



ACT
Government



ACT STRATEGIC BUSHFIRE MANAGEMENT PLAN

VERSION 4

2019 - 2024

CONSULTATION DRAFT

Prepared in accordance with the Emergencies Act 2004

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MINISTER'S FOREWORD

Since the catastrophic bushfires of January 2003, the ACT Government and community have been proactive in implementing plans to provide increased protection against bushfires for the people, property and the environment of the ACT. For the past fifteen years, under the ACT Emergencies Act 2004, the ACT Emergency Services Agency (ESA) has delivered three Strategic Bushfire Management Plans (SBMPs), each spanning a period of five years.

The first SBMP, issued in January 2005, captured the key recommendations of the McLeod Inquiry into the 2003 Canberra bushfires. It introduced practices in urban planning, incident management, community education and fuel reduction through land management. The fifteen years of the SBMP are reflected in significant improvements in bushfire prevention, bushfire fighting capacity and capability, and increased community engagement and education.

Version 4 of the SBMP draws on continuing research into fire management, bushfire behaviour, the effects of climate change and seasonal weather, the important role of community, lessons learned from around Australia and the world and feedback from our own community.

SBMPv4 contains actions to continue to mitigate the risk of bushfires in the ACT for the next five years. To achieve this, it ensures appropriate equipment, resources, doctrine and capabilities are in place. It contains measures to plan and manage the reduction of fuel hazards across the ACT and ensures there are enough qualified and skilled people to assist in an emergency. At the national level, the ACT will continue to work with our national partners on significant issues such as the new risk reduction framework and the National Fire Danger Rating System (NFDRS).

The plan builds on the achievements of the last fifteen years and feedback on the effectiveness of the objectives and actions in previous plans. It places emphasis on the factors expected to have increasing significance in the ACT over the life of the plan, particularly the importance of community, bushfire recovery, the impacts of climate change, use of technology for fire management, and support for ongoing connection to the land by traditional custodians to meet a range of cultural land management objectives.

The safety of the community is central to the SBMP. The SBMP addresses this by providing effective community information and warnings, and delivering programs to ensure that the ACT community is educated about bushfire risk, is equipped with a bushfire survival plan and will be supported if affected by bushfire.

I am confident this SBMP will serve the needs of the community well for the next five years of strategic bushfire management in the ACT.

Yours sincerely,

Mick Gentleman MLA

Minister for Police & Emergency Services

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INTRODUCTION

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PURPOSE OF THE SBMP

The Strategic Bushfire Management Plan (SBMP) is the overarching document that directs all levels of bushfire planning throughout the Australian Capital Territory (ACT). The purpose of the SBMP is to provide a strategic framework to protect the ACT community and reduce harm to the physical, social, cultural and economic environment of the ACT.

To achieve this, the SBMP sets objectives and actions for:

- > agency and community preparation and response for bushfires
- > bushfire hazard assessment and risk analysis
- > bushfire prevention, including hazard reduction
- > adaptive management to apply best practice to bushfire management and prevention practices in the ACT in a changing environment.

UNDERSTANDING THIS PLAN

The SBMP is a requirement of the Emergencies Act 2004. Its contents are defined within the Act.

Part A of the SBMP provides the background and sets the context for fire management in the ACT. This includes a description of the bushfire environment and how the ACT assesses risk factors and manages bushfire risk.

Part B of the SBMP contains the objectives and actions of the plan. It details the current and ongoing management strategies that inform the actions that apply to each objective.

Some of these actions have become 'business as usual' through the implementation of previous SBMPs, but are included to ensure visibility of ongoing activities to reduce bushfire risk in the ACT.

Other actions are new or have been modified to reflect current best practice in bushfire management.

Preparation of this plan took into account the factors expected to play an increasing role in bushfire risk management in the ACT over the next five years of the plan.

These are:

- > the important role of the ACT community
- > the use of technology and data in bushfire management
- > adaptive management for climate change
- > recognising Aboriginal and Torres Strait Islander culture
- > bushfire and community recovery.

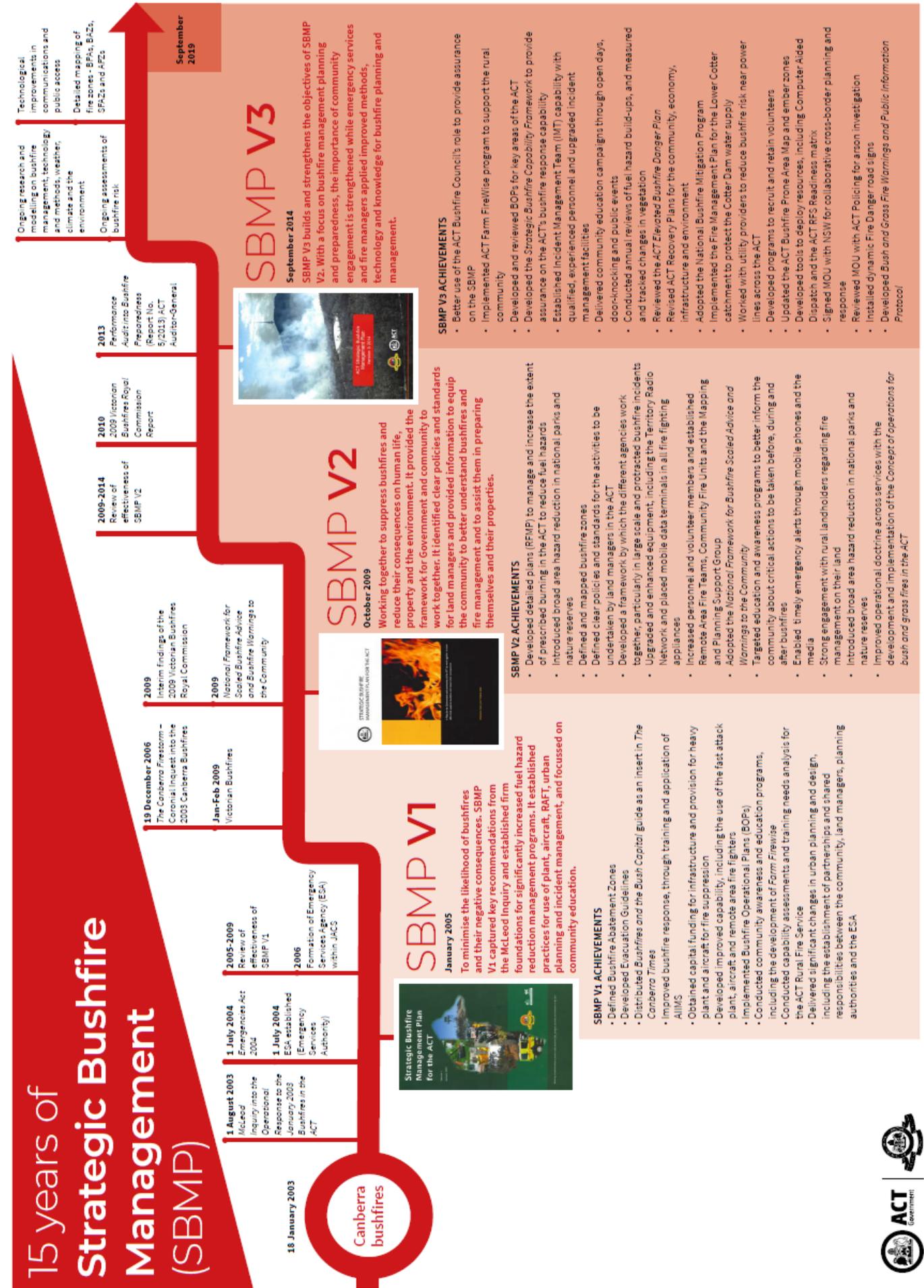
MONITORING AND REPORTING

A range of existing data sets and performance indicators will be used to measure the effectiveness of the SBMP.

Regular monitoring and reporting on these indicators will encourage ongoing performance improvement and innovation consistent with adaptive management practices.

15 YEARS OF STRATEGIC BUSHFIRE MANAGEMENT

Note: The diagram on the following page is provided for illustration only. The diagram will be expanded over two pages so that all the text is readable.



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PART A: CONTEXT AND RISK MANAGEMENT

THE BUSHFIRE ENVIRONMENT

SCALE OF BUSHFIRES IN THE ACT

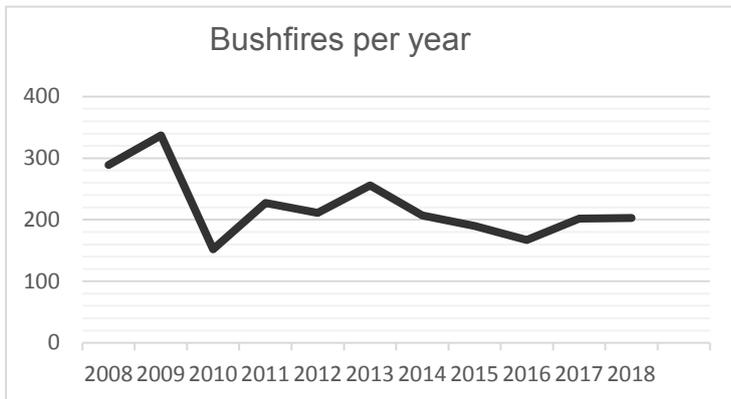
Bushfires have long been a part of the ACT landscape. Inherently flammable vegetation, a long hot summer, and periodic drought have regularly combined to produce bushfires of varying size and intensity. Indigenous Australians developed a sophisticated understanding and usage of fire to manage land and resources and to reduce bushfire risk.

Record keeping since European settlement shows that the ACT experienced a number of severe bushfires at irregular intervals, with major bushfires occurring in 1919/20, 1925/26, 1938/39, 1951/52, 1978/79, 1982/83, 1984/85, 2000/01 and 2002/03. The 2002/03 bushfire remains the most destructive bushfire on record in the ACT, with four people killed, more than 435 injured, 487 houses destroyed, and approximately 70% of the ACT fire-affected.

That bushfire had a profound impact on the ACT and its residents and led to a fundamental shift in bushfire management. This included the passage of the *Emergencies Act 2004*, and the creation of the ESA, Australia’s first unified emergency agency.

CURRENT BUSHFIRE TRENDS

For the past 10 years, data shows that on average the ACT has 221 bushfires per year. This has been



relatively consistent except for 2009 where 337 bushfires were recorded.

Most of these bushfires were contained to less than 1 hectare in size. These occurred on the urban fringe, where the fire services had rapid access to them. Community vigilance and prompt reporting

of bushfires also helped the response to start before the bushfire spread.

CAUSES OF BUSHFIRES

Bushfires are started by natural or human causes.

Lightning ignitions are the most common natural cause of bushfires in the ACT, but have resulted in less than approximately 5% of all bushfires in the ACT since 2004. Bushfires ignited by lightning have historically burnt the largest area, primarily due to the often remote location where those fires originate.

By comparison, the majority of human-caused bushfires occur in or near the built up area of Canberra. Human-caused bushfires account for the vast majority of bushfires in the ACT. The most common cause for these fires are arson or carelessness. The significant number of bushfires started by arson highlights the importance of the ACT Government’s and ACT Policing’s ongoing arson reduction programs. It also reinforces the important role that the ACT community can play in reporting suspicious behaviour, particularly on days of high fire danger.

BUSHFIRE RISK IN THE ACT

Many factors influence how bushfires start and spread. The most important are the nature of the vegetation (bushfire fuel) at the point of ignition and fire path, the dryness of the vegetation and the weather conditions.

VEGETATION AND BUSHFIRE FUELS

Bushfire fuels are a key factor in assessing bushfire risk. While all vegetation can provide fuel for a bushfire, different types of vegetation will burn differently with different rates of spread and burning intensity. Fine fuels, such as grasses, leaf litter and small twigs, burn quickly, allowing the fire to spread, whereas heavier fuels, such as stumps or trees, create more heat when burnt and so feed a fire's intensity. Fuel loads accumulate at different rates depending on the vegetation type.

The ACT has a wide variety of vegetation types, often in close or overlapping proximity. These range from a grasslands, dry and wet forests, woodlands, through to pine forests, bogs and fens. Vegetation can also play a significant role with respect to fires in the urban area, with suburban fuels – including landscaping and garden beds – a key contributor to bushfires encroaching into urban areas.

While the ACT's natural vegetation is relatively well adapted to fire, it can also be a source of particular hazards. Oil found in eucalypts can be very volatile, and the bark of many species of tree can create embers which can spread fire over long distances.

Among all factors underpinning bushfire risk, vegetation is unique in that it can be directly managed by land managers prior to a bushfire occurring. Prescribed burning (also commonly referred to as hazard reduction burning) can effectively modify the intensity, flame height and rate of spread of subsequent bushfires, reducing the risk posed by those bushfires.

The specific vegetation on an area of land is taken into account during the development of the Regional Fire Management Plan and Bushfire Operational Plans. The specific mitigation treatments used to mitigate bushfire risk vary according to the vegetation at that site.

A related consideration is the dryness of the vegetation (fuel). Put simply, the drier the vegetation, the easier it is for it to burn. The dryness is assessed through measures of soil moisture deficiency, which is combined with weather variables to produce a fire danger index (FDI).

While vegetation is defined as bushfire fuel for the purposes of bushfire management, some vegetation has other intrinsic values and can be regarded as an asset to be protected from bushfires. These include vegetation underpinning local ecosystems, Namadgi National Park, nature reserves, the National Arboretum, the Ngunnawal Bush Healing Farm, the ACT pine plantations and fodder grown for livestock.

KEY ASSETS AT RISK FROM BUSHFIRES

Any analysis of bushfire risk necessarily considers the consequence or impact of bushfire on assets. Certain assets are considered key assets because of the monetary, ecological, historical or community values they possess. The ACT Government maintains detailed data on these assets, which includes privately-owned assets, for planning and response purposes, although details may not be released publicly due to commercial and privacy concerns. These assets include the following:

PROPERTY

All properties (urban and rural) in the ACT, particularly those located in the Bushfire Prone Area (BPA) of the ACT, are key assets at risk from bushfire. Those properties are assessed, according to the criteria set out in the applicable Australian Standards, as being at a higher risk of being impacted by bushfire. Experience has also shown that bushfires may impact on properties not within the BPA, therefore all property owners and residents should be mindful of measures they can take to mitigate the risk posed by bushfires, regardless of location.

CRITICAL AND SOCIAL INFRASTRUCTURE

Critical and social infrastructure refers to the physical facilities, supply chains, information technology, communication networks and utilities that the ACT community relies on in their daily lives. Assigning precise consequences to critical infrastructure is difficult and extremely varied; as each category may impact on another (e.g. a power outage may affect communications).

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Facilities that occur in the BPA of the ACT include:

- > electrical: substations and power distribution hardware (power lines, transmission lines)
- > solar generation
- > gas: gas lines, distribution stations
- > water and sewerage: dams, mains, pumping stations, water treatment plants, valves, reservoirs, mains water, sewer vents and wastewater treatment plants
- > communications: communication towers and mobile phone towers
- > transport: Canberra airport and major road links
- > health: hospitals and medical facilities
- > schooling and educational facilities: preschool, primary, secondary and tertiary institutions
- > community: homes, supported housing and aged care facilities
- > supply: supermarkets and petrol stations
- > emergency services: police, fire, ambulance and State Emergency Service (SES) stations.

BUSINESS – SERVICES AND INDUSTRY

Businesses of all sizes may be significantly impacted by bushfires, either directly through the destruction of assets, or through consequential impacts on their inventory, supply chains, customer base or employees.

BUSINESS – AGRICULTURAL PRODUCTION

The ACT is home to agricultural production enterprises operated by rural landholders, as well as by the ACT Government. These include:

- > broad-acre grazing by sheep and cattle
- > small cropping
- > intensively managed grazing by sheep, cattle and horses
- > intensive horticulture, including olives, truffle production and vineyards
- > plantation forestry.

The infrastructure (e.g. fencing, irrigation and utilities) to support these activities, along with the vegetation (e.g. improved and natural pasture, crops and plantations) may be affected by bushfires.

WATER CATCHMENTS

Consistent with the objects of the *Water Resources Act 2007*, the ACT water catchments are considered critical assets. High intensity bushfires over a significant area of the ACT's water catchments presents the most significant risk to these catchments in terms of water quality and quantity.

BIODIVERSITY – THREATENED SPECIES AND COMMUNITIES

The ACT contains a variety of areas where concentrations of threatened species or environments may be found which are particularly vulnerable to bushfire. A particular focus is given in Bushfire Operational Plans to identifying and protecting those sites from the risks posed by bushfires.

CULTURAL HERITAGE

Under the *Heritage Act 2004*, the ACT Heritage Council is responsible for keeping a register of heritage places and objects in the ACT. This is available to emergency services for planning and operational purposes and is used to inform the development of Bushfire Operational Plans for those properties.

