SHIRE OF

BOYUP BROOK

Shire of Boyup Brook
Bushfire Risk Management Plan

2017 – 2021

Office of Bushfire Risk Management (OBRM)
Bushfire Risk Management Plan (BRM Plan) reviewed 26th June 2017

Local Government Council BRM Plan endorsement 31st August 2017

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Document Endorsements

The Shire of Boyup Brook Council endorses that the Bushfire Risk Management Plan (BRM Plan) has been reviewed and assessed by the Office of Bushfire Risk Management as compliant with the standard for bushfire risk management planning in Western Australia, the *Guidelines for Preparing a Bushfire Risk Management Plan*.

The Shire of Boyup Brook is the owner of this document and has responsibility, as far as is reasonable, to manage the implementation of the BRM Plan and facilitate the implementation of bushfire risk management treatments by risk owners.

The endorsement of the BRM Plan by Shire of Boyup Brook Council satisfies their endorsement obligations under section 2.3.1 of the *State Hazard Plan for Fire* (*Westplan Fire*).

Local Government	Representative	Signature	Date
Shire of Boyup Brook	Alan Lamb CEO		11/10/2017

Amendment List

Version	Date	Author	Section
1.0	April 2016	Bushfire Risk Management Officer	Draft BRM Plan
2.0	April 2017	Bushfire Risk Planning Coordinator	Draft BRM Plan

Publication Information

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1. Introduction

1.1 Background

Under the *State Hazard Plan for Fire* (*Westplan Fire*) an integrated Bushfire Risk Management Plan (BRM Plan) is to be developed for local government areas with significant bushfire risk. This BRM Plan has been prepared for the Shire of Boyup Brook in accordance with the requirements of *Westplan Fire* and the *Guidelines for Preparing a Bushfire Risk Management Plan* (Guidelines). The risk management processes used to develop this BRM Plan are aligned to the key principles of *AS/NZS ISO 31000:2009 Risk management – Principles and guidelines* (AS/NZS ISO 31000:2009), as described in the Second Edition of the *National Emergency Risk Assessment Guidelines* (NERAG 2015). This approach is consistent with the policies of the State Emergency Management Committee, specifically the *State Emergency Management Policy 3.2 – Management of Emergency Risks.*

This BRM Plan is a strategic document that identifies assets at risk from bushfire and their priority for treatment. The Treatment Schedule sets out a broad program of coordinated multi-agency treatments to address risks identified in the BRM Plan. Government agencies and other land managers responsible for implementing treatments participate in developing the BRM Plan to ensure treatment strategies are collaborative and efficient, regardless of land tenure.

1.2 Aim and Objectives

The aim of the Bushfire Risk Management Plan (BRM Plan) is to document a coordinated and efficient approach toward the identification, assessment and treatment of assets exposed to bushfire risk within the Shire of Boyup Brook.

The objective of the BRM Plan is to effectively manage bushfire risk within the Shire of Boyup Brook in order to protect people, assets and other things of local value. Specifically, the objectives of this BRM Plan are to:

- Guide and coordinate a tenure blind, multi-agency bushfire risk management program over a five-year period;
- Document the process used to identify, analyse and evaluate risk, determine priorities and develop a plan to systematically treat risk;
- Facilitate the effective use of the financial and physical resources available for bushfire risk management activities;
- Integrate bushfire risk management into the business processes of local government, land owners and other agencies;
- Ensure there is integration between land owners and bushfire risk management programs and activities;
- Monitor and review the implementation of treatments to ensure treatment plans are adaptable and risk is managed at an acceptable level.

1.3 Legislation, Policy and Standards

The following legislation, policy and standards were considered to be applicable in the development and implementation of the BRM Plan.

1.3.1 Legislation

- *Bush Fires Act 1954*
- *Emergency Management Act 2005*
- *Fire Brigades Act 1942*
- *Fire and Emergency Service Act 1998*
- *Conservation and Land Management Act 1984*
- *Environmental Protection Act 1986*
- *Environmental Protection and Biodiversity Conservation Act 1999*
- *Wildlife Conservation Act 1950*
- *Aboriginal Heritage Act 1972*
- *Metropolitan Water Supply, Sewerage and Drainage Act 1909*
- *Country Areas Water Supply Act 1947*
- *Building Act 2011*
- *Bush Fires Regulations 1954*
- *Emergency Management Regulations 2006*
- *Planning and Development (Local Planning Scheme) Regulations 2015*

1.3.2 Policies, Guidelines and Standards

- National Emergency Risk Assessment Guidelines (NERAG) (Second Edition 2015)
- State Emergency Management Policy 3.2 - Emergency Management in Local Government Districts
- State Emergency Management Policy 3.2 - Management of Emergency Risks
- State Hazard Plan for Fire (Westplan Fire)
- State Planning Policy 3.7: Planning in Bushfire Prone Areas
- State Planning Policy 3.4: Natural Hazards and Disasters
- Guidelines for Planning in Bushfire Prone Areas (2015)
- Western Australian Emergency Risk Management Guidelines (Emergency Management WA 2005)
- A Guide to the Use of Pesticides in Western Australia (Dept. of Health 2010)
- Guidelines for Plantation Fire Protection (DFES 2011)
- Firebreak Location, Construction and Maintenance Guidelines (DFES)
- Bushfire Risk Management Planning – Guidelines for preparing a Bushfire Risk Management Plan (2015)
- AS/NZS ISO 31000:2009 - Risk management – Principles and guidelines
- AS 3959-2009 Construction of buildings in bushfire-prone areas
- Building Protection Zone Standards (DFES)

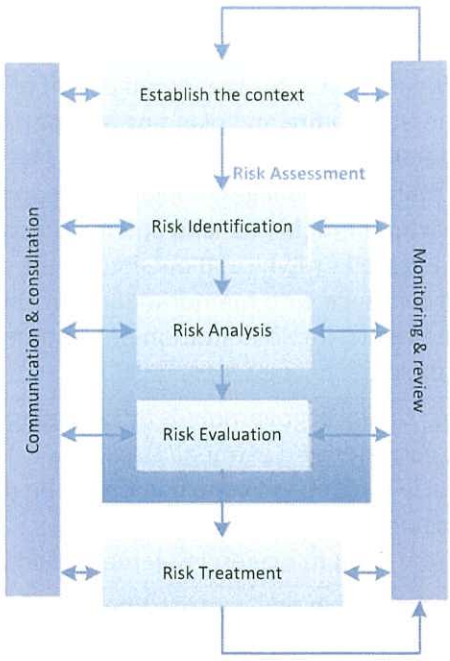
1.3.3 Other Related Documents

- National Strategy for Disaster Resilience
- National Statement of Capability for Fire and Emergency Services (AFAC 2015)
- Public Service Circular No. 88 Use of Herbicides in Water Catchment Areas (Dept. of Health 2007)
- Code of Practice for Timber Plantations in Western Australia (Forest Products Commission 2006)
- Bushfire Risk Management Planning Handbook
- Bushfire Risk Management System (BRMS) User Guide
- Shire of Boyup Brook Local Emergency Management Plan
- Shire of Boyup Brook Community Contacts Directory
- Shire of Boyup Brook Annual Firebreak Notice
- Shire of Boyup Brook Corporate Plan Business Plan 2014-2017
- Shire of Boyup Brook Asset Management Plan Roads
- Shire of Boyup Brook Town Planning Scheme No.2
- Shire of Boyup Brook Townsite Strategy 2013
- Shire of Boyup Brook Local Rural Strategy
- Shire of Boyup Brook Municipal Heritage Inventory
- Shire of Boyup Brook Strategic Community Plan
- Shire of Boyup Brook Asset Management Plan Buildings

2. The Risk Management Process

The risk management processes used to identify and address risk in this BRM Plan are aligned with the international standard for risk management, AS/NZS ISO 31000:2009, as described in NERAG (2015). This process is outlined in Figure 1 below.

Figure 1 - An overview of the risk management process [1]



[1] Source: AS/NZS ISO 31000:2009, Figure 3, reproduced under SAI Global copyright Licence 1411-c083.

2.1 Roles and Responsibilities

Table 1 – Roles and Responsibilities

Stakeholder Name*	Roles and Responsibilities
Local Government	▪ As custodian of the BRM Plan, coordination of the development and ongoing review of the integrated BRM Plan. ▪ Negotiation of commitment from land owners to treat risks identified in the BRM Plan. ▪ As treatment manager, implementation of treatment strategies. ▪ As part of the approval process, submission of the draft BRM Plan to the Office of Bushfire Risk Management (OBRM) to review it for consistency with the Guidelines. ▪ As part of the approval process, submission of the final BRM Plan to council for their endorsement and adoption.
Department of Fire and Emergency Services (DFES)	▪ Participation in and contribution to the development and implementation of BRM Plans, as per their agency responsibilities as the Westplan Fire Hazard Management Agency. ▪ Support to local government through expert knowledge and advice in relation to the identification, prevention and treatment of bushfire risk. ▪ Facilitation of local government engagement with state and federal government agencies in the local planning process. ▪ Undertake treatment strategies, including prescribed burning on behalf of Department of Lands for Unmanaged Reserves and Unallocated Crown Land within gazetted town site boundaries. ▪ In accordance with Memorandums of Understanding and other agreements, implementation of treatment strategies for other landholders.
Office of Bushfire Risk Management (OBRM)	▪ Under the OBRM Charter, to ensure bushfire risk is managed in accordance with AS/NZS ISO 31000 and reporting on the state of bushfire risk across Western Australia. ▪ Review BRM Plans for consistency with the Guidelines prior to final endorsement by council.
Department of Biodiversity, Conservation and Attractions (DBCA)	▪ Participation in and contribution to the development and implementation of BRM Plans. ▪ Providing advice for the identification of environmental assets that are vulnerable to fire and planning appropriate treatment strategies for their protection. ▪ As treatment manager, implementation of treatment strategies on department managed land and for Unmanaged Reserves and Unallocated Crown Land outside gazetted town site boundaries. ▪ In accordance with Memorandums of Understanding and other agreements, implementation of treatment strategies for other landholders.
Other State and Federal Government Agencies	▪ Assist the local government by providing information about their assets and current risk treatment programs. ▪ Participation in and contribution to the development and implementation of BRM Plans. ▪ As treatment manager, implementation of treatment strategies.
Public Utilities	▪ Participation in and contribution to the development and implementation of BRM Plans. ▪ As treatment manager, implementation of treatment strategies.

