

# STRATEGIC BUSHFIRE ASSESSMENT

## Gisborne Futures Plan Report



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**Acknowledgments**

Council provided mapping information and generated mapping for the updated version of this report,.

**Version control**

Version	Date	Author	Client review
Draft	22 November 2022	G McMillan	I Maginn
Draft 2	17 April 2023	G McMillan	I Maginn
Final	24 April 2023	G McMillan	I Maginn
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Updated (in response to CFA feedback)	17 November 2023	G McMillan	I Maginn
Updated (in response to regulator submissions)	18 March 2024	G McMillan	I Maginn
Editorial updates	2 July 2024	G McMillan	I Maginn

## 1. Introduction

This report has been prepared on behalf of Macedon Ranges Shire Council (**Council**) to support the Gisborne Futures project (**Project** or **Gisborne Futures**). The Project includes the following components:

- Structure Plan
- Urban Design Framework
- Neighbourhood Character Study

Gisborne Futures will establish a protected urban settlement boundary for Gisborne in line with the Statement of Planning Policy (**SPP**) in the Macedon Ranges Planning Scheme (**Planning Scheme**).

This report provides a strategic bushfire risk assessment of the Project, with a focus on the future settlement investigation areas in Gisborne / New Gisborne (**Investigation areas**). These Investigation areas and the existing settlement are collectively referred to as the **Project area** in this report.

This report has been prepared in response to consultation feedback, the relevant requirements in the Planning Scheme including the policy objectives at Clause 13.02-1S and Clause 21.06-3 and relevant guidance from the Department of Environment, Land, Water and Planning (**DELWP**).

### Scope and purpose of this report – Stage 1

This is a preliminary report which documents the outcomes of the initial review and recommendations in relation to the Investigation areas. This report addresses the following matters:

- An assessment of bushfire hazard at the landscape scale.
- An assessment of bushfire hazard at the local scale (e.g. within 150 metres of the future urban investigation areas).
- Description of likely fire behaviour that could impact on Gisborne, particularly the Investigation areas.
- An assessment of the Investigation areas having regard to the requirements at Clause 13.02 of the Planning Scheme, relevant practice notes, standards, fire management plans and DELWP guidance, including the Settlement Planning at the Bushfire Interface (July 2020) (**Bushfire Interface Guidelines**).
- Draft recommendations on bushfire protection measures that could be integrated into the Futures Plan to meet relevant State policy. This includes recommendations

on prioritization of Investigation areas, how to manage the threat at the edge of development, layout of future development, minimum construction standards and vegetation management considerations.

#### Post consultation updates to report – Stage 2

This report was updated in early 2024 following feedback from the CFA and the Department of Transport and Planning (DTP). We note that other bushfire assessments have been completed, which have also been reviewed.

In addition, Terralogic provided advice to Council on specific changes that should be made to consultation version of the Structure Plan to give effect to the bushfire protection measures identified in this report and regulator feedback.

## 2. Methodology

The following methodology was used to conduct Stage 1 (preliminary advice) of this assessment:

- Review of the proposal and site context.
  - Review the Futures Plan and background work completed to date, including the Phase 3 consultation report.
  
- Review of policy and regulatory framework:
  - Review of bushfire related requirements in the Planning Scheme, including the State policy objectives at Clause 13.02-1S (Bushfire Planning) and local policy at Clause 21.06-3 (Bushfire).
  - Review of relevant guidance published by DELWP in relation to strategic bushfire assessments, including the Bushfire Interface Guidelines.
  - Review existing fire management plans, including regional plans.
  
- Completion of bushfire hazard assessments:
  - A desktop assessment of the bushfire hazard at the landscape scale was conducted, using aerial photography, including a review of hazards across the municipality
  - A desktop assessment of the bushfire hazard at the site scale was conducted using publicly available aerial photography and contour information, as well as general information gathered on the site inspection.
  - A general site inspection was conducted of Gisborne and New Gisborne, including a drive around to view each of the Investigation areas.
  
- Risk assessment and mitigation measures:
  - A review of alternative locations for settlement within the municipality from a bushfire risk perspective.
  - Bushfire risks associated with Gisborne, New Gisborne and each Investigation areas were identified and considered, based on policy consideration.
  - Measures were recommended to mitigate the risks from bushfire to an acceptable level, including prioritization of Investigation areas, how to manage the threat at the edge of development, layout of future development, minimum construction standards and vegetation management considerations.

- Conclusions recommendations:
  - Final conclusions were made having regard to bushfire policy objectives at Clause 13.02-1S and Clause 21.06-3 (Bushfire) of the Planning Scheme and DELWP's Bushfire Interface Guidelines.

Additional work was completed in stage 2 (post consultation updates) and incorporated into this report:

- Review of the Structure Plan prepared by Council for consultation, after the preliminary report was issued
- Attended meetings with CFA
- Worked with Council to obtain clearer mapping of bushfire risk information for the area around Gisborne and the wider municipal area
- Reviewed submissions from the Department of Transport and Planning (DTP) and other stakeholders
- Updated the report in response to regulator feedback

In addition, following Terralogic's review of the consultation draft of the Structure Plan advice was provided to Council on modification required to give effect to the bushfire protection measures identified in this report and regulator feedback.

### 3. Gisborne Futures Plan

The Gisborne Futures project will establish a protected urban settlement boundary for Gisborne in line with the SPP in the Planning Scheme and identify future land uses for retail, employment, housing, and community services to meet the growing needs of the town.

The protected settlement boundary is intended to limit outward expansion of towns in the Shire to conserve and enhance significant landscape features, biodiversity, ecological values and 'working' rural landscapes.

Gisborne is nominated as a regional centre that is to provide services to the broader rural community and nearby smaller settlements. Gisborne will higher-order health, retail and employment opportunities, as well as diverse residential opportunities and education while building capacity for climate change resilience.

Notably, when Council prepared in the SPP it identified in the adopted 2009 Gisborne / New Gisborne Outline Development Plan (ODP).

#### Current status

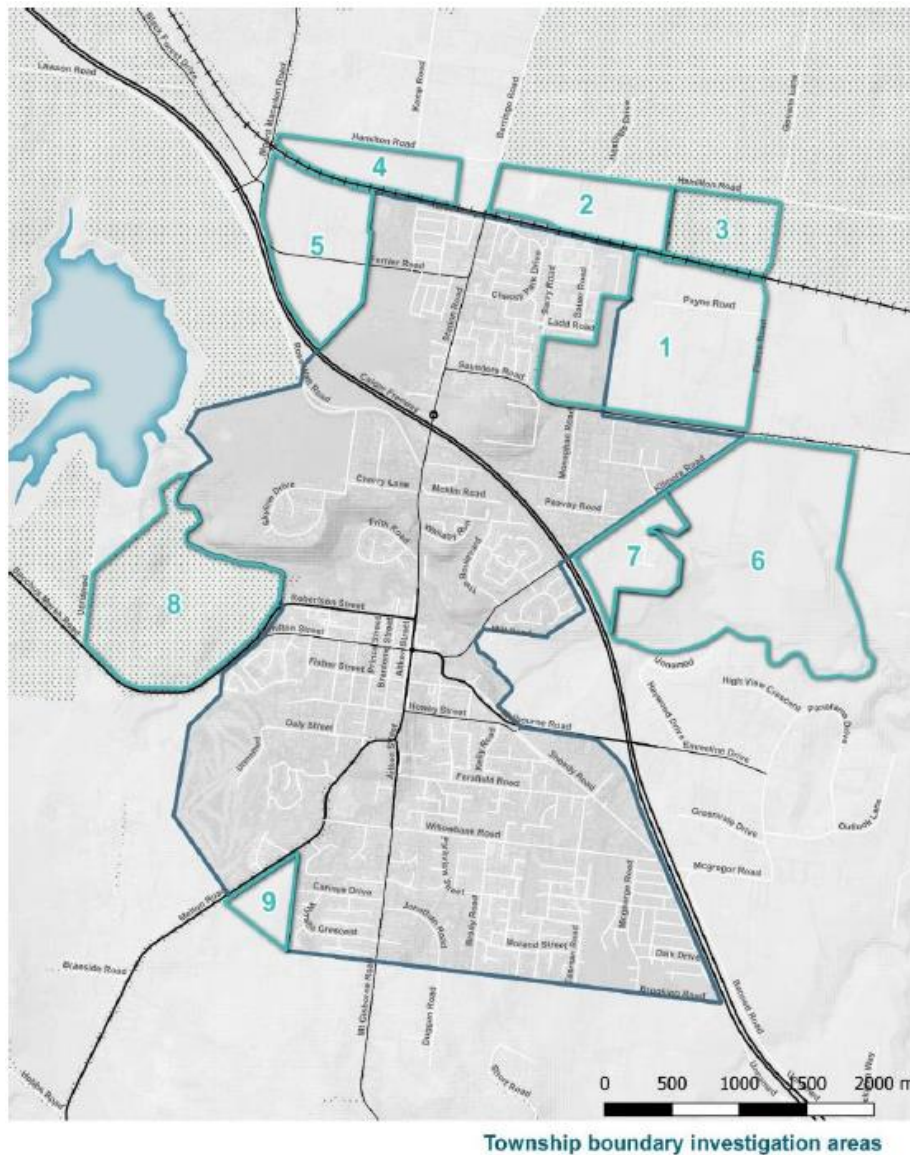
Work on the Gisborne Futures project commenced in 2018 and three phases of community consultation have occurred. Council's most recent report, the Gisborne Futures Phase 3 Consultation Report, August 2022 (**Phase 3 Consultation Report**) summarises the feedback from the most recent phase of the consultation.

Relevantly for this assessment the Phase 3 Consultation Report:

- Identified submitter concerns about bushfire risk and how the Project (did not appear to) factor bushfire risk into decisions about new settlement areas.
- Identified updated Investigation areas (areas 1 – 9) (shown in **Figure 1**).
- Recommended that Investigation areas 1 – 5 represent the maximum future development scenario. Noting that these areas could be modified, but that no additional areas would be included.



**Figure 1 – Investigations areas**



### Agreed actions

The Phase 3 Consultation Report was endorsed by Council on 24 August 2022. The Council endorsed the further actions to progress work on Gisborne Futures, one of those agreed actions<sup>1</sup> was to *‘prepare a bushfire risk assessment of Gisborne to better understand and respond to bushfire hazards. Include reference and response to DELWP’s guidelines on settlement planning at the bushfire interface.’*

This report is a direct response to that agreed action.

