City of Rockingham

Bushfire Risk Management Plan

2023-2027

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Contents

Document Endorsement

The City of Rockingham Council endorses that the Bushfire Risk Management (BRM) Plan has been reviewed and assessed by the Office of Bushfire Risk Management (OBRM) as consistent with the standard for BRM planning in Western Australia and the guidelines for preparing a BRM Plan. The City of Rockingham (COR) 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 BRM treatments by risk owners. The approval of the BRM Plan by the COR Council satisfies their endorsement obligations under State Hazard Plan Fire.

Local Government	Representative	Signature	Date
City of Rockingham	CEO		

Version	Date	Author	Section
1.0	October 2022	TB	AS
2.0	August 2023	TB	AS

Publication Information

1. Introduction

1.1. Background

Under the State Hazard Plan - Fire an integrated Bushfire Risk Management (BRM) Plan is to be developed for local government areas with significant bushfire risk. This BRM Plan has been prepared for the COR in accordance with the requirements of the Guidelines for Preparing a Bushfire Risk Management Plan (the Guidelines) from the Office of Bushfire Risk Management (OBRM) within the Department of Fire and Emergency Services (DFES). The risk management processes used to develop this BRM Plan are aligned to the key principles of AS/NZ ISO 31000:2018 Risk Management Principles and Guidelines and those described in the National Emergency Risk Assessment Guidelines. This approach is consistent with State Emergency Management (SEM) Policy and SEM Prevention and Mitigation Procedure 1.

This BRM Plan is a strategic document that facilitates a coordinated approach towards the identification, assessment and treatment of assets exposed to bushfire risk. 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 and Treatment Schedule to ensure treatment strategies are collaborative and efficient, regardless of land tenure.

1.2. Aim and Objectives

The aim of a BRM Plan is to effectively manage bushfire risk in order to protect people, assets and other things of local value in the COR. The objectives of this BRM Plan are to:

- guide and coordinate a tenure blind, multi-agency BRM 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 BRM activities
- integrate BRM into the business processes of local government, land owners and other agencies
- ensure there is integration between land owners, BRM programs and activities, and
- document processes used to monitor and review the implementation of treatment plans to ensure they are adaptable and that 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 and Policy

- Aboriginal Cultural Heritage Act 2023
- Biodiversity Conservation Act 2016

- Building Act 2011
- Bush Fires Act 1954
- Conservation and Land Management Act 1984
- Emergency Management Act 2005
- Environmental Protection Act 1986
- Environmental Protection and Biodiversity Conservation Act 1999 (Cth)
- Fire Brigades Act 1942
- Fire and Emergency Service Act 1998
- Metropolitan Water Supply, Sewerage and Drainage Act 1909
- Bush Fires Regulations 1954
- Emergency Management Regulations 2006
- Planning and Development (Local Planning Scheme) Regulations 2015
- SEM Plan (State Emergency Management Committee (SEMC) 2023)
- SEM Policy (SEMC 2023)
- SEM Prevention and Mitigation Procedure 1 (SEMC 2019)
- State Hazard Plan Fire (SEMC 2019)
- State Planning Policy 3.4: Natural Hazards and Disasters (Western Australian Planning Commission (WAPC) 2021)
- State Planning Policy 3.7: Planning in Bushfire Prone Areas (WAPC 2023, as amended)

1.3.2 Other Related Documents

- A Capability Roadmap: Enhancing Emergency Management in Australia 2016 (Australasian Fire and Emergency Services Authorities Council 2016)
- A Guide to Constructing and Maintaining Fire-Breaks (DFES 2018)
- AS 3959:2018 Construction of Buildings in Bushfire–Prone Areas (Standards Australia 2018)
- AS/NZ ISO 31000:2018 Risk Management – Principles and Guidelines (Standards Australia 2009)
- Australian Disaster Resilience Handbook 10: National Emergency Risk Assessment Guidelines (Australian Institute for Disaster Resilience 2015)
- Guidelines for Preparing a Bushfire Risk Management Plan 2020 (DFES 2020)
- Bushfire Risk Management Planning Handbook (DFES 2020)
- Code of Practice for Timber Plantations in Western Australia (Forest Products Commission (FPC) 2006)
- Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)
- Guidelines for Plantation Fire Protection (DFES 2011)
- National Disaster Risk Reduction Framework (Department of Home Affairs 2018)
- National Strategy for Disaster Resilience (Attorney-General's Department 2011)
- Public Service Circular No. 88 Use of Herbicides in Water Catchment Areas (Department of Health 2007)

- Western Australian Emergency Risk Management Guide (SEMC 2015)
- Environmentally Sensitive Areas (EP Act 1986 and described in the Environmental Protection
- (Environmentally Sensitive Areas) Notice 2005 Notice).
- Conservation Significant Vegetation Complexes (Heddle et al.) as per Environmental Protection Authority (EPA) position statement No.2 (2003)
- Threatened and Priority Ecological Communities (EPBC Act 1999, EP Act 1986)
- Conservation Significant Flora and Fauna (EPBC Act 1999, EP Act 1986)
- Environmental Weeds (BAM Act 2007) and the spread of all weeds
- Carnaby's Black Cockatoo and 'Cockatube' Locations (EPBC Act 1999).
- Geomorphic Wetlands (EP Act 1986)
- Ramsar Wetlands (EPBC Act)
- Bush Forever (EP Act 1986)
- Greenway Linkages
- Acid Sulfate Soils and Contaminated Sites (EP Act 2968, CS Act 2003)
- Revegetation Areas
- Nyungar and European Heritage Sites (AH Act 1972, PD Act 2005)

1.3.3 City of Rockingham Related Documents

- City of Rockingham suite of documents collectively referred to as the Local Emergency Management Arrangements (LEMA)
- City of Rockingham Fire Control Notice (annual notices)
- City of Rockingham Bushfire Risk Management Plans for individual properties
- City of Rockingham Town Planning Scheme No.2
- City of Rockingham Strategic Community Plan (SCP) 2023-2033
- City of Rockingham Community Plan Strategy (CPS) – Bushfire Risk Mitigation
- Warnbro Dunes Bushfire Risk Planning Area Risk Assessment (BRPARA) 2016
- City of Rockingham Burning of Rubbish, Refuse and Vegetation Council Policy
- City of Rockingham Foreshore Management Plan 2016-2021
- City of Rockingham Greening Plan 2017
- City of Rockingham Local Planning Strategy
- City of Rockingham Rural Planning Strategy 3.1.1
- Community Safety and Support Services Strategy 2022 – 2027
- City of Rockingham Planning Policy No.3.1.1 Rural Land Strategy
- City of Rockingham Planning Policy No 7.2 Local Bushland Strategy
- City of Rockingham Planning Policy No 7.2 Assessment of Local Bushland
- City of Rockingham Risk Management Framework

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/NZ ISO 31000:2018 Risk Management – Principles and Guidelines. This process is outlined in Figure 1 below.

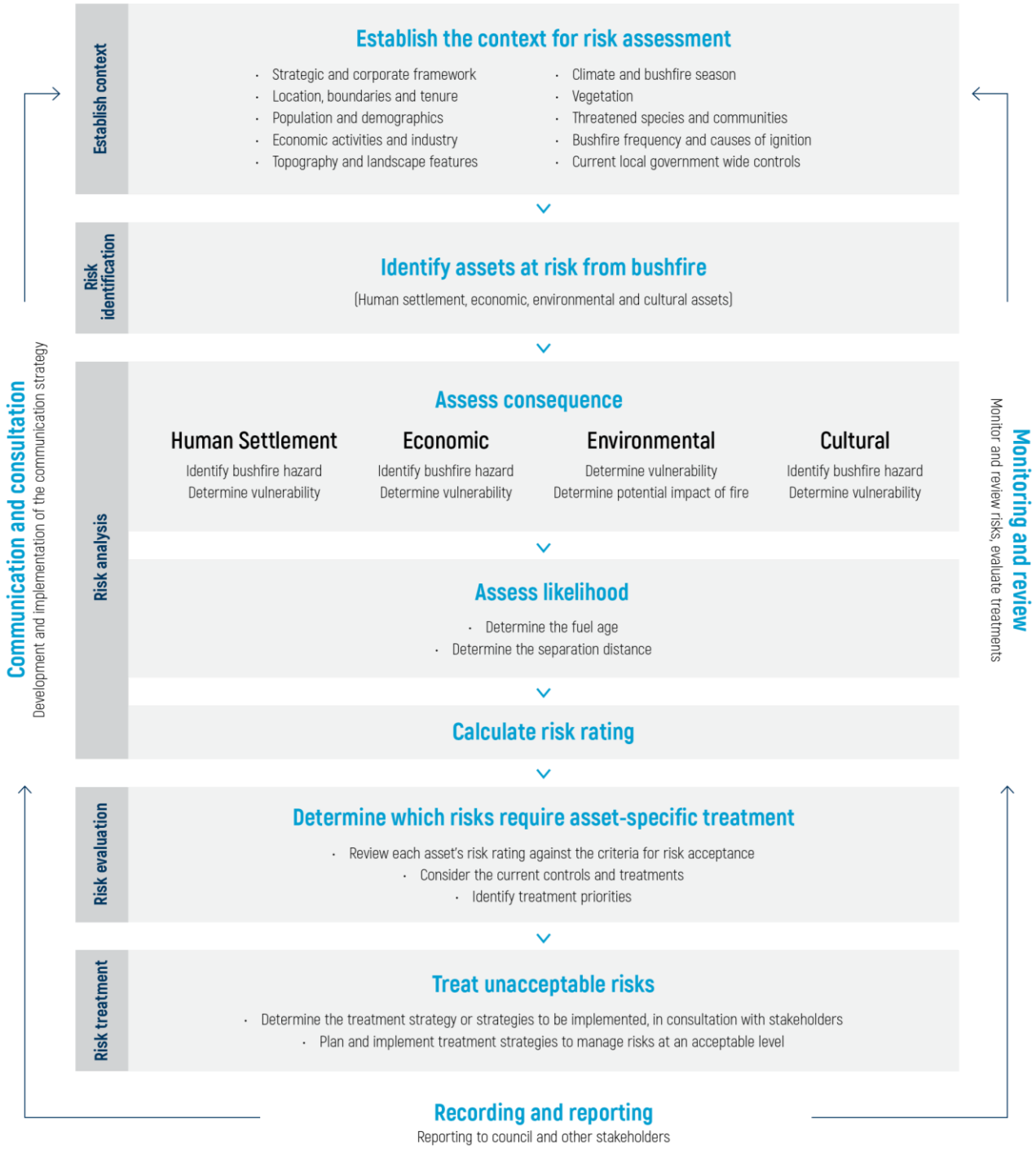


Figure 1 – An overview of the risk management process. Adapted from: AS 3959:2018, with permission from SAI Global under licence number 1510-c081.

2.1. Roles and Responsibilities

The roles and responsibilities of the key stakeholders involved in the development of the BRM Plan are outlined in Table 1.

Table 1 – Roles and Responsibilities

Stakeholder Name*	Roles and Responsibilities
Local Government	• Custodian of the Bushfire Risk Management (BRM) Plan. • Coordinate the development and ongoing review of the integrated BRM Plan. • Negotiate a commitment from land owners to treat risks identified in the BRM Plan. • Undertake treatments on lands owned or managed by them. • Submit the draft BRM Plan to DFES's Office of Bushfire Risk Management (OBRM) for review and endorsement. • Submission of the OBRM endorsed BRM Plan to council for their approval and adoption.
Department of Fire and Emergency Services	• Participate in and contribute to the development and implementation of BRM Plans. • Support to local government through expert knowledge and advice in relation to the identification, prevention and treatment of bushfire risk. • Facilitate local government engagement with state and federal government agencies in the local planning process. • Undertake treatments on unmanaged reserves and unallocated crown land within gazetted town site boundaries. • In accordance with Memorandums of Understanding and other agreements, implement treatment strategies for other land owners. • Review BRM Plans for consistency with the Guidelines prior to final approval by council. • Administer and coordinate the Mitigation Activity Fund Grants Program.

