies can be given effect to.

The Study Area is already within a Township Zone. This means that the planning scheme already contemplates development occurring, with no new strategic planning intervention required to achieve this. Planning applications can be lodged at any time, including for subdivision.

It is more purposeful in considering Newstead in the municipal context to consider whether the risk is so high that land should be rezoned to non-urban uses to prevent further development. This report concludes that this is not the case having regard to settlement level considerations. These indicate that land to the west of the Loddon River with better planning requirements (primarily around creating low fuel areas) would be well within acceptable planning scheme risk outcomes.

Land to the east of the Loddon River and the north-eastern parts of the Study Area are complicated by the lack of defined settlement edges and hazards within the Study Area. However, new development can address these through better planning requirements whilst benefiting from the existing low fuel area / BAL:Low area that exists.

Based on the above and as further explored in this Chapter, Newstead could be favourably assessed against *c13.02-1S Bushfire Planning* as a location for development on a municipal scale.

#### *Landscape type 2 areas – Lower fuel urban areas*

The Study Area orientated around lower fuel urban areas are lower risk locations. This is consistent with landscape type 2 being assessed along with the Bushfire Management Overlay not applying.

Strategic planning that continues to directs development to these areas would be consistent with *c13.02-1S Bushfire Planning* directions. This is because it has favourable bushfire characteristics including:

- A lower landscape bushfire risk
- Low fuel areas and access to low fuel areas .
- Places that can satisfy the bushfire exposure requirement (12.5kw/sq.m).

### *Landscape type 3 areas (west of Loddon River)*

The Study Area to the west of the Loddon River is at a municipal scale a lower risk location but is currently subject to constraints, including a lack of reliably low fuel areas and large areas of undeveloped land (grasslands). The lack of intensity to development means there is no defined settlement edge where a fire would stop and not run into the Study Area.

The potential to create a reliable low fuel area along with planning requirements to deliver bushfire resilient development would address the settlement risks in this area, achieving a Landscape Type 2 outcome.

Key to securing acceptable outcomes is the creation of an effecting bushfire interface with hazard areas to ensure that continuous fuel paths are not available, that a moving bushfire will not enter developed areas, created or assuring access to low fuel areas and confirming the bushfire exposure requirement is met.

*Design Guidelines: Settlement Planning at the Bushfire Interface* (DELWP 2019) provides design advice on settlement planning and can be used for this purpose, in combination with key requirements in the Bushfire Management Overlay. Perimeter roads and bushfire vegetation management will be a particularly important design response on interfaces to permanent bushfire hazards.

A sample typical bushfire interface is included in Figure 6C.

Where this occurred, strategic planning that continues to direct development to these areas would be consistent with *c13.02-1S Bushfire Planning* directions. This is because they:

- Have a lower landscape bushfire risk in completed development.
- Would have in new development low fuel areas and access to low fuel areas.
- Can deliver completed development to satisfy a bushfire exposure requirement (12.5kw/sq.m).

### *Landscape type 3 areas (north-east parts of the Study Area)*

The Study Area to the east of the Loddon River that is not low fuel is assessed as Landscape Type 3. It is affected by forested and grassland hazards to the north combined with bushfire hazards within this part of the Study Area itself. These areas are less favourably assessed against *c13.02-1S Bushfire Planning* and would be assessed as the highest risk part of the Study Area.

If an entirely new settlement area, it would be unlikely to be considered an acceptable location for growth or development. However, this area is already within the Township Zone and the planning scheme contemplates development proceeding. The risk, whilst elevated, is not so high that the rezoning of land to a non-urban zone needs to be contemplated.

Instead, strategic planning can make a material difference to managing legacy bushfire risks through new development whilst taking advantage of the relatively good proximity to low fuel / BAL:Low areas to the immediate west. Creating larger areas of low fuel would be a key outcome.

On balance, continuing to enable development to the north-east part of the Study Area could be acceptable subject to neighbourhood scale planning that can coordinate change and manage bushfire risks more effectively than the planning scheme currently does.

It would be reasonable for the Council to further consider development in these areas through its strategic planning. This would include expectations on permanent hazard edges, the phasing of development, interventions to be undertaken outside of the planning system to better manage bushfire risks (for example, through fire prevention planning) and a strategic approach to shelter options, including where low fuel areas may arise in completed development.

