



Hobart Fire Management Area

Fire Protection Plan

2019

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Table of Contents

Glossary.....	6
Acronyms	7
Chapter 1 Introduction	8
1.1 Background	8
1.2 Aim and Objectives	8
1.3 Implementation Strategy	9
1.4 Policy, Standards and Legislation.....	10
1.4.1 Standards	10
1.4.2 Legislation	10
Chapter 2 Establishing the Context.....	11
2.1 Description of the Hobart Fire Management Area	11
2.1.1 Location Boundaries and Land Tenure	11
2.1.2 Climate and Bushfire Season	16
2.1.3 Vegetation.....	17
2.1.4 Population and Demographics.....	19
Chapter 3 Bushfire History.....	20
3.1 Black Tuesday Bushfires (7 February 1967)	20
3.2 Bushfire Frequency	20
3.4 Fire Ignition Cause.....	20
3.5 Existing Bushfire Management Plans.....	23
Chapter 4 Analysing and Evaluating Bushfire Risk.....	24
4.1 Analysing Bushfire Risk	24
4.2 Likelihood and Consequence	24
4.3 Overall Risk.....	24
4.4 Risk Analysis for the Hobart Fire Management Area.....	25
Chapter 5 Bushfire Risk Treatment.....	29
5.1 General Risk Reduction Methods.....	29
5.2 Treatment Selection and Priorities	30
5.3 Treatment Completed during 2017	30
5.4 Community Assessment.....	32
5.5 Strategic Fire Trails.....	34
5.6 Strategic Fuel Breaks.....	34

5.9	TFS Community Fire Safety Programs.....	37
5.10	Implementation	38
5.11	Community Engagement and Education	39
Chapter 6 Monitoring and Review		40
6.1	Review	40
6.2	Monitoring and Reporting	40
References		40
Appendices.....		41
Appendix 1 - Bushfire Risk Reduction Strategy for Hobart FMAC		42
Appendix 2 - Community Specific and General Bushfire Management Plans Already in Place		56
Appendix 3 – Existing and Proposed Strategic Fire Trails		63
Appendix 4 – Existing and Proposed Management and Protective Fuel Breaks		69
Appendix 5 - The Bushfire Risk Assessment Model (BRAM).....		71
Appendix 6 - NERAG Risk Assessment Approach.....		79
Appendix 7 - National Construction Code Building Classes		84
Appendix 8 – Treatment Schedule - Annual Works Program		85

Glossary

Asset	A term used to describe anything valued by the community that may be adversely impacted by bushfire. This may include residential houses, infrastructure, agriculture, industry, environmental and heritage sites.
Bushfire	Unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires both with and without a suppression objective. ¹
Bushfire hazard	The potential or expected behaviour of a bushfire burning under a particular set of conditions, i.e. the type, arrangement and quantity of fuel, the fuel moisture content, wind speed, topography, relative humidity, temperature and atmospheric stability.
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.
Consequence	The outcome or impact of a bushfire event.
Fuel Break	A natural or man-made change in fuel characteristics which affects fire behaviour so that fires burning into them can be more readily controlled. In the urban-rural interface, a fuel break is an area or strip of land where bushfire fuel continuity has been substantially altered through the strategic removal or modification of vegetation.
Human Settlement Area	SFMC has developed a spatial dataset used to define the extent and name of Human Settlement Areas (HSA) in Tasmania. The term Human Settlement Area is used instead of Community for the purposes of clarity. HSAs are defined as where people live or work.
Likelihood	The chance of something occurring.
Risk	The effect of uncertainty on objectives. ² (Note: Risk is often expressed in terms of a combination of the consequences of an event and the associated likelihood of occurrence.)
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 criteria	Standards (or statements) by which the results of risk assessments can be assessed. They relate quantitative risk estimates to qualitative value judgements about the significance of the risks. They are inexact and should be seen as guidelines rather than rules. ³
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 treatment	A process to select and implement appropriate measures undertaken to modify risk.

¹ Australasian Fire and Emergency Service Authorities Council 2012, *AFAC Bushfire Glossary*, AFAC Limited, East Melbourne, Australia

² Standards Australia 2009, *Risk management – Principles and guidelines*, AS/NZS 31000:2009, Standards Australia, Sydney, Australia

³ Emergency Management Australia 1998, *Australian Emergency Manuals Series – Manual 3 Australian Management Glossary*, Emergency Management Australia, Dickson, Australia

Acronyms

BC	Brighton Council
BRU	Bushfire Risk Unit
CCC	Clarence City Council
DOD	Department of Defence
DVC	Derwent Valley Council
FFDI	Forest Fire Danger Index
FDR	Fire Danger Rating
FIAT	Forest Industry Association Tasmania
FMA	Fire Management Area
FMAC	Fire Management Area Committee
FPP	Fire Protection Plan
GFDI	Grassland Fire Danger Index
GCC	Glenorchy City Council
HCC	Hobart City Council
HFMA	Hobart Fire Management Area
HSA	Human Settlement Area
KC	Kingborough Council
PWS	Parks and Wildlife Service
REMC	Regional Emergency Management Council
SEMC	State Emergency Management Committee
SFMC	State Fire Management Council
STT	Sustainable Timber Tasmania
TFGA	Tasmania Farmers and Graziers Association
TFS	Tasmania Fire Service
WPMT	Wellington Park Management Trust

Chapter 1 Introduction

This fire protection plan for the Hobart Fire Management Area was prepared by the Hobart Fire Management Area Committee (HFMAC) and State Fire Management Council (SFMC) executive to cover 2018. It updates and expands on the previous fire protection plan which covered 2017.

This plan takes a risk management approach and includes a range of measures that would reduce the bushfire risk within the Hobart Fire Management Area. It should be noted that it will not be possible to prevent bushfires occurring within the Hobart Fire Management Area however implementation of this plan should reduce bushfire risk.

The plan is based on risk modelling provided through the SFMC and the knowledge and expertise of the committee members. It is intended that this and future versions of this plan will become more comprehensive as further field investigations and detailed local-scale risk assessments are undertaken and more information is gathered from landowners and managers.

This version of the plan includes information on strategic emergency vehicle access routes (fire trails) and fuel breaks. The aim is to identify existing strategic access routes, note their current condition and identify where new vehicle access is required for fire management. Similarly, information on existing fuel breaks on public land has been gathered and the need for additional breaks identified, particularly to protect high value assets.

1.1 Background

Under Section 20 of the *Fire Service Act 1979*, fire management area committees are required to submit to SFMC, on an annual basis, a fire protection plan for its fire management area.

It is a requirement of the fire protection plan that it is consistent with the State Fire Protection Plan and the State Vegetation Fire Management Policy. The State Vegetation Fire Management Policy is currently being reviewed.

1.2 Aim and Objectives

The **aim** of this FPP is to document a coordinated and efficient approach towards the identification and treatment of bushfire-related risk within the Hobart FMA.

The **objective** of this FPP is to effectively manage bushfire related risk within the Hobart FMA in order to protect people, assets and other things valuable to the community. Specifically, the objectives of this plan are to:

- Guide and coordinate a tenure blind bushfire risk management program;
- Document the process used to identify, analyse and evaluate risk, determine priorities and develop a plan to systematically treat risk;
- Facilitate the effective use of the financial and physical resources available for bushfire risk management activities;
- Integrate bushfire risk management into the business processes of Local Government, land managers and other agencies;
- Ensure integration between stakeholders;
- Clearly and concisely communicate risk in a format that is meaningful to stakeholders and the community; and

- Monitor and review the implementation of the Plan, to ensure enhancements are made on an on-going basis.

This plan only deals with reducing the risks to life, property and other assets of value from bushfires, not other types of fire. In areas that fuel reduction burning can't be undertaken, community bushfire-ready education programs such as the TFS Bushfire-Ready Neighbourhoods program can focus activities to help community mitigate their risk.

1.3 Implementation Strategy

This plan takes a risk management approach and includes a wide range of measures to reduce the bushfire risk within the Hobart FMA. These fall under the following broad strategies:

- 1) Reduce the risk of bushfires starting and spreading through:
 - a) Reducing the number of ignitions within the Hobart FMA
 - b) Reducing the risk of bushfires that do start spreading
 - c) Reducing the rate of spread and intensity of bushfires that can't be immediately controlled.
- 2) Reduce the risk of persons being injured or dying as a result of bushfires.
- 3) Identify and reduce the bushfire risk to the following assets:
 - a) Residential and other Class 1 to 9 buildings as defined in the National Construction Code (for an explanation of these classes see **Appendix 7**)
 - b) Critical infrastructure including electricity supply, communications, drinking water supplies, sewerage, transport infrastructure.
 - c) Cultural heritage values
 - d) Natural heritage values including threatened species and plant communities, biodiversity, geoheritage, scenic values
 - e) Agricultural land and other assets used for primary production.

An outline of the measures being considered to implement this strategy is in **Appendix 1**.

1.4 Policy, Standards and Legislation

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

- Environment Protection Policy (Air Quality) 2004
- Forest Practices Code 2015
- Hobart City Council Fire Management Strategy 2014
- National Bushfire Management Policy Statement for Forests and Rangelands 2012
- Planning Directive 5.1 – Bushfire-Prone Areas Code
- State Fire Protection Plan
- State Policy on Water Quality Management 1997
- State Strategic Fuel Management Plan
- State Vegetation Fire Management Policy
- Tasmanian Air Quality Strategy 2006
- Tasmanian Electricity Code
- Tasmanian Emergency Management Plan
- Wellington Park Management Plan 2013
- PWS Southern Region Fire Management Strategy 2011
- Glenorchy City Council Bushfire Mitigation Policy 2017

1.4.1 Standards

- AS/NZS ISO 31000:2009 - Risk Management – Principles and Guidelines
- AS 3959 – 2009 – Construction of Buildings in Bushfire Prone Areas

1.4.2 Legislation

- *Aboriginal Relics Act 1975 (soon to be replaced)*
- *Building Act 2000*
- *Crown Lands Act 1976*
- *Emergency Management Act 2006*
- *Environment Protection and Biodiversity Conservation Act 1999 (Federal)*
- *Environmental Management and Pollution Control Act 1994*
- *Fire Service Act 1979*
- *Forest Practices Act 1985, and Forest Practices Regulations 2007*
- *Forestry Act 1920*
- *Historic Cultural Heritage Act 1995*
- *Local Government Act 1993*
- *National Parks and Reserve Management Act 2002*
- *Nature Conservation Act 2002*
- *Threatened Species Protection Act 1995*
- *Weed Management Act 1999*
- *Wellington Park Act 1993*

Chapter 2 Establishing the Context

2.1 Description of the Hobart Fire Management Area

2.1.1 Location Boundaries and Land Tenure

The Hobart Fire Management Area (HFMA) encompasses an area of approximately 110,000 ha. It covers the greater Hobart area and surrounding suburbs. The plan area also covers satellite suburbs and outlying communities including Lauderdale, Seven Mile Beach, Richmond, Brighton, Fern Tree, Molesworth, Lachlan and Mountain River. It includes the local government areas of Hobart, Glenorchy, Clarence, Brighton and parts of Kingborough and Derwent Valley (see Figure 2.1).

The HFMA has a number of distinctive geographical features; firstly the River Derwent which roughly bisects the FMA: the Wellington Range which runs westward from the suburbs of Hobart and the Meehan Range which runs roughly north to south on the eastern side of the Derwent River. Altitudes within the HFMA range from sea level to 1271m above sea level at the pinnacle of kunanyi / Mount Wellington.

Land tenure is predominantly private with Wellington Park making up the largest area of publicly owned land (see Figure 2.2).

Land Manager/Agency	% of Land Managed within the FMA
Private Property	65
Wellington Park Management Trust	14
DPIPWE	8
Local Government	4
Other	9

Table 2.1 - Overview of major land management agencies within the Hobart FMA

This fire prevention plan only covers areas identified as Type 1 and Type 2 interface areas within the Hobart FMA (see Figure 2.3).

The urban-rural interface is defined as: the line, area, or zone where structures and other human development adjoin or overlap with undeveloped bushland. This is where the degree of risk to life and property is most pronounced, and historically where the greatest losses have occurred.

The Tasmania Fire Service classifies the urban-rural interface into two distinct classes based on the pattern of development within this zone:

Type 1 (Classic) Interfaces are areas where there is a clear distinction between built and natural environments and there are multiple dwellings in close proximity.



Type 2 (Mixed) Interfaces are areas where structures are scattered within bushland areas so that the built and natural environments are blended. Dwellings are spaced further apart often with intervening bushland.



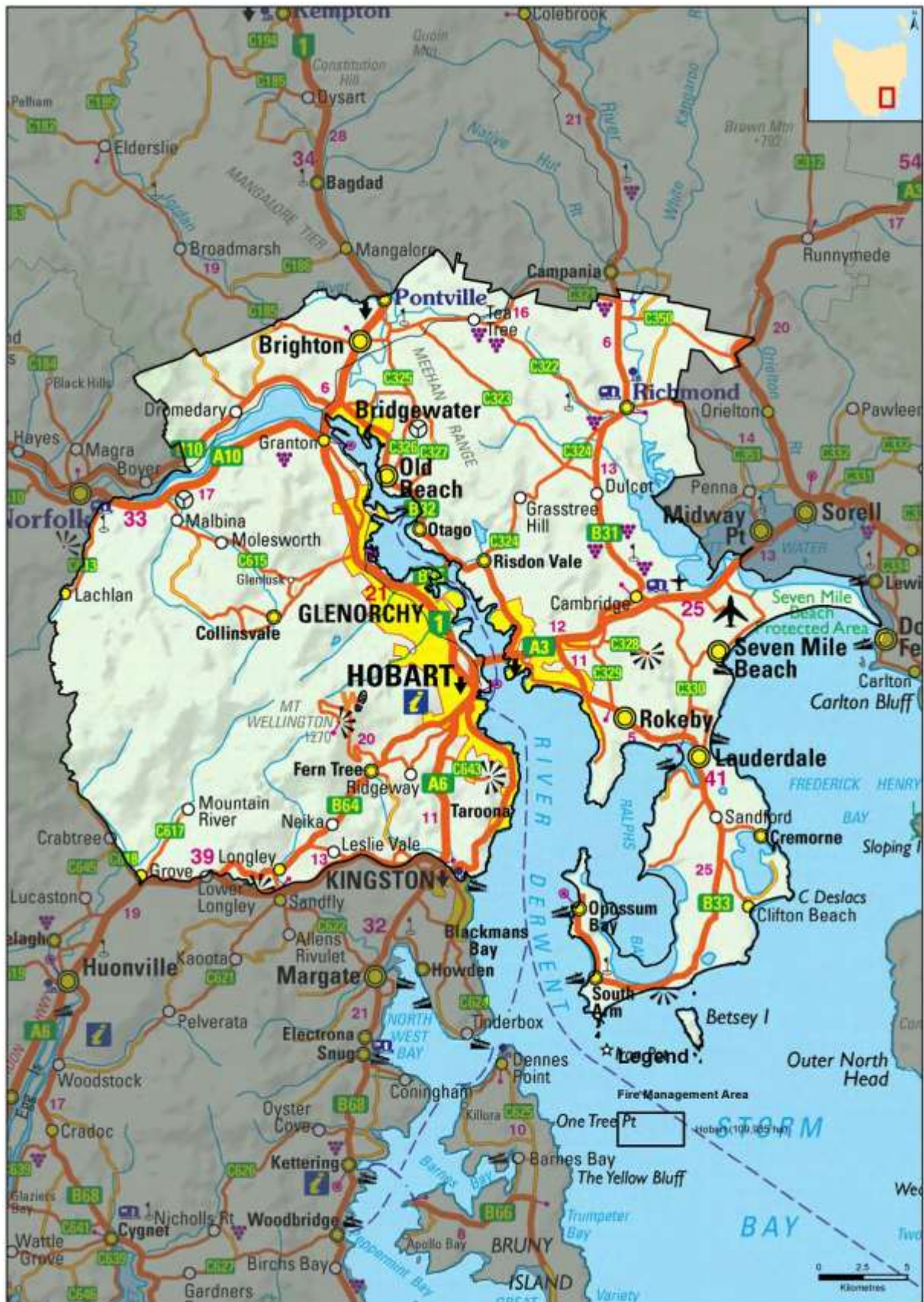


Figure 2.1: Extent of the HFMA.