Stakeholder Name*	Roles and Responsibilities
Department of Biodiversity, Conservation and Attractions	• Participate in and contribute to the development and implementation of BRM Plans. • Provide advice for the identification of environmental assets that are vulnerable to fire and; • Provide advice for planning appropriate treatment strategies for their protection. • Undertake treatments on department managed land, and Unmanaged Reserves and Unallocated Crown Land outside gazetted town site boundaries and land in which they have an agreement for.
Development WA	• Participate in and contribute to the development and implementation of BRM Plans. • Provide information about their assets and current risk treatment programs. • Undertake treatments on lands owned or managed by them.
Department of Planning, Lands and Heritage	• Provide advice for the identification of their assets and infrastructure, specifically Aboriginal and European heritage.
Other State and Federal Government Agencies and Public Utilities	• Provide information about their assets and current risk treatment programs. • Participate in and contribute to the development and implementation of BRM Plans. • Undertake treatments on lands they manage.
Corporations and Private Land Owners	• Provide information about their assets and current risk treatment programs.

2.2. Communication and Consultation

Communication and consultation throughout the risk management process is fundamental to the development, implementation and review of the BRM Plan. A Communication Strategy has been developed in conjunction with the BRM planning process to ensure appropriate and effective communication with stakeholders at each stage (see Appendix 3).

3. Establishing the Context

3.1. Description of the Local Government and Community Context

3.1.1. Strategic and Corporate Framework

State Hazard Plan - Fire requires an integrated Bushfire Risk Management Plan (BRM Plan) be prepared for each local government area across Western Australia. The BRM Plan is to be in accordance with the templates and guidelines prepared by the OBRM. The guidelines assign the preparation responsibility to local government.

Asset Services Directorate is responsible for overseeing the preparation of the BRM Plan. The Director of Asset Services Directorate is responsible for its ongoing implementation. Accepting that there are multiple stakeholders inside and outside of the local government involved in the effective implementation of the BRM Plan process, it is important to note that the City's responsibility is to facilitate the management of the risk of bushfires to the community as supported by the delivery of this plan.

The BRM Plan is linked to the City of Rockingham's Strategic Community Plan 2023-2033 objectives. Integrated planning enables the City of Rockingham a framework for establishing local priorities and to link this information to strategic objectives, including;

Aspiration 1: Social – A family friendly, safe and connected community.

- Community health and wellbeing – Reinforce a strong sense of safety.

Aspiration 1: Natural Environment – A place of natural beauty where the environment is respected.

- Protection of natural environment – Mitigate and adapt to climate change impacts.

The Director of Asset Services is responsible for the development and review of the BRM Plan, and the Senior Bushfire Risk Officer is responsible for implementation of the BRM Plan. In addition, the City has bushfire mitigation and compliance teams to ensure on-ground works reflect the aims and objectives of the BRM Plan.

The BRM Plan encourages the community to work collaboratively and self-sufficiently in providing guidance and negotiating suitable treatment strategies for mitigation of bushfire risk. The responsible land holders will, as a result of the BRM Plan process, be able to allocate resources effectively in order to lower the bushfire risk to an acceptable level. Furthermore, existing and future works programs conducted by the COR, that have the potential to influence bushfire risk, will be identified, reviewed and refined and will utilise the BRM Plan risk register to prioritise resources and influence the decision making process.

In completing the BRM Plan, asset identification and risk assessment is conducted by City Officers using the risk assessment methodology described in the BRM Plan Guidelines. When appropriate, assessments will be conducted in consultation with relevant land owners and stakeholders. Identified assets will be mapped, recorded and assessed in the Bushfire Management System (BRMS) provided to local governments by the Department of Fire and Emergency Services (DFES).

The BRM Plan and BRMS outputs will be utilised in the review and refinement of existing works programs that are designed to reduce bushfire risk in the local government area. The Local Emergency Management Committee (LEMC) and Bushfire Advisory Committee (BFAC) actively review and report against the BRMP to address bushfire risk within the City. Furthermore, the BFMP forms part of the City's suite of documents collectively known as the Local Emergency Management Arrangements (LEMA).

3.1.2. Location, Boundaries and Tenure

The COR local government area is located approximately 40 kilometres south of the Perth Central Business District (CBD). The City is comprised of 16 suburbs and encompasses an area of approximately 66,850 hectares (including marine reserve), with significant areas of coastline, conservation reserve and parkland.

The COR borders with the City of Kwinana to the north, the Shire of Serpentine Jarrahdale to the East and the City of Mandurah to the south. The BRM Plan area covers the mainland of the COR (which excludes marine reserve and Garden Island) and has an area of approximately 24,540 hectares. The BRM Plan area is divided into nine planning areas for the purposes of the BRM Plan, as seen in Appendix 1 - Drawing 1 to Drawing 5.

The BRM Plan area is comprised of numerous land owners and managers including, but not limited to, the COR, state government departments and agencies, infrastructure managers, property developers and also private land owners and corporations.

The challenge the City faces includes liaison and negotiation with multiple stakeholders with large bushland holdings to achieve bushfire mitigation outcomes

A brief overview of the percentage coverage of various land managers can be seen in Table 2. The City contains significant amounts of both freehold and reserve lands that are used for specific purposes, leased to community associations, or are unused or unallocated. All tenure will come under the same scrutiny when assessing bushfire risk.

Table 2: Overview of Land Tenure and Management with the BRM Plan Area

Land Manager/Agency	Percent of Local Government Area
Private	44.09
WAPC	11.11
City of Rockingham	10.09
Main Roads WA	9.93
Other State Agencies	9.09
Development WA	7.84
Department of Biodiversity, Conservation and Attractions	3.61
State Housing Authority	2.15
Water Corporation	1.13
UCL	0.96
Total	100

Source: City of Rockingham - IntraMaps Online Mapping

3.1.3. Population and Demographics

The COR has experienced rapid and sustained growth, with the population expanding from 109,415 to 139,613 in the 10 years between 2011 and 2021. The City's population forecast for 2026 is 158,084 persons and 201,020 persons by 2036 (profile.id). The City's populous are currently living in 42,462 dwellings with an average household size of 2.64 persons. With an increasing population comes a forecast average increase of 6,943 dwellings every 5 years (from 2016 onward, as seen in the graph below) with an estimated 77,494 dwellings by 2036.

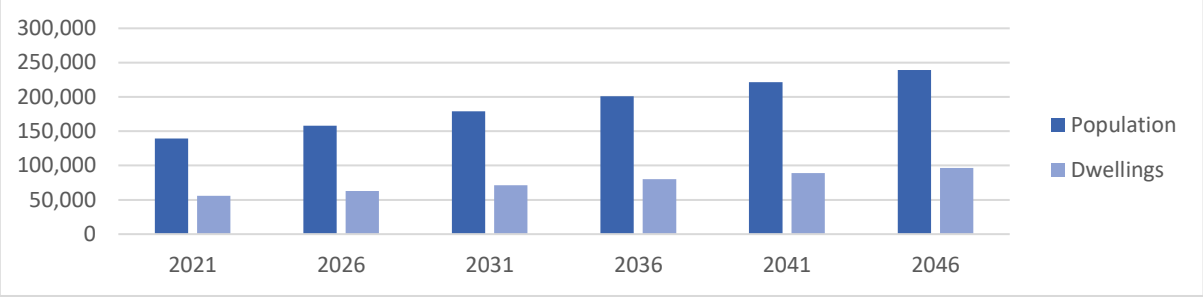


Figure 1: City of Rockingham Population and No. Dwellings Growth and Forecast 2021-2046 (profile.id)

According to profile.id statistics the suburbs of Karnup and Keralup (combined), Baldivis and also Hillman and East Rockingham (combined) have the lowest population density in the local government area (0.25, 1.99 and 2.34 persons per hectare respectively).
The suburbs of Secret Harbour, Shoalwater and Safety Bay have the highest population densities (18.48, 16.58 and 16.23 persons per hectare respectively). Lower densities are generally attributed to the eastern regions of the City which tend to be rural, semi-rural or peri-urban areas undergoing development that are arguably more susceptible to large bushfires.

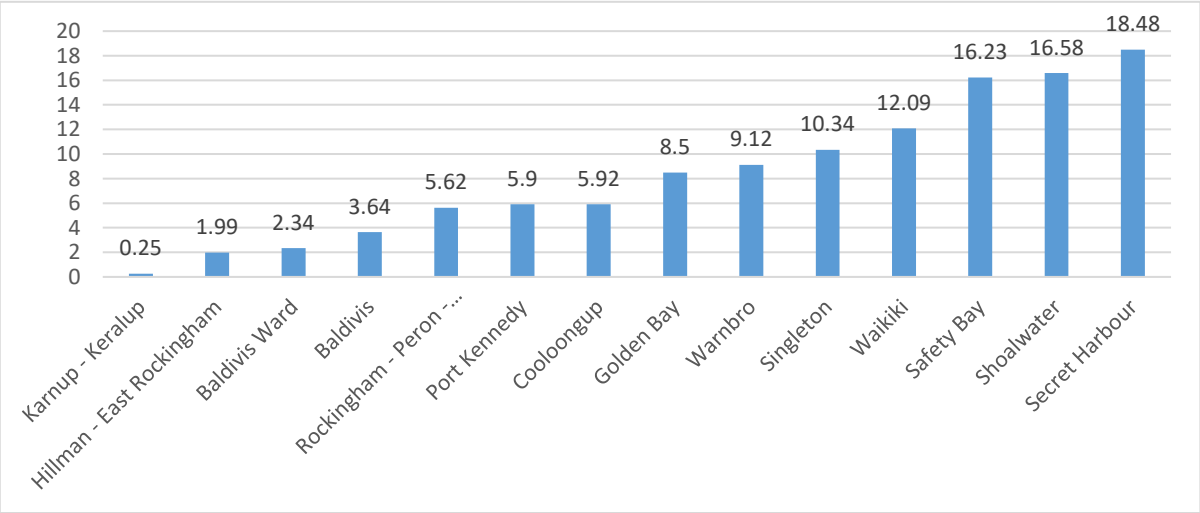


Figure 2: Population Density (persons/ha) per Suburb (profile.id)

In recent decades the rapid population growth has seen residential development spread to eastern rural and semi-rural areas in the form of either normal or 'special' residential land-uses ranging to the larger "rural lifestyle" lots. A number of larger rural lots also remain. There is a good level of compliance with the City's Annual Fire Control Notice (95% compliance in 2020-2021), however, the continued growth within the City brings a subsequent increase in bushfire risk. Mitigation for risk and all related works require the City to protect a larger population and increasing number of assets.

Until recent times, land management regimes in non-urban areas were focused on maintaining biodiversity, with the retention of native vegetation being afforded priority above fire management imperatives. Current strategies now seek to strike a balance between bushfire management and environmental objectives where possible. Environmental and cultural considerations are further discussed under section 3.2.4.

Importance needs to be given when considering the vulnerability of people and their ability to respond in an emergency (such as elderly and disabled individuals). Elderly aged between 70 and 85 and over are estimated to increase from 8,545 persons in 2011 to 20,851 in 2036 within the City. The two largest age structures in the COR currently are 25 and 34 and also 35 to 49 year olds (profile.id). Persons aged between 35 to 49 have the greatest forecast increase by 2036 (predicted increase from 24,587 persons in 2011 to 39,032 persons in 2036).

Another vulnerable group are people from non-English speaking backgrounds. Between 2016 and 2021, the number of non-English speakers born overseas increased by 798 or 10.8%.

The largest changes in birthplace countries of the non-English speaking population in this area between 2016 and 2021 were for those born in:

- India (+201 persons)
- Philippines (+155 persons)
- Zimbabwe (+72 persons)
- Thailand (+66 persons

People from non-English speaking backgrounds are more vulnerable to bushfires due mainly to lack of knowledge and experience of bushfires and communication difficulties. The City has identified this group as a target audience in community preparedness activities

The City is also working on a Disability Inclusive Disaster Risk Reduction Pilot with DFES and the University of Sydney which will commence the Person-Centred Emergency Preparedness (P-CEP) process in Rockingham. Support for vulnerable groups and community engagement for bushfire preparedness is discussed in section 3.2.6.

