LIMESTONE COAST

BUSHFIRE MANAGEMENT AREA PLAN

This Plan has been developed as part of a project funded by the Natural Disaster Resilience Program (NDRP) in partnership with the Commonwealth and State Governments of South Australia.

Government of South Australia

July 2016

Front page photograph: Bushfire at Messent CP, Upper South East, South Australia - December 2015

Document Control

Version	Date	Summary of Changes	Author
0.1	9 June 2016	Draft V0.1 authored by the BMPU and incorporating information, suggestions and amendments from multiple stakeholders and from public consultation period (27 April – 3 June 2016) was tabled for endorsement at the Limestone Coast BMC 9 June 2016 public consultation.	BMPU/BMC
0.2	22 June 2016	Following the adoption of amendments to Draft V0.1, as moved by the LC BMC, Draft V0.2 was endorsed by the LC BMC on 9 June 2016.	BMPU/BMC
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1.0	5 July 2016	Signed by Chair of SBCC for publication	BMPU/BMC

Endorsements

This document requires the following endorsements by the LC BMC:

Version	Date	Name	Title	Signature
0.2	10 June 2016	Jason Druwitt (Acting Regional Commander CFS Region 5)	Chair, Limestone Coast BMC *(on behalf of LC BMC)*	

Approvals

This document requires the following approvals by the SBCC:

Version	Date	Name	Title	Signature
1.0	5 July 2016	Greg Nettleton (CFS Chief Officer)	Chair, State Bushfire Coordination Committee *(on behalf of the SBCC)*	

Distribution

This is a web based, live and publically accessible Plan. Updated versions are loaded onto the web site (www.cfs.sa.gov.au). No hard copy versions are produced or distributed.

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1 INTRODUCTION

Bushfire cannot be eliminated from the landscape, and there are circumstances when fire cannot be controlled, however planning and preparedness activities can reduce the frequency, spread and impact of bushfire events. The Limestone Coast is a bushfire prone environment with significant numbers of people, assets and areas of environmental sensitivity. The *Fire and Emergency Services Act 2005 (FES Act 2005)*, outlines the responsibilities of key Government organisations, the community and the public to prepare for, prevent or inhibit the spread of any bushfire.

The Limestone Coast Bushfire Management Area Plan (BMAP) comprises of three parts:

- This written component outlining the planning process, content and other relevant information.
- An interactive spatial web-based map that identifies assets and their risk levels, and includes pop up tables of information for each asset.
- A spreadsheet containing a list of all Limestone Coast BMAP assets, their risk rating and risk treatments.

Prevention and preparedness are vital components in reducing injuries and deaths, loss of assets, financial costs and aiding community recovery. The Limestone Coast BMAP is aimed at prevention and preparedness planning, processes and actions. The Plan outlines information, strategies and actions to prevent or mitigate (reduce) bushfire impact on assets and in the landscape, rather than focusing on business continuity, emergency response or replacement costs.

Unlike past methodologies where a plan is published and remains static for a number of years before it is updated, the Limestone Coast BMAP utilises a web-based (electronic) style and methodology that enables it to be updated on a regular and ongoing basis following its initial approval and publication. The Limestone Coast Bushfire Management Committee ensures the Plan is regularly reviewed and updated and that public consultation processes are undertaken where required. *(Refer to Section 3: Roles and Responsibilities).*

At time of publication of this plan (July 2016), the existing State Bushfire Management Plan is being reviewed. The State Bushfire Management Plan is a requirement under *Section 73 of the FES Act 2005*, and sets the standards for preparation and implementation of BMAP. In the interim, this BMAP has been prepared under specifications as determined by the current State Bushfire Management Plan 2010, the State Bushfire Coordination Committee (SBCC), Bushfire Management Committees, and the CFS Bushfire Management Planning Unit.

1.1 Purpose and Scope

The *Fire and Emergency Services Act 2005 (FES Act 2005)* requires each of the nine South Australian Bushfire Management Committees (BMC's) to prepare and maintain a Bushfire Management Area Plan (BMAP). Each BMC will adopt a BMAP that will:

a. Identify existing or potential risks to values from bushfire within the BMA
b. Outline coordinated and cooperative bushfire prevention and mitigation strategies to achieve appropriate hazard reduction associated with bushfire management within its area

c. Identify asset or land custodians responsible for the implementation of the bushfire risk mitigation treatments
d. Use or establish principles and standards to guide or measure the success of the bushfire management strategies and initiatives.

The purpose of the Limestone Coast BMAP is to provide strategic direction for bushfire management planning in the Limestone Coast Bushfire Management Area (BMA) (*refer to location map on page 6*), through the identification of strategies for bushfire risk modification to selected assets and areas and across the landscape, regardless of tenure. The Plan will be used by state and local government land management organisations to guide the development of bushfire management works plans for areas of land under their responsibility. Local government work plans will guide the establishment/development of bushfire mitigation works on private lands

The Plan also provides essential inputs into State and Local Government planning, the application of building codes, fuel load management, planning for emergency management response, and prioritising of resources for sound mitigation decisions during an emergency.

Following an assessment of bushfire risks and the adequacy of current control measures within the Limestone Coast BMA, additional risk treatment strategies have been determined that aim to improve the resilience of the wider community and the assets identified in the plan.

The scope of the Limestone Coast BMAP encompasses a range of asset categories and landscape wide areas of potential bushfire risk. Asset categories include areas of human settlement; industrial and business areas; and assets of cultural significance to local communities or the State. *(Refer to Section 4.3: Assets at Risk from Bushfire).* Selected areas of bushfire concern that relate to multiple assets or the movement of bushfire through the broader landscape have been included and mapped as Landscape Treatment Investigation Areas. These proposed areas of investigation require further assessment and consultation with stakeholders to determine the most effective, acceptable and achievable vegetation management strategies to directly reduce the intensity and movement of fire through the landscape and the impact of bushfire on a cluster of assets. Bushfire safety requires a partnership approach and is a shared responsibility between government agencies, the private sector, non-government organisations, individuals and the wider community. The planning process ensures consultation strategies provide all stakeholders with the opportunity to contribute to fire management planning and thus undertake appropriate action to address the risk of bushfire.

1.2 Objective

The protection of people, property and the environment is the fundamental objective of this plan, as a shared responsibility between government and the community. Members of the community are required to contribute to mitigating bushfire risk. The risk assessment process focusses predominantly on what can be measured (vegetation, fire intensity, separation distance, weather, topography, building resilience, access routes etc.) and what can be managed by applying risk treatment strategies.

The objective of this plan is to:

a. Document the outcome of the Limestone Coast BMC identification and assessment of the bushfire risk to assets within the Limestone Coast BMA;
b. Capture the current and future risk treatment strategies;
c. Identify those asset or land custodians responsible for implementing treatment strategies to manage the risks and reduce the community's vulnerability to bushfire by improving preparedness utilising local knowledge, experience and expertise;
d. Support and inform planning at a local level; and
e. Inform stakeholders of the potential bushfire risk within the Limestone Coast BMA.

Assessment of the strategies to protect other assets with the Limestone Coast BMA will need to be reviewed as the strategies are implemented.

1.2.1 Constraints, Assumptions and Exclusions

It is not currently feasible to include and risk assess every parcel of land, building or area in the Limestone Coast. However, this does not mean that land, assets, communities or people who are not specifically identified in this Plan by a point, polygon or line have no level of risk. Every landholder has a responsibility to undertake bushfire prevention and preparedness activities relevant to their location and situation.

Data on the location and nature of environmental assets has been collected however, restricted timeframes and resources have delayed the development of a risk assessment process and related management strategies specific to environmental assets. Any identification and assessment of risk levels and risk treatment strategies for environmental assets must include a determination of potential impacts on significant species and ecological communities. As a result, environmental assets and related management strategies will be included in a subsequent update of this online Limestone Coast BMAP following a period of public consultation. This will include conservation and recreation parks and other areas people visit for hiking and recreation. It is planned to have the completed environmental asset information included by November 2016. *(Refer to Section 4.3.7: Environment).*

The initial list of Landscape Treatment Investigation Areas *(refer to Section 1.1: Purpose and Scope and Section 5.2.1: Landscape Treatment Investigation Areas)* does not represent an exhaustive or priority-based list of all potential landscape treatment investigation areas. Additional areas may be included following further risk assessment, identification and consultation with affected landowners. This includes identifying and assessing risk treatment strategies to determine their impact on significant species and communities.

On the advice of the Department of the Premier and Cabinet – Aboriginal Affairs and Reconciliation Division, to prevent damage, disturbance or interference with any Aboriginal site or object, assets of Aboriginal cultural and spiritual significance will not be specifically identified in this iteration of the plan. Further consultation with relevant stakeholders will be undertaken on the methodology for including assets of Aboriginal significance in the Plan.

This Limestone Coast BMAP does not include details for implementation, monitoring, review or reporting. These requirements will be set out in the State Bushfire Management Plan and undertaken as part of the BMAP implementation process.

Weather conditions complemented by appropriate fuel structure, arrangement and load, play a significant role in the likelihood of a bushfire occurring and its behaviour and intensity, should it occur. As part of determining these calculations, risk assessments have been based on inputs derived from Bureau of Meteorology (BOM) weather data over the fire ban period (October to April) for the last 5-7 years for the fire ban districts in each bushfire management area throughout the state.

Formulas and data used during risk assessment workshops and in the development of this plan have been based on the best available information at the time of development, and may be subject to change over time as more accurate data and information becomes available.

1.2.2 Considerations in developing the Bushfire Management Area Plan

The following considerations have been applied in the development of the BMAP:

- Protection and preservation of life
- Protection of critical infrastructure and community assets that support community resilience
- Protection of residential property as a place of primary residence
- Protection of assets supporting livelihoods, economic production and community financial sustainability
- Protection of cultural assets
- Protection of environmental and conservation assets
- Compliance with relevant Act, Codes of Practice and Regulations

1.3 Legislation

1.3.1 Fire and Emergency Services Act

A BMAP is a requirement under the *FES Act 2005 Section 73A*. In particular *Section 73A(1)* requires the BMC to prepare and maintain a BMAP for its area. *Section 73A(3)* outlines that the BMAP must:

a. identify existing or potential risks to people and communities within its area from bushfire; and
b. outline strategies to achieve appropriate hazard reduction associated with bushfire management within its area, especially through a coordinated and cooperative approach to bushfire prevention and mitigation; and
c. identify action that should be taken by persons, agencies and authorities to achieve appropriate standards of bushfire management within its area; and
d. without limiting points (b) and (c), establish or adopt principles and standards to guide or measure the successful implementation of bushfire management strategies and initiatives; and
e. include or address other matters prescribed by the regulations or specified by the State Bushfire Coordination Committee (SBCC).