### *Conclusion on alternative locations for growth and landscape risk*

The above assessment reflects the varying levels of bushfire risk across the Study Area and supports directing development to lower risk areas. These areas are described as landscape type 1 and 2 areas, and Landscape type 3 areas where they can be made Landscape type 1 or 2 through bushfire protection measures.

The strategic directions for different parts of the Study Area are shown on Figure 7A.

See **Figure 7A: Strategic directions**

### 6.1.2 Availability of safe areas

*c13.02-1S Bushfire Planning* requires a location in easy reach that provides absolute protection for life from the harmful effects of bushfire:

- *Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS3959-2018 Construction of buildings in bushfire-prone areas (Standards Australia) where human life can be better protected from the effects of bushfire.*
- *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.*



BAL:Low places are present in the central part of the Study Area, orientated around the Pyrenees Highway and Panmure Street. This correlates with the more urban and heavily built-up areas within Newstead included in Landscape type 2.

Beyond these defined areas of BAL:Low, limited reliable lower fuel areas arise. This reflects the presence of bushfire hazards in many parts of the Study Area, including as a result of riparian corridors, bushland open spaces, vacant land in residential development east of the Loddon River, and large areas of undeveloped grassland areas west of the Loddon River.

As described in Section 6.1.1, BAL:Low areas can be created in new urban development to the west of the Loddon River. This is central to delivering acceptable outcomes in that area.

Lower fuel areas can be created in the north-east part of the Study Area through planning decision making which can over time reduce hazards within the settlement whilst concurrently recognising that these places have reasonable access to existing low fuel areas to their west.

Through a package of interventions, recommended later in this report, to manage the maintenance and creation of low fuel areas, the Study Area is well positioned in response to these considerations.

#### 6.1.3 Site based exposure

*c13.02-1S Bushfire Planning* provides directions for planning authorities about the level of acceptable exposure for new development enabled by a planning scheme amendment:

- *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 AS3959-2018.*
- *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 AS3959-2018 Construction of buildings in bushfire-prone areas (Standards Australia).*

The assessment of site based exposure prepared as part of this report confirms that development can be set back from bushfire hazards to achieve a radiant heat flux of less than 12.5kw/sq.m in completed development. Based on this, exposure of future development could be consistent with *c13.02-1S Bushfire Planning*.

However, the Study Area is already mostly within a Township Zone and no future planning scheme amendment is required to enable future development. The statutory planning exposure requirement is therefore derived from:

- The Bushfire Management Overlay where it applies; or
- Discretionary decision making under *c13.02-1S Bushfire Planning (Use and development control in a bushfire prone area)* for most development, including subdivision.

Both above technically enable exposure to be higher than if the planning scheme amendment exposure requirement applies.

On balance, the land subject to the Bushfire Management Overlay can manage exposure through its decision-making framework in *c53.02 Bushfire Planning*. It will most likely require in any event defensible space vegetation management to be applied to all land subject to a future planning permit, so low fuel outcomes will be achieved. The bushfire attack level component of managing exposure is also addressed by the Bushfire Management Overlay but is less relevant to the strategic objectives being sought in this report (preventing moving bushfires entering settlement areas and creating low fuel land).

Discretionary decision making under *c13.02-1S Bushfire Planning (use and development control in a bushfire prone area)* would be enhanced for new urban subdivisions by including the 12.5kw/sq.m exposure as a benchmark to guide decisions making. This enhancement is necessary to make development acceptable as assessed in this report and to realise the lower risk outcomes which are sought under contemporary planning scheme considerations (rather than considerations in place at the time land was included in the Township Zone).

#### 6.1.4 Areas of high biodiversity conservation value

*c13.02-1S Bushfire Planning* provides directions on situations where bushfire and high biodiversity conservation values correlate:

- *Ensure settlement growth and development approvals can implement bushfire protection measures without unacceptable biodiversity impacts by discouraging settlement growth and development in bushfire affected areas that are of high biodiversity conservation value.*

It is beyond the scope of this report to assess the biodiversity conservation value of vegetation that may need to be removed or managed as a result of bushfire requirements.

The objective to achieve low fuel development in the north-east of the Study Area will necessitate vegetation being modified where it is currently a hazard as part of future planning approvals. This arises under the Bushfire Management Overlay where it applies and in other areas as a result of the recommendations of this report. There are no Overlays that trigger planning permits for vegetation in these areas (for example, VPO, SLO, ESO).

The objective to achieve low fuel development in the south-west of the Study Area is highly achievable as the land is mostly grasslands. There are also no Overlays that trigger planning permits for vegetation in these areas (for example, VPO, SLO, ESO).