3.1.4. Economic Activities and Industry

Employment statistics as of the 2019/2020 financial year (profile.id) indicate 35,871 jobs within the City. Retail trade was the largest employer in the City in 2015/2016, generating 5,937 jobs. Other leading industries and their employment levels in 2019/20 in the City are in Table 3. From 2015/16 to 2019/20 there has been growth of employment in a number of industries within the City, including public administration and safety (+908 people), health care and social assistance (+300 people), manufacturing (+205 people), and professional, scientific and technical services (+272 people).

Table 3: Industry Employment in City of Rockingham between 2015/16 - 2019/20

Industry	2019/20 Persons	%	2015/16 Persons	%	Change (Persons)
Retail Trade	5,937	16.6	6,062	17.4	-125
Health Care and Social Assistance	5,378	15	5,078	14.5	300
Public Administration and Safety	5,007	14	4,099	11.7	908
Education and Training	4,523	12.6	4,590	13.1	-67
Accommodation and Food Services	3,159	8.8	3,513	10.1	-354
Construction	2,034	5.7	2,849	8.2	-814
Other Services	1,652	4.6	1,647	4.7	4
Manufacturing	1,301	3.6	1,096	3.1	205
Professional, Scientific and Technical Services	1,246	3.5	974	2.8	272
Administrative and Support Services	1,079	3	1,047	3	32
Transport, Postal and Warehousing	1,039	2.9	978	2.8	60
Arts and Recreation Services	793	2.2	738	2.1	55
Rental, Hiring and Real Estate Services	667	1.9	599	1.7	68
Wholesale Trade	488	1.4	414	1.2	74
Agriculture, Forestry and Fishing	390	1.1	358	1	32
Financial and Insurance Services	368	1	344	1	24
Electricity, Gas, Water and Waste Services	308	0.9	77	0.2	231
Information Media and Telecommunications	306	0.9	305	0.9	1
Mining	197	0.5	161	0.5	36
Total	**35,871**	**100**	**34,930**	**100**	**+941**

The largest economic activities within the City, by employment and value added, are retail trade, health care and social assistance, and public administration and safety. The majority of these economic hubs are situated in low bushfire risk areas. The East Rockingham Industrial Zone and adjoining Kwinana Industrial Area contain many land uses that would be considered to be high-risk in terms of bushfire risk. Industrial operations in this area have the potential to ignite a bushfire, prolong its duration, or increase its intensity. These industries may also expose the community, fire fighters and the environment to dangerous, uncontrolled substances during a bushfire event. It is anticipated that potential 'hazard' risks due to 'chemicals' will be addressed by DFES as part of a Fire and Emergency Services Emergency Response Guides (FESERG) constructed by the local brigade's and available to DFES Communications Centre.

In accordance with BRM Plan Guidelines, all industries within the COR within 100 metres of bushfire prone vegetation are potentially at risk from bushfire and will be scrutinised under the same risk assessment methodology. In 2021, in association with Development WA, COR, DFES and the Kwinana Industries Council developed a Bushfire Management Plan to address bushfire risk of the under-developed land in the East Rockingham Industrial Zone. Industries that potentially have a higher bushfire risk (due to their increased likelihood of being affected by bushfire) may include those located in rural, semi-rural and peri-urban areas of the City. Some areas of Baldivis, Karnup, East Rockingham and Port Kennedy industrial zones are located in close proximity to bushfire prone vegetation which also puts them at risk. The Kwinana Freeway travels from north to south through the COR, and a closure due to bushfires would have a serious impact on economic activity within the COR and surrounding areas.

3.2. Description of the Environment and Bushfire Context

3.2.1. Topography and Landscape Features

The COR is located on the Swan Coastal Plain which extends from the Darling Fault in the east to the continental slope west of Rottnest Island, and from the Murchison River in the north to the Southern Ocean in the south. The Swan Coastal Plain is approximately 20 to 30 kilometres wide consisting of a series of geomorphic entities running parallel to the coastline.

Soil landscape mapping produced by the Department of Agriculture and Food Western Australia (DAFWA) shows that the BRM Plan area has five soil landscape systems (1:250,000 scale) that generally run parallel to the coastline, which can be as seen in Appendix 1 – Drawing 1.

The unique elevation profiles, soil types and broad vegetation types associated with each mapped soil-subsystem can influence a fire's rate of spread (ROS), intensity and also create limitations when implementing treatments to manage the risk of bushfire and limit suppression activities (firefighting equipment access). Each soil-landscape system description and extent within the BRM Plan area can be seen in Table 4 below.

Table 4: Soil Landscapes within the City of Rockingham

Soil System	Description (McArthur *et al* 1960)	Extent within BRM Plan (Ha)	Extent of BRM Plan Area (%)	Landscape feature and bushfire mitigation restrictions
Bassendean	A gently undulating Aeolian sand plain about 20 km wide with the dunes to the north of Perth generally having greater topographic relief than those to the south. Other wetlands, consisting of swamps and lakes, have formed in the inter-dunal swales of the Bassendean Dune System, in the inter-barrier depressions between	2112.2	8.6	Wetlands in lower lying undulations areas have clearing and prescribed burning restrictions that prohibit effective bushfire mitigation from being implemented.

Soil System	Description (McArthur *et al* 1960)	Extent within BRM Plan (Ha)	Extent of BRM Plan Area (%)	Landscape feature and bushfire mitigation restrictions
	the Spearwood and Bassendean Dune Systems, and within the Spearwood Dune System.			
Pinjarra	A piedmont and valley flat alluvial plain consisting predominantly of clayed alluvium that has been transported by rivers and streams from the Darling and Dandaragan Plateaus.	4600.6	18.8	Areas include the rural areas of Baldivis and Karnup east of Kwinana Freeway, Lake Cooloongup, and Lake Walyungup reserve areas in central regions of the City.
Quindalup	The most westerly dune system that flanks the ocean, is the Quindalup Dune System, consisting of wind-blown lime and quartz beach sand forming dunes or ridges that are generally orientated parallel to the present coast, but which may occupy blowouts within the Spearwood Dune System.	8678.1	35.4	Warnbro Dunes, Port Kennedy and other coastal areas have clearing and prescribed burning restrictions that prohibit effective bushfire mitigation from being implemented.
Spearwood	Consists of slightly calcareous Aeolian sand remnant from leaching of the underlying Pleistocene Tamala limestone. The rivers crossing the coastal plain are flanked by clay floodplains and river terraces of recent origin. Other wetlands, consisting of swamps and lakes, have formed in the inter-dunal swales of the Bassendean Dune System in the inter-barrier depressions between the Spearwood and Bassendean Dune Systems, and within the Spearwood Dune System.	7448.9	30.4	Wetlands in lower lying undulations areas have clearing and prescribed burning restrictions that prohibit effective bushfire mitigation from being implemented.

Soil System	Description (McArthur *et al* 1960)	Extent within BRM Plan (Ha)	Extent of BRM Plan Area (%)	Landscape feature and bushfire mitigation restrictions
Vasse	The Vasse deposits are largely estuarine and low-lying, and where exposed often lead to formation of Acid Sulfate Soils.	1644	6.7	Areas include the rural areas of Baldivis and Karnup east of Kwinana Freeway, Lake Cooloongup, and Lake Walyungup reserve areas in central regions of the City Burning and clearing restrictions exist.

The Quindalup soil system is generally comprised of sandy limestone soils, undulating dunes and most often occurs near the coast. Coastal areas are subject to strong prevailing winds and are prone to sand drift amongst the dunes areas where any vegetation is removed. BRM Plan area coastal areas include Port Kennedy Scientific Park, Lark Hill and dune areas in the suburbs of Golden Bay, Peron, Port Kennedy, Rockingham, Singleton, Waikiki and Warnbro, are all located in the western coastal regions of the BRM Plan area.

The Bassendean and Spearwood soil systems, generally running north-south in the central regions of the BRM Plan area, often comprise of woodland vegetation types in elevated regions, and wetlands in lower lying undulations. Both areas are highly valued by the community for their aesthetic and ecological attributes. These soil systems gently rise and fall in elevation forming vegetated hills with high fuel loads that can increase the rate of spread and intensity of a fire. Areas include the urban, rural and semi-rural areas of Baldivis and Karnup that are west of the Kwinana Freeway. Recent fires in these areas have been significant and resulted in closure of the freeway causing disruption impacting on many local residents. Undulations within the Bassendean and Spearwood soil systems result in wetland formations such as the Tamworth Swamp and Stakehill Swamp that are heavily vegetated containing high bushfire fuel loads.

The Pinjarra and Vasse soil systems generally in the central and also eastern portions of the City, are associated with the Serpentine River. The soil is prone to acid sulfate soil occurrences and wetland vegetation comprising of high bushfire fuel loads. These areas have clearing, prescribed burning and earth moving restrictions that prohibit effective bushfire mitigation from being implemented. Areas include the rural areas of Baldivis and Karnup east of Kwinana Freeway, Lake Cooloongup, and Lake Walyungup reserve areas in central regions of the City.

3.2.2. Climate and Bushfire Season

Climate

The south-west of Western Australia experiences a Mediterranean type climate of mild, wet winters and warm to hot, dry summers. The climate of the region is strongly influenced by the position of a band of high pressure known as the sub-tropical ridge. For much of the year the ridge is located to the south allowing the east or south easterly winds to prevail. During the cooler months the ridge periodically moves to the north allowing cold fronts to pass over the west coast and deliver much of the annual rainfall. The Swan Coastal Plain typically receives 800 to 900 millimetres of annual precipitation and 5 to 6 nearly dry

months per year. The closest Bureau of Meteorology (BOM) Station to the suburb of Rockingham with long-term data is Kwinana BP Refinery (station 009064, operated 1955-2012). Annual mean rainfall is 745.5 mm, with a single winter peak (highest in June-July), February is the hottest month with a mean maximum daily temperature of 29.5°C, July and August are coldest, with a mean minimum daily temperature of 10.6°C (BOM 2015).

Rockingham's prevailing winds blow from west, north-west and north in winter and spring, and south-west, south and east in summer, with higher winds tending to occur in later winter through to summer. The highest bushfire risk conditions are on days with high temperatures and strong easterly or south easterly winds (DFES 2021). Sea breezes when strong can also increase bushfire risk conditions. On days that meet these conditions, the City actively monitors for evidence of fires and may stop the use of equipment from its staff in bushfire prone areas. These days generally align with days of Total Fire Bans, which the City then issues information to the community about.

The Fire Danger Rating is an indicator of how dangerous a bushfire could be if it did occur under the weather conditions for that day. It does not predict the likelihood of a bushfire occurring. Fire danger rating is used to help plan an adequate response, such as calling a total fire ban or harvest vehicle movement ban to reduce the risk of a bushfire starting where conditions are Very High or above. The City of Rockingham experiences 23 days per year on average at a fire danger rating of Very High or Severe, which are days where a bushfire that starts could quickly become out of control.

In 2019 and 2021, the City saw a significant increase in days of Severe and Very High fire danger ratings that coincided with a number of heatwaves experienced in Perth.

Climate Change

It is scientifically proven that our global climate system is warming, resulting in a myriad of changes to local weather systems and the frequency of extreme weather events. For example, it is known that the duration, frequency and intensity of heat waves have increased across large parts of Australia since 1950 and there has been an increase in extreme fire weather and longer fire seasons across large parts of Australia since the 1970's (CSIRO and BOM 2016). The bushfire season is expected to extend into the normally wetter and cooler months of the year. Simulations for drought as a result of climate change indicate a 20% increase in drought months over Australia by 2030. By 2070, the increase is estimated to be 80% for south-western Australia (CSIRO 2007).

The State's mean temperature (the average of the maximum and minimum temperatures) over the past 20 years is the highest since records commenced in 1910. 2020 was the overall second-warmest year on record for Western Australia, after the record warm year of 2019. Across Australia in 2019, the annual mean temperature was 1.52 °C above average (BOM 2019).

