# Surf Coast Shire Strategic Bushfire Assessment Final Report

11 July 2023 Version 1.2

Prepared for:

Surf Coast Shire Council

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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.

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#### Disclaimer

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## 1. Introduction

Kevin Hazell Bushfire Planning has been engaged by Surf Coast Shire Council (the 'Council') to prepare a Shire-wide strategic bushfire assessment.

#### 1.1 Context to the Shire-wide strategic bushfire assessment

The Council is preparing an Urban Futures Strategy (UFS). The purpose of the UFS is to outline existing settlement patterns across the Surf Coast Shire and to guide future urban growth. The UFS is to be a settlement strategy for Surf Coast Shire.

The impetus for the project is the recent release of the Surf Coast Statement of Planning Policy (SPP) governing land use and development in the Surf Coast declared area which includes Torquay and Jan Juc. The declaration restricts the previous growth framework for the SPP area and requires the Council to investigate alternative options in order to satisfy policies for a 15-year supply of residential land in the Surf Coast Planning Scheme (the *'planning scheme'*).

Chapter 1.1 provides further context on planning in Surf Coast.

#### 1.2 Scope of work

The Shire-wide strategic bushfire assessment is to provide an assessment of strategic bushfire hazards which enable settlement related bushfire policies in *c13.02-1S Bushfire Planning* to be considered in future settlement planning.

These policies include the following.

- 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.
- 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.
- 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 above policies enable conclusions to be reached on optimised locations for settlement growth from a bushfire perspective, according to the following *c13.02-1S Bushfire Planning* policies:

- 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 scope of work focuses on bushfire policies that require settlement, municipal and subregional assessments which are important to appreciate the relative risk between different locations within Surf Coast Shire. These assessments when combined with neighbourhood and local scale bushfire assessments prepared in conjunction with specific proposals, such as a structure plan, combine to provide a comprehensive approach to applying *c13.02-1S Bushfire Planning*.

Chapter 1.2 provides more context on the bushfire policies informing this assessment.

#### 1.3 Study area

The study area is the municipal area of Surf Coast Shire.

See Figure 1A: Study area

#### 1.4 Methodology for this report

This report uses landscape types to apply strategic and settlement policies in *c13.02-15 Bushfire Planning*. Landscape types assist in appreciating the relative risk between locations. Landscape types are applied from considering likely bushfire scenarios, the potential for neighbourhood scale destruction and the availability and access to safer areas.

Landscape types are described in *Planning Permit Applications Bushfire Management Overlay Technical Guide* (DELWP 2017). Landscapes type range from 1 to 4. Generally, as assessed landscape types progress through 1-4, the landscape risk increases.

See: Figure 5A Overview of landscape types

The identified landscape types in this report are necessarily strategic and are not intended to be scaled to apply to individual properties. Landscape types are not always a perfect match to a particular location. They are however useful as a stepping off point for discussions and further investigations, especially at a settlement, neighbourhood or local scale.

Subsequent to the identification of landscape types, a township level analysis is undertaken for places which could be considered low or lower risk. This supports settlement level growth planning if the UFS sought to direction growth to these places. This report does not consider non-bushfire planning issues which may affect each location.

The townships / settlements further considered include Deans Marsh, Moriac, Winchelsea and the Torquay future settlement area (the latter being identified in the SPP).

#### See Figure 1A: Study area (with townships shown)

For low and lower risk settlements, a 12.5kw/sq.m radiant heat assessment is provided along with a settlement-level analysis of bushfire preferable directions for growth. The focus is to provide some initial inputs to support future structure planning and to reinforce the likely acceptability of proceeding with directing growth to these selected locations.

An important element of settlement level planning is the creation wherever possible of bushfire optimised interfaces with bushfire hazards. The interface typically involves development setbacks from bushfire hazards and a perimeter road.

The intention of the interface is to prevent a moving bushfire from penetrating into settlement areas. Figure 4A includes a generalised understanding of how bushfire threatens settlements and from which the interface is being designed in response to.

#### See Figure 4A: Generalised understanding of how bushfire threatens settlements

Places that are high risk, not being promoted for growth or which are constrained by the SPP are not analysed at the township level.

#### 1.5 Structure of this report

The Shire-wide strategic bushfire assessment includes the following:

- Section 1.1 provides background on the strategic and settlement planning context of Surf Coast Shire.
- Section 1.2 provides more context on the bushfire policies informing this assessment.
- 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 to 6 provides an assessment of how locational policies in *c13.02-1S Bushfire Planning* affect different locations, primarily focused on townships, using landscape types.
- Section 7 includes a summary of recommendations

#### 1.6 How to use this report

References in this report to growth and development only relate to these when enabled by strategic planning and a planning scheme amendment. This is consistent with this report informing the preparation of a Shire-wide settlement strategy and possible planning scheme changes arising from this.

This report does not consider bushfire factors for planning applications under current planning scheme policies or requirements and should not be used for this purpose.

## FIGURE 1A: Study Area



# 1.1 Context on settlement planning in Surf Coast Shire

The Surf Coast Planning Scheme provides an appreciation of how settlements and growth are currently planned, as derived from State, regional and local planning policies.

#### 1.1.1 Municipal Planning Strategy

The Municipal Planning Strategy at c02.01 describes Surf Coast Shire as follows:

The Surf Coast Shire (the Shire) is located in the Corangamite Region of southwest Victoria. The Shire has an area of 1560 square kilometres with some 55 kilometres of coastline defining its south-eastern boundary.

## [....]

The southern part of the Shire contains coastal townships along the Great Ocean Road comprising Torquay-Jan Juc, Anglesea, Aireys Inlet, Fairhaven, Moggs Creek and Lorne. Other than Torquay-Jan Juc, these towns are sited on the coastal edge of the Otway Ranges and are surrounded by the Great Otway National Park. Rural lands north of the Otways contain the townships of Winchelsea, Deans Marsh, Moriac and Bellbrae. Torquay-Jan Juc is the main administrative and population centre and is located at the eastern end of the Shire, linked to Geelong by the Surf Coast highway.

Many of the settlements across the Shire are at high risk from bushfire or grassfire. Large numbers of tourists visit these areas during the fire danger period.

## [....]

While rural areas are important for agriculture, their environment and rural landscapes are also valued for their contribution to the amenity and liveability of the Shire and their tourism and recreation value

The strategic directions for settlements at c02.03-1 includes the following:

Strong population growth in the Shire's coastal towns is expected to continue due to sustained interest in the region's natural environment. While there is pressure to expand some settlement boundaries into areas of high landscape significance, the landscape settings between settlements need to be retained.

Torquay-Jan Juc and Winchelsea are the only towns with capacity to accommodate substantial growth. Other towns are limited in opportunities to grow due to various physical, environmental or infrastructure constraints.

Torquay-Jan Juc is the gateway to Bells Beach and is the main urban growth centre of the Shire, with a population expecting to grow to 30,000 by the year 2040 (Surf Coast Shire, 2014). It is a popular destination for surfers, tourists, young families and retirees and is becoming increasingly popular for permanent settlement by those valuing a coastal lifestyle. It is important that while Torquay continues to grow as a tourist destination, it also provides retail and entertainment services for the growing local and sub-regional population. The Spring Creek corridor west of Duffield Road is an area identified for long term urban growth.

Winchelsea is the largest inland town in the Shire and is the major service centre for the surrounding farming community. It is rich in heritage and has an active tourism industry with wineries, berry farms, restaurants, cafes and accommodation in the broader district. Winchelsea is well serviced by a railway station, hospital, community and recreation facilities, and reticulated services, providing opportunities for population growth.

#### Coastal towns

Lorne has a low permanent population and an economy that is strongly focused on tourism. Its tourism facilities, coastal location and association with the Great Ocean Road make it a prime tourism destination. The town encircles and slopes down to Louttit Bay. Larger lots surrounding the town serve as a buffer between the town and the Great Otway National Park. Further settlement growth is constrained by the National Park, significant remnant vegetation and extreme bushfire risk.

Out of all the coastal towns in the Shire, Anglesea has the highest percentage of permanent residents after Torquay-Jan Juc. It provides local convenience and tourist-related retailing services. Tourism is a vital component of the local economy and Anglesea is well placed to capitalise on the growing popularity of nature and adventure based tourism due to its natural setting and camp facilities. The Anglesea Northern Hinterland, part of which was previously used for a power station and coal mine, lies to the north of Anglesea outside the settlement boundary. The facility's closure presents an opportunity for a select range of new uses. This land is significant for its biodiversity values, the presence of the Anglesea River and its landscape setting as the northern interface between the township of Anglesea and the Great Otway National Park.

Aireys Inlet, Fairhaven, Moggs Creek and Eastern View have a small permanent population and are popular holiday and retirement destinations. They are contained by dense bushland and a scenic coastline, abutting the Great Otway National Park. The Painkalac Creek, separating Aireys Inlet and Fairhaven, has significant environmental and geomorphological value. Further settlement growth is constrained by the conservation value of adjoining land, extreme bushfire risk and difficulties in providing infrastructure.

#### Rural towns

Moriac, Bellbrae and Deans Marsh are small rural towns with a majority of residents commuting elsewhere for employment opportunities, but who choose to live in the townships for their rural residential lifestyle. They each offer a range of services to their local communities.