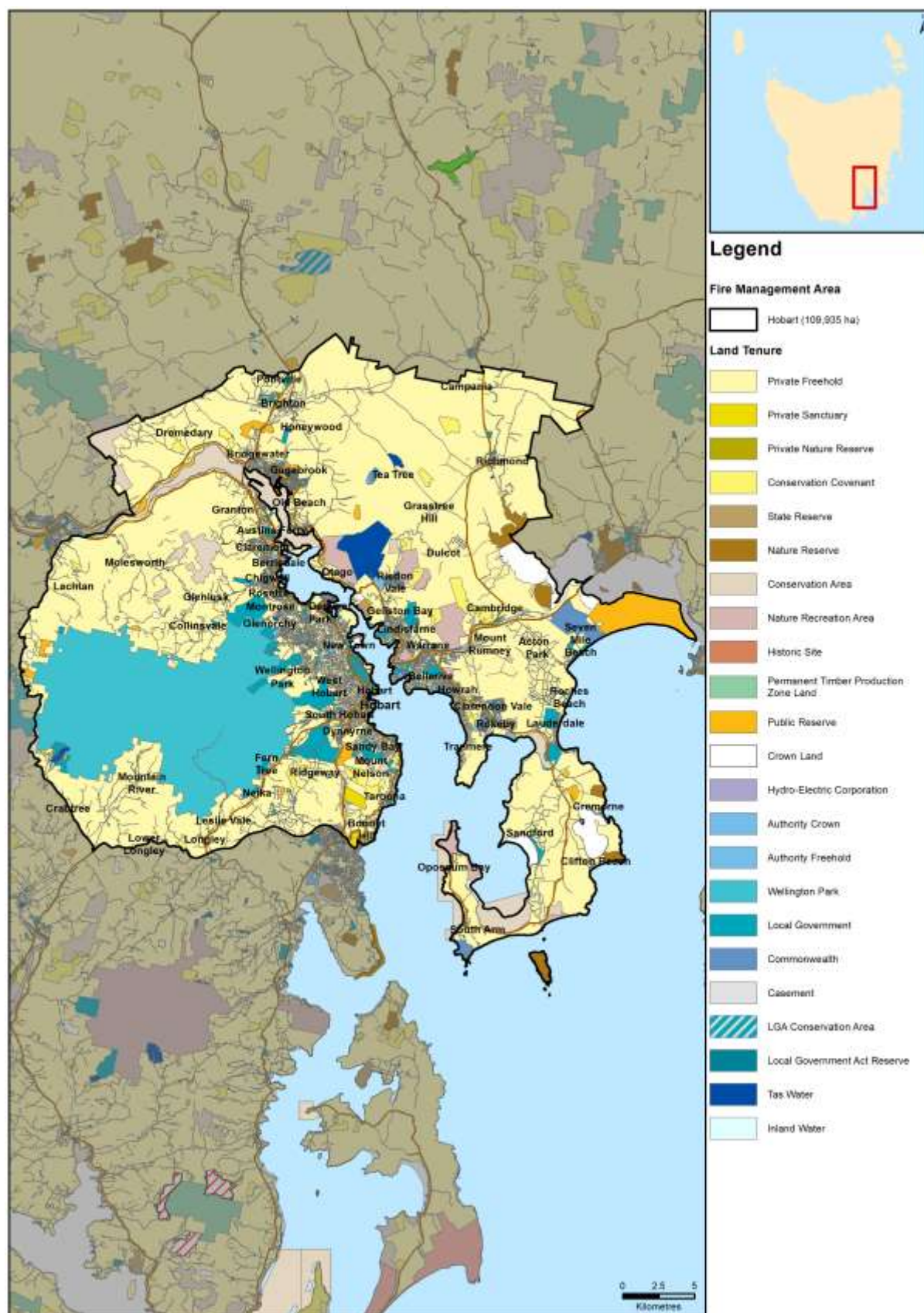


Figure 2.2: Broad land tenure across the HFMA

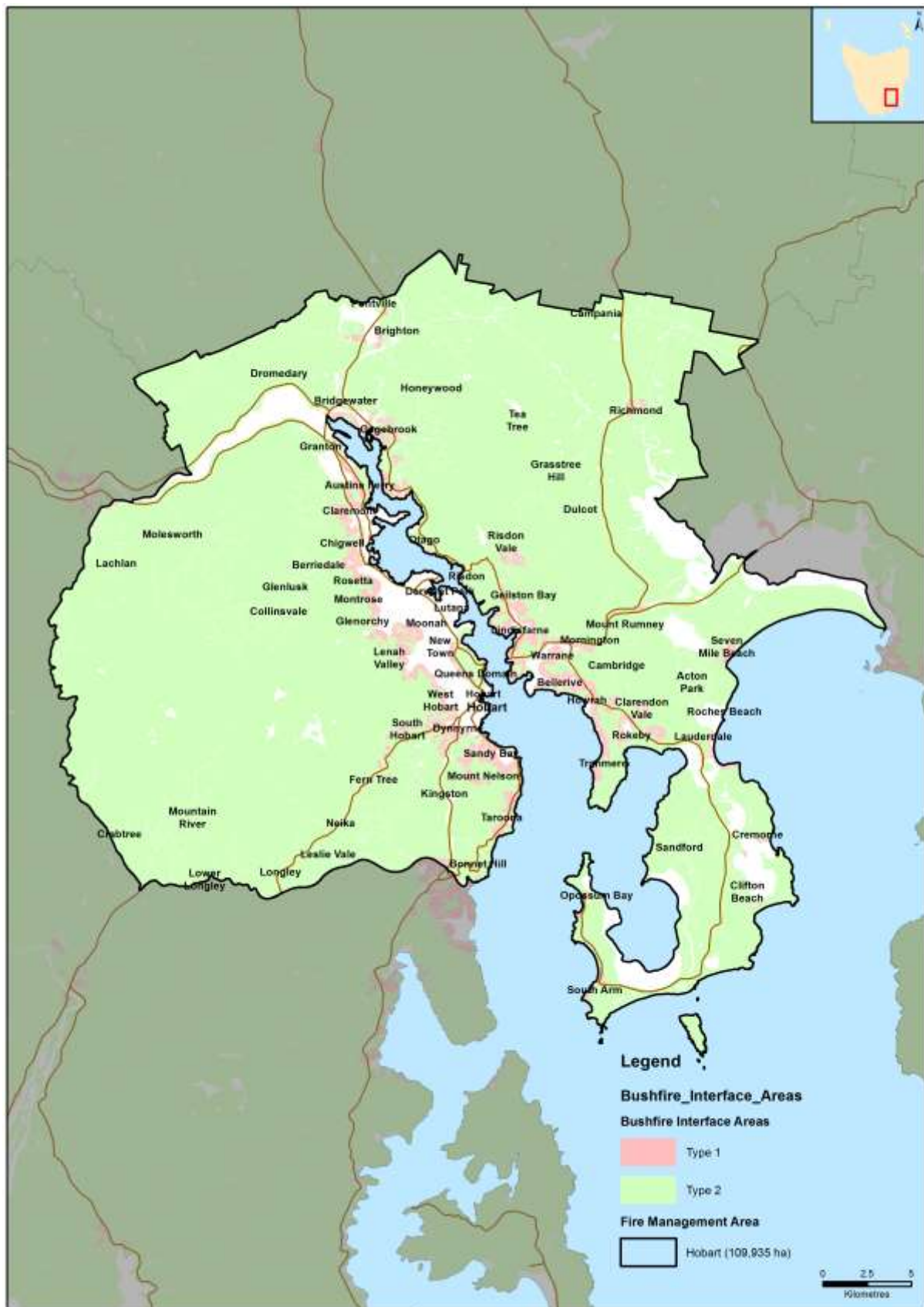


Figure 2.3 showing Type 1 and Type 2 interface areas in the HFMA

2.1.2 Climate and Bushfire Season

High risk fire weather can be expected from time to time in southern Tasmania when dry winters and springs are followed by summers where fuels are very dry. The strong north-westerly winds that often precede cold fronts in summer can contain dry air from the interior of the Australian mainland. These winds pick up some surface moisture crossing Bass Strait, but as the air stream descends from the Central Highlands dry air at a higher altitude descends to the surface resulting in extremely low humidity. This combination of strong winds and low humidity creates the ideal meteorological conditions for major bushfires in south-east Tasmania and particularly the Hobart Fire Management Area.

Fires that start under these conditions can be expected to move quickly downwind, and then move more or less at right angles on a broad front when the subsequent south-westerly wind change arrives. These fires can reach a very high intensity in a short time, even in areas with relatively low fuel loads, and are very difficult to control until the weather conditions abate. These were the conditions that produced the 1967, 1998, 2006 and 2013 bushfires around Hobart.

Unlike the rest of Tasmania, the Derwent Valley and south east of Tasmania regularly experience Extreme to Catastrophic fire danger ratings. The Hobart FMA is also one of the driest parts of Tasmania (see Figure 2.4)

Relevant BOM weather stations located within the HFMA:

- Grove
- Hobart
- Hobart Airport
- Kunanyi/Mt Wellington

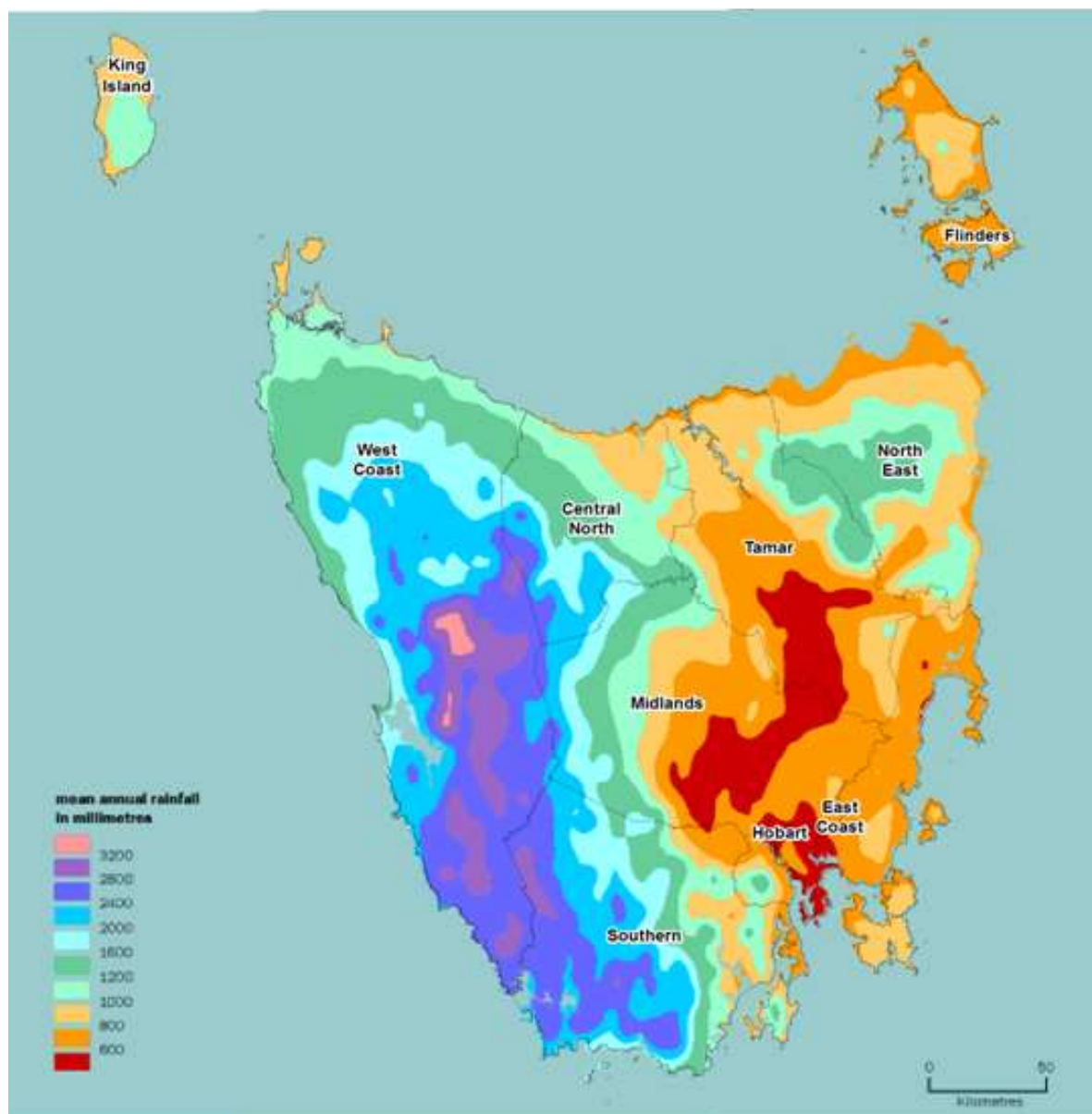


Figure 2.4: Mean annual rainfall across Tasmanian Fire Management Areas

2.1.3 Vegetation

The vegetation within the Hobart FMA has been classified into broad fuel types with similar bushfire hazard characteristics shown in figure 2.5.

Almost half the HFMA is covered by cleared land, either for urban development or for various types of agriculture. The remaining native vegetation is predominantly dry Eucalypt forest and woodland. Wet forest is mainly confined to the eastern and southern slopes of the Wellington Range.

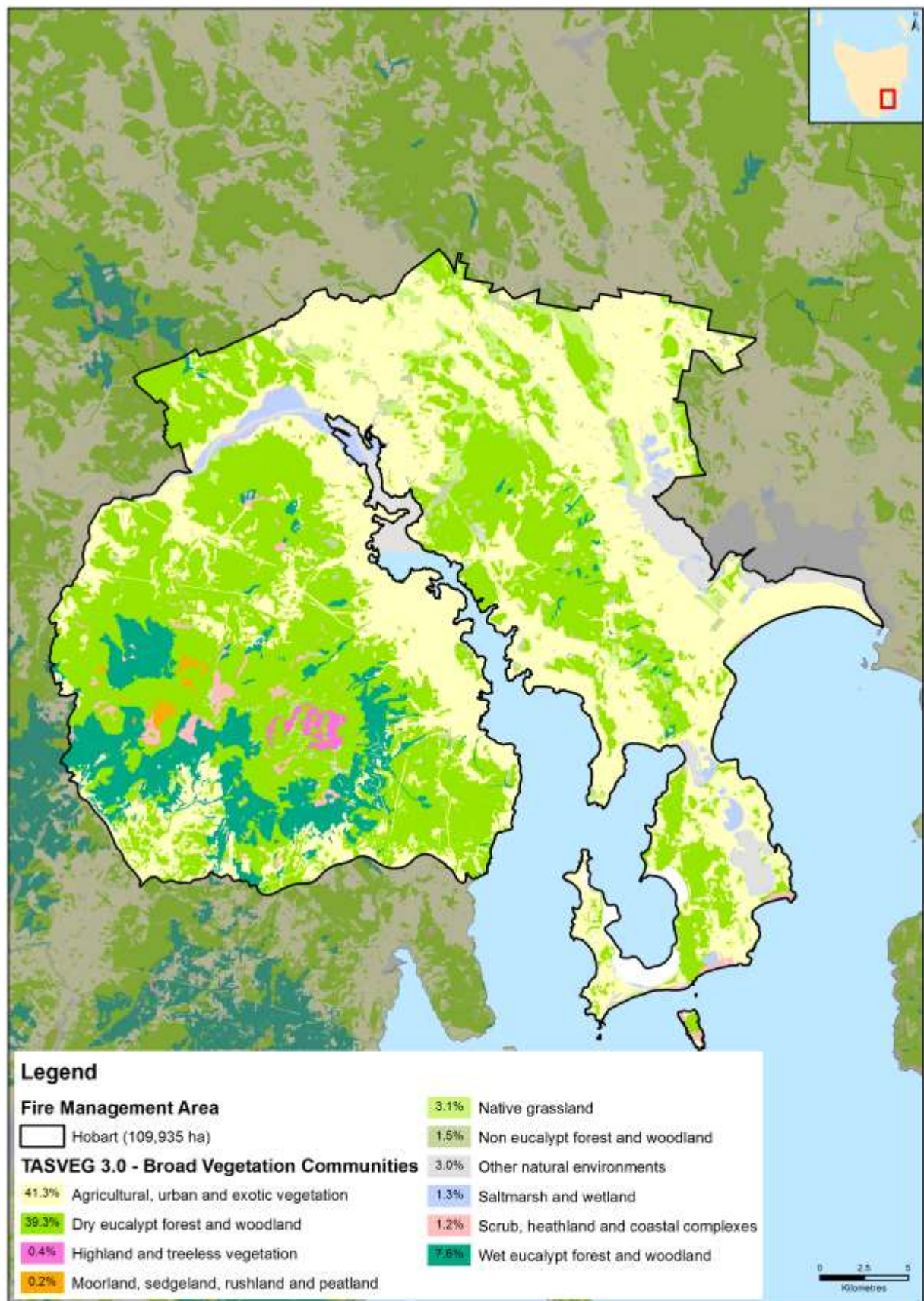


Figure 2.5 Vegetation types across the HFMA (based on grouped TASVEG vegetation mapping)

2.1.4 Population and Demographics

Settlement is concentrated along the shores of the Derwent River Estuary and Fredrick Henry Bay as shown on Figure 2.6. The only sizable settlements away from the coast are Brighton, Richmond and Risdon Vale. Settlement in the HFMA is dominated by two urban areas on either side of the Derwent River, as well as these large settlement areas there are a number of smaller towns, villages and settlement areas separated from the main urban areas by bushland (for example Risdon Vale, Ridgeway, Molesworth).

The HFMA also contains large areas of rural residential development (Type 2 Interface), mainly ~2 ha lots where homes are scattered and there is no distinct urban/bushland boundary (for example Acton, Sandford, Leslie Vale).

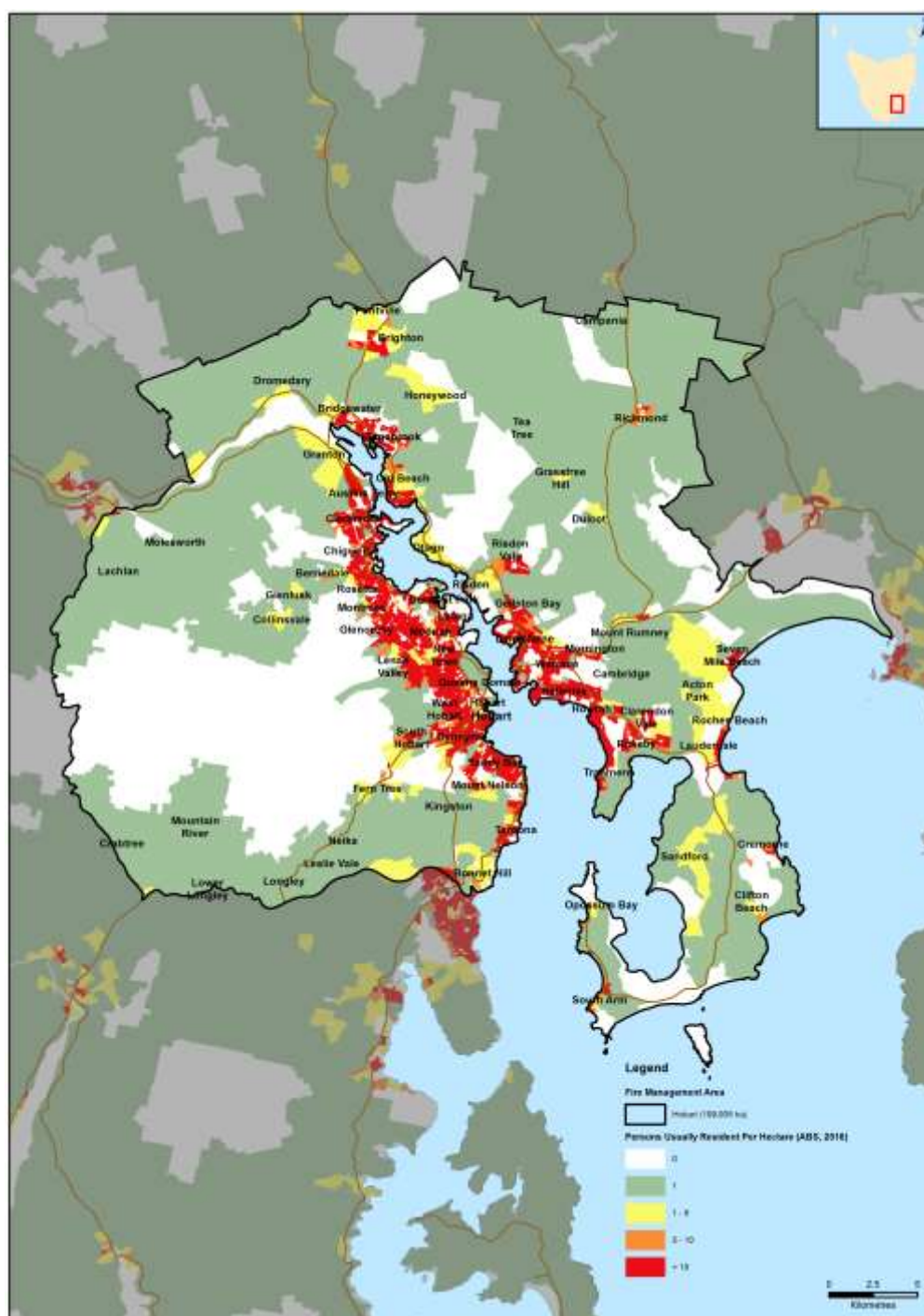


Figure 2.6 Map of population density in the HFMA

Chapter 3 Bushfire History

3.1 Black Tuesday Bushfires (7 February 1967)

On 7 February 1967. A total of 110 separate fire fronts burnt through some 2,640 square kilometres of land in Southern Tasmania within the space of five hours. A large part of the Hobart FMA was affected by the Black Tuesday bushfires.

In total, the fires claimed 62 lives in a single day. Property loss was also extensive with 1293 homes and over 1700 other buildings destroyed. The fires destroyed 80 bridges, 4800 sections of power lines, 1500 motor vehicles and over 100 other structures. It was estimated that at least 62,000 farm animals were killed. The total damage amounted to \$40,000,000 in 1967 Australian dollar values.

3.2 Bushfire Frequency

Fire frequency is defined as the total number of fires that occurred in the same area. Figure 2.7 shows areas known to have been affected by fire (including prescribed burns) in the HFMA since the 1967 bushfires based on records provided by the Tasmania Fire Service, local government, Wellington Park Management Trust, Parks and Wildlife Service and other sources. However, the records are incomplete and do not include burning carried out by private landowners. The figure therefore substantially underestimates the area burnt and frequency of burning.

3.4 Fire Ignition Cause

The true causes of fire, either through ignition by lightning or caused by human actions have not been well documented prior to 1990. Table 2.2 give a summary of ignition causes based on available data since 1967.

Ignition source	Percentage of ignitions (%)
Unknown	44
Arson	29
Undetermined	9
Recreation	8
Escape	3
Other	7

Table 2.2 Summary of ignition sources

Figure 2.8 shows the area burnt by fires started by different causes since 1967.

The number of bushfires in the HFMA started by non-human related causes is very low. This indicates that a significant reduction in the risk of fires starting can be achieved through public education and vigilance.