#### 6.1.5 No increase in risk

*c13.02-1S Bushfire Planning* provides an overall view of acceptable risk:

- *Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.*
- *Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reduce bushfire risk overall.*

The preferred locations for growth and development recommended in this report are consistent with the bushfire policies and directions contained in the planning scheme. There is no planning scheme bushfire factor that would warrant strategic planning changing the generality of planning in Newstead within the existing Township Zone land.

However, there is an opportunity in undertaking more contemporary strategic planning for existing Township Zone land to significantly reduce new risk and to better manage existing risks, to the extent planning decision making can.

To demonstrably respond to the above planning scheme policies, it is recommended that further bushfire requirements be considered and introduced into the planning scheme to achieve enhanced bushfire outcomes. These have been identified in this section, are explored further in the next Section, and are illustrated on Figure 7A Strategic Directions.

## **6.2 Conclusion to planning scheme considerations**

Strategic planning in Newstead can give effect to bushfire policies and directions contained in the planning scheme by considering and giving effect to the recommendations in this report. Where mitigation is delivered in future planning, there is no planning scheme bushfire factor that would warrant Newstead not developing consistent with the Township Zone that applies. More specifically, development can comply with:

- c13.02-1S Bushfire Planning.
- c44.06 Bushfire Management Overlay.
- c13..02-1S Use and development control in a bushfire prone area.

Recommendations in this report included in Section 7 are intended to reiterate the outcomes that should be integrated into the planning scheme. These should operate in the planning scheme as local content, supported by the existing Bushfire Management Overlay that already applies to parts of the Study Area.

## 7. Bushfire requirements and mitigation

This section sets out a proposed strategy or approach to progressing bushfire considerations as part of planning for Newstead. It is derived from the assessment in response to *c13.02-1S Bushfire Planning* in the previous section.

### 7.1 Bushfire Management Overlay

The Bushfire Management Overlay applies to some parts of the Study Area, including parts of the Landscape type 3 areas. A planning permit will be required to develop land for most activities, including subdivision, in these areas.

The requirements of *c53.02 Bushfire Planning* can generally be met in future planning applications as they relate to the following approved measures:

- AM2.2 - Siting of development within a proposed lot.
- AM2.3 – Building design.
- AM3.1 - Defendable space and construction standards.
- AM4.1 - Water supply and emergency vehicle access.
- AM5.3 - Perimeter road adjoining permanent hazards.

The planning scheme requirements for vegetation management for bushfire purposes in *c53.02 Bushfire Table 6 Vegetation management requirements* will likely be applied on land subject to the Bushfire Management Overlay. It is reasonable to expect that all parts of a development site or new lot created will be low fuel in these circumstances. The outcomes recommended in this report can therefore be achieved through the Bushfire Management Overlay without any additional planning scheme content.

### 7.2 c13.02-1S Use and development control in a bushfire prone area

All development for which a planning permit is required requires consideration against the generality of *c13.02-1S Bushfire Planning*.

Planning consideration is specifically required under the *c13.02-1S Use and development control in a bushfire prone area* for parts of the Study Area, including the Landscape Type 3 areas that are a focus for better bushfire outcomes as recommended in this report. This includes land not within a Bushfire Management Overlay and for which the protection it requires does not apply.

The use and development control requires that when assessing a planning permit application:

- *Consider the risk of bushfire to people, property and community infrastructure.*
- *Require the implementation of appropriate bushfire protection measures to address the identified bushfire risk.*
- *Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts.*

The Use and development control in a bushfire area will apply to selected future planning applications, including Accommodation and to subdivide the land into more than 10 lots. This provides a planning scheme mechanism to ensure development considers bushfire at the planning application stage. However, it specifies no actual requirements and its considerations are discretionary (similar to *c13.02-1S Bushfire Planning* overall) as it relates to planning applications.

It is recommended that additional bushfire protection be specified for land outside of the Bushfire Management Overlay to secure necessary mitigation in response to the assessed Landscape type 3 areas and to direct future discretionary decision making

#### 7.2.1 Landscape type 3 areas (west of Loddon River)

The analysis in Section 6 concluded that low fuel outcomes equivalent to the Bushfire Management Overlay should be achieved on land that is not subject to it where it is subdivided for urban purposes. This includes land to the west of Loddon River.