THE ROLE OF WEATHER

Along with vegetation, the weather is a critical factor in determining bushfire risk in the ACT. A number of weather elements determine this risk including: temperature, wind speed, relative humidity and precipitation (rainfall). While these elements do not operate as discrete elements but combine to influence bushfire risk, each element does impact on risk in different ways.

TEMPERATURE

Temperature affects both the ignition of fires and their spread. Vegetation is exposed to radiant heat from the sun, which heats and dries potential fuels, meaning less heat is required for ignition. This drying effect also assists a fire's rate of spread, as less heat energy is used by the fire to raise nearby fuel to its ignition temperature.

The important role of temperature in bushfire threat planning is reflected in the *Emergencies Act 2004*. Typically the ACT bushfire season occurs from the beginning of October until the end of March the following year. The ESA Commissioner has the authority to alter the commencement or end the bushfire season earlier or later if circumstances warrant. The Commissioner exercised this power in the 2018/19 bushfire

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season, which commenced a month earlier, on 1 September 2018, and concluded a month later than normal at the end of April.

The impact temperature plays on fire risk is also used by the fire services in its preparation and planning for bushfires. Additional restrictions on the use of fire apply during the bushfire season. At a more practical level, stand-up arrangements for fire crews are concentrated around the afternoon, when temperatures are hotter, reflecting the increased risk.

WIND

Wind also has significant impact on bushfires. Wind increases evaporation, thereby reducing fuel moisture levels. More importantly, wind spreads bushfires. The stronger the wind blows, the faster the fire spreads. Wind also influences the spread of embers, which can play a key role in spreading the fire and are a significant contributor to asset loss.

Bureau of Meteorology data shows that, on the majority of days assessed as posing a high fire danger, the winds in the ACT come from the north and west. Fire agencies use this information to concentrate preparedness activities on the western urban edge of Canberra, although appropriate protection is afforded to the south and east regions as winds can and do blow from that direction on high fire danger days.

Changes in wind speed and direction can have a large impact on the size and rate of spread of a bushfire, and the suppression response required. The danger posed by wind changes was evident in three of the most deadly bushfires in Australian recorded history – Black Friday (1930), Ash Wednesday (1983) and Black Saturday (2009). Each of those bushfires was affected by a rapid change in wind conditions.

RELATIVE HUMIDITY

Relative humidity also affects the moisture content of bushfire fuels. The lower the relative humidity, the more readily a bushfire will start and it will burn more intensely. Relative humidity is directly influenced by temperature, and in the ACT relative humidity is lowest in the afternoon. Relative humidity is assessed both when determining whether to proceed with prescribed burns, as well as determining the FDI.

PRECIPITATION

Rainfall (precipitation) is another key factor impacting on bushfire risk. Rain increases moisture content on the ground and in bushfire fuels,

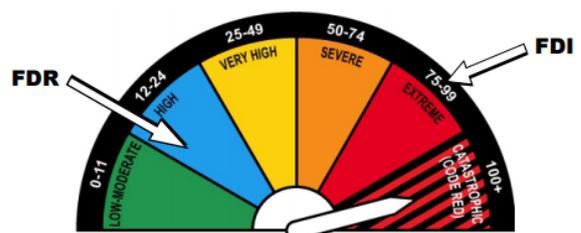
reducing the likelihood of fires starting and reducing the rate of spread.

Long-term rainfall averages show that rainfall in the ACT is relatively evenly distributed throughout the year, although is subject to considerable variability on a year by year basis. Relatively more rainfall historically occurs in late spring to summer. This spring/summer rainfall play an important role in increasing moisture content in the region's vegetation, reducing the likelihood and severity of bushfires. Climate projections show that future spring rainfalls will likely decrease, and droughts are expected to increase. The implications of this are discussed more broadly in the section on 'A changing climate'.

FIRE DANGER INDEX / FIRE DANGER RATING

The elements of the weather do not operate in isolation to influence the bushfire risk. Rather it is the relationship of those elements to each other that is important. For those reasons, a combination of these elements, together with the soil moisture levels, determines the forest fire danger index (FDI).

The FDI expresses a bushfire's rate of spread, intensity, and the effort required to suppress, according to various combinations of air temperature, relative humidity, wind speed and both the long and short-term drought effects. An index of 1 means that a fire will not burn, or will burn so slowly that control presents little difficulty. An index of 100 describes fires that have the potential to burn so fast and hot that control is virtually impossible. The FDI is used to determine the Fire Danger Rating (FDR), which indicates the possible consequences of a fire if one starts.



Elevated fire danger conditions (Severe, Extreme or Catastrophic) occur when the FDI is greater than 50. At those levels bushfires will be unpredictable, fast moving and difficult to control, if not uncontrollable. Flames will likely reach tree tops and be higher than roof tops. Embers will be blown several kilometres ahead of the main bushfire.

Fortunately, days of elevated fire danger conditions are not common in the ACT. The ACT has

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historically averaged less than 3 days each year where the FDI exceeds 50. The majority of these occur in January. This average is increasing in line with our changing climate. CSIRO and Bureau of Meteorology research indicates that south east Australia will see an increase in the number of high fire weather days and a longer bushfire season¹. This change, and the increased maximum and average temperatures associated with our changing climate poses particular challenges in addressing the bushfire risk in the ACT. This is addressed in more detail in the section *Future Challenges: A Changing Climate* below.

FUTURE CHALLENGES

A CHANGING CLIMATE

Australia, including the ACT, is entering an era of unprecedented climate change. These changes include increased average temperatures, changes in rainfall patterns and increased severity of extreme weather events such as severe storms and heatwaves.

A changing climate will impact on all aspects of bushfire risk. It is projected that there will be an increase in severe storm activity. Lightning accounts for a relatively significant proportion of all bushfires. An increase in severe storm activity is likely to lead to an increase in lightning-ignited bushfires.

Reduced or altered rainfalls associated with climate change will also affect fuel. Rainfall is a key contributor to the soil moisture level. Reduced rainfall will also increase the dryness of

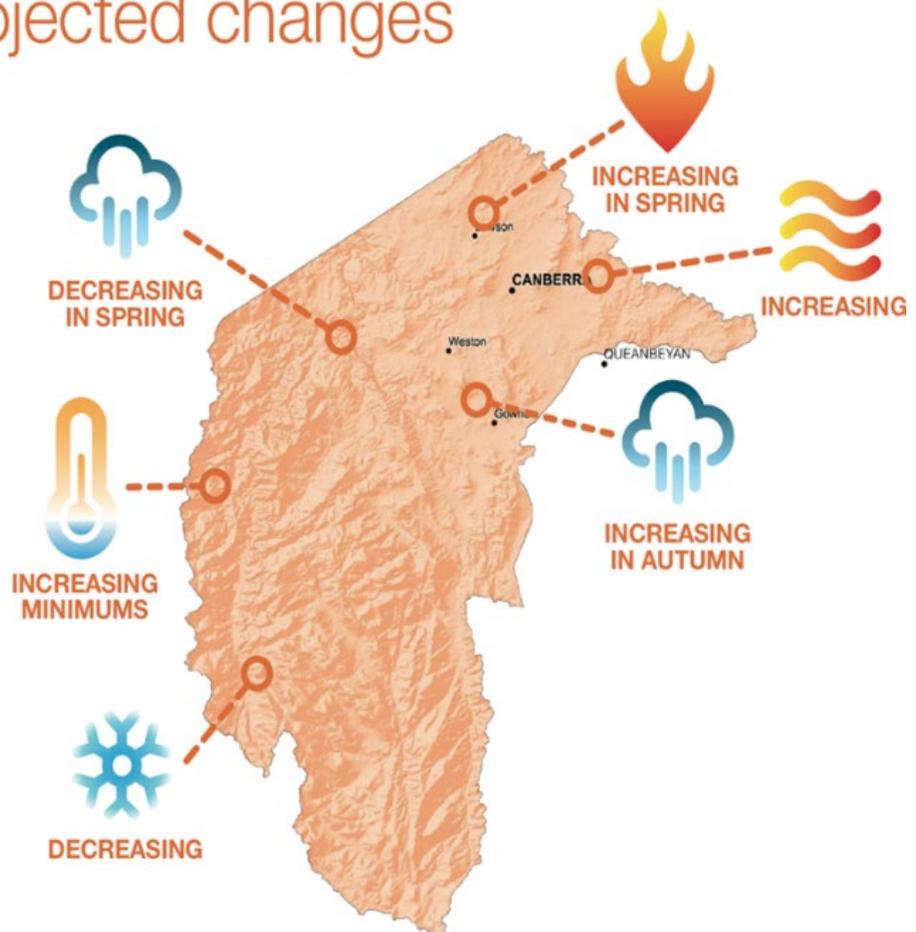
vegetation, making it more combustible.

Changes to the weather are also likely to lead to an increased number of days experiencing elevated fire danger conditions. The ACT is already experiencing record increases in temperature, with 2018 the warmest year on record for mean maximum temperatures and the third-warmest year on record for mean temperature. In 2018, the ACT recorded 63 days of 30 degrees or above, almost double the long-term average of 33 days. The mean minimum temperature was also warmer than average. Compounding this increase in temperatures was the considerably below average rainfall.

These changing weather patterns will have direct implications for ACT emergency services, including the fire services. As outlined in 'The Bushfire Risk in the ACT' in Part 1, weather related factors are key determinants in bushfire risk. Increases in temperatures, prolonged periods of drought and/or heatwaves and changes in rainfall patterns will have considerable impact on bushfire risk, as well as planning and response arrangements.

Climate change is making it harder for land

Projected changes



¹ CSIRO and BOM, State of the Climate 2018.

managers to complete prescribed burning

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programs. Historically, land managers – including ACT Government directorates – have relied on more favourable weather conditions in late autumn, winter and spring to conduct larger scale prescribed burns. Those periods provided significant opportunities to conduct prescribed burning within weather parameters that are considered to provide a relatively safe environment for introducing fire to the landscape.

Climate change will see the windows of favourable conditions available to land managers to safely conduct prescribed burns reduce. This presents a particular challenge to the Parks and Conservation Service (PCS), the land manager of the largest areas in the ACT. PCS is routinely required, in line with their Bushfire Operations Plan, to conduct large scale prescribed burns that may take days or weeks to complete. A changing climate not only reduces the period within which those burns can take place, but also increases the likelihood of unpredictable weather occurring that may impact already in place prescribed burns.

The reduction in ‘windows of suitable weather’ to conduct prescribed burns may also have resource implications for land managers. Prescribed burning is generally the most cost-effective form of hazard reduction – when compared to other activities such as slashing – particularly over large areas. Any reduction in the burning window may cause land managers to undertake and fund alternative mechanisms for reducing the underlying bushfire risk. This risk is particularly pronounced for ACT Government land managers such as PCS, who are managing parks and reserves where large scale grazing and slashing is not feasible or appropriate.

Extended bushfire seasons will also have implications for management of fire volunteers, particularly the RFS but also for Community Fire Units. The ESA will remain vigilant in guarding against ‘volunteer burnout’. It also may have implications on the ability of fire agencies, both in the ACT and interstate, to assist other jurisdictions by supplying personnel and resources for bushfire response operations. This interstate cooperation has been a long-standing feature of bushfire response operations, particularly for large scale bushfires, and provides a valuable surge capability that is unable to be sourced locally.

A GROWING POPULATION

The ACT population is projected to continue to increase. That population increase will be supported by a combination of urban infill and greenfield development. Urban development in its

own right does not necessarily pose an increased bushfire risk, rather it increases the bushfire risk profile that the ESA and ACT Government more broadly must manage.

Having a greater concentration of people living close to grassland, nature parks or other areas of vegetation can heighten the bushfire risk. This is due to a number of factors.

- > Firstly, residents are located closer to the vegetated urban edge, and as suburbs expand and urban densification occurs, more people are located within that Bushfire Prone Area. This is evident in the west and north of Canberra, which are areas that are historically at higher risk for bushfires. This affects the potential number of people exposed to a bushfire, as well as evacuation planning and location of key firefighting and response assets.
- > Secondly, a greater population located close to vegetated areas is likely to increase the number of fires, noting the majority of bushfires lit in the ACT are human caused.
- > Thirdly, the unique nature of the ACT as an island within NSW means increased cooperation will be required, both at a planning level but also for fire response. The Parkwood development, straddling the ACT/NSW border, is an example of the special challenges facing fire management and response agencies in protecting residents of those areas.

The ACT Government has a range of long-standing initiatives to reduce any risks posed by urban expansion and/or densification in Bushfire Prone Areas. These are complemented by recent decisions on a range of planning decisions that will help address any risk.

The ACT Planning Framework, including the *Planning and Development Act 2007*, the Territory Plan, as well as bushfire-specific zoning system, has effectively minimised the bushfire risk in new greenfield estates. Houses must comply with certain specified bushfire-related construction requirements. Asset Protection Zones are used by ACT Government land managers to minimise the risk of bushfire impacting upon key assets, including residential dwellings.

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PLANNING REQUIREMENTS

In 2018 the ACT Government adopted a number of new planning initiatives, or reaffirmed its commitment to initiatives that were not always uniformly applied.

From late 2019, all residential dwellings located in the Bushfire Prone Area will be required to comply with the bushfire-specific construction requirements set out in the National Construction Code. These building requirements seek to enhance the ability of the building to withstand the impacts of bushfires, either by improving the ability of the building to withstand contact with direct flame or radiant heat (such as by using heat resistant materials), or by reducing the likelihood that windborne embers ignite the building (such as by screening vents). While compliance with the Code does not provide any guarantee that the building will not be substantially damaged or destroyed by bushfire, and it should not be considered to act in a similar manner to a bushfire shelter, it enhances public safety by providing a degree of protection for occupants sheltering as the fire front passes.

Previously these requirements had only been applied in greenfield development, whereas they will now apply to all construction in a Bushfire Prone Area, regardless if it is a greenfield or established suburb. The requirements will apply to the construction of new houses (including knock-down rebuilds) as well as substantial alterations.

The actual construction requirements required will be determined by the actual risk faced to that

building, a measure known as the Bushfire Attack Level (BAL) rating. The BAL is a measure of the building's exposure to direct flame contact, ember attack and radiant heat. It is a site specific assessment that takes into consideration a number of factors including the slope of the adjacent land, the surrounding vegetation and the distance of the building to that vegetation.

Edge roads have been regularly used in the ACT to reduce the bushfire threat facing residents. Estate design requiring edge roads surrounding development can significantly reduce the bushfire threat faced by dwellings at the urban edge, and provides for a permanent reduction in potential BAL ratings that is not dependant on human intervention. Edge roads also facilitate firefighter access to the urban / rural edge.

While edge roads have long been used in the ACT, from 2019 all new estates will be required to use edge roads, unless the ESA Commissioner has agreed to alternative arrangements.

Development of sites on which sensitive use developments are planned (such as schools or aged care facilities) in Bushfire Prone Areas also may present challenges, particularly if it would result in concentrations of vulnerable people in areas at higher risk of bushfire. As a matter of policy, no sensitive use developments will be permitted in the Bushfire Prone Area, unless the ESA Commissioner is satisfied that appropriate measures are in place to appropriately minimise the risk to residents and/or users of those facilities.

HOW THE ACT MANAGES BUSHFIRE RISK

The ACT has long benefitted from a multi-faceted, comprehensive approach to managing bushfire risk in the Territory. This approach encompasses the spectrum of Prevention, Preparedness, Response and Recovery and seeks to reduce the ACT community's vulnerability to bushfire.

These management measures range from planning controls to ensure the appropriate location and design of development, managing potential fuel loads, adopting a range of management and operational plans, ensuring a well-resourced and effective emergency services, through to increasing community awareness and personal action on the risks posed by bushfires.

Led by the ESA and PCS, bushfire risk management involves all other ACT Directorates, utility providers, private land holders and the broader community. Bushfire prevention is not the responsibility of a single body but rather the collective responsibility of the entire ACT community.

This approach supports the National Disaster Risk Reduction Framework. This Commonwealth Government-led framework outlines a coordinated approach to reducing natural disaster risk. In doing so it draws upon the United Nation's 2015 Sendai Framework for Disaster Risk Reduction, which focuses on increasing resilience by reducing new and existing, disaster risk.

The National Disaster Risk Reduction Framework contains a number of priorities, including:

- > understanding disaster risk – increase public awareness through trusted and authoritative mechanisms, and the broad disclosure of risk information that is integrated in risk planning across sectors
- > making accountable decisions – that decision makers recognise the impact of their decision on disaster risk, with a particular focus on infrastructure, land use and development planning
- > targeting investment – that investments target high priority and significant disaster risk, and recognise that risk reduction reduces future recovery costs

- > understanding governance, ownership and responsibility – all sectors and communities understand the extent to which they have a responsibility to reduce disaster risk, and actually act to reduce that risk.