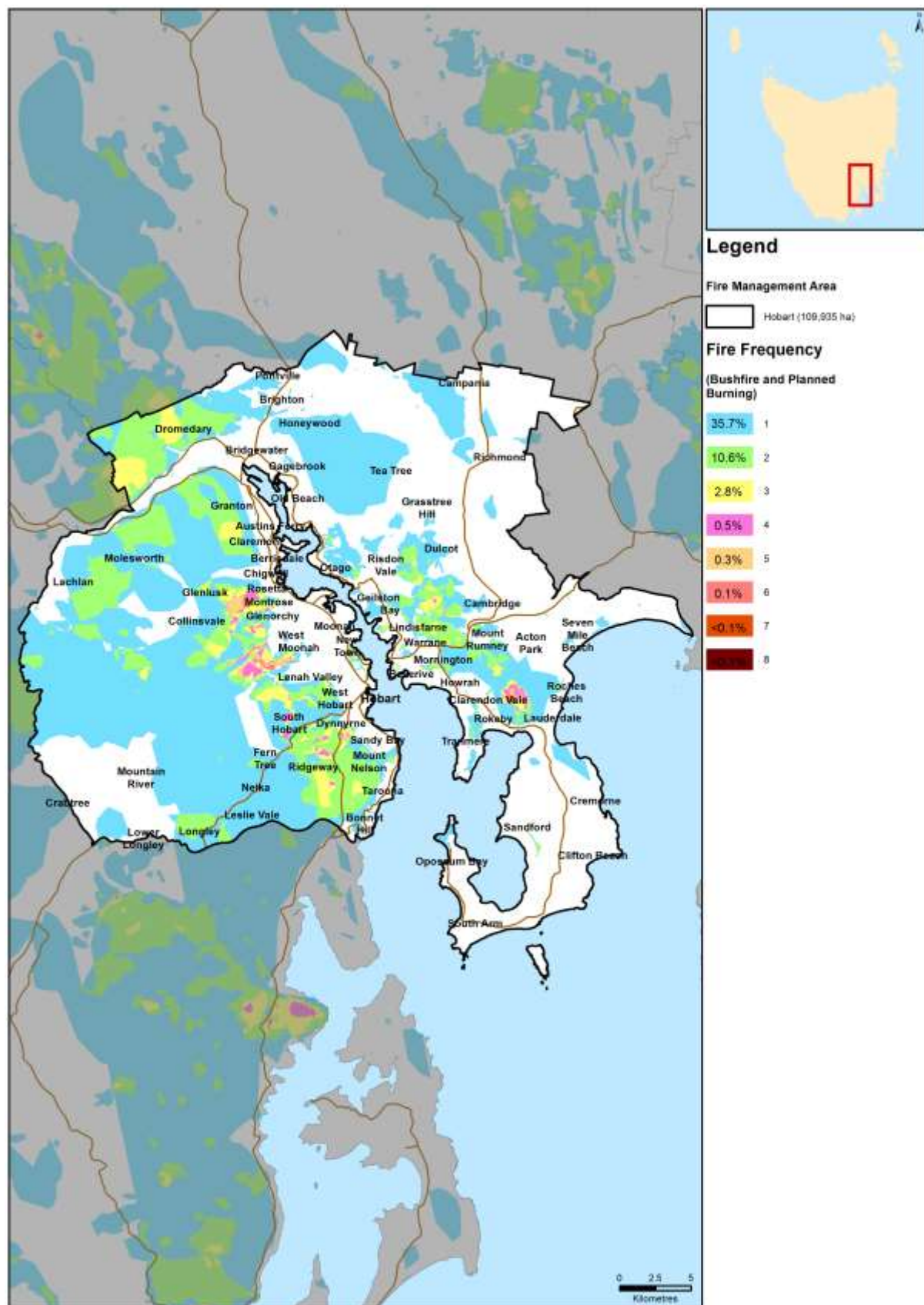


Figure 2.7 Fire Frequency

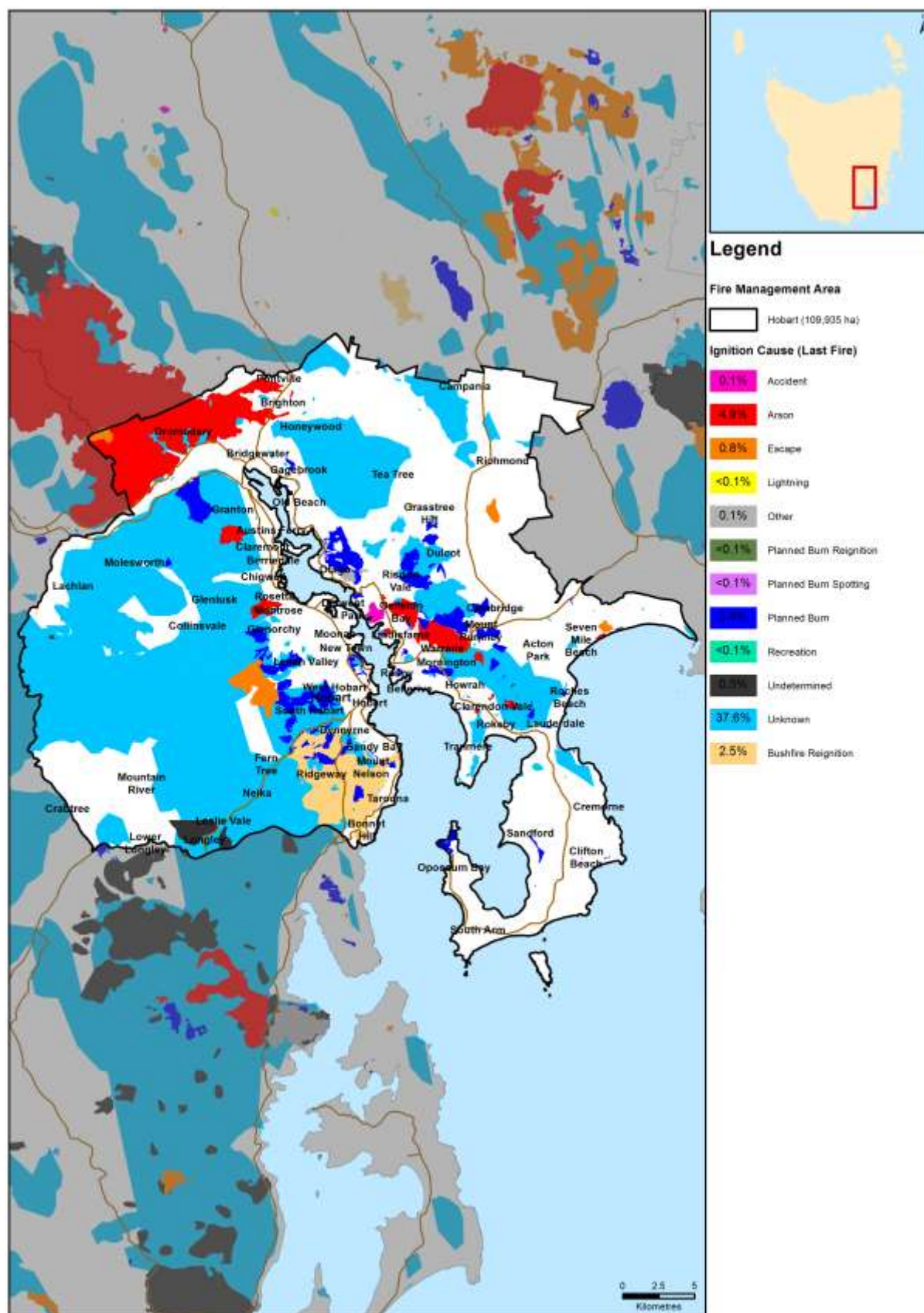


Figure 2.8 Analysis of Fire Causes

3.5 Existing Bushfire Management Plans

Over the last 15 years a number of land owners and management agencies within the HFMA have prepared fire management plans and strategies for the land under their control. More recently the TFS Bushfire Planning and Policy Unit has prepared tenure blind Community Bushfire Mitigation Plans for high risk areas that did not have existing plans. Existing plans are listed in **Appendix 2**. Some of these strategies and plans are being actively implemented, some have been partially implemented and others have not yet been implemented, sometimes due to a lack of resources or there being no obvious agency or person to take responsibility.

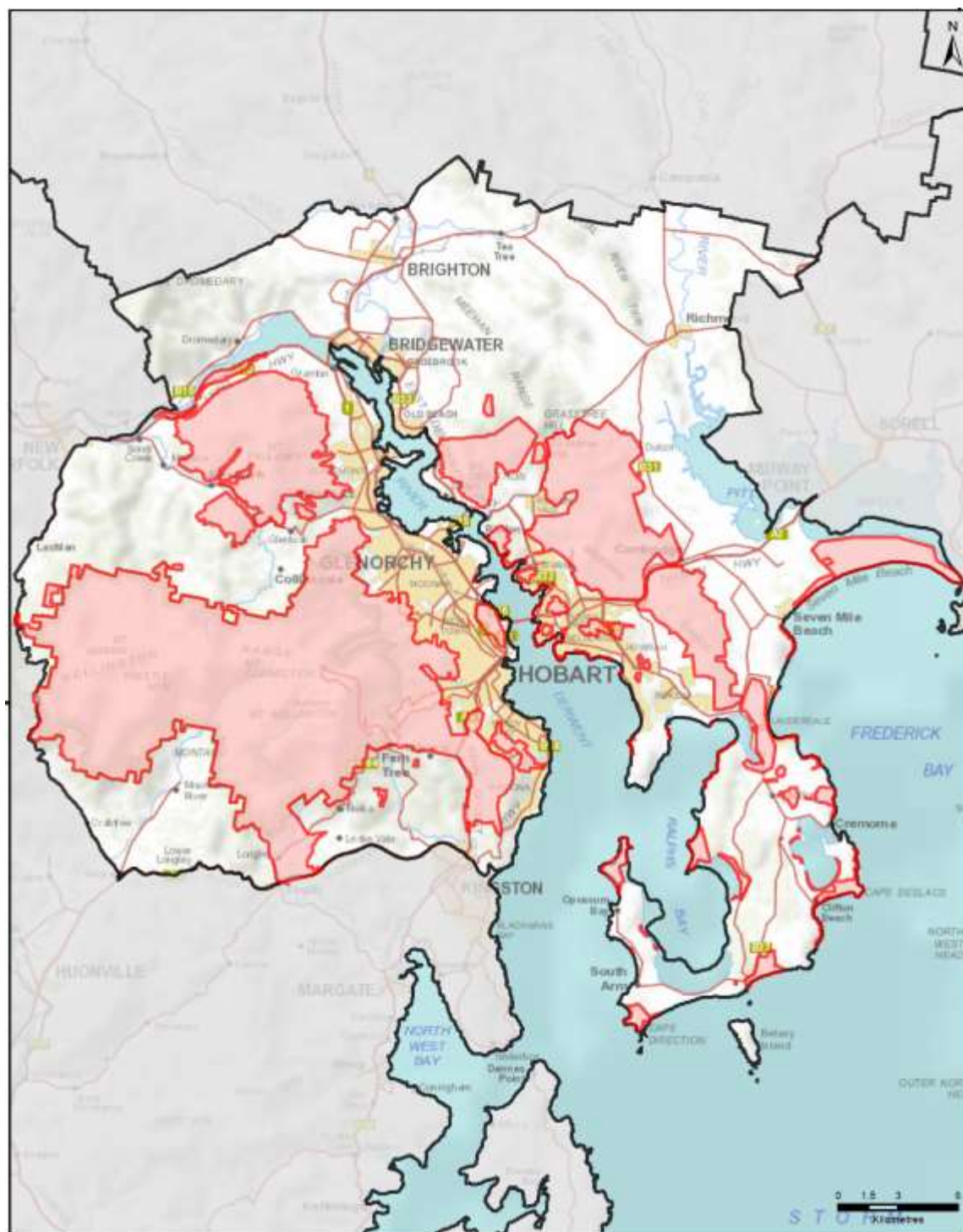


Figure 2.7 Areas of the HFMA currently under some form of fire risk management plan

Chapter 4 Analysing and Evaluating Bushfire Risk

4.1 Analysing Bushfire Risk

Following the Australian Standard of risk assessment (ISO 3100) bushfire risk has been considered spatially, assessing a combination of likelihood and consequence (PWS 2011). The Bushfire Risk Assessment Model (BRAM), data run of 24 March 2016 was used to give a preliminary indication of landscape level risk for this plan. For details on the operation of the model, see **Appendix 5**.

To determine overall risk the NERAG (National Emergency Risk Assessment Guidelines August 2009) document (see **Appendix 6**) was used. The level of risk is determined by combining consequences and likelihood.

It must be noted that the BRAM and therefore the consequences, likelihood and risk outputs are based on available spatial data. The analysis has been undertaken on a statewide basis, and maps are presented as complete for Tasmania. There are however gaps in the data inside and outside areas of public land. This includes fire history information, particularly on private land, which contributes to ignition potential information (likelihood), and many of the agricultural values have not been well captured (consequence). Notwithstanding these limitations, and where the inputs are accurate, the model can provide an objective spatial analysis of bushfire risk in a landscape.

4.2 Likelihood and Consequence

Likelihood is defined as a qualitative method to assess the likelihood rating to the consequences occurring. The likelihood of an event was generated by the average combinations of the output generated from the following spatial information: ignition potential, suppression capabilities and fire behaviour potential, followed by assigning these output values to categories in a likelihood matrix. This is taken to mean the likelihood of a fire occurring in a specific area which surpasses the ability of the fire agencies to contain within the first 24 hours.

Consequences are defined as a qualitative rating of damage from fire to values. The consequences were taken directly from the output generated through the Values at Risk spatial layer output.

4.3 Overall Risk

A representation of risk (see **Appendix 6**) is developed when the factors of likelihood and consequence are combined. The generated output map of risk shows qualitative areas of risk, not areas of perceived risk.

The model assists in objectively defining areas where genuine risk is present. In-depth analysis will indicate what factor is driving the risk for a given area, and thus guide the determination of appropriate risk management techniques.

4.4 Risk Analysis for the Hobart Fire Management Area

The BRAM bushfire risk model, discussed above, was used to examine risk across the HFMA. The preliminary results of this risk analysis are shown in Figure 3.1. Some members of the Hobart FMAC noted anomalies in the bushfire risk output shown in Figure 3.1 and these will be investigated and, if necessary, corrected during further development of the plan.

The Phoenix Rapidfire software package (a bushfire simulator developed by Kevin Tolhurst and Derek Chong at the University of Melbourne) was used to model the risk of fires impacting on communities present in the HFMA. This modelling was done as part of the state wide strategic fuel management assessment. The process involved modelling potential ignition points, incorporating severe fire weather components and examining fire behaviour based on current fuel loads to identify the potential impact on human settlement areas. Figure 3.2 shows a preliminary analysis of potential ignition points that may impact on communities in the HFMA with areas (ha) of impact under current fuel loads. For each ignition point the model was run for a period of 10 hours, and assumes that there is no intervention to control the bushfire.

An understanding of where the fires that are likely to impact on communities originate is crucial. It must be understood that such analysis has many limitations but does provide an indication of which communities may be at risk as well as identifying areas where strategic burning will assist in changing fire behaviour.

Strategic fuel reduction burning is one treatment to reduce risk to communities throughout the HFMA. However, not all vegetation and land use types are treatable through burning. Figure 3.3 shows treatability of fuels through broad –area fuel reduction burning in the HFMA. In summary, 41% of fuels are treatable by burning, while 54% are untreatable, the remaining 5% being water bodies. Note that figure 3.3 is a preliminary assessment that requires refinement, for example, urban areas have been shown as “untreatable fuel”. These areas will be removed from the final map when an assessment of bushfire prone areas within the Hobart FMA is completed.

The distinction between treatable and untreatable fuel was determined by considering the TASVEG flammability attributes and gives only a general indication of suitability. At an operational level the distinction between treatable and untreatable fuels will need to be determined in the field. It should be noted that fuels that are not considered treatable by large burns may be treatable by smaller planned burns and other methods of fuel reduction, (such as slashing or mulching, and mechanical thinning and pile burning) particularly close to settlements and other assets at risk. These areas will be identified through site inspections and considered a high priority for the establishment of protective fuel breaks where they adjoin residential areas.

The untreatable portion (54% of the area) includes agricultural land. This is primarily because whilst agricultural land will burn, it is not generally targeted for fuel reduction burning as the risk can be seasonally variable and managed by other means. It is likely that the dryland agricultural land through the region does contain areas of grasslands that are treatable through burning, however current TASVEG mapping does not break the agricultural land mapping unit into different categories. Land use mapping may be incorporated into future risk analyses as data become available allowing refinement of this category.

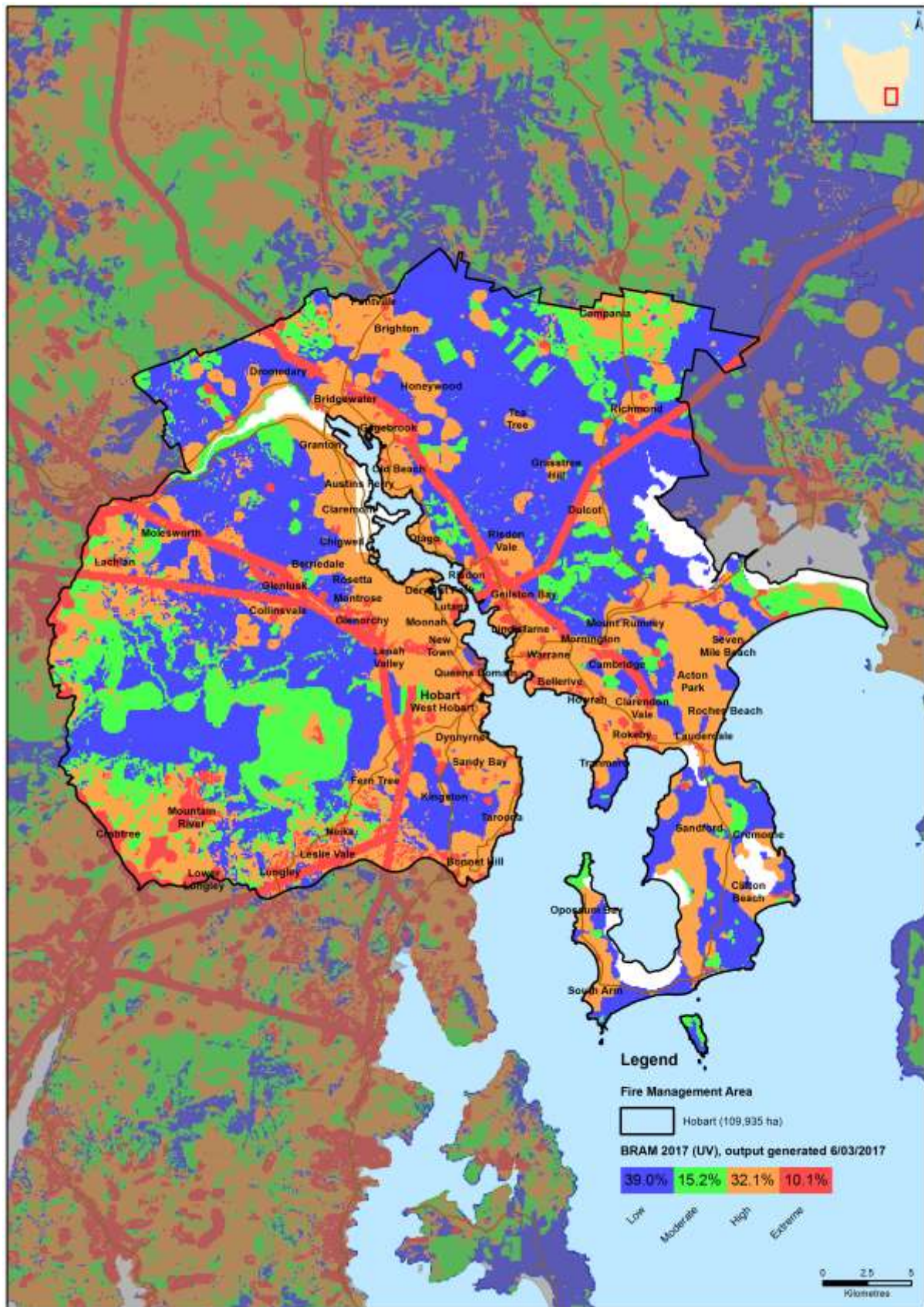


Figure 3.1: Preliminary BRAM output for the Hobart FMAC

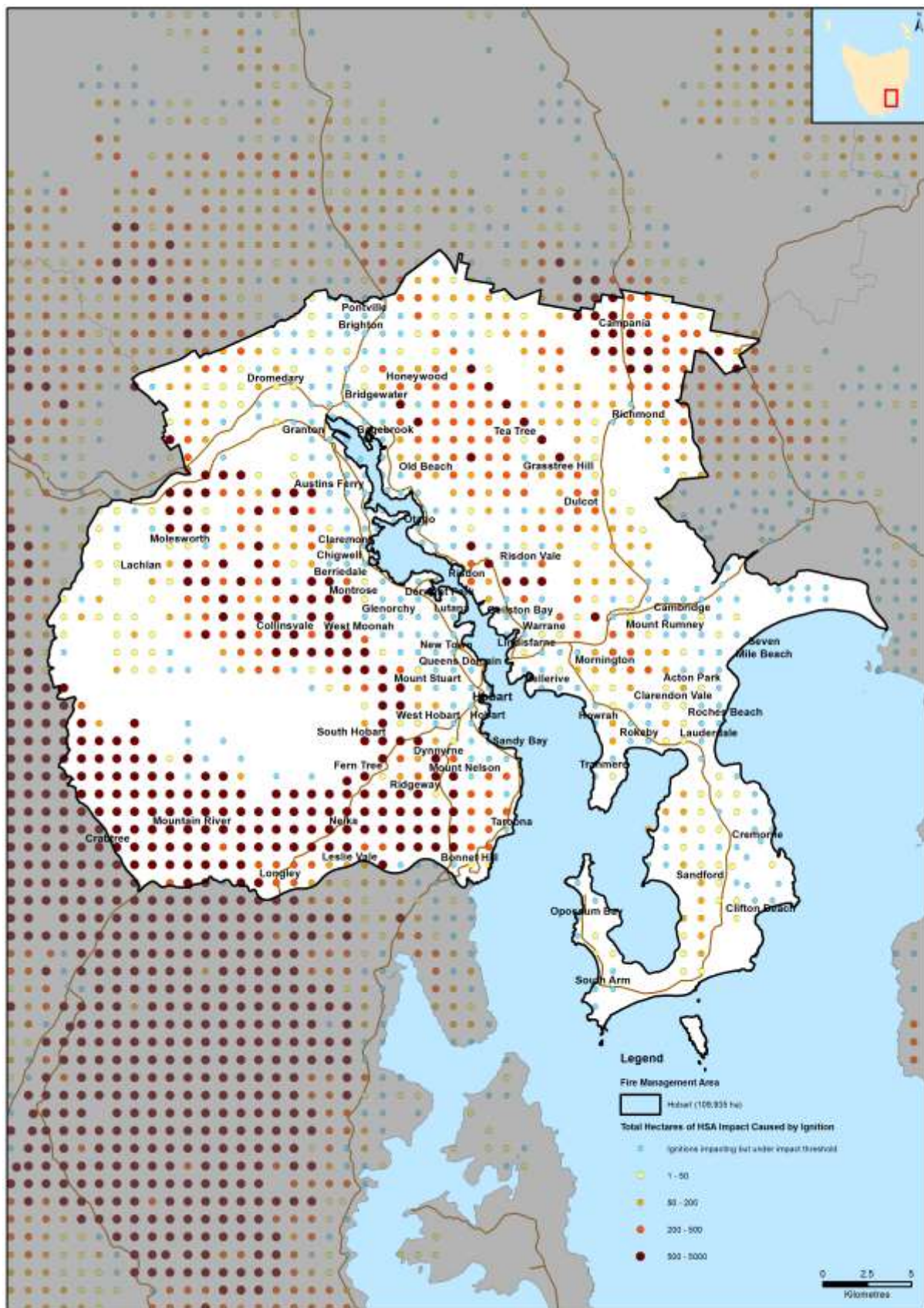


Figure 3.2: Preliminary analysis of potential ignition points that may impact on communities in the HFMA with areas (ha) of impact under current fuel loads, using the Phoenix Rapidfire simulation model