To achieve this outcome, a requirement can be introduced into the planning scheme so that subdivision which would create a new lot:

- Has a building envelope set back from assessed hazards for a distance no less than that required to ensure exposure is less than 12.5kw of radiant heat. This equates to Column A in Table 2 to *c53.02 Bushfire* in the planning scheme. This will provide, subject to future site assessments, for setbacks from grassland hazards of 19m.
- Has *c53.02 Bushfire Planning, Table 6 Vegetation management requirements* applied to all land. This will provide for a low fuel outcome, reduce hazards, place remaining hazards into a management regime, and support the progressive neighbourhood wide reduction in the hazard over time as more land is subdivided for urban purposes.

It would also be beneficial if new subdivisions with 10 or more lots at the urban / hazard interface are separated from permanent hazards by existing or new perimeter roads. The expected treatment is shown in Figure 7C. Discretion will need to be exercised as to whether the subdivision is at the permanent urban / hazard interface, with interim interfaces capable of being managed in other ways pending adjoining land developing in future.

**See Figure 7C: Expected indicative treatment of interfaces with permanent hazards**

The above when implemented in an individual subdivision would enable a Landscape type 2 outcome to arise. Over time as different land / sites are subdivided for urban purposes, a credible neighbourhood scale assessment of Landscape type 1 or 2 would arise west of the Loddon River, providing a highly resilient outcome for new development and reducing the risk to existing development.

The planning requirements recommended above is what delivers the reduction in landscape risk from Landscape type 3 to Landscape type 1 or 2. It is considered important to specify the outcomes that deliver this rather than rely on discretionary decision making. It is noted that the above outcomes is consistent with typical bushfire requirements in precinct structure plans prepared by the Victorian Planning Authority.

Requirements as recommended above can be included in the planning scheme through a range of approaches. The preferred approach depends on the final structure of a planning scheme amendment following the Council's strategic planning work in Newstead. They could be contained in any of the following:

- A structure plan, if one was prepared and it was proposed to be incorporated into the planning scheme.
- A schedule to a Development Plan Overlay, if one was to be introduced for non-bushfire reasons to manage residential growth in these areas.
- A planning scheme Overlay, included the Design and Development Overlay, where requirements can be specified for a planning application.

**7.2.2 Landscape type 3 areas (north-east Study Area)**

The analysis in Section 6 concluded that low fuel outcomes equivalent to the Bushfire Management Overlay should be achieved on land that is not subject to it where it is developed. This includes land in the north-east part of the Study Area.

To achieve this outcome, a requirement can be introduced into the planning scheme which includes a requirement that development on a lot larger than 1,200sq.m **and** subdivision which would create a new lot for Accommodation has *c53.02 Bushfire Planning, Table 6 Vegetation management requirements* applied to all land.

This will provide for a low fuel outcome, reduce hazards, place hazards into a management regime, and support the progressive neighbourhood wide reduction in the hazard over time as individual sites are developed or redeveloped.

Lots already subdivided for urban purposes that are smaller than 1,200sq.m within an urban township setting do not generally need any specific requirement as part of new development to manage fuels as there is insufficient land for hazards to arise in any event, especially once development and other hard surface areas are provided. An assessment of lot sizes supports this, with larger lots correlating with many areas that are not low fuel within the Study Area.

**See Figure 7B: Lots larger than 1,200sq.m in the Township Zone**

The intention of the above requirement is that it should be applied to single dwellings on lots larger than 1,200sq.m. There is not currently a permit trigger under the Township Zone but on balance, in these areas, a planning permit trigger should be introduced to deliver acceptable bushfire outcomes. This provides the necessary delivery mechanism in contrast to existing highly discretionary decision making or no bushfire emphasis / permit trigger.

Other development, such as subdivisions and Accommodation, would typically require a planning permit in any event, with local planning scheme content providing a basis for informing decision making.

Requirements as recommended above can be included in the planning scheme through an Overlay such as the Design and Development Overlay, which enables requirements to be specified for development including subdivision. This also has the power to trigger a planning permit for single dwellings, a key part of the recommendations.

Whilst it may be somewhat more efficient to simply apply the Bushfire Management Overlay to these areas, this would unnecessarily draw in more requirements than those which are needed.

**7.3 Bushfire construction**

All of the Study Area is within a designated Bushfire Prone Area under the *Building Regulations 2018*. This will require a dwelling to be constructed to at least a BAL12.5 (focused on ember protection). This protection is delivered by the Bushfire Management Overlay where it applies and by the building system in other areas.



#### 7.4 Other mitigation

Land to the west of the Loddon River has limited reliable low fuel places.