Stakeholder Name*	Roles and Responsibilities
Corporations and Private Land Owners	▪ As treatment manager, implementation of treatment strategies. ▪ Assist the local government by providing information about their assets and current risk treatment programs.

2.2 Communication & Consultation

As indicated in Figure 1 (page 8), communication and consultation throughout the risk management process is fundamental to the preparation of an effective BRM Plan. To ensure appropriate and effective communication occurred with relevant stakeholders in the development of the BRM Plan, a *Communication Strategy* was prepared. The strategy is provided at **Appendix 1**.

3. Establishing the Context

3.1 Description of the Local Government and Community Context

3.1.1 Strategic and Corporate Framework

The vision for the Shire of Boyup Brook is: *"Growing our Community together."*

The aim of the Shire of Boyup Brook is: *"To build a safe, caring and secure community, and grow the population through lifestyle choices, commercial and employment diversity."*

The Shire's organisational structure identifies that the Bushfire Risk Planning Coordinator is responsible for the BRM Plan processes, sustainability and continuity. Accepting that there are multiple stakeholders (outside of the LG) involved in the effective implementation of the BRM Plan process, it is important to note that the Shire's responsibility is to facilitate the management of the risk of bushfires to the community as supported by the provision of this plan. In the event that the Bushfire Risk Planning Coordinator role concludes, the Local Government's CEO shall delegate responsibility for the implementation of this plan.

This BRM Plan aims to strengthen the Shire's capacity to achieve its overall corporate vision and goals to encourage community organisations and local communities to work together to be self-sufficient and aims to provide guidance on negotiating and selecting suitable treatment strategies for mitigation of bushfire-related risks. This approach allows the responsible land holder to allocate its scarce resources most effectively in order to lower the inherent risk to an acceptable level.

The BRM Plan is a hazard specific plan that addresses significant bushfire risks within the LG, it aims to integrate bushfire risk management programs and activities into the business processes of the Shire, other agencies and land owners. The outcomes of the BRM Plan will be used to inform LG when preparing and then implementing bushfire mitigation strategies for Shire managed land.

Existing and future bushfire risk management programs such as the *Annual Firebreak Order* will utilise the BRM Plan risk register to prioritise resources and influence the decision-making process. The Shire reports on non-compliances to the notice for all high-risk assets requiring mitigation works as a priority and ensure consultation occurs and mitigation works are prioritised using this risk management approach.

Fire remains the highest risk factor to the community from an emergency management perspective. The Shire is faced with increased fire risk to people and property due to a drying climate, development within and around high fuel load areas plus an increasing pressure on fire brigade volunteers to support fire response requirements. With the BRM Plan the Shire will increase efforts to support and promote existing bushfire preparation programs while educating and providing valuable information to the community.

The Shire's Strategic Community Plan 2013-2023 outlines a focus on the four areas of social, natural environment, built environment and economic, underpinned by a series of priorities and community objectives for achieving these.

The Shire of Boyup Brook's Strategic Community Plan states that the key challenges for the Shire are:

- Economic capacity – our financial capabilities are limited by our capacity to grow our revenue streams;
- Community safety;
- Road infrastructure safety – we have a renewal funding gap that is currently beyond the Shires financial capacity to meet;
- Preservation of essential community services; and
- Increasing number of people over 65 years of age.

The Shire of Boyup Brook Town Planning Scheme No. 2 sets out the obligations for new land use and development across the Shire. Other than within the town sites, the majority of the Shire is within the Rural Zone.

There is opportunity for new development to occur within land zoned Special Rural on the fringe of Boyup Brook and within the gazetted smaller town sites across the Shire where land is within the urban zone.

There are proposals / concepts to increase land zoned Special Rural around the fringes of Boyup Brook, however these are yet to be realised. The Shire of Boyup Brook town site Strategy 2013 sets direction for this new development within the town site. Some sites earmarked for new development and /or increased residential densities into the future are located on the fringe of the town site or proximate to vegetated areas of perceived bushfire risk.

The Shire of Boyup Brook Local Rural Strategy accompanies the town site Strategy, providing vision and direction for future development within the remainder of the Shire.

3.1.2 Location, Boundaries and Tenure

The Shire of Boyup Brook is located in the south west region of Western Australia, covering an area of 2,838 square kilometres. The Shire is located approximately 270 kilometres south east of Perth and 110 kilometres inland from Bunbury (see figure 2).

The town of Boyup Brook is the Shire's municipal centre and provides essential services including the hospital, three schools, an aged care facility and recreational areas. The commercial area supports the shopping precinct, Police Station, Community Resource Centre, Child Care, Health Facility, Shire offices and various agricultural support industries. The Shire is largely an agricultural district.

The Shire has small townships at Wilga, Dinninup, Kulikup, Mayanup and Tone Bridge. These are described as:

- Wilga is an ex Timber Mill town that has under gone an increase in population in recent times. It consists of a Public Hall, railway infrastructure and a dilapidated timber mill that is in the process of being removed.
- Dinninup contains a very small population and consists of an Agricultural showground, two halls and numerous display sheds.
- Kulikup is an ex timber milling town with a very small population. A Public Hall and Church are located within the town site.
- Mayanup is a large gazetted town site but consists of only one house, a Public Hall and Progress Association grounds with several buildings and ablutions.
- Tone Bridge is located at the southern end of the Shire. It is a very small community, consisting of several houses and a Social Club/Golf Club.

Figure 2 – Shire of Boyup Brook Location Plan [2].

Table 2 – Overview of Land Tenure and Management within the BRM Plan Area [3].

Land Manager/Agency*	% of Plan Area
Local Government	2.5
Private	71.5
Department of Biodiversity, Conservation and Attractions	25.1
Department of Lands	0.6
Other	0.3
Total	100

The Shire of Boyup Brook is responsible for management of 2.5% of the Shires land, comprising some 6983 hectares. The Department of Biodiversity, Conservation and Attractions (DBCA) manage approximately 25% of the Shires total land area, whilst DFES manage approximately 211 hectares of Unmanaged Crown Land (UCL) and Unmanaged Reserves (UMR) within gazetted town site boundaries across the Shire.

Department of Biodiversity, Conservation and Attractions has a long running program of risk management across the public land it manages. Fuel reduction through prescribed burns and other mitigation works is key to their approach and this is captured within their Fuel Age maps, demonstrating years since last burnt.

[2] Shire of Boyup Brook Town site Strategy Nov 2013
[3] Department of Fire & Emergency Services. *Cadastral Data: Spatial Services*

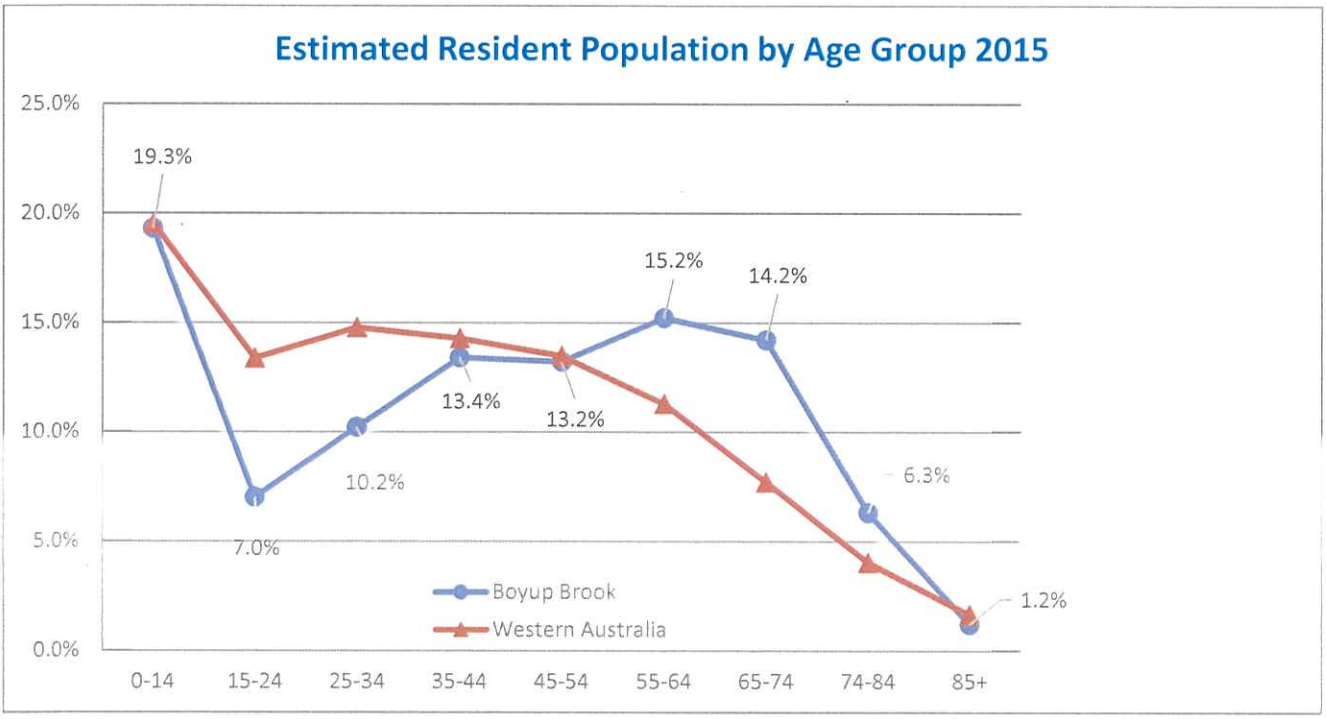
DFES are also active within the Shire, delivering a range of mitigation focussed works across the land it manages alongside its other bushfire responsibilities. DFES also has fuel age data for the land it manages and this has been given in regard when preparing this BRM Plan.

It is noted that prior to this BRM Plan, DFES prepared a Bushfire Risk Management Plan for the Shire based on a different methodology. As relevant, this work has been incorporated into this BRM Plan and reconsidered through this revised methodology.

3.1.3 Population and Demographics

The 2011 census details a population of 1,617 for the Shire, an increase of 41 persons over the 2006 census of 1,576 people. The Shire's population demographic is diverse, yet weighted to an aging population which presents challenges. 34.1% of the Shire's population are over 55 years of age, when compared to the State average which is 24.2% over 55 years of age. This reflects as an issue in the age of the workforce and volunteers, including those volunteers involved in the local brigades. Significant residential development has occurred within the Shire over the past ten years with two subdivisions being establish to the west of town. The development of the estates was an incentive from shire planning to entice a younger population demographic into the shire with affordable smaller lot sizes.