The weather conditions that influence bushfire behaviour are air temperature, relative humidity, wind speed and direction, rainfall and drought. It is expected that an increase in temperatures due to climate change will see drier fuels which are easier to ignite (Robeson, 2004). There will be regions with a decreasing relative humidity that will result in a greater chance of ignition. Also, higher wind speeds will see a rise in fire intensity and rate of spread, increased ember spread and preheating of fuels ahead of the main fire (CSIRO 2007). Ultimately, the change in weather conditions from climate change will result in a greater likelihood and increased intensity of bushfire events.

3.2.3. Vegetation

The total amount of bushfire prone vegetation, as of May 2017, covers 15,860 ha (64.6%) of the BRM Plan area and can be seen in Section 3.2.6. There are nine vegetation complexes (Heddle et al. 1980) occurring within the COR. Vegetation complexes groups vegetation types on the basis of patterns in soil and geomorphology. The nine vegetation complexes and their locations within the BRM Plan area are briefly summarised in Table 5 below and can be seen in Appendix 1 - Drawing 3. Each broad vegetation complex will influence potential fire behaviour based on its unique vegetation structure, fuel loading and the slope under the vegetation.

Table 5: Vegetation Complexes (DBCA 2019)

Vegetation complex	Summary description	Hectares remaining in COR
Guildford Complex	Open forest Tto tall open forest and woodland.	4.23
Dardanup Complex	Mosaic of vegetation types characteristic of adjacent vegetation complexes such as Serpentine River, Southern River and Guildford.	116.65
Serpentine River Complex	Closed scrub of Melaleuca species and fringing woodland of Eucalyptus rudis (Flooded Gum) - Melaleuca rhaphiophylla (Swamp Paperbark) along streams.	366.54
Bassendean Complex-Central and South	Woodland to low woodland and sedgelands.	912.09
Karrakatta Complex-Central and South	Open forest and woodland.	1140.32
Cottesloe Complex-Central and South	Woodland and open forest and closed heath.	743.90
Herdsman Complex	Sedgelands and fringing woodland.	294.80
Quindalup Complex	Coastal dune complex – low closed forest and closed scrub.	4108.59
Yoongarillup Complex	Woodland to tall woodland and open forest.	442.23

There are four (4) aspects of vegetation within the COR that require particular attention, in context to bushfire mitigation treatment options;

1. Tall eucalyptus species with a mid-story of acacia and banksia species as well as larger grass trees and an understory of native grasses and herbs. These forests have low to high fine fuel loads with variable amounts of dry dead fuels, which mean that fire will easily start and spread quickly in this vegetation. Fires in this vegetation will often quickly reach the canopy due to the horizontal distribution of fuels creating high intensity fires which are not suitable for direct attack. Additionally, the majority of these forests are close to residential, industrial and community assets.

2. Remnant vegetation, including eucalypt and banksia species along roadsides and drains can produce a wick-like effect and are often associated with fire runs with marked changes in fire behaviour, intensity and spread expected in this vegetation. This impacts on residents ability to escape fire events.

3. The COR has a number of lakes and swamps that contain fuel tonnages that have the potential to cause an intense fire event. Surrounding woodland contain eucalypt species, mid-story paperbarks and lower story sedges. Adjacent to the lakes are vulnerable sites including the Rockingham Hospital, St Johns Ambulance and retirement homes. Additionally, reducing fuel loads though prescribed burning is difficult because of underlying peat soils and threatened ecological communities.

4. Acacia species (particularly Acacia Rostellifera) along Rockingham coastal areas have the ability to rapidly colonise dunes near residential areas and increase fuel loads to unacceptable levels. Fire can rapidly spread throughout Acacia shrublands.

3.2.4. Threatened Species and Communities

There are seven Threatened Ecological Communities (TECs) and four Priority Ecological Communities (PECs) found within the COR, listed in Appendix 4. Under State and Federal environment legislation protection Banksia Woodlands of the Swan Coastal Plain ecological community (the 'Banksia woodlands'), the Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community ('Tuart woodlands'), and the Sedgelands in Holocene dune swales of the southern Swan Coastal Plain ('Sedgelands in dune swales') are the most widespread. Impacts of an inappropriate fire regime on ecological communities in the COR can include:

- Structural change, e.g. reduction in canopy cover, removal of understorey;
- A change in species composition resulting in a loss of TEC or PEC status (and statutory protection);
- Increase in weed abundance, diversity and a decrease in native plant diversity and density;
- Changes to the ecological function of the ecological community;
- Feedback loops, promoting weed species (e.g. perennial veldtgrass (Ehrharta calycina) which is highly flammable and promotes further fires);
- The loss of shelter habitat (e.g. dead logs, fallen timber, grass tree skirts);
- The loss of foraging habitat and food availability;
- Increased introduction of pathogens (e.g. Phytophthora);

- Increased predation rates by feral species;
- Selective grazing on seedlings and resprouting shoots from kangaroos;
- Increased nutrients (from the ashbed);
- Increased erosion of topsoil including seed and nutrients;
- Loss of vegetation, resulting in reduced bio filtering near surface water;
- Deterioration or exposure of organic soils.

There are a number of conservation significant fauna species found within the City, inclusive of mammals, reptiles, amphibians, and birds. Bushfire mitigation activities may impact upon the following conservation significant fauna:

- Quenda (Isoodon obesulus fusciventer)
- Brush-tailed phascogale (Phascogale tapoatafa wambenger)
- Red-tailed forest black cockatoos (Calyptorhynchus banksii naso)
- Carnaby's black cockatoo (Zanda latirostris)
- Baudin's black cockatoo (Zanda baudinii)
- Rainbow bee-eater (Merops ornatus)
- Western false pipistrelle (Falsistrellus mackenziei)
- Perth lined slider (Lerista lineata)
- Jewelled south-west ctenotus (Ctenotus gemmula)
- Black striped snake (Neelaps calonotos).

Bushfire mitigation may impact upon additional locally significantly fauna known to be frequent in natural areas such as the brush-tailed possum (Trichosurus vulpecula), western grey kangaroo (Macropus fuliginosus), bobtail lizard (Tiliqua rugosa), and numerous reptile and amphibian species.

It is noted that there are also a large number of conservation significant birds not listed above that frequent the region. A majority of these are listed as 'Marine' or 'Migratory' under the EPBC Act, and are not likely to be impacted by bushfire mitigation activities.

The impacts of bushfire mitigation activities on native fauna can include:

- Direct mortality of fauna;
- Loss of foraging habitat (e.g. seed sources for black cockatoos, day time use of mature tree hollows for bats like the Western False Pipistrelle);
- Loss of breeding habitat (e.g. removal of mature trees with hollows for Black Cockatoo species and possums);
- Loss of shelter and daytime nesting habitat (e.g. removal of logs, fallen timber and grass tree skirts for Quenda and reptiles);
- Increased predation and exposure due to loss of habitat;
- Direct mortality of chicks during breeding season (e.g. Black cockatoo chicks in hollows, trampling of rainbow bee-eater nests on the ground).

There are also a number of rare flora that are known to occur or may occur within the COR:

- Sphaerolobium calcicola
- Calandrinia oraria
- Dodonaea hackettiana (Hacket's hopbush)
- Diuris drummondii
- Synaphea sp. Serpentine
- Lachnagrostis nesomytica subsp. paralia
- Cardamine paucijuga
- Dillwynia dillwynioides
- Lasiopetalum membranaceu
- Conostylis pauciflora subsp. pauciflora
- Jacksonia sericea (Waldjumi)
- Lepidium puberulum
- Myosotis australis (Austral Forget-me-not)
- Beyeria cinerea subsp. cinerea
- Pimelea calcicola
- Johnsonia pubescens subsp. cygnorum
- Beyeria cineria subsp. cineria.

The impacts of bushfire mitigation activities on protected flora may include but is not limited to the following:

- Direct mortality of plants during fire;
- Post-fire competition with weeds;
- Reduced post-fire recovery due to grazing by kangaroos or other herbivores;
- Loss of seed bank after high-intensity fires;
- Increased soil erosion.

The COR has developed processes to identify the impacts of mitigation activities on threatened species and communities. When a burn or other mitigation activity is planned, environmental approval is required before any activity commences.

When undertaking bushfire mitigation in reserves of conservation value, as identified by the Community Plan Strategy – Natural Area Conservation or in areas with protected environmental values, COR officers will seek environmental advice on proposed bushfire mitigation activities.

3.2.5. Bushfire Frequency and Causes of Ignition

A report provided by DFES Operational Information System Branch identifies that from the period starting 1 July 2015 to 30 June 2021, there have been a total of 966 landscape fire ignitions within the COR, at an average of 160 per year (see Table 6). The number of ignitions has trended downward since 2015/16 from 191 to 116 in 2020/21.

This downward trend may be attributed to any number of factors, ranging from differences in weather/seasonal conditions, to increased community awareness, targeted arson prevention programs and improved reporting. It does not however prompt a lesser need to plan and prepare for bushfire events.

As seen in Table 6 overleaf, 58% of all ignitions across the City is suspicious/deliberate behaviour (565), further 23% is made up of cigarettes (139), undetermined causes (48), and burn off fires (37).

Table 6: City of Rockingham Landscape Ignition Data Summary Years 2015/16-2020/21 (DFES)

Cause	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	Total
Burn off fires	6	8	3	8	9	3	**37**
Campfires / bonfires / outdoor cooking	2	3	3	4	7	7	**26**
Children misadventure	1	1	0	0	0	0	**2**
Cigarette	32	24	29	21	16	17	**139**
Electrical distribution (excl. power lines)	0	0	0	1	0	0	**1**
Equipment - Mechanical or electrical fault	1	1	1	0	1	0	**4**
Equipment - Operational deficiency	1	0	0	1	0	0	**2**
Fireworks / flares	2	0	0	1	3	0	**6**
Hot works (grinding, cutting, drilling etc.)	2	0	1	0	4	1	**8**
Human Error (Left on, knock over, unattended etc.)	1	0	0	0	0	0	**1**
Improper Fuelling / Cleaning / Storage / Use of material ignited	0	2	1	2	2	1	**8**

Cause	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	Total
Other open flames or fire	1	2	1	1	2	2	**9**
Power lines	4	1	3	4	3	0	**15**
Re-ignition of previous fire	14	5	9	6	10	8	**52**
Sleeping / Alcohol / Drugs / Physical-Mental impairment	0	3	0	1	0	0	**4**
Suspicious / Deliberate	102	118	97	96	84	68	**565**
Undetermined	11	12	11	5	5	4	**48**
Unreported	0	0	0	0	0	2	**2**
Vehicles (incl. Farming Equipment / Activities)	4	5	2	1	3	2	**17**
Weather Conditions - Lightning	7	0	4	0	3	0	**14**
Weather Conditions	0	1	1	2	1	1	**6**
Total Number of Bushfires:	**191**	**186**	**166**	**154**	**153**	**116**	**966**

A significant bushfire occurred in Baldivis in January 2020, caused by a boat trailer wheel. The fire was controlled east of the Kwinana Freeway but there was potential for the fire to jump control lines and continue west of the freeway, impacting schools and houses.

The worst case scenario for a bushfire is one starting south of the COR and travelling north through Lake Richmond and surrounding bushland and houses.

Areas of frequent ignition (predominantly arson) occur in the eastern part of the COR, as well as the Kwinana Industrial Area. These areas have more vegetation and open areas. Ignitions also occur on beach foreshore reserves (see Table 7 overleaf) Lake Richmond and Scientific Park.

Table 7: Bushfires in City of Rockingham July 1 2017 - 30 June 2021

Suburb	Bushfires
Baldivis	156
Rockingham	110
Cooloongup	56
East Rockingham	56
Port Kennedy	47
Warnbro	41
Karnup	27
Secret Harbour	27
Waikiki	24
Safety Bay	13
Hillman	11
Golden Bay	8
Shoalwater	5
Peron	4
Singleton	4
Keralup	1

3.2.6. Current Bushfire Risk Management Activities

Map of Bushfire Prone Areas

The intent of the WA Government's Bushfire Prone Planning Policy is to implement effective risk based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure. The State Planning Policy 3.7 – Planning for Bushfire Prone Areas ensures bushfire risk is given due consideration in all future planning and development decisions. This policy does not apply retrospectively, however the BRM Plan can help address this risk for existing development and establishing an effective treatment plan to manage the broader landscape and any unacceptable community risks. The COR Bushfire Prone Area is shown in Figure 3.