Future subdivisions under the recommendations in this report would support low fuel areas arising, although this is dependent on development proceeding and it being of a scale that might incorporate a larger area of land (for example, a subdivision of more than 10 lots).

As many different sites might develop over time, in completed development low fuel areas will arise. However, the management of risk in the transitional period is not necessarily secured as there is no existing low fuel area.

It is beyond the scope of this report to recommend that a publicly provided low fuel area be provided (for example, a designated place of shelter). However, integrated decision making would be supported where planning actions under the *Planning and Environmental Act 1987* were considered alongside the Council and Country Fire Authority considering how complementary outcomes under the *CFA Act 1958* might also enhance resilience.

Consideration of these matters is a recommendation of this report. This could be actioned by the Council facilitating a discussion with the CFA as part of municipal fire prevention activities, having regard to the scale and type of growth it envisages for land to the west of the Loddon River.

FIGURE 7A: Strategic directions to be considered for inclusion into the planning scheme

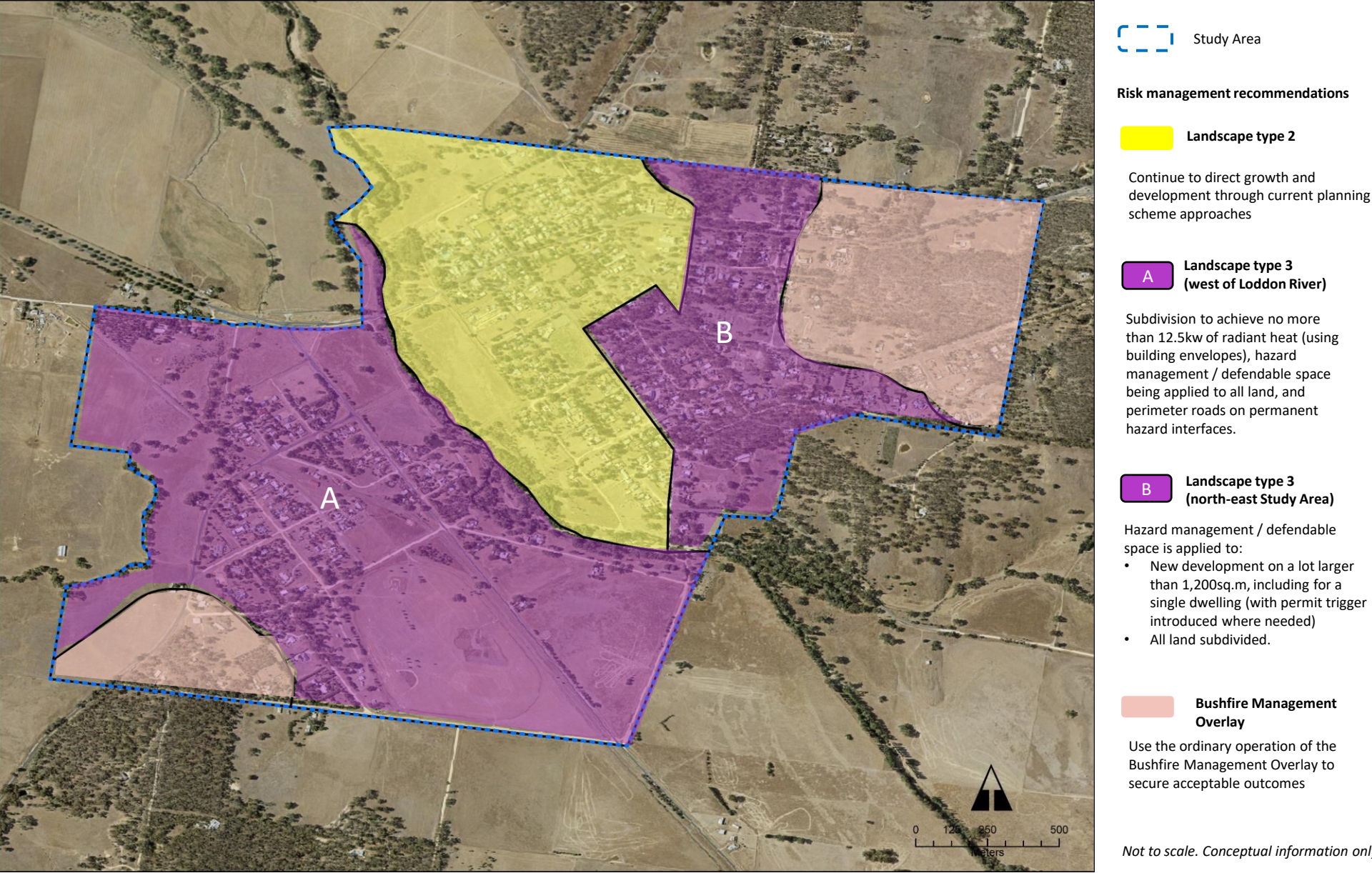
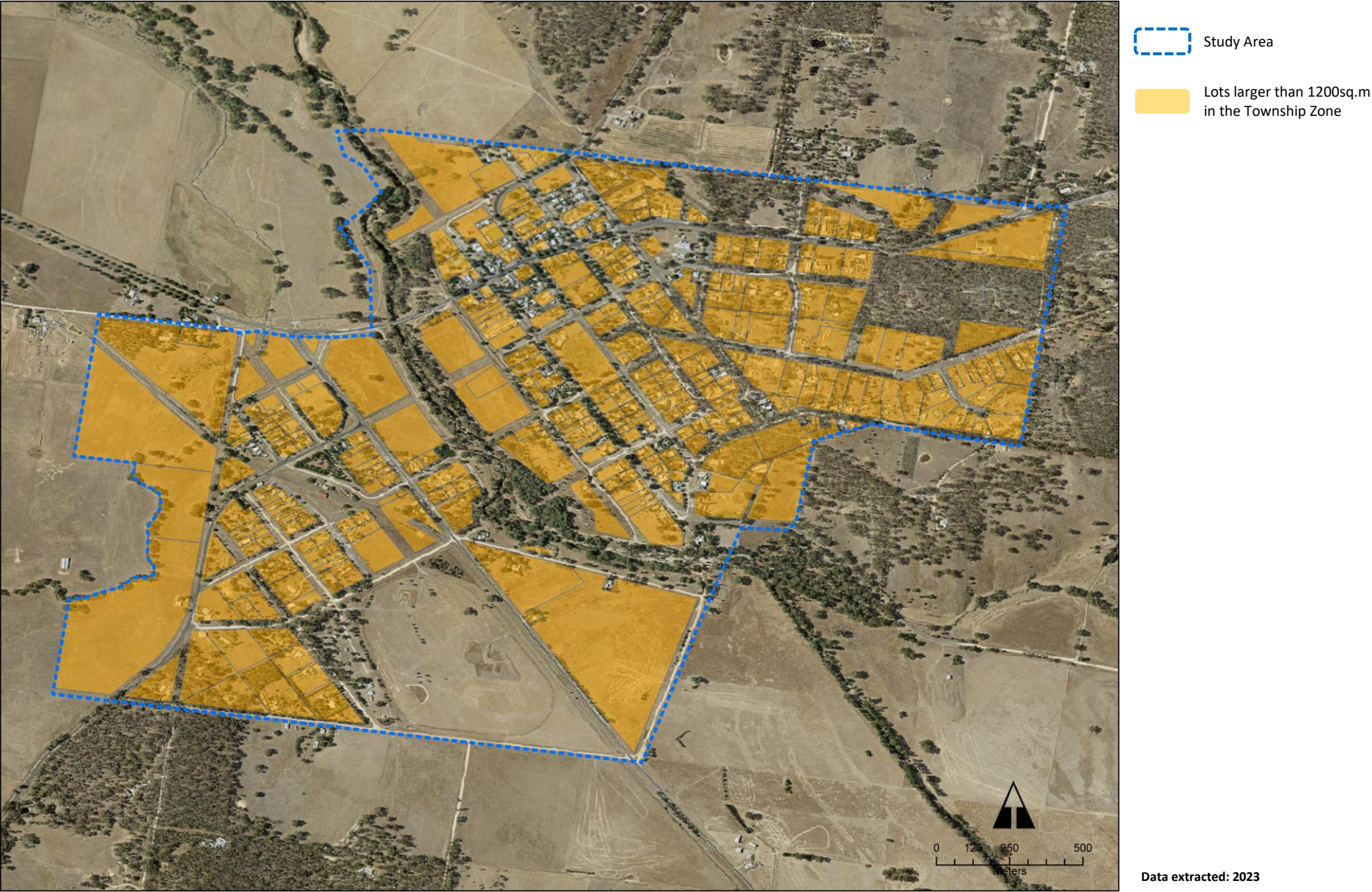
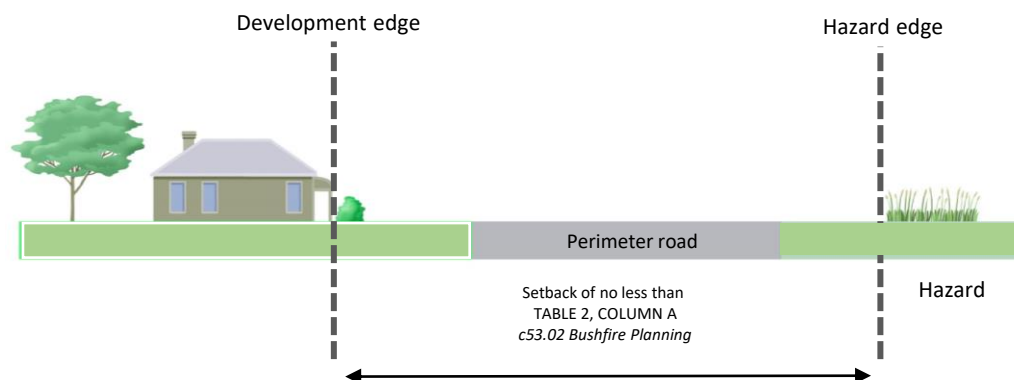




FIGURE 7B: Lots larger than 1,200sq.m in the Township Zone



**FIGURE 7C: Expected indicative treatment of interfaces with permanent hazards**



**FIGURE 7D: Table 6, c53.02 Bushfire Planning Bushfire Vegetation Management Standards (Defendable Space)**

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



## 7. Views of the relevant fire authority

c13.02-1S *Bushfire Planning* identifies that a key element of a risk assessment is to:

- *Consult[...] with [...] the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.*

The CFA were consulted on a draft of this report and provided advice on 29 June 2023. An on-line briefing with Council officers and the CFA was also held on 14 March 2023.

**See Attachment 1: CFA Response dated 29 June 2023**

CFA advised:

*In conclusion CFA supports the draft bushfire assessment strategy for Newstead in its current form. CFA look forward to further dialogue concerning any identified growth strategies /rezonings within the Newstead area*

In response to the bushfire hazard, CFA advised of the following:

*CFA acknowledge that while Newstead has relatively lower bushfire risk than other locations within the Mount Alexander Shire, it can still be exposed to bush/grass fire on an annual basis. This can expose the community to all forms of bushfire attack – radiant heat, direct flame contact and ember attack.*

In response to bushfire mitigation, CFA advised of the following:

*A number of specific actions through good future design can be undertaken within Newstead to minimize the potential bushfire risk. These have been included within the Bushfire Assessment document.*

CFA references the need for the Council to be satisfied that adequate / appropriate reticulated water supply is provided to meet the future demands of a growing community – including Fire Service needs.

It is understood from other projects that the CFA has general concerns about reticulated water supply more generally being effective for fire service needs. It is reasonable that that Council consider this in its engagement with water authorities as part of preparing future plans and strategies for Newstead. This has been added as a recommendation in this report.

## 9. Recommendations

Based on the assessments contained in this report, the following recommendations can be accommodated in updated strategic planning and planning scheme content for Newstead.

### **Recommendation 1: Bushfire Management Overlay**

1A. Continue to use the Bushfire Management Overlay to derive acceptable bushfire outcomes in the areas where it applies.

### **Recommendation 2: Land to the west of the Loddon River**

2A. Development be required to be set back from bushfire hazards for a distance no less than that required to ensure exposure is less than 12.5kw of radiant heat. This equates to Column A in Table 2 to *c53.02 Bushfire* in the planning scheme. This will provide, subject to future site assessments, for setbacks from grassland hazards of 19m.

2B. Planning scheme requirements for vegetation management for bushfire purposes specified in *c53.02 Bushfire, Table 6 Vegetation management requirements* be applied to all land in the Township Zone where subdivided.

2C. New subdivisions with 10 or more lots are separated from permanent hazards by existing or new perimeter roads.

2D. Use a local planning scheme provision to give effect to the above, in the form of standards or policy guidelines (or similar) which can be varied if other approaches would achieve a similar outcome.

### **Recommendation 3: Land in the eastern part of Newstead**

3A. Planning scheme requirements for vegetation management for bushfire purposes specified in *c53.02 Bushfire, Table 6 Vegetation management requirements* be applied to:

- New development on a lot larger than 1,200sq.m, including for a single dwelling (with a permit trigger introduced where needed); and
- All land subdivided.

3B. Use a local planning scheme provision such as the Design and Development Overlay to give effect to the above.

### **Recommendation 4: Enhancing sheltering options to the south west of the Loddon River**

4A. The Council and the Country Fire Authority consider whether there is justification for a place of shelter to be identified to support the resilience of existing and new development in areas west of the Loddon River.

This could be actioned by the Council facilitating a discussion with the CFA as part of municipal fire prevention activities, having regard to the scale and type of growth it envisages for land to the west of the Loddon River.

### **Recommendation 5: Reticulated water supply**

5A. Future planning in Newstead consider the effectiveness of reticulated water supplies to meet the needs of the relevant fire authority, in conjunction with growth planning in Newstead.

This could be actioned through engagement with the relevant water authority as part of future plans and strategies for Newstead and in conjunction with any proponent-led rezoning.

## References

Country Fire Authority (2023), *Grassfires – Rural* (accessed at <https://www.cfa.vic.gov.au/plan-prepare/am-i-at-risk/grassfires-rural>)

Country Fire Authority (accessed in February 2023), *Victoria Fire Risk Register GIS data*

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

Department of Environment, Land, Water and Planning Melbourne (2020), *Strategic Bushfire Management Plan Loddon Mallee*

Department of Environment, Land, Water and Planning (2017) *Planning Permit Applications Bushfire Management Overlay Technical Guide*

Department of Planning and Community Development (2012), *Regional Bushfire Planning Assessment - Loddon Mallee Region*

Department of Environment, Land, Water and Planning (2020), *Design Guidelines: Settlement Planning at the Bushfire Interface*

Forest Fire Management Victoria (2022) *Strategic Bushfire Management Planning* (accessed at <https://bushfireplanning.ffm.vic.gov.au/>)

*Mount Alexander Planning Scheme*

Mount Alexander Shire, *Mount Alexander Shire Draft Settlement Planning Assessment (June 2022)*

Department of Environment, Land, Water and Planning, (accessed in March 2021), *Nature Kit 2.0* (<https://maps2.biodiversity.vic.gov.au/Html5viewer/index.html?viewer=NatureKit>)



Our patron, Her Excellency the Honourable Linda Dessau AC, Governor of Victoria

CFA Fire Prevention and Preparedness  
8 Lakeside Drive Burwood East Vic 3151  
Email: [firesafetyreferrals@cfa.vic.gov.au](mailto:firesafetyreferrals@cfa.vic.gov.au)

CFA Ref: 2000-79517-128461  
Telephone:  
Council Ref:

29/6/2023

Kevin Hazell  
Bushfire Planning  
P O Box 7132  
GLEN IRIS VIC 3146

Dear Kevin,

## SUBMISSION TO PROPOSED STRATEGY

**Proposal:** Bushfire Planning Assessment  
**Location:** Newstead

Thank you for providing the CFA with the opportunity to comment on *Bushfire Planning Assessment - Newstead*

### Bushfire Hazard

- CFA acknowledge that while Newstead has relatively lower bushfire risk than other locations within the Mount Alexander Shire, it can still be exposed to bush/ grass fire on an annual basis. This can expose the community to all forms of bushfire attack – *radiant heat, direct flame contact and ember attack.*

### Bushfire Mitigation Measures

- A number of specific actions through good future design can be undertaken within Newstead to minimize the potential bushfire risk. These have been included within the Bushfire Assessment document.  
They include –
  - Focused location of future growth into lower bushfire risk locations
  - Separation of Urban/Rural interface by good design – Outer Boulevard effect road network/ Open space,
  - Undertaking increased infill development to reduce the numbers of open blocks within the urbanized precinct.
  - Develop *Precinct Design Guidelines* which include restrictions on the types/ location of future vegetation planting within townships – hence restricting wick corridors.

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### Other strategic considerations

- The Municipality should be satisfied that adequate / appropriate reticulated water supply is provided to meet the future demands of a growing community – including Fire Service needs.

In conclusion CFA supports the draft bushfire assessment strategy for Newstead in its current form.  
CFA look forward to further dialogue concerning any identified growth strategies /rezonings within the Newstead area .

If you wish to discuss this matter in more detail, please do not hesitate to contact David Allen Manager Community Safety on 0419 878 958

Yours sincerely,

**David Allen AFSM**  
Manager Community Safety  
CFA Fire Prevention and Preparedness



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