#### Council seeks to:

- Concentrate urban growth in Torquay-Jan Juc and Winchelsea.
- Contain urban development within settlement boundaries to maintain compact townships.
- Maintain non-urban breaks between townships to protect the rural landscape and significant biodiversity assets from urban intrusion.
- Strengthen the individual role of each coastal and rural town to maintain the Shire's diverse offering of experiences and opportunities.

#### See: Figure 1B: c02.04 Municipal strategic framework plan

*c02.03-3 Environmental risk and amenity* includes content on bushfire:

#### Environmental risks

The Shire is in one of the most vulnerable bushfire prone regions in the world. The Otway Ranges and Coast landscape precinct is one of the most fire prone areas in the State. Forested land presents a bushfire threat to the hinterland towns of Deans Marsh and Bellbrae and the coastal towns of Anglesea through to Lorne and the western edge of Jan Juc. Landscapes in high bushfire risk areas are visually pleasing and are often sought after for use and development, including for tourism. However, the extent of required bushfire protection measures to safeguard these can adversely impact landscape and neighbourhood character and vegetation cover that should be protected.

In the face of climate change, environmental risks and their impacts can worsen including increased sea level rise, bushfire risk, storm surge, coastal inundation and riverine flooding.

#### Council seeks to:

- Direct development to areas where environmental risks, particularly bushfire risk, are lowest.
- Discourage urban development in areas prone to environmental risks where those risks cannot be mitigated.
- Manage the impact of bushfire protection measures by balancing the need to remove vegetation with protecting native vegetation cover and landscape and neighbourhood character.

#### 1.1.2 Surf Coast Statement of Planning Policy (2022)

The Surf Coast Statement of Planning Policy (SPP) was approved by the Minister for Planning in 2022. Whilst the Victoria Planning Provisions and the Surf Coast Planning Scheme has not been amended to reflect the SPP (at the time of writing this report), under the Planning and Environment Act 1987 it has effect as part of the Victoria Planning Provisions immediately.

The SPP relates to the declared area only, which is not the entirety of Surf Coast Shire.

See Figure 1C: Surf Coast Statement of Planning Policy, Map 2: The Declared Area

Whilst the SPP is an extensive policy document, important implications for this bushfire assessment include:

- Protected settlement boundaries for settlements in the declared area. These cannot be changed by Surf Coast Shire Council. Given the currency of the SPP, this bushfire assessment assumes the UFS will not seek to vary protected settlement boundaries. Changes to theses are not therefore not assessed in this report.
- Areas of landscape significance are identified in most of the SPP area.

See Figure 1C: Surf Coast Statement of Planning Policy, Map 3: Declared Areas Framework Plan

Chapter 5.4 of the SPP relates to environmental risk and resilience. It includes the following description of bushfire:

Much of the declared area is at risk from bushfire and the south-western part that includes settlements and the rural hinterland is at risk of regional-scale bushfire. As well as the risk to human life and property, there is an increasing likelihood of extreme bushfire events, which would further jeopardise the survival of threatened species in the declared area, other environmental values and Wadawurrung living cultural heritage sites.

Bushfires also put the declared area's tourism industry and related economic activities at risk. Key tourist destinations — the Great Otway National Park, Bells Beach and the nationally heritage listed Great Ocean Road — are threatened, as are agricultural businesses, which may lose productive land, stock and infrastructure. Adhering to Victoria's bushfire management planning policy and undertaking emergency management planning and fire-mitigation activities (including cultural burning) will help minimise these risks.

To reduce the vulnerability of communities to bushfire, the Victorian Government's bushfire risk management policy including the Victoria Planning Provisions gives priority to the protection of human life over all other planning considerations, and it requires that bushfire risk be addressed in decision making at all stages of the planning process.

In the declared area, bushfire risk must be considered when determining the location of development, the expansion of existing settlements, the rebuilding of fire-damaged settlements, changes in land use and efforts to protect and encourage more native vegetation. Future land use and development should not increase bushfire risk in the declared area. This approach should help minimise bushfire risk and strengthen the declared area's resilience to bushfires, so people and wildlife can thrive, and local communities can flourish

#### Objectives and strategies in the SPP include:

#### Objective 4

The following objective is binding on Responsible Public Entities.

To support the resilience of the declared area by taking sustained measures to achieve a net-zero emissions future, reduce greenhouse gas emissions, mitigate climate change and natural hazard risks and adapt to their impacts.

#### Strategies

Responsible public entities are required to have regard to the following strategies to achieve the objective when performing a function or duty or exercising a power in relation to the declared area.

Strategy 4.1	Through bushfire risk-based planning, prioritise the protection of human life over all other policy considerations.
Strategy 4.2	Avoid development or sensitive land uses in or adjacent to areas at high risk of bushfire, coastal and riverine flooding or coastal erosion.
Strategy 4.3	Ensure bushfire risk is considered in the design and siting of development

The environmental risk map specifically includes an area identified as 'regional-scale bushfire hazards', oriented to land adjoining the Otway Ranges.

See Figure 1C: Surf Coast Statement of Planning Policy, Map 7: Environmental Risks

#### 1.1.3 Zones

Planning scheme policies are given effect through the application of Zones. Through the applied Zones the dominant settlement patterns of Surf Coast Shire can be observed, including:

- Distinct settlements included in urban residential zones.
- Areas of lower density residential development, including land in the Rural Living Zone and Low Density Residential Zone.

#### See Figure 1D: Zone Map

#### FIGURE 1B: Municipal Strategic Framework Plan (c02.04 Surf Coast Planning Scheme)







## FIGURE 1C: Surf Coast Statement of Planning Policy, Map 3: Surf Coast Declared Areas Framework Plan







## FIGURE 1D: Zones



# 1.2 c13.02-1S Bushfire Planning locational policies and commentary

*c13.02-15 Bushfire Planning* includes strategies on locational considerations that influence where development could be directed to enhance life-safety outcomes in response to bushfire hazards. These locational policies relate to landscape bushfire considerations, availability of safer areas and alternative locations for development. A summary of these policies are outlined in this chapter.

#### 1.2.1 Landscape bushfire considerations

Landscape bushfire considerations include the scale of likely bushfire and the type of hazard in the wider locality where a bushfire can start and grow large. The following policies require these matters to be considered:

- 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.

These policies ensure that decision making fully appreciates whether there is potential for the most destructive bushfires to arise. They emphasise the assessment of bushfire hazards not only very close to a site or area of planning interest but in the much wider area (referred to as the bushfire '*landscape*').

#### 1.2.2 Alternative locations for development

An appreciation of alternative locations for growth and development can assist in considering where best amongst alternatives can life safety be enhanced. The following policies require these matters to be considered:

- Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.
- Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.

Policies on assessing alternative locations for development tend to be determinative to acceptable strategic planning outcomes, including because of their focus on directing development to low risk locations. In many bushfire settings, such locations often do not exists and reinforce the need to avoid planning scheme enabled new development.

#### 1.2.3 Availability of safer areas

Consideration of how occupiers of a development or people living in a specific location can move to a safer area was introduced into planning schemes in 2017. Bushfire protection is enhanced where people have a layering of options available to them, including being able to move to a safer location.

The following policies require these matters to be considered:

- Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS3959-2018 Construction of buildings in bushfireprone 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 term BAL:Low seeks to define an area of land that is low fuel and generally more than 100m away from hazardous vegetation (or 50m for grasslands). It uses the methodology in *AS3959-2018 Construction of a building in a bushfire prone area* (Standards Australia).

This methodology does not accommodate all forms of bushfire impact, including:

- Land that may be subject to extreme ember attack.
- Land where the vegetation is low-threat as defined by AS3959-2018 Construction of buildings in bushfire prone areas (Standards Australia) but which still presents a bushfire hazard from localised vegetation and other flammable elements, including buildings being on fire.
- Land in proximity to forested areas where there are steep slopes under the hazardous vegetation and where the intensity of bushfire may compromise a safer area.

Despite limitations, policies relating to safer areas do provide a stepping-off point for considering safer areas in the development of the Shire-wide settlement plan.

# 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 Bushfire Management Overlay is a tool used to trigger and apply bushfire planning provisions to development proposals. 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.

The Bushfire Management Overlay is not a strategic planning tool and is not determinative of whether strategic proposals, including planning scheme amendments, are acceptable.

#### 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 (c13.02-1S, 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 (c13.02-1S)

*c13.02-1S Bushfire Planning* includes planning requirements for Bushfire Prone Areas. These are in the form 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).



# 3. Bushfire context of Surf Coast Shire

This section describes the bushfire context of Surf Coast Shire using a range of information sources that help understand bushfire. The matters identified include information typically prepared 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

The Department of Environment, Land, Water and Planning (DEWLP) (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.

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

DELWP (2020) 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 Natural landscape areas

DELWP (2020) describes the natural landscape as follows:

The main vegetation communities include the westernmost extent of tall wet forests and cool temperate rainforests in Victoria across the high-altitude areas of the Otway Ranges, with drier forests, woodlands and heathland on the lower slopes of the ranges. Basalt grassland and woodlands are found in the Victorian Volcanic Plain to the north and west.

Of significance are the Anglesea Heathland, Carlisle Heathland and adjoining heathy woodlands, which include structurally and floristically diverse heathland vegetation that provides important habitat for threatened species such as the Swamp Antechinus (Antechinus minimus), Southern Brown Bandicoot (Isoodon obesulus), Long-nosed Potoroo (Potorous tridactylus), Rufous Bristlebird (Dasyornis broadbenti) and Anglesea Grevillea (Grevillea infecunda).