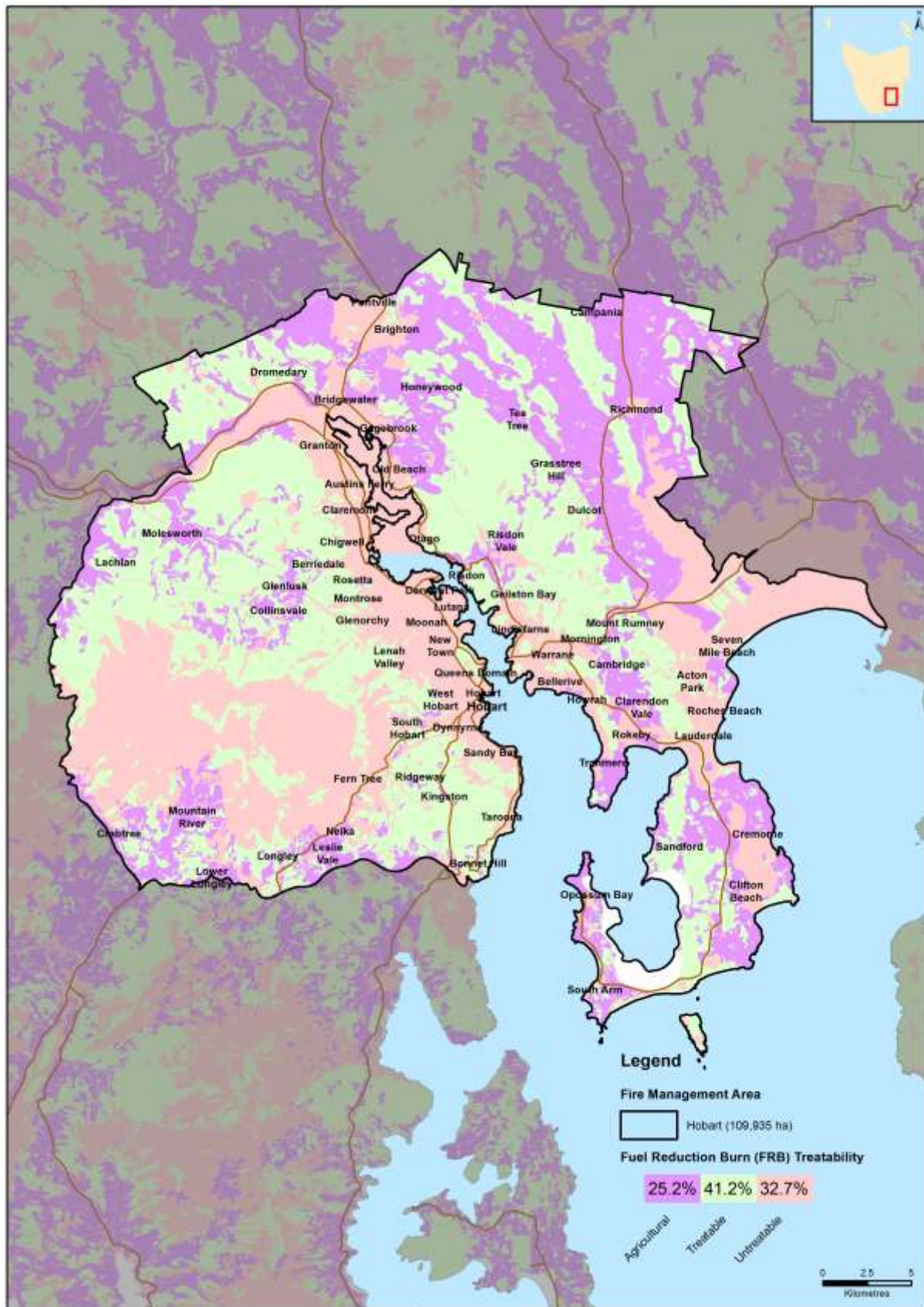


Figure 3.3: Preliminary analysis of treatability of fuels through fuel reduction burning in the HFMA

Chapter 5 Bushfire Risk Treatment

5.1 General Risk Reduction Methods

The following controls are currently in place across the Hobart FMA to assist in the strategic management of bushfire related risk:

- Legislative controls – including abatements, fire restrictions etc.;
- Public education campaigns and the use of TFS and SFMC state-wide programs tailored to suit local needs; (e.g. Private land burning; Community Protection Planning; Bushfire Ready Neighbourhoods);
- State-wide arson prevention programs developed in conjunction with TAS Police and TFS;
- Setting of appropriate land subdivision and building standards in line with the Bushfire Prone Areas Code and building regulations;
- Performance monitoring and reporting of FPP outcomes to the relevant Emergency Management Council and State Fire Management Council as required by the Tasmanian Emergency Management Plan and the Fire Service Act;
- Bushfire management strategies developed and implemented by Hobart City Council, Clarence City Council, Wellington Park Management Trust, Department of Defence, Glenorchy City Council and the University of Tasmania.

The means of implementing the bushfire risk reduction strategies in section 1.3 are summarised as:

- Increasing the resistance of built and other assets to bushfire attack;
- Fuel management – Treatments include the reduction / modification of bushfire fuels through manual, chemical and prescribed burning methods;
- Ignition management - Treatments aim to reduce the occurrence of human induced ignitions in the landscape and reduce the risk of fires spreading out of control;
- Preparedness – Treatments focus on providing suitable access and water supply arrangements that will assist with firefighting operations;
- Planning – Treatments relate to the development of plans that will improve the ability of firefighters and the community to respond to bushfire; and
- Community Engagement and education – Treatments seek to build relationships, raise awareness and change behaviours relating to the management of bushfire related risks within the community.

These have been grouped into 7 broad treatment goals:

1. Reduce the Incidence and severity of bushfires
2. Reduce the bushfire risk to persons
3. Reduce the Bushfire risk to built assets
4. Reduce the bushfire risk to critical infrastructure
5. Reduce the bushfire risk to cultural heritage values
6. Reduce the bushfire risk to natural heritage values
7. Reduce the bushfire risk to primary production.

The 7 treatment goals provide a comprehensive framework for overall bushfire risk reduction. The current status of these 7 goals and the actions recommended to achieve them is summarised in **Appendix 1**.

Within the HFMA, the Parks and Wildlife Service, Tasmania Fire Service and Norske Skög have the capability to plan and carry out planned burns. Clarence and Hobart Councils also have this capability and both have active burning programs. Glenorchy City Council is developing a five year burn program.

5.2 Treatment Selection and Priorities

The determination of priorities and potential treatment methods is currently based largely on the results produced by BRAM and Phoenix Rapid fire modelling, augmented with the knowledge and expertise of the committee members. The plan aims to improve this through systematic field investigations or fine-scale modelling when resources become available.

5.3 Treatment Completed during 2017

The following areas were hazard reduced during 2017 by the Fuel Reduction Unit of the TFS, PWS, Hobart and Clarence Council's or other agencies. The location of the burns is shown of figure 4.1.

Location	Land Tenure	fmu_name	Area (ha)	Date Completed
Waverley Flora Park	CCC	Waverley Flora Park VMU 14	1	Apr-17
Gellibrand Drive	CCC	Mortimer Bay 13	4	Apr-17
Waverley Flora Park	CCC	Waverley Flora Park 11	2	May-17
Waverley Flora Park	CCC	Waverley Flora Park 26	3	May-17
Mount Nelson	HCC	Lambert Skyline Ls15	6	Oct-17
Queens Domain	HCC	Queens Domain 5, Queens Domain 7	11	May-17
Lenah Valley North	HCC	Wellington Park 26, Wellington Park 29	28	Apr-17
Porter Hill	HCC	Porter Hill 11, Porter Hill 14, Porter Hill 15	16	Apr-17
Knocklofty	HCC	Knocklofty, McRobies Gully KR17 B	4	Apr-17
Queens Domain	HCC	Queens Domain 8	6	May-17
Meehan Range	PWS	Simmons Hill	95	Jun-17
Risdon	PWS	Porter Bay	46	Apr-17
Mount Direction	PWS	Direction Drive	74	Mar-17
Sugarloaf Hill, Risdon Vale	Private	Hyden Rd	5	Mar-17
UTAS	UTAS	Olinda Grove	10	Apr-17
The Lea	Private	Colonels Creek	62	May-17
South Arm	Private	Mt Mather	25	Oct-17
Huon Rd, Fern Tree	Private	Huon Road	11	Apr-17
Jordan River, Gagebrook	Private	Sattler Street	31	Mar-17
Littlejohn Ck, Glenorchy	WPMT	Wellington Park 1	90	Apr-17
Fisher Drive, Gagebrook	Private	Fisher Drive	4	Mar-17
South Arm	Private	Lazenby South Arm	42	May-17
Knocklofty	Private	Ross Rivulet	4	Apr-17

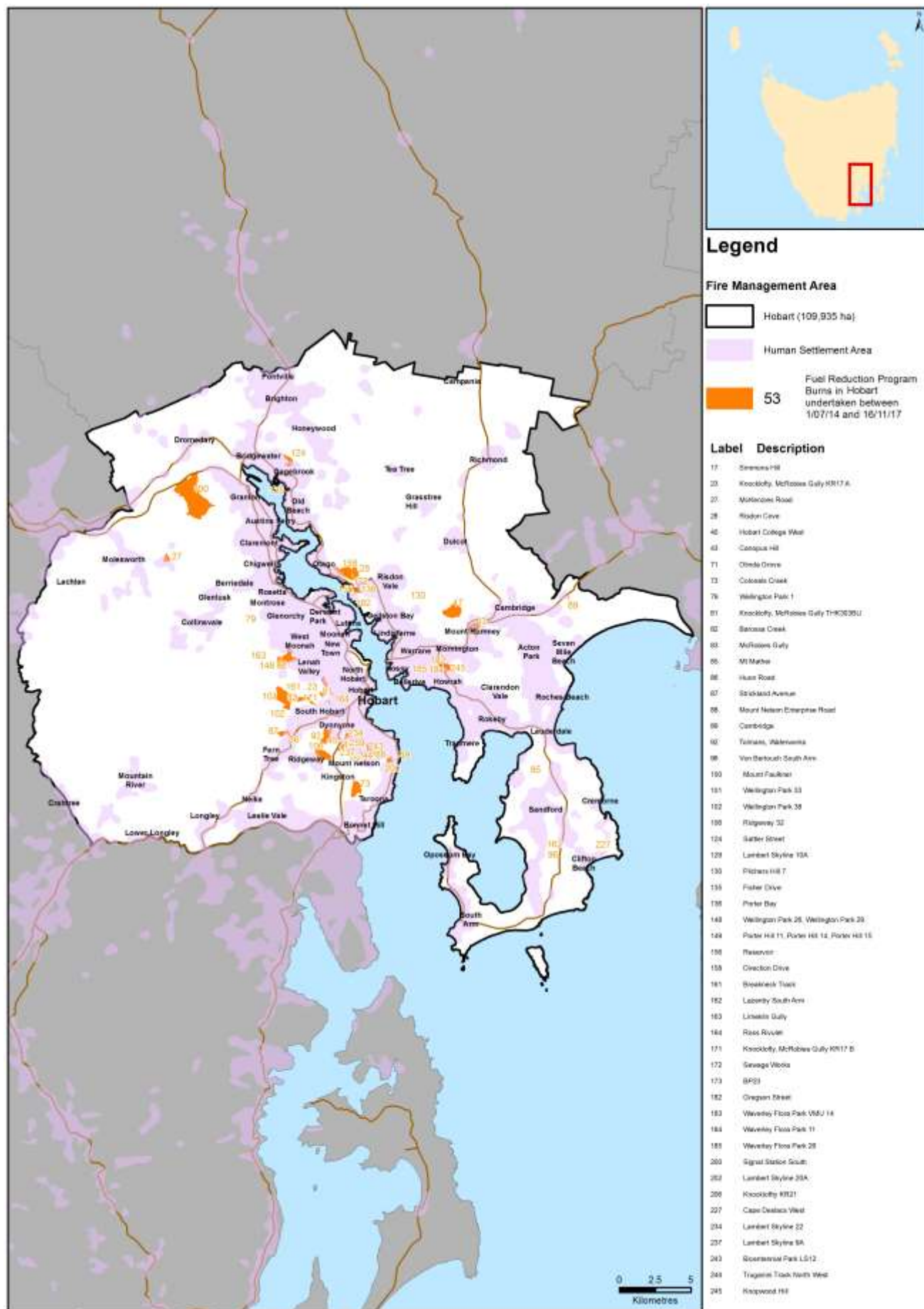


Figure 4.1 Areas burnt to November 2017

5.4 Community Assessment

Strategic assessment tools have been used to conduct a preliminary assessment across the Hobart FMA to identify areas of extensive bushland where relatively high intensity bushfires could occur and where, due to more rugged terrain, they are likely to be more difficult to control. These areas are shown on figures 4.2.

Potential burn areas that are relatively well understood to be high-risk

These areas are shown in figure 4.2 as purple circles

- 39. The Albion Heights/Bonnet Hill/Firthside areas
- 40. Dulcot
- 41. The Gellibrand Drive/Dorans Hill Rd Sandford
- 42. Goat Hills
- 43. Government Hills
- 45 Huon Rd/ Turnip Fields
- 46. Lachlan area
- 47. The Meehan Range from Quoin Ridge to Lauderdale, particularly the Mount Rumney/Mount Canopus area
- 49. Mount Dromedary
- 50. Mount Faulkner/Big Rocky area
- 51. The Mount Nelson/Tolmans Hill/The Lea areas
- 52. Pottery Rd/Fossil Hills
- 53. The Ridgeway and Summerleas Road areas
- 54. Rokeby Hills/Acton
- 55. The Wellington Range, particularly the eastern slopes of kunanyi / Mount Wellington
- 56. Leslie Vale/Longley area

Potential burn areas requiring more detailed investigations

Communities within and bordering these areas are likely to be subjected to high intensity fires at some time in the future. Further analysis will be required to determine the appropriate bushfire risk reduction measures for individual communities.

- 38. Albion Heights West
- 48. Molesworth/Collinsvale/Glenlusk area
- 44. The Airport and immediate surrounds

A number of communities already have specific plans in place, these are summarised in **Appendix 2**.

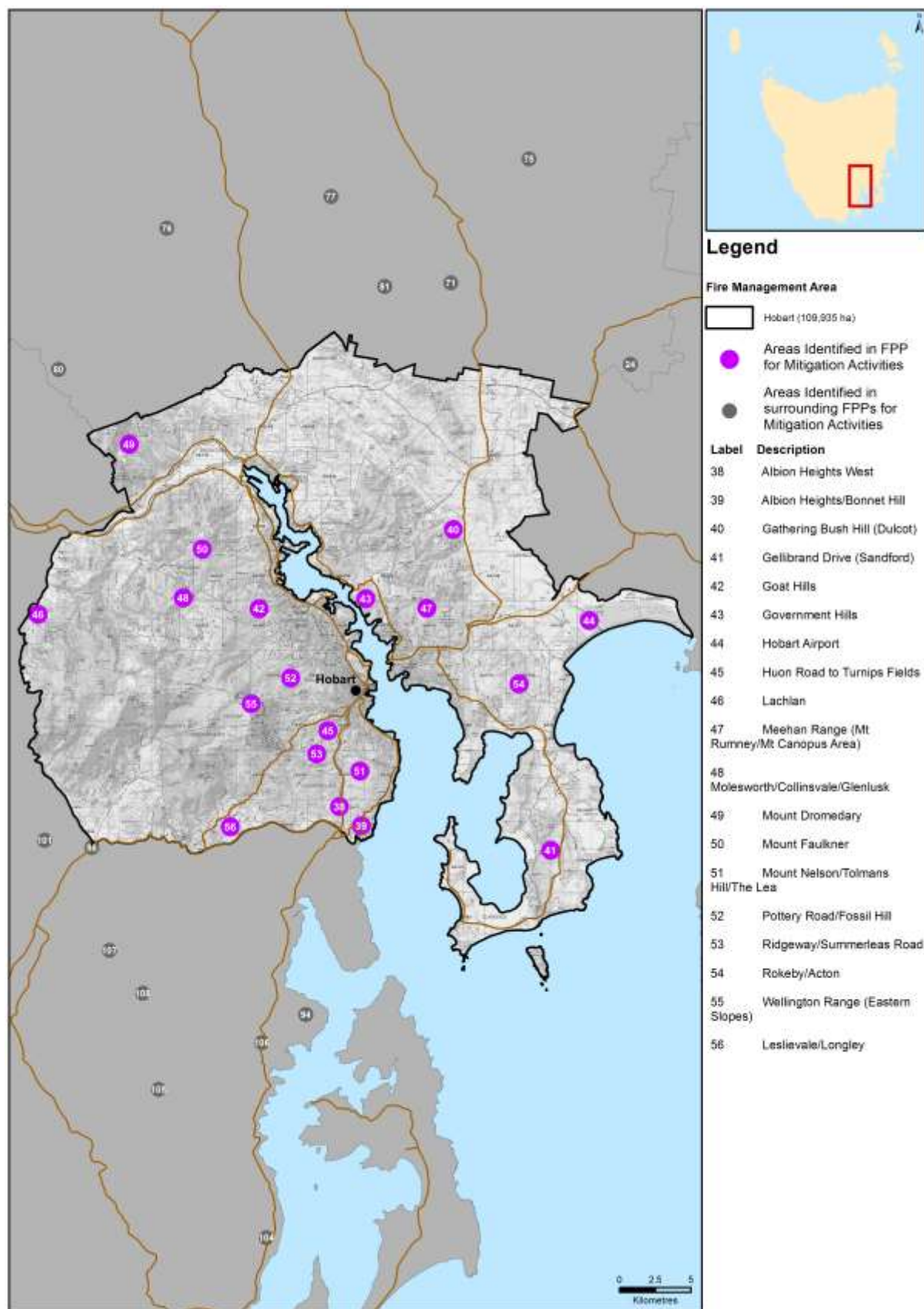


Figure 4.2 Priority Areas

5.5 Strategic Fire Trails

Currently identified strategic fire trails within the Hobart FMA and their condition are shown in **Appendix 3**.

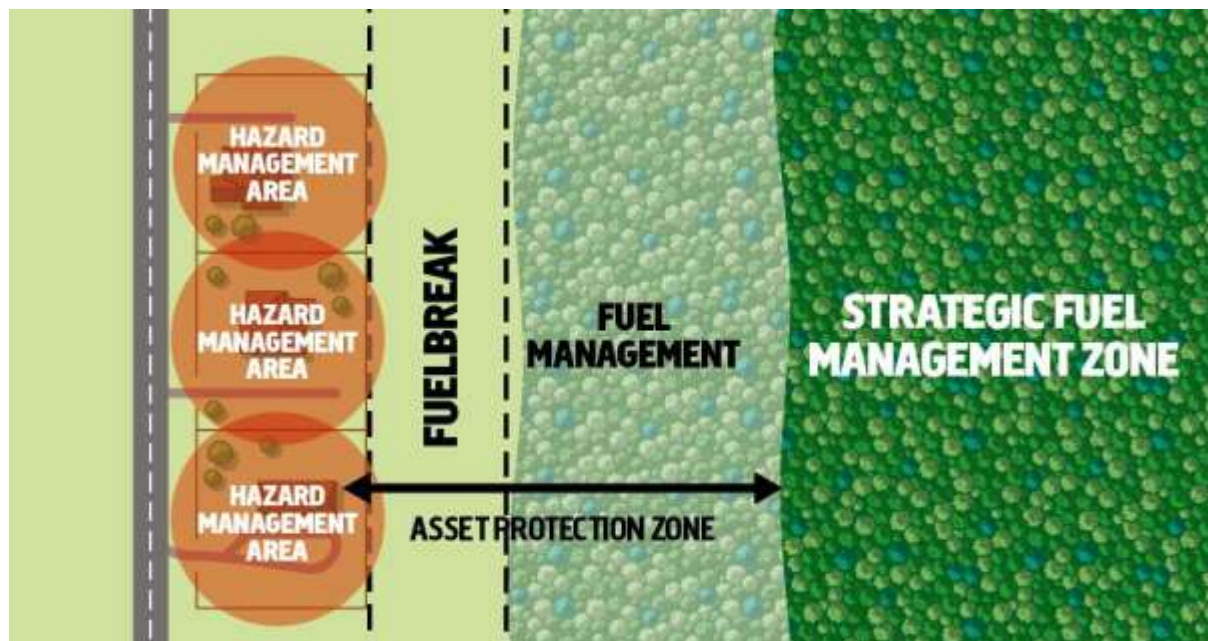
Strategic fire trails are those that provide important access routes for fire fighting, through or along the perimeter of bushland areas, and are potential control lines for major fires. These trails need to be maintained to a standard that allows for all weather vehicle access by fire fighting vehicles. This will generally be Class 3 in the PWS fire trail classification system. Fire Trails that are currently substandard should be upgraded to at least Class 5.