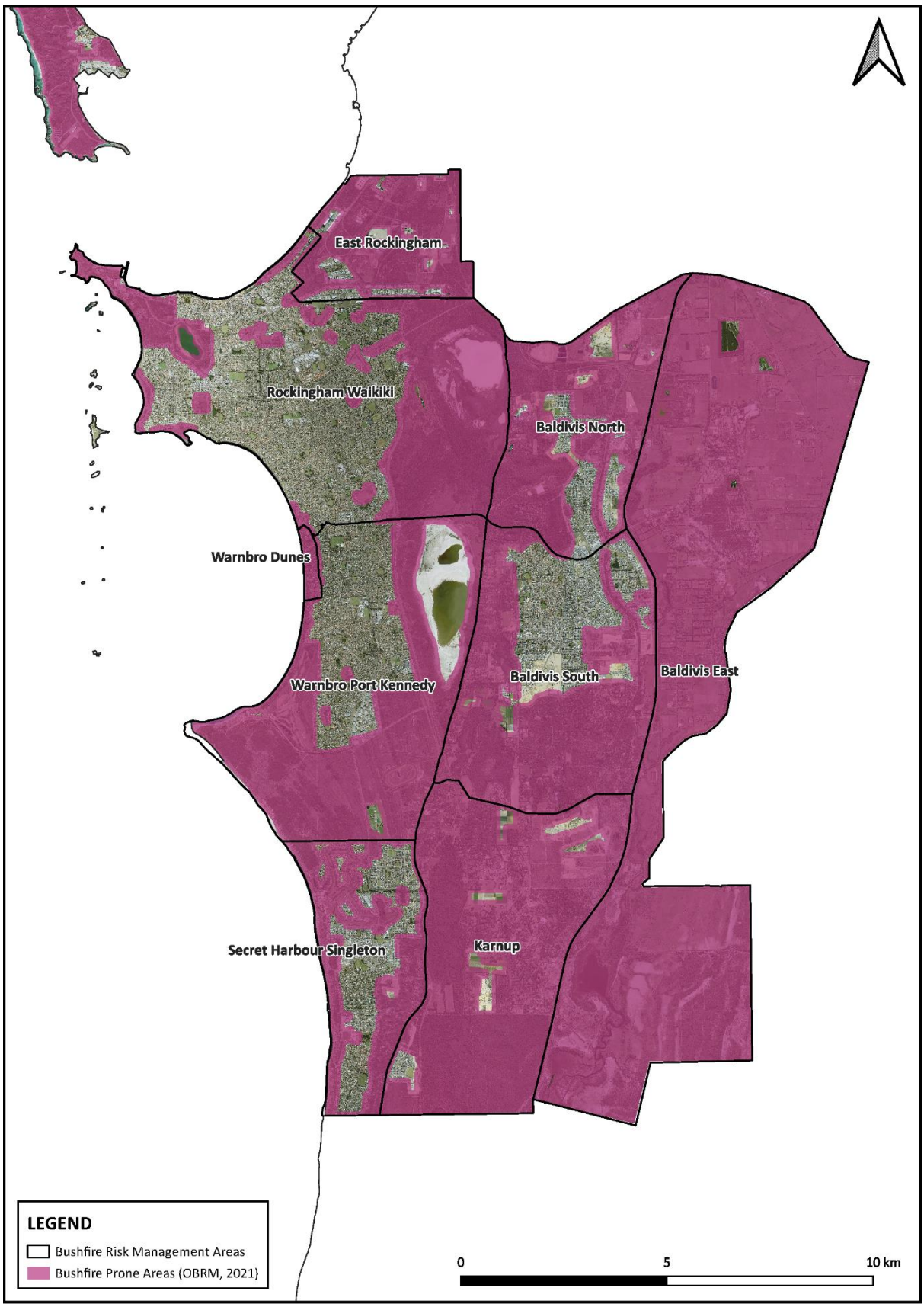


Figure 3: City of Rockingham Bushfire Prone Map (OBRM 2020)

Volunteer Fire Brigades

- Baldivis Volunteer Fire and Emergency Service
- Secret Harbour Volunteer Fire and Rescue Service
- Rockingham Volunteer Fire and Rescue Service
- Karnup Volunteer Fire and Emergency Service

Burning Restrictions

The COR has restricted and prohibited burning times (see Table 8 overleaf). Harvest movement bans are also used in the City.

Table 8: Permit to Burn (City of Rockingham)

Burning Periods	Conditions
1 April – 31 May	Permits required
1 June – 30 September	No permits required
1 October – 30 November	Permits required
1 December – 31 March	Prohibited burning

Bush Fires Act 1954 Section 33 Fire Management Notices

An annual Fire Control Notice is issued to all property owners living in Bushfire Prone Areas, as defined by the Fire and Emergency Services Commissioner. The Fire Control Notice outlines fire control requirements for different classes of land under Section 33 of the Bushfires Act 1954. All properties are inspected for compliance.

Community Engagement Activities

Resilient communities are prepared for and have a greater capacity to respond to emergencies. The COR is committed to building a shared responsibility towards emergency preparedness through the provision of training, community engagement and awareness campaigns.

Response from the community survey nominated bushfire emergency awareness and emergency preparedness as the top requested training deliverable, 10% reported that they would use the Emergency WA website in an emergency and 76% did not have an emergency kit packed. Results highlight the need to continue to promote, develop emergency preparedness training and education campaigns across the community.

In partnership with the DFES, the City will develop and deliver a community emergency preparedness training package. This training will be delivered to community groups and organisations throughout Rockingham. In addition, the City will develop and implement an annual awareness framework aligned with State requirements that increases the community's understanding of their responsibility in being emergency ready. Finally, the City is committed to supporting DFES to promote Bushfire Ready Facilitator opportunities.

Other Current Local Government Wide Controls

Local Government wide controls are activities that reduce the overall bushfire risk within the COR. These types of activities 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. Some notable controls currently in place in the COR are:

- 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 statewide programs, tailored to suit local needs;
- Statewide arson prevention and awareness 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 and Building Commission policies and standards (includes Fire Management Plans and BAL Assessments and compliance with these*);*
- Monitoring performance against the BRM Plan and reporting annually to the local government council and OBRM;
- Warnbro Dunes Planning Area Risk Assessment and associated Treatment Plans for each individual property, monitoring of treatment implementation and reporting;
- COR's Town Planning Scheme No.2 (TPS2) where, in accordance with scheme text, property owners can implement strictly defined types of bushfire mitigation on their property based on zoning;
- The COR's Asset Services Directorate team annual works programs (such as slashing, clearing, burning, chemical application and firebreaks);
- The COR's Compliance and Emergency Liaison team routine tasks (such as property compliance inspections, enforcing fire restrictions, issuing of permits to burn and work orders and SmartWatch patrols);
- The Department of Fire and Emergency Services (DFES) is responsible for the management of fire prevention on Unallocated Crown Land and Unmanaged Reserves within gazetted town site boundaries under a memorandum of understanding with the Department of Planning, Lands and Heritage (DPLH);
- The Department of Biodiversity, Conservation and Attractions (DBCA) annual mitigation works programs (includes mechanical works and prescribed burns - known works will be captured in the Bushfire Risk Management Plans Treatment Schedule);
- Water Corporation Bushfire Risk Mitigation Program (Water Corporation sites due to be assessed within the COR by Water Corporation staff. Risk mitigation works on 'High' to 'Extreme' risk sites will be communicated to COR once complete);
- Western Power's (WP) annual vegetation management and asset inspection activities in 'Extreme' and 'High' bushfire zones as identified in their Bushfire Risk Management Plan. WP's plan that transmission and distribution vegetation maintenance in 'Extreme and 'High' will be completed by November 30 each year. Areas of the COR have been

identified by Western Power as a mix of ‘Low’, ‘Moderate’ and ‘High’ risk, with no areas identified as an ‘Extreme’ risk.

- Get Ready program, including Bushfire Ready months. Community Bushfire Ready Groups facilitated by locals, the COR and DFES. Distribution of promotional messages, flyers and consultation activities.
- A multi-agency work plan has been developed and is attached in Appendix 2. 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.

More information about the Local Government Wide Controls and how they will support the treatment of bushfire risk can be found in section 6.1 Local Government Wide Controls.

4. Asset Identification and Risk Assessment

4.1. Planning Areas

The COR BRM Plan area has been divided into nine planning areas; East Rockingham, Rockingham/Waikiki, Warnbro Dunes, Warnbro/Port Kennedy, Secret Harbour/Singleton, Karnup, Baldivis South, Baldivis North and Baldivis East. Attached in Appendix 1, the planning area boundaries can be seen on Drawing 1 to Drawing 3.

4.2. Asset Identification

Asset identification and risk assessment has been conducted at the local level using the methodology described in the BRMS Guidelines. Table 3 lists category, subcategories for identified assets.

Table 9 – Asset Categories and Subcategories

Asset Category	Asset Subcategories
Human Settlement	**Residential areas** Residential areas, including dwellings in rural areas and the rural-urban interface. **Places of temporary occupation** Commercial and industrial areas, mining sites or camps and other locations where people may work or gather. **Special risk and critical facilities** Locations and facilities where occupants may be especially vulnerable to bushfire for one or more of the following reasons: • occupants may have limited knowledge about the impact of bushfires; • occupants may have a reduced capacity to evaluate risk and respond adequately to bushfire event;

Asset Category	Asset Subcategories
	• occupants may be more vulnerable to stress and anxiety arising from a bushfire event or the effects of smoke; • there may be significant communication barriers with occupants; • relocation and/or management of occupants may present unique challenges or difficulties, such as transportation, or providing alternative accommodation, healthcare or food supplies; • facilities that are critical to the community during a bushfire emergency.
Economic	**Agricultural** Areas under production, such as pasture, livestock, crops, viticulture, horticulture and associated infrastructure. **Commercial and industrial** Major industry, waste treatment plants, mines (economic interest), mills, processing and manufacturing facilities and cottage industry. **Critical infrastructure** Power lines and substations, water pumping stations, tanks/bores and pipelines, gas pipelines, telecommunications infrastructure, railways, bridges, port facilities and waste water treatments plants. **Tourist and recreational** Tourist attractions, day-use areas and recreational sites that generate significant tourism and/or employment within the local area. These assets are different to tourist accommodation described as a Human Settlement Asset (see above). **Commercial forests and plantations** Plantations and production native forests. **Drinking water catchments** Land and infrastructure associated with drinking water catchments.
Environmental	**Protected** Flora, fauna and ecological communities that are listed as a: • critically Endangered, Endangered or Vulnerable species under the Environmental Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act 1999) (including associated critical habitat);

Asset Category	Asset Subcategories
	• critically Endangered, Endangered or Vulnerable species under the Biodiversity Conservation Act 2016; • critically Endangered, Endangered or Vulnerable ecological community under the EPBC Act 1999 (Cth); • critically Endangered, Endangered or Vulnerable Threatened ecological Community (TEC) endorsed by the Minister for Environment (WA); • fauna protected under international conventions; • Ramsar wetlands of international importance. **Priority** Flora, fauna and ecological communities that are a: • priority species listed on the Priority Flora or Priority Fauna Lists held by DBCA (Priority 1-5). • priority Ecological Community (PEC) (Priority 1-5); • wetlands of national or state importance. **Locally important** • Species, populations, ecological communities or habitats that the local community or independent scientific experts consider important for the area and for which there is some scientific evidence that protection would be beneficial. • Wetlands of local importance. • Sites being used for scientific research.
Cultural	**Aboriginal heritage** Places of indigenous significance identified by the DPLH or the local community. **European heritage** Non-Indigenous 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 local community as being significant to local heritage. **Other** Other assets of cultural value to the local community, for example community halls, churches, clubs 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 BRMS Guidelines.