The existing risk mitigation efforts outlined below directly support a number of these priorities. The priority actions to be delivered by this plan will further support these priorities.

UNDERSTANDING THE RISK

Underpinning the ACT's bushfire mitigation strategies is an identification of areas of risk. The ESA and EPSDD undertake a comprehensive spatial analysis of the parts of the ACT facing a higher level of bushfire threat. The results of this analysis are presented in a number of maps and inform a range of planning and development controls.



These maps are all designed to be viewed via the internet and are available at the ACTMAPI website (www.actmapi.act.gov.au).

THE BUSHFIRE PRONE AREA

The Bushfire Prone Area (BPA) is the area of the ACT that has been assessed as being at high risk of being impacted by bushfires. The BPA primarily reflects the potential fuel load of land. As such it includes the entirety of the rural area of the ACT, as well as areas of significant vegetation within the urban area (such as the Canberra Nature Park). The BPA also includes a buffer zone, extending up to 100 metres from the vegetated edge into inhabited areas. This reflects that bushfires do extend into the urban area, spreading via ember attack or by house to house ignition. A bushfire zone of 100 metres reflects best practice as set out in the relevant Australian Standard (AS3959 – Construction of buildings in Bushfire Prone Areas).

It is important to highlight that the BPA depicts those areas assessed at highest risk of impact from bushfires. Areas outside the BPA may still be at risk from bushfires, albeit facing a lower risk.

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Experience has shown that fires can and do extend further into urban areas than 100 metres.

Declaring the BPA has two main functions.

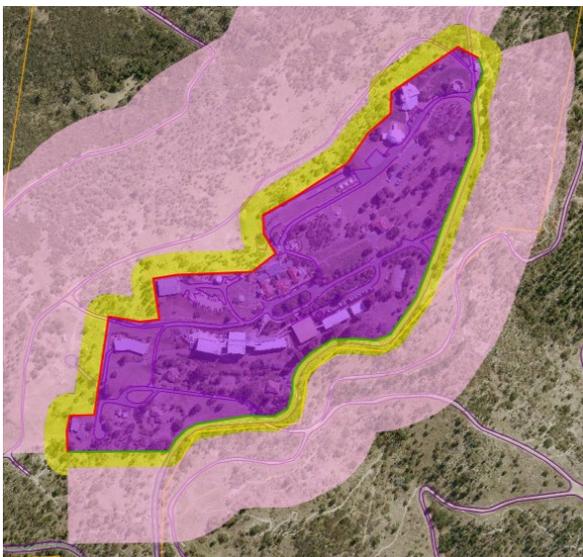
First, it allows the community to assess their personal level of risk. The ESA also targets community education and awareness campaigns towards residents of the BPA.

Secondly, new residential development, or substantial redevelopments, within the BPA will, from late 2019, require assessment of the building's bushfire attack level (BAL) rating. The BAL rating will determine whether additional bushfire-related construction requirements required under the Building Code of Australia apply to that development. These building requirements seek to enhance the ability of the building to withstand the impacts of bushfires. They do so by improving the ability of the building to withstand contact with direct flame or radiant heat (such as by using heat resistant materials), or by reducing the likelihood that windborne embers ignite the building (such as by screening vents).

The BPA is regularly reviewed and refined to reflect changes in land use and tenure, as improved vegetation mapping becomes available and to address local and site specific issues as required.

FIRE MANAGEMENT ZONES

Fire Management Zones are areas within the BPA that have been identified as warranting priority fuel management actions and appropriate access for fire agencies. The location and alignment of these zones reflect the risk of bushfires starting and spreading, and impacting on life, property and other assets.



A Fire Management Zone is in turn composed of one of a number of sub-zones. The Bushfire Management Standards prescribe the treatment standards for each zone, as well as the widths of each zone. The width of each zone varies depending on factors such as the vegetation type and the aspect of, and length of, the applicable fire run. This reflects that bushfires on Canberra's northern and western edges are generally more severe.

These zones are approved by the ESA Commissioner and are reviewed as required to reflect significant changes.

Inner Asset Protection Zone

An area immediately adjacent to an asset, such as a residential boundary, requiring intensive fuel management to minimise fuel loads.

Outer Asset Protection Zones

Typically adjoining Inner Asset Protection Zones, and often to the north and west of the asset, fuel management is a priority in these areas.

Strategic Firefighting Advantage Zones

Strategically located corridors or land, located and managed to break up major fire runs that would otherwise impact on residential areas. Fuel management in those areas should be compatible with ecological requirements.

Agricultural Fire Protection Zones

Areas used for rural production or agistment where less intensive fuel management is required but which should be in accordance with the agricultural objectives the land is used for.

Landscape Fire Management Zones

Government managed lands where planned fire may be applied to meet ecological or water catchment requirements.

Aboriginal Fire Management Zones

This zone encompasses areas and sites of cultural significance. Within this zone may occur cultural burning and other land management treatments to support traditional cultural practices. Any cultural burning is not expected to be incompatible with ecological requirements.

BUSHFIRE ABATEMENT ZONE

The Bushfire Abatement Zone (BAZ) surrounds the urban area of Canberra. Part of the Bushfire Prone Area, it depicts the urban/rural interface which is subject to more intensive planning and

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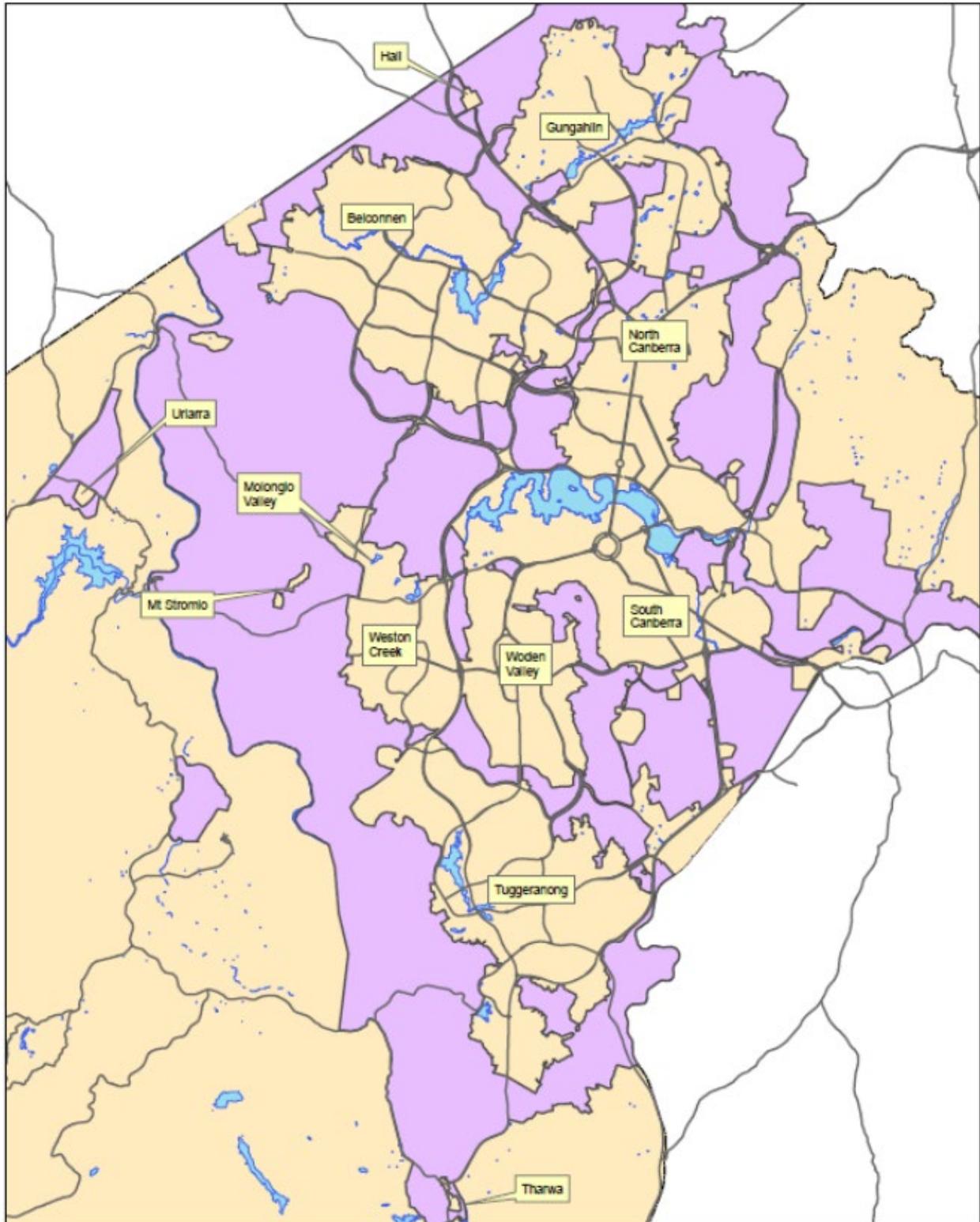
management to minimise the risk of bushfires entering the urban area.

Rural landholders within the BAZ are required to complete a Bushfire Operational Plan, detailing the specific fire mitigation activities to be undertaken

on that land. Bushfire Operational Plans are described in more detail in the following section.

The BAZ is reviewed as required to reflect changes in land use and tenure, and will be approved by the ESA Commissioner.

The Bushfire Prone Area



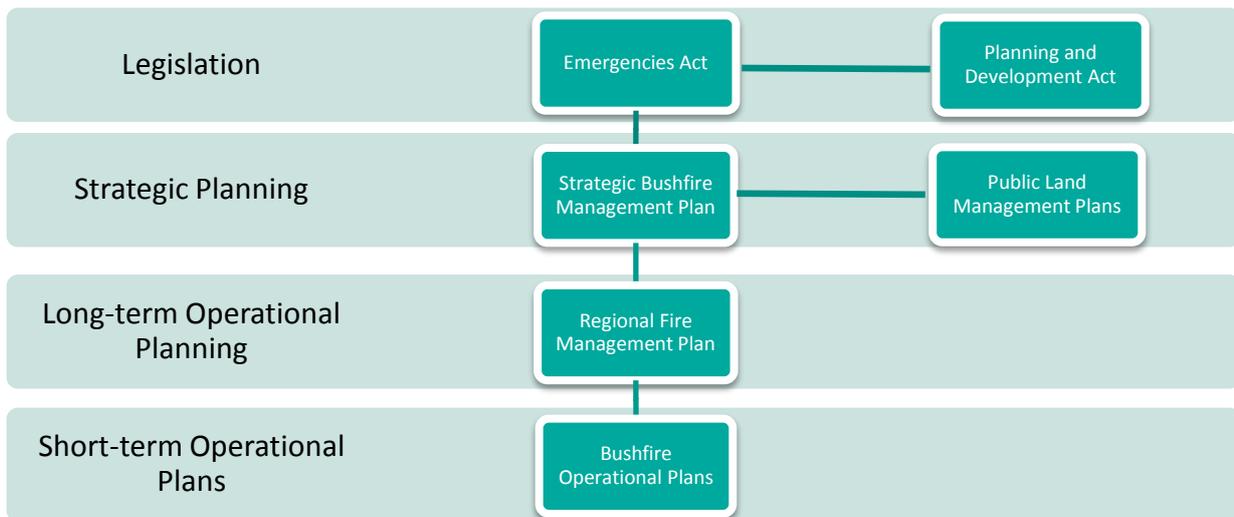
Bushfire Prone Areas are shown in purple.

PLANNING AND DEVELOPMENT CONTROLS TO LOWER THE RISK

It has been the long standing practice of the ACT Government to place bushfire risk at the heart of planning and development processes. This reflects that land use planning is a key prevention tactic for

managing fire risk, particularly on the vulnerable urban edge. That has been achieved through a clear hierarchy of strategic, operational and tactical plans and maps that clearly prescribe the obligations and measures that apply. These provide an ACT-wide, tenure-neutral approach that reflects the principal purpose for land use, taking into account the ecological, cultural and heritage considerations.

THE HIERARCHY OF PLANS



PLANS OF MANAGEMENT

It is a requirement of the *Planning and Development Act 2007* that areas of public land must be managed in accordance with a public land management plan for that area. The *Emergencies Act 2004* provides that a public land or reserve management plan has no effect to the extent of any inconsistency with this plan. In practice, bushfire mitigation strategies in this plan are developed to be consistent with plans of management for nature conservation areas.

Land/reserve management plans have been prepared for all rural public lands, including the Namadgi National Park, the Canberra Nature Park, the lower Cotter catchment reserve and the Molonglo and Murrumbidgee River corridors, as well as select areas in the urban area.

Land management plans identify what is important about an area (its values), what is hoped to be achieved in the management of the area (objectives) and the means by which the objectives will be achieved (policies and actions). The plans

provide direction guidance to the land manager and other stakeholders (including visitors, neighbours and volunteers). These plans are developed in close consultation with those stakeholders, as well as the broader public.

Land management plans must be reviewed every ten years, and the land manager must report on the implementation of the plan every five years.

The plans encompass a wide range of management activities, ranging from zoning and access, protection and maintenance of cultural and heritage assets, safeguarding water resources, protecting landscape and ecological values to ensuring appropriate access for visitors.

Fire management is a key management objective for the plans. These plans detail the specific bushfire risk posed to that land, and identifies key assets at risk from bushfire. They outline the risk mitigation actions to be adopted for that area of land, including the scale and general location for prescribed burning, as well as any access improvement works. The specific details and

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timing of those risk mitigation works are detailed in the bushfire operational plan (BOP) for that land.

REGIONAL FIRE MANAGEMENT PLAN

The Regional Fire Management Plan (RFMP) is the link between this plan and more detailed bushfire operational plans. The RFMP covers all EPSDD and TCCS managed land and details the major fire fuel management, fire access management and fire infrastructure management strategies that the Territory land managers will implement over a 10 year period over a given area in the ACT. It also details indicative timings for that work.

While the RFMP is prepared on a 5-yearly basis with a 10-year outlook, it may be reviewed to reflect significant changes, such as a large bushfire in an area or the development of a new greenfields estate.

BUSHFIRE OPERATIONAL PLANS

Bushfire operational plans (BOPs) detail the specific type, location and timing of fuel reduction, access and infrastructure activities proposed to be undertaken by the landholder.

Who is required to prepare a BOP?

The *Emergencies Act 2004* mandates that BOPs are required for all unleased territory land or land occupied by the Territory.

The *Emergencies Act 2004* also provides that BOPs may be required for other land in the bushfire abatement zone if this plan mandates that a BOP be prepared. All landholders within the bushfire abatement zone are required to prepare a BOP for that land.

BOPs are also required from utilities managing land or assets located within the bushfire abatement zone.

BOPs are prepared by the landholder. The ESA supports private landholders through the ACT Rural Fire Service Farm FireWise program. That program supports and assists the rural community in their prevention, preparedness, response and recovery actions and capabilities. Under the program, a risk assessment is undertaken of the rural property, identifying at-risk assets. A range of mitigation strategies are then developed to reduce the risk to those assets. Plans developed for rural leases under the ACT RFS Farm FireWise program meet the requirements for a BOP.

The ESA Commissioner is responsible for approval of all BOPs.

BUSHFIRE MANAGEMENT STANDARDS

The ACT Bushfire Management Standards are made by the ESA Commissioner and mandate the technical specifications for requirements imposed by this plan. Among other things, the standards specify widths for Inner and Outer Asset Protection Zones, the fuel management requirements for the various Fire Management Zones, and the technical specifications for fire access roads.

As a notifiable instrument the standards may be easily updated to reflect best practice.

These standards will be reviewed and updated as appropriate to complement this plan.

RESPONSE AND COORDINATION PLANS

The ACT ESA including the Fire Services, as well as other emergency services and support agencies, also have a range of doctrine and operational procedures, and internal policy documents, to guide preparedness and response arrangements in the ACT. These include the Emergency Plan and its sub plans, Commissioner's guidelines, standard operational procedures, and memorandums of understanding between government and nongovernment agencies and the Fire Services.

CROSS-BORDER ARRANGEMENTS

The ACT ESA actively works with fire and emergency services agencies in NSW to develop bushfire management strategies that are aligned and to acknowledge the level of bushfire risk within each jurisdiction.

Formal arrangements are in place between ACT and NSW agencies to provide for integrated and efficient cross border response arrangements, incident management liaison, common communications, training, shared resources and mutual support.

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A COORDINATED RESPONSE CAPABILITY

The ACT Government maintains a wide range of response capabilities within the ACT Fire Services to allow a rapid and effective response to bushfires, both in the ACT and the neighbouring region.