Graph 1 – Estimated Resident Population by Age Group (Source: Australian Bureau of Statistics)



3.1.4 Economic Activities and Industry

The local economy relies mostly on agriculture, with a mix of broad acre farming, sheep, cattle, olives, timber plantations and vineyards. Retail services are limited but expanding, and the community is well served by a variety of tradespersons. There is currently limited mining activity, but recent exploration has indicated the potential for expansion.

The future economic viability of Boyup Brook is optimistic, but significantly dependent upon the agricultural sector, which underpins the shires approach to strategic planning. It is noted that over 40% of the shire's population derives its income from agriculture.

Predominant agricultural activities occur between May – July, which is the seeding season, with harvest occurring between November to January. In a bushfire context, whilst some areas of the

shire may be seen as lower risk of bushfire due to somewhat lower fuel loads in comparison to traditional high-risk areas such as forests, the peak of the harvest season coincides with the high-risk summer periods. There is a heightened risk of fires starting during the harvest period with cropping practices potentially resulting in ignition. Stubble burning, post cropping, increases the possibility of accidental escapes and increased ignitions as a result of machinery. The movement of these vehicles through cured grain paddocks means this is the most likely time for a paddock fire. Crop fires tend to have a very rapid rate of spread.[4] There is also increased concern that farming practices, and therefore fire risk, can change dramatically year to year dependent upon what activities are likely to be the most profitable for the farmer. The economic impact of fires on agricultural holdings should not be underestimated with potential costs associated with machinery replacement, stock and crop losses including feed and grazing pastures as well as massive curbs on agricultural production in following seasons.

The Shire of Boyup Brook offers many tourist attractions with the tourist periods being consistent throughout the year apart from the main tourist events for the shire, that being the Country Music Festival held over four days in February and the Harvey Dickson's Rodeo held over two days in October. The number of visitors to the shire for the Country Music Festival, the week leading up to and the week after the event is estimated to be 5,000 people [5]. For the Rodeo, it is estimated to be 3,000 [6] visitors over the two days. Transient visitors require special consideration when employing bushfire risk mitigation solutions.

There is a small wine industry throughout the shire of Boyup Brook. Production would be significantly impacted in the event of a fire and/or heavy smoke event in the region. During the Autumn months, the vines carry grapes which have been known to be damaged by 'smoke taint' from nearby fires or prescribed burns. Careful consideration should be given to areas where vineyards are located, and if possible, prescribed burns should be planned for Spring in these areas.

There are a large number of privately and government owned timber plantations throughout the Shire of Boyup Brook. State government owned pine plantations managed by the FPC include Wilga 7, McAlinden and Dinninup 3, plantations. Areas to the north and south of Boyup Brook such as Wilga, Dinninup, Kulikup, Chowerup and Tonebridge have privately owned blue gum plantations. Prior to plantation approval from the Shire certain conditions need to be meet by the plantation owner to help protect against the impact of bushfire. These conditions range from compartmentation of the plantations, access to water, internal - external firebreaks[7] and private firefighting resources. A significant fire event impacting the forestry industry may result in considerable ramifications to the shire and potently the state.

Critical infrastructure within the Shire that may affect economic activities and industry if impacted by a bushfire event are:

- Main roads (Donnybrook-Boyup Brook Rd, Boyup Brook-Kojonup Rd, Boyup Brook-Bridgetown Rd)
- Timber bridges (Boyup Brook Town Bridge, Asplin Siding Bridge, Gnowangerup Brook Bridges, Trigwells Bridge, Jayes Rd Bridge, Dinninup Brook Bridge, Boyup Brook – Arthur Rd Bridge, Tone Bridge)
- Western Power (132 kV single feed from Collie to Manjimup)

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[4] Source: Department of Fire and Emergency Services (2014). *Homeowner Bushfire Survival Manual*. page 37.
[5] Country Music Club of Boyup Brook. *Annual event report 2017.*
[6] Shire of Boyup Brook. *Boyup Brook Tourism Association*
[7] Shire of Boyup Brook. ANNUAL FIREBREAK NOTICE 2016/2017.

- Water treatment plant
- Boyup Brook District Hospital and health clinic(s)
- Boyup Brook Educational facilities, schools and child care

This plan aims to identify risk to economic activities and assets from the impact of bushfire. Increased protection on critical infrastructure may be required to improve safety in the community as well as attempt to reduce impact of bushfire to economic activities and industry.

Table 3 - Industry of Employment source: ABS Statistical Data 2011 (Count of employed persons 15 years and older)

Industry	Employment (No's)	Proportion
Agriculture, forestry & fishing	338	45.9%
Mining	22	3.0%
Manufacturing	28	3.8%
Electricity, gas, water & waste services	5	0.7%
Construction	37	5.0%
Wholesale trade	18	2.5%
Retail trade	39	5.3%
Accommodation & food services	17	2.3%
Transport, postal & warehousing	24	3.3%
Information media & telecommunications	3	0.4%
Financial & insurance services	7	1.0%
Rental, hiring & real estate services	8	1.1%
Professional, scientific & technical services	15	2.0%
Administrative & support services	7	1.0%
Public administration & safety	36	4.9%
Education & training	57	7.7%
Health care & social assistance	52	7.1%
Arts & recreation services	3	0.4%
Other services	19	2.6%

3.2 Description of the Environment and Bushfire Context

3.2.1 Topography and Landscape Features

Topography contributes to risk by influencing fire rate of spread (ROS), and therefore intensity, and by affecting access for suppression forces. The risk associated with topography is assessed in relation to response access and as a variable in predicting fire behaviour leading to potential spotting and the calculation of the hazard protection zone for each community/asset.

The Shire of Boyup Brook consists of undulating slopes predominant in the Northern region due to the locality of the nearby southern end of the Darling Scarp[8], providing areas with severe limitations to vehicle access. Boyup Brook Townsite is situated on the Blackwood river which undulates in elevation from 180 metres to 245 metres Australian Height Datum (AHD). The northern and southern communities of the Shire are more heavily forested from that of the communities throughout the middle of the shire which are made up broad acre farming. Careful consideration is required when determining bushfire suppression strategies and risk treatments with in the northern and southern communities of the shire.

[8] Shire of Boyup Brook. *Boyup Brook Community Profile.* Pg 6 September 2003

The Blackwood River is the only major river system within the LGA. The topography is undulating with some steep slopes in the majority of the river valley system. This provides limitations to vehicle access and will potentially hinder bushfire suppression activities due to undulating terrain. Careful consideration is required when determining bushfire suppression strategies and bushfire mitigation works for both environmental factors and safety to emergency responders.

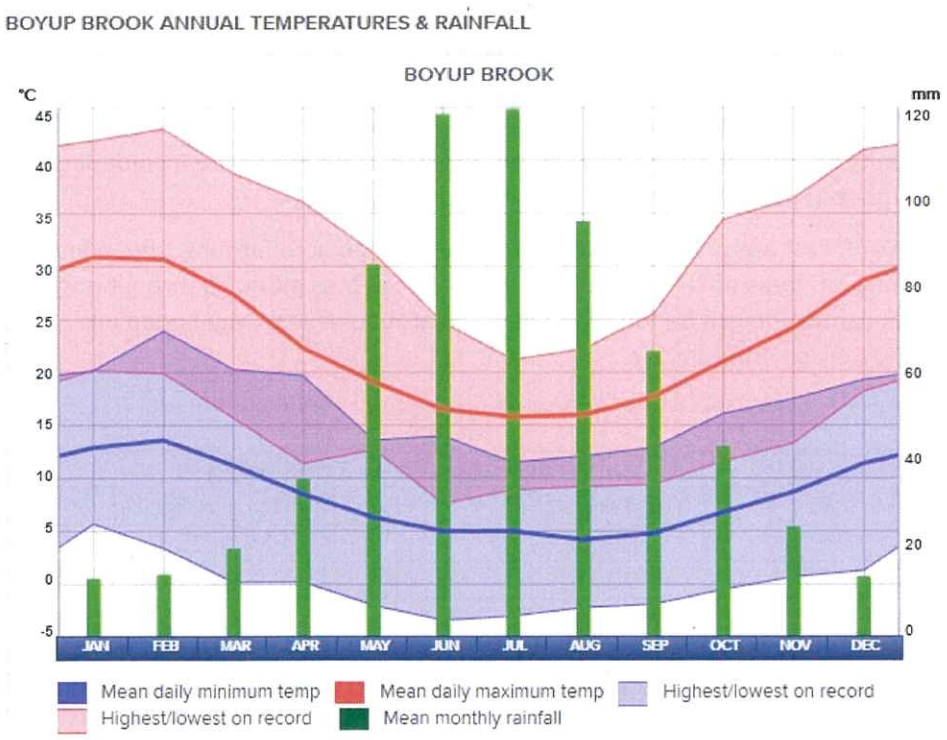
3.2.2 Climate and Bushfire Season

The Shire of Boyup Brook climate is described as Mediterranean, with distinct mild, wet winter and dry summer seasons. Winter rainfall is predominately rain-bearing, low-pressure systems moving in a westerly direction with an average annual rainfall of around 600mm per year and an average wind speed of 9.4 km/hr.[9]

Summers are very dry, with December to February receiving a monthly average of less than 15mm of rain. The hot, dry summers and seasonal strong winds create an environment where there is always a significant risk of bush fire, therefore a high degree of caution is required by residents and visitors at all times.