Ecological vegetation classes (2005) are identified in many parts of the Strategic Framework Plan area. They include wet or damp forests that dominate the Otway Ranges, extending generally from Lavers Hills to Lorne. Within the valleys and gullies rainforests are identified, especially between Lavers Hill to Skenes Creek. Dry forests are identified on the outer edge of the Otway Ranges, especially along coastal areas and in large areas of the eastern Otway Ranges.

The EVC types change significantly in the eastern and north-west / western part of the Otway Ranges , where Lowland Forests and Heathy Woodlands dominate. These vegetation types are generally drier than the rainforests and wet or damp forests, although all vegetation can dry under conditions such as in a prolonged drought, based on aspect or over a single bushfire season.

Outside of the Otway Ranges, the extent of EVCs significantly reduces due to highly modified grassland environments dominating. Forest, woodland and heathlands arise in conjunction with riparian corridors, roadside vegetation and distinct patches of vegetation. Coastal Scrub grassland and woodland is identified in many coastal areas within and outside the Otway Ranges.

See: Figure 3A: Ecological vegetation classes

#### **3.3** Plantations

Plantations exist in areas within the Otway Ranges. Planning scheme decision making usually assumes any area of planation is at maximum fuel load and does not enable any reduced risk to be factored into decision making associated with recent harvesting. If a plantation is <u>permanently</u> removed, then the issue is no longer relevant and planning scheme decision making can proceed on that basis.

#### 3.4 Slope

Slope under hazardous vegetation informs how fast a bushfire may travel. The Country Fire Authority (2022) identify the following characteristics of slope:

- A fire will burn faster uphill. This is because the flames can easily reach more unburnt fuel in front of the fire. Radiant heat pre-heats the fuel in front of the fire, making the fuel even more flammable.
- For every 10° slope, the fire will double its speed.
- By increasing in speed the fire also increases in intensity, becoming even hotter.
- Fires tend to move more slowly as the slope decreases.

Vegetated areas in steep and rugged terrain correlate with where extreme bushfire behaviour can arise. Areas where the terrain may particularly influence bushfire behaviour at a landscape scale are locations within the Otway Ranges.

#### See Figure 3B: Slope based on a 10m contour

#### 3.5 Bushfire management strategy guiding public agencies

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

The bushfire management strategy contains information that assists in appreciating the landscape bushfire risk in Surf Coast, including the following:

The initial spread of a bushfire in our landscape is not usually as protracted as it can be in the forests of eastern Victoria, and the main damage generally occurs on the first day (South West Complex Fire, Wye River, Ash Wednesday). This is largely due to moderating weather conditions on the second day of the bushfire combined with the fire burning into grass fuels, which helps with fire containment. Many of the most damaging bushfires in our landscape start in grasslands north of the Otway Ranges, then quickly move into the forest. In 1983, the Ash Wednesday Deans Marsh bushfire moved from the grasslands in the north to the coast in an afternoon.

The north-west-facing foothills and lower slopes of the Otway Ranges face the prevailing bushfire weather wind direction. Vegetation on these slopes and along the Gellibrand River valley provides fuel for bushfires to rapidly develop and spread. Initially, most bushfires travel rapidly in a south-east direction ahead of the strong north-westerly pre frontal winds. Then, as strong south-westerly winds set in behind cold fronts, bushfires may quickly spread from their broad north-east flanks through the heathlands, grassy/heathy dry forest and coastal scrub along the coastline.

Outside of the Otway Ranges, the landscape is relatively flat, leading to bushfires being largely influenced by weather and fuel. The extensive areas of grassland through the region are often fully cured by mid-summer, and in some seasons they can carry upwards of five to seven tonnes per hectare of grass fuel loads.

These fuels conditions make very large, fast moving grass fires possible. There are numerous examples in the fire history record of fires driven by north-northwest or north-west winds followed by a west, west-south-west or south-west change e.g., Derrinallum 1977, Cressy 1977, Ash Wednesday 1983, Anakie 1985, South West Complex Fire 2018).

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 comparative to other locations in the Barwon South West region, settlements and concentrations of housing influenced by the Otway Ranges along the coast and to the north are within the top 20%-40% of risk areas.

Conversely, settlements in the balance of Surf Coast Shire are not shown as being particularly susceptible to house losses.

#### See Figure 3C: Modelled house loss bushfire risk (adapted from DELWP 2020)

As Victorian Government published modelling evolves, there will be opportunities to consider more refined outputs to support land use planning. The project seeking to progress this is called 'Bushfire Risk Management 2.0'.

#### 3.6 Victorian Fire Risk Register

The Victorian Fire Risk (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 should not be over-emphasised in planning decision making as it has not been prepared for that purpose and does not contemplate new risk that might arise because of a planning decision. The VFRR can however be of assistance to appreciate how current assets (for example, settlements) are assessed according to fire authorities and local councils.

#### See: Figure 3D: Victorian Fire Risk Register human settlement polygons

Due the scale of bushfire hazard, the VFRR identifies extensive areas at risk. This includes higher risk assets in and around the Otway Ranges, with relatively lower risks identified in the grasslands and smaller areas of hazard in other parts of the Shire.

#### 3.6.1 Areas not influenced by the Otway Ranges

Outside of areas influenced by the Otway Ranges, the hazard interface of most settlements are identified as being at risk from grasslands. This includes settlements such as Torquay, Winchelsea and Moriac. Larger settlements like these are not generally assessed as a risk beyond the hazard interface or beyond lower density residential areas within grasslands.

Low density residential development in Connewarre and Mount Duneed is not identified within the VFRR.

#### 3.6.2 Areas influenced by the Otway Ranges

Settlements and other assets to the north and east of the Otway Ranges but influenced by bushfire within it are consistently assessed as extreme risks, including Deans Marsh and Bambra. Lower density and rural living development where it arises close to the Otway Ranges interface are also assessed as extreme risks.

Coastal areas within the Otway Ranges present two typologies of risk:

- Smaller settlements that have limited or no low fuel areas are assessed as extreme risks, including Kennet River, Wye River and Moggs Creek.
- Larger settlements (Lorne, Angelsea and Aireys Inlet) with more densely developed areas are generally assessed as extreme risks on the hazard interface and also where bushfire hazards are present within settlement areas. However, in these same settlements a relatively lower area of risk also arises orientated around lower fuel areas. This includes parts of Anglesea where some areas are not included as a risk at all within the VFRR human settlement data.

Land adjoiningg Otway Ranges in the western parts of Jan Juc, Bells Beach and low density / rural living areas are identified as extreme risks.

#### See Figure 3D Victorian Fire Risk Register human settlement polygons

#### 3.7 Bushfire history

Bushfire history can be informative to understanding likely 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 (or grassfire) and planning decision making generally responds to bushfire hazards on this basis.

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 Australian Institute for Disaster Resilience (AIDR 2021) provides descriptions of past major bushfires. The 1983 Otways complex (Ash Wednesday) bushfire is described as follows:

The fire broke out at approximately 3.00pm at Deans Marsh and moved toward Lorne, and eventually onto the ridges above the town. The fire then moved down to the sand dunes, where many took refuge in the sea.

The fire continued to burn towards Aireys Inlet, where fibro houses were hit by walls of flame and an immense firestorm. Moving at extraordinary speed, the fire then moved through Anglesea; houses were lost, but the main part of town was saved.

The fire burnt on through the night toward Jan Juc and Torquay and was eventually contained early morning near Bellbrae. Three people were killed and 578 houses and other buildings were lost.

Forest Fire Victoria (2021) describes the following in association with Ash Wednesday:

The wind change moved through south-west Victoria by early evening. This was disastrous as the westerly winds caused the fires to change direction and size. Prior to the wind change, the fires had been relatively long and thin, with a narrow head, or front. After the wind change, the long side of the fire then became the head, or front, of the fire, burning across a much wider front.

Various relatively smaller grassfires are shown in the north-west of Surf Coast Shire. The shape of these strongly correlate with winds driving the fires.

Four typologies of fire can be derived from bushfire history and which help appreciate the likely threat from bushfire in the Study Area. These are:

- Landscape scale bushfire in the Otway Ranges
- Fire moving into grassland areas from bushfire in the Otway Ranges
- Grassfire entering the Otway Ranges
- Grassfires in grassland areas.

#### See Figure 3E: Bushfire history

#### 3.8 Regional bushfire planning assessment

The Regional Bushfire Planning Assessment (RBPA) Barwon South West Region 2012 (DPCD) provides information about 'identified areas' where a range of land use planning matters intersect with a bushfire hazard. These often correlate with townships where people and assets are within or close to bushfire hazards. The full list of identified areas are included in Attachment 2.

#### See: Figure 3F: Regional Bushfire Planning Assessment

See: Attachment 3: Extracts: Regional Bushfire Planning Assessment Barwon South West Region (DPCD)

#### 3.9 Planning scheme bushfire designations

Planning schemes identify potentially bushfire affected land through the inclusion of land into the Bushfire Management Overlay or within a designated bushfire prone area (referenced in *c13.02-1S Bushfire Planning* and approved under the Building Act 1993).

#### See Figure 3G: Bushfire Management Overlay and bushfire prone area

Section 2.4 and 2.6 provides context on how planning scheme bushfire designations operate as part of bushfire planning provisions.