ACT RURAL FIRE SERVICE

The ACT Rural Fire Service (RFS) has primary legislative responsibility for bushfire response in rural areas of the ACT.

The RFS is primarily comprised of approximately 450 volunteer members, administratively allocated to one of eight brigades located throughout Canberra.

The RFS maintains a number of employed officers to support and manage RFS operations and training. These staff are assisted by a range of ESA personnel providing support and enabling functions, including logistics, incident management, spatial services and vehicle maintenance.

The RFS maintains a range of response capabilities, either on a year-round basis or during the bushfire season. These include:

- > four fire towers strategically placed around the ACT to assist in the early detection of bushfires
- > a fleet of light, medium and heavy tankers, command and support vehicles, including six Compressed Air Firefighting Foam Systems (CAFS) appliances
- > Remote Area Firefighting Teams (RAFT) to undertake firefighting in locations where vehicles cannot access, gaining access to bushfires on foot or inserted by helicopter. This specialised capability is very highly regarded by other fire agencies, with regular requests made for RAFT members to assist in interstate response operations
- > an aerial firefighting capability, undertaking water bombing, RAFT insertion or aerial surveillance. In 2018 the RFS engaged a new light helicopter with Specialist Intelligence Gathering (SIG) capabilities, providing a significant addition to the aerial capabilities available to respond to bushfires.

PARKS AND CONSERVATION SERVICE

The Parks & Conservation Service (PCS), comprising approximately 180 career and seasonal fire personnel, is both a brigade of the RFS as well as an administrative unit within EPSDD. It operates from a number of parks depots across the ACT.

PCS acts as land manager for EPSDD managed land (Canberra's National Parks and Nature Reserves, and Googong Foreshore), including preparing BOPs for those lands and undertaking fire mitigation works under those BOPs. PCS also undertakes bushfire response and suppression operations to support the broader RFS.

PCS maintains a range of capabilities for use in bushfire response operations:

- > a fleet of light, medium and heavy tankers, command and support vehicles, including CAFS appliances
- > RAFT-qualified members
- > contracted plant (such as dozers and graders) to support response operations
- > support and enabling capabilities including IMT-qualified personnel, advanced chainsaw operators, bushfire behaviour analysts and burnt area recovery specialists.

Funding for PCS response capabilities is substantially funded by the ESA.

ACT FIRE AND RESCUE SERVICE

The ACT Fire and Rescue Service (F&R) has primary legislative responsibility for bushfire response in the urban areas of the ACT. F&R members also routinely attend bushfires in the rural area, noting the ESA responds to bushfire with the nearest, most appropriate resource.

As well as a full-time, 24 hour career workforce, F&R have a range of fire appliances, including CAFS and rural tankers.

Like the RFS, the F&R is supported by a range of support and enabling services provided by the broader ESA.

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COMMUNITY FIRE UNITS

Trained, equipped and supported by F&R, Community Fire Units (CFU) are teams of local residents who live close to bush land areas across the ACT and who are trained and equipped to safeguard their homes during a bushfire until the fire services arrive.

A typical CFU team consists of 8 to 30 members and has a designated area encompassing 50 to 80 homes. There are approximately 850 volunteer members across 50 CFU teams.

As well as their bushfire response duties, CFU members play an active role in community engagement to educate their local community about the dangers posed by bushfires in that area.

BROADER ACT GOVERNMENT SUPPORT

The ACT Fire Agencies response operations are supported by a broad spectrum of ACT Government Directorates and community organisations. Coordinated by the ESA, these partners provide a range of vital supporting and enabling functions. These range from establishing and operating emergency evacuation centres, the provision of buses to support evacuation, to treating the medical needs of those affected by bushfire. Community and volunteer organisations also have an important role to play in response operations, particularly in managing the consequences and supporting the recovery process.

COMMUNITY ENGAGEMENT AND AWARENESS RAISING

Reflecting that the ACT community has a vital role to play in preparing for, responding to and

recovering from bushfires, the ACT Government places a particular focus on increasing community awareness of the risks posed by bushfire.

The ESA has branded all community engagement activities and messaging under the standard brand of “Canberra Be Ready”.

A number of important community engagement events are conducted annually:

- > The doorknock campaign sees emergency service volunteers engaging directly with many thousands of residents in areas of higher bushfire risk to educate them about their risk, and to support mitigation efforts.
- > The Emergency Services Open Day is held each year in October at the ESA Headquarters in Fairbairn. The Open Day is the opportunity for the broader ACT Government directorates and supporting agencies/entities to share their capabilities, educate and engage with the ACT and surrounding community. The last two years have seen 5000 (2017) and 7500 (2018) people attend the event.

BUSHFIRE SURVIVAL PLANS

The Bushfire Survival Plan is the principal document for ACT residents to prepare themselves, their families and their properties against the threat of bushfire.

Although these plans are not mandated in the same way as BOPs, experience has shown that well-prepared households stand a better chance of surviving a bushfire and minimising property damage.

Supporting the ACT community to develop bushfire survival plans is a high priority for the ESA. Encouraging households to complete a bushfire survival plan is a key focus of the ESA’s bushfire awareness efforts.

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PART B: OBJECTIVES AND ACTIONS

SBMP OBJECTIVES

This section contains the objectives of the SBMP along with the strategies and actions necessary to achieve the outcomes of each objective. This plan builds constructively on SBMP Version 3, especially on the proven strategies of strong engagement with the community and use of broad area hazard reduction through the preparation and implementation of Bushfire Operational Plans.

The objectives are grouped under six key themes which represent the emphasis within each objective for delivering the actions of the plan.

The following table details the themes, objectives and strategies for the SBMP. Detailed discussion and actions are provided under each objective in the section that follows.

COMMUNITY		
Objective 1.	A reduction in bushfire ignitions	Programs will be implemented to reduce the number of ignitions, targeting systemic and human-caused factors of deliberately lit bushfires (arson) and the careless use of fire.
Objective 2.	Planned fire management on rural lands.	With the support of the ACT Government, rural land managers will undertake a planned, whole-of-property approach to reduce the risk of bushfire to their business and surrounding areas
Objective 3.	A community that is prepared for bushfires.	Having a community that is prepared for bushfires is a shared responsibility
FIREFIGHTING OPERATIONS		
Objective 4.	Effective firefighting operations by skilled and motivated personnel	The ACT Government will support a responsive bushfire fighting capability with sufficient numbers of skilled and motivated personnel to respond to bushfires.
Objective 5.	The necessary equipment and resources to respond to and extinguish bushfires	The ACT Government will ensure an adequate supply of equipment and resources, supported by clear principles and systems of work to support operations, so that firefighters can respond to bushfires safely and effectively.
Objective 6.	Extinguish bushfires when they occur	A rapid, decisive and coordinated response will provide the best opportunity to control bushfires in the shortest possible time and in a safe manner.

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BROAD AREA FUEL REDUCTION AND ACCESS

Objective 7.	Broad area bushfire fuel reduction across the natural and rural landscape of the ACT	Broad area fuel reduction practices will be used to establish and maintain a range of differing fuel loads across the broader natural and rural landscape of the ACT, to assist in suppressing bushfires and reducing the impact of bushfires on life, property and the environment.
Objective 8.	Access for vehicles and firefighters to undertake bushfire fighting and fuel reduction	Government and private land managers will work together to provide a network of fire trails and helipads that provide safe and effective access for firefighting and fuel reduction operations.

ADAPTIVE MANAGEMENT FOR CLIMATE CHANGE

Objective 9.	Adaptive management of current and future bushfire risks	The ACT Government will adopt an adaptive management process to address increasing bushfire risks, including climate change, and support continuous improvement based on sound research, modelling, monitoring, evaluation and lessons learned.
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LAND USE PLANNING

Objective 10.	Effective land-use policy and planning that reduces bushfire risk	The assessment and mitigation of bushfire risk through effective land-use policy and planning will reduce the exposure of built and natural environments to bushfire.
Objective 11.	Integrated measures for bushfire protection at the urban edge	A range of complementary measures will be used to achieve integrated bushfire risk reduction on the urban edge.

BUSHFIRE RECOVERY

Objective 12.	Supported communities for bushfire recovery	Recovery from bushfires may commence while bushfire response operations are underway and may need to continue for a long period afterwards. Recovery will encompass actions to address the social, economic and environmental impacts of bushfires, as they affect individuals, the broader community and environment.
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COMMUNITY

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1. A REDUCTION IN BUSHFIRE IGNITIONS

Programs will be implemented to reduce the number of ignitions, targeting systemic and human-caused factors of deliberately lit bushfires (arson) and the careless use of fire.

Bushfires start from both natural and human causes, but the majority of bushfires in the ACT are caused by humans – either deliberately or accidentally – and are preventable.

In addition, climate, weather and factors such as the degree of grassland curing and residual fuel

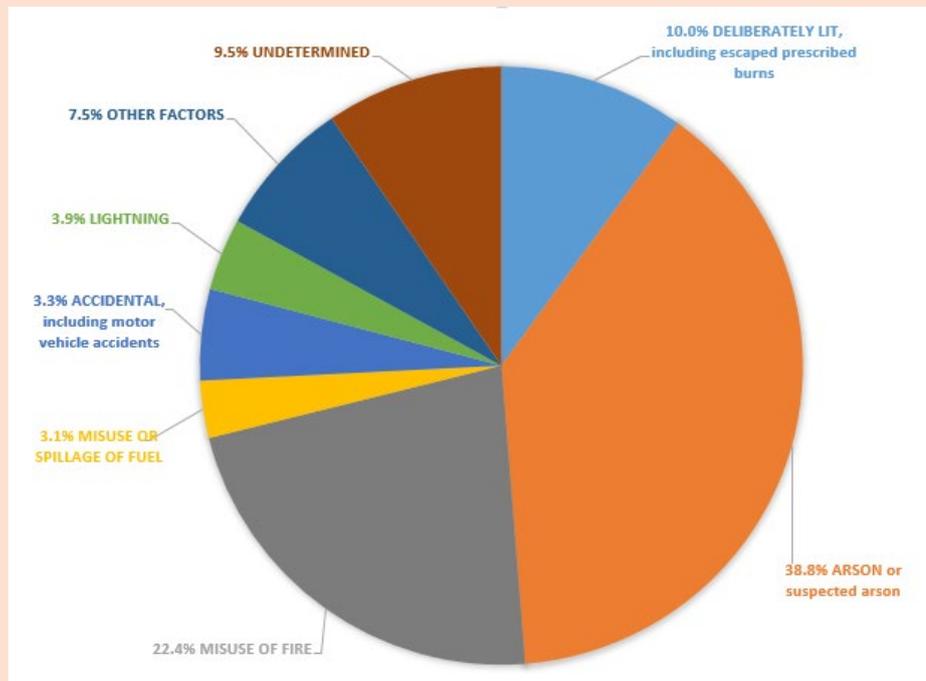
dryness dictate the underlying conditions that can make a bushfire more likely to be significant and harder to control.

Lightning is the most common natural cause of ignition and, historically, the largest areas burned are attributed to lightning ignitions. Often lightning-caused bushfires occur in the ranges to the west of Canberra and multiple strikes can occur in a dry storm. Studies conducted on lightning in the ACT have continued to support appropriate response strategies for fuel management, bushfire detection and response that focus on lightning-prone areas. The ACT uses real-time lightning strike data detection to assist the rapid identification of ignitions caused by lightning.

Causes of Bushfires in the ACT

Human caused ignitions include deliberate acts – arson, suspected arson, car fires, prescribed burns, burning-off without a permit, illegal burning-off and accidental or careless acts – ignitions from power lines, motor vehicles, campfires, motor vehicle accidents and sparks from machinery.

Many actions are prohibited on days of extreme fire danger and that are declared as a Total Fire Ban (TOBAN) day.



Causes of bush and grass fires in the ACT from May 2014 to February 2019.

It is not coincidental that many bush and grass fires occur in or near the built-up area of Canberra and these are usually human-induced. With the growing population and geographic expansion of Canberra, the number and frequency of these ignitions is increasing.

Following recommendations from the 2009 Victorian Bushfires Royal Commission, the ACT

Government and Evoenergy reviewed the risk of ignitions associated with electricity infrastructure and supply. In 2018 the *Utilities (Technical Regulation) (Electricity Powerline Vegetation Management Code)* (the Code) was approved as a Disallowable Instrument.

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Pierces Creek car fire



Car fires in bushland present a risk. Some of these cars, such as the one that started the Pierces Creek bushfire in November 2018 were stolen and set fire. Other bushfires have been caused by arson of abandoned cars.

The plan introduces an action to enable the rapid identification and removal of abandoned vehicles that could pose a fire hazard in areas of high bushfire risk.

The burnt vehicle which was the ignition source for the Pierces Creek bushfire which burned for four days, covered 204 hectares of pine forest and came within seven kilometres of Tuggeranong.

STRATEGIES

As part of the community engagement activities, targeted awareness and education programs will be delivered to help the community to understand its responsibility for reducing preventable ignitions and promptly reporting fires. These are discussed in more detail under *Objective Three: A Community that is prepared.*

ACT Policing will continue to investigate arson-related bushfires or where the ACT Coroner considers there have been significant impacts from a bushfire. They will be supported by the ACTRFS and ACT F&R who have specialists trained to investigate the cause of bushfires. These investigations help identify preventative programs delivered by ACT Policing and the ESA.

The ACT ESA and ACT Policing will continue to participate in the national work plan to 'Reduce Bushfire Arson in Australia'² which provides for greater cooperation between fire services, police agencies, social services and the criminal justice system to take a preventative approach to address bushfire arson. One of these is the 'Junior Fire Awareness and Intervention Program' being

delivered by ACT F&R across the ACT to children between the ages of 4 to 18.

Rural landholders will also continue their important role in reducing bushfire ignition by actively managing their properties with actions that prevent the spread of fire as part of their Land Management Agreements and Farm Firewise plans. See Objective 2.

The 2018 utilities Code sets clear requirements and responsibilities for managing vegetation near aerial powerlines and a regulatory action is included in this SBMP.

For bushfires in the ACT's remote areas, rapid detection and response is critical. The ACT has a network of fire towers and lightning detection systems and these will continue to play an important role in rapid detection of ignitions. Aerial observation may also be conducted after significant lightning strikes. Applied data on susceptible parts of the landscape will allow more effective use of aerial resources for detecting bushfires. The ACT will continue to use a helicopter fitted with Specialised Intelligence Gathering (SIG) capability to provide real time visualisation and transmission of information to the Emergency Control Centre to aid early detection of bushfires.

The ESA Commissioner has important statutory powers to prevent bushfires by:

1. Australian Government Attorney-General's Department 2009

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- > regulating the use of fire by introducing seasonal restrictions (i.e. during the bushfire season)
- > regulating the use of machinery, considering the level of fire danger
- > declaring days of total fire ban in the ACT to limit ignitions, or when local or regional conditions may require increased levels of vigilance.

ACTIONS

1.1 In conjunction with ACT Policing, ESA will continue to deliver the fire education and arson intervention programs for juniors.

1.2 Conduct arson investigations in accordance with the *MOU for the Investigation of Fires between ACT ESA and ACT Policing*.

1.3 The Technical Regulator will audit and assess the electricity distributor's compliance with its Vegetation Management (Bushfire & Environmental) Works Plan.

1.4 Develop whole of government procedures, including a review of legislation, for the rapid identification and removal of abandoned vehicles posing a fire hazard in areas of high bushfire risk.

1.5 Employ predictive modelling techniques, technology such as SIG, and maintain and staff fire towers to ensure rapid detection of ignitions in the ACT landscape.



Investigating the bushfire at Pierces Creek, 2018.

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2. PLANNED FIRE MANAGEMENT ON RURAL LANDS

With the support of the ACT Government, rural land managers will undertake a planned, whole-of-property approach to reduce the risk of bushfire to their business and surrounding areas.

This plan recognises that primary production practices reduce fuel loads, improve access and occupy the land. This makes leasehold management a vital, integral component of reducing bushfire risk in the ACT.

There are approximately 180 rural leases involved in a range of enterprises in the ACT. Agricultural production in the ACT includes broad acre grazing, cropping and intensive horticulture, such as olives, truffle production and vineyards. Other rural enterprises include tourism, agistment for horses and small businesses.

Particularly to the north and west of Canberra, rural leases separate the city and urban nature reserves

from the rugged and heavily forested areas of the Brindabella Ranges.

Under the RFMP, fuel reduction and access is planned on government lands and undertaken according to BOPs. NSW RFS also carry out fuel reduction burns on the NSW side of the border and continue to plan these in collaboration with the ACT. However, because of the relative difficulty in extinguishing fires in remote areas, there remains a risk that bushfires could spread from government to adjacent rural lands.