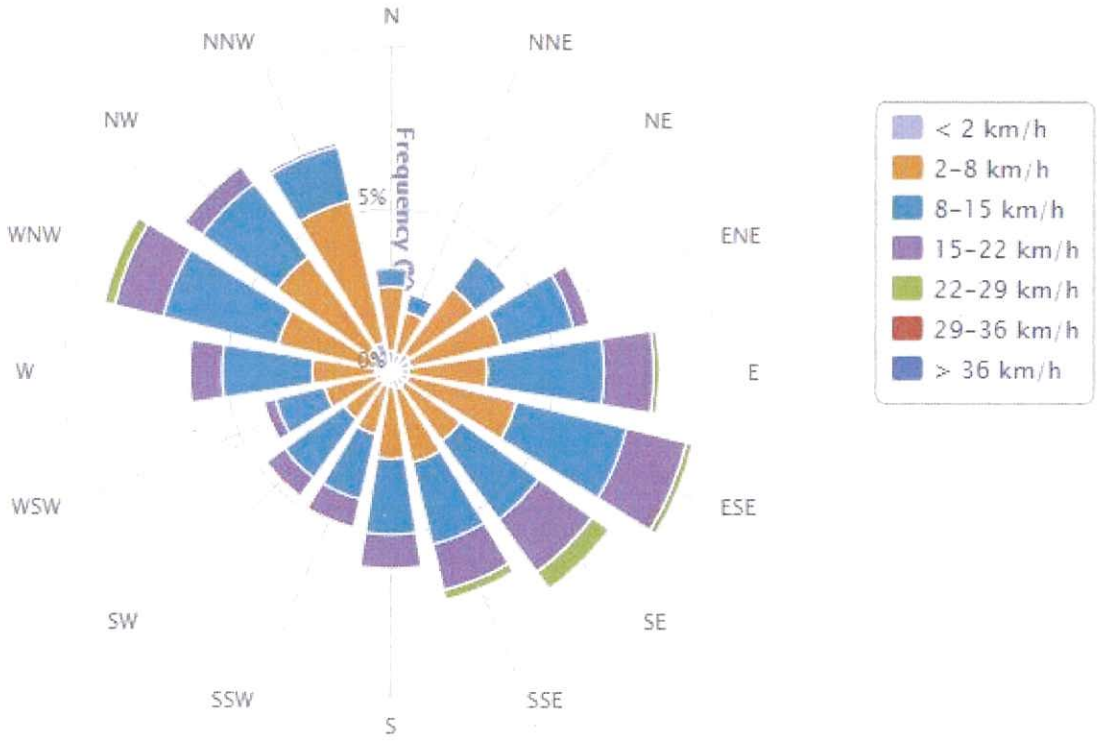
A general decrease in rainfall is found when compared to the long-term average, especially of importance at the break of the season. A 16 per cent difference was found when comparing the 10 and 30 year averages to the long-term average, whilst the difference was 33 per cent between the 5 years and long-term averages (see figure 3). Although the latter does not necessarily impact negatively on cropping and pastures, it raises concerns for water harvesting, the plantation industry and the threat of bushfire. It is noted that Restricted burning times (Permits Required) in the Shire of Boyup Brook are 9th October to 20th November and 1st March to 30th April. Prohibited burning times 21st November to 28th February each year[10].

Figure 3 - Boyup Brook weather. Source: weather zone



[9] Source: www.agric.wa.gov.au/weather-stations. Dininnup 2012 – 2017 wind average
[10] Shire of Boyup Brook. *ANNUAL FIREBREAK NOTICE 2016/2017.*

Figure 4 - Dinningup wind rose shows frequency of wind direction and speeds recorded over the last 6 years (01/03/2010 – 01/03/2016). Source: www.agric.wa.gov.au/weather-stations



3.2.3 Vegetation

Broad vegetation types are found within the Shire of Boyup Brook. Table 5 provide an overview of the major fuels that will influence fire behaviour in the region and to evaluate potential rates of spread and spotting under 95th percentile weather conditions.

Vegetation types provide an overview of the major fuels that will influence fire behaviour and will assist in the completion of risk assessment by evaluating factors such as, potential rates of spread and spotting. Understanding the type of vegetation also assists in assessing Mitigation areas required for each community and Asset. The major vegetation types within the shire include Jarrah – Marri forests, Jarrah - Wandoo (Eucalyptus wandoo), paper bark & tea tree.

Areas of the shire cleared of forest are predominantly agricultural broad acre farming, sheep and cattle. There are also significant areas of farmland planted with Eucalyptus globulus throughout the Shire, though the main concentration can be found in the north around Wilga - McAlinden and southern areas around Chowerup - Tonebrridge.

Table 4 - Remnant Vegetation remaining in the shire of Boyup Brook and Surrounding Shires (Govt. WA, 2013)[11]

Shire	Vegetation Cover Remaining	
	Total Area (ha)	Total Area (%)
Boyup Brook	125,022	44.23%
Bridgetown-Greenbushes	72,591	54.27%
West Arthur	87,449	30.88%
Kojonup	68,509	23.37%
Manjimup	586,906	73.17%
Cranbrook	123,089	37.58%

[11] Roadside Conservation Committee. *Roadside Vegetation and Conservation Values in the Shire of Boyup Brook.* Pg18. Retrieved from www.dpaw.wa.gov.au/images/documents/conservation-management/off-road-conservation/rcc/reports/Shire_of_Boyup_Brook_Roadside_Vegetation_Survey_Rpt_2013.pdf

Table 5 – Western Australia Major regional vegetation dataset [12]

Vegetation Community	Area (ha)	% of Total Area	Bushfire Predictive Model
Bare areas; freshwater lakes	60.4	0.02	Nil
Cleared; Agricultural land	157,570.7	55.76	Vesta
Medium forest, jarrah-marri	72,992.4	25.83	Vesta
Medium forest; jarrah & wandoo (Eucalyptus wandoo)	34,539.1	12.22	Vesta
Medium woodland; marri & wandoo	16,968.5	6.00	Vest
Medium woodland; yate & paperbark (Melaleuca spp.)	176.6	0.06	Vesta
Shrublands tree-heath; paperbark (Melaleuca sp.) over tea tree thickets; Low woodland	292.3	0.10	Anderson (2014)
TOTAL	282,600	100.00	

3.2.4 Bushfire Frequency and Causes of Ignition

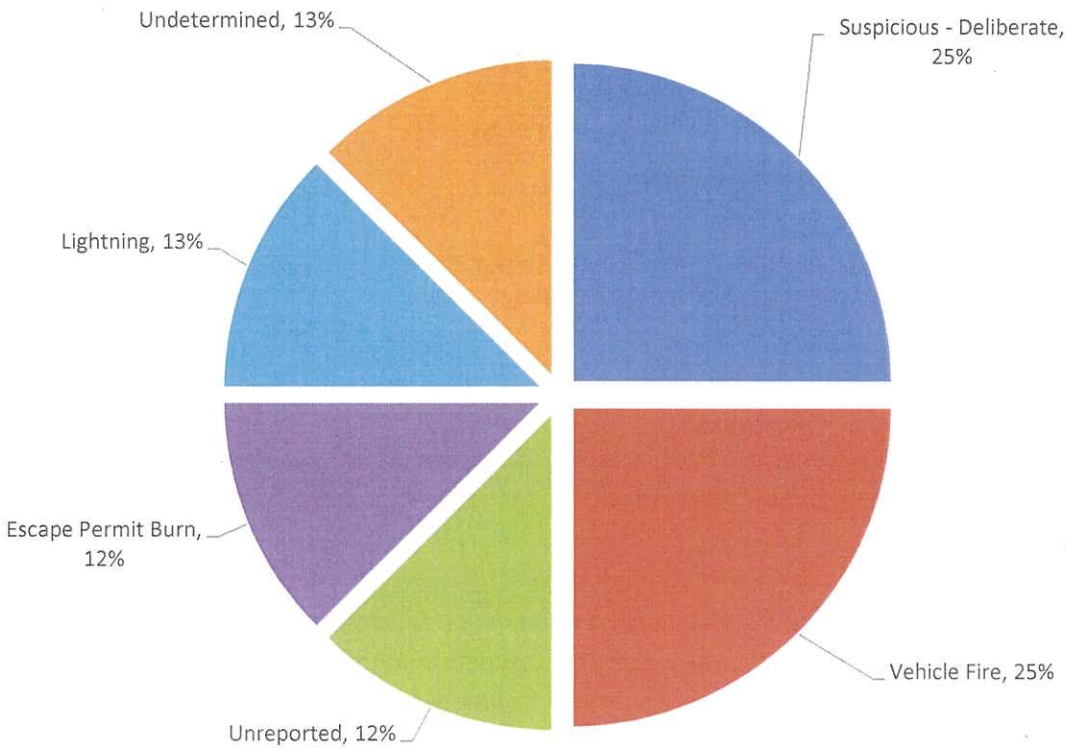
The Fire season runs from October to May (and peaks between December and March). There are approximately 10 reported fires each year which are attended to in the Boyup Brook LGA by Bushfire Volunteers, Volunteer Fire and Rescue and Department of Biodiversity, Conservation and Attractions. There are additional incidences to this that are not reported to either DFES or DBCA. In the period 1 July 2015 to 30 June 2016 there were 8 incidents of bushfire reported to DFES. Current data suggests that there is no appreciable increase in the frequency of bushfires over the past five years.

The causes of bushfires with in the Shire for the finical year 2015 – 2016 are as follows.

Suspicious – Deliberate and *Unreported* being the major cause of bushfires, followed by *Escape Permit Burn*, *Lightning* and *Reignition* from prescribed burns / permit burns. *Campfires, Electrical fault, Hot works, Power lines* and *Vehicle Fire* are the final causes of how bush fires start as shown in graph 2.

[12] Vegetation of Western Australia Dataset provided by DEC, Post-European Vegetation, which is based IBRA (Interim Biogeographic Regionalisation of Australia, Thackway and Cresswell eds. 1995) regions and sub-regions, at a scale of 1:250000

Graph 2 – Causes of bushfires Season 2015-2016[13]



4. Asset Identification and Risk Assessment

4.1 Planning Areas

The Shire of Boyup Brook been divided into seven planning areas. (1. Boyup Brook, 2. Wilga, 3. West Boyup Brook, 4. Dinninup, 5. Kulikup, 6. Mayanup and 7. Tone Bridge) Attached at **Appendix 2** is a map showing the boundaries of the planning areas identified within The Shire of Boyup Brook.

Assets were identified and assessed in each planning area, based on the results of the planning area assessment outlined in the following table.