5.6 Strategic Fuel Breaks

These are natural or man-made changes in fuel characteristics which affect fire behaviour so that fires burning into them can be more readily controlled. The Draft Fuel Break Guidelines (TFS, 2016) states that: “in the urban-rural interface, a fuel break is an area or strip of land where bushfire fuel continuity has been substantially altered through the strategic removal or modification of vegetation”. The fuel modification is generally carried out and the breaks maintained by mechanical and/or manual removal of fuel rather than burning. Firebreaks are a specific type of fuel break where all vegetation is removed. Fuel breaks provide access along the urban/bushland perimeter and should, where possible include a fire trail.

They increase the separation between built assets and the bushfire hazard and may complement Hazard Management Areas on private property. Fuel breaks facilitate fire fighting operations such as back burning and direct attack and may provide control lines for planned burns.

The Draft Fuel Break Guidelines (TFS, 2016) defines 2 classes of fuel break:



Management Fuel Breaks form part of a broader Asset Protection Zone and need to be complimented by other fuel management treatments to provide sufficient protection to life and property during bushfires. Their main performance criteria is that the radiant heat impacting on a structure on one side of the fuel break during back burning or planned burning of the vegetation of the other side of the break will be less than 12.5 kilowatts per square metre (kW/m²).

Protective Fuel Breaks provide protection to life and property on the urban-rural interface in situations where it is unfeasible or undesirable to implement broader-scale fuel management works within proximity to the interface. They will be wider than a Management Fuel Break in the same location. Their main performance criteria is that the radiant heat impacting on a structure on one side of the fuel break during a bushfire burning in the vegetation in the other side of the break in conditions up to a Fire Danger Index (FDI) of 50 (Severe Fire Danger Rating) will be less than 12.5 kilowatts per square metre (kW/m²).

As the HFMA regularly experiences FDIs greater than 50, there is a strong case for using a higher FDI to determine what an adequate width is for Protective Fuel Breaks in the HFMA. In high risk areas it is recommended that an FDI of 100 (Catastrophic Fire Danger Rating) is used.

Both Hobart and Clarence Councils maintain a network of fuel breaks between their larger bushland reserves and surrounding urban areas. The University of Tasmania similarly maintains fuel breaks around its bushland reserve on Mount Nelson.

The strategic fuel breaks in the Hobart FMA are shown in **Appendix 4**. At present Appendix 4 only includes fuel breaks on public land.

5.9 TFS Community Fire Safety Programs

Community Education- Bushfire-Ready Neighbourhoods Program and Bushfire Policy and Planning- Community Protection Planning have the following plans for the Hobart FMA:

TFS Community Bushfire Protection Plans

FMAC	Bushfire Protection Plan	Date
Hobart	Bonnet Hill	November 2012
Hobart	Collinsvale Area	March 2013
Hobart	Dulcot	March 2013
Hobart	Fern Tree	March 2013
Hobart	Glenorchy/Lenah Valley Area	October 2014
Hobart	Granton/Berridale Area	October 2014
Hobart	Lachlan Area	October 2013
Hobart	Molesworth Area	March 2013
Hobart	Mt Nelson/Tolmans Hill	March 2013
Hobart	Mount Rumney Area	March 2013
Hobart	Neika/Leslie Vale	March 2013
Hobart	Ridgeway	March 2013
Hobart	Risdon Vale Area	October 2015
Hobart	South Hobart	March 2013
Hobart	Summerleas	March 2013
Hobart	Taroona Area	November 2012
Hobart	The Lea	November 2012
Hobart	Sandford	September 2017
<i>Hobart</i>	<i>Lauderdale</i>	<i>2018</i>

TFS Community Bushfire Response Plans

FMAC	Bushfire Response Plan	Date
Hobart	Bonnet Hill	December 2012
Hobart	Collinsvale Area	March 2012
Hobart	Dulcote	March 2012
Hobart	Fern Tree	February 2012
Hobart	Glenorchy/Lenah Valley Area	October 2014
Hobart	Granton/Berridale Area	August 2014
Hobart	Lachlan Area	July 2013
Hobart	Molesworth Area	March 2012
Hobart	Mt Nelson/Tolmans Hill	March 2012
Hobart	Mount Rumney Area	March 2012
Hobart	Neika/Leslie Vale	March 2012
Hobart	Ridgeway	March 2012
Hobart	Risdon Vale	April 2016
Hobart	South Hobart	March 2012
Hobart	Summerleas	February 2012
Hobart	Taroona Area	December 2012
Hobart	The Lea	November 2012
Hobart	Margate	July 2015
Hobart	Sandfly/Longley	October 2015
Hobart	Sandford	September 2017
Hobart	Lauderdale	2018

Community Bushfire Mitigation Plans

FMAC	Bushfire Mitigation Plan	Date
Hobart	Lenah Valley South	May 2015
Hobart	Mt Nelson/The Lea	August 2014
Hobart	Mt Nelson/The Lea Stage 2	January 2016
Hobart	Sandfly/Longley	August 2016
Hobart	Glenorchy South	January 2016
Hobart	UTAS	December 2016

5.10 Implementation

When the bushfire risk reduction measures identified in this plan are implemented there are a number of issues that need to be considered by the responsible agency including environmental and social impacts, risk assessments, coordination with other management activities, setting up any required monitoring. Any planned burns will require burn plans and consideration of smoke impacts on health and viticulture. Community education has an important role in preparing the public for bushfire mitigation.

5.11 Community Engagement and Education

Bushfire-Ready Neighbourhoods Program - Tasmanian Fire Service

- A Community Development Coordinator and regionally based Community Development Officers (Hobart, Launceston and Burnie) have identified 22 communities/areas state-wide which are being targeted by the Bushfire-ready neighbourhoods program as part of round 2 (2016 to 2018) of the program. The program takes a community development ('grass roots') approach and recognises that there isn't a one size fits all approach to bushfire preparedness, highlighting that 'we all play a part' (individuals, TFS, communities). Specifically the program takes a community led approach providing local community members in higher bushfire risk areas community engagement activities for preparing for and preventing bushfire/s. The program is facilitated by accessing existing community networks and resources and developing localised strategies in bushfire preparedness. Some of the planned community engagement activities include; community forums, information sessions for communities and brigades alike, workshops, property assessments, field days, focussed group activities and establishment of

Bushfire-ready neighbourhood groups.

- Round two communities 2016-2018 in the Hobart FMAC are Sandford/South Arm.
- For more information about the Bushfire-Ready Neighbourhoods Program visit: fire.tas.gov.au/brn. As well as the targeted communities of round 2 BRN engages in adhoc bushfire education activities in communities partnering with stakeholders (brigades, council, community groups).

Chapter 6 Monitoring and Review

Monitoring and review processes are required to ensure that the plan remains current and valid.

6.1 Review

This plan is subject to an annual review of at least chapters 4 and 5, and a comprehensive review every five (5) years from the date of approval of the entire plan and appendices, unless significant circumstances exist to warrant earlier review. This would include:

- Changes to the FPP area, organisational responsibilities or legislation;
- Changes to the bushfire risk in the area; or
- Following a major fire event.

6.2 Monitoring and Reporting

Progression towards completion of the treatments will be monitored and reviewed at least every six (6) months.

References

- Australian Standard 3959 - 2009 *Construction of Buildings in Bushfire-prone Areas*. Standards Australia, Sydney.
- Hines F., Tolhurst K. G., Wilson A. A. G and McCarthy G. J. (2010) *Overall Fuel Hazard Assessment Guide 4th Edition*. Fire Research Report 82, Department of Sustainability and Environment. Melbourne.
- Interim Planning Directive No 1, Bushfire-Prone Areas Code. Tasmanian Planning Commission, Hobart.
- National Emergency Risk Assessment Guidelines. National Emergency Management Committee (2010), Tasmanian State Emergency Service, Hobart.
- Parks and Wildlife Service (unpublished). Bushfire Risk Assessment Model Project Business Process Model (2008). Department of Primary Industries, Parks, Water and Environment, Hobart.
- Parks and Wildlife Service (unpublished). Tasmanian Bushfire Risk User Guide (2010). Department of Primary Industries, Parks, Water and Environment, Hobart.
- Parks and Wildlife Service (unpublished). Tasmanian Bushfire Risk Assessment Model (2013). Department of Primary Industries, Parks, Water and Environment, Hobart.
- Tasmania Fire Service 2016, Fuel Break Guidelines, guidelines for the design of fuel breaks in the urban-rural interface (DRAFT). Tasmania Fire Service, Hobart

Appendices

Appendix 1 – Bushfire Risk Reduction Strategy Summary

Appendix 2 – Community Specific and General Bushfire Management Plans already in place

Appendix 3 – Strategic Fire Trails

Appendix 4 – Strategic Fuel Breaks

Appendix 5 - BRAM

Appendix 6 – NERAG risk assessment approach

Appendix 7 – Building Code of Australia Building Classes

Appendix 8 - Treatment schedule - annual works program

Appendix 1 - Bushfire Risk Reduction Strategy for Hobart FMAC

This strategy covers areas within the Hobart FMA classified as **Type 1 and Type 2 urban/rural interfaces in the Fuel Break Guidelines (TFS 2016)**.

Note that this table is still under development and the actions and responsibility sections are still being discussed by the Committee.

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
1. Reduce incidence and Severity of Bushfires				
a) Reduce Ignitions (bushfire prevention)	<ul style="list-style-type: none"> Assess main causes (malicious, escapes, lightning). Identify ignition hotspots Encourage public to report arsonists Reduce accidental ignitions 	<p>Adequate TFS and other agency data to analyse.</p> <p>Some programs to reduce ignitions in place such as the JFLIP.</p>	<ul style="list-style-type: none"> a) Reduce fuel loads around ignition hotspots b) Improve response to high ignition frequency areas c) Police high ignition areas on Total Fire Ban Days d) Prosecute arsonists e) General education about risks of escapes from burning off f) Slash roadside vegetation g) Maintain vegetation in power line easements h) Maintain electricity infrastructure 	<ul style="list-style-type: none"> TFS Agency/land managers Councils TasNetworks

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
b) Reduce risk of fires that do start spreading	<ul style="list-style-type: none"> Establish and maintain a strategic network of emergency vehicle access routes on public and private land Improve response by fire management agencies including aerial attack. Provide water supplies for fire fighting in more remote bushland areas. 	<p>Good trail network in some reserves but poor in others, trails on private land generally poorly known.</p> <p>List of strategic fire trails being developed – see appendix 3.</p>	<ul style="list-style-type: none"> a) Identify areas where existing trails need maintenance and new trails need to be constructed (tenure blind). b) Encourage and assist landowners to maintain important trails on private property. c) Provide standards for vehicle access constructions and procedures for inspection and maintenance. d) Provide funding for access routes of high importance irrespective of tenure. e) Maintain existing strategic water supply points and construct new ones along emergency vehicle access routes with inadequate supplies. 	<ul style="list-style-type: none"> Agency/land managers HFMAC SFMC

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
c) Reduce rate of spread and intensity of bushfires	General hazard reduction in bushland	<p>Established hazard management programs in Hobart and Clarence Council reserves, Wellington Park and on Defence land and PWS reserves</p> <p>Situation in reserves managed by other Councils and private land needs to be determined.</p> <p>Some major planned burn programs have not been fully implemented – Mt Faulkner, Meehan Range, Goat Hills</p> <p>Some bushland areas not covered by planned burn strategies.</p>	<p>a) Identify high hazard and strategic hazard management areas (eg around known high ignition frequency areas).</p> <p>b) Complete strategic bushfire risk management plans to identify likely ignition locations and fire paths to assist with prioritising bushfire risk reduction measures.</p> <p>c) Complete Bushfire Mitigation Plans for areas not already covered.</p> <p>d) Implement a tenure blind planned burning program in treatable vegetation.</p> <p>e) Determine treatment options for high risk vegetation that can't be burnt (grazing, slashing, manual thinning etc.)</p>	<ul style="list-style-type: none"> • TFS • PWS • STT • Local government • HFMAC

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
2. Bushfire risk to Persons				
a) Reduce bushfire risk to persons	Improve awareness – recognise risks, what to do in different types of bushfire emergency	Fairly well covered in TFS brochures, media campaigns and community engagement programs . E.g.. <ul style="list-style-type: none"> • TFS Women's Preparedness Program • Bushfire Ready Neighbourhoods Program • Bushfire Ready Schools Program. 	<ul style="list-style-type: none"> a) Prepare and distribute brochures and DVDs b) Provide personnel to talk at community meetings, schools etc. c) Publicise and encourage people to use official information channels including ABC local radio, TFS website, SMS, smartphone apps. d) Improve bushfire reporting and modelling so persons at risk can be given timely and appropriate information. e) Provide safety information to tourists visiting during the bushfire danger period (in accommodation, car rentals etc.) 	<ul style="list-style-type: none"> • TFS-BRN program • Agencies/Councils

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
	<ul style="list-style-type: none"> Ensure safe evacuation in an emergency 	<p>Good information provided during emergencies (high priority for the TFS).</p> <p>Neighbourhood safer places provided in some locations</p>	<p>a) Identify areas that are difficult/dangerous to evacuate due to access, high hazard levels etc.</p> <p>b) Improve evacuation from high risk areas by providing alternative routes and hazard reduction along existing routes.</p> <p>c) Provide residents with information on safer evacuation routes during bushfires.</p> <p>d) Identify facilities that will be difficult to evacuate (hospitals, schools, nursing homes, tourist accommodation etc) and prepare evacuation plans</p> <p>e) Reduce the bushfire risk around facilities that would be difficult to evacuate in case evacuation is not possible.</p> <p>f) Identify persons living in bushfire prone areas who can't self-evacuate and plan for assisted evacuation (get information from district nurses etc) or reduce the bushfire risk to their homes.</p> <p>g) Expand and publicise Neighbourhood Safer Places program.</p>	<ul style="list-style-type: none"> TFS CPP program Dept Education DHHS Property/facility owners
	<ul style="list-style-type: none"> Close parks and reserves during high bushfire risk weather 	<p>Being implemented in Wellington Park and HCC reserves.</p>	<p>a) Expand system to other parks and reserves in high bushfire risk areas.</p>	<ul style="list-style-type: none"> PWS/local government

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
3. Reduce Bushfire Risk to Built Assets				
a) Reduce bushfire risk to residential and other class 1 to 9 buildings	Ensure all new class 1 to 9 buildings in bushfire prone areas are constructed to AS3959 - 2009	Now mandatory in all interim and new planning schemes. Being adopted by all Councils in accordance with the bushfire prone areas code.	a) Encourage owners to maintain buildings constructed to AS 3959 – 2009.	<ul style="list-style-type: none"> • TFS • Tasmanian Planning Commission • Councils (planning sections) • Government agencies with built assets
	Retrofit older houses and other important buildings to AS3959 – 2009	Guidelines for retrofitting available from CFA. No program to encourage retrofitting private and commercial buildings in Tasmania. No program to retrofit public buildings.	a) Identify and target buildings in high risk areas b) Encourage owners to retrofit older buildings to AS3959 – 2009. c) Provide information on how to retrofit (CFA brochure). d) Provide on site advice or field days on retrofitting. e) Interest media in a reality type TV show on retrofitting. f) See if insurance companies will provide a lower insurance rate on retrofitted buildings as an incentive. g) Encourage the public sector to retrofit buildings under their management.	<ul style="list-style-type: none"> • TFS/HFMAC • Government agencies with built assets

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
	Building maintenance to reduce risk of ignition	<p>Private dwellings – Some general information available in TFS brochures, DVDs etc.</p> <p>Not known if maintenance to reduce risk of ignition is included in public building maintenance programs.</p>	<p>a) Identify and target buildings in high risk areas.</p> <p>b) Target building maintenance in pre fire season advertising campaigns</p> <p>c) Prepare more detailed information</p> <p>d) Provide on site advice and/or field days.</p> <p>e) Ensure bushfire protection maintenance (e.g. cleaning gutters) is included in the maintenance schedules of all public sector buildings in bushfire prone areas.</p>	<ul style="list-style-type: none"> • TFS • HFMAC • Local government • Government agencies with built assets

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
	Hazard Management Area (HMA) establishment and maintenance around all Class 1 to 9 buildings in bushfire prone areas	Mandatory for all new buildings in BPAs but unlikely to be checked after construction. Not mandatory for older buildings. Some general information in TFS brochures and on DVDs	<ul style="list-style-type: none"> a) Identify and target buildings in high risk areas. b) Establish a mechanism for ensuring HMAs around new buildings are inspected and maintained. c) Encourage owners of older buildings to establish and maintain a defensible space. d) Prepare more detailed information in brochures and on videos. e) Provide on site advice and/or field days on establishing and maintaining HMAs. f) Ensure HMAs are established around public sector buildings. g) Ensure that maintenance of HMAs is included in the maintenance schedules of all public sector buildings in bushfire prone areas. h) Provide landscape designers and gardeners with information on designing and maintaining low risk gardens and building landscaping. i) Encourage councils to assist residents to dispose of cleared vegetation e.g. free days at tips, green waste pickups at beginning of bushfire season. 	<ul style="list-style-type: none"> • Property owners and asset managers • TFS • Local government • Government agencies with built assets

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
	Establish and maintain fuel breaks in bushland bordering lots with buildings where there is insufficient space on the lot for an adequate Hazard Management Area.	TFS have draft guidelines for establishing and maintaining fuel breaks. Has generally been assessed and implemented on most Hobart and Clarence Council reserves, also on UTAS and Defence property. Situation in reserves managed by other councils and PWS needs to be determined Some implementation on privately owned bush blocks either voluntarily or via hazard abatement notices.	a) Assess need for fuel breaks in Type 1 interface areas, particularly in high risk areas, and encourage landowners/managers to implement. b) Issues permit infringement advice where landowners are not clearing and maintaining fuel breaks.	<ul style="list-style-type: none"> • TFS • Property owners/land management agencies • Local government (planning)
	Establish and maintain fire trails and vehicle accessible routes through fuel breaks on public land where terrain allows.	Has generally been assessed and implemented on most Hobart, Glenorchy and Clarence Council reserves, also on UTAS and Defence property. Situation in reserves managed by other councils and PWS needs to be determined	a) Set standard for emergency vehicle access through fuel breaks in Type 1 interface areas.	<ul style="list-style-type: none"> • TFS/SFMC

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
4. Reduce bushfire risk to critical infrastructure				
a) Reduce bushfire risk to electricity supply assets	<ul style="list-style-type: none"> • Transmission lines • Transformers • Substations 	Some areas known to be in good condition, but overall knowledge is patchy.	a) Maintain transmission line easements b) Replace wooden poles with non combustible in high risk areas c) Reduce bushfire hazard around critical points in the distribution network (substations, Goat Hills) d) Develop contingencies for power outages due to bushfires	<ul style="list-style-type: none"> • TasNetworks
b) Reduce bushfire risk to communication assets, particularly those used by the emergency services	<ul style="list-style-type: none"> • Radio • Telephone • Mobile phone • Television • Hydro 	Known sites: kunanyi / Mount Wellington Goat Hills Mount Faulkner Chimney Pot Hill Mt Nelson Mount Rumney Guy Fawkes Hill Sandford Radio monitoring station on northern Meehan Range	a) Identify critical infrastructure sites in high risk areas b) Increase resistance of infrastructure c) Reduce bushfire hazard around infrastructure (manual clearing, slashing, burning) d) Secure power supply (underground, replace wooden with steel or concrete poles) e) Develop contingencies	<ul style="list-style-type: none"> • Emergency Response agencies • Communications service providers

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
c) Reduce bushfire risk to drinking water supply	<ul style="list-style-type: none"> • Pumps (including power supply) • treatment works (note presence of hazardous chemicals) • 	To be determined	a) identify critical infrastructure sites in high risk areas b) Increase resistance of infrastructure c) Reduce bushfire hazard around infrastructure (manual clearing, slashing, burning) d) Secure power supply (underground, replace wooden with steel or concrete poles) e) Develop contingencies in case critical infrastructure is damaged by bushfire	<ul style="list-style-type: none"> • TasWater
d) Reduce bushfire risk to sewerage system and sewage treatment infrastructure	<ul style="list-style-type: none"> • Pumps (including power supply) • treatment works (note presence of hazardous chemicals) 	To be determined	a) identify critical infrastructure sites in high risk areas b) Increase resistance of infrastructure c) Reduce bushfire hazard around infrastructure (manual clearing, slashing, burning) d) Secure power supply (underground, replace wooden with steel or concrete poles) e) Develop contingencies in case critical infrastructure is damaged by bushfire	<ul style="list-style-type: none"> • TasWater