Bushfire impacts have the potential to affect rural enterprises significantly. This impact extends well beyond business, with many rural enterprises also being a place of living and connection with the land.

The BAZ was established to provide a zone of more intensive planning and management to reduce the risk of ignition and bushfire encroaching on the urban edge. Under the *Emergencies Act 2004*, all landholders in the BAZ, which includes Government-owned land as well as rural land, must prepare a BOP. At April 2019, there are 76 rural leases within the BAZ. Under the SBMP, the requirement to prepare a BOP is extended to all rural landholders in the ACT.

Preparing a Farm FireWise Plan

All rural landholders in the ACT prepare a Farm FireWise Plan.

These help rural landholders plan and prioritise a comprehensive fire management plan for their property.

It informs fire services of access points and priorities for protection.

Plans contain valuable information such as:

- > Landholder name, address and contact details
- > Access and egress – information about property access and any hazards that fire trucks might find, such as hidden rocks
- > Prevention plans and mitigation, including protection of assets on the property and strategic areas, such as boundaries
- > Preparation and response plans in the case of different fire danger ratings
- > Assets, including property and livestock and the priority for their protection
- > Firefighting resources – including fire protection systems and water supplies.



The map prepared for the Farm FireWise Plan illustrates critical information about access and assets to be protected in a bushfire event.

STRATEGIES

Rural landholders in the ACT, like urban residents, have a duty to take reasonable care to prevent the spread of a fire from their property. Most rural landholders have a high level of awareness of the risks of ignition associated with machinery, equipment and infrastructure, particularly during elevated fire danger conditions. Likewise, there are long practised fuel management techniques, such as targeted grazing, that are important in preventing the spread of bushfires.

The requirement for a BOP for rural landholders is met through the Farm FireWise program. ESA will continue to support rural landholders to prepare their Farm FireWise Plans, which must be reviewed every five years and approved by the ESA Commissioner. Auditing and assessment of these BOPs will be undertaken to ensure compliance with standards.

The requirement to identify reasonable measures for managing bushfire risk as well as any fire management requirements is also established under Land Management Agreements. Farm FireWise Plans must comply with the conditions specified in these agreements.

Recovery following bushfires on rural land is an important part of these plans. The time taken for recovery may be protracted, where loss of infrastructure (fencing, structures) and fodder may render businesses unviable for many months, or even longer if bushfires occur in years of drought. In the longer term, stocking and breeding programs, pasture improvement, intensive horticulture and plantation forestry may also take many years to recover.

The ESA will develop a targeted program to increase participation by rural landholders in volunteer activities, including the Rural Fire Service. This will help build a connected, capable and resilient rural community.

Each bushfire season is different. The ACT Government will work with the Rural Landholders Association to provide pre-season briefings on the bushfire season assessment and outlook.

As the Canberra landscape has evolved, so too has the need for planning the bushfire risk management for the Molonglo River and Murrumbidgee River corridors. As Government-managed and rural lands are both involved in these corridors, the ACT Government will work

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closely with rural landholders to develop BOPs appropriate for these areas.

For principles relating to fire management zoning at the rural-urban edge, see *Objective 11: Integrated measures for bushfire protection at the urban edge*.

ACTIONS

The following actions will be undertaken:

- 2.1 Rural landholders in the BAZ must prepare and submit a BOP, consistent with the ACT Bushfire Management Standards, and review it every five years.
- 2.1 The ACT Government will continue to support rural landholders to develop and maintain fire management plans through the Farm FireWise (FFW) program. Priority will be given to rural land holders within the BAZ.
- 2.2 Review FireWise materials annually to incorporate changes to relevant legislation and policy.
- 2.3 The ACT Government will work closely with rural landholders to encourage pre-season preparation activities through advice on seasonal climate risk, with emphasis on rural land holders within the BAZ.
- 2.4 Increase participation by rural landholders in ESA's volunteer services.
- 2.5 Develop and implement mitigation strategies to reduce the bushfire risk posed by the Molonglo River corridor and the Murrumbidgee River corridor.

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3. A COMMUNITY THAT IS PREPARED FOR BUSHFIRES

Having a community that is prepared for bushfires is a shared responsibility.

Living in the bush capital means that everyone needs to be prepared for bushfires when they occur. This means **all** community members – businesses, land managers, landholders, groups, neighbours and individuals – not just the Government.

Lessons learned from bushfire events in Australia and overseas inform us that the people who are most likely to be harmed during extreme bushfire events are those who live in Bushfire Prone Areas, are vulnerable due to their personal circumstances and who leave making critical decisions until the last moment.

The ACT Government provides information and education to the community through a number of bushfire preparedness campaigns, and will continue to do so. These campaigns aim to increase public knowledge of bushfire risk, the actions that individuals and groups need to take to reduce that risk and what to do if a bushfire threatens.

It is important to recognise that some people will require assistance to understand or undertake all the actions necessary to manage their risk exposure and will need support in the event of a bushfire emergency. People who may need support include the very young or elderly, newcomers, people with physical disabilities, or culturally or linguistically diverse members of the community.

Community awareness is also a focus of the *ACT Elevated Fire Danger Plan* described in Objective 6.

Keeping the community informed



Electronic fire danger signs are located on main arterial roads in the ACT to provide information on the current bushfire danger rating.

This is one of many ways the ACT Government keeps the community informed. Other public safety communications methods include radio and television announcements, use of social media, ESA website, telephone and emergency alerts broadcast to mobile phones in the area under threat.

Warnings are provided to the public during a bushfire event in line with national standards through the ACT Bush and Grass Fire Warnings and Public Information Protocol.

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STRATEGIES

The ACT Government will address community preparedness and safety by continuing to:

- > increase the level of community knowledge, understanding and preparedness for bushfire by providing information about bushfire risk and supporting individual and community action to manage the risk
- > provide tools, information and education to assist those at risk from bushfires to make informed decisions about how to respond
- > provide support for community members with vulnerabilities to ensure their safety in a bushfire event
- > provide timely, effective fire danger information, advice and warnings about

bushfire events across a wide range of communications methods

- > pair with NSW RFS to plan and deliver community programs and community information and warnings.

While the ACT Government makes concerted efforts to reach, inform and educate community members in Bushfire Prone Areas, for this approach to succeed, the community must play its part by ensuring they know their bushfire risk and take personal actions to minimise the risk and consequences of bushfire events.

Residents and landholders should firstly assess their bushfire risk by checking whether they are in a BPA.



This information is available through maps provided at the ACTMAPi website <http://www.actmapi.act.gov.au/home.html>.

Bushfire Survival Plans

CANBERRA BE BUSHFIRE READY

FOUR SIMPLE STEPS TO CREATING YOUR BUSHFIRE SURVIVAL PLAN

- DISCUSS**
- PREPARE**
- KNOW**
- KEEP**

By taking 20 minutes with your family to discuss what you'll do during a fire, you could save their lives, as well as your home.

Bushfires can threaten suddenly and without warning and community members should be prepared to act. Residents and landholders in a BPA need to plan how they will respond and the best way to do this is using the Bushfire Survival Plan template. This is the key public document for community members to take personal responsibility to manage the risk to themselves, their families and the things they value.



For information on preparing a Bushfire Survival Plan, see our website www.esa.act.gov.au

This plan will assist community members to:

- > prepare themselves and their family for how they will respond to bushfire incidents when they occur or threaten to occur
- > prepare their properties to reduce the effects of bushfires
- > understand the necessary resources and equipment for responding to a bushfire
- > understand the fire danger rating system.

During a bushfire emergency, the ACT provides timely and accurate information to the Canberra

community, issuing alerts in line with the *Public Information Protocol*³.

The *Public Information Protocol* adopts a scaled system of warnings and information, consistent with national standards. It provides a range of warning and information tools to be used in the ACT.

³ Bush and Grass Fire Warnings and Public Information Protocol (the Public Information Protocol), an appendix of the Emergencies (*Concept of Operations for bush and grass fires in the ACT*) Commissioner's Guidelines 2018

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In addition, the ACT will actively participate in reviews and the development of national standards⁴ for public information and warnings and implement these in the ACT.

The ESA will continue to develop communication tools to increase the effectiveness and reach of bushfire-related emergency warnings. Because traditional media channels remain important, especially for community members with vulnerabilities, the ESA will continue to work with traditional media channels to increase their ability to accurately report on bushfire issues.

To continually improve the evidence base to inform policy and practice, the ACT Government will continue to undertake research on community behaviour and response to fire, delivery and understanding of warnings and levels of preparation. This will be conducted in association with research by the Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC).

Because the ACT is geographically surrounded by NSW, it is vital to maintain close links with activities in NSW. The ACT Government will work closely with the NSW Government to develop planning strategies for community engagement, delivering bushfire information, advice and warnings and sharing lessons learned for gaining community involvement in bushfire management.

Engaging with the community

In preparation for the 2018-19 bushfire season, ESA staff, volunteers and community groups conducted a door knock of all the homes located in areas of high bushfire attack levels.



Participants are briefed in preparation for the 2018 door knock.

5,493 residential homes were visited to provide face-to-face information about bushfire risks and risk mitigation activities for the current season.

Residents were reminded to be proactive with fire management around their homes to prevent the spread of bushfires impacting on their properties or their neighbours’.

Residents were also shown how to prepare their Bushfire Survival Plans.

The door knock and other community educational programs will continue to be undertaken in a rolling annual program and regularly assessed for effectiveness.

⁴ Australian Disaster Resilience Handbook Collection: Public Information and Warnings (AIDR 2018), <https://knowledge.aidr.org.au/resources/public-information-and-warnings-handbook/>

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ACTIONS

- 3.1 Develop and conduct an annual community engagement program, proportional to seasonal climate variation risk, with consideration given to:
- > tailored outreach and engagement programs, including face-to-face engagement
 - > targeted education and awareness programs
 - > at-risk groups and individuals in the community
 - > working alongside existing community networks, organisations and directorates to reach target groups.
- 3.2 Continue to build on volunteer programs and engage with and encourage people to participate as volunteers with the RFS, F&R Community Fire Units, the State Emergency Service or other support services and organisations. Include programs to build diversity in the volunteer community.
- 3.3 Provide warnings and directions to the public during a bushfire event in line with the 'ACT Bush and Grass Fire Warnings and Public Information Protocol'.
- 3.4 Work with the ACT local media, maintaining formal agreements where appropriate and engage with social media and other tools to deliver community education and awareness of bushfires.
- 3.5 Continue collaborative work with NSW RFS to review and update the *Bushfire Survival Plan* template, online information and app access. Consider collaboration to develop a national approach.

- 3.6 Build on relationships with NSW RFS to explore options for:
- > planning and delivering joint community information campaigns
 - > training volunteers to participate in community engagement activities.
- 3.7 ACT directorates will consult community service organisations to obtain advice and share information on proposed activities.
- 3.8 Align community engagement with the *ACT Whole of Government Communications and Engagement Strategy*, working with directorates as appropriate and maintaining representation on committees.
- 3.9 Develop agreed research methods and commission targeted research which focuses on community behaviour and response to warnings across diverse hazards.
- 3.10 Maintain currency with national bushfire warning standards and technologies and update the 'ACT Bush and Grass Fire Warnings and Public Information Protocol' as required.
- 3.11 Develop a range of communication tools used during emergencies to allow the most appropriate choice of tools to access information and streaming media.
- 3.12 Provide and maintain information and training for the ACT local media, as required, to ensure:
- > familiarity with media facilities at ESA Headquarters
 - > effective engagement with emergency services representatives
 - > ACT media remain qualified to report from firegrounds.

Keeping the community updated throughout an emergency



During the Pierces Creek bushfire in 2018, the Public Information Coordination Centre (PICC) was active for three days.

The PICC plays an essential role in informing the community and media in the event of a bushfire emergency.

In addition, volunteers and staff from the ACT Rural Fire Service, ACT State Emergency Service and ACT Fire & Rescue collectively door-knocked 1,400 houses in a number of southern suburbs to ensure they were prepared if the bushfire made it that far.

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FIREFIGHTING OPERATIONS

4. EFFECTIVE FIREFIGHTING OPERATIONS BY SKILLED AND MOTIVATED PERSONNEL

The ACT Government will support a responsive bushfire fighting capability with sufficient numbers of skilled and motivated personnel to respond to bushfires.

Skilled and motivated personnel are fundamental to the ACT's fire services capability to extinguish fires. The ACT is well served by a bushfire firefighting capability comprising a volunteer workforce available through the ACT Rural Fire Service (RFS Brigades) and the ACT Fire and Rescue Service (Community Fire Units) and a salaried workforce available through the ACT Rural Fire Service, the ACT Fire and Rescue Service and ACT Parks and Conservation.

These services and agencies operate jointly and in an interoperable manner to respond to bushfires, whether on the fireground, in a support capacity, or as part of an Incident Management Team. The *Emergencies (Concept of Operations for bush and grass fires in the ACT) Commissioner's Guidelines 2017* and other ESA policies, allow for a unified response while recognising the unique functions, skills and capabilities that each distinct service possesses.

Providing firefighters with the necessary skills to perform their roles is crucial. Firefighter training is delivered through dedicated training officers (career and volunteer) developing, coordinating and delivering training within the ACT RFS, ACT F&R, and EPSDD. These officers are supported by the ESA through the ESA Registered Training Organisation (RTO). The ESA has established the WIES Program (Women in Emergency Services) promoting the recruitment and retention of females in the emergency services particularly in the fire services.

The ESA is currently implementing strategies to strengthen IMT capability through training and development opportunities which will provide depth to the numbers of personnel able to perform in IMT roles at all incident levels. This includes the recent endorsement of an additional 11 Level 3 Incident Controllers in 2018.

The ACT Government maintains Memorandums of Understanding and Mutual Aid Agreements with our closest neighbours to share personnel and resources when required through NSW Rural Fire Service and the National Parks and Wildlife Service. The ESA works in collaboration with the National Resource Sharing Centre, and the National Aerial Firefighting Centre to support the facilitation of interstate and international sharing of personnel and equipment. These interstate and international deployments provide invaluable training and experience to ACT firefighters and access to external resources if required.

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The importance of training

Bushfires are inherently dangerous, and it is vital that firefighters receive appropriate training to allow them to undertake this task as safely as possible.



Firefighter graduates from an RFS training program.

The RFS has a comprehensive, nationally accredited, new recruit training program that confers new recruits with the Basic Firefighter qualification.

This qualification teaches new recruits the necessary knowledge and skills to: work safely on the fireground; understand fire behavior; use various techniques to suppress a fire; and use and maintain firefighting and communications equipment.

A range of specialist and general training opportunities allow RFS members to develop their skills in a range of areas including: advanced firefighting; heavy vehicle driving; working safely around aircraft; chainsaw operations; and fire investigation.

STRATEGIES

The *ACT Capability Framework* will continue to dictate the minimum capability requirements for various fire danger levels. The ACT Government is committed to ensuring sufficient numbers of appropriately trained personnel to crew the firefighting appliances, undertake support functions and staff Incident Management Teams as mandated by the Framework.

A focus will continue on enhancing interoperability across the fire services. While the fire services already routinely operate alongside other services, there are opportunities to increase collaboration and increase awareness of the capabilities each service can deliver.

Many of our volunteer firefighters have considerable bushfire experience and possess key skills in a range of areas and the ESA will take a flexible approach to make better use of volunteer skills. This will include more effective deployment of RFS volunteers to support the PCS prescribed burning program and increased joint training between RFS and CFU volunteers.

Recruitment and retention of volunteer firefighters will continue to be a priority of the ESA. While ESA volunteers are already well resourced and trained, and will continue to be so, further work will occur on more holistic support to these volunteers. Consideration will be given to providing more flexible training models and providing more support to volunteer trainers, to take into account volunteers' time constraints.

Ensuring the health and well-being of all firefighters, including volunteer members, is a key priority for the SBMP. This will include safeguarding the mental health of members, given that bushfires may be a traumatic experience.

Ongoing communication with volunteers remains a priority for the ESA. This will extend to undertaking consultation with volunteers to better determine the factors that drive their decision to volunteer or to stop volunteering. In addition, attention will be given to identifying issues which are impeding their ability to volunteer, undertake training or respond to bushfires.

Training and maintaining Remote Area Firefighting Team (RAFT) qualified members will continue to be

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a focus of the RFS. RAFT-qualified members deliver a vital response capability, both in the ACT and increasingly in other jurisdictions where ACT RAFT members are highly valued for their professionalism and expertise.

Further work will be undertaken to ensure that RAFT training remains best practice and benefits from training developments in other jurisdictions. This work will include working nationally to ensure a common understanding and awareness of the competencies required to undertake RAFT and other firefighting tasks to support significant bushfire events.