#### 3.9.1 Bushfire Management Overlay

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

Outside of areas influenced by the Otway Ranges, the Bushfire Management Overlay is applied based on the patch size criteria and ember protection buffer.

Areas within the Otway Ranges are included into the Bushfire Management Overlay based on the patch size criteria, ember protection buffer <u>and</u> extreme fire behaviour criteria. Because of this, the Bushfire Management Overlay applies from west of Lorne to Jan Juc. Areas of grassland within the Otway Ranges are included based on the extreme bushfire behaviour criteria.

#### 3.9.2 Schedules to the Bushfire Management Overlay

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

Schedule 1 applies to various areas including parts of Lorne, Aireys Inlet and Jan Juc. Schedule 1 provides for a BAL12.5 construction standard, reflecting the expectation that development in these areas would be exposed to no more than 12.5kw/sq.m of radiant heat. Schedule 1 areas tend to arise in more built up areas which are relatively low fuel. By being central to settlement areas or places of low(er) fuel, the settlement / hazard edges are avoided along with the flame contact and highest levels of radiant heat that arise on and close to settlement edges.

12.5kw/sq.m of radiant heat is the same outcome as specified in *c13.02-15 Bushfire Planning* for development enabled by a strategic plan and/or a planning scheme amendment. The expected radiant heat outcome in these areas is at the lowest end of the permitted spectrum of acceptable radiant heat exposure specified in planning schemes.

Schedule 2 applies to various areas including parts of Lorne, Aireys Inlet and most of Anglesea. Schedule 2 provides for a BAL29 construction standard. We understand that this construction outcome reflects the potential for higher levels of ember attack and the potential for localised bushfires to arise within developed areas.

Schedule 2 areas arise in settlement areas away from the hazard edges of settlements but in areas that are not low fuel because of modified vegetation (for example, vegetation in gardens, open spaces and waterway corridors).

#### See Figure 3H: Locations with schedules to Bushfire Management Overlay

#### 3.9.3 Bushfire Prone Area

The bushfire prone areas applies to all land within the Bushfire Management Overlay. It also applies to grassland areas, smaller patches of non-grassland vegetation and land usually within 50m of these areas.

Except for urban land not at the immediate hazard interface in parts of Torquay, Moriac and Winchelsea, all land in Surf Coast Shire is within a Bushfire Prone Area.

## FIGURE 3A: Ecological Vegetation Classes (2005)



## FIGURE 3B : Slope based on a 10m contour



## FIGURE 3C: Modelled house loss Bushfire Risk (Adapted from DELWP 2020)



## FIGURE 3D: Victoria Fire Risk Register Human Settlement (2022)



## FIGURE 3E: Bushfire History: Bushfire History since 1960







## FIGURE 3G: Bushfire Management Overlay and Bushfire Prone Area



## FIGURE 3H: Locations with Schedules to the Bushfire Management Overlay



# 4. Landscape and strategic bushfire considerations

This section describes landscape bushfire hazards that may influence settlement planning in Surf Coast Shire. Having regard to the contextual information in Section 3, it considers how the bushfire hazard in the landscape may affect different areas.

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.

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

#### Landscape bushfire considerations

- 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 low fuel areas

- Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) 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.

#### 4.1 Bushfire hazard areas of landscape significance

#### 4.1.1 Otway Ranges

The Otway Ranges is a large area of bushfire hazard on a scale consistent with it being one of Victoria's most dominant bushfire landscapes. Forested areas, rugged terrain and scope for long fire runs means there is the potential for large bushfires. Extreme bushfire behaviour (including extreme ember attack) is reasonably expected to arise from these hazard areas.

There are a range of individual vegetation types, including tall wet forests, drier forest and woodlands. Heathlands arise in and around Anglesea, along with coastal vegetation in the southern areas. Some hazards comprise vegetation with relatively higher fuel moisture content. However, under drought conditions these areas can dry and be available to burn, so it should be assumed all parts of the Otway Ranges can be involved in bushfires.

#### 4.1.2 Grassland areas

Grasslands exist to the north and east of the Otway Ranges along with grassland areas within the Otway Ranges themselves. The Country Fire Authority (2021) identifies key characteristics of grasslands and grassfires to include:

- 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.

Grassland areas within and in proximity to the Otway Ranges are heavily influenced by landscape bushfire behaviour, including the potential for ignitions from ember attack from forested areas and from forest fires running into grassland areas. These scenarios are apparent from bushfire history.

#### 4.1.3 Other areas of bushfire hazard

Located in the north and east of the Shire are other areas of hazard within public reserves and on private land. These are within a grassland context which is considered to be the main driver of bushfire behaviour at a landscape scale. At a neighbourhood and site scale, these hazards may create bushfires that would impact on areas adjoining them but that are not large enough or comparable to the extent of hazards in the Otway Ranges (when considering relative risks at the municipal or regional scale).

Throughout the southern part of the Shire are coastal reserves, mostly in a linear configuration. When combined with dominant winds, long fire runs may arise in some coastal reserves. At a neighbourhood and site scale, these hazards may create bushfires that would impact on areas adjoining them. This includes in many settlements where linear coastal reserves arise to the south of settlements (for example, in Anglesea) and run along the southern edge of settlement areas.

#### 4.2 Likely bushfire scenarios

Bushfire scenarios can assist in appreciating how different places may be exposed to the effects of landscape bushfires. This section identifies scenarios.

#### 4.2.1 Otway Ranges

The extent of hazard provides for long fire runs under the influence of a north-west winds which are dominant in Victoria's weather during the bushfire season. Depending on the ignition point, bushfire has the potential to move towards the coast, settlements along the coast and any inland areas within the Otway Ranges.

Under the influence of a late-afternoon weather change, wind would progressively shift to a south-westerly and a bushfire would move towards places located to the north-east of any bushfire at the point of the change. This especially includes Anglesea and Lorne.

The type of vegetation and topography indicate that extreme bushfire behaviour is likely to arise in the Otway Ranges.

A south-westerly wind change would also move a bushfire towards grasslands on the northern and north-eastern edges to the Otway Ranges. As bushfire enters grassland areas, either through ember attack or a moving fire penetrating the forest / grassland interface, multiple grassfires may arise. Long grassfire runs are available in these areas.

The likely landscape bushfire in the Otway Ranges is a single day bushfire. Such bushfires correlate with where significant loss of life and neighbourhood scale destruction arises in Victoria, as evidenced in past bushfires (for example, 1983) and many bushfires across Victoria such as on Black Saturday (2009).

It is noted that despite the dominance of north-westerly winds and the south-westly wind change in Victoria's bushfire weather, other wind directions do arise and can move a bushfire in any direction. This arose, for example, in the 2015 Wye River bushfire where easterly winds pushed bushfire in a westerly direction.

#### 4.2.2 Grassland areas

Through the available grassland areas to the north and east of the Otway Ranges, large fastmoving grassfires can arise. The risk of grassfires is likely capable of being realised more often due to grasslands drying out earlier in the bushfire season, earlier on any given day during the bushfire season and the potential for easier ignitions because the fuel is finer.

#### 4.2.3 Further context in response to CFA advice

The CFA in response to a draft of this report sought a greater emphasis be placed in relation to ember attack from the Otway Ranges. An adjustment to this effect is justified.

In the context of likely bushfire scenarios, there is a significant likelihood of massive ember storms and extreme forms of ember attack arising from the hazard in the Otway Ranges. These conditions strongly correlate with where bushfire can be most destructive in terms of loss of life and damage to property, including neighbourhood scale destruction.

The potential for extreme ember attack deep into grassland areas within and surrounding the Otway Ranges reinforces the need for well planned interfaces between settlements and hazards. This will often need to be hard infrastructure, such as perimeter roads and engineered treatments. Importantly, this will be in locations not always within the Bushfire Management Overlay, although the outcomes needed will be highly consistent with what *c53.02 Bushire Planning* would seek.

#### See Attachment 4: CFA advice in response to draft report

#### 4.3 Bushfire impacts and considerations

The conditions likely to arise in places 'receiving' the impacts of landscape bushfires are described in this section.

#### 4.3.1 Areas within and in proximity to the Otway Ranges

Areas within and immediately adjoining forested areas, which could include settlement areas, grassland areas within the Otway Ranges and grasslands adjoining the Otway Ranges, may experience extreme bushfire behaviour. This includes a moving bushfire front impacting on the edges of settlements where they adjoin bushfire hazards. Flame contact from the fire front and very high levels of radiant heat are to be expected. A bushfire is likely to penetrate deep into settlement areas where there are continuous hazard paths, which may include riparian corridors and heavily vegetated parts of settlements.

The immediate settlement interface with forests and all areas within (about) 1km of this interface are likely to be subject to high levels of ember attack. This includes all parts of the larger and smaller settlements along the Great Ocean Road and the grassland areas within the Otway Ranges.

Ember attack at extreme levels is likely into settlements resulting in localised fires. This may result in flames and radiant heat from vegetation in gardens, parks and on roadsides being on fire and from structures being on fire. Life threatening levels of radiant heat and flame contact from these localised fires are to be expected. Movement within settlement areas will be difficult during a bushfire, including as a result of smoke hazards.

The Otway Ranges bushfire landscape is sufficiently hazardous where interventions (for example, fuel reduction activities) do not remove the risk, especially under the worst bushfire weather conditions.