The following *Sections 73A(4) and 73A(5)* direct that the BMAP must be consistent with the State Bushfire Management Plan, and such other plans, policies and strategies as may be prescribed by the regulations for the purposes of this paragraph. Also, that the plan is to be reviewed at least once every four years by the BMC, or at the direction of the SBCC.

1.3.2 Local Government Act

Section 7 of the Local Government Act 1999 specifies the principle functions of a Council. The functions that are specific to this plan include:

- *Section 7(d):* to take measures to protect its area from natural and other hazards and to mitigate the effect of such; and
- *Section 7(f):* to provide infrastructure for its community and for development within its area (including infrastructure that helps to protect any part of the local or broader community from any hazard or other event, or that assists in the management of any area).

Additionally *Section 8(d) of the Local Government Act 1999* outlines the way in which councils are required to undertake their roles and functions. It specifies the need for consistency of all plans, policies and strategies with Regional, State and National objectives and strategies concerning the economic, social, physical and environmental development and management of the community.

1.3.3 State Emergency Management Act

Section 3 of the State Emergency Management Act 2004 specifies that an "emergency means an event (whether occurring in the State, outside the State or in and outside the State) that causes, or threatens to cause:

a. The death of, or injury or other damage to the health of, any person; or
b. the destruction of, or damage to, any property; or
c. a disruption to essential services or to services usually enjoyed by the community; or
d. harm to the environment, or to flora or fauna

This is not limited to naturally occurring events (such as earthquakes, floods or storms) but would, for example, include fires, explosions, accidents, epidemics, sieges, riots, acts of terrorism or other hostilities directed by an enemy against Australia."

At a regional level, this plan will provide valuable input into the Zone Emergency Management Plan (ZEMP) in relation to rural fire.

1.3.4 Acts, Codes and Regulations Influencing Bushfire Management Planning

The following Acts, Codes of Practice and Regulations need to be considered in bushfire management practices and planning:

- *Native Vegetation Act 1991 (SA) Section 29*
- *Native Vegetation Regulations 2003 (SA) Section 5A-1 and 5(1)(zi)*
- *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) Section 18 and 269AA*
- *Code of Practice for fire management on Public Land in South Australia 2012-2016*
- *National Parks and Wildlife Act 1972 (SA)*
- *Wilderness Protection Act 1992 (SA)*
- *Crown Land Management Act 2009 (SA)*
- *Development Act 1993 Development Regulations 2008*

2 LIMESTONE COAST BUSHFIRE MANAGEMENT AREA

2.1 Location

The Limestone Coast BMAP has been developed for the Limestone Coast BMA region of South Australia. The boundary incorporates the whole of the following council areas, with the exception of northern part of the Tatiara District Council (see map below):

- City of Mt Gambier
- District Council of Grant
- District Council of Robe
- Kingston District Council
- Naracoorte Lucindale Council
- Tatiara District Council (partial boundary)
- Wattle Range Council

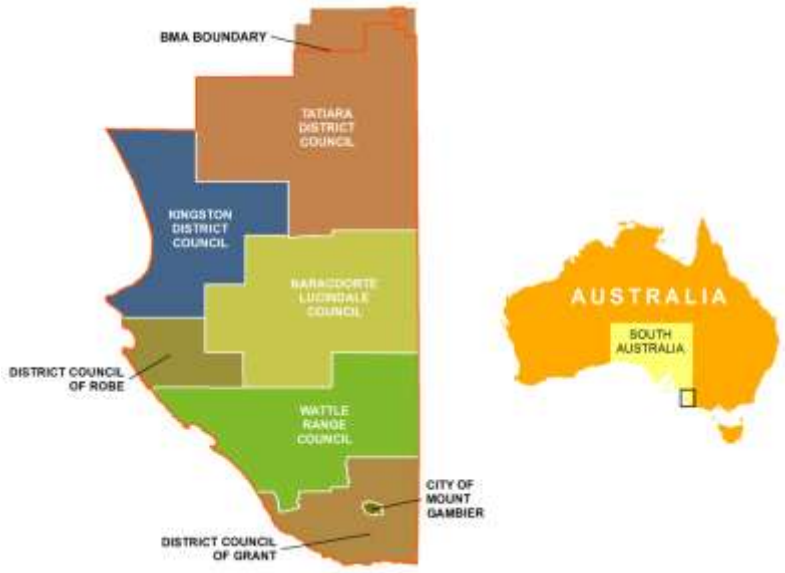


Figure 1: Limestone Coast Bushfire Management Area

2.2 Land Tenure

The following land tenure within the Limestone Coast BMA has been considered when assessing risk to life, property and the environment. The majority of the region is agricultural land, farming sheep and cattle, and horticulture (wine grapes). There are large areas of native vegetation reserves, such as those reserves managed by the Department of Environment, Water and Natural Resources (DEWNR) (15% of the region), or private land with a Vegetation Heritage Agreement under the *Native Vegetation Act, 1991*. The following list is a breakdown of the land tenure types found within the region:

Private:

- Allotments in towns and settlements
- Commercial business premises

- General farming and primary production properties
- Heritage Agreement areas
- Wind farms

State Government:

- DEWNR-managed reserves and Crown lands
- ForestrySA
- SA Water collection basins
- South Eastern Water Conservation and Drainage Board

Council:

- Road reserves
- Community lands
- Coastal reserves
- Caravan parks
- Camping reserves

Australian Rail Track Corporation:

- Care and control of the railway system within the BMA

National Parks, Conservation Parks and Native Forest Reserves:

- Covering approximately 15% of the coastal and inland areas

Infrastructure:

- The settlements are served by a network of sealed highways and well maintained open surface secondary roads
- Community facilities in and around settlements
- Electrical substations, transmission lines and telecommunications towers and exchanges
- Gas powered electrical power station
- Wind farms at Canunda and Lake Bonney
- Gas pipelines

Rural Living Zones:

- Rural living allotments area scattered throughout the Limestone Coast BMA

2.3 Topography

The landscape of the Limestone Coast BMA lacks major relief and surface water, with the relatively few streams and rivers moving slowly towards the coast, enhanced by a system of drains. Stranded dunes, 2-10 km apart that rise to 20-50 m above inter-dunal plains parallel to the current coast south-west of Naracoorte create a distinctive set of firefighting conditions. Access to many areas is uncomplicated, and the lack of steep slopes lessens the rate of spread of fires and decreases the risks to firefighters when undertaking suppression operations. Following is a summary of the topography in each council area:

In the Tatiara District Council, the land is generally flat grading to slightly undulating to undulating in the dune ranges.

The Kingston District Council area comprises a number of low undulating ridges running north – south and parallel to the coast. These ridges are separated by large flats that were previously swampy watercourses, which drained into the Coorong in the northwest of the district.

The City of Mt Gambier encompasses undulating terrain dotted with sinkholes and crater lakes, such as the world renowned Blue Lake.

The District Council of Robe consists mainly of flat country with the main ranges being Woakwine and Reedy Creek, which run northwest to southeast. There are three large lakes: Lake Hawdon, Eliza and Lake St Clair with numerous smaller lakes scattered throughout the western half of the district.

The topography of the District Council of Grant ranges from flat to gently undulating land except for Mt Schank and the outskirts of the City of Mt Gambier. Significant areas of impassable stony outcrops and ridges accompany the ancient and modern dune systems throughout the district. Substantial cliffs are located at Cape Northumberland and Cape Banks.

The topographical features of the Naracoorte Lucindale District Council are typically flat grassland broken by ranges of sand dunes in place as a result of a receding coastline. These ranges run northwest to south west through the district with a slight slope on each flat towards the sea.

The Wattle Range Council area is generally flat with a few undulating areas. The majority of the area is low lying with parallel remnant dunes running from northwest to southeast throughout the district. The ranges include the Reedy Creek, Woakwine, West Avenue and Mt Burr ranges. There are two large lakes: Lake Bonney (freshwater) and Lake George (saline) and a portion of Lake St Clair.

2.4 Land Use

The Limestone Coast region has significant water resources and prime agricultural land and is consequently a major contributor to South Australia's economic growth. In order of economic importance, the top seven industries are forestry, agriculture, viticulture, dairy farming, potato industry, fishing, aquaculture and tourism.

Forestry:

- Annual value in excess of $1 billion
- 105,000 hectares of Radiata pine
- 40, 000 hectares of Blue gums
- Approximately 4,000 direct jobs
- Plantation estates are expanding
- Large scale local processing with further future investment expected

Agriculture:

- Generates approximately. $738 million
- Sheep, meat and wool - $178 million
- Prime beef farm gate - $190 million; wholesale processing - $125 million
- Grain, vegetable seeds, oil seeds - $100 million
- Pasture seed - $11 million
- Lucerne seed - $20 million
- Fodder - $2 million

Viticulture:

- 14,842 hectares of vineyards
- Produce 140,000 tonnes per annum
- Farm gate value approximately. $250 million – value added $1.5 billion
- 1,200 full time jobs
- 20% of Australia's premium wine production

Dairy:

- 20,000 hectares and 128 farms – 42,207 cows milked
- 280 million litres of milk produced
- Farm gate value $80 million - $247 million wholesale
- 750 full time jobs

Potato Industry:

- Approximately 2,500 hectares
- 130,000 tonnes per annum
- Farm gate value of $30 million – value added $125 million
- 300 full time jobs

Fishing and Aquaculture:

- Rock lobster – annual catch 1,890 tonnes
- Value $60 million per annum – value added $78 million
- 400 full time jobs
- Abalone, Atlantic salmon, barramundi, trout, yabbies

Tourism:

- 625,000 visitors 2004 – 595,000 day trips per annum
- Overnight visitors spend $145 million per annum
- Domestic day trip visitors spend $88 million per annum
- World heritage listed Naracoorte Caves
- Wine, nature based, coastal attractions
- National Parks and Conservation Reserves

2.5 Climate

2.5.1 Temperature

The temperature of the Limestone Coast BMA is typically Mediterranean, with the temperature increasing northwards and inland. The coastal zone is moderated by the influence of the ocean; restricting seasonal and diurnal temperature ranges, with coastal summers typically 3 - 5°C cooler. Throughout the region hot dry summers and wet cool winters are experienced. In summer the temperature ranges between 24 - 35°C, reaching 40°C or more on occasions. The average winter maximums range between 16 - 18°C, and the winter minimums tend to fall between 5 - 8°C.