Given the increasing requests from other jurisdiction for RAFT and arduous handcrew-qualified members to assist in managing bushfire responses, managing volunteer fatigue associated with repeated deployments (as has been seen over the 2018/19 bushfire season with Victoria and Tasmania) will be a particular focus.

ACTIONS

- 4.1 Provide support for programs that proactively maintain health, systems of safety, fitness and wellbeing of firefighters and fire management and support personnel.
- 4.2 Continue and enhance existing programs to aid recruitment and retention of volunteers for firefighting and those who support bushfire activities.
- 4.3 Enhance utilisation of volunteer skills in more flexible roles.
- 4.4 Maintain a register for all personnel involved in bushfire operations, including membership, training and skill information.
- 4.5 Undertake consultation with the workforce (including volunteers) to better understand their needs.

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5. THE NECESSARY EQUIPMENT AND RESOURCES TO RESPOND TO AND EXTINGUISH BUSHFIRES

The ACT Government will ensure an adequate supply of equipment and resources, supported by clear principles and systems of work to support operations, so that firefighters can respond to bushfires safely and effectively.

The ability of skilled firefighters to effectively respond to bushfires is dependent on those firefighters having the necessary equipment and resources. The ACT Government will continue to support all firefighters through providing the necessary equipment to allow them to respond to fires effectively and safely.

The *ACT Strategic Bushfire Capability Framework* (Framework) articulates the resources needed to respond to various levels of bushfire risk. In doing so it takes into account the historical level of bushfire events along with a consideration of future risks, including a hotter and drier climate. The *Emergencies (Concept of Operations for bush and grass fires in the ACT) Commissioner's Guidelines 2017* specifies the stand-up arrangements for the ACT fire services based on the applicable Forest Fire Danger Index, complementing the Framework.

Specialist Intelligence Gathering helicopter

The ACT saw a significant boost to its bushfire response capabilities in 2018/19 with the addition of the Specialist Intelligence Gathering (SIG) helicopter. Jointly funded by the ACT Government, NSW RFS and the NAFC, the SIG provides real-time incident intelligence directly to incident management teams coordinating the bushfire response.



The SIG delivers a military-grade capability to map the bushfire from the air in real-time, complemented by infrared technology to see through smoke. This infrared technology also allows the identification of 'hot spots' at significant distances.

The SIG demonstrated its value during the 2018/19 bushfire season when, following lightning storms, it detected seven bushfires in remote areas of the ACT and neighbouring NSW. The aircraft's ability to accurately confirm the location of bushfires allowed RAFT crews to be winched into these remote locations and extinguish the fires at a very early stage. The remote location of these fires meant, that without the SIG, identifying and locating the bushfires would have been challenging, meaning response would not have occurred until the bushfires were significantly bigger, presenting challenges for response operations.

This increased capacity to track the impact of bushfires and identify assets at risk also enhances the ESA's ability to ensure the community is appropriately informed and warned about bushfire threats.

Further work will continue to embed the SIG, including better access by on the ground crews to data captured by the SIG.



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STRATEGIES

The *ACT Strategic Bushfire Capability Framework* will continue to articulate the resources that will be made available depending on the bushfire risk faced. Procurement, replacement and upgrade of resources will be made in accordance with the Framework. The Framework will be updated as appropriate in response to changing requirements, including climate change, equipment / technology advancements and lessons learned from response operations.

Where appropriate, procurement of resources will be designed to maximise interoperability among ACT fire services as well as with interstate fire agencies. Priority will also continue to be given to equipment and resources that can be utilised for both bushfire mitigation and bushfire suppression and response operations.

Vehicle-based response capabilities will continue to be appropriately resourced. This reflects the important role that these capabilities provide, not only in hazard mitigation works but also when responding to larger scale bushfire events.

It is not merely a matter of what resources fire managers have at their disposal – how these resources are used is equally as important. That is particularly the case with technology.

There have been significant technological advances associated with firefighting response in recent years. Technology is now a vital component of any firefighting response operation. It is used to identify and locate bushfires, to keep on-the-ground firefighters informed of critical tactical information and incident developments, and to assist in incident managing.

Work will continue to identify new technologies that would complement our existing response capabilities. Because technology is only part of a broader capability, it needs to be integrated into response planning, procurement and maintenance processes in a sustainable manner.

Particular attention will be given to fully embedding the extensive capabilities of the Specialist Intelligence Gathering (SIG) helicopter into bushfire response operations, as well as considering opportunities for use of handheld SIG capabilities to enhance and complement aerial collection.

Priority will also be given to improving relevant information flows between fireground crews and Incident Management Teams. Other areas of focus

include improving notification and activation processes for volunteers, early detection of bushfires including automated fire detection systems, and increasing support to members deployed interstate.

Aerial response capabilities will continue to be used. In particular, ESA capabilities to support the operation of the ACT Fire Bombing Air Base and Large Air Tankers will continue to be developed and refined. The ACT Government will continue to support and participate in national arrangements through the National Aerial Firefighting Centre (NFAC) for basing and deployment of aerial firefighting platforms. Increasing volunteer support for aerial response capabilities will be a priority.

Embedding testing and maintenance of resources within normal business practices will continue to be important, including routine annual testing of infrastructure and supporting capabilities.

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ACTIONS

- 5.1 Maintain the 'ACT Strategic Bushfire Capability Framework' to assist planning for firefighting operations and to support programs for capacity enhancement.
- 5.2 Plan requirements and replace vehicles and equipment to maintain firefighting capability in accordance with the 'ACT Strategic Bushfire Capability Framework'.
- 5.3 Maintain aircraft capability and support infrastructure through National Aerial Firefighting Centre (NAFC) and in liaison with NSWRFSS, including increasing volunteer support for aerial response capabilities, and engage with emerging technologies where appropriate.
- 5.4 In conjunction with other jurisdictions, continue to develop and exercise capabilities to predict bushfire behaviour and spread, implementing the National Fire Danger Rating System (NFDR) supported as required by technical specialists in fire behaviour.
- 5.5 Undertake annual exercises to test facilities, unless they have been sufficiently activated and exercised in incident response. Facilities to include:
 - > fixed infrastructure
 - > communications equipment and networks
 - > ICT
 - > 000
 - > fire towers.
- 5.6 Review, update and distribute pre suppression plans to provide necessary information to undertake initial fire attacks.
- 5.7 Investigate and develop further strategies to adopt changing technology to enhance the exchange of information, from a range of internal and external sources, between ESA HQ and fire crews.
- 5.8 Investigate and develop technologies to provide fast and accurate data related to people deployed on the fireground to support real-time coordination and deployment.
- 5.9 Examine technological developments to enhance notification and activation of volunteer members.
- 5.10 Examine technical developments to improve detection of bushfires, including automated fire detection and storm activity systems.
- 5.11 Establish and implement an annual bushfire preparedness calendar to ensure organisational readiness for each bushfire season.

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6. EXTINGUISH BUSHFIRES WHEN THEY OCCUR

A rapid, decisive and coordinated response will provide the best opportunity to control bushfires in the shortest possible time and in a safe manner.

While the ACT Government has a rigorous program of mitigation and hazard reductions works and strategies, it is inevitable that bushfires will continue to occur. Improving the initial response to a bushfire is critical in reducing the chance that a large or severe bushfire will occur that threatens life or property.

The *Emergencies (Concept of Operations for bush and grass fires in the ACT) Commissioner's Guidelines 2017* states that first response to all bushfires in the ACT will be by the nearest available, most appropriate resource, irrespective of jurisdiction of service. The guidelines ensure that any fire agency must take appropriate action to

suppress any fire nearby if it is safe and practicable to do so.

A key determinant in containing a bushfire is the speed of response. The *ACT Strategic Bushfire Capability Framework* establishes a set of capability targets relating to the deployment of assets.

The *ACT Elevated Fire Danger Plan* outlines the standing and emergency arrangements for an all agencies approach to elevated fire danger conditions in the ACT.

Another key determinant in controlling a bushfire is managing the size of the fire, and the Capability Framework also establishes targets relating to the size of bushfires.

While the ACT Government is committed to ensuring that all bushfires are responded to and extinguished as quickly as possible, experience has shown that in extreme fire conditions quick suppression or containment is challenging. ESA community awareness programs will continue to reinforce that the ability of ACT firefighting services to respond may be constrained on very high, extreme and catastrophic fire days due to multiple competing demands.

Pierce's Creek Bushfire

In the afternoon of 1 November 2018, a car was set alight, with the fire quickly spreading into steep, thickly vegetated terrain with significant fuel loads. In line with ESA practice that first response to all bushfires is by the nearest available, most appropriate resource, RFS and F&R crews and appliances were quickly dispatched to the fire. By early the next morning the fire had spread to 54 hectares in size.



The nature of the terrain and vegetation and fire activity meant priority was given to containing – rather than directly attacking – the fire. Containment lines were established and strengthened over the following days to prevent the fire spreading. At its peak there were approximately 80 firefighters responding to the fire, along with 36 trucks, 6 dozers and other heavy plant, 5 aircraft, along with an incident management team and supporting resources. The fire was substantially contained by 4 November, with response operations ceasing on 19 November, with 208 hectares of pine forest burnt in total.

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STRATEGIES

Response operations will continue to be undertaken in accordance with the *Emergencies (Concept of Operations for bush and grass fires in the ACT) Commissioner's Guidelines 2017* and the ACT Strategic Bushfire Capability Framework.

Currently there is a range of communication platforms through which the services communicate with members.

ESA will develop a standardised whole-of-agency availability and communications platform for both non-operational activities and pre-incident communications with its staff and volunteer members. This will provide a collaborative approach, facilitate interagency cooperation and visibility of available resources. It will support the notification and timely turn-out of volunteer members for delivery of emergency and non-emergency response services to the ACT community.

Each fire service has a statutory mandate to protect and preserve life, property and the environment. The protection of human life and safety is the highest priority during any bushfire response. This includes the life and safety of members of the community, as well as members of the fire agencies undertaking the response. Reducing bushfire damage to property and the environment is also a priority, but will not be prioritised over human life and safety.

Bushfire management will continue to utilise the principles and systems of the Australasian Interagency Incident Management System (AIIMS)

framework. This common approach to bushfire management using the same systems, terminology and arrangements ensures a fully integrated response to a bushfire emergency.

To ensure a seamless fire management response, the ESA and EPSDD have developed a MOU outlining their respective roles and responsibilities. This MOU will continue to direct each directorate's role in both response operations and broader fire management in a coordinated approach.

Remote Area Unit capabilities, incorporating Remote Area Firefighting Teams (RAFT) and arduous hand crews comprising both career and volunteer firefighters, will continue to play an important role by enabling a rapid attendance at remote bushfires not easily accessible by vehicles.

The RFS will continue to ensure that RAFT members receive the most appropriate and effective resources to undertake this role, with a particular focus on enhancing operational support arrangements. Consideration will also be given to the potential role of Rapid Aerial Response Teams (RART) within the ACT.

To assist preparedness, the ESA has identified a number of suitably qualified individuals from across the fire agencies and broader ACT Government who can fill key leadership roles within an IMT, and published that list within the Concept of Operations for bush and grass fires in the ACT. The ACTR Government will maintain and expand its IMT capability to remain prepared to manage an emergency at short notice.

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Incident management in the ACT

Bushfire incidents in the ACT are managed by a team of trained and qualified specialists who work together in the Incident Management Room (IMR) at ESA headquarters.

The IMR underwent a major upgrade in 2018 informed by learnings from previous incidents, exercises and the inspection of facilities interstate.

The upgrades included the creation of designated workstations for each functional role and a range of IT and tech improvements including upgrades to the electronic knowledge wall to display incident related information from various functional areas and a range of other sources such as the Bureau of Meteorology and social media.



The IMR is aligned to facilitate an enhanced information flow for key positions such as the Incident Controller, to provide the information, resources and people that the Incident Controller needs to make critical decisions during an event they are responsible for managing.

ACTIONS

- 6.1 Proactively maintain the capability to operate a full Incident Management Team (IMT) for the first two shifts.
- 6.2 Maintain strategies and resources for Remote Area Firefighting Teams (RAFT), including enhancing operational support processes, and investigate expansion of the RFS Remote Area Unit framework to incorporate Rapid Aerial Response Teams (RART) and arduous hand crews.
- 6.3 Review the 'ACT Elevated Fire Danger Plan' to reflect lessons learned and changes in the strategic and operational environment.
- 6.4 Review and update the procedure for implementation and training of AIIMS Version 4 as required and continue to plan and deliver training across all roles.
- 6.5 Engage with research institutions who undertake applied research into the effectiveness and comparative productivity of firefighting methods.
- 6.6 Review and maintain the MOU between EPSDD and ESA on roles and responsibilities for fire management.
- 6.7 Enhance response-related data capturing and reporting mechanisms and systems to better support assessment of targets of the ACT Strategic Bushfire Capability Framework.
- 6.8 Review the 'ACT Bushfire Management Standards' as required to reflect changes to legislation, national standards and information required by land managers, utilities, planners, developers, government directorates and the community.
- 6.9 Actively participate in forums, such as a regional bushfire management committee in accordance with formal arrangements between ACT and NSW for cross-border response and fire management planning.

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BROAD AREA FUEL REDUCTION AND ACCESS

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7. BROAD AREA BUSHFIRE FUEL REDUCTION ACROSS THE NATURAL AND RURAL LANDSCAPE OF THE ACT

Broad area fuel reduction practices will be used to establish and maintain a range of differing fuel loads across the broader natural and rural landscape of the ACT, to assist in suppressing bushfires and reducing the impact of bushfires on life, property and the environment.

Fuel is one of the fundamental elements required to sustain a bushfire. While other factors, such as topography and weather, will greatly influence fire spread and intensity, fuel is the element most easily manipulated for fire management.

The fuel load at any location is determined by many factors, including vegetation type, climate, regrowth rate, time-elapsing and intensity of the last fire, and recent weather events.

With climate change, bushfires in Australia have become larger, more intense and more frequent. This can lead to a more homogenous landscape, both in terms of fuel load (which may include dense regeneration with increased fuel load) and ecosystem function. In turn, this threatens the diversity of communities and increases the risk of intense fires in regenerating landscapes.

To meet the requirements of the SBMP, EPSDD prepares a 10-year RFMP which is reviewed after five years. The RFMP balances bushfire fuel management with all the other values for which the natural estate is managed in the ACT, including protection of assets such as sites of ecological, cultural and heritage importance.

The RFMP uses advanced modelling tools and current and historical data to identify the location and timing for bushfire fuel management operations to leverage the greatest strategic advantage for the ACT community.

PCS delivers the actions of the RFMP through BOPs that describe the detailed fuel reduction activities. BOPs are also prepared by other ACT directorates, national land managers and rural landholders.

BOPs aim to reduce bushfire fuels through strategically applying fuel treatments such as prescribed burning, slashing, grazing and physical removal.

This ongoing program is planned to create a range, or mosaic, of bushfire fuel ages across the wider natural and rural landscape. Bushfire fuel age derives from the time since the last bushfire in a vegetation community. It recognises that the bushfire fuel load will accumulate and increase in these vegetation communities over time, and correlates to the bushfire fuel load and the hazard it presents.

This fuel reduction program addressed the recommendations of the McLeod inquiry⁵ and Coroner Doogan's⁶ inquiry into the 2003 Canberra bushfires, and is at the forefront of landscape fire management practice nationally.

The practical implementation of planned burning (also known as prescribed burning or hazard-reduction burning) focuses on establishing SFAZs. These zones have the objective of reducing the intensity and spread of fires across large areas of landscape and will contribute to the success of firefighting under moderate weather conditions. In addition to assisting bushfire suppression, these fuel reduced areas will help to lessen the impacts of fire on catchment values (water yield and quality) by reducing the size and intensity of fire in these areas.

Broad area fuel reduction takes into account the dynamic nature of natural ecosystems, and requires clear objectives and an adaptive approach to fire management. Land managers will use the best available knowledge to identify appropriate fire management practices, to promote ecological values and protect sites of cultural and heritage significance.

Because of the differing fire and non-fire-related management objectives, a range of treatment strategies are applied to establish SFAZs, including:

- > broad-area fuel-reduction burning, aiming to reduce fuel across multiple landscape elements
- > managing green breaks in forested areas.
- > targeted broad-area grazing
- > slashing of rural and arterial roads, easements or boundary trails

⁵ Inquiry into the Operational Response to the January 2003 Bushfires.

⁶ ACT Coroner's Court 2003 Bushfire Inquiry

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- > identifying naturally occurring areas of vegetation with inherent fuel loads consistent

with SFAZ standards.

Reducing bushfire fuel hazards

The level of bushfire fuel is the critical element in reducing bushfire risk because it can often be modified in advance to reduce the impact of bushfires.

One of the methods of reducing bushfire fuel hazards is through prescribed burning.

Other treatments include fire trail maintenance slashing, removal and grazing.