The effects of climate change in combination with the Otways Ranges bushfire hazard means that bushfires are likely to become progressively worse. Based on past bushfires and modelled bushfire conditions, it is likely that the severity of bushfire attack would exceed the FFDI 100 and flame temperature (1080) used to inform bushfire setbacks in planning schemes (as expressed in the defendable space tables in *c53.02 Bushfire Planning*).

It is also likely that building construction standards with only entry-level ember protection (BAL12.5) may not be adequate in these conditions, already evidenced through the BAL29 and its enhanced ember protection being required in many parts of Surf Coast Shire (for example, for new dwellings in most of Anglesea and parts of Lorne).

#### 4.3.2 Further context in response to CFA advice

The CFA in response to a draft of this report sought a greater emphasis be placed on access and egress issues associated with the Otway Ranges. An adjustment to this effect is justified.

With the significant likelihood of massive ember storms and extreme forms of ember attack arising from hazards in the Otway Ranges, destructive bushfires are to be expected. These bushfire conditions combined with access and egress challenges within the Otway Ranges mean that there are significant risks associated with managing communities before and during a bushfire.

This risk is not readily capable of being addressed by planning scheme decision making, although it provides further reasons to limit areas within the Otway Ranges as a location for growth.

Excellent planning to support early evacuation is an important part of broader risk management for communities. Supporting these efforts wherever necessary should be a priority in planning scheme decision making. But the potential for early evacuation cannot be a basis for introducing new risk, as early evacuation is not certain and not always possible.

#### See Attachment 4: CFA advice in response to draft report

#### 4.3.2 Grassland areas beyond the Otway Ranges interface

Grassland areas beyond the interface with the Otway Ranges (where they would not be directly impacted by it) are in a mostly flat and undulating terrain. As described earlier, grassfires can ignite more easily than other vegetation types and can move quickly under the influence of wind. These fuels conditions make very large, fast moving grassfires likely.

The main impacts associated with grasslands are where they interface with development, which may be a settlement or more isolated development across the landscape (for example, a dwelling or rural activity in farming areas). However, the impact of grasslands can generally be managed in combination with planning decision making so that flame contact in completed development is avoided and radiant heat is reduced to lower and acceptable levels.

#### 4.4 Appreciating how bushfire may affect a settlement

*Design Guidelines: Settlement Planning at the Bushfire Interface* (DELWP 2019) includes a description of the bushfire threat to settlements. This is reproduced in this report to assist the reader to appreciate how bushfire may affect settlements.

#### See Figure 4A: Generalised understanding of how bushfire threatens settlements

#### 4.5 Low(er) fuel areas

An assessment has been made of areas that may be lower fuel where human life can be better protected from the harmful effects of bushfire. Lower fuel areas can provide protection at a settlement and neighbourhood scale as they provide a form of passive mitigation, enabling people to move away from bushfire hazards if they need to.

*c13.02-1S Bushfire Planning* defines such places as BAL:Low. BAL:Low places are where hazardous vegetation is more than 100m away (50m for grassland hazards). Hazardous vegetation is defined in section 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 are assumed to not be exposed to flame contact and the highest levels of radiant heat from a moving bushfire front.

Given the bushfire hazard in the Otway Ranges, including the vegetation types and rugged terrain, it is highly probable that an area of BAL:Low would not in fact be capable in all cases of protecting people sheltering in the open air from the harmful effects of radiant heat from a bushfire. Extreme ember attack is also likely into lower fuel areas, along with the potential that low-fuel areas may not have the capacity to accommodate the number of people seeking shelter, especially at the peak of the tourism season which correlates with the bushfire season.

For these reasons, the utility of the measure of BAL:Low may not be relevant for parts of Surf Coast Shire that are within and interface with the Otway Ranges.

To continue to enable the policy intent to be considered (a passive place of shelter in the open air providing a significant risk reduction from other areas in the neighbourhood), areas of low fuel within the Otway Ranges have been identified based on being 200m from non-grassland hazardous vegetation and 50m from grasslands. This enables a cautious approach to the initial investigation of lower fuel areas. Places likely to have lower fuel areas are shown on Figure 4B.

#### See Figure 4B: Locations likely to have lower fuel areas

Grassland areas have a credible basis for areas of BAL:Low to arise in conjunction with new development. This is because the separation distances to achieve an area of BAL:Low or an even larger area tend to be highly achievable in grasslands where larger lots exist in combination with a lack of non-grassland vegetation.

It is also common for there to be a lack of vegetation protected by the planning scheme in grassland dominated areas that makes providing the separation distances through vegetation management highly achievable. Low fuel areas can therefore often arise in conjunction with planning decision making in grassland areas. It is also possible to require this as a result of planning permission being granted either through planning scheme requirements or planning permit conditions.

#### 4.6 Designated places of shelter

There are many designated neighbourhood safer places. This is to be expected given the extent of bushfire hazard.

Consistent with CFA advice, designated places of safety are not afforded any weight in planning decision making. 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. There is also no assurance that any designated location will not change in future or be removed from being designated on the basis of changed circumstances.

It is noted however that planning scheme considerations around low fuel areas may often correlate with the location of a designed neighbourhood safer place.

See: Figure 4C: Locations with Neighbourhood safer places



## 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.



## FIGURE 4B: Locations likely to have lower fuel areas



## FIGURE 4C: Locations with Neighbourhood Safer Places





# 5. Landscape types in Surf Coast Shire and strategic directions for the Urban Futures Strategy

#### 5.1 Background on landscape types

This report uses landscape types to consider strategic and settlement policies in *c13.02-15 Bushfire Planning*. Landscape types assist in appreciating the relative risk between locations. Landscape types are applied from considering likely bushfire scenarios, the potential for neighbourhood scale destruction and the availability and access to safer areas.

Landscape types are described in *Planning Permit Applications Bushfire Management Overlay Technical Guide* (DELWP 2017). Landscapes type range from 1 to 4. Generally, as assessed landscape types progress through 1-4, the landscape risk increases.

#### See: Figure 5A Overview of landscape types

Landscape types 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.

The identified landscape types in this report are necessarily strategic and are not intended to be scaled to apply to individual properties. Landscape types are not always a perfect match to a particular location. They are however useful as a stepping off point for discussions and further investigations, especially at a settlement, neighbourhood or local scale.

#### 5.2 Assessed landscape types

Assessed landscape types are shown in Figure 5B.

See Figure 5B: Landscape types in Surf Coast Shire See Figure 5C: Landscape types in Surf Coast Shire (inset maps)

### 5.3 Landscape type 1 areas

Landscape type 1 is described by DELWP (2017) as follows:

- There is little vegetation beyond 150 metres of the site (except grasslands and lowthreat vegetation)
- Extreme bushfire behaviour is not possible
- The type and extent of vegetation is unlikely to result in neighbourhood scale destruction of property
- Immediate access is available to a place that provides shelter from bushfire (usually capable of being provided within a site or development proposal).

Landscape type 1 reflects grassland areas and settlements in the north and east of Surf Coast Shire. These areas have no or minimal interaction with bushfire hazards within the Otway Ranges. More specifically, they are more than 2km from the edge of the Otway Ranges.

Landscape type 1 areas would be suitable locations to direct growth and development as they are not exposed to large, landscape scale bushfires that generate extreme bushfire behaviour or the type of bushfires where neighbourhood scale destruction usually occurs. They are lower risk locations, especially when contemporary bushfire protection is included in completed development.

These locations will often contain neighbourhood and site scale hazards such as bushland reserves and riparian corridors. These will be relevant hazards to consider in neighbourhood and site-scale planning. But they are not hazards of landscape significance.

# Directing growth to Landscape type 1 locations would be favourably assessed against locational policies in *c13.02-15 Bushfire Planning*.

#### 5.4 Landscape type 2 areas

Landscape type 2 is 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.



Landscape type 2 areas comprise locations which form a buffer off the Otway Ranges. These areas are generally between 1km and 2km from the edge of hazardous vegetation in the Otway Ranges. They will be influenced by bushfire in the Otway Ranges, primarily through some increased potential for ember attack and for grassfires ignited by bushfire in the Otway Ranges.

However, the separation (of more than 1km) from the Otway Ranges is sufficient where they are relatively lower risk locations. Lower risk outcomes can be achieved when contemporary bushfire protection is included in completed development.

# Directing growth to Landscape type 2 locations would be favourably assessed against locational policies in *c13.02-15 Bushfire Planning*.

#### 5.5 Landscape type 3 areas

Landscape type 3 is 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.

A range of locations are assessed within Landscape type 3, with a different emphasis in which elements of the category is driving the assessed landscape type.

#### Grassland areas influenced by the Otway Ranges

Grasslands between 150m to 1km of the north and east of the Otway Ranges and within the Otway Ranges are included in Landscape type 3. As any bushfire moves out of the forest, extreme bushfire behaviour is to be expected including high levels of ember attack. Ember attack is likely to ignite multiple grassfires.

These grassland areas are included in this elevated landscape type as movement further away from the forest edge may be problematic, meaning access to a safer area is not certain. Sheltering within a location is likely to therefore be necessary. The potential for grassfires and their scale combine to create high risk locations, resulting from proximity to the Otway Ranges.

Directing growth to Landscape type 3 areas (grasslands) are likely to be unfavourably assessed against locational policies in *c13.02-15 Bushfire Planning*.

#### Larger settlements in the Otway Ranges

Locations in Lorne, Anglesea and Aireys Inlet beyond the settlement / hazard edge are included in landscape type 3. These locations broadly match areas included in a single dwelling schedule to the Bushfire Management Overlay in the planning scheme. They reflect land separated from settlement / hazard edges and where the settlement setting affords some protection from some forms of bushfire attack.