[13] Department of Fire & Emergency Services. (1st July 2015 to 30th June 2016). *IRS Reporting Database.*

Table 6 – Planning Area Assessment Summary

Risk Factor	Boyup Brook Town	*Wilga*	*Tone Bridge*	*West Boyup Brook*	*Dinninup*	*Mayanup*	*Kulikup*
1. % of LG Population in Planning Area	160	40	20	40	20	20	20
2. Fuel Structures	40	80	100	60	60	40	20
3. Assets	80	40	20	40	20	20	20
4. Rural Urban Interface	80	60	40	20	40	20	20
5. Suppression response times	20	40	60	60	40	60	60
6. Suppression strategies	20	80	80	60	60	60	20
TOTAL	400	340	320	280	240	220	160
PRIORITY	1	2	3	4	5	6	7

4.2 Asset Identification

Asset identification and risk assessment has been conducted at the local level using the methodology described in the Guidelines. Identified assets have been mapped, recorded and assessed in the Bushfire Risk Management System (BRMS). Identified assets are categorised into the following subcategories:

Table 7 – Asset Categories and Subcategories

Asset Category	Asset Subcategories
Human Settlement	• **Residential areas** Rural urban interface areas and rural properties. • **Places of temporary occupation** Commercial, mining and industrial areas located away from towns and population centres (that is, not adjoining residential areas). • **Special risk and critical facilities** Hospitals, nursing homes, schools and childcare facilities, tourist accommodation and facilities, prison and detention centres, government administration centres and depots, incident control centres, designated evacuation centres, police, fire and emergency services.
Economic	• **Agricultural** Pasture, grazing, livestock, crops, viticulture, horticulture and other farming infrastructure. • **Commercial and industrial** Major industry, waste treatment plants, mines, mills and processing and manufacturing facilities and cottage industry.

Asset Category	Asset Subcategories
Economic	• **Critical infrastructure** Power lines and substations, water and gas pipelines, telecommunications infrastructure, railways, bridges, port facilities and waste water treatments plants. • **Tourist and recreational** Tourist attractions and recreational sites that generate significant tourism and/or employment within the local area. • **Commercial forests and plantations** • **Drinking water catchments**
Environmental	• **Protected** Rare and threatened flora and fauna, ecological communities and wetlands. • **Priority** Fire sensitive species and ecological communities. • **Locally important** Nature conservation and research sites, habitats, species and communities, areas of visual amenity.
Cultural	• **Aboriginal heritage** Places of indigenous significance. • **Recognised heritage** Assets afforded legislative protection through identification by the National Trust, State Heritage List or Local Planning Scheme Heritage List. • **Local heritage** Assets identified in a Municipal Heritage Inventory or by the community. • **Other** Other assets of cultural value, for example community centres and recreation facilities.

4.3 Assessment of Bushfire Risk

Risk assessments have been undertaken for each asset or group of assets identified using the methodology described in the Guidelines.

The percentage of assets within the local government in each asset category at the time of BRM Plan endorsement is shown in the following table.

Table 8 – Asset Category Proportions

Asset category	Proportion of identified assets
Human Settlement	87.1%
Economic	6.7%
Environmental	3.6%
Cultural	2.6%

4.3.1 Likelihood Assessment

Likelihood is described as the chance of a bushfire igniting, spreading and reaching an asset. The approach used to determine the likelihood rating is **the same for each asset category**: Human Settlement, Economic, Environmental and Cultural.

There are four possible likelihood ratings: almost certain, likely, possible, and unlikely.

Table 9 – Likelihood Ratings

Likelihood Rating	Description
Almost Certain (Sure to Happen)	• Is expected to occur in most circumstances; • High level of recorded incidents and/or strong anecdotal evidence; and/or • Strong likelihood the event will recur; and/or • Great opportunity, reason or means to occur; • May occur more than once in 5 years.
Likely (Probable)	• Regular recorded incidents and strong anecdotal evidence; and /or • Considerable opportunity, reason or means to occur; • May occur at least once in 5 years.
Possible (feasible but < probable)	• Should occur at some stage; and/or • Few, infrequent, random recorded incidents or little anecdotal evidence; and/or • Some opportunity, reason or means to occur.
Unlikely (Improbable, not likely)	• Would only occur under exceptional circumstances.

4.3.2 Consequence Assessment

Consequence is described as the outcome or impact of a bushfire event. The approach used to determine the consequence rating is **different for each asset category**: Human Settlement, Economic, Environmental and Cultural.

There are four possible consequence ratings: minor, moderate, major and catastrophic.

Table 10 – Consequence Ratings

Consequence Rating	Descriptions
Minor	• No fatalities. • Near misses or minor injuries with first aid treatment possibly required. • No persons are displaced. • Little or no personal support (physical, mental, emotional) required. • Inconsequential or no damage to an asset, with little or no specific recovery efforts required beyond the immediate clean-up. • Inconsequential or no disruption to community. • Inconsequential short-term failure of infrastructure or service delivery. (Repairs occur within 1 week, service outages last less than 24 hours.) • Inconsequential or no financial loss. Government sector losses managed within standard financial provisions. Inconsequential business disruptions.
Moderate	• Isolated cases of serious injuries, but no fatalities. Some hospitalisation required, managed within normal operating capacity of health services. • Isolated cases of displaced persons who return within 24 hours.

Consequence Rating	Descriptions
Moderate	• Personal support satisfied through local arrangements. • Localised damage to assets that is rectified by routine arrangements. • Community functioning as normal with some inconvenience. • Isolated cases of short to mid-term failure of infrastructure and disruption to service delivery. (Repairs occur within 1 week to 2 months, service outages last less than 1 week.) • Local economy impacted with additional financial support required to recover. Government sector losses require activation of reserves to cover loss. Disruptions to businesses lead to isolated cases of loss of employment or business failure. • Isolated cases of damage to environmental or cultural assets, one-off recovery efforts required, but with no long-term effects to asset.
Major **Major**	• Isolated cases of fatalities. • Multiple cases of serious injuries. Significant hospitalisation required, leading to health services being overstretched. • Large number of persons displaced (more than 24 hours duration). • Significant resources required for personal support. • Significant damage to assets, with ongoing recovery efforts and external resources required. • Community only partially functioning. Widespread inconvenience, with some services unavailable. • Mid to long-term failure of significant infrastructure and service delivery affecting large parts of the community. Initial external support required. (Repairs occur within 2 to 6 months, service outages last less than a month.) • Local or regional economy impacted for a significant period of time with significant financial assistance required. Significant disruptions across industry sectors leading to multiple business failures or loss of employment. • Significant damage to environmental or cultural assets that require major rehabilitation or recovery efforts. • Localised extinction of native species. This may range from loss of a single population to loss of all of the species within the BRM Plan area (for a species which occupies a greater range than just the BRM Plan area).
Catastrophic	• Multiple cases of fatalities. • Extensive number of severe injuries. • Extended and large number requiring hospitalisation, leading to health services being unable to cope. • Extensive displacement of persons for extended duration. • Extensive resources required for personal support. • Extensive damage to assets that will require significant ongoing recovery efforts and extensive external resources. • Community unable to function without significant support.

Consequence Rating	Descriptions
Catastrophic	• Long-term failure of significant infrastructure and service delivery affecting all parts of the community. Ongoing external support required. (Repairs will take longer than 6 months, service outages last more than 1 month.) • Regional or State economy impacted for an extended period of time with significant financial assistance required. Significant disruptions across industry sectors leading to widespread business failures or loss of employment. • Permanent damage to environmental or cultural assets. • Extinction of a native species in nature. This category is most relevant to species that are restricted to the BRM Plan area, or also occur in adjoining areas and are likely to be impacted upon by the same fire event. 'In nature' means wild specimens and does not include flora or fauna bred or kept in captivity.

The methodology used to determine the consequence rating for each asset category is based on the following:

- **Consequence Rating - Human Settlement Assets**
  The outcome or impact of a bushfire event on the asset, or a group of assets, measured by the threat posed by the hazard vegetation and the vulnerability of the asset.

- **Consequence Rating - Economic Assets**
  The outcome or impact of a bushfire event on the asset, or a group of assets, measured by the level of economic impact and the recovery costs.

- **Consequence Rating - Environmental Assets**
  The outcome or impact of a bushfire event on the asset, or a group of assets, measured by the vulnerability of the asset and the potential impact of a bushfire or fire regime.

- **Consequence Rating - Cultural Assets**
  The outcome or impact of a bushfire event on the asset, or a group of assets, measured by the threat posed by the hazard vegetation and the vulnerability of the asset.

4.3.3 Assessment of Environmental Assets

Using available biological information and fire history data, environmental assets with a known minimum fire threshold were assessed to determine if they were at risk from bushfire, within the five-year life of the BRM Plan. Environmental assets that would not be adversely impacted by bushfire within the five-year period have not been included and assessed in the BRM Plan. The negative impact of a fire on these assets (within the period of this BRM Plan) was determined to be minimal, and may even be of benefit to the asset and surrounding habitat.

4.3.4 Local Government Asset Risk Summary

A risk profile for the local government is provided in the summary table below. This table shows the proportion of assets at risk from bushfire in each risk category at the time the BRM Plan was endorsed.

Table 11 – Local Government Asset Risk Summary

Risk Rating / Asset Category	Low	Medium	High	Very High	Extreme
Human Settlement	58.6%	5.6%	5.6%	6.9%	10.5%
Economic	2.3%	1.1%	2.0%	1.3%	0.0%
Environmental	0.3%	0.5%	2.8%	0.0%	0.0%
Cultural	2.3%	0.2%	0.0%	0.2%	0.0%

5. Risk Evaluation

5.1 Evaluating Bushfire risk

The risk rating for each asset has been assessed against the likelihood and consequence descriptions to ensure:

- The rating for each asset reflects the relative seriousness of the bushfire risk to the asset;
- Likelihood and consequence ratings assigned to each asset are appropriate; and
- Local issues have been considered.

5.2 Treatment Priorities

The treatment priority for each asset has been automatically assigned by BRMS, based on the asset's risk rating. Table 11 shows how likelihood and consequence combine to give the risk rating and subsequent treatment priority for an asset.

Table 12– Treatment Priorities

Consequence / Likelihood	Minor	Moderate	Major	Catastrophic
Almost certain	3D (High)	2C (Very High)	1C (Extreme)	1A (Extreme)
Likely	4C (Medium)	3A (High)	2A (Very High)	1B (Extreme)
Possible	5A (Low)	4A (Medium)	3B (High)	2B (Very High)
Unlikely	5C (Low)	5B (Low)	4B (Medium)	3C (High)

5.3 Risk Acceptability

Risks below a certain level were not considered to require specific treatment during the life of this BRM Plan. They will be managed by routine local government wide controls and monitored for any significant change in risk.