Members of the Jerrabomberra and PCS RFS Brigades igniting a prescribed burn.

STRATEGIES

Planned fire will be used as the principal management tool to reduce bushfire risk, thereby establishing and maintaining a mosaic of fuel loads at a landscape level. This will help to reduce the impact of bushfire on life and property in the rural and urban areas of the ACT as well as impacts on water catchment and environmental values in the ACT's National Park and Nature Reserves.

The RFMP identifies the location and timing of fuel reduction activities in SFAZs across government-managed land over 2019-2029. It will complement ecological requirements and guidelines established by EPSDD. Specific factors taken into consideration include timing, location, and the type and intensity of fuel-reduction activities to achieve a range of bushfire fuel ages across the landscape.

Where appropriate, planned fire will be also used to maintain or improve ecosystem health and resilience, recognising that such fires frequently have two-fold effects in achieving biodiversity benefits and reduction of bushfire fuel.

The location of SFAZs will be dynamic over time, rather than in fixed locations. This will ensure:

- > that strategic areas of low fuels are maintained in the landscape, without the need for repeatedly burning the same area
- > maintenance of a fuel age mosaic across the majority of the landscape in the longer term.

Standards relating to these treatments of SFAZs are identified in the *ACT Bushfire Management Standards*.

Implementing broad-area fuel reduction presents risks, such as the potential for planned fire to escape containment lines or burn at a higher intensity than prescribed. In undertaking fuel-reduction activities, these risks will be considered against the known and more widespread consequences of uncontrolled bushfires under elevated fire danger conditions.

Climate change is also impacting the window within which prescribed burns can be carried out, due to longer fire seasons, lower rainfall, decreasing fuel moisture levels and other factors.

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Factors that will be considered in implementing broad-area fuel reduction activities include firefighter and public safety, forecast weather conditions and the potential air quality and smoke impacts of the activities. In water catchments, specific consideration will be given to the impacts on water supply and water quality.

As part of the RFMP, an Aboriginal Fire Management Zone⁷ will include cultural burns and associated land management treatments. These include encouragement of bush tucker, production of fibre for weaving, access to bark, traditional medicines and other materials, or maintenance of a desirable vegetation structure, and connection of Community with Country.

The Aboriginal Fire Management Zone



The Aboriginal Fire Management Zone encompasses areas and sites of cultural significance. Incorporating parts of Tidbinbilla Nature Reserve, as indicated on the adjoining map, the location is readily accessible to Traditional Custodians and Parks and Conservation Service staff.

⁷ ACT Aboriginal and Torres Strait Islander Agreement 2019-2028

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While cultural burning is expected to be usually compatible with ecological requirements, where there is incompatibility between cultural burning and the management of rare or threatened species, habitats or communities, careful placement and delineation of the zone boundaries may be used. Cultural burns will vary in size and frequency to meet cultural objectives and be conducted in partnership with EPSDD and ESA.

Through the ACT-NSW cross-border fire group, the ACT will work with NSW to implement integrated cross-border fuel management strategies on public and private land, through surrounding regional bushfire risk management plans (for private land) and fire management strategies for the Brindabella National Park and Brindabella State Conservation Area.

ACTIONS

- 7.1 ACT Government land managers and other entities in the BAZ must prepare and submit a BOP, consistent with the ACT Bushfire Management Standards, and review it at least every two years.
- 7.2 Audit and assess BOP fuel management treatments to ensure compliance with the ACT Bushfire Management Standards.
- 7.3 For all SFAZs in the RFMP, land managers will establish baseline data and report data on area treated, fuel hazard assessment, vegetation type and other matters as appropriate.
- 7.4 Review the RMFP and develop the location and timing of fuel-reduction activities in SFAZs for 2024—2029.
- 7.5 Continue research into post fire vegetation response, fuel age distributions and associated fuel loads to inform RFMPs and to optimise landscape-level objectives that balance fuel age distributions and ecosystem function.
- 7.6 ACT directorates to share data with each other and NSW on treatments, fuel hazard assessments, vegetation types and other matters as appropriate in relation to public land management.

8. ACCESS FOR VEHICLES AND FIREFIGHTERS TO UNDERTAKE BUSHFIRE FIGHTING AND FUEL REDUCTION

Government and private land managers will work together to provide a network of fire trails and helipads that provide safe and effective access for firefighting and fuel reduction operations.

Fire access is provided by a network of public roads and fire trails on government and privately managed land and constructed helipads that support fire management activities. Well-maintained roads and trails are essential to enable a swift response, and for community and firefighter safety.

Well-planned and prepared access has the potential to reduce environmental and economic impacts, and reduce the recovery requirements of potentially higher impact track construction during bushfires.

Fire access includes a range of vehicular tracks, roads and walking tracks. These features reduce the response time to gain access to bushfires and make it safer to undertake bushfire suppression operations. Well-maintained access increases the range of weather conditions under which fire containment and suppression can be conducted and improves outcomes. More importantly, it makes it safer for firefighters to enter and leave a fireground. In addition, vehicular tracks, roads and walking tracks provide potential control lines for containing wildfires and for conducting prescribed burns.

The fire access network in the ACT has been firmly established under previous SBMPs, planned through the RFMP and delivered through BOPs. Developments included significant upgrade and construction works in Namadgi National Park and Bullen Range, as well as ongoing maintenance and upgrades in and around Canberra. This work is ongoing.

The importance of maintained fire trails

Fire trails are maintained to allow safe access by firefighters and vehicles.

It is important that trails remain free from fuel hazards because fire-fighters need to gain access to the fire as quickly as possible. A safe exit is also essential.

The fire trail in use during a prescribed burn at Aranda Nature Reserve.



STRATEGIES

In addition to bushfire fuel reduction operations, the RFMP details works to be carried out on fire

management access networks on the land managed by EPSDD and TCCS. These works include fire trail construction, upgrade and maintenance to ensure strategic access across the ACT landscape.

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Further construction, maintenance and upgrade activities are planned under the next RFMP in line with climate change expectations and bushfire modelling by PCS.

New fire trails and aerial access points will be constructed only where they provide a clear strategic benefit, and the financial and environmental costs of construction and maintenance do not outweigh the benefits for bushfire management.

Given the proximity of people and property to the urban edge of Canberra, a relatively high density of good-quality fire trail access will be provided in these areas for safe and fast initial attack of fires and bushfire fuel management. At the urban edge, all new developments must be constructed with a well-designed, sealed, public road network, with edge roads that provide a layer of protection and a means of access and egress for firefighters and residents. This is described under Objective 11.

For rural properties in the ACT, the *Farm FireWise Plans* identify access for fire management purposes and the moderate density of farm trails in rural areas will provide for a rapid initial access. The Farm FireWise plans also detail locations on the properties that are unsuitable for vehicular access. See Objective 2.

The ACT Road Centreline data project, initiated in 2013, provides consolidated fire access data for the ACT. This data will continue to be updated as new trails are constructed or upgraded. The data is publically available through ACTMAPI.

The *ACT Bushfire Management Standards* prescribe standards and classifications for fire trails, public roads, rural fire trails and aerial access in the ACT.

ACTIONS

- 8.1 Government land managers will identify in BOPs, the works to be carried out on fire management access networks on their land, including fire trail constructions, maintenance and upgrades.
- 8.2 Audit and assess BOP access management works to ensure compliance with ACT Bushfire Management Standards.
- 8.3 Government land managers will report the implementation of access management works in two parts:
 - > against the timeframe of the BOP
 - > cumulative, against the longer term actions identified in RFMPs.
- 8.4 Review and maintain the fire trails register in the ACT Road Centreline Database.

Fire trails as control lines



Using the fire trail at Gossan Hill as a control line during a controlled burn.

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ADAPTIVE MANAGEMENT FOR CLIMATE CHANGE

9. ADAPTIVE MANAGEMENT OF CURRENT AND FUTURE BUSHFIRE RISKS

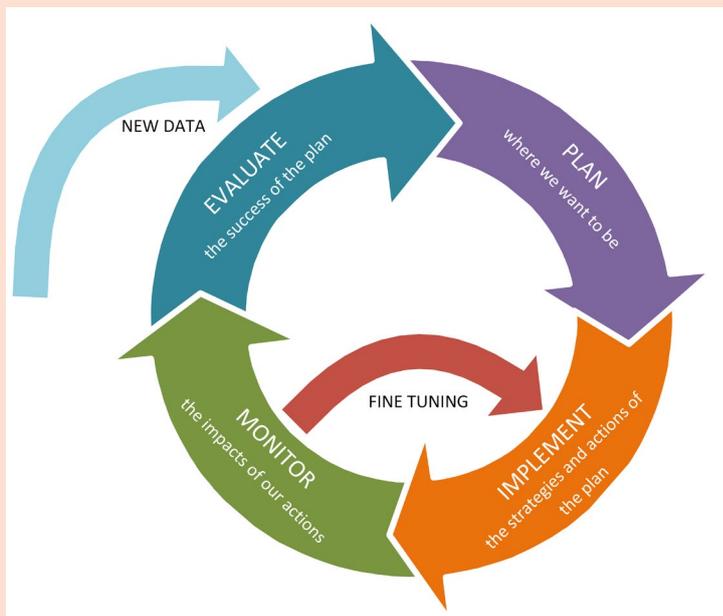
The ACT Government will adopt an adaptive management process to address increasing bushfire risks, including climate change, and support continuous improvement based on sound research, modelling, monitoring, evaluation and lessons learned.

The ACT Government has established disaster and emergency management as one of six priority sectors for the implementation of priority actions.

The ACT landscape and weather can interact to create extreme bushfire conditions, which may allow bushfires to impact on the urban edge and rural areas of the ACT. Because there are limits to how much the risk presented by these fires can be reduced, the ACT Government commits to continuous improvement of its bushfire risk management strategies through ongoing research, analysis and adoption of an adaptive management approach.

Adaptive management is a structured, iterative process of sound decision making which aims to reduce uncertainty over time through monitoring and evaluation. This model is ideally suited to dealing with the impacts of climate change which holds uncertainty about the future incident regimes to be experienced by fire and emergency services and the community.

The adaptive management cycle



Adaptive management requires:

- > clear objectives based on current knowledge, review of the outcomes of actions, and a commitment to change or refine management actions
- > monitoring of management actions to establish whether intended outcomes are achieved, or if changes to strategies and actions are required. The approach may include experiments or targeted research to determine the best method to be adopted.

The principles and application of adaptive management apply to all elements of bushfire management. These include ecological monitoring of the effects of fuel management to the ways in which firefighters respond to and manage bushfires, and how well the government and community recover from events. All of the strategies in this plan incorporate elements of adaptive management in their delivery.

The *ACT Climate Change Strategy to 2025* provides the basis for an integrated, whole-of-government approach to adaptation policies and plans.

Planning for climate change is one of the challenges to which the ACT Government and community need to respond. According to an AFAC

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Report⁸, climate change is expected to produce higher mean and extreme temperatures leading to longer fire seasons and more fuel available to burn. This will provide conditions for greater frequency and higher than average intensity bushfires, especially in south eastern Australia.

However, climate change is a complex mechanism and much is still unknown. Addressing uncertainties in future projections of bushfire risk is the subject of ongoing research in Australia and overseas and the ACT needs to plan for a range of plausible climate futures and related bushfire risks. Adaptation is the cornerstone of the ACT's strategy improve resilience in our community and infrastructure.

Climate change and the changing environment

There is an increased and changing bushfire risk posed by the changing composition of the fuels in the BPA. The change in fuel composition is a result of changing land management practices, weed invasion and climate change. Applying an adaptive management approach will help the ACT address this changing risk profile.



Invasive species, such as African Love Grass have different fire behaviour from native grasses and have the capacity to pose a higher fire risk in winter.

⁸ AFAC: Climate Change and the Fire and Emergency Services Sector, September 2009

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STRATEGIES

Investment in ongoing research, evaluation and monitoring programs is a critical element of adaptive management. To continually improve bushfire risk management, the ACT Government will review, monitor and research its past, current and future strategies for fire management to identify gaps and implement changes and better practices.

Under the *ACT Climate Change Strategy to 2025*, it will become increasingly important to reflect climate change projections and risk vulnerabilities in disaster and emergency prevention, preparedness, response and recovery, especially for extreme heat, bushfire and flash flooding. These strategies will extend to the community to encourage community preparedness for climate risks through community engagement and outreach activities. An important element of this is to work with local Traditional Custodians and the Aboriginal and Torres Strait Islander community to integrate traditional knowledge into landscape management, as discussed in Objective 7.

The ACT works closely with research institutions in Australia and overseas, and will continue to

contribute resources and capability to support the national bushfire research undertaken through the Bureau of Meteorology, Geosciences Australia and the university sector in the ACT and NSW. The ACT will also continue to participate and provide financial support to the research program of the BNHCRC and is a partner in AFAC which collaborates and shares information with fire agencies.

EPSDD will undertake coordinated bushfire research to inform and adapt programs for fire management in the ACT. There will be continued support for research from which cohesive, evidence-based policies and strategies can be developed.

Community service organisations will also provide an ongoing contribution to monitor and evaluate the impact of this plan. It is important that the ACT Government establishes and maintains the necessary links with these organisations as part of its adaptive management approach to bushfire management in the ACT to achieve this.

The impact and effects of the SBMP will be monitored and reviewed to adapt and adjust strategies as required, and to form the basis of reporting to the government and the community.

ACTIONS

9.1 Continue to undertake research into fire behaviour and modelling, firefighting methods and firefighting performance for fires within the ACT, and reflect findings in fire management plans and operational procedures where appropriate.

9.2 Undertake research and monitoring to target biodiversity conservation and understanding of appropriate fire regimes including:

- > efficacy of mitigation measures, such as maintaining unburnt buffers along riparian zones and aiming for low-intensity and patchy burning within the prescribed burn perimeter
- > the relationship between fire history, fauna diversity and abundance, and habitat structure in a range of vegetation communities
- > effects of large scale planned fires in aquatic ecosystems.

9.3 Continue to monitor critical global climate systems and patterns (e.g. Southern Oscillation Index) that may significantly affect bushfire management strategies over the life of this plan.

9.4 Undertake ongoing research and monitoring of potential impacts of climate change using a variety of inputs, to produce long term modelling of impacts on the ACT.

9.5 Reflect climate change projections and risk vulnerabilities in disaster and emergency prevention, preparedness, response and recovery, particularly for extreme heat, bushfire and flash flooding.

9.6 Based on climate change modelling and global climate systems, review and modify strategies for operational doctrine, community awareness, fuel management, response and capability as required.

9.7 Embed climate change research into seasonal and operational risk assessment for bushfire fighting.

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LAND USE PLANNING

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10. EFFECTIVE LAND-USE POLICY AND PLANNING THAT REDUCES BUSHFIRE RISK

The assessment and mitigation of bushfire risk through effective land-use policy and planning will reduce the exposure of built and natural environments to bushfire.

Land use planning is a key prevention tactic for managing fire risk, particularly on the vulnerable urban edge.

A hierarchy of strategic, operational and tactical plans and maps clearly prescribe the obligations and measures that apply to planning and development. These provide an ACT-wide, tenure-neutral approach that reflects the principal purpose for land use and takes into account the ecological, cultural and heritage considerations.

These planning and development plans and processes are founded on the concept that bushfire protection is a shared responsibility between the Government, landholders and the public. Thus, the responsibility for risk mitigation does not rest solely with the Government or landholder alone.

In the ACT, the *Planning and Development Act 2007* establishes the *Territory Plan*. The *Territory Plan* is the key statutory planning document in the ACT and defines the administration of planning in the ACT. Through this Plan, land-use planning in the ACT considers bushfire risk at all levels of planning particularly for areas susceptible to bushfires and areas proposed for urban development.

That Act also requires that areas of public land be managed in accordance with a public land management plan for that area. Among other things, public land management plans detail the fire management objectives for that land, outlining the general risk mitigation activities to be undertaken on that land.

The *Planning for Bushfire Risk Mitigation General Code* (the Code) supports the *Territory Plan* and provides guidance to mitigate adverse impacts from bushfires in the ACT. In particular, the Code addresses the planning and development processes and is taken into account by the ACT

Government when determining estate development plan development applications.

These planning frameworks are supported by fire management zones, which identify key areas that warrant specific fuel management actions to reduce risk to the urban area. These include Asset Protection Zones, which are areas immediately adjacent to assets such as residential properties that require intensive fuel management to minimise fuel loads, and Strategic Firefighting Advantage Zones, which are strategically located corridors or land, located and managed to break up major fire runs that would otherwise impact on residential areas.

STRATEGIES

The ESA will continue to provide strategic advice to government directorates and developers about bushfire risk. This includes its role as the referral authority for independent site-specific risk assessment for new estate developments.