Any (relatively) safer areas may involve sheltering in the open air during high to extreme levels of ember attack, in combination with seasonal populations located within the settlements during the bushfire season. These make sheltering more uncertain. For this reason, they are high risk locations and warrant Landscape type 3 being applied.

The inclusion of parts of the larger settlements in the Otway Ranges within Landscape type 3 rather than a higher risk area again is based on the proximity to lower fuel areas, not any meaningful relief from extreme fire behaviour arising from the Otway Ranges. It is important to reinforce that even at Landscape type 3, they are high risk locations where neighbourhood scale destruction is to be expected.

These areas are limited in their spatial extent and are already developed. Their potential to absorb settlement growth is limited to urban consolidation / in-fill type development and non-dwelling development (for example, visitor accommodation), in any event.

# Directing growth to Landscape type 3 areas (Otway Ranges larger settlements) are likely to be unfavourably assessed against locational policies in *c13.02-1S Bushfire Planning.*

#### 5.6 Landscape type 4 areas

Landscape type 4 is described by DELWP (2017) as follows:

- The broader landscape presents an extreme risk
- Bushfires may have hours or days to grow and develop before impacting
- Evacuation options are limited or not available

The balance of land influenced by the Otway Ranges is assessed as Landscape type 4. These locations are either isolated within the Otway Ranges (for example, Eastern View) or directly interface with forested areas (for example, the edges of Lorne and Anglesea, land on the immediate grassland edge of the Otway Ranges).

These are high to extreme risk locations.

# Directing growth to Landscape type 4 areas are likely to be unfavourably assessed against locational policies in *c13.02-15 Bushfire Planning*.

#### 5.7 Commentary on selected high risk locations

#### 5.7.1 Coastal towns along the Great Ocean Road

Coastal towns including Lorne, Aireys Inlet and Anglesea are assessed as Landscape type 3 and 4 in this report. The basis for this is described earlier in this chapter.

The bushfire risk for coastal towns does not arise solely from vegetation on a potential development site or close to a development site (100-200m). The risk also arises from hazards in the wider landscape. This is a key driver of these coastal towns being high risk.

There is no feasible hazard (vegetation) removal option that would create low risk outcomes within or adjoining coastal towns. Some forms of bushfire attack may be mitigated or moderated (like flame contact from a moving bushfire) by removing large areas of vegetation. However, other forms of bushfire attack, including extreme ember attack, will remain as a driver of a high risk location. Most houses are lost from ember attack in Victoria.

In a scenario where development does proceed, bushfire requirements in coastal towns will result in vegetation on and around a proposal being substantially modified and/or removed. It is to be expected that this could affect biodiversity and conservation values where development is inserted into previously vegetated areas.

*c13.02-15 Bushfire Planning* requires the biodiversity impact of development to be fully considered, alongside other planning scheme requirements. If the biodiversity impacts are unacceptable, this can only be resolved in a planning decision by development not proceeding. Compromising bushfire requirements and diminishing life safety outcomes is not a feasible outcome to advance non-bushfire considerations such as vegetation protection.

If development is acceptable under bushfire considerations, including with vegetation modification and removal, the triggering of native vegetation requirements including offsets can materially affect the viability of development, in any event. There is therefore consequences on other policy areas with implementing bushfire protection measures. These should be fully considered before strategic plans factor in vegetation removal or modification.

It is important to be aware of these implications if more detailed planning sought to introduce new growth into coastal towns, contrary to the advice in this report, on the basis that vegetation could be removed to manage bushfire risks.

#### 5.7.2 Anglesea Futures Land Use Framework Plan

The Victorian Government has released its Anglesea Futures Land Use Framework (AFLUF) for the future of the former Alcoa coal mine and power station site in Anglesea. The AFLUF does not rezone any land nor approve any development, which will need to go through standard planning processes.

This locality is assessed as Landscape Type 4 in this report and is a high-risk location.

A key emphasis in the AFLUF is recreation and tourism. These can be contemplated in high risk areas as the future planning decision can deploy closure of the use on high-risk bushfire days. This affords a level of risk reduction that can be material to the exercise of discretion under *c13.02-1 Bushfire Planning* and *c44.06 Bushfire Management Overlay*. Recent evidence of this approach arose in the Warburton mountain bike trial planning decision.

An element of the ALFUF contemplates the introduction of 'rural living' development into Area 10. The commentary associated with this proposal is somewhat limited. The Victorian Government reiterates in the document that standard planning process will need to be deployed.

The ALFUF assessment of bushfire is more enabling of future development than the assessment in this report would support. Its conclusions that risk can be reduced to an acceptable level are not supported by information on what it deems to be acceptable and whether the full weight of *c13.02-1S Bushfire Planning* has been considered.

This is especially the case having regard to the future planning scheme decision making on the land that would require considerations of:

- Modelled loss of housing.
- Potential for neighbourhood scale destruction.
- Access to low fuel areas for shelter.
- Whether there are alternative lower risk locations for development.

It would be prudent for the Council to proceed cautiously with any proposal that contemplates new housing in this locality in the absence of a thorough assessment that is capable of withstanding scrutiny through standard planning processes.

### FIGURE 5A: Overview of Landscape Types

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

Landscape types assist in:

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

Landscape types when applied provide a spatial representation of how different areas are affected by landscape scale bushfire considerations. Based on this, places that are relatively higher or lower risk emerge.

The diagram on this page summarises landscape types.

<ul> <li>There is little vegetation beyond 150 metres of the site (except grasslands and low- threat vegetation)</li> <li>Extreme bushfire behaviour is not possible</li> <li>The type and extent of vegetation is unlikely to result in neighbourhood scale destruction of property</li> <li>Immediate access is available to a place that provides shelter from bushfire</li> </ul>	<ul> <li>The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site</li> <li>Bushfire can only approach from one aspect and the site is located in a suburban, township or urban area managed in a minimum fuel condition</li> <li>Access is readily available to a place that provides shelter from bushfire. This will often be the</li> </ul>	<ul> <li>The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site</li> <li>Bushfire can approach from more than aspect</li> <li>The area is located in an area that is not managed in a minimal fuel condition</li> <li>Access to an appropriate place that provides shelter from bushfire is not certain</li> </ul>	<ul> <li>The broader landscape presents an extreme risk</li> <li>Bushfires may have hours of days to grow and develop before impacting<sup>1</sup></li> <li>Evacuation options are limited or not available</li> </ul>
Lower risk from the bushfire landscape		Higher risk fron	n the bushfire landscape <sup>1</sup> Adapted by auth

## FIGURE 5B: Landscape Types in Surf Coast Shire



## FIGURE 5C: Landscape Types in Surf Coast Shire (inset maps)











Boundaries shown on this plan are schematic only and should not be scaled to property boundaries



# 6. Township analysis of lower risk locations

#### 6.1 About this chapter

This chapter further assesses townships and locations which are low risk, defined in this report as being within Landscape type 1 and 2 areas. At the sub-regional and municipal scale, these areas can be favourably assessed against locational policies in *c13.02-1S Bushfire Planning*.

#### See Figure 6A: Locations assessed in this chapter

The further assessments consider the following policies in *c13.02-15 Bushfire Planning*:

- 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.
- 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.

It also provides preliminary recommendations for how township growth could be optimised for bushfire purposes.

Some low risk locations are not further assessed owing to the Surf Coast SPP. The Surf Coast SPP includes a protected settlement boundary around Bellbrae, Mount Duneed and Connewarre. There have limited potential for urban growth as they are developed areas and identified for minimal change. These policy constraints mean they are unlikely to be progressed as part of the UFS for urban growth. They are not therefore assessed any further in this chapter.

The Surf Coast SPP includes a protected settlement boundary around Torquay-Jan Juc, similar to the other settlements described above. However, the Surf Coast SPP identifies:

- Areas for substantial change. These are within and adjoin the town centre. They are low risk locations and need not be further assessed.
- Future settlement areas, north-west of the existing settlement. This area is further assessed in this chapter.

See Attachment 1: Contextual information on higher risk locations See Attachment 2: Contextual information on locations constrained by the Surf Coast SPP

#### 6.2 Analysis in this chapter

For each township, contextual information, existing zones, EVCs, whether the land is within a bushfire prone area or bushfire management overlay and the slope / contours are shown.

This is then supported by an assessment plan which:

- Confirms if land would be capable of meeting the 12.5kw radiant heat / BAL12.5 benchmark required by *c13.02-15 Bushfire Planning*. For each township, this is confirmed.
- Bushfire <u>preferable</u> directions for growth. These are directions which would optimise future development on bushfire considerations.
- Bushfire <u>acceptable</u> directions for growth. These are directions which would also give effect to *c13.02-1S Bushfire Planning*.
- If relevant, whether there were any priority interfaces where strategic or structure planning could focus township level bushfire protection, including creating bushfire optimised interfaces with bushfire hazards.

The above considerations are intended to provide a stepping off point for future strategic and structure planning.

#### 6.3 Focus for future structure and strategic planning

It will be important that bushfire is considered at the township, neighbourhood and structure planning stage to ensure the full suite of bushfire policy and considerations are applied. This will be especially important for land outside of the Bushfire Management Overlay where the requirements in *c53.02 Bushfire Planning* would not routinely apply, which is the case for most of the existing lower risk townships in Surf Coast Shire.