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
e) Reduce Bushfire risk to drinking water catchments and water storages	<ul style="list-style-type: none"> Protect catchment areas and open storage reservoirs from bushfires 	<p>Major catchment areas on the Wellington Range.</p> <p>Open storages in Ridgeway Reserve, Wellington Park, Risdon Brook Reserve and Flagstaff Gully.</p> <p>TasWater has an agreement with TFS on the use of fire retardants in drinking water catchments</p>	a) Consider drinking water catchments as assets to be protected when planning hazard reduction programs	<ul style="list-style-type: none"> WPMT BRU HCC CCC
f) Reduce bushfire risk to key transport infrastructure	Airport ??	To be determined	Open discussions with the Airport	<ul style="list-style-type: none"> HFMAC/SES? Airport Authority
5. Reduce bushfire risk to cultural heritage values				
	Identification of cultural values, and assessment for exposure/susceptibility to damage or loss from fire	<p>Heritage values considered in most Bushfire Management Plans prepared by land managers.</p> <p>BRU considers heritage in operational burn plans.</p>	<p>a) Open communication with heritage bodies, councils</p> <p>b) Determine and implement the most effective measures for reducing the risk of damage to cultural heritage values by bushfires or bushfire control and management activities</p>	<ul style="list-style-type: none"> HFMAC Local Government

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
6. Reduce bushfire risk to natural heritage values				
a) Reduce bushfire risk to biodiversity, including threatened species and plant communities.	Fire dependant plant communities require burning in accordance with their optimal fire regimes. (note: lack of fire is also a risk to biodiversity) Pre and post burn weed control required.	Some areas under active management, other areas poorly known	a) Compile known natural heritage values (NVA, Tasveg and other databases) b) Identify areas of possible high value for future investigation c) Ensure that burning programs primarily for hazard management do not adversely affect biodiversity values d) Ensure ecosystems that require regular fire to maintain their viability are burnt in accordance with their optimal fire regimes. e) Control weeds before and after burns.	<ul style="list-style-type: none"> • HFMAC/SFMC • TFS • Local Government
b) Reduce bushfire risk to other (non biological) values	Values that require protection include: geoheritage and scenic values.		a) Ensure agencies carrying out bushfire management and control activities are aware of the location of natural heritage assets so they can avoid inadvertent damage.	<ul style="list-style-type: none"> • HFMAC/SFMC • TFS

STRATEGY	IMPLEMENTATION	CURRENT STATUS	ACTIONS	RESPONSIBILITY
7. Reduce bushfire risk to primary production				
a) Raise awareness of bushfire risk mitigation programs within context of key primary industries, to better deliver burns and other risk management activities in areas where they operate	<ul style="list-style-type: none"> • livestock • fencing • aquaculture • horticulture • viticulture • apiculture? 	Engagement with specific peak bodies begun, to continue through 2017 and 2018	a) TFGA: Community forums during 2015-6, field days in early 2017 (in planning stages 2016) b) Wine Tasmania: Smoke taint field days in planning for early 2017 c) Apiculture: Liaison with beekeepers during summer 2015-6	<ul style="list-style-type: none"> • TFS Fuel Reduction Unit Community Engagement Section

Appendix 2 - Community Specific and General Bushfire Management Plans Already in Place

Community Bushfire Response, Protection and Mitigation Plan prepared by the TFS

Town/Area	Current Plans	Status
Bonnet Hill	TFS Response & Community Protection plans	Live
Collinsvale including Collins Cap, Glenlusk, Fairy Glen and Springdale	TFS Response & Community Protection plans	Live
Dulcote	TFS Response & Community Protection plans	Live
Fern Tree	TFS Response & Community Protection plans	Live
Lachlan area	TFS Response & Community Protection plans	Live
Molesworth Area - including Malbina and Sorell Creek	TFS Response & Community Protection plans	Live
Mount Nelson/Tolmans Hill	TFS Response & Community Protection plans	Live
Mount Rumney/Mount Canopus	TFS Response & Community Protection plans	Live
Neika/Leslie Vale	TFS Response & Community Protection plans	Live
Ridgeway	TFS Response & Community Protection plans	Live
South Hobart	TFS Response & Community Protection plans	Live
Summerleas	TFS Response & Community Protection plans	Live
Taroona area	TFS Response & Community Protection plans	Live
The Lea	TFS Response & Community Protection plans	Live
Risdon Vale/Grasstree Hill	TFS Response & Community Protection plans	Live
Campania/Native Corners (southern section)	TFS Response & Community Protection plans	Live
Granton/Berridale	TFS Response & Community Protection plans	Live
Glenorchy/Lenah Valley	TFS Response & Community Protection plans	Live
Sandfly/Longley area (northern part)	TFS Response & Community Protection plans	Live
South Arm and Sandford	TFS Response & Community Protection plans	Live

Explanation of plans:

1. Community Bushfire Response Plan:

The purpose of a Community Bushfire Response Plan, (CBRP) is for emergency managers to better protect communities and their assets during bushfire emergencies.

2. Community Bushfire Protection Plan

The purpose of a Community Bushfire Protection Plan, (CBPP) is for community members to be provided with local information to assist with bushfire preparation and survival.

3. Community Bushfire Mitigation Plan

The purpose of a Community Bushfire Mitigation Plan is to provide guidance regarding bushfire fuel management; to increase community bushfire safety and provide protection to important community assets.

General Bushfire Management Plans Already in Place

PLAN NAME	TENURE	DATE	STATUS	AREA	NOTES
Wellington Park Fire Management Strategy	Wellington Park, Glenorchy City Council, Hobart City Council, private	2006	Implemented	16,090 ha	Includes some private and Council land adjoining Wellington Park. Being revised.
PWS controlled land within the HFMA	PWS Southern Region Strategic Fire Management Plan	2011	Partly Implemented		All PWS managed land in the Southern Region
Mount Faulkner Region Strategic Fire Management Plan	Mixed private and public	2005	Partly Implemented	5830 ha	Some fire trail and waterhole upgrading, planned burn program started in 2016
Meehan Range Regional Fire Management Strategy	Mixed Private and public	2007	Partly implemented	5359 ha	Some fire trail upgrading completed, planned burns near Risdon Vale ?? completed, others planned for 2017
Risdon Brook Dam Catchment and Adjoining Areas Fire Management Plan	Mixed private and public	2001	Partly implemented	3,400 ha	Large burn on Mount Direction and some fire trail repairs
Goat Hills Fire Management Plan	Mixed private and Glenorchy City Council	2006	Being revised	490 ha	Maintenance of fire trails, water holes, and HMA for critical infrastructure completed during 2017. GCC currently reviewing the Fire Management Plan.

PLAN NAME	TENURE	DATE	STATUS	AREA	NOTES
Ridgeway Park/Waterworks Reserve Fire Management Plan	Hobart City Council	2003	Implemented	480 ha	Being revised by HCC
Knocklofty Reserve/McRobies Gully Fire Management	Hobart City Council	2005	Implemented	403 ha	Being revised by HCC
Bicentennial Park/Porter Hill Reserve Fire Management Plan	Hobart City Council	2014	Implementation commencing	230 ha	Includes a number of nearby small reserves
Pilchers Hill Bushfire Management Plan	Clarence City Council	2016	Implemented	130ha	Planned burns undertaken and on-going
Queens Domain Fire Management Plan	Hobart City Council	2008	Implemented	164 ha	
Lauderdale Wetlands Reserve Bushfire Management Plan	Clarence City Council	2016	Implemented	122 ha	
Ross Common Bushfire Management Plan	Clarence City Council	2016	Implemented	117 ha	Planned burns undertaken and on-going
Fort Direction Ammunition Storage Facility Bushfire Management Plan	Department of Defence	2013	Implemented	107 ha	
University Reserve, Sandy Bay Campus Fire Management Plan (draft)	University of Tasmania	2010	Partly implemented	90 ha	UTAS community bushfire mitigation plan

PLAN NAME	TENURE	DATE	STATUS	AREA	NOTES
Waverley Flora Park Bushfire Management Plan	Clarence City Council	2016	Implemented	82 ha	Planned burns undertaken and on-going
Mortimer Bay Coastal Reserve Bushfire Management Plan	Clarence City Council	2016	Implemented	55 ha	Planned burns undertaken and on-going
Gordons Hill State Recreation Area	Parks and Wildlife Service	2011	Partly Implemented	50 ha	Transferred to PWS
Natone Hill Bushfire Management Plan	Clarence City Council	2016	Implemented	43 ha	Planned burns undertaken and on-going
Milford Bushfire Management Plan	Private	2008	Partly implemented	40 ha	One planned burn completed
Roches Beach Coastal Reserve and Nowra Bushland Reserve Bushfire Management Plan	Clarence City Council	2016	Implemented	24 ha	
Glebe Hill Reserve, Howrah, Bushfire Management Plan	Clarence City Council	2016	Implemented	22 ha	Planned burns undertaken and on-going
Rosny Hill Bushfire Management Plan	Clarence City Council	2016	Implemented	21 ha	Planned burns undertaken and on-going
7 Yamada Place Mornington (Knopwood Hill)	Private	2011	Unknown	21 ha	

PLAN NAME	TENURE	DATE	STATUS	AREA	NOTES
Bedlam Walls Bushfire Management Plan	Clarence City Council	2016	Implemented	15 ha	
Rosny Foreshore Bushfire Management Plan	Clarence City Council	2016	Implemented	15 ha	Planned burns undertaken and on-going
Seven Mile Beach Reserve Bushfire Management Plan	Clarence City Council	2016	Implemented	31 ha	
Rokeby Hills Reserve Bushfire Management Plan	Clarence City Council	2016	Implemented	40 ha	Planned burns undertaken and on-going
Canopus – Centaur Bushland Reserve, Mt Rumney, Bushfire Management Plan	Clarence City Council	2016	Implemented	7 ha	
Wiena Bushland Reserve, Lindisfarne, Bushfire Management Plan	Clarence City Council	2016	Implemented	3 ha	Fire Trail network and fuel breaks re-established in 2016
Barossa Catchment/Kalang Avenue land, Lenah Valley	Hobart City Council	2006	Partly implemented	33 ha	Partly covered by the Wellington Park Fire Management Strategy
Glenorchy South	TFS Bushfire Planning and Policy Unit	2016			

PLAN NAME	TENURE	DATE	STATUS	AREA	NOTES
Lenah Valley South Bushfire Mitigation Plan	TFS Bushfire Planning and Policy Unit	2015			
Mt Nelson/The Lea Bushfire Mitigation Plan Stage 1	TFS Bushfire Planning and Policy Unit	2014			
Mt Nelson/The Lea Bushfire Mitigation Plan Stage 2	TFS Bushfire Planning and Policy Unit	2016			
Sandfly/Longley	TFS Bushfire Planning and Policy Unit	2016			

Appendix 3 – Existing and Proposed Strategic Fire Trails

These fire trails provide important access routes for fire fighting, through or along the perimeter of bushland areas, and are potential control lines for major bushfires. This table and incomplete and is awaiting further investigations by land owners.

Name	Start Point	End point	Maintained by	Desired Classification ¹	Current Classification ⁿ¹	GIS layer Y/N	Notes
East West Trail	Zig Zag Trail (Goat Hills)	Jefferys Track	PWS	3	5	Yes	Key access route running the length of Wellington Park.
Big Bend Trail	Pinnacle Road at Big Bend	East West Trail	PWS	3	substandard	Yes	Important link to East West Trail and potential control line.
Ringwood Trail	End of Ringwood Road	East West Trail	PWS	3	5	Yes	Important link to East West Trail and potential control line. Property owner between Ringwood Road and the Wellington Park boundary does not allow non emergency access.
Collins Cap Trail	End of Suhrs Road	East West Trail	PWS	3	3	Yes	Important link to East West Trail and potential control line.
Jefferys Track	End of Mitchells Road, Crabtree	Hydehurst Road, Lachlan	DVC Norske Skog PWS	3	variable- northern end Class 1, southern end Class 5, about 3 km substandard.	Yes	Important north-south link across the Wellington Range. Provides access to the western end of the East-West Trail.

Name	Start Point	End point	Maintained by	Desired Classification ¹	Current Classification ⁿ¹	GIS layer Y/N	Notes
Zig Zag Trail	Collinsvale Road	Montrose Trail in Wellington Park	GCC Tasnetworks	3	variable-northern end Class 3, southern end Class 5,	Yes	Important east-west link across Goat Hills. Provides access to the East West Trail, Dooleys Fire Trail
Chapel Fire Trail	Knights Creek Trail	Montrose Trail	GCC, Tasnetworks	3	Substandard	Yes	Important east-west link across Goat Hills. Provides access to the Zig Zag Trail
Dooleys Fire Trail	Zig Zag Trail	Dooleys Avenue, Berridale	GCC	3	5	Yes	Important link to top of Goat Hills.
Priest Fire Trail	Priest Place	Tolosa Fire Trail	GCC	3	3	Yes	Important entry to Wellington Park and control line for fires in the Limekiln Gully area
Main Fire Trail	Lenah Valley Road	Strickland Avenue	HCC	3	3	Yes	Important north-south link along the boundary of Wellington Park
Tolosa Fire Trail	Tolosa Street	Merton Weir	GCC TasWater	3	3	Yes	Provides access to a water supply and the western end of Priest Fire Trail
Bracken Lane Fire Trail	Curtis Avenue	Pillinger Drive	HCC	3	3	Yes	Provides alternative emergency access between Pillinger Drive and Huon Road. Some steeper sections require repair
Unnamed	Mt Nelson Signal Station	Enterprise Road	HCC	3	3	yes	In Bicentennial Park

Name	Start Point	End point	Maintained by	Desired Classification ¹	Current Classification ⁿ¹	GIS layer Y/N	Notes
New Town Trail (M1) and K13	Main Fire Trail (Wellington Park)	Fire Trail K9 in Knocklofty Reserve	HCC Private	3	?	yes	Links Knocklofty Reserve to Wellington Park (Main Fire Trail), Important east-west control line and access
K3/K8 (Knocklofty Reserve)	Weerona Avenue (Mt Stuart)	Forest Road	K3 – Private K8 - HCC	3	Variable	Yes	Separates Knocklofty Reserve from urban areas to the east. K8 in Knocklofty Reserve well maintained. K3 on private property not maintained.
K1/K9 (Knocklofty Reserve)	Forest Road	Giblin Street	HCC	3	?	Yes	Traverses Knocklofty reserve
R14 (Ridgeway Reserve)	Bramble Street, Ridgeway	Proctors Road	HCC	3	?	Yes	Links Ridgeway to Southern Outlet. Runs along northern perimeter of Ridgeway
R8 (Ridgeway Reserve)	Ridgeway Road	Woodridge Place (Tolmans Hill)	HCC Private	3	?	Yes	Important alternative access to Tolmans Hill
Granton Heights Fire Trail	Granton Heights Road	Dixons Fire Trail at Snake Mount	TFS	3	?	Yes	Important link to Dixons fire Trail
Nassau Spur Fire Trail	Lyell Highway	Dixons Fire Trail at Snake Mount	TFS	5	?	Yes	
Dixons Fire Trail	Lyell Highway	Granton Heights Fire Trail at snake Mount	TFS	3	?	Yes	Important primary control line on Mount Faulkner.

Name	Start Point	End point	Maintained by	Desired Classification ¹	Current Classification ⁿ¹	GIS layer Y/N	Notes
Douglas Road Fire Trail	End of Douglas Road	Dixons Fire Trail	TFS	3	?	Yes	Important access and egress link to Dixons Fire Trail
Wagner Fire Trail	End of Wagner Road	Sky Farm Fire Trail	TFS	3	?	Yes	Access to the top of Mount Faulkner from Molesworth. Important control line.
Sky Farm Fire Trail	End of Sky Farm Road	Wagner Fire Trail	TFS	3	?	Yes	Main access to the top of Mount Faulkner from Claremont.
Back Faulkner Fire Trail	Wagner Fire Trail	Lowes Ridge Trail	TFS	5	5	Yes	Strategic link around southern side of Mount Faulkner
Lowes Ridge Fire Trail	Arunta Crescent, Chigwell	Back Faulkner Fire Trail	TFS	3	?	Yes	Continuation of Back Faulkner Fire Trail
RB3 (Risdon Brook Dam)	Baskerville Road	Risdon Brook Reservoir	Tasnetworks	3	?	Yes	Follows Transmission line easement
RB4 (Risdon Brook Dam)	Direction Drive	Risdon Brook Dam	PWS	5	5	Yes	Important control line
unnamed	Downhanstown Road	Downhams Road	Private	3	5	Yes	Important north-south link
MR5 (Meehan Range)	Downhams Road	Flagstaff Gully Link	PWS Private	3	?	Yes	Important north-south link
MR4 (Meehan Range)	Downhams Road	Flagstaff Gully Road	Private	5	?	Yes	Important north-south link
MR6 (Meehan Range)	MR5	MR7	Private	5	?	Yes	Important east-west link
MR7 (Meehan Range)	Kings Road	Hobdens Road	Private	5	?	Yes	Important north-south link

Name	Start Point	End point	Maintained by	Desired Classification ¹	Current Classification ⁿ¹	GIS layer Y/N	Notes
MR8 (Meehan Range)	Hobdens Road	MR9	PWS Private	3	5	Yes	Important east-west link
MR9 (Meehan Range)	Belbin Road	MR5	PWS Private	3	5	Yes	Important east-west link
MR12 (Meehan Range)	Houston Drive	Mt Rumney Road	Private	5	?	Yes	Important north-south control line and link to Mt Rumney Road
MR15 (Meehan Range)	Mt Rumney Road	MR 11	Private	5	5	Yes	North –south control line along western foothills of Meehan Range
MR11 (Meehan Range)	Mt Rumney Road	Acton Court	Private	3	5	Yes	Important emergency access to eastern end of Mt Rumney Road
MR13 (Meehan Range)	Mt Rumney Road (MR11)	MR14 (Acton Drive)	Private	5	5	Yes	Important access along top of Meehan Range
MR16 (Meehan Range)	Rockingham Drive	MR15	Private	5	?	Yes	Important link between Mt Rumney Road and Clarendon Vale
MR14 (Meehan Range)	Rockingham Drive	Acton Drive	Private	3	?	Yes	Important east-west link and control line across Meehan Range
MR17 (Meehan Range)	Tara Drive	MR14	Private	5	variable	Yes	Important link and north-south control line. Most of the link is a private driveway maintained to Class 3 standard.
W2/W5 (Waverley Flora Park)	Aruma Street	Waverley Street	CCC	3	Variable	Yes	North-south link across Waverley Flora Park

Name	Start Point	End point	Maintained by	Desired Classification ¹	Current Classification ⁿ¹	GIS layer Y/N	Notes
W4 (Waverley Flora Park)	Vadura Place	Quarry Road	CCC	3	Variable	Yes	Important access around eastern portion of the Waverley Flora Park
W11 (Waverley Flora Park)	W4	W2	CCC	3	5	Yes	Important east-west link in Waverley Flora Park
MB2/MB3/MB4	MB3 (Gellibrand Drive)	MB4 (Gellibrand Drive)	CCC	5	5	Yes	Important boundary trail along eastern side of Mortimer Bay Reserve
NH2/NH3 (Natone Hill Reserve)	Tianna Road (northern end)	Tianna Road (southern end)	CCC	3	3	Yes	Boundary trail around Natone Hill Reserve
PH2 (Pilchers Hill Reserve)	Flagstaff Gully Road	Geilston Creek Road	CCC	3	5	Yes	Important link between Flagstaff Gully Road and Geilston Creek Road.
PH3/PH4 (Pilchers Hill Reserve)	Flagstaff Gully Road	Walana Street	CCC	3	Variable	Yes	Important control line across Pilchers Hill

1 – Class 1, 3, 5 or substandard from the PWS fire trail classification

New Strategic Fire Trails

New Fire trails or links between existing trails that provide important access routes for firefighting, through or along the perimeter of bushland areas and are potential control lines.

Location	Start Point	End point	Links existing fire trails/roads	Desired Classification ¹	Route GPSed	Notes

1 – Class 1, 3, 5 or substandard from the PWS fire trail classification

Appendix 4 – Existing and Proposed Management and Protective Fuel Breaks

These provide important defendable spaces to reduce the bushfire risk to assets, particularly along the urban/bushland interface, and are potential control lines for major bushfires.