In most circumstances risk acceptability and treatment will be determined by the land owner, in collaboration with local government and fire agencies. However, as a general rule, the following courses of action have been adopted for each risk rating.

Table 13 – Criteria for Acceptance of Risk and Course of Action

Risk Rating	Criteria for Acceptance of Risk	Course of Action
Extreme (Priorities 1A, 1B, 1C)	Only acceptable with excellent controls. Immediate treatment action is required. Treatment plans to be explored and implemented. Highest level of authority notified (CEO).	Routine controls are not enough to adequately manage the risk. Immediate attention required as a priority. Specific action is required in first year of BRM plan. Continuous monitoring required. Actions may require state or federal funding.
Very High (Priorities 2A, 2B, 2C)	Only acceptable with excellent controls. Treatment action is required. Highest level of authority notified (CEO) plus Senior Shire officer's.	Routine controls are not enough to adequately manage the risk. Specific action will be required during the period covered by the plan. Actions may require state or federal funding. Quarterly monitoring may be required.
High (Priorities 3A, 3B, 3C, 3D)	Only acceptable with adequate controls. Treatment action may be required.	Specific action may be required. Risk may be managed with routine controls and/or specific procedures and is subject to bi-annual monitoring.
Medium (Priorities 4A, 4B, 4C)	Acceptable with adequate controls. Treatment action is not required, but risk must be monitored regularly.	Specific action may not be required. Risk may be managed with routine controls and monitored periodically throughout the life of the BRM PLAN.
Low (Priorities 5A, 5B, 5C)	Acceptable with adequate controls. Treatment action is not required, but risk must be monitored.	Need for specific action is unlikely. Risk will be managed with routine controls and monitored as required.

6. Risk Treatment

The purpose of risk treatment is to reduce the likelihood of a bushfire occurring and/or the potential impact of a bushfire on the community, economy and environment. This is achieved by implementing treatments that modify the characteristics of the hazard, the community or the environment.

There are many strategies available to treat bushfire risk. The treatment strategy (or combination of treatment strategies) selected will depend on the level of risk and the type of asset being treated. Not all treatment strategies will be suitable in every circumstance.

6.1 Local Government-Wide Controls

Local government-wide controls are activities that reduce the overall bushfire risk within the Boyup Brook Shire. These types of treatments are not linked to specific assets, and are applied across all or part of the local government as part of normal business or due to legislative requirements. The following controls are currently in place across the Shire of Boyup Brook:

- *Bush Fires Act 1954* Section 33 notices, including applicable fuel management requirements, firebreak standards and annual enforcement programs;

- Declaration and management of Prohibited Burn Times, Restricted Burn Times and Total Fire Bans for the local government;
- Public education campaigns and the use of DBCA and DFES state-wide programs, tailored to suit local needs;
- State-wide arson prevention programs developed in conjunction with WA Police and DFES;
- State planning framework and local planning schemes, implementation of appropriate land subdivision and building standards in line with DFES, Department of Planning, Lands and Heritage plus Building Commission policies and standards; and
- Monitoring performance against the BRM Plan and reporting annually to the local government council and OBRM.
- The Department of Fire and Emergency Services (DFES) is responsible for the management of fire prevention of Unallocated Crown Land (UCL) and Unmanaged Reserves (UMR) within gazetted town site boundaries under a memorandum of understanding with the Department of Lands;
- Department of Biodiversity, Conservation and Attractions Annual mitigation works programs (includes mechanical works and prescribed burns that may not directly influence level of risk to a specific asset or group of assets)
- Western Power Annual Vegetation Management and asset inspection activities in Extreme and High Bushfire Risk areas completed by November 30th.
- All Fire Management Plans including but not limited to, land developments and estates. Plans are available through the Planning department at the Shire;
- The Shire of Boyup Brook, Parks and Gardens annual hazard reduction works program (includes, spraying, slashing and pruning in and around established Town sites). Priority given to populated Town sites first (known works will be captured in the Bushfire Risk Management treatment schedule),
- Water Corporation Bushfire Risk Mitigation Program (Water corporation sites due to be assessed within the Shire by Water Corp. staff. Only High to Extreme risk sites will be communicated to the BRM Plan/BRPC once completed), and;

A multi-agency work plan has been developed and is attached at **Appendix 3.** The plan details work to be undertaken as a part of normal business, to improve current controls or to implement new controls to better manage bushfire risk across the local government.

6.2 Asset-Specific Treatment Strategies

Asset-specific treatments are implemented to protect an individual asset or group of assets, identified and assessed in the BRM Plan as being at risk from bushfire. There are six asset specific treatment strategies:

- **Fuel management** - Treatment reduces or modifies the bushfire fuel through manual, chemical and prescribed burning methods;
- **Ignition management** - Treatment aims to reduce potential human and infrastructure sources of ignition in the landscape;
- **Preparedness** - Treatments aim to improve access and water supply arrangements to assist firefighting operations;
- **Planning** - Treatments focus on developing plans to improve the ability of firefighters and the community to respond to bushfire; and

- **Community Engagement** - Treatments seek to build relationships, raise awareness and change the behaviour of people exposed to bushfire risk.
- **Other** - Local government-wide controls, such as community education campaigns and planning policies, will be used to manage the risk. Asset-specific treatment is not required or not possible in these circumstances.

6.3 Determining the Treatment Schedule

Efforts will be made to finalise the shire of Boyup Brook managed reserves Treatment Schedule within six months of this BRM Plan being endorsed by council. This treatment schedule will exclude shire managed road reserves. The Treatment Schedule will be developed in broad consultation with land owners and other stakeholders.

Land owners are ultimately responsible for treatments implemented on their own land. This includes any costs associated with the treatment and obtaining the relevant approvals, permits or licences to undertake an activity. Where agreed, another agency may manage a treatment on behalf of a land owner. However, the onus is still on the land owner to ensure treatments detailed in this BRM Plan are completed.

7. Monitoring and Review

Monitoring and review processes are in place to ensure that the BRM Plan remains current and valid. These processes are detailed below to ensure outcomes are achieved in accordance with the *Communication Strategy* and *Treatment Schedule*.

7.1 Review

A comprehensive review of this BRM Plan will be undertaken at least once every five years, from the date of council endorsement. Significant circumstances that may warrant an earlier review of the BRM Plan include:

- Changes to the BRM Plan area, organisational responsibilities or legislation;
- Changes to the bushfire risk profile of the area; or
- Following a major fire event.

7.2 Monitoring

The Bushfire Risk Planning Coordinator or LG employee trained in the use of BRMS, will use BRMS to monitor the risk ratings for each asset identified in the BRM Plan and record the treatments implemented. Risk ratings are reviewed on a regular basis. New assets will be added to the *Asset Risk Register* when they are identified.

7.3 Reporting

The Bushfire Risk Planning Coordinator or LG employee trained in the use of BRMS, will use BRMS to produce reports that will be presented annually to the Bushfire Advisory Committee on progress, hazard mitigation activities and budget. These committees will then make a recommendation to Council on the annual progress reports. Council will then consider the committee recommendations before submitting a report to OBRM.

The Boyup Brook Shire will submit an annual report to OBRM each year summarising progress made towards implementation of the BRM Plan.

8. Glossary

Asset	A term used to describe anything of value that may be adversely impacted by bushfire. This may include residential houses, infrastructure, commercial, agriculture, industry, environmental, cultural and heritage sites.
Asset Category	There are four categories that classify the type of asset – Human Settlement, Economic, Environmental and Cultural.
Asset Owner	The owner, occupier or custodian of the asset itself. Note: this may differ from the owner of the land the asset is located on, for example a communication tower located on leased land or private property.
Asset Register	A component within the Bushfire Risk Management System used to record the details of assets identified in the Bushfire Risk Management Plan.
Asset Risk Register	A report produced within the Bushfire Risk Management System that details the consequence, likelihood, risk rating and treatment priority for each asset identified in the Bushfire Risk Management Plan.
Bushfire	Unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires both with and without a suppression objective.[14]
Bushfire Management Plan	A document that sets out short, medium and long-term bushfire risk management strategies for the life of a development.[15]
Bushfire risk management	A systematic process to coordinate, direct and control activities relating to bushfire risk with the aim of limiting the adverse effects of bushfire on the community.
Bushfire Threat	The threat posed by the hazard vegetation, based on the vegetation category, slope and separation distance.
Consequence	The outcome or impact of a bushfire event.
Draft Bushfire Risk Management Plan	The finalised draft Bushfire Risk Management Plan (BRM Plan) is submitted to the OBRM for review. Once the OBRM review is complete, the BRM Plan is called the 'Final BRM Plan' and can be progressed to local government council for endorsement.

[14] Australasian Fire and Emergency Service Authorities Council 2012, *AFAC Bushfire Glossary*, AFAC Limited, East Melbourne.

[15] Western Australian Planning Commission 2015, *State Planning Policy 3.7: Planning in Bushfire Prone Areas*, WAPC, Perth.

Emergency Risk Management Plan	A document (developed under *State Emergency Management Policy 3.2*) that describes how an organisation(s) intends to undertake the activities of emergency risk management based on minimising risk. These plans help inform the ongoing development of Local Emergency Management Arrangements (LEMA) and Westplans.
Geographic Information System (GIS)	A data base technology, linking any aspect of land-related information to its precise geographic location.[16]
Geographic Information System (GIS) Map	The mapping component of the Bushfire Risk Management System. Assets, treatments and other associated information is spatially identified, displayed and recorded within the GIS Map.
Land Owner	The owner of the land, as listed on the Certificate of Title; or leaser under a registered lease agreement; or other entity that has a vested responsibility to manage the land.
Likelihood	The chance of something occurring. In this instance, the chance of a bushfire igniting, spreading and reaching the asset.
Locality	The officially recognised boundaries of suburbs (in cities and larger towns) and localities (outside cities and larger towns).
Planning Area	A geographic area determine by the local government which is used to provide a suitable scale for risk assessment and stakeholder engagement.
Priority	See Treatment Priority.
Recovery Cost	The capacity of an asset to recover from the impacts of a bushfire.
Responsible Person	The person responsible for planning, coordinating, implementing, evaluating and reporting on a risk treatment.
Risk acceptance	The informed decision to accept a risk, based on the knowledge gained during the risk assessment process.
Risk analysis	The application of consequence and likelihood to an event in order to determine the level of risk.
Risk assessment	The systematic process of identifying, analysing and evaluating risk.
Risk evaluation	The process of comparing the outcomes of risk analysis to the risk criteria in order to determine whether a risk is acceptable or tolerable.