The Asset Risk Register will be maintained in BRMS, summarised below in Table 10 this information is not included in the plan because of the large volume of information.

The percentage of assets within the local government in each asset category at the time of BRM Plan endorsement is shown in Table 4.

Table 10 – Asset Category Proportions

Asset Category	Proportion of Identified Assets
Human Settlement	80%
Economic	13%
Environmental	4%
Cultural	3%

4.3.1. 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.

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

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

4.3.2. Likelihood Assessment

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

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 not 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 Table 7. 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

Asset Category	Risk Rating					
		Low	Medium	High	Very High	Extreme
	Human Settlement	2.2%	9.6%	18.9%	7.4%	36.6%
	Economic	1.9%	3.8%	6.3%	2.9%	1.1%
	Environmental	0.0%	0.0%	0.5%	4%	0.5%
	Cultural	0.5%	1.1%	1.1%	0.5%	1.1%
	Total	4.6%	14.5%	26.8%	14.8%	39.3%

5. Risk Evaluation

5.1. Evaluating Bushfire Risk

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

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

5.2. 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 in Table 12 overleaf have been adopted for each risk rating.

Table 12 – Criteria for Acceptance of Risk and Course of Action

Risk Rating	Criteria for Acceptance of Risk	Course of Action
Extreme	Only acceptable with excellent controls. Urgent treatment action is required.	Routine controls are not enough to adequately manage the risk. Specific action is required in the life of the BRM Plan. The first BRM Plan 2018–22 identified Extreme Risk areas and implemented controls which require ongoing maintenance and review in the BRM Plan 2022-26. Treatments will be approached by: • Priorities will be made for treatments that will have maximum benefit to multiple assets and critical infrastructure. • Treatments that benefit vulnerable communities will be given priority. • Identification of partnerships with other agencies for strategic mitigation. • Communication with asset owners in this class will be priorities and focus on increasing understanding of the risk facing these assets (see Communications Plan). These assets and treatments are to be reviewed annually for any significant changes.
Very High	Only acceptable with excellent controls. Urgent treatment action is required.	Routine controls are not enough to adequately manage the risk. Specific action is required in the life of the BRM Plan. The first BRM Plan 2018 – 22 identified Very High Risk areas and implemented controls which require ongoing maintenance and review in the BRM Plan 2022-26. Treatments will be approached by: • Priorities will be made for treatments that will have maximum benefit to multiple assets and critical infrastructure. • Treatments that benefit vulnerable communities will be given priority. • Identification of partnerships with other agencies for strategic mitigation. • Communication with asset owners in this class

Risk Rating	Criteria for Acceptance of Risk	Course of Action
		will be priorities and focus on increasing understanding of the risk facing these assets (see Communications Plan). These assets and treatments are to be reviewed annually for any significant changes.
High	Treatment action is not required but risk must be monitored regularly.	Routine controls are not enough to adequately manage the risk. Specific action is required in the life of the BRM Plan. The first BRM Plan 2018–22 identified High Risk areas and implemented controls which require ongoing maintenance and review in the BRM Plan 2022-26. Treatments will be approached by: • Priorities will be made for treatments that will have maximum benefit to multiple assets and critical infrastructure. • Treatments that benefit vulnerable communities will be given priority. • Identification of partnerships with other agencies for strategic mitigation. • Communication with asset owners will be as per the Communications Plan and focus on increasing understanding of the risk facing these assets.
Medium	Treatment action is not required but risk must be monitored regularly.	Specific actions are not be required. Risk may be managed with routine controls and monitored periodically throughout the life of the BRM Plan.
Low	Treatment action is not required but risk must be monitored regularly.	Specific actions are not required. Risk will be managed with routine controls and monitored as required.

5.3. Treatment Priorities

The treatment priority for each asset has been automatically assigned by BRMS and recorded in the treatment schedule, based on the asset's risk rating. Table 13 shows how consequence and likelihood combine to give the risk rating and subsequent treatment priority for an asset.

Table 13 – Treatment Priorities

Likelihood	Consequence				
		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)

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 are non-asset specific, rather they reduce the overall bushfire risk within the local government.

A multi-agency work plan has been developed for local government wide controls (Appendix 2). The plan details work to be undertaken as a part of normal business (see section 3.2.6), improvements to current controls and new controls to better manage bushfire risk across the local government area.

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 a bushfire risk. There are five asset specific treatment strategies:

- Fuel management - treatment reduces or modifies the bushfire fuel through manual, chemical and planned 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;
- Community Engagement - treatments seek to build relationships, raise awareness and change the behaviour of people exposed to bushfire risk.

6.3. Development of the Treatment Schedule

The treatment schedule is a list of bushfire risk treatments recorded within BRMS. The City will be focusing on developing a program of works that covers activities to be undertaken within the first year after the approval of the BRM Plan. The treatment schedule will evolve and develop throughout the life of the BRM Plan.

The treatment schedule will be developed in broad consultation with land owners and other stakeholders including DFES and DBCA.

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 licenses 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's Treatment Schedule 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 approval. Significant circumstances that may warrant an earlier review of the BRM Plan include:

- changes to organisational responsibilities or legislation;
- changes to the bushfire risk profile of the local government;
- following a major fire event.

7.2. Monitoring

BRMS will be used 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 as described in Table 12 – Criteria for Acceptance of Risk and Course of Action. New assets will be added to the Asset Risk Register as they are identified.

7.3. Reporting

The COR will be requested to contribute information relating to their fuel management activities to assist in the annual OBRM Fuel Management Activity Report. In addition, reporting updates will be provided where appropriate to the Local Emergency Management Committee (LEMC) and the Bushfire Advisory Committee (BFAC).

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 (BRMS) used to record the details of assets identified in the Bushfire Risk Management Plan (BRM Plan).
Asset Risk Register	A report produced within the BRMS that details the consequence, likelihood, risk rating and treatment priority for each asset identified in the BRM Plan.
Bushfire	Unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires both with and without a suppression objective.
Bushfire Hazard	The hazard posed by the classified vegetation, based on the vegetation category, slope and separation distance.
Bushfire Risk Management Plan	A development related document that sets out short, medium and long term bushfire risk management strategies for the life of a development.
Bushfire Risk	The chance of a bushfire igniting, spreading and causing damage to the community or the assets they value.
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 Risk	The chance of a bushfire igniting, spreading and causing damage to the community or the assets they value.
Consequence	The outcome or impact of a bushfire event.

Draft Bushfire Risk Management Plan	The finalised draft BRM Plan is submitted to the Office of Bushfire Risk Management (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 approval.
Geographic Information System (GIS)	A data base technology, linking any aspect of land related information to its precise geographic location.
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, it is the potential of a bushfire igniting, spreading and impacting on an asset.
Locality	The officially recognised boundaries of suburbs (in cities and larger towns) and localities (outside cities and larger towns).
Map	The mapping component of the BRMS. Assets, treatments and other associated information is spatially identified, displayed and recorded within the Map.
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.
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.
Risk Identification	The process of recognising, identifying and describing risks.
Risk Register	A component within the BRMS used to record, review and monitor ris assessments and treatments associated with assets recorded in the BRM Plan.

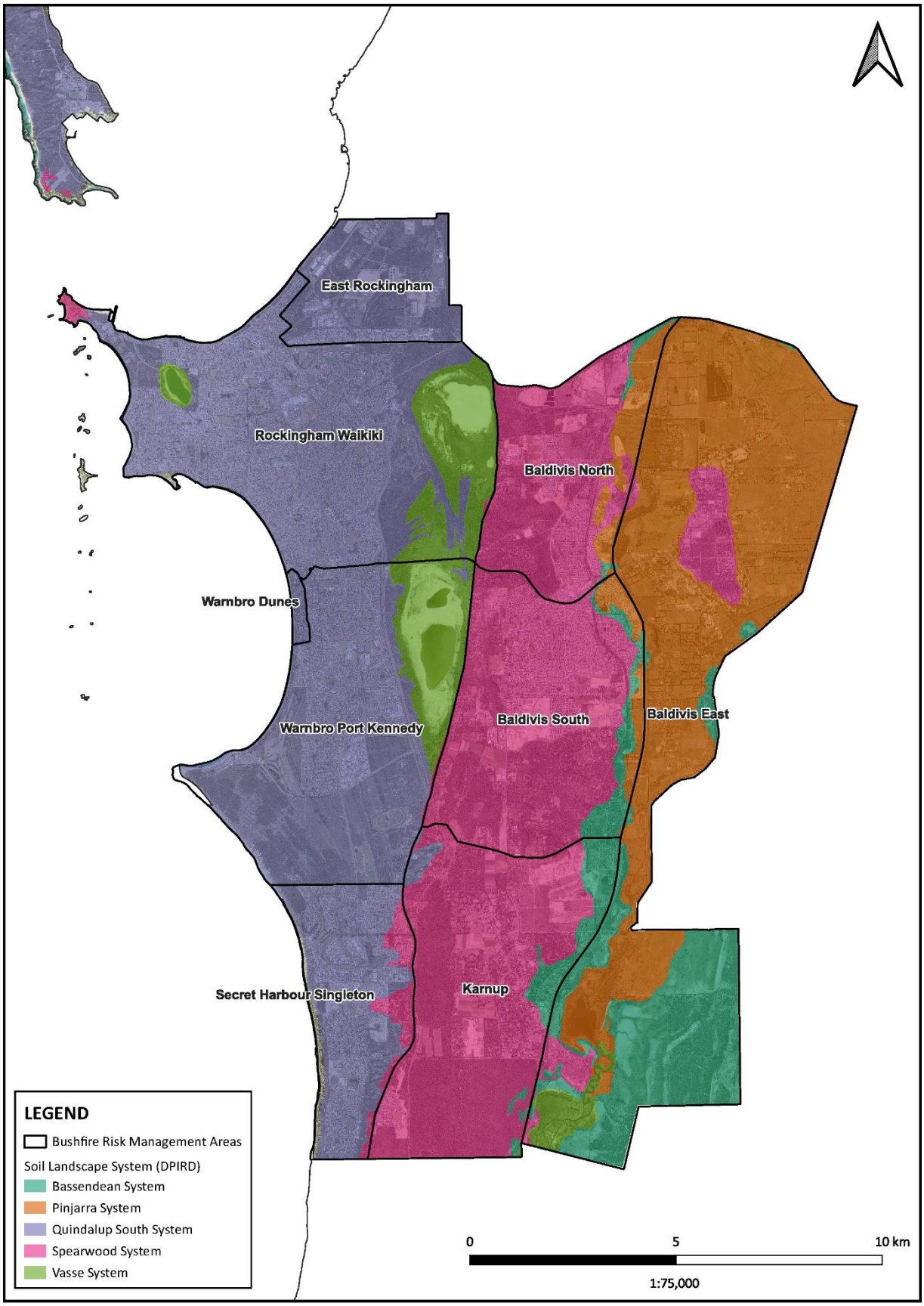
Risk treatment	A process to select and implement appropriate measures undertaken to modify risk.
Rural	Any area where in residences and other developments are scattered and intermingled with forest, range, or farm land and native vegetation or cultivated crops.
Rural Urban Interface	The line or area where structures and other human development adjoin or overlap with undeveloped bushland.
Slope	The angle of the ground's surface measured from the horizontal.
Tenure Blind	An approach where multiple land parcels are consider as a whole, regardless of individual ownership or management arrangements.
Treatment	An activity undertaken to modify risk, for example a planned 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 BRM Plan, including coordinating or undertaking work, monitoring, reviewing and reporting.
Treatment Planning Stage	The status or stage of a treatment as it progresses from proposal to implementation.
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 BRMS that details the treatment priority of each asset identified in the BRM 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 planned burn.
Vulnerability	The susceptibility of an asset to the impacts of bushfire.