2.5.2 The impacts of Climate Change

Decreases in rainfall and higher evaporation rates mean less soil moisture and less run off in rivers, streams and reservoirs. Our demand for water also increases as a result of warmer temperatures and, as our population grows, effectively increasing bushfire activity.

Changes in climate will have a range of impacts – for example on water resources, bushfire frequency and intensity, primary production, infrastructure and the health of our landscapes. As well as the direct environmental impacts of climate change it will interact with other drivers of change such as population growth in these areas.

2.5.3 Wind and Weather Patterns

The influence of the ocean creates stronger sea breezes along the coast than inland, with the effect generally limited between 80 -160km inland. This distance may vary and is affected by coastal ranges acting as a wind break. During summer, the strongest and most frequent winds are from the south-east through to the south-west, often reaching 30-40km per hour under a strong sea breeze. In the cooler months of winter, the winds are more varied in direction tending to arrive from the south-west to north-west.

Strong northerly winds during summer are of the greatest concern especially if they are accompanied by high temperatures (close to 40°C) and low humidity (less than 20%). Sudden changes from northerly winds to cool gusty southerlies are not uncommon.

Thunderstorms, with associated lightning usually occur around November to December and then again during March and April. Lightning is a contributor to bushfire ignitions in the region.

2.5.4 Rainfall

The general trend is for rainfall to decrease northwards and away from the coast, from a maximum annual rainfall of 850 mm in the southern areas, to 450 mm in the north near Keith and Bordertown. The majority of the rainfall occurs in winter.

2.6 Fire Ban District and Bushfire Season

The Limestone Coast BMA encompasses the Upper South East, and Lower South East Fire Ban Districts (FBD).

The Fire Danger Season (FDS) dates are set annually by the CFS Chief Officer, based on recommendations from the BMC.

Upper South East FBD: These dates are generally set from the 15th of November to the 15th of April, but may be varied according to climatic influences leading up to and during the summer months.
Affects: Taitiara District Council.
Lower South East FBD: These dates are generally from the 22nd November to 30th April, but may be varied according to climatic influences leading up to and during the summer months.
Affects: All other council areas in the BMAP. *(See Section 2.1 Location)*

2.7 Population and Demographics

The total population in the Limestone Coast is currently just over 63,000 residents (2011 Census). Mt Gambier is the largest city within the Limestone Coast BMA with approximately 25,200 residents, with Millicent and Naracoorte being the next largest centres with a combined population of approximately 10,500 residents. There are many smaller townships in the BMA that support the agricultural and forestry industries. Bordertown has a population of approximately 2,800 residents, and Keith, Penola, Kingston and Robe each have a population ranging between approximately 1000 to 1,700 residents. The coastal settlements experience significant seasonal population growth throughout the summer months. Seasonal residents and holiday makers are more at risk from bushfire as they are generally less aware of the risk and unfamiliar with local conditions.

The Limestone Coast has a projected overall population for 2016 of 68,860, which comprises 4% of the South Australian population.

3 ROLES AND RESPONSIBILITIES

3.1 State Bushfire Coordinating Committee

The *FES Act 2005 Section 71A* outlines the functions of the State Bushfire Coordination Committee. Some of these functions include:

a. promoting the State-wide coordination and integration of policies, practices and strategies relating to bushfire management activities;
b. providing guidance, direction and advice to bushfire management committees;
c. preparing and reviewing the State Bushfire Management Plan and to keep under review the extent to which Bushfire Management Area Plans and strategies adopted or applied by bushfire management committees are consistent with the State Bushfire Management Plan; and
d. approving and auditing Bushfire Management Area Plans prepared and endorsed by Bushfire Management Committees.

3.2 Limestone Coast Bushfire Management Committee

The Limestone Coast BMC has been established by the SBCC under the *FES Act 2005*, and under *Section 73A(1)* of this Act must prepare and maintain a BMAP for its BMA. This plan takes an unbiased landscape view of the strategic bushfire management needs of the BMA and is, therefore, boundary and tenure blind.

The key function of the Limestone Coast BMC is to coordinate all relevant stakeholders with a responsibility for bushfire management within the BMA, to undertake a risk assessment process, and oversee the implementation of risk mitigation strategies. The purpose of this process is to reduce the risk of fire negatively impacting on the values of life, property, and the environment in accordance with the *FES Act 2005*. The role and responsibility of Limestone Coast BMC will include:

e. Promoting the coordination of policies, practices and strategies relating to bushfire management activities within its area;
f. Preparing and keeping under review a BMAP for its area and ensuring that the BMAP is consistent with the State Bushfire Management Plan;
g. Overseeing implementation of its BMAP and reporting to the SBCC;
h. Initiating or preparing the development of plans, policies, practices or strategies to promote effective bushfire management within its area;
i. Convening with local or regional forums to discuss issues associated with bushfire management within its area, including working with local communities to promote and improve effective bushfire management;
j. In the exercising and performance of their powers and functions:
    i. Having due regard to the impact of their actions on the environment; and
    ii. Seeking to achieve a proper balance between bushfire prevention and proper land management in the country; and
k. Performing any other functions assigned by the Minister or the SBCC.

The member agencies on the Limestone Coast BMC include:

- CFS
- CFS Volunteers Association
- SA Metropolitan Fire Service
- SA Police
- SA Water
- Department of Environment, Water and Natural Resources (DEWNR)
- South East Local Government Association
- City of Mt Gambier
- Naracoorte-Lucindale Council
- Kingston District Council
- Robe District Council
- Forestry SA
- Department of Primary Industries and Regions (PIRSA)
- 141 – Forest Owners Conference
- District Council of Grant
- Tatiara District Council
- Wattle Range Council
- Conservation Council of SA
- Primary Producers SA
- Department for Planning, Transport and Infrastructure (DPTI)

3.3 Bushfire Management Committee Member Organisations

BMC member organisations are responsible for:

- Contributing to the decision-making of the Committee.
- Preparing and implementing action or work plans to address relevant treatments or issues identified in the plan.
- Ensuring input into the planning process by their BMC representatives.
- Providing information and make decisions on bushfire planning issues within the area.
- Reviewing the Bushfire Management Area Plan information and drafts and make amendments if required.
- Determining methodologies for community and public consultation on key components of the BMAP.
- Assessing and endorsing BMAP updates or changes.

3.4 Community

Bushfire prevention and preparedness is a shared responsibility of the State government, local councils and fire agencies, individuals, landholders and building managers (public and private), and the broader community. This BMAP assumes that all persons in the Limestone Coast BMA are responsible for the mitigation of the bushfire risk for themselves, their neighbours and their community, and therefore need to understand and partake in bushfire prevention and preparedness. This is especially relevant to the protection of life, property and environmental assets not specifically identified by a point, line or polygon on the BMAP online map.

In particular, legislation *(FES Act 2005)* states that owners of land must take reasonable steps:

a) to prevent or inhibit the outbreak of fire on the land; and
b) to prevent or inhibit the spread of fire through the land; and
c) to protect property on the land from fire; and
d) to minimise the threat to human life from a fire on the land

To ensure that the community is observing these bushfire prevention and management activities the Local Government Fire Prevention Officers within the Limestone Coast BMA, are required by the *FES Act 2005* to assess the extent of bushfire hazards within the council area, and provide advice to landholders and work with communities on bushfire risk prevention and preparedness. Where necessary, Fire Prevention Officers can enforce the provisions of the *FES Act 2005* on private land.

Although conservation and recreation parks and other areas people visit for hiking and recreation have yet to be included into this Plan, people visiting DEWNR managed parks need to recognise they are at risk from bushfire. Several risk treatment measures are implemented by DEWNR with aim of reducing the risk to life, such as signage and park closure policies on Total Fire Ban days.

Information relevant to all members of the community on bushfire prevention and preparedness can be found on the following link: http://www.cfs.sa.gov.au/site/resources/fact_sheets.jsp

4 RISK ASSESSMENT

Risk assessment is undertaken as assets are identified for inclusion into the online map and Risk Register. The risk assessment process can be applied to cover the risks to structures, property and life within built assets. A process for determining risk outcomes for environmental assets is being developed and will be used to include environmental assets in the Limestone BMAP by November 2016.

The risk rating outcomes for assets currently identified in this Plan are determined using a number of inputs (risk drivers). Some of these include:

- Susceptibility of assets and people
- Vegetation type and its distance from the asset
- Predominant slope of the vegetation in relation to the asset
- Access and/or egress to and from the asset
- Frequency of ignitions in the general area of the asset

Risk drivers for each asset are contained in the extended version of the asset spreadsheet which is available from the CFS Bushfire Management Planning Unit.

Table 1 below shows a standard risk rating matrix. The likelihood and consequence scales are used to determine the risk in terms of Low, Medium, High, Very High or Extreme. This can be used as a guide in determining the level of urgency for allocating and implementing treatment strategies. Although this method is very common, it is limited by only representing two dimensions of the risk; the likelihood and consequence. Considerations also need to be given to the type of asset being impacted by a bushfire, the level of risk that may be considered acceptable and whether the desired risk level is achievable through current or proposed mitigation strategies. For example, a nursing home rated moderate may be a much higher priority for risk treatments than a communication tower rated as major.