[16] Landgate 2015, *Glossary of terms*, Landgate, Perth

Risk identification	The process of recognising, identifying and describing risks.
Risk Manager	The organisation or individual responsible for managing a risk identified in the Bushfire Risk Management Plan; including review, monitoring and reporting.
Risk Register	A component within the Bushfire Risk Management System used to record, review and monitor risk assessments and treatments associated with assets recorded in the Bushfire Risk Management Plan.
Risk treatment	A process to select and implement appropriate measures undertaken to modify risk.
Rural	Any area where in residences and other developments are scattered and intermingled with forest, range, or farm land and native vegetation or cultivated crops.[17]
Rural Urban Interface (RUI)	The line or area where structures and other human development adjoin or overlap with undeveloped bushland.[18]
Slope	The angle of the ground's surface measured from the horizontal.
Tenure Blind	An approach where multiple land parcels are considered as a whole, regardless of individual ownership or management arrangements.
Treatment	An activity undertaken to modify risk, for example a prescribed burn.
Treatment Objective	The specific aim to be achieved or action to be undertaken, in order to complete the treatment. Treatment objectives should be specific and measurable.
Treatment Manager	The organisation, or individual, responsible for all aspects of a treatment listed in the Treatment Schedule of the Bushfire Risk Management Plan, including coordinating or undertaking work, monitoring, reviewing and reporting.
Treatment Priority	The order, importance or urgency for allocation of funding, resources and opportunity to treatments associated with a particular asset. The treatment priority is based on an asset's risk rating.
Treatment Schedule	A report produced within the Bushfire Risk Management System that details the treatment priority of each asset identified in the Bushfire Risk Management Plan and the treatments scheduled.
Treatment Strategy	The broad approach that will be used to modify risk, for example fuel management.
Treatment Type	The specific treatment activity that will be implemented to modify risk, for example a prescribed burn.
Vulnerability	The susceptibility of an asset to the impacts of bushfire.

[17] Australasian Fire and Emergency Service Authorities Council 2012, *AFAC Bushfire Glossary*, AFAC Limited, East Melbourne

[18] Australasian Fire and Emergency Service Authorities Council 2012, *AFAC Bushfire Glossary*, AFAC Limited, East Melbourne

9. Common Abbreviations

APZ	Asset Protection Zone
BRMP	Bushfire Risk Management Planning
BRMS	Bushfire Risk Management System
CALD	Culturally and Linguistically Diverse
DEMC	District Emergency Management Committee
DFES	Department of Fire and Emergency Services
DPLH	Department of Planning, Lands and Heritage
ERMP	Emergency Risk Management Plan
FFDI	Forest Fire Danger Index
FMP	Fire Management Plan
GFDI	Grassland Fire Danger Index
GIS	Geographic Information System
HSZ	Hazard Separation Zone
JAFFA	Juvenile and Family Fire Awareness
LEMA	Local Emergency Management Arrangements
LEMC	Local Emergency Management Committee
LG	Local Government
LMZ	Land Management Zone
OBRM	Office of Bushfire Risk Management
DBCA	Biodiversity, Conservation and Attractions (Department of)
SEMC	State Emergency Management Committee
SLIP	Shared Land Information Platform
VESTA	Project Vesta: Fire in Dry Eucalypt Forest

Appendices

1 Communication Strategy

2 Planning Area Map

3 Local Government-Wide Controls, Multi-Agency Treatment Work Plan

The Shire of Boyup Brook

Bushfire Risk Management Planning

Communication Strategy

Document Control

Document Name	Bushfire Risk Management Plan Communications Strategy	**Current Version**	2.4
Document Owner	Alan Lamb CEO	**Issue Date**	16/08/2017
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Related Documents

Title	Version	Date
***Shire of Boyup Brook* Bushfire Risk Management Plan**	2.4	16/08/2017

Amendment List

1.0	April 2016	Bushfire Risk Management Officer	Draft Communications Strategy

1 INTRODUCTION

A Bushfire Risk Management Plan (BRM Plan) is a strategic document that outlines the approach to the identification, assessment and treatment of assets exposed to bushfire risk within the ***Shire of Boyup Brook.*** This Communication Strategy accompanies the BRM Plan for the ***Shire of Boyup Brook*** It documents the communication objectives for the BRM Plan, roles and responsibilities for communication, key stakeholders, target audiences and key messages at each project stage, communication risks and strategies for their management, and communication monitoring and evaluation procedures.

2 COMMUNICATIONS OVERVIEW

Communication Objectives

The communication objectives for the development, implementation and review of the BRM Plan for the ***Shire of Boyup Brook*** are as follows:

1. Key stakeholders understand the purpose of the BRM Plan and their role in the bushfire risk management planning process.
2. Stakeholders who are essential to the bushfire risk management planning process, or can supply required information, are identified and engaged in a timely and effective manner.
3. Relevant stakeholders are involved in decisions regarding risk acceptability and treatment.
4. Key stakeholders engage in the review of the BRM Plan as per the schedule in place for the local government area.
5. The community and other stakeholders engage with the bushfire risk management planning process and as a result are better informed about bushfire risk and understand their responsibilities to address bushfire risk on their own land.

Communication Roles and Responsibilities

The Shire of Boyup Brook is responsible for the development, implementation and review of the Communication Strategy. Key stakeholders support local government by participating in the development and implementation of the Communications Strategy as appropriate. An overview of communication roles and responsibilities follows:

- CEO, ***Shire of Boyup Brook***, responsible for endorsement of the BRM Plan Communications Strategy.
- Director Corporate Services, ***Shire of Boyup Brook***, responsible for external communication with the local government area.
- Bushfire Risk Management Planning Coordinator, ***Shire of Boyup Brook***, responsible for operational-level communication between the Shire and the Department of Fire and Emergency Services.
- Manager Community and Regulatory Services, ***Shire of Boyup Brook*** responsible for internal and external communication with LGA, monitoring and reporting on the BRM Plan and Communication Strategy

- Bushfire Risk Management Planning Coordinator, ***Shire Boyup Brook*** responsible for operational-level communication between the Shire and the Department of Fire and Emergency Services.
- Bushfire Risk Management Officer, Department of Fire and Emergency Services responsible for operational-level communication between Shire, Department of Fire and Emergency Services and the Office of Bushfire Risk Management.
- Chief and Deputy Bushfire Control Officer's, ***Shire of Boyup Brook*** responsible for communicating BRM Plan to Shire Volunteer Bushfire Brigades

Key Stakeholders for Communication

The following table identifies key stakeholders in bushfire risk management planning. These are stakeholders that are identified as having a significant role or interest in the planning process or are likely to be significantly impacted by the outcomes.

Stakeholder	Role or interest	Level of impact of outcomes	Level of engagement
LOCAL GOVERNMENT	Significant Role in plan development, implementation and review. Significant interest as a land manager.	High	Inform, consult, involve, collaborate and empower.
DFES	Significant Role in plan development, implementation and review. Support role In treatment Implementation.	High	Regular engagement & Consultation.
DBCA	Treatment plans, Land Management, Asset Identification	High	Regular engagement, Consultation and kept informed.
LOCAL COMMUNITY AND PRIVATE LAND OWNERS	Role in plan development, implementation and review. Significant interest as a land manager.	High	Inform, consult and involve
UTILITY COMPANIES	Role in plan development, implementation and review. Significant interest as a land manager. Critical infrastructure interest.	Medium	Inform, consult, involve and collaborate
LANDCARE GROUP	Role in plan development, implementation and review	Medium	Inform, consult and involve
VOLUNTEERS	Significant role in plan development, implementation and review	Low	Inform, consult, involve, collaborate and empower.

Communications Plan

Timing of Communication	Stakeholder (s)	Communication Objective(s)	Communication Method	Key Message or Purpose	Responsibility	Identified Risks to Communication	Strategy to Manage Risks	Monitoring and Evaluation Method
Development of the BRM Plan								
Life of plan	Shire of Boyup Brook CEO, Senior Leadership Team and Staff	All (1-5)	Emails Meetings (Quarterly) Shire Website	Informed, consulted, accountable or responsible. Review and input into Plan.	Bushfire Risk Planning Coordinator or Manager Community and Regulatory Services	Time constraints No clear message Incorrect audience	Careful planning and time management	Feedback, questions and level of support received
Life of plan	Bushfire Advisory Committee (BFAC)	All (1-5)	Meetings (6 Monthly) Face to Face (presentations in council chambers)	Engaged in process of BRMP Treatment Schedule and Risk Analysis	BRPC and BRMO	Plan not complete Treatments not negotiated Time constraints	Prepare presentation for each BFAC Give updates as required	Feedback, treatments negotiated and supported by committee.
Life of plan	FCO's, BFB Captains, VFRS Captains	All (1-5)	Meetings organised with Each brigade or as required	Engaged in process of BRM Plan Identify Risk, and share information	BRPC or BRMO	Time constraints No plan, unorganised Availability of volunteers	Careful planning and time management Express value of meeting	Feedback, support for BRMP process Engaged
11/04/2016 - 01/07/2017	Home Owners Land Managers	1 & 2	Media (Newspaper)	Inform of the BRMP process	BRPC and BRMO	Media not reaching majority	Newspaper and website details	Engaged throughout process