Common Abbreviations

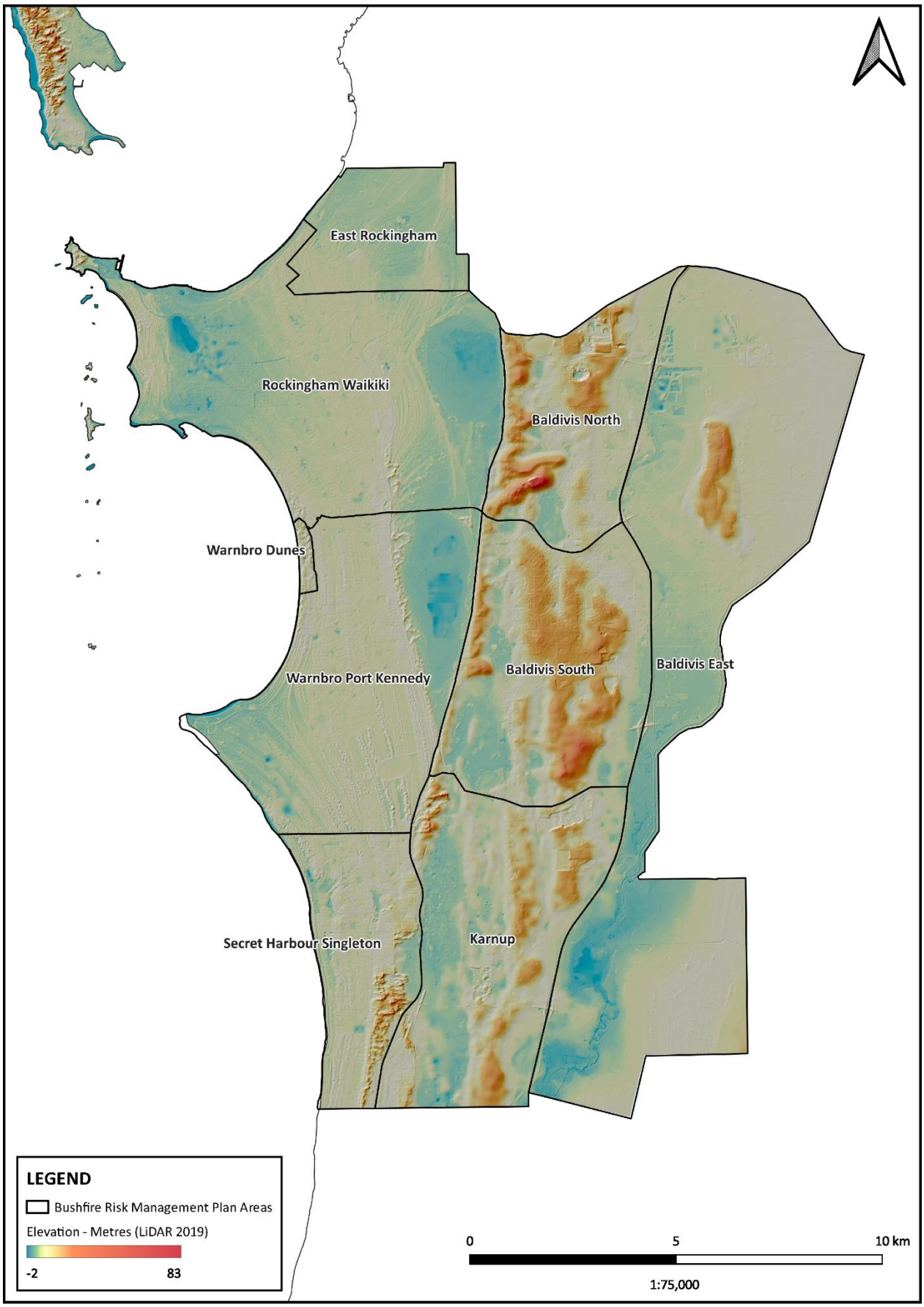
Abbreviation	Full description
AFAC	Australasian Fire and Emergency Services Authorities Council
BFAC	Bush Fire Advisory Committee
BRM	Bushfire Risk Management
BRM Branch	Bushfire Risk Management Branch (DFES)
BRM Plan	Bushfire Risk Management Plan
BRMS	Bushfire Risk Management System
COR	City of Rockingham
DBCA	Department of Biodiversity, Conservation and Attractions
DFES	Department of Fire and Emergency Services
DPLH	Department of Planning, Lands and Heritage
EPBC Act	Environmental Protection and Biodiversity Conservation Act
FPC	Forest Products Commission
GIS	Geographical Information System
LEMC	Local Emergency Management Committee
OBRM	Office of Bushfire Risk Management (DFES)
PEC	Priority Ecological Community
SEMC	State Emergency Management Committee
TEC	Threatened Ecological Community
UCL	Unallocated Crown Land
UMR	Unmanaged Reserve
WA	Western Australia
WAPC	Western Australian Planning Commission

Appendices

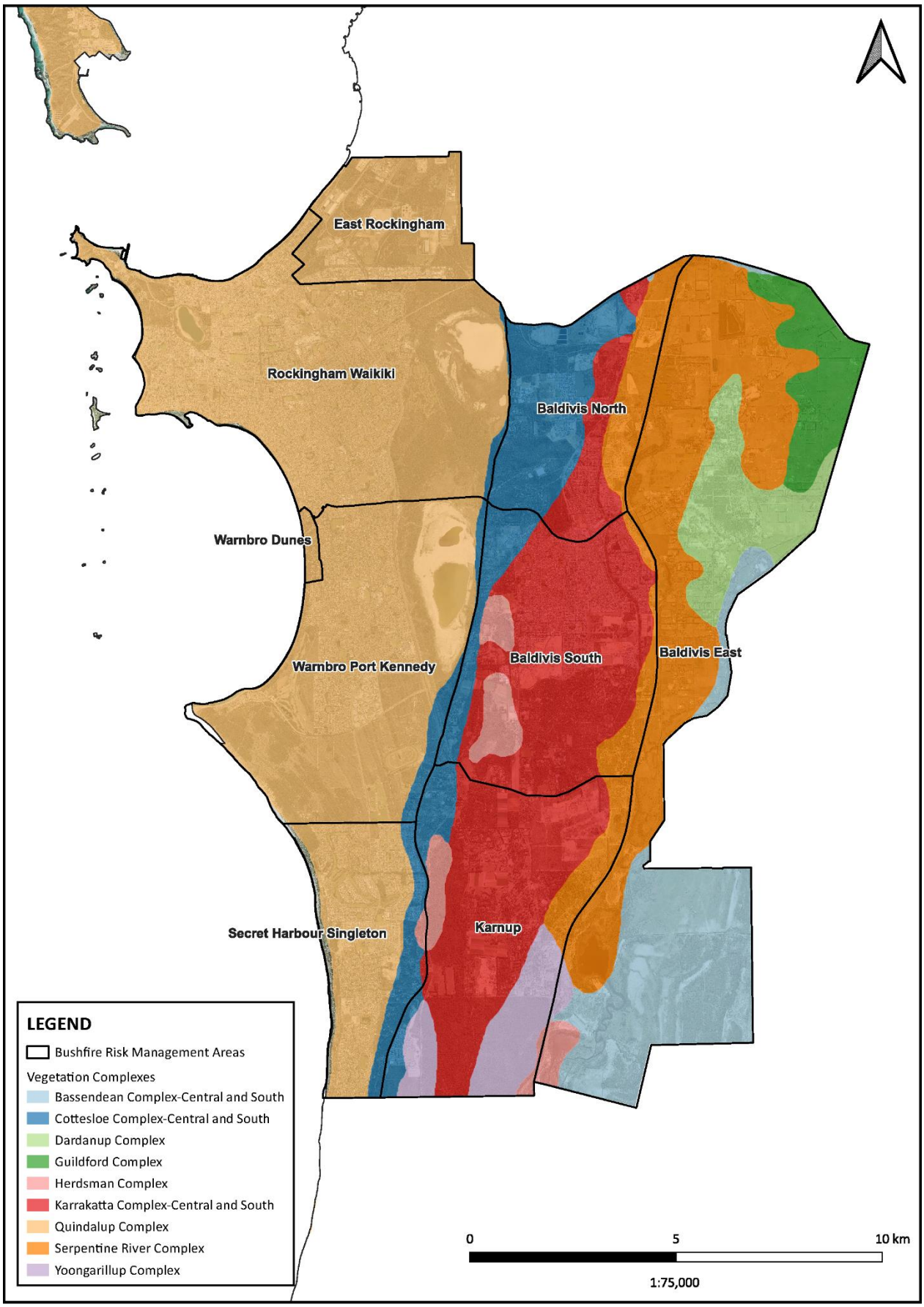
Appendix 1 - Drawings



Drawing 1: Soil Landscape Systems



Drawing 2: Elevation



Drawing 3: Vegetation Complexes

Appendix 2 - Local Government Wide Controls

	Control	Action or Activity Description	Lead Agency	Other Stakeholder(s)	Notes and Comments
1	Risk Analysis	BRM Plan extreme and very high risks priority for treatment.	DFES & Local Government	DFES and landowners/managers	Implementation of risk mitigation treatments.
		Maintain and refine BRMP.	Local Government	DFES and landowners/managers	Maintenance of BRM Plan and BRMS. BRMP performance monitoring and reporting progress to local government council and OBRM.
2	Warnbro Dunes Planning Area Risk Assessment	Issue separate treatment plans to property owners to reduce risk and increase awareness.	Local Government		Implementation of treatments, ensuring compliance, monitoring risk, reporting on progress.
3	*Bush Fire Act 1954*	Annual Firebreak Notice published.	Local Government		Ensuring compliance with Annual Fire Control Notice, Fire Management Plans and other required works (i.e. issuing of infringement notices, work orders, abatement notices and education letters)
		Review of Annual Firebreak Notice.			Review the effectiveness of the Annual Fire Control Notice

	Control	Action or Activity Description	Lead Agency	Other Stakeholder(s)	Notes and Comments
		Annual inspection target to be reviewed.			Implementation of any changes to increase effectiveness and volume of inspections.
		Burning on Crown Lands.		DFES	Continued liaison with land managers to ensure mitigation treatments are applied where required.
		Total fire bans, prohibited and restricted burning times.		DFES	Enforcing restrictions where required or deemed necessary.
5	COR Town Planning Scheme No.2 (TPS2)	Mechanism to perform works related to bushfire mitigation treatments.	Local Government and Land Managers		In accordance with scheme text, property owners can implement strictly defined types of bushfire mitigation on their property based on zoning.
6	Asset Services	Management of road reserves, public open space and other local government owned lands.	Local Government		May include the reduction of fuels through various annual works programs such as slashing, clearing, burning or chemical application. The installation of firebreaks.

	Control	Action or Activity Description	Lead Agency	Other Stakeholder(s)	Notes and Comments
7	State Planning Policy 3.7: Planning in Bushfire Prone Areas Planning and Development (Local Planning Scheme) Regulations 2015 Australian Standard 3959 – Construction of Buildings in Bushfire-Prone Areas	Implementation and compliance with SPP3.7 and the Bushfire Protection Criteria of the *Guidelines for Planning in Bushfire Prone Areas* where required	Local Government	WAPC	State planning framework and local planning schemes, implementation of appropriate subdivision and building standards in line with DFES, WAPC and Building Commission policies, guidelines and standards
8	*Bush Fire Act 1954*, Criminal Code 444 & 554	Police infringement and reward schemes to prevent arson	WAPOL		State-wide arson prevention programs developed in conjunction with WA Police and DFES
9	DFES Activities	'My Bushfire Plan' campaign and available information packages	DFES	Local Government	Bushfire season 'My Bushfire Plan' information package.
10	Community Education	Community workshops and targeted education programs	Local Government	DFES	COR Community Safety Officers providing information and educating residence.