		Consequence			
		Minor	Moderate	Major	Catastrophic
Likelihood	Almost Certain				
	Likely				
	Possible				
	Unlikely				

Low Medium High Very High Extreme

Assets at almost no risk from bushfire may be marked as: **N/A**

Table 2: Overall Risk Rating Matrix

Risk Rating Explanations

When interpreting the overall risk rating for each asset it is important to understand that these results provide a scale only by which one risk can compared to another. They are derived through assessing specific risk criteria to determine the likelihood of a bushfire threatening an asset and the level of impact or consequence to an asset from the hazardous vegetation should it be ignited by bushfire. The definition for each overall risk rating is as follows:

N/A

Properties and assets are constructed of materials that are unlikely to be impacted by bushfire and/or vegetation is at a significant distance away or virtually absent from the surrounding landscape.

Low

Properties and assets are well prepared or defendable from the potential impacts from a bushfire should a bushfire approach. Surrounding vegetation is either likely to be a significant distance away or of low levels.

Medium

Properties and assets are likely to be defendable with little preparation, although surrounding vegetation or topography still poses some risk.

High

Properties and assets that are not prepared for a bushfire or don't have adequate firefighting amenities and separation distance are susceptible to the impacts of bushfire which is likely to reach assets with surrounding vegetation and topography fuelling fire intensity and behaviour.

Very High

Properties and assets require special consideration to the impacts of bushfire. Bushfires are likely to be able to reach assets with high intensity with only low expectations of being able to defend assets.

Extreme

Assets and properties are highly susceptible with heavy ember attach and likely flame contact from nearby flammable materials. There are limited options for safe egress or areas for the ability to be able to defended a property from the effects of a bushfire due to continuous or dense vegetation or challenging topography.

4.1 Bushfire Risk Assessment

In terms of expressing risk for life and property in the context of this plan, the following aspects were considered:

a. Hazard: vegetation near an asset (or an adjacent asset) igniting in a bushfire and that fire impacting on the asset;
b. Likelihood: the likelihood of a bushfire igniting in the surrounding landscape and spreading to the asset; and
c. Consequence: there is a bushfire event impacting on the asset.

Figure 2: Bushfire Risk Diagram

A number of risk elements need to be considered to determine the likelihood and consequence of bushfire impact for each of the identified assets.

Considerations also need to be given to the type of asset being impacted by a bushfire, the level of risk that may be considered acceptable and whether the desired risk level is achievable through current or proposed mitigation strategies.

4.1.1 Likelihood

The two elements that contribute to the likelihood of a bushfire impacting an asset include the *potential ignition sources* and the *ability to establish, spread and intensify*.

Potential Ignition Sources

When considering the potential ignition sources, it was important to consider both the historical evidence of past bushfires, scarring within the surrounding area (approx. 15-20km) and the current and future land use in the area. Local knowledge is invaluable in this determination. As part of this assessment the Australian Incident Reports System (AIRS) data from SACFS for known ignitions is used to gain a broad understanding of fires that have occurred in the BMA.

Ability to Establish, Spread and Intensity

This assessment considers a bushfire's ability to establish, spread and its intensity, and the direction in which the fire is likely to travel on a day when the Fire Danger Rating (FDR) is Extreme. How the fire was likely to develop was based on available fuel structure, the topography, the prevailing weather (with a FDR of Extreme) and the ability of firefighters to suppress the bushfire. Local knowledge of vegetation, fire behaviour, fire weather, firefighting conditions and the ability to suppress was invaluable in this determination.

4.1.2 Consequence

The term "Consequence" for the purpose of this plan applies only to the asset itself. It means "what will happen to the asset if it is impacted by a bushfire?" For example will it burn down, will it cease to function, will people be injured etc.? It does not refer to the social, financial or business continuity consequences of losing the asset. These will be considered in the implementation phase of the risk treatments.

The elements that contribute to the consequence of a bushfire event occurring near/around a built asset from bushfire are: the *Bushfire Attack Level (BAL)* (measuring the radiant heat), and either the *susceptibility of human settlement assets* or *susceptibility of built structures.*

Bushfire Attack Level (Radiant Heat)

Bushfire Attack Level (BAL) is a measure of the radiant heat a structure is expected to be subjected to in the event of a bushfire on a day of Extreme FDR. This measure is used by the AS3959 Australian Standard for the construction of buildings in bushfire-prone areas in that buildings are rated to certain BALs.

The BAL is determined by classifying the type of vegetation around the building, the distance of the vegetation from the building, the slope of the land and the height of the most exposed part of the building (typically the eaves). The higher the BAL, the higher the radiant heat will be at that site during a bushfire. The aim should be to maintain assets below a BAL of 12.5 Kw/m^2 thereby eliminating the ignition of the structure from radiant heat. It should be noted that this Standard does not take into account the potential impact of spark and ember on structures.

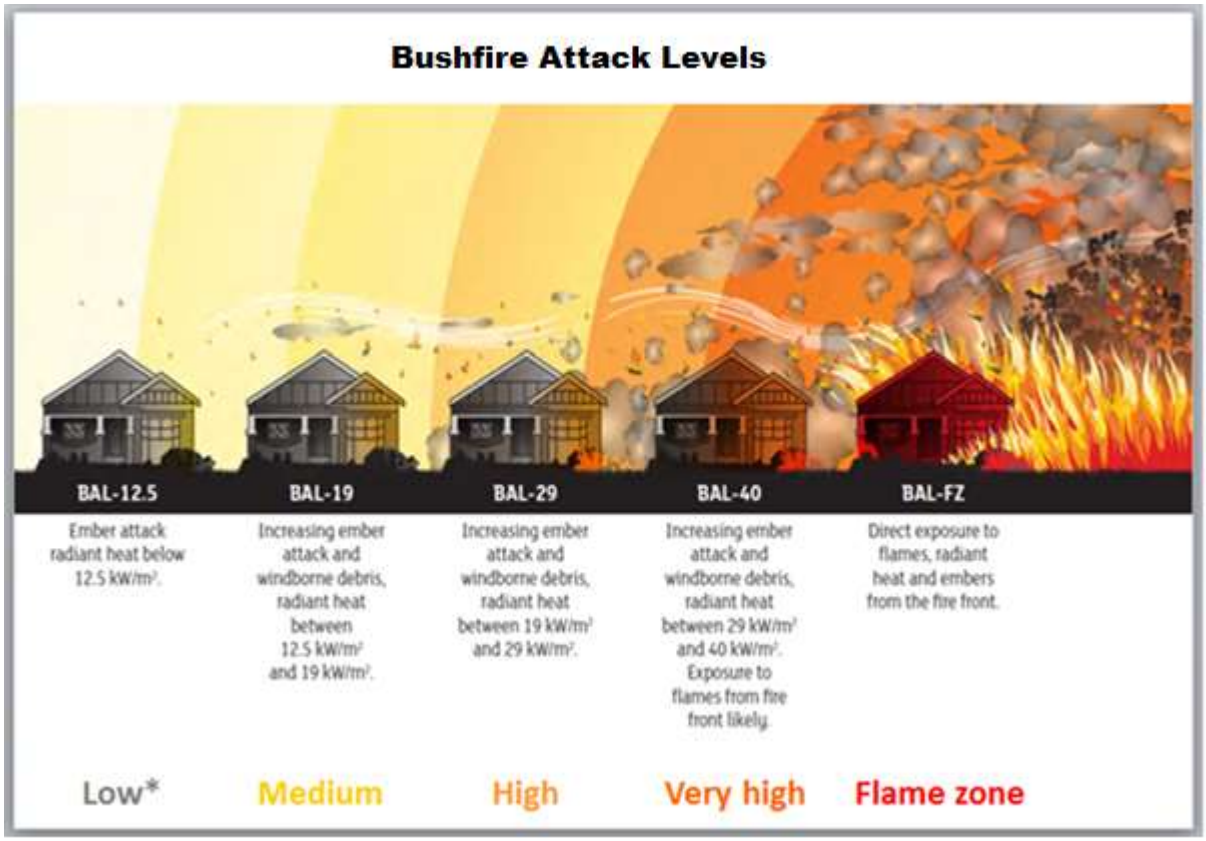


Figure 3: Bushfire Attack Levels

Susceptibility of Human Settlement Assets

This assessment refers to the susceptibility of the building occupants to bushfire and therefore, the potential for the loss of human life. It is not the assessment of the structures or the built environment itself.

This assessment is based on the combination of three elements: the people who live in the area, the preparedness level of the assets and environmental factors such as access, egress and water supply. For example, a rural community with a very active Community Fire Safe Group, well prepared properties and a well maintained bushfire buffer zone will have a reduced susceptibility.

Susceptibility of Built Structures (Economic and Cultural Heritage Assets)

The susceptibility of a built structure being adversely impacted by bushfire is dependent on the type of construction and material used as well as the structure's general condition. For example, concrete water tanks or steel towers have a very low susceptibility, whereas a heritage timber barn would have a very high susceptibility.

4.2 Weather Context

Weather conditions such as temperature, wind speed and relative humidity influence fire behaviour. For example the higher the temperature and wind speed, and the lower the relative humidity, the more dangerous the fire behaviour. An index (the Fire Danger Index (FDI)) has been developed that takes into account a range of factors to provide an indication of fire danger. This index is used when determining the Fire Danger Ratings on a daily basis. The bushfire risk assessment for the life and property assets included in this plan, assumes a FDR of Extreme (FDI of 75-99). Should a bushfire establish on a day with the FDR of Extreme, it would be unpredictable, fast moving and difficult to control. Such conditions would be characterised by dry fuel, high temperatures, low humidity and wind speeds greater than 40 km/h.

4.3 Assets at Risk from Bushfire

The range of assets identified and assessed for their risk from bushfire has been sourced from local councils, infrastructure agencies, business groups, SA Government agencies, Limestone Coast BMC working groups, CFS, community groups and web based geospatial resources.

The life and property assets are geographically identified and presented with a coloured risk rating as either a point, line or polygon in the bushfire risk map that forms part of this plan. This plan also includes a table listing all relevant information relating to the risks, as well as existing, and proposed risk treatment strategies associated with each asset. The planning process allows for a single repository for all current and future assessments to be managed and maintained within the Limestone Coast BMA.