Location	Council Reserve	Type ¹	Start Point	End Point	Maintained by	Average Width	GIS Y/N	Maintenance frequency	Notes
Eurobin Street, Geilston Bay	Pilchers Hill Reserve	1	Northern side of 30 Eurobin Street heading south-east	Northern side of 56 Eurobin street	CCC	10-15m		Annual	Established 2014, connects onto Pilchers Hill fire trail network. FMZ is not drivable as to steep
Alford Street/Warren Court/Anstley Street, Howrah	Waverley Flora Park	1	Northern side of 18 Warren Court heading south-east	Northern side of 16 Anstley Street	CCC	15 m		Annual	Entire FMZ drivable
Northern side of reserve	Waverley Flora Park	1	Southern side of 1 Carawa Street, Mornington (Quarry Rd Boom gate)	Southern side of Kallora Street, Mornington	CCC	15 m		Annual	Runs clockwise behind all properties with a class 5 fire trail
Terrina Street, Lauderdale	Roscommon Reserve	1	Balook Street cul-de-sac	Roches beach Rd entrance to Archery Club (behind 128 Terrina Street)	CCC	15m		Annual	Sewerage connections (2014) run through HMA. Inspection caps throughout-caution when driving
Natone Hill, Lindisfarne	Natone Hill Reserve	1	Northern side of 198 Derwent Ave, Lindisfarne	Western side of 2 Lowanna Rd, Lindisfarne	CCC	10 m		Annual	Runs clockwise behind all properties with a class 5 fire trail above. Limited passing bays.

Location	Council Reserve	Type ¹	Start Point	End Point	Maintained by	Average Width	GIS Y/N	Maintenance frequency	Notes
Rokeby Hills Reserve, Howrah	Rokeby Hills Reserve	1	Southern side of 7 Mayfair Court	Northern boundary of 25 Fairisle Terrace	CCC	10 m		Annual	Runs anti-clockwise. Sections not drivable.
Eastern side of Wiena Reserve	Wiena Reserve	1	Western boundary of 18 Radiata Drive, Lindisfarne	Western boundary 20 Wassell Place, Lindisfarne	CCC	15 m		Annual	Runs north-south, not driveable
Inglewood Road	Wellington Park	?	Strickland Avenue	Middle Island Fire Trail	HCC	25 m	Y	Annual	Includes a fire trail

M Management or **P** Protective fuel break as defined in section 4.6.

New Strategic Fuel Breaks

Desired or planned fuel breaks, particularly around high value assets.

Location	Reserve	Type ¹	Start Point	End point	Proposed Width	Asset(s) Protected	GIS Y/N	Notes

1 **M** Management or **P** Protective fuel break as defined in section 4.6.

Appendix 5 - The Bushfire Risk Assessment Model (BRAM)

The Bushfire Risk Assessment Model (BRAM) is a software product that was developed by the Fire Management Section of the Parks and Wildlife Service (Department of Primary Industries, Parks, Water and Environment). The aim of the model is to identify bushfire risk at a strategic level as well as to identify the elements driving actual bushfire risk.

A stakeholder group was set up to oversee the process. Stakeholders involved in developing the process included:

- Parks and Wildlife Service;
- Tasmania Fire Service;
- Sustainable Timber Tasmania;
- Tasmanian Farmers and Graziers Association;
- State Emergency Service;
- Forest Industries Association of Tasmania;
- Local Government Association of Tasmania;
- Resource management and conservation , DPIPWE;
- NRM ;
- Tasmanian Aboriginal land and Sea Council;

Additional working groups were set up to advise on specialist areas such as values at risk, suppression capabilities, ignition potential, and fire behaviour.

The process is aligned to the Australian/New Zealand Standard AS/NZS 4360:2004 Australian Standard Risk Management and the updated standard AS/NZS ISO 31000:2009 *Risk management – Principles and guidelines*. Risk is defined as the “effect of uncertainty on objectives” with a focus of the effect on the objectives.

The Process

The model is built in a geographic information system that utilizes various spatial orientated data, fire behaviour and fuel accumulation models and climate records. The data and values were developed by consensus of a range of stakeholders.

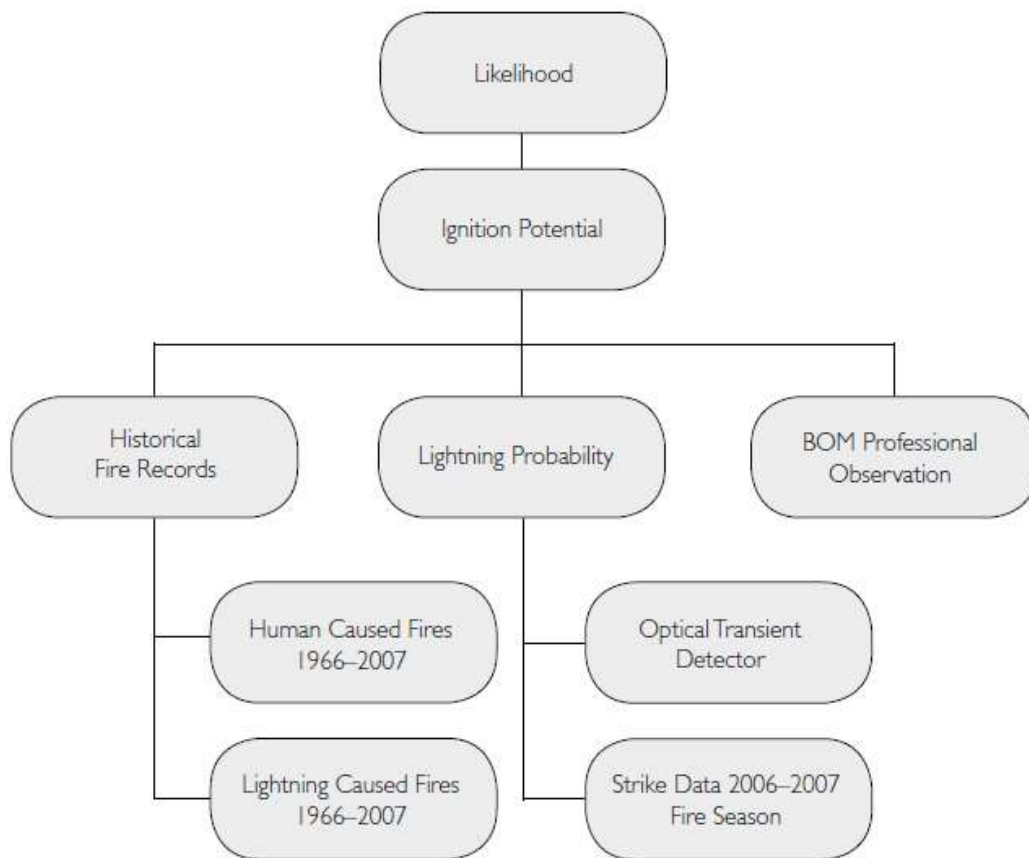
The process applies the same set of assessment rules to the data contained in the model, thus it can be applied across the state. The process is tenure blind.

The BRAM identifies the **likelihood and consequence of a fire** at a particular point. The risk is determined through the use of a qualitative risk matrix incorporating likelihood and values at risk (consequences). The process identifies the actual risk at that point not the perceived risk. The output is in the form of layers identifying the likelihood, values at risk and actual risk

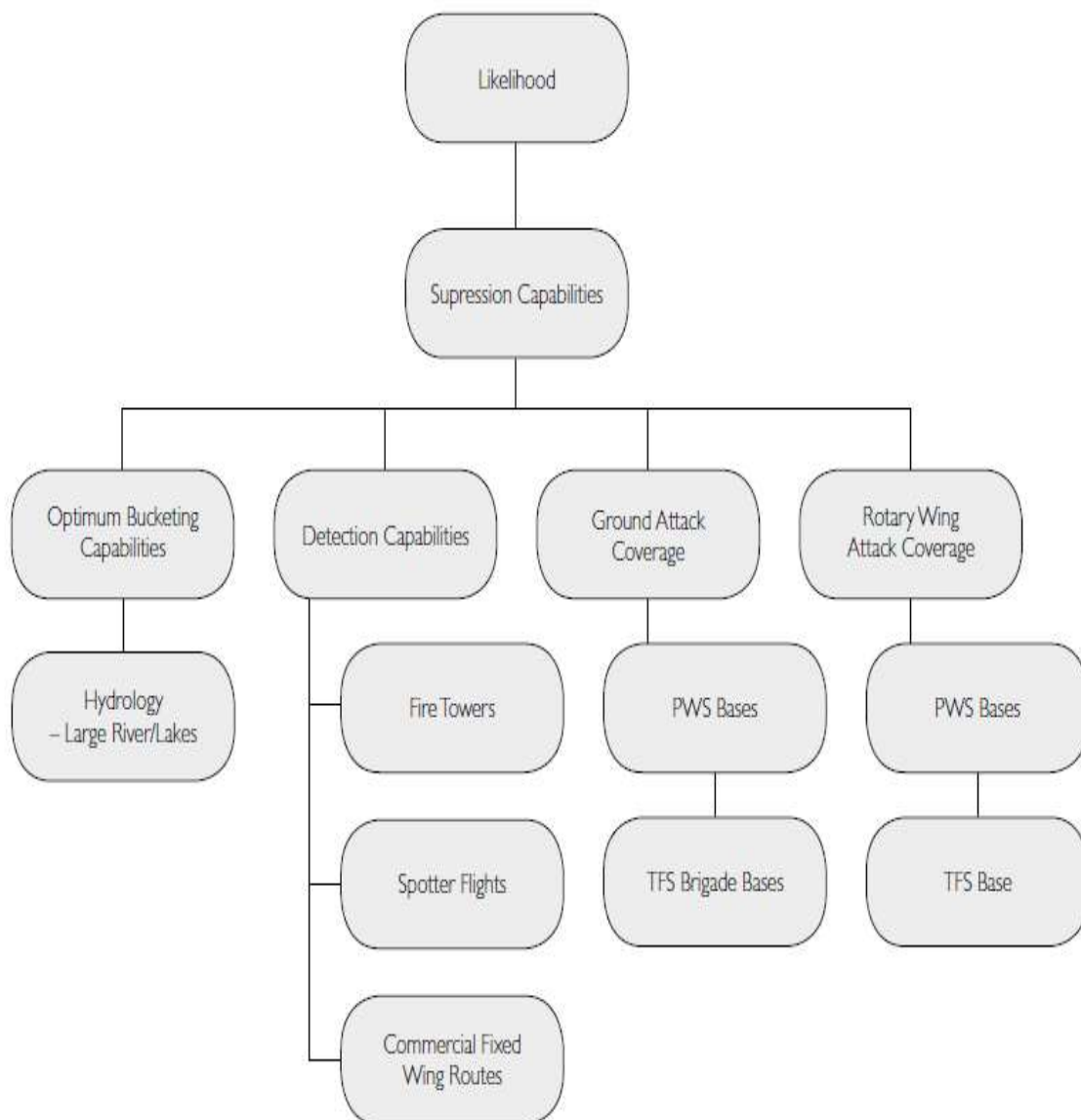
The model uses four major areas to calculate risk likelihood of an area for:

- Fire behaviour potential - the manner in which fuel ignites, flame develops, and fire spreads and exhibits other related phenomena (likelihood).
- Ignition potential - the probability or chance of fire starting as determined by the presence of causative agents (likelihood).
- Suppression capability - the factors and limitations that are related to the ability to detect, respond to, and contain a bushfire (likelihood).
- Values at risk - a specific or collective set of natural resources and man-made improvements and/or developments that have measurable or intrinsic worth, and which could potentially be destroyed or otherwise altered by fire in any given area (consequence)

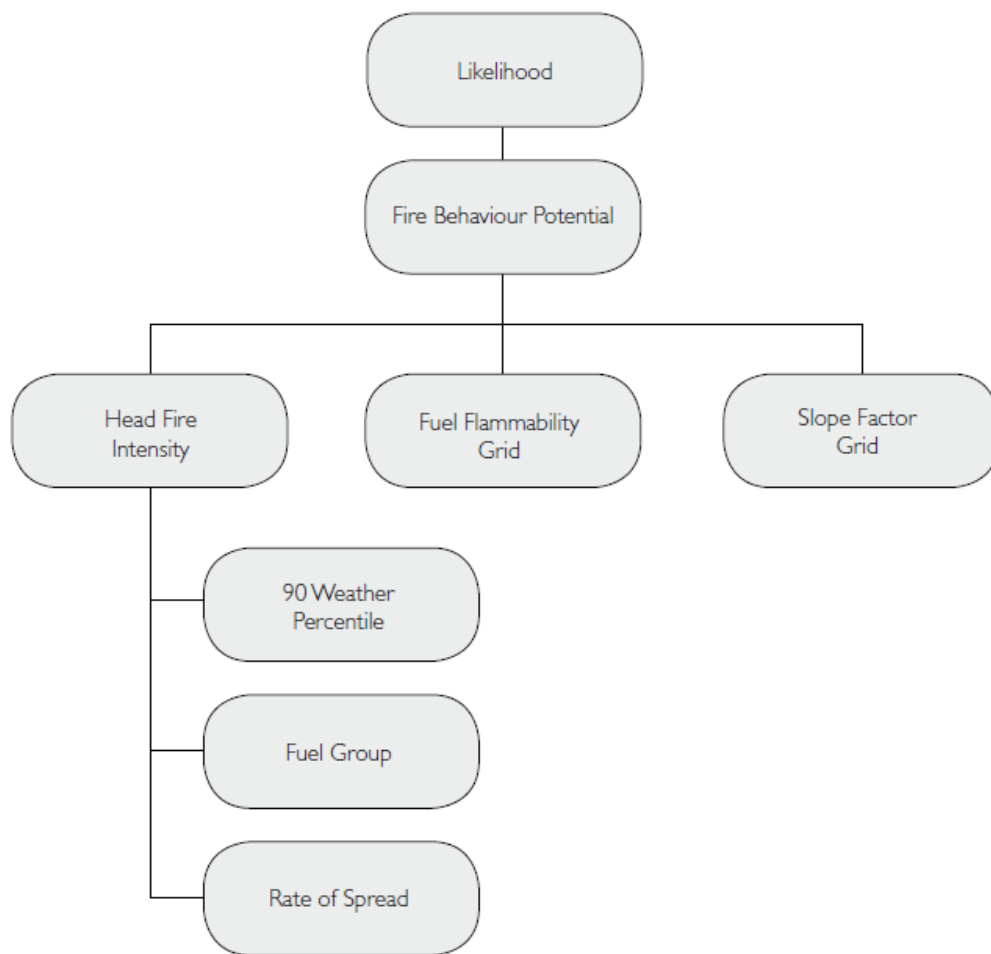
Ignition Potential



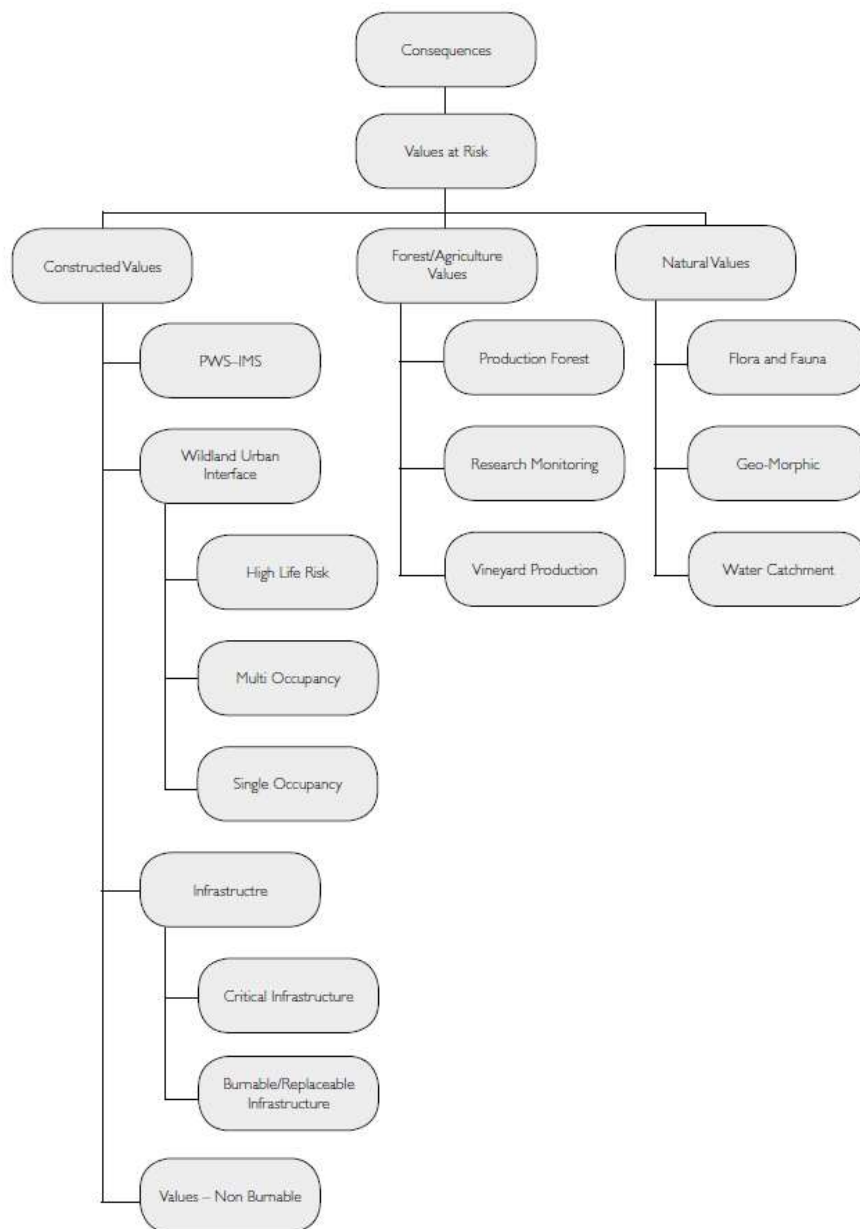
Suppression Capabilities



Fire Behaviour Potential



Values at Risk



Limitations of the Process

- BRAM **does not** incorporate the likelihood and consequence **at the same point** from a fire occurring in an adjacent area.
- BRAM does not display the risks posed by an area adjacent to a particular point.
- Mitigation works undertaken on adjacent areas do not change the risk at a particular point.
- The process is based on available data, there are significant gaps in data e.g. fire history on private lands,
- Untested assumptions – may over/underestimate risk.
- An important part of using BRAM is that the information is validated with the assistance of a professional fire management practitioner who has a good understanding of the system.