As part of this role, and to increase awareness and consistency in approach to bushfire risk management practices, the ESA will continue to conduct annual planning forums to identify and highlight future bushfire planning issues.

The ESA and ACT fire services more broadly will continue to support the bushfire mitigation and fire management activities required under plans for management for Territory land. A particular focus will be on fire mitigation activities required under the *Lower Cotter Catchment Reserve Management Plan 2018*, noting the importance of the area's water supply and conservation values.

While this plan does not apply to national land managers (such as the Department of Defence and CSIRO), the ESA will continue to work cooperatively with those managers to ensure collaborative fire management practices are undertaken on those lands, including the preparation of Bushfire Operational Plans for that land.

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ACTIONS

- 10.1 Continue to review and refine the BPA map as required to reflect changes in land use, adopting evolving technologies, where appropriate.
- 10.2 Review Fire Management Zoning maps as required to reflect significant changes such as unplanned bushfires or changes to the location or extent of assets.
- 10.3 Review the BAZ as required, to reflect changes in land use.
- 10.3 Provide advice regarding bushfire risk to EPSDD on development applications, variations to the territory plan, structural plans and other strategic land use planning.
- 10.4 Hold an annual forum between directorates and other stakeholders to identify and highlight future planning requirements and potential constraints.
- 10.5 Provide advice on bushfire risk and mitigation strategies for developments under the ACT Planning Strategy.
- 10.6 ACT Government directorates to support the fire management activities for bushfire mitigation contained in the Lower Cotter Catchment Reserve Management Plan 2018, noting the importance of the area's water supply and conservation values.
- 10.7 Work with national land managers on the development of their bushfire operational plans to ensure consistency with the objectives of the SBMP and complementary bushfire management actions.

11. INTEGRATED MEASURES FOR BUSHFIRE PROTECTION AT THE URBAN EDGE

A range of complementary measures will be used to achieve integrated bushfire risk reduction on the urban edge.

The ACT is unique among Australian jurisdictions in that the rural/urban edge is a clear, fixed boundary, unlike in other jurisdictions where the boundary is less defined. This concentrates a significant number of people in an exposed, bushfire-prone area that has a perimeter more than 500 kilometres long. This concentration renders it vital that integrated measures are undertaken to appropriately protect residents in the bushfire prone urban edge.

The design and layout of new estates is an extremely effective way of reducing the bushfire risk facing residents of those areas. Appropriate estate design can mitigate bushfire risk and increase community resilience, while also assisting the conduct of fire response if required.

These estate design principles are supported by fire management zones, which identify key areas on Territory and rural land that require specific fuel management actions to reduce risk to the urban area. The Bushfire Prone Area is the area of the ACT that has been assessed as being at high risk of being impacted by bushfires. Residential development within the Bushfire Prone Area is subject to additional bushfire-related construction requirements that reflect the risk posed by bushfires to that development.

STRATEGIES

The ESA will continue to be the principal agency for providing strategic advice to government agencies and developers about bushfire risk. This includes its role as referral authority for independent site-specific risk assessment for new estate developments, non-residential buildings and a range of fire-related matters under the *Building Act 2004*.

The Bushfire Prone Area will continue to be regularly reviewed and refined to reflect changes in

land use and tenure, as improved vegetation mapping becomes available, and to address local and site specific issues as required.

The design and layout of subdivisions and developments must reduce the vulnerability of dwellings and residents from the impact of a bushfire. New greenfield estates must provide that all blocks on which residential uses are permitted must not face a Bushfire Attack Level (BAL) greater than 29. As a standard approach, any intensively managed Inner Asset Protection Zone required to achieve that level must be located within the footprint of the area to be developed.

Sensitive use developments which will concentrate members of the community at high risk from bushfire in the Bushfire Prone Area are not permitted. These include school buildings, hospitals, nursing homes, aged care facilities, retirement villages, childcare centres and tourist accommodation.

The default standard for all new estate developments includes a continuous sealed edge road surrounding all blocks on which residential use is permitted.

The *ACT Bushfire Management Standards* will continue to describe specific design and planning requirements. These include the necessary specifications for Asset Protection Zones and requirements for access standards, such as internal public roads, ensuring adequate turning circles for emergency vehicles and new fire trails.

The Standards will also describe:

- > requirements for emergency and evacuation arrangements for new and existing developments, particularly for developers and operators of sensitive use developments
- > water infrastructure requirements to support effective fire response operations.

The Standards will also support audit programs to assess fuel management and access works conducted in an Asset Protection Zone or under the BOP.

For homeowners and builders, new dwellings, knock-down / rebuilds and other substantial renovations within the Bushfire Prone Area must comply with the bushfire related construction requirements in the *Building Code of Australia*. This will enhance the ability of the dwelling to withstand the impacts of bushfires, either by improving the ability of the building to withstand contact with direct flame or radiant heat, or by reducing the likelihood that windborne embers

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ignite the building. The ESA will support the application of these building requirements through the automated BAL assessment tool, the results of which will be publicly available on ACTMapi.

Urban vegetation guidelines and advice on how to increase building resilience will be developed to

raise awareness among homeowners of appropriate landscaping that will reduce bushfire risk in both established and newly developed blocks. These guidelines will be consistent with any broader ACT Government tree canopy targets.

Understanding the bushfire attack level

The AutoBAL automated model assesses the BAL for properties located in a Bushfire Prone Area. The BAL measures the bushfire risk at that location, based on distance from, and type of, vegetation and the slope.

The automated process allows large-scale assessments in much less time than manual assessment, with the tool processing 16,000 assessments in one hour.

AutoBAL will be used to assist in more effective targeting of bushfire mitigation practices, including community education and awareness and fuel management; and reduce building assessment requirements on the community, particularly for areas modelled as having BAL Low or BAL 12.5 ratings.



 AutoBAL results are available on ACTMAPi (www.actmap.i.act.gov.au)

Legend

	BAL=Low		BAL=12.5 Kw/m ²
	BAL=19.0 Kw/m ²		BAL=29.0 Kw/m ²
	BAL=40.0 Kw/m ²		BAL=Flame Zone

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ACTIONS

- 11.1 Audit and assess BOP fuel management and access works in APZs against the 'ACT Bushfire Management Standards'.
- 11.2 Support government tree canopy targets through development of urban vegetation guidelines to limit risk of fire spread and other measures to increase infrastructure resilience.
- 11.3 Ensure aged care facilities, schools, hospitals, childcare centres and other establishments have the necessary plans in place for managing emergencies, including evacuation during bushfire emergencies. These requirements will apply to both the government and the non-government sectors.
- 11.4 New or substantially altered residential properties in the Bushfire Prone Area must apply the bushfire-related construction requirements in the *Building Code of Australia*.
- 11.5 New greenfield developments provide that blocks on which residential uses are permitted must not face a bushfire risk greater than Bushfire Attack Level 29.
- 11.6 Review new estate designs to ensure that edge roads are constructed surrounding the development, except where the ESA Commissioner agrees an alternative option.
- 11.7 For new estate development, the ESA Commissioner must approve any blocks within the Bushfire Prone Area on which sensitive and vulnerable uses (such as schools or aged care facilities) are proposed to be located.

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BUSHFIRE RECOVERY

12. SUPPORTED COMMUNITIES FOR BUSHFIRE RECOVERY

Recovery from bushfires may commence while bushfire response operations are underway and may need to continue for a long period afterwards. Recovery will encompass actions to address the social, economic and environmental impacts of bushfires, as they affect individuals, the broader community and environment.

“Recovery is the coordinated process of supporting affected communities in the reconstruction of the built environment and the restoration of emotional, social, economic, built and natural environment wellbeing.”⁹

Recovery is an integral component of bushfire management, and is considered before, during and after bushfires. Learnings from severe bushfires in Australia demonstrate that a community led approach, supported by government and community agencies focusing on tailored local solutions and based on continuing assessment of impacts and needs, provides better outcomes for the community.¹⁰

Recovery from significant bushfires requires a whole-of-government response. The *Emergencies Act 2004* defines the need for emergency management to make provision for all aspects of recovery.

Well established arrangements exist in the ACT for planning and coordinating bushfire recovery efforts to support the local community. These plans include:

- > *ACT Recovery Plan (2014)*¹¹ details the arrangements for the coordination of recovery efforts provided by the ACT Government and other agencies for community, economic, infrastructure and environmental elements before, during, and after significant emergencies in the ACT. It includes

arrangements for establishing a Recovery Taskforce and appointing a Recovery Coordinator where required

- > *ACT Community Recovery Plan (2015)* is a functional plan of the ACT Recovery Plan (2014) and details the provision of recovery services to the community. This plan details the coordination and delivery of programs and services to assist the recovery of affected communities and individuals, including firefighting personnel and support staff
- > *ACT Economic Recovery Sub-Plan* provides for recovery services targeted towards the recovery of business activity within the ACT
- > *ACT Environmental Recovery Sub-Plan* provides for the recovery services aimed at the restoration of healthy, diverse, and resilient ecological systems. These activities will be undertaken on a priority basis through long-term restoration of the natural environment
- > *ACT Infrastructure Recovery Sub-Plan* provides the framework for a coordinated response to, and recovery from, emergencies involving severe damage or disruption to ACT infrastructure.

The ACT is better prepared than ever before for bushfire recovery, strengthened by the establishment of rapid damage assessment multidisciplinary teams, enhanced capability through interstate deployments during disaster recovery operations and operational training exercises involving both response and recovery agencies in the ACT.

Burned Area Assessment Teams (BAATs) are multi-disciplinary teams that undertake rapid risk assessment of impacted areas following any bushfire of significance. The teams are made up of specialists from a wide range of areas. These include community, culture, GIS, ecology, forestry, soils and hydrology. The final make-up of the team varies with the range of issues at risk and the specific requirements of the location.

Rapid risk assessments are conducted to identify actions that can be undertaken to minimise further threat to life and property, infrastructure and the environment. The BAAT generally works for a concentrated 5 – 7 days alongside local fire managers and key stakeholders. The output from the team is a detailed and fully costed report that recommends immediate strategies for risk

⁹ Australian Disaster Resilience Community Recovery Handbook (AIDR 2018), <https://knowledge.aidr.org.au/resources/handbook-2-community-recovery/>

¹⁰ National Principles for Disaster Recovery

¹¹ The ACT Recovery Plan is currently being reviewed and will capture contemporary best practice and lessons learnt (nationally and locally).

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mitigation, including emergency stabilisation measures, along with recovery actions to be implemented over a longer timeframe.

STRATEGIES

Long term recovery begins and ends in the community. Recovery following a bushfire (or any emergency) is a long term, multi-dimensional process that is far reaching and goes beyond simply replacing what has been destroyed or rebuilding lives. “Successful recovery recognises, supports and builds on individual, community and organisational capacity and resilience”.¹² See *A community that is prepared for bushfires*.

The ACT Recovery Plan (2014):

- > outlines the framework that supports the planned, coordinated and flexible engagement of key stakeholders before, during and after emergencies
- > provides broad and scalable options to support the management of smaller incidents through to deliberate activities requiring cross-agency coordination
- > sets out a measured transition plan to ensure the recovery effort is effectively coordinated
- > provides for the appointment of a Recovery Coordinator and Recovery Taskforce, if required.

The Recovery Taskforce will plan for the transition of formal recovery arrangements to standard government arrangements, including an appropriate public communication and information strategy

Ongoing social capital investment by the ACT Government, including the sustained involvement of the corporate, business and community sector will build on the solid foundations and networks within the community that promote resilience and will aid recovery. Community organisations such as the Conservation Council, Canberra Business Chamber and the ACT Council of Social Services will play important roles in bushfire recovery in the ACT.

The ACT Government continues to learn from recovery processes within the ACT and in other jurisdictions and these will continue to inform recovery strategies.

The ACT Government will continue to support the post-fire rapid risk assessment approach as early recovery actions are known to improve the long-term outcomes for the community and environment, including protected areas, species, water catchment and habitat.

The strategic vision is to move towards having a BAAT capacity as a national resource enabling consistently trained resources to be available across jurisdictional boundaries. The focus on utilising BAAT resources on rapid post-fire recovery has now been expanded to other disasters as the skills and process are equally relevant in post-flooding events.

¹² National Principles for Disaster Recovery, <https://knowledge.aidr.org.au/resources/national-principles-disaster-recovery/>

Learning from the Queensland bushfires

The large wildfires in Queensland in December 2018 burnt into natural areas at a high intensity that removed vegetation and ground cover, elevating the risk of soil and debris movement leading into the summer cyclone season. To assist the assessment of the environmental risks posed by the changed conditions due to the fire, two post-fire risk assessment teams were deployed to assist. Skilled in vegetation, fauna, soils, natural heritage and other specialist areas, two teams from NSW, Victoria and the ACT were deployed to the Agnes Waters region to develop a recovery plan for Deepwater and Eurimula National Parks to assist land managers.

The team worked with local land management staff to compile information and report on the potential risks across the burned area, considering aspects such as:

- > impacted trees and infrastructure and risks to public safety
- > burnt vegetation and increased risks due to debris flow and soil erosion
- > threatened species and communities and potential impacts on habitats
- > cultural and natural assets that may need protection in the post-fire environment.

This deployment was highly successful and demonstrated the benefit of drawing experts from across the three jurisdictions. The report and prioritisation assisted with the management of immediate impacts and will assist the longer-term recovery of these areas. The ACT will continue to support the development of these teams and skills in the ACT.

The two post-fire risk assessment reports have been used by the local park management staff to prevent further impacts. The expertise shared with Queensland Parks and Wildlife Service has already been further applied to other parks that were impacted, such as Mount Etna Caves National Park. The post-fire assessment reports have also been a valuable tool to inform the State Disaster Recovery Coordinator in developing the *Central Queensland Disaster Recovery Plan*.



Post-fire Queensland December 2018

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ACTIONS

- 12.1 Provide bushfire-affected communities with targeted support to conduct rapid damage assessment and to assist them to rebuild in a way that strengthens the community capacity to respond to future emergencies, and enhances social, economic and environmental values where possible.
- 12.2 Activate Recovery Plans as appropriate, including the specific considerations:
- > the impact of bushfire consequences on rural and other business enterprises
 - > immediate support arrangements and assistance measures for those affected by bushfires, recognising the different needs of individuals or groups
 - > critical incident stress debriefing where fire-fighting operations are prolonged, or there have been associated traumatic experiences (such as 'near misses', injury of death)
 - > rapid assessment of the risks following high intensity bushfires to minimise further threat to life and property, infrastructure and the environment.
- 12.3 Capture lessons learned through the recovery process in the ACT and from other jurisdictions and use them to inform managers of future recovery processes.
- 12.4 Continue to support the post-fire Burnt Area Assessment Team (BAAT) rapid environmental risk assessment approach for the recovery of the natural environment and cultural sites:
- > support the development of the rapid environmental risk assessment approach to consider all hazards, including floods
 - > support the development of a national resource with consistent national approaches to rapid environmental risk assessment.

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ABBREVIATIONS AND ACRONYMS

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ACT	Australian Capital Territory
ACTMAPi	ACT interactive Maps at www.actmapi.act.gov.au
AFAC	Australasian Fire and Emergency Services Authorities Council
AIIMS	Australasian Inter-Service Incident Management System
AIRD	Australian Institute for Disaster Resilience
APZ	Asset Protection Zone
BAAT	Burned Area Assessment Team
BAER	Burned Area Emergency Response Team
BAL	Bushfire Attack Level
BAZ	Bushfire Abatement Zone
BNHCRC	Bushfire and Natural Hazards Cooperative Research Centre
BOP	Bushfire Operational Plan
BPA	Bushfire Prone Area
CAFS	Compressed Air Firefighting Foam Systems
CFU	Community Fire Units
CSIRO	Commonwealth Scientific and Industrial Research Organisation
ESA	ACT Emergency Services Agency
EPSDD	ACT Environment, Planning and Sustainable Development Directorate
FDI	Fire Danger Index
F&R	Fire and Rescue Service
IAPZ	Inner Asset Protection Zone
IMR	Incident Management Room
IMT	Incident Management Team
MOU	Memorandum of Understanding
NAFC	National Aerial Firefighting Centre
NFDR	National Fire Danger Rating System
NPWS	National Parks and Wildlife Service
NSW	New South Wales
PCS	Parks and Conservation Service
PICC	Public Information Coordination Centre
RAFT	Remote Area Firefighting Team
RART	Rapid Aerial Response Team
RFMP	Regional Fire Management Plan
RFS	Rural Fire Service
RTO	Registered Training Organisation

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SES	State Emergency Service
SFAZ	Strategic Firefighting Advantage Zone
SIG	Specialist Intelligence Gathering
TCCS	Transport Canberra and City Services Directorate
TOBAN	Total Fire Ban