The assets considered within this current plan are divided into four classes: Human Settlement, Economic, Cultural Heritage and Environmental. Environmental assets will be added to the plan at a later date *(refer to Section 1.2.1: Constraints, Assumptions and Exclusions).*

Each of these four asset classes is further broken down into asset categories as shown in **Table 2.**

Asset Class	Asset Category
Human Settlement	• *Residential* • *Special Fire Protection* • *Other*
Economic	• *Infrastructure* • *Commercial or Industrial*
Cultural Heritage	• *Community* • *Historic* • *Other*
Environmental	• *Flora* • *Fauna* • *Ecologies* *(For more info see Section 4.3.7 Environment)*

Table 2: Asset Classes and Categories included in the Bushfire Management Area Plan

4.3.1 Human Settlement

Human Settlement assets are those assets which are likely to be occupied by people and may be at risk from bushfire. Therefore, there is the potential for the loss of human life.

Roads may be considered a human settlement asset because of their potential to be used for evacuation or relocation and firefighting response during bushfire.

4.3.2 Economic

Economic assets considered within this plan are those of significance to the economy at all scales, and are at risk from the impact of bushfire. They include commercial and industrial sites, and infrastructure providing utilities such as energy, transport and telecommunications.

4.3.3 Cultural Heritage

Cultural heritage assets identified in this plan include those of significant cultural value, post 1836, when non-Aboriginal people moved in to the Region. This category will also include assets that are of local community value including halls, churches, institutes and recreational facilities.

Please refer to *Section 1.2.1: Constraints, Assumptions and Exclusions* regarding assets of Aboriginal cultural and spiritual significance.

4.3.4 Environmental

The development of a risk assessment process and related management strategies specific to environmental assets is still being undertaken by major stakeholders. *(Refer to Section 1.2.1: Constraints, Assumptions and Exclusions, and Section 4.3.7: Environment).* The environmental assets to be considered for inclusion include flora, fauna, and ecological communities. Priority of assessment will be given to those species and communities that have been given a rating in line with the *Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth),* the *National Parks and Wildlife Act 1972*, or have been identified in the DEWNR Regional Species Conservation Assessment Project (Gillam 2011). No risk mitigation treatment should be undertaken in native vegetation until these environmental assets have been identified through an environmental assessment process. Further information on this process is included in *Section 4.3.7: Environment.*

4.3.5 Assets and Areas not risk rated

Land, assets, communities or people who are not specifically identified in the online map of this BMAP by a point, polygon or line may still have a level of bushfire risk. This is particularly relevant to areas outside of suburban areas and rural townships. Landholders in the Limestone Coast BMA, including people and asset owners not risk rated, have a responsibility to undertake bushfire prevention and preparedness activities relevant to their location and situation.

4.3.6 Urban Interface Area

There are areas of the urban interface that are considered low risk from the direct impacts of a bushfire. On the BMAP spatial plan, these may be non-risk rated areas that are situated between the Bushfire Safer Precinct boundary and risk rated human settlements. Although these areas are low risk, they may still be subject to smoke, spark and ember attack. People and asset owners in these areas still have a responsibility to undertake bushfire prevention and preparedness activities relevant to their location and situation.

4.3.7 Environment

The Limestone Coast BMC and the SBCC acknowledge the importance of including environmental assets in bushfire risk management. However, a formal process for the risk assessment of identified environmental assets vulnerable to bushfire is not complete at the time of this plan's initial release. The assessment process and inclusion of environmental assets in the next iteration of this BMAP is scheduled for November 2016. Any identification and assessment of risk levels and risk treatment strategies for environmental assets must include a determination of potential impacts on significant species and ecological communities. Prior to the addition of these assets and related information into the BMAP, a six week period of public consultation will be undertaken to enable input and comment from interested organisations, groups and individuals *(refer to Section 1.2.1: Constraints, Assumptions and Inclusions).* The process will include a review of property asset risk treatments that may have environmental impacts in order to minimise these impacts without compromising community safety.

DEWNR has previously undertaken an environmental risk assessment for DEWNR reserves, Crown land under the care and control of the Minister for Sustainability, Environment & Conservation and certain privately owned Vegetation Heritage Agreements. DEWNR currently manages its reserves and lands in line with DEWNR Fire Management Policy and Procedure, and has developed the following Fire Management Plans for this planning area:

- Reserves of the South East 2010-2020
- Ngarkat District 2009-2019

The recommendations made within these DEWNR fire management plans are supported by the Limestone Coast BMC, and are included in the Limestone Coast BMAP.

While DEWNR Fire Management Plans provide strategic fire management direction for DEWNR-managed lands and certain privately owned Vegetation Heritage Agreements, they do not consider all tenure types, as required for BMAPs.

Environmental assets that will be considered in a subsequent risk assessment include:

- Large areas of native vegetation – these areas are important for biodiversity conservation (e.g. providing habitat), and may be made up of formally protected reserves, Crown lands, other lands managed by government agencies, roadside vegetation, private protected areas (Heritage Agreements under the *Native Vegetation Act 1991*), and other private lands.

- Native species and ecological communities of conservation significance. 'Of conservation significance' is used to describe rated populations or species of flora and fauna as well as vegetation communities. These may be:
    - Nationally rated, that is, listed as Threatened (with a rating of Extinct, Critically Endangered, Endangered or Vulnerable) under the federal *Environment Protection and Biodiversity Conservation Act 1999.*
    - South Australian rated, listed as Threatened (with a rating of Endangered, Vulnerable or Rare) under the *National Parks and Wildlife Act 1972*, *Schedules 7, 8 and 9.*
    - Provisionally listed as Threatened (with a rating of Endangered or Vulnerable) in South Australia, that is, included on the unpublished *DEWNR Provisional List of Threatened Ecosystems of South Australia* (Department of Environment and Health (DEH) 2005b).
- Water catchment areas
- Revegetation projects
- Significant habitat elements (e.g. tree hollows)

Secondary risks to the environment (e.g. the environmental impacts caused by risk mitigation activities) will also be considered, including:

- Fire frequencies outside of Ecological Fire Management Guidelines
- Introduction of threats or conditions favourable to abundant or pest species (e.g. weeds, phytophthora, herbivores).

5 RISK TREATMENT STRATEGIES

Bushfires cannot and will not be eliminated from the landscape, however a combination of risk treatment strategies can be applied to reduce either the likelihood and/or consequence of bushfire and to increase community resilience, enhance the ability of firefighting agencies to access and suppress bushfires, limit the spread of bushfire, and protect people, assets and the environment.

Risk Treatments are activities used to modify the characteristics of a hazard to reduce either the likelihood and/or consequence of bushfire on an asset. The Limestone Coast BMC will allocate mitigating risk treatment strategies to reduce the risk to assets within the Limestone Coast BMA. To facilitate this, the SBCC has endorsed risk treatment strategies that include both asset-specific and BMA-wide risk treatments.

For a full list of all risk treatments strategies please refer to *Section 5.3: Risk Treatment Strategies Suite.*

5.1 Asset Specific Risk Treatment Strategies

Asset specific risk treatment strategies are allocated to mitigate individual risks within the BMAP Risk Treatment Register and are designed to mitigate specific elements of the risk i.e. the radiant heat, susceptibility of the asset to sparks and embers, the intensity of the bushfire and/or the potential of a bushfire starting and establishing. Asset specific risk treatment strategies are allocated to asset owners and/or land managers that are responsible and will assist in documenting in their work plans, details of actions and timeframes.

Some examples of asset specific risk treatments include:

- Property preparedness by ember proofing and clearing debris around a building
- Asset Protection Zone (APZ) of modified vegetation in and around an electrical substation
- Bushfire Buffer Zone (BBZ) of modified vegetation in a nature park immediately adjacent to a nursing home
- Bushfire Prevention Activities conducted by a Council Fire Prevention Officer such as issuing 105F notices to landholders to remove high fuel hazard vegetation around a building.

For a copy of the list of specific risk treatments allocated to individual assets, please contact the CFS BMPU.

5.2 Bushfire Management Area Wide Risk Treatment Strategies

BMA wide risk treatments are the overarching bushfire prevention and preparedness activities that are applied to mitigate the occurrence, spread and consequence of bushfire to a number of assets across selected areas, or throughout the whole BMA.

They broadly address the bushfire risk to assets and, thereby, reduce the overall level of bushfire risk to the BMA. Each of the risk treatment strategies will reduce either the likelihood and/or the consequence of bushfire depending on the targeted outcome of the programme.

BMA wide risk treatments may include legislative requirements, policies and programmes of firefighting agencies, fuel hazard reduction, fire management planning, development and building regulations in fire prone areas, arson prevention programmes, and community engagement and education about bushfires.

Some examples include:

- National and State Legislation, Policies, Guidelines and Codes such as the *South Australian Fire and Emergency Services Act and Regulations 2005*, that includes applicable fuel management requirements, firebreak standards and annual enforcement programmes;
- State and local planning frameworks such as the State Bushfire Management Plan, Limestone Coast Bushfire Management Plan, local Council roadside vegetation management strategies;
- DEWNR, SA Water and Forestry SA land management policies and plans including ecological and prescribed burning programmes;
- CFS state-wide preparedness campaigns, partnerships and community engagement programmes, and management of Fire Danger Seasons, Fire Danger Ratings, Permits and Total Fire Bans;
- Department of Education and Childhood Development policies and procedures for schools at risk from bushfires;
- Building Code of Australia and State based Minister's Specifications; and
- SA Police Operation Nomad.

A significant and effective component of BMA-wide risk treatments is the management of vegetation (often referred to as "landscape-scale treatments"). In response to the National Policy Statement for Bushfire Management, and recent bushfire inquiries and recommendations, the South Australian Government has mandated an increased programme of vegetation management and prescribed burning to reduce bushfire consequences to life, property and the environment. Landscape risk treatments to manage vegetation involve the use of prescribed burning, however where this may be undesirable or operationally not practical, strategies such as the mechanical removal of vegetation may be undertaken.

Landscape risk treatments that form strategic breaks of low fuel across areas of the Limestone Coast reduce the risk of fire moving between large or distinct areas of high density vegetation as well as from areas of dense vegetation into human settlements. Landscape risk treatments also aim to reduce the risk of a bushfire impacting asset clusters such as townships or human settlement areas rather than individual residences.

5.2.1 Landscape Treatment Investigation Areas

Landscape Treatment Investigation Areas have been proposed as areas of bushfire concern requiring further assessment and consultation with stakeholders to determine the most effective, acceptable and achievable vegetation management strategies to directly reduce the intensity and movement of fire through the landscape and the impact of bushfire on a cluster of assets.