Particularly important factors to consider include:

- Ensuring effective interfaces with bushfire hazards to prevent a moving bushfire entering township areas. Perimeter roads are likely to be necessary to achieve this.
- Ensuring that existing low fuel areas are not compromised by revegetation and continue to be available to support resilience, especially where they provide safer places for people to move to in the event of a bushfire or grassfire.
- Planning scheme barriers to implementing bushfire vegetation requirements (and creating defendable space) are avoided or minimised.

• A perimeter road being provided separating the hazard from low-fuel developed areas.

*Design Guidelines: Settlement Planning at the Bushfire Interface (DELWP 2020)* provides guidance on implementing bushfire optimised outcomes.

#### 6.4 Conclusions

The Landscape type 1 and 2 locations that are strategically favourable for growth and development are, when assessed at a township scale, capable of giving effect to *c13.02-1S Bushfire Planning*.

There is no bushfire barrier to any of the selected locations being considered and progressed for future growth and development as part of the UFS.

## FIGURE 6A: Locations assessed in this chapter



### FIGURE 7A: DEANS MARSH – Contextual Information

#### Zones



Bushfire Management Overlay (BMO) and Bushfire Prone Area (BPA)

**Ecological Vegetation Classes** 



Slope based on 10m contour



#### FIGURE 7B: DEANS MARSH – Settlement Scale Assessments and Recommendations



## FIGURE 8A: MORIAC - Contextual Information

#### Zones



Bushfire Management Overlay and Bushfire Prone Area



**Ecological Vegetation Classes** 



Slope based on 10m contour



#### FIGURE: 8B MORIAC - Settlement Scale Assessments and Recommendations





## FIGURE 9A: TORQUAY FUTURE SETTLEMENT AREA - Contextual Information

#### Zones



Bushfire Management Overlay and Bushfire Prone Area





Slope based on 10m contour





FIGURE 9B: TORQUAY FUTURE SETTLEMENT AREA- Settlement Scale Assessments and Recommendations



## FIGURE 10A: WINCHELSEA - Contextual Information

#### Zones



Bushfire Management Overlay and Bushfire Prone Area



**Ecological Vegetation Classes** 



Slope based on 10m contour





#### FIGURE 10B: WINCHELSEA- Settlement Scale Assessments and Recommendations



# 6a. 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 attended a briefing with the report author and Council officers on 23 March, 2023. Their comments have informed updates to this report. These contribute significantly to its purpose as a tool to support strategic planning.

#### See Attachment 4: CFA advice in response to draft report

In summary, the CFA advised the following:

- CFA recognises the considerable effort taken in the report to establish the planning context and the complex drivers of risk within the footprint.
- CFA notes the recommendations in the report and, whilst we have detailed comments below, these comments don't detract from the recommendations made.
- CFA notes the complex variable risk environment within the Surf Coast Shire, in particular noting that some of the highest and most complex bushfire risk within the State of Victoria exists within this footprint.
- Landscape Type Mapping (All Figures 5), CFA considers this mapping approach to be of significant value.
- Based on the information provided and discussions; CFA considers that the recommendations and the underpinning methodology behind the recommendations are effective given the complex risk within the Shire.

#### **Bushfire hazard comments**

The CFA provided comments on potentially emerging updating risk modelling, sought greater emphasis on ember attack arising from the Otway Ranges and access / egress challenges, and the need for effective settlement interfaces. These comments have been accommodated in full in this final report within the applicable section.

#### Settlement comments

The CFA provided comments on individual settlements.

#### Deans Marsh

- CFA considers the proposal for Deans Marsh can be implemented through sound and effective planning.
- CFA in particular notes the Priority Interface Edge on Figure 7B marked in red and will encourage Surf Coast Shire to implement
- *CFA considers there is opportunity to harden the existing boundary to the South East which currently creates a W shape.* [This has been added to Figure 7B.]

#### <u>Moriac</u>

• CFA notes the acceptable directions for future growth. However, CFA considers there is opportunity for a preferred direction of growth into the North Western section and a hardening of alignment with the road network in that interface.

The Council is preparing the Moriac Structure Plan. This includes engagement with the CFA on the future growth of Moriac. The CFA advice has been added to Figure 8B, along with an emphasis that creating bushfire optimised interfaces with bushfire hazards to the north-west is desirable. This is because there is the potential for a moving grassfire to enter the settlement in these areas due to legacy development and the current lack of an effective interface.

#### Torquay

- Whilst CFA does not specifically object to the proposed acceptable growth locations, CFA notes the "Apply standard Precinct Structure Planning Bushfire Requirements in Structure Planning" statement.
  - CFA believes that Torquay provides significant opportunity for growth. But that there is careful consideration needed in some areas.
  - CFA would like to be involved very early in the Structure Planning process to ensure appropriate planning and risk management is implemented at the earliest possible stage

 CFA notes the future settlement area boundary and would like to have further engagement around the form and function of that boundary; in particular to ensure that engineered form is used to enact the proposed edge.

The Council can continue to work with the CFA on settlement and structure planning for Torquay, in the context of the significant constraints on its growth resulting form the Surf Coast SPP.

The need for bushfire optimised settlement interfaces with bushfire hazards on the north-west boundary of the Torquay Future Settlement Area has been added to Figure 9B.

#### **Winchelsea**

- CFA strongly supports future growth in Winchelsea and notes it is well positioned to design low bushfire risk developments, but as identified in Fig 10B the settlement boundary is currently challenging effective bushfire risk mitigation.
- CFA will strongly encourage Surf Coast to harden the urban boundary in multiple locations. In particular around the South and South East Preferred Directions as you have identified Fig 10B.

The CFA advice has been added to Figure 10B. Their comments reflect the lack of an effective hazard interface and the potential for a moving grassfire to enter settlement areas. Creating bushfire optimised settlement interfaces with bushfire hazards when planning for new development provides an opportunity to better manage the risk to existing development and deliver high standard settlement / hazard interfaces.

# 7. Conclusions and recommendations

#### 7.1 Commentary

This report has considered the bushfire risk of settlements and places as well as the relative bushfire risk between and within settlements, to inform the Urban Futures Strategy.

Directing growth to lower risk locations (Landscape type 1 and 2) is an effective strategy and would give effect to *c13.02-15 Bushfire Planning*. These locations include the existing settlements in Moriac, Deans Marsh and Winchelsea and the proposed Torquay future settlement area as specified in the SPP. Entirely new settlements in Landscape type 1 and 2 locations, if they were ever to arise, would also be acceptable.

The neighbourhood scale assessment of lower risk settlements confirms that they can be developed to accord with *c13.02-1S Bushfire Planning*. Future settlement and structure planning can consider the initial directions identified in this report.

The Urban Futures Strategy should avoid directing growth to higher risk locations (Landscape type 3 and 4) as part of a credible strategy to give effect to *c13.02-1S Bushfire Planning*. This includes settlements within and in close proximity to the Otway Ranges.

Other lower risk land is limited for future growth due to protected settlement boundaries in the Surf Coast SPP. The effect of this will likely be reinforcing the role of existing settlements in the north of the Shire (for example, Moriac and Winchelsea) as locations for growth within the UGF. If not for the Surf Coast SPP, all land to the north and east of Torquay up to the municipal boundary would be low risk locations for growth and acceptable locations to direct development.

Bushfire policies are unlikely to permit growth to be displaced from the SPP area into the Otway Ranges landscape, even if other environmental constraints could be overcome or if there were areas of grasslands within the Otway Ranges that could be available for growth and development. This includes, for example, land to the north of Lorne and Anglesea.

#### 7.2 Recommendations

Based on the assessments in this report, it is possible to provide high-level recommendations to inform the development of the UFS and any new planning scheme content having regard to locational policies in *c13.02-1S Bushfire Planning*.

Recommendation 1: Locations for growth in preparing the Urban Futures Strategy

Directing growth as part of the Urban Futures Strategy to Landscape type 1 and 2 locations would be favourably assessed against locational policies in *c13.02-1S Bushfire Planning*. This includes the existing townships of Moriac, Deans March and Winchelsea, the proposed Torquay future settlement area, and any new settlements within Landscape type 1 and 2.

• Recommendation 2: Locations less suitable for growth in preparing the Urban Futures Strategyy

New planning scheme proposals directing growth as part of the Urban Futures Strategy to Landscape type 3 and 4 locations should be avoided.

#### Recommendation 3: Future strategic and structure planning

The information from this strategic bushfire assessment be available to be considered as part of the development of the Shire-wide Urban Future Strategy and to inform future structure planning in the lower risk settlements analysed in this report.

## References

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

Surf Coast Planning Scheme

Surf Coast Statement of Planning Policy (2022)

Attachment 1: Contextual information on higher risk locations

### ATTACHMENT 1 FIGURE 1: AIREYS INLET, FAIRHAVEN & MOGGS CREEK - CONTEXTUAL INFORMATION

Zones



Bushfire Management Overlay and Bushfire Prone Area



**Ecological Vegetation Classes** 



Slope based on 10m contour





#### ATTACHMENT 1 FIGURE 2: ANGLESEA – CONTEXTUAL INFORMATION

#### Zones



Bushfire Management Overlay and Bushfire Prone Area



**Ecological Vegetation Classes** 



Slope based on 10m contour



## ATTACHMENT 1 FIGURE 3: LORNE - CONTEXTUAL INFORMATION

#### Zones



Bushfire Management Overlay and Bushfire Prone Area



**Ecological Vegetation Classes** 



Slope based on 10m contour



Attachment 2: Contextual information on locations constrained by the Surf Coast SPP

### ATTACHMENT 2 FIGURE 1: MOUNT DUNEED & CONNEWARRE - Contextual Information

#### Zones



**Ecological Vegetation Classes** 



Slope based on 10m contour





## ATTACHMENT 2 FIGURE 2: TORQUAY, JAN JUC & BELLBRAE (OTHER THAN TORQUAY FUTURE SETTLEMENT AREA) – Contextual Information





Bushfire Management Overlay and Bushfire Prone Area

**Ecological Vegetation Classes** 



Slope based on 10m contour





## ATTACHMENT 3: EXTRACTS: REGIONAL BUSHFIRE PLANNING ASSESSMENT BARWON SOUTH WEST REGION (DPCD)

## SURF COAST – IDENTIFIED AREA DESCRIPTION TABLE

REA CODE	LOCATION	IDENTIFIED AREA DESCRIPTION
65-001	Deans Marsh	The township of Deans Marsh includes a mix of small lots and medium size lots in the Township Zone and Low Density Residential Zones respectively.
		Vegetated areas are located surrounding the settlement in riparian corridors extending into Deans Marsh from the Great Otway National Park.
65-002	Lorne	Multiple bushfire matters include:
		• cluster of small and medium size lots in excess of 0.4 hectares located along the Great Ocean Road in or in close proximity to bushfire hazard areas
		• lots have direct interfaces with Great Otway National Park and associated bushfire hazard areas
		• scattered vegetation throughout the settlements extends the interface between the Great Otway National Park and urban areas
		• grassland and coastal scrub provide additional interfaces between the Great Otway National Park and settlement boundaries
		• extensive areas are mapped as containing vegetation of high and very high conservation significance
		• strategy for Lorne identifies potential for urban growth.
65-003	Gherang	Clusters of medium size lots located in a rural landscape with patches of vegetation surrounding development and linking to the broader forested areas associated with the Great Otway National Park and vehicle proving ground to the south.
65-004	Anglesea	Grass and scrubland surrounding the Anglesea River, estuary, golf course and coastline are a known bushfire hazard to the Anglesea settlement.
65-005	Bellbrae	Clusters of developed and undeveloped lots in an area of rural conservation significance surrounding Gundrys and Vickerys Roads.
		The settlement interfaces and extends in a vegetated landscape and associated bushfire hazard to the south.
65-006	Bells Beach	Clusters of developed and undeveloped medium size rural-residential lots in excess of 0.4 hectares in or in close proximity to bushfire hazard area.
		Developed and undeveloped lots along the coastline have a direct interface with scrubland and associated bushfire hazard. Rural lots to the north directly interface with scattered vegetation and bushfire hazards.
65-007	Bellbrae	Cluster of small and medium size lots in a rural landscape setting with direct interfaces to scattered vegetation and riparian corridors.
		These features establish an area of interest in relation to bushfire considerations given the presence of bushfire hazards in and around established settlements.
65-008	Aireys Inlet / Fairhaven	Multiple bushfire matters include:
	/ Eastern View / Moggs Creek Big Hill	• presence of a mixed settlement pattern including a range of lot sizes containing vegetated landscape located along the Great Ocean Road in or in close proximity to bushfin hazard areas.
		• settlements have multiple interfaces with Great Otway National Park and associated bushfire hazard areas
		• multiple single dirt and constructed access roads servicing clusters of dwellings throughout the area
		• grassland and coastal scrub provide additional interfaces between the Great Otway National Park and settlement boundaries
		• extensive areas contain vegetation of high and very high conservation significance.
65-009	Anglesea	The settlement of Anglesea is located in and at the foothills of the Great Otway National Park. Bushfire hazard interfaces surround and penetrate the urban settlement.
65-010	Deans Marsh	South-western boundary of Deans Marsh interfaces with the Great Otway National Park and associated bushfire hazard.
65-011	Lorne	The Lorne Framework Plan identifies potential low density residential areas north and west of the township for investigation in a vegetated area of bushfire hazard.
65-012	Bells Beach / Anglesea	Grasslands are a known bushfire hazard which provide an interface between the forested area of the Great Otway National Park and Bells Beach. Area contains scattered lot in a vegetated landscape.

## SURF COAST - IDENTIFIED AREA DESCRIPTION TABLE cont...

IDENTIFIED AREA CODE	LOCATION	IDENTIFIED AREA DESCRIPTION
65-013	Lorne	The settlement of Lorne directly interfaces with the Great Otway National Park and surrounding environs. Development penetrates vegetated areas containing significant landscapes of high and very high conservation value.
65-014	Aireys Inlet / Fairhaven / Eastern View / Moggs Creek Big Hill	Multiple boundaries of these settlements interface with bushfire hazard.
65-015	Anglesea	Development pressure is being experienced north-east of the Anglesea settlement in proximity to a bushfire hazard area associated with the Great Otway National Park.
65-016	Jan Juc	Northern and western boundaries of Jan Juc interface with scattered remnant vegetation and bushfire hazard. The lots in these areas are generally medium size. The density decreases and pattern of development becomes less frequent as it approaches vegetated bushfire hazard areas.
		Developed lots along the coastline have a direct interface with scrubland and associated bushfire hazard.

Regional Bushfire Planning Assessment | BARWON SOUTH-WEST REGION 35



## Attachment 4: CFA advice in response to draft report

From: Sent: To:

Subject:

Tuesday, 2 May 2023 12:42 PM

RE: Surf Coast Urban Futures Strategy draft for CFA engagement

#### Hi Kevin,

Summary:

Thank you for taking the time to engage with CFA early in relation to the Draft Surf Coast Urban Futures proposal CFA notes the meeting we participated in with Surf Coast and yourself in the past weeks and values the early ongoing engagement. I have reviewed the draft Strategic Bushfire Assessment and offer the following comments. Noting that this is a draft prior to formal consultation –

Preliminary CFA Comments on Draft Surf Coast Shire Strategic Bushfire Assessment

- CFA recognises the considerable effort taken in the report to establish the planning context and the complex drivers of risk within the footprint.
- CFA notes the recommendations in the report and, whilst we have detailed comments below, these
  comments don't detract from the recommendations made.

#### **Detailed Response:**

#### **Bushfire Hazard:**

- CFA notes the complex variable risk environment within the Surf Coast Shire, in particular noting that some
  of the highest and most complex bushfire risk within the State of Victoria exists within this footprint.
- CFA notes the risk data modelled in Figure 3C. However, there may be value in updating this in line with
  recent Office of Bushfire Risk Management Risk 2.0 modelling when it becomes available.
- The report notes two likely scenario's to assist in contextualising the risk. CFA considers this a useful
  approach. However, given the fire history, experience and likely scenarios in the study area CFA
  recommends scoping the Otway Scenario further to
  - emphasis the significant likelihood of massive ember storm and the resulting impact including human behaviour related issues (late evacuation).
  - Contextualise the access egress risk issues associated with the Otway Ranges and the need for excellent planning to support early evacuation
- In relation to the grassland hazard (4.3.2 through to 4.5); CFA does not disagree with any of the context
  provided. However, given the potential and likelihood of massive ember ingress into grasslands from the
  Otway Ranges (more so than most areas), there is value in emphasising the need from hard, engineered
  settlement edges to minimise risk.
- Landscape Type Mapping (All Figures 5), CFA considers this mapping approach to be of significant value.

#### Deans Marsh

- CFA considers the proposal for Deans Marsh can be implemented through sound and effective planning.
- CFA in particular notes the Priority Interface Edge on Figure 7B marked in red and will encourage Surf Coast
   Shire to implement
- CFA considers there is opportunity to harden the existing boundary to the South East which currently creates a W shape.

#### Moriac

CFA notes the acceptable directions for future growth. However, CFA considers there is opportunity for a
preferred direction of growth into the North Western section and a hardening of alignment with the road
network in that interface.

#### Torquay

- Whilst CFA does not specifically object to the proposed acceptable growth locations, CFA notes the "Apply standard Precinct Structure Planning Bushfire Requirements in Structure Planning" statement.
  - CFA believes that Torquay provides significant opportunity for growth. But that there is careful
    consideration needed in some areas.
  - CFA would like to be involved very early in the Structure Planning process to ensure appropriate planning and risk management is implemented at the earliest possible stage
- CFA notes the future settlement area boundary and would like to have further engagement around the form
  and function of that boundary; in particular to ensure that engineered form is used to enact the proposed
  edge.

#### Winchelsea

- CFA strongly supports future growth in Winchelsea and notes it is well positioned to design low bushfire risk developments, but as identified in Fig 10B the settlement boundary is currently challenging effective bushfire risk mitigation.
- CFA will strongly encourage Surf Coast to harden the urban boundary in multiple locations. In particular
  around the South and South Eash Preferred Directions as you have identified Fig 10B

#### Conclusion

 Based on the information provided and discussions; CFA considers that the recommendations and the underpinning methodology behind the recommendations are effective given the complex risk within the Shire.

Cheers



#### Manager Community Safety South West Region – 92-94 Coleraine Road, Hamilton, Vic

**Protecting lives and property** 



I acknowledge and pay my respects to the traditional custodians of this land, and to elders past and present

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