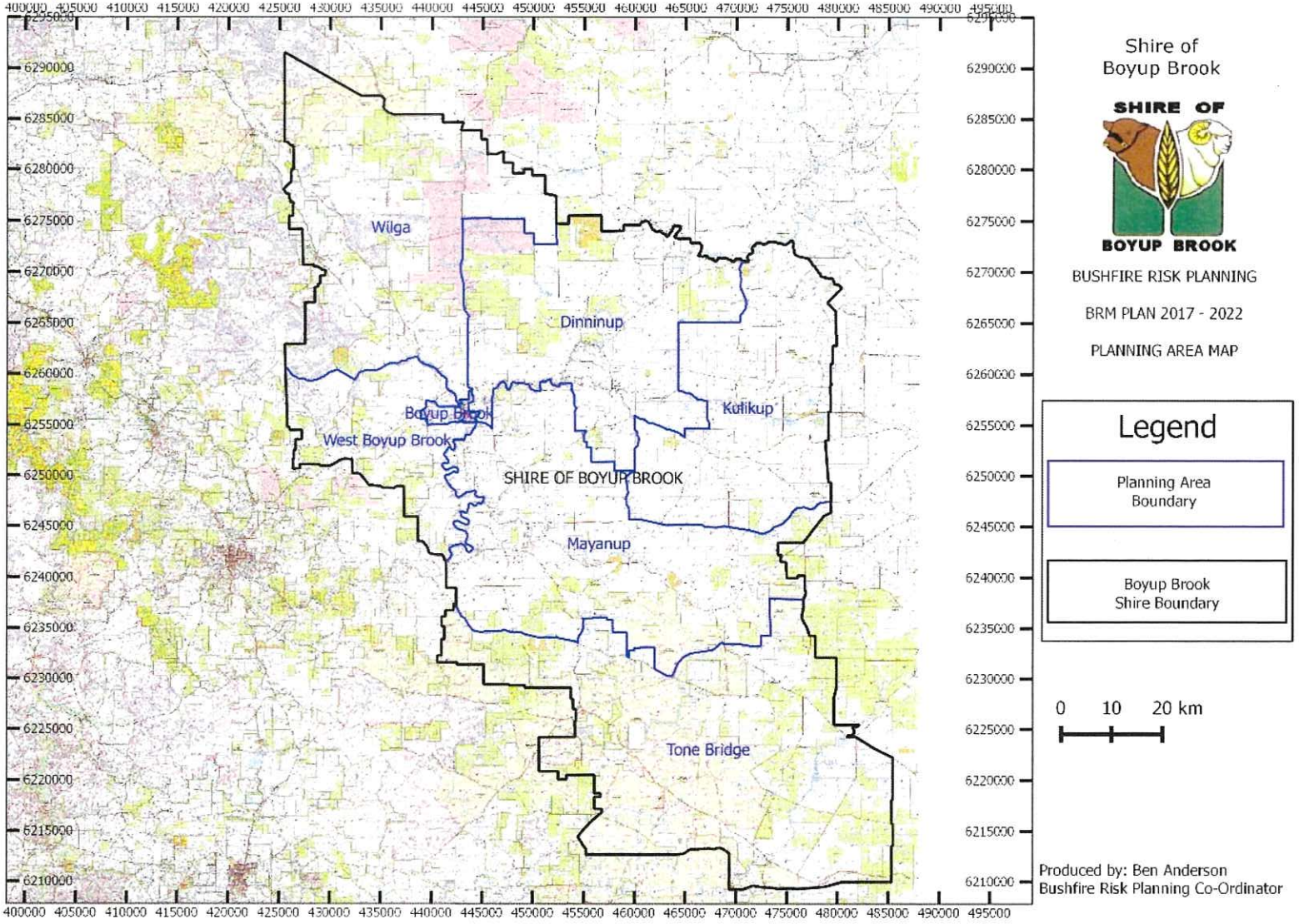
	& Interest groups or businesses		Face to face meetings Community workshops and forums	Identify valued assets Identify existing controls		Workshops and forums could get abstracted by other agendas	Chair meetings with strict agenda and purpose	Feedback received Success of outcomes
11/04/2016 – 01/07/2017	State Agencies, Service providers and other Stakeholders (WP, WC, National Trust etc.)	All (1-5)	Emails Face to Face Meetings Telephone	Inform of BRMP process Identify assets at risk Identify existing controls/programs	BRPC and BRMO	Time constraints and travel Level of interest and engagements in process	Select appropriate channel of communication Prepare materials and planning	High engagement and participation levels Feedback and engagement in program
Implementation of the BRM Plan								
Life of plan	Shire Boyup Brook CEO, Senior Leadership Team and Staff	All (1-5)	Emails Meetings (6 Monthly) Shire Website and Intranet	Informed, consulted, accountable or responsible. Review and input into Plan. Progress to plan	BRPC or Manager Community and Regulatory Services	Time constraints Availability Lack of understanding Budget (for LG mitigation)	Careful planning and time management Clear purpose Clear communication and regular updates	Feedback, questions and level of support received
Life of Plan	Stakeholder group	All (1-5)	Emails Website Telephone	Informed, consulted, accountable or responsible. Review and input into Plan. Progress to plan	BRPC and BRMO	Availability Located out of local/district area Commitment lost	Well planned and executed sharing of information Negotiations conducted	Feedback and commitment received to implement agreed controls Highly engaged
Life of Plan	BFAC Meetings	All (1-5)	Meetings (Quarterly) Face to Face (presentations in council chambers)	Report on progress to plan Report issues/constraints	BRPC and BRMO	Poor communication from stakeholders and LG on completion of works	Collate data and report on success to plan Compliance to plan	Seek feedback received on works to date

Review of the BRM Plan								
Yearly (Shire) **5 Yearly (Shire, DFES and OBRM)**	Shire Boyup Brook CEO, Councillors and Staff OBRM, BRMO, BRMB, BRPC & LG Council	All (1-5)	Email Meetings	Review, Monitor and Reporting Endorse plan Compliance to plan and acceptance of risk	BRPC and BRMO	Poor reporting and recording of information Review not completed by BRMB and OBRM	BRPC & BRMO to record data and information appropriately Approved by BRMB and OBRM for LG	Feedback from Council received Work completed as a result of plan Reporting
Quarterly	Shire Boyup Brook	All (1-5)	Email	Report on actions and key performance indicators for BRMP process	BRPC	Objectives not clearly set out Key actions not identified	Discuss with Shire CEO Clear objectives set	Reporting and feedback from CEO on work completed

Planning Area Map

Appendix 2

Figure 3 Planning Area Map



Local Government-Wide Controls, Multi-Agency Treatment Work Plan

Appendix 3

	Control	Action or Activity Description	Lead Agency	Other Stakeholder(s)	Notes and Comments
01	Shire of Boyup Brook, Local firebreak and hazard reduction laws *(Bush Fires act 1954)*	Annual Firebreak and Fuel Reduction Notice	Local Government	FCO's, brigades and land owners	Local law established to ensure land owners understand and comply to firebreak specifications as well as appropriately reducing fuel load and risk on their properties. Notice reviewed annually. Rangers inspect compliance to the notice and fines apply if non-compliant.
02	Shire of Boyup Brook Prohibited, Restricted burn times *(Bush Fires act 1954)*	Annual Firebreak and Fuel Reduction Notice	Local Government	Chief FCO, Ranger and the public.	Prohibited and restricted burn periods are designed to reduce the risk during very high to catastrophic fire danger rating days. Notice reviewed annually and dates can be subject to change as required by the Chief and Deputy FCO's.
03	Shire of Boyup Brook mitigation works	The Shire's Parks and Gardens team has annual works programs to reduce fuel load and remove hazards.	Local Government	Public (reporting hazards and concern of risk) The Shire's Rangers	Tracked through the Shire's Parks & Gardens Department, team targets work on Town sites with highest population and/or as identified by the BRM Plan process. Work includes, slashing, spraying, mulching, pruning and other mechanical treatments.
04	DFES UCL/UMR land management	Preparedness, mitigation work conducted on lands owned by DoL and managed by DFES under a MOU	DFES (Lower South West office)	DBCA, LG, Local brigades	Annual budgeting has been completed to include mitigating risk on UCL/UMR. Lowers South West BRMO's have these plans included in their scope of work.
05	Shire of Boyup Brook, Burn Program (annual indicative plans)	Local Government has annual burn plans for Shire owned or vested reserves.	Local Government	DFES, DBCA, Local brigades, Public	The Ranger of the Shire is tasked with Bushfire Mitigation on Shire reserves. Annual burn plans are available. The BRM Plan will now prioritise the reserves for hazard reduction burns. BRMS will be recording information.
06	Department of Biodiversity, Conservation and Attractions (DBCA) Master Burn Plans	Department of Biodiversity, Conservation and Attractions have a 6 season burn program that is published on their website. Yearly plans are available.	DBCA	Local brigades, DFES, LG	The plans can be accessed via their website, by sharing shape files (GIS) and are communicated at Local BFAC, ROAC and other various meetings.
07	Department of Biodiversity, Conservation and Attractions mitigation works	Department of Biodiversity, Conservation and Attractions conduct mulching and other mechanical treatments to reduce fuel load or provide fire access.	DBCA	DFES, LG	No formal plan exists however, works are completed as required, upon request or when identified.

	Control	Action or Activity Description	Lead Agency	Other Stakeholder(s)	Notes and Comments
08	Water Corporation Bushfire Risk Management Program	Bushfire Risk Management Plan. A Bushfire Risk Management Project is under way for the Water Corp.	Water Corporation	DFES, LG	A plan is currently being developed. High risk areas are identified and treatments planned then completed. Treatments and risk assessments are available through Water Corp BRMP department. Some high-risk areas have been identified in the Shire to date.
09	Western Power annual asset inspection and vegetation management program	Western Power Bushfire Plan	Western Power	DFES, LG, DBCA	Annual vegetation management and asset inspections are completed to ensure risk is managed. Full asset inspections are completed every 4 years.
10	Land sub-division & building (WAPC)	Requirement for estate, sub-division, and other Fire Management Plans	Local Government	Local Brigades, contractors and FCO's	Land developers are required to implement a Fire Management Plan to ensure risk is managed and other controls implemented and monitored.
11	Planning in Bushfire Prone Areas	Planning in bushfire prone areas. E.g. State Planning Policy 3.7 and standards.	WAPC	LG, DFES, DBCA, land owners	Foundation for land use planning. Directs how land use should address bushfire risk management in WA. It aims to preserve life and reduce impact on property and infrastructure. The Shire aligns its policy and standards with SPP 3.7. BAL assessments are required.
12	Pine Plantation Fire Management Plans	The Forest Product Commission (FPC) has implemented fire management plans for plantation.	FPC	DBCA, LG, DFES	Minimum requirements and controls have been committed to within the Plan.
13	State-wide arson prevention programs	Education and awareness campaigns exist across the state for arson.	WA Police	DFES, LG	Participation as required. The Shire participates in campaigns for arson prevention.
14	Bushfire Ready Groups and street meets	Public preparedness and education campaign	DFES	LG, local brigades, DFES	Bushfire ready facilitators are within the Shire. Working together with DFES and LG community engagement teams to better prepare the community for bushfire events. Street meets and phone trees have been implemented as a result as well as safe winter burn demonstrations and workshops.