In order to comply with National and State requirements for the management of vegetation to reduce bushfire risk, and to reduce specific landscape risks within the Limestone Coast area, the Bushfire Management Planning process has identified an initial number of "Landscape Treatment Investigation Areas" as examples of a fire management approach for bushfire mitigation at a broader landscape scale. These Landscape Treatment Investigation Areas have been proposed as areas of concern requiring further assessment and consultation with stakeholders to determine the most effective, acceptable and achievable vegetation management strategies for each area.

These areas have been selected to directly reduce the consequence of bushfire on a cluster of assets and to reduce the intensity and slow the movement of fire through the landscape. They may provide a broader landscape scale strategic buffer zone to enhance fire suppression capability and minimise the potential of a major bushfire developing and impacting on a number of communities across the BMA.

The investigation areas that have been selected by the BMC and aim to complement current public land management mitigation activities, linking in with areas of existing lower fuel hazard levels to enhance the effectiveness of these treatments. The investigation areas identified in this plan do not represent a complete priority-based list of all potential landscape treatment investigation areas. Areas may be added, removed or amended following more detailed risk assessments and community consultation. It should be noted that following its initial approval and publication, the Limestone Coast BMAP remains a live document that will be updated on a regular and ongoing basis. As such, there is still ongoing work in negotiating and prioritising treatments for current investigation areas and in identifying and prioritising additional areas and treatments to be included into the BMAP. Areas of Crown land and locations where vegetation management practices are already in place have also been identified within these areas as Existing Landscape Treatments. Additional treatments may also be considered within and adjacent to these investigation areas such as community engagement or Operation Nomad activities.

Please refer to **Appendix 1** for maps of the proposed Landscape Treatment Investigation Areas for the Limestone Coast BMA.

5.2.2 Bushfire Management Area Wide Risk Treatments for Communities at Risk from Bushfire

Communities at risk from bushfire are identified in the table in **Appendix 2**. The table also contains potential risk treatment strategies to address the susceptibility of these communities. CFS and other agencies such as Red Cross have existing programmes that specifically work with, or target these communities. Further discussions with these agencies would need to occur regarding resourcing, identifying target groups, timeframes etc. It is proposed that these discussions occur as part of the Implementation of the BMAP.

5.3 Risk Treatment Strategies Suite

5.3.1 Property Preparedness

Property preparedness relates to action taken by landholders to reduce the risk of bushfire impacting on a house or other buildings. The primary focus of property preparedness should be the reduction of fuel hazards around the property and the elimination of ignition sources in areas surrounding or on structures, by:

- reducing or removing hazardous and fine vegetation fuels (long grass, dried leaves, shrubs etc.)
- removing other flammable materials and liquids
- reducing the risk of impact from windblown burning embers, flame contact and intense heat radiated from bushfires.

If the occupants plan to stay and defend their home during a bushfire, having a well prepared property is essential.

5.3.2 Asset Protection Zones

An Asset Protection Zone (APZ) is a fuel reduced area surrounding a built asset or structure, which is managed to minimize fuel loads, inhibit fire travel and reduce the effects of heat, flame, ember and smoke attack on the asset. Radiant heat is the most common cause of death during bushfires and affects people (health and decision making), animals and structures, whilst ember attack on properties is the leading cause of house loss during a bushfire. Introducing an APZ will provide separation between a bushfire hazard and the asset, minimising direct flame contact, reducing the effects of radiant heat and reducing ember attack. This may apply to a group of similar residential properties or along a boundary where the hazard exists, commercial or industrial asset or infrastructure. It may also be used within the boundary of a property to form part of a property's preparedness activities. The required separation distance between vegetation and asset for an APZ is specified in the SBCC APZ Standard which is based on the process defined in the *Australian Standard AS 3959* for building in bushfire prone areas. The distance required between the asset and the vegetation is to reduce the Bushfire Attack Level below 12.5 KW/M^2.

5.3.3 Bushfire Buffer Zones

A Bushfire Buffer Zone (BBZ) is a fuel reduced area that aims to provide a buffer to reduce the spread, intensity, ember attack and potential spotting from a bushfire. The works associated with the establishment of a BBZ are focussed on selectively reducing the amount of fine fuel vegetation by means of mechanical removal or prescribed burning. These zones minimise continuous fuel structures between surface, near surface, elevated and canopy fuels.

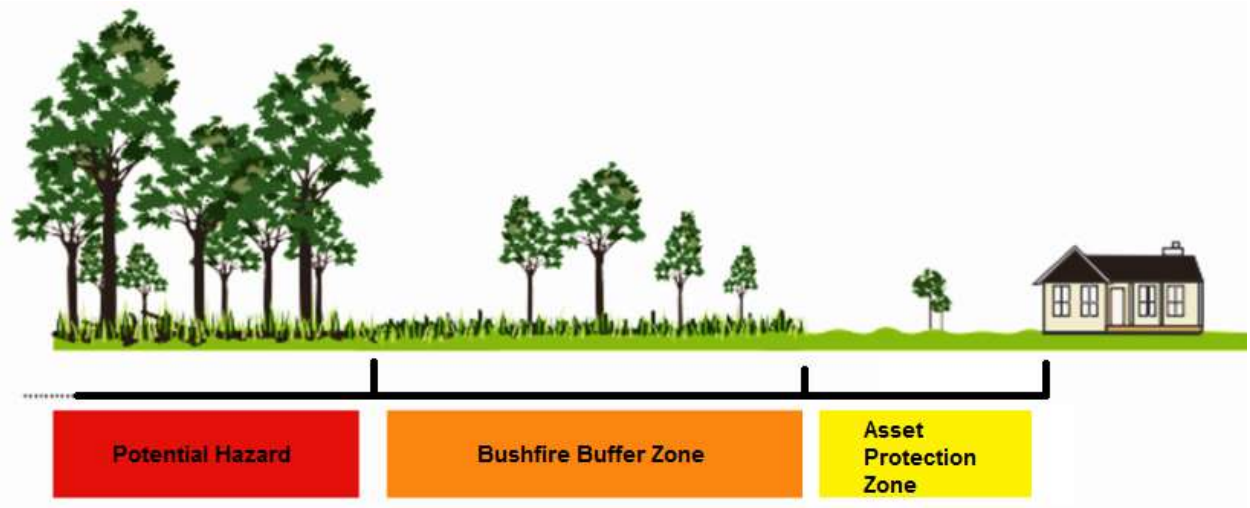


Figure 4: Asset and Bushfire Buffer Zones

5.3.4 Bushfire Prevention Activities Conducted by a Council Fire Prevention Officer

Councils and Fire Prevention Officers undertake fire prevention activities as outlined in the *South Australian Fire and Emergency Services Act and Regulations 2005*. Bushfire prevention activities undertaken by Fire Prevention Officer include:

- assessing the extent of bushfire hazards within the relevant council area;
- assisting the council in providing advice and information to any bushfire management committee whose area incorporates any part of the relevant council area in connection with the preparation or review of the committee's Bushfire Management Area Plan;
- providing advice to owners of property in respect of bushfire prevention and management; and
- carrying out any other functions assigned to the Fire Prevention Officer by the regulations.

5.3.5 Community Engagement

Community education and engagement activities can extend from simple information provision to extended training and empowerment programmes. These activities can be, and are, undertaken by many different groups (CFS, MFS, local councils, SAPOL, Primary Producers SA, Red Cross, etc.). The type of programme or information that needs to be provided is dependent on the audience and their level or risk. Research has shown that information provision on its own, whilst important, does not lead to a sufficient level of planning and preparation for bushfires. Community engagement programmes have the potential to achieve positive outcomes at both the individual (resident, household, etc.) and community levels, provided they are planned, well implemented and resourced appropriately.

5.3.6 Firebreaks and Fire Access Tracks

Firebreaks and fire access tracks are strategic fire management works which may be implemented as measures to assist with bushfire mitigation or suppression. The standard for firebreaks and tracks has been defined in the *South Australian Firebreaks, Fire Access Tracks and Sign Standards Guidelines (2015 Government Agencies Fire Management Working Group GAFMWG)* and was endorsed by the SBCC.

A firebreak is an area or strip of land where vegetation has been removed or modified to reduce the intensity and rate of spread of fire that may occur. A fire access track is designed, constructed and maintained for the safe passage of firefighting vehicles undertaking fire suppression activities. Whilst firebreaks and fire tracks may be constructed or designed for a specific purpose, it does not necessary exclude a fire track to also act as a fire break, or vice versa, in some instances. See the *GAFMWG* Standard document for further information on firebreaks, fire access tracks and sign standards.

5.3.7 Prescribed Burning

Prescribed burning is the controlled application of fire under specified environmental conditions to a predetermined area and at the time, intensity, and rate of spread required to attain planned resource management objectives. Prescribed burning is a tool used to achieve fuel hazard reduction management for bushfire risk mitigation and to achieve environmental, land management and research objectives.

The State Government public land agencies of DEWNR, SA Water and ForestrySA share agency resources to undertake fuel hazard reduction prescribed burning at a landscape scale across public lands to reduce the risk of bushfire impacts entering or emanating from a reserve.

Within the BMAP area and more broadly across the state only handful of prescribed burns are undertaken annually on private lands. The lack of prescribed burning on private lands is considered a significant gap in bushfire mitigation management as high bushfire risk areas occur on privately owned land and are not confined to public land. In an attempt to address this gap, DEWNR and SACFS are to identify issues associated with prescribed burning on private land and will present recommendations for consideration by Government to enhance prescribed burning mitigation risk treatment on a “tenure- blind” landscape scale.

5.3.8 Council Planning and Development Policy and Standards

A key objective of planning and development policy and standards within a council is the consideration of protection from bushfire to ensure the safeguarding of human life and protecting the loss of assets including infrastructure, the region’s cultural heritage (indigenous and non-indigenous) and ecological assets.

Current planning policies relating to bushfire risk, contained in relevant Development Plans, may be reviewed in this context as part of future Development Plan amendments. Notably, the State Government has embarked on the implementation of key planning reforms over the next 1-5 years, as part of a new planning system and the *Planning, Development and Infrastructure Act, 2016*. Pending the timing and sequencing of the introduction of new planning rules and governance systems, there is potential to also review future policy approaches relating to bushfire risk and asset protection through this process.