	Control	Action or Activity Description	Lead Agency	Other Stakeholder(s)	Notes and Comments
11	Smart Watch	Mechanism to prevent arson	Local Government		COR's Community Safety Patrol that operates from 12pm to 4am every day and may be utilised to prevent arson.
12	*Bush Fires Amendment Act 2016*	Mechanism to perform works related to bushfire mitigation treatments	Land owners / managers		Land managers may implement the *bush fire risk treatment standards* published under section 35 AA (5) of the Act and published by the DFES Commissioner

City of Rockingham

Communications Strategy

Bush Fire Risk Management Planning

rockingham.wa.gov.au

city of Rockingham
where the coast comes to life

Document Control

Document Name	Bushfire Risk Management Plan Communications Strategy
Document Owner	City of Rockingham, Chief Executive Officer
Document Location	Asset Services
Current Version	1.1
Issue Date	01/08/2023
Next Review Date	01/08/2027

Related Documents

Title	Version	Date
City of Rockingham Bushfire Risk Management Plan 2023-2027	1	01/08/2023

Version	Date	Author	Section

Contents

1. Introduction

A Bushfire Risk Management (BRM) Plan is a strategic document that outlines the approach to the identification, assessment and treatment of assets exposed to bushfire risk within the City of Rockingham.

This Communication Strategy accompanies the BRM Plan for the City of Rockingham and defines the:

- communication objectives
- roles and responsibilities for communication
- key stakeholders
- stakeholders engaged in the development of the BRM Plan and treatment schedule, and
- a communication plan for the implementation and review of the BRM Plan including:

Related Documents

  - 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

2.1 Communication Objectives

The communication objectives for the development, implementation and review of the BRM Plan for the City of Rockingham are as follows:

1. Key stakeholders understand the purpose of the BRM Plan and their role in the BRM planning process.
2. Stakeholders who are essential to the BRM 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.
5. The community and other stakeholders engage with the BRM planning process and as a result are better informed about bushfire risk and understand their responsibilities to address bushfire risk on their own land.

2.2 Communication Roles and Responsibilities

The City of Rockingham 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 are as follows:

- CEO, City of Rockingham is responsible for endorsement of the BRM Plan Communications Strategy.
- Manager, Strategy, Marketing and Communications, City of Rockingham is responsible for external communication within the local government area.
- Senior Bushfire Risk Officer, City of Rockingham, is responsible for operational-level communication between the City of Rockingham and the Department of Fire and Emergency Services.

2.3 Key Stakeholders for Communication

The following table identifies the key stakeholders in BRMP planning process, its implementation and review. These are stakeholders that are identified as having a significant role and/or interest in the planning process or are likely to be significantly impacted by the outcomes.

Major Landholders/Managers

Who is the stakeholder?	What is their role or interest that makes them a stakeholder?	What level of impact will the implementation have on the stakeholder?	What level of engagement is necessary for the stakeholder?
Department of Biodiversity and Attractions (DBCA)	Land holder, environmental assets	High	Inform, consult and participate
Public Transport Authority (PTA)	Land holder, critical infrastructure	Medium	Inform, consult and participate
Development WA	Land holder, critical infrastructure	High	Inform, consult and participate
Kwinana Industries Council	Interested party	High	Inform, consult and participate
Department of Planning, Lands and Heritage (DPLH)	Land holder, environmental assets	High	Inform, consult and participate
Main Roads Western Australia	Land holder, critical infrastructure	Medium	Inform, consult and participate
Private Developers	Land Owner	High	Inform, consult and participate
Water Corporation	Land holder, critical infrastructure	High	Inform, consult and participate
Western Power	Land holder, critical infrastructure	High	Inform, consult and participate
State Housing Authority	Landholder	High	Inform, consult and participate

Who is the stakeholder?	What is their role or interest that makes them a stakeholder?	What level of impact will the implementation have on the stakeholder?	What level of engagement is necessary for the stakeholder?
Alcoa of Australia Limited	Major landholder, environmental assets	Medium	Inform, consult and participate
Arc Infrastructure	Landholder	High	Inform, consult and participate
Private Landholders	Landholder, human settlement	High	Inform, consult and participate
Warnbro Dunes Community	Landholder, human settlement	High	Inform, consult and participate
City of Rockingham	Project Owner, major landholder	High	Inform, consult and participate
City of Kwinana	Neighbouring LGA	Low	Inform, consult and participate
City of Mandurah	Neighbouring LGA	Low	Inform, consult and participate
Shire of Serpentine Jarrahdale	Neighbouring LGA	Low	Inform, consult and participate
Shire of Murray	Neighbouring LGA	Low	Inform

3. Communications Log – Development of the BRM Plan and Treatment Schedule

This Communications Log captures the communications with key internal and external stakeholders that occurred during the development of the BRM Plan and associated Treatment Schedule. Record any significant conversations, community engagement events, emails, meetings, presentations, workshops and other communication initiatives

Development of the BRM Plan

Timing	Stakeholders Who was the stakeholder or target audience?	Purpose	Summary	Method	Lesson Identified	Follow up
June 2021	DBCA	To establish goals and objectives for 2022 - 2026	Fuel reduction on DBCA controlled land within the City of Rockingham	Meetings/Telephone/Email	Priorities/timing does not always align with City of Rockingham/residents	Yes to confirm priorities
June 2021	City of Rockingham - Internal	Build and maintain partnerships with key stakeholders,	Develop and implement strategies to improve	Meetings/Email	Resourcing of BRAG group from DFES; Engagement with	More discussion with DFES

Timing	Stakeholders Who was the stakeholder or target audience?	Purpose	Summary	Method	Lesson Identified	Follow up
		committees, and networks within compliance and emergency preparedness sector	information sharing and responsiveness amongst stakeholders		vulnerable groups; Establishment of regional groups	
July 2021	Development WA	To establish goals and objectives for 2022 - 2026	Fuel reduction and compliance activities on Development WA controlled land within the City of Rockingham	Meetings/telephone/workshop	Priorities do not align with City of Rockingham	Yes to confirm priorities
May 2021	Water Corporation & DFES	To clarify management of drainage reserves	Responsibility relating to drainage reserves	Emails/telephone	Seeking legal advice	Yes to confirm priorities
May 2021	Private landholdings that contain high fuel loads	Provide advice and assistance to reduce fuel loads	Prescribed burning, spraying and long term maintenance, as well as ecological advice for environmentally sensitive areas	Letters, meetings and telephone	Not all landholders want to participate in fuel reduction activities	Planned annual engagement

Development of the Treatment Schedule

Timing	Stakeholders	Purpose	Summary	Method	Lesson Identified	Follow up
June 2021	City of Rockingham	Provide advice and assistance to reduce fuel loads	Prescribed burning, spraying and long term maintenance, as well as ecological advice for environmentally sensitive areas	Letters, meetings and telephone	Careful planning and time management	Monthly engagement
June 2021	Water Corporation	Provide advice and assistance to reduce fuel loads	Spraying and long term maintenance, as well as ecological advice for environmentally sensitive areas	Letters, meetings and telephone	Different priorities	Quarterly engagement
June 2021	DBCA	Lobby	Spraying and long term maintenance, as well as ecological advice for environmentally sensitive areas	Letters, meetings and telephone	Different priorities	Quarterly engagement

Timing	Stakeholders	Purpose	Summary	Method	Lesson Identified	Follow up
June 2021	Development WA	Provide advice and assistance to reduce fuel loads	Prescribed burning, spraying and long term maintenance, as well as ecological advice for environmentally sensitive areas	Letters, meetings and telephone	Different priorities	Quarterly engagement

4. Communications Plan – Implementation and Review of the BRM Plan

This Communications Plan outlines the key communication initiatives that will be undertaken during the implementation and review of the BRM Plan.

Implementation of the BRM Plan

Timing	Stakeholders	Objective	Method	Key Message	Responsibility	Risks	Manage Risks	Monitoring and Evaluation
2023-2027	DBCA	All (1-5)	Emails, meetings	Quarterly	Senior Bushfire Risk Officer – City of Rockingham	Change of staff	Ongoing Communication	Ongoing communication and achievement of priorities/commitments
2023-2027	Internal City of Rockingham Community Engagement Team	All (1-5)	Emails, meetings	Quarterly	Senior Bushfire Risk Officer & Community Engagement Coordinator – City of Rockingham	Change of staff	Ongoing communication, KPI's	Ongoing communication and achievement of priorities/commitments
2023-2027	Development WA	All (1-5)	Emails, meetings	Quarterly	Senior Bushfire Risk Officer – City of Rockingham	Change of staff	Ongoing communication, KPI's	Ongoing communication and achievement of priorities/commitments
2023-2027	Department of Planning, Lands and Heritage (DPLH)	All (1-5)	Emails, meetings	Quarterly	Senior Bushfire Risk Officer – City of Rockingham	Change of staff	Ongoing communication, KPI's	Ongoing communication and achievement of priorities/commitments
2023-2027	Public Transport Authority (PTA)	All (1-5)	Emails, meetings	Quarterly	Senior Bushfire Risk Officer – City of Rockingham	Change of staff	Ongoing communication, KPI's	Ongoing communication and achievement of priorities/commitments
2023-2027	Private Landholders	All (1-5)	Emails, meetings	Quarterly	Senior Bushfire Risk Officer – City of Rockingham	Withdrawal of City of Rockingham assistance	Ongoing communication, KPI's	Ongoing communication and achievement of priorities/commitments

Timing	Stakeholders	Objective	Method	Key Message	Responsibility	Risks	Manage Risks	Monitoring and Evaluation
2023-2027	Kwinana Industrial Estate	All (1-5)	Emails, meetings	Quarterly	Senior Bushfire Risk Officer – City of Rockingham	Withdrawal of City of Rockingham assistance	Ongoing communication, KPI's	Ongoing communication and achievement of priorities/commitments
2023-2027	City of Rockingham CEO, Senior Leadership Team and Staff	All (1-5)	Emails, meetings	Monthly	Senior Bushfire Risk Officer – City of Rockingham	Time constraints, no clear message	Ongoing communication, KPI's	Ongoing communication and achievement of priorities/commitments
2023-2027	Bushfire Advisory Committee (BFAC)	All (1-5)	Emails, meetings	Quarterly	Senior Bushfire Risk Officer – City of Rockingham	Plan not complete, Treatments not negotiates, Time constraints	Ongoing communication, KPI's	Ongoing communication and achievement of priorities/commitments
2023-2027	BFB Captains	All (1-5)	Emails, meetings	Quarterly	Senior Bushfire Risk Officer – City of Rockingham	Plan not complete, Treatments not negotiates, Time constraints	Ongoing communication, KPI's	Ongoing communication and achievement of priorities/commitments

Review of the BRM Plan

Timing	Stakeholders	Objective	Method	Key Message	Responsibility	Risks	Manage Risks	Monitoring and Evaluation
Yearly (City) 5 yearly (City, DFES and OBRM)	All	To monitor and update goals and objectives for 2022 - 2026	Emails, meetings, telephone calls	Review, monitor and reporting	Senior Bushfire Risk Officer – City of Rockingham	nil	Ongoing communication, KPI's	Ongoing communication and achievement of priorities/commitments

Appendix 4 - Threatened ecological communities in the City of Rockingham

Code	Community name	Category		City Reserve
		WA	Federal	
Banksia WL SCP	Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	P3	EN	Baldivis Tramway, Karnup School Site, Karnup Town Site, Tamworth Hill Swamp, Baldivis Nature Reserve
SCP08	Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson et al. (1994))	VU	CR	
SCP19a	Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in in Gibson et al. (1994)	CR	EN	Foreshore, Sawley, Trenant Park, Hidden Swamp, Lark Hill, Anstey Q, Bordeaux Ramble, Kindsdale Bend, Lake Richmond
SCP19b	Woodlands over sedgelands in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al. (1994)	CR	EN	Lark Hill, Lake Richmond
SCP30a	Callitris preissii (or Melaleuca lanceolata) forests and woodlands, Swan Coastal Plain (floristic community type 30a as originally described in Gibson et al. (1994))	VU		
Tuart woodlands	Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain	P3	CR	Sawley, Tuart Park, Baldivis Tramway, Baldivis Children's Forest, Woodleigh Grove Reserve, Tamworth Hill Swamp, Baldivis Nature Reserve, Rockingham Golf Club, Dixon Road Conservation Precinct
	Subtropical and Temperate Coastal Saltmarsh		VU	Foreshore reserve