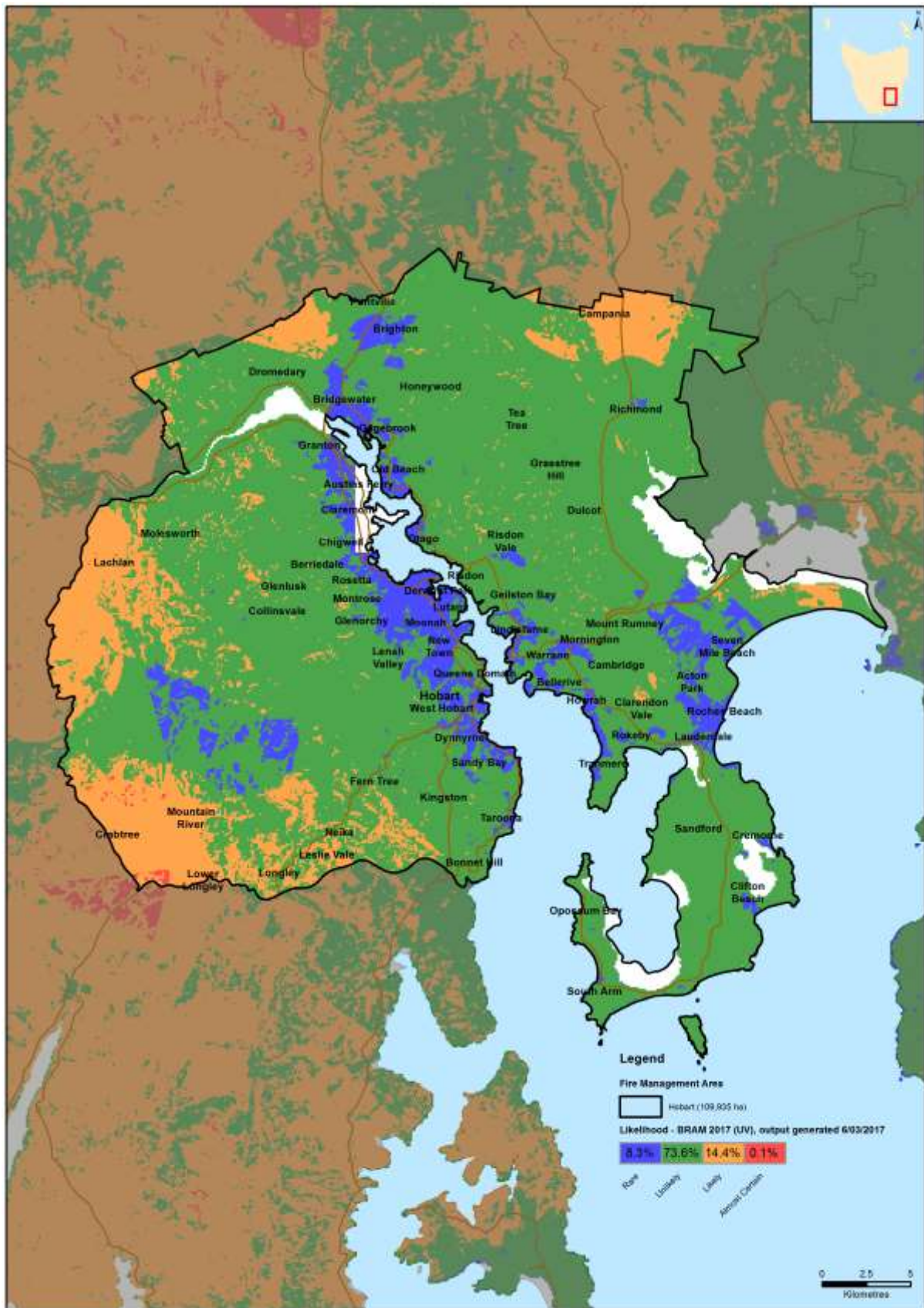


Figure 5.1: BRAM Likelihood

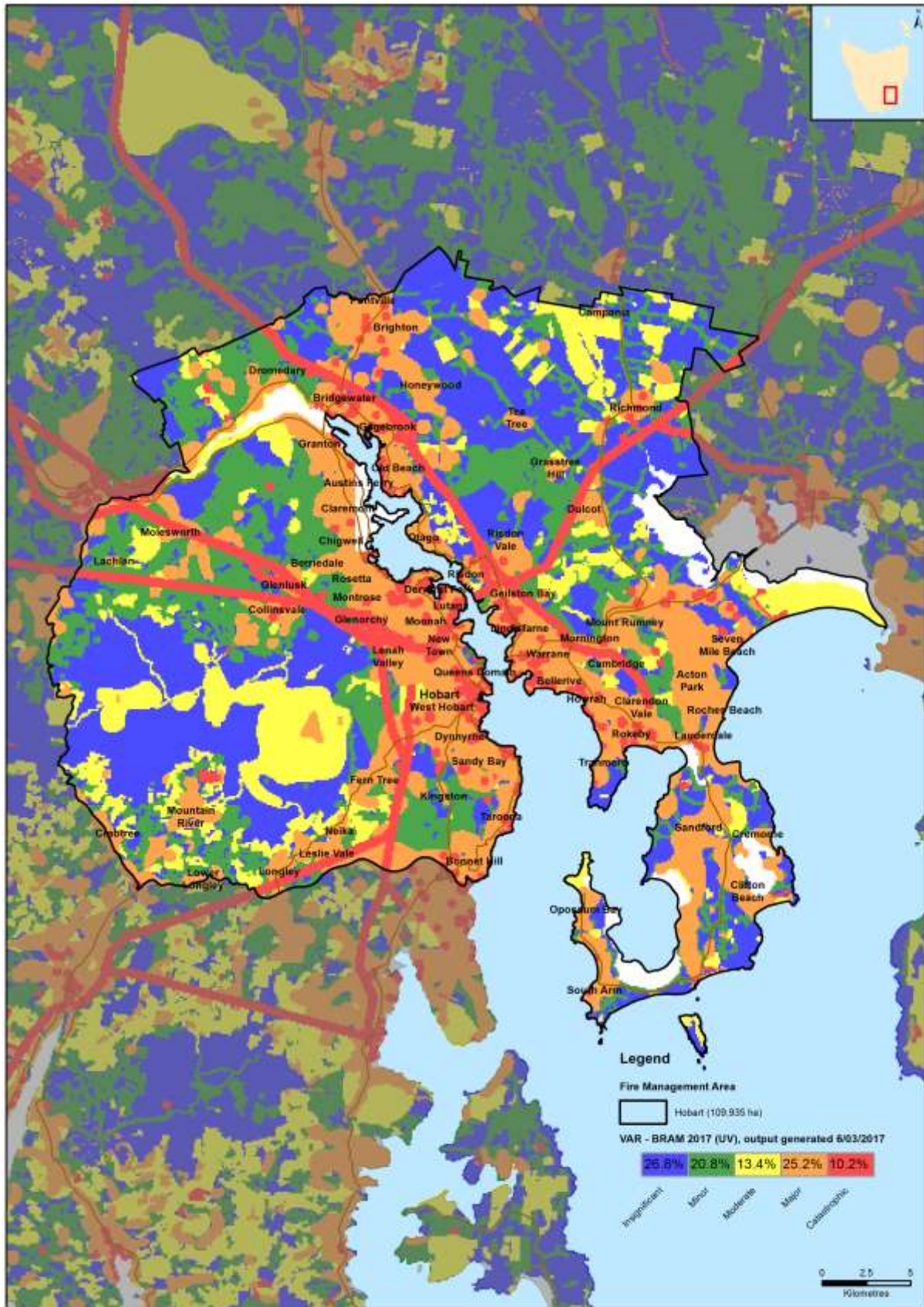


Figure 5.2: BRAM Consequence

Appendix 6 - NERAG Risk Assessment Approach

(Derived from the National Emergency Management Committee (2010), *National Emergency Risk Assessment Guidelines*, Tasmanian State Emergency Service, Hobart)

The NERAG provide a methodology to assess risks from emergency events and are principally concerned with risk assessment. The NERAG methodology was utilised in development of the BRAM to develop the final risk profile

The guidelines are not intended to address the entire risk management framework or the risk management process as outlined in AS/NZS ISO 31000:2009. However, because they focus on the assessment of risks from emergency events, they ultimately direct the management of emergency risks in line with the international standards for risk management.

The guidelines aim to provide a risk assessment methodology that:

- enables focus on risks in small (e.g. municipal) or large (e.g. regional and/or state and/or national) areas.
- is useable for both risk 'from' and risk 'to' (e.g. risk from bushfire, risk to infrastructure from all or specific sources of risk).
- uses a scenario-based approach.
- samples risk across a range of credible consequence levels.
- identifies current risk under existing controls and residual risk assuming implementation of additional controls or control improvements.
- provides base-line qualitative risk assessments and triggers for more detailed analysis.
- allows risk evaluation at varying levels of confidence.
- Provides outputs that are comparable, which rate risk and suggests means to reduce risk.

Risk analysis is the element in the process through which the level of risk and its nature is determined and understood. Information from risk analysis is critical to rank the seriousness of risks and to help decide whether risks need to be treated or not. In this phase, control opportunities are also identified. The analysis involves consideration of possible consequences, the likelihood that those consequences may occur (including the factors that affect the consequences), and any existing control that tends to reduce risks. During this phase the level of confidence in the analysis is assessed by considering factors such as the divergence of opinion, level of expertise, uncertainty, quality, quantity and relevance of data and information, and limitations on modelling. At the conclusion of this step, all identified risks are categorised into risk levels and given a risk rating, and statements concerning existing controls and their adequacy are made.

NERAG takes an all hazards approach and provides a method that is suitable for considering other sources of risk beside fire.

Consequence Table

Consequence level	People	Environment	Economy	Public Administration	Social Setting	Infrastructure
Catastrophic	Widespread multiple loss of life(mortality > 1 in ten thousand), Health systems unable to cope, Displacement of people beyond a ability to cope	Widespread severe impairment or loss of ecosystem functions across species and landscapes, irrecoverable environmental damage	Unrecoverable financial loss > 3% of the government sector's revenues, asset destruction across industry sectors leading to widespread failures and loss of employment	Governing body unable to manage the event, disordered public administration without effective functioning, public unrest, media coverage beyond region or jurisdiction	Community unable to support itself, widespread loss of objects of cultural significance, impacts beyond emotional and psychological capacity in all parts of the community	Long term failure of significant infrastructure and service delivery affecting all parts of the community, ongoing external support at large scale required
Major	Multiple loss of life (mortality > 1 in One hundred Thousand), Health system over stressed, Large numbers of displaced people(more than 24 hours)	Serious impairment or loss of ecosystem functions affecting many species or landscapes, progressive environmental damage	Financial loss 1-3% of the governments sector's revenues requiring major changes in business strategy to (partly) cover loss, significant disruptions across industry sectors leading to multiple business failures and loss of employment	Governing Body absorbed with managing the event, public administration struggles to provide merely critical services, loss of public confidence in governance, media coverage beyond region jurisdiction	Reduces quality of life within the community, significant loss or damage to objects of cultural significance, impacts beyond emotional and psychological capacity in large parts of the community	Mid- to long term failure of significant infrastructure and service delivery affecting large parts of the community, initial external support required
Moderate	Isolated cases of loss of life (mortality > 1 in one million), Health system operating at maximum capacity, isolated cases of displacement of people(less than 24 hours)	Isolated but significant cases of impairment or loss of ecosystem functions, intensive efforts for recovery required	Financial loss 0.3 – 1% of the governments sector's revenue requiring adjustments to business strategy to cover loss, disruptions to selected industry sectors leading to isolated cases of business failures and multiple loss of employment	Governing body manages the event with considerable diversion from policy, public administration functions limited by focus on critical services, widespread public protests, media coverage within region or jurisdiction	Ongoing reduced services within community, permanent damage to objects of cultural significance, impacts beyond emotional and psychological capacity in some parts of the community	Mid-term failure of(significant) infrastructure and service delivery affecting some parts of the community, widespread inconveniences
Minor	Isolated cases of serious injury, health system operating within Normal parameters	Isolated cases of environmental damage, one off recovery efforts required	Financial loss 0.1-0.3% of the governments sector's revenues requiring activation of reserves to cover loss, disruptions at business level leading to isolated cases of loss of unemployment	Governing body manages the event under emergency regime, Public administration functions with some disturbances, isolated expressions of public concern, media coverage within region or jurisdiction	Isolated and temporary cases of reduced services within the community, repairable damage to objects of cultural significance, impacts within emotional and psychological capacity of the community	Isolated cases of short- to mid-term failure of infrastructure and service delivery. Localised inconveniences
Insignificant	Near misses or minor	Near misses or incidents	Financial loss , 0.1% of the	Governing body manages	Inconsequential short-term	Inconsequential short-term

	injuries, no reliance on health system	without environmental damage , no recovery efforts required	governments sector's revenues to be managed within standard financials provisions, inconsequential disruptions at business level	the event within normal parameters, public administration functions without disturbances, public confidence in governance, no media attention	reduction of services, no damages to objects of cultural significance, no adverse emotional and psychological impacts	failure of infrastructure and service delivery, no disruption to the public services
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Impact Category Definitions

Impact Category Definitions	
People	<p>Relates to the direct impacts of the emergency on the physical health of people/ individuals and emergency services(i.e. health systems) ability to manage</p> <p>Mortality defined as the ration of deaths in a an area of the population to the population of that area; expressed as per 1000 per years</p>
Environment	Relates to the impacts of the emergency and its effects on the ecosystem of the area, including fauna and flora
Economy	Relates to the economic impacts of the emergency on the governing body as reported in the annual operating statement for the relevant jurisdiction, and industry sectors as defined by the Australian Bureau of statistics
Public Administration	Relates to the impacts of the emergency on the governing body's ability to govern
Social setting	Relates to the impacts of the emergency on society and its social fabric, including its cultural heritage, resilience of community
Infrastructure	<p>Relates to the impacts of the emergency on the areas infrastructure/ lifelines/utilities and its ability to service the community</p> <p>Long term failure = repairs will take longer than 6 months</p> <p>Mid-to long term failure = repairs may be undertaken in 3 to 6 months</p> <p>Mid-term failure = repairs may be undertaken in 3 to 6 months</p> <p>Short to mid term failure = repairs may be undertaken in 1 week to 3 months</p> <p>Short-term failure = repairs may be undertaken in less than 1 week</p>

Likelihood Table

Likelihood level	Frequency	Average Recurrence Interval	Annual Exceedance probability
Almost certain	One of more per year	< 3 years	.03
Likely	Once per 10 years	3 – 30 years	0.031 – 0.3
Possible	Once per one hundred years	31- 300 years	0.0031 – 0.03
unlikely	One per thousand years	301 – 3,000 years	0.00031 – 0.003
Rare	One per ten thousand years	3,001 – 30,000 years'	0.000031 – 0.0003
Very Rare	Once per hundred thousand years	30,001 - 300,000 years	0.0000031 – 0.0003
Almost Incredible	Less than one per million years	>300,000 years	<0.0000031

Qualitative Risk Matrix

The qualitative risk matrix combines a level of consequence with a level of likelihood to determine a level of risk. The risk level, together with the confidence in the overall assessment process and other factors, will determine the need for detailed analysis and inform the treatment of risks.

Likelihood level	Consequence level				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Low	Low	Medium	High	High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	Medium
Very Rare	Low	Low	Low	Low	Medium
Almost incredible	Low	Low	Low	Low	low

Appendix 7 - National Construction Code Building Classes

Classification Summary of Buildings and Structures as defined in the Building Code of Australia

CLASSES OF BUILDINGS		
Class 1	Class 1a	A single dwelling being a detached house, or one or more attached dwellings, each being separated by a fire resistant wall, including a row house, terrace house, town house or villa unit.
	Class 1b	A boarding house, guest house, hostel of the like with a total area of all floor not exceeding 300 m ² and where not more than 12 reside, and is not located above or below another dwelling or another Class of building other than a private garage
Class 2	A building containing 2 or more sole-occupancy units each being a separate dwelling.	
Class 3	A residential building, other than a Class 1 or 2 Building, which is a common place of long-term or transient living for a number of unrelated persons. <i>Examples: boarding-house, hostel, backpackers accommodation or residential part of a hotel, motel, school or detention centre.</i>	
Class 4	A dwelling in a building that is Class 5, 6, 7, 8 or 9 if it is the only dwelling in the building.	
Class 5	An office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9.	
Class 6	A shop or other building for the sale of goods by retail or the supply of services direct to the public. <i>Examples: café, restaurant, kiosk, hairdressers, showroom or service station.</i>	
Class 7	Class 7a	A building which is a car park
	Class 7b	A building which is used for storage or display of goods or produce for sale by wholesale.
Class 8	A laboratory, or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing or cleaning of goods or produce is carried on for trade, sale or gain.	
Class 9	A building of a public nature:	
	Class 9a	A health care building, including those parts of the building set aside as a laboratory.
	Class 9b	An assembly building, including a trade workshop, laboratory or the like, in a primary or secondary school, but excluding any other parts of the building that are of another class.
	Class 9c	An aged care building.
Class 10	A non habitable building or structure:	
	Class 10a	A private garage, carport, shed or the like.
	Class 10b	A structure being a fence, mast, antenna, retaining or free standing wall, swimming pool or the like.

Appendix 8 – Treatment Schedule - Annual Works Program

Location	Summary	Tenure	Previous Treatment including current plans	Action required	Project implementation	Timeframe for completion	Overall FMAC Priority rating
Wellington Range Eastern Slopes of kunanyi/Mt Wellington 55	Steep hills with densely forested areas close to the urban interface. Opportunity for fuel reduction on lower slopes.	Private Property, Wellington Park, HCC managed land.	Wellington Park Fire Management Strategy. TFS Community Protection, Response Plans and Lenah Valley South community Bushfire Mitigation Plan. South Hobart, Lenah Valley, Leslie Vale, Longley/Lower Longley communities were engaged in bushfire education as part of BRN program round 1 2014-16. Fern Tree community was part of the BRN pilot 2012-14	Prepare Community Bushfire Mitigation Plans. Implement planned burns. Greater Wellington Park Fire Management Strategy.	BRU and Councils to conduct fuel reduction burns. BRU to provide advice on procedures to be used when planning and undertaking burning on Private Property.		High
Meehan Range from Quoin Ridge to Lauderdale 47	Strategically important to provide protection to communities surrounding this area. There have been a number of illegal fire ignitions in the past.	Combination of Private Property, CCC and PWS managed land.	Meehan Range Region Fire Management Strategy, Risdon Brook Dam Catchment and Adjoining Areas Fire Management Plan, TFS Community Protection and Response Plans. PWS Southern Region Fire Management Plan.	Prepare TFS Community Protection and Response plans. Review and update fire management plans to allow FRB's to occur.	BRU to prepare Community Protection Bushfire Mitigation Plans. BRU and Councils to conduct fuel reduction burns. BRU to provide advice on procedures to be used when planning and undertaking burning on Private Property. Illegal fire ignition community campaign and community education regarding reducing arson in the area- crimestoppers.		High
Dulcot 40	Woodland and grassland on the margins of human settlement area	Private Property		Prepare operational burn plans for priority Fuel Management Units.	BRU to coordinate and implement burns. BRN has partnered with community to provide bushfire education events since 2015		High
Mt Falkner 50	Steep hills with densely forested areas close to the urban interface. Strategically important to provide protection to communities surrounding this area.	Private Property, GCC and PWS managed land.	Mount Faulkner Region Strategic Fire Management Plan. TFS Community Protection and Response Plans. PWS Southern Region Fire Management Plan.	Prepare operational burn plans for priority Fuel Management Units.	BRU and Councils to conduct fuel reduction burns. BRU to provide advice on procedures to be used when planning and undertaking burning on Private Property.		High
Government Hills 43	Woodland and grassland on the margins of Suburbs	Private Property, CCC and PWS managed land.	Bedlam Walls Bushfire Management Plan. PWS Southern Region Fire Management Plan. TFS Community Protection and Response Plans.	Prepare TFS Community Protection and Response plans. PWS and Clarence Council to implement burn plans in this area.	BRU to prepare Community Protection Bushfire Mitigation Plans. PWS and Councils to conduct fuel reduction burns. BRU to provide advice on procedures to be used when planning and undertaking burning on Private Property.		High
Goat Hills 42	Steep hills with densely forested areas close to the urban interface. Strategically important to provide protection to communities surrounding this area.	Private Property, Wellington Park, GCC managed land.	Goat Hills Fire Management Plan, Wellington Park Fire Management Strategy, TFS Community Protection and Response Plans.	Prepare operational burn plans for priority Fuel Management Units.	BRU to conduct fuel reduction burns. BRU to provide advice on procedures to be used when planning and undertaking burning on Private Property.		High
Rokeby/Acton 54	Large areas of dry forest mixed with human settlement areas. Numerous dead end roads.	Private Property, CCC and PWS managed land.	Meehan Range Region Fire Management Strategy, TFS Community Protection and Response Plans. PWS Southern Region Fire Management Plan.	Prepare operational burn plans for priority Fuel Management Units.	BRU to conduct fuel reduction burns. BRU to provide advice on procedures to be used when planning and undertaking burning on Private Property.		High
Dromedary (mostly covered by Midlands FPP) 49	Strategically important to communities in the lower Derwent Valley. Fires from this area have spotted across the Derwent River to the northern slopes of Mt Falkner in the past with the	Private Property, PWS managed land, Permanent Timber Production Zone	TFS Community Protection and Response Plan for Broadmarsh.	Investigate mitigation options for this area, including Black Hills, Tanina Bluff Broadmarsh and Upper Dromedary.	BRU to develop Strategic Bushfire Mitigation Plan.		High

	potential to impact on Hobart and suburbs.						
Sandford 41	Large areas of dry forest mixed with human settlement areas. Numerous dead end roads.	Private Property, CCC and PWS managed land.	TFS Community Protection and Response Plans. PWS Southern Region Fire Management Plan.	Investigate mitigation options for this area.	BRU to develop Bushfire Mitigation Plan for area south of Lauderdale Canal. Complete operational burn plans.		High
Mt Nelson/Tolmans Hill/The Lea 51	Strategically important to provide protection to communities surrounding this area. There have been a number of illegal fire ignitions in the past.	Private Property, HCC and PWS managed land.	PWS Southern Region Strategic Fire Management Plan, Bicentennial Park/Porter Hill Reserve Fire Management Plan, Mt Nelson, And The Lea Community Bushfire Mitigation Plan.	Prepare operational burn plans for priority Fuel Management Units.	Implement operational burn plans. BRU to provide advice on procedures to be used when planning and undertaking mitigation works on Private Property. Illegal fire ignition community campaign and community education regarding reducing arson in the area- crimestoppers.		High
Ridgeway Summerleas Rd 53	Steep hills with densely forested areas close to the urban interface. Strategically important to provide protection to communities surrounding this area.	Private Property, HCC and KC managed land.	Ridgeway Park/Waterworks Reserve Fire Management Plan, TFS Community Protection and Response Plans.	Prepare operational burn plans for priority Fuel Management Units.	BRU and HCC to conduct fuel reduction burns. BRU to provide advice on procedures to be used when planning and undertaking burning on Private Property.		High
Albion Heights Bonnet Hill 38/39	Large areas of dry forest mixed with human settlement areas.	Private Property, KC and PWS managed land.	TFS Community Protection and Response Plans. PWS Southern Region Fire Management Plan.	Investigate mitigation options for this area.	Multi Agency development of mitigation strategy. BRN has partnered with residents of Albion Heights to provide bushfire education events since 2014.		High