5.3.9 Policy, Standards and Codes of Practice

The policies, standards and codes of practice refer to current overarching bushfire management practices, performance measures and desired outcomes of the fire management activities on private and public lands. They provide a framework for the safe and effective management of potential ignition sources and fire on private and public land in South Australia.

This strategy may also include emergency management policies that individual organisations have or require to manage the risk of bushfire impacting upon their site. This may involve agencies such as schools, health and community services and utilities which require planning and preparation to become bushfire ready.

5.3.10 SAPOL Operation NOMAD

The potential and actual harm caused to the community from arson igniting bushfires continues to be an important area of focus for South Australian Police (SAPOL). Operation Nomad is a nationally recognised crime prevention programme using targeted SAPOL activities to reduce the incidence and severity of fires in South Australia caused by deliberate, reckless or careless human behaviour.

The focus of the SAPOL operation is guided by the Fire Prevention Strategic Alliance group which is comprised of membership from SAPOL, SAMFS, SACFS, LGA, DEWNR, Forestry SA, and SA Water.

5.4 Risk Treatment Implementation Plan

Once the Limestone Coast BMAP has been approved by the SBCC, risk treatment implementation plans will be developed by the BMC in conjunction with asset and land manager/owners in order to document how the chosen risk treatment strategies and their associated activities will be implemented. These plans should include:

a. Risk and treatment identifiers
b. Responsibility for treatment implementation
c. Timeframes
d. Existing and proposed risk treatments
e. Prioritisations of risk treatments
f. Performance and success measures
g. Reporting and monitoring procedures

The Limestone Coast BMC is to ensure that responsibility for mitigation strategies is identified within the Risk Treatment Implementation Plan.

6 MONITORING, REVIEWING AND REPORTING

6.1 Monitoring

The Limestone Coast BMC is required to monitor the BMAP, the context and the risk on an ongoing basis including:

- Changes to accepted risk levels
- Changes in circumstances or assessment criteria
- Additional information (should/when it becomes) available
- Changes in social, political or legislative/regulative environments
- Changes to the BMC area or organisational responsibilities
- Progress toward the completion of the treatment works listed in the BMAP
- The timeliness of the works in the BMAP

6.2 Reviewing

As stipulated in the *FES Act 2005* this BMAP must be reviewed at least once in every four year period from the approval date of the original plan.

However, as a live Plan, the Limestone Coast BMC will ensure that the BMAP is reviewed, in part or wholly, whenever a context or risk issue is identified or brought to the attention of the BMC.

6.3 Reporting

Limestone Coast BMC is required to report to the SBCC on its progress implementing the bushfire risk management strategies identified in the plan. The implementation of BMAP actions and reporting processes for the BMC is currently being developed.

7 REGISTERS

7.1 Overview of Risk and Risk Treatment Registers

The Risk Register and Risk Treatment Register are current as of the date this document was approved. However, due to the dynamic nature of risk the BMC will monitor and update the status of risks and treatments once the implementation of mitigating controls has been completed, or should the level of risk change. The information pertaining to each risk is to be monitored by the BMC on the secure Bushfire Risk Intelligence Management System (BRIMS) updated and maintained by the CFS Bushfire Management Planning Unit.

The registers and maps detailing risk ratings are included as attachments to this BMAP to form the complete plan.

7.2 Risk Register

The Risk Register lists the description and location of all assets identified within the Limestone Coast BMC and the overall resulting risk rating that has been determined for each asset.

7.3 Asset Specific Risk Treatment Strategies Register

The Risk Treatment Register details the treatment strategies that have been allocated to each asset. The register also includes planned timelines for when the risk treatment strategies are to be implemented and who is responsible. A copy of the Risk Treatment Strategies Register is available by contacting the Bushfire Management Planning Unit: **cfs.bushfiremanagementplanning@sa.gov.au**

Related Documents

Name of Document
A Template for a Local Council Roadside Vegetation Management Plan, Native Vegetation Council (2012)
AS 3959-2009/Amendment 3-2011; Construction of buildings in bushfire-prone areas (2009)
AS/NZS ISO 31000:2009 Risk Management - Principles and Guidelines (2009)
CFS – Code of practice – Vegetation and rubbish pile burning – (April 2015)
Crown Land Management Act 2009 (SA)
Department of the Premier and Cabinet South Australia's Strategic Plan - Creating Opportunity. Department of the Premier and Cabinet, Government of South Australia (2004)
Development Act 1993 Development Regulations (2008)
Emergency Management Act (South Australia) (2004)
Emergency Management in Australia Concepts and Principles Manual 1 (2004)
Environment Protection and Biodiversity Conservation Act (Commonwealth) Section 18 and 269AA (1999)
Fire and Emergency Services Act and Regulations (2005)
Guidelines for Plantation Forestry in South Australia 2009
Guidelines for the Management of Roadside Vegetation, Native Vegetation Council (2012)
Limestone Coast – Bushfire Management Committee, Interim Bushfire Management Area Plan, (September 2012)
Minister's Specification SA 76, Maintenance and testing of essential safety provisions, (2015 edition)
Minister's Specification SA 76A, Fire Safety Requirements in Caravan Parks and Residential Parks, (December 2007)
Minister's Specification SA 76C, Protection of buildings exposed to brush fences, November (2007)
Minister's Specification SA H3.2, Concessions for farm buildings, (2015 edition)
National Bushfire Management, Policy Statement for Forests and Rangelands (2014)
National Construction Code (Formerly the Building Code of Australia, BCA) (2016)
National Parks and Wildlife Act 1972 (SA)
Native Vegetation Act 1991 (SA) Section 29 (1991)
Native Vegetation Act 1991 and Regulations (2003)
Native Vegetation Regulations 2003 (SA) Section 5A-1 and 5(1)(zi) (2003)
SA CFS - Rural Fire Hazard Plan (2014/15)
South Australian Firebreaks, Fire Access Tracks and Sign Standards Guidelines (2015)
State Bushfire Management Plan (2010)
Wilderness Protection Act 1992 (SA)

Definition and Acronyms

Name	Description
Agencies	Refers to any State or Federal Government Department that is the manager or owner of the land or asset.
AIRS	Australian Incident Reporting System
APZ	Asset Protection Zone
AS/NZS ISO 31000:2009	AS/NZS ISO 31000:2009 Risk Management - Principles and Guidelines. The agreed international standard that dictates the fundamental principles behind risk management.
Asset	A term used to describe anything of value within communities that may be impacted by bushfire. This may include residential areas, infrastructure, commercial, environmental, heritage and community valued sites.
Asset Owner	The owner occupier or custodian responsible for the care or management of an asset. The responsibility may be defined by ownership, lease or contract. Also refer to the *Fire and Emergency Service Act 2005* for more information.
Asset Risk Treatment Strategies	Strategies allocated to modify the bushfire risk to specific assets that have been assessed.
BAL	Bushfire Attack Level
BBZ	Bushfire Buffer Zone
BMA	Bushfire Management Area (typically a Council's boundary) as proclaimed by the Governor under *Section* 72 of the *Fire and Emergency Services Act 2005*.
BMAP	Bushfire Management Area Plan as defined under *Section 73A of the Fire and Emergency Services Act 2005.*
BMC	Bushfire Management Committee as defined under *Section 72A of Fire and Emergency Services Act 2005.*
BOM	Bureau of Meteorology
BRIMS	Bushfire Risk Information Management System: A systematic process that identifies assets at risk from bushfire, assesses the level of risk, captures current and proposed treatments, treatment owners and time frames for implementation and provides a framework for continuous review and monitoring of the risks and their treatments.
Bushfire Hazard	The vegetation that poses a level of threat to human life, economic and cultural assets or environmental assets. The potential severity of a bushfire threat is determined by fuel load, fuel arrangement and topography under a given climatic condition.
Bushfire Risk	The concept of bushfire risk has three elements: a) the likelihood of a bushfire igniting and spreading to the hazard adjacent to and threatening an asset; b) the observable event of the hazardous vegetation igniting and c) the consequences to the asset from a bushfire event.
Consequence	The term "Consequence" for the purpose of this plan, means "what will happen to the asset if it is impacted by a bushfire?" For example will it burn down, will it cease to function, will people be injured etc.? The elements that contribute to the consequence of a bushfire are the Bushfire Attack Level (BAL) (measuring the radiant heat) and either the susceptibility of occupants in human settlement assets or susceptibility of built structures..