<sup>1</sup> Section 8.1.2 Phase 3 Consultation Report



### Further consultation

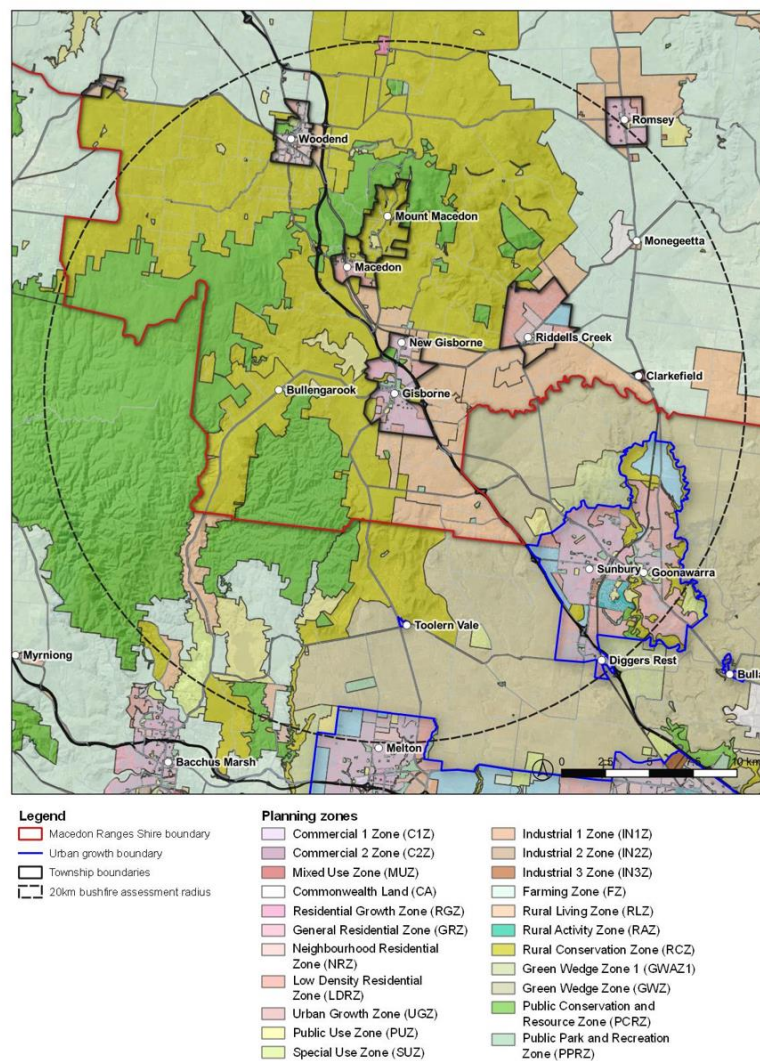
Council conducted a further round of consultation between October 3 and November 13 2023 on an updated consultation draft of the Structure Plan. The preliminary bushfire report was released at the same time. Feedback from the regulators, including CFA and DTP have been integrated into this updated version of the bushfire report.

## 4. Policy and regulatory framework

### Zoning

The Gisborne Futures Project area is affected by multiple zones under the Planning Scheme (**Figure 2**). Broadly, the centre of Gisborne and New Gisborne (south of the railway) are zoned for residential purposes. There is a significant amount of land to the north east, east and south of Gisborne zoned for rural living purposes. There is also land zoned for rural living purposes between New Gisborne and Macedon. The majority to the land to the north east of New Gisborne is zoned for rural conservation purposes. There are also large tracts of public land to the south west of Gisborne (including the Blackwood forest) and land to the north around Mount Macedon.

**Figure 2 – Existing zoning controls**

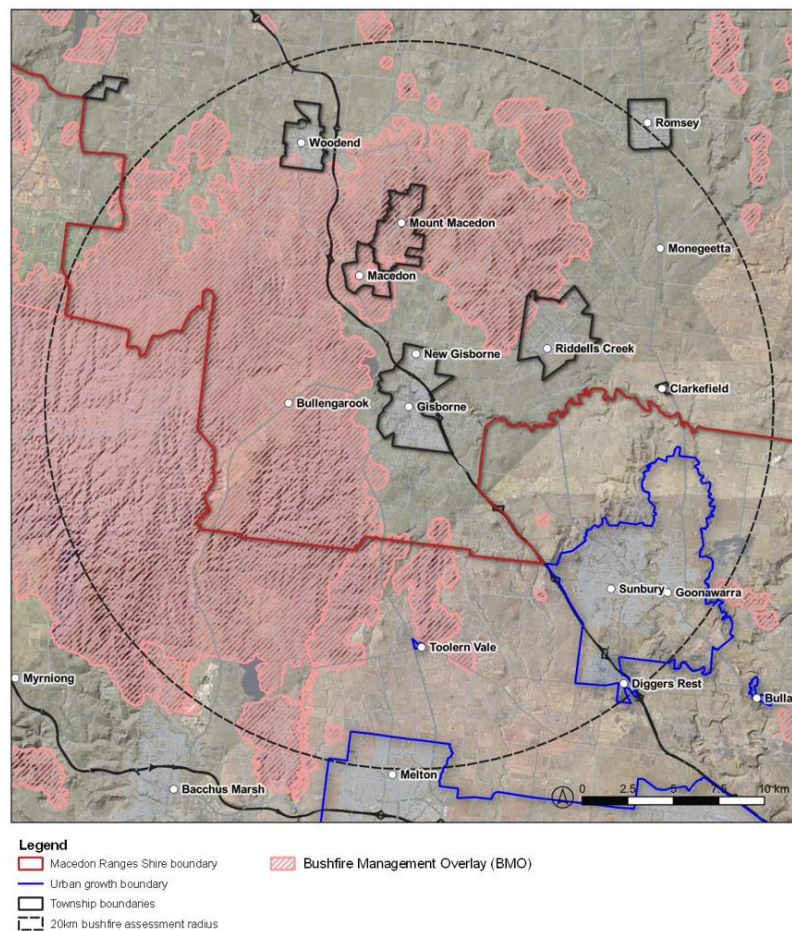




### Overlay controls

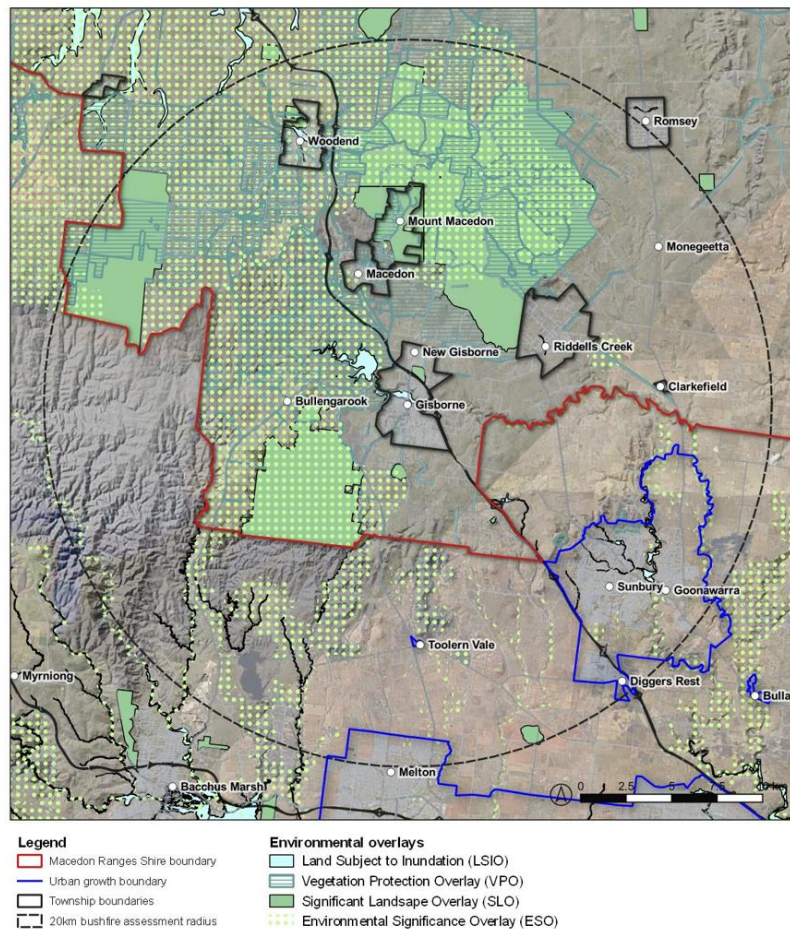
Relevantly for this assessment, there are several overlay controls that affect the Project area. The Bushfire Management Overlay (BMO) affects land to the south, south west, west and north of Gisborne. The Project area is within the designated Bushfire Prone Areas (BPA). **Figure 3** shows the bushfire controls.

**Figure 3** – Bushfire Overlay controls



There are also several environmental overlay controls that affect the level of bushfire risk. These are areas where revegetation and protection of existing vegetation is encouraged in the Planning Scheme. **Figure 4** shows the extend of the Environmental Significance Overlay (ESO), Significant Landscape Overlay (SLO) and Vegetation Protection Overlay (VPO). Its is not coincidence that there is an overlap between the bushfire controls and the vegetation protection controls.

**Figure 4 – Environmental overlay controls**



### State bushfire policy

State planning policy at clause 13.02-1S of the Planning Scheme is relevant for the project, as it applies to projects within the designated BPA. The objective of clause 13.02-1S is to:

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

In terms of settlement planning the policy seeks to:

- *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 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).*

- *Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.*
- *Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.*
- *Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reducing bushfire risk overall.*

In terms of policy guidelines, Clause 13.01-2S says that any applicable approved state, regional and municipal fire prevention plan could be considered relevant.

#### Local Bushfire policy

Clause 21.06-3 identifies that the Shire is at high risk of bushfire. The objectives at that clause include:

*To prioritise fire risk in planning decisions, avoid increasing bushfire risk and minimise exposure to bushfire risk.*

*To ensure that where development opportunities already exist, development in rural areas and on the fringes of urban areas is sited and designed to minimise risk from bushfire.*

#### Clause 71.02-3 (Integrated decision making)

The provisions at clause 71.02-3 explains how bushfire risk is integrated with other policy objectives.

*The Planning Policy Framework operates together with the remainder of the scheme to deliver integrated decision making. Planning and responsible authorities should endeavour to integrate the range of planning policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations. However, in bushfire affected areas, planning and responsible authorities must prioritise the protection of human life over all other policy considerations.*

#### Integrated bushfire hazard identification and mitigation

In Victoria the planning and building systems are integrated in how they deal with bushfire risk. The planning system is largely responsible for strategic decisions and decisions in areas

with more significant bushfire hazard. The building system is largely responsible for decisions on sites with lower levels of bushfire hazard. Mapping tools under the planning and building systems are used to designate the level of bushfire hazard.

#### Building system

In the building system, areas that are likely to be subject to bushfire are mapped in the designated Bushfire Prone Area (BPA) pursuant to Section 192A of the *Building Act 1993*. Areas designated as BPA areas that are exposed to lower levels of bushfire hazard – typically grassland environments and other bushfire prone areas where extreme bushfire behaviour is unlikely to be generated.

The BPA designation triggers a bushfire construction requirement under the National Construction Code 2016 (National Construction Code). A minimum construction standard of Bushfire Attack Level (BAL) – 12.5 applies in all parts the BPA.

#### Planning system

The planning system requires bushfire risk to be considered when developing land in the BPA and the BMO.

The BMO is a planning overlay control applied to areas that have the potential for more significant fire behaviour, such as a crown bushfire and extreme ember attack and radiant heat (DELWP 2017). These are the type of locations where the creation of new or expanded settlements should be avoided where possible and accordingly the mapping of the BMO has also used as an important input for the landscape scale bushfire assessment.

#### Australian Standard AS.3959-2018

*Australian Standard AS.3959-2018 – Construction of buildings in bushfire prone areas (2018) (AS.3959)* is used to determine the level of bushfire attack on buildings and to determine the appropriate separation distances from vegetation and construction response in the building system.

The standard underpins both the building system and many aspects of the planning system. For example, State policy at Clause 13.02 refers to different radiant heat exposure thresholds as calculated under AS.3959.

As part of any assessment of bushfire behaviour there are assumptions made based on vegetation type, slope and assumptions about the weather conditions under AS.3959.

#### **Vegetation classifications, slope and weather conditions**

AS.3959 models the likely fire behaviour using the following parameters:



- Vegetation classification
- Slope
- Weather conditions

Vegetation (bushfire hazard) is classified under AS.3959 based on how it is likely to influence fire behaviour, taking into account the type and structure of the vegetation. The different vegetation classifications (listed broadly in order of descending fire severity) include:

- Forest
- Woodland
- Shrubland
- Scrub
- Mallee/Mulga
- Rainforest
- Grassland

Some vegetation is excluded from any assessment under AS.3959 on the basis that it is assumed to have a minimal influence on fire behaviour (i.e. it is considered 'low threat').

Excluded vegetation includes:

- Single areas of vegetation less than 1 hectare in area and not within 100 metres of other classifiable vegetation.
- Multiple areas of vegetation less than 0.25 hectares in area and not within 20 metres of the site or each other.
- Strips of vegetation less than 20 metres in width and not within 20 metres of the site or each other or other areas of classifiable vegetation.
- Non-vegetated areas including waterways, roads, footpaths, buildings or rock outcrops.
- Low threat vegetation including managed grassland, maintained lawns, golf courses and public reserves.

#### [Guidance and practice notes](#)

The following practice notes and guidance have been published in relation to bushfire risk assessment:

- *Planning Practice Note 64: Local and Regional Strategic Directions for Bushfire (PPN 64)*
- *Design Guidelines: Settlement Planning at the Bushfire Interface (July 2020) (Bushfire Interface Guidelines)*



- *Technical Guide Planning permit Applications Bushfire Management Overlay*, Victorian Government, September 2017 (**BMO Technical Guide**)
- *Landscaping for Bushfire: Garden Design and Plant Selection* (Version 3) (CFA, undated)<sup>2</sup> (**Landscaping for Bushfire guide**)

### **Bushfire Interface Guidelines**

Council specifically resolved to include a response to these guidelines. A more detailed response will be provided in **section 6** of this report, however for context the guidelines apply to framework plans and settlement planning exercises (such as Gisborne Futures). The guidelines are used once the overall bushfire hazard is understood (as addressed in **section 5** of this report). There are three parts to the guidelines:

- Part 1 – Form and structure of settlements which considers:
  - Bushfire hazard in directing growth
  - Distribution of uses in the settlement
  - Lot sizes in settlement layout
  - Vegetated areas within a settlement.
- Part 2 – The settlement interface with the bushfire hazard
  - Apply the required development setback
  - Design the settlement interface
  - Access and egress
- Part 3 – Bushfire protection measures at the settlement scale which considers:
  - vegetation management
  - bushfire constructions standards
  - fences and other localised fuel sources

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<sup>2</sup> [file:///C:/Users/gabby/Downloads/CFA%20Landscaping%20for%20Bushfire%20\(Version%203\).pdf](file:///C:/Users/gabby/Downloads/CFA%20Landscaping%20for%20Bushfire%20(Version%203).pdf)

## 5. Bushfire hazard assessment

A bushfire hazard assessment is a factual assessment of the bushfire hazard and the likely forms of bushfire attack.

The bushfire hazard assessment has been prepared in three parts:

- a) Desktop review of factors affecting fire risk within the municipality, including a review of topography, vegetation and fire history (i.e. to consider the relative risks associated with Gisborne compared with other parts of the Shire).
- b) Bushfire hazard landscape assessment of the wider area (e.g. within 20km of the existing township).
- c) A bushfire hazard site assessment which assesses the vegetation and slope within approximately 150 metres of the Investigation areas.

All of these forms of hazard assessment take into account the different mechanisms of bushfire attack and how they might affect the proposed investigation areas and the existing township of Gisborne.

### Mechanisms of bushfire attack

As noted in DELWP's BMO Technical Guide there are up to five forms of bushfire attack that need to be taken into account when undertaking bushfire assessments. These are:

- ember attack
- radiant heat
- localised flame contact
- flame contact from the fire front
- extreme fire behaviour.

a) Bushfire hazard in the broader municipal context

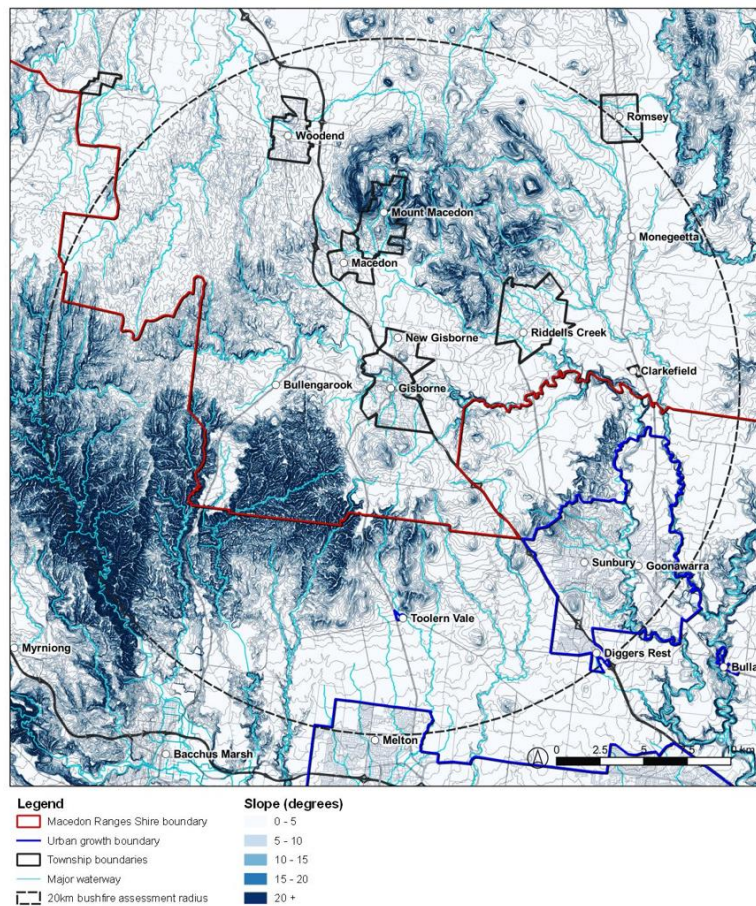
We have reviewed information relating to topography, ecological vegetation classifications, vegetation density and fire history to show the relative risk levels in Gisborne compared with other parts of the Shire.

**Topography and vegetation**

More extreme fire behaviour is expected in more rugged landscapes with more complicated topography and forested vegetation.

Figure 5 shows the topography in the broader area, including the more rugged terrain to the south west of Gisborne and in the parts of the Shire near Mount Macedon. There is relatively flatter land closer to Gisborne and New Gisborne, with the exception of some steeper slopes within the existing settlement and immediately to the south.

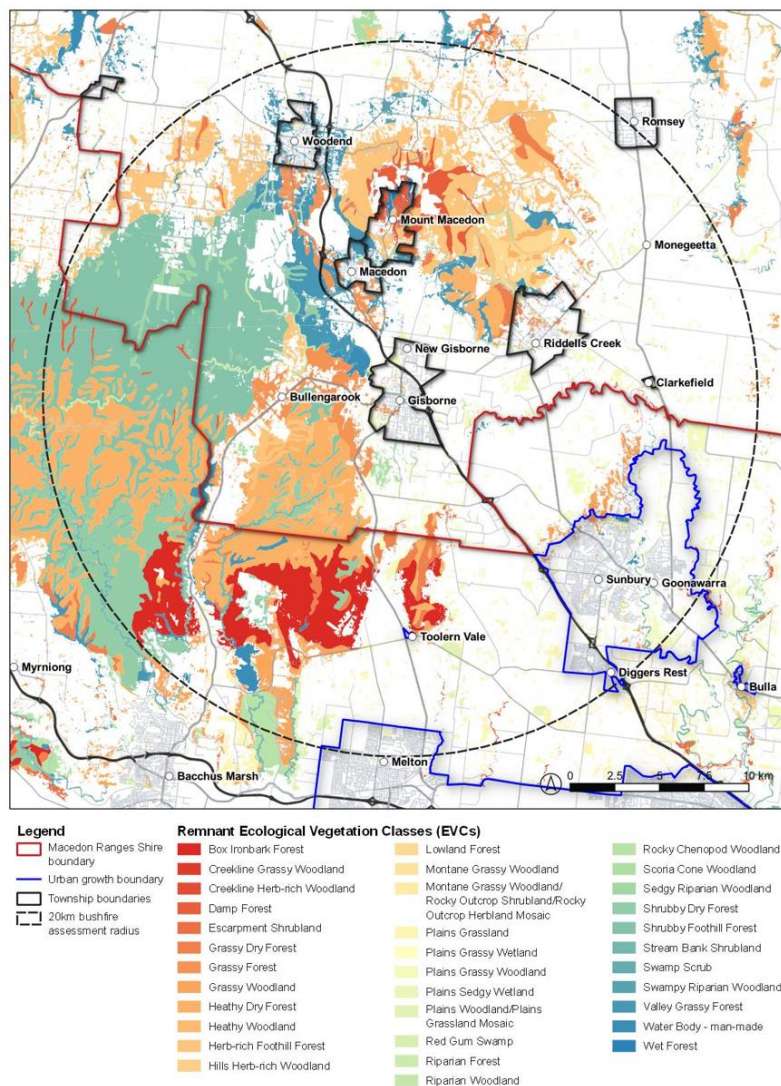
**Figure 5 – Slopes in the surrounding municipality**



To understand the relative risks, the slope information needs to be coupled with information about vegetation. Figure 6 and Figure 7 show the ecological classification of vegetation and tree density respectively.

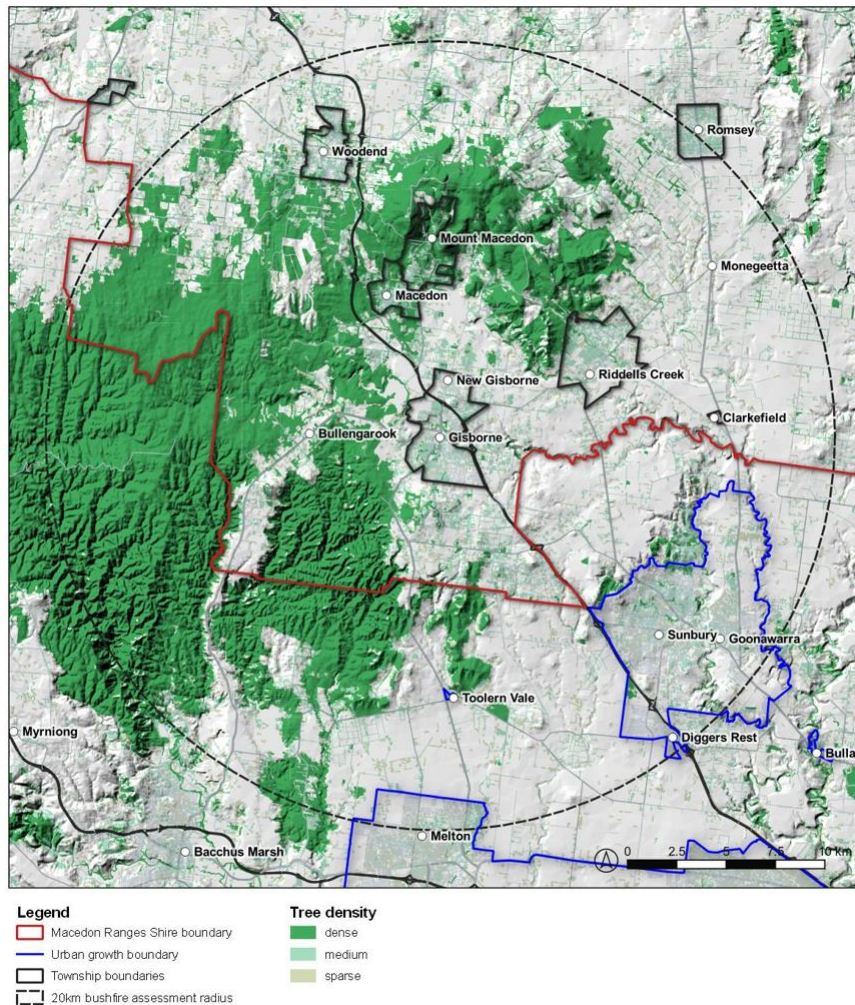
These figures show that the land closer to New Gisborne is the flattest land with the less amount of dense vegetation, compared with other settlements like Macedon, Mount Macedon, Woodend and Bullengarook.

**Figure 6 – Ecological Vegetation Classes (EVCs) 2005**





**Figure 7 – Tree density**

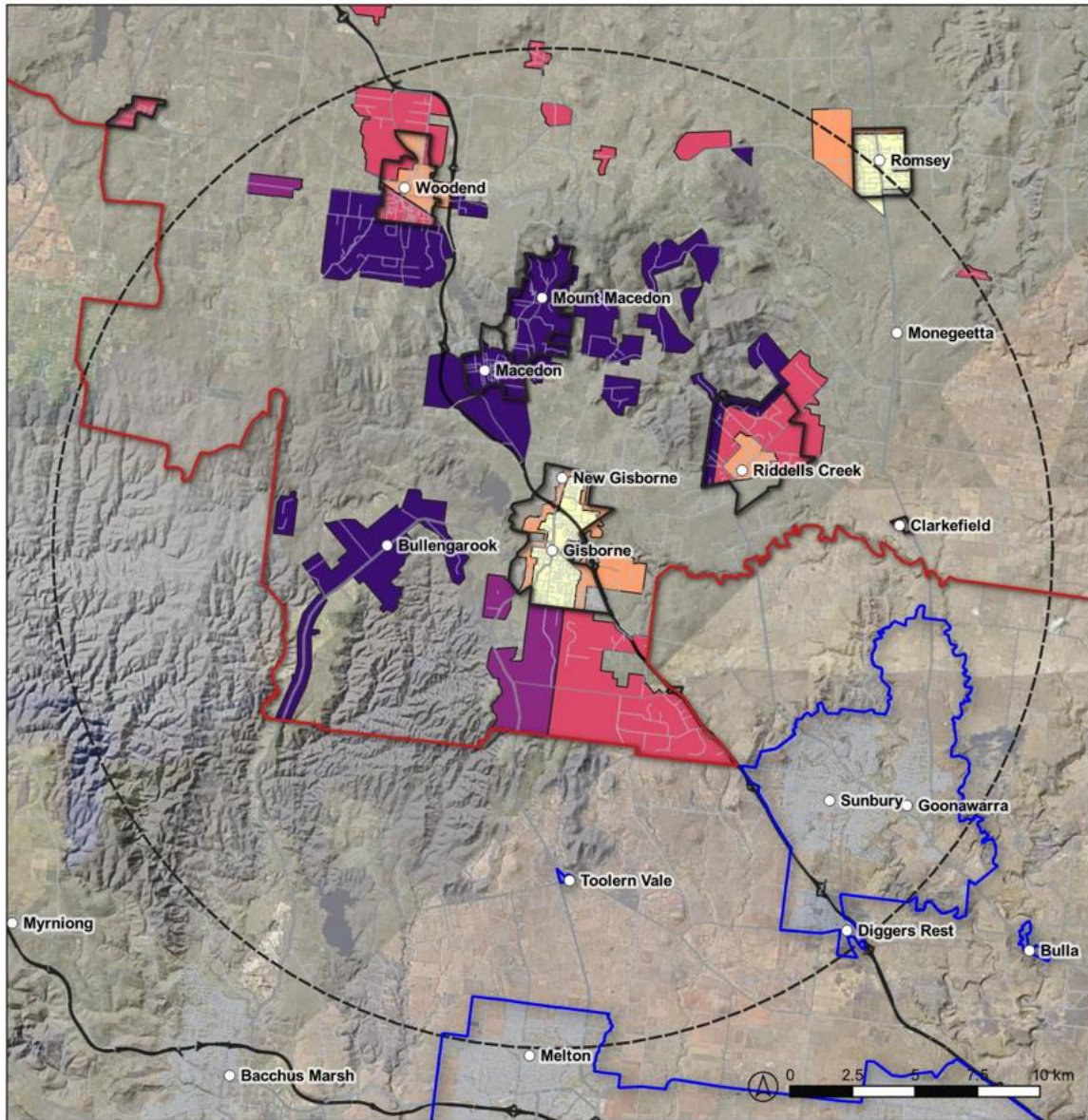


## Victorian Fire Risk Register

The Victorian Fire Risk Register provides an assessment of the vulnerability of existing settlements to bushfire. As shown in Figure 8, its notable that:

- Gisborne is largely a low risk location with some areas of medium risk to the east and west of the existing settlement. The areas immediately to the south of Gisborne are classified as high to very high risk.
- In contrast, the areas around Macedon and Mount Macedon are classified as extreme fire risk.
- Land to the north of Riddles Creek is classified as high and extreme risk
- Land to the south of Woodend is classified as extreme risk and the land to the north as high.

Figure 8 – Extract from Victorian Fire Risk Register



## **Fire history**

The fire history for the Shire shows that fires tend to be concentrated to the north west (Macedon Ranges) and south west (Blackwood Forest). There is limited fire history immediately surrounding Gisborne / New Gisborne.

## **Municipal Fire Management Plan**

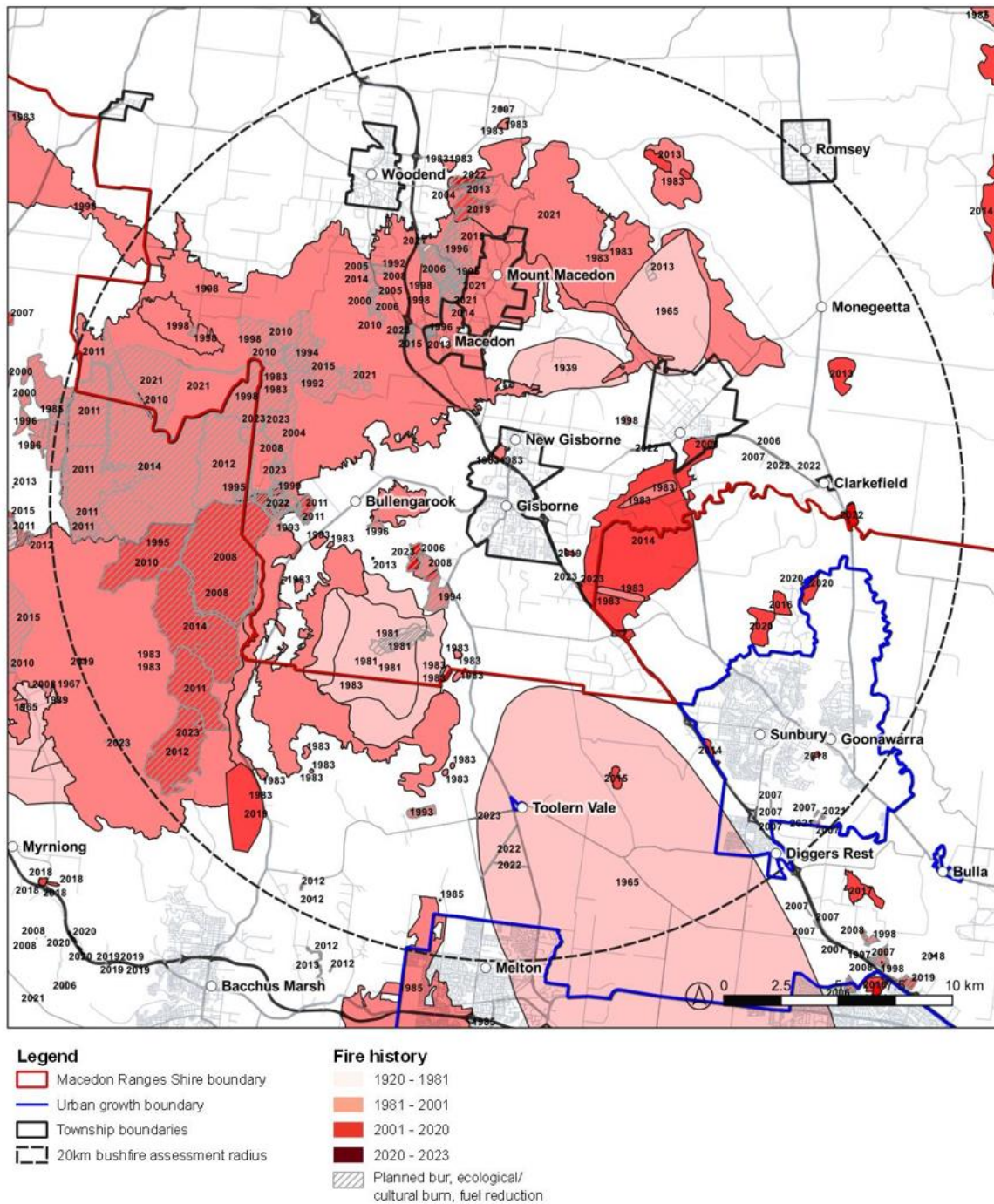
The *Municipal Fire Management Plan 2020-2023 (Municipal FMP)* was prepared by the Macedon Ranges Municipal Fire Management Planning Committee. This plan provides more specific direction for the Shire around risk and management activities.

The Municipal FMP included information from the Victorian Fire Risk Register (**VFRR**) which identifies risk levels in existing settlements (which has since been updated and shown in **Figure 8**).

Gisborne and New Gisborne are assigned a low risk in central areas and medium risk where there is an interface with surrounding unmanaged vegetation. Areas of high and very high risk area located to the south of Gisborne, and further afield to the north west and south west there are areas assigned an extreme risk level.



Figure 9 – Fire history map





### **Conclusion on relative risks within the municipality**

As shown in Figures 5 - 9, there are a number of factors that make Gisborne / New Gisborne a relatively lower risk location in the context of the Shire. There is less vegetation, less complicated topography and lower fire risk rating around Gisborne when compared to other larger towns like Woodend, Mount Macedon and Macedon. This is also reflected in the fact that historically Gisborne has been less affected by fires.

This does not mean that Gisborne has no bushfire risk, rather it is a lower bushfire risk location where it would be more preferable to direct development over other higher risk locations (e.g. like Macedon).

#### **b) Bushfire Hazard Landscape Assessment (within 20km)**

This part of the assessment focusses on the risks using the methodology set out in the BMO Technical Guide. This assessment builds on the information in the broader municipal wide assessment that identified Gisborne / New Gisborne a relatively lower risk location.

This majority of the Project area would be classified as broader landscape type two according to the BMO Technical Guide. These are landscapes where:

- *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*

There are some parts of the Project area (Investigation areas 8 and western parts of areas 4 and 5) which have a relatively higher landscape risk due to their proximity to the forested areas.

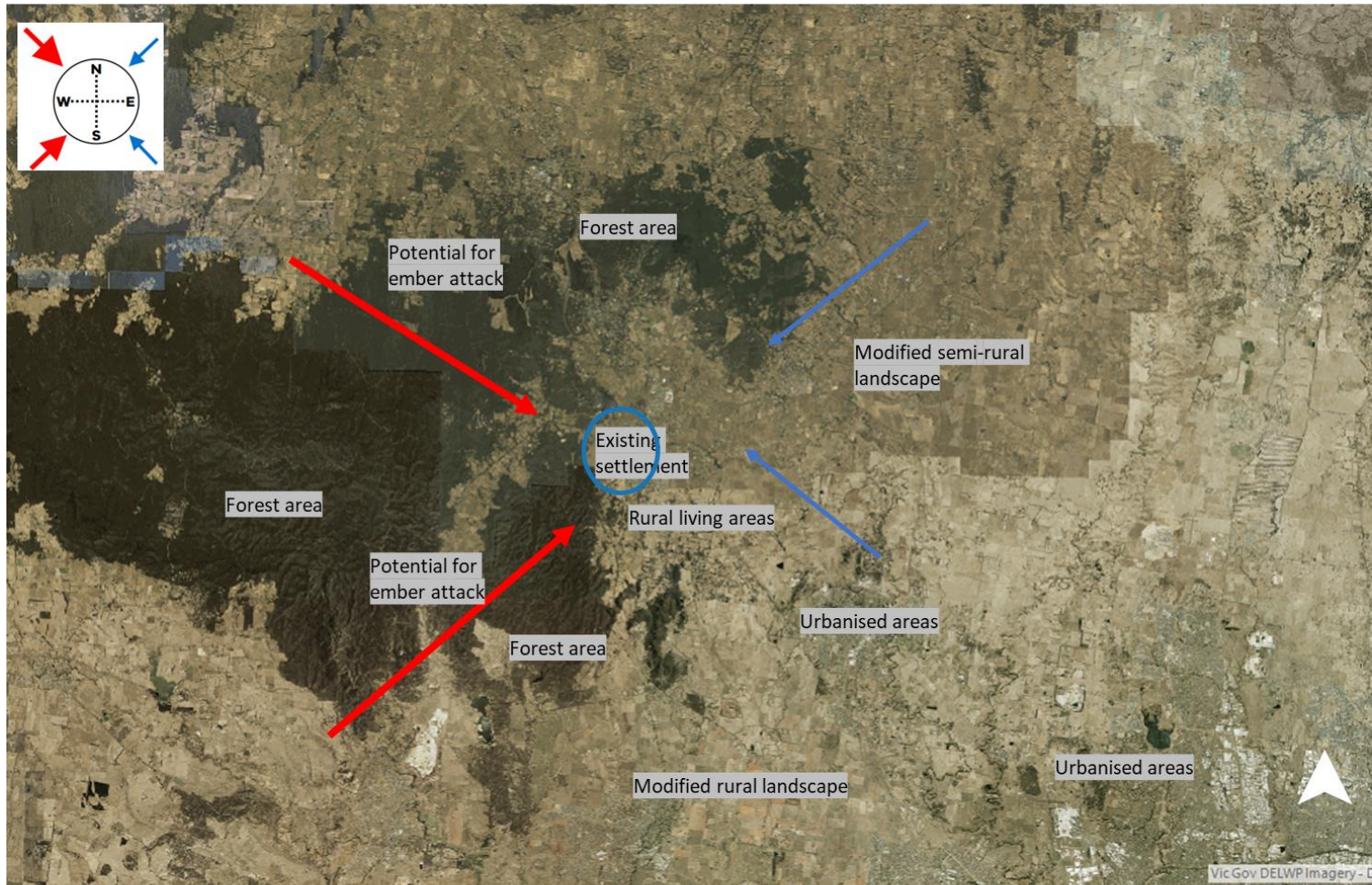
There are also areas to the south of Gisborne, which were excluded on the basis of its higher relative risk owing to forest vegetation, steeper topography and advice from the CFA. This approach is supported by the landscape scale assessment contained in this assessment report

Bushfire attack scenarios – based on proposed conditions

The most likely forms of fire behaviour that could impact the Project area generally are:

- Ember attack from a landscape scale fire that develops from the forested areas to the north, north west, west and south west of the Project area.
- Radiant heat and direct flame contact from a fast moving (but relatively lower intensity) grassfire that develops in paddocks surrounding and within the Project area.
- Radiant heat and direct flame contact from the woodland and forest areas with direct interfaces to the Project area.
- Localised flame contact or radiant heat from a fire that develops in any unmanaged vegetation within the Project area.



A bushfire hazard landscape assessment plan is provided at **page 27** of this report.



Plan prepared on 08/11/2022

**Bushfire Hazard Landscape Assessment**

Gisborne Futures Project Area

-  Project area
-  Main fire runs
-  Secondary fire runs



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c) Bushfire Hazard Site Assessment (within 150m)

State policy aims to ensure that new development can achieve a radiant heat exposure of less than 12/KW/sqm. This assessment uses the methodology in AS.3959 to determine what separation distance would be required to achieve this level of radiant heat exposure.

Methodology

Bushfire hazard within 150m of the Investigation areas were assessed based on desktop information, generally in accordance with sections 2.2.3 to 2.2.5 (Method 1) of *AS3959:2018 Construction of buildings in bushfire prone areas (AS.3959)*.

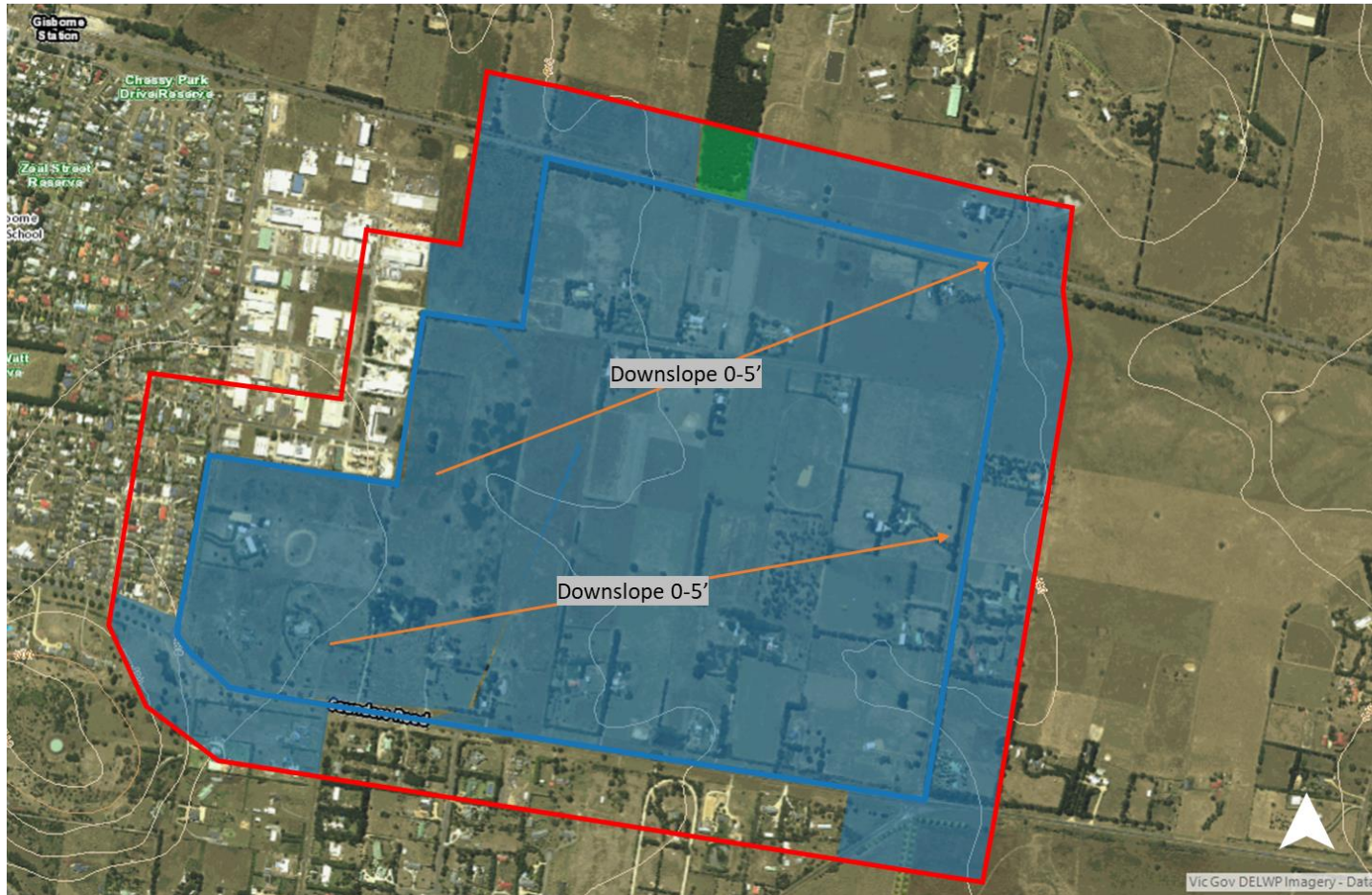
The site inspection was also conducted on 8 November 2022. However, the purpose of the site assessment was to get a more general understanding of the Investigation areas, terrain, access and interfaces with surrounding land uses.

Desktop site assessment

Photographs of the Investigation areas are at **pages 37 – 40** of this report.

The outcomes of the desktop site assessments are shown on maps at **pages 29-36** of this report.







Prepared on 02/10/23 (Site inspection conducted on 8/11/2022)

### Bushfire Hazard Site Assessment

Investigation Area 1

-  Subject site
-  150m assessment area

### Classified vegetation

-  Forest
-  Woodland
-  Shrubland
-  Scrub
-  Grassland
-  Modified vegetation



Note – unshaded vegetation on the plan has been classified as low threat according to AS3959



Prepared on 17/11/22 (Site inspection conducted on 8/11/2022)

### Bushfire Hazard Site Assessment

Investigation Area 2

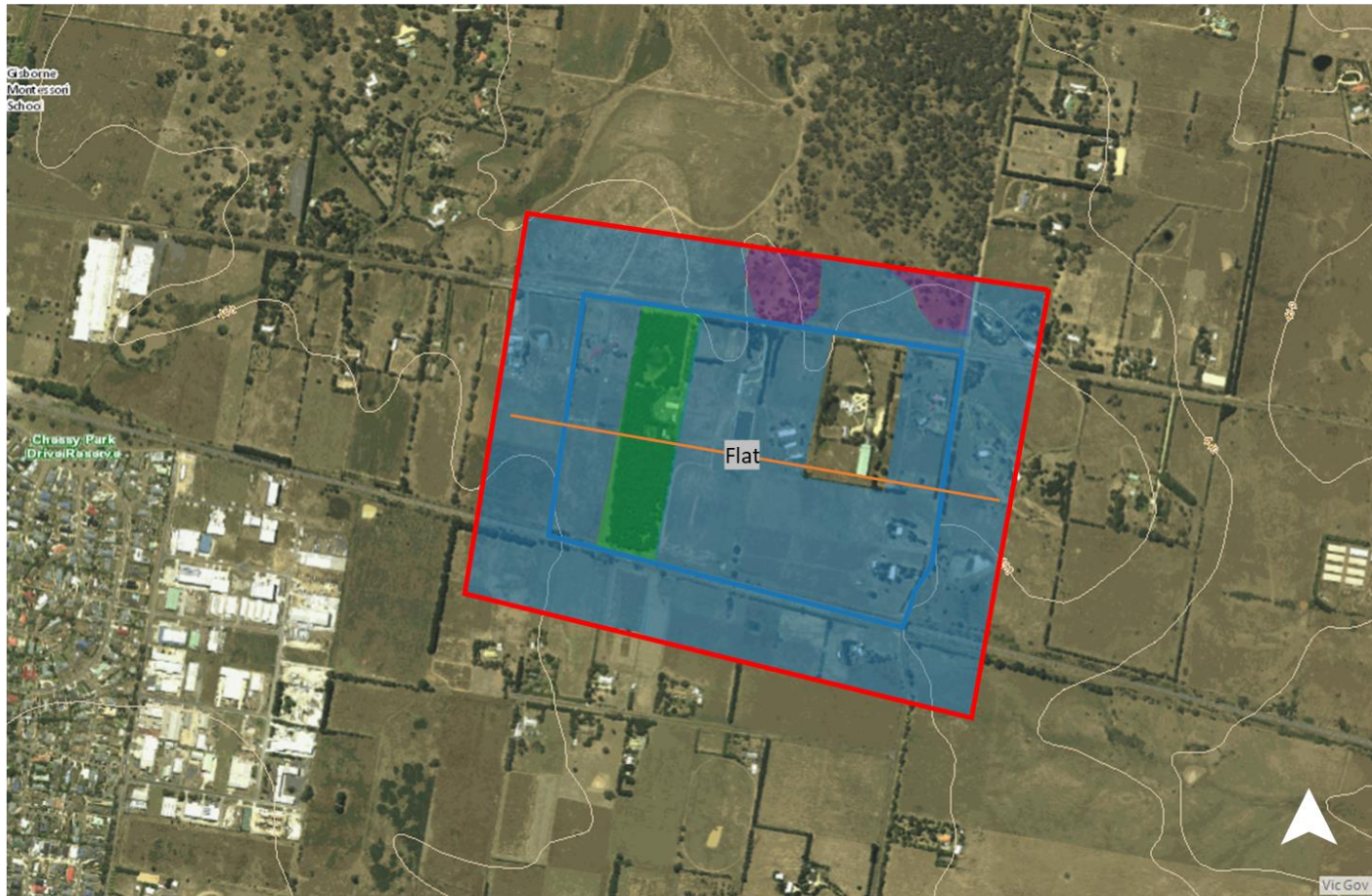
-  Subject site
-  150m assessment area

### Classified vegetation

-  Forest
-  Woodland
-  Shrubland
-  Scrub
-  Grassland
-  Modified vegetation

Note – unshaded vegetation on the plan has been classified as low threat according to AS3959





Prepared on 17/11/22 (Site inspection conducted on 8/11/2022)

### Bushfire Hazard Site Assessment

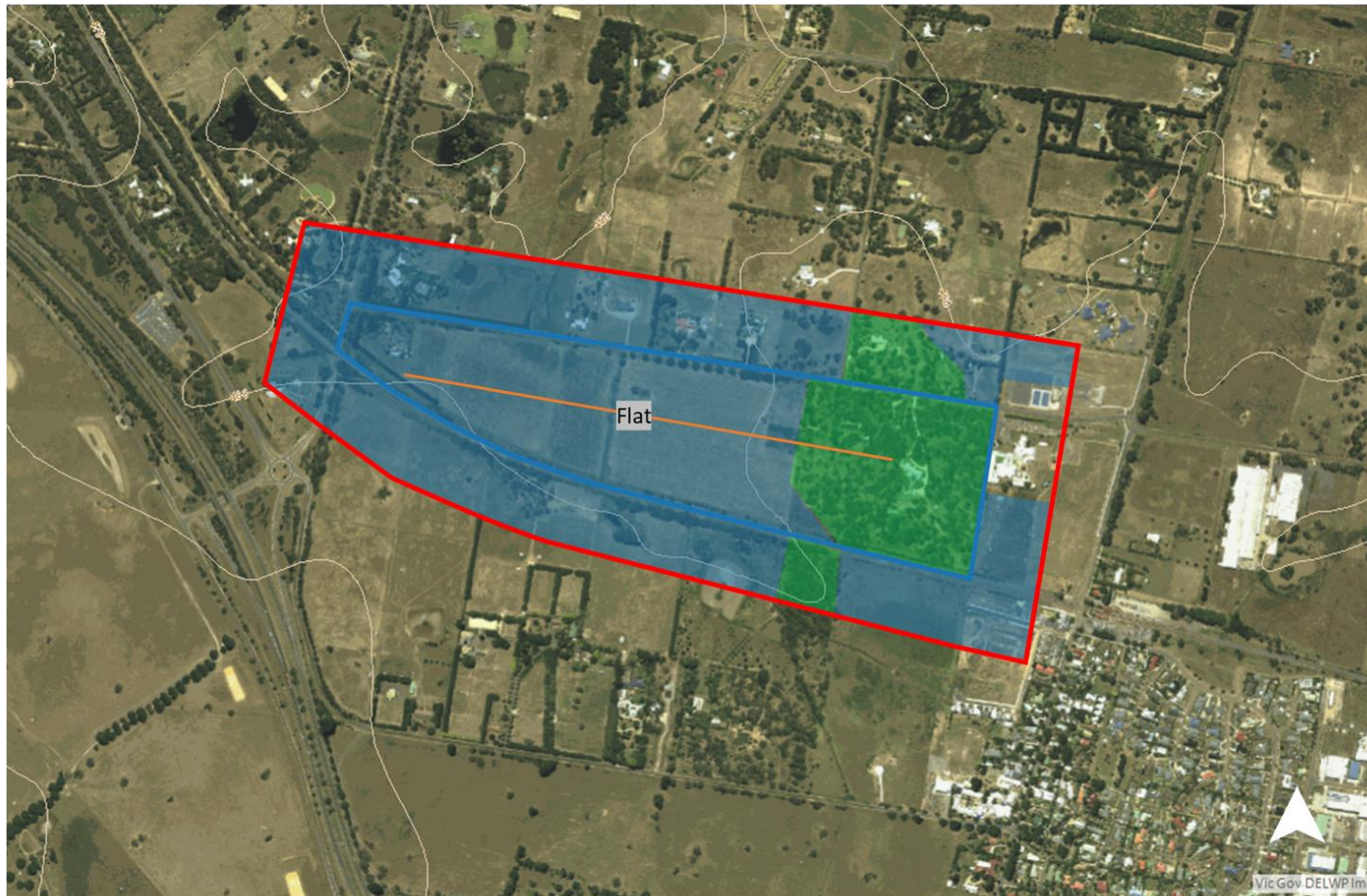
Investigation Area 3

- Subject site
- 150m assessment area

#### Classified vegetation

- Forest
- Woodland
- Shrubland
- Scrub
- Grassland
- Modified vegetation

Note – unshaded vegetation on the plan has been classified as low threat according to AS3959



Prepared on 17/11/22 (Site inspection conducted on 8/11/2022)

### Bushfire Hazard Site Assessment

Investigation Area 4

- Subject site
- 150m assessment area

### Classified vegetation

- Forest
- Woodland
- Shrubland
- Scrub
- Grassland
- Modified vegetation

Note – unshaded vegetation on the plan has been classified as low threat according to AS3959







Prepared on 17/11/22 (Site inspection conducted on 8/11/2022)

### Bushfire Hazard Site Assessment

Investigation Area 5

-  Subject site
-  150m assessment area

#### Classified vegetation

-  Forest
-  Woodland
-  Shrubland
-  Scrub
-  Grassland
-  Modified vegetation

Note – unshaded vegetation on the plan has been classified as low threat according to AS3959





Prepared on 17/11/22 (Site inspection conducted on 8/11/2022)

### Bushfire Hazard Site Assessment

Investigation Area 6 & 7

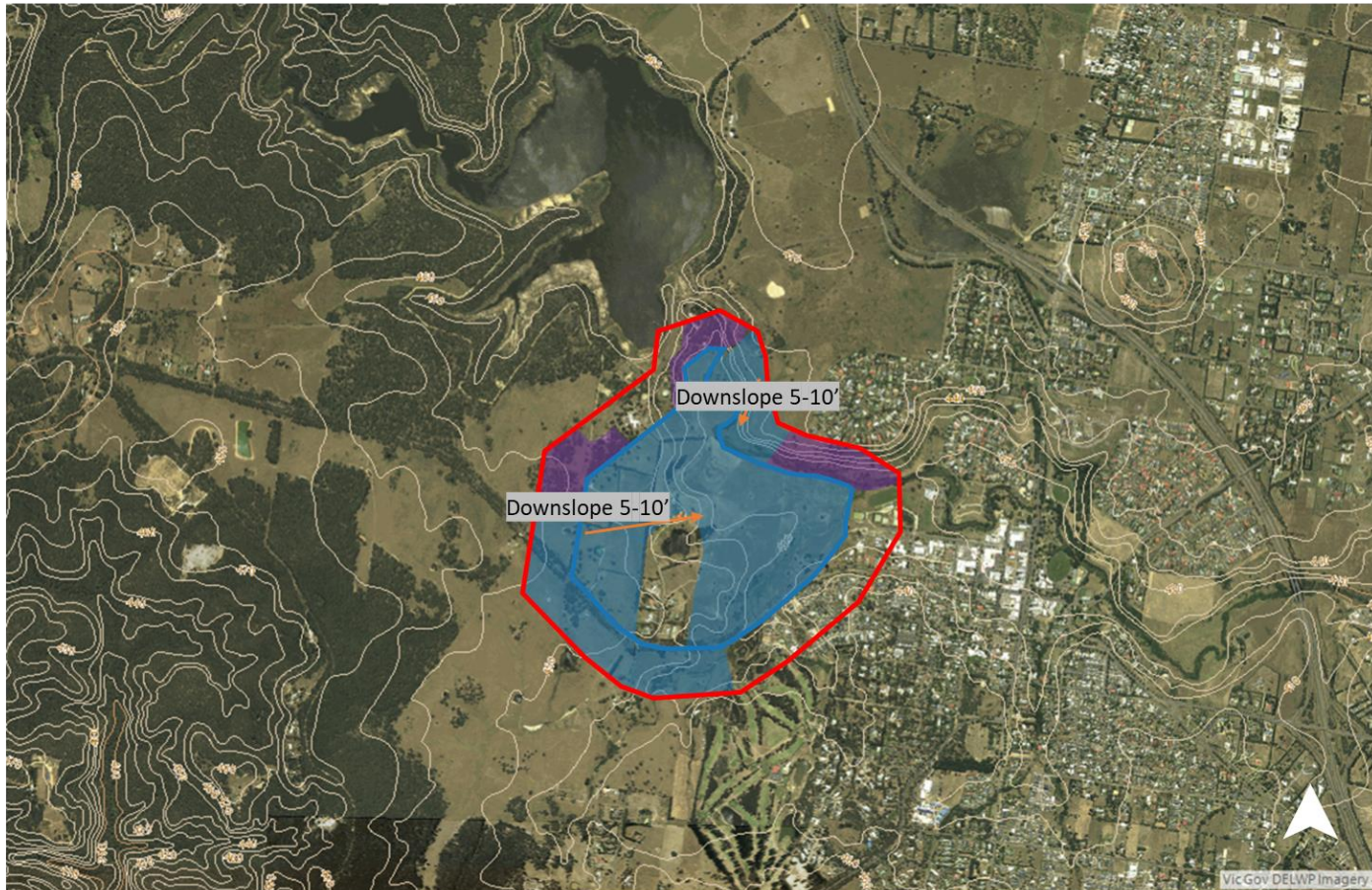
- Subject site
- 150m assessment area

### Classified vegetation

- Forest
- Woodland
- Shrubland
- Scrub
- Grassland
- Modified vegetation

Note – unshaded vegetation on the plan has been classified as low threat according to AS3959





Prepared on 17/11/22 (Site inspection conducted on 8/11/2022)


**Bushfire Hazard Site Assessment**  
Investigation Area 8

- Subject site
- 150m assessment area

**Classified vegetation**

- Forest
- Woodland
- Shrubland
- Scrub
- Grassland
- Modified vegetation

Note – unshaded vegetation on the plan has been classified as low threat according to AS3959



TERRALOGIC





Prepared on 17/11/22 (Site inspection conducted on 8/11/2022)

### Bushfire Hazard Site Assessment

Investigation Area 9

- Subject site
- 150m assessment area

### Classified vegetation

- Forest
- Woodland
- Shrubland
- Scrub
- Grassland
- Modified vegetation

Note – unshaded vegetation on the plan has been classified as low threat according to AS3959



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**Photo 1** – Area 1 view from Pierce Road looking north west



**Photo 2** – Area 1 view of interface to east on Pierce Road



**Photo 3** – Area 1 view from train tracks looking north



**Photo 4** – Area 1 view from industrial area looking east



**Photo 5** – Area 1 view from Hamilton and Pierce looking north



**Photo 6** – Area 2 view south to New Gisborne Station





**Photo 7** – Areas 2 looking north east



**Photo 8** – Area 2 looking north



**Photo 9** – Area 2 northern interface (along Hamilton Road)



**Photo 10** – Area 3 view from Govans Lane looking south west



**Photo 11** – View from Govans Lane looking west (woodland)



**Photo 12** – Area 3 looking west across horse paddocks





**Photo 13** – Area 3 plantation



**Photo 14** – Area 3 view to the north



**Photo 15** – Area 4 view west with VPO affected land



**Photo 16** – Area 4 view looking west at end of Hamilton



**Photo 17** – Area 4 view to the north of the VPO land



**Photo 18** – Area 4 – Hamilton Road (looking east)



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**Photo 19** – Area 5 on Ferrier Road showing existing interface



**Photo 20** – Area 5 view south from Ferrier Road



**Photo 21** – Example of new estate (Hovell Grove)





## 6. Risk assessment & Bushfire Interface Guidelines

### State and local planning policy

State policy at Clause 13.02-1S and the BMO Technical Guide sets out the factors that influence bushfire risk and strategies for settlement planning. These factors are mirrored in the general strategies in the local policy at Clause 21.06-3 that also to prioritise fire risk in planning decisions, avoid increasing bushfire risk and minimise exposure to bushfire risk.

The following section of this report includes a response to the relevant policy objectives.

### Clause 13.01-2S

Settlement planning strategies	Response
<ul style="list-style-type: none"> <li>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 3959-2009 <i>Construction of Buildings in Bushfire-prone Areas</i> (Standards Australia, 2009).</li> <li>Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 <i>Construction of Buildings in Bushfire-prone Areas</i> (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.</li> <li>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.</li> <li>Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reducing bushfire risk overall.</li> <li>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.</li> <li>Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.</li> <li>Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS 3959-2009 <i>Construction of Buildings in Bushfire-prone Areas</i> (Standards Australia, 2009).</li> </ul>	<p>In August 2022, Council resolved to focus on Investigation areas 1 – 5 which are located to the north, north east and east of New Gisborne. Originally there were 9 Investigation areas identified for consideration (which have all been reviewed as part of this assessment, with a focus on areas 1 - 5). The higher risk areas to the south of Gisborne were avoided on the basis that land to the north and east was relatively lower risk (e.g. settlement scale avoidance).</p> <p><b>Lower risk locations (*more detail below)</b></p> <p>In terms of directing population growth to low risk areas, the starting point would be directing growth within the existing settlement boundary.</p> <p>Notably the existing development pattern within New Gisborne and Gisborne is relatively low density. The lowest bushfire risk location would be infill development.</p> <p>After infill development, Investigation areas 1 and 2 and parts of Investigation area 3, 4 and 5 (where there is not a direct interface with forest or woodland) should be prioritized next.</p> <p>The highest risk Investigation areas include the western parts of Investigation area 4 and 5 and any areas with a direct interface with a woodland or forest vegetation. These areas should be lowest priority. However, notably this risk assessment is relative to other parts of the investigation areas and the risks can be mitigated.</p> <p><b>Access</b></p> <p>Investigation areas 1 – 5 all have good access and egress, with areas 2 and 4 having particularly good access in many directions. They can access the</p>

	<p>existing town centres and good road and train networks.</p> <p><b>No net increase in risk</b>  Subject to the implementation of appropriate structure planning details, all 5 Investigation areas could be designed to create no net increase in risk. The bushfire risk impacting on the Project area has been considered and based on the preliminary desktop assessment it would be feasible for all new development (residential and commercial) to achieve a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959.</p> <p><b>Alternative low risk locations</b>  <u>Municipal scale</u> - There are few lower risk locations around established regional centres in the Shire. At a municipal scale Gisborne represents a lower risk location (<b>Figure 6 -10</b>). There are limited alternatives for a settlement expansion in other parts of the Shire.</p> <p><u>Settlement scale</u> - In August 2022, Council resolved to focus on Investigation areas 1 – 5 which are located to the north, north east and east of New Gisborne. Originally there were 9 Investigation areas identified for consideration (which have all been reviewed as part of this assessment, with a focus on areas 1 - 5).</p> <p>The higher risk areas to the south of Gisborne were avoided on the basis that land to the north and east was relatively lower risk (e.g. settlement scale avoidance).</p>
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**\*What is considered a lower risk location?**

DTP provides advice on its website about what constitutes low risk locations (e.g. as per Strategy 2 in Clause 13.02-1S). These are locations that:

- will not be subject to large landscape-scale bushfires
- have safe areas, where people can safely move to and that provide protection from the harmful effects of flame contact and radiant heat
- have land that will receive radiant heat at lower levels
- can demonstrate that proposed bushfire protection measures can be adequately implemented. For example, vegetation can be managed on an ongoing basis
- can demonstrate that by applying bushfire protection measures, bushfire can be managed.

The lowest risk location is the infill areas within the existing settlement. This is land where there is limited classified vegetation, areas that are unlikely to be impacted by landscape scale fires (except for ember attack) and can expect lower levels of radiant heat exposure if a fire did ignite. This is also an established urban area where existing vegetation (including parks and linear reserved) can feasibly managed in a low threat manner).

The next best lower risk location, in terms of the investigation areas, are investigation areas 1 and 2 and parts of Investigation area 3, 4 and 5 (where there is not a direct interface with forest or woodland). These are areas which are likely to be exposed to grassland fires, with some localized spotting from individual trees in the landscape. This is a relatively easy risk to manage through perimeter roads and appropriate setbacks. As outlined above, we recommend that after infill development, growth should be prioritized in these location first.

**Clause 21.06-3**

Policy objectives	Response
<ul style="list-style-type: none"> <li>To prioritise fire risk in planning decisions, avoid increasing bushfire risk and minimise exposure to bushfire risk.</li> <li>To ensure that where development opportunities already exist, development in rural areas and on the fringes of urban areas is sited and designed to minimise risk from bushfire.</li> </ul>	<p>This assessment takes into account the likely bushfire behaviour and risk associated with the Project area. Areas 1 – 5 have a relatively low bushfire risk exposure in the context of the Shire and the region.</p> <p>As outlined above, as a starting point infill development would be the lowest risk location, following by directing development immediately to the north of New Gisborne or north east (e.g. Investigation areas 1 and 2).</p> <p>Subject to the implementation of appropriate structure planning details, all five (5) Investigation areas could be designed to minimise the risk on the fringe / interface with rural areas.</p>

**Bushfire Interface Guidelines**

The Bushfire Interface Guidelines provide a structured process for assessment settlement plans, such as Gisborne Futures.

- Understanding the bushfire hazard
- Part 1 – Form and structure of settlements which considers:
- Part 2 – The settlement interface with the bushfire hazard
- Part 3 – Bushfire protection measures at the settlement scale which considers:
- Implementation

The following section in the report provides a response to Parts 1 -3 of the guidelines, with specific comments on Investigations areas 1 – 5.

## Understanding the threat - Bushfire hazard and likely fire behaviour

In **section 5** of this report the bushfire hazard and likely fire behaviour was assessed. It is anticipated that the most likely forms of fire behaviour that could generally impact the Project area include:

- Ember attack from a landscape scale fire that develops from the forested areas to the north, north west, west and south west of the Project area.
- Radiant heat and direct flame contact from a fast moving (but relatively lower intensity) grassfire that develops in paddocks surrounding and within the Project area.
- Radiant heat and direct flame contact from the woodland and forest areas with direct interfaces to the Project area.
- Localised flame contact or radiant heat from a fire that develops in any unmanaged vegetation within the Project area.

### Part 1 – Form and structure of settlements

Guideline considerations	Response
<ul style="list-style-type: none"> <li>• Settlement planning should direct growth to locations that are less exposed to a bushfire</li> <li>• The distribution of land uses in the settlement should consider bushfire risk. Vulnerable uses should be located away from interface areas and hazardous uses (that present an ignition risk) should be located away from interfaces and or where they are exposed to a north west of south west bushfire.</li> </ul>	<p>As outlined above, when directing new settlements to low risk areas (e.g. areas less exposed to bushfire), the starting point would be directing growth within the existing settlement boundary. Notably the existing development pattern within New Gisborne and Gisborne is relatively low density. The lowest bushfire risk location would be infill development.</p> <p>After infill development, Investigation areas 1 and 2 and parts of Investigation area 3, 4 and 5 (where there is not a direct interface with forest or woodland) should be prioritized next. The highest risk Investigation areas include the western parts of Investigation area 4 and 5 and any areas with a direct interface with a woodland or forest vegetation. These areas should be lowest priority. However, it should be noted in the wider context of the Shire and region, the area around Gisborne is relatively low risk.</p> <p>As part of the structure planning process, the vulnerability or risk associated with uses should be considered. These are principles that could be incorporated into the Urban Design Framework and any guidelines that direct future decisions about land use distribution. For example, vulnerable and hazardous uses should not be positioned at the western end of Investigation areas 4 and 5 as these have the greatest exposure to the forest areas in the north west.</p>



<ul style="list-style-type: none"> <li>• Lot sizes should be considered in the context of their capacity to enable fuel sources (vegetation) in the landscape.</li>   <li>• Vegetated areas within a settlement should be designed to minimise bushfire risk.</li> </ul>	<p>The size of future lots will influence the extent of fuel (e.g. vegetation) in the landscape and the ability to provide structural separation between buildings. It is not appropriate to specify lot sizes at this stage, however it is assumed that higher density lots would be proposed in the Investigation areas.</p> <p>The Guidelines indicate that lots ranging between 800sqm and 1,200sqm is a good balance, however this needs to be balanced against the principle that more lots should be located in lower risk areas. If larger lots (e.g. 0.2 - 4ha) are proposed, ideally these areas should not be located on the western end of Investigation areas 4 and 5 or interface areas. Any smaller lots should be located in the lower risk areas (i.e. Investigation areas 1 and 2 and parts of Investigation area 3, 4 and 5 [where there is not a direct interface with forest or woodland]) Principles could be incorporated into the Urban Design Framework and any guidelines that direct future decisions about lot size and its distribution.</p> <p>There are existing reserves, plantations and conservation areas within some of the Investigation areas. Where these areas are proposed to be managed for conservation purposes (e.g. unmanaged fuels) the structure plan should incorporate perimeter roads. Any more traditional parks or open space areas should be designed to meet the definition of low threat under AS3949 or adopt the principles in CFA's Landscaping for Bushfire guide. Principles could be incorporated into the Urban Design Framework and Landscape plans that direct future decisions about the interface between unmanaged and managed vegetation.</p>
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## Part 2 – The settlement interface

Guidelines considerations	Response																					
<ul style="list-style-type: none"> <li>Apply the required setback</li> </ul>	<p>It is premature to determine the exact setback requirement for development in the Investigation areas, however based on the desktop assessments completed to date it looks like there will be a range of setbacks required. The table below outlines several setback scenarios to achieve a radiant heat radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959.</p> <table border="1"> <thead> <tr> <th>Vegetation type</th> <th>Slope</th> <th>Setback</th> </tr> </thead> <tbody> <tr> <td>Grassland</td> <td>Flat or upslope</td> <td>19m</td> </tr> <tr> <td>Grassland</td> <td>0-5 degrees downslope</td> <td>22m</td> </tr> <tr> <td>Woodland</td> <td>Flat or upslope</td> <td>33m</td> </tr> <tr> <td>Woodland</td> <td>0-5 degrees downslope</td> <td>41m</td> </tr> <tr> <td>Forest</td> <td>Flat or upslope</td> <td>48m</td> </tr> <tr> <td>Forest</td> <td>0-5 degrees downslope</td> <td>57m</td> </tr> </tbody> </table> <p>A more detailed assessment would be required at the time the structure plans are developed.</p>	Vegetation type	Slope	Setback	Grassland	Flat or upslope	19m	Grassland	0-5 degrees downslope	22m	Woodland	Flat or upslope	33m	Woodland	0-5 degrees downslope	41m	Forest	Flat or upslope	48m	Forest	0-5 degrees downslope	57m
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Forest	Flat or upslope	48m																				
Forest	0-5 degrees downslope	57m																				
<ul style="list-style-type: none"> <li>Design the settlement interface to include low threat vegetation or a perimeter road</li> </ul>	<p>Given the scale of the Investigation areas and this project, there is an opportunity to embed perimeter roads on all sensitive interfaces (e.g. where there is a direct abuttal to unmanaged vegetation). In addition, it is expected that with a higher density of development, vegetation would be managed in a low threat state (subject to lot layout / appropriate sizes) as discussed above.</p> <p>In particular it would be prudent to include well managed open space (e.g. sports fields) in the western parts of Investigation areas 4 and 5 to manage threat from the north west. Principles could be incorporated into the Urban Design Framework and any guidelines for structure planning that required these interface measures.</p>																					
<ul style="list-style-type: none"> <li>Design of access and egress should allow people living close to the interface to move away easily</li> </ul>	<p>The future layout of the road layout should provide connectivity through any new growth areas to allow multiple access points away from the hazards. Principles could be incorporated into the Urban Design Framework and any guidelines for structure planning that required good access design. Appropriate access for emergency service vehicles should also be made available during the construction phases.</p>																					

## Part 3 – Bushfire protection measures across a whole site

Guidelines considerations	Response
<ul style="list-style-type: none"> <li>Vegetation should be managed to a standard commensurate with the risk</li> </ul>	<p>The Project area is located outside of the BMO, as such mandatory defendable space requirements will not apply (and are not considered necessary in this context or at this stage of the project). There may be instances where the conservation areas or other linear reserves needs to be managed to reduce risk, but these decisions need to be integrated with other considerations such as perimeter roads, the lot layout and bushfire threats in that location. It is expected that most of the areas will</p>

<ul style="list-style-type: none"> <li>• Construction standards should be considered</li>   <li>• Fences and other localised fuels sources should be considered</li> </ul>	<p>ultimately be developed with higher density dwellings and commercial uses where vegetation is expected to be managed in a low threat state. As outlined above, principles could be incorporated into the Urban Design Framework or Landscape plans to consider.</p> <p>The entire Project area is within the designated BPA and as such a BAL assessment will be required for all new residential development. A minimum construction standard of BAL-12.5 applies which will protect from embers.</p> <p>It is premature to provide specific detail on fencing, but the Urban Design Framework or Landscape plans should consider the impact of fencing and other landscape features on bushfire risk. Ideally brush fences should be avoided and colourbond or post and wire fences are preferred.</p>
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## 7. Recommended bushfire mitigation measures

Based on the outcomes of the bushfire hazard assessment, risk assessment and policy response the following recommendations are made:

### Investigations area prioritisation

- Initially, development should be directed to infill areas within the established settlements. This represents the lowest bushfire risk location. The existing subdivision pattern within New Gisborne and Gisborne is relatively low density and provides an opportunity for infill.
- After infill development, Investigation areas 1 and 2 and parts of Investigation area 3, 4 and 5 (where there is not a direct interface with forest or woodland) should be prioritised next.
- The highest risk Investigation areas include the western parts of Investigation area 4 and 5 and any areas with a direct interface with a woodland or forest vegetation. These areas should be lowest priority.

### Principles and guidance to integrate

- The Structure Plan, Urban Design Framework and any future landscape guidelines needs to integrate bushfire protection measures including principles or requirements relating to the following matters (which are based on the *Settlement Planning at the Bushfire Interface* (DELWP, July 2020)):
  - Appropriate land use distribution should be provided within any new precinct, including:
    - avoid positioning any vulnerable uses (e.g. hospitals, aged care facilities) or hazardous uses (e.g. petrol stations) on the interface or in the western part of Investigation areas 4 or 5.
    - consider the inclusion of a well-managed open space (e.g. sports fields) in the western parts of Investigation areas 4 and 5 to manage threat from the north west.
  - Lot sizes should be considered in the context of their capacity to enable fuel sources (vegetation) in the landscape.
    - Smaller lots (e.g. less than 800 sqm) should be positioned in the lowest risk parts of new precinct (e.g. the central parts of



- 
- Investigation areas 1 and 2 and parts of Investigation area 3, 4 and 5 [where there is not a direct interface with forest or woodland])
- If larger lots (e.g. between 0.2 - 4ha) are proposed, ideally these areas should not be located on the western end of Investigation areas 4 and 5 or interface areas.
  - Appropriate setbacks should be provided to achieve a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959 for new dwellings, and possibly lower exposure for vulnerable uses.
  - Vegetated areas in the new settlement areas should be designed to minimise bushfire risk where practicable (e.g. new open space areas and street planting designed to achieve a low threat standard under AS3959 or adopt the principles in CFA's Landscaping for Bushfire Guide). It is acknowledged that in some areas designated for conservation purposes this standard may not be possible.
  - The design of the settlement interface should include a perimeter road and low threat vegetation, such as:
    - Perimeter roads where there is a direct interface with existing forest or woodland, or where new conservation areas are proposed.
    - Parks should be designed using the principles in CFA's Landscaping for Bushfire guide.
  - The design of access and egress should allow people living close to the interface to move away easily, including:
    - Connectivity between established areas (and key access routes) and new precinct, ensuring people can access lower threat areas (e.g. established suburbs).
    - Roads that are designed to accommodate emergency service vehicles.
  - Any new vegetation, fencing structures or landscape should be managed to a standard commensurate with the bushfire risk. For example, brush fences should be avoided and colourbond or post and wire fences are preferred.
  - Appropriate construction standards will need to be assessed at an appropriate time, however given appropriate setbacks and perimeter roads will be integrated into the layout of new precincts it is expected that this would only need to be addressed at the building stage.

### **Staging and construction**

- The following matters should be considered as they relate to the staging and construction phases of any new settlement:

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- The staging of any new development should consider the risk at the interface. The staging should minimise direct exposure to an interface with unmanaged vegetation. Where there is a direct interface on the development front, 100m buffer should be managed in a low threat state during the construction phase. For example, grass should be short cropped and maintained during the declared fire danger period, shrubs should not be located under the canopy of trees, trees should not overhang or touch any elements of the building and the canopy of any trees should be separated by at least 5 metres.
  - Throughout the construction phase, access roads should be constructed in association with the relevant stage to allow safe access for early residents, construction workers and emergency service personnel.

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## 8. Conclusion

As part of the Gisborne Futures project Council has identified several Investigation areas for future growth in Gisborne and New Gisborne. It is expected that the Gisborne Futures will establish a protected urban settlement boundary for Gisborne in line with the Statement of Planning Policy in the Planning Scheme.

Strategically, Gisborne and New Gisborne (and land to the north and north east) are relatively low bushfire risk locations. Broader risk assessment, vegetation mapping, topography mapping and fuel management plans all show this land as lower risk. This is not to say there is no risk, as it is anticipated that all of the Investigations areas could be subjected to ember attack, fast moving grass fires and localised flame contact and radiant heat exposure. However, all of these bushfire risks can be mitigated with appropriate structure plan design in each of the Investigation areas.

Subject to the recommendations in **section 7** of this report, it is considered that the Gisborne Futures project can meet the relevant requirements in the Planning Scheme including the policy objectives at Clause 13.02-1S and Clause 21.06-3 and the Bushfire Interface Guidance published by DELWP.



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## 9. References

Advisory Note 46, Bushfire Management Overlay Mapping Methodology and Criteria, Victorian Government, August 2013

*Design Guidelines: Settlement Planning at the Bushfire Interface*, DELWP, July 2020

Landscaping for Bushfire: Garden Design and Plant Selection (Version 3), CFA, undated.

*Planning Practice Note 64: Local and Regional Strategic Directions for Bushfire*

Technical Guide Planning permit Applications Bushfire Management Overlay, Victorian Government, September 2017

Standards Australia 2018. Australian Standard AS.3959-2018 – Construction of buildings in bushfire prone areas (AS.3959-2018), Council of Australian Standards.