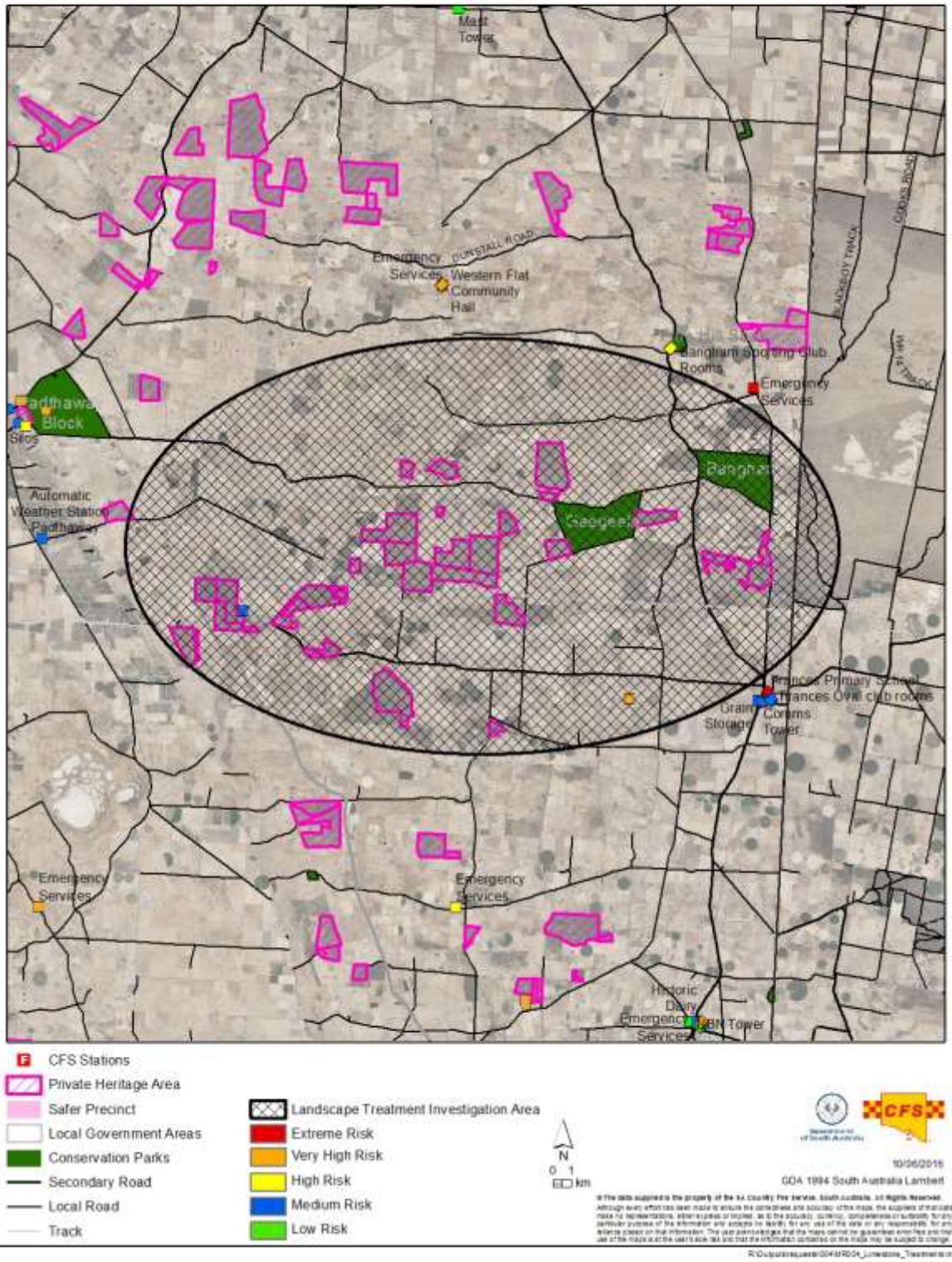
Name	Description
DEWNR	Department of Environment, Water and Natural Resources
FBD	Fire Ban District
FDI	Fire Danger Index
FDR	Fire Danger Rating
FDS	Fire Danger Season
FES Act	Fire and Emergency Services Act 2005
FMP	Fire Management Plan – The plans that are produced by the Department of Environment, Water and Natural Resources for the management of their reserves and Crown lands for bushfire risk reduction works and ecological management.
FPO	Fire Prevention Officer
GAFMWG	2015 Government Agencies Fire Management Working Group
Land Manager	The person, organisation or agency responsible for the care or management of an asset or land. The responsibility may be defined by ownership, lease or contract. Also refer to the *Fire and Emergency Services Act* 2005 *Section 3* for additional clarification.
Landscape Treatment Investigation Areas.	Landscape Treatment Investigation Areas have been proposed as areas of bushfire concern requiring further assessment and consultation with stakeholders to determine the most effective, acceptable and achievable vegetation management strategies to directly reduce the intensity and movement of fire through the landscape and the impact of bushfire on a cluster of assets.
LC	Limestone Coast
Likelihood	The chance of a bushfire igniting and spreading to the hazard adjacent to and threatening an asset.
Prescribed Burning	Prescribed burning is the planned application of fire under prescribed environmental conditions and within defined boundaries to achieve fuel hazard reduction management for bushfire risk mitigation and to achieve ecological, land management and research objectives.
Property Preparedness Zone	An area on or surrounding structures where the removal of hazardous vegetation and the elimination of ignition sources can reduce the impact of wind-blown burning embers, flame contact and intense heat generated by bushfires.
SACFS (or CFS)	South Australian Country Fire Service
SAPOL	South Australian Police
SBCC	State Bushfire Coordination Committee
SBMP	State Bushfire Management Plan
ZEMP	Zone Emergency Management Plan

Appendix 1: Landscape Treatment Investigation Areas

Landscape Treatment Investigation Area

Location: Bangham-Geegeela	Tenure: Public/Private	Size: Aprox. 65,700 ha

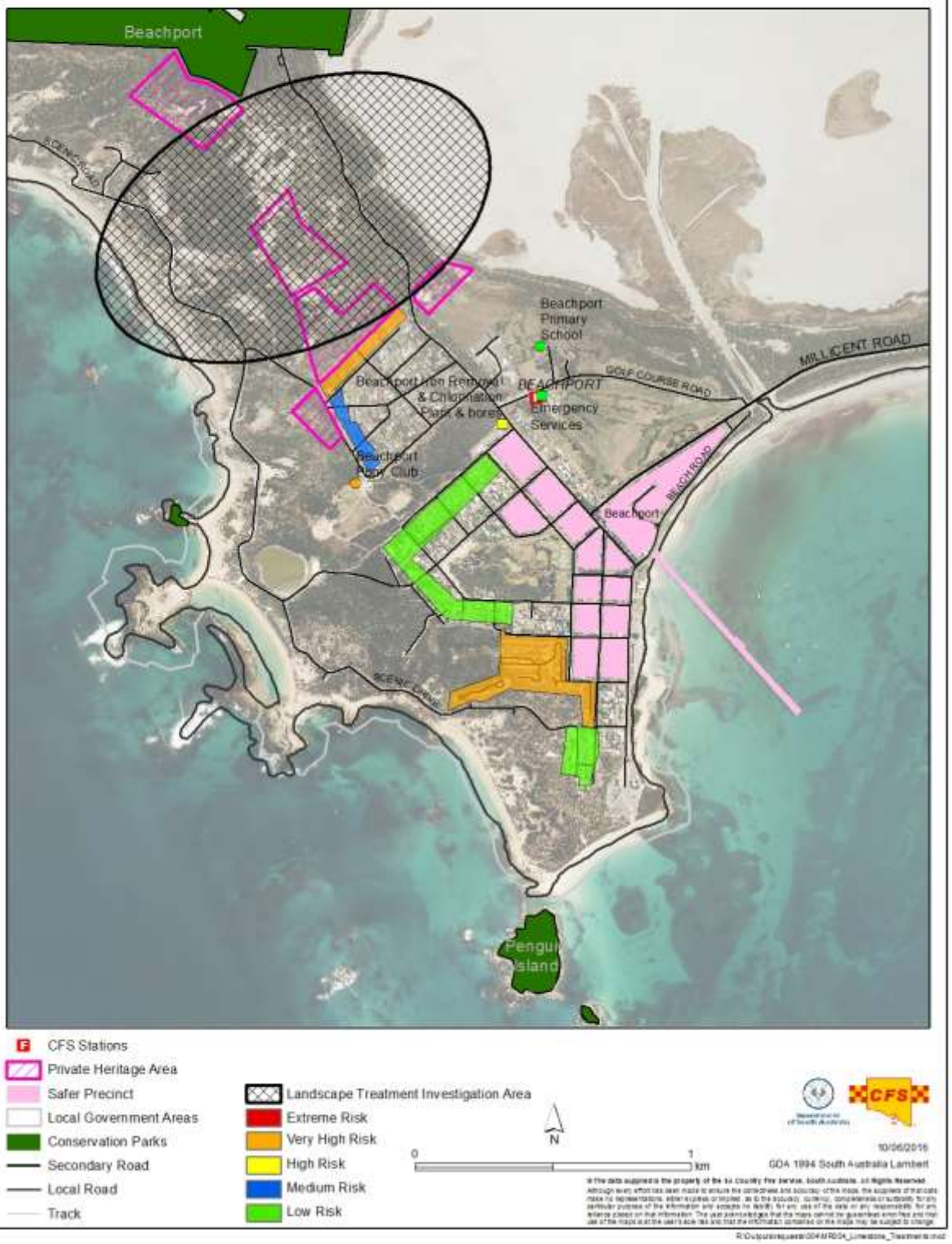
Objective: There are large a number of Heritage Agreements in this area, and quite a few of the landholders have showed some interest in prescribed burning and other fire management practices in the past. This may be a practical area for landscape scale fire management planning with private land holders. Improved vegetation management in this area would provide strategic advantage for fire suppression.



Landscape Treatment Investigation Area

Location: Beachport	Tenure: Public/Private	Size: Aprox. 95 ha

Objective: This is an area of Crown Land under the care and control of the Environment Minister and therefore the responsibility of DEWNR. The vegetation is set within dunes, and is reasonably discontinuous. It may be quite difficult to maintain as a B-zone, but should be investigated for achievable options for management. This would provide greater protection for the township of Beachport in particular the properties along Mabel Street.



Appendix 2: Bushfire Management Area Wide Risk Treatment for Communities at Risk from Bushfire

Community group at risk from Bushfire	Treatment Strategy	Considerations	Treatment Options
• Aged related frailty • Geographically isolated • People with physical and/or intellectual disabilities • People with chronic illness and other health issues • Children • Aboriginal & Torres Strait Islanders • Culturally and linguistically diverse • Socio-Economic Disadvantage • Generational changes (reduced knowledge of farming practices) • Tourist/Travellers	**Engagement with** • Individuals and advocates who are able to fairly represent the at-risk community • Peak representative bodies, agencies and organisations, in the public, non-government and private sector • Community Groups • Other relevant bodies e.g. Local council planning committees • Emergency Management Planning Committees • Cross-border emergency service agencies	**Emergency preparedness is line with** • Community capacities • Current Legislation, Regulations, Doctrine and Codes of Practice • Relevant sector policy and guidelines • Federal, State and Local government directives • Service provider accreditation requirements **Best practice to be guided by:** • National Disaster Resilience Strategy • AFAC guidelines for Bushfire and Community Safety and other relevant national Doctrine • Current best practice and current research findings • Child-centred disaster risk reduction principles	**Use multiple approaches to maximise risk reduction** (bottom up and top down combined) • Best practice relevant sector wide planning and preparation • Community planning and preparation • Identification of local champions to coordinate local action • Individual planning and preparation • Evidence-based Community Development Programmes • Assistance and empowerment evidence-based programmes for planning and preparation • Collaboration with CFA Cross-Border Liaison around delivery of key preparedness messaging particularly in regard to travellers